ETSI TS 136 133 V9.22.0 (2015-02)



LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Requirements for support of radio resource management (3GPP TS 36.133 version 9.22.0 Release 9)



Reference

RTS/TSGR-0436133v9m0

Keywords

LTE

ETSI

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

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Foreword

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

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

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document specifies requirements for support of Radio Resource Management for the FDD and TDD modes of Evolved UTRA. These requirements include requirements on measurements in UTRAN and the UE as well as requirements on node dynamical behaviour and interaction, in terms of delay and response characteristics.

2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.
- [1] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode"
- [2] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC) protocol specification".
- [3] 3GPP TS 36.213: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures"
- [4] 3GPP TS 36.214: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer; Measurements"
- [5] 3GPP TS 36.101: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception"
- [6] 3GPP TS 25.302: "Services provided by the Physical Layer".
- [7] 3GPP TS 25.331: "RRC Protocol Specification".
- [8] 3GPP TS 45.008: "Radio subsystem link control".
- [9] 3GPP TS 45.005: "Radio transmission and reception".
- [10] 3GPP TS 45.010: "Radio subsystem synchronization".
- [11] 3GPP2 C.S0024-B: "cdma2000 High Rate Packet Data Air Interface Specification".
- [12] 3GPP2 C.S0002-D: "Physical Layer Standard for cdma2000 Spread Spectrum Systems Release A".
- [13] 3GPP2 C.S0033-B: "Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Terminal".
- [14] 3GPP2 C.S0011-C: "Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations".
- [15] 3GPP2 C.S0005-D: Upper Layer (Layer 3) Signaling Specification for cdma2000 Spread Spectrum Systems
- [16] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation"

- [17] 3GPP TS 36.321: "Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification".
- [18] 3GPP TS 25.133: "Requirements for Support of Radio Resource Management (FDD)".
- [19] 3GPP TS 25.123: "Requirements for Support of Radio Resource Management (TDD)".
- [20] 3GPP TS 25.214: "Physical layer procedures (FDD)".
- [21] 3GPP TS 36. 212 "Evolved Universal Terrestrial Radio Access (E-UTRA); Multiplexing and channel coding".
- [22] 3GPP TS 36.302: "Evolved Universal Terrestrial Radio Access (E-UTRA); Services provided by the physical layer"
- [23] 3GPP TS 36.521-3: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification; Radio transmission and reception; Part 3: Radio Resource Management conformance testing".
- [24] 3GPP TS 36.355: "Evolved Universal Terrestrial Radio Access (E-UTRA); LTE Positioning Protocol (LPP)".
- [25] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2"
- [26] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [26] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [26].

3.2 Symbols

For the purposes of the present document, the following symbols apply:

[]	Values included in square bracket must be considered for further studies, because it means that a
	decision about that value was not taken.
BW _{Channel}	Channel bandwidth, defined in TS 36.101 subclause 3.2
CPICH_Ec	Average energy per PN chip for the CPICH
CPICH_Ec/Io	The ratio of the received energy per PN chip for the CPICH to the total received power spectral
	density at the UE antenna connector.
Ec	Average energy per PN chip.
Ês	Received energy per RE (power normalized to the subcarrier spacing) during the useful part of the symbol, i.e. excluding the cyclic prefix, at the UE antenna connector
Іо	The total received power density, including signal and interference, as measured at the UE antenna
	connector.
Ioc	The power spectral density (integrated in a noise bandwidth equal to the chip rate and normalized to the chip rate) of a band limited noise source (simulating interference from cells, which are not
	defined in a test procedure) as measured at the UE antenna connector.
Iot	The received power spectral density of the total noise and interference for a certain RE (power integrated over the RE and normalized to the subcarrier spacing) as measured at the UE antenna connector
N_{oc}	The power spectral density of a white noise source (average power per RE normalised to the
	subcarrier spacing), simulating interference from cells that are not defined in a test procedure, as measured at the UE antenna connector

N_{PRS}	Number of consecutive downlink positioning subframes as defined in subclause 6.10.4.3 in 3GPP
	TS 36.211
n_{PRB}	Physical Resource Block number as defined in subclause 3.1 in 3GPP TS 36.211.
$P_{\rm CMAX}$	Configured UE transmitted power as defined in subclause 6.2.5 in 3GPP TS 36.101.
PRP	Received (linear) average power of the resource elements that carry E-UTRA PRS, measured at the UE antenna connector.
S	Cell Selection Criterion defined in TS 36.304, subclause 5.2.3.2 for E-UTRAN
SCH_Ec/Ior	The ratio of the transmit energy per PN chip of the SCH to the total transmit power spectral density at the UTRA Node B antenna connector
SCH_RP	Received (linear) average power of the resource elements that carry E-UTRA synchronisation signal, measured at the UE antenna connector
Srxlev	Cell selection RX level, defined in TS 36.304, subclause 5.2.3.2
Squal	Cell selection quality, defined in TS 36.304, subclause 5.2.3.2
Sintersearch	Defined in TS 25.304, subclause 5.2.6.1.5
Sintrasearch	Defined in TS 25.304, subclause 5.2.6.1.5 for UTRAN and in TS 36.304 , subclause 5.2.4.7 for E-UTRAN $$
Snonintrasearch	Defined in TS 36.304, subclause 5.2.4.7
SsearchRAT	Defined in TS 25.304, subclause 5.2.6.1.5
Thresh _{x, high}	Defined in TS 36.304, subclause 5.2.4.7
Thresh _{x, low}	Defined in TS 36.304, subclause 5.2.4.7
Thresh _{serving, low}	Defined in TS 36.304, subclause 5.2.4.7
$T_{\rm PRS}$	Cell-specific positioning subframe configuration period as defined in subclause 6.10.4.3 in 3GPP
T _{RE-ESTABLISH-REQ}	TS 36.211 The RRC Re-establishment delay requirement, the time between the moment when erroneous CRCs are applied, to when the UE starts to send preambles on the PRACH.
Treselection	Defined in TS 25.304, subclause 5.2.6.1.5
Treselection _{RAT}	Defined in TS 36.304, subclause 5.2.4.7
Treselection _{EUTR}	Defined in TS 36.304, subclause 5.2.4.7
Treselection _{UTRA}	Defined in TS 36.304, subclause 5.2.4.7
	Defined in TS 36.304, subclause 5.2.4.7
Ts	Basic time unit, defined in TS 36.211, clause 4

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [x] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [x].

1x RTT	CDMA2000 1x Radio Transmission Technology
ARQ	Automatic Repeat Request
AWGN	Additive White Gaussian Noise
BCCH	Broadcast Control Channel
BCH	Broadcast Channel
CCCH SDU	Common Control Channel SDU
CGI	Cell Global Identifier
CPICH	Common Pilot Channel
CPICH Ec/No	CPICH Received energy per chip divided by the power density in the band
C-RNTI	Cell RNTI
DCCH	Dedicated Control Channel
DL	Downlink
DRX	Discontinuous Reception
DTCH	Dedicated Traffic Channel
DUT	Device Under Test
E-CID	Enhanced Cell-ID (positioning method)
ECGI	Evolved CGI
eNB	E-UTRAN NodeB
E-UTRA	Evolved UTRA
E-UTRAN	Evolved UTRAN

FDD	Frequency Division Duplex
GERAN	GSM EDGE Radio Access Network
GSM	Global System for Mobile communication
HARQ	Hybrid Automatic Repeat Request
НО	Handover
HRPD	High Rate Packet Data
LPP	LTE Positioning Protocol
MAC	Medium Access Control
OCNG	OFDMA Channel Noise Generator
OFDM	Orthogonal Frequency Division Multiplexing
OFDMA	Orthogonal Frequency Division Multiple Access
OTDOA	Observed Time Difference of Arrival
PBCH	Physical Broadcast Channel
P-CCPCH	Primary Common Control Physical Channel
PCFICH	Physical Control Format Indicator CHannel
PDCCH	Physical Downlink Control CHannel
PDSCH	Physical Downlink Shared CHannel
PHICH	Physical Hybrid-ARQ Indicator CHannel
PLMN	Public Land Mobile Network
PRACH	Physical Random Access CHannel
PRS	Positioning Reference Signal
PUCCH	Physical Uplink Control CHannel
PUSCH	Physical Uplink Shared Channel
RSCP	Received Signal Code Power
RSRP	Reference Signal Received Power
RSRQ	Reference Signal Received Quality
RSSI	Received Signal Strength Indicator
RSTD	Reference Signal Time Difference
QAM	Quadrature Amplitude Modulation
RACH	Random Access Channel
RAT	Radio Access Technology
RNC	Radio Network Controller
RNTI	Radio Network Temporary Identifier
RRC	Radio Resource Control
RRM	Radio Resource Management
SCH	Synchronization Channel
SDU	Service Data Unit
SFN	System Frame Number
SI	System Information
SON	Self Optimized Network
TDD	Time Division Duplex
TTI	Transmission Time Interval
UE	User Equipment
UL	Uplink
UMTS	Universal Mobile Telecommunication System
UTRA	Universal Terrestrial Radio Access
UTRAN	Universal Terrestrial Radio Access Network

3.4 Test tolerances

The requirements given in the present document make no allowance for measurement uncertainty. The test specification 36.521-3 [23] defines the test tolerances. These test tolerances are individually calculated for each test. The test tolerances are then added to the limits in this specification to create test limits. The measurement results are compared against the test limits as defined by the shared risk principle.

Shared Risk is defined in [ETR 273 Part 1 sub-part 2 section 6.5].

4 E-UTRAN RRC_IDLE state mobility

4.1 Cell Selection

After a UE has switched on and a PLMN has been selected, the Cell selection process takes place, as described in TS36.304. This process allows the UE to select a suitable cell where to camp on in order to access available services. In this process the UE can use stored information (*Stored information cell selection*) or not (*Initial cell selection*).

4.2 Cell Re-selection

4.2.1 Introduction

The cell reselection procedure allows the UE to select a more suitable cell and camp on it.

When the UE is in either *Camped Normally* state or *Camped on Any Cell* state on a cell, the UE shall attempt to detect, synchronise, and monitor intra-frequency, inter-frequency and inter-RAT cells indicated by the serving cell. For intra-frequency and inter-frequency cells the serving cell may not provide explicit neighbour list but carrier frequency information and bandwidth information only. UE measurement activity is also controlled by measurement rules defined in TS36.304, allowing the UE to limit its measurement activity.

4.2.2 Requirements

The UE shall search every layer of higher priority at least every $T_{higher_priority_search} = (60 * N_{layers})$ seconds, where N_{layers} is the total number of configured higher priority E-UTRA, UTRA FDD, UTRA TDD, CDMA2000 1x and HRPD carrier frequencies and is additionally increased by one if one or more groups of GSM frequencies is configured as a higher priority.

4.2.2.1 Measurement and evaluation of serving cell

The UE shall measure the RSRP and RSRQ level of the serving cell and evaluate the cell selection criterion S defined in [1] for the serving cell at least every DRX cycle.

The UE shall filter the RSRP and RSRQ measurements of the serving cell using at least 2 measurements. Within the set of measurements used for the filtering, at least two measurements shall be spaced by, at least DRX cycle/2.

If the UE has evaluated in N_{serv} consecutive DRX cycles that the serving cell does not fulfil the cell selection criterion S, the UE shall initiate the measurements of all neighbour cells indicated by the serving cell, regardless of the measurement rules currently limiting UE measurement activities.

If the UE in RRC_IDLE has not found any new suitable cell based on searches and measurements using the intrafrequency, inter-frequency and inter-RAT information indicated in the system information for 10 s, the UE shall initiate cell selection procedures for the selected PLMN as defined in [1].

DRX cycle length [s]	N _{serv} [number of DRX cycles]
0.32	4
0.64	4
1.28	2
2.56	2

Table 4.2.2.1-1: N_{serv}

4.2.2.2 Void

4.2.2.3 Measurements of intra-frequency E-UTRAN cells

The UE shall be able to identify new intra-frequency cells and perform RSRP and RSRQ measurements of identified intra-frequency cells without an explicit intra-frequency neighbour list containing physical layer cell identities.

The UE shall be able to evaluate whether a newly detectable intra-frequency cell meets the reselection criteria defined in TS36.304 within $T_{detect,EUTRAN_Intra}$ when that Treselection=0. An intra frequency cell is considered to be detectable if:

- RSRP|_{dBm} ≥ -124 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40 and RSRP $\hat{E}s/Iot \ge -4$ dB,
- RSRP $|_{dBm} \ge -123 \text{ dBm}$ for Band 9 and RSRP $\hat{E}s/\text{Iot} \ge -4 \text{ dB}$,
- RSRP $|_{dBm} \ge -122 \text{ dBm}$ for Bands 2, 5, 7 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- RSRP $|_{dBm} \ge -121 \text{ dBm}$ for Bands 3, 8, 12, 13, 14, 17, 20 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- SCH_RP|_{dBm}≥ -124 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40 and SCH Ês/Iot ≥ -4 dB,
- SCH_RP|_{dBm} \geq -123 dBm for Band 9 and SCH \hat{E} s/Iot \geq -4 dB,
- SCH_RP $|_{dBm} \ge -122$ dBm for Bands 2, 5, 7 and SCH $\hat{E}s/Iot \ge -4$ dB,
- SCH_RP $|_{dBm} \ge -121$ dBm for Bands 3, 8, 12, 13, 14, 17, 20 and SCH $\hat{E}s/Iot \ge -4$ dB.

The UE shall measure RSRP and RSRQ at least every $T_{measure,EUTRAN_{Intra}}$ (see table 4.2.2.3-1) for intra-frequency cells that are identified and measured according to the measurement rules.

The UE shall filter RSRP and RSRQ measurements of each measured intra-frequency cell using at least 2 measurements. Within the set of measurements used for the filtering, at least two measurements shall be spaced by at least $T_{measure,EUTRAN_Intra}/2$

The UE shall not consider a E-UTRA neighbour cell in cell reselection, if it is indicated as not allowed in the measurement control system information of the serving cell.

For an intra-frequency cell that has been already detected, but that has not been reselected to, the filtering shall be such that the UE shall be capable of evaluating that the intra-frequency cell has met reselection criterion defined [1] within $T_{evaluate,E-UTRAN_intra}$ when $T_{reselection} = 0$ as specified in table 4.2.2.3-1 provided that the cell is at least 3dB better ranked. When evaluating cells for reselection, the side conditions for RSRP and SCH apply to both serving and non-serving intra-frequency cells.

If $T_{reselection}$ timer has a non zero value and the intra-frequency cell is better ranked than the serving cell, the UE shall evaluate this intra-frequency cell for the $T_{reselection}$ time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

DRX cycle length [s]	T _{detect,EUTRAN_Intra} [s] (number of DRX cycles)	T _{measure,EUTRAN_Intra} [s] (number of DRX cycles)	T _{evaluate,E-UTRAN_intra} [s] (number of DRX cycles)
0.32	11.52 (36)	1.28 (4)	5.12 (16)
0.64	17.92 (28)	1.28 (2)	5.12 (8)
1.28	32(25)	1.28 (1)	6.4 (5)
2.56	58.88 (23)	2.56 (1)	7.68 (3)

Table 4.2.2.3-1 : T_{detect,EUTRAN_Intra}, T_{measure,EUTRAN_Intra} and T_{evaluate, E-UTRAN_intra}

4.2.2.4 Measurements of inter-frequency E-UTRAN cells

The UE shall be able to identify new inter-frequency cells and perform RSRP or RSRQ measurements of identified inter-frequency cells if carrier frequency information is provided by the serving cell, even if no explicit neighbour list with physical layer cell identities is provided.

If $Srxlev > S_{nonIntraSearchP}$ and $Squal > S_{nonIntraSearchQ}$ then the UE shall search for inter-frequency layers of higher priority at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is described in section 4.2.2.

If $Srxlev \leq S_{nonIntraSearchP}$ or $Squal \leq S_{nonIntraSearchQ}$ then the UE shall search for and measure inter-frequency layers of higher, equal or lower priority in preparation for possible reselection. In this scenario, the minimum rate at which the UE is required to search for and measure higher priority layers shall be the same as that defined below.

The UE shall be able to evaluate whether a newly detectable inter-frequency cell meets the reselection criteria defined in TS36.304 within $K_{carrier} * T_{detect,EUTRAN_Inter}$ if at least carrier frequency information is provided for inter-frequency neighbour cells by the serving cells when $T_{reselection} = 0$ provided that the reselection criteria is met by a margin of at least 5dB for reselections based on ranking or 6dB for RSRP reselections based on absolute priorities or 4dB for RSRQ reselections based on absolute priorities.

The parameter $K_{carrier}$ is the number of E-UTRA inter-frequency carriers indicated by the serving cell. An inter-frequency cell is considered to be detectable if:

- RSRP|_{dBm} ≥ -124 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40 and RSRP $\hat{E}s/Iot \ge -4$ dB,
- RSRP $|_{dBm} \ge -123 \text{ dBm}$ for Bands 9 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- RSRP $|_{dBm} \ge -122 \text{ dBm}$ for Bands 2, 5, 7 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- RSRP $|_{dBm} \ge -121 \text{ dBm}$ for Bands 3, 8, 12, 13, 14, 17, 20 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- SCH_RP|_{dBm} ≥ -124 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40 and SCH Ês/Iot ≥ -4 dB,
- SCH_RP|_{dBm} \geq -123 dBm for Band 9 and SCH \hat{E} s/Iot \geq -4 dB,
- SCH_RP $|_{dBm} \ge -122$ dBm for Bands 2, 5, 7 and SCH $\hat{E}s/Iot \ge -4$ dB,
- SCH_RP $|_{dBm}$ ≥ -121 dBm for Bands 3, 8, 12, 13, 14, 17, 20 and SCH Ês/Iot ≥ -4 dB.

When higher priority cells are found by the higher priority search, they shall be measured at least every $T_{measure,E-}_{UTRAN_Inter}$. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell. If the UE detects on a E-UTRA carrier a cell whose physical identity is indicated as not allowed for that carrier in the measurement control system information of the serving cell, the UE is not required to perform measurements on that cell.

The UE shall measure RSRP or RSRQ at least every $K_{carrier} * T_{measure,EUTRAN_Inter}$ (see table 4.2.2.4-1) for identified lower or equal priority inter-frequency cells. If the UE detects on a E-UTRA carrier a cell whose physical identity is indicated as not allowed for that carrier in the measurement control system information of the serving cell, the UE is not required to perform measurements on that cell.

The UE shall filter RSRP or RSRQ measurements of each measured higher, lower and equal priority inter-frequency cell using at least 2 measurements. Within the set of measurements used for the filtering, at least two measurements shall be spaced by at least $T_{measure,EUTRAN_Inter}/2$.

The UE shall not consider a E-UTRA neighbour cell in cell reselection, if it is indicated as not allowed in the measurement control system information of the serving cell.

For an inter-frequency cell that has been already detected, but that has not been reselected to, the filtering shall be such that the UE shall be capable of evaluating that the inter-frequency cell has met reselection criterion defined TS 36.304 within $K_{carrier} * T_{evaluate,E-UTRAN_Inter}$ when $T_{reselection} = 0$ as specified in table 4.2.2.4-1 provided that the reselection criteria is met by a margin of at least 5dB for reselections based on ranking or 6dB for RSRP reselections based on absolute

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priorities or 4dB for RSRQ reselections based on absolute priorities. When evaluating cells for reselection, the side conditions for RSRP and SCH apply to both serving and inter-frequency cells.

If $T_{reselection}$ timer has a non zero value and the inter-frequency cell is better ranked than the serving cell, the UE shall evaluate this inter-frequency cell for the $T_{reselection}$ time. If this cell remains better ranked within this duration, then the UE shall reselect that cell.

DRX cycle length [s]	T _{detect,EUTRAN_Inter} [s] (number of DRX cycles)	T _{measure,EUTRAN_Inter} [s] (number of DRX cycles)	T _{evaluate,E} . UTRAN_Inter [s] (number of DRX cycles)
0.32	11.52 (36)	1.28 (4)	5.12 (16)
0.64	17.92 (28)	1.28 (2)	5.12 (8)
1.28	32(25)	1.28 (1)	6.4 (5)
2.56	58.88 (23)	2.56 (1)	7.68 (3)

Table 4.2.2.4-1 : T_{detect,EUTRAN_Inter}, T_{measure,EUTRAN_Inter} and T_{evaluate,E-UTRAN_Inter}

4.2.2.5 Measurements of inter-RAT cells

If $Srxlev > S_{nonIntraSearchP}$ and $Squal > S_{nonIntraSearchQ}$ then the UE shall search for inter-RAT layers of higher priority at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is described in section 4.2.2

If $Srxlev \leq S_{nonIntraSearchP}$ or $Squal \leq S_{nonIntraSearchQ}$ then the UE shall search for and measure inter-RAT layers of higher, lower priority in preparation for possible reselection. In this scenario, the minimum rate at which the UE is required to search for and measure higher priority inter-RAT layers shall be the same as that defined below for lower priority RATs.

4.2.2.5.1 Measurements of UTRAN FDD cells

When the measurement rules indicate that UTRA FDD cells are to be measured, the UE shall measure CPICH Ec/Io and CPICH RSCP of detected UTRA FDD cells in the neighbour frequency list at the minimum measurement rate specified in this section. The parameter $N_{UTRA_carrier}$ is the number of carriers in the neighbour frequency list. The UE shall filter CPICH Ec/Io and CPICH RSCP measurements of each measured UTRA FDD cell using at least 2 measurements. Within the set of measurements used for the filtering, at least two measurements shall be spaced by at least half the minimum specified measurement period.

The UE shall evaluate whether newly detectable UTRA FDD cells have met the reselection criteria in TS 36.304 within time $(N_{UTRA_carrier}) * T_{detectUTRA_FDD}$ when $Srxlev \leq S_{nonIntraSearchP}$ or $Squal \leq S_{nonIntraSearchQ}$ when $Treselection_{RAT} = 0$ provided that the reselection criteria is met by a margin of at least 6dB for reselections based on RSCP, or a margin of at least 3dB for reselections based on Ec/Io.

 $\begin{array}{l} \mbox{Cells which have been detected shall be measured at least every } (N_{UTRA_carrier}) * T_{measureUTRA_FDD} \ \mbox{when } Srxlev \leq S_{nonIntraSearchP} \ \mbox{or } Squal \leq S_{nonIntraSearchQ}. \end{array}$

When higher priority UTRA FDD cells are found by the higher priority search, they shall be measured at least every $T_{measure,UTRA_FDD}$. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell.

For a cell that has been already detected, but that has not been reselected to, the filtering shall be such that the UE shall be capable of evaluating that an already identified UTRA FDD cell has met reselection criterion defined in 3GPP TS 36.304 [1] within ($N_{UTRA_carrier}$) * $T_{evaluateUTRA_FDD}$ when $T_{reselection} = 0$ as speficied in table 4.2.2.5.1-1 provided that the reselection criteria is met by a margin of at least 6dB for reselections based on RSCP, or a margin of at least 3dB for reselections based on Ec/Io.

If $T_{reselection}$ timer has a non zero value and the UTRA FDD cell is satisfied with the reselection criteria which are defined in [1], the UE shall evaluate this UTRA FDD cell for the $T_{reselection}$ time. If this cell remains satisfied with the reselection criteria within this duration, then the UE shall reselect that cell.

DRX cycle length [s]	T _{detect} UTRA_FDD [S]	T _{measureUTRA_FDD} [s] (number of DRX cycles)	T _{evaluateUTRA_FDD} [s] (number DRX cycles)	of
0.32		5.12 (16)	15.36 (48)	
0.64	30	5.12 (8)	15.36 (24)	
1.28		6.4(5)	19.2 (15)	
2.56	60	7.68 (3)	23.04 (9)	

Table 4.2.2.5.1-1: $T_{detectUTRA_FDD}$, $T_{measureUTRA_FDD}$, and $T_{evaluateUTRA_FDD}$

4.2.2.5.2 Measurements of UTRAN TDD cells

When the measurement rules indicate that UTRA TDD cells are to be measured, the UE shall measure P-CCPCH RSCP of detected UTRA TDD cells in the neighbour frequency list at the minimum measurement rate specified in this section. The parameter $N_{UTRA_carrier_TDD}$ is the number of carriers used in the neighbour frequency list. The UE shall filter P-CCPCH RSCP measurements of each measured UTRA TDD cell using at least 2 measurements. Within the set of measurements used for the filtering, at least two measurements shall be spaced by at least half the minimum specified measurement period. P-CCPCH RSCP of UTRAN TDD cells shall not be filtered over a longer period than that specified in table 4.2.2.5.2-1.

The UE shall evaluate whether newly detectable UTRA TDD cells have met the reselection criteria in TS 36.304 within time $(N_{UTRA_carrier_TDD}) * T_{detectUTRA_TDD}$ when $Srxlev \leq S_{nonIntraSearchP}$ or $Squal \leq S_{nonIntraSearchQ}$ when $T_{reselection} = 0$ provided that the reselection criteria is met by a margin of at least 6dB.

 $\begin{array}{l} \mbox{Cells which have been detected shall be measured at least every } (N_{UTRA_carrier_TDD}) \ * \ T_{measureUTRA_TDD} \ Srxlev \leq S_{nonIntraSearchP} \ or \ Squal \leq S_{nonIntraSearchQ}. \end{array}$

When higher priority UTRA TDD cells are found by the higher priority search, they shall be measured at least every $T_{measure,UTRA_TDD}$. If, after detecting a cell in a higher priority search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell.

For a cell that has been already detected, but that has not been reselected to, the filtering shall be such that the UE shall be capable of evaluating that an already identified UTRA TDD cell has met reselection criterion defined in [1] within $N_{UTRA_carrier_TDD} *T_{evaluateUTRA_TDD}$ when $T_{reselection} = 0$ as specified in table 4.2.2.5.2-1 provided that the reselection criteria is met by a margin of at least 6dB.

If $T_{reselection}$ timer has a non zero value and the UTRA TDD cell is satisfied with the reselection criteria which are defined in [1], the UE shall evaluate this UTRA TDD cell for the $T_{reselection}$ time. If this cell remains satisfied with the reselection criteria within this duration, then the UE shall reselect that cell.

DRX cycle length [s]	T _{detect} UTRA_TDD [S]	T _{measureUTRA_TDD} [s] (number of DRX cycles)	T _{evaluateUTRA_TDD} [s] (number o DRX cycles)	f
0.32		5.12 (16)	15.36 (48)	
0.64	30	5.12 (8)	15.36 (24)	
1.28		6.4(5)	19.2 (15)	
2.56	60	7.68 (3)	23.04 (9)	

Table 4.2.2.5.2-1: T_{detectUTRA_TDD}, T_{measureUTRA_TDD} and T_{evaluateUTRA_TDD}

4.2.2.5.3 Measurements of GSM cells

When the measurement rules defined in [1] indicate that E-UTRAN inter-frequencies or inter-RAT frequency cells are to be measured, the UE shall measure the signal level of the GSM BCCH carriers if the GSM BCCH carriers are indicated in the measurement control system information of the serving cell. GSM BCCH carriers of lower priority than the serving cell shall be measured at least every $T_{measure,GSM}$ (see table 4.2.2.5.3-1).

When higher priority GSM BCCH carriers are found by the higher priority search, they shall be measured at least every $T_{measure,GSM}$, and the UE shall decode the BSIC of the GSM BCCH carrier. If, after detecting a cell in a higher priority

search, it is determined that reselection has not occurred then the UE is not required to continuously measure the detected cell to evaluate the ongoing possibility of reselection, or to continuously verify the BSIC of the GSM BCCH carrier every 30s. However, the minimum measurement filtering requirements specified later in this section shall still be met by the UE before it makes any determination that it may stop measuring the cell.

The UE shall maintain a running average of 4 measurements for each GSM BCCH carrier. The measurement samples for each cell shall be as far as possible uniformly distributed over the averaging period.

If continuous GSM measurements are required by the measurement rules in [1], the UE shall attempt to verify the BSIC at least every 30 seconds for each of the 4 strongest GSM BCCH carriers. If a change of BSIC is detected for one GSM cell then that GSM BCCH carrier shall be treated as a new GSM neighbour cell. If the UE detects on a BCCH carrier a BSIC which is indicated as not allowed for that carrier in the measurement control system information of the serving cell, the UE is not required to perform BSIC re-confirmation for that cell.

The UE shall not consider the GSM BCCH carrier in cell reselection, if the UE cannot demodulate the BSIC of that GSM BCCH carrier. Additionally, the UE shall not consider a GSM neighbour cell in cell reselection, if it is indicated as not allowed in the measurement control system information of the serving cell.

If $T_{reselection}$ timer has a non zero value and the GSM cell is satisfied with the reselection criteria which are defined in [1], the UE shall evaluate this GSM cell for the $T_{reselection}$ time. If this cell remains satisfied with the reselection criteria within this duration, then the UE shall reselect that cell.

DRX cycle length [s]	T _{measure,GSM} [s] (number of DRX cycles)
0.32	5.12 (16)
0.64	5.12 (8)
1.28	6.4(5)
2.56	7.68 (3)

Table 4.2.2.5.3-1: T_{measure,GSM},

4.2.2.5.4 Measurements of HRPD cells

In order to perform measurement and cell reselection to HRPD cell, the UE shall acquire the timing of HRPD cells.

When the measurement rules indicate that HRPD cells are to be measured, the UE shall measure CDMA2000 HRPD Pilot Strength of HRPD cells in the neighbour cell list at the minimum measurement rate specified in this section.

The parameter 'Number of HRPD Neighbor Frequency', which is transmitted on E-UTRAN BCCH, is the number of carriers used for all HRPD cells in the neighbour cell list.

When the E-UTRA serving cell fulfils $Srxlev > S_{nonIntraSearchP}$ and $Squal > S_{nonIntraSearchQ}$, the UE shall search for CDMA2000 HRPD layers of higher priority at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is defined in section 4.2.2.

For CDMA2000 HRPD cells which have been detected, the UE shall measure CDMA2000 HRPD Pilot Strength at least every (Number of HRPD Neighbor Frequency)*T_{measureHRPD}, when the E-UTRA serving cell Srxlev \leq S_{nonIntraSearchP} or Squal \leq S_{nonIntraSearchQ}.

The UE shall be capable of evaluating that the CDMA2000 HRPD cell has met cell reselection criterion defined in [1] within $T_{evaluateHRPD}$.

Table 4.2.2.5.4-1 gives values of T_{measureHRPD} and T_{evaluateHRPD}.

DRX cycle length [s]	T _{measureHRPD} [s] (number of DRX cycles)	T _{evaluateHRPD} [s] (number of DRX cycles)
0.32	5.12 (16)	15.36 (48)
0.64	5.12 (8)	15.36 (24)
1.28	6.4 (5)	19.2 (15)
2.56	7.68 (3)	23.04 (9)

Table 4.2.2.5.4-1: T_{measureHRPD and} T_{evaluateHRPD}

If $T_{reselection}$ timer has a non zero value and the CDMA2000 HRPD cell is satisfied with the reselection criteria which are defined in [1], the UE shall evaluate this CDMA2000 HRPD cell for the $T_{reselection}$ time. If this cell remains satisfied with the reselection criteria within this duration, then the UE shall reselect that cell.

4.2.2.5.5 Measurements of cdma2000 1X

In order to perform measurement and cell reselection to cdma2000 1X cell, the UE shall acquire the timing of cdma2000 1X cells.

When the measurement rules indicate that cdma2000 1X cells are to be measured, the UE shall measure cdma2000 1x RTT Pilot Strength of cdma2000 1X cells in the neighbour cell list at the minimum measurement rate specified in this section.

The parameter 'Number of CDMA2000 1X Neighbor Frequency', which is transmitted on E-UTRAN BCCH, is the number of carriers used for all cdma2000 1X cells in the neighbour cell list.

When the E-UTRA serving cell fulfils $Srxlev > S_{nonIntraSearchP}$ and $Squal > S_{nonIntraSearchQ}$, the UE shall search for cdma2000 1X layers of higher priority at least every $T_{higher_priority_search}$ where $T_{higher_priority_search}$ is defined in section 4.2.2.

For CDMA2000 1X cells which have been detected, the UE shall measure CDMA2000 1xRTT Pilot Strength at least every (Number of CDMA2000 1X Neighbor Frequency)*T_{measureCDMA2000_1X}, when the E-UTRA serving cell Srxlev \leq S_{nonIntraSearchP} or Squal \leq S_{nonIntraSearchQ}. The UE shall be capable of evaluating that the cdma2000 1X cell has met cell reselection criterion defined in [1] within T_{evaluateCDMA2000_1X}.

Table 4.2.2.5.5-1 gives values of T_{measureCDMA2000_1X} and T_{evaluateCDMA2000_1X}.

DRX cycle length [s]	T _{measureCDMA2000_1X} [s] (number of DRX cycles)	T _{evaluateCDMA2000_1X} [s] (number of DRX cycles)
0.32	5.12 (16)	15.36 (48)
0.64	5.12 (8)	15.36 (24)
1.28	6.4 (5)	19.2 (15)
2.56	7.68 (3)	23.04 (9)

Table 4.2.2.5.5-1: TmeasureCDMA2000 1X and	TevaluateCDMA2000 1X
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If $T_{reselection}$ timer has a non zero value and the CDMA2000 1X cell is satisfied with the reselection criteria which are defined in [1], the UE shall evaluate this CDMA2000 1X cell for the $T_{reselection}$ time. If this cell remains satisfied with the reselection criteria within this duration, then the UE shall reselect that cell.

4.2.2.6 Evaluation of cell re-selection criteria

The UE shall evaluate the intra-frequency, inter-frequency and inter-RAT cell reselection criteria defined in [1] at least every DRX cycle. When a non zero value of $T_{reselection}$ is used, the UE shall only perform reselection on an evaluation which occurs simultaneously to, or later than the expiry of the $T_{reselection}$ timer.

4.2.2.7 Maximum interruption in paging reception

UE shall perform the cell re-selection with minimum interruption in monitoring downlink channels for paging reception.

At intra-frequency and inter-frequency cell re-selection, the UE shall monitor the downlink of serving cell for paging reception until the UE is capable to start monitoring downlink channels of the target intra-frequency and inter-frequency cell for paging reception. The interruption time shall not exceed $T_{SI-EUTRA} + 50$ ms.

At inter-RAT cell re-selection, the UE shall monitor the downlink of serving cell for paging reception until the UE is capable to start monitoring downlink channels for paging reception of the target inter-RAT cell. For E-UTRAN to UTRA cell re-selection the interruption time must not exceed $T_{SI-UTRA} + 50$ ms. For E-UTRAN to GSM cell re-selection the interruption time must not exceed $T_{BCCH} + 50$ ms.

 $T_{SI-EUTRA}$ is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in [2] for a E-UTRAN cell.

 $T_{SI-UTRA}$ is the time required for receiving all the relevant system information data according to the reception procedure and the RRC procedure delay of system information blocks defined in [7] for a UTRAN cell.

T_{BCCH} is the maximum time allowed to read BCCH data from a GSM cell defined in [8].

These requirements assume sufficient radio conditions, so that decoding of system information can be made without errors and does not take into account cell re-selection failure.

At cell re-selection to HRPD, the UE shall monitor the downlink of serving cell for paging reception until the UE is capable of starting to monitor downlink channels for paging reception of the target HRPD cell. For HRPD cell reselection the interruption time must not exceed $T_{SI-HRPD} + 50$ ms.

 $T_{SI-HRPD}$ is the time required for receiving all the relevant system information data according to the reception procedure and the upper layer (Layer 3) procedure delay of system information blocks defined in [11] in for HRPD cell.

At cell re-selection to cdma2000 1X, the UE shall monitor the downlink of serving cell for paging reception until the UE is capable of starting to monitor downlink channels for paging reception of the target cdma2000 1X cell. For cdma2000 1X cell re-selection the interruption time must not exceed $T_{SI-cdma2000_{-1X}} + 50$ ms.

 $T_{SI-cdma2000_1X}$ is the time required for receiving all the relevant system information data according to the reception procedure and the upper layer (Layer 3) procedure delay of system information blocks defined in [15] for cdma2000 1X cell.

4.2.2.8 void

4.2.2.9 UE measurement capability

For idle mode cell re-selection purposes, the UE shall be capable of monitoring at least:

- Intra-frequency carrier, and
- Depending on UE capability, 3 FDD E-UTRA inter-frequency carriers, and
- Depending on UE capability, 3 TDD E-UTRA inter-frequency carriers, and
- Depending on UE capability, 3 FDD UTRA carriers, and
- Depending on UE capability, 3 TDD UTRA carriers, and
- Depending on UE capability, 32 GSM carriers, and
- Depending on UE capability, 3 cdma2000 1x carriers, and
- Depending on UE capability, 3 HRPD carriers.

In addition to the requirements defined above, a UE supporting E-UTRA measurements in RRC_IDLE state shall be capable of monitoring a total of at least 8 carrier frequency layers, which includes serving layer, comprising of any above defined combination of E-UTRA FDD, E-UTRA TDD, UTRA FDD, UTRA TDD, GSM (one GSM layer corresponds to 32 cells), cdma2000 1x and HRPD layers.

4.2.2.10 Reselection to CSG cells

Note: Requirements in this section are minimum requirements defined to ensure the testability of autonomous CSG search. Further information on autonomous search times in practical deployments is available in [25].

Reselection from non CSG to CSG cells may be performed using UE autonomous search as defined in [1] when at least one CSG ID is included in the UE's CSG whitelist. The requirements in this section are valid for reselection to CSG cells previously visited by the UE when the radio configuration parameters, including the carrier frequency and physical cell identity of the CSG cell, non CSG cell and other neighbour cells are unchanged from the most recent previous visit.

NOTE: According to [1], the UE autonomous search function, per UE implementation, determines when and/or where to search for allowed CSG cells.

4.2.2.10.1 Reselection from a non CSG to an inter-frequency CSG cell

The UE shall perform search and reselection to an allowed inter-frequency CSG cell that has met CSG reselection criterion defined in [1] and that is in its whitelist, within 6 minutes in the conditions shown in table 4.2.2.10.1-1. There is no need for statistical testing of this requirement.

Parameter	Unit	Cell 1	Cell 2
EARFCN Note1		Channel 1	Channel 2
CSG indicator		False	True
Physical cell identity ^{Note1}		1	2
CSG identity		Not sent	Sent
			(Already stored
			in UE whitelist
			from previous
			visit)
Propagation conditions		Static, non	
CSG cell previously		Ye	S
visited by UE			
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB	0	0
PHICH_RB	dB	0	0
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA ^{Note 1}	dB		
OCNG_RB ^{Note 1}	dB		
Qrxlevmin	dBm	-140	-140
N _{oc}	dBm/15 kHz	Of	f
RSRP Note2	dBm/15 KHz	-110	-110
	ment to be applicabl		
identity for cell 1 and cell 2 shall be unchanged from when the CSG cell			
was visited prev	viously		
Note 2: Chosen to ensure that CSG autonomous search has a high probability			
of success on e	every attempt made b	by UE	

Table 4.2.2.10.1-1: Parameters for CSG inter-frequency reselection

4.2.2.10.2 Reselection from a non CSG to an inter-RAT UTRAN FDD CSG cell

The UE shall perform search and reselection to an allowed inter-RAT UTRAN FDD CSG cell that has met CSG reselection criterion defined in [1] and that is in its whitelist, within 6 minutes in the conditions shown in table 4.2.2.10.2-1. There is no need for statistical testing of this requirement.

Parameter	Unit	Cell 1	Cell 2
EARFCN Note1		Channel 1	N/A
UARFCN Note1		N/A	Channel 2
CSG indicator		False	True
Physical cell identity ^{Note1}		1	N/A
Primary scrambling code		N/A	Scrambling
Note1			code 2
CSG identity		Not sent	Sent
			(Already stored
			in UE whitelist
			from previous
			visit)
Propagation conditions		Static, non	multipath
CSG cell previously		Ye	
visited by UE			
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB	_	
PHICH_RB	dB	0	N/A
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA ^{Note 1}	dB		
OCNG_RB ^{Note 1}	dB		
Qrxlevmin	dBm	-140	
N_{oc}	dBm/15 kHz	Off	
RSRP ^{Note2}	dBm/15 KHz	-110	
CPICH_ RSCP Note2	dBm		-100
CPICH_Ec/lor	dB		-10
PCCPCH_Ec/lor	dB		-12
SCCPCH_Ec/lor	dB		-12
AICH_Ec/lor	dB	N/A	-15
SCH_Ec/lor	dB		-15
PICH_Ec/lor	dB		-15
I _{oc}	dBm/3.84 MHz		Off
Note 1: For this requirer	ment to be applicable	e, the EARFCN and	physical cell
identity for cell 1	I and the UARFCN a	and scrambling code	for cell 2 shall
		cell was visited prev	
		mous search has a h	nigh probability
of success on e	very attempt made b	by UE	

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E-UTRAN RRC_CONNECTED state mobility

Note: For the performance requirements specified hereafter, the state when no DRX is used is defined as follows:

- DRX parameters are not configured; or
- DRX parameters are configured and
 - o *drx-InactivityTimer* is running; or
 - o drx-RetransmissionTimer is running; or
 - o mac-ContentionResolutionTimer is running; or
 - o a Scheduling Request sent on PUCCH is pending; or

- an uplink grant for a pending HARQ retransmission can occur and there is data in the corresponding HARQ buffer; or
- a PDCCH indicating a new transmission addressed to the C-RNTI of the UE has not been received after successful reception of a Random Access Response for the explicitly signaled preamble (only applicable to UEs in RRC_CONNECTED).

Otherwise

- It is the state when DRX is used.

5.1 E-UTRAN Handover

5.1.1 Introduction

5.1.2 Requirements

5.1.2.1 E-UTRAN FDD – FDD

The requirements in this section are applicable to both intra-frequency and inter-frequency handovers.

5.1.2.1.1 Handover delay

Procedure delays for all procedures that can command a handover are specified in [2].

When the UE receives a RRC message implying handover the UE shall be ready to start the transmission of the new uplink PRACH channel within $D_{handover}$ seconds from the end of the last TTI containing the RRC command.

Where:

 $D_{handover}$ equals the maximum RRC procedure delay to be defined in section 11.2 in 3GPP TS 36.331 [2] plus the interruption time stated in section 5.1.2.1.2.

5.1.2.1.2 Interruption time

The interruption time is the time between end of the last TTI containing the RRC command on the old PDSCH and the time the UE starts transmission of the new PRACH, excluding the RRC procedure delay. This requirement applies when UE is not required to perform any synchronisation procedure before transmitting on the new PRACH.

When intra-frequency or inter-frequency handover is commanded, the interruption time shall be less than Tinterrupt

$$T_{interrupt} = T_{search} + T_{IU} + 20 ms$$

Where:

 T_{search} is the time required to search the target cell when the target cell is not already known when the handover command is received by the UE. If the target cell is known, then $T_{search} = 0$ ms. If the target cell is unknown and signal quality is sufficient for successful cell detection on the first attempt, then $T_{search} = 80$ ms. Regardless of whether DRX is in use by the UE, T_{search} shall still be based on non-DRX target cell search times.

 T_{IU} is the interruption uncertainty in acquiring the first available PRACH occasion in the new cell. T_{IU} can be up to 30 ms.

NOTE: The actual value of T_{IU} shall depend upon the PRACH configuration used in the target cell.

In the interruption requirement a cell is known if it has been meeting the relevant cell identification requirement during the last 5 seconds otherwise it is unknown. Relevant cell identification requirements are described in Section 8.1.2.2.1 for intra-frequency handover and Section 8.1.2.3.1 for inter-frequency handover.

5.2.2.2 E-UTRAN FDD – TDD

The requirements in this section are applicable to handover from FDD to TDD. The requirements in this section shall apply to UE supporting FDD and TDD.

The requirements in section 5.2.2.4 apply for this section.

5.2.2.2.1	(Void)
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5.2.2.2.2 (Void)

5.2.2.3 E-UTRAN TDD – FDD

The requirements in this section are applicable to handover from TDD to FDD. The requirements in this section shall apply to UE supporting FDD and TDD.

The requirements in section 5.1.2.1 apply for this section.

5.2.2.3.2 (Void)

5.2.2.4 E-UTRAN TDD – TDD

The requirements in this section are applicable to both intra-frequency and inter-frequency handovers.

5.2.2.4.1 Handover delay

Procedure delays for all procedures that can command a handover are specified in 3GPP TS 36.331 [2].

When the UE receives a RRC message implying handover, the UE shall be ready to start the transmission of the new uplink PRACH channel within $D_{handover}$ seconds from the end of the last TTI containing the RRC command.

Where:

 $D_{handover}$ equals the maximum RRC procedure delay to be defined in section 11.2 in 3GPP TS36.331 [2] plus the interruption time stated in section 5. 2.2.4.2.

5.2.2.4.2 Interruption time

The interruption time is the time between end of the last TTI containing the RRC command on the old PDSCH and the time the UE starts transmission of the new PRACH, excluding the RRC procedure delay. This requirement applies when UE is not required to perform any synchronisation procedure before transmitting on the new PRACH.

When intra-frequency or inter-frequency handover is commanded, the interruption time shall be less than Tinterrupt

$$T_{interrupt} = T_{search} + T_{IU} + 20 ms$$

Where

 T_{search} is the time required to search the target cell when the target cell is not already known when the handover command is received by the UE. If the target cell is known, then $T_{search} = 0$ ms. If the target cell is unknown and signal quality is sufficient for successful cell detection on the first attempt, then $T_{search} = 80$ ms. Regardless of whether DRX is in use by the UE, T_{search} shall still be based on non-DRX target cell search times.

 T_{IU} is the interruption uncertainty in acquiring the first available PRACH occasion in the new cell. T_{IU} can be up to 30 ms.

NOTE: The actual value of T_{IU} shall depend upon the PRACH configuration used in the target cell.

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In the interruption requirement a cell is known if it has been meeting the relevant cell identification requirement during the last 5 seconds otherwise it is unknown. Relevant cell identification requirements are described in Section 8.1.2.2.2 for intra-frequency handover and Section 8.1.2.3.4 for inter-frequency handover.

5.3 Handover to other RATs

5.3.1 E-UTRAN - UTRAN FDD Handover

5.3.1.1 Introduction

The purpose of inter-RAT handover from E-UTRAN to UTRAN FDD is to change the radio access mode from E-UTRAN to UTRAN FDD. The handover procedure is initiated from E-UTRAN with a RRC message that implies a hard handover as described in [2].

5.3.1.1.1 Handover delay

When the UE receives a RRC message implying handover to UTRAN the UE shall be ready to start the transmission of the new UTRA uplink DPCCH within $D_{handover}$ seconds from the end of the last E-UTRAN TTI containing the RRC MOBILITY FROM E-UTRA command.

where:

- D_{handover} equals the RRC procedure delay, which is 50 ms plus the interruption time stated in section 5.3.1.1.2.

5.3.1.1.2 Interruption time

The interruption time is the time between the end of the last TTI containing the RRC command on the E-UTRAN PDSCH and the time the UE starts transmission on the uplink DPCCH in UTRAN FDD, excluding the RRC procedure delay. The interruption time depends on whether the target cell is known to the UE or not.

The target cell is known if it has been measured by the UE during the last 5 seconds otherwise it is unknown. The UE shall always perform a UTRA synchronisation procedure as part of the handover procedure.

If the target cell is known the interruption time shall be less than Tinterrupt1

$$T_{interrupt1} = T_{IU} + T_{sync} + 50 + 10 * F_{max} ms$$

If the target cell is unknown the interruption time shall be less than T_{interrupt2}

$$T_{interrupt2} = T_{IU} + T_{sync} + 150 + 10 * F_{max} ms$$

This requirement shall be met, provided that there is one target cell in the MOBILITY FROM E-UTRA command. Performance requirements for E-UTRA to UTRA soft handover are not specified. When UE is connected to an E-UTRA cell, UTRA SFN timing measurements are not reported. This implies that the timing of the DPCH of the UTRA target cells in the active set cannot be configured by UTRAN to guarantee that all target cells fall within the UE reception window of T_0 +/- 148 chips.

Where:

T _{IU}	is the interruption uncertainty when changing the timing from the E-UTRAN to the new UTRAN cell. T_{IU} can be up to one UTRA frame (10 ms).
F _{max}	denotes the maximum number of radio frames within the transmission time intervals of all transport channels that are multiplexed into the same CCTrCH on the UTRA target cell.

 T_{sync} is the time required for measuring the downlink DPCCH channel as stated in 3GPP TS 25.214 section 4.3.1.2 [20]. In case higher layers indicate the usage of a post-verification period $T_{sync}=0$ ms. Otherwise $T_{sync}=40$ ms.

The phase reference is the primary CPICH.

The requirements in this section assume that N312 has the smallest possible value i.e. only one insync is required.

5.3.2 E-UTRAN - UTRAN TDD Handover

5.3.2.1 Introduction

The purpose of inter-RAT handover from E-UTRAN to UTRAN TDD is to change the radio access mode from E-UTRAN to UTRAN TDD. The handover procedure is initiated from E-UTRAN with a RRC message that implies a hard handover as described in [2].

5.3.2.2 Requirements

The requirements in this section shall apply to UE supporting E-UTRAN and UTRAN TDD.

5.3.2.2.1 Handover delay

When the UE receives a RRC message implying E-UTRAN/UTRAN TDD handover the UE shall be ready to start the transmission of the new uplink DPCH or the SYNC-UL within $D_{handover}$ seconds from the end of the last TTI containing the RRC MOBILITY FROM E-UTRA command.

Where:

- D_{handover} equals the RRC procedure delay, which is 50 ms plus the interruption time stated in section 5.3.2.2.

5.3.2.2.2 Interruption time

The interruption time is the time between the end of the last TTI containing the RRC command on the E-UTRAN PDSCH and the time the UE starts transmission on the uplink DPCH or the SYNC-UL in UTRAN TDD, excluding the RRC procedure delay. The interruption time depends on whether the target cell is known to the UE or not.

The UE shall always perform a UTRA synchronisation procedure as part of the handover procedure.

If the target cell has been measured by the UE during the last 5 seconds, the interruption time shall be less than $T_{interrupt1}$

$$T_{interrupt1} = T_{offset} + T_{UL} + 30*F_{SFN} + 20 + 10*F_{max} ms$$

If the target cell has not been measured by the UE during the last 5 seconds, the interruption time shall be less than $T_{interrupt2}$

$$\Gamma_{\text{interrupt2}} = T_{\text{offset}} + T_{\text{UL}} + 30 * F_{\text{SFN}} + 180 + 10 * F_{\text{max}} \text{ ms}$$

Where:

T _{offset}	Equal to 10 ms, the frame timing uncertainty between the old cell and the target cell and the time that can elapse until the appearance of a Beacon channel
T _{UL}	Equal to 10 ms, the time that can elapse until the appearance of the UL timeslot in the target cell
F _{SFN}	Equal to 1 if SFN decoding is required and equal to 0 otherwise
F _{max}	denotes the maximum number of radio frames within the transmission time intervals of all transport channels that are multiplexed into the same CCTrCH.

The interruption time requirements for an unknown target cell shall apply only if the signal quality of the unknown target cell is sufficient for successful synchronisation with one attempt.

5.3.3 E-UTRAN - GSM Handover

5.3.3.1 Introduction

The purpose of inter-RAT handover from E-UTRAN to GSM is to transfer a connection between the UE and E-UTRAN to GSM. The handover procedure is initiated from E-UTRAN with a RRC message (MOBILITY FROM E-UTRA). The procedure is described in in 3GPP TS 36.331 [2].

5.3.3.2 Requirements

The requirements in this section shall apply to UE supporting E-UTRAN and GSM.

The requirements given below in Tables 5.3.3.2.1-1 and 5.3.3.2.2-1 for the case where the UE has not synchronised to the GSM cell before receiving the RRC MOBILITY FROM E-UTRA command are valid when the signal quality of the GSM cell is sufficient for successful synchronisation with one attempt. If the UE is unable to synchronise to the GSM cell on the first attempt, it shall continue to search for synchronisation information for up to 800 ms duration. If after 800 ms the UE has not synchronised to the GSM cell it shall follow the handover failure procedure specified in [2].

5.3.3.2.1 Handover delay

When the UE receives a RRC MOBILITY FROM E-UTRA command the UE shall be ready to transmit (as specified in [10]) on the channel of the new RAT within the value in table 5.3.3.2.1-1 from the end of the last TTI containing the RRC command. The UE shall process the RRC procedures for the MOBILITY FROM E-UTRA command within 50 ms, which is noted as RRC procedure delay.

Table 5.3.3.2.1-1: E-UTRAN/GSM h	handover - handover delay
----------------------------------	---------------------------

UE synchronisation status	handover delay [ms]
The UE has synchronised to the GSM cell before the	90
RRC MOBILITY FROM E-UTRA COMMAND is received	
The UE has not synchronised to the GSM cell before	190
the RRC MOBILITY FROM E-UTRA COMMAND is	
received	

5.3.3.2.2 Interruption time

The interruption time is the time between the end of the last TTI containing the RRC command on the E-UTRAN PDSCH and the time the UE starts transmission on the uplink channel in GSM, excluding the RRC procedure delay. The interruption time depends on whether the UE has synchronized to the target GSM cell or not and shall be less than the value specified in table 5.3.3.2.2-1.

Synchronisation status	Interruption time [ms]
The UE has synchronised to the GSM cell before the	40
RRC MOBILITY FROM E-UTRA COMMAND is received	
The UE has not synchronised to the GSM cell before	140
the RRC MOBILITY FROM E-UTRA COMMAND is	
received	

5.4 Handover to Non-3GPP RATs

5.4.1 E-UTRAN – HRPD Handover

5.4.1.1 Introduction

The handover procedure from E-UTRAN to HRPD is initiated when E-UTRAN sends handover command to the UE through dedicated RRC signalling.

5.4.1.1.1 Handover delay

The handover delay ($D_{handover}$) is defined as the sum of the RRC procedure delay, which is 50 ms and the interruption time specified in section 5.4.1.1.2.

When the UE receives a RRC message implying handover to HRPD, the UE shall be ready to start the transmission of the new reverse control channel in HRPD within $D_{handover}$ from the end of the last E-UTRAN TTI containing the RRC command.

5.4.1.1.2 Interruption time

The interruption time is the time between the end of the last TTI containing the RRC command on the E-UTRAN PDSCH and the time the UE starts transmission of the reverse control channel in HRPD, excluding the RRC procedure delay. The interruption time depends on whether the target cell is known to the UE or not.

An HRPD cell is known if it has been measured by the UE during the last 5 seconds otherwise it is unknown. Under the reference conditions specified in sub-clause 6.6 of [13], the interruption time shall be less than $T_{interrupt}$

$$\Gamma_{\text{interrupt}} = T_{\text{IU}} + 40 + 10 \text{*KC} \text{*SW}_{\text{K}} + 10 \text{*OC} \text{*SW}_{\text{O}} \text{ ms}$$

Where:

 T_{IU}

It is the interruption uncertainty when changing the timing from the E-UTRAN to the new HRPD cell. T_{IU} can be up to one HRPD frame (26.66 ms).

SW_K is SW_K =
$$\left| \frac{\text{srch}_win_k}{60} \right|$$
 where srch_win_k is the number of HRPD chips indicated by the

search window for known target HRPD cells in the message

SW₀ is SW₀ =
$$\left| \frac{\text{srch}_win_o}{60} \right|$$
 where srch_win_o is the number of HRPD chips indicated by the

search window for unknown target HRPD cells in the message

KC It is the number of known target HRPD cells in the message, and

OC It is the number of unknown target HRPD cells in the message.

Note: An additional delay in the interruption time may occur due to the reverse link silence interval [11], which is specific to HRPD.

5.4.2 E-UTRAN – cdma2000 1X Handover

5.4.2.1 Introduction

The handover procedure from E-UTRAN to cdma2000 1X is initiated when E-UTRAN sends handover command to the UE through dedicated RRC signalling.

5.4.2.1.1 Handover delay

The handover delay ($D_{handover}$) is defined as the sum of the RRC procedure delay, which is 130 ms and the interruption time specified in section 5.4.2.1.2.

When the UE receives a RRC message implying handover to cdma2000 1X, the UE shall be ready to start the transmission of the new reverse control channel in cdma2000 1X within $D_{handover}$ from the end of the last E-UTRAN TTI containing the RRC command.

5.4.2.1.2 Interruption time

The interruption time is the time between the end of the last TTI containing the RRC command on the E-UTRAN PDSCH and the time the UE starts transmission of the reverse control channel in cdma2000 1X, excluding the RRC procedure delay. The interruption time depends on whether the target cell is known to the UE or not.

A cdma2000 1X cell is known if it has been measured by the UE during the last 5 seconds otherwise it is unknown. Under the reference conditions specified in sub-clause 4.2.1 of [14], the interruption time shall be less than T_{interrupt}:

$$T_{interrupt} = T_{IU} + 140 + 10 * KC * SW_{K} + 10 * OC * SW_{O} ms$$

Where:

$$T_{IU}$$
It is the interruption uncertainty when changing the timing from the E-UTRAN to the new
cdma2000 1X cell. T_{IU} can be up to one cdma2000 1X frame (20 ms). SW_K is $SW_K = \left[\frac{\text{srch}_win}{300}\right]$ where srch_win_k is the number of cdma2000 1x chips indicated by
the search window for known target cdma2000 1x cells in the message SW_O is $SW_O = \left[\frac{\text{srch}_win}{300}\right]$ where srch_win_o is the number of cdma2000 1x chips indicated by
the search window for unknown target cdma2000 1x cells in the message SW_O is $SW_O = \left[\frac{\text{srch}_win}{300}\right]$ where srch_win_o is the number of cdma2000 1x chips indicated by
the search window for unknown target cdma2000 1x cells in the messageKCIt is the number of known target cdma2000 1X cells in the message, and
It is the number of unknown target cdma2000 1X cells in the message.

6 RRC Connection Mobility Control

6.1 RRC Re-establishment

The requirements in this section are applicable to both E-UTRAN FDD and TDD.

6.1.1 Introduction

RRC connection re-establishment is initiated when a UE in RRC connected mode looses RRC connection due to any of these reasons: radio link failure, handover failure or radio link problem. The RRC es-tablishment procedure is specified in section 5.3.7 in TS 36.331 [2].

6.1.2 Requirements

In RRC connected mode the UE shall be capable of sending *RRCConnectionReestablishmentRequest* message within $T_{re-establish_delay}$ seconds from the moment it detects a loss in RRC connection. The total RRC connection delay ($T_{re-establish_delay}$) shall be less than:

 $T_{re-establish_delay} = T_{UL_grant} + T_{UE_re-establish_delay}$

 T_{UL_grant} : It is the time required to acquire and process uplink grant from the target cell. The uplink grant is required to transmit *RRCConnectionReestablishmentRequest* message.

The UE re-establishment delay (T_{UE_re-establish_delay}) is specified in section 6.1.2.1.

6.1.2.1 UE Re-establishment delay requirement

The UE re-establishment delay ($T_{UE_re-establish_delay}$) is the time between the moments when any of the conditions requiring RRC re-establishment as defined in section 5.3.7 in TS 36.331 [2] is detected by the UE to the time when the UE sends PRACH to the target cell. The UE re-establishment delay ($T_{UE_re-establish_delay}$) requirement shall be less than:

 $T_{UE\text{-}re\text{-}establish_delay} = 50 \ ms + N_{freq} * Tsearch + T_{SI} + T_{PRACH}$

T_{search}: It is the time required by the UE to search the target cell.

 $T_{\text{search}} = \text{It is 100 ms if the target cell is known by the UE; the target cell is known if it has been measured by the UE in the last 5 seconds.}$

 $T_{search} = It$ is 800 ms if the target cell is unknown by the UE; the target cell is unknown if it has not been measured by the UE in the last 5 seconds.

 T_{SI} = It is the time required for receiving all the relevant system information according to the reception procedure and the RRC procedure delay of system information blocks defined in TS 36.331 [2] for E-UTRAN cell.

 T_{PRACH} = The additional delay caused by the random access procedure; it will be at least 10 ms due to random access occasion and there might be additional delay due to ramping procedure.

 N_{freq} : It is the total number of E-UTRA frequencies to be monitored for RRC re-establishment; $N_{freq} = 1$ if the target cell is known.

There is no requirement if the target cell does not contain the UE context.

6.2 Random Access

6.2.1 Introduction

The random access procedure is used when establishing the layer 1 communication between the UE and E-UTRAN. The random access is specified in section 6 of TS 36.213[3] and the control of the RACH transmission is specified in section 5.1 of TS 36.321[17].

6.2.2 Requirements

The UE shall have capability to calculate PRACH transmission power according to the PRACH power formula defined in TS 36.213[3] and apply this power level at the first preamble or additional preambles. The absolute power applied to the first preamble shall have an accuracy as specified in table 6.3.5.1.1-1 of TS 36.101[5]. The relative power applied to additional preambles shall have an accuracy as specified in table 6.3.5.2.1-1 of 36.101[5].

The UE shall indicate a Random Access problem to upper layers if the maximum number of preamble transmission counter has been reached.

6.2.2.1 Contention based random access

6.2.2.1.1 Correct behaviour when receiving Random Access Response reception

The UE may stop monitoring for Random Access Response(s) and shall transmit the msg3 if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble.

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires if all received Random Access Responses contain Random Access Preamble identifiers that do not match the transmitted Random Access Preamble.

6.2.2.1.2 Correct behaviour when not receiving Random Access Response reception

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires if no Random Access Response is received within the RA Response window defined in clause 5.1.4 TS 36.321.

6.2.2.1.3 Correct behaviour when receiving a NACK on msg3

The UE shall re-transmit the msg3 upon the reception of a NACK on msg3.

6.2.2.1.4 Void

6.2.2.1.5 Correct behaviour when receiving a message over Temporary C-RNTI

The UE shall send ACK if the Contention Resolution is successful.

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires unless the received message includes a UE Contention Resolution Identity MAC control element and the UE Contention Resolution Identity included in the MAC control element matches the CCCH SDU transmitted in the uplink message.

6.2.2.1.6 Correct behaviour when contention Resolution timer expires

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires if the Contention Resolution Timer expires.

6.2.2.2 Non-Contention based random access

6.2.2.2.1 Correct behaviour when receiving Random Access Response

The UE may stop monitoring for Random Access Response(s) if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble.

The UE shall re-transmit the preamble with the calculated PRACH transmission power if all received Random Access Responses contain Random Access Preamble identifiers that do not match the transmitted Random Access Preamble.

6.2.2.2.2 Correct behaviour when not receiving Random Access Response

The UE shall re-transmit the preamble with the calculated PRACH transmission power.

6.3 RRC Connection Release with Redirection

6.3.1 Introduction

RRC connection release with redirection is initiated by the UE upon receiving the "*RRCConnectionRelease*" message from the E-UTRAN [2]. The RRC connection release with redirection procedure is specified in section 5.3.8 in TS 36.331 [2].

The requirements in this section are applicable to both E-UTRAN FDD and TDD.

6.3.2 Requirements

6.3.2.1 RRC connection release with redirection to UTRAN FDD

The UE shall be capable of performing the RRC connection release with redirection to the target UTRAN FDD cell within $T_{connection_release_redirect_UTRA FDD}$.

The time delay ($T_{connection_release_redirect_UTRA\,FDD}$) is the time between the end of the last TTI containing the RRC command, "*RRCConnectionRelease*" [2] on the E-UTRAN PDSCH and the time the UE starts to send random access to the target UTRA FDD cell. The time delay ($T_{connection_release_redirect_UTRA\,FDD}$) shall be less than:

 $T_{connection_release_redirect_UTRA~FDD} = T_{RRC_procedure_delay} + T_{identify_UTRA~FDD} + T_{SI_UTRA~FDD} + T_{RA}$

The target UTRA FDD cell shall be considered detectable when:

- CPICH Ec/Io \geq -15 dB,
- SCH_Ec/Io \geq -15 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code.

 $T_{RRC_procedure_delay}$: It is the RRC procedure for processing the received message "*RRCConnectionRelease*". It shall be less than 110 ms.

T_{identify-UTRA FDD}: It is the time to identify the target UTRA FDD cell. It shall be less than 500 ms.

 $T_{SI-UTRA FDD}$: It is the time required for acquiring all the relevant system information of the target UTRA FDD cell. This time depends upon whether the UE is provided with the relevant system information of the target UTRA FDD cell or not by the E-UTRAN before the RRC connection is released.

 T_{RA} : It is the delay caused due to the random access procedure when sending random access to the target UTRA FDD cell.

6.3.2.2 RRC connection release with redirection to GERAN

The UE shall be capable of performing the RRC connection release with redirection to the target GERAN cell within $T_{connection_release_redirect_GERAN}$.

The time delay ($T_{connection_release_redirect_GERAN$) is the time between the end of the last TTI containing the RRC command, "*RRCConnectionRelease*" [2] on the E-UTRAN PDSCH and the time the UE starts to send random access to the target GERAN cell. The time delay ($T_{connection_release_redirect_GERAN$) shall be less than:

 $T_{connection_release_redirect_GERAN} = T_{RRC_procedure_delay} + T_{identify_GERAN} + T_{SI_GERAN} + T_{RA}$

The target GERAN cell shall be considered detectable when the UE receives the GERAN cell at levels down to 10 dB + the reference sensitivity level or reference interference levels as specified in [9].

 $T_{RRC_procedure_delay}$: It is the RRC procedure for processing the received message "*RRCConnectionRelease*". It shall be less than 110 ms.

T_{identify-UTRA GERAN}: It is the time to identify the BSIC of the target GERAN cell. It shall be less than 1 second.

 $T_{SI-UTRA GERAN}$: It is the time required for acquiring all the relevant system information of the target GERAN cell. This time depends upon whether the UE is provided with the relevant system information of the target GERAN cell or not by the E-UTRAN before the RRC connection is released.

 T_{RA} : It is the delay caused due to the random access procedure when sending random access burst to the target GERAN cell.

6.3.2.3 RRC connection release with redirection to UTRAN TDD

The UE shall be capable of performing the RRC connection release with redirection to the target UTRAN TDD cell within $T_{connection_release_redirect_UTRA_TDD}$.

The time delay ($T_{connection_release_redirect_UTRA\ TDD}$) is the time between the end of the last TTI containing the RRC command, "*RRCConnectionRelease*" [2] on the E-UTRAN PDSCH and the time the UE starts to send random access to the target UTRA TDD cell. The time delay ($T_{connection_release_redirect_UTRA\ TDD}$) shall be less than:

 $T_{connection_release_redirect_UTRA\ TDD} = T_{RRC_procedure_delay} + T_{identify_UTRA\ TDD} + T_{SI_UTRA\ TDD} + T_{RA}$

The target UTRA TDD cell shall be considered detectable when:

- P-CCPCH Ec/Io \geq -6 dB,
- $DwPCH_Ec/Io \ge -1 dB$.

 $T_{RRC_procedure_delay}$: It is the RRC procedure for processing the received message "*RRCConnectionRelease*". It shall be less than 110 ms.

 $T_{identify-UTRA TDD}$: It is the time to identify the target UTRA TDD cell. It shall be less than 500 ms.

 $T_{SI-UTRA TDD}$: It is the time required for acquiring all the relevant system information of the target UTRA TDD cell. This time depends upon whether the UE is provided with the relevant system information of the target UTRA TDD cell or not by the E-UTRAN before the RRC connection is released.

 T_{RA} : It is the delay caused due to the random access procedure when sending random access to the target UTRA TDD cell.

6.4 CSG Proximity Indication for E-UTRAN and UTRAN

6.4.1 Introduction

The requirements defined in this section are applicable to a UE supporting and configured with CSG proximity indication and are valid when a UE is entering the proximity of one or more CSG member cell(s) or leaving the proximity of all CSG member cell(s) on a UTRA or E-UTRA frequency as specified in [2].

The detection of CSG proximity is based on a UE autonomous search function..

6.4.2 Requirements

The UE shall initiate transmission of the ProximityIndication message with "entering" according to [2] within [6] minutes after entering the proximity of one or more CSG member cell(s) on a UTRA or E-UTRA frequency.

The UE shall initiate transmission of the ProximityIndication message with "leaving" according to [2] within [6] minutes after leaving the proximity of all CSG member cell(s) on a UTRA or E-UTRA frequency.

There is no need for statistical testing of this requirement.

NOTE: Entering the proximity of one or more CSG member cell(s) means that the UE is near a cell whose CSG ID is in the UE's CSG whitelist (as determined based on autonomous search procedures). Leaving the proximity of one or more CSG member cell(s) means that the UE is no longer near any cell whose CSG ID is in the UE's CSG whitelist.

7 Timing and signalling characteristics

7.1 UE transmit timing

7.1.1 Introduction

The UE shall have capability to follow the frame timing change of the connected eNode B. The uplink frame transmission takes place $(N_{TA} + N_{TA \text{ offset}}) \times T_s$ before the reception of the first detected path (in time) of the corresponding downlink frame from the reference cell UE initial transmit timing accuracy, maximum amount of timing change in one adjustment, minimum and maximum adjustment rate are defined in the following requirements.

7.1.2 Requirements

The UE initial transmission timing error shall be less than or equal to $\pm T_e$ where the timing error limit value T_e is specified in Table 7.1.2-1. This requirement applies when it is the first transmission in a DRX cycle for PUCCH, PUSCH and SRS or it is the PRACH transmission. The reference point for the UE initial transmit timing control requirement shall be the downlink timing minus $(N_{TA_Ref} + N_{TA offset}) \times T_s$. The downlink timing is defined as the time when [the first detected path (in time)] of the corresponding downlink frame is received from the reference cell. N_{TA_Ref}

for PRACH is defined as 0. $(N_{TA_Ref} + N_{TA \text{ offset}})$ (in T_s units) for other channels is the difference between UE

transmission timing and the Downlink timing immediately after when the last timing advance in section 7.3 was applied. N_{TA_Ref} for other channels is not changed until next timing advance is received.

Downlink Bandwidth (MHz)	T _e _	
1.4	24*T _S	
≥3	12*T _S	
Note: T _S is the basic timing unit defined in TS 36.211		

Table 7.1.2-1: T_e Timing Error Limit

When it is not the first transmission in a DRX cycle or there is no DRX cycle, and when it is the transmission for PUCCH, PUSCH and SRS transmission, the UE shall be capable of changing the transmission timing according to the received downlink frame except when the timing advance in section 7.3 is applied. When the transmission timing error between the UE and the reference timing exceeds $\pm T_e$ the UE is required to adjust its timing to within $\pm T_e$. The reference timing shall be $(N_{TA_Ref} + N_{TA \text{ offset}}) \times T_s$ before the downlink timing. All adjustments made to the UE uplink timing shall follow these rules:

- 1) The maximum amount of the magnitude of the timing change in one adjustment shall be T_q seconds.
- 2) The minimum aggregate adjustment rate shall be $7*T_s$ per second.
- 3) The maximum aggregate adjustment rate shall be T_q per 200ms.

where the maximum autonomous time adjustment step T_q is specified in Table 7.1.2-2.

Table 7.1.2-2: T _q Maximum Autonomous Time Adjustment Step	
Downlink Bandwidth (MHz)	T.

Downlink Bandwidth (MHz)	T _{q_}	
1.4	17.5*T _S	
3	9.5*T _S	
5	5.5*T _S	
≥10	3.5*T _S	
Note: T_S is the basic timing unit defined in TS 36.211		

7.2 UE timer accuracy

7.2.1 Introduction

UE timers are used in different protocol entities to control the UE behaviour.

7.2.2 Requirements

For UE timers specified in [2], UE shall comply with the timer accuracies according to Table 7.2.2-1.

The requirements are only related to the actual timing measurements internally in the UE. They do not include the following:

- Inaccuracy in the start and stop conditions of a timer (e.g. UE reaction time to detect that start and stop conditions of a timer is fulfilled), or
- Inaccuracies due to restrictions in observability of start and stop conditions of a UE timer (e.g. TTI alignment when UE sends messages at timer expiry).

Table 7.2.2-1

Timer value [s]	Accuracy
timer value < 4	±0.1s
timer value ≥ 4	± 2.5%

7.3 Timing Advance

7.3.1 Introduction

The timing advance is initiated from E-UTRAN with MAC message that implies and adjustment of the timing advance, see 3GPP TS 36.321 [17] section 5.2.

7.3.2 Requirements

7.3.2.1 Timing Advance adjustment delay

UE shall adjust the timing of its uplink transmission timing at sub-frame n+6 for a timing advancement command received in sub-frame n.

7.3.2.2 Timing Advance adjustment accuracy

The UE shall adjust the timing of its transmissions with a relative accuracy better than or equal to $\pm 4^* T_S$ seconds to the signalled timing advance value compared to the timing of preceding uplink transmission. The timing advance command is expressed in multiples of $16^* T_S$ and is relative to the current uplink timing.

7.4 Cell phase synchronization accuracy (TDD)

7.4.1 Definition

Cell phase synchronization accuracy is defined as the maximum absolute deviation in frame start timing between any pair of cells on the same frequency that have overlapping coverage areas.

7.4.2 Minimum requirements

For Wide Area BS, the cell phase synchronization accuracy measured at BS antenna connectors shall be better than the requirement specified in table 7.4.2-1. If a cell's coverage area overlaps with another cell with different cell radius then the cell phase synchronization accuracy corresponding to the larger of the two cell sizes applies to the overlapping cells with different radii.

Cell Type	Cell Radius	Requirement
Small cell	≤ 3 km	≤ 3 μs
Large cell	> 3 km	≤ 10 μs

For Home BS, the cell phase synchronization accuracy measured at BS antenna connectors shall be better than the requirement specified in table 7.4.2-2.

	Source Cell Type	Propagation Distance	Requirement
S	Small cell	≤ 500 m	≤3 μs
L	arge cell	> 500 m	$\leq 1.33 + T_{propagation} \mu s$

- Note 1: $T_{propagation}$ is the propagation delay between the Home BS and the cell selected as the network listening synchronization source. In terms of the network listening synchronization source selection, the best accurate synchronization source to GNSS should be selected.
- Note 2: If the Home BS obtains synchronization without using network listening, the small cell requirement applies.

7.5 Synchronization Requirements for E-UTRAN to 1xRTT and HRPD Handovers

7.5.1 Introduction

This section contains the synchronization requirements for eNodeB capable of supporting E-UTRAN to CDMA 1xRTT and HRPD handovers. To facilitate E-UTRAN to CDMA 1xRTT and HRPD handovers, the CDMA System Time reference needs to be provided to the UE in order for the UE to report the pilot PN phases of the target 1xRTT or HRPD cells. This is achieved through the SIB8 message broadcasted by the serving eNodeB:

If the eNodeB is synchronized to the GPS time then the size of CDMA System Time information is 39 bits and the unit is 10 ms based on a 1.2288 Mcps chip rate.

If the eNodeB is not synchronized to the GPS time then the size of CDMA System Time information is 49 bits and the unit is 8 CDMA chips based on 1.2288 Mcps chip rate.

The CDMA system time reference provided by the serving eNodeB has to be within a certain level of accuracy in order to facilitate accurate reporting of the pilot PN phases of the target 1xRTT or HRPD cells and enable reliable handover to the 1xRTT or HRPD networks.

7.5.2 eNodeB Synchronization Requirements

7.5.2.1 Synchronized E-UTRAN

The eNodeB shall be synchronized to the GPS time. With external source of CDMA System Time disconnected, the eNodeB shall maintain the timing accuracy within $\pm 10 \ \mu s$ of CDMA System Time for a period of not less than 8 hours.

The timing deviation between the SFN boundary at or immediately after the ending boundary of the SI-window in which *SystemInformationBlockType8* (containing the broadcasted CDMA System Time with 10-ms granularity) is transmitted and the broadcasted CDMA System Time shall be within 10 µs.

7.5.2.2 Non-Synchronized E-UTRAN

The timing deviation between the SFN boundary at or immediately after the end of the boundary of the SI-window in which *SystemInformationBlockType8* (containing the broadcasted CDMA System Time with 8-chip granularity) is transmitted and the broadcasted CDMA System Time shall be within 10 μ s. With external source of CDMA System Time disconnected the SFN boundary at or immediately after the broadcasted CDMA System Time in the SIB8 message shall maintain the timing accuracy within ±10 μ s of CDMA System Time for a period of not less than 8 hours.

7.6 Radio Link Monitoring

7.6.1 Introduction

The UE shall monitor the downlink link quality based on the cell-specific reference signal in order to detect the downlink radio link quality of the serving cell as specified in [3].

The UE shall estimate the downlink radio link quality and compare it to the thresholds Q_{out} and Q_{in} for the purpose of monitoring downlink radio link quality of the serving cell.

The threshold Q_{out} is defined as the level at which the downlink radio link cannot be reliably received and shall correspond to 10% block error rate of a hypothetical PDCCH transmission taking into account the PCFICH errors with transmission parameters specified in Table 7.6.1-1.

The threshold Q_{in} is defined as the level at which the downlink radio link quality can be significantly more reliably received than at Q_{out} and shall correspond to 2% block error rate of a hypothetical PDCCH transmission taking into account the PCFICH errors with transmission parameters specified in Table 7.6.1-2.

Attribute	Value
DCI format	1A
Number of control OFDM symbols	2; Bandwidth \geq 10 MHz
	3; 3 MHz \leq Bandwidth \leq 5 MHz
	4; Bandwidth = 1.4 MHz
Aggregation level (CCE)	4; Bandwidth = 1.4 MHz
	8; Bandwidth \geq 3 MHz
Ratio of PDCCH RE energy to average RS RE energy	4 dB; when single antenna port is used for cell- specific reference signal transmission by the serving cell
	1 dB: when two or four antenna ports are used for cell-specific reference signal transmission by the serving cell
Ratio of PCFICH RE energy to average RS RE energy	4 dB; when single antenna port is used for cell- specific reference signal transmission by the serving cell
	1 dB: when two or four antenna ports are used for cell-specific reference signal transmission by the serving cell

Table 7.6.1-1 PDCCH/PCFICH transmission parameters for out-of-sync

Note 1: DCI format 1A is defined in section 5.3.3.1.3 in 3GPP TS 36.212 [21].

Note 2: A hypothetical PCFICH transmission corresponding to the number of control symbols shall be assumed.

Attribute	Value
DCI format	1C
Number of control OFDM symbols	2; Bandwidth \geq 10 MHz
	3; 3 MHz \leq Bandwidth \leq 5 MHz
	4; Bandwidth = 1.4 MHz
Aggregation level (CCE)	4
Ratio of PDCCH RE energy to average RS RE energy	0 dB; when single antenna port is used for cell- specific reference signal transmission by the serving cell
	 -3 dB; when two or four antenna ports are used for cell-specific reference signal transmission by the serving cell
Ratio of PCFICH RE energy to average RS RE energy	4 dB; when single antenna port is used for cell- specific reference signal transmission by the serving cell
	1 dB: when two or four antenna ports are used for cell-specific reference signal transmission by the serving cell

Table 7.6.1-2 PDCCH/PCFICH transmission parameters for in-sync

Note 1: DCI format 1C is defined in section 5.3.3.1.4 in 3GPP TS 36.212 [21].

Note 2: A hypothetical PCFICH transmission corresponding to the number of control symbols shall be assumed.

7.6.2 Requirements

7.6.2.1 Minimum requirement when no DRX is used

When the downlink radio link quality estimated over the last 200 ms period becomes worse than the threshold Q_{out} , Layer 1 of the UE shall send an out-of-sync indication to the higher layers within 200 ms Q_{out} evaluation period. A Layer 3 filter shall be applied to the out-of-sync indications as specified in [2].

When the downlink radio link quality estimated over the last 100 ms period becomes better than the threshold Q_{in} , Layer 1 of the UE shall send an in-sync indication to the higher layers within 100 ms Q_{in} evaluation period. A L3 filter shall be applied to the in-sync indications as specified in [2].

The out-of-sync and in-sync evaluations shall be performed as specified in section 4.2.1 in [3]. Two successive indications from Layer 1 shall be separated by at least 10 ms.

The transmitter power shall be turned off within 40 ms after expiry of T310 timer as specified in section 5.3.11 in [2].

7.6.2.2 Minimum requirement when DRX is used

When DRX is used the Q_{out} evaluation period ($T_{Evaluate}Q_{out}DRX$) and the Q_{in} evaluation period ($T_{Evaluate}Q_{in}DRX$) is specified in Table 7.6.2.2-1 will be used.

When the downlink radio link quality estimated over the last $T_{Evaluate}Q_{out_DRX}$ [s] period becomes worse than the threshold Q_{out} , Layer 1 of the UE shall send out-of-sync indication to the higher layers within $T_{Evaluate}Q_{out_DRX}$ [s] evaluation period. A Layer 3 filter shall be applied to the out-of-sync indications as specified in [2].

When the downlink radio link quality estimated over the last $T_{Evaluate}Q_{in_DRX}$ [s] period becomes better than the threshold Q_{in} , Layer 1 of the UE shall send in-sync indications to the higher layers within $T_{Evaluate}Q_{in_DRX}$ [s] evaluation period. A L3 filter shall be applied to the in-sync indications as specified in [2].

The out-of-sync and in-sync evaluations shall be performed as specified in section 4.2.1 in [3]. Two successive indications from Layer 1 shall be separated by at least max(10 ms, DRX_cycle_length).

Upon start of T310 timer as specified in section 5.3.11 in [2], the UE shall monitor the link for recovery using the evaluation period and Layer 1 indication interval corresponding to the non-DRX mode until the expiry or stop of T310 timer.

The transmitter power shall be turned off within 40 ms after expiry of T310 timer as specified in section 5.3.11 in [2].

7.6.2.3 Minimum requirement at transitions

The out-of-sync and in-sync evaluations shall be performed as specified in section 4.2.1 in [3]. Two successive indications from Layer 1 shall be separated by at least max(10 ms, DRX_cycle_length).

When the UE transitions between DRX and non-DRX or when DRX cycle periodicity changes, for a duration of time equal to the evaluation period corresponding to the second mode after the transition occurs, the UE shall use an evaluation period that is no less than the minimum of evaluation periods corresponding to the first mode and the second mode. Subsequent to this duration, the UE shall use an evaluation period corresponding to the second mode. This requirement shall be applied to both out-of-sync evaluation and in-sync evaluation.

DRX cycle length (s)	T _{Evaluate} _Q _{out_DRX} and T _{Evaluate} _Q _{in_DRX} (s) (DRX cycles)	
≤ 0.01	Non-DRX requirements in section	
	7.6.2.1 are applicable.	
0.01 < DRX cycle ≤0.04	Note (20)	
0.04 < DRX cycle ≤ 0. 64	Note (10)	
0.64 < DRX cycle ≤ 2.56	Note (5)	
Note: Evaluation period length in time depends on the length of the DRX cycle in use		

Table 7.6.2.2-1: Qout and Qin Evaluation Period in DRX

8 UE Measurements Procedures in RRC_CONNECTED State

8.1 General Measurement Requirements

8.1.1 Introduction

This section contains requirements on the UE regarding measurement reporting in RRC_CONNECTED state. The requirements are split in E-UTRA intra frequency, E-UTRA inter frequency, Inter-RAT UTRA FDD, UTRA TDD and GSM measurements. These measurements may be used by the E-UTRAN, e.g. for handover decisions. The measurement quantities are defined in [4], the measurement model is defined in [22] and measurement accuracies are specified in section 9. Control of measurement reporting is specified in [2].

8.1.2 Requirements

8.1.2.1 UE measurement capability

If the UE requires measurement gaps to identify and measure inter-frequency and/or inter-RAT cells, in order for the requirements in the following subsections to apply the E-UTRAN must provide a single measurement gap pattern with constant gap duration for concurrent monitoring of all frequency layers and RATs.

During the measurement gaps the UE:

- shall not transmit any data
- is not expected to tune its receiver on the E-UTRAN serving carrier frequency.

Inter-frequency and inter-RAT measurement requirements within this section rely on the UE being configured with one measurement gap pattern. UEs shall only support those measurement gap patterns listed in Table 8.1.2.1-1 that are relevant to its measurement capabilities.

Gap Pattern Id	MeasurementGap Length (MGL, ms)	Measurement Gap Repetition Period (MGRP, ms)	Minimum available time for inter-frequency and inter-RAT measurements during 480ms period (Tinter1, ms)	Measurement Purpose
0	6	40	60	Inter-Frequency E-UTRAN FDD and TDD, UTRAN FDD, GERAN, LCR TDD, HRPD, CDMA2000 1x
1	6	80	30	Inter-Frequency E-UTRAN FDD and TDD, UTRAN FDD, GERAN, LCR TDD, HRPD, CDMA2000 1x

Table 8.1.2.1-1: Gap Pattern Configurations supported by the UE

- NOTE 1: For E-UTRAN FDD, the UE shall not transmit in the subframe occurring immediately after the measurement gap.
- NOTE 2: For E-UTRAN TDD, the UE shall not transmit in the uplink subframe occurring immediately after the measurement gap if the subframe occurring immediately before the measurement gap is a downlink subframe.
- NOTE 3: When inter-frequency RSTD measurements are configured and the UE requires measurement gaps for performing such measurements, only Gap Pattern 0 can be used. For defining the inter-frequency and inter-RAT requirements T_{inter1}=30ms shall be assumed.

The requirements in section 9 are applicable for a UE performing measurements according to this section.

8.1.2.1.1 Monitoring of multiple layers using gaps

When monitoring of multiple inter-frequency E-UTRAN and inter-RAT (UTRAN, GSM) using gaps is configured, the UE shall be capable of performing one measurement of the configured measurement type (RSRP, RSRQ, UTRAN TDD P-CCPCH RSCP, UTRAN FDD CPICH measurements, GSM carrier RSSI, etc.) of detected cells on all the layers

The effective total number of frequencies excluding the serving frequency being monitored using gaps is N_{freq} , which is defined as:

 $N_{freq} = N_{freq, E-UTRA} + N_{freq, UTRA} + M_{gsm} + N_{freq, cdma2000} + N_{freq, HRPD}$

where

N_{freq, E-UTRA} is the number of E-UTRA carriers being monitored (FDD and TDD)

N_{freq, UTRA} is the number of UTRA carriers being monitored (FDD and TDD)

 M_{GSM} is an integer which is a function of the number of GSM carriers on which measurements are being performed. M_{GSM} is equal to 0 if no GSM carrier is being monitored. For a MGRP of 40 ms, M_{GSM} is equal to 1 if cells on up to 32 GSM carriers are being measured. For a MGRP of 80 ms, M_{GSM} is equal to ceil($N_{carriers,GSM}$ /20) where $N_{carriers,GSM}$ is the number of GSM carriers on which cells are being measured.

 $N_{freq, cdma2000}$ is the number of cdma2000 1x carriers being monitored

 $N_{freq, HRPD}$ is the number of HRPD carriers being monitored

8.1.2.1.1.1 Maximum allowed layers for multiple monitoring

The UE shall be capable of monitoring using gaps at least per RAT group:

- Depending on UE capability, 3 FDD E-UTRA inter-frequency carriers, and

- Depending on UE capability, 3 TDD E-UTRA inter-frequency carriers, and
- Depending on UE capability, 3 FDD UTRA carriers, and
- Depending on UE capability, 3 TDD UTRA carriers, and
- Depending on UE capability, 32 GSM carriers (one GSM layer corresponds to 32 cells), and
- Depending on UE capability, 5 cdma2000 1x carriers, and
- Depending on UE capability, 5 HRPD carriers

In addition to the requirements defined above, the UE shall be capable of monitoring using gaps a total of at least 7 carrier frequency layers comprising of any above defined combination of E-UTRA FDD, E-UTRA TDD, UTRA FDD, UTRA FDD, UTRA TDD, GSM (one GSM layer corresponds to 32 carriers), cdma2000 1x and HRPD layers.

8.1.2.2 E-UTRAN intra frequency measurements

The UE shall be able to identify new intra-frequency cells and perform RSRP measurements of identified intrafrequency cells without an explicit intra-frequency neighbour cell list containing physical layer cell identities. During the RRC_CONNECTED state the UE shall continuously measure identified intra frequency cells and additionally search for and identify new intra frequency cells.

8.1.2.2.1 E-UTRAN FDD intra frequency measurements

8.1.2.2.1.1 E-UTRAN intra frequency measurements when no DRX is used

When no DRX is in use the UE shall be able to identify a new detectable FDD intra frequency cell within

 $T_{identify intra} = T_{basic_identify_E-UTRA_FDD, intra} \cdot \frac{T_{Measurement_Period, Intra}}{T_{Intra}} ms$

where

T_{basic_identify_E-UTRA_FDD, intra} is 800 ms

A cell shall be considered detectable when

- RSRP related side condition given in Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP|_{dBm} \geq -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21 and SCH $\hat{E}s/Iot \geq$ 6 dB.
- SCH_RP|_{dBm} \geq -126 dBm for Band 9 and SCH Ês/Iot \geq 6 dB,
- SCH_RP $|_{dBm} \ge$ -125 dBm for Bands 2, 5, 7 and SCH $\hat{E}s/Iot \ge$ 6 dB,
- SCH_RP $|_{dBm} \ge -124 \text{ dBm}$ for Bands 3, 8, 12, 13, 14, 17, 20 and SCH $\hat{E}s/Iot \ge -6 \text{ dB}$.

 T_{Intra} : This is the minimum time that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing. Time is assumed to be available for performing intra frequency measurements whenever the receiver is guaranteed to be active on the intra frequency carrier.

Identification of a cell shall include detection of the cell and additionally performing a single measurement with measurement period of $T_{Measurement_Period Intra}$. If higher layer filtering is used, an additional cell identification delay can be expected.

In the RRC_CONNECTED state the measurement period for intra frequency measurements is 200 ms. When no measurement gaps are activated, the UE shall be capable of performing RSRPand RSRQ measurements for 8 identified-intra-frequency cells, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When measurement gaps are activated the UE shall be capable of performing measurements for at least $Y_{measurement intra}$ cells, where $Y_{measurement intra}$ is defined in the following equation. If the UE has identified more than $Y_{measurement intra}$ cells, the UE shall perform measurements of at least 8 identified intra-frequency

cells but the reporting rate of RSRP and RSRQ measurements of cells from UE physical layer to higher layers may be decreased.

$$\mathbf{Y}_{\text{measurement intra}} = Floor \left\{ X_{\text{basic measurement FDD}} \cdot \frac{\mathbf{T}_{\text{Intra}}}{\mathbf{T}_{\text{Measurement_Period, Intra}}} \right\} \text{ cells}$$

where

 $X_{\text{basic measurement FDD}} = 8 \text{ (cells)}$

T_{Measurement Period, Intra} = 200 ms. The measurement period for Intra frequency RSRP and RSRQ measurements.

The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.

8.1.2.2.1.1.1 Measurement Reporting Requirements

8.1.2.2.1.1.1.1 Periodic Reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.2.1.1.1.2 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.2.1.1.1.3 Event Triggered Reporting.

8.1.2.2.1.1.1.3 Event Triggered Reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: $2 \times TTI_{DCCH}$. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T $_{identify intra}$ defined in Section 8.1.2.2.1.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify_intra}$ defined in section 8.1.2.2.1.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{Measurement_Period, Intra}$ provided the timing to that cell has not changed more than \pm 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.2.1.2 E-UTRAN intra frequency measurements when DRX is used

When DRX is in use the UE shall be able to identify a new detectable FDD intra frequency cell within $T_{identify_{intra}}$ as shown in table 8.1.2.2.1.2-1

DRX cycle length (s)	T _{identify_intra} (s) (DRX cycles)	
≤0.04	0.8 (Note1)	
0.04 <drx-< td=""><td>Note2 (40)</td></drx-<>	Note2 (40)	
cycle≤0.08		
0.128	3.2 (25)	
0.128 <drx-< td=""><td>Note2(20)</td></drx-<>	Note2(20)	
cycle≤2.56		
Note1: Number of DRX cycle		
depends upon the DRX cycle in use		
Note2: Time depends upon the DRX		
cycle in use		

Table 8.1.2.2.1.2-1: Requirement to identify a newly detectable FDD intrafrequency cell

A cell shall be considered detectable when

- RSRP related side condition given in Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP|_{dBm} \geq -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21 and SCH $\hat{E}s/Iot \geq$ 6 dB.
- SCH_RP|_{dBm} \geq -126 dBm for Band 9 and SCH \hat{E} s/Iot \geq 6 dB,
- SCH_RP $|_{dBm} \ge$ -125 dBm for Bands 2, 5, 7 and SCH $\hat{E}s/Iot \ge$ 6 dB,
- SCH_RP $|_{dBm} \ge -124 \text{ dBm}$ for Bands 3, 8, 12, 13, 14, 17, 20 and SCH $\hat{E}s/Iot \ge -6 \text{ dB}$.

In the RRC_CONNECTED state the measurement period for intra frequency measurements is $T_{measure_intra}$ as shown in table 8.1.2.2.1.2-2. The UE shall be capable of performing RSRP and RSRQ measurements for 8 identified-intra-frequency cells, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{measure_intra}$.

DRX cycle length (s)	T _{measure_intra} (s) (DRX cycles)	
≤0.04	0.2 (Note1)	
0.04 <drx-< td=""><td>Note2 (5)</td></drx-<>	Note2 (5)	
cycle≤2.56		
Note1: Number of DRX cycle		
depends upon the DRX cycle in use		
Note2: Time depends upon the DRX		
cycle in use		

The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.

8.1.2.2.1.2.1 Measurement Reporting Requirements

8.1.2.2.1.2.1.1 Periodic Reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.2.1.2.1.2 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.2.1.3 Event Triggered Reporting.

8.1.2.2.1.2.1.3 Event Triggered Reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T $_{identify_{intra}}$ defined in Section 8.1.2.2.1.2. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify_intra}$ defined in section 8.1.2.2.1.2 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{measure_intra}$ provided the timing to that cell has not changed more than \pm 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.2.2 E-UTRAN TDD intra frequency measurements

8.1.2.2.2.1 E-UTRAN intra frequency measurements when no DRX is used

When no DRX is in use the UE shall be able to identify a new detectable TDD intra frequency cell within

$$T_{\text{identify intra}} = T_{\text{basic identify } E-UTRA_TDD, \text{ intra}} \cdot \frac{T_{\text{Measurement Period, Intra}}}{T_{\text{Intra}}} \quad ms$$

where

 $T_{\text{basic_identify}_E\text{-}UTRA_TDD, \, intra}$ is 800 ms

A cell shall be considered detectable when

- RSRP related side condition given in Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP \geq -127 dBm for Bands 33, 34, 35, 36, 37, 38, 39, 40 and SCH $\hat{E}_s/Iot \geq$ 6 dB.

 T_{Intra} : This is the minimum time that is available for intra frequency measurements, during the measurement period with an arbitrarily chosen timing. Time is assumed to be available for performing intra frequency measurements whenever the receiver is guaranteed to be active on the intra frequency carrier.

Identification of a cell shall include detection of the cell and additionally performing a single measurement with measurement period of $T_{Measurement_Period Intra}$. If higher layer filtering is used, an additional cell identification delay can be expected.

In the RRC_CONNECTED state the measurement period for intra frequency measurements is 200 ms. When no measurement gaps are activated, the UE shall be capable of performing RSRP and RSRQ measurements for 8 identified-intra-frequency cells, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of 200 ms. When measurement gaps are activated the UE shall be capable of performing measurements for at least $Y_{measurement intra}$ cells , where $Y_{measurement intra}$ is defined in the following equation. If the UE has identified more than $Y_{measurement intra}$ cells, the UE shall perform measurements of at least 8 identified intra-frequency cells but the reporting rate of RSRP and RSRQ measurements of cells from UE physical layer to higher layers may be decreased.

$$Y_{\text{measurement intra}} = Floor \left\{ X_{\text{basic measurement TDD}} \cdot \frac{T_{\text{Intra}}}{T_{\text{Measurement_Period, Intra}}} \right\} \text{ cells}$$

where

 $X_{\text{basic measurement TDD}} = 8$ (cells)

 $T_{Measurement_Period Intra} = 200 \text{ ms.}$ The measurement period for Intra frequency RSRP and RSRQ measurements.

The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.

8.1.2.2.2.1.1 Measurement Reporting Requirements

8.1.2.2.2.1.1.1 Periodic Reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.2.2.1.1.2 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.2.2.1.1.3 Event Triggered Reporting.

8.1.2.2.2.1.1.3 Event Triggered Reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T $_{identify intra}$ defined in Section 8.1.2.2.2.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify_intra}$ defined in section 8.1.2.2.2.1 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{Measurement_Period Intra}$ provided the timing to that cell has not changed more than \pm 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.2.2.2 E-UTRAN intra frequency measurements when DRX is used

When DRX is in use the UE shall be able to identify a new detectable TDD intra frequency cell within $T_{identify_{intra}}$ as shown in table 8.1.2.2.2-1

DRX cycle length (s)	T _{identify_intra} (s) (DRX cycles)		
≤0.04	0.8 (Note1)		
0.04 <drx-< td=""><td>Note2 (40)</td></drx-<>	Note2 (40)		
cycle≤0.08			
0.128	3.2 (25)		
0.128 <drx-< td=""><td>Note2(20)</td></drx-<>	Note2(20)		
cycle≤2.56			
Note1: Number	Note1: Number of DRX cycle		
depends upon the DRX cycle in use			
Note2: Time depends upon the DRX			
cycle in use			

Table 8.1.2.2.2.2-1: Requirement to identify a newly detectable TDD intrafrequency cell

A cell shall be considered detectable when

- RSRP related side condition given in Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP \geq -127 dBm for Bands 33, 34, 35, 36, 37, 38, 39, 40 and SCH $\hat{E}_s/Iot \geq$ 6 dB.

In the RRC_CONNECTED state the measurement period for intra frequency measurements is $T_{measure_intra}$ as shown in table 8.1.2.2.2.2.2. The UE shall be capable of performing RSRP and RSRQ measurements for 8 identified-intra-frequency cells and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{measure_intra}$.

Table 8.1.2.2.2.2-2: Requirement to measure TDD intra frequency cells

DRX cycle length (s)	T _{measure_intra} (s) (DRX cycles)	
≤0.04	0.2 (Note1)	
0.04 <drx- cycle≤2.56</drx- 	Note2 (5)	
Note1: Number of DRX cycle depends upon the DRX cycle in use.		
Note2: Time depends upon the DRX cycle in use.		

The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.

8.1.2.2.2.1 Measurement Reporting Requirements

8.1.2.2.2.2.1.1 Periodic Reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.2.2.1.2 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.2.2.2.1.3 Event Triggered Reporting.

8.1.2.2.2.2.1.3 Event Triggered Reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T $_{identify_{intra}}$ defined in Section 8.1.2.2.2.2. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify_intra}$ defined in section 8.1.2.2.2.2 becomes undetectable for a period ≤ 5 seconds and then the cell becomes detectable again and triggers an event, the event triggered measurement reporting delay shall be less than $T_{measure_intra}$ provided the timing to that cell has not changed more than \pm 50 Ts and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.2.3 E-UTRAN FDD intra frequency measurements with autonomous gaps

8.1.2.2.3.1 Identification of a new CGI of E-UTRA cell with autonomous gaps

No explicit neighbour list is provided to the UE for identifying a new CGI of E-UTRA cell. The UE shall identify and report the CGI when requested by the network for the purpose 'reportCGI'. The UE may make autonomous gaps in downlink reception and uplink transmission for receiving MIB and SIB1 message according to section 5.5.3.1 of 36.331 [2]. Note that a UE is not required to use autonomous gap if si-RequestForHO is set to false. If autonomous gaps are used for measurement with the purpose of 'reportCGI', the UE shall be able to identify a new CGI of E-UTRA cell within:

$$T_{identify_CGI, intra} = T_{basic_identify_CGI, intra}$$
 ms

Where

 $T_{\text{basic_identify}_CGI, intra} = 150 \text{ ms.}$ This is the time period used in the above equation where the maximum allowed time for the UE to identify a new CGI of an E-UTRA cell is defined.

A cell shall be considered identifiable following conditions are fulfilled:

- RSRP related side conditions given in Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP|dBm \geq -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21 and SCH $\hat{E}s/Iot \geq$ -6 dB,
- SCH_RP|dBm \geq -126 dBm for Band 9 and SCH $\hat{E}s/Iot \geq$ -6 dB,
- SCH_RP|dBm \geq -125 dBm for Bands 2, 5, 7 and SCH \hat{E} s/Iot \geq -6 dB,
- SCH_RP|dBm \geq -124 dBm for Bands 3, 8, 12, 13, 14, 17, 20 and SCH $\hat{E}s/Iot \geq$ -6 dB.

The MIB of an E-UTRA cell whose CGI is identified shall be considered decodable by the UE provided the PBCH demodulation requirements are met according to [5].

The requirement for identifying a new CGI of an E-UTRA cell within $T_{basic_identify_CGI,intra}$ is applicable when no DRX is used as well as when all the DRX cycles specified in 3GPP TS 36.331 [2] are used.

Within the time, $T_{identify_CGI, intra}$ ms, over which the UE identifies the new CGI of E-UTRA cell, the UE shall have more than 60 ACK/NACKs transmitted, provided that:

- there is continuous DL data allocation,
- no DRX cycle is used,
- no measurement gaps are configured,
- only one code word is transmitted in each subframe,
- no MBSFN subframes are configured in the PCell.

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8.1.2.2.3.2 ECGI Reporting Delay

The ECGI reporting delay occurs due to the delay uncertainty when inserting the ECGI measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. In case DRX is used, the ECGI reporting may be delayed until the next DRX cycle.

8.1.2.2.4 E-UTRAN TDD intra frequency measurements with autonomous gaps

8.1.2.2.4.1 Identification of a new CGI of E-UTRA cell with autonomous gaps

No explicit neighbour list is provided to the UE for identifying a new CGI of E-UTRA cell. The UE shall identify and report the CGI when requested by the network for the purpose 'reportCGI'. The UE may make autonomous gaps in downlink reception and uplink transmission for receiving MIB and SIB1 messages according to section 5.5.3.1 of 36.331 [2]. Note that a UE is not required to use autonomous gap if si-RequestForHO is set to false. If autonomous gaps are used for measurement with the purpose of 'reportCGI', the UE shall be able to identify a new CGI of E-UTRA cell within:

 $T_{identify_CGI, intra} = T_{basic_identify_CGI, intra}$ ms

Where

 $T_{\text{basic_identify}_CGI, intra} = 150 \text{ ms.}$ This is the time period used in the above equation where the maximum allowed time for the UE to identify a new CGI of an E-UTRA cell is defined.

A cell shall be considered identifiable when the following conditions are fulfilled:

- RSRP related side conditions given in Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP \geq -127 dBm for Bands 33, 34, 35, 36, 37, 38, 39, 40 and SCH $\hat{E}_s/Iot \geq$ 6 dB.

The MIB of an E-UTRA cell whose CGI is identified shall be considered decodable by the UE provided the PBCH demodulation requirements are met according to [5].

The requirement for identifying a new CGI of an E-UTRA cell within $T_{basic_identify_CGI, intra}$ is applicable when no DRX is used as well as when all the DRX cycles specified in 3GPP TS 36.331 [2] are used.

Within the time, $T_{identify_CGI, intra}$ ms, over which the UE identifies the new CGI of E-UTRA cell, the UE shall be able to transmit at least the number of ACK/NACKs stated in Table 8.1.2.2.4.1-1 provided that:

- there is continuous DL data allocation,
- no DRX cycle is used,
- no measurement gaps are configured,
- only one code word is transmitted in each subframe,
- no MBSFN subframes are configured in the PCell.

Table 8.1.2.2.4.1-1: Requirement on minimum number of ACK/NACKs to transmit during

Tbasic_identify_CGI, intra-

UL/DL configuration	Minimum number of transmitted ACK/NACKs
0	18
1	35
2	43
3	36
4	39
5	42
6	30

8.1.2.2.4.2 ECGI Reporting Delay

The ECGI reporting delay occurs due to the delay uncertainty when inserting the ECGI measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. In case DRX is used, the ECGI reporting may be delayed until the next DRX cycle.

8.1.2.3 E-UTRAN inter frequency measurements

The UE shall be able to identify new inter-frequency cells and perform RSRP measurements of identified interfrequency cells if carrier frequency information is provided by the serving cell, even if no explicit neighbour list with physical layer cell identities is provided.

8.1.2.3.1 E-UTRAN FDD – FDD inter frequency measurements

8.1.2.3.1.1 E-UTRAN FDD – FDD inter frequency measurements when no DRX is used

When measurement gaps are scheduled the UE shall be able to identify a new FDD inter-frequency within $T_{Identify_Inter}$ according to the following expression:

$$T_{Identify_Inter} = T_{Basic_Identify_Inter} \cdot \frac{480}{T_{Inter]}} \cdot N_{freq} \quad ms$$

Where:

 $T_{Basic_Identify_Inter} = 480$ ms. It is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new FDD inter-frequency cell is defined.

 N_{freq} is defined in section 8.1.2.1.1 and T_{inter1} is defined in section 8.1.2.1

A cell shall be considered detectable provided following conditions are fulfilled:

- RSRP $|_{dBm} \ge -125 \text{ dBm}$ and for Bands 1, 4, 6, 10, 11, 18, 19, 21 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- RSRP $|_{dBm} \ge -124 \text{ dBm}$ for Bands 9 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- RSRP $|_{dBm} \ge -123 \text{ dBm}$ for Bands 2, 5, 7 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- RSRP|_{dBm}≥ -122 dBm for Bands 3, 8, 12, 13, 14, 17, 20 and RSRP $\hat{E}_s/Iot \ge -4 dB$,
- other RSRP related side conditions given in Section 9.1 are fulfilled.
- SCH_RP|_{dBm} \ge -125 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21 and SCH $\hat{E}_s/Iot \ge -4 dB$,
- SCH_RP|_{dBm} \geq -124 dBm for Band 9 and SCH \hat{E} s/Iot \geq -4 dB,
- SCH_RP $|_{dBm} \ge -123$ dBm for Bands 2, 5, 7 and SCH $\hat{E}s/Iot \ge -4$ dB,
- SCH_RP $|_{dBm} \ge -122 \text{ dBm}$ for Bands 3, 8, 12, 13, 14, 17, 20 and SCH $\hat{E}s/Iot \ge -4 \text{ dB}$.

When measurement gaps are scheduled for FDD inter frequency measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.3 with measurement period given by table 8.1.2.3.1.1-1.

Configuration	Physical Layer Measurement period: T _{Measurement_Period_Inter_FDD} [ms]	Measurement bandwidth [RB]
0	480 x N _{freq}	6
1 (Note)	240 x N _{freq}	50
Note: This configuration is optional		

Table 8.1.2.3.1.1-1: RSRP measurement period and measurement bandwidth

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 inter-frequency cells per FDD inter-frequency for up to 3 FDD inter-frequencies and the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with the measurement period defined in Table 8.1.2.3.1.1-1.

8.1.2.3.1.1.1 Measurement Reporting Requirements

8.1.2.3.1.1.1.1 Periodic Reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.3.1.1.1.2 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2. 3.1.1.1.3 Event Triggered Reporting.

8.1.2.3.1.1.1.3 Event Triggered Reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than T $_{identify-inter}$ defined in Section 8.1.2.3.1.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify_inter}$ defined in section 8.1.2.3.1.1 and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement_Period_Inter_FDD}$ defined in section 8.1.2.3.1.1 provided the timing to that cell has not changed more than ± 50 Ts while measurement gap has not been available and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.3.1.2 E-UTRAN FDD – FDD inter frequency measurements when DRX is used

When DRX is in use the UE shall be able to identify a new detectable E-UTRAN FDD inter frequency cell within $T_{identify_inter}$ as shown in table 8.1.2.3.1.2-1

DRX	Tidentify_inter (s) (DRX cycles)		
cycle	Gap period	Gap period	
length (s)	= 40 ms	= 80 ms	
≤0.16	Non DRX	Non DRX	
	Requirements	Requirements	
	in section	in section	
	8.1.2.3.1.1	8.1.2.3.1.1	
	are applicable	are applicable	
0.256	5.12*N _{freq}	7.68*N _{freq}	
	(20*N _{freq})	(30*N _{freq})	
0.32	6.4*N _{freq}	7.68*N _{freq}	
	(20*N _{freq})	(24*N _{freq})	
0.32<	Note	Note	
DRX-	(20*N _{freq})	(20*N _{freq})	
cycle≤2.56	,		
Note: Time depends upon the DRX			
cycle in use			

A cell shall be considered detectable provided following conditions are fulfilled:

- RSRP $|_{dBm} \ge -125 \text{ dBm}$ and for Bands 1, 4, 6, 10, 11, 18, 19, 21 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- RSRP $|_{dBm} \ge -124 \text{ dBm}$ for Bands 9 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- RSRP $|_{dBm} \ge -123 \text{ dBm}$ for Bands 2, 5, 7 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- RSRP|_{dBm}≥ -122 dBm for Bands 3, 8, 12, 13, 14, 17, 20 and RSRP $\hat{E}_s/Iot \ge -4 dB$,
- other RSRP related side conditions given in Section 9.1 are fulfilled,
- SCH_RP|_{dBm} \geq -125 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21 and SCH $\hat{E}s/Iot \geq -4 dB$,
- SCH_RP|_{dBm} \ge -124 dBm for Band 9 and SCH $\hat{E}s/Iot \ge -4 dB$,
- SCH_RP $|_{dBm} \ge -123$ dBm for Bands 2, 5, 7 and SCH $\hat{E}s/Iot \ge -4$ dB,
- SCH_RP $|_{dBm} \ge$ -122 dBm for Bands 3, 8, 12, 13, 14, 17, 20 and SCH $\hat{E}s/Iot \ge$ -4 dB.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 inter-frequency cells per FDD inter-frequency and the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with the measurement period defined in table 8.1.2.3.1.2-2.

Table 8.1.2.3.1.2-2: Reg	uirement to measure FDD) interfrequency cells

DRX cycle length (s)	T _{measure_inter} (s) (DRX cycles)	
≤0.08	Non DRX	
	Requirements in	
	section 8.1.2.3.1.1	
	are applicable	
0.08 <drx-< td=""><td>Note (5*N_{freq})</td></drx-<>	Note (5*N _{freq})	
cycle≤2.56		
Note: Time depends upon the DRX		
cycle in use		

The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.

8.1.2.3.1.2.1 Measurement Reporting Requirements

8.1.2.3.1.2.1.1 Periodic Reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.3.1.2.1.2 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2. 3.1.2.1.3 Event Triggered Reporting.

8.1.2.3.1.2.1.3 Event Triggered Reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify_{inter}}$ defined in Section 8.1.2.3.1.2. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify_inter}$ defined in section 8.1.2.3.1.2 and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{measure_inter}$ defined in section 8.1.2.3.1.2 provided the timing to that cell has not changed more than ± 50 Ts while measurement gap has not been available and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.3.2 E-UTRAN TDD – TDD inter frequency measurements

8.1.2.3.2.1 E-UTRAN TDD – TDD inter frequency measurements when no DRX is used

When measurement gaps are scheduled the UE shall be able to identify a new TDD inter-frequency within $T_{Identify_Inter}$ according to the following expression:

$$T_{\text{Identify_Inter}} = T_{\text{Basic_Identify_Inter}} \cdot \frac{480}{T_{\text{Inter}1}} \cdot N_{freq} \quad ms$$

Where:

 $T_{Basic_Identify_Inter} = 480$ ms. It is the time period used in the inter frequency equation where the maximum allowed time for the UE to identify a new TDD inter-frequency cell is defined.

 N_{freq} is defined in section 8.1.2.1.1 and T_{inter1} is defined in section 8.1.2.1

A cell shall be considered detectable provided following conditions are fulfilled:

- RSRP $|_{dBm} \ge -125 \text{ dBm}$ and for Bands 33, 34, 35, 36, 37, 38, 39, 40 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- other RSRP related side conditions given in Section 9.1 are fulfilled.
- SCH_RP|_{dBm} \geq -125 dBm for Bands 33, 34, 35, 36, 37, 38, 39, 40 and SCH $\hat{E}s/Iot \geq$ -4 dB.

When measurement gaps are scheduled for TDD inter frequency measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in sub-clause 9.1.3 with measurement period ($T_{Measurement Period TDD Inter$) given by table 8.1.2.3.2.1-1:

Configuration	Measurement bandwidth [RB]	Number of UL/DL sub- frames per half frame (5 ms)		DwPTS		T _{Measurement_} Period_TDD _Inter [ms]
		DL	UL	Normal CP	Extended CP	
0	6	2	2	$19760 \cdot T_s$	$20480 \cdot T_s$	480 x N _{freq}
1 (Note 1)	50	2	2	$19760 \cdot T_s$	$20480 \cdot T_s$	240 x N _{freq}
Note 1: This configuration is optional						
Note 2: T _s is defined in 3GPP TS 36.211 [16]						

Table 8.1.2.3.2.1-1: T_{Measurement_Period_TDD_Inter} for different configurations

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 inter-frequency cells per TDD inter-frequency and the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with the measurement period $T_{Measurement_Period_TDD_Inter}$.

8.1.2.3.2.1.1 Measurement Reporting Requirements

8.1.2.3.2.1.1.1 Periodic Reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.3.2.1.1.2 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.3.2.1.1.3 Event Triggered Reporting.

8.1.2.3.2.1.1.3 Event Triggered Reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{Identify_Inter}$ defined in Section 8.1.2.3.2.1. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{Identify_Inter}$ defined in section 8.1.2.3.2.1 and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{Measurement_Period_TDD_Inter}$ defined in section 8.1.2.3.2.1 provided the timing to that cell has not changed more than \pm 50 Ts while measurementgap has not been available and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.3.2.2 E-UTRAN TDD – TDD inter frequency measurements when DRX is used

When DRX is in use the UE shall be able to identify a new detectable E-UTRAN TDD inter frequency cell within $T_{identify_inter}$ as shown in table 8.1.2.3.2.2-1

DRX cycle	Tidentify_inter (s) (DRX cycles)		
length (s)	Gap period	Gap period	
	= 40 ms	= 80 ms	
≤0.16	Non DRX	Non DRX	
	Requirements	Requirements	
	in section	in section	
	8.1.2.3.2.1	8.1.2.3.2.1	
	are applicable	are applicable	
0.256	5.12*Nfreq	7.68*Nfreq	
	(20*Nfreq)	(30*Nfreq)	
0.32	6.4*Nfreq	7.68*Nfreq	
	(20*Nfreq)	(24*Nfreq)	
0.32 <drx-< td=""><td>Note</td><td>Note</td></drx-<>	Note	Note	
cycle≤2.56	(20*Nfreq)	(20*Nfreq)	
Note: Time depends upon the DRX			
cycle in use			

Table 8.1.2.3.2.2-1: Requirement to identify a newly detectable TDD interfrequency cell

A cell shall be considered detectable provided following conditions are fulfilled:

- RSRP $|_{dBm} \ge -125 \text{ dBm}$ and for Bands 33, 34, 35, 36, 37, 38, 39, 40 and RSRP $\hat{E}s/Iot \ge -4 \text{ dB}$,
- RSRP related side conditions given in Section 9.1 are fulfilled,
- SCH_RP|_{dBm} \geq -125 dBm for Bands 33, 34, 35, 36, 37, 38, 39, 40 and SCH $\hat{E}s/Iot \geq -4$ dB.

The UE shall be capable of performing RSRP and RSRQ measurements of at least 4 inter-frequency cells per TDD inter-frequency for up to 3 TDD inter-frequencies and the UE physical layer shall be capable of reporting RSRP and RSRQ measurements to higher layers with the measurement period defined in Table 8.1.2.3.2.2-2.

Table 8.1.2.3.2.2-2: Requirement to measure TDD interfrequency cells

DRX cycle length (s)	T _{measure_inter} (s) (DRX cycles)	
≤0.08	Non DRX	
	Requirements in	
	section 8.1.2.3.2.1	
	are applicable	
0.08 <drx-< td=""><td>Note (5*N_{freq})</td></drx-<>	Note (5*N _{freq})	
cycle≤2.56		
Note: Time	e depends upon the	
DRX	DRX cycle in use	

The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.

8.1.2.3.2.2.1 Measurement Reporting Requirements

8.1.2.3.2.2.1.1 Periodic Reporting

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.3.2.2.1.2 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.3.2.2.1.3 Event Triggered Reporting.

8.1.2.3.2.2.1.3 Event Triggered Reporting

Reported measurements contained in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: 2 x TTI_{DCCH}. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{Identify_Inter}$ defined in Section 8.1.2.3.2.2. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{Identify_Inter}$ in section 8.1.2.3.2.2 and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{measure_inter}$ in section 8.1.2.3.2.2 provided the timing to that cell has not changed more than \pm 50 Ts while measurement gap has not been available and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.3.3 E-UTRAN TDD – FDD inter frequency measurements

8.1.2.3.3.1 E-UTRAN TDD – FDD inter frequency measurements when no DRX is used

The requirements in this section shall apply to UE supporting FDD and TDD.

The requirements in section 8.1.2.3.1.1 also apply for this section.

8.1.2.3.3.2 E-UTRAN TDD – FDD inter frequency measurements when DRX is used

The requirements in this section shall apply to UE supporting FDD and TDD.

The requirements in section 8.1.2.3.1.2 also apply for this section.

8.1.2.3.4 E-UTRAN FDD – TDD inter frequency measurements

8.1.2.3.4.1 E-UTRAN FDD – TDD inter frequency measurements when no DRX is used

The requirements in this section shall apply to UE supporting FDD and TDD.

The requirements in section 8.1.2.3.2.1 also apply for this section.

8.1.2.3.4.2 E-UTRAN FDD – TDD inter frequency measurements when DRX is used

The requirements in this section shall apply to UE supporting FDD and TDD.

The requirements in section 8.1.2.3.2.2 also apply for this section.

8.1.2.3.5 E-UTRAN FDD-FDD inter frequency measurements with autonomous gaps

8.1.2.3.5.1 Identification of a new CGI of E-UTRA FDD cell with autonomous gaps

No explicit neighbour list is provided to the UE for identifying a new CGI of E-UTRA cell. The UE shall identify and report the CGI when requested by the network for the purpose of 'reportCGI'. The UE may make autonomous gaps in both downlink reception and uplink transmission for receiving MIB and SIB1 message according to section 5.5.3.1 of 36.331 [2]. Note that a UE is not required to use autonomous gap if si-RequestForHO is set to false. If autonomous gaps are used for measurement with the purpose of 'reportCGI', regardless of whether DRX is used or not, the UE shall be able to identify a new CGI of E-UTRA cell within:

 $T_{identify CGI, inter} = T_{basic identify CGI, inter}$ ms

Where

 $T_{\text{basic_identify_CGI, inter}} = 150 \text{ ms.}$ This is the time period used in the above equation where the maximum allowed time for the UE to identify a new CGI of E-UTRA cell is defined.

A cell shall be considered identifiable following conditions are fulfilled:

- RSRP related side conditions given in Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP|dBm \geq -125 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21 and SCH $\hat{E}s/Iot \geq$ -4 dB,
- SCH_RP|dBm \geq -124 dBm for Band 9 and SCH \hat{E} s/Iot \geq -4 dB,
- SCH_RP|dBm \geq -123 dBm for Bands 2, 5, 7 and SCH $\hat{E}s/Iot \geq$ -4 dB,
- SCH_RP|dBm \ge -122 dBm for Bands 3, 8, 12, 13, 14, 17, 20 and SCH $\hat{E}s/Iot \ge -4$ dB.

The MIB of an E-UTRA cell whose CGI is identified shall be considered decodable by the UE provided the PBCH demodulation requirements are met according to [5].

The requirement for identifying a new CGI of an E-UTRA cell within $T_{basic_identify_CGI,inter}$ is applicable when no DRX is used as well as when all the DRX cycles specified in 3GPP TS 36.331 [2] are used.

Within the time, $T_{identify_CGI, inter}$ ms, over which the UE identifies the new CGI of E-UTRA cell, the UE shall have more than 60 ACK/NACK, provided that:

- there is continuous DL data allocation,
- no DRX cycle is used,
- no measurement gaps are configured,
- only one code word is transmitted in each subframe,
- no MBSFN subframes are configured in the PCell.

8.1.2.3.5.2 ECGI Reporting Delay

The ECGI reporting delay occurs due to the delay uncertainty when inserting the ECGI measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. In case DRX is used, the ECGI reporting may be delayed until the next DRX cycle.

8.1.2.3.6 E-UTRAN TDD-FDD inter frequency measurements using autonomous gaps

The requirements in this section shall apply to UE supporting FDD and TDD.

8.1.2.3.6.1 Identification of a new CGI of E-UTRA FDD cell with autonomous gaps

No explicit neighbour list is provided to the UE for identifying a new CGI of E-UTRA cell. The UE shall identify and report the CGI when requested by the network for the purpose of 'reportCGI'. The UE may make autonomous gaps in both downlink reception and uplink transmission for receiving MIB and SIB1 message according to section 5.5.3.1 of 36.331 [2]. Note that a UE is not required to use autonomous gap if si-RequestForHO is set to false. If autonomous gaps are used for measurement with the purpose of 'reportCGI', regardless of whether DRX is used or not, the UE shall be able to identify a new CGI of E-UTRA cell within:

$$T_{identify_CGI, inter} = T_{basic_identify_CGI, inter}$$
 ms

Where

 $T_{\text{basic_identify_CGI, inter}} = 150 \text{ ms.}$ This is the time period used in the above equation where the maximum allowed time for the UE to identify a new CGI of E-UTRA cell is defined.

A cell shall be considered identifiable following conditions are fulfilled:

- RSRP related side conditions given in Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP|dBm \geq -125 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21 and SCH $\hat{E}s/Iot \geq$ -4 dB,
- SCH_RP|dBm \geq -124 dBm for Band 9 and SCH $\hat{E}s/Iot \geq$ -4 dB,
- SCH_RP|dBm \geq -123 dBm for Bands 2, 5, 7 and SCH $\hat{E}s/Iot \geq$ -4 dB,
- SCH_RP|dBm \geq -122 dBm for Bands 3, 8, 12, 13, 14, 17, 20 and SCH $\hat{E}s/Iot \geq$ -4 dB.

The MIB of an E-UTRA cell whose CGI is identified shall be considered decodable by the UE provided the PBCH demodulation requirements are met according to [5].

The requirement for identifying a new CGI of an E-UTRA cell within $T_{basic_identify_CGI,inter}$ is applicable when no DRX is used as well as when all the DRX cycles specified in 3GPP TS 36.331 [2] are used.

Given that TDD configuration as in Table 8.1.2.3.2.1-1 is used, the UE shall have more than 30 ACK/NACK transmitted during the identification of a new CGI of E-UTRA cell, provided that:

- there is continuous DL data allocation,
- no DRX cycle is used,
- no measurement gaps are configured,
- only one code word is transmitted in each subframe,
- no MBSFN subframes are configured in the PCell.

8.1.2.3.6.2 ECGI Reporting Delay

The ECGI reporting delay occurs due to the delay uncertainty when inserting the ECGI measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. In case DRX is used, the ECGI reporting may be delayed until the next DRX cycle.

8.1.2.3.7 E-UTRAN TDD-TDD inter frequency measurements with autonomous gaps

8.1.2.3.7.1 Identification of a new CGI of E-UTRA TDD cell with autonomous gaps

No explicit neighbour list is provided to the UE for identifying a new CGI of E-UTRA cell. The UE shall identify and report the CGI when requested by the network for the purpose of 'reportCGI'. The UE may make autonomous gaps in both downlink reception and uplink transmission according to section 5.5.3.1 of 36.331 [2]. Note that a UE is not required to use autonomous gap if si-RequestForHO is set to false. If autonomous gaps are used for measurement with the purpose of 'reportCGI', regardless of whether DRX is used or not, the UE shall be able to identify a new CGI of E-UTRA cell within:

$$T_{identify_CGI, inter} = T_{basic_identify_CGI, inter}$$
 ms

Where

 $T_{\text{basic_identify_CGI, inter}} = 150 \text{ ms.}$ This is the time period used in the above equation where the maximum allowed time for the UE to identify a new CGI of E-UTRA cell is defined.

A cell shall be considered identifiable following conditions are fulfilled:

- RSRP related side conditions given in Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP \geq -125 dBm for Bands 33, 34, 35, 36, 37, 38, 39, 40 and SCH $\hat{E}s/Iot \geq$ 4 dB.

The MIB of an E-UTRA cell whose CGI is identified shall be considered decodable by the UE provided the PBCH demodulation requirements are met according to [5].

The requirement for identifying a new CGI of an E-UTRA cell within $T_{basic_identify_CGI,inter}$ is applicable when no DRX is used as well as when all the DRX cycles specified in 3GPP TS 36.331 [2] are used.

Given that TDD configuration as in Table 8.1.2.3.2.1-1 is used, the UE shall have more than 30 ACK/NACKs transmitted during the identification of a new CGI of E-UTRA cell, provided that:

- there is continuous DL data allocation,
- no DRX cycle is used,
- no measurement gaps are configured,
- only one code word is transmitted in each subframe,
- no MBSFN subframes are configured in the PCell.

8.1.2.3.7.2 ECGI Reporting Delay

The ECGI reporting delay occurs due to the delay uncertainty when inserting the ECGI measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. In case DRX is used, the ECGI reporting may be delayed until the next DRX cycle.

8.1.2.3.8 E-UTRAN FDD-TDD inter frequency measurements using autonomous gaps

The requirements in this section shall apply to UE supporting FDD and TDD.

8.1.2.3.8.1 Identification of a new CGI of E-UTRA TDD cell with autonomous gaps

No explicit neighbour list is provided to the UE for identifying a new CGI of E-UTRA cell. The UE shall identify and report the CGI when requested by the network for the purpose of 'reportCGI'. The UE may make autonomous gaps in both downlink reception and uplink transmission according to section 5.5.3.1 of 36.331 [2]. Note that a UE is not required to use autonomous gap if si-RequestForHO is set to false. If autonomous gaps are used for measurement with the purpose of 'reportCGI', regardless of whether DRX is used or not, the UE shall be able to identify a new CGI of E-UTRA cell within:

 $T_{identify_CGI, inter} = T_{basic_identify_CGI, inter}$ ms

Where

 $T_{\text{basic_identify_CGI, inter}} = 150 \text{ ms.}$ This is the time period used in the above equation where the maximum allowed time for the UE to identify a new CGI of E-UTRA cell is defined.

A cell shall be considered identifiable following conditions are fulfilled:

- RSRP related side conditions given in Section 9.1 are fulfilled for a corresponding Band,
- SCH_RP \geq -125 dBm for Bands 33, 34, 35, 36, 37, 38, 39, 40 and SCH $\hat{E}s/Iot \geq$ 4 dB.

The MIB of an E-UTRA cell whose CGI is identified shall be considered decodable by the UE provided the PBCH demodulation requirements are met according to [5].

The requirement for identifying a new CGI of an E-UTRA cell within $T_{basic_identify_CGI,inter}$ is applicable when no DRX is used as well as when all the DRX cycles specified in 3GPP TS 36.331 [2] are used.

Within the time, $T_{identify_CGI, intra}$ *ms*, over which the UE identifies the new CGI of E-UTRA cell, the UE shall transmit at least 60 ACK/NACKs provided that:

- there is continuous DL data allocation,
- no DRX cycle is used,
- no measurement gaps are configured,
- only one code word is transmitted in each subframe,

- no MBSFN subframes are configured in the PCell.

8.1.2.3.8.2 ECGI Reporting Delay

The ECGI reporting delay occurs due to the delay uncertainty when inserting the ECGI measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. In case DRX is used, the ECGI reporting may be delayed until the next DRX cycle.

8.1.2.4 Inter RAT measurements

8.1.2.4.1 E-UTRAN FDD – UTRAN FDD measurements

8.1.2.4.1.1 E-UTRAN FDD – UTRAN FDD measurements when no DRX is used

8.1.2.4.1.1.1 Identification of a new UTRA FDD cell

When explicit neighbour list is provided and no DRX is used the UE shall be able to identify a new detectable cell belonging to the monitored set within

$$T_{\text{identify, UTRA_FDD}} = T_{\text{basic_identify}_UTRA_FDD} \cdot \frac{480}{T_{\text{inter1}}} \cdot N_{Freq} \quad ms$$

A cell shall be considered detectable when

- CPICH Ec/Io \geq -20 dB,
- SCH_Ec/Io ≥ -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

8.1.2.4.1.1.1a Enhanced UTRA FDD cell identification requirements

When explicit neighbour list is provided and no DRX is used or when DRX cycle length ≤ 40 ms the UE shall be able to identify a new detectable cell belonging to the monitored set within T_{identify, enhanced_UTRA_FDD}:

$$T_{\text{identify, enhanced_UTRA_FDD}} = (T_{\text{basic_identify_enhanced_UTRA_FDD}} \cdot \frac{480}{T_{\text{inter1}}} + 480) N_{Freq} \quad ms$$

A cell shall be considered detectable when:

- CPICH Ec/Io \geq -15 dB,
- SCH_Ec/Io ≥ -15 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

8.1.2.4.1.1.2 UE UTRA FDD CPICH measurement capability

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When measurement gaps are scheduled for UTRA FDD inter RAT measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in Section 9.2 with measurement period given by

$$\mathbf{T}_{\text{measurement}_UTRA_FDD} = Max \left\{ \mathbf{T}_{\text{Measurement}_Period UTRA_FDD}, \mathbf{T}_{\text{basic}_measurement}_UTRA_FDD} \cdot \frac{480}{\mathbf{T}_{\text{inter1}}} \cdot N_{Freq} \right\} ms$$

If the UE does not need measurement gaps to perform UTRA FDD measurements, the measurement period for UTRA FDD measurements is 480 ms.

The UE shall be capable of performing UTRA FDD CPICH measurements for $X_{basic\ measurementUTRA_FDD}$ inter-frequency cells per FDD frequency and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{Measurement_UTRA_FDD}$.

 $X_{\text{basic measurement UTRA}_FDD} = 6$

 $T_{Measurement_Period UTRA_FDD} = 480 \text{ ms.}$ The period used for calculating the measurement period $T_{measurement_UTRA_FDD}$ for UTRA FDD CPICH measurements.

 $T_{\text{basic_identify}_UTRA_FDD} = 300 \text{ ms.}$ This is the time period used in the inter RAT equation in section 8.1.2.4.1.1.1 where the maximum allowed time for the UE to identify a new UTRA FDD cell is defined.

 $T_{\text{basic_identify}_enhanced_UTRA_FDD} = 60 \text{ ms.}$ This is the time period used in the inter RAT equation in section 8.1.2.4.1.1.1a where the maximum allowed time for the UE to identify a new UTRA FDD cell is defined.

 $T_{\text{basic_measurement_UTRA_FDD}} = 50$ ms. This is the time period used in the equation for defining the measurement period for inter RAT CPICH measurements.

 N_{freq} is defined in section 8.1.2.1.1 and T_{interl} is defined in section 8.1.2.1

8.1.2.4.1.1.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.4.1.1.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as the reporting criteria is not fulfilled.

The measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay uncertainty for the uplink DCCH. This measurement reporting delay excludes a delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify, UTRA_FDD}$ defined in Section 8.1.2.4.1.1.1 for the minimum requirements or $T_{identify, enhanced_UTRA_FDD}$ defined in Section 8.1.2.4.1.1.1 a for the enhanced requirements When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify, UTRA_FDD}$ defined in section 8.1.2.4.1.1.1 for the minimum requirements or $T_{identify, enhanced_UTRA_FDD}$ defined in Section 8.1.2.4.1.1.1 a for the enhanced requirements and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{measurement_UTRA_FDD}$ defined in section 8.1.2.4.1.1.2 provided the timing to that cell has not changed more than \pm 32 chips while measurement gap has not been available and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.4.1.1.5 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.4.1.1.4 Event Triggered Reporting.

8.1.2.4.1.2 E-UTRAN FDD – UTRAN FDD measurements when DRX is used

When explicit neighbour list is provided and DRX is used the UE shall be able to identify a new detectable cell belonging to the neighbour cell list within $T_{identify,UTRA_FDD}$ as shown in table 8.1.2.4.1.2-1

DRX cycle length (s)	T _{identify_UTRA_FDD} (s) (DRX cycles)	
	Gap period =	Gap period
	40 ms	= 80 ms
≤0.04	Non DRX	Non DRX
	Requirements	Requirements
	in section	in section
	8.1.2.4.1.1 are	8.1.2.4.1.1
	applicable	are applicable
0.064	2.56* Nfreq	4.8* Nfreq
	(40* Nfreq)	(75* Nfreq)
0.08	3.2* Nfreq	4.8* Nfreq
	(40* Nfreq)	(60* Nfreq)
0.128	3.2* Nfreq (25*	4.8* Nfreq
	Nfreq)	(37.5* Nfreq)
0.16	3.2* Nfreq (20*	4.8* Nfreq
	Nfreq)	(30* Nfreq)
0.16 <drx-< td=""><td>Note (20*</td><td>Note</td></drx-<>	Note (20*	Note
cycle≤2.56	Nfreq)	(20* Nfreq)
Note: Time depends upon the DRX cycle in		
use		

Table 8.1.2.4.1.2-1: Requirement to identify a newly detectable UTRA FDD cell

A cell shall be considered detectable provided following conditions are fulfilled: A cell shall be considered detectable when

- CPICH Ec/Io \geq -20 dB,
- SCH_Ec/Io \geq -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

The UE shall be capable of performing RSCP and Ec/Io measurements of at least 6 UTRA cells per UTRA FDD carrier for up to 3 UTRA FDD carriers and the UE physical layer shall be capable of reporting RSCP and Ec/Io measurements to higher layers with the measurement period defined in table 8.1.2.3.1.2-2.

DRX cycle length (s)	T _{measure_UTRA_FDD} (s) (DRX cycles)	
	Gap period = 40 ms	Gap period = 80 ms
≤0.04	Non DRX Requirements in section 8.1.2.4.1.1 are applicable	Non DRX Requirements in section 8.1.2.4.1.1 are applicable
0.064	0.48* N _{freq} (7.5* N _{freq})	0.8* N _{freq} (12.5* N _{freq})
0.08	0.48* N _{freq} (6* N _{freq})	0. 8* N _{freq} (10* N _{freq})
0.128	0.64* N _{freq} (5* N _{freq})	0. 8* N _{freq} (6.25* N _{freq})
0.128 <drx- cycle≤2.56</drx- 	Note (5* N _{freq})	Note (5* N _{freq})
Note: Time depends upon the DRX cycle in use		

Table 8.1.2.4.1.2-2: Requirement to measure UTRA FDD cells

The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.

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8.1.2.4.1.2.1 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.4.1.2.2 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as the reporting criteria is not fulfilled.

The measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify,UTRA_FDD}$ defined in Section 8.1.2.4.1.2. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify, UTRA_FDD}$ defined in section 8.1.2.4.1.2 and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{measurement_UTRA_FDD}$ defined in section 8.1.2.4.1.2 provided the timing to that cell has not changed more than ± 32 chips while measurement gap has not been available and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.4.1.2.3 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.4.1.2.2 Event Triggered Reporting.

8.1.2.4.2 E-UTRAN TDD – UTRAN FDD measurements

The requirements in section 8.1.2.4.1 also apply for this section.

8.1.2.4.2.1	E-UTRAN TDD – UTRAN FDD measurements when no DRX is used
8.1.2.4.2.2	E-UTRAN TDD – UTRAN FDD measurements when DRX is used
8.1.2.4.3	E-UTRAN TDD – UTRAN TDD measurements

8.1.2.4.3.1 E-UTRAN TDD – UTRAN TDD measurements when no DRX is used

8.1.2.4.3.1.1 Identification of a new UTRA TDD cell

When explicit neighbour list is provided and no DRX is used the UE shall be able to identify a new detectable cell belonging to the monitored set within

$$T_{\text{identify, UTRA_TDD}} = Max \left\{ 5000, T_{\text{basic identify UTRA_TDD}} \cdot \frac{480}{T_{\text{interl}}} \cdot N_{Freq} \right\} ms$$

If the UE does not require transmit gap to perform inter-RAT UTRA TDD measurements, the UE shall be able to identify a new detectable inter-RAT UTRA TDD cell belonging to the monitored set within 5000 ms.

A cell shall be considered detectable when

- P-CCPCH Ec/Io \geq -8 dB,
- $DwPCH_Ec/Io \ge -5 dB$.

When L3 filtering is used an additional delay can be expected.

8.1.2.4.3.1.1a Enhanced UTRA TDD cell identification requirements

When explicit neighbour list is provided and no DRX is used or when DRX cycle length ≤ 40 ms the UE shall be able to identify a new detectable cell belonging to the monitored set within $T_{identify, enhanced_UTRA_TDD}$:

$$T_{\text{identify, enhanced_UTRA_TDD}} = (T_{\text{basic_identify_enhanced_UTRA_TDD}} \cdot \frac{480}{T_{\text{interl}}} + 480) \cdot N_{Freq} \quad ms$$

If the UE does not require transmit gap to perform inter-RAT UTRA TDD measurements, the UE shall be able to identify a new detectable inter-RAT UTRA TDD cell belonging to the monitored set within 500 ms.

A cell shall be considered detectable when:

- P-CCPCH_Ec/Io \geq -6 dB,
- DwPCH_Ec/Io \geq -1 dB

When L3 filtering is used an additional delay can be expected.

8.1.2.4.3.1.2 UE UTRA TDD P-CCPCH RSCP measurement capability

When measurement gaps are scheduled for UTRA TDD inter RAT measurements the UE physical layer shall be capable of reporting measurements to higher layers with measurement accuracy as specified in Section 9.3 with measurement period given by

$$T_{\text{measurement UTRA_TDD}} = Max \left\{ T_{\text{Measurement_Period UTRA_TDD}}, T_{\text{basic measurement UTRA_TDD}} \cdot \frac{480}{T_{\text{interl}}} \cdot N_{Freq} \right\} ms$$

If the UE does not need measurement gaps to perform UTRA TDD measurements, the measurement period for UTRA TDD measurements is 480 ms.

The UE shall be capable of performing UTRA TDD P-CCPCH RSCP measurements for $X_{\text{basic measurementUTRA_TDD}}$ interfrequency cells per TDD frequency of the monitored set, and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period of $T_{\text{Measurement_UTRA_TDD}}$.

 $X_{\text{basic measurementUTRA_TDD}} = 6$

 $T_{Measurement_Period UTRA_TDD} = 480$ ms is the period used for calculating the measurement period $T_{measurement_UTRA_TDD}$ for UTRA TDD P-CCPCH RSCP measurements.

 $T_{\text{basic_identify}_UTRA_TDD} = 800 \text{ ms}$ is the time period used in the inter RAT equation in section 8.1.2.4.3.1.1 where the maximum allowed time for the UE to identify a new UTRA TDD cell is defined.

 $T_{basic_identify_enhanced_UTRA_TDD} = 80$ ms is the time period used in the inter RAT equation in section 8.1.2.4.3.1.1a where the maximum allowed time for the UE to identify a new UTRA TDD cell is defined.

 $T_{\text{basic_measurement_UTRA_TDD}} = 50 \text{ ms}$ is the time period used in the equation for defining the measurement period for inter RAT P-CCPCH RSCP measurements.

 N_{freq} is defined in section 8.1.2.1.1 and T_{inter1} is defined in section 8.1.2.1

8.1.2.4.3.1.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.4.3.1.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as the reporting criteria is not fulfilled.

The measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay uncertainty for the uplink DCCH. This measurement reporting delay excludes a delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify, UTRA_TDD}$ defined in Section 8.1.2.4.3.1.1 for the minimum requirements or $T_{identify, enhanced_UTRA_TDD}$ defined in Section 8.1.2.4.3.1.1 a for the enhanced requirements. When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify, UTRA_TDD}$ defined in section 8.1.2.4.3.1.1 for the minimum requirements and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{measurement_UTRA_TDD}$ defined in section 8.1.2.4.3.1.2 provided the timing to that cell has not changed more than \pm 10 chips while measurement gap has not been available and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.4.3.1.5 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.4.3.1.4 Event Triggered Reporting.

8.1.2.4.3.2 E-UTRAN TDD – UTRAN TDD measurements when DRX is used

When explicit neighbour list is provided and DRX is used the UE shall be able to identify a new detectable cell belonging to the neighbour cell list within $T_{identify,UTRA_TDD}$ as shown in table 8.1.2.4.3.2-1

DRX cycle length (s)	T _{identify_UTRA_TDD} (s) (DRX cycles)		
iengui (3)	Gap period =	Gap period =	
	40 ms	80 ms	
≤0.32	Non DRX	Non DRX	
	Requirements	Requirements	
	in section	in section	
	8.1.2.4.3.1	8.1.2.4.3.1	
	are applicable	are applicable	
0.32 <drx-< td=""><td>Note (20*</td><td>Note (25*</td></drx-<>	Note (20*	Note (25*	
cycle≤0.512	Nfreq)	Nfreq)	
0.512 <drx-< td=""><td>Note (20*</td><td>Note</td></drx-<>	Note (20*	Note	
cycle≤2.56	Nfreq)	(20* Nfreq)	
Note: Time depends upon the DRX cycle			
in use			

Table 8.1.2.4.3.2-1: Requirement to identify a newly detectable UTRA TDD cell

A cell shall be considered detectable provided following conditions are fulfilled: A cell shall be considered detectable when

- P-CCPCH Ec/Io \geq -8 dB,
- DwPCH_Ec/Io \geq -5 dB.

When L3 filtering is used an additional delay can be expected.

The UE shall be capable of performing UTRA TDD P-CCPCH RSCP measurements of at least 6 UTRA cells per UTRA TDD carrier for up to 3 UTRA TDD carriers and the UE physical layer shall be capable of reporting measurements to higher layers with the measurement period defined in table 8.1.2.4.3.2-2.

DRX cycle length (s)	T _{measure_UTRA_TDD} (s) (DRX cycles)		
	Gap period = 40 ms	Gap period = 80 ms	
≤0.04	Non DRX Requirements in section 8.1.2.4.3.1 are applicable	Non DRX Requirements in section 8.1.2.4.3.1 are applicable	
0.064	0.48*N _{freq} (7.5*N _{freq})	0.8*N _{freq} (12.5*N _{freq})	
0.08	0.48*N _{freq} (6*N _{freq})	0. 8*N _{freq} (10*N _{freq})	
0.128	0.64*N _{freq} (5*N _{freq})	0. 8*N _{freq} (6.25*N _{freq})	
0. 128 <drx- cycle≤2.56</drx- 	Note (5*N _{freq})	Note (5*N _{freq})	
Note: Time depends upon the DRX cycle in use			

Table 8.1.2.4.3.2-2: Requirement to measure UTRA TDD cells

The measurement accuracy for all measured cells shall be as specified in the sub-clause 9.1.

8.1.2.4.3.2.1 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.4.3.2.2 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as the reporting criteria is not fulfilled.

The measurement reporting delay is defined as the time between any event that will trigger a measurement report until the UE starts to transmit the measurement report over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay uncertainty for the uplink DCCH. This measurement reporting delay excludes a delay uncertainty is twice the TTI of the uplink DCCH. This measurement reporting delay excludes a delay which caused by no UL resources for UE to send the measurement report.

The event triggered measurement reporting delay, measured without L3 filtering shall be less than $T_{identify, UTRA_TDD}$ defined in Section 8.1.2.4.3.2 When L3 filtering is used an additional delay can be expected.

If a cell which has been detectable at least for the time period $T_{identify, UTRA_TDD}$ defined in section 8.1.2.4.3.2 and then enters or leaves the reporting range, the event triggered measurement reporting delay shall be less than $T_{measurement_UTRA_TDD}$ defined in section 8.1.2.4.3.2 provided the timing to that cell has not changed more than ± 10 chips while measurement gap has not been available and the L3 filter has not been used. When L3 filtering is used an additional delay can be expected.

8.1.2.4.3.2.3 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.4.3.2.2 Event Triggered Reporting.

8.1.2.4.4 E-UTRAN FDD – UTRAN TDD measurements

The requirements in section 8.1.2.4.3 also apply for this section.

8.1.2.4.5 E-UTRAN FDD – GSM measurements

8.1.2.4.5.1 E-UTRAN FDD – GSM measurements when no DRX is used

The requirements in this section apply only to UE supporting E-UTRAN FDD and GSM.

Measurements on GSM cells can be requested with BSIC verified.

In RRC_CONNECTED state when a supported measurement gap pattern sequence according to Table 8.1.2.1-1 is configured by E-UTRAN the UE shall continuously measure GSM cells, search for new GSM cells given in the monitored set and re-confirm the BSIC for already detected cells.

8.1.2.4.5.1.1 GSM carrier RSSI

This measurement shall be based on measurement gaps allocated for GSM carrier RSSI measurement as described in section 8.1.2.1. A UE supporting GSM measurements shall measure minimum number of 10 GSM carrier RSSI measurement samples ($N_{GSM \text{ carrier RSSI}}$) per measurement gap. In RRC_CONNECTED state the measurement period, $T_{Measurement Period, GSM}$, for the GSM carrier RSSI measurement is N_{freq} *480 ms. The parameter N_{freq} is defined in section 8.1.2.1.1.

The UE shall meet the measurement accuracy requirements stated for RXLEV in [8], when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods.

8.1.2.4.5.1.2 BSIC verification

Measurements on a GSM cell can be requested with BSIC verified. The UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

- **Initial BSIC identification:** Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the E-UTRAN FDD and GSM cells. The UE shall trigger the initial BSIC identification within the available measurement gap pattern sequence. The requirements for BSIC re-confirmation can be found in section 8.1.2.4.5.1.2.1.
- **BSIC re-confirmation:** Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available measurement gap pattern. The requirements for BSIC re-confirmation can be found in section 8.1.2.4.5.1.2.2.

If the network requests measurements on a GSM cell the UE shall behave as follows:

- The UE shall perform GSM carrier RSSI measurements according to section 8.1.2.4.5.1 when a measurement gap pattern sequence is activated.
- The UE shall perform measurement reporting as defined in [2].
- The UE shall perform BSIC identification. The UE shall use the most recently available GSM carrier RSSI measurement results for arranging GSM cells in signal strength order for performing BSIC identification.
- The UE shall perform BSIC re-confirmation on all the GSM cells that have been successfully identified.
- The UE shall perform all configured event evaluation for event-triggered reporting after the BSIC has been verified for a GSM cell. The UE shall use the most recently available GSM carrier RSSI measurement results in event evaluation and event-triggered reporting.
- Event-triggered and periodic reports shall be triggered according to [2].

The BSIC of a GSM cell is considered to be "verified" if the UE has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification). Once a GSM cell has been identified the BSIC shall

be re-confirmed at least once every $8*T_{re-confirm,GSM}$ seconds. Otherwise the BSIC of the GSM cell is considered as "non-verified". If a measurement gap pattern sequence is deactivated by the network after BSIC has been identified or verified, the UE shall consider the BSIC as non-verified.

 $T_{identify,GSM}$ indicates the maximum time allowed for the UE to decode the unknown BSIC of the GSM cell in one GSM BCCH carrier in the initial BSIC identification procedure.

 $T_{re-confirm,GSM}$ indicates the maximum time allowed for the re-confirmation of the BSIC of one GSM cell in the BSIC re-confirmation procedure.

The UE shall be able to decode a BSIC within a measurement gap when the time difference between the middle of the received GSM synchronisation burst at the UE and the middle of the effective measurement gap is within the limits specified in table 8.1.2.4.5.1.2-1.

Table 8.1.2.4.5.1.2-1: The gap length and maximum time difference for BSIC verification

Gap length [ms]	Maximum time difference [µs]
6	± 2350 μs

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in [9].

8.1.2.4.5.1.2.1 Initial BSIC identification

This measurement shall be based on the measurement gaps used for Initial BSIC identification as described in section 8.1.2.4.5.1.2.

The UE shall continuously attempt to decode the BSIC of SCH on the BCCH carrier of the 8 strongest BCCH carriers of the GSM cells indicated in the Inter-RAT cell info list. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BCCH carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value.

If the BSIC of the GSM BCCH carrier has been successfully decoded the UE shall immediately continue BSIC identification with the next GSM BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within $T_{identify,GSM}$ ms, the UE shall abort the BSIC identification attempts for that GSM BCCH carrier. The UE shall continue to try to perform BSIC identification of the next GSM BCCH carrier in signal strength order. The GSM BCCH carrier for which the BSIC identification failed shall not be re-considered for BSIC identification until BSIC identification attempts have been made for all the rest of the 8 strongest GSM BCCH carriers in the monitored set with unknown BSIC.

 $T_{identify,GSM}$ values are given for a set of reference gap patterns in table 8.1.2.4.5.1.2.1-1. The requirements in the table represent the time required to guarantee at least two attempts to decode the BSIC for one GSM BCCH carrier. If interfrequency RSTD measurements are configured and the UE requires measurement gaps for performing such measurements, $T_{identify,GSM}$ shall be based on the 80ms gap configuration.

Number	T _{identify,gsm} (ms)		T _{reconfirm.gsm} (ms)	
of				
carriers other	40ms gap	80ms gap	40ms gap	80ms gap
than	configuration	configuration	configuration	configuration
GSM	(ID 0)	(ID 1)	(ID 0)	(ID 1)
0	2160	5280	1920	5040
1	5280	21760	5040	17280
2	5280	31680	5040	29280
		No		No
3	19440	requirement	13320	requirement
4	31680	No	29280	No

Table 8.1.2.4.5.1.2.1-1

		requirement		requirement
		No		No
5	31680	requirement	29280	requirement

8.1.2.4.5.1.2.2 BSIC re-confirmation

The UE shall maintain the timing information of up to 8 identified GSM cells. Initial timing information is obtained from the initial BSIC identification. The timing information shall be updated every time the BSIC is decoded.

For each measurement gap used for GSM BSIC reconfirmation as described in section 8.1.2.4.5.1.2, the UE shall attempt to decode the BSIC falling within the measurement gap according to table 8.1.2.4.5.1.2.1-1. If more than one BSIC can be decoded within the same measurement gap, priority shall be given to the least recently decoded BSIC. If inter-frequency RSTD measurements are configured and the UE requires measurement gaps for performing such measurements, $T_{re-confirm,GSM}$ shall be based on the 80ms gap configuration.

If the UE fails to decode the BSIC after two successive attempts or if the UE has not been able to re-confirm the BSIC for a GSM cell within $T_{re-confirm,GSM}$ seconds, the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.1.2.4.5.1.2.1.

8.1.2.4.5.1.2a Enhanced BSIC verification

In addition to the BSIC verification requirements in section 8.1.2.4.5.1.2, when the UE receives the GSM cell at levels down to 10 dB + the reference sensitivity level or reference interference levels as specified in [9] the BSIC identification requirement in table 8.1.2.4.5.1.2a-1 applies. The BSIC verification requirements in table 8.1.2.4.5.1.2a-1 shall apply when no DRX is used or when DRX cycle length \leq 40 ms.

	T _{enhanced_ide}	_{ntify,gsm} (ms)	T _{enhanced_} reconfirm,gsm (ms)	
		40ms gap configuration		40ms gap configuration when interfrequency
Number		when interfrequency RSTD measurement is also configured and the UE		RSTD measurement is also configured and the UE requires
carriers other than GSM	40ms gap configuration (ID 0)	requires measurement gaps for performing such measurements	40ms gap configuration (ID 0)	measurement gaps for performing such measurements
0	1320	2160	1080	1920

Table	0 1	24	E 1	201
rapie	0.1	.2.4	.ə. ı	.Za-1

8.1.2.4.5.1.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

8.1.2.4.5.1.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that that the measurement report is not delayed by other RRC signalling on the DCCH.

The event triggered reporting delay requirement is valid when the UE for each GSM carrier in the monitored set can take the required number of samples during the measurement period $T_{Measurement Period, GSM}$ (see section 8.1.2.4.5.1).

The event triggered measurement reporting delay for a GSM cell with verified BSIC , measured without L3 filtering shall be less than $2*T_{Measurement Period, GSM}$, where $T_{Measurement Period, GSM}$ is defined in section 8.1.2.4.5.1. When L3 filtering is used an additional delay can be expected.

8.1.2.4.5.1.5 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.4.5.1.4 Event Triggered Reporting.

8.1.2.4.5.2 E-UTRAN FDD – GSM measurements when DRX is used

The requirements in this section apply only to UE supporting E-UTRAN FDD and GSM.

Measurements on GSM cells can be requested with BSIC verified.

In RRC_CONNECTED state when a supported measurement gap pattern sequence according to Table 8.1.2.1-1 is configured by E-UTRAN the UE shall continuously measure GSM cells, search for new GSM cells given in the monitored set and re-confirm the BSIC for already detected cells. During DRX periods the UE may use other periods of time outside the specified measurement gap patterns. The UE is not required to make measurements of GSM cells during DRX periods if a measurement gap pattern has not been configured.

8.1.2.4.5.2.1 GSM carrier RSSI

This measurement shall be based on measurement gaps allocated for GSM carrier RSSI measurement as described in section 8.1.2.1. A UE supporting GSM measurements shall measure minimum number of 10 GSM carrier RSSI measurement samples ($N_{GSM carrier RSSI}$) per DRX cycle. In RRC_CONNECTED state the measurement period, $T_{Measurement Period, GSM}$, for the GSM carrier RSSI measurement is shown in table 8.1.2.4.5.2.1-1. The parameter N_{freq} is defined in section 8.1.2.1.

DRX cycle length (s)	T _{measure,GSM} (s) (DRX cycles)	
≤0.064	Non DRX Requirements are	
	applicable	
0.064 <drx-cycle≤< td=""><td>Note (6*N_{freq})</td></drx-cycle≤<>	Note (6*N _{freq})	
0.08		
0.08 <drx-cycle≤ 2.56<="" td=""><td>Note (5*N_{freq})</td></drx-cycle≤>	Note (5*N _{freq})	
Note: Time depends upon the DRX cycle in use		

The UE shall meet the measurement accuracy requirements stated for RXLEV in [8], when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

In case the UE is not able to acquire the required number of samples per GSM carrier during one measurement period, the UE shall measure as many GSM carriers as possible during that measurement period using at least 3 samples per GSM carrier. The GSM carriers that were not measured during that measurement period shall be measured in the following measurement periods.

8.1.2.4.5.2.2 BSIC verification

Measurements on a GSM cell can be requested with BSIC verified. The UE shall be able to report the GSM cells with BSIC verified for those cells where the verification of BSIC has been successful.

The procedure for BSIC verification on a GSM cell can be divided into the following two tasks:

- **Initial BSIC identification:** Includes searching for the BSIC and decoding the BSIC for the first time when there is no knowledge about the relative timing between the E-UTRAN FDD and GSM cells.

- **BSIC re-confirmation:** Tracking and decoding the BSIC of a GSM cell after initial BSIC identification is performed. The UE shall trigger the BSIC re-confirmation within the available measurement gap pattern

If the network requests measurements on a GSM cell, the UE shall behave as follows:

- The UE shall perform GSM carrier RSSI measurements according to section 8.1.2.4.5.2.1 when a measurement gap pattern sequence is activated.
- The UE shall perform measurement reporting as defined in [2].
- The UE shall perform BSIC identification. The UE shall use the most recently available GSM carrier RSSI measurement results for arranging GSM cells in signal strength order for performing BSIC identification.
- The UE shall perform BSIC re-confirmation on all the GSM cells that have been successfully identified.
- The UE shall perform all configured event evaluation for event-triggered reporting after the BSIC has been verified for a GSM cell. The UE shall use the most recently available GSM carrier RSSI measurement results in event evaluation and event-triggered reporting.
- Event-triggered and periodic reports shall be triggered according to [2].

The BSIC of a GSM cell is considered to be "verified" if the UE has decoded the SCH of the BCCH carrier and identified the BSIC at least one time (initial BSIC identification). Once a GSM cell has been identified the BSIC shall be re-confirmed at least once every 30 seconds. Otherwise the BSIC of the GSM cell is considered as "non-verified".

The UE shall be able to perform BSIC verification at levels down to the reference sensitivity level or reference interference levels as specified in [9].

8.1.2.4.5.2.2.1 Initial BSIC identification

This measurement shall be made on GSM cells that are requested with BSIC verified.

For DRX cycle length \leq 40 ms, the initial GSM BSIC identification requirements corresponding to the non DRX requirements as specified in section 8.1.2.4.5.1.2.1 shall apply.

For DRX cycle length > 40 ms, the UE shall make at least one attempt every N_{freq} *30s to decode the BSIC of SCH on the BCCH carrier of the 8 strongest BCCH carriers of the GSM cells indicated in the Inter-RAT cell info list. If the UE has not successfully decoded the BSIC of the GSM BCCH carrier within N_{freq} *60 s, the UE shall abort the BSIC identification attempts for that GSM BCCH carrier. The UE shall give priority for BSIC decoding attempts in decreasing signal strength order to BCCH carriers with unknown BSIC. The strongest BCCH carrier is defined as the BCCH carrier having the highest measured GSM carrier RSSI value. The parameter N_{freq} is defined in section 8.1.2.1.1.

If the BSIC of the GSM BCCH carrier has been successfully decoded the UE shall continue BSIC identification with the next GSM BCCH carrier, in signal strength order, with unknown BSIC. The GSM cell for which the BSIC has been successfully identified shall be moved to the BSIC re-confirmation procedure.

8.1.2.4.5.2.2.2 BSIC re-confirmation

The UE shall maintain the timing information of up to 8 identified GSM cells. Initial timing information is obtained from the initial BSIC identification. The timing information shall be updated every time the BSIC is decoded.

For DRX cycle length \leq 40 ms, the GSM BSIC re-conformation requirements corresponding to the non DRX requirements as specified in section 8.1.2.4.5.1.2.2 shall apply.

For DRX cycle length > 40 ms, at least every N_{freq} *30 seconds, the UE shall attempt to decode the BSIC of each identified GSM cell.If the UE fails to decode the BSIC after two successive attempts or if the UE has not been able to re-confirm the BSIC for a GSM cell within N_{freq} *60 seconds, the UE shall abort the BSIC re-confirmation attempts for that GSM cell. The GSM cell shall be treated as a new GSM cell with unidentified BSIC and the GSM cell shall be moved to the initial BSIC identification procedure, see section 8.1.2.4.5.2.2.1. The parameter N_{freq} is defined in section 8.1.2.1.1.

8.1.2.4.5.2.3 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

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8.1.2.4.5.2.4 Event Triggered Reporting

Reported measurements in event triggered measurement reports shall meet the requirements in section 9.

The UE shall not send any event triggered measurement reports, as long as no reporting criteria are fulfilled.

The measurement reporting delay is defined as the time between an event that will trigger a measurement report and the point when the UE starts to transmit the measurement report over the air interface. This requirement assumes that that the measurement report is not delayed by other RRC signalling on the DCCH.

The event triggered reporting delay requirement is valid when the UE for each GSM carrier in the monitored set can take the required number of samples during the measurement period $T_{Measurement Period, GSM}$ (see section 8.1.2.4.5.2.1).

The event triggered measurement reporting delay for a GSM cell with verified BSIC , measured without L3 filtering shall be less than $2*T_{Measurement Period, GSM}$, where $T_{Measurement Period, GSM}$ is defined in section 8.1.2.4.5.2.1. When L3 filtering is used an additional delay can be expected.

8.1.2.4.5.2.5 Event-triggered Periodic Reporting

Reported measurements contained in event triggered periodic measurement reports shall meet the requirements in section 9.

The first report in event triggered periodic measurement reporting shall meet the requirements specified in section 8.1.2.4.5.2.4 Event Triggered Reporting.

8.1.2.4.6 E-UTRAN TDD – GSM measurements

The requirements in section 8.1.2.4.5 also apply for this section.

8.1.2.4.7 E-UTRAN FDD – UTRAN FDD measurements for SON

8.1.2.4.7.1 Identification of a new UTRA FDD cell for SON

No explicit neighbour list is provided to the UE for identifying a UTRA cell for SON. The UE shall identify and report only the strongest cell when requested by the network for the purpose of SON.

8.1.2.4.7.1.1 Requirements when no DRX is used

When no DRX is used the UE shall be able to identify a new cell within:

$$T_{\text{identify, UTRA_FDD}} = T_{\text{basic_identify_UTRA_FDD}} \cdot \frac{480}{\text{Tinter1}} \cdot N_{Freq} \quad ms$$

 $T_{\text{basic_identify}_UTRA_FDD} = 300 \text{ ms.}$ This is the time period used in the above equation where the maximum allowed time for the UE to identify a new UTRA FDD cell is defined.

A cell shall be considered identifiable following conditions are fulfilled:

- CPICH Ec/Io \geq -20 dB,
- SCH_Ec/Io \geq -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

If the UE is unable to identify the UTRA cell for SON within $8^{T_{identify, UTRA_FDD}}$ ms, the UE may stop searching UTRA cells for SON.

8.1.2.4.7.1.2 Requirements when DRX is used

When DRX is used the UE shall be able to identify a new cell within $T_{identify, UTRA_FDD}$ as defined in table 8.1.2.4.7.1.2-1.

DRX cycle length (s)	Tidentify, UTRA_FDD (S) (DRX cycles)			
	Gap period = 40 ms	Gap period = 80 ms		
≤0.04	Non DRX Requirements in section 8.1.2.4.7.1.1are applicable	Non DRX Requirements in section 8.1.2.4.7.1.1 are applicable		
0.04 <drx cycle≤0.08<="" td=""><td>Note (45* N_{freq})</td><td>Note (95* N_{freq})</td></drx>	Note (45* N _{freq})	Note (95* N _{freq})		
0.128	3.84* N _{freq} (30* N _{freq})	8.0* N _{freq} (62.5* N _{freq})		
0.16	4.0* N _{freq} (25* N _{freq})	8.0* N _{freq} (50* N _{freq})		
0.256	6.4* N _{freq} (25* N _{freq})	8.96* N _{freq} (35* N _{freq})		
0.32	8* N _{freq} (25* N _{freq})	8.96* N _{freq} (28* N _{freq})		
0.32 <drx cycle≤2.56<="" td=""><td>Note (25* N_{freq})</td><td>Note (25* N_{freq})</td></drx>	Note (25* N _{freq})	Note (25* N _{freq})		
Note: Time depends upon the DRX cycle in use				

 Table 8.1.2.4.7.1.2-1: Requirement to identify a new UTRA FDD cell for SON

A cell shall be considered identifiable provided following conditions are fulfilled:

- CPICH Ec/Io \geq -20 dB,
- SCH_Ec/Io \geq -17 dB for at least one channel tap and SCH_Ec/Ior is equally divided between primary synchronisation code and secondary synchronisation code. When L3 filtering is used an additional delay can be expected.

If the UE is unable to identify the UTRA cell for SON within $8*T_{identify, UTRA_FDD}$ seconds, the UE may stop searching UTRA cells for SON; $T_{identify, UTRA_FDD}$ is defined in table 8.1.2.4.7.1.2-1.

8.1.2.4.7.1.3 Reporting Delay

The UE shall not report the physical cell identity of an identifiable cell for SON as long as the reporting criteria are not fulfilled.

The reporting delay is defined as the time between the identification of the strongest cell for SON until the UE starts to transmit its physical cell identity over the Uu interface. This requirement assumes that the reporting of the physical cell identity is not delayed by other RRC signalling on the DCCH. This reporting delay excludes a delay uncertainty resulted when inserting the physical cell identity of the strongest cell for SON to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This reporting delay excludes any delay caused by unavailability of UL resources for UE sending the physical cell identity of the strongest cell for SON.

The reporting delay of the physical cell identity of the strongest cell for SON without L3 filtering shall be less than $T_{identify, UTRA_FDD}$ defined in section 8.1.2.4.7.1.1 and in section 8.1.2.4.7.1.2 for non DRX and DRX cases respectively. When L3 filtering is used an additional delay can be expected.

8.1.2.4.8 E-UTRAN TDD – UTRAN FDD measurements for SON

The requirements in section 8.1.2.4.7 also apply for this section.

8.1.2.4.9 E-UTRAN FDD – cdma2000 1xRTT measurements

UE shall perform cdma2000 1xRTT measurements according to the procedure defined in [15] on the cdma2000 1xRTT neighbor cells indicated by the serving eNode B. If measurement gaps are required, the UE shall perform cdma2000 1xRTT measurements only during the measurement gaps configured by the serving eNode B.

8.1.2.4.9.1A E-UTRAN FDD – cdma2000 1xRTT measurements when no DRX is used

When measurement gaps are scheduled for CDMA2000 1xRTT inter RAT measurements, the UE physical layer shall be capable of reporting CDMA2000 1xRTT Pilot Strength measurements to higher layers with measurement accuracy as specified in Section 9.5, corresponding to a 90% measurement success rate, with measurement period given by

 $\mathbf{T}_{\text{measurement}_\text{CDMA2000_1x}} = \mathbf{T}_{\text{basic}_\text{measurement}_\text{CDMA2000_1x}} \cdot N_{\textit{Freq}} \cdot S_{\textit{gap}}$

where $T_{basic_measurement_CDMA2000_1x} = 100$ ms and the measurement gap specific scale factor S_{gap} is based on the measurement gap pattern in use as defined in Table 8.1.2.4.9.1-1. If inter-frequency RSTD measurements are configured and the UE requires measurement gaps for performing such measurements, S_{gap} shall be based to the Gap Pattern Id 1.

Gap Pattern Id	S _{gap}
0	32/3
1	64/3

If the UE does not need measurement gaps to perform CDMA2000 1xRTT Pilot Strength measurements, the measurement period is given by

 $T_{\text{measurement}_CDMA2000_1x} = T_{\text{basic}_\text{measurement}_CDMA2000_1x} \cdot N_{Freq}.$

8.1.2.4.9.1 Periodic Reporting

Reported measurements in periodically triggered measurement reports shall meet the requirements in section 9.

The measurement reporting delay of each periodic report is defined as the time between the end of the last measurement period and the moment when the UE starts to transmit the measurement report over the Uu interface. This delay shall be less than T_{71m} defined in [15] for each periodic report. This measurement reporting delay excludes a delay which is caused by the unavailability of the uplink resources for the UE to send the measurement report.

8.1.2.4.10 E-UTRAN TDD – cdma2000 1xRTT measurements

The requirements in section 8.1.2.4.9 also apply for this section.

8.1.2.4.11 E-UTRAN FDD – HRPD measurements

UE shall perform HRPD measurements according to the procedure defined in [11] on the HRPD neighbor cells indicated by the serving eNode B. If measurement gaps are required, the UE shall perform HRPD measurements only during the measurement gaps configured by the serving eNode B.

8.1.2.4.12 E-UTRAN TDD – HRPD measurements

The requirements in section 8.1.2.4.11 also apply for this section.

8.1.2.4.13 E-UTRAN TDD – UTRAN TDD measurements for SON

8.1.2.4.13.1 Identification of a new UTRA TDD cell for SON

No explicit neighbour list is provided to the UE for identifying a UTRA TDD cell for SON. The UE shall identify and report only the strongest cell when requested by the network for the purpose of SON.

8.1.2.4.13.1.1 Requirements when no DRX is used

When no DRX is used the UE shall be able to identify a new cell within:

$$T_{identify, UTRA_TDD} = T_{basic_identify_UTRA_TDD} \cdot \frac{480}{T_{interl}} \cdot N_{Freq} \quad ms$$

 $T_{\text{basic_identify}_UTRA_TDD} = 800 \text{ ms.}$ This is the time period used in the above equation where the maximum allowed time for the UE to identify a new UTRA TDD cell is defined.

A cell shall be considered identifiable following conditions are fulfilled:

- P-CCPCH Ec/Io \geq -8 dB,
- $DwPCH_Ec/Io \ge -5 dB$.

When L3 filtering is used an additional delay can be expected.

If the UE is unable to identify the UTRA TDD cell for SON within $8*T_{identify, UTRA_TDD}$ ms, the UE may stop searching UTRA TDD cells for SON.

8.1.2.4.13.1.2 Requirements when DRX is used

When DRX is used the UE shall be able to identify a new cell within $T_{identify, UTRA_TDD}$ as defined in table 8.1.2.4.13.1.2-1.

Table 8.1.2.4.13.1.2-1: Requirement to identify a new UTRA TDD cell for SON

DRX cycle length (s)	T _{identify, UTRA_TDD} (s) (DRX cycles)	
	Gap period = 40 ms	Gap period = 80 ms
≤0.16	Non DRX Requirements in section 8.1.2.4.3.1 are applicable	Non DRX Requirements in section 8.1.2.4.3.1 are applicable
0.16 <drx cycle≤0.256<="" td=""><td>Note (25* N_{freg})</td><td>Note (50* N_{freq})</td></drx>	Note (25* N _{freg})	Note (50* N _{freq})
0.256 <drx cycle≤0.32<="" td=""><td>Note (25* N_{freq})</td><td>Note (45* N_{freq})</td></drx>	Note (25* N _{freq})	Note (45* N _{freq})
0.32 <drx cycle≤2.56<="" td=""><td>Note (25* N_{freq})</td><td>Note (25* N_{freq})</td></drx>	Note (25* N _{freq})	Note (25* N _{freq})
Note: Time depends upon the DRX cycle in use		

A cell shall be considered identifiable provided following conditions are fulfilled:

- P-CCPCH Ec/Io \geq -8 dB,
- DwPCH_Ec/Io \geq -5 dB.

When L3 filtering is used an additional delay can be expected.

If the UE is unable to identify the UTRA TDD cell for SON within $8^{*}T_{identify, UTRA_TDD}$ seconds, the UE may stop searching UTRA TDD cells for SON; $T_{identify, UTRA_TDD}$ is defined in table 8.1.2.4.13.1.2-1.

8.1.2.4.13.1.3 Reporting Delay

The UE shall not report the physical cell identity of an identifiable cell for SON as long as the reporting criteria are not fulfilled.

The reporting delay is defined as the time between the identification of the strongest cell for SON until the UE starts to transmit its physical cell identity over the Uu interface. This requirement assumes that the reporting of the physical cell identity is not delayed by other RRC signalling on the DCCH. This reporting delay excludes a delay uncertainty resulted when inserting the physical cell identity of the strongest cell for SON to the TTI of the uplink DCCH. The delay uncertainty is twice the TTI of the uplink DCCH. This reporting delay excludes any delay caused by unavailability of UL resources for UE sending the physical cell identity of the strongest cell for SON.

The reporting delay of the physical cell identity of the strongest cell for SON without L3 filtering shall be less than $T_{identify, UTRA_TDD}$ defined in section 8.1.2.4.13.1.1 and in section 8.1.2.4.13.1.2 for non DRX and DRX cases respectively. When L3 filtering is used an additional delay can be expected.

8.1.2.4.14 E-UTRAN FDD – UTRAN TDD measurements for SON

The requirements in section 8.1.2.4.13 also apply for this section.

8.1.2.5 E-UTRAN OTDOA Intra-Frequency RSTD Measurements

All intra-frequency RSTD measurement requirements specified in Sections 8.1.2.5.1 and 8.1.2.5.2 shall apply without DRX as well as for all the DRX cycles specified in 3GPP TS 36.331 [2].

8.1.2.5.1 E-UTRAN FDD Intra-Frequency OTDOA Measurements

When the physical layer cell identities of neighbour cells together with the OTDOA assistance data are provided, the UE shall be able to detect and measure intra-frequency RSTD, specified in 3GPP TS 36.214 [4], for at least n=16 cells, including the reference cell, on the same carrier frequency f1 as that of the reference cell within

 $T_{RSTD IntraFreqFDD, E-UTRAN}$ ms as given below (see also Figure 8.1.2.5.1-1):

$$T_{\text{RSTD IntraFreqFDD, E-UTRAN}} = T_{\text{PRS}} \cdot (M - 1) + \Delta \qquad ms$$

where

 $T_{RSTD IntraFredFDD, E-UTRAN}$ is the total time for detecting and measuring at least *n* cells,

 $T_{\rm PRS}$ is the cell-specific positioning subframe configuration period as defined in 3GPP TS 36.211 [16],

M is the number of PRS positioning occasions as defined in Table 8.1.2.5.1-1, where each PRS positioning occasion comprises of N_{PRS} ($1 \le N_{PRS} \le 6$) consecutive downlink positioning subframes defined in 3GPP TS 36.211 [16], and

 $\Delta = 160 \cdot \left| \frac{n}{M} \right|$ ms is the measurement time for a single PRS positioning occasion which includes the sampling time

and the processing time.

Table 8.1.2.5.1-1: Number of PRS positioning occasions within $T_{RSTD IntraFredFDD, E-UTRAN}$

Positioning subframe	Number of PRS positioning occasions M	
configuration period $T_{ m PRS}$	f1 ^{Note1}	f1 and f2 Note2
160 ms	16	32
>160 ms	8	16
serving FDD carrier frequency f1. Note 2: When intra-frequency RS	y RSTD measurements are perform TD and inter-frequency RSTD meas rier frequency f1 and one inter-frequ	urements are performed over cells

The UE physical layer shall be capable of reporting RSTD for the reference cell and all the neighbor cells *i* out of at least (*n*-1) neighbor cells within $T_{RSTD IntraFreqFDD, E-UTRAN}$ provided:

 $(\text{PRS } \hat{E}_{s} / \text{Iot})_{ref} \ge -6 \text{ dB for all Frequency Bands for the reference cell,}$

 $(\text{PRS } \hat{\text{E}}_{s} / \text{Iot})_{i} \ge -13 \text{ dB}$ for all Frequency Bands for neighbour cell *i*,

$$(\text{PRS}\,\hat{\text{E}}_{\text{s}}/\text{Iot})_{ref}$$
 and $(\text{PRS}\,\hat{\text{E}}_{\text{s}}/\text{Iot})_{i}$ conditions apply for all subframes of at least $L = \frac{M}{2}$ PRS positioning

occasions,

PRP 1,2|_{dBm}≥ -127 dBm for Frequency Bands 1, 4, 6, 10, 11, 18, 19, 21,

PRP $1,2|_{dBm} \ge -126$ dBm for Frequency Bands 9,

PRP $1,2|_{dBm} \ge -125$ dBm for Frequency Bands 2, 5, 7,

PRP 1,2|_{dBm}≥ -124 dBm for Frequency Bands 3, 8, 12, 13, 14, 17, 20.

 $PRS \hat{E}_s / Iot$ is defined as the ratio of the average received energy per PRS RE during the useful part of the symbol to the average received power spectral density of the total noise and interference for this RE, where the ratio is measured over all REs which carry PRS.

The time $T_{RSTD IntraFreqFDD, E-UTRAN}$ starts from the first subframe of the PRS positioning occasion closest in time after both the OTDOA-RequestLocationInformation message and the OTDOA assistance data in the OTDOA-ProvideAssistanceData message as specified in 3GPP TS 36.355 [24], are delivered to the physical layer of the UE as illustrated in Figure 8.1.2.5.1-1.

The RSTD measurement accuracy for all measured neighbor cells i shall be fulfilled according to the accuracy as specified in the sub-clause 9.1.10.1.

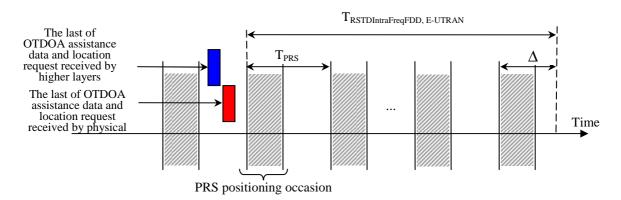


Figure 8.1.2.5.1-1. Illustration of the RSTD reporting time requirement in an FDD system.

8.1.2.5.1.1 RSTD Measurement Reporting Delay

This requirement assumes that the measurement report is not delayed by other LPP signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: $2 \times TTI_{DCCH}$. This measurement reporting delay excludes any delay caused by no UL resources for UE to send the measurement report.

8.1.2.5.2 E-UTRAN TDD Intra-Frequency OTDOA Measurements

When the physical layer cell identities of neighbour cells together with the OTDOA assistance data are provided, the UE shall be able to detect and measure intra-frequency RSTD, specified in 3GPP TS 36.214 [4], for at least n=16 cells, including the reference cell, on the same carrier frequency f1 as that of the reference cell within

T_{RSTD IntraFreqTDD, E-UTRAN} ms as given below:

$$T_{\text{RSTD IntraFreqTDD, E-UTRAN}} = T_{\text{PRS}} \cdot (M - 1) + \Delta \qquad ms$$

where

 $T_{RSTD IntraFreqTDD, E-UTRAN}$ is the total time for detecting and measuring at least *n* cells,

 $T_{\rm PRS}$ is the cell-specific positioning subframe configuration period as defined in 3GPP TS 36.211 [16],

M is the number of PRS positioning occasions as defined in Table 8.1.2.5.2-1, where a PRS positioning occasion is as defined in Section 8.1.2.5.1, and

 $\Delta = 160 \cdot \left| \frac{n}{M} \right|$ ms is the measurement time for a single PRS positioning occasion which includes the sampling time and the processing time.

Table 8.1.2.5.2-1: Number of PRS positioning occasions within $\,T_{\rm RSTD\ IntraFreqTDD,\ E-UTRAN}$

Positioning subframe	Number of PRS positioning occasions M	
configuration period $T_{ m PRS}$	f1 Note1	f1 and f2 Note2
160 ms	16	32
>160 ms	8	16
Note 1: When only intra-frequency RSTD measurements are performed over cells belonging to the serving TDD carrier frequency f1.		
Note 2: When intra-frequency RSTD and inter-frequency RSTD measurements are performed over cells belonging to the serving TDD carrier frequency f1 and one inter-frequency carrier frequency f2 respectively.		

The UE physical layer shall be capable of reporting RSTD for the reference cell and all the neighbor cells *i* out of at least (*n*-1) neighbor cells within $T_{RSTD IntraFreqTDD, E-UTRAN}$ provided:

 $\left(\text{PRS } \hat{\text{E}}_{s} / \text{Iot} \right)_{ref} \ge -6 \text{ dB for all Frequency Bands for the reference cell,}$

 $(\text{PRS } \hat{\text{E}}_{s} / \text{Iot})_{i} \ge -13 \text{ dB}$ for all Frequency Bands for neighbour cell *i*,

 $\left(\text{PRS}\,\hat{\text{E}}_{s} / \text{Iot}\right)_{ref}$ and $\left(\text{PRS}\,\hat{\text{E}}_{s} / \text{Iot}\right)_{i}$ conditions apply for all subframes of at least $L = \frac{M}{2}$ PRS positioning

occasions,

PRP $1,2|_{dBm} \ge -127$ dBm for Frequency Bands 33, 34, 35, 36, 37, 38, 39, 40.

PRS \hat{E}_s / Iot is as defined in Section 8.1.2.5.1.

The time $T_{RSTD IntraFreqTDD, E-UTRAN}$ starts from the first subframe of the PRS positioning occasion closest in time after both the OTDOA-RequestLocationInformation message and the OTDOA assistance data in the OTDOA-ProvideAssistanceData message as specified in 3GPP TS 36.355 [24], are delivered to the physical layer of the UE.

The RSTD measurement accuracy for all measured neighbor cells *i* shall be fulfilled according to the accuracy as specified in the sub-clause 9.1.10.1.

The intra-frequency requirements in this section (8.1.2.5.2) shall apply for all TDD special subframe configurations specified in 3GPP TS 36.211 [16] and for the TDD uplink-downlink configurations as specified in Table 8.1.2.5.2-2.

Table 8.1.2.5.2-2: TDD uplink-downlink subframe configurations applicable for TDD intra-frequency
requirements

PRS Transmission Bandwidth [RB]	Applicable TDD uplink-downlink configurations
6, 15	1, 2, 3, 4 and 5
25, 50, 75, 100	0, 1, 2, 3, 4, 5 and 6
Note: Uplink-downlink configurations are specified in Table 4.2-2 in 3GPP TS 36.211 [16].	

8.1.2.5.2.1 RSTD Measurement Reporting Delay

This requirement assumes that the measurement report is not delayed by other LPP signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: $2 \times TTI_{DCCH}$. This measurement reporting delay excludes any delay caused by no UL resources for UE to send the measurement report.

8.1.2.6 E-UTRAN Inter-Frequency OTDOA Measurements

All inter-frequency RSTD measurement requirements specified in Sections 8.1.2.6.1-8.1.2.6.4 shall apply when the measurement gap pattern ID # 0 specified in Section 8.1.2.1 is used.

All inter-frequency RSTD measurement requirements specified in Sections 8.1.2.6.1-8.1.2.6.4 shall apply without DRX as well as for all the DRX cycles specified in 3GPP TS 36.331 [2].

8.1.2.6.1 E-UTRAN FDD-FDD Inter-Frequency OTDOA Measurements

When the physical layer cell identities of neighbour cells together with the OTDOA assistance data are provided, the UE shall be able to detect and measure inter-frequency RSTD, specified in 3GPP TS 36.214 [4], for at least n=16 cells, including the reference cell, within $T_{RSTD InterFreeFDD, E-UTRAN}$ ms as given below:

$$T_{\text{RSTD InterFreqFDD, E-UTRAN}} = T_{\text{PRS}} \cdot (M - 1) + \Delta \qquad ms$$

where

 $T_{RSTD InterFreqFDD, E-UTRAN}$ is the total time for detecting and measuring at least *n* cells,

 $T_{\rm PRS}$ is the largest value of the cell-specific positioning subframe configuration period, defined in 3GPP TS 36.211

[16], among the measured n cells including the reference cell,

M is the number of PRS positioning occasions as defined in Table 8.1.2.6.1-1, where a PRS positioning occasion is as defined in Section 8.1.2.5.1, and

 $\Delta = 160 \cdot \left| \frac{n}{M} \right|$ ms is the measurement time for a single PRS positioning occasion which includes the sampling time

and the processing time.

Table 8.1.2.6.1-1: Number of PRS positioning occasions within	T _{RSTD InterFreqFDD, E-UTRAN}
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Positioning subframe Number of PRS positioning occasions A		positioning occasions M
configuration period $T_{ m PRS}$	f2 Note1	f1 and f2 ^{Note2}
160 ms	16	32
>160 ms	8	16
Note 1: When inter-frequency RSTD measurements are performed over the reference cell and neighbour cells, which belong to the FDD inter-frequency carrier frequency f2. Note 2: When inter-frequency RSTD measurements are performed over the reference cell and the neighbour cells, which belong to the serving FDD carrier frequency f1 and the FDD inter-frequency carrier frequency f2 respectively.		

The UE physical layer shall be capable of reporting RSTD for the reference cell and all the neighbor cells *i* out of at least (*n*-1) neighbor cells within $T_{RSTD InterFreqFDD, E-UTRAN}$ provided:

 $(\text{PRS } \hat{\text{E}}_{s} / \text{Iot})_{ref} \ge -6 \text{ dB}$ for all Frequency Bands for the reference cell,

 $(\operatorname{PRS} \hat{\mathrm{E}}_{s} / \operatorname{Iot})_{i} \ge -13 \text{ dB}$ for all Frequency Bands for neighbour cell *i*,

$$(\text{PRS}\,\hat{\text{E}}_{s}/\text{Iot})_{ref}$$
 and $(\text{PRS}\,\hat{\text{E}}_{s}/\text{Iot})_{i}$ conditions apply for all subframes of at least $L = \frac{M}{2}$ PRS positioning

occasions,

PRP 1,2|_{dBm}≥ -127 dBm for Frequency Bands 1, 4, 6, 10, 11, 18, 19, 21,

PRP $1,2|_{dBm} \ge -126$ dBm for Frequency Bands 9,

PRP $1,2|_{dBm} \ge -125$ dBm for Frequency Bands 2, 5, 7,

PRP $1,2|_{dBm} \ge -124$ dBm for Frequency Bands 3, 8, 12, 13, 14, 17, 20.

PRS \hat{E}_{s} / Iot is as defined in Section 8.1.2.5.1.

The time $T_{RSTD InterFreqFDD, E-UTRAN}$ starts from the first subframe of the PRS positioning occasion closest in time after both the OTDOA-RequestLocationInformation message and the OTDOA assistance data in the OTDOA-ProvideAssistanceData message as specified in 3GPP TS 36.355 [24], are delivered to the physical layer of the UE.

The RSTD measurement accuracy for all measured neighbor cells *i* shall be fulfilled according to the accuracy as specified in the sub-clause 9.1.10.2.

8.1.2.6.1.1 RSTD Measurement Reporting Delay

This requirement assumes that the measurement report is not delayed by other LPP signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: $2 \times TTI_{DCCH}$. This measurement reporting delay excludes any delay caused by no UL resources for UE to send the measurement report.

8.1.2.6.2 E-UTRAN TDD-FDD Inter-Frequency OTDOA Measurements

When the physical layer cell identities of neighbour cells together with the OTDOA assistance data are provided, the UE shall be able to detect and measure inter-frequency RSTD, specified in 3GPP TS 36.214 [4], for at least n=16 cells, including the reference cell, within $T_{RSTD InterFeqTDDFD,E-UTRAN}$ ms as given below:

$$T_{\text{RSTD InterFeqTDDFDD,E-UTRAN}} = T_{\text{PRS}} \cdot (M-1) + \Delta$$
 ms

where

 $T_{RSTD InterFeqTDDFDD,E-UTRAN}$ is the total time for detecting and measuring at least *n* cells,

 $T_{\rm PRS}$ is the largest value of the cell-specific positioning subframe configuration period, defined in 3GPP TS 36.211

[16], among the measured *n* cells including the reference cell,

M is the number of PRS positioning occasions as defined in Table 8.1.2.6.2-1, where a PRS positioning occasion is as defined in Section 8.1.2.5.1, and

 $\Delta = 160 \cdot \left| \frac{n}{M} \right|$ ms is the measurement time for a single PRS positioning occasion which includes the sampling time

and the processing time.

Table 8.1.2.6.2-1: Number of PRS positioning occasions within $T_{RSTD InterFeatTDDFDD,E-UTRAN}$

Positioning subframe Number of PRS		itioning occasions M
configuration period $T_{ m PRS}$	f2 ^{Note1}	f1 and f2 ^{Note2}
160 ms	16	32
>160 ms	8	16
NOTE 1: When inter-frequency RSTD measurements are performed over the reference cell and neighbour cells, which belong to the FDD inter-frequency carrier frequency f2.		
NOTE 2: When inter-frequency RSTD measurements are performed over the reference cell and the neighbour cells, which belong to the serving TDD carrier frequency f1 and the FDD inter-frequency carrier frequency f2 respectively.		

The UE physical layer shall be capable of reporting RSTD for the reference cell and all the neighbor cells *i* out of at least (*n*-1) neighbor cells within $T_{RSTD InterFeqTDDFD,E-UTRAN}$ provided:

 $\left(\text{PRS } \hat{\text{E}}_{\text{s}} / \text{Iot} \right)_{ref} \ge -6 \text{ dB}$ for all Frequency Bands for the reference cell,

 $(\text{PRS } \hat{\text{E}}_{s} / \text{Iot})_{i} \ge -13 \text{ dB}$ for all Frequency Bands for neighbour cell *i*,

$$(\text{PRS}\,\hat{\text{E}}_{s}/\text{Iot})_{ref}$$
 and $(\text{PRS}\,\hat{\text{E}}_{s}/\text{Iot})_{i}$ conditions apply for all subframes of at least $L = \frac{M}{2}$ PRS positioning

occasions,

PRP $1,2|_{dBm} \ge -127$ dBm for Frequency Bands 1, 4, 6, 10, 11, 18, 19, 21,

PRP $1,2|_{dBm} \ge -126$ dBm for Frequency Bands 9,

PRP $1,2|_{dBm} \ge -125$ dBm for Frequency Bands 2, 5, 7,

PRP $1,2|_{dBm} \ge -124$ dBm for Frequency Bands 3, 8, 12, 13, 14, 17, 20,

PRP 1,2|_{dBm}≥ -127 dBm for Frequency Bands 33, 34, 35, 36, 37, 38, 39, 40.

PRS \hat{E}_{s} / Iot is as defined in Section 8.1.2.5.1.

The time $T_{RSTD InterFeqTDDFDD,E-UTRAN}$ starts from the first subframe of the PRS positioning occasion closest in time after both the OTDOA-RequestLocationInformation message and the OTDOA assistance data in the OTDOA-ProvideAssistanceData message as specified in 3GPP TS 36.355 [24], are delivered to the physical layer of the UE.

The RSTD measurement accuracy for all measured neighbor cells *i* shall be fulfilled according to the accuracy as specified in the sub-clause 9.1.10.2.

The inter-frequency requirements in this clause (8.1.2.6.2) shall apply for all TDD special subframe configurations specified in TS 36.211 [16] and for the TDD uplink-downlink configurations as specified in Table 8.1.2.6.2-2.

Table 8.1.2.6.2-2: TDD uplink-downlink subframe configurations applicable for TDD-FDD inter-frequency requirements

PRS Transmission Bandwidth [RB]	Applicable TDD uplink-downlink configurations
6, 15	1, 2, 3, 4 and 5
25, 50, 75, 100	0, 1, 2, 3, 4, 5 and 6
NOTE: Uplink-downlink configurations are specified in Table 4.2-2 in 3GPP TS 36.211 [16].	

8.1.2.6.2.1 RSTD Measurement Reporting Delay

This requirement assumes that the measurement report is not delayed by other LPP signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: $2 \times TTI_{DCCH}$. This measurement reporting delay excludes any delay caused by no UL resources for UE to send the measurement report.

8.1.2.6.3 E-UTRAN TDD-TDD Inter-Frequency OTDOA Measurements

When the physical layer cell identities of neighbour cells together with the OTDOA assistance data are provided, the UE shall be able to detect and measure inter-frequency RSTD, specified in 3GPP TS 36.214 [4], for at least n=16 cells, including the reference cell, within $T_{RSTD InterFreqTDD, E-UTRAN}$ ms as given below:

$$T_{RSTD InterFreqTDD, E-UTRAN} = T_{PRS} \cdot (M - 1) + \Delta \qquad ms$$

where

 $T_{RSTD InterFreqTDD, E-UTRAN}$ is the total time for detecting and measuring at least *n* cells,

 $T_{\rm PRS}$ is the largest value of the cell-specific positioning subframe configuration period, defined in 3GPP TS 36.211

[16], among the measured *n* cells including the reference cell,

M is the number of PRS positioning occasions as defined in Table 8.1.2.6.3-1, where a PRS positioning occasion is as defined in Section 8.1.2.5.1, and

 $\Delta = 160 \cdot \left| \frac{n}{M} \right|$ ms is the measurement time for a single PRS positioning occasion which includes the sampling time

and the processing time.

Positioning subframe	Number of PRS	positioning occasions M
configuration period $T_{ m PRS}$	f2 Note1	f1 and f2 Note2
160 ms	16	32
>160 ms	8	16
Note 1: When inter-frequency RSTD measurements are performed over the reference cell and neighbour cells, which belong to the TDD inter-frequency carrier frequency f2. Note 2: When inter-frequency RSTD measurements are performed over the reference cell and the neighbour cells, which belong to the serving TDD carrier frequency f1 and the TDD inter-frequency carrier frequency f2 respectively.		

Table 8.1.2.6.3-1: Number of PRS positioning occasions within T_{RSTD InterFreeTDD.E-UTRAN}

The inter-frequency requirements in this section (8.1.2.6.3) shall apply for all TDD special subframe configurations specified in 3GPP TS 36.211 [16] and for the TDD uplink-downlink configurations as specified in Table 8.1.2.6.3-2.

 Table 8.1.2.6.3-2: TDD uplink-downlink subframe configurations applicable for inter-frequency requirements

PRS Transmission Bandwidth [RB]	Applicable TDD uplink-downlink configurations
6, 15	3, 4 and 5
25	1, 2, 3, 4, 5 and 6
50, 75, 100 0, 1, 2, 3, 4, 5 and 6	
Note: Uplink-downlink configurations are specified in Table 4.2-2 in 3GPP TS 36.211 [16].	

The UE physical layer shall be capable of reporting RSTD for the reference cell and all the neighbor cells *i* out of at least (*n*-1) neighbor cells within $T_{RSTD InterFreeTDD, E-UTRAN}$ provided:

 $\left(\text{PRS } \hat{\text{E}}_{\text{s}} / \text{Iot} \right)_{ref} \ge -6 \text{ dB for all Frequency Bands for the reference cell,}$

 $(PRS \hat{E}_{s} / Iot)_{i} \ge -13 \text{ dB}$ for all Frequency Bands for neighbour cell *i*,

 $(\text{PRS}\,\hat{\text{E}}_{s}/\text{Iot})_{ref}$ and $(\text{PRS}\,\hat{\text{E}}_{s}/\text{Iot})_{i}$ conditions apply for all subframes of at least $L = \frac{M}{2}$ PRS positioning

occasions,

PRP $1,2|_{dBm} \ge -127$ dBm for Frequency Bands 33, 34, 35, 36, 37, 38, 39, 40.

PRS \hat{E}_s / Iot is as defined in Section 8.1.2.5.1.

The time $T_{RSTD InterFreqTDD, E-UTRAN}$ starts from the first subframe of the PRS positioning occasion closest in time after both the OTDOA-RequestLocationInformation message and the OTDOA assistance data in the OTDOA-ProvideAssistanceData message as specified in 3GPP TS 36.355 [24], are delivered to the physical layer of the UE.

The RSTD measurement accuracy for all measured neighbor cells *i* shall be fulfilled according to the accuracy as specified in the sub-clause 9.1.10.2.

8.1.2.6.3.1 RSTD Measurement Reporting Delay

This requirement assumes that the measurement report is not delayed by other LPP signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: $2 \times TTI_{DCCH}$. This measurement reporting delay excludes any delay caused by no UL resources for UE to send the measurement report.

8.1.2.6.4 E-UTRAN FDD-TDD Inter-Frequency OTDOA Measurements

When the physical layer cell identities of neighbour cells together with the OTDOA assistance data are provided, the UE shall be able to detect and measure inter-frequency RSTD, specified in 3GPP TS 36.214 [4], for at least n=16 cells, including the reference cell, within $T_{RSTD InterFeqFDDTDD,E-UTRAN}$ ms as given below:

$$T_{\text{RSTD InterFeqFDDTDD,E-UTRAN}} = T_{\text{PRS}} \cdot (M-1) + \Delta \qquad \text{ms}$$
,

where

 $T_{RSTD InterFeqFDDTDD,E-UTRAN}$ is the total time for detecting and measuring at least *n* cells,

 $T_{\rm PRS}$ is the largest value of the cell-specific positioning subframe configuration period, defined in 3GPP TS 36.211

[16], among the measured n cells including the reference cell,

M is the number of PRS positioning occasions as defined in Table 8.1.2.6.4-1, where a PRS positioning occasion is as defined in Section 8.1.2.5.1, and

 $\Delta = 160 \cdot \left| \frac{n}{M} \right|$ ms is the measurement time for a single PRS positioning occasion which includes the sampling time

and the processing time.

Table 8.1.2.6.4-1: Number of PRS positioning occasions within $T_{\text{RSTD InterFeqFDDTDD,E-UTRAN}}$

Positioning subframe	Number of PRS positioning occasions M						
configuration period $T_{ m PRS}$	f2 ^{Note1}	f1 and f2 ^{Note2}					
160 ms	16	32					
>160 ms	8	16					
	NOTE 1: When inter-frequency RSTD measurements are performed over the reference cell and neighbour cells, which belong to the TDD inter-frequency carrier frequency f2.						
NOTE 2: When inter-frequency RSTD measurements are performed over the reference cell and the neighbour cells, which belong to the serving FDD carrier frequency f1 and the TDD inter-frequency carrier frequency f2 respectively.							

The UE physical layer shall be capable of reporting RSTD for the reference cell and all the neighbor cells *i* out of at least (*n*-1) neighbor cells within $T_{RSTD InterFedFDDTDD.E-UTRAN}$ provided:

 $(\text{PRS } \hat{\text{E}}_{s} / \text{Iot})_{ref} \ge -6 \text{ dB}$ for all Frequency Bands for the reference cell, $(\text{PRS } \hat{\text{E}}_{s} / \text{Iot})_{i} \ge -13 \text{ dB}$ for all Frequency Bands for neighbour cell *i*,

 $(\text{PRS } \hat{\text{E}}_{s} / \text{Iot})_{ref}$ and $(\text{PRS } \hat{\text{E}}_{s} / \text{Iot})_{i}$ conditions apply for all subframes of at least $L = \frac{M}{2}$ PRS positioning

occasions,

PRP 1,2|_{dBm}≥ -127 dBm for Frequency Bands 1, 4, 6, 10, 11, 18, 19, 21,

PRP $1,2|_{dBm} \ge -126$ dBm for Frequency Bands 9,

- PRP $1,2|_{dBm} \ge -125$ dBm for Frequency Bands 2, 5, 7,
- PRP $1,2|_{dBm} \ge -124$ dBm for Frequency Bands 3, 8, 12, 13, 14, 17, 20,

PRP 1,2|_{dBm}≥ -127 dBm for Frequency Bands 33, 34, 35, 36, 37, 38, 39, 40.

PRS \hat{E}_{s} / Iot is as defined in Section 8.1.2.5.1.

The time $T_{RSTD InterFeqFDDTDD,E-UTRAN}$ starts from the first subframe of the PRS positioning occasion closest in time after both the OTDOA-RequestLocationInformation message and the OTDOA assistance data in the OTDOA-ProvideAssistanceData message as specified in 3GPP TS 36.355 [24], are delivered to the physical layer of the UE.

The RSTD measurement accuracy for all measured neighbor cells *i* shall be fulfilled according to the accuracy as specified in the sub-clause 9.1.10.2.

The inter-frequency requirements in this clause (8.1.2.6.4) shall apply for all TDD special subframe configurations specified in TS 36.211 [16] and for the TDD uplink-downlink configurations as specified in Table 8.1.2.6.4-2.

Table 8.1.2.6.4-2: TDD uplink-downlink subframe configurations applicable for FDD-TDD interfrequency requirements

Γ	PRS Transmission Bandwidth [RB]	Applicable TDD uplink-downlink configurations				
Ī	6, 15	3, 4 and 5				
Ī	25	1, 2, 3, 4, 5 and 6				
Ī	50, 75, 100	0, 1, 2, 3, 4, 5 and 6				
Ī	NOTE: Uplink-downlink configurations are specified in Table 4.2-2 in 3GPP TS 36.211 [16].					

8.1.2.6.4.1 RSTD Measurement Reporting Delay

This requirement assumes that the measurement report is not delayed by other LPP signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: $2 \times TTI_{DCCH}$. This measurement reporting delay excludes any delay caused by no UL resources for UE to send the measurement report.

8.1.2.7 E-UTRAN E-CID Measurements

8.1.2.7.1 E-UTRAN FDD UE Rx-Tx Time Difference Measurements

When no DRX is used the physical layer measurement period of the UE Rx-Tx time difference measurement shall be 200 ms.

When DRX is used in RRC_CONNECTED state the physical layer measurement period ($T_{measure_FDD_UE_Rx_Tx}$) of the UE Rx-Tx time difference measurement shall be as specified in table 8.1.2.7.1-1.

Table 8.1.2.7.1-1: FDD UE Rx-Tx time difference measurement requirement when DRX is used

DRX cycle length (s)	T _{measure_FDD_UE_Rx_Tx} (s) (DRX cycles)				
≤0.04	0.2 (Note1)				
0.04 <drx-cycle≤2.56< td=""><td colspan="3">Note2 (5)</td></drx-cycle≤2.56<>	Note2 (5)				
Note1: Number of DRX cycle depends upon the DRX cycle in use					
Note2: Time depends upon the DRX cy	cle in use				

The measurement accuracy for the UE Rx-Tx time difference measurement when DRX is used as well as when no DRX is used shall be as specified in the sub-clause 9.1.9.

8.1.2.7.1.1 UE Rx-Tx Measurement Reporting Delay

This requirement assumes that the measurement report is not delayed by other RRC or LPP signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: $2 \times TTI_{DCCH}$. This measurement reporting delay excludes any delay caused by no UL resources for UE to send the measurement report.

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in subclause 9.1.9.

8.1.2.7.2 E-UTRAN TDD UE Rx-Tx Time Difference Measurements

When no DRX is used the physical layer measurement period of the UE Rx-Tx time difference measurement shall be 200 ms.

When DRX is used in RRC_CONNECTED state the physical layer measurement period ($T_{measure_TDD_UE_Rx_Tx}$) of the UE Rx-Tx time difference measurement shall be as specified in table 8.1.2.7.2-1.

Table 8.1.2.7.2-1: TDD UE Rx-Tx time difference measurement requirement when DRX is used

DRX cycle length (s)	T _{measure_TDD_UE_Rx_Tx} (s) (DRX cycles)					
≤0.04	0.2 (Note1)					
0.04 <drx-cycle≤2.56< td=""><td colspan="3">Note2 (5)</td></drx-cycle≤2.56<>	Note2 (5)					
Note1: Number of DRX cycle depends upon the DRX cycle in use						
Note2: Time depends upon the DRX cycle in use						

The measurement accuracy for the UE Rx-Tx time difference measurement when DRX is used as well as when no DRX is used shall be as specified in the sub-clause 9.1.9.

8.1.2.7.2.1 UE Rx-Tx Measurement Reporting Delay

This requirement assumes that the measurement report is not delayed by other RRC or LPP signalling on the DCCH. This measurement reporting delay excludes a delay uncertainty resulted when inserting the measurement report to the TTI of the uplink DCCH. The delay uncertainty is: $2 \times TTI_{DCCH}$. This measurement reporting delay excludes any delay caused by no UL resources for UE to send the measurement report.

Reported measurements contained in periodically triggered measurement reports shall meet the requirements in subclause 9.1.9.

8.2 Capabilities for Support of Event Triggering and Reporting Criteria

8.2.1 Introduction

This section contains requirements on UE capabilities for support of event triggering and reporting criteria. As long as the measurement configuration does not exceed the requirements stated in section 8.2.2, the UE shall meet the performance requirements defined in section 9.

The UE can be requested to make measurements under different measurement identities defined in 3GPP TS 36.331 [2]. Each measurement identity corresponds to either event based reporting, periodic reporting or no reporting. In case of event based reporting, each measurement identity is associated with an event. In case of periodic reporting, a measurement identity is associated with one periodic reporting criterion. In case of no reporting, a measurement identity is associated with one periodic reporting criterion.

The purpose of this section is to set some limits on the number of different event, periodic and no reporting criteria the UE may be requested to track in parallel.

8.2.2 Requirements

In this section a reporting criterion corresponds to either one event (in the case of event based reporting), or one periodic reporting criterion (in case of periodic reporting), or one no reporting criterion (in case of no reporting). For event based reporting, each instance of event, with the same or different event identities, is counted as separate reporting criterion in table 8.2.2-1.

The UE shall be able to support in parallel per category up to E_{cat} reporting criteria according to table 8.2.2-1. For the measurement categories belonging to measurements on: E-UTRA intra-frequency cells, E-UTRA inter-frequency cells, and inter-RAT per supported RAT, the UE need not support more than 25 reporting criteria in total.

Measurement category	Ecat	Note
Intra-frequency	9	E-UTRA intra-frequency cells
Intra-frequency UE Rx-Tx time difference	2	Intra-frequency UE Rx-Tx time difference measurements reported to E-UTRAN via RRC and to positioning server via LPP. Applies for UE supporting both LPP and UE Rx-Tx time difference measurement.
Intra-frequency RSTD	1	Intra-frequency RSTD measurement reporting for UE supporting OTDOA; 1 report capable of minimum 16 cell measurements for the intra- frequency
Inter-frequency	7	E-UTRA inter-frequency cells
Inter-frequency RSTD	1	Inter-frequency RSTD measurement reporting for UE supporting OTDOA; 1 report capable of minimum 16 cell measurements for at least one inter-frequency
Inter-RAT (E-UTRAN FDD or TDD, UTRAN FDD, UTRAN TDD, GSM, cdma2000 1 x RTT and HRPD)	5	Only applicable for UE with this (inter-RAT) capability. This requirement ($E_{cat} = 5$) is per supported RAT.

Table 8.2.2-1: Requirements for reporting criteria per measurement category

9 Measurements performance requirements for UE

One of the key services provided by the physical layer is the measurements used to trigger or perform a multitude of functions. Both the UE and the E-UTRAN are required to perform measurements. The physical layer measurement model and a complete list of measurements are specified in [25] and [22] respectively. The physical layer measurements are described and defined in [4]. In this clause for each measurement the relevant requirements on the measurement period, reporting range, granularity and performance in terms of accuracy are specified.

Since the UE reference sensitivity requirements are different depending on supported band, this is noted in each case with definition of the range Io for each frequency band. Definitions of each frequency bands can be found in [5].

The accuracy requirements in this clause are applicable for AWGN radio propagation conditions and assume independent interference (noise) at each receiver antenna port.

9.1 E-UTRAN measurements

9.1.1 Introduction

The requirements in this clause are applicable for a UE:

- in state RRC_CONNECTED
- performing measurements with appropriate measurement gaps as defined in Section 8.1.2.1.
- that is synchronised to the cell that is measured.

The reported measurement result after layer 1 filtering shall be an estimate of the average value of the measured quantity over the measurement period. The reference point for the measurement result after layer 1 filtering is referred to as point B in the measurement model described in [25].

The accuracy requirements in this clause are valid for the reported measurement result after layer 1 filtering. The accuracy requirements are verified from the measurement report at point D in the measurement model having the higher layer filtering disabled.

9.1.2 Intra-frequency RSRP Accuracy Requirements

9.1.2.1 Absolute RSRP Accuracy

The requirements for absolute accuracy of RSRP in this section apply to a cell on the same frequency as that of the serving cell.

The accuracy requirements in Table 9.1.2.1-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP|dBm≥ -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,

RSRP|dBm \geq -126 dBm for Bands 9,

 $RSRP|_{dBm} \ge -125 \text{ dBm}$ for Bands 2, 5, 7,

RSRP|_{dBm}≥ -124 dBm for Bands 3, 8, 12, 13, 14, 17, 20.

Table 9.1.2.1-1: RSRP Intra frequency absolute accuracy

Parameter	Unit	Unit Accuracy [dB]		Conditions ¹				
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7	Bands 3, 8, 12, 13, 14, 17, 20	Band 9	
				lo	lo	lo	lo	
RSRP for Ês/lot ≥	dBm	±6	±9	-	-	-	-	
-6 dB				121dBm/15kHz	119dBm/15kHz	118dBm/15kHz	120dBm/15kHz	
				70dBm/	70dBm/	70dBm/	70dBm/	
				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW Channel	
RSRP for Ês/lot ≥	dBm	±8	±11	-70dBm/	-70dBm/	-70dBm/	-70dBm/	
-6 dB				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}	
				50dBm/	50dBm/	50dBm/	50dBm/	
				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}	

Note 1. Io is assumed to have constant EPRE across the bandwidth.

9.1.2.2 Relative Accuracy of RSRP

The relative accuracy of RSRP is defined as the RSRP measured from one cell compared to the RSRP measured from another cell on the same frequency.

The accuracy requirements in Table 9.1.2.2-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP1,2_{|dBm}≥ -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,

RSRP1,2 $|_{dBm} \ge -126 \text{ dBm}$ for Bands 9,

RSRP1,2 $|_{dBm} \ge -125$ dBm for Bands 2, 5, 7,

RSRP1,2|_{dBm}≥ -124 dBm for Bands 3, 8, 12, 13, 14, 17, 20.

Parameter	Unit	Unit Accuracy [dB]		Conditions ¹				
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7	Bands 3, 8, 12, 13, 14, 17, 20	Band 9	
				lo	lo	lo	lo	
RSRP for Ês/lot	dBm	±2	±3	-	-	-	-	
> -3 dB				121dBm/15kHz	119dBm/15kHz	118dBm/15kHz	120dBm/15kHz	
				50dBm/	50dBm/	50dBm/	50dBm/	
				BW _{Channel}	BW Channel	BW _{Channel}	BW Channel	
RSRP for Ês/lot ≥	dBm	±3	±3	-	-	-	-	
-6 dB				121dBm/15kHz	119dBm/15kHz	118dBm/15kHz	120dBm/15kHz	
				50dBm/	50dBm/	50dBm/	50dBm/	
				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}	

Note 2. The parameter Ês/lot is the minimum Ês/lot of the pair of cells.to which the requirement applies.

9.1.3 Inter-frequency RSRP Accuracy Requirements

9.1.3.1 Absolute RSRP Accuracy

The requirements for absolute accuracy of RSRP in this section apply to a cell that has different carrier frequency from the serving cell.

The accuracy requirements in Table 9.1.3.1-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP|dBm≥ -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,

RSRP|dBm \geq -126 dBm for Bands 9,

RSRP|dBm \geq -125 dBm for Bands 2, 5, 7,

RSRP|dBm≥ -124 dBm for Bands 3, 8, 12, 13, 14, 17, 20.

Parameter	Unit	Accuracy [dB]			Conditions ¹			
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7	Bands 3, 8, 12, 13, 14, 17, 20	Band 9	
				lo	lo	lo	lo	
RSRP for Ês/lot ≥	dBm	±6	±9	-	-	-	-	
-6 dB				121dBm/15kHz	119dBm/15kHz	118dBm/15kHz	120dBm/15kHz	
				70dBm/	70dBm/	70dBm/	70dBm/	
				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}	
RSRP for Ês/lot ≥	dBm	±8	±11	-70dBm/	-70dBm/	-70dBm/	-70dBm/	
-6 dB				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}	
				50dBm/	50dBm/	50dBm/	50dBm/	
				BWChannel	BW _{Channel}	BW Channel	BW _{Channel}	
Note 1. lo is assun	ned to h	ave constant E	EPRE across	the bandwidth.				

Table 9.1.3.1-1: RSRP Inter frequency absolute accuracy

9.1.3.2 Relative Accuracy of RSRP

The relative accuracy of RSRP in inter frequency case is defined as the RSRP measured from one cell compared to the RSRP measured from another cell on a different frequency.

The accuracy requirements in Table 9.1.3.2-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

 $RSRP1|_{dBm} \ge -127 \text{ dBm if } RSRP1 \text{ is on Bands } 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,$

 $\text{RSRP1}_{\text{dBm}} \ge -126 \text{ dBm if RSRP1}$ is on Band 9,

 $RSRP1|_{dBm} \ge -125 dBm$ if RSRP1 is on Bands 2, 5, 7,

 $RSRP1|_{dBm} \ge -124 \text{ dBm if } RSRP1 \text{ is on Bands } 3, 8, 12, 13, 14, 17, 20,$

 $RSRP2_{dBm} \ge -127 dBm$ if RSRP2 is on Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40

 $RSRP2|_{dBm} \ge -126 \text{ dBm if } RSRP2 \text{ is on Band 9},$

 $RSRP2|_{dBm} \ge -125 dBm$ if RSRP2 is on Bands 2, 5, 7,

 $RSRP2|_{dBm} \ge -124 \text{ dBm if } RSRP2 \text{ is on Bands } 3, 8, 12, 13, 14, 17, 20.$

 $\left| RSRP1 \right|_{dBm} - RSRP2 \right|_{dBm} \le 27 \, dB$

| Channel 1_Io -Channel 2_Io | \leq 20 dB

Parameter	eter Unit Accuracy [dB]		Conditions ¹				
		Normal condition	Extreme condition	RSRP is on Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39 and 40	RSRP is on Bands 2, 5, 7	RSRP is on Bands 3, 8, 12, 13, 14, 17, 20	RSRP is on Band 9
				lo	lo	lo	lo
RSRP for Ês/lot	dBm			-121dBm/15kHz	-119dBm/15kHz	-118dBm/15kHz	-120dBm/15kHz
> -6dB		±6	±6	50dBm/	50dBm/	50dBm/	50dBm/
				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}

Note 1. Io is assumed to have constant EPRE across the bandwidth.

Note 2. The parameter Ês/lot is the minimum Ês/lot of the pair of cells.to which the requirement applies.

9.1.4 RSRP Measurement Report Mapping

The reporting range of RSRP is defined from -140 dBm to -44 dBm with 1 dB resolution.

The mapping of measured quantity is defined in Table 9.1.4-1. The range in the signalling may be larger than the guaranteed accuracy range.

Reported value	Measured quantity value	Unit
RSRP_00	RSRP < -140	dBm
RSRP_01	-140 ≤ RSRP < -139	dBm
RSRP_02	-139 ≤ RSRP < -138	dBm
RSRP_95	-46 ≤ RSRP < -45	dBm
RSRP_96	-45 ≤ RSRP < -44	dBm
RSRP_97	-44 ≤ RSRP	dBm

Table 9.1.4-1: RSRP measurement report mapping

9.1.5 Intra-frequency RSRQ Accuracy Requirements

9.1.5.1 Absolute RSRQ Accuracy

The requirements for absolute accuracy of RSRQ in this section apply to a cell on the same frequency as that of the serving cell.

The accuracy requirements in Table 9.1.5.1-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP|dBm≥ -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,

RSRP|dBm \geq -126 dBm for Bands 9,

 $RSRP|_{dBm} \ge -125 dBm$ for Bands 2, 5, 7,

 $RSRP|_{dBm} \ge -124 \text{ dBm}$ for Bands 3, 8, 12, 13, 14, 17, 20.

Parameter	Unit	Accura	cy [dB]	Conditions ¹						
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7	Bands 3, 8, 12, 13, 14, 17, 20	Band 9			
				lo	lo	lo	lo			
RSRQ when RSRP	dBm	± 2.5	± 4	-	-	-	-			
Ês/lot > -3 dB				121dBm/15kHz	119dBm/15kHz	118dBm/15kHz	120dBm/15kHz			
				50dBm/	50dBm/	50dBm/	50dBm/			
				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}			
RSRQ when RSRP	dBm	± 3.5	± 4	-	-	-	-			
Ês/lot ≥ -6 dB				121dBm/15kHz	119dBm/15kHz	118dBm/15kHz	120dBm/15kHz			
				50dBm/	50dBm/	50dBm/	50dBm/			
				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}			

Note 1. Io is assumed to have constant EPRE across the bandwidth.

9.1.6 Inter-frequency RSRQ Accuracy Requirements

9.1.6.1 Absolute RSRQ Accuracy

The requirements for absolute accuracy of RSRQ in this section apply to a cell that has different carrier frequency from the serving cell.

The accuracy requirements in Table 9.1.6.1-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

RSRP|dBm≥ -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,

RSRP|dBm \geq -126 dBm for Bands 9,

 $RSRP|_{dBm} \ge -125 \text{ dBm}$ for Bands 2, 5, 7,

 $RSRP|_{dBm} \ge -124 \text{ dBm}$ for Bands 3, 8, 12, 13, 14, 17, 20.

Parameter	Unit	it Accuracy [dB]		Conditions ¹					
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7	Bands 3, 8, 12, 13, 14, 17, 20	Bands 9		
				lo	lo	lo	lo		
RSRQ when RSRP	dBm	± 2.5	± 4	-	-	-	-		
Ês/lot > -3 dB				121dBm/15kHz	119dBm/15kHz	118dBm/15kHz	120dBm/15kHz		
				50dBm/	50dBm/	50dBm/	50dBm/		
				BW _{Channel}	BW Channel	BW _{Channel}	BW Channel		
RSRQ when RSRP	dBm	± 3.5	± 4	-	-	-	-		
Ês/lot ≥ -6 dB				121dBm/15kHz	119dBm/15kHz	118dBm/15kHz	120dBm/15kHz		
				50dBm/	50dBm/	50dBm/	50dBm/		
				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}		

Note 1. Io is assumed to have constant EPRE across the bandwidth.

9.1.6.2 Relative Accuracy of RSRQ

The relative accuracy of RSRQ in inter frequency case is defined as the RSRQ measured from one cell compared to the RSRQ measured from another cell on a different frequency.

The accuracy requirements in Table 9.1.6.2-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

 $RSRP1|_{dBm} \ge -127 dBm$ if RSRP1 is on Band 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,

 $RSRP1|_{dBm} \ge -126 \ dBm \ if \ RSRP1$ is on Band 9,

 $RSRP1|_{dBm} \ge -125 dBm$ if RSRP1 is on Bands 2, 5, 7,

 $RSRP1|_{dBm} \ge -124 \text{ dBm if } RSRP1 \text{ is on Bands } 3, 8, 12, 13, 14, 17, 20,$

 $RSRP2|_{dBm} \ge -127 \text{ dBm if } RSRP2 \text{ is on Bands } 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,$

 $RSRP2|_{dBm} \ge -126 \text{ dBm if } RSRP2 \text{ is on Band 9},$

 $RSRP2|_{dBm} \ge -125 \ dBm$ if RSRP2 is on Bands 2, 5, 7,

 $RSRP2|_{dBm} \ge -124 \ dBm \ if \ RSRP2 \ is \ on \ Bands \ 3, \ 8, \ 12, \ 13, \ 14, \ 17, \ 20.$

$$\left|RSRP1\right|_{dBm} - RSRP2\right|_{dBm} \le 27 \, dB$$

| Channel 1_Io -Channel 2_Io | \leq 20 dB

Parameter	Unit	Accuracy [dB]		Conditions ¹					
		Normal condition	Extreme condition	RSRQ is on Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40	RSRQ is on Bands 2, 5, 7	RSRQ is on Bands 3, 8, 12, 13, 14, 17, 20	RSRQ is on Band 9		
				lo	lo				
RSRQ when RSRP	dBm	± 3	± 4	-	-	-	-		
Ês/lot > -3 dB				121dBm/15kH	119dBm/15kHz	118dBm/15kHz	120dBm/15kHz		
				z50dBm] /	50dBm/	50dBm/	50dBm/		
				BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}		
RSRQ when RSRP	dBm	± 4	± 4	-	-	-	-		
Ês/lot ≥ -6 dB				121dBm/15kH	119dBm/15kHz	118dBm/15kHz	120dBm/15kHz		
				z50dBm] /	50dBm/	50dBm/	50dBm/		
				BW _{Channel}	BW Channel	BW _{Channel}	BW Channel		

Note 2. The parameter Ês/lot is the minimum Ês/lot of the pair of cells.to which the requirement applies.

9.1.7 RSRQ Measurement Report Mapping

The reporting range of RSRQ is defined from -19.5 dB to -3 with 0.5 dB resolution.

The mapping of measured quantity is defined in table 9.1.7-1. The range in the signalling may be larger than the guaranteed accuracy range.

Reported value	Measured quantity value	Unit
RSRQ_00	RSRQ < -19.5	dB
RSRQ_01	-19.5 ≤ RSRQ < -19	dB
RSRQ_02	-19 ≤ RSRQ < -18.5	dB
RSRQ_32	-4 ≤ RSRQ < -3.5	dB
RSRQ_33	-3.5 ≤ RSRQ < -3	dB
RSRQ_34	-3 ≤ RSRQ	dB

Table 9.1.7-1: RSRQ measurement report mapping

9.1.8 **Power Headroom**

The power headroom (PH), expressed in dB, is defined as the difference between the configured maximum UE output power (P_{CMAX}), which is defined in section 6.2.5 in TS 36.101 [5] and the estimated power for PUSCH transmission according to section 5.1.1.1 in TS 36.213 [3].

9.1.8.1 Period

The reported power headroom shall be estimated over 1 subframe. The power headroom shall be estimated only in a subframe where PUSCH is transmitted.

9.1.8.2 Reporting Delay

The power headroom reporting delay is defined as the time between the beginning of the power headroom reference period and the time when the UE starts transmitting the power headroom over the radio interface. The reporting delay of the power headroom shall be 0 ms, which is applicable for all configured triggering mechanisms for power headroom reporting.

9.1.8.3 Void

9.1.8.4 Report Mapping

The power headroom reporting range is from -23 ...+40 dB. Table 9.1.8.4-1 defines the report mapping.

Reported value	Measured quantity value (dB)
POWER_HEADROOM_0	-23 ≤ PH < -22
POWER_HEADROOM_1	-22 ≤ PH < -21
POWER_HEADROOM_2	-21 ≤ PH < -20
POWER_HEADROOM_3	-20 ≤ PH < -19
POWER_HEADROOM_4	-19 ≤ PH < -18
POWER_HEADROOM_5	-18 ≤ PH < -17
POWER_HEADROOM_57	$34 \le PH < 35$
POWER_HEADROOM_58	$35 \le PH < 36$
POWER_HEADROOM_59	$36 \le PH < 37$
POWER_HEADROOM_60	37 ≤ PH < 38
POWER_HEADROOM_61	$38 \le PH < 39$
POWER_HEADROOM_62	$39 \le PH < 40$
POWER_HEADROOM_63	PH ≥ 40

Table 9.1.8.4-1: Power headroom report mapping

9.1.9 UE Rx – Tx time difference

9.1.9.1 Measurement Requirement

NOTE: This measurement is used for UE positioning purposes.

The UE RX-TX time difference is measured from the serving cell.

The accuracy requirements in Table 9.1.9.1-1 are valid under the following conditions:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

No changes to the uplink transmission timing are applied during the measurement period.

RSRP_{|dBm}≥ -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,

 $RSRP|_{dBm} \ge -126 \text{ dBm}$ for Bands 9,

 $RSRP|_{dBm} \ge -125 \text{ dBm}$ for Bands 2, 5, 7,

 $RSRP|_{dBm} \ge -124 \text{ dBm}$ for Bands 3, 8, 12, 13, 14, 17, 20.

Table 9.1.9.1-1: UE Rx – Tx time difference measurement accuracy

Parameter	Downlink Bandwidth	Unit	Accuracy [Ts]	Conditions					
	[MHz]			Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39 and 40	Bands 2, 5, 7	Bands 3, 8, 12, 13, 14, 17, 20	Band 9		
				lo	lo	lo	lo		
UE RX-TX time difference	\leq 3 MHz	T _s	± 20	-121dBm /15kHz 	-119dBm /15kHz 	-118dBm /15kHz 	-120dBm /15kHz 		
for Ês/lot ≥ -3dB	\geq 5 MHz		± 10	-50dBm/ BW _{Channel}	-50dBm/ BW _{Channel}	-50dBm/ BW _{Channel}	-50dBm/ BW _{Channel}		
	Note 1: lo is assumed to have constant EPRE across the bandwidth Note 2: Ts is the basic timing unit defined in TS 36.211.								

9.1.9.2 Measurement Report mapping

The reporting range of UE Rx - Tx time difference is defined from 0 to $20472T_s$ with $2T_s$ resolution for UE Rx - Tx time difference less than $4096T_s$ and 8Ts for UE Rx - Tx time difference equal to or greater than $4096T_s$.

The mapping of measured quantity is defined in Table 9.1.9.2-1.

Reported value	Measured quantity value	Unit
RX-TX_TIME_DIFFERENCE_0000	T _{UE Rx-Tx} < 2	Ts
RX-TX_TIME_DIFFERENCE_0001	$2 \le T_{UE Rx-Tx} < 4$	Ts
RX-TX_TIME_DIFFERENCE_0002	$4 \le T_{UE Rx-Tx} < 6$	Ts
RX-TX_TIME_DIFFERENCE_2046	$4092 \le T_{UE Rx-Tx} < 4094$	Ts
RX-TX_TIME_DIFFERENCE_2047	$4094 \le T_{UE Rx-Tx} < 4096$	Ts
RX-TX_TIME_DIFFERENCE_2048	$4096 \le T_{UE Rx-Tx} < 4104$	Ts
RX-TX_TIME_DIFFERENCE_2049	$4104 \le T_{UE Rx-Tx} < 4112$	Ts
RX-TX_TIME_DIFFERENCE_4093	$20456 \le T_{UE Rx-Tx} < 20464$	Ts
RX-TX_TIME_DIFFERENCE_4094	$20464 \le T_{UE Rx-Tx} < 20472$	Ts
RX-TX_TIME_DIFFERENCE_4095	20472 ≤ T _{UE Rx-Tx}	Ts

9.1.10 Reference Signal Time Difference (RSTD)

NOTE: This measurement is used for UE positioning purposes.

9.1.10.1 Intra-Frequency Accuracy Requirement

The accuracy requirements in Table 9.1.10.1-1 shall apply without DRX as well as for all the DRX cycles specified in 3GPP TS 36.331 [2].

The accuracy requirements in Table 9.1.10.1-1 are valid under the following conditions:

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

PRP 1,2|_{dBm}≥ -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,

PRP $1,2|_{dBm} \ge -126$ dBm for Band 9,

PRP $1,2|_{dBm} \ge -125$ dBm for Bands 2, 5, 7,

PRP $1,2|_{dBm} \ge -124$ dBm for Bands 3, 8, 12, 13, 14, 17, 20.

There are no measurement gaps overlapping with the PRS subframes of the measured cell.

The parameter expected RSTDU ncertainty signalled over LPP by E-SMLC as defined in 3GPP TS 36.355 [24] is less than 5 μ s.

Parameter	Minimum	Minimum	Unit	Accuracy		Conditi	ons Note 1, 4	
	bandwidth			[Ts]	Bands	Bands	Bands	Band
	between the	of available			1, 4, 6,	2, 5, 7	3, 8, 12,	9
	serving cell	measurement			10, 11,		13, 14,	
	channel BW,	subframes			18, 19,		17, 20	
	the reference	between the			21, 33,			
	cell and the measured	reference cell and the			34, 35, 26, 27			
	neighbour	measured			36, 37, 38, 39			
	cell PRS BW	neighbour cell			and 40			
	[RB]	5			lo	lo	lo	lo
RSTD for	≥6	6	Ts	± 15	-121dBm	-119dBm	-118dBm	-120dBm
(PRS Ês/lot) _{ref}					/15kHz	/15kHz	/15kHz	/15kHz
≥ -6dB and								
(PRS Ês/lot) _i	≥25	≥2		± 6	-50dBm/	-50dBm/	-50dBm/	-50dBm/
≥ -13dB	≥50	≥1		± 5	BW _{Channel}	BW _{Channel}	BW _{Channel}	BW _{Channel}
Note 1: When	n in dBm/15kHz,	the minimum lo c	conditio	n is express	ed as the av	erage lo pe	r RE over all	REs in an
	M symbol.							
		unit defined in 30						
		eighbour's PRS ba	andwid	ths are as in	dicated in p	rs-Bandwidtl	h in the OTD	AC
	tance data defin							
		RS positioning su						S
symb	ols. lo levels are	e different in PRS	and no	n-PRS symb	ools within th	ie same sub	frame.	

Table 9.1.10.1-1: RSTD n	neasurement accuracy
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9.1.10.2 Inter-Frequency Accuracy Requirement

The accuracy requirements in Table 9.1.10.2-1 shall apply without DRX as well as for all the DRX cycles specified in 3GPP TS 36.331 [2].

The accuracy requirements in Table 9.1.10.2-1 are valid under the following conditions:

Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

PRP $1,2|_{dBm}$ ≥ -127 dBm for Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39, 40,

PRP $1,2|_{dBm} \ge -126 \text{ dBm}$ for Band 9,

PRP $1,2|_{dBm} \ge -125$ dBm for Bands 2, 5, 7,

PRP $1,2|_{dBm} \ge -124$ dBm for Bands 3, 8, 12, 13, 14, 17, 20.

There are no measurement gaps overlapping with the PRS subframes in cells belonging to the serving carrier frequency.

The parameter expected RSTDU ncertainty signalled over LPP by E-SMLC as defined in 3GPP TS 36.355 [24] is less than 5 μ s.

Parameter	Minimum	Minimum	Unit	Accuracy	Conditions Note 1, 4			
	bandwidth between the serving cell channel BW, reference cell and the measured neighbour cell PRS	number of available measurement subframes between the reference cell and the measured neighbour cell		[Ts]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 33, 34, 35, 36, 37, 38, 39 and 40	Bands 2, 5, 7	Bands 3, 8, 12, 13, 14, 17, 20	Band 9
	bandwidth [RB]				lo	lo	lo	lo
RSTD for (PRS Ês/lot) _{ref} ≥ -6dB and	≥6	≥4	T _s	± 21	-121dBm /15kHz	-119dBm /15kHz	-118dBm /15kHz	-120dBm /15kHz
(PRS Ês/lot) _i	≥25	≥2		± 10	-50dBm/ BW _{Channel}	-50dBm/ BW _{Channel}	-50dBm/ BW _{Channel}	-50dBm/ BW _{Channel}
≥ -13dB	≥50	≥1		± 9	Channel			
OFDI Note 2: Ts is Note 3: PRS Note 4: The la	M symbol. the basic timing bandwidth is as o is defined in Pl	the minimum Io of unit defined in 30 indicated in <i>prs-E</i> RS positioning su different in PRS	GPP TS Bandwi bframe	S 36.211 [16] <i>dth</i> in the OT es. The same	l. DOA assista lo range ap	ance data de	efined in [24]. S and non-PR	

Table 9.1.10.2-1: RSTD measurement accuracy

9.1.10.3 RSTD Measurement Report Mapping

The reporting range of RSTD is defined from -15391T_s to $15391T_s$ with $1T_s$ resolution for absolute value of RSTD less or equal to $4096T_s$ and 5Ts for absolute value of RSTD greater than $4096T_s$.

The mapping of measured quantity is defined in Table 9.1.10.3-1.

Reported Value	Measured Quantity Value	Unit
RSTD 0000	-15391 > RSTD	T _s
RSTD_0001	-15391 ≤ RSTD < -15386	T _s
RSTD_2258	-4106 ≤ RSTD < -4101	T _s
RSTD_2259	-4101 ≤ RSTD < -4096	T _s
RSTD_2260	-4096 ≤ RSTD < -4095	T _s
RSTD_2261	-4095 ≤ RSTD < -4094	T _s
RSTD_6353	-3 ≤ RSTD < -2	Ts
RSTD_6354	-2 ≤ RSTD < -1	Ts
RSTD_6355	-1 ≤ RSTD ≤ 0	Ts
RSTD_6356	0 < RSTD ≤ 1	Ts
RSTD_6357	1 < RSTD ≤ 2	Ts
RSTD_6358	2 < RSTD ≤ 3	Ts
RSTD_10450	4094 < RSTD ≤ 4095	Ts
RSTD_10451	4095 < RSTD ≤ 4096	Ts
RSTD_10452	4096 < RSTD ≤ 4101	Ts
RSTD_10453	4101 < RSTD ≤ 4106	Ts
RSTD_12709	15381 < RSTD ≤ 15386	Ts
RSTD_12710	15386 < RSTD ≤ 15391	Ts
RSTD_12711	15391 < RSTD	Ts

Table 9.1.10.3-1: RSTD report mapping

9.2 UTRAN FDD Measurements

The requirements in this clause are applicable for a UE:

- in state RRC_CONNECTED
- performing measurements according to section 8.1.2.4.1 with appropriate measurement gaps
- that is synchronised to the cell that is measured.

The reported measurement result after layer 1 filtering shall be an estimate of the average value of the measured quantity over the measurement period. The reference point for the measurement result after layer 1 filtering is referred to as point B in the measurement model described in 3GPP TS 25.302 [6].

The accuracy requirements in this clause are valid for the reported measurement result after layer 1 filtering. The accuracy requirements are verified from the measurement report at point D in the measurement model having the layer 3 filtering disabled.

9.2.1 UTRAN FDD CPICH RSCP

NOTE: This measurement is for handover between E-UTRAN and UTRAN FDD.

The requirements in this section are valid for terminals supporting this capability.

The measurement period for RRC_CONNECTED state is specified in section 8.1.2.4.1.

In RRC_CONNECTED state the accuracy requirements shall meet the absolute accuracy requirements in table 9.2.1-1,.

		Accuracy [dB]		Conditions				
Parameter	Unit	Normal condition	Extreme condition	Band I, IV, VI, X XI, XIX and XXI		Band III, VIII, XII, XIII, XIV and XX	Band IX	
		contaition	contaition	lo	lo	lo	lo	
				[dBm/3,84 MHz]	[dBm/3,84 MHz]	[dBm/3,84 MHz]	[dBm/3,84 MHz]	
CPICH_RSCP	dBm	± 6	± 9	-9470	-9270	-9170	-9370	
	dBm	± 8	± 11	-7050	-7050	-7050	-7050	

Table 9.2.1-1: UTRAN FDD CPICH_RSCP absolute accuracy

If the UE, in RRC_CONNECTED state, needs measurement gaps to perform UTRAN FDD measurements, the UTRAN FDD measurement procedure and measurement gap pattern stated in section 8.1.2.4.1 shall apply.

The reporting range and mapping specified for FDD CPICH RSCP in 3GPP TS 25.133 [18] shall apply.

9.2.2 Void

9.2.3 UTRAN FDD CPICH Ec/No

NOTE: This measurement is for handover between E-UTRAN and UTRAN FDD.

The requirements in this section are valid for terminals supporting this capability.

The measurement period for RRC_CONNECTED state is specified in section 8.1.2.4.1.

In RRC_CONNECTED state the accuracy requirements shall be the same as the inter-frequency measurement accuracy requirements for FDD CPICH Ec/No in 3GPP TS 25.133 [18].

If the UE, in RRC_CONNECTED state, needs measurement gaps to perform UTRAN FDD measurements, the UTRAN FDD measurement procedure and measurement gap pattern stated in section 8.1.2.4.1 shall apply.

The reporting range and mapping specified for FDD CPICH Ec/No in 3GPP TS 25.133 [18] shall apply.

9.3 UTRAN TDD Measurements

The requirements in this clause are applicable for a UE:

- in state RRC_CONNECTED
- performing measurements according to section 8.1.2.4.3 with appropriate measurement gaps
- that is synchronised to the cell that is measured.

The reported measurement result after layer 1 filtering shall be an estimate of the average value of the measured quantity over the measurement period. The reference point for the measurement result after layer 1 filtering is referred to as point B in the measurement model described in 3GPP TS 25.302 [6].

The accuracy requirements in this clause are valid for the reported measurement result after layer 1 filtering. The accuracy requirements are verified from the measurement report at point D in the measurement model having the layer 3 filtering disabled.

9.3.1 UTRAN TDD P-CCPCH RSCP

NOTE: This measurement is for handover between E-UTRAN and UTRAN TDD.

The requirements in this section are valid for terminals supporting this capability.

The measurement period for RRC_CONNECTED state is specified in section 8.1.2.4.3.

In RRC_CONNECTED state the accuracy requirements shall be the same as the inter-frequency measurement accuracy requirements for TDD P-CCPCH in 3GPP TS 25.123 [19].

If the UE, in RRC_CONNECTED state, needs measurement gaps to perform UTRAN TDD measurements, the UTRAN TDD measurement procedure and measurement gap pattern stated in section 8.1.2.4.3 shall apply.

The reporting range and mapping specified for TDD P-CCPCH RSCP in 3GPP TS 25.123 [19] shall apply.

- 9.3.2 Void
- 9.3.3 Void

9.4 GSM Measurements

The requirements in this clause are applicable for a UE:

- in state RRC_CONNECTED
- performing measurements according to section 8.1.2.4.5 with appropriate measurement gaps
- that is synchronised to the cell that is measured.

The reported measurement result after layer 1 filtering shall be an estimate of the average value of the measured quantity over the measurement period. The reference point for the measurement result after layer 1 filtering is referred to as point B in the measurement model described in 3GPP TS 25.302 [6].

The accuracy requirements in this clause are valid for the reported measurement result after layer 1 filtering. The accuracy requirements are verified from the measurement report at point D in the measurement model having the layer 3 filtering disabled.

9.4.1 GSM carrier RSSI

NOTE: This measurement is for handover between E-UTRAN and GSM.

The requirements in this section are valid for terminals supporting this capability.

The measurement period for RRC_CONNECTED state is specified in section 8.1.2.4.5.

In RRC_CONNECTED state the measurement accuracy requirements for RXLEV in TS 45.008 [8] shall apply.

If the UE, in RRC_CONNECED state, needs measurement gaps to perform GSM measurements, the GSM measurement procedure and measurement gap pattern stated in section 8.1.2.4.5 shall apply.

The reporting range and mapping specified for RXLEV in TS 45.008 [8] shall apply.

9.5 CDMA2000 1x RTT Measurements

The requirements in this clause are applicable for a UE:

- in RRC_CONNECTED state.
- synchronised to the cell that is measured.

9.5.1 CDMA2000 1x RTT Pilot Strength

NOTE: This measurement is for handover between E-UTRAN and cdma2000 1 x RTT.

The requirements in this section are valid for terminals supporting this capability.

CDMA2000 1xRTT Pilot Strength defined in sub-clause 5.1.10 of [4] shall meet the performance requirement defined in sub-clause 3.2.4 of [14] on the cdma2000 1xRTT neighbour cells indicated by the serving eNode B.

10 Measurements Performance Requirements for E-UTRAN

10.1 Received Interference Power

The measurement period shall be 100 ms.

10.1.1 Absolute accuracy requirement

Table 10.1.1-1: Received Interference Power absolute accuracy

Parameter	Unit	Accuracy	Conditions
		[dB]	lob [dBm/180 kHz]
lob	dBm/180 kHz	± 4	-11796

10.1.2 Relative accuracy requirement

The relative accuracy is defined as the Received Interference Power measured at one frequency compared to the Received Interference Power measured from the same frequency at a different time.

Table 10.1.2-1: Received Interference Power relative accuracy

Parameter	Unit	Accuracy	Conditions
		[dB]	lob [dBm/180 kHz]
lob	dBm/180 kHz	± 0.5	-11796
			AND for changes $\leq \pm 9.0 \text{ dB}$

10.1.3 Received Interference Power measurement report mapping

The reporting range for Received Interference Power (RIP) is from -126 ... -75 dBm.

In table 10.2.3-1 the mapping of measured quantity is defined. The range in the signalling may be larger than the guaranteed accuracy range.

Table 10.1.3-1: Received Interference Power measurement reporting range

Reported value	Measured quantity value	Unit
RTWP_LEV _000	RIP < -126.0	dBm
RTWP_LEV _001	-126.0 ≤ RIP < -125.9	dBm
RTWP_LEV _002	-125.9 ≤ RIP < -125.8	dBm
RTWP_LEV _509	-75.2 ≤ RIP < -75.1	dBm
RTWP_LEV _510	-75.1 ≤ RIP < -75.0	dBm
RTWP_LEV _511	-75.0 ≤ RIP	dBm

10.2 Angle of Arrival (AOA)

10.2.1 Range/mapping

The reporting range for AOA measurement is from 0 to 360 degree, with resolution of 0.5 degree.

The mapping of the measured quantity is defined in table 10.2.1-1.

Reported value	Measured quantity value	Unit
AOA_ANGLE _000	$0 \le AOA_ANGLE < 0.5$	degree
AOA_ANGLE _001	$0.5 \le AOA_ANGLE < 1$	degree
AOA_ANGLE _002	$1 \le AOA_ANGLE < 1.5$	degree
AOA_ANGLE _717	358.5 ≤ AOA_ANGLE < 359	degree
AOA_ANGLE _718	359 ≤ AOA_ANGLE < 359.5	degree
AOA_ANGLE _719	359.5 ≤ AOA_ANGLE < 360	degree

Table 10.2.1-1: AOA measurement report mapping

10.3 Timing Advance (T_{ADV})

10.3.1 Report mapping

The reporting range of T_{ADV} is defined from 0 to 49232T_s with 2T_s resolution for timing advance less or equal to 4096T_s and 8T_s for timing advance greater than 4096T_s.

The mapping of measured quantity is defined in Table 10.3.1-1.

Reported value	Measured quantity value	Unit
TIME_ADVANCE_00	$T_{ADV} < 2$	Ts
TIME_ADVANCE_01	$2 \le T_{ADV} < 4$	Ts
TIME_ADVANCE_02	$4 \le T_{ADV} < 6$	Ts
TIME_ADVANCE_2046	$4092 \leq T_{ADV} < 4094$	Ts
TIME_ADVANCE_2047	$4094 \le T_{ADV} < 4096$	Ts
TIME_ADVANCE_2048	$4096 \le T_{ADV} < 4104$	Ts
TIME_ADVANCE_2049	$4104 \le T_{ADV} < 4112$	Ts
TIME_ADVANCE_7688	$49216 \le T_{ADV} < 49224$	Ts
TIME_ADVANCE_7689	$49224 \le T_{ADV} < 49232$	Ts
TIME_ADVANCE_7690	$49232 \le T_{ADV}$	Ts

Table 10.3.1-1: T_{ADV} measurement report mapping

Annex A (normative): Test Cases

A.1 Purpose of annex

This Annex specifies test specific parameters for some of the functional requirements in sections 4 to 9. The tests provide additional information to how the requirements should be interpreted for the purpose of conformance testing. The tests in this Annex are described such that one functional requirement may be tested in one or several test and one test may verify several requirements. Some requirements may lack a test.

The conformance tests are specified in TS 36.521-3 [23]. Statistical interpretation of the requirements is described in Annex A.2.

A.2 Requirement classification for statistical testing

Requirements in this specification are either expressed as absolute requirements with a single value stating the requirement, or expressed as a success rate. There are no provisions for the statistical variations that will occur when the parameter is tested.

Annex A outlines the tests in more detail and lists the test parameters needed. The test will result in an outcome of a test variable value for the device under test (DUT) inside or outside the test limit. Overall, the probability of a "good" DUT being inside the test limit(s) and the probability of a "bad" DUT being outside the test limit(s) should be as high as possible. For this reason, when selecting the test variable and the test limit(s), the statistical nature of the test is accounted for.

The statistical nature depends on the type of requirement. Some have large statistical variations, while others are not statistical in nature at all. When testing a parameter with a statistical nature, a confidence level is set. This establishes the probability that a DUT passing the test actually meets the requirements and determines how many times a test has to be repeated and what the pass and fail criteria are. Those aspects are not covered by TS 36.133. The details of the tests on how many times to run it and how to establish confidence in the tests are described in TS 36.521-3 [23]. This Annex establishes the variable to be used in the test and whether it can be viewed as statistical in nature or not.

A.2.1 Types of requirements in TS 36.133

A.2.1.1 Time and delay requirements on UE higher layer actions

A very large part of the RRM requirements are delay requirements:

- In E-UTRAN RRC_IDLE state mobility (clause A.4) there is cell re-selection delay.
- In E-UTRAN RRC_CONNECTED state mobility (clauses A.5 and A.8) there is handover delay, cell search delay and measurement reporting delay.
- In RRC Connection Control (clause A.6) there is RRC re-establishment delay.

All have in common that the UE is required to perform an action observable in higher layers (e.g. camp on the correct cell) within a certain time after a specific event (e.g. when a new strong pilot or reference signal appears). The delay time is statistical in nature for several reasons, among others that several of the measurements are performed by the UE in a fading radio environment.

The variations make a strict limit unsuitable for a test. Instead there is a condition set for a correct action by the UE, e.g. that the UE shall camp on the correct cell within X seconds. Then the rate of correct events is observed during repeated

tests and a limit is set on the rate of correct events, usually 90% correct events are required. How the limit is applied in the test depends on the confidence required, further detailed are in TS 36.521-3 [23].

A.2.1.2 Measurements of power levels, relative powers and time

A very large number of requirements are on measurements that the UE performs:

- In E-UTRAN RRC_CONNECTED state mobility (clause A.5) there are measurement reports.
- In Measurement Performance Requirements (clause A.9) there are requirements for all type of measurements.

The accuracy requirements on measurements are expressed in this specification as a fixed limit (e.g. +/-X dB), but the measurement error will have a distribution that is not easily confined in fixed limits. Assuming a Gaussian distribution of the error, the limits will have to be set at +/- 3.29σ if the probability of failing a "good DUT" in a single test is to be kept at 0.1%. It is more reasonable to set the limit tighter and test the DUT by counting the rate of measurements that are within the limits, in a way similar to the requirements on delay.

A.2.1.3 Implementation requirements

A few requirements are strict actions the UE should take or capabilities the UE should have, without any allowance for deviations. These requirements are absolute and should be tested as such. Examples are:

- "Event triggered report rate" in E-UTRAN RRC_CONNECTED state mobility (clauses A.5 and A.8)
- "Correct behaviour at time-out" in RRC connection control (clause A.6)

A.2.1.4 Physical layer timing requirements

There are requirements on Timing and Signaling Characteristics (clauses A.7). There are both absolute and relative limits on timing accuracy depending upon the type of requirement. Examples are:

- Initial Transmit Timing (clause A.7.1) has an absolute limit on timing accuracy.
- Timing Advance (clause A.7.2) has a relative limit on timing accuracy.

A.3 **RRM** test configurations

Reference Measurement Channels A.3.1

- A.3.1.1 PDSCH
- A.3.1.1.1 FDD

Parameter	Unit				Value				
Reference channel		R.2 R.0 R.1 R.3							
		FDD			FDD	FDD	FDD		
Channel bandwidth	MHz	1.4	3	5	10	10	10	20	
Number of transmitter antennas		1			1	2	1		
Allocated resource blocks (Note 4)		2			24	24	24		
Allocated subframes per Radio Frame	10 10 10 10								
Modulation		QPS			QPS	QPS	QPS		
		K			K	K	K		
Target Coding Rate		1/3			1/3	1/3	1/3		
Information Bit Payload									
For Sub-Frames 4, 9	Bits	120			2088	2088	2088		
For Sub-Frame 5	Bits	104			2088	1736	2088		
For Sub-Frame 0	Bits	32 1736 1736 1736							
For Sub-Frame 1, 2, 3, 6, 7, 8	r Sub-Frame 1, 2, 3, 6, 7, 8 Bits 0					0	2088		
Number of Code Blocks per Sub-Frame		1			1	1			
(Note 5)									
For Sub-Frames 4, 9		1			1	1	1		
For Sub-Frame 5		1			1	1	1		
For Sub-Frame 0		1			1	1	1		
For Sub-Frame 1, 2, 3, 6, 7, 8		0			0	0	1		
Binary Channel Bits Per Sub-Frame									
For Sub-Frames 4, 9	Bits	456			6624	6336	6624		
For Sub-Frame 5	Bits	360			6336	6048	6336		
For Sub-Frame 0	Bits	176			5784	5520	5784		
For Sub-Frame 1, 2, 3, 6, 7, 8	Bits	0			0	0	6624		
Max. Throughput averaged over 1 frame	kbps	37.6			800	765	2053		
Note 1: 2 symbols allocated to PDCCH for	10 MHz chan	nel BW. 4	4 symbo	ls alloca	ted to P	DCCH fo	or 1.4 Mł	Ηz	
channel BW.									
	Note 2: Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [16].								
Note 3: If necessary the information bit payload size can be adjusted to facilitate the test implementation. The									
	payload sizes are defined in 3GPP TS 36.213 [3].								
Note 4: Allocation is located in the middle of			0						
Note 5: If more than one Code Block is pre	sent, an addit	ional CR	C seque	ence of L	= 24 Bi	is is atta	cned to	eacn	
Code Block (otherwise $L = 0$ Bit)	ubfrom on ant	oonfigur			0000				
Note 6: PDSCH allocation applies only to subframes not configured as PRS subframes.									

A.3.1.1.2 TDD

Reference channel R.2 TDD R.0 TDD R.1 TDD Channel bandwidth MHz 1.4 3 5 10 10 20 Number of transmitter antennas 1 1 1 2 24 24 Allocated resource blocks (Note 4) 2 24 24 24 24 Uplink-Downlink Configuration (Note 5) 1 1 1 1 1 Special Subframe Configuration (Note 6) 6 6 6 6 6 Allocated subframes per Radio Frame 6 6 6 6 6 6 Modulation QPSK QPSK QPSK QPSK 0 9 1/3	Parameter	Unit			Va	lue				
Channel bandwidth MHz 1.4 3 5 100 10 20 Number of transmitter antennas 1 1 1 2 24 24 24 Allocated resource blocks (Note 4) 2 24 26 24	Reference channel		R.2			R.0				
Number of transmitter antennas 1 1 2 Allocated resource blocks (Note 4) 2 24 24 Uplink-Downlink Configuration (Note 5) 1 1 1 Special Subframe Configuration (Note 6) 6 6 6 Allocated subframes per Radio Frame 6 6 6 Modulation QPSK QPSK QPSK Target Coding Rate 1/3 1/3 1/3 Information Bit Payload - - - For Sub-Frame 4.9 Bits 120 2088 2088 For Sub-Frame 5 Bits 104 2088 2088 For Sub-Frame 6 1 1 1 1 For Sub-Frame 7 0 1 1 1 1 For Sub-Frame 8.9 1 1 1 1 1 1 For Sub-Frame 9 1 1 1 1 1 1 1 For Sub-Frame 1.6 (DwPTS) 1 1 1 1			TDD			TDD	TDD			
Number of number of particular 1 <th1< th=""> 1 <th1< th=""> 1 <th1<< td=""><td>Channel bandwidth</td><td>MHz</td><td>1.4</td><td>3</td><td>5</td><td>10</td><td>-</td><td>20</td></th1<<></th1<></th1<>	Channel bandwidth	MHz	1.4	3	5	10	-	20		
Interference Image: Construction of the constructin of the construction of the constrend of the constructi	Number of transmitter antennas					1	—			
Special Subframe Configuration (Note 6) 6 6 6 6 6 Allocated subframes per Radio Frame 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	Allocated resource blocks (Note 4)		2			24	24			
Allocated subframes per Radio Frame 6 6 6 6 Modulation QPSK QPSK <td< td=""><td>Uplink-Downlink Configuration (Note 5)</td><td></td><td>1</td><td></td><td></td><td>1</td><td>1</td><td></td></td<>	Uplink-Downlink Configuration (Note 5)		1			1	1			
Modulation QPSK QPSK QPSK Target Coding Rate 1/3 1/3 1/3 1/3 Information Bit Payload 1/3 1/3 1/3 1/3 Information Bit Payload 1/3 1/3 1/3 1/3 For Sub-Frame 4,9 Bits 120 2088 2088 For Sub-Frame 5 Bits 56 2088 1032 1032 Number of Code Blocks per Sub-Frame 1 1 1 1 1 (Note 7) 1 1 1 1 1 1 For Sub-Frame 5 1 1 1 1 1 1 For Sub-Frame 6 1 1 1 1 1 1 For Sub-Frame 7 1 1 1 1 1 1 For Sub-Frame 9 1 1 1 1 1 1 For Sub-Frame 1, 6 (DwPTS) Bits 408 6424 6336 1 1 1 1 <td>Special Subframe Configuration (Note 6</td> <td>5)</td> <td>-</td> <td></td> <td></td> <td>6</td> <td>6</td> <td></td>	Special Subframe Configuration (Note 6	5)	-			6	6			
Target Coding Rate 1/3 1/3 1/3 1/3 Information Bit Payload 1/3 1/3 1/3 1/3 1/3 For Sub-Frame 4,9 Bits 120 2088 2088 2088 For Sub-Frame 5 Bits 104 2088 2088 2088 For Sub-Frame 0 Bits 56 2088 1032 1032 Number of Code Blocks per Sub-Frame (Note 7) 1 1 1 1 1 For Sub-Frame 5 1 1 1 1 1 1 For Sub-Frame 5 1 1 1 1 1 1 For Sub-Frame 6 1 1 1 1 1 1 1 For Sub-Frame 7 1 1 1 1 1 1 1 1 For Sub-Frame 8 (.9 1 1 1 1 1 1 1 For Sub-Frame 1, 6 (DwPTS) 1 1 1 1 1 1	Allocated subframes per Radio Frame						-			
Information Bit Payload 100 100 100 For Sub-Frames 4,9 Bits 120 2088 2088 For Sub-Frame 5 Bits 104 2088 2088 For Sub-Frame 0 Bits 56 2088 1736 For Sub-Frame 1, 6 (DwPTS) Bits 56 1032 1032 Number of Code Blocks per Sub-Frame 1 1 1 1 For Sub-Frame 5 1 1 1 1 1 For Sub-Frame 0 1 1 1 1 1 Binary Channel Bits Per Sub-Frame 1 1 1 1 1 For Sub-Frame 5 Bits 456 6624 6336 6 For Sub-Frame 5 Bits 224 5928 5664 For Sub-Frame 1, 6 (DwPTS) Bits 272 3696 3604	Modulation		QPSK			QPSK				
For Sub-Frames 4.9Bits12020882088For Sub-Frame 5Bits10420882088For Sub-Frame 0Bits5620881736For Sub-Frame 1, 6 (DwPTS)Bits5610321032Number of Code Blocks per Sub-Frame1111(Note 7)1111For Sub-Frame 51111For Sub-Frame 51111For Sub-Frame 51111For Sub-Frame 51111For Sub-Frame 51111Binary Channel Bits Per Sub-Frame111For Sub-Frame 5Bits45666246336For Sub-Frame 5Bits40864806192For Sub-Frame 7Bits22459285664For Sub-Frame 7Bits27236963504Max. Throughput averaged over 1 frameMbps0.0511.0411.0064Note 1:2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHzchannel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for all bandwidths.Note 2:Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [16].Note 3:If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [3].Note 4:Allocation is located in the middle of bandwidth. N	Target Coding Rate		1/3			1/3	1/3			
For Sub-Frame 5Bits10420882088For Sub-Frame 1, 6 (DwPTS)Bits5620881736For Sub-Frame 1, 6 (DwPTS)Bits5610321032Number of Code Blocks per Sub-Frame1111(Note 7)11111For Sub-Frame 511111For Sub-Frame 011111For Sub-Frame 011111For Sub-Frame 011111For Sub-Frame 1, 6 (DwPTS)1111Binary Channel Bits Per Sub-Frame1111For Sub-Frame 4,9Bits45666246336For Sub-Frame 0Bits22459285664For Sub-Frame 1, 6 (DwPTS)Bits27236963504Max. Throughput averaged over 1 frameMbps0.0511.0411.0064Note 1:2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for 1.4 MHz 										
For Sub-Frame 0 Bits 56 2088 1736 For Sub-Frame 1, 6 (DwPTS) Bits 56 1032 1032 Number of Code Blocks per Sub-Frame 1 1 1 1 (Note 7) 1 1 1 1 1 For Sub-Frames 4,9 1 1 1 1 1 For Sub-Frame 5 1 1 1 1 1 For Sub-Frame 6 1 1 1 1 1 For Sub-Frame 7 1 1 1 1 1 For Sub-Frame 8,9 1 1 1 1 1 For Sub-Frame 1, 6 (DwPTS) 1 1 1 1 1 Bits 456 6624 6336 6192 504 For Sub-Frame 5 Bits 408 6480 6192 504 For Sub-Frame 0 Bits 224 5928 5664 504 For Sub-Frame 1, 6 (DwPTS) Bits 272 3696 3504 Max. Throughput averaged over 1 frame Mbps 0.051		Bits	120							
For Sub-Frame 1, 6 (DwPTS) Bits 56 1032 1032 Number of Code Blocks per Sub-Frame (Note 7) 1 1 1 1 For Sub-Frames 4,9 1 1 1 1 1 For Sub-Frame 5 1 1 1 1 1 For Sub-Frame 0 1 1 1 1 1 For Sub-Frame 1, 6 (DwPTS) 1 1 1 1 1 Binary Channel Bits Per Sub-Frame 1 1 1 1 1 For Sub-Frame 4,9 Bits 456 6624 6336 6480 6192 For Sub-Frame 5 Bits 224 5928 5664 504 504 6 For Sub-Frame 0 Bits 272 3696 3504 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	For Sub-Frame 5	Bits	104			2088				
Number of Code Blocks per Sub-Frame 1 1 1 1 (Note 7) 1 1 1 1 1 For Sub-Frames 4,9 1 1 1 1 1 For Sub-Frame 5 1 1 1 1 1 For Sub-Frame 0 1 1 1 1 1 For Sub-Frame 0 1 1 1 1 1 Binary Channel Bits Per Sub-Frame 1 1 1 1 For Sub-Frame 5 Bits 456 6624 6336 For Sub-Frame 0 Bits 224 5928 5664 For Sub-Frame 0 Bits 224 5928 5664 For Sub-Frame 1, 6 (DwPTS) Bits 272 3696 3504 Max. Throughput averaged over 1 frame Mbps 0.051 1.041 1.0064 Note 1: 2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for 1.4 MHz Note 2: Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [16].	For Sub-Frame 0	Bits	56				1736			
(Note 7) 1 1 1 For Sub-Frames 4,9 1 1 1 1 For Sub-Frame 5 1 1 1 1 For Sub-Frame 0 1 1 1 1 For Sub-Frame 1, 6 (DwPTS) 1 1 1 1 Binary Channel Bits Per Sub-Frame 1 1 1 1 For Sub-Frames 4,9 Bits 456 6624 6336 For Sub-Frame 5 Bits 408 6480 6192 For Sub-Frame 0 Bits 224 5928 5664 For Sub-Frame 1, 6 (DwPTS) Bits 272 3696 3504 Max. Throughput averaged over 1 frame Mbps 0.051 1.041 1.0064 Note 1: 2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for 1.4 MHz Note 1: 2 symbols allocated in SGPP TS 36.211 [16]. Note 3: If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [3]. Note 4: Allocation is located in the middle	For Sub-Frame 1, 6 (DwPTS)	Bits	56			1032	1032			
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For Sub-Frame 5111For Sub-Frame 0111For Sub-Frame 0111Binary Channel Bits Per Sub-Frame11For Sub-Frames 4,9Bits4566624For Sub-Frame 5Bits4086480For Sub-Frame 0Bits2245928For Sub-Frame 1, 6 (DwPTS)Bits2245928For Sub-Frame 1, 6 (DwPTS)Bits2723696Max. Throughput averaged over 1 frameMbps0.0511.041Note 1:2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for all bandwidths.Note 2:Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [16].Note 3:If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [3].Note 4:Allocation is located in the middle of bandwidth.Note 5:As per Table 4.2-2 in TS 36.211 [16]Note 6:As per Table 4.2-1 in TS 36.211 [16]Note 7:If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to 										
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For Sub-Frame 1, 6 (DwPTS) 1 1 1 1 Binary Channel Bits Per Sub-Frame			1			1				
Binary Channel Bits Per Sub-Frame Bits 456 6624 6336 For Sub-Frame 5 Bits 408 6480 6192 For Sub-Frame 0 Bits 224 5928 5664 For Sub-Frame 1, 6 (DwPTS) Bits 272 3696 3504 Max. Throughput averaged over 1 frame Mbps 0.051 1.041 1.0064 Note 1: 2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for all bandwidths. Note 2: Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [16]. Note 3: If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [3]. Note 4: Allocation is located in the middle of bandwidth. Note 5: As per Table 4.2-2 in TS 36.211 [16] Note 6: As per Table 4.2-1 in TS 36.211 [16] Note 7: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)			1			1	1			
For Sub-Frames 4,9Bits45666246336For Sub-Frame 5Bits40864806192For Sub-Frame 0Bits22459285664For Sub-Frame 1, 6 (DwPTS)Bits27236963504Max. Throughput averaged over 1 frameMbps0.0511.0411.0064Note 1:2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for all bandwidths.Note 2:Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [16].Note 3:If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [3].Note 4:Allocation is located in the middle of bandwidth. Note 5:Note 5:As per Table 4.2-2 in TS 36.211 [16]Note 6:As per Table 4.2-1 in TS 36.211 [16]Note 7:If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)			1			1	1			
For Sub-Frame 5 Bits 408 6480 6192 For Sub-Frame 0 Bits 224 5928 5664 For Sub-Frame 1, 6 (DwPTS) Bits 272 3696 3504 Max. Throughput averaged over 1 frame Mbps 0.051 1.041 1.0064 Note 1: 2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for all bandwidths. Note 2: Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [16]. Note 3: If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [3]. Note 4: Allocation is located in the middle of bandwidth. Note 5: As per Table 4.2-2 in TS 36.211 [16] Note 7: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)										
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Note 1: 2 symbols allocated to PDCCH for 10 MHz channel BW. 4 symbols allocated to PDCCH for 1.4 MHz channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for all bandwidths. Note 2: Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [16]. Note 3: If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [3]. Note 4: Allocation is located in the middle of bandwidth. Note 5: As per Table 4.2-2 in TS 36.211 [16] Note 7: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)										
 channel BW. For special subframe (1 & 6) only 2 OFDM symbols are allocated to PDCCH for all bandwidths. Note 2: Reference signal, synchronization signals and PBCH allocated as defined in 3GPP TS 36.211 [16]. Note 3: If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [3]. Note 4: Allocation is located in the middle of bandwidth. Note 5: As per Table 4.2-2 in TS 36.211 [16] Note 6: As per Table 4.2-1 in TS 36.211 [16] Note 7: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit) 	Max. Throughput averaged over 1 frame	e Mbps					1.0064			
 Note 3: If necessary the information bit payload size can be adjusted to facilitate the test implementation. The payload sizes are defined in 3GPP TS 36.213 [3]. Note 4: Allocation is located in the middle of bandwidth. Note 5: As per Table 4.2-2 in TS 36.211 [16] Note 6: As per Table 4.2-1 in TS 36.211 [16] Note 7: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit) 	channel BW. For special sub	CH for 10 MHz char frame (1 & 6) only :	nel BW.	4 symbol symbols a	s allocate are alloca	ed to PDC	CCH for 1 CCH for 1	.4 MHz `all		
 The payload sizes are defined in 3GPP TS 36.213 [3]. Note 4: Allocation is located in the middle of bandwidth. Note 5: As per Table 4.2-2 in TS 36.211 [16] Note 6: As per Table 4.2-1 in TS 36.211 [16] Note 7: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit) 										
 Note 4: Allocation is located in the middle of bandwidth. Note 5: As per Table 4.2-2 in TS 36.211 [16] Note 6: As per Table 4.2-1 in TS 36.211 [16] Note 7: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit) 				sted to fa	cilitate the	e test imp	olementat	tion.		
 Note 5: As per Table 4.2-2 in TS 36.211 [16] Note 6: As per Table 4.2-1 in TS 36.211 [16] Note 7: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit) 	The payload sizes are define									
 Note 6: As per Table 4.2-1 in TS 36.211 [16] Note 7: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit) 										
Note 7: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)										
each Code Block (otherwise $L = 0$ Bit)				_						
Note 9. DDCCL - DDcching and a subframes not configured as DDC subframes			itional CR	C seque	nce of L =	= 24 Bits i	is attache	ed to		
Note 8: PDSCH allocation applies only to subframes not configured as PRS subframes.	Note 8: PDSCH allocation applies on	ly to subframes no	t configur	ed as PR	S subfra	mes.				

A.3.1.2 PCFICH/PDCCH/PHICH

A.3.1.2.1 FDD

Table A.3.1.2.1-1: PCFICH/PDCCH/PHICH Reference Channel for FDD

Parameter	Unit			Val	ue		
Reference channel		R.8			R.6	R.7	
		FDD			FDD	FDD	
Channel bandwidth	MHz	1.4			10	10	
Number of transmitter antennas		1			1	2	
Control region OFDM symbols ^{Note1}	symbols	4			2	2	
Aggregation level	CCE	2			8	8	
		(Note 6)					
DCI Format		Note 3			Note 3	Note 3	
Cell ID		Note 4			Note 4	Note 4	
Payload (without CRC)	Bits	Note 5			Note 5	Note 5	
Note 1: The control region consists of PC	FICH, PHICI	H and PDC	CH.				
Note 2: DCI formats are defined in 3GPP	TS 36.212.						
Note 3: DCI format shall depend upon the test configuration.							
Note 4: Cell ID shall depend upon the test configuration.							
Note 5: Payload size shall depend upon the test configuration.							
Note 6: For PDCCH using SI/RA/P-RNTI,	Aggregation	n level 4 is	used.				

A.3.1.2.2 TDD

Table A.3.1.2.2-1: PCFICH/PDCCH/PHICH Reference Channel for TDD

Parameter	Unit			Value			
Reference channel		R.8 TDD		R.6	R.7		
				TDD	TDD		
Channel bandwidth	MHz	1.4		10	10		
Number of transmitter antennas		1		1	2		
Control region OFDM symbols ^{Note1}	symbols	4		2	2		
		(Note 6)					
Aggregation level	CCE	2		8	8		
		(Note 7)					
DCI Format		Note 3		Note 3	Note 3		
Cell ID		Note 4		Note 4	Note 4		
Payload (without CRC)	Bits	Note 5		Note 5	Note 5		
Note 1: The control region consists of PC	FICH, PHICI	H and PDC	CH.				
Note 2: DCI formats are defined in 3GPP	TS 36.212.						
Note 3: DCI format shall depend upon the	e test configu	uration.					
Note 4: Cell ID shall depend upon the test configuration.							
Note 5: Payload size shall depend upon the test configuration.							
Note 6: Only 2 OFDM symbols for specia	l subframes	1 and 6.					
Note 7: For PDCCH using SI/RA/P-RNTI	, Aggregatior	n level 4 is	used.				

A.3.2 OFDMA Channel Noise Generator (OCNG)

A.3.2.1 OCNG Patterns for FDD

The following OCNG patterns are used for modelling allocations to virtual UEs (which are not under test) and/or allocations used for MBSFN. The OCNG pattern for each sub frame specifies the allocations that shall be filled with OCNG, and furthermore, the relative power level of each such allocation.

In each test case the OCNG is expressed by parameters OCNG_RA and OCNG_RB which together with a relative power level (γ) specifies the PDSCH EPRE-to-RS EPRE ratios in OFDM symbols without and with reference

symbols, respectively. The relative power, which is used for modelling boosting per virtual UE allocation, is expressed by:

$$\gamma_i = PDSCH_i _RA / OCNG _RA = PDSCH_i _RB / OCNG _RB,$$

where γ_i denotes the relative power level of the *i:th* virtual UE. The parameter settings of OCNG_RA, OCNG_RB, and the set of relative power levels γ are chosen such that when also taking allocations to the UE under test into account, as given by a PDSCH reference channel, a constant transmitted power spectral density that is constant on an OFDM symbol basis is targeted.

Moreover the OCNG pattern is accompanied by a PCFICH/PDCCH/PHICH reference channel which specifies the control region. The number of PDCCH OFDM symbols in the non-MBSFN subframes is the same as specified in the RMC used in the test. The number of PDCCH OFDM symbols in the MBSFN subframe is the maximal allowed according to 3GPP TS 36.213 [16]. For any aggregation and PHICH allocation, the PDCCH and any unused PHICH groups are padded with resource element groups with a power level given by PDCCH_RA/RB and PHICH_RA/RB as specified in the test case such that a total power spectral density in the control region that is constant on an OFDM symbol basis is targeted.

For subframes configured as PRS subframes the PDSCH allocation defined in the OCNG pattern does not apply.

The system information is scheduled in the allocations reserved for the OCNG patterns, in the subframes not configured for MBSFN. For this purpose the number of the RB-s allocated with PDSCH defined in the OCNG pattern can be reduced as necessary.

A.3.2.1.1 OCNG FDD pattern 1: outer resource blocks allocation in 10 MHz

Alloca		PDSCH Data	PMCH Data					
n_{PL}	RB		Subframe					
		0	5	4,9	1-3, 6-8			
0	12	0	0	0	N/A	Note 1	N/A	
37 –	49	0	0	0	N/A			
0-4	19	N/A	N/A	N/A	Note 4	N/A	Note 2	
Note 1: Note 2:	with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH.							
Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213. Note 4: 0dB for 1 transmit antenna with CRS, +3dB for 2 transmit antennas with CRS								
N/A: Not	Applicable	e						

Table A.3.2.1.1-1: OP.1 FDD: OCNG FDD Pattern 1

A.3.2.1.2 OCNG FDD pattern 2: full bandwidth allocation in 10 MHz

Allocation Relative power level γ_{PRB} [dB]					PDSCH Data	PMCH Data	
n_{PRB}		Subfr	ame		Data	Data	
	0	5	4, 9	1-3,6-8			
0 – 49	0	0	0	N/A	Note 1	N/A	
0 – 49	N/A	N/A	N/A	Note 4	N/A	Note 2	
with one	hysical resource PDSCH per vir rrelated pseudo	rtual UE; the da	ata transmitte	ed over the OCI	NG PDSCH	ls shall	
Note 2: Each ph each PF measure	used to scale the sysical resource B shall be unco ement. The MBS cell-specific Ref	block (PRB) is prrelated with c SFN data shall	assigned to lata in other F be QPSK mo	PRBs over the podulated. PMCI	period of an H subframe	ny es shall	
Note 3: If two or	ameter $\gamma_{\scriptscriptstyle PRB}$ is a more transmit a shall be transmir	antennas with (CRS are used	d in the test, the			
	ording to the an						
equal be transmis	each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna ransmission modes are specified in section 7.1 in 3GPP TS 36.213. dB for 1 transmit antenna with CRS, +3dB for 2 transmit antennas with CRS						
N/A: Not Applicable	e						

Table A.3.2.1.2-1: OP.2 FDD: OCNG FDD Pattern 2

A.3.2.1.3 OCNG FDD pattern 3: outer resource blocks allocation in 1.4 MHz

Table A.3.2.1.3-1: OP.3 FDD: OCNG FDD Pattern 3

Allocation	Re	Relative power level $\gamma_{\scriptscriptstyle PRB}$ [dB]				
n_{PRB}	Subframe				Data	Data
	0	5	4,9	1-3, 6-8		

0 -	- 1	0	0	0	N/A	Note 1	N/A	
4 -	- 5	0	0 0 0 N/A		Note 1	IN/A		
0 -	- 5	N/A	N/A	N/A	Note 4	N/A	Note 2	
Note 1: Note 2:	These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH. Each physical resource block (PRB) is assigned to MBSFN transmission. The data in each PRB shall be uncorrelated with data in other PRBs over the period of any measurement. The MBSFN data shall be QPSK modulated. PMCH symbols shall not contain cell-specific Reference Signals. PMCH subframes shall contain cell-specific						Is shall eter e data in ny shall not specific	
Note 3: Note 4:	Reference Signals only in the first symbol of the first time slot. The parameter γ_{PRB} is used to scale the power of PMCH. Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.							
N/A: Not	Applicable	e						

A.3.2.1.4 OCNG FDD pattern 4: full bandwidth allocation in 1.4 MHz

Allocation	Re	ative power le	evel $\gamma_{\scriptscriptstyle PRB}$ [dB]	PDSCH Data	PMCH Data		
n_{PRB}	Subframe				Data	Data		
	0 5 4, 9 1 - 3, 6 - 8							
0 – 5	0	0	0	N/A	Note 1	N/A		
0 – 5	N/A	N/A	N/A	Note 4	N/A	Note 2		
with one be unco	hysical resource PDSCH per vir rrelated pseudo used to scale th	tual UE; the da random data,	ata transmitte which is QP	ed over the OCI	NG PDSCH	ls shall		
Note 2: Each ph each PF measure	nysical resource RB shall be unco ement. The MBS cell-specific Ref	block (PRB) is prrelated with c SFN data shall	assigned to lata in other be QPSK m	PRBs over the odulated. PMCI	period of a H subframe	ny es shall		
The par	ameter $\gamma_{\scriptscriptstyle PRB}$ is (used to scale th	he power of I	PMCH.				
	more transmit a shall be transmi							
and acc	ording to the an	tenna transmis	sion mode 2	2. The paramete	er $\gamma_{\scriptscriptstyle PRB}$ app	olies to		
equal be transmis	and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213. 0dB for 1 transmit antenna with CRS, +3dB for 2 transmit antennas with CRS							
N/A: Not Applicabl	е							

Table A.3.2.1.4-1: OP.4 FDD: OCNG FDD Pattern 4

A.3.2.1.5 OCNG FDD pattern 5: outer resource blocks allocation in 10 MHz (without MBSFN)

AI	location	Re	lative power I	evel $\gamma_{_{PRB}}$ [c	IB]	PDSCH Data		
	n _{PRB}	Subframe (No	ote 1)			Data		
		0	5	4,9	1-3, 6-8			
	0 – 12	0	0	0	N/A			
3	37 – 49	0	0	0	N/A	Note 2		
	0 – 49	N/A	N/A	N/A	0			
Note 2:	Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH. Note 3: If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The							
	parameter γ_{PRB} applies to each antenna port separately, so the transmit power of the PDSCH part of OCNG is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.							
N/A:	Not Applic	able						

Table A.3.2.1.5-1: OP.5 FDD: OCNG FDD Pattern 5

A.3.2.1.6 OCNG FDD pattern 6: full bandwidth allocation in 10 MHz (without MBSFN)

Table A.3.2.1.6-1: OP.6 FDD: OCNG FDD Pattern 6

Alloca	ation	Re	lative power I	evel $\gamma_{\scriptscriptstyle PRB}$ [d	B]	PDSCH Data		
<i>n</i> _{<i>PRB</i>} Subframe (Note 1)					Data			
		0	5	4, 9	1 – 3, 6 – 8			
0 —	49	0	0	0	0	Note 2		
Note 1: Note 2:	subfram These p virtual U	PDSCH allocation applies only to subframes not configured as PRS subframes. These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is						
Note 3:	PDSCH. If two or PDSCH transmit	QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH. If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission						
	the trans transmit modes a	2. The parameter γ_{PRB} applies to each antenna port separately, so ansmit power of the PDSCH part of OCNG is equal between all the nit antennas with CRS used in the test. The antenna transmission is are specified in section 7.1 in 3GPP TS 36.213.						
N/A:	Not App	licable						

A.3.2.1.7 OCNG FDD pattern 7: full bandwidth allocation in 1.4 MHz (without MBSFN)

Alloca	ation	Re	B]	PDSCH Data			
n_{PI}	RB	Subframe (No	ote 1)			Data	
	0 5 4,9 1-3,6-						
0	- 5	0	0	0	0	Note 2	
Note 1:		PDSCH allocation applies only to subframes not configured as PRS subframes.					
Note 2:	virtual U	These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which is					
	QPSK m PDSCH	nodulated. The	parameter γ_{I}	p_{RB} is used to s	scale the powe	er of	
Note 3:	If two or PDSCH	If two or more transmit antennas with CRS are used in the test, the PDSCH part of OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission					
	mode 2.	The parameter	$\gamma_{\scriptscriptstyle PRB}$ applies	to each anten	na port separa	ately, so	
N/A:	transmit modes a	ode 2. The parameter γ_{PRB} applies to each antenna port separately, so e transmit power of the PDSCH part of OCNG is equal between all the ansmit antennas with CRS used in the test. The antenna transmission odes are specified in section 7.1 in 3GPP TS 36.213. bt Applicable					

Table A.3.2.1.7-1: OP.7 FDD: OCNG FDD Pattern 7

- A.3.2.1.8 Void
- A.3.2.1.9 Void
- A.3.2.1.10 OCNG FDD pattern 10: outer resource blocks allocation in 10 MHz with user data in every subframe (without MBSFN)

	Allocation		Relative power level $\gamma_{\scriptscriptstyle PRB}$ [dB]					
n _{PRB}	Ē		Subframe					
		0	5	4, 9	1 - 3, 6 - 8			
0 - 12		0	0	0	0	Note 2		
37 - 49		0	0	0	0	NOLE 2		
Note 2: Note 3:	Subframe (Note 1) 1 - 3, 6 - 8 0 5 4, 9 1 - 3, 6 - 8 2 0 0 0 Note 2							
N/A:	Not	Applicable						

Table A.3.2.1.10-1: OP.10 FDD: OCNG FDD Pattern 10

A.3.2.2 OCNG Patterns for TDD

The following OCNG patterns are used for modelling allocations to virtual UEs (which are not under test). The OCNG pattern for each sub frame specifies the allocations that shall be filled with OCNG, and furthermore, the relative power level of each such allocation.

In each test case the OCNG is expressed by parameters OCNG_RA and OCNG_RB which together with a relative power level (γ) specifies the PDSCH EPRE-to-RS EPRE ratios in OFDM symbols without and with reference symbols, respectively. The relative power, which is used for modelling boosting per virtual UE allocation, is expressed by:

$$\gamma_i = PDSCH_i _RA / OCNG _RA = PDSCH_i _RB / OCNG _RB,$$

where γ_i denotes the relative power level of the *i:th* virtual UE. The parameter settings of OCNG_RA, OCNG_RB, and the set of relative power levels γ are chosen such that when also taking allocations to the UE under test into account, as given by a PDSCH reference channel, a transmitted power spectral density that is constant on an OFDM symbol basis is targeted.

Moreover the OCNG pattern is accompanied by a PCFICH/PDCCH/PHICH reference channel which specifies the control region. The number of PDCCH OFDM symbols in the non-MBSFN subframes is the same as specified in the RMC used in the test. The number of PDCCH OFDM symbols in the MBSFN subframe is the maximal allowed according to 3GPP TS 36.213 [16] Table 6.7-1. For any aggregation and PHICH allocation, the PDCCH any unused PHICH groups are padded with resource element groups with a power level given by PDCCH_RA/RB and PHICH_RA/RB as specified in the test case such that a total power spectral density in the control region that is constant on an OFDM symbol basis is targeted.

For subframes configured as PRS subframes the PDSCH allocation defined in the OCNG pattern does not apply.

The system information is scheduled in the allocations reserved for the OCNG patterns, in the subframes not configured for MBSFN. For this purpose the number of the RB-s allocated with PDSCH defined in the OCNG pattern can be reduced as necessary.

A.3.2.2.1 OCNG TDD pattern 1: outer resource blocks allocation in 10 MHz

Table A.3.2.2.1-1: OP.1 TDD: OCNG TDD Pattern 1 for 5ms downlin	nk-to-uplink switch-point periodicity

Allocation		Relative power level $\gamma_{_{PRB}}$ [dB]								
n _{PRB}		Subframe (Note 1)								
	0	5	3 , 4, 8, 9 and 6 (as normal subframe) ^{Note 3}	1 and 6 (as special subframe) _{Note 3}						

C) – 12	0	0	0	Table			
3	7 – 49	0	0	0	A.3.2.2.1-2	Note 2		
Note 1: PDSCH allocation applies only to subframes not configured as PRS subframes. Note 2: These physical resource blocks are assigned to an arbitrary number of virtual UEs with one PDSCH per virtual UE; the data transmitted over the OCNG PDSCHs shall be uncorrelated pseudo random data, which								
	is QPSK modulated The parameter γ_{PRB} is used to scale the power of PDSCH.							
Note 3:		vailable for DL trar P TS 36.211 [16].	smission depends on	the Uplink-Downlink	configuration de	fined in Table		
Note 4:	Note 4: If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The							
	parameter $\gamma_{_{PRB}}$ applies to each antenna port separately, so the transmit power is equal between all the							
	transmit antennas with CRS used in the test. The antenna transmission modes are specified in sect in 3GPP TS 36.213.					ed in section 7.1		

Table A.3.2.2.1-2: OP.1 TDD: OCNG TDD Pattern 1 for special subframe configuration with 5ms downlink-to-uplink switch-point periodicity

Allocation	ų		Relative power level $\gamma_{\scriptscriptstyle PRB}$ [dB]							
n _{PRB}	length			S	pecial sub	frame cor	nfiguratior	۱		
		0	1	2	3	4	5	6	7	8
	C D			С	ontrol reg	jion OFDN	l symbols			
	•	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2
0 – 12	N	0	0	0	0	0	0	0	0	0
37 – 49	N	0	0	0	0	0	0	0	0	0
Note 1: Special su	ubframe o	configurati	Note 1: Special subframe configurations are defined in Table 4.2-1 in TS 36.211 [16].							

A.3.2.2.2 OCNG TDD pattern 2: full bandwidth allocation in 10 MHz

Table A.3.2.2.2-1: OP.2 TDD: OCNG TDD Pattern 2 for 5ms downlink-to-uplink switch-point periodicity

All	ocation		PDSCH Data			
	n _{PRB}		Subframe	e (Note 1)		
		0 5		3 , 4, 8, 9 and 6 (as normal subframe) ^{Note 3}	1 and 6 (as special subframe) _{Note 3}	
0-49 0 0 0					0	Note 2
Note 1:	PDSCH alloc	ation applies only t	o subframes not conf	igured as PRS subfram	es.	
Note 2:	These physic	al resource blocks	are assigned to an ar	bitrary number of virtua all be uncorrelated pse	al UEs with one F	
	modulated. T	he parameter $\gamma_{_{PRB}}$	is used to scale the p	oower of PDSCH.		
Note 3:		vailable for DL tran		the Uplink-Downlink co	onfiguration in Ta	ble 4.2-2 in 3GPP
Note 4:	If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The					
	parameter $\gamma_{_{F}}$	PRB applies to each	antenna port separa	tely, so the transmit pov	wer is equal betw	veen all the
	transmit ante 3GPP TS 36.		ed in the test. The ante	enna transmission mod	es are specified	in section 7.1 in

A.3.2.2.3 OCNG TDD pattern 3: outer resource blocks allocation in 1.4 MHz

	ocation		PDSCH Data					
	n _{PRB}		Subframe (Note 1)				
		0	5	3 , 4, 8, 9 and 6 (as normal subframe) ^{Note 3}	1 and 6 (as special subframe) _{Note 3}			
0 - 1		0	0 0		0			
	4 – 5	0	0	0 0		Note 2		
Note 1: Note 2:	These physic virtual UE; the	al resource blocks e data transmitted o	o subframes not config are assigned to an ark over the OCNG PDSC	bitrary number of virte Hs shall be uncorrela	ual UEs with one ated pseudo ran			
Note 3: Note 4:	Subframes av 4.2-2 in 3GPF If two or more	is QPSK modulated. The parameter γ_{PRB} is used to scale the power of PDSCH. Subframes available for DL transmission depends on the Uplink-Downlink configuration defined in Table 4.2-2 in 3GPP TS 36.211 [16]. If two or more transmit antennas with CRS are used in the test, the OCNG shall be transmitted to the						
	virtual users by all the transmit antennas with CRS and according to the antenna transmission mode 2. The parameter γ_{PRB} applies to each antenna port separately, so the transmit power is equal between all the transmit antennas with CRS used in the test. The antenna transmission modes are specified in section 7.1 in 3GPP TS 36.213.							

Table A.3.2.2.3-1: OP.3 TDD: OCNG TDD Pattern 3 for 5 ms downlink-to-uplink switch-point periodicity

A.3.2.2.4 OCNG TDD pattern 4: full bandwidth allocation in 1.4 MHz

Table A.3.2.2.4-1: OP.4 TDD: OCNG TDD Pattern 4 for 5 ms downlink-to-uplink switch-point periodicity

Allocation		~		Relative power level $\gamma_{\scriptscriptstyle PRB}$ [dB]						
n_{PRI}	В	gt		Subframe	e (Note 1)					
n _{PRB} High		Sublidine) Sublidine		1 and 6 (as special subframe) _{Note 3}						
	0-5 0 0 0 0						Note 2			
Note 1: Note 2:	These UE; th	e physic ne data	al resource blocks transmitted over th	are assigned to an arl e OCNG PDSCHs sha	gured as PRS subfram bitrary number of virtua all be uncorrelated pse	al UEs with one F				
Note 3: Note 4:	TS 36.211 [16].									
	paran transr	neter γ_P	_{RB} applies to each	n antenna port separat	ely, so the transmit po enna transmission moc	wer is equal betw	veen all the			

A.3.3 Reference DRX Configurations

Table A.3.3-1: Reference DRX Configurations

Parameter	Va	lue	Comments					
Reference configuration	DRX_S	DRX_L	As defined in 4.8.2.1.5 in TS 36.508					
onDurationTimer	psf2	psf6						
drx-InactivityTimer	psf100	psf1920						
drx-RetransmissionTimer	psf16	psf16						
longDRX-CycleStartOffset	sf40, 0	sf1280, 0						
shortDRX	disabled	disabled						
Note: For further information see section 6.3.2 in 3GPP TS 36.331.								

A.4 E-UTRAN RRC_IDLE state

A.4.2 Cell Re-Selection

A.4.2.1 E-UTRAN FDD – FDD Intra frequency case

A.4.2.1.1 Test Purpose and Environment

This test is to verify the requirement for the FDD-FDD intra frequency cell reselection requirements specified in section 4.2.2.3.

The test scenario comprises of 1 E-UTRA FDD carrier and 2 cells as given in tables A.4.2.1.1-1 and A.4.2.1.1-2. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. Only Cell 1 is already identified by the UE prior to the start of the test, i.e. Cell 2 is not identified by the UE prior to the start of the test. Cell 1 and Cell 2 belong to different tracking areas. Furthermore, UE has not registered with network for the tracking area containing Cell 2.

F	Parameter	Unit	Value	Comment
Initial	Active cell		Cell1	
condition	Neighbour cells		Cell2	
T2 end	Active cell		Cell2	
condition	Neighbour cells		Cell1	
Final condition	Visited cell		Cell1	
	F Channel Number		1	Only one FDD carrier frequency is used.
Channel Ba	andwidth (BW _{channel})	MHz	10	
Time offset	between cells		3 ms	Asynchronous cells
Access Ba	rring Information	-	Not Sent	No additional delays in random access procedure.
PRACH co	nfiguration		4	As specified in table 5.7.1-2 in 3GPP TS 36.211
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
Τ1		S	>7	During T1, Cell 2 shall be powered off, and during the off time the physical cell identity shall be changed, The intention is to ensure that Cell 2 has not been detected by the UE prior to the start of period T2
T2		S	40	T2 need to be defined so that cell re- selection reaction time is taken into account.
Т3		S	15	T3 need to be defined so that cell re- selection reaction time is taken into account.

Table A.4.2.1.1-1: General test parameters for FDD intra frequency cell reselection test case

Parameter	Unit		Cell 1		Cell 2			
		T1	T2	T3	T1	T2	Т3	
E-UTRA RF Channel Number			1			1		
BW _{channel}	MHz		10			10		
OCNG Patterns defined in A.3.2.1.2		(OP.2 FDD			OP.2 FDD		
(OP.2 FDD)								
PBCH_RA								
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB	dB		0			0		
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA ^{Note 1}								
OCNG_RB ^{Note 1}								
Qrxlevmin	dBm	-140	-140	-140	-140	-140	-140	
Pcompensation	dB	0	0	0	0	0	0	
Qhyst _s	dB	0	0	0	0	0	0	
Qoffset _{s, n}	dB	0	0	0	0	0	0	
Cell_selection_and_ reselection_quality_			RSRP			RSRP		
$\frac{\text{measurement}}{\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}}$	dB	16	-3.11	2.79	-infinity	2.79	-3.11	
$\frac{N_{oc}}{N_{oc}}$ Note2	dBm/15 kHz				-98			
\hat{E}_s/N_{oc}	dB	16	13	16	-infinity	16	13	
RSRP ^{Note3}	dBm/15 kHz	-82	-85	-82	-infinity	-82	-85	
Treselection	S	0	0	0	0	0	0	
Sintrasearch	dB		Not sent			Not sent		
Propagation Condition					AWGN			
Note 1: OCNG shall be density is achie Note 2: Interference fro	ved for all OFDM	symbols.						

Table A.4.2.1.1-2: Cell specific test parameters for FDD intra frequency cell reselection test case in AWGN

subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.4.2.1.2 Test Requirements

The cell reselection delay to a newly detectable cell is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on Cell 2.

The cell re-selection delay to a newly detectable cell shall be less than 34 s.

The cell reselection delay to an already detected cell is defined as the time from the beginning of time period T3, to the moment when the UE camps on Cell 1, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on Cell 1.

The cell re-selection delay to an already detected cell shall be less than 8 s.

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The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to a newly detectable cell can be expressed as: $T_{detect,EUTRAN_{Intra}} + T_{SI}$, and to an already detected cell can be expressed as: $T_{evaluateFDD,intra} + T_{SI}$,

Where:

T _{detect,EUTRAN_Intra}	See Table 4.2.2.3-1 in section 4.2.2.3
T _{evaluateFDD,intra}	See Table 4.2.2.3-1 in section 4.2.2.3
T _{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 33.28 s, allow 34 s for the cell re-selection delay to a newly detectable cell and 7.68 s, allow 8 s for the cell re-selection delay to an already detected cell in the test case.

A.4.2.2 E-UTRAN TDD – TDD Intra frequency case

A.4.2.2.1 Test Purpose and Environment

This test is to verify the requirement for the TDD-TDD intra frequency cell reselection requirements specified in section 4.2.2.3.

The test scenario comprises of 1 E-UTRA TDD carrier and 2 cells as given in tables A.4.2.2.1-1 and A.4.2.2.1-2. The test consists of three successive time periods, with time duration of T1, T2, and T3 respectively. Only cell 1 is already identified by the UE prior to the start of the test. Cell 1 and cell 2 belong to different tracking areas. Furthermore, UE has not registered with network for the tracking area containing cell 2.

F	Parameter	Unit	Value	Comment
Initial	Active cell		Cell1	
condition	Neighbour cells		Cell2	
T2 end	Active cell		Cell2	
condition	Neighbour cells		Cell1	
Final condition	Visited cell		Cell1	
E-UTRA R	F Channel Number		1	Only one TDD carrier frequency is used.
Channel Ba	andwidth (BW _{channel})	MHz	10	
Time offset	t between cells	μs	3	Synchronous cells
Access Ba	rring Information	-	Not Sent	No additional delays in random access procedure.
Special sub	oframe configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211
Uplink-dow	nlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211
PRACH co	nfiguration index		53	As specified in table 5.7.1-3 in 3GPP TS 36.211
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
Τ1		S	>7	During T1, Cell 2 shall be powered off, and during the off time the physical cell identity shall be changed, The intention is to ensure that Cell 2 has not been detected by the UE prior to the start of period T2
T2		S	40	T2 need to be defined so that cell re-selection reaction time is taken into account.
Т3		S	15	T3 need to be defined so that cell re-selection reaction time is taken into account.

Table A.4.2.2.1-1: General test parameters for TDD intra frequency cell re-selection test case

Parameter	Unit		Cell 1			Cell 2	Cell 2			
		T1	T2	T3	T1	T2	T3			
E-UTRA RF Channel			1			1				
Number										
BW _{channel}	MHz	10			10					
OCNG Pattern										
defined in A.3.2.2.2		O	P.2 TDD		O	P.2 TDD				
(OP.2 TDD)										
PBCH_RA										
PBCH_RB										
PSS_RA										
SSS_RA										
PCFICH_RB										
PHICH_RA										
PHICH_RB	dB		0			0				
PDCCH_RA										
PDCCH_RB										
PDSCH_RA										
PDSCH_RB										
OCNG_RA ^{Note 1}										
OCNG_RB ^{Note 1}										
Qrxlevmin	dBm		-140		-140					
Pcompensation	dB	0		0						
Qhysts	dB	0		0						
Qoffset _{s, n}	dB	0				0				
Cell_selection_and_										
reselection_quality_		RSRP		RSRP						
measurement										
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	16	-3.11	2.79	-infinity	2.79	-3.11			
s / ot										
$N_{_{oc}}$ Note2	dBm/15 kHz			-	98					
\hat{E}_s / N_{oc}	dB	16	13	16	-infinity	16	13			
RSRP Note3	dBm/15 kHz	-82	-85	-82	-infinity	-82	-85			
Treselection	S	0	0	0	0	0	0			
Sintrasearch	dB	N	ot sent			lot sent				
Propagation				AV	VGN					
Condition										
	be used such that					tant total				
transmitted	power spectral der	isity is achie	ved for a	II OFDN	l symbols.					
Note 2: Interference fi	rom other cells and r	noise sources	not speci	fied in the	e test is assun	ned to be o	constant			
						N_{α}				
over subcarrie fulfilled.	ers and time and sha	ill be modelle	d as AWG	in of app	ropriate powe	r tor $\frac{\partial c}{\partial c}$	to be			
Tuinieu.	have been derived fr									
	neters themselves.	om omer par			alon pulposes	. mey ale				

Table A.4.2.2.1-2: Cell specific test parameters for TDD intra frequency cell re-selection test case in AWGN

A.4.2.2.2 Test Requirements

The cell reselection delay to a newly detectable cell is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on Cell 2.

The cell re-selection delay to a newly detectable cell shall be less than 34 s.

The cell reselection delay to an already detected cell is defined as the time from the beginning of time period T3, to the moment when the UE camps on cell 1, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on cell 1.

The cell re-selection delay shall be less than 8 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to a newly detectable cell can be expressed as: $T_{detect,EUTRAN_{Intra}} + T_{SI-EUTRA}$, and to an already detected cell can be expressed as: $T_{evaluate, E-UTRAN_{intra}} + T_{SI-EUTRA}$,

Where:

$T_{detect,EUTRAN_Intra}$	See Table 4.2.2.3-1 in section 4.2.2.3
Tevaluate,E-UTRAN_ intra	See Table 4.2.2.3-1 in section 4.2.2.3
	Maximum repetition period of relevant system info blocks that needs to be received by the UE to amp on a cell; 1280 ms is assumed in this test case.

This gives a total of 33.28 s, allow 34 s for the cell re-selection delay to a newly detectable cell and 7.68 s, allow 8 s for the cell re-selection delay to an already detected cell in the test case.

A.4.2.3 E-UTRAN FDD – FDD Inter frequency case

A.4.2.3.1 Test Purpose and Environment

This test is to verify the requirement for the FDD-FDD inter-frequency cell reselection requirements specified in section 4.2.2.4.

The test scenario comprises of 2 E-UTRA FDD cells on 2 different carriers as given in tables A.4.2.3.1-1 and A.4.2.3.1-2. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. Both cell 1 and cell 2 are already identified by the UE prior to the start of the test. Cell 1 and cell 2 belong to different tracking areas and cell 2 is of higher priority than cell 1. Furthermore, UE has not registered with network for the tracking area containing cell 2.

	Parameter	Unit	Value	Comment
Initial	Active cell		Cell2	UE shall be forced to cell 2 in the initialisation
condition				phase, so that reselection to cell 1 occurs during
				the first T1 phase
T1 end	Active cell		Cell1	UE shall perform reselection to cell 1 during T1
condition	Neighbour cell		Cell2	
- : 1			0.00	
Final	Active cell		Cell2	UE shall perform reselection to cell 2 during T3
	F Channel Number		1.0	Two EDD corrier frequencies are used
-			1, 2	Two FDD carrier frequencies are used.
	t between cells		3 ms	Asynchronous cells
PRACH co	nfiguration		4	As specified in table 5.7.1-2 in TS 36.211
Access Ba	rring Information	-	Not Sent	No additional delays in random access
				procedure.
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
T1		S	15	T1 need to be defined so that cell re-selection
				reaction time is taken into account.
T2		S	>7	During T2, cell 2 shall be powered off, and
				during the off time the physical cell identity shall
				be changed, The intention is to ensure that cell 2
				has not been detected by the UE prior to the
				start of period T3.
Т3		S	75	T3 need to be defined so that cell re-selection
				reaction time is taken into account.

Table A.4.2.3.1-1: General test parameters for FDD-FDD inter frequency cell re-selection test case

Parameter	Parameter Unit		ell 1		Cell 2			
		T1	T2	T3	T1	T2	Т3	
E-UTRA RF Channel			1			2	•	
number								
BW _{channel}	MHz		10			10		
OCNG Patterns defined in								
A.3.2.1.1 (OP.2 FDD)		OP.	2 FDD			OP.2 FDD		
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB					_		
PHICH_RB	dB		0			0		
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB							
Qrxlevmin	dBm	-	140			-140		
$N_{_{oc}}$ Note 2	dBm/15 kHz				-98			
RSRP Note 3	dBm/15 KHz	-84	-84	-84	-102	-infinity	-86	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	14	14	14	-4	-infinity	12	
\hat{E}_s/N_{oc}	dB	14	14	14	-4	-infinity	12	
TreselectionEUTRAN	S		0			0		
Snonintrasearch	dB		50			Not sent		
Thresh _{x, high}	dB		48			48		
Thresh _{serving, low}	dB		44			44		
Thresh _{x, low}	dB		50			50		
Propagation Condition					AWGN			
Note 1: OCNG shall be used				and a	constant to	otal transmitte	d power	
spectral density is acl Note 2: Interference from othe				ed in the	e test is as	sumed to be o	constant	
over subcarriers and	time and shall be	modelled as	s AWGN	of app	ropriate po	wer for $N_{_{oc}}$	to be	
fulfilled.								

Table A.4.2.3.1-2: Cell specific test parameters for FDD-FDD inter-frequency cell reselection test case in AWGN

Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.4.2.3.2 Test Requirements

The cell reselection delay to higher priority is defined as the time from the beginning of time period T3, to the moment when the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on Cell 2.

The cell re-selection delay to higher priority shall be less than 68 s.

The cell reselection delay to lower priority is defined as the time from the beginning of time period T1, to the moment when the UE camps on cell 1, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on cell 1.

The cell re-selection delay to lower priority shall be less than 8 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to higher priority cell can be expressed as: $T_{higher_priority_search} + T_{evaluateFDD,inter} + T_{SI}$, and to lower priority cell can be expressed as: $T_{evaluateFDD,inter} + T_{SI}$,

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Where:

$T_{higher_priority_search}$	See section 4.2.2
$T_{evaluateFDD,inter}$	See Table 4.2.2.4-1 in section 4.2.2.4
T _{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 67.68 s for higher priority cell search and 7.68 s for lower priority cell search, allow 68 s for higher priority cell and 8 s for lower priority cell in the test case.

A.4.2.4 E-UTRAN FDD – TDD Inter frequency case

A.4.2.4.1 Test Purpose and Environment

This test is to verify the requirement for the FDD-TDD inter-frequency cell reselection requirements specified in section 4.2.2.4.

The test scenario comprises of 1 E-UTRA FDD cell and 1 E-UTRA TDD cell as given in tables A.4.2.4.1-1 and A.4.2.4.1-2. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. Both cell 1 and cell 2 are already identified by the UE prior to the start of the test. Cell 1 and cell 2 belong to different tracking areas and cell 2 is of higher priority than cell 1. Furthermore, UE has not registered with network for the tracking area containing cell 2.

Parameter		Unit	Value	Comment
Initial	Active cell		Cell2	UE shall be forced to cell 2 in the initialisation
condition				phase, so that reselection to cell 1 occurs during
				the first T1 phase
T1 end	Active cell		Cell1	UE shall perform reselection to cell 1 during T1
condition	Neighbour cell		Cell2	
Final condition	Active cell		Cell2	UE shall perform reselection to cell 2 during T3
Cell 1 E-UT Number	TRA RF Channel		1	One FDD carrier frequency is used. And Cell 1 is on RF channel number 1.
Cell 2 E-UT Number	TRA RF Channel		2	One TDD carrier frequencies is used. And Cell 2 is on RF channel number 2.
Time offset	t between cells		3 ms	Asynchronous cells
E-UTRA FI configuration	DD PRACH		4	As specified in table 5.7.1-2 in 3GPP TS 36.211
E-UTRA TI configuration	DD PRACH		53	As specified in table 5.7.1-3 in 3GPP TS 36.211
Special subframe configuration			6	As specified in table 4.2-1 in 3GPP TS 36.211
	nlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211
	E-UTRA FDD Access Barring		Not Sent	No additional delays in random access procedure.
E-UTRA TI Information	DD Access Barring	-	Not Sent	No additional delays in random access procedure.
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
T1		S	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		S	>7	During T2, cell 2 shall be powered off, and during the off time the physical cell identity shall be changed, The intention is to ensure that cell 2 has not been detected by the UE prior to the start of period T3.
Т3		S	75	T3 need to be defined so that cell re-selection reaction time is taken into account.

Table A.4.2.4.1-1: General test parameters for FDD-TDD inter frequency cell re-selection test case

Parameter	Unit	C	ell 1			Cell 2		
		T1	T2	T3	T1	T2	T3	
E-UTRA RF Channel			1			2		
number								
BW _{channel}	MHz		10		10			
OCNG Patterns defined in								
A.3.2.1.1 (OP.2 FDD) and		OP	.2 FDD			OP.2 TDD		
A.3.2.2.2 (OP.2 TDD)								
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB		•			0		
PHICH_RB	dB		0			0		
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB							
Qrxlevmin	dBm	-140			-140			
$N_{_{oc}}$ Note 2	dBm/15 kHz	-98						
RSRP ^{Note 3}	dBm/15 KHz	-84	-84	-84	-102	-infinity	-86	
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	14	14	14	-4	-infinity	12	
\hat{E}_s/N_{oc}	dB	14	14	14	-4	-infinity	12	
Treselection _{EUTRAN}	S		0		0			
Snonintrasearch	dB		50			Not sent		
Thresh _{x, high}	dB		48			48		
Thresh _{serving, low}	dB		44		44			
Thresh _{x, low}	dB		50			50		
Propagation Condition					AWGN			
Note 1: OCNG shall be use	ed such that both	cells are fu	lly alloca	ted and		t total transm	itted	
Note 2: Interference from c constant over subo	or all OFDM	symbols not spec	s. ;ified in	the test is	assumed to b	е		
N_{oc} to be fulfilled								
Note 3: RSRP levels have								

Table A.4.2.4.1-2: Cell specific test parameters for FDD-TDD inter-frequency cell reselection test case in AWGN

A.4.2.4.2 Test Requirements

The cell reselection delay to higher priority is defined as the time from the beginning of time period T3, to the moment when the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on cell 2.

The cell re-selection delay to higher priority shall be less than 68 s.

The cell reselection delay to lower priority is defined as the time from the beginning of time period T1, to the moment when the UE camps on cell 1, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on cell 1.

The cell re-selection delay to lower priority shall be less than 8 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to higher priority cell can be expressed as: $T_{higher_priority_search} + T_{evaluate,E-UTRAN_inter} + T_{SI-EUTRA}$, and to lower priority cell can be expressed as: $T_{evaluate,E-UTRAN_inter} + T_{SI-EUTRA}$,

Where:

$T_{higher_priority_search}$	See section 4.2.2
$T_{evaluate,E-UTRAN_inter}$	See Table 4.2.2.4-1 in section 4.2.2.4
T _{SI-EUTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 67.68 s for higher priority cell search and 7.68 s for lower priority cell search, allow 68 s for higher priority cell and 8 s for lower priority cell in the test case.

A.4.2.5 E-UTRAN TDD – FDD Inter frequency case

A.4.2.5.1 Test Purpose and Environment

This test is to verify the requirement for the TDD-FDD inter-frequency cell reselection requirements specified in section 4.2.2.4.

The test scenario comprises of 1 E-UTRA TDD cell and 1 E-UTRA FDD cell as given in tables A.4.2.5.1-1 and A.4.2.5.1-2. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. Both cell 1 and cell 2 are already identified by the UE prior to the start of the test. Cell 1 and cell 2 belong to different tracking areas and cell 2 is of higher priority than cell 1. Furthermore, UE has not registered with network for the tracking area containing cell 2.

Table A.4.2.5.1-1: General test parameters for TDD-FDD inter frequency cell re-selection test case

	Parameter	Unit	Value	Comment
Initial	Active cell		Cell2	UE shall be forced to cell 2 in the initialisation
condition				phase, so that reselection to cell 1 occurs during
				the first T1 phase
T1 end	Active cell		Cell1	UE shall perform reselection to cell 1 during T1
condition	Neighbour cell		Cell2	
Final condition	Active cell		Cell2	UE shall perform reselection to cell 2 during T3
Cell 1 E-U	TRA RF Channel		1	One TDD carrier frequency is used. And Cell 1 is
Number				on RF channel number 1.
Cell 2 E-U	TRA RF Channel		2	One FDD carrier frequencies is used. And Cell 2
Number				is on RF channel number 2.
Time offset	t between cells		3 ms	Asynchronous cells
E-UTRA TI	DD PRACH		53	As specified in table 5.7.1-3 in 3GPP TS 36.211
configuration	on			
Special sub	oframe configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211
	nlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211
E-UTRA FI	DD PRACH		4	As specified in table 5.7.1-2 in 3GPP TS 36.211
configuration	on			
E-UTRA FI	DD Access Barring	-	Not Sent	No additional delays in random access
Information	1 I I I I I I I I I I I I I I I I I I I			procedure.
E-UTRA TI	DD Access Barring	-	Not Sent	No additional delays in random access
Information	1			procedure.
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
T1		S	15	T1 need to be defined so that cell re-selection
				reaction time is taken into account.
T2		S	>7	During T2, cell 2 shall be powered off, and
				during the off time the physical cell identity shall
				be changed, The intention is to ensure that cell 2
				has not been detected by the UE prior to the
				start of period T3.
T3		S	75	T3 need to be defined so that cell re-selection
				reaction time is taken into account.

Parameter	Unit	C	cell 1		Cell 2			
		T1	T2	T3	T1	T2	Т3	
E-UTRA RF Channel			1			2		
number								
BW _{channel}	MHz		10		10			
OCNG Patterns defined in								
A.3.2.1.1 (OP.2 FDD) and		OP	.2 TDD			OP.2 FDD		
A.3.2.2.2 (OP.2 TDD)								
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB					_		
PHICH_RB	dB		0			0		
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB							
Qrxlevmin	dBm	-140				-140		
$N_{oc}^{\rm Note 2}$	dBm/15 kHz				-98			
RSRP ^{Note 3}	dBm/15 KHz	-84	-84	-84	-102	-infinity	-86	
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	14	14	14	-4	-infinity	12	
\hat{E}_{s}/N_{oc}	dB	14	14	14	-4	-infinity	12	
Treselection _{EUTRAN}	S		0		0			
Snonintrasearch	dB		50		Not sent			
Thresh _{x. high}	dB		48			48		
Thresh _{serving, low}	dB		44			44		
Thresh _{x, low}	dB		50		50			
Propagation Condition					AWGN			
Note 1: OCNG shall be use	ed such that both	cells are fu	lly alloca	ted and		t total transmi	itted	
 power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to b constant over subcarriers and time and shall be modelled as AWGN of appropriate power 						е		
N_{ac} to be fulfilled								
Note 3: RSRP levels have								

Table A.4.2.5.1-2: Cell specific test parameters for TDD-FDD inter-frequency cell reselection test case in AWGN

A.4.2.5.2 Test Requirements

The cell reselection delay to higher priority is defined as the time from the beginning of time period T3, to the moment when the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on cell 2.

The cell re-selection delay to higher priority shall be less than 68 s.

The cell reselection delay to lower priority is defined as the time from the beginning of time period T1, to the moment when the UE camps on cell 1, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on cell 1.

The cell re-selection delay to lower priority shall be less than 8 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to higher priority cell can be expressed as: $T_{higher_priority_search} + T_{evaluate,E-UTRAN_inter} + T_{SI-EUTRA}$, and to lower priority cell can be expressed as: $T_{evaluate,E-UTRAN_inter} + T_{SI-EUTRA}$,

Where:

$T_{higher_priority_search}$	See section 4.2.2
$T_{evaluate,E-UTRAN_inter}$	See Table 4.2.2.4-1 in section 4.2.2.4
T _{SI-EUTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 67.68 s for higher priority cell search and 7.68 s for lower priority cell search, allow 68 s for higher priority cell and 8 s for lower priority cell in the test case.

A.4.2.6 E-UTRAN TDD – TDD: Inter frequency case

A.4.2.6.1 Test Purpose and Environment

This test is to verify the requirement for the TDD-TDD inter-frequency cell reselection requirements specified in section 4.2.2.4.

The test scenario comprises of 2 E-UTRA TDD cells on 2 different carriers as given in tables A.4.2.6.1-1 and A.4.2.6.1-2. The test consists of three successive time periods, with time duration of T1, T2, and T2 respectively. Both cell 1 and cell 2 are already identified by the UE prior to the start of the test. Cell 1 and cell 2 belong to different tracking areas and cell 2 is of higher priority than cell 1. Furthermore, UE has not registered with network for the tracking area containing cell 2.

	Parameter	Unit	Value	Comment
Initial condition	Active cell		Cell2	UE shall be forced to cell 2 in the initialisation phase, so that reselection to cell 1 occurs during the first T1 phase
T1 end	Active cells		Cell1	UE shall perform reselection to cell 1 during T1
condition	Neighbour cell		Cell2	
Final condition	Active cell		Cell2	UE shall perform reselection to cell 2 during T3
E-UTRA R	F Channel Number		1, 2	Two TDD carrier frequencies are used.
Time offset	t between cells		3 μs	Synchronous cells
Access Ba	rring Information	-	Not Sent	No additional delays in random access procedure.
Special sub	oframe configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211
Uplink-dow	nlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211
PRACH configuration index			53	As specified in table 5.7.1-3 in 3GPP TS 36.211
DRX cycle length		S	1.28	The value shall be used for all cells in the test.
T1		S	15	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		S	>7	During T2, cell 2 shall be powered off, and during the off time the physical cell identity shall be changed, The intention is to ensure that cell 2 has not been detected by the UE prior to the start of period T3.
Т3		S	75	T3 need to be defined so that cell re-selection reaction time is taken into account.

Parameter	Unit	Cell 1				Cell 2		
		T1 T2 T3		T1	T2	Т3		
E-UTRA RF Channel		1			2			
number								
BW _{channel}	MHz		10			10		
OCNG Pattern defined in								
A.3.2.2.2 (OP.2 TDD)		OP	.2 TDD		0	P.2 TDD		
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB		0			0		
PHICH_RB	dB							
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB							
Qrxlevmin	dBm		-140		-140			
$N_{oc}^{}$ Note 2	dBm/15 kHz			-	98			
RSRP Note 3	dBm/15 KHz	-84	-84	-84	-102	-infinity	-86	
\hat{E}_{s}/I_{ot}	dB	14	14	14	-4	-infinity	12	
\hat{E}_s/N_{oc}	dB	14	14	14	-4	-infinity	12	
TreselectionEUTRAN	S		0			0		
Snonintrasearch	dB	50 Not sent						
Thresh _{x, high}	dB	48 48						
Thresh _{serving, low}	dB	44 44						
Thresh _{x, low}	dB	50 50						
Propagation Condition				AV	/GN			
Note 1: OCNG shall be use	d such that both o	cells are fully	/ allocate	ed and a	constant to	tal transmit	ted	
power spectral dens								
Note 2: Interference from other cells and noise sources not specified in the test is assumed to be								
constant over subca	constant over subcarriers and time and shall be modelled as AWGN of appropriate power for							

Table A.4.2.6.1-2: Cell specific test parameters for TDD-TDD inter-frequency cell reselection test case in AWGN

 N_{oc} to be fulfilled.

Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.4.2.6.2 Test Requirements

The cell reselection delay to higher priority is defined as the time from the beginning of time period T3, to the moment when the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on cell 2.

The cell re-selection delay to higher priority shall be less than 68 s.

The cell reselection delay to lower priority is defined as the time from the beginning of time period T1, to the moment when the UE camps on cell 1, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on cell 1.

The cell re-selection delay to lower priority shall be less than 8 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to higher priority cell can be expressed as: $T_{higher_priority_search} + T_{evaluate,E-UTRAN_inter} + T_{SI-EUTRA}$, and to lower priority cell can be expressed as: $T_{evaluate,E-UTRAN_inter} + T_{SI-EUTRA}$,

Where:

$T_{higher_priority_search}$	See section 4.2.2
$T_{evaluate,E-UTRAN_inter}$	See Table 4.2.2.4-1 in section 4.2.2.4
T _{SI-EUTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 67.68 s for higher priority cell search and 7.68 s for lower priority cell search, allow 68 s for higher priority cell and 8 s for lower priority cell in the test case.

A.4.2.7 E-UTRAN FDD – FDD Inter frequency case in the existence of nonallowed CSG cell

A.4.2.7.1 Test Purpose and Environment

This test is to verify the requirement for the FDD-FDD inter-frequency cell reselection requirements specified in section 4.2.2.4 when there is the interference from non-allowed CSG cell and the layers have equal priority.

The test scenario comprises of 2 E-UTRA FDD cells on 2 different carriers and 1 non-allowed E-UTRA FDD CSG cell as given in tables A.4.2.7.1-1 and A.4.2.7.1-2. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. Cell 1 is already identified by the UE prior to the start of the test. Cell 1 and cell 2 belong to different tracking areas and cell 3 is a non-allowed CSG cell. Furthermore, UE has not registered with network for the tracking area containing cell 2.

Table A.4.2.7.1-1: General test parameters for FDD-FDD inter frequency cell re-selection test case with non-allowed CSG cell

	Parameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	UE shall be forced to cell 1 in the initialisation phase
Final condition	Active cell		Cell2	UE shall perform reselection to cell 2 during T2
E-UTRA RI	F Channel Number		1, 2	Two FDD carrier frequencies are used.
Time offset	between cells		3 ms	Asynchronous cells
PRACH co	nfiguration		4	As specified in table 5.7.1-2 in TS 36.211
Access Bar	rring Information	-	Not Sent	No additional delays in random access procedure.
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
T1		S	15	T1 need to be defined so that the non-allowed CSG cell is identified.
T2		S	40	T2 need to be defined so that cell re-selection reaction time is taken into account.
Т3		S	15	T3 need to be defined so that whether cell re- selection would not occur is insured.

Parameter	Unit	Cell 1			Cell 2			Cell 3(Non-allowed CSG cell)			
		T1	T2	Т3	T1	T2	Т3	T1	T2	Т3	
E-UTRA RF Channel Number			1			2			1		
BW _{channel}	MHz		10			10		10			
OCNG Patterns defined in A.3.2.1.2 (OP.2 FDD)		OP.2 FDD			OP.2 FDD			OP.2 FDD			
PBCH_RA	dB										
PBCH_RB	dB										
PSS_RA	dB										
SSS_RA	dB										
PCFICH_RB	dB										
PHICH_RA	dB										
PHICH_RB	dB	0			0			0			
PDCCH_RA	dB										
PDCCH_RB	dB										
PDSCH_RA	dB										
PDSCH_RB	dB										
OCNG_RA ^{Note 1}	dB										
OCNG_RB ^{Note}	dB										
Qrxlevmin	dBm	-140			-140			-140			
Qqualmin	dB				-20						
N_{oc} Note 2	dBm/15 kHz					-98					
RSRP ^{Note 3}	dBm/15 kHz	-90	-90	-85	-Infinity	-85	-90	-90	-85	-60	
RSRQ Note 3	dB	-14.1	-17.1	-35.8				-14.1	-12.1	-10.8	
$\hat{\mathrm{E}}_{_{\mathrm{s}}}/\mathrm{I}_{_{\mathrm{ot}}}$	dB	-0.64	-5.21	-25	-Infinity	13	8	-0.64	4.36	24.8	
\hat{E}_s / N_{oc}	dB	8	8	13	-Infinity	13	8	8	13	38	
Treselection	S	0			0			0			
Snonintrasearch	dB	-10			Not sent		Not sent				
Propagation Condition		AWGN									
Note 1: OCNG shall I density is ach Note 2: Interference subcarriers a	nieved for a from other o	II OFDM s cells and r	symbols. Noise sour	ces not sp	ecified in th	ne test is	sassume	ed to be co	onstant ove		
Note 3: RSRP and R	SRQ levels			from othe	r paramete	rs for inf	ormatior	n purposes	s. They are	e not	

Table A.4.2.7.1-2: Cell specific test parameters for FDD-FDD inter frequency cell re-selection test case with non-allowed CSG cell

A.4.2.7.2 Test Requirements

settable parameters themselves.

The cell reselection delay to a newly detectable cell is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on Cell 2.

The cell re-selection delay to a newly detectable cell shall be less than 34 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

The probability of reselection from Cell 2 to Cell 1 during T3 observed during testing shall be less than 10%.

NOTE: The cell re-selection delay to a newly detectable cell can be expressed as: $T_{detect,EUTRAN Inter} + T_{SI}$, Where:

See Table 4.2.2.4-1 in section 4.2.2.4 T_{detect,EUTRAN_Inter}

 T_{SI} Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 33.28 s, allow 34 s for the cell re-selection delay to a newly detectable cell in the test case.

A.4.2.8 E-UTRAN TDD – TDD Inter frequency case in the existence of nonallowed CSG cell

A.4.2.8.1 Test Purpose and Environment

This test is to verify the requirement for the TDD-TDD inter-frequency cell reselection requirements specified in section 4.2.2.4 when there is the interference from non-allowed CSG cell and the layers have equal priority.

The test scenario comprises of 2 E-UTRA TDD cells on 2 different carriers and 1 non-allowed E-UTRA TDD CSG cell as given in tables A.4.2.8.1-1 and A.4.2.8.1-2. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. Cell 1 is already identified by the UE prior to the start of the test. Cell 1 and cell 2 belong to different tracking areas and cell 3 is a non-allowed CSG cell. Furthermore, UE has not registered with network for the tracking area containing cell 2.

with non-allowed CSG cell								
Parameter		Unit Value		Comment				
Initial condition	Active cell		Cell1	UE shall be forced to cell 1 in the initialisation phase				
Final condition	Active cell		Cell2	UE shall perform reselection to cell 2 during T2				
E-UTRA R	F Channel Number		1, 2	Two TDD carrier frequencies are used.				
Time offset between cells		μs	3	Synchronous cells				
Uplink-downlink configuration			1	As specified in table 4.2-2 in 3GPP TS 36.211				
Special subframe configuration			6	As specified in table 4.2-1 in 3GPP TS 36.211				
PRACH configuration			53	As specified in table 5.7.1-3 in TS 36.211				
Access Barring Information		-	Not Sent	No additional delays in random access procedure.				
DRX cycle length		S	1.28	The value shall be used for all cells in the test.				
T1		S	15	T1 need to be defined so that the non-allowed CSG cell is identified.				
T2		S	40	T2 need to be defined so that cell re-selection reaction time is taken into account.				
T3		S	15	T3 need to be defined so that whether cell re-				

selection would not occur is insured.

Table A.4.2.8.1-1: General test parameters for TDD-TDD inter frequency cell re-selection test case

Parameter	Unit	Cell 1			Cell 2			Cell 3			
							(Non-allowed CSG cell)				
		T1	T2	T3	T1	T2	Т3	T1	T2	T3	
E-UTRA RF Channel			1			2			1		
Number	MHz	10			40			10			
BW _{channel} OCNG Pattern defined in	IVIFIZ		10		10			10			
		OP.2 TDD			OP.2 TDD			OP.2 TDD			
A.3.2.2.2 (OP.2 TDD)	٩D										
PBCH_RA	dB										
PBCH_RB	dB										
PSS_RA	dB										
SSS_RA	dB										
PCFICH_RB	dB										
PHICH_RA	dB	-									
PHICH_RB	dB	0			0			0			
PDCCH_RA	dB										
PDCCH_RB	dB										
PDSCH_RA	dB										
PDSCH_RB	dB										
OCNG_RA ^{Note 1}	dB										
OCNG_RB ^{Note 1}	dB										
Qrxlevmin	dBm	-140 -140					-140				
Qqualmin	dB					-20					
N _{oc} Note 2	dBm/ 15kHz	-98									
RSRP ^{Note 3}	dBm/	-90	-90	-85	-Infinity	-85	-90	-90	-85	-60	
_	15kHz	00	00	00	iiiiiiiiy	00	00	0	0	00	
RSRQ Note 3	dB	-14.1	-17.1	-35.8				-14.1	-12.1	-10.8	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	-0.64	-5.21	-25	-Infinity	13	8	-0.64	4.36	24.8	
\hat{E}_s/N_{oc}	dB	8	8	13	-Infinity	13	8	8	13	38	
Treselection	S	0			0			0			
Snonintrasearch	dB	10			Not sent			Not sent			
Propagation Condition		AWGN									
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.											
subcarriers and Note 3: RSRP and RSR settable parame	Q levels ha	ave been	derived	as AWGN from othe	l of appropr er paramete	rate po rs for i	ower for nformation	tion purpos	e tulfilled. ses. They	are not	

Table A.4.2.8.1-2: Cell specific test parameters for TDD-TDD inter frequency cell re-selection test case with non-allowed CSG cell

A.4.2.8.2 Test Requirements

settable parameters themselves.

The cell reselection delay to a newly detectable cell is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message to perform a Tracking Area Update procedure on Cell 2.

The cell re-selection delay to a newly detectable cell shall be less than 34 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

The probability of reselection from Cell 2 to Cell 1 during T3 observed during testing shall be less than 10%.

NOTE: The cell re-selection delay to a newly detectable cell can be expressed as: $T_{detect,EUTRAN_{Inter}} + T_{SI}$,

Where:

$T_{detect,EUTRAN_Inter}$	See Table 4.2.2.4-1 in section 4.2.2.4
T _{SI}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 33.28 s, allow 34 s for the cell re-selection delay to a newly detectable cell in the test case.A.4.3 E-UTRAN to UTRAN Cell Re-Selection

A.4.3.1 E-UTRAN FDD – UTRAN FDD:

A.4.3.1.1 EUTRA FDD-UTRA FDD cell reselection: UTRA FDD is of higher priority

A.4.3.1.1.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRA FDD- UTRA FDD inter-RAT cell reselection requirements specified in section 4.2.2.5 when the UTRA cell is of higher priority.

The test scenario comprises of one E-UTRA FDD and one UTRA FDD cells as given in tables A.4.3.1.1.1-1, A.4.3.1.1.1-2 and A.4.3.1.1.1-3. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. E-UTRA cell 1 is already identified by the UE prior to the start of the test. Cell 2 is of higher priority than cell 1.

Table A.4.3.1.1.1-1: General test parameters for E-UTRA FDD- higher priority UTRA FDD inter RAT cell re-selection test case

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell 1	UE is on cell 1 in the initialisation phase, so that reselection to cell 2 occurs during T2
T2 end	Active cell		Cell 2	UE shall perform reselection to cell 2 during T2
condition	Neighbour cell		Cell 1	
T3 end	Active cell		Cell 1	UE shall perform reselection to cell 1 during T3
condition	Neighbour cell		Cell 2	
E-UTRA P	RACH configuration		4	As specified in table 5.7.1-2 in TS 36.211
E_UTRA Access Barring Information		-	Not Sent	No additional delays in random access procedure.
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
Τ1		S	>20	During T1, cell 2 shall be powered off, and during the off time the primary scrambling code shall be changed. The intention is to ensure that cell 2 has not been detected by the UE prior to the start of period T2.
T2		S	85	T2 needs to be defined so that cell re-selection reaction time is taken into account.
Т3		S	25	T3 needs to be defined so that cell re-selection reaction time is taken into account.

Parameter	Unit	Cell 1			
		T1	T2	T3	
E-UTRA RF Channel			1		
number					
BW _{channel}	MHz	10			
OCNG Patterns defined in					
A.3.2.1.2 (OP.2 FDD)			OP.2 FDD)	
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB		•		
PHICH_RB	dB		0		
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				
Qqualmin for UTRA	dB		-20		
neighbour cell	uВ		-20		
Qrxlevmin for UTRA	dBm		-115		
neighbour cell			-115		
Qrxlevmin	dBm	-140			
N _{oc}	dBm/15 kHz		-98		
RSRP	dBm/15 KHz	-84	-84	-84	
\hat{E}_{s}/I_{ot}	dB	14	14	14	
\hat{E}_s/N_{oc}	dB	14	14	14	
Treselection _{EUTRAN}	S	0			
Snonintrasearch	dB	50			
Thresh _{x, high} (Note 2)	dB	40			
Propagation Condition			AWGN		
 Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2 : This refers to the value of Thresh_{x, high} which is included in E-UTRA system information, and is a threshold for the UTRA target cell 			ris ed in E-		

Table A.4.3.1.1.1-2: Cell specific t	est parameters for cell 1(E-UTRA)

Table A.4.3.1.1.1-3: Cell specific test parameters for cell 2(UTRA)

Parameter	Unit	Ce	ell 2 (UTR/	4)
		T1	T2	T3
UTRA RF Channel Number		Channel	2	
CPICH_Ec/lor	dB		-10	
PCCPCH_Ec/lor	dB		-12	
SCH_Ec/lor	dB		-12	
PICH_Ec/lor	dB	-15		
OCNS_Ec/lor	dB	-0.941		
\hat{I}_{or}/I_{oc}	dB	-infinity	11	-5
I _{oc}	dBm/3,84 MHz		-70	
CPICH_Ec/lo	dB	-infinity	-10.33	-16.19
CPICH_RSCP	dBm	-infinity	-69	-85
Propagation Condition		AWGN		
Qqualmin	dB	-20		
Qrxlevmin	dBm	-115		
QrxlevminEUTRA	dBm	-140		

UE_TXPWR_MAX_RACH	dBm	21
Treselection	S	0
Sprioritysearch1	dB	62
Sprioritysearch2	dB	0
Thresh _{serving, low}	dB	36
Thresh _{x, low} (Note 1)	dB	50
Note 1 : his refers to the value of Thresh _{x, low} which is included in UTRA system information, and is a threshold for the E-UTRA target cell		

A.4.3.1.1.2 Test Requirements

The cell reselection delay to higher priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message on cell 2.

The cell re-selection delay to higher priority shall be less than 81 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to higher priority cell can be expressed as: $T_{higher_priority_search} + T_{evaluateUTRA_FDD} + T_{SI-UTRA}$

Where:

$T_{higher_priority_search}$	See section 4.2.2; 60s is assumed in this test case
$T_{evaluateUTRA-FDD}$	See Table 4.2.2.5.1-1
T _{SI-UTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 80.48 s for higher priority cell search, allow 81 s for higher priority cell reselection in the test case.

A.4.3.1.2 EUTRA FDD-UTRA FDD cell reselection: UTRA FDD is of lower priority

A.4.3.1.2.1 Test Purpose and Environment

This test is to verify the requirement for the EUTRA FDD- UTRA FDD inter-RAT cell reselection requirements specified in section 4.2.2.5.1 when the UTRA cell is of lower priority.

The test scenario comprises of one UTRA FDD and one E-UTRA FDD cells as given in tables A.4.3.1.2.1-1, A.4.3.1.2.1-2 and A.4.3.1.2.1-3. The test consists of two successive time periods, with time duration of T1 and T2 respectively. Both E-UTRA cell 1 and UTRA cell 2 are already identified by the UE prior to the start of the test. Cell 2 is of lower priority than cell 1.

Table A.4.3.1.2.1-1: General test parameters for EUTRA FDD- lower priority UTRA FDD inter RAT cell re-selection test case

	Parameter	Unit	Value	Comment
Initial condition	Active cell		Cell 1	E-UTRAN cell
T1 end condition	Active cell		Cell1	UE shall perform reselection to cell 1 during T1 for subsequent iterations of the test
	Neighbour cell		Cell2	
T2 end	Active cell		Cell2	UE shall perform reselection to cell 2 during T2
condition	Neighbour cell		Cell1	
E-UTRA P	RACH configuration		4	As specified in table 5.7.1-2 in TS 36.211
E_UTRA A	ccess Barring	-	Not Sent	No additional delays in random access
Information	1			procedure.
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
T1		S	85	T1 need to be defined so that cell re-selection
				reaction time is taken into account.
T2	T2		25	T2 need to be defined so that cell re-selection
				reaction time is taken into account.

Table A.4.3.1.2.1-2: Cell specific test parameters for cell 1 (E-UTRA)

Parameter	Unit		Cell 1
		T1	T2
E-UTRA RF Channel			1
number			
BW _{channel}	MHz		10
OCNG Patterns defined in			
A.3.2.1.2 (OP.2 FDD)		O	P.2 FDD
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		-
PHICH_RB	dB		0
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA ^{Note 1}	dB		
OCNG_RB ^{Note 1}	dB		

Qqualmin for UTRA neighbour cell	dB		-20
Qrxlevmin for UTRA neighbour cell	dBm	-115	
Qrxlevmin	dBm		-140
N _{oc}	dBm/15 kHz		-98
RSRP	dBm/15 KHz	-86	-102
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	12	-4
\hat{E}_s/N_{oc}	dB	12	-4
Treselection _{EUTRAN}	S	0	
Snonintrasearch	dB	N	lot sent
Thresh _{serving, low}	dB		44
Thresh _{x, low} (Note 2)	dB		42
Propagation Condition		A	AWGN
 Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2 : This refers to the value of Thresh_{x, low} which is included in E-UTRA system information, and is a threshold for the UTRA target cell 			density is included in E-

Table A.4.3.1.2.1-3: Cell specific test parameters for cell 2 (UTRA)

Parameter	Unit	Cell 2	(UTRA)
		T1	T2
UTRA RF Channel Number		Channel 2	2
CPICH_Ec/lor	dB	-10	
PCCPCH_Ec/lor	dB	-12	
SCH_Ec/lor	dB	-12	
PICH_Ec/lor	dB	-15	
OCNS_Ec/lor	dB	-0.941	
\hat{I}_{or}/I_{oc}	dB	13	13
I _{oc}	dBm/3,84 MHz	-70	
CPICH_Ec/lo	dB	-10.21	-10.21
CPICH_RSCP	dBm	-67	-67
Propagation Condition		AWGN	
Qqualmin	dB	-20	
Qrxlevmin	dBm	-115	
QrxlevminEUTRA	dBm	-140	
UE_TXPWR_MAX_RACH	dBm	21	
Treselection	S	0	
Sprioritysearch1	dB	42	
Sprioritysearch2	dB	0	
Thresh _{x, high} (Note 1)	dB	48	
Note 1 : This refers to the value of Thresh _{x, high} which is included in UTRA system information, and is a threshold for the E-UTRA target cell			

A.4.3.1.2.2 Test Requirements

The cell reselection delay to lower priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message on cell 2.

The cell re-selection delay to lower priority shall be less than 21 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to lower priority cell can be expressed as: $T_{evaluateUTRA_FDD} + T_{SI-UTRA}$

Where:

T _{evaluateUTRA-FDD}	See Table 4.2.2.5.1-1
T _{SI-UTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 20.48 s for lower priority cell reselection, allow 21 s.

A.4.3.1.3 EUTRA FDD-UTRA FDD cell reselection in fading propagation conditions: UTRA FDD is of lower priority

A.4.3.1.3.1 Test Purpose and Environment

This test is to verify the requirement for the EUTRA FDD- UTRA FDD inter-RAT cell reselection requirements specified in section 4.2.2.5.1 when the UTRA cell is of lower priority, and to verify the robustness of the UE measurement filtering in a fading environment. The E-UTRA cell is in fading propagation conditions and the UTRA cell is in AWGN propagation conditions.

The test scenario comprises of one UTRA FDD and one E-UTRA FDD cells as given in tables A.4.3.1.3.1-1, A.4.3.1.3.1-2 and A.4.3.1.3.1-3. The test consists of four successive time periods, with time duration of T1 T2, T3 and T4 respectively. Both E-UTRA cell 1 and UTRA cell 2 are already identified by the UE prior to the start of the test. Cell 2 is of lower priority than cell 1.

Table A.4.3.1.3.1-1: General test parameters for EUTRA FDD- lower priority UTRA FDD inter RAT cell	
re-selection test case	

	Parameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	E-UTRAN cell
T1 end condition	Active cells		Cell1	UE shall perform reselection to cell 1 during T1 for subsequent iterations of the test
	Neighbour cell		Cell2	
T3 end	Active cell		Cell2	UE shall perform reselection to cell 2 during T3
condition	Neighbour cell		Cell1	
E-UTRA P	RACH configuration		4	As specified in table 5.7.1-2 in TS 36.211
E_UTRA A Information	Access Barring	-	Not Sent	No additional delays in random access procedure.
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
T1		S	<85	T1 need to be defined so that cell re-selection reaction time is taken into account. T1 is terminated when the UE starts to send preambles to cell 1
T2		S	64	The start of T2 is defined as the time when the UE starts to send PRACH preambles to cell 1
ТЗ		S	<25	T3 need to be defined so that cell re-selection reaction time is taken into account. T3 is terminated when the UE starts to send preambles to cell 2
T4		S	64	The start of T4 is defined as the time when the UE starts to send PRACH preambles to cell 2

Parameter Unit		Cell 1				
		T1	T2	T3	T4	
E-UTRA RF Channel number		1	•			
BW _{channel}	MHz	10				
OCNG Patterns defined in A.3						
		OP.2 FE	DD			
PSS_RA	dB	0				
SSS_RA	dB	0				
PCFICH_RB	dB	0				
PHICH_RA	dB	0				
PHICH_RB	dB	0				
PDCCH_RA	dB	0				
PDCCH_RB	dB	0				
PDSCH_RA	dB	0				
PDSCH_RB	dB	0				
OCNG_RA ^{Note 1}	dB	0				
OCNG_RB ^{Note 1}	dB	0				
Qqualmin for UTRA neighbour		-20				
Qrxlevmin for UTRA neighbou	dBm	-115				
Qrxlevmin	dBm	-140				
N _{oc}	dBm/15 kHz	-104				
RSRP	dBm/15 KHz	-82	-82	-107	-107	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	22	22	-3	-3	
\hat{E}_s/N_{oc}	dB	22	22	-3	-3	
Treselection _{EUTRAN}	S	0				
Snonintrasearch	dB	Not sen	t			
Thresh _{serving, low}	dB	44				
Thresh _{x, low} (Note 2)	dB	42				
Propagation Condition		ETU70				
 Note 1: OCNG shall be used such that both cells are fully allocated and a constant total t spectral density is achieved for all OFDM symbols. Note 2 : This refers to the value of Thresh_{x, low} which is included in E-UTRA system inforr 						
threshold for the UT		IOW WITTCH				

Table A.4.3.1.3.1-2: Cell specific test parameters for cell 1 (E-UTRA)

Parameter	Unit		Cell	2 (UTRA)	
		T1	T2	T3	T4
UTRA RF Channel Number		Channel	2		-
CPICH_Ec/lor	dB	-10			
PCCPCH_Ec/lor	dB	-12			
SCH_Ec/lor	dB	-12			
PICH_Ec/lor	dB	-15			
OCNS_Ec/lor	dB	-0.941			
\hat{I}_{or}/I_{oc}	dB	13	13	13	13
I _{oc}	dBm/3,84 MHz	-70			·
CPICH_Ec/lo	dB	-10.21	-10.21	-10.21	-10.21
CPICH_RSCP	dBm	-67	-67	-67	-67
Propagation Condition		AWGN			
Qqualmin	dB	-20			
Qrxlevmin	dBm	-115			
QrxlevminEUTRA	dBm	-140			
UE_TXPWR_MAX_RACH	dBm	21			
Treselection	S	0			
Sprioritysearch1	dB	42			
Sprioritysearch2	dB	0			
Thresh _{x, high} (Note 1)	dB	44			
Note 1: This refers to the value of Thresh _{x, high} which is included in UTRA system information, and is a threshold for the E-UTRA target cell					

Table A.4.3.1.3.1-3: Cell specific test parameters for cell 2 (UTRA)

A.4.3.1.3.2 Test Requirements

The probability of reselection from cell 1to cell 2 during T2 observed during testing shall be less than 10%

The probability of reselection from cell 2 to cell 1 during T4 observed during testing shall be less than 10%

The cell reselection delay to lower priority is defined as the time from the beginning of time period T3, to the moment when the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message on cell 2. In order to evaluate reselection delay, the system simulator first needs to verify that the UE is camped on cell 1 at the start of T3

The cell re-selection delay to lower priority shall be less than 21 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to lower priority cell can be expressed as: $T_{evaluateUTRA_FDD} + T_{SI-UTRA}$

Where:

$T_{evaluateUTRA-FDD}$	See Table 4.2.2.5.1-1
T _{SI-UTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 20.48 s for lower priority cell reselection, allow 21 s.

A.4.3.2 E-UTRAN FDD – UTRAN TDD:

A.4.3.2.1 Test Purpose and Environment

A.4.3.2.1.1 Void

A.4.3.2.1.2 1.28Mcps TDD option

This test is to verify the requirement for the E-UTRA FDD to UTRA TDD inter-RAT cell reselection requirements specified in section 4.2.2.5.2 when the UTRA cell is of lower priority.

This test scenario comprised of 1 E-UTRA FDD serving cell (Cell 1), and 1 UTRA TDD cell (Cell 2) to be re-selected. Test parameters are given in table A.4.3.2.1.2-1, A.4.3.2.1.2-2, and A.4.3.2.1.2-3. The test consists of two successive time periods, with time duration of T1 and T2 respectively. Cell 2 is of lower priority than cell 1.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS36.304.

Table A.4.3.2.1.2-1: General test parameters for E-UTRA FDD to UTRA (1.28 Mcps TDD OPTION) Cell Re-selection

Para	Parameter		Value	Comment
Initial condition	Active cell		Cell1	E-UTRAN cell
T1 end condition	Active cell		Cell1	UE shall perform reselection to cell 1 during T1 for subsequent iterations of the test
	Neighbour cell		Cell2	1.28 Mcps TDD OPTION cell
T2 end	Active cell		Cell2	UE shall perform reselection to cell 2 during T2
condition	Neighbour cell		Cell1	E-UTRA FDD cell
CP length of c	ell 1		normal	
E-UTRA PRAC	СН		4	As specified in table 5.7.1-2 in TS 36.211
Time offset be	tween cells		3 ms	Asynchronous cells
Access Barrin	g Information	-	Not sent	No additional delays in random access procedure.
Treselection		S	0	
DRX cycle len	gth	S	1,28	
HCS			Not	
			used	
T1		S	85	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		S	25	

Parameter	Unit	Cell 1		
		T1	T2	
E-UTRA RF Channel			1	
Number				
BW _{channel}	MHz		10	
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RB	dB			
SSS_RB	dB			
PCFICH_PA	dB			
PHICH_PA	dB			
PHICH_PB	dB	0	0	
PDCCH_PA	dB			
PDCCH_PB	dB			
PDSCH_PA	dB			
PDSCH_PB	dB			
OCNG_RA ^{Note1}	dB			
OCNG_RB ^{Note1}	dB	-		
Qrxlevmin	dBm/15kHz	-140	-140	
N_{oc}	dBm/15kHz	-98		
RSRP	dBm/15kHz	-87	-101	
\hat{E}_{s}/I_{ot}	dB	11	-3	
Snonintrasearch	dB	Not	sent	
Thresh _{serving, low}	dB	46 (-9	94dBm)	
Thresh _{x, low} (Note2)	dB	24 (-79dBm)		
Propagation Condition		AV	VGN	
Note 1: OCNG shall be us constant total tran all OFDM symbols	smitted power spe			
Note2: This refers to the v UTRA system info target cell	value of Threshx, lo prmation, and is a th			

Table A.4.3.2.1.2-2: Cell specific test parameters for cell re-selection E-UTRA FDD to UTRA TDD test case (cell 1)

Parameter	Unit		Cell 2 (UTRA)	
Timeslot Number		0		DwPTS	
		T1	T2	T1	T2
UTRA RF Channel Number (Note1)			Chan	inel 2	
PCCPCH_Ec/lor	dB	-3	-3		
DwPCH_Ec/lor	dB			0	0
OCNS_Ec/lor	dB	-3	-3		
\hat{I}_{or}/I_{oc}	dB	11	11	11	11
I _{oc}	dBm/1.28 MHz		-8	80	
PCCPCH RSCP	dBm	-72	-72	n.a.	n.a.
Propagation Condition		AWGN			
Qrxlevmin	dBm		-1	03	
Qoffset1 _{s,n}	dB		C1, 0	C2: 0	
Qhyst1 _s	dB		()	
Thresh _{x, high} (Note2)	dB		46 (-94		
Note1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number.					
Note2: This refers to the value of Thresh _{x, high} which is included in UTRA system information, and is a threshold for the E-UTRA target cell					

Table A.4.3.2.1.2-3: Cell specific test parameters for cell re-selection E-UTRA FDD to UTRA TDD test case (cell 2)

A.4.3.2.1.3 Void

A.4.3.2.2 Test Requirements

A.4.3.2.2.1 1.28Mcps TDD option

The cell reselection delay to lower priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2, and starts to send the SYNCH-UL sequence in the UpPTS for sending the RRC CONNECTION REQUEST message on cell 2.

The cell re-selection delay to lower priority shall be less than 21 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to lower priority cell can be expressed as: $T_{evaluateUTRA_TDD} + T_{SI-UTRA}$

Where:

$T_{evaluateUTRA_TDD}$	19.2s, See table 4.2.2.5.2-1
T _{SI-UTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 20.48 s, allow 21 s for lower priority cell reselection in the test case.A.4.3.2.2.2.3 Void

A.4.3.3 E-UTRAN TDD – UTRAN FDD:

A.4.3.3.1 Test Purpose and Environment

This test is to verify the requirement for the EUTRA TDD- UTRA FDD inter-RAT cell reselection requirements specified in section 4.2.2.5.1 when the UTRA cell is of lower priority.

The test scenario comprises of one UTRA FDD and one E-UTRA TDD cells as given in tables A.4.3.3.1-1, A.4.3.3.1-2 and A.4.3.3.1-3. The test consists of two successive time periods, with time duration of T1 and T2 respectively. Both E-UTRA cell 1 and UTRA cell 2 are already identified by the UE prior to the start of the test. Cell 2 is of lower priority than cell 1.

Table A.4.3.3.1-1: General test parameters for EUTRA TDD- lower priority UTRA FDD inter RAT cell reselection test case

	Parameter		Value	Comment
Initial condition	Active cell		Cell1	E-UTRAN cell
T1 end condition	Active cells		Cell1	UE shall perform reselection to cell 1 during T1 for subsequent iterations of the test
	Neighbour cell		Cell2	
T2 end	Active cell		Cell2	UE shall perform reselection to cell 2 during T2
condition	Neighbour cell		Cell1	
E-UTRA I	PRACH configuration		53	As specified in table 5.7.1-3 in TS 36.211
Uplink-dov	wnlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special sub	oframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
	RA Access Barring Information	-	Not Sent	No additional delays in random access procedure.
DRX cycle length		S	1.28	The value shall be used for all cells in the test.
T1		S	85	T1 need to be defined so that cell re-selection
				reaction time is taken into account.
	T2	S	25	T2 need to be defined so that cell re-selection
				reaction time is taken into account.

Table A.4.3.3.1-2: Cell specific test parameters for cell 1(E-UTRA)

Parameter	Unit	Cell 1	
		T1	T2
E-UTRA RF Channel			1
number			
BW _{channel}	MHz		10
OCNG Patterns defined in			
A.3.2.2.2 (OP.2 TDD)		O	P.2 TDD
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB	-	
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		_
PHICH_RB	dB		0
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA ^{Note 1}	dB		
OCNG_RB ^{Note 1}	dB		

Qqualmin for UTRA neighbour cell	dB		-20
Qrxlevmin for UTRA neighbour cell	dBm		-115
Qrxlevmin	dBm		-140
N _{oc}	dBm/15 kHz		-98
RSRP	dBm/15 KHz	-86	-102
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	12	-4
\hat{E}_s/N_{oc}	dB	12	-4
Treselection _{EUTRAN}	S		0
Snonintrasearch	dB	Not sent	
Thresh _{serving, low}	dB		44
Thresh _{x, low} (Note 2)	dB	42	
Propagation Condition		A	AWGN
Note 1:OCNG shall be use and a constant tota achieved for all OFNote 2 :This refers to the va UTRA system infor target cell	l transmitted pov DM symbols. alue of Thresh _{x,}	ver spectral _{Iow} which is	density is included in E-

Table A.4.3.3.1-3: Cell specific test parameters for cell 2 (UTRA)

Parameter	Unit	Cell 2 (UTRA)		
		T1	T2	
UTRA RF Channel Number		Channel 2	2	
CPICH_Ec/lor	dB	-10		
PCCPCH_Ec/lor	dB	-12		
SCH_Ec/lor	dB	-12		
PICH_Ec/lor	dB	-15		
OCNS_Ec/lor	dB	-0.941		
\hat{I}_{or}/I_{oc}	dB	13	13	
I _{oc}	dBm/3,84 MHz	-70		
CPICH_Ec/lo	dB	-10.21	-10.21	
CPICH_RSCP	dBm	-67	-67	
Propagation Condition		AWGN		
Qqualmin	dB	-20		
Qrxlevmin	dBm	-115		
QrxlevminEUTRA	dBm	-140		
UE_TXPWR_MAX_RACH	dBm	21		
Treselection	S	0		
Sprioritysearch1	dB	42		
Sprioritysearch2	dB	0		
Thresh _{x, high} (Note 1)	dB	48		
Note 1 : This refers to the value of Thresh _x , high which is included in UTRA system information, and is a threshold for the E-UTRA target cell				

A.4.3.3.2 Test Requirements

The cell reselection delay to lower priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2, and starts to send preambles on the PRACH for sending the RRC CONNECTION REQUEST message on cell 2.

The cell re-selection delay to lower priority shall be less than 21 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to lower priority cell can be expressed as: $T_{evaluateUTRA_FDD} + T_{SI-UTRA}$

Where:

$T_{evaluateUTRA-FDD}$	See Table 4.2.2.5.1-1
T _{SI-UTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 20.48 s for lower priority cell reselection, allow 21 s.

A.4.3.4 E-UTRAN TDD – UTRAN TDD:

A.4.3.4.1 E-UTRA to UTRA TDD cell re-selection: UTRA is of higher priority

- A.4.3.4.1.1 Test Purpose and Environment
- A.4.3.4.1.1.1 Void
- A.4.3.4.1.1.2 1.28 Mcps TDD option

This test is to verify the requirement for the E-UTRA TDD to UTRA TDD inter-RAT cell re-selection requirements specified in section 4.2.2.5 when the UTRA cell is of higher priority.

This test scenario comprised of 1 E-UTRA TDD serving cell, and 1 UTRA TDD cell to be re-selected. Test parameters are given in table A.4.3.4.1.1.2-1, A.4.3.4.1.1.2-2, and A.4.3.4.1.1.2-3. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. E-UTRA cell 1 is already identified by the UE prior to the start of the test. Cell 2 is of higher priority than cell 1.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS36.304.

Para	meter	Unit	Value	Comment
Initial	Active cell		Cell 1	UE is on cell 1 in the initialisation phase, so that reselection to
condition				cell 2 occurs during T2
T2 end	T2 end Active cell		Cell2	UE shall perform reselection to cell 2 during T2
condition	Neighbour cell		Cell2	
T3 end	Active cell		Cell 1	UE shall perform reselection to cell 1 during T3
condition	Neighbour cell		Cell 2	
Uplink-down configuratior			1	As specified in table 4.2.2 in TS 36.211
Special subf configuratior			6	As specified in table 4.2.1 in TS 36.211
PRACH con cell 1	PRACH configuration of		53	As specified in table 4.7.1-3 in TS 36.211
CP length of	cell 1		Normal	
Time offset b	petween cells		3 ms	Asynchronous cells
Access Barr	ing	-	Not	No additional delays in random access procedure.
Information			sent	
Treselection		S	0	
DRX cycle le	ength	S	1,28	
HCS			Not	
			used	
T1		S	>20	During T1, cell 2 shall be powered off, and during the off time the primary scrambling code shall be changed, The intention is to ensure that cell 2 has not been detected by the UE prior to the start of period T2.
T2	T2		85	T2 needs to be defined so that cell re-selection reaction time is taken into account
Т3		S	25	T3 needs to be defined so that cell re-selection reaction time is taken into account.

Table A.4.3.4.1.1.2-1: General test parameters for E-UTRAN to UTRAN (1.28 Mcps TDD OPTION) Cell Re-selection

Table A.4.3.4.1.1.2-2: Cell specific test parameters for cell re-selection E-UTRA TDD to UTRA TDD test case (cell 1)

Parameter	Unit		Cell 1	
		T1	T2	T3
E-UTRA RF Channel			1	
Number				
BW _{channel}	MHz		10	
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RB	dB			
SSS_RB	dB			
PCFICH_PA	dB			
PHICH_PA	dB			
PHICH_PB	dB	0	0	0
PDCCH_PA	dB			
PDCCH_PB	dB			
PDSCH_PA	dB			
PDSCH_PB	dB			
OCNG_RA ^{Note 1}	dB			
OCNG_RB ^{Note 1}	dB			

Q _{rxlevmin}	dBm/15kHz	-140	-140	-140		
N _{oc}	dBm/15kHz	-98				
RSRP	dBm/15kHz	-87	-87	-87		
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	11	11	11		
Thresh _{x, high} (Note2)	dB	24(-79dBm)				
Snonintrasearch	dB	46				
Propagation Condition	AWGN					
Note1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.						
	 This refers to the value of Thresh_{x, high} which is included in E-UTRA system information, and is a threshold for the UTRA target cell 					

Table A.4.3.4.1.1.2-3: Cell specific test parameters for cell re-selection E-UTRA TDD to UTRA TDD test case (cell 2)

Parameter	Unit	Cell 2 (UTRA)						
Timeslot Number		0				DwPTS		
		T1	T2	T3	T1	T2	T3	
UTRA RF Channel Number (Note1)				Char	nel 2			
PCCPCH_Ec/lor	dB	-3	-3	-3				
DwPCH_Ec/lor	dB				0	0	0	
OCNS_Ec/lor	dB	-3	-3	-3				
\hat{I}_{or}/I_{oc}	dB	-inf	11	-3	-inf	11	-3	
I _{oc}	dBm/1.28 MHz							
PCCPCH RSCP	dBm	-inf	-72	-86	n.a.			
Propagation Condition		AWGN						
Qrxlevmin	dBm			-1	03			
Qoffset1 _{s,n}	dB			C1, (C2: 0			
Qhyst1 _s	dB			()			
Snonintrasearch	dB			Not	sent			
Thresh _{serving, low}	dB			24 (-7	9dBm)			
Thresh _{x, low} (Note2)	dB			46 (-9-	4dBm)			
Note1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number.								
Note2: This refers to the value of Thresh _{x, low} which is included in UTRA system information, and is a threshold for the E-UTRA target cell								

A.4.3.4.1.1.3 Void

A.4.3.4.1.2 Test Requirements

A.4.3.4.1.2.1 Void

A.4.3.4.1.2.2 1.28 Mpcs TDD option

The cell reselection delay to higher priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2, and starts to send the SYNCH-UL sequence in the UpPTS for sending the RRC CONNECTION REQUEST message on cell 2.

The cell re-selection delay to higher priority shall be less than 81 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

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NOTE: The cell re-selection delay to higher priority cell can be expressed as: $T_{higher_priority_search} + T_{evaluateUTRA_TDD} + T_{S_UTRA}$,

Where:

$T_{higher_priority_search}$	60s, See section 4.2.2
$T_{evaluateUTRA_TDD}$	19.2s, See Table 4.2.2.5.2-1
T _{SI_UTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 80.48 s, allow 81 s for higher priority cell reselection in the test case.

A.4.3.4.1.2.3	Void
A.4.3.4.2	E-UTRA to UTRA TDD cell re-selection: UTRA is of lower priority
A.4.3.4.2.1	Test Purpose and Environment
A.4.3.4.2.1.1	Void
A.4.3.4.2.1.2	1.28 Mcps TDD option

This test is to verify the requirement for the E-UTRA TDD to UTRA TDD inter-RAT cell re-selection requirements specified in section 4.2.2.5 when the UTRA cell is of lower priority.

This test scenario comprised of 1 E-UTRA TDD serving cell (Cell 1), and 1 UTRA TDD cell (Cell 2) to be re-selected. Test parameters are given in table A.4.3.4.2.1.2-1, A.4.3.4.2.1.2-2, and A.4.3.4.2.1.2-3. The test consists of two successive time periods, with time duration of T1 and T2 respectively. Cell 2 is of lower priority than cell 1.

The ranking of the cells shall be made according to the cell reselection criteria specified in TS36.304.

Table A.4.3.4.2.1.2-1: General test parameters for E-UTRAN to UTRAN (1.28 Mcps TDD OPTION) Cell Re-selection

Paran	Parameter		Value	Comment
Initial condition	Active cell		Cell 1	E-UTRAN cell
T1 end	Active cell		Cell1	UE shall perform reselection to cell 1 during T1 for
condition				subsequent iterations of the test
	Neighbour cell		Cell2	1.28 Mcps TDD OPTION cell
T2 end	Active cell		Cell2	UE shall perform reselection to cell 2 during T2
condition	Neighbour cell		Cell1	E-UTRA TDD cell
Uplink-downlink of cell 1	configuration of		1	As specified in table 4.2.2 in TS 36.211
Special subframe of cell 1	e configuration		6	As specified in table 4.2.1 in TS 36.211
PRACH configura	ation of cell 1		53	As specified in table 4.7.1-3 in TS 36.211
CP length of cell	1		Normal	
Time offset betwe	een cells		3 ms	Asynchronous cells
Access Barring I	nformation	-	Not	No additional delays in random access procedure.
			sent	
Treselection		S	0	
DRX cycle length	า	S	1,28	
HCS			Not	
			used	
T1		S	85	
T2		S	25	

Parameter	Unit	Ce	II 1			
		T1	T2			
E-UTRA RF Channel			1			
Number						
BW _{channel}	MHz	1	0			
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RB	dB					
SSS_RB	dB					
PCFICH_PA	dB					
PHICH_PA	dB					
PHICH_PB	dB	0	0			
PDCCH_PA	dB					
PDCCH_PB	dB					
PDSCH_PA	dB					
PDSCH_PB	dB					
OCNG_RA ^{Note1}	dB					
OCNG_RB ^{Note1}	dB					
Qrxlevmin	dBm/15kHz	-140	-140			
N_{oc}	dBm/15kHz	-6	98			
RSRP	dBm/15kHz	-87	-101			
\hat{E}_{s}/I_{ot}	dB	11	-3			
Snonintrasearch	dB	Not	sent			
Thresh _{serving, low}	dB	46 (-9	4dBm)			
Thresh _{x, low} (Note2)	dB	24 (-7	9dBm)			
Propagation Condition		AW	/GN			
Note1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.						
Note2: This refers to the UTRA system info target cell	value of Thresh _{x, lov} prmation, and is a th					

Table A.4.3.4.2.1.2-2: Cell specific test parameters for cell re-selection E-UTRA TDD to UTRA TDD test case (cell 1)

Parameter	Unit	Cell 2 (UTRA)				
Timeslot Number		0		Dwl	PTS	
		T1	T2	T1	T2	
UTRA RF Channel Number (Note1)			Char	nel 2		
PCCPCH_Ec/lor	dB	-3	-3			
DwPCH_Ec/lor	dB			0	0	
OCNS_Ec/lor	dB	-3	-3			
\hat{I}_{or}/I_{oc}	dB	11	11	11	11	
I_{oc}	dBm/1.28 MHz	-80				
PCCPCH RSCP	dBm	-72	-72	n.a.	n.a.	
Propagation Condition		AWGN				
Qrxlevmin	dBm		-1	03		
Qoffset1 _{s,n}	dB		C1, 0	C2: 0		
Qhyst1 _s	dB		()		
Thresh _{x, high} (Note2)	dB		46 (-9	4dBm)		
Note1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number.						
Note2: This refers to the value of Thresh _{x, high} which is included in UTRA system information, and is a threshold for the E-UTRA target cell						

Table A.4.3.4.2.1.2-3: Cell specific test parameters for cell re-selection E-UTRA TDD to UTRA TDD test case (cell 2)

A.4.3.4.2.1.3 Void

A.4.3.4.2.2 Test Requirements

A.4.3.4.2.2.1 Void

A.4.3.4.2.2.2 1.28 Mpcs TDD option

The cell reselection delay to lower priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2, and starts to send the SYNCH-UL sequence in the UpPTS for sending the RRC CONNECTION REQUEST message on cell 2.

The cell re-selection delay to lower priority shall be less than 21 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to lower priority cell can be expressed as: $T_{evaluateUTRA_TDD} + T_{SI_UTRA}$,

Where:

$T_{evaluateUTRA_TDD}$	19.2s, See Table 4.2.2.5.2-1
T _{SI_UTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 20.48 s, allow 21 s for lower priority cell reselection in the test case.

A.4.3.4.2.2.3 Void

A.4.3.4.3 EUTRA TDD-UTRA TDD cell reselection in fading propagation conditions: UTRA TDD is of lower priority

A.4.3.4.3.1 Test Purpose and Environment

This test is to verify the requirement for the EUTRA TDD- UTRA TDD inter-RAT cell reselection requirements specified in section 4.2.2.5.2 when the UTRA cell is of lower priority, and to verify the robustness of the UE measurement filtering in a fading environment. The E-UTRA cell is in fading propagation conditions and the UTRA cell is in AWGN propagation conditions.

The test scenario comprises of one UTRA TDD and one E-UTRA TDD cells as given in tables A.4.3.4.3.1-1, A.4.3.4.3.1-2 and A.4.3.4.3.1-3. The test consists of four successive time periods, with time duration of T1 T2, T3 and T4 respectively. Both E-UTRA cell 1 and UTRA cell 2 are already identified by the UE prior to the start of the test. Cell 2 is of lower priority than cell 1.

Table A.4.3.4.3.1-1: General test parameters for EUTRA TDD- lower priority UTRA TDD inter RAT cell re-selection test case

	Parameter	Unit	Value	Comment		
Initial condition	Active cell		Cell1	E-UTRAN cell		
T1 end condition			Cell1	UE shall perform reselection to cell 1 during T1 for subsequent iterations of the test		
	Neighbour cell		Cell2			
T3 end	Active cell		Cell2	UE shall perform reselection to cell 2 during T3		
condition	Neighbour cell		Cell1			
E-UTRA P	RACH configuration		53	As specified in table 5.7.1-3 in TS 36.211		
Uplink-dow cell 1	nlink configuration of		1	As specified in table 4.2.2 in TS 36.211		
Special sul cell 1	Special subframe configuration of cell 1				6	As specified in table 4.2.1 in TS 36.211
E_UTRA A Informatior	ccess Barring	-	Not Sent	No additional delays in random access procedure.		
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.		
T1			<85	T1 need to be defined so that cell re-selection reaction time is taken into account. T1 is terminated when the UE starts to send preambles to cell 1		
T2		S	64	The start of T2 is defined as the time when the UE starts to send PRACH preambles to cell 1		
Т3	Τ3		<25	T3 need to be defined so that cell re-selection reaction time is taken into account. T3 is terminated when the UE starts to send PRACH preambles to cell 2		
T4		S	64	The start of T4 is defined as the time when the UE starts to send PRACH preambles to cell 2		

Parameter	Unit		Се	1		
		T1	T2	T3	T4	
E-UTRA RF Channel				1		
number						
BW _{channel}	MHz			0		
OCNG Patterns defined in			OP.2	TDD		
A.3.2.2.2 (OP.2 TDD)						
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB					
PDCCH_RA	dB		()		
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
Qrxlevmin for UTRA	dBm		-1	03		
neighbour cell						
Qrxlevmin	dBm	-140				
N_{oc}	dBm/15 kHz	-104				
RSRP	dBm/15 KHz	-82	-82	-107	-107	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	22	22	-3	-3	
\hat{E}_s/N_{oc}	dB	22	22	-3	-3	
TreselectionEUTRAN	S	0				
Snonintrasearch	dB	Not sent				
Thresh _{serving, low}	dB		4	4		
Thresh _{x, low} (Note 2)	dB	24				
Propagation Condition				J70		
Note 1: OCNG shall be use					stant total	
transmitted power s						
Note 2: This refers to the va				E-UTRA sy	rstem	
information, and is	a threshold for th	e UTRA ta	rget cell.			

Table A.4.3.4.3.1-2: Cell specific test parameters for cell 1 (E-UTRA)

Table A.4.3.4.3.1-3: Cell specific test parameters for cell 2 (UTRA)

Parameter	Unit	Cell 2 (UTRA)							
Timeslot Number		0			DwPTS				
		T1	T2	T3	T4	T1	T2	T3	T4
UTRA RF Channel Number (Note1)			Channel 2						
PCCPCH_Ec/lor	dB		-;	3					
DwPCH_Ec/lor	dB						(0	
OCNS_Ec/lor	dB		-;	3					
\hat{I}_{or}/I_{oc}	dB	13	13	13	13	13	13	13	13
I _{oc}	dBm/1.28 MHz		-80						
PCCPCH RSCP	dBm	-70	-70	-70	-70	n.a.	n.a.	n.a.	n.a.
Propagation Condition		AWGN							
Qrxlevmin	dBm	-103							
Qrxlevmin _{EUTRA}	dBm				-1	40			
UE_TXPWR_MAX_RACH	dBm				2	21			
Treselection	S				(C			
Thresh _{x, high} (Note2)	Thresh _{x, high} ^(Note2) dB 44								
Note1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number.									
Note2: This refers to the value of T threshold for the E-UTRA ta	of Thresh _{x, high} which is included in UTRA system information, and is a RA target cell								

A.4.3.4.3.2 Test Requirements

The probability of reselection from cell 1 to cell 2 during T2 observed during testing shall be less than 10%

The probability of reselection from cell 2 to cell 1 during T4 observed during testing shall be less than 10%

The cell reselection delay to lower priority is defined as the time from the beginning of time period T3, to the moment when the UE camps on cell 2, and starts to send the SYNCH-UL sequene in the UpPTS for sending the RRC CONNECTION REQUEST message on cell 2. In order to evaluate reselection delay, the system simulator first needs to verify that the UE is camped on cell 1 at the start of T3

The cell re-selection delay to lower priority shall be less than 21 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to lower priority cell can be expressed as: T_{evaluateUTRA_TDD} + T_{SI-UTRA}

Where:

$T_{evaluateUTRA_TDD}$	19.2s, See Table 4.2.2.5.2-1
T _{SI-UTRA}	Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 20.48 s for lower priority cell reselection, allow 21 s.

A.4.4 E-UTRAN to GSM Cell Re-Selection

A.4.4.1 E-UTRAN FDD – GSM:

A.4.4.1.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN FDD to GSM cell re-selection delay reported in section 4.2.2.5.

This scenario implies the presence of 1 E-UTRAN serving cell, and 1 GSM cell to be re-selected. The UE is requested to monitor neighbouring cells on 1 E-UTRA carrier and 12 GSM cells. Test parameters are given in Table, A.4.4.1-1, A.4.4.1-2, A.4.4.1-3. E-UTRA FDD cell (Cell 1) and GSM cell (cell 2) shall belong to different Location Areas. The test comprises two successive time periods, T1 and T2. During initialization before the start of the test, the UE is camped on cell 1. By the end of T1, the UE has identified BSIC on the GSM BCCH carrier of cell 2 but the signal levels do not meet the reselection criterion during T1. At the start of T2, the signal levels change such that cell 2 satisfies reselection criterion. The GSM layer is configured at a lower priority than the serving E-UTRA FDD layer.

Table A.4.4.1-1: General test parameters for E-UTRA FDD GSM cell re-selection test case

	Parameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	UE shall be forced to cell 1 in the initialisation phase and shall be able to detect and monitor the 4 strongest GSM BCCH carriers in T1. Cell 1 is an E-UTRA FDD cell.
Final condition	Neighbour cell		Cell2	UE shall perform reselection to cell 2 during T2. Cell 2 is a GSM cell.
E-UTRA R	F Channel Number		1	1 E-UTRA FDD carrier frequency
GSM ARF	CN		1	12 GSM BCCH carriers are used
PRACH co	onfiguration		4	As specified in table 5.7.1-2 in TS 36.211
Access Ba	rring Information	-	Not Sent	No additional delays in random access procedure.
CP length	of cell 1		Normal	
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
T1	•	S	35	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		S	35	T2 need to be defined so that the higher layer search periodicity and cell re-selection reaction time are taken into account.
Propagatio	on channel		AWGN	

 Table A.4.4.1-2: Cell-specific test parameters for Cell 1 – E-UTRA FDD cell

Parameter	Unit	Cell 1	
		T1	T2
E-UTRA RF Channel			1
number			
BW _{channel}	MHz		10
OCNG Patterns defined in			
A.3.2.1.1 (OP.2 FDD)		0	P.2 FDD
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB		
PHICH_RB	dB		0
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA ^{Note 1}	dB]	
	dB		

Qrxlevmin	dBm	-140			
N_{oc}	dBm/15 kHz	-98			
RSRP	dBm/15 KHz	-89	-102		
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	9	-4		
\hat{E}_s/N_{oc}	dB	9	-4		
TreselectionEUTRAN	S	0			
Snonintrasearch	dB	Not sent			
Thresh _{serving, low}	dB	44			
Thresh _{x, low} (Note 2)	dB	24			
Note 1: OCNG shall be used such that both cells are fully allocated and a constant					
total transmitted power spectral density is achieved for all OFDM symbols.					
Note 2: This refers to Thresh _{x, low} which is included in E-UTRA system information,					
and is a threshold for GSM target cell.					

Parameter	Unit	Cell 2 (GSM)		
Farameter	Onic	T1	T2	
Absolute RF Channel Number		ARFCN ²	1	
RXLEV	dBm	-90	-75	
RXLEV_ACCESS_MIN	dBm	-105		
MS_TXPWR_MAX_CCH	dBm	24		

A.4.4.1.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RR Channel Request message for location update to Cell 2.

The cell re-selection delay shall be less than $26 \text{ s} + T_{BCCH}$, where T_{BCCH} is the maximum time allowed to read BCCH data from GSM cell [8].

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay can be expressed as: $4*T_{measureGSM} + T_{BCCH}$, where:

T _{measureGSM}	See Table 4.2.2.5.3-1 in section 4.2.2.5.3.
T _{BCCH}	Maximum time allowed to read BCCH data from GSM cell [8]. According to [8], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.

This gives a total of 25.6 s + T_{BCCH} , allow 26 s + T_{BCCH} in the test case.

A.4.4.2 E-UTRAN TDD – GSM:

A.4.4.2.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN TDD to GSM cell re-selection delay reported in section 4.2.2.5.

This scenario implies the presence of 1 E-UTRAN serving cell, and 1 GSM cell to be re-selected. The UE is requested to monitor neighbouring cells on 1 E-UTRA carrier and 12 GSM cells. Test parameters are given in Table, A.4.4.2-1, A.4.4.2-2, A.4.4.2-3. E-UTRA TDD cell (Cell 1) and GSM cell (cell 2) shall belong to different Location Areas. The test comprises two successive time periods, T1 and T2. During initialization before the start of the test, the UE is

camped on cell 1. By the end of T1, the UE has identified BSIC on the GSM BCCH carrier of cell 2 but the signal levels do not meet the reselection criterion during T1. At the start of T2, the signal levels change such that cell 2 satisfies reselection criterion. The GSM layer is configured at a lower priority than the serving E-UTRA TDD layer.

	Parameter	Unit	Value	Comment
Initial condition	Active cell		Cell1	UE shall be forced to cell 1 in the initialisation phase and shall be able to detect and monitor the 4 strongest GSM BCCH carriers in T1. Cell 1 is an E-UTRA TDD cell.
Final condition	Neighbour cell		Cell2	UE shall perform reselection to cell 2 during T2. Cell 2 is a GSM cell.
E-UTRA RE	- Channel Number		1	1 E-UTRA TDD carrier frequency
GSM ARFC	CN		1	12 GSM BCCH carriers are used
Uplink-dow cell 1	nlink configuration of		1	As specified in table 4.2.2 in TS 36.211
Special sub for cell 1	oframe configuration		6	As specified in table 4.2.1 in TS 36.211
PRACH co	nfiguration for cell 1		53	As specified in table 5.7.1-3 in TS 36.211
CP length of	of cell 1		Normal	
Access Bar	ring Information	-	Not Sent	No additional delays in random access procedure.
DRX cycle	length	S	1.28	The value shall be used for all cells in the test.
T1		S	35	T1 need to be defined so that cell re-selection reaction time is taken into account.
T2		S	35	T2 need to be defined so that the higher layer search periodicity and cell re-selection reaction time are taken into account.
Propagation	n channel		AWGN	

Table A.4.4.2-1: General test parameters for E-UTRA TDD GSM cell re-selection test case

Table A.4.4.2-2: Cell-specific test parameters for Cell 1 – E-UTRA TDD cell

Parameter	Unit	Cell 1		
		T1	T2	
E-UTRA RF Channel		1		
number				
BW _{channel}	MHz		10	
OCNG Patterns defined in				
A.3.2.1.1 (OP.2 TDD)		OF	P.2 TDD	
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB		0	
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB]		
PDSCH_RB	dB			
OCNG_RA ^{Note 1}	dB]		
OCNG_RB ^{Note 1}	dB			

Qrxlevmin	dBm	-140			
N _{oc}	dBm/15 kHz		-98		
RSRP	dBm/15 KHz	-89	-102		
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	9	-4		
\hat{E}_s/N_{oc}	dB	9	-4		
T _{reselectionEUTRAN}	S	0			
Snonintrasearch	dB	Not sent			
Thresh _{serving, low}	dB	44			
Thresh _{x, low} (Note 2)	dB	24			
Note 1: OCNG shall be used such that both cells are fully allocated and a					
constant total transmitted power spectral density is achieved for					
all OFDM symbols.					
Note 2: This refers to Thresh _{x, low} which is included in E-UTRA system information, and is a threshold for GSM target cell.					

Parameter	Unit	Cell 2 (GSM)	
Farameter	Parameter Onit		T2
Absolute RF Channel Number		ARFCN ²	1
RXLEV	dBm	-90	-75
RXLEV_ACCESS_MIN	dBm	-105	
MS_TXPWR_MAX_CCH	dBm	24	

A.4.4.2.2 Test Requirements

The cell re-selection delay is defined as the time from the beginning of time period T2, to the moment when the UE camps on Cell 2, and starts to send the RR Channel Request message for location update to Cell 2.

The cell re-selection delay shall be less than $26 \text{ s} + T_{BCCH}$, where T_{BCCH} is the maximum time allowed to read BCCH data from GSM cell [8].

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay can be expressed as: $4*T_{measureGSM} + T_{BCCH}$, where:

T _{measureGSM}	See Table 4.2.2.5.3-1 in section 4.2.2.5.3.
T _{BCCH}	Maximum time allowed to read BCCH data from GSM cell [8]. According to [8], the maximum time allowed to read the BCCH data, when being synchronized to a BCCH carrier, is 1.9 s.

This gives a total of 25.6 s + T_{BCCH} , allow 26 s + T_{BCCH} in the test case.

A.4.5 E-UTRAN to HRPD Cell Re-Selection

A.4.5.1 E-UTRAN FDD – HRPD

A.4.5.1.1 E-UTRAN FDD – HRPD Cell Reselection: HRPD is of Lower Priority

A.4.5.1.1.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN FDD- HRPD inter-RAT cell reselection requirements specified in section 4.2.2.5.4 when the HRPD cell is of lower priority.

The test scenario comprises of one HRPD and one E-UTRAN FDD cells as given in tables A.4.5.1.1.1-1, A.4.5.1.1.1-2 and A.4.5.1.1.1-3.

The test consists of two successive time periods, with time duration of T1 and T2 respectively. Both E-UTRAN FDD cell 1 and HRPD cell 2 are already identified by the UE prior to the start of the test. At T1 the UE is camped on to cell 1. Cell 2 is of lower priority than cell 1. Cell 1 and cell 2 shall belong to different tracking areas.

Table A.4.5.1.1.1-1: General Test Parameters for E-UTRAN FDD - lower priority HRPD Cell Reselection

	Parameter	Unit	Value	Comment
Initial condition	Active cell		Cell 1	E-UTRAN FDD cell
	Neighbour cell		Cell 2	HRPD cell
Final condition	Active cell		Cell 2	HRPD cell is selecting during T2
DRX cycle length		S	1.28	
E-UTRA FDD RF	Channel Number		1	Only one FDD carrier frequency is used.
E-UTRA FDD Cha	annel Bandwidth (BW _{channel})	MHz	10	
HRPD RF Channe	el Number		1	Only one HRPD carrier frequency is used.
E-UTRA FDD PR	ACH configuration		4	As specified in table 5.7.1-2 in TS 36.211
E_UTRA FDD Ac	cess Barring Information	-	Not Sent	No additional delays in random access procedure.
T1		S	30	
T2		S	30	

Parameter	Unit	Cell 1		
		T1	T2	
E-UTRA RF Channel number		1		
BW _{channel}	MHz	10		
OCNG Patterns defined in A.3.2.1.1				
(OP.2 FDD)		OP.2	FDD	
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB	C)	
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA ^{Note 1}	dB			
OCNG_RB ^{Note 1}	dB			
N _{oc}	dBm/15 kHz	-98		
RSRP	dBm/15 KHz	-89	-102	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	9	-4	
\hat{E}_s/N_{oc}	dB	9	-4	
Treselection _{EUTRAN}	S	C		
Snonintrasearch	dB	Not sent		
cellReselectionPriority	-	1		
Qrxlevmin	dBm	-14	40	
Qrxlevminoffset	dB	0		
Pcompensation	dB	C)	
S _{Serving} Cell	dB	51	38	
Thresh _{serving, low}	dB	4	4	
Propagation Condition		AW	GN	
Note 1: CNG shall be used such that	both cells are fully	/ allocated and a constan	t total transmitted	
power spectral density is ach				

Table A.4.5.1.1.1-2: Cell Specific Test Parameters for E-UTRAN FDD (Cell # 1)

Parameter	Unit	Cell 2		
		T1	T2	
HRPD RF Channel Number		1		
$\frac{\text{Control} \text{E}_{\text{b}}}{\text{N}_{\text{t}}} \text{(38.4 kbps)}$	dB	21		
$\frac{\text{Control} \text{E}_{\text{b}}}{\text{N}_{\text{t}}} $ (76.8 kbps)	dB	18		
\hat{I}_{or}/I_{oc}	dB	0	0	
I _{oc}	dBm/ 1.2288 MHz	-55		
CDMA2000 HRPD Pilot Strength	dB	-3	-3	
Propagation Condition		AWGN		
SnonServingCell,x		-6		
Treselection	S	0		
hrpd-CellReselectionPriority	-	0		
Thresh _{x, low}		-14		

Table A.4.5.1.1.1-3: Cell Specific	Test Parameters for HRPD (cell # 2)
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A.4.5.1.1.2 Test Requirements

The cell reselection delay to lower priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2 and starts to send access probe preambles on the Access Channel on cell 2.

The cell re-selection delay to the lower priority cell 2 shall be less than 21 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to lower priority cell can be expressed as: $T_{evaluateHRPD} + T_{SI-HRPD}$

Where:

T _{evaluatHRPD}	See Table 4.2.2.5.4-1
T _{SI-HRPD}	Maximum repetition period of relevant system information blocks that need to be received by the UE to camp on cell 2; 1704 ms is assumed in this test case.

This gives a total of 20.904 s for the lower priority cell reselection, allow 21 s in the test case.

A.4.5.2 E-UTRAN TDD – HRPD

A.4.5.2.1 E-UTRAN TDD – HRPD Cell Reselection: HRPD is of Lower Priority

A.4.5.2.1.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN TDD- HRPD inter-RAT cell reselection requirements specified in section 4.2.2.5.4 when the HRPD cell is of lower priority.

The test scenario comprises of one HRPD and one E-UTRAN TDD cells as given in tables A.4.5.2.1.1-1, A.4.5.2.1.1-2 and A.4.5.2.1.1-3.

The test consists of two successive time periods, with time duration of T1 and T2 respectively. Both E-UTRAN TDD cell 1 and HRPD cell 2 are already identified by the UE prior to the start of the test. At T1 the UE is camped on to cell 1. Cell 2 is of lower priority than cell 1. Cell 1 and cell 2 shall belong to different tracking areas.

Table A.4.5.2.1.1-1: General Test Parameters for E-UTRAN TDD - lower priority HRPD Cell Reselection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell 1	E-UTRAN TDD cell
	Neighbour cell		Cell 2	HRPD cell
Final condition	Active cell		Cell 2	HRPD cell is selecting during T2
Uplink-downlink co	onfiguration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe	configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
CP length of cell 1			Normal	
DRX cycle length		S	1.28	
E-UTRA TDD RF (Channel Number		1	Only one TDD carrier frequency is used.
E-UTRA TDD Cha	nnel Bandwidth (BW _{channel})	MHz	10	
HRPD RF Channe	I Number		1	Only one HRPD carrier frequency is used.
E-UTRA TDD PRA	CH configuration of cell 1		53	As specified in table 4.7.1-3 in TS 36.211
E_UTRA TDD Acc	ess Barring Information	-	Not Sent	No additional delays in random access procedure.
T1		S	30	
T2		S	30	

Parameter	Unit	Cell 1		
		T1	T2	
E-UTRA RF Channel number		1		
BW _{channel}	MHz	10		
OCNG Patterns defined in A.3.2.2.2				
(OP.2 TDD)		OP.2	TDD	
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB	0		
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA ^{Note 1}	dB			
OCNG_RB ^{Note 1}	dB			
N_{oc}	dBm/15 kHz	-98		
RSRP	dBm/15 KHz	-89	-102	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	9	-4	
\hat{E}_s/N_{oc}	dB	9	-4	
Treselection _{EUTRAN}	S	0		
Snonintrasearch	dB	Not sent		
cellReselectionPriority	-	1		
Qrxlevmin	dBm	-14	0	
Qrxlevminoffset	dB	0		
Pcompensation	dB	0		
S _{Serving} Cell	dB	51	38	
Thresh _{serving, low}	dB	44	1	
Propagation Condition		AWO	GN	
Note 1: OCNG shall be used such th	at both cells are ful	ly allocated and a consta	int total transmitted	
power spectral density is ach	ieved for all OFDN	l symbols.		

Table A.4.5.2.1.1-2: Cell Specific Test Parameters for E-UTRAN TDD (Cell # 1)

Parameter	Unit	Cell 2	
		T1	T2
HRPD RF Channel Number		1	
$\frac{\text{Control} \text{E}_{\text{b}}}{\text{N}_{\text{t}}} \text{(38.4 kbps)}$	dB	21	
$\frac{\text{Control} \text{E}_{\text{b}}}{\text{N}_{\text{t}}} \text{ (76.8 kbps)}$	dB	18	
\hat{I}_{or}/I_{oc}	dB	0	0
I _{oc}	dBm/ 1.2288 MHz	-55	
CDMA2000 HRPD Pilot Strength	dB	-3	-3
Propagation Condition		AWGN	
S _{nonServingCell,x}		-6	
Treselection	S	0	
hrpd-CellReselectionPriority	-	0	
Thresh _{x, low}		-14	

A.4.5.2.1.2 Test Requirements

The cell reselection delay to lower priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2 and starts to send access probe preambles on the Access Channel on cell 2.

The cell re-selection delay to the lower priority cell 2 shall be less than 21 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to lower priority cell can be expressed as: $T_{evaluateHRPD} + T_{SI-HRPD}$

Where:

T _{evaluatHRPD}	See Table 4.2.2.5.4-1
T _{SI-HRPD}	Maximum repetition period of relevant system information blocks that need to be received by the UE to camp on cell 2; 1704 ms is assumed in this test case.

This gives a total of 20.904 s for the lower priority cell reselection, allow 21 s in the test case.

A.4.6 E-UTRAN to cdma2000 1X Cell Re-Selection

A.4.6.1 E-UTRAN FDD – cdma2000 1X

A.4.6.1.1 E-UTRAN FDD – cdma2000 1X Cell Reselection: cdma2000 1X is of Lower Priority

A.4.6.1.1.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN FDD- cdma2000 1X inter-RAT cell reselection requirements specified in section 4.2.2.5.5 when the cdma2000 1X cell is of lower priority.

The test scenario comprises of one cdma2000 1X and one E-UTRAN FDD cells as given in tables A.4.6.1.1.1-1, A.4.6.1.1.1-2 and A.4.6.1.1.1-3.

The test consists of two successive time periods, with time duration of T1 and T2 respectively. Both E-UTRAN FDD cell 1 and cdma2000 1X cell 2 are already identified by the UE prior to the start of the test. At T1 the UE is camped on to cell 1. Cell 2 is of lower priority than cell 1. Cell 1 and cell 2 shall belong to different tracking areas.

Table A.4.6.1.1.1-1: General Test Parameters for E-UTRAN FDD - lower priority cdma2000 1X Cell Reselection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell 1	E-UTRAN FDD cell
	Neighbour cell		Cell 2	cdma2000 1X cell
Final condition	Active cell		Cell 2	cdma2000 1X cell is selecting during T2
DRX cycle length		s	1.28	
E-UTRA FDD RF Channel Number			1	Only one FDD carrier frequency is used.
E-UTRA FDD Channel Bandwidth (BW channel)		MHz	10	
cdma2000 1X RF Channel Number			1	Only one cdma2000 1X carrier frequency is used.
E-UTRA FDD PRACH configuration			4	As specified in table 5.7.1-2 in TS 36.211
E_UTRA FDD Access Barring Information		-	Not Sent	No additional delays in random access procedure.
T1		S	30	
T2		S	30	

Parameter		Unit	Cel	Cell 1		
			T1	T2		
E-UTRA RF Channel number			1			
BW _{channel}		MHz	10			
OCNG Pa	atterns defined in A.3.2.1.1					
(OP.2 FDD)			OP.2	FDD		
PBCH_RA		dB				
PBCH_R	В	dB]			
PSS_RA		dB	-			
SSS_RA		dB				
PCFICH_	RB	dB				
PHICH_F	RA	dB				
PHICH_F	RB	dB	C)		
PDCCH_	RA	dB				
PDCCH_	RB	dB				
PDSCH_	RA	dB				
PDSCH_		dB				
OCNG_R	A ^{Note 1}	dB	-			
OCNG R		dB				
N_{oc} Note 2		dBm/15 kHz	-98			
RSRP ^{Note 3}		dBm/15 KHz	-89	-102		
\hat{E}_{s}/I_{ot}	$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$		9	-4		
\hat{E}_s / N_{oc}			9	-4		
Treselect	Treselection _{EUTRAN}		0			
Snonintra		dB	Not sent			
cellResel	ectionPriority	-	1			
Qrxlevmin		dBm	-140			
Qrxlevmi	noffset	dB	0			
Pcompen	sation	dB	C			
SservingCel		dB	51	38		
	Thresh _{serving, low}		4	4		
Propagation Condition			AWGN			
Note 1:						
		ower spectral density is achieved for all OFDM symbols.				
Note 2:	Iterference from other cells a	nd noise sources not specified in the test is assumed to be d time and shall be modelled as AWGN of appropriate power for				
	$N_{\it oc}$ to be fulfilled.					
Note 3:	e 3: SRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.					

Table A.4.6.1.1.1-2: Cell Specific Test Parameters for E-UTRAN FDD (Cell # 1)

Parameter	Unit	Cell	2	
		T1	T2	
cdma2000 1X RF Channel Number		1		
$\frac{\text{Pilot} E_{c}}{I_{\text{or}}}$	dB	-7		
Sync E _c I _{or}	dB	-16		
$\frac{\text{Paging } E_{c}}{I_{\text{or}}} $ (4.8 kbps)	dB	-12		
\hat{I}_{or}/I_{oc}	dB	0	0	
I _{oc}	dBm/ 1.2288 MHz	-55		
CDMA2000 1xRTT Pilot Strength	dB	-10	-10	
Propagation Condition		AWGN		
SnonServingCell,x	-20		0	
Treselection	S	0		
oneXRTT-CellReselectionPriority	-	0		
Thresh _{x, low}		-28		

Table A.4.6.1.1.1-3: Cell Specific Test Parameters for cdma2000 1X (cell # 2)

A.4.6.1.1.2 Test Requirements

The cell reselection delay to lower priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2 and starts to send access probe preambles on the Access Channel on cell 2.

The cell re-selection delay to the lower priority cell 2 shall be less than 21 s.

See Table 4.2.2.5.5-1

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

The cell re-selection delay to lower priority cell can be expressed as: $T_{evaluatecdma2000 1X} + T_{SI-cdma2000 1X}$ NOTE:

Where:

Tevaluatcdma2000 1X Maximum repetition period of relevant system information blocks that need to be received by T_{SI-cdma2000 1X} the UE to camp on cell 2; 1280 ms is assumed in this test case.

This gives a total of 20.48 s for the lower priority cell reselection, allow 21 s in the test case.

A.4.6.2 E-UTRAN TDD – cdma2000 1X

E-UTRAN TDD -cdma2000 1X Cell Reselection: cdma2000 1X is of Lower A.4.6.2.1 Priority

A.4.6.2.1.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN TDD- cdma2000 1X inter-RAT cell reselection requirements specified in section 4.2.2.5.5 when the cdma2000 1X cell is of lower priority.

The test scenario comprises of one cdma2000 1X and one E-UTRAN TDD cells as given in tables A.4.6.2.1.1-1, A.4.6.2.1.1-2 and A.4.6.2.1.1-3.

The test consists of two successive time periods, with time duration of T1 and T2 respectively. Both E-UTRAN TDD cell 1 and cdma2000 1X cell 2 are already identified by the UE prior to the start of the test. At T1 the UE is camped on to cell 1. Cell 2 is of lower priority than cell 1. Cell 1 and cell 2 shall belong to different tracking areas.

Table A.4.6.2.1.1-1: General Test Parameters for E-UTRAN TDD - lower priority cdma2000 1X Cell Reselection

Parameter		Unit	Value	Comment
Initial condition	Active cell		Cell 1	E-UTRAN TDD cell
	Neighbour cell		Cell 2	cdma2000 1X cell
Final condition	Active cell		Cell 2	cdma2000 1X cell is selecting during T2
DRX cycle length	DRX cycle length		1.28	
E-UTRA TDD RF Channel Number			1	Only one TDD carrier frequency is used.
E-UTRA TDD Channel Bandwidth (BW channel)		MHz	10	
cdma2000 1X RF Channel Number			1	Only one cdma2000 1X carrier frequency is used.
E-UTRA TDD PRACH configuration			53	As specified in table 5.7.1-3 in TS 36.211
Uplink-downlink configuration of cell 1			1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 1			6	As specified in table 4.2.1 in TS 36.211
E_UTRA TDD Access Barring Information		-	Not Sent	No additional delays in random access procedure.
T1		S	30	
T2		S	30	

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel number		1			
BW _{channel}	MHz	10			
OCNG Patterns defined in A.3.2.2.2					
(OP.2 TDD)		OP.2	TDD		
PBCH_RA	dB	_			
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	C)		
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH RB	dB				
OCNG_RA ^{Note 1}	dB	-			
OCNG_RB ^{Note 1}	dB				
N_{oc} Note 2	dBm/15 kHz	-98			
RSRP ^{Note 3}	dBm/15 KHz	-89	-102		
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	9	-4		
\hat{E}_s/N_{oc}	dB	9	-4		
Treselection _{EUTRAN}	S	0			
Snonintrasearch	dB	Not sent			
cellReselectionPriority	-	1			
Qrxlevmin	dBm	-140			
Qrxlevminoffset	dB	0			
Pcompensation	dB	0			
SservingCell	dB	51	38		
Thresh _{serving, low}	dB	4			
Propagation Condition		AWGN			
	power spectral density is achieved for all OFDM symbols.				
Note 2: Interference from other cells	and noise sources not specified in the test is assumed to be d time and shall be modelled as AWGN of appropriate power for				
$N_{\it oc}$ to be fulfilled.					
Note 3: RSRP levels have been deriv settable parameters themselv	te 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				

Table A.4.6.2.1.1-2: Cell Specific Test Parameters for E-UTRAN TDD (Cell # 1)

Parameter	Unit	Ce	ll 2	
		T1	T2	
cdma2000 1X RF Channel Number		1		
$\frac{\text{Pilot} E_{c}}{I_{\text{or}}}$	dB	[-]	7]	
$\frac{\text{Sync } E_{c}}{I_{\sigma r}}$	dB	[-16]		
$\frac{\underline{\text{Paging } E_c}}{I_{\text{or}}} $ (4.8 kbps)	dB	[-1	2]	
\hat{I}_{or}/I_{oc}	dB	[0]	[0]	
I _{oc}	dBm/ 1.2288 MHz	-5	55	
CDMA2000 1xRTT Pilot Strength	dB	[-10]	[-10]	
Propagation Condition		AW	GN	
SnonServingCell,x		[-2	20]	
Treselection	S	0		
oneXRTT-CellReselectionPriority	-	0		
Thresh _{x, low}		[-2	28]	

Table A.4.6.2.1.1-3: Cell Specific Test Parameters for cdma2000 1X (cell # 2)

A.4.6.2.1.2 Test Requirements

The cell reselection delay to lower priority is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 2 and starts to send access probe preambles on the Access Channel on cell 2.

The cell re-selection delay to the lower priority cell 2 shall be less than 21 s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to lower priority cell can be expressed as: $T_{evaluatecdma2000 1X} + T_{SI-cdma2000 1X}$

Where:

T _{evaluatcdma2000 1X}	See Table 4.2.2.5.5-1
T _{SI-cdma2000 1X}	Maximum repetition period of relevant system information blocks that need to be received by the UE to camp on cell 2; 1280 ms is assumed in this test case.

This gives a total of 20.48 s for the lower priority cell reselection, allow 21 s in the test case.

A.5 E-UTRAN RRC CONNECTED Mode Mobility

A.5.1 E-UTRAN Handover

A.5.1.1 E-UTRAN FDD - FDD Intra frequency handover

A.5.1.1.1 Test Purpose and Environment

This test is to verify the requirement for the FDD-FDD intra frequency handover requirements specified in section 5.1.2.1.

The test scenario comprises of 1 E-UTRA FDD carrier and 2 cells as given in tables A.5.1.1.1-1 and A.5.1.1.1-2. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

E-UTRAN shall send a RRC message implying handover to cell 2. The RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event A3. T3 is defined as the end of the last TTI containing the RRC message implying handover.

Parameter		Unit	Value	Comment
PDSCH parameters			DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters			DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Initial conditions	Active cell		Cell 1	
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
E-UTRA RF Chan	nel Number		1	Only one FDD carrier frequency is used.
Channel Bandwidt	h (BW _{channel})	MHz	10	
A3-Offset		dB	0	
Hysteresis		dB	0	
Time To Trigger		S	0	
Filter coefficient			0	L3 filtering is not used
DRX				OFF
CP length			Normal	
Access Barring Inf	ormation	-	Not Sent	No additional delays in random
				access procedure.
PRACH configuration			4	As specified in table 5.7.1-2 in TS 36.211
Time offset betwee	en cells		3 ms	Asynchronous cells
T1		S	5	
T2		S	≤5	
Т3		S	1	

Parameter	Unit	Cell 1			Cell 2			
		T1	T2	T3	T1	T2	Т3	
E-UTRA RF Channel			1			1	•	
Number								
BW _{channel}	MHz		10			10		
OCNG Patterns		OP.1	OP.1	OP.2	OP.2 FDD	OP.2 FDD	OP.1 FDD	
defined in A.3.2.1.1		FDD	FDD	FDD				
(OP.1 FDD) and in								
A.3.2.1.2 (OP.2 FDD)								
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB							
PHICH_RB	dB		0			0		
PDCCH_RA	dB		0			0		
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB							
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	8	-3.3	-3.3	-Infinity	2.36	2.36	
$N_{oc}^{ m Note 2}$	dBm/15 KHz				-98			
\hat{E}_s/N_{oc}	dB	8	8	8	- Infinity	11	11	
RSRP Note 3	dBm/15 KHz	-90	-90	-90	- Infinity	-87	-87	
Propagation Condition	AWGN							
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time								
and shall be modelled as AWGN of appropriate power for $N_{_{ m ac}}$ to be fulfilled.								
Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.								

Table A.5.1.1.1-2: Cell specific test parameters for E-UTRAN FDD-FDD intra frequency handover test case

A.5.1.1.2 Test Requirements

The UE shall start to transmit the PRACH to Cell 2 less than 50 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 15 ms and is specified in section 11.2 in [2].

 $T_{interrupt} = 35$ ms in the test; $T_{interrupt}$ is defined in section 5.1.2.1.2.

This gives a total of 50 ms.

A.5.1.2 E-UTRAN TDD - TDD Intra frequency handover

A.5.1.2.1 Test Purpose and Environment

This test is to verify the requirement for the TDD-TDD intra frequency handover requirements specified in section 5.2.2.4.

The test scenario comprises of 1 E-UTRA TDD carrier and 2 cells as given in tables A.5.1.2.1-1 and A.5.1.2.1-2. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

E-UTRAN shall send a RRC message implying handover to cell 2. The RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event A3. T3 is defined as the end of the last TTI containing the RRC message implying handover.

Parameter		Unit	Value	Comment
			DL Reference Measurement	
PDSCH parameters			Channel R.0 TDD	As specified in section A.3.1.1.2
			DL Reference Measurement	
PCFICH/PDCCHP	HICH parameters		Channel R.6 TDD	As specified in section A.3.1.2.2
Initial conditions	Active cell		Cell 1	
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
E-UTRA RF Chanr	el Number		1	Only one TDD carrier frequency is used.
Channel Bandwidth	ו (BW _{channel})	MHz	10	
A3-Offset		dB	0	
Hysteresis		dB	0	
Time To Trigger		S	0	
Filter coefficient			0	L3 filtering is not used
DRX				OFF
CP length			Normal	
Access Barring Info	ormation	-	Not Sent	No additional delays in random access procedure.
Special subframe of	configuration		6	As specified in table 4.2-1 in TS 36.211
Uplink-downlink configuration			1	As specified in table 4.2-2 in TS 36.211
PRACH configuration index			53	As specified in table 5.7.1-3 in TS 36.211
Time offset betwee	n cells		3 μs	Synchronous cells
T1		S	5	
T2		S	≤5	
Т3		S	1	

	T1					Cell 2			
		T2	Т3	T1	T2	Т3			
		1		1					
MHz		10			10				
	OP.1	OP.1	OP.2	OP.2 TDD	OP.2 TDD	OP.1 TDD			
	TDD	TDD	TDD						
-									
-									
-									
-									
-		0			0				
		0			0				
-									
dB									
dB									
dB	8	-3.3	-3.3	-Infinity	2.36	2.36			
dBm/15 KHz	-98								
dB	8	8	8	-Infinity	11	11			
dBm/15 KHz	-90	-90	-90	- Infinity	-87	-87			
	AWGN								
s	dB dB dB dB dB dB dB dB dB dB dB dB dB d	dB such that both cells are fully all	OP.1 TDD OP.1 TDD dB such that both cells are fully allocated and a comparison of the strength of the strengt of the strength of the strengt of th	OP.1 TDDOP.1 TDDOP.2 TDDdB 	OP.1 TDDOP.1 TDDOP.2 TDDOP.2 TDDdB dB	OP.1 TDD OP.1 TDD OP.2 TDD OP.2 TDD OP.2 TDD dB dB dB dB dB dB dB dB dB dB dB dB dB d			

Table A.5.1.2.1-2: Cell specific test parameters for E-UTRAN TDD-TDD Intra frequency handover test case

Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time

and shall be modelled as AWGN of appropriate power for $\,N_{_{
m oc}}\,$ to be fulfilled.

Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.5.1.2.2 Test Requirements

The UE shall start to transmit the PRACH to Cell 2 less than 50 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + $T_{interrupt}$, where:

RRC procedure delay = 15 ms and is specified in section 11.2 in [2].

 $T_{interrupt} = 35$ ms in the test; $T_{interrupt}$ is defined in section 5.2.2.4.2.

This gives a total of 50 ms.

A.5.1.3 E-UTRAN FDD – FDD Inter frequency handover

A.5.1.3.1 Test Purpose and Environment

This test is to verify the requirement for the FDD-FDD inter-frequency handover requirements specified in section 5.1.2.1.

The test scenario comprises of two E-UTRA FDD carriers and one cell on each carrier as given in tables A.5.1.3.1-1 and A.5.1.3.1-2. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would not enter the DRX state. The test consists of three successive time periods, with time durations of T1, T2 and T3

respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-frequency monitoring.

A RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event A3. The start of T3 is the instant when the last TTI containing the RRC message implying handover is sent to the UE.

Table A.5.1.3.1-1: General test parameters for E-UTRAN FDD-FDD Inter frequency handover test case

Para	ameter	Unit	Value	Comment
PDSCH parameters			DL Reference Measurement	As specified in section A.3.1.1.1
			Channel R.0 FDD	
PCFICH/PDCCH/P	HICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1
			Channel R.6 FDD	
Initial conditions	Active cell		Cell 1	Cell 1 is on RF channel number 1
	Neighbouring cell		Cell 2	Cell 2 is on RF channel number 2
Final condition	Active cell		Cell 2	
E-UTRA RF chann	el number		1, 2	Two FDD carriers are used
Channel Bandwidth	n (BW _{channel})	MHz	10	
A3-Offset		dB	-4	
Hysteresis		dB	0	
TimeToTrigger		S	0	
Filter coefficient			0	L3 filtering is not used
DRX			DRX_L	As specified in section A.3.3
PRACH configurati	on		4	As specified in table 5.7.1-2 in 3GPP TS 36.211
Access Barring Info	ormation	-	Not sent	No additional delays in random access procedure
Time offset between cells			3 ms	Asynchronous cells
Gap pattern configuration Id			0	As specified in Table 8.1.2.1-1
				started before T2 starts
T1		S	5	
T2		S	≤5	
Т3		S	1	

Parameter	Unit	Cell 1			Cell 2		
		T1	T2	T3	T1	T2	Т3
E-UTRA RF Channel			1			2	
number							
BW _{channel}	MHz		10			10	
OCNG Patterns		OP.1	OP.1	OP.2 FDD	OP.2	OP.2 FDD	OP.1 FDD
defined in A.3.2.1.1		FDD	FDD		FDD		
(OP.1 FDD) and in							
A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB					-	
PHICH_RB	dB		0			0	
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
\hat{E}_{s}/I_{ot}	dB	4	4	4	-Infinity	<i>י</i> 7	7
N_{oc} Note 2	dBm/15 kHz			<u>.</u>	-98		
\hat{E}_{s}/N_{oc}	dB	4	4	4	-Infinity	· 7	7
RSRP Note 3	dBm/15 KHz	-94	-94	-94	-Infinity	/ -91	-91
Propagation Condition		AWGN					
Note 1: OCNG shall be use	d such that both cells	s are fully all	ocated and a	constant total trai	nsmitted powe	r spectral density	is achieved fo

Table A.5.1.3.1-2: Cell specific test parameters for E-UTRAN FDD-FDD Inter frequency handover test case

Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and

shall be modelled as AWGN of appropriate power for $\,N_{oc}\,$ to be fulfilled.

Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.5.1.3.2 Test Requirements

The UE shall start to transmit the PRACH to Cell 2 less than 50 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 15 ms and is specified in section 11.2 in [2].

 $T_{interrupt} = 35$ ms in the test; $T_{interrupt}$ is defined in section 5.1.2.1.2.

This gives a total of 50 ms.

A.5.1.4 E-UTRAN TDD – TDD Inter frequency handover

A.5.1.4.1 Test Purpose and Environment

This test is to verify the requirement for the TDD-TDD inter frequency handover requirements specified in section 5.2.2.4.

The test scenario comprises of two E-UTRA TDD carriers and one cell on each carrier as given in tables Table A.5.1.4.1-1 and Table A.5.1.4.1-2. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would not enter the DRX state. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

E-UTRAN shall send a RRC message implying handover to cell 2. The RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event A3.

Table A.5.1.4.1-1: General test parameters for E-UTRAN TDD-TDD Inter frequency handover test case

Para	meter	Unit	Value	Comment
			DL Reference Measurement	
PDSCH parameters			Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH			DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Gap Pattern Id			1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
E-UTRA RF chan	nel number		1, 2	Two TDD carriers are used
Channel Bandwid	lth (BW _{channel})	MHz	10	
A3-Offset		dB	-4	
Hysteresis		dB	0	
Time to Trigger		ms	0	
Filter coefficient			0	
DRX			DRX_L	As specified in section A.3.3
CP length			Normal	
Access Barring In	formation	-	Not Sent	No additional delays in random access procedure.
Special subframe	configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211
Uplink-downlink configuration			1	As specified in table 4.2-2 in 3GPP TS 36.211
PRACH configuration			53	As specified in table 5.7.1-3 in 3GPP TS 36.211
Time offset betwe	en cells		3 μs	Synchronous cells
T1		S	5	
T2		S	≤5	
T3		S	1	

Parameter	Unit	Cell 1			Cell 2			
		T1	T2	Т3	T1	T2	T3	
E-UTRA RF Channel			1	•		2		
number								
BW _{channel}	MHz		10			10		
OCNG Patterns		OP.1	OP.1	OP.2 FDD	OP.2	OP.2 FDD	OP.1 FDD	
defined in A.3.2.1.1		FDD	FDD		FDD			
(OP.1 FDD) and in								
A.3.2.1.2 (OP.2 FDD)								
PBCH_RA	dB	_						
PBCH_RB	dB	_						
PSS_RA	dB	_						
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB		0			0		
PHICH_RB	dB		0			0		
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB							
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{oc}$	dB	4	4	4	-Infinity	7	7	
$N_{oc}^{}$ Note 2	dBm/15 kHz	-98						
\hat{E}_s/N_{oc}	dB	4	4	4	-Infinity	7	7	
RSRP Note 3	dBm/15 KHz	-94	-94	-94	-infinity	-91	-91	
Propagation Condition		AWGN						

Table A.5.1.4.1-2: Cell specific test parameters for E-UTRAN TDD-TDD Inter frequency handover test case

Note 1. OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.

Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.5.1.4.2 Test Requirements

The UE shall start to transmit the PRACH to Cell 2 less than 50 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 15 ms and is specified in section 11.2 in [2].

 $T_{interrupt} = 35$ ms in the test; $T_{interrupt}$ is defined in section 5.2.2.4.2.

This gives a total of 50 ms.

A.5.1.5 E-UTRAN FDD – FDD Inter frequency handover: unknown target cell

A.5.1.5.1 Test Purpose and Environment

This test is to verify the FDD-FDD inter-frequency handover requirements for the case when the target cell is unknown as specified in section 5.1.2.1.

The test scenario comprises of two E-UTRA FDD carriers and one cell on each carrier as given in tables A.5.1.5.1-1 and A.5.1.5.1-2. No gap patterns are configured in the test case. The test consists of two successive time periods, with time durations of T1 and T2 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and start to transmit the PRACH to Cell 2.

A RRC message implying handover shall be sent to the UE during period T1. The start of T2 is the instant when the last TTI containing the RRC message implying handover is sent to the UE.

Table A.5.1.5.1-1: General test parameters for the E-UTRAN FDD-FDD Inter frequency handover test case when the target cell is unknown

Par	Parameter		Value	Comment
PDSCH parameter	rs		DL Reference Measurement	As specified in section A.3.1.1.1
-			Channel R.0 FDD	
PCFICH/PDCCH/F	PHICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1
			Channel R.6 FDD	
Initial conditions	Active cell		Cell 1	Cell 1 is on RF channel number 1
	Neighbouring cell		Cell 2	Cell 2 is on RF channel number 2
Final condition	Active cell		Cell 2	
E-UTRA RF chann	nel number		1, 2	Two FDD carriers are used
Channel Bandwidt	h (BW _{channel})	MHz	10	
DRX			OFF	Non-DRX test
PRACH configurat	ion		4	As specified in table 5.7.1-2 in
				3GPP TS 36.211
Access Barring Inf	ormation	-	Not sent	No additional delays in random
				access procedure
Time offset between cells			3 ms	Asynchronous cells
T1		S	≤5	
T2		S	1	

Parameter	Unit	Cel	1	Cel	2			
		T1	T2	T1	T2			
E-UTRA RF Channel		1		2				
number								
BW _{channel}	MHz	10)	10)			
OCNG Patterns		OP.1 FDD	OP.2 FDD	OP.2 FDD	OP.1 FDD			
defined in A.3.2.1.1								
(OP.1 FDD) and in								
A.3.2.1.2 (OP.2 FDD)								
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB							
PHICH_RB	dB	0		0				
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB							
\hat{E}_s/I_{ot}	dB	4	4	-Infinity	7			
$N_{_{oc}}$ Note 2	dBm/15 kHz			-98				
\hat{E}_s/N_{oc}	dB	4	4	-Infinity	7			
RSRP Note 3	dBm/15 KHz	-94	-94	-Infinity	-91			
Propagation Condition				AWGN				
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.								
Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.								
Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.								

Table A.5.1.5.1-2: Cell specific test parameters for the E-UTRAN FDD-FDD Inter frequency handover test case when the target cell is unknown

A.5.1.5.2 Test Requirements

The UE shall start to transmit the PRACH to Cell 2 less than 130 ms from the beginning of time period T2.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + $T_{interrupt}$, where:

RRC procedure delay = 15 ms, which is specified in section 11.2 in [2].

 $T_{interrupt}$ = 115 ms in the test. See section 5.1.2.1.2

This gives a total of 130 ms.

A.5.1.6 E-UTRAN TDD – TDD Inter frequency handover; unknown Target Cell

A.5.1.6.1 Test Purpose and Environment

This test is to verify the TDD-TDD inter-frequency handover requirements for the case when the target cell is unknown as specified in section 5.2.2.4.

The test scenario comprises of two E-UTRA TDD carriers and one cell on each carrier as given in tables A.5.1.6.1-1 and A.5.1.6.1-2. No gap patterns are configured in the test case. The test consists of two successive time periods, with time durations of T1, T2 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE receives a RRC handover command from the network. The start of T2 is the instant when the last TTI containing the RRC message implying handover is sent to the UE.

Table A.5.1.6.1-1: General test parameters for the E-UTRAN TDD-TDD Inter-Frequency handover test case when the target cell is unknown

Parameter		Unit	Value	Comment
PDSCH parameter	S		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.2.2.1
PCFICH/PDCCH/PHICH parameters			DL Reference Measurement Channel R.6 TDD	As specified in section A.3.2.2.2
Initial conditions	Active cell		Cell 1	Cell 1 is on RF channel number 1
	Neighbouring cell		Cell 2	Cell 2 is on RF channel number 2
Final condition	Active cell		Cell 2	
E-UTRA RF chann	el number		1, 2	Two TDD carriers
DRX			OFF	Non-DRX test
Access Barring Infe	ormation	-	Not sent	No additional delays in random
				access procedure
Special subframe of	configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211
Uplink-downlink co	nfiguration		1	As specified in table 4.2-2 in 3GPP TS 36.211
PRACH configuration			53	As specified in table 5.7.1-3 in 3GPP TS 36.211
Time offset between cells			3 μs	Synchronous cells
Gap pattern configuration			-	No gap pattern configured
T1		S	≤5	
T2		S	1	

Parameter	Unit	Ce	1	C	ell 2			
		T1	T2	T1	T2			
E-UTRA RF Channel					2			
Number								
BW _{channel}	MHz	1	0		10			
OCNG Patterns		OP.1 TDD	OP.2 TDD	OP.2 TDD	OP.1 TDD			
defined in A.3.2.2.1								
(OP.1 TDD) and in								
A.3.2.2.2 (OP.2 TDD)								
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB		`		0			
PHICH_RB	dB	()		0			
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB							
$N_{_{oc}}^{}$ Note 3	dBm/15 kHz			-98				
RSRP Note 4	dBm/15 kHz	-94	-94	-Infinity	-93			
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	-Infinity	5			
SCH_RP Note 4	dBm/15 kHz	-94	-94	-Infinity	-93			
\hat{E}_s/N_{oc}	dB	4	4	-Infinity	5			
Propagation Condition			A	WGN				
	e used such that bo	th cells are fully	allocated and a	constant total tra	ansmitted power			
	y is achieved for all							
	for uplink transmiss							
Note 3: Interference fro	from other cells and noise sources not specified in the test is assumed to be constant							
over subcarrie	rs and time and sha	all be modelled a	s AWGN of app	ropriate power fo	or $N_{_{oc}}$ to be			
fulfilled.								
	H_RP levels have t ettable parameters		m other parame	ters for information	on purposes.			

Table A.5.1.6.1-2: Cell specific test parameters for the E-UTRAN TDD-TDD Inter frequency handover test case when the target cell is unknown

A.5.1.6.2 Test Requirements

The UE shall start to transmit the PRACH to Cell 2 less than 130 ms from the beginning of time period T2. The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + $T_{interrupt}$, where:

RRC procedure delay = 15 ms, which is specified in section 11.2 in [2].

 $T_{interrupt}$ = 115 ms in the test. See section 5.2.2.4.2

This gives a total of 130 ms.

A.5.1.7 E-UTRAN FDD – TDD Inter frequency handover

A.5.1.7.1 Test Purpose and Environment

This test is to verify the requirement for the FDD-TDD inter frequency handover requirements specified in section 5.2.2.2.

The test scenario comprises of one E-UTRA FDD cell and one E-UTRA TDD cell as given in tables Table A.5.1.7.1-1, Table A.5.1.7.1-2 and Table A.5.1.7.1-3. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would not enter the DRX state. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2.

E-UTRAN shall send a RRC message implying handover to cell 2. The RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event A3.

Parar	neter	Unit	Value	Comment
Cell 1 PDSCH par			DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
Cell 1 PCFICH/PD parameters	OCCH/PHICH		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
parameters			DL Reference Measurement	
Cell 2 PDSCH par	ameters		Channel R.0 TDD	As specified in section A.3.1.1.2
Cell 2 PCFICH/PD	OCCH/PHICH		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Gap Pattern Id			0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
Cell 1 E-UTRA RF	channel number		1	One FDD carrier is used
Cell 2 E-UTRA RF			2	One TDD carrier is used
Channel Bandwidt		MHz	10	
A3-Offset		dB	-4	
Hysteresis		dB	0	
Time to Trigger		ms	0	
Filter coefficient			0	
DRX			DRX_L	As specified in section A.3.3
CP length			Normal	
E-UTRA FDD Acc Information	ess Barring	-	Not Sent	No additional delays in random access procedure.
E-UTRA TDD Acc Information	ess Barring	-	Not Sent	No additional delays in random access procedure.
Special subframe	configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211. Applicable to cell 2.
Uplink-downlink co	onfiguration		1	As specified in table 4.2-2 in 3GPP TS 36.211. Applicable to cell 2
E-UTRA FDD PRACH configuration			4	As specified in table 5.7.1-2 in 3GPP TS 36.211
E-UTRA TDD PR/	ACH configuration		53	As specified in table 5.7.1-3 in 3GPP TS 36.211
Time offset betwe	en cells		3 ms	Asynchronous cells
T1		S	5	
T2		S	≤5	
T3		S	1	

Table A.5.1.7.1-1: General test parameters for E-UTRAN FDD-TDD Inter frequency handover test case

Table A.5.1.7.1-2: Cell specific test parameters for E-UTRAN FDD (cell #1) in E-UTRAN FDD-TDD Inter frequency handover test case

Parameter	Unit	Cell 1		
		T1	T2	Т3
E-UTRA RF Channel number			1	
BW _{channel}	MHz		10	
OCNG Patterns defined in A.3.2.1.1 (OP.1 FDD) and in A.3.2.1.2 (OP.2 FDD)		OP.1 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB		-	
PHICH_RB	dB		0	
PDCCH_RA	dB			
PDCCH_RB	dB			

-							
PDSCH_	RA	dB					
PDSCH_RB		dB					
OCNG_F	RA ^{Note 1}	dB					
OCNG_F	RB ^{Note 1}	dB					
\hat{E}_s/I_{ot}		dB	4	4	4		
N_{oc} Note	2	dBm/15 kHz		-98			
\hat{E}_s / N_{oc}		dB	4	4	4		
RSRP Not	te 3	dBm/15 KHz	-94	-94	-94		
Propagat	tion Condition		AWGN				
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power							
for N_{oc} to be fulfilled.							
Note 3:	Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameter themselves.						

 Table A.5.1.7.1-3: Cell specific test parameters for E-UTRAN TDD (cell #2) in E-UTRAN FDD-TDD Inter

 frequency handover test case

Parameter	Unit		Cell 2					
		T1	T2	T3				
E-UTRA RF Channel number			2					
BW _{channel}	MHz		10					
OCNG Patterns defined in		OP.2 TDD	OP.2 TDD	OP.1 TDD				
A.3.2.2.1 (OP.1 TDD) and in								
A.3.2.2.2 (OP.2 TDD)								
PBCH_RA	dB	_						
PBCH_RB	dB	_						
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB		0					
PHICH_RB	dB		0					
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB			-				
\hat{E}_s/I_{ot}	dB	-Infinity	7	7				
$N_{_{oc}}$ Note 2	dBm/15 kHz		-98					
\hat{E}_{s}/N_{oc}	dB	-Infinity	7	7				
RSRP ^{Note 3}	dBm/15 KHz	-Infinity	-91	-91				
Propagation Condition		AWG	N					
Note 1: OCNG shall be use	d such that both cells a	re fully allocated	and a constant	total				
transmitted power s	transmitted power spectral density is achieved for all OFDM symbols.							
	Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power							
for $N_{_{oc}}$ to be fulfille	for N_{oc} to be fulfilled.							
	een derived from other arameter themselves.	r parameters for	information purp	ooses. They				

A.5.1.7.2 Test Requirements

The UE shall start to transmit the PRACH to Cell 2 less than 50 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 15 ms and is specified in section 11.2 in [2].

 $T_{interrupt} = 35$ ms in the test; $T_{interrupt}$ is defined in section 5.2.2.4.2.

This gives a total of 50 ms.

A.5.1.8 E-UTRAN TDD – FDD Inter frequency handover

A.5.1.8.1 Test Purpose and Environment

This test is to verify the requirement for the TDD-FDD inter-frequency handover requirements specified in section 5.2.2.3.

The test scenario comprises of one E-UTRA TDD cell and one E-UTRA FDD cell as given in tables Table A.5.1.8.1-1, Table A.5.1.8.1-2 and Table A.5.1.8.1-3. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would not enter the DRX state. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-frequency monitoring.

A RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event A3. The start of T3 is the instant when the last TTI containing the RRC message implying handover is sent to the UE.

Table A.5.1.8.1-1: General test parameters for E-UTRAN TDD-FDD Inter frequency handover test case

Parameter		Unit	Value	Comment
Cell 1 PDSCH para	ameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
Cell 1 PCFICH/PD	CCH/PHICH		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Cell 2 PDSCH para	ameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
Cell 2 PCFICH/PD parameters	CCH/PHICH		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Initial conditions	Active cell		Cell 1	Cell 1 is on RF channel number 1
	Neighbouring cell		Cell 2	Cell 2 is on RF channel number 2
Final condition	Active cell		Cell 2	
Cell 1 E-UTRA RF	channel number		1	One TDD carrier is used
Cell 2 E-UTRA RF	channel number		2	One FDD carrier is used
Channel Bandwidth	ו (BW _{channel})	MHz	10	
A3-Offset		dB	-4	
Hysteresis		dB	0	
TimeToTrigger		S	0	
Filter coefficient			0	L3 filtering is not used
DRX			DRX_L	As specified in section A.3.3
E-UTRA TDD PRA	CH configuration		53	As specified in table 5.7.1-3 in 3GPP TS 36.211
E-UTRA FDD PRA	CH configuration		4	As specified in table 5.7.1-2 in 3GPP TS 36.211
E-UTRA TDD Acce	ess Barring	-	Not sent	No additional delays in random access procedure
E-UTRA FDD Access Barring		-	Not sent	No additional delays in random access procedure
Time offset between cells			3 ms	Asynchronous cells
Gap pattern configuration Id			0	As specified in Table 8.1.2.1-1 started before T2 starts
T1		s	5	
T2		s	≤5	
Т3		S	1	

Parameter	Unit	Cell 1			
		T1	T2	T3	
E-UTRA RF Channel number			1		
BW _{channel}	MHz		10		
OCNG Patterns defined in		OP.1 TDD	OP.1 TDD	OP.2 TDD	
A.3.2.2.1 (OP.1 TDD) and in					
A.3.2.2.2 (OP.2 TDD)					
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB		0		
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				
\hat{E}_{s}/I_{ot}	dB	4	4	4	
N_{oc} Note 2	dBm/15 kHz		-98		
\hat{E}_s/N_{oc}	dB	4	4	4	
RSRP ^{Note 3}	dBm/15 KHz	-94	-94	-94	
Propagation Condition		AWG	N		
Note 1: OCNG shall be used such the spectral density is achieved		ocated and a cons	tant total transmit	ted power	
Note 2: Interference from other cells		specified in the tes	t is assumed to be	e constant over	
subcarriers and time and sh	all be modelled as AWC	GN of appropriate p	power for $N_{_{oc}}$ to	be fulfilled.	
Note 3: RSRP levels have been deriv parameter themselves.	ved from other parameter	ers for information	purposes. They a	re not settable	

Table A.5.1.8.1-2: Cell specific test parameters for E-UTRAN TDD (cell #1) in E-UTRAN TDD-FDD Inter frequency handover test case

Table A.5.1.8.1-3: Cell specific test parameters for E-UTRAN FDD (cell #2) in E-UTRAN TDD-FDD Inter frequency handover test case

Parameter	Unit		Cell 2	ell 2	
		T1	T2	T3	
E-UTRA RF Channel number			2		
BW _{channel}	MHz		10		
OCNG Patterns defined in A.3.2.1.1 (OP.1 FDD) and in A.3.2.1.2 (OP.2 FDD)		OP.2 FDD	OP.2 FDD	OP.1 FDD	
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB		_		
PHICH_RB	dB		0		
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB]			
PDSCH_RB	dB]			
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				

\hat{E}_s/I_{ot}	dB -Infinity 7		7		
N_{oc} Note 2	dBm/15 kHz	-98			
\hat{E}_{s}/N_{oc}	dB -Infinity 7			7	
RSRP ^{Note 3}	dBm/15 KHz	-Infinity	-91	-91	
Propagation Condition	AWGN				
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over					
subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.					
Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameter themselves.					

A.5.1.8.2 Test Requirements

The UE shall start to transmit the PRACH to Cell 2 less than 50 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 15 ms and is specified in section 11.2 in [2].

 $T_{interrupt} = 35$ ms in the test; $T_{interrupt}$ is defined in section 5.1.2.1.2.

This gives a total of 50 ms.

A.5.2 E-UTRAN Handover to other RATs

A.5.2.1 E-UTRAN FDD – UTRAN FDD Handover

A.5.2.1.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN FDD to UTRAN FDD handover requirements specified in section 5.3.1.

The test parameters are given in Tables A.5.2.1.1-1, A.5.2.1.1-2 and A.5.2.1.1-3. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of Cell 2. Starting T2, Cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-RAT frequency monitoring.

A RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event B2. The start of T3 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. The handover message shall contain cell 2 as the target cell.

Table A.5.2.1.1-1: General test parameters for E-UTRAN FDD to UTRAN FDD handover test case

Para	imeter	Unit	Value	Comment
PDSCH parameters	3		DL Reference Measurement	As specified in section A.3.1.1.1
•			Channel R.0 FDD	
PCFICH/PDCCH/P	HICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1
	·		Channel R.6 FDD	
Initial conditions	Active cell		Cell 1	E-UTRAN cell
	Neighbouring cell		Cell 2	UTRAN cell
Final condition	Active cell		Cell 2	UTRAN cell
Channel Bandwidth	(BW _{channel})	MHz	10	
Gap Pattern Id			0	As specified in Table 8.1.2.1-1 started before T2 starts
E-UTRAN FDD me	asurement quantity		RSRP	
Inter-RAT (UTRAN	FDD) measurement		CPICH Ec/N0	
quantity				
b2-Threshold1		dBm	-90	Absolute E-UTRAN RSRP
				threshold for event B2
b2-Threshold2-UTF	RA	dB	-18	Absolute UTRAN CPICH Ec/N0
				threshold for event B2
Hysteresis		dB	0	
TimeToTrigger		s	0	
Filter coefficient			0	L3 filtering is not used
DRX			OFF	Non-DRX test
Access Barring Info	ormation	-	Not sent	No additional delays in random access procedure
E-UTRA RF Chann	el Number		1	One E-UTRA FDD carrier
				frequency is used.
E-UTRA Channel B	andwidth	MHz	10	
(BWchannel)			-	
UTRA RF Channel	Number		1	One UTRA FDD carrier frequency
				is used.
Monitored UTRA FDD cell list size			12	UTRA cells on UTRA RF channel
				1 provided in the cell before T2.
Post-verification pe	riod		False	
T1		s	5	
T2		s	≤5	
Т3		s	1	
-		1.7	-	

Parameter	Unit	(Cell 1 (E-UT	RA)				
		T1	T2	Т3				
E-UTRA RF Channel			1					
number								
BW _{channel}	MHz 10							
OCNG Patterns		OP.1	OP.1	OP.2				
defined in A.3.2.1.1		FDD	FDD	FDD				
(OP.1 FDD) and in								
A.3.2.1.2 (OP.2 FDD)								
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB							
PHICH_RB	dB	0						
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RANote 1	dB							
OCNG_RB ^{Note 1}	dB							
\hat{E}_{s}/I_{ot}	dB	0 0 0						
N_{oc}	dBm/15 kHz		-98					
\hat{E}_{s}/N_{oc}	dB	0	0	0				
RSRP Note 2	dBm/15 KHz	-98	-98	-98				
lo ^{Note 2}	dBm/9 MHz	-67.21	-67.21	-67.21				
Propagation Condition	AWGN							
Note 1: OCNG shall be used such that both cells are fully allocated and a								
constant total transmitted power spectral density is achieved for all								
OFDM symbols.								
information pu	irposes. They are	not settable	e parameters	themselves.				

Table A.5.2.1.1-2: Cell specific test parameters for E-UTRAN FDD to UTRAN FDD handover test case (cell 1)

Table A.5.2.1.1-3: Cell specific test parameters for E-UTRAN FDD to UTRAN FDD handover test case (cell 2)

Parameter	Unit	Ce	A)		
		T1	T2	T3	
CPICH_Ec/lor	dB	-10			
PCCPCH_Ec/lor	dB	-12			
SCH_Ec/lor	dB	-12			
PICH_Ec/lor	dB	-15			
DCH_Ec/lor	dB	N/A	N/A	Note 1	
OCNS_Ec/lor	dB	-0.941	0.941	Note 2	
\hat{I}_{or}/I_{oc}	dB	-infinity	-1.8	-1.8	
I _{oc}	dBm/3,84 MHz	-70	-70	-70	
CPICH_Ec/lo	dB	-infinity	-14	-14	
Propagation Condition	on AWGN				
Note 1: The DPCH level is controlled by the power control loop					
Note 2: The power of the OCNS channel that is added shall make					
the total powe	er from the cell t	o be equal to	ol _{or.}		

A.5.2.1.2 Test Requirements

The UE shall start to transmit the UL DPCCH to Cell 2 less than 190 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 50 ms, which is specified in section 5.3.1.1.1.

 $T_{interrupt} = 140$ ms in the test; $T_{interrupt}$ is defined in section 5.3.1.1.2.

This gives a total of 190 ms.

A.5.2.2 E-UTRAN TDD - UTRAN FDD Handover

A.5.2.2.1 Test Purpose and Environment

This test is to verify the E-UTRAN TDD – UTRAN FDD handover requirements specified in section 5.3.1.

The test scenario comprises of one E-UTRAN TDD cell and one UTRAN FDD cell as given in the tables A.5.2.2.1-1, A5.2.2.1-2 and A.5.2.2.1-3. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. At start of time duration T1, the UE does not have any timing information of cell 2. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before the start of T2 to enable the monitoring of UTRAN FDD. A neighbouring cell list, including the UTRAN cell (cell2), shall be sent to the UE before T2 starts. During the time T2 cell 2 becomes detectable and the UE is expected to detect and send the measurement report. A RRC message implying handover shall be sent to the UE during T2, after the UE has reported event B2. The start of T3 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. The handover message shall contain cell 2 as the target cell.

Par	ameter	Unit	Value	Comment
·	ers (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/ (E-UTRAN TDD)	PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Initial conditions	Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
	Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
Final conditions	Active cell		Cell 2	
Special subframe	configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211. Applicable to cell 1.
Uplink-downlink c	onfiguration		1	As specified in table 4.2-2 in 3GPP TS 36.211. Applicable to cell 1
E-UTRAN TDD m	easurement quantity		RSRP	
Inter-RAT (UTRA quantity	FDD) measurement		CPICH Ec/lo	
b2-Threshold1		dBm	-90	Absolute E-UTRAN RSRP threshold for event B2
b2-Threshold2-U1	ſRA	dB	-18	UTRAN FDD CPICH Ec/lo threshold for event B2
Hysteresis		dB	0	
DRX			OFF	No DRX configured.
Time to Trigger		ms	0	
Filter coefficient			0	
CP length			Normal	Applicable to cell 1
Gap pattern config	guration Id		0	As specified in Table 8.1.2.1-1; to start before T2 starts
E-UTRA RF Char	nel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel (BW _{channel})		MHz	10	
UTRA RF Channe	el Number		1	One UTRA FDD carrier frequency is used.
Monitored UTRA	FDD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list before T2.
Post-verification p	eriod		False	Post verification is not used.
T1		S	5	
T2		s	≤5	
Т3		s	1	

Table A.5.2.2.1-1: General test parameters for E-UTRAN TDD-UTRAN FDD handover

Parameter	Unit		Cell 1 (E-UTRAN)			
		T1	T2	T3		
E-UTRA RF Channel			1			
Number						
BW _{channel}	MHz		10			
OCNG Pattern defined						
in A.3.2.2.1 (OP.1 TDD)		OP.1	חחד	OP.2 TDD		
and in A.3.2.2.2 (OP.2		01.1		01.2100		
TDD)						
PBCH_RA						
PBCH_RB						
PSS_RA						
SSS_RA						
PCFICH_RB						
PHICH_RA						
PHICH_RB	dB	0				
PDCCH_RA						
PDCCH_RB						
PDSCH_RA						
PDSCH_RB						
OCNG_RA ^{Note 1}						
OCNG_RB ^{Note 1}						
RSRP ^{Note 2}	dBm/15 kHz	-98	-98	-98		
\hat{E}_{s}/I_{ot}	dB	0	0	0		
-s/ ot						
\hat{E}_s/N_{oc}	dB	0	0	0		
\$7 00						
N _{oc}	dBm/15 kHz		-98			
lo Note 2	dBm/9 MHz	-67.21	-67.21	-67.21		
Propagation Condition	AWGN					
Note 1: OCNG shall be used such that the cell is fully allocated and a constant total transmitted						
	power spectral density is achieved for all OFDM symbols.					
		derived from other p	parameters for inform	mation purposes.		
They are not se	ettable parameter	rs themselves.				

Table A.5.2.2.1-2: Cell specific test parameters for E-UTRAN TDD (cell 1) for handover to UTRAN FDD (cell # 2)

Table A.5.2.2.1-3: Cell specific test parameters for UTRAN FDD (cell # 2) for handover from E-UTRAN TDD cell (cell #1)

Parameter	Unit	Cell 1 (UTRA)		
		T1	T2	Т3
CPICH_Ec/lor	dB		-10	1
PCCPCH_Ec/lor	dB		-12	
SCH_Ec/lor	dB		-12	
PICH_Ec/lor	dB		-15	
DPCH_Ec/lor	dB	N/A	N/A	Note 1
OCNS	dB	-0.941	-0.941	Note 2
\hat{I}_{or}/I_{oc}	dB	-infinity	-1.8	-1.8
I _{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/lo	dB	-infinity	-14	-14
Propagation AWGN				
Note 1:The DPCH level is controlled by the power control loopNote 2:The power of the OCNS channel that is added shall make the total power from the cell to be equal to I or.				

A.5.2.2.2 Test Requirements

The UE shall start to transmit the UL DPCCH to Cell 2 less than 190 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 50 ms, which is specified in section 5.1.1.1.1.

 $T_{interrupt} = 140$ ms in the test; $T_{interrupt}$ is defined in section 5.3.1.1.2.

This gives a total of 190 ms.

A.5.2.3 E-UTRAN FDD- GSM Handover

A.5.2.3.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN to GSM cell handover delay specified in section 5.3.3.

The test parameters are given in Table A.5.2.3.1 -1, A.5.2.3.1 -2 and A.5.2.3.1 -3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 shall be used. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

The RRC message implying handover to cell 2 shall be sent to the UE during period T2, after the UE has reported Event B1. The start of T3 is defined as the end of last E-UTRAN TTI containing the RRC message implying handover.

The requirements are also applicable for a UE not requiring measurement gap, in which case no measurement gap pattern should be sent for the parameters specified in Table A.5.2.3.1 -1.

Para	meter	Unit	Value	Comment
PDSCH parameters			DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH, parameters	PHICH		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Gap Pattern Id			1	As specified in TS 36.133 section8.1.2.1.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
Inter-RAT measu	rement quantity		GSM Carrier RSSI	
Threshold other s	system	dBm	-80	Absolute GSM carrier RSSI threshold for event B1.
Hysteresis		dB	0	
Time to Trigger		ms	0	
Filter coefficient			0	L3 filtering is not used
DRX				OFF
T1		S	20	
T2		S	7	
Т3		S	1	

Table A.5.2.3.1 -1: General test parameters for E-UTRAN FDD-GSM handover

Parameter	Unit	Се	ll 1	
		T1, T2	T3	
BW _{channel}	MHz	10	•	
OCNG Patterns				
defined in A.3.2.1.1				
(OP.1 FDD) and in		OP.1 FDD	OP.2 FDD	
A.3.2.1.2 (OP.2				
FDD)				
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB	0		
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA ^{Note1}	dB			
OCNG_RB ^{Note1}	dB			
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	4		
N_{oc} Note 2	dBm/15 kHz	-98 (AWGN)		
\hat{E}_{s}/N_{oc}	dB	4		
RSRP ^{Note 3}	dBm/15kH z	-94		
Propagation Condition		AWGN		
Note 1: OCNG shall be used such that cell 1 is fully allocated and a constant total				
transmitted power spectral density is achieved for all OFDM symbols.				
Note 2: Interference from other cells and noise sources not specified in the test is				
assumed to be constant over subcarriers and time and shall be modelled as				
AWGN of appropriate power for ${}^{N_{oc}}$ to be fulfilled.				
		derived from other parameters themse		

Table A. A.5.2.3.1 - 2: Cell Specific Parameters for Handover from E- UTRAN FDD to GSM cell case (cell 1)

Table A.5.2.3.1 - 3: Cell Specific Parameters for Handover from E-UTRAN FDD to GSM cell case (cell 2)

Parameter	Unit	Cell	2 (GSM)
Falametei	Unit	T1	T2, T3
Absolute RF Channel Number		ARFCN 1	
RXLEV	dBm	-85	-75

A.5.2.3.2 Test Requirements

The UE shall begin to send access bursts on the new DCCH of the target cell less than 100 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this test case is expressed as:

 $T_{\text{Handover delay}} = 90 \text{ ms} (\text{Table 5.3.3.2.1-1}) + T_{\text{offset}} + T_{\text{UL}}$

- T_{offset}: Equal to 4.65 ms, GSM timing uncertainty between the time from when the UE is ready to transmit until the start of the next timeslot in GSM 26 multiframe structure
- T_{UL} : Equal to 4.65 ms, the time the UE has to wait in case the next timeslot is an idle frame or a SACCH frame.

This gives a total of 99.3 ms, allow 100 ms in the test case.

A.5.2.4 E-UTRAN TDD - UTRAN TDD Handover

A.5.2.4.1 Test Purpose and Environment

- A.5.2.4.1.1 Void
- A.5.2.4.1.2 1.28 Mcps TDD option

This test is to verify the requirement for E-UTRAN TDD to UTRAN TDD handover requirements specified in section 5.3.2.

The test scenario comprises of 1 E-UTRA TDD cell and 1 UTRA TDD cell as given in tables Table A.5.2.4.1.2-1, Table A.5.2.4.1.2-2, and Table A.5.2.4.1.2-3. Gap pattern configuration #0 as defined in table 8.1.2.1-1 is provided.

The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively.

E-UTRAN shall send a RRC message implying handover to UE. The RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event B2. The end of the last TTI containing handover message is begin of T3 duration.

Parameter	Parameter		Value	Comment
PDSCH parameters			DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDC0 parameters	CH/PHICH		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Initial	Active cell		Cell 1	E-UTRA TDD cell
conditions	Neighbour cell		Cell 2	UTRA 1.28Mcps TDD Cell
Final conditions	Active cell		Cell 2	
Gap Pattern Id			0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Uplink-downlin of cell 1	k configuration		1	As specified in table 4.2.2 in TS 36.211
Special subfra of cell 1	me configuration		6	As specified in table 4.2.1 in TS 36.211
CP length of c	ell 1		Normal	
Time offset be	tween cells		3 ms	Asynchronous cells
Access Barring	g Information		Not Sent	No additional delays in random access procedure.
Assigned Sub- Number	Channel		1	No additional delays in random access procedure due to ASC.

Table A.5.2.4.1.2-1: General test parameters for E-UTRA TDD to UTRA(1.28 Mcps TDD OPTION) handover test case

Hysteresis	dB	0	
Time To Trigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
Ofn	dB	0	
Thresh1	dBm	-93	E-UTRA event B2 threshold
Thresh2	dBm	-80	UTRA event B2 threshold
T1	s	5	
T2	S	≤10	
T3	S	1	

Table A.5.2.4.1.2-2: Cell specific test parameters for E-UTRA TDD to UTRA TDD handover test case
(cell 1)

Parameter	Unit		Cell 1		
		T1	T2	Т3	
E-UTRA RF Channel			1		
Number					
BW _{channel}	MHz		10		
OCNG Pattern defined in					
A.3.2.2.1 (OP.1 TDD)			TDD	OP.2	
and in A.3.2.1.2 (OP.2		UF.1	IDD	TDD	
TDD)			r		
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RB	dB				
SSS_RB	dB				
PCFICH_PA	dB				
PHICH_PA	dB				
PHICH_PB	dB	0	0	0	
PDCCH_PA	dB				
PDCCH_PB	dB				
PDSCH_PA	dB				
PDSCH_PB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	13	-3	-3	
\hat{E}_{s}/N_{oc}	dB	13	-3	-3	
N _{oc}	dBm/15kHz		-98		
RSRP Note 2	dBm/15kHz	-85	-101	-101	
SCH_RP Note 2	dBm/15 kHz	-85	-101	-101	
lo Note 2	dBm/9MHz	-57.01	-68.45	-68.45	
Propagation Condition AWGN					
Note 1:OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:RSRP, SCH_RP and lo levels have been derived from other					
parameters for information purposes. They are not settable parameters themselves.					

Table A.5.2.4.1.2-3: Cell specific test parameters for cell search E-UTRA to UTRA case (cell 2)

Parameter	Unit			Cell 2 (UT	RA)		
Timeslot Number		0				DwPTS	
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number Note 1				Channe	12		
PCCPCH_Ec/lor	dB		-3				
DwPCH_Ec/lor	dB					0	
OCNS_Ec/lor	dB		-3				
\hat{I}_{or}/I_{oc}	dB	-3	11	11	-3	11	11
I _{oc}	dBm/1.28 MHz			-80			
PCCPCH RSCP Note	² dBm	-86	-72	-72		n.a.	
Io Note 2	dBm/1.28 MHz	-78.24	-68.67	-68.67			
Propagation Condition		AWGN					
Note 1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number.							
Note 2: PCCPCH_RSCP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

A.5.2.4.1.3 Void

A.5.2.4.2 Test Requirements

A.5.2.4.2.1 Void

A.5.2.4.2.2 1.28 Mcps TDD option

The UE shall start to transmit the SYNCH-UL sequence in the UpPTS to Cell 2 less than 120 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 50 ms, which is specified in section 5.3.2.2.1.

 $T_{interrupt}$ is defined in section 5.3.2.2.2. $T_{interrupt} = 70$ ms in the test as following:

 $T_{interrupt1} = T_{offset} + T_{UL} + 30*F_{SFN} + 20 + 10*F_{max} ms$

 $T_{offset} = 10 \text{ ms}; T_{UL} = 10 \text{ ms}; \text{ and } F_{SFN} = 1 \text{ for UE decoding SFN}; F_{max} = 0 \text{ for SYNCH-UL sequence transmittion}.$

This gives a total of 120 ms.

A.5.2.4.2.3 Void

A.5.2.5 E-UTRAN FDD – UTRAN TDD Handover

A.5.2.5.1 Test Purpose and Environment

A.5.2.5.1.1 Void

A.5.2.5.1.2 1.28 Mcps TDD option

This test is to verify the requirement for the E-UTRAN FDD to UTRAN TDD handover requirements specified in section 5.3.2.

The test scenario comprises of two cells, E-UTRA TDD cell1 and UTRA TDD cell2. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of Cell 2. Starting T2, Cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #1 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-RAT frequency monitoring. The test parameters are given in Tables A.5.2.5.1-1, A.5.2.5.1-2 and A.5.2.5.1-3.

A RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event B2. The start of T3 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. The handover message shall contain cell 2 as the target cell.

Parameter		Unit	Value	Comment
	PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/	/PHICH		DL Reference Measurement	As specified in section A.3.1.2.1
parameters			Channel R.6 FDD	
Initial conditions	Active cell		Cell 1	E-UTRA FDD cell
	Neighbour cell		Cell 2	UTRA 1.28Mcps TDD Cell
Final conditions	Active cell		Cell 2	
Gap Pattern Id			1	As specified in 3GPP TS 36.133 section 8.1.2.1.
E-UTRAN FDD m quantity	neasurement		RSRP	
UTRAN TDD mea quantity			RSCP	
CP length of cell	1		Normal	
Access Barring In	formation		Not Sent	No additional delays in random access procedure.
Assigned Sub-Ch	annel Number		1	No additional delays in random access procedure due to ASC.
Hysteresis		dB	0	
Time To Trigger		S	0	
Filter coefficient			0	L3 filtering is not used
DRX			OFF	
Ofn		dB	0	
Thresh1		dBm	-93	Absolute E-UTRAN RSRP threshold for event B2
Thresh2		dBm	-80	Absolute UTRAN RSCP threshold for event B2
T1	T1		5	
T2		S	≤ 10	
Т3		S	1	

Table A.5.2.5.1.2-1: General test parameters for E-UTRA FDD to UTRA (1.28 Mcps TDD option) handover test case

Parameter	Unit		Ce	ell 1 (E-UT	RA)	
		T1		T2		Т3
E-UTRA RF Channel				1		
number						
BW _{channel}	MHz			10		
OCNG Patterns		OP.1 FD	D	OP.1 FDD		OP.2
defined in A.3.2.1.1						FDD
(OP.1 FDD) and in						
A.3.2.1.2 (OP.2 FDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB			0		
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					-
\hat{E}_{s}/N_{oc}	dB	13		-3		-3
N _{oc}	dBm/15 kHz			-98		
\hat{E}_{s}/I_{ot}	dB	13		-3		-3
PSPD Note 2	dBm/15 KHz	-85		-101		-101
lo Note 2	dBm/9MHz	-57.0	1	-68.4	5	-68.45
Propagation Condition				AWGN		
	e used such that I					
 total transmitted power spectral density is achieved for all OFDM symbols. Note 2: RSRP and lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves. 						

Table A.5.2.5.1.2-2: Cell specific test parameters for E-UTRAN FDD to UTRAN (1.28 Mcps TDD option) handover test case (cell 1)

Table A.5.2.5.1.2-3: Cell specific test parameters for E-UTRAN FDD to UTRAN (1.28 Mcps TDD option) handover test case (cell 2)

Parameter	Unit	Cell 2 (UTRA)					
Timeslot Number			0 DwPTS			DwPTS	
		T1	T2	T3	T1	T2	T3
UTRA RF Channel Number		Channel 2					
PCCPCH_Ec/lor	dB		-3				
DwPCH_Ec/lor	dB					0	
OCNS_Ec/lor	dB		-3				
\hat{I}_{or}/I_{oc}	dB	-3	11	11	-3	11	11
I _{oc}	dBm/1.28 MHz			-80			
PCCPCH RSCP Note 2	dBm	-86	-72	-72		n.a.	
lo Note 2	dBm/1.28 MHz	-78.24	-68.67	-68.67			
Propagation Condition		AWGN					
Note 1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number.							
		els have been derived from other parameters for information able parameters themselves.					

A.5.2.5.1.3 Void

A.5.2.5.2 Test Requirements

A.5.2.5.2.1 Void

A.5.2.5.2.2 1.28 Mcps TDD option

The UE shall start to transmit the SYNCH-UL sequence in the UpPTS to Cell 2 less than 120 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 50 ms, which is specified in section 5.3.2.2.1.

 $T_{interrupt}$ is defined in section 5.3.2.2.2. $T_{interrupt} = 70$ ms in the test as following:

 $T_{interrupt1} = T_{offset} + T_{UL} + 30*F_{SFN} + 20 + 10*F_{max} ms$

 $T_{offset} = 10 \text{ ms}; T_{UL} = 10 \text{ ms}; and F_{SFN} = 1 \text{ for UE decoding SFN}; F_{max} = 0 \text{ for SYNCH-UL sequence transmition}.$

This gives a total of 120 ms.

A.5.2.5.2.3 Void

A.5.2.6 E-UTRAN TDD - GSM Handover

A.5.2.6.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN to GSM cell handover delay specified in section 5.3.3.

The test parameters are given in Table A.5.2.6.1-1, A.5.2.6.1-2 and A.5.2.6.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 shall be used. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. At the start of time duration T1, the UE may not have any timing information of cell 2.

The RRC message implying handover to cell 2 shall be sent to the UE during period T2, after the UE has reported Event B1. The start of T3 is defined as the end of last E-UTRAN TTI containing the RRC message implying handover.

The requirements are also applicable for a UE not requiring measurement gap, in which case no measurement gap pattern should be sent for the parameters specified in Table A.5.2.6.1-1.

Table A.5.2.6.1-1: General test parameters for E-UTRAN TDD toGSM neighbours handover test case in AWGN propagation condition

Pa	rameter	Unit	Value	Comment
PDSCH paramete	ers		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH,	PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Gap Pattern Id			1	As specified in TS 36.133 section 8.1.2.1.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
Uplink-downlink o	configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe	configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
CP length of cell	1		Normal	
Inter-RAT measu	rement quantity		GSM Carrier RSSI	
E-UTRA RF Char	nnel Number		1	E-UTRA RF Channel Number
E-UTRA Channel (BW _{channel})	Bandwidth	MHz	10	E-UTRA Channel Bandwidth (BW _{channel})
Threshold other s	system	dBm	-80	Absolute GSM carrier RSSI threshold for event B1.
Hysteresis		dB	0	
Time to Trigger		ms	0	
Filter coefficient			0	L3 filtering is not used
DRX			OFF	
T1		S	20	
T2		S	7	
T3		S	1	

l	Parameter	Unit	Cell 1				
			T1, T2	Т3			
E-UTRA RF	Channel Number			1			
BW _{channel}		MHz	10				
OCNG Patt	erns defined in						
A.3.2.2.1 (C	OP.1 TDD) and in		OP.1 TDD	OP.2 TDD			
A.3.2.2.2 (C	DP.2 TDD)						
PBCH_RA		dB					
PBCH_RB		dB					
PSS_RA		dB					
SSS_RA		dB					
PCFICH_R		dB					
PHICH_RA		dB					
PHICH_RE		dB	(0			
PDCCH_R		dB dB					
	PDCCH_RB						
PDSCH_R		dB					
PDSCH_RB		dB dB					
OCNG_RA	OCNG_RA ^{Note1}						
\hat{E}_{s}/N_{oc}		dB		4			
$N_{_{oc}}$ Note 2		dBm/15 kHz	-98 (A	WGN)			
\hat{E}_{s}/I_{ot}		dB		4			
RSRP ^{Note 3}		dBm/15kHz	-{	94			
Propagation	n Condition		AW	/GN			
	NOTE 1: OCNG shall be used such that cell 1 is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.						
	over subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be						
fulfilled. Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

Table A.5.2.6.1-2: Cell Specific Parameters for Handover E- UTRAN TDD to GSM handover test case

Table A.5.2.6.1-3: Cell Specific Parameters for Handover E-UTRAN to GSM cell case (cell 2)

Parameter	Unit	Cell	2 (GSM)	
Falametei	Unit	T1	T2, T3	
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-85	-75	

A.5.2.6.2 Test Requirements

The UE shall begin to send access bursts on the new DCCH of the target cell less than 100 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this test case is expressed as:

 $T_{\text{Handover delay}} = 90 \text{ ms} (\text{Table 5.3.3.2.1-1}) + T_{\text{offset}} + T_{\text{UL}}$

- T_{offset}: Equal to 4.65 ms, GSM timing uncertainty between the time from when the UE is ready to transmit until the start of the next timeslot in GSM 26 multiframe structure
- T_{UL} : Equal to 4.65 ms, the time the UE has to wait in case the next timeslot is an idle frame or a SACCH frame.

This gives a total of 99.3 ms, allow 100 ms in the test case.

A.5.2.7 E-UTRAN FDD – UTRAN FDD Handover; Unknown Target Cell

A.5.2.7.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN FDD to UTRAN FDD handover requirements for the case when the target cell is unknown as specified in section 5.3.1.

The test parameters are given in Tables A.5.2.7.1-1, A.5.2.7.1-2 and A.5.2.7.1-3. The test consists of two successive time periods, with time durations of T1, T2. At the start of time duration T1, the UE does not have any timing information of Cell 2. Starting T2, cell 2 becomes detectable and the UE receives a RRC handover command from the network. The start of T2 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. No Gap pattern configuration shall be used.

Table A.5.2.7.1-1: General test parameters for E-UTRAN FDD to UTRAN FDD handover test case

Par	Parameter		Value	Comment
PDSCH parameters			DL Reference Measurement	As specified in section A.3.1.1.1
			Channel R.0 FDD	
PCFICH/PDCCH/	PHICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1
	•		Channel R.6 FDD	
Initial conditions	Active cell		Cell 1	E-UTRAN cell
	Neighbouring cell		Cell 2	UTRAN cell
Final condition	Active cell		Cell 2	UTRAN cell
Channel Bandwidt	h (BW _{channel})	MHz	10	
E-UTRAN FDD me	easurement quantity		RSRP	
Inter-RAT (UTRAN quantity	I FDD) measurement		CPICH Ec/N0	
DRX			OFF	Non-DRX test
Access Barring Inf	Access Barring Information		Not sent	No additional delays in random
0				access procedure
E-UTRA RF Chan	nel Number		1	One E-UTRA FDD carrier
				frequency is used.
E-UTRA Channel	Bandwidth	MHz	10	
(BWchannel)				
UTRA RF Channe	l Number		1	One UTRA FDD carrier frequency is used.
Monitored UTRA F	DD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell before T2.
Post-verification p	eriod		False	
T1		S	≤5	
T2		s	1	

Parameter	Unit	Cell 1 (E-UTRA)			
		T1				
E-UTRA RF Channel			1			
number						
BW _{channel}	MHz		10			
OCNG Patterns defined in		OP.1 FDD	OP.2 FDD			
A.3.2.1.1 (OP.1 FDD) and in						
A.3.2.1.2 (OP.2 FDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB		0			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
\hat{E}_s/I_{ot}	dB	0	0			
N _{oc} Note 2	dBm/15 kHz	-!	98			
\hat{E}_s/N_{oc}	dB	0	0			
RSRP Note 3	dBm/15 KHz	-98	-98			
Propagation Condition		AV	/GN			
Note 1: OCNG shall be use	d such that both	cells are fully	allocated and			
for all OFDM symbol Note 2: Interference from o	a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in					
the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

Table A.5.2.7.1-2: Cell specific test parameters for E-UTRAN FDD to UTRAN FDD handover test case (cell 1)

Parameter	Unit	Cell 2 (UTRA)			
		T1	T2		
CPICH_Ec/lor	dB	-	10		
PCCPCH_Ec/lor	dB	-	12		
SCH_Ec/lor	dB	-	12		
PICH_Ec/lor	dB	-	15		
DCH_Ec/lor	dB	No	ote 1		
OCNS_Ec/lor	dB	Note 2			
\hat{I}_{or}/I_{oc}	dB	-infinity	-1.8		
I _{oc}	dBm/3,84 MHz	-70	-70		
CPICH_Ec/lo	dB	-infinity	-14		
Propagation Condition	AWGN				
Note 2: The power o	······································				

Table A.5.2.7.1-3: Cell specific test parameters for E-UTRAN FDD to UTRAN FDD handover test case (cell 2)

A.5.2.7.2 Test Requirements

The UE shall start to transmit the UL DPCCH to Cell 2 less than 290 ms from the beginning of time period T2.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + $T_{interrupt}$, where:

RRC procedure delay is 50ms. See section 5.3.1.1.1.

 $T_{interrupt}$ is 240ms. See section 5.3.1.1.2.

This gives a total of 290ms in the test case.

A.5.2.8 E-UTRAN FDD - GSM Handover; Unknown Target Cell

A.5.2.8.1 Test Purpose and Environment

This test is to verify the E-UTRAN FDD to GSM handover requirements for the case when the target GSM cell is unknown as specified in section 5.3.3.

The test parameters are given in Table A.5.2.8.1-1, A.5.2.8.1-2 and A.5.2.8.1-3 below. The test consists of two successive time periods, with time duration of T1, T2 respectively. At the start of time duration T1, the UE will not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE receives a RRC handover command from the network. The start of T2 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. No Gap pattern configuration shall be used.

Table A.5.2.8.1-1: General test parameters for E-UTRAN FDD to GSM handover test case; unknown target cell

Para	meter	Unit	Value	Comment
PDSCH paramete	ers		DL Reference Measurement	As specified in section A.3.1.1.1
			Channel R.0 FDD	
PCFICH/PDCCH	/PHICH		DL Reference Measurement	As specified in section A.3.1.2.1
parameters			Channel R.6 FDD	
Gap Pattern Id	Gap Pattern Id		None	No measurement gaps shall be
				provided.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
DRX			OFF	No DRX configured
T1		S	7	
T2		S	1	

Parameter	Unit	Cell 1			
		T1	T2		
BW _{channel}	BW _{channel} MHz		10		
OCNG Patterns					
defined in A.3.2.1.1					
(OP.1 FDD) and in		OP.1 FDD	OP.2 FDD		
A.3.2.1.2 (OP.2					
FDD)					
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB		0		
PDCCH_RA	dB				
PDCCH_RB					
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note1}	dB				
OCNG_RB ^{Note1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4			
N_{oc} Note 2	dBm/15 kHz		-98		
\hat{E}_s / N_{oc}	dB	4			
RSRP Note 3	dBm/15 kHz		-94		
Propagation		Δ	WGN		
Condition					
Note 1: OCNG shall be used such that cell 1 is fully allocated and a constant total					
transmitted power spectral density is achieved for all OFDM symbols.					
Note 2: Interference from other cells and noise sources not specified in the test is					
	assumed to be constant over subcarriers and time and shall be modelled as				
AWGN of appropriate power for ${}^{\!\!\!\!\!N_{oc}}$ to be fulfilled.					
Note 3: RSRP leve	els have been dei	rived from other paramet	ers for information		
		able parameters themse			

Table A.5.2.8.1 - 2: Cell specific parameters for cell # 1 in E-UTRAN FDD to GSM handover test case; unknown target cell

Table A.5.2.8.1-3: Cell specific parameters for cell # 2 in E-UTRAN FDD to GSM handover test case; unknown target cell

Parameter	Unit	Cell	2 (GSM)	
Falameter	Unit	T1	T2	
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-Infinity	-75	

A.5.2.8.2 Test Requirements

The UE shall begin to send access bursts on the new DCCH of the target cell less than 200 ms from the beginning of time period T2.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this test case is expressed as:

 $T_{Handover delay} = 190 \text{ ms} (Table 5.3.3.2.1-1) + T_{offset} + T_{UL}$

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 T_{offset} : Equal to 4.65 ms is the GSM timing uncertainty from the time when the UE is ready to transmit until the start of the next timeslot in GSM 26 multiframe structure

T_{UL}: Equal to 4.65 ms is the time the UE has to wait in case the next timeslot is an idle frame or a SACCH frame.

This gives a total of 199.3 ms, allow 200 ms in the test case.

A.5.2.9 E-UTRAN TDD - GSM Handover; Unknown Target Cell

A.5.2.9.1 Test Purpose and Environment

This test is to verify the E-UTRAN TDD to GSM handover requirements for the case when the target GSM cell is unknown as specified in section 5.3.3.

The test parameters are given in Table A.5.2.9.1 -1, A.5.2.9.1 -2 and A.5.2.9.1 -3 below. The test consists of two successive time periods, with time duration of T1, T2 respectively. At the start of time duration T1, the UE will not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE receives a RRC handover command from the network. The start of T2 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. No Gap pattern configuration shall be used.

Table A.5.2.9.1-1: General test parameters for E-UTRAN TDD to GSM handover test case; unknown target cell

Para	Parameter		Value	Comment
PDSCH parameters			DL Reference Measurement Channel R.0 TDD	As specified in section A.3.2.2.1
PCFICH/PDCCH/ parameters	PHICH		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.2.2.2
Gap Pattern Id			None	No measurement gaps shall be provided.
Initial conditions	Active cell		Cell 1	
	Neighbour cell		Cell 2	
Final conditions	Active cell		Cell 2	
DRX			OFF	No DRX configured
Special subframe	configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211
Uplink-downlink configuration			1	As specified in table 4.2-2 in 3GPP TS 36.211
T1		S	7	
T2		S	1	

Parameter	Unit	Cell 1				
		T1	T2			
BW _{channel}	BW _{channel} MHz		10			
OCNG Patterns						
defined in A.3.2.2.1						
(OP.1 TDD) and in		OP.1 TDD	OP.2 TDD			
A.3.2.2.2 (OP.2						
TDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB		0			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note1}	dB					
OCNG_RB ^{Note1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4				
N_{oc} Note 2	dBm/15 kHz	-98				
\hat{E}_{s}/N_{oc}	dB	4				
37 00			4			
RSRP Note 3	dBm/15 kHz		-94			
Propagation		Δ	WGN			
Condition		-				
	Note 1: OCNG shall be used such that cell 1 is fully allocated and a constant total					
transmitted power spectral density is achieved for all OFDM symbols.						
Note 2: Interference from other cells and noise sources not specified in the test is						
assumed to be constant over subcarriers and time and shall be modelled as						
AWGN of appropriate power for ${}^{N_{oc}}$ to be fulfilled.						
Note 3: RSRP leve	els have been dei	rived from other parameter	ers for information			
	purposes. They are not settable parameters themselves.					

Table A.5.2.9.1 - 2: Cell specific parameters for cell # 1 in E-UTRAN TDD to GSM handover test case; unknown target cell

Table A.5.2.9.1 - 3: Cell specific parameters for cell # 2 in E-UTRAN TDD to GSM handover test case; unknown target cell

Parameter	Unit	Cell	2 (GSM)	
Farameter	Unit	T1	T2	
Absolute RF Channel Number		ARFCN 1		
RXLEV	dBm	-Infinity	-75	

A.5.2.9.2 Test Requirements

The UE shall begin to send access bursts on the new DCCH of the target cell less than 200 ms from the beginning of time period T2.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this test case is expressed as:

 $T_{Handover delay} = 190 \text{ ms} (Table 5.3.3.2.1-1) + T_{offset} + T_{UL}$

 T_{offset} : Equal to 4.65 ms is the GSM timing uncertainty from the time when the UE is ready to transmit until the start of the next timeslot in GSM 26 multiframe structure

 T_{UL} : Equal to 4.65 ms is the time the UE has to wait in case the next timeslot is an idle frame or a SACCH frame. This gives a total of 199.3 ms, allow 200 ms in the test case.

A.5.2.10 E-UTRAN TDD to UTRAN TDD handover: unknown target cell

A.5.2.10.1 Test Purpose and Environment

This test is to verify the requirement for E-UTRAN TDD to UTRAN TDD handover requirements specified in section 5.3.2 when the target UTRAN TDD cell is unknown.

The test scenario comprises of 1 E-UTRAN TDD cell and 1 UTRAN TDD cell as given in tables A.5.2.10.1-1, A.5.2.10.1-2, and A.5.2.10.1-3. No gap pattern is configured in the test case.

The test consists of two successive time periods, with time durations of T1 and T2 respectively. During time duration T1, a RRC message implying handover to UTRA 1.28Mcps TDD cell shall be sent to the UE. The end of the last TTI containing handover message is the beginning of T2 duration.

Table A.5.2.10.1-1: General test parameters for E-UTRAN TDD to unknown UTRAN TDD cell handover test case

Parar	meter	Unit	Value	Comment
PDSCH parameters			DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCC parameters	CH/PHICH		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Initial	Active cell		Cell 1	E-UTRAN TDD cell
conditions	Neighbour cell		Cell 2	UTRA 1.28Mcps TDD cell
Final conditions	Active cell		Cell 2	UTRA 1.28Mcps TDD cell
CP length of ce	ell 1		Normal	
Uplink-downlin of cell 1	k configuration		1	As specified in table 4.2.2 in TS 36.211
Special subfrar configuration o			6	As specified in table 4.2.1 in TS 36.211
Time offset bet	tween cells		3 ms	Asynchronous cells
Access Barring	g Information		Not Sent	No additional delays in random access procedure.
Assigned Sub- Number	Assigned Sub-Channel Number		1	No additional delays in random access procedure due to ASC.
TimeToTrigger		S	0	
Filter coefficient			0	L3 filtering is not used
DRX			OFF	
T1		S	5	During T1, cell 2 shall be powered off, and during the off time the physical layer cell identity shall be changed.
T2		s	1	

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel			1		
Number					
BWchannel	MHz	1	0		
OCNG Patterns defined in		OP.1 TDD	OP.2 TDD		
TS36.133 A.3.2.2.1 (OP.1					
TDD) and in A.3.2.2.2					
(OP.2 TDD)					
PBCH_RA	dB	-			
PBCH_RB	dB				
PSS_RB	dB				
SSS_RB	dB				
PCFICH_PA	dB				
PHICH_PA	dB				
PHICH_PB	dB	0	0		
PDCCH_PA	dB				
PDCCH_PB	dB				
PDSCH_PA	dB				
PDSCH_PB	dB				
OCNG_RANote 1	dB				
OCNG_RBNote 1	dB				
\hat{E}_{s}/I_{ot}	dB	3	3		
\hat{E}_{s}/N_{oc}	dB	3	3		
N _{oc}	dBm/15kHz	-6	98		
RSRP	dBm/15kHz	-95	-95		
SCH_RP	dBm/15 kHz	-95	-95		
Propagation Condition AWGN					
 Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves. 					

Table A.5.2.10.1-2: Cell specific test parameters for E-UTRAN TDD to unknown UTRAN TDD cell handover test case (cell 1)

Table A.5.2.10.1-3: Cell specific test parameters for E-UTRAN TDD to unknown UTRAN TDD cell test case (cell 2)

Parameter	Unit	Cell		(UTRA)		
Timeslot Number		0		DwF	PTS	
		T1	T2	T1	T2	
UTRA RF Channel Number ^{Note1}			Char	nnel 2		
PCCPCH_Ec/lor	dB	-:	3			
DwPCH_Ec/lor	dB			C)	
OCNS_Ec/lor	dB	-3				
\hat{I}_{or}/I_{oc}	dB	-infinity	13	-infinity	13	
I _{oc}	dBm/1.28 MHz		-8	30		
PCCPCH RSCP	dBm	-infinity -70 n.a.		a.		
Propagation Condition		AWGN				
Note1: In the case of multi-frequency cell, the UTRA RF Channel Number is the						
primary frequency's channel number. Note2: P-CCPCH RSCP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

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A.5.2.10.2 Test Requirements

The UE shall start to transmit the SYNCH-UL sequence in the UpPTS to Cell 2 less than 280 ms from the beginning of time period T2.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 50 ms, which is specified in section 5.3.2.2.1.

 $T_{interrupt}$ is defined in section 5.3.2.2.2. $T_{interrupt} = 230$ ms in the test as following:

 $T_{interruptl} = T_{offset} + T_{UL} + 30*F_{SFN} + 180 + 10*F_{max} ms$

 $T_{offset} = 10 \text{ ms}; T_{UL} = 10 \text{ ms}; \text{ and } F_{SFN} = 1 \text{ for UE decoding SFN}; F_{max} = 0 \text{ for SYNCH-UL sequence transmittion}.$

This gives a total of 280 ms.

A.5.3 E-UTRAN Handover to Non-3GPP RATs

A.5.3.1 E-UTRAN FDD – HRPD Handover

A.5.3.1.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN FDD to HRPD handover requirements specified in section 5.4.1.

The test parameters are given in Tables A.5.3.1.1-1, A.5.3.1.1-2 and A.5.3.1.1-3. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of Cell 2. Starting T2, Cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-RAT frequency monitoring.

A RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event B2. The start of T3 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. The handover message shall contain cell 2 as the target cell.

Para	ameter	Unit	Value	Comment
PDSCH parameters	S		DL Reference Measurement	As specified in section A.3.1.1.1
			Channel R.0 FDD	
PCFICH/PDCCH/P	HICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1
			Channel R.6 FDD	
Initial conditions	Active cell		Cell 1	E-UTRAN FDD cell
	Neighbouring cell		Cell 2	HRPD cell
Final condition	Active cell		Cell 2	HRPD cell
Channel Bandwidth	(BW _{channel})	MHz	10	
Gap Pattern Id			0	As specified in Table 8.1.2.1-1
				started before T2 starts
E-UTRAN FDD me	asurement quantity		RSRP	
Inter-RAT (HRPD)			CDMA2000 HRPD Pilot	
quantity			Strength	
b2-Threshold1		dBm	-90	Absolute E-UTRAN RSRP
				threshold for event B2
b2-Threshold2-CDI	MA2000	dB	-7	Absolute 'CDMA2000 HRPD Pilot
				Strength' threshold for event B2
Hysteresis		dB	0	
TimeToTrigger		s	0	
Filter coefficient			0	L3 filtering is not used
DRX			OFF	Non-DRX test
Access Barring Info	ormation	-	Not sent	No additional delays in random
-				access procedure
E-UTRA RF Chann	el Number		1	One E-UTRA FDD carrier
				frequency is used.
E-UTRA Channel E	Bandwidth	MHz	10	
(BWchannel)				
HRPD RF Channel	Number		1	One HRPD carrier frequency is
				used.
HRPD neighbour cell list size			8	HRPD cells on HRPD RF channel
-				1 provided in the cell list before
				T2.
cdma2000-Search	VindowSize		8 (60 PN chips)	Search window size as defined in
				section 6.3.5 in 3GPP TS 36.331
T1		S	5	
T2		S	≤10	
Т3		s	1	

Table A.5.3.1.1-1: General test parameters for E-UTRAN FDD to HRPD handover test case

Parameter	Unit	Cell 1 (E-UTRA)					
		T1 T2 T3					
E-UTRA RF Channel			1				
number							
BW _{channel}	MHz		10				
OCNG Patterns defined in		OP.1	FDD	OP.2			
A.3.2.1.1 (OP.1 FDD) and				FDD			
in A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB		0				
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
N_{oc} Note 2	dBm/15		-98				
	kHz						
RSRP ^{Note 3}	dBm/15	-98	-98	-98			
	KHz						
\hat{E}_s/N_{oc}	dB	0	0	0			
\hat{E}_s/I_{ot}	dB	0	0	0			
Propagation Condition			AWGN				
Note 1: OCNG shall be used	such that bo	th cells are fu	Ily allocated	and a			
constant total tran	smitted powe	r spectral der	nsity is achiev	ved for all			
	OFDM symbols.						
Note 2: Interference from oth							
is assumed to be cor	nstant over su	bcarriers and	time and sh	all be			
modelled as AWGN	modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.						
Note 3: RSRP levels have be				nformation			
purposes. They a	re not settable	e parameters	memserves.				

Table A.5.3.1.1-2: Cell specific test parameters for E-UTRAN FDD cell#1 for handover to HRPD cell # 2

Parameter	Unit	Cell 2 (HRPD)		
		T1	Т2	Т3
$\frac{\text{Control} \ \text{E}_{\text{b}}}{\text{N}_{\text{t}}} \text{ (38.4 kbps)}$	dB	21		
$\frac{\text{Control} \text{E}_{b}}{\text{N}_{t}} $ (76.8 kbps)	dB	18		
\hat{I}_{or}/I_{oc}	dB	-infinity	0	0
I _{oc}	dBm/1.2288 MHz		-55	
CDMA2000 HRPD Pilot Strength	dB	-infinity	-3	-3
Propagation Condition			AWGN	

Table A.5.3.1.1-3: Cell specific test parameters for HRPD (cell # 2) for handover from E-UTRAN FDD cell (cell #1)

A.5.3.1.2 Test Requirements

The UE shall start transmission of the reverse control channel in HRPD to Cell 2 less than 127 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 50 ms, which is specified in section 5.4.1.1.1.

 $T_{interrupt} = 76.66$ ms in the test; $T_{interrupt}$ is defined in section 5.4.1.1.2.

This gives a total of 126.66 ms, allow 127 ms in the test.

A.5.3.2 E-UTRAN FDD – cdma2000 1X Handover

A.5.3.2.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN FDD to cdma2000 1X handover requirements specified in section 5.4.2.

The test parameters are given in Tables A.5.3.2.1-1, A.5.3.2.1-2 and A.5.3.2.1-3. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of Cell 2. Starting T2, Cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-RAT frequency monitoring.

A RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event B2. The start of T3 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. The handover message shall contain cell 2 as the target cell.

Table A.5.3.2.1-1: General test parameters for E-UTRAN FDD to cdma2000 1X handover test case

Para	meter	Unit	Value	Comment
PDSCH parameters	3		DL Reference Measurement	As specified in section A.3.1.1.1
			Channel R.0 FDD	
PCFICH/PDCCH/PI	HICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1
			Channel R.6 FDD	
Initial conditions	Active cell		Cell 1	E-UTRAN FDD cell
	Neighbouring cell		Cell 2	cdma2000 1X cell
	Active cell		Cell 2	cdma2000 1X cell
Channel Bandwidth	(BW _{channel})	MHz	10	
Gap Pattern Id			0	As specified in Table 8.1.2.1-1
				started before T2 starts
E-UTRAN FDD mea	asurement quantity		RSRP	
Inter-RAT (cdma200	00 1X) measurement		CDMA2000 1xRTT Pilot	
quantity			Strength	
b2-Threshold1		dBm	-90	Absolute E-UTRAN RSRP
				threshold for event B2
b2-Threshold2-CDN	/IA2000	dB	-14	Absolute 'CDMA2000 1xRTT Pilot
				Strength' threshold for event B2
Hysteresis		dB	0	
TimeToTrigger		S	0	
Filter coefficient			0	L3 filtering is not used
DRX			OFF	Non-DRX test
Access Barring Info	rmation	-	Not sent	No additional delays in random
				access procedure
E-UTRA RF Channe	el Number		1	One E-UTRA FDD carrier
				frequency is used.
E-UTRA Channel B	andwidth	MHz	10	
(BWchannel)				
cdma2000 1X RF C	hannel Number		1	One HRPD carrier frequency is
				used.
cdma2000 1X neigh	nbour cell list size		8	cdma2000 1X cells on cdma2000
				1X RF channel 1 provided in the
				cell list before T2.
cdma2000-SearchV	VindowSize		8 (60 PN chips)	Search window size as defined in
				section 6.3.5 in 3GPP TS 36.331
T1		s	5	
T2		s	≤10	
Т3		S	1	

Parameter	Unit	Cell 1 (E-UTRA)				
		T1 T2		Т3		
E-UTRA RF Channel		1				
number						
BW _{channel}	MHz		10			
OCNG Patterns defined in		OP.1	FDD	OP.2		
A.3.2.1.1 (OP.1 FDD) and				FDD		
in A.3.2.1.2 (OP.2 FDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB		0			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
Note 2	dBm/15		-98			
	kHz					
RSRP Note 3	dBm/15	-98	-98	-98		
	KHz	-				
\hat{E}_s/N_{oc}	dB	0	0	0		
\hat{E}_s/I_{ot}	dB	0	0	0		
Propagation Condition			AWGN			
Note 1: OCNG shall be us	ed such that	both cells are	e fully allocate	ed and a		
constant total tran						
OFDM symbols.	-	-	-			
Note 2: Interference from						
test is assumed to	be constant	over subcarri	ers and time	and shall		
		• .	. N			
be modelled as A	NGN of appro	opriate power	tor ^{oc} to b	be tulfilled.		
	: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.					
information purpos	ses. They are	not settable	parameters t	hemselves.		

Table A.5.3.2.1-2: Cell specific test parameters for E-UTRAN FDD cell#1 for handover to cdma2000 1X cell # 2

Parameter	Unit	Cell 2 (cdma2000 1X)			
		T1	Т2	Т3	
Pilot E _c I _{or}	dB	-7			
$\frac{\text{Sync } E_{c}}{I_{\text{or}}}$	dB	-16			
$\frac{\text{Paging } E_{c}}{I_{\text{or}}} $ (4.8 kbps)	dB	-12			
\hat{I}_{or}/I_{oc}	dB	-infinity 0 0			
I _{oc}	dBm/1.2288 MHz	-55			
CDMA2000 1xRTT Pilot Strength	dB	-infinity	-10	-10	
Propagation Condition			AWGN		

Table A.5.3.2.1-3: Cell specific test parameters for cdma2000 1X (cell # 2) for handover from E-UTRAN FDD cell (cell #1)

A.5.3.2.2 Test Requirements

The UE shall start transmission of the reverse control channel in cdma2000 1X to Cell 2 less than 300 ms from the beginning of time period T3.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 130 ms, which is specified in section 5.4.2.1.1.

 $T_{interrupt} = 170$ ms in the test; $T_{interrupt}$ is defined in section 5.4.2.1.2.

This gives a total of 300 ms.

A.5.3.3 E-UTRAN FDD – HRPD Handover; Unknown Target Cell

A.5.3.3.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN FDD to HRPD handover requirements for the case when the target HRPD cell is unknown as specified in section 5.4.1.

The test parameters are given in Tables A.5.3.3.1-1, A.5.3.3.1-2 and A.5.3.3.1-3. The test consists of two successive time periods, with time durations of T1 and T2 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. During time period T1, message containing Information Element *systemTimeInfo* as defined in section 6.3.1 of TS 36.331 [2] shall be sent by the System Simulator (SS). No gap patterns are configured in the test case. No HRPD neighbour cell list shall be provided to the UE.

A RRC message implying handover to the unknown HRPD cell shall be sent to the UE towards the end of the time period T1. The start of T2 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. The handover message shall contain cell 2 as the target cell.

Table A.5.3.3.1-1: General test parameters for E-UTRAN FDD to HRPD handover test case; unknown target HRPD cell

Par	rameter	Unit	Value	Comment
PDSCH paramete	rs		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/	PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Initial conditions	Active cell		Cell 1	E-UTRAN FDD cell
	Neighbouring cell		Cell 2	HRPD cell
Final condition	Active cell		Cell 2	HRPD cell
Channel Bandwidt	h (BW _{channel})	MHz	10	
DRX			OFF	Non-DRX test
Access Barring Inf	formation	-	Not sent	No additional delays in random
-				access procedure
E-UTRA RF Chan	nel Number		1	One E-UTRA FDD carrier
				frequency is used.
E-UTRA Channel (BWchannel)	Bandwidth	MHz	10	
HRPD RF Channe	el Number		1	One HRPD carrier frequency is used.
cdma2000-Search	WindowSize		8 (60 PN chips)	Search window size as defined in section 6.3.5 in 3GPP TS 36.331
T1		S	≤5	
T2		s	1	

Parameter	Unit	Cell 1 (E-U	TRAN FDD)			
		T1	T2			
E-UTRA RF Channel			1			
number						
BW _{channel}	MHz	1	0			
OCNG Patterns defined in		OP.1	FDD			
A.3.2.1.1 (OP.1 FDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	()			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA Note 1	dB					
OCNG_RB Note 1	dB					
$N_{_{oc}}$ Note 2	dBm/15 kHz	-9	98			
RSRP ^{Note 3}	dBm/15 kHz	-98	-98			
\hat{E}_{s}/N_{oc}	dB	0	0			
\hat{E}_s/I_{ot}	dB	0	0			
Propagation Condition		AWGN				
power spectral de Note 2: Interference from oth	ensity is achieved for ner cells and noise so	are fully allocated and a con- all OFDM symbols. burces not specified in the tes nall be modelled as AWGN o	st is assumed to be			
$N_{\it oc}$ to be fulfilled.						

Table A.5.3.3.1-2: Cell specific test parameters for E-UTRAN FDD cell#1 for handover to unknown HRPD cell # 2

Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Parameter	Unit	Cell 2 (HRPD)		
		T1	T2	
$\frac{\text{Control} \text{E}_{b}}{\text{N}_{t}} (38.4)$ kbps)	dB	2	1	
$\frac{\frac{\text{Control} \text{E}_{b}}{\text{N}_{t}}}{\text{kbps}}$ (76.8	dB	1	8	
\hat{I}_{or}/I_{oc}	dB	-infinity	0	
I _{oc}	dBm/1.22 88 MHz	-5	5	
CDMA2000 HRPD Pilot Strength	dB	-infinity	-3	
Propagation Condition		AW	GN	

Table A.5.3.3.1-3: Cell specific test parameters for unknown HRPD (cell # 2) for handover from E-UTRAN FDD cell (cell #1)

A.5.3.3.2 Test Requirements

The UE shall start transmission of the reverse control channel in HRPD to Cell 2 less than 127 ms from the beginning of time period T2.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay is expressed as: RRC procedure delay + T_{interrupt}, where:

T_{interrupt} also includes time to detect HRPD cell; see section 5.4.1.1.2

This gives a total of 126.66 ms, allow 127 ms in the test case.

A.5.3.4 E-UTRAN FDD – cdma2000 1X Handover; Unknown Target cell

A.5.3.4.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN FDD to cdma2000 1X handover requirements for the case when the target cdma2000 1X cell is unknown as specified in section 5.4.2.

The test parameters are given in Tables A.5.3.4.1-1, A.5.3.4.1-2 and A.5.3.4.1-3. The test consists of two successive time periods, with time durations of T1 and T2 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. During time period T1, message containing Information Element *systemTimeInfo* as defined in section 6.3.1 of TS 36.331 [2] shall be sent by the System Simulator (SS). No gap patterns are configured in the test case. No cdma2000 1X neighbour cell list shall be provided to the UE.

A RRC message implying handover to the unknown cdma2000 1X cell shall be sent to the UE towards the end of the time period T1. The start of T2 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. The handover message shall contain cell 2 as the target cell.

Table A.5.3.2.1-1: General test parameters for E-UTRAN FDD to cdma2000 1X handover test case; unknown target cdma2000 1X cell

Para	ameter	Unit	Value	Comment
PDSCH parameter	S		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/F	PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Initial conditions	Active cell		Cell 1	E-UTRAN FDD cell
	Neighbouring cell		Cell 2	cdma2000 1X cell
Final condition	Active cell		Cell 2	cdma2000 1X cell
Channel Bandwidtl	n (BW _{channel})	MHz	10	
DRX			OFF	Non-DRX test
Access Barring Info	ormation	-	Not sent	No additional delays in random access procedure
E-UTRA RF Chanr	nel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel E (BWchannel)	Bandwidth	MHz	10	
cdma2000 1X RF (Channel Number		1	One HRPD carrier frequency is used.
cdma2000-Search	WindowSize		8 (60 PN chips)	Search window size as defined in section 6.3.5 in 3GPP TS 36.331
T1		S	≤5	
T2		S	1	

Table A.5.3.2.1-2: Cell specific test parameters for E-UTRAN FDD cell#1 for handover to unknown cdma2000 1X cell # 2

Parameter	Unit	Cell 1 (E-U	TRAN FDD)	
		T1	T2	
E-UTRA RF Channel number		,	1	
BW _{channel}	MHz	10		
OCNG Patterns defined in		OP.1	FDD	
A.3.2.1.1 (OP.1 FDD)				
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB	()	
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA Note 1	dB			
OCNG_RB Note 1	dB			
$N_{_{oc}}$ Note 2	dBm/15 kHz	-9	98	
RSRP ^{Note 3}	dBm/15 kHz	-98	-98	
\hat{E}_s/N_{oc}	dB	0	0	
\hat{E}_s/I_{ot}	dB	0	0	
Propagation Condition		AW	GN	
Note 1: OCNG shall be used suc power spectral density is		ly allocated and a const		
Note 2: Interference from other c constant over subcarriers N_{oc} to be fulfilled.	ells and noise sources	not specified in the test		
Note 3: RSRP levels have been on the settable parameters to be fullified.	•	meters for information	ourposes. They are	

Table A.5.3.2.1-3: Cell specific test parameters for unknown cdma2000 1X (cell # 2) for handover from
E-UTRAN FDD cell (cell #1)

Parameter	Unit	Cell 2 (cdma2000 1X)		
		T1	Т2	
Pilot E _c I _{or}	dB	-7		
Sync E _c I _{or}	dB	-16		
$\frac{\text{Paging } E_{c}}{I_{or}}$ (4.8 kbps)	dB	-12		
\hat{I}_{or}/I_{oc}	dB	-infinity	0	
I _{oc}	dBm/1.22 88 MHz	-55		
CDMA2000 1xRTT Pilot Strength	dB	-infinity	-10	
Propagation Condition		AW	GN	

A.5.3.4.2 Test Requirements

The UE shall start transmission of the reverse control channel in cdma2000 1X to Cell 2 less than 300 ms from the beginning of time period T2.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay is expressed as: RRC procedure delay + T_{interrupt}, where:

T_{interrupt} also includes time to detect cdma2000 1X cell; see section 5.4.2.1.2

This gives a total of 300 ms.

A.5.3.5 E-UTRAN TDD – HRPD Handover

A.5.3.5.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN TDD to HRPD handover requirements specified in section 5.4.1.

The test parameters are given in Tables A.5.3.5.1-1, A.5.3.5.1-2 and A.5.3.5.1-3. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of Cell 2. Starting T2, Cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-RAT frequency monitoring.

A RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event B2. The start of T3 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. The handover message shall contain cell 2 as the target cell.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement	As specified in section A.3.1.1.2
		Channel R.0 TDD	
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement	As specified in section A.3.1.2.2
		Channel R.6 TDD	
Initial conditions Active cell		Cell 1	E-UTRAN TDD cell
Neighbouring cell		Cell 2	HRPD cell
Final condition Active cell		Cell 2	HRPD cell
Channel Bandwidth (BW _{channel})	MHz	10	
Gap Pattern Id		0	As specified in Table 8.1.2.1-1
			started before T2 starts
E-UTRAN TDD measurement quantity		RSRP	
Inter-RAT (HRPD) measurement		CDMA2000 HRPD Pilot	
quantity		Strength	
b2-Threshold1	dBm	-90	Absolute E-UTRAN RSRP
			threshold for event B2
b2-Threshold2-CDMA2000	dB	-7	Absolute 'CDMA2000 HRPD Pilot
			Strength' threshold for event B2
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	Non-DRX test
Access Barring Information	-	Not sent	No additional delays in random
			access procedure
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier
			frequency is used.
E-UTRA Channel Bandwidth	MHz	10	
(BWchannel)			
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS
			36.211
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS
			36.211
HRPD RF Channel Number		1	One HRPD carrier frequency is
			used.
HRPD neighbour cell list size		8	HRPD cells on HRPD RF channel
			1 provided in the cell list before
			T2.
cdma2000-SearchWindowSize		8 (60 PN chips)	Search window size as defined in
			section 6.3.5 in 3GPP TS 36.331
<u>T1</u>	S	5	
T2	S	≤10	
Т3	S	1	

Table A.5.3.5.1-1: General test parameters for E-UTRAN TDD to HRPD handover test case

Parameter	Unit	C	ell 1 (E-UTR/	A)				
		T1	T1 T2					
E-UTRA RF Channel								
number								
BW _{channel}	MHz		10					
OCNG Patterns defined in		OP.1	TDD	OP.2				
TS36.133 A.3.2.2.1 (OP.1				TDD				
TDD) and in A.3.2.2.2								
(OP.2 TDD)								
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB							
PHICH_RB	dB		0					
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB							
$N_{oc}^{\rm Note 2}$	dBm/15		-98					
	kHz							
RSRP Note 3	dBm/15	-98	-98	-98				
	KHz							
\hat{E}_s/N_{oc}	dB	0	0	0				
\hat{E}_s/I_{ot}	dB	0	0	0				
Propagation Condition			AWGN					
Note 1: OCNG shall be used	such that bo	th cells are fu		and a				
constant total tran								
OFDM symbols.								
Note 2: Interference from other cells and noise sources not specified in the test								
is assumed to be constant over subcarriers and time and shall be								
modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.								
Note 3: RSRP levels have be	een derived fr	om other par	ameters for ir	nformation				
purposes. They a								

Table A.5.3.5.1-2: Cell specific test parameters for E-UTRAN TDD cell#1 for handover to HRPD cell # 2

Parameter	Unit	Cell 2 (HRPD)			
		T1	T2	T3	
$\frac{\text{Control } E_{b}}{N_{t}}$ (38.4 kbps)	dB	21			
$\frac{\text{Control} \ \text{E}_{\text{b}}}{\text{N}_{\text{t}}} \text{ (76.8 kbps)}$	dB	18			
\hat{I}_{or}/I_{oc}	dB	-infinity	0	0	
I _{oc}	dBm/1.2288 MHz	-55			
CDMA2000 HRPD Pilot Strength	dB	-infinity	-3	-3	
Propagation Condition		AWGN			

Table A.5.3.5.1-3: Cell specific test parameters for HRPD (cell # 2) for handover from E-UTRAN TDD cell (cell #1)

A.5.3.5.2 Test Requirements

The UE shall start transmission of the reverse control channel in HRPD to Cell 2 less than 127 ms from the beginning of time period T3.

The rate of correct handovers observed during repeated tests shall be at least 90%.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 50 ms, which is specified in section 5.4.1.1.1.

 $T_{interrupt} = 76.66$ ms in the test; $T_{interrupt}$ is defined in section 5.4.1.1.2.

This gives a total of 126.66 ms, allow 127 ms in the test.

A.5.3.6 E-UTRAN TDD – cdma2000 1X Handover

A.5.3.6.1 Test Purpose and Environment

This test is to verify the requirement for the E-UTRAN TDD to cdma2000 1X handover requirements specified in section 5.4.2.

The test parameters are given in Tables A.5.3.6.1-1, A.5.3.6.1-2 and A.5.3.6.1-3. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of Cell 2. Starting T2, Cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-RAT frequency monitoring.

A RRC message implying handover shall be sent to the UE during period T2, after the UE has reported Event B2. The start of T3 is the instant when the last TTI containing the RRC message implying handover is sent to the UE. The handover message shall contain cell 2 as the target cell.

Table A.5.3.6.1-1: General test parameters for E-UTRAN TDD to cdma2000 1X handover test case

Parameter		Unit	Value	Comment
PDSCH parameters			DL Reference Measurement	As specified in section A.3.1.1.2
			Channel R.0 TDD	
PCFICH/PDCCH/P	HICH parameters			As specified in section A.3.1.2.2
			Channel R.6 TDD	
Initial conditions	Active cell		Cell 1	E-UTRAN TDD cell
	Neighbouring cell		Cell 2	cdma2000 1X cell
Final condition	Active cell		Cell 2	cdma2000 1X cell
Channel Bandwidth	l (BW _{channel})	MHz	10	
Gap Pattern Id			0	As specified in Table 8.1.2.1-1 started before T2 starts
E-UTRAN TDD me	asurement quantity		RSRP	
	00 1X) measurement		CDMA2000 1xRTT Pilot	
quantity	,		Strength	
b2-Threshold1		dBm	-90	Absolute E-UTRAN RSRP
				threshold for event B2
b2-Threshold2-CD	MA2000	dB	-14	Absolute 'CDMA2000 1xRTT Pilot
				Strength' threshold for event B2
Hysteresis		dB	0	
TimeToTrigger		S	0	
Filter coefficient			0	L3 filtering is not used
DRX			OFF	Non-DRX test
Access Barring Info	ormation	-	Not sent	No additional delays in random access procedure
E-UTRA RF Chann	el Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel E (BWchannel)	andwidth	MHz	10	
cdma2000 1X RF 0	Channel Number		1	One cdma2000 1X carrier frequency is used.
cdma2000 1X neighbour cell list size			8	cdma2000 1X cells on cdma2000 1X RF channel 1 provided in the cell list before T2.
cdma2000-Search	VindowSize		8 (60 PN chips)	Search window size as defined in section 6.3.5 in 3GPP TS 36.331
T1		s	5	
T2		s	≤10	
			1	1

Parameter	Unit	C	ell 1 (E-UTR	A)			
		T1	T2	Т3			
E-UTRA RF Channel			1				
number							
BW _{channel}	MHz		10				
OCNG Patterns defined in		OP.1	TDD	OP.2			
A.3.2.2.1 (OP.1 TDD) and				TDD			
in A.3.2.2.2 (OP.2 TDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB		0				
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
Note 2	dBm/15	-98					
	kHz						
RSRP ^{Note 3}	dBm/15	-98	-98	-98			
	KHz						
\hat{E}_s/N_{oc}	dB	0	0	0			
\hat{E}_s/I_{ot}	dB	0	0	0			
Propagation Condition			AWGN				
Note 1: OCNG shall be us	ed such that	both cells are	e fully allocate	ed and a			
constant total tran							
OFDM symbols.	OFDM symbols.						
Note 2: Interference from other cells and noise sources not specified in							
test is assumed to	assumed to be constant over subcarriers and time and shall						
		• .	. N				
be modelled as A	be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP levels have been derived from other parameters for						
information purpos	ses. They are	not settable	parameters t	hemselves.			

Table A.5.3.6.1-2: Cell specific test parameters for E-UTRAN TDD cell#1 for handover to cdma2000 1X cell # 2

Parameter	Unit	Cell 2 (cdma2000 1X)				
		T1	T2	Т3		
$\frac{\text{Pilot } E_{c}}{I_{\text{or}}}$	dB	-7				
$\frac{\text{Sync } E_{c}}{I_{\text{or}}}$	dB	-16				
$\frac{\text{Paging } E_{c}}{I_{\text{or}}} $ (4.8 kbps)	dB	-12				
\hat{I}_{or}/I_{oc}	dB	-infinity	0	0		
I _{oc}	dBm/1.2288 MHz	-55				
CDMA2000 1xRTT Pilot Strength	dB	-infinity	-10	-10		
Propagation Condition			AWGN			

Table A.5.3.6.1-3: Cell specific test parameters for cdma2000 1X (cell # 2) for handover from E-UTRAN TDD cell (cell #1)

A.5.3.6.2 Test Requirements

The UE shall start transmission of the reverse control channel in cdma2000 1X to Cell 2 less than 300 ms from the beginning of time period T3.

NOTE: The handover delay can be expressed as: RRC procedure delay + T_{interrupt}, where:

RRC procedure delay = 130 ms, which is specified in section 5.4.2.1.1.

 $T_{interrupt} = 170$ ms in the test; $T_{interrupt}$ is defined in section 5.4.2.1.2.

This gives a total of 300 ms.

A.6 RRC Connection Control

A.6.1 RRC Re-establishment

A.6.1.1 E-UTRAN FDD Intra-frequency RRC Re-establishment

A.6.1.1.1 Test Purpose and Environment

The purpose is to verify that the E-UTRA FDD intra-frequency RRC re-establishment delay is within the specified limits. These tests will verify the requirements in section 6.1.2.

The test parameters are given in table A.6.1.1.1-1 and table A.6.1.1.1-2 below. The test consists of 3 successive time periods, with time duration of T1, T2 and T3 respectively. At the start of time period T2, cell 1, which is the active cell, is deactivated. The time period T3 starts after the occurrence of the radio link failure.

Parameter		Unit	Value	Comment
PDSCH paramete	rs		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/I	PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Initial conditions	Active cell		Cell 1	
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
E-UTRA RF Chan	nel Number		1	Only one FDD carrier frequency is used.
Channel Bandwidt	th (BW _{channel})	MHz	10	
N310		-	1	Maximum consecutive out-of-sync indications from lower layers
N311		-	1	Minimum consecutive in-sync indications from lower layers
T310		ms	0	Radio link failure timer; T310 is disabled
T311		ms	3000	RRC re-establishment timer
DRX			OFF	
CP length			Normal	
Access Barring Inf	formation	-	Not Sent	No additional delays in random access procedure.
PRACH configuration index			4	As specified in table 5.7.1-2 in TS 36.211
Time offset between cells		ms	3	Asynchronous cells
T1		s	5	
T2		ms	200	
Т3		S	3	

Table A.6.1.1.1-1: General test parameters for E-UTRAN FDD intra-frequency RRC Re-establishment test case

Table A.6.1.1.1-2: Cell specific test parameters for E-UTRAN FDD intra-frequency RRC Reestablishment test case

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	Т3	T1	T2	Т3
E-UTRA RF Channel			1			1	
Number							
BW _{channel}	MHz		10			10	
OCNG Patterns		OP.1	OP.1	OP.2	OP.2 FDD	OP.2 FDD	OP.1 FDD
defined in A.3.2.1.1		FDD	FDD	FDD			
(OP.1 FDD) and in							
A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB		_			_	
PDCCH_RA	dB		0			0	
PDCCH_RB	dB						
PDSCH_RA	dB	1					
PDSCH_RB	dB	1					
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						

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$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	1.54	-Infinity	-Infinity	-3.79	4	4	
N _{oc} Note 2	dBm/15 KHz	-98						
\hat{E}_s/N_{oc}	dB	7	-Infinity	-Infinity	4	4	4	
RSRP Note 3	dBm/15 KHz	-91	-Infinity	-Infinity	-94	-94	-94	
Propagation Condition		AWGN						
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over								
subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.								
Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.								

A.6.1.1.2 Test Requirements

The RRC re-establishment delay is defined as the time from the start of time period T3, to the moment when the UE starts to send PRACH preambles to cell 2 for sending the *RRCConnectionReestablishmentRequest* message to cell 2.

The RRC re-establishment delay to a known E-UTRA FDD intra frequency cell shall be less than 1.5 s.

The rate of correct RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The RRC re-establishment delay in the test is derived from the following expression:

$$T_{re-establish_delay} = T_{UL_grant} + T_{UE_re-establish_delay}.$$

Where:

 $T_{UL_grant} = It$ is the time required to acquire and process uplink grant from the target cell. The PRACH reception at the system simulator is used as a trigger for the completion of the test; hence T_{UL_grant} is not used.

 $T_{UE_re-establish_delay} = 50 \text{ ms} + N_{freq} * T_{search} + T_{SI} + T_{PRACH}$

 $N_{\text{freq}} = 1$

 $T_{search} = 100 \text{ ms}$

 $T_{SI} = 1280$ ms; it is the time required for receiving all the relevant system information as defined in 3GPP TS 36.331 for the target E-UTRAN FDD cell.

 $T_{PRACH} = 15$ ms; it is the additional delay caused by the random access procedure.

This gives a total of 1445 ms, allow 1.5 s in the test case.

A.6.1.2 E-UTRAN FDD Inter-frequency RRC Re-establishment

A.6.1.2.1 Test Purpose and Environment

The purpose is to verify that the E-UTRA FDD inter-frequency RRC re-establishment delay is within the specified limits. These tests will verify the requirements in section 6.1.2.

The test parameters are given in table A.6.1.1.2-1 and table A.6.1.1.2-2 below. The test consists of 3 successive time periods, with time duration of T1, T2 and T3 respectively. At the start of time period T2, cell 1, which is the active cell, is deactivated. The time period T3 starts after the occurrence of radio link failure. At the start of time period T3, cell 2, which is the neighbour cell, is activated.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		Channel R.6 FDD	As specified in section A.3.1.2.1
Initial conditions Active cell		Cell 1	
Neighbouring cell		Cell 2	
Final condition Active cell		Cell 2	
E-UTRA RF Channel Number (cell 1)		1	
E-UTRA RF Channel Number (cell 2)		2	
E-UTRA FDD inter-frequency carrier list size		1	2 E-UTRA FDD carrier frequencies in total: 1 intra- frequency and 1 inter-frequency
Channel Bandwidth (BW _{channel})	MHz	10	
N310	-	1	Maximum consecutive out-of-sync indications from lower layers
N311	-	1	Minimum consecutive in-sync indications from lower layers
T310	ms	0	Radio link failure timer; T310 is disabled
T311	ms	5000	RRC re-establishment timer
DRX		OFF	
CP length		Normal	
Access Barring Information	-	Not Sent	No additional delays in random access procedure.
PRACH configuration index		4	As specified in table 5.7.1-2 in TS 36.211
Time offset between cells	ms	3	Asynchronous cells
T1	s	5	
T2	ms	200	
T3	s	5	

Table A.6.1.2.1-1: General test parameters for E-UTRAN FDD inter-frequency RRC Re-establishment test case

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	T3	T1	T2	Т3
E-UTRA RF Channel			1	•		2	
Number							
BW _{channel}	MHz		10			10	
OCNG Patterns		OP.1	OP.1	OP.2	OP.2 FDD	OP.2 FDD	OP.1 FDE
defined in A.3.2.1.1		FDD	FDD	FDD			
(OP.1 FDD) and in							
A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB		_			_	
PDCCH_RA	dB		0			0	
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	-Infinity	-Infinity	-Infinity	-Infinity	7
$N_{oc}^{\rm Note 2}$	dBm/15 KHz				-98		
\hat{E}_s/N_{oc}	dB	4	-Infinity	-Infinity	- Infinity	- Infinity	7
RSRP Note 3	dBm/15 KHz	-94	-Infinity	-Infinity	- Infinity	-Infinity	-91
Propagation Condition			•		AWGN	•	
Note 1: OCNG shall be u density is achie Note 2: Interference fron	ved for all OFDM	symbols.					

Table A.6.1.2.1-2: Cell specific test parameters for E-UTRAN FDD inter-frequency RRC Reestablishment test case

e 2: Interference from other cells and noise sources not specified in the test is assumed to be constant ov subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.

Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.6.1.2.2 Test Requirements

The RRC re-establishment delay is defined as the time from the start of time period T3, to the moment when the UE starts to send PRACH preambles to cell 2 for sending the *RRCConnectionReestablishmentRequest* message to cell 2.

The RRC re-establishment delay to an unknown E-UTRA FDD inter frequency cell shall be less than 3 s.

The rate of correct RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The RRC re-establishment delay in the test is derived from the following expression:

 $T_{re-establish_delay} = T_{UL_grant} + T_{UE_re-establish_delay}.$

Where:

 T_{UL_grant} = It is the time required to acquire and process uplink grant from the target cell. The PRACH reception at the system simulator is used as a trigger for the completion of the test; hence T_{UL_grant} is not used.

 $T_{UE_re-establish_delay} = 50 \text{ ms} + N_{freq} * T_{search} + T_{SI} + T_{PRACH}$

$$N_{\rm freq} = 2$$

 $T_{search} = 800 \text{ ms}$

 $T_{SI} = 1280$ ms; it is the time required for receiving all the relevant system information as defined in 3GPP TS 36.331 for the target E-UTRAN FDD cell.

 $T_{PRACH} = 15$ ms; it is the additional delay caused by the random access procedure.

This gives a total of 2945 ms, allow 3 s in the test case.

A.6.1.3 E-UTRAN TDD Intra-frequency RRC Re-establishment

A.6.1.3.1 Test Purpose and Environment

The purpose is to verify that the E-UTRA TDD intra-frequency RRC re-establishment delay is within the specified limits. These tests will verify the requirements in section 6.1.2.

The test parameters are given in table A.6.1.3.1-1 and table A.6.1.3.1-2 below. The test consists of 3 successive time periods, with time duration of T1, T2 and T3 respectively. At the start of time period T2, cell 1, which is the active cell, is deactivated. The time period T3 starts after the occurrence of the radio link failure.

Table A.6.1.3.1-1: General test parameters for E-UTRAN TDD intra-frequency RRC Re-establishment test case

Parameter		Unit	Value	Comment
PDSCH parameter	S		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/F	PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Initial conditions	Active cell		Cell 1	
	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
E-UTRA RF Chanr	nel Number		1	Only one TDD carrier frequency is used.
Channel Bandwidtl	n (BW _{channel})	MHz	10	
N310		-	1	Maximum consecutive out-of-sync indications from lower layers
N311		-	1	Minimum consecutive in-sync indications from lower layers
T310		ms	0	Radio link failure timer; T310 is disabled
T311		ms	3000	RRC re-establishment timer
DRX			OFF	
CP length			Normal	
Access Barring Info	ormation	-	Not Sent	No additional delays in random access procedure.
Special subframe of	configuration		6	As specified in table 4.2-1 in TS 36.211
Uplink-downlink configuration			1	As specified in table 4.2-2 in TS 36.211
PRACH configuration index			53	As specified in table 5.7.1-3 in TS 36.211
Time offset betwee	en cells	us	3	Synchronous cells
T1		S	5	
T2		ms	200	
Т3		S	3	

Parameter	Unit	Cell 1				Cell 2	
		T1	T2	Т3	T1	T2	Т3
E-UTRA RF Channel			1			1	
Number							
BW _{channel}	MHz		10			10	
OCNG Patterns		OP.1	OP.1	OP.2	OP.2 TDD	OP.2 TDD	OP.1 TDD
defined in A.3.2.2.1		TDD	TDD	TDD			
(OP.1 TDD) and in							
A.3.2.2.2 (OP.2 TDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB		0			0	
PDCCH_RA	dB		0			0	
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	1.54	-Infinity	-Infinity	-3.79	4	4
$N_{_{oc}}$ Note 2	dBm/15 KHz				-98		
\hat{E}_{s}/N_{oc}	dB	7	-Infinity	-Infinity	4	4	4
RSRP Note 3	dBm/15 KHz	-91	-Infinity	-Infinity	-94	-94	-94
Propagation Condition		AWGN					
Note 1: OCNG shall be u density is achieve			fully allocate	d and a con	stant total trans	mitted power s	pectral

Table A.6.1.3.1-2: Cell specific test parameters for E-UTRAN TDD intra-frequency RRC Reestablishment test case

Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over

subcarriers and time and shall be modelled as AWGN of appropriate power for $\,N_{_{oc}}\,$ to be fulfilled.

Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.6.1.3.2 **Test Requirements**

The RRC re-establishment delay is defined as the time from the start of time period T3, to the moment when the UE starts to send PRACH preambles to cell 2 for sending the RRCConnectionReestablishmentRequest message to cell 2.

The RRC re-establishment delay to a known E-UTRA TDD intra frequency cell shall be less than 1.5 s.

The rate of correct RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The RRC re-establishment delay in the test is derived from the following expression:

 $T_{re-establish_delay} = T_{UL_grant} + T_{UE_re-establish_delay}$.

Where:

T_{UL_grant} = It is the time required to acquire and process uplink grant from the target cell. The PRACH reception at the system simulator is used as a trigger for the completion of the test; hence T_{UL grant} is not used.

 $T_{UE_re-establish_delay} = 50 \text{ ms} + N_{freq} * T_{search} + T_{SI} + T_{PRACH}$

 $N_{\text{freq}} = 1$

 $T_{search} = 100 \text{ ms}$

 T_{SI} = 1280 ms; it is the time required for receiving all the relevant system information as defined in 3GPP TS 36.331 for the target E-UTRAN TDD cell.

 $T_{PRACH} = 15$ ms; it is the additional delay caused by the random access procedure.

This gives a total of 1445 ms, allow 1.5 s in the test case.

A.6.1.4 E-UTRAN TDD Inter-frequency RRC Re-establishment

A.6.1.4.1 Test Purpose and Environment

The purpose is to verify that the E-UTRA TDD inter-frequency RRC re-establishment delay is within the specified limits. These tests will verify the requirements in section 6.1.2.

The test parameters are given in table A.6.1.4.1-1 and table A.6.1.4.1-2 below. The test consists of 3 successive time periods, with time duration of T1, T2 and T3 respectively. At the start of time period T2, cell 1, which is the active cell, is deactivated. The time period T3 starts after the occurrence of radio link failure. At the start of time period T3, cell 2, which is the neighbour cell, is activated.

Table A.6.1.4.1-1: General test parameters for E-UTRAN TDD inter-frequency RRC Re-establishment test case

Parameter		Unit	Value	Comment
PDSCH parameters			DL Reference Measurement	As specified in section A.3.1.1.2
			Channel R.0 TDD	
PCFICH/PDCCH/I	PHICH parameters		DL Reference Measurement	As specified in section A.3.1.2.2
	•		Channel R.6 TDD	
Initial conditions	Active cell		Cell 1	
1	Neighbouring cell		Cell 2	
Final condition	Active cell		Cell 2	
E-UTRA RF Channel Number (cell 1)			1	
E-UTRA RF Channel Number (cell 2)			2	
E-UTRA TDD inte	E-UTRA TDD inter-frequency carrier list		1	2 E-UTRA TDD carrier
size				frequencies in total: 1 intra-
				frequency and 1 inter-frequency
Channel Bandwidt	th (BW _{channel})	MHz	10	
N310	(-	1	Maximum consecutive out-of-sync
				indications from lower layers
N311		-	1	Minimum consecutive in-sync
				indications from lower layers
T310		ms	0	Radio link failure timer; T310 is
		_		disabled
T311		ms	5000	RRC re-establishment timer
DRX			OFF	
CP length			Normal	
Access Barring Information		-	Not Sent	No additional delays in random
				access procedure.
Special subframe configuration			6	As specified in table 4.2-1 in TS
	5			36.211
Uplink-downlink co	onfiguration		1	As specified in table 4.2-2 in TS
	J			36.211
PRACH configura	tion index		53	As specified in table 5.7.1-3 in TS
gui				36.211
Time offset between cells		μs	3	Synchronous cells
T1		S	5	
T2		ms	200	
Т3		s	5	
		+	1	

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	T3	T1	T2	Т3
E-UTRA RF Channel			1			2	
Number							
BW _{channel}	MHz		10	-		10	
OCNG Patterns		OP.1	OP.1	OP.2	OP.2 TDD	OP.2 TDD	OP.1 TDD
defined in A.3.2.2.1		TDD	TDD	TDD			
(OP.1 TDD) and in							
A.3.2.2.2 (OP.2 TDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB						
PDCCH_RA	dB		0			0	
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	-Infinity	-Infinity	-Infinity	-Infinity	7
$N_{oc}^{\rm Note 2}$	dBm/15 KHz				-98		
\hat{E}_s/N_{oc}	dB	4	-Infinity	-Infinity	- Infinity	- Infinity	7
RSRP Note 3	dBm/15 KHz	-94	-Infinity	-Infinity	- Infinity	-Infinity	-91
Propagation Condition		AWGN					
Note 1: OCNG shall be u density is achieve			fully allocate	d and a con	stant total trans	mitted power s	pectral

Table A.6.1.4.1-2: Cell specific test parameters for E-UTRAN TDD inter-frequency RRC Reestablishment test case

density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over

subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.

Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.6.1.4.2 Test Requirements

The RRC re-establishment delay is defined as the time from the start of time period T3, to the moment when the UE starts to send PRACH preambles to cell 2 for sending the *RRCConnectionReestablishmentRequest* message to cell 2.

The RRC re-establishment delay to an unknown E-UTRA TDD inter frequency cell shall be less than 3 s.

The rate of correct RRC re-establishments observed during repeated tests shall be at least 90%.

NOTE: The RRC re-establishment delay in the test is derived from the following expression:

 $T_{re-establish_delay} = T_{UL_grant} + T_{UE_re-establish_delay}.$

Where:

 T_{UL_grant} = It is the time required to acquire and process uplink grant from the target cell. The PRACH reception at the system simulator is used as a trigger for the completion of the test; hence T_{UL_grant} is not used.

 $T_{UE_re-establish_delay} = 50 \text{ ms} + N_{freq} * T_{search} + T_{SI} + T_{PRACH}$

$$N_{\text{freq}} = 2$$

 $T_{search} = 800 \text{ ms}$

 $T_{SI} = 1280$ ms; it is the time required for receiving all the relevant system information as defined in 3GPP TS 36.331 for the target E-UTRAN TDD cell.

250

 $T_{PRACH} = 15$ ms; it is the additional delay caused by the random access procedure.

This gives a total of 2945 ms, allow 3 s in the test case.

A.6.2 Random Access

A.6.2.1 E-UTRAN FDD – Contention Based Random Access Test

A.6.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the behavior of the random access procedure is according to the requirements and that the PRACH power settings and timing are within specified limits. This test will verify the requirements in Section 6.2.2 and Section 7.1.2 in an AWGN model.

For this test a single cell is used. The test parameters are given in tables A.6.2.1.1-1 and A.6.2.1.1-2.

Parameter	Unit	Value	Comments		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern Note 1		OP.1/2 FDD Note 1	As defined in A.3.2.1.1/2.		
PDSCH parameters Note 4		DL Reference Measurement	As defined in A.3.1.1.1.		
		Channel R.0 FDD Note 4			
PCFICH/PDCCH/PHICH		DL Reference Measurement	As defined in A.3.1.2.1.		
parameters		Channel R.6 FDD			
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA Note 1	dB				
OCNG_RB Note 1	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	3			
N_{oc}	dBm/15 KHz	-98			
\hat{E}_s/N_{oc}	dB	3			
lo Note 2	dBm/9 MHz	-65.5			
RSRP ^{Note 3}	dBm/15 KHz	-95			
referenceSignalPower	dBm/15 KHz	-5	As defined in clause 6.3.2 in 3GPP TS 36.331.		
Configured UE transmitted	dBm	23	As defined in clause 6.2.5		
power ($P_{\rm CMAX}$)			in 3GPP TS 36.101.		
PRACH Configuration Index	-	4	As defined in table 5.7.1-2 in 3GPP TS 36.211.		
Backoff Parameter Index	-	2	As defined in table 7.2-1 in 3GPP TS 36.321.		
Propagation Condition	-	AWGN			
Note 1:OCNG shall be used spectral density is ac according to the pressNote 2:Io level has been den	hieved for all Ol sence of a DL re	ell is fully allocated and a consta FDM symbols. The OCNG patte ference measurement channel. parameters for information purp	rn is chosen during the test		
parameter. Note 3: RSRP level has been derived from other parameters for information purposes. It is not a settable parameter.					

Table A.6.2.1.1-1: General test parameters for FDD contention based random access test

Note 4: The DL PDSCH reference measurement channel is used in the test only when a downlink transmission dedicated to the UE under test is required.

Field	Value	Comment		
powerRampingStep	dB2			
preambleInitialReceivedTargetPower	dBm-120			
preambleTransMax	n6			
ra-ResponseWindowSize	sf10	10 sub-frames		
mac-ContentionResolutionTimer	sf48	48 sub-frames		
maxHARQ-Msg3Tx	4			
Note: For further information see Section 6.3.2 in 3GPP TS 36.331.				

Table A.6.2.1.1-2: RACH-Configuration parameters for FDD contention based random access test

A.6.2.1.2 Test Requirements

Contention based random access is triggered by *not* explicitly assigning a random access preamble via dedicated signalling in the downlink.

A.6.2.1.2.1 Random Access Response Reception

To test the UE behavior specified in Subclause 6.2.2.1.1 the System Simulator shall transmit a Random Access Response containing a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble after 5 preambles have been received by the System Simulator. In response to the first 4 preambles, the System Simulator shall transmit a Random Access Preamble.

The UE may stop monitoring for Random Access Response(s) and shall transmit the msg3 if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble.

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires if all received Random Access Responses contain Random Access Preamble identifiers that do not match the transmitted Random Access Preamble.

In addition, the power applied to all preambles shall be in accordance with what is specified in Subclause 6.2.2. The power of the first preamble shall be -30 dBm. The power of the first preamble shall be -30 dBm with an accuracy specified in section 6.3.5.1.1 of 3GPP TS 36.101 [5]. The relative power applied to additional preambles shall have an accuracy specified in section 6.3.5.2.1 of 3GPP TS 36.101 [5].

The transmit timing of all PRACH transmissions shall be within the accuracy specified in Subclause 7.1.2.

A.6.2.1.2.2 No Random Access Response Reception

To test the UE behavior specified in subclause 6.2.2.1.2 the System Simulator shall transmit a Random Access Response containing a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble after 5 preambles have been received by the System Simulator. The System Simulator shall *not* respond to the first 4 preambles.

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires if no Random Access Response is received within the RA Response window.

In addition, the power applied to all preambles shall be in accordance with what is specified in Subclause 6.2.2. The power of the first preamble shall be -30 dBm with an accuracy specified in section 6.3.5.1.1 of 3GPP TS 36.101 [5]. The relative power applied to additional preambles shall have an accuracy specified in section 6.3.5.2.1 of 3GPP TS 36.101 [5].

The transmit timing of all PRACH transmissions shall be within the accuracy specified in Subclause 7.1.2.

A.6.2.1.2.3 Receiving a NACK on msg3

To test the UE behavior specified in subclause 6.2.2.1.3 the System Simulator shall NACK *all* UE msg3 following a successful Random Access Response.

The UE shall re-transmit the msg3 upon the reception of a NACK on msg3 until the maximum number of HARQ re-transmissions is reached.

A.6.2.1.2.4 Reception of an Incorrect Message over Temporary C-RNTI

To test the UE behavior specified in Subclause 6.2.2.1.5 the System Simulator shall send a message addressed to the temporary C-RNTI with a UE Contention Resolution Identity included in the MAC control element *not* matching the CCCH SDU transmitted in msg3 uplink message.

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires unless the received message includes a UE Contention Resolution Identity MAC control element and the UE Contention Resolution Identity included in the MAC control element matches the CCCH SDU transmitted in the uplink message.

A.6.2.1.2.5 Reception of a Correct Message over Temporary C-RNTI

To test the UE behavior specified in Subclause 6.2.2.1.5 the System Simulator shall send a message addressed to the temporary C-RNTI with a UE Contention Resolution Identity included in the MAC control element matching the CCCH SDU transmitted in the msg3 uplink message.

The UE shall send ACK if the Contention Resolution is successful.

A.6.2.1.2.6 Contention Resolution Timer expiry

To test the UE behavior specified in Subclause 6.2.2.1.6 the System Simulator shall not send a response to a msg3.

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires if the Contention Resolution Timer expires.

A.6.2.2 E-UTRAN FDD – Non-Contention Based Random Access Test

A.6.2.2.1 Test Purpose and Environment

The purpose of this test is to verify that the behavior of the random access procedure is according to the requirements and that the PRACH power settings and timing are within specified limits. This test will verify the requirements in Section 6.2.2 and Section 7.1.2 in an AWGN model.

For this test a single cell is used. The test parameters are given in tables A.6.2.2.1-1 and A.6.2.2.1-2.

Parameter	Unit	Value	Comments
E-UTRA RF Channel Number		1	
BW _{channel}	MHz	10	
OCNG Pattern		OP.1 FDD	As defined in A.3.2.1.1.
PDSCH parameters		DL Reference Measurement	As defined in A.3.1.1.1.
		Channel R.0 FDD	
PCFICH/PDCCH/PHICH		DL Reference Measurement	As defined in A.3.1.2.1.
parameters		Channel R.6 FDD	
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB	0	
PHICH_RB	dB	0	
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA Note 1	dB		
OCNG_RB Note 1	dB		
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	3	
N _{oc}	dBm/15 KHz	-98	
\hat{E}_s/N_{oc}	dB	3	
lo ^{Note 2}	dBm/9 MHz	-65.5	
RSRP ^{Note 3}	dBm/15 KHz	-95	
referenceSignalPower	dBm/15 KHz	-5	As defined in clause 6.3.2 in 3GPP TS 36.331.
Configured UE transmitted	dBm	23	As defined in clause 6.2.5
power ($P_{ m CMAX}$)			in 3GPP TS 36.101.
PRACH Configuration Index	-	4	As defined in table 5.7.1-2 in 3GPP TS 36.211.
Backoff Parameter Index	-	2	As defined in table 7.2-1 in 3GPP TS 36.321.
Propagation Condition	-	AWGN	
Note 1: OCNG shall be used su spectral density is achieved for	all OFDM symb	s fully allocated and a constant	-

Table A.6.2.2.1-1: General test parameters for FDD non-contention based random access test

Note 3: RSRP level has been derived from other parameters for information purposes. It is not a settable parameter.

Table A.6.2.2.1-2: RACH-Configuration parameters for FDD non-contention based random access test

Field	Value	Comment		
powerRampingStep	dB2			
preambleInitiaIReceivedTargetPower	dBm-120			
preambleTransMax	n6			
ra-ResponseWindowSize	sf10	10 sub-frames		
Note: For further information see Section 6.3.2 in 3GPP TS 36.331.				

A.6.2.2.2 Test Requirements

Non-Contention based random access is triggered by explicitly assigning a random access preamble via dedicated signalling in the downlink.

A.6.2.2.2.1 Random Access Response Reception

To test the UE behavior specified in Subclause 6.2.2.2.1 the System Simulator shall transmit a Random Access Response containing a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble after 5 preambles have been received by the System Simulator. In response to the first 4 preambles, the System Simulator shall transmit a Random Access Preamble.

The UE may stop monitoring for Random Access Response(s) if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble.

The UE shall re-transmit the preamble with the calculated PRACH transmission power if all received Random Access Responses contain Random Access Preamble identifiers that do not match the transmitted Random Access Preamble.

In addition, the power applied to all preambles shall be in accordance with what is specified in Subclause 6.2.2. The power of the first preamble shall be -30 dBm with an accuracy specified in section 6.3.5.1.1 of 3GPP TS 36.101 [5]. The relative power applied to additional preambles shall have an accuracy specified in section 6.3.5.2.1 of 3GPP TS 36.101 [5].

The transmit timing of all PRACH transmissions shall be within the accuracy specified in Subclause 7.1.2.

A.6.2.2.2.2 No Random Access Response Reception

To test the UE behavior specified in subclause 6.2.2.2.2 the System Simulator shall transmit a Random Access Response containing a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble after 5 preambles have been received by the System Simulator. The System Simulator shall *not* respond to the first 4 preambles.

The UE shall re-transmit the preamble with the calculated PRACH transmission power.

In addition, the power applied to all preambles shall be in accordance with what is specified in Subclause 6.2.2. The power of the first preamble shall be -30 dBm with an accuracy specified in section 6.3.5.1.1 of 3GPP TS 36.101 [5]. The relative power applied to additional preambles shall have an accuracy specified in section 6.3.5.2.1 of 3GPP TS 36.101 [5].

The transmit timing of all PRACH transmissions shall be within the accuracy specified in Subclause 7.1.2.

A.6.2.3 E-UTRAN TDD – Contention Based Random Access Test

A.6.2.3.1 Test Purpose and Environment

The purpose of this test is to verify that the behavior of the random access procedure is according to the requirements and that the PRACH power settings and timing are within specified limits. This test will verify the requirements in Section 6.2.2 and Section 7.1.2 in an AWGN model.

For this test a single cell is used. The test parameters are given in tables A.6.2.3.1-1 and A.6.2.3.1-2.

Parameter	Unit	Value	Comments	
E-UTRA RF Channel Number	-	1		
BW _{channel}	MHz	10		
OCNG Pattern Note 1	-	OP.1/2 TDD Note 1	As defined in A.3.2.2.1/2.	
PDSCH parameters Note 4	-	DL Reference Measurement Channel R.0 TDD Note 4	As defined in A.3.1.1.2.	
PCFICH/PDCCH/PHICH parameters	-	DL Reference Measurement Channel R.6 TDD	As defined in A.3.1.2.2.	
Special subframe configuration	-	6	As specified in table 4.2-1 in 3GPP TS 36.211.	
Uplink-downlink configuration	-	1	As specified in table 4.2-2 in 3GPP TS 36.211.	
PBCH_RA	dB			
PBCH_RB	dB			
PSS_RA	dB			
SSS_RA	dB			
PCFICH_RB	dB			
PHICH_RA	dB			
PHICH_RB	dB	0		
PDCCH_RA	dB			
PDCCH_RB	dB			
PDSCH_RA	dB			
PDSCH_RB	dB			
OCNG_RA Note 1	dB			
OCNG_RB Note 1	dB			
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	3		
N_{oc}	dBm/15 KHz	-98		
\hat{E}/N	dB	3		
lo Note 2	dBm/9 MHz	-65.5		
RSRP ^{Note 3}	dBm/15 KHz	-95		
referenceSignalPower	dBm/15 KHz	-5	As defined in clause 6.3.2 in 3GPP TS 36.331.	
Configured UE transmitted	dBm	23	As defined in clause 6.2.5	
power ($P_{ m CMAX}$)			in 3GPP TS 36.101.	
PRACH Configuration Index	CH Configuration Index -		As defined in table 5.7.1-3 in 3GPP TS 36.211.	
Backoff Parameter Index	-	2	As defined in table 7.2-1 in 3GPP TS 36.321.	
Propagation Condition	-	AWGN		
Note 1: OCNG shall be used such that the cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. The OCNG pattern is chosen during the test according to the presence of a DL reference measurement channel.				
parameter.		parameters for information purp		
Note 3: RSRP level has been settable parameter.	n derived from o	ther parameters for information	purposes. It is not a	

Table A.6.2.3.1-1: General test parameters for TDD contention based random access test

 settable parameter.

 Note 4:
 The DL PDSCH reference measurement channel is used in the test only when a downlink transmission dedicated to the UE under test is required.

Field	Value	Comment			
numberOfRA-Preambles	n52				
sizeOfRA-PreamblesGroupA	n52	No group B.			
powerRampingStep	dB2				
preambleInitialReceivedTargetPower	dBm-120				
preambleTransMax	n6				
ra-ResponseWindowSize	sf10	10 sub-frames			
mac-ContentionResolutionTimer	sf48	48 sub-frames			
maxHARQ-Msg3Tx	4				
Note: For further information see Section 6.3.2 in 3GPP TS 36.331.					

Table A.6.2.3.1-2: RACH-Configuration parameters for TDD contention based random access test

A.6.2.3.2 Test Requirements

Contention based random access is triggered by *not* explicitly assigning a random access preamble via dedicated signalling in the downlink.

A.6.2.3.2.1 Random Access Response Reception

To test the UE behavior specified in Subclause 6.2.2.1.1 the System Simulator shall transmit a Random Access Response containing a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble after 5 preambles have been received by the System Simulator. In response to the first 4 preambles, the System Simulator shall transmit a Random Access Preamble.

The UE may stop monitoring for Random Access Response(s) and shall transmit the msg3 if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble.

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires if all received Random Access Responses contain Random Access Preamble identifiers that do not match the transmitted Random Access Preamble.

In addition, the power applied to all preambles shall be in accordance with what is specified in Subclause 6.2.2. The power of the first preamble shall be -22 dBm with an accuracy specified in section 6.3.5.1.1 of 3GPP TS 36.101 [5]. The relative power applied to additional preambles shall have an accuracy specified in section 6.3.5.2.1 of 3GPP TS 36.101 [5].

The transmit timing of all PRACH transmissions shall be within the accuracy specified in Subclause 7.1.2.

A.6.2.3.2.2 No Random Access Response reception

To test the UE behavior specified in Subclause 6.2.2.1.2 the System Simulator shall transmit a Random Access Response containing a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble after 5 preambles have been received by the System Simulator. The System Simulator shall *not* respond to the first 4 preambles.

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires if no Random Access Response is received within the RA Response window.

In addition, the power applied to all preambles shall be in accordance with what is specified in Subclause 6.2.2. The power of the first preamble shall be -22 dBm with an accuracy specified in section 6.3.5.1.1 of 3GPP TS 36.101 [5]. The relative power applied to additional preambles shall have an accuracy specified in section 6.3.5.2.1 of 3GPP TS 36.101 [5].

The transmit timing of all PRACH transmissions shall be within the accuracy specified in Subclause 7.1.2.

A.6.2.3.2.3 Receiving a NACK on msg3

To test the UE behavior specified in Subclause 6.2.2.1.3 the System Simulator shall NACK *all* UE msg3 following a successful Random Access Response.

The UE shall re-transmit the msg3 upon the reception of a NACK on msg3 until the maximum number of HARQ re-transmissions is reached.

A.6.2.3.2.4 Reception of an Incorrect Message over Temporary C-RNTI

To test the UE behavior specified in Subclause 6.2.2.1.5 the System Simulator shall send a message addressed to the temporary C-RNTI with a UE Contention Resolution Identity included in the MAC control element *not* matching the CCCH SDU transmitted in msg3 uplink message.

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires unless the received message includes a UE Contention Resolution Identity MAC control element and the UE Contention Resolution Identity included in the MAC control element matches the CCCH SDU transmitted in the uplink message.

A.6.2.3.2.5 Reception of a Correct Message over Temporary C-RNTI

To test the UE behavior specified in Subclause 6.2.2.1.5 the System Simulator shall send a message addressed to the temporary C-RNTI with a UE Contention Resolution Identity included in the MAC control element matching the CCCH SDU transmitted in the msg3 uplink message.

The UE shall send ACK if the Contention Resolution is successful.

A.6.2.3.2.6 Contention Resolution Timer expiry

To test the UE behavior specified in Subclause 6.2.2.1.6 the System Simulator shall not send a response to a msg3.

The UE shall re-select a preamble and transmit with the calculated PRACH transmission power when the backoff time expires if the Contention Resolution Timer expires.

A.6.2.4 E-UTRAN TDD – Non-Contention Based Random Access Test

A.6.2.4.1 Test Purpose and Environment

The purpose of this test is to verify that the behavior of the random access procedure is according to the requirements and that the PRACH power settings and timing are within specified limits. This test will verify the requirements in Section 6.2.2 and Section 7.1.2 in an AWGN model.

For this test a single cell is used. The test parameters are given in tables A.6.2.4.1-1 and A.6.2.4.1-2.

Parameter	Unit	Value	Comments
E-UTRA RF Channel Number	-	1	
BW _{channel}	MHz	10	
OCNG Pattern	-	OP.1 TDD	As defined in A.3.2.2.1.
PDSCH parameters	-	DL Reference Measurement Channel R.0 TDD	As defined in A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters	-	DL Reference Measurement Channel R.6 TDD	As defined in A.3.1.2.2.
Special subframe configuration	-	6	As specified in table 4.2-1 in 3GPP TS 36.211.
Uplink-downlink configuration	-	1	As specified in table 4.2-2 in 3GPP TS 36.211.
PBCH_RA	dB		
PBCH_RB	dB		
PSS_RA	dB		
SSS_RA	dB		
PCFICH_RB	dB		
PHICH_RA	dB	_	
PHICH_RB	dB	0	
PDCCH_RA	dB		
PDCCH_RB	dB		
PDSCH_RA	dB		
PDSCH_RB	dB		
OCNG_RA Note 1	dB		
OCNG_RB Note 1	dB		
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	3	
N _{oc}	dBm/15 KHz	-98	
\hat{E}_s/N_{oc}	dB	3	
lo Note 2	dBm/9 MHz	-65.5	
RSRP Note 3	dBm/15 KHz	-95	
referenceSignalPower	dBm/15 KHz	-5	As defined in clause 6.3.2 in 3GPP TS 36.331.
Configured UE transmitted power ($P_{\rm CMAX}$)	dBm	23	As defined in clause 6.2.5 in 3GPP TS 36.101.
PRACH Configuration Index	-	53	As defined in table 5.7.1-3 in 3GPP TS 36.211.
Backoff Parameter Index	-	2	As defined in table 7.2-1 in 3GPP TS 36.321.
Propagation Condition		AWGN	

Table A.6.2.4.1-1: General test parameters for TDD non-contention based random access test

Note 1: OCNG shall be used such that the cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

Note 2: lo level has been derived from other parameters for information purpose. It is not a settable parameter.

Note 3: RSRP level has been derived from other parameters for information purposes. It is not a settable parameter.

Field	Value	Comment		
powerRampingStep	dB2			
preambleInitialReceivedTargetPower	dBm-120			
preambleTransMax	n6			
ra-ResponseWindowSize	sf10	10 sub-frames		
Note: For further information see Section 6.3.2 in 3GPP TS 36.331.				

Table A.6.2.4.1-2: RACH-Configuration parameters for TDD non-contention based random access test

A.6.2.4.2 Test Requirements

Non-Contention based random access is triggered by explicitly assigning a random access preamble via dedicated signalling in the downlink.

A.6.2.4.2.1 Random Access Response Reception

To test the UE behavior specified in Subclause 6.2.2.2.1 the System Simulator shall transmit a Random Access Response containing a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble after 5 preambles have been received by the System Simulator. In response to the first 4 preambles, the System Simulator shall transmit a Random Access Preamble.

The UE may stop monitoring for Random Access Response(s) if the Random Access Response contains a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble.

The UE shall re-transmit the preamble with the calculated PRACH transmission power if all received Random Access Responses contain Random Access Preamble identifiers that do not match the transmitted Random Access Preamble.

In addition, the power applied to all preambles shall be in accordance with what is specified in Subclause 6.2.2. The power of the first preamble shall be -22 dBm with an accuracy specified in section 6.3.5.1.1 of 3GPP TS 36.101 [5]. The relative power applied to additional preambles shall have an accuracy specified in section 6.3.5.2.1 of 3GPP TS 36.101 [5].

The transmit timing of all PRACH transmissions shall be within the accuracy specified in Subclause 7.1.2.

A.6.2.4.2.2 No Random Access Response Reception

To test the UE behavior specified in Subclause 6.2.2.2 the System Simulator shall transmit a Random Access Response containing a Random Access Preamble identifier corresponding to the transmitted Random Access Preamble after 5 preambles have been received by the System Simulator. The System Simulator shall *not* respond to the first 4 preambles.

The UE shall re-transmit the preamble with the calculated PRACH transmission power.

In addition, the power applied to all preambles shall be in accordance with what is specified in Subclause 6.2.2. The power of the first preamble shall be -22 dBm with an accuracy specified in section 6.3.5.1.1 of 3GPP TS 36.101 [5]. The relative power applied to additional preambles shall have an accuracy specified in section 6.3.5.2.1 of 3GPP TS 36.101 [5].

The transmit timing of all PRACH transmissions shall be within the accuracy specified in Subclause 7.1.2.

A.6.3 RRC Connection Release with Redirection

A.6.3.1 Redirection from E-UTRAN FDD to UTRAN FDD

A.6.3.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct performing the RRC connection release with redirection to the target UTRAN FDD cell. This test will partly verify the RRC connection release with redirection to UTRAN FDD cell requirements in section 6.3.2.1.

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The test parameters are given in Tables A.6.3.1.1-1, A.6.3.1.1-2 and A.6.3.1.1-3 below. The test consists of two successive time periods, with time duration of T1, and T2 respectively. The "*RRCConnectionRelease*" message containing the relevant system information of Cell 2 shall be sent to the UE during period T1 and the start of T2 is the instant when the last TTI containing the RRC message is sent to the UE. Prior to time duration T2, the UE shall not have any timing information of Cell 2. Cell 2 is powered up at the beginning of the T2.

Table A.6.3.1.1-1: General test parameters for RRC Connection Release with Redirection from E-UTRAN FDD to UTRAN FDD under AWGN propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement	As specified in section A.3.1.1.1.
		Channel R.0 FDD	
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1.
(E-UTRAN FDD)		Channel R.6 FDD	
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Bandwidth	MH	10	
(BW _{channel})	Z		
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used.
Inter-RAT (UTRA FDD)		CPICH Ec/lo	
measurement quantity			
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
UTRA FDD cell list size		16	UTRA cells on UTRA RF channel 1 provided
			in the "RRCConnectionRelease" message
			from the E-UTRAN
T1	S	≤5	
T2	S	1	

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.1.1 (OP.1 FDD)		OP.1 FDD			
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB	0			
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RANote 1	dB				
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4		
$N_{_{oc}}$ Note 3	dBm/15 kHz	-98	3		
\hat{E}_s / N_{oc}	dB	4	4		
RSRP ^{Note 4}	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
Propagation Condition		AWO	GN		
Note 1: OCNG shall be used spectral density is acl Note 2: The resources for upl	I such that the cell is fully allocated and a constant total transmitted power chieved for all OFDM symbols. Solink transmission are assigned to the UE prior to the start of time period T2. Ther cells and noise sources not specified in the test is assumed to be constant				
over subcarriers and	time and shall be	ime and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be			
fulfilled.	en derived from other parameters for information purposes. They are not				

Table A.6.3.1.1-2: Cell specific test parameters for cell #1 E-UTRAN FDD to UTRAN FDD RRC release with redirection under AWGN propagation conditions

Table A.6.3.1.1-3: Cell specific test parameters for cell #2 E-UTRAN FDD to UTRAN FDD RRC release with redirection under AWGN propagation conditions

Parameter	Unit	Cell 2	2			
		T1	T2			
UTRA RF Channel Number		1				
CPICH_Ec/lor	dB	-10				
PCCPCH_Ec/lor	dB	-12				
SCH_Ec/lor	dB	-12				
PICH_Ec/lor	dB	-15				
DPCH_Ec/lor	dB	N/A				
OCNS		-0.94	1			
\hat{I}_{or}/I_{oc}	dB	-∞ 0.02				
I _{oc}	dBm/3.84 MHz	-70				
CPICH_Ec/Io ^{Note 3}	dB	-∞	-13			
Propagation Condition		AWGN				
Note 1: The DPCH level is c	ontrolled by the p	oower control loop.				
Note 2: The power of the OC	NS channel that is added shall make the total power from the cell to be equal					
to I _{or} .						
Note 3: This gives an SCH E	Ec/lo of -15dB					

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A.6.3.1.2 Test Requirements

The UE shall start to transmit random access to Cell 2 less than 650 ms from the beginning of time period T2.

The rate of correct RRC connection release redirection to UTRAN FDD observed during repeated tests shall be at least 90%.

NOTE: The Re-establishment delay in this case can be expressed as

 $T_{connection_release_redirect_UTRA~FDD} = T_{RRC_procedure_delay} + T_{identify_UTRA~FDD} + T_{SI_UTRA~FDD} + T_{RA}$

where

 $T_{RRC_procedure_delay} = 110 \text{ ms}$

 $T_{identify-UTRA FDD} = 500 \text{ ms}$

 $T_{SI-UTRA FDD}$ = the time required for acquiring all the relevant system information of the target UTRA FDD cell. This time depends upon whether the UE is provided with the relevant system information of the target UTRA FDD cell or not by the E-UTRAN before the RRC connection is released. 0 ms is assumed in this test case.

 T_{RA} = The additional delay caused by the random access procedure. 40 ms is assumed in this test case.

This gives a total of 650 ms.

A.6.3.2 Redirection from E-UTRAN TDD to UTRAN FDD

A.6.3.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct performing the RRC connection release with redirection to the target UTRAN FDD cell. This test will partly verify the RRC connection release with redirection to UTRAN FDD cell requirements in section 6.3.2.1.

The test parameters are given in Tables A.6.3.2.1-1, A.6.3.2.1-2 and A.6.3.2.1-3 below. The test consists of two successive time periods, with time duration of T1, and T2 respectively. The "*RRCConnectionRelease*" message containing the relevant system information of Cell 2 shall be sent to the UE during period T1 and the start of T2 is the instant when the last TTI containing the RRC message is sent to the UE. Prior to time duration T2, the UE shall not have any timing information of cell 2. Cell 2 is powered up at the beginning of the T2,

Table A.6.3.2.1-1: General test parameters for RRC Connection Release with Redirection from E-UTRAN TDD to UTRAN FDD under AWGN propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth	MHz	10	
(BW _{channel})			
Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211
Uplink-downlink configuration		1	As specified in table 4.2-2 in TS 36.211
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used.
Inter-RAT (UTRA FDD)		CPICH Ec/lo	
measurement quantity			
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
UTRA FDD cell list size		16	UTRA cells on UTRA RF channel 1 provided in the " <i>RRCConnectionRelease</i> " message from the E-UTRAN
T1	s	≤5	
T2	S	1	

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.1.2 (OP.1 TDD)		OP.1 TDD			
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4		
Note 3	dBm/15 kHz	-98	3		
\hat{E}_s/N_{oc}	dB	4	4		
RSRP ^{Note 4}	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
Propagation Condition		AWG	GN		
Note 1: OCNG shall be used spectral density is ac Note 2: The resources for upl	d such that the cell is fully allocated and a constant total transmitted power chieved for all OFDM symbols. Dink transmission are assigned to the UE prior to the start of time period T2. her cells and noise sources not specified in the test is assumed to be constant				
		ne and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be			
fulfilled.	n derived from other parameters for information purposes. They are not				

Table A.6.3.2.1-2: Cell specific test parameters for cell #1 E-UTRAN TDD to UTRAN FDD RRC release with redirection under AWGN propagation conditions

Table A.6.3.2.1-3: Cell specific test parameters for cell #2 E-UTRAN TDD to UTRAN FDD RRC release with redirection under AWGN propagation conditions

Parameter	Unit	Cell 2			
		T1	T2		
UTRA RF Channel Number		1			
CPICH_Ec/lor	dB	-10			
PCCPCH_Ec/lor	dB	-12			
SCH_Ec/lor	dB	-12			
PICH_Ec/lor	dB	-15			
DPCH_Ec/lor	dB	N/A			
OCNS		-0.941			
\hat{I}_{or}/I_{oc}	dB	- ∞	0.02		
I _{oc}	dBm/3.84 MHz -70				
CPICH_Ec/Io ^{Note 3}	dB	- ∞	-13		
Propagation Condition	AWGN				
Note 1: The DPCH level is controlled by the power control loop.					
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal					
to I _{or} .					
Note 3: This gives an SCH Ec/lo of -15dB					

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A.6.3.2.2 Test Requirements

The UE shall start to transmit random access to Cell 2 less than 650 ms from the beginning of time period T2.

The rate of correct RRC connection release redirection to UTRA FDD observed during repeated tests shall be at least 90%.

NOTE: The Re-establishment delay in this case can be expressed as

 $T_{connection_release_redirect_UTRA~FDD} = T_{RRC_procedure_delay} + T_{identify_UTRA~FDD} + T_{SI_UTRA~FDD} + T_{RA}$

where

 $T_{RRC_procedure_delay} = 110 \text{ ms}$

 $T_{identify-UTRA FDD} = 500 \text{ ms}$

 $T_{SI-UTRA FDD}$ = the time required for acquiring all the relevant system information of the target UTRA FDD cell. This time depends upon whether the UE is provided with the relevant system information of the target UTRA FDD cell or not by the E-UTRAN before the RRC connection is released. 0 ms is assumed in this test case.

 T_{RA} = The additional delay caused by the random access procedure. 40 ms is assumed in this test case.

This gives a total of 650 ms.

A.6.3.3 Redirection from E-UTRAN FDD to GERAN when System Information is provided

A.6.3.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs the RRC connection release with redirection from the E-UTRA FDD to the target GERAN cell within $T_{connection_release_redirect_GERAN}$. This test will partly verify the RRC connection release with redirection to GERAN requirements in section 6.3.2.2.

The test parameters are given in Tables A.6.3.3.1-1, A.6.3.3.1-2 and A.6.3.3.1-3 below. No measurement gaps are configured. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. The start of T2 is the instant when the last TTI containing the RRC message, "*RRCConnectionRelease*", is received by the UE from cell 1. The "*RRCConnectionRelease*" message shall contain all the relevant system information of cell 2.

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference	As specified in section A.3.1.1.1.
		Measurement Channel R.0	
		FDD	
PCFICH/PDCCH/PHICH parameters		DL Reference	As specified in section A.3.1.2.1.
(E-UTRAN FDD)		Measurement Channel R.6	
		FDD	
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on Absolute RF Channel Number
_			1 (GSM cell)
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is
			used.
E-UTRA Channel Bandwidth	MHz	10	
(BW _{channel})			
DRX		OFF	
Monitored GSM cell list size		6 GSM neighbour including	GSM cells are provided in the
		ARFCN 1	"RRCConnectionRelease" message.
T1	S	5	
T2	S	2	

Table A.6.3.3.1-1: General test parameters for RRC connection release with redirection from E-UTRAN FDD to GERAN in AWGN

Parameter	Unit	Cell	1			
		T1	T2			
E-UTRA RF Channel Number		1				
BW _{channel}	MHz	10				
OCNG Pattern defined in						
A.3.2.1.1 (OP.1 FDD)		OP.1 FDD				
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0				
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB	B				
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
\hat{E}_{s}/I_{ot}	dB	4	4			
\hat{E}_s/N_{oc}	dB	4	4			
N _{oc}	dBm/15 kHz	-98	3			
RSRP	dBm/15 kHz	-94	-94			
SCH_RP	dBm/15 kHz	-94	-94			
Propagation Condition		AWGN				
Note 1: OCNG shall be used	d such that the cell is fully allocated and a constant total transmitted power					
	achieved for all OFDM symbols. other cells and noise sources not specified in the test is assumed to be constant					
over subcarriers and	riers and time and shall be modelled as AWGN of appropriate power for N_{ac} to be					
fulfilled. Note 3: RSRP levels have be						

Table A.6.3.3.1-2: Cell specific test parameters for E-UTRA FDD cell (cell #1) for RRC connection release with redirection from E-UTRAN FDD to GERAN in AWGN

Table A.6.3.3.1-3: Cell specific test parameters for GERAN cell (cell #2) for RRC connection release with redirection from E-UTRAN FDD to GERAN in AWGN

Parameter	Unit	Cell 2	
		T1	T2
Absolute RF Channel Number		AF	RFNC 1
RXLEV	dBm	-Infinity	-75
GSM BSIC		N/A	Valid

A.6.3.3.2 Test Requirements

The UE shall begin to send access bursts on RACH of the target GERAN cell (cell #2) less than 1120 ms from the beginning of time period T2.

The rate of correct "RRC connection release with redirection to GERAN" observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this test case is expressed as:

 $T_{connection_release_redirect_GERAN} = T_{RRC_procedure_delay} + T_{identify_GERAN} + T_{SI_GERAN} + T_{RA}$

 $T_{RRC_procedure_delay} = 110 \text{ ms}$, which is the time for processing the received message "*RRCConnectionRelease*.

 $T_{identify-GERAN} = 1000$ ms, which is the time for identifying the target GERAN cell.

 $T_{SI-GERAN} = 0$; UE does not have to read the system information of the GERAN cell since all relevant SI is provided to the UE in the "*RRCConnectionRelease*" message.

 $T_{RA} = 10$ ms, which is about 2 GSM frames (2*4.65 ms) to account for the GSM timing uncertainty.

A.6.3.4 Redirection from E-UTRAN TDD to GERAN when System Information is provided

A.6.3.4.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs the RRC connection release with redirection from the E-UTRA TDD to the target GERAN cell within $T_{connection_release_redirect_GERAN}$. This test will partly verify the RRC connection release with redirection to GERAN requirements in section 6.3.2.2.

The test parameters are given in Tables A.6.3.4.1-1, A.6.3.4.1-2 and A.6.3.4.1-3 below. No measurement gaps are configured. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. The start of T2 is the instant when the last TTI containing the RRC message, "*RRCConnectionRelease*", is received by the UE from cell 1. The "*RRCConnectionRelease*" message shall contain all the relevant system information of cell 2.

Table A.6.3.4.1-1: General test parameters for RRC connection release with redirection from E-UTRAN TDD to GERAN in AWGN

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Active		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on Absolute RF Channel Number 1 (GSM cell)
CP length		Normal	Applicable to cell 1
Special subframe configuration		6	As specified in table 4.2.1 in TS 36.211. The same configuration applies to all cells.
Uplink-downlink configuration		1	
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
DRX		OFF	
Monitored GSM cell list size		6 GSM neighbour including ARFCN 1	GSM cells are provided in the "RRCConnectionRelease" message.
T1	S	5	
T2	S	2	

Parameter	Unit	Cell	1			
		T1	T2			
E-UTRA RF Channel Number		1				
BW _{channel}	MHz	10				
OCNG Pattern defined in						
A.3.2.2.1 (OP.1 TDD)		OP.1 TDD				
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0				
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB	В				
OCNG_RA ^{Note 1}	dB	b				
OCNG_RB ^{Note 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4			
\hat{E}_s/N_{oc}	dB	4	4			
N _{oc}	dBm/15 kHz	-98	3			
RSRP	dBm/15 kHz	-94	-94			
SCH_RP	dBm/15 kHz	-94	-94			
Propagation Condition		AWGN				
	d such that the cell is fully allocated and a constant total transmitted power					
	s achieved for all OFDM symbols. other cells and noise sources not specified in the test is assumed to be constant					
	nd time and shall be modelled as AWGN of appropriate power for N_{ac} to be					
fulfilled. Note 3: RSRP levels have be	fulfilled.					

Table A.6.3.4.1-2: Cell specific test parameters for E-UTRA TDD cell (cell #1) for RRC connection release with redirection from E-UTRAN TDD to GERAN in AWGN

Table A.6.3.4.1-3: Cell specific test parameters for GERAN cell (cell #2) for RRC connection release with redirection from E-UTRAN TDD to GERAN in AWGN

Parameter	Unit	Cell 2		
		T1	T2	
Absolute RF Channel Number		ARFNC 1		
RXLEV	dBm	-Infinity	-75	
GSM BSIC		N/A	Valid	

A.6.3.4.2 Test Requirements

The UE shall begin to send access bursts on RACH of the target GERAN cell (cell #2) less than 1120 ms from the beginning of time period T2.

The rate of correct "RRC connection release with redirection to GERAN" observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this test case is expressed as:

 $T_{connection_release_redirect_GERAN} = T_{RRC_procedure_delay} + T_{identify_GERAN} + T_{SI_GERAN} + T_{RA}$

 $T_{RRC_procedure_delay} = 110 \text{ ms}$, which is the time for processing the received message "*RRCConnectionRelease*.

 $T_{identify-GERAN} = 1000$ ms, which is the time for identifying the target GERAN cell.

A.6.3.5 E-UTRA TDD RRC connection release redirection to UTRA TDD

A.6.3.5.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs the RRC connection release with redirection from the E-UTRA TDD to the target UTRA TDD cell within $T_{connection_release_redirect_UTRA TDD}$. This test will partly verify the RRC connection release with redirection to UTRA TDD requirements in section 6.3.2.3.

The test parameters are given in table A.6.3.5.1-1, table A.6.3.5.1-2, and table A.6.3.5.1-3. No measurement gaps are configured. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. The "*RRCConnectionRelease*" message containing the relevant system information of Cell 2 shall be sent to the UE during period T1 and the start of T2 is the instant when the last TTI containing the RRC message, "*RRCConnectionRelease*", is received by the UE from cell 1. The "*RRCConnectionRelease*" message shall contain all the relevant system information of Cell 2.

Table A.6.3.5.1-1: General test parameters for E-UTRA TDD RRC connection release redirection to UTRA TDD

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
Time offset between cells	ms	3	Asynchronous cells
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
CP length		Normal	Applicable to cell 1
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
Uplink-downlink configuration of cell1		1	As specified in table 4.2-2 in TS 36.211
UTRA RF Channel Number		1	One UTRA TDD carrier frequency is used.
UTRA RF Channel Number		1	One UTRA TDD carrier frequency is used.
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA TDD cell list size		16	UTRA cells on UTRA RF channel 1 provided in the " <i>RRCConnectionRelease</i> " message from the E-UTRAN
T1	S	5	
T2	S	1	

Parameter	Unit	Cell	1				
		T1	T2				
E-UTRA RF Channel Number		1					
BW _{channel}	MHz	10					
OCNG Pattern defined in							
A.3.2.2.1 (OP.1 TDD)		OP.1	TDD				
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB	_					
PHICH_RB	dB	0					
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4				
N_{oc} Note 3	dBm/15 kHz	-98	3				
\hat{E}_s/N_{oc}	dB	4	4				
RSRP Note 4	dBm/15 kHz	-94	-94				
SCH_RP	dBm/15 kHz	-94	-94				
Propagation Condition		AWC					
Note 1: OCNG shall be used spectral density is acl							
	or uplink transmission are assigned to the UE prior to the start of time period T2.						
Note 3: Interference from othe	nterference from other cells and noise sources not specified in the test is assumed to be constant						
over subcarriers and	over subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be						
fulfilled.							
Note 4: RSRP levels have been derived from other parameters for information purposes. They are not							
settable parameters t	nemseives.						

Table A.6.3.5.1-2: Cell specific test parameters for cell 1 in E-UTRA TDD RRC connection release redirection to UTRA TDD test

Table A.6.3.5.1-3: Cell specific test parameters for cell 2 in E-UTRA TDD RRC connection release redirection to UTRA TDD test

Parameter	Parameter Unit Cel					
Timeslot Number	0 Dw				PTS	
		T1	T2	T1	T2	
UTRA RF Channel Number ^{Note1}			Char	nnel 1		
PCCPCH_Ec/lor	dB	-4.77	-4.77			
DwPCH_Ec/lor	dB			0	0	
OCNS_Ec/lor ^{Note2}	dB	-1.76	-1.76			
\hat{I}_{or}/I_{oc}	dB	-inf	8	-inf	8	
I _{oc}	dBm/1.28 MHz -80					
PCCPCH RSCP Note3	-inf	-76.77	n.a.	n.a.		
PCCPCH_Ec/Io Note3	dB	-inf	-5.41	n.a.	n.a.	
DwPCH_Ec/lo	dB	n.a.	n.a.	-inf	-0.64	
Propagation Condition			AW	/GN		
Note 1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number.						
Note 2: The power of the OCNS channel that is added shall make the total power from the						
cell to be equal to I _{or} .						
Note 3: P-CCPCH RSRP, PCCPCH_Ec/lo and DwPCH_Ec/lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

A.6.3.5.2 Test Requirements

The UE shall start to transmit the SYNCH-UL sequence in the UpPTS to Cell 2 less than 650 ms from the beginning of time period T2.

The rate of correct RRC connection release redirection to UTRA TDD observed during repeated tests shall be at least 90%.

NOTE: The time delay can be expressed as: $T_{RRC_{procedure_{delay}}} + T_{identify-UTRA TDD} + T_{SI-UTRA TDD} + T_{RA}$, where:

 $T_{RRC_{procedure_{delay}}} = 110 \text{ ms}$, which is specified in section 6.3.2.3.

 $T_{identify-UTRA TDD} = 500 \text{ ms}$; which is defined in section 6.3.2.3.

- $T_{SI-UTRA TDD} = 0$ ms, UE does not have to read the system information of the UTRAN TDD since all relevant SI is provided to the UE in the "*RRCConnectionRelease*" message.
- $T_{RA} = 40$ ms. This is the additional delay caused by the random access procedure

It gives a total delay of 650 ms.

A.6.3.6 E-UTRA FDD RRC connection release redirection to UTRA TDD

A.6.3.6.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs the RRC connection release with redirection from the E-UTRA FDD to the target UTRA TDD cell within $T_{connection_release_redirect_UTRA TDD}$. This test will partly verify the RRC connection release with redirection to UTRA TDD requirements in section 6.3.2.3.

The test parameters are given in table A.6.3.6.1-1, table A.6.3.6.1-2, and table A.6.3.6.1-3. No measurement gaps are configured. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. The "*RRCConnectionRelease*" message containing the relevant system information of Cell 2 shall be sent to the UE during period T1 and the start of T2 is the instant when the last TTI containing the RRC message, "*RRCConnectionRelease*", is received by the UE from cell 1. The "*RRCConnectionRelease*" message shall contain all the relevant system information of Cell 2.

Table A.6.3.6.1-1: General test parameters for E-UTRA FDD RRC connection release redirection to UTRA TDD

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN		DL Reference Measurement	As specified in section A.3.1.1.1.
FDD)		Channel R.0 FDD	
PCFICH/PDCCH/PHICH		DL Reference Measurement	As specified in section A.3.1.2.1.
parameters (E-UTRAN FDD)		Channel R.6 FDD	
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number
			1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
CP length		Normal	Applicable to cell 1
Time offset between cells	ms	3	Asynchronous cells
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is
			used.
E-UTRA Channel Bandwidth	MHz	10	
(BW _{channel})			
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA TDD cell list size		16	UTRA cells on UTRA RF channel 1
			provided in the "RRCConnectionRelease"
			message from the E-UTRAN
T1	S	5	
T2	S	1	

Table A.6.3.6.1-2: Cell specific test parameters for cell 1 in E-UTRA FDD RRC connection release redirection to UTRA TDD test

T1T2E-UTRA RF Channel Number1BW channelMHzOCNG Patterns defined in A.3.2.1.1 (OP.1 FDD)OP.1 FDDPBCH_RAdBPBCH_RAdBPSS_RAdBPSS_RAdBPSCH_RBdBPHICH, RAdBPDCCH, RAdBPDCCH, RAdBPDCCH, RAdBPDCCH, RAdBPDSCH_RBdBOCNG_RA^NOBE1dBOCNG_RANOBE1dBDSCH_RBdBQCNG_RANOBE1dBA4AAPSCH_RAdBQCNG_RANOBE1dBA4AASch_rAdBQCNG_RANOBE1dBA4AANote 3dBm/15 kHz-94-94SCH_RPdBm/15 kHz-94-94SCH_RPdBm/15 kHz-94-94SCH_RPdBm/15 kHz-94-94SCH_RPdBm/15 kHz-94-94SCH_RPdBm/15 kHz-94-94SCH_RPdBm/15 kHz-94-94SCH_RPchieved for all OFDM symbols.Note 1:OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:The resources for uplink transmission are assigned to the UE prior to the start of time period T2.Note 3:<	Parameter	Unit	Cell 1			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$			T1	T2		
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	E-UTRA RF Channel Number		1			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		MHz	10			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $						
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$			UP.1 FDD			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		-				
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $						
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $						
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$\begin{array}{c c c c c c c c c c c c c c c c c c c $		-	0			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $						
$\begin{array}{ c c c c c }\hline OCNG_RA^{Note 1} & dB & \\ \hline OCNG_RB^{Note 1} & dB & \\ \hline \hat{E}_s/I_{ot} & & & & & & & & & & & & & & & & & & &$		-				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	PDSCH_RB					
$\begin{array}{ c c c c c }\hline \hat{E}_{s}/I_{ot} & dB & 4 & 4 \\ \hline N_{oc} & ^{Note 3} & dBm/15 \ \text{kHz} & -98 \\ \hline \hat{E}_{s}/N_{oc} & dB & 4 & 4 \\ \hline RSRP & ^{Note 4} & dBm/15 \ \text{kHz} & -94 & -94 \\ \hline SCH_RP & dBm/15 \ \text{kHz} & -94 & -94 \\ \hline Propagation Condition & AWGN \\ \hline Note 1: & OCNG \ shall \ be \ used \ such \ that \ both \ cells \ are \ fully \ allocated \ and \ a \ constant \ total \ transmitted \ power \ spectral \ density \ is \ achieved \ for \ all \ OFDM \ symbols. \\ \hline Note 2: & The \ resources \ for \ uplink \ transmission \ are \ assigned \ to \ the \ UE \ prior \ to \ the \ start \ of \ time \ period \ T2. \\ \hline Note 3: & Interference \ from \ other \ cells \ and \ noise \ sources \ not \ specified \ in \ the \ test \ is \ assumed \ to \ be \ constant \ over \ subcarriers \ and \ time \ and \ shall \ be \ modelled \ as \ AWGN \ of \ appropriate \ power \ for \ N_{oc} \ to \ be \ notes \ notes \ and \ according \ the \ test \ the \ test \ $	OCNG_RANOLE 1	-				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		-				
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	\hat{E}_{s}/I_{ot}		4 4			
Es / Noc ABm/15 kHz -94 RSRP Note 4 dBm/15 kHz -94 SCH_RP dBm/15 kHz -94 Propagation Condition AWGN Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be	$N_{_{oc}}$ Note 3	dBm/15 kHz	-98			
SCH_RP dBm/15 kHz -94 -94 Propagation Condition AWGN Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N _{oc} to be	\hat{E}_s/N_{oc}	dB	4	4		
Propagation Condition AWGN Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N _{oc} to be	RSRP ^{Note 4}	dBm/15 kHz	-94	-94		
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N _{oc} to be	SCH_RP	dBm/15 kHz	-94	-94		
spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be	Propagation Condition					
Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be	Note 1: OCNG shall be used	such that both c	ells are fully allocated and a cons	tant total transmitted power		
Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be		is achieved for all OFDM symbols.				
over subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be						
	Note 3: Interference from oth	nterference from other cells and noise sources not specified in the test is assumed to be constant				
fulfilled	over subcarriers and	over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{ac} to be				
	fulfilled.					
Note 4: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.	Note 4: RSRP levels have be					

Table A.6.3.6.1-3: Cell specific test parameters for cell 2 in E-UTRA FDD RRC connection release redirection to UTRA TDD test

Parameter	Unit		Cell 2 (UT	(RA TDD)		
Timeslot Number		()	DwPTS		
		T1	T2	T1	T2	
UTRA RF Channel Number ^{Note1}			Char	nel 1		
PCCPCH_Ec/lor	dB	-4.77	-4.77			
DwPCH_Ec/lor	dB			0	0	
OCNS_Ec/lor ^{Note2}	dB	-1.76	-1.76			
\hat{I}_{or}/I_{oc}	dB	-inf	8	-inf	8	
I _{oc}	dBm/1.28 MHz -80					
PCCPCH RSCP Note3	dBm	-inf	-76.77	n.a.	n.a.	
PCCPCH_Ec/Io Note3	dB	-inf	-5.41	n.a.	n.a.	
DwPCH_Ec/lo	dB	n.a.	n.a.	-inf	-0.64	
Propagation Condition			AW	÷		
frequency's channel nun						
Note 2: The power of the OCNS channel that is added shall make the total power from the						
cell to be equal to I _{or} . Note 3: P-CCPCH RSRP, PCCPCH_Ec/Io and DwPCH_Ec/Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

A.6.3.6.2 Test Requirements

The UE shall start to transmit the SYNCH-UL sequence in the UpPTS to Cell 2 less than 650 ms from the beginning of time period T2.

The rate of correct RRC connection release redirection to UTRA TDD observed during repeated tests shall be at least 90%.

NOTE: The time delay can be expressed as: $T_{RRC_procedure_delay} + T_{identify-UTRA TDD} + T_{SI-UTRA TDD} + T_{RA}$, where:

 $T_{RRC_{procedure_{delay}}} = 110 \text{ ms}$, which is specified in section 6.3.2.3.

 $T_{identify-UTRA TDD} = 500 \text{ ms}$; which is defined in section 6.3.2.3.

 $T_{SI-UTRA TDD} = 0$ ms, UE does not have to read the system information of the UTRAN TDD since all relevant SI is provided to the UE in the "*RRCConnectionRelease*" message.

 $T_{RA} = 40$ ms. This is the additional delay caused by the random access procedure.

This gives a total delay of 650 ms.

A.6.3.7 E-UTRA TDD RRC connection release redirection to UTRA TDD without SI provided

A.6.3.7.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs the RRC connection release with redirection from the E-UTRA TDD to the target UTRA TDD cell within $T_{connection_release_redirect_UTRA TDD}$. This test will partly verify the RRC connection release with redirection to UTRA TDD requirements in section 6.3.2.3.

The test parameters are given in table A.6.3.7.1-1, table A.6.3.7.1-2, and table A.6.3.7.1-3. No measurement gaps are configured. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. The "*RRCConnectionRelease*" message not containing the relevant system information of Cell 2 shall be sent to the UE during period T1 and the start of T2 is the instant when the last TTI containing the RRC message, "*RRCConnectionRelease*", is received by the UE from Cell 1.

Table A.6.3.7.1-1: General test parameters for E-UTRA TDD RRC connection release redirection to UTRA TDD without SI provided

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN		DL Reference Measurement	As specified in section A.3.1.1.2.
TDD)		Channel R.0 TDD	
PCFICH/PDCCH/PHICH		DL Reference Measurement	As specified in section A.3.1.2.2.
parameters (E-UTRAN TDD)		Channel R.6 TDD	
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number
			1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
Time offset between cells	ms	3	Asynchronous cells
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is
			used.
E-UTRA Channel Bandwidth	MHz	10	
(BW _{channel})			
CP length		Normal	Applicable to cell 1
Uplink-downlink configuration of		1	As specified in table 4.2.2 in TS 36.211
cell 1			
Special subframe configuration of		6	As specified in table 4.2.1 in TS 36.211
cell 1			
UTRA RF Channel Number		1	One UTRA TDD carrier frequency is
			used.
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA TDD cell list size		none	No explicit neighbour list is provided to
			the UE
T1	S	5	
T2	S	2	

Parameter	Unit	Cell	1				
		T1	T2				
E-UTRA RF Channel Number		1					
BW _{channel}	MHz	10)				
OCNG Pattern defined in							
A.3.2.2.1 (OP.1 TDD)		OP.1	TDD				
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB	0					
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4				
N_{oc} Note 3	dBm/15 kHz	-98	3				
\hat{E}_s/N_{oc}	dB	4	4				
RSRP Note 4	dBm/15 kHz	-94	-94				
SCH_RP	dBm/15 kHz	-94	-94				
Propagation Condition		AWO	GN				
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.							
	Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant						
over subcarriers and	time and shall be	e modelled as AWGN of appropri	iate power for $N_{_{oc}}$ to be				
fulfilled.							
		other parameters for information	purposes. They are not				

Table A.6.3.7.1-2: Cell specific test parameters for cell 1 in E-UTRA TDD RRC connection release redirection to UTRA TDD test without SI provided

Table A.6.3.7.1-3: Cell specific test parameters for cell 2 in E-UTRA TDD RRC connection release redirection to UTRA TDD test without SI provided

Parameter	Unit		Cell 2 (UT	rra tdd)		
Timeslot Number		0 DwPTS		PTS		
		T1	T2	T1	T2	
UTRA RF Channel Number ^{Note1}			Chan	nel 1		
PCCPCH_Ec/lor	dB	-4.77	-4.77			
DwPCH_Ec/lor	dB			0	0	
OCNS_Ec/lor ^{Note2}	dB	-1.76	-1.76			
\hat{I}_{or}/I_{oc}	dB	-inf	8	-inf	8	
I	dBm/1.28	80				
I _{oc}	MHz	-80				
PCCPCH RSCP Note3	dBm	-inf	-76.77	n.a.	n.a.	
PCCPCH_Ec/Io	dB	-inf	-5.41	n.a.	n.a.	
DwPCH_Ec/Io Note3	dB	n.a.	n.a.	-inf	-0.64	
Propagation Condition						
Note 1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary						
frequency's channel nun	nber.					
Note 2: The power of the OCNS ch	annel that is adde	ed shall mal	ke the total	power from	n the cell	
to be equal to I _{or} .						
Note 3: P-CCPCH RSRP, PCCPCH	H Ec/lo and DwP	CH Ec/lo le	evels have b	been derive	ed from	

A.6.3.7.2 Test Requirements

themselves.

The UE shall start to transmit the SYNCH-UL sequence in the UpPTS to Cell 2 less than 1930 ms from the beginning of time period T2.

other parameters for information purposes. They are not settable parameters

The rate of correct RRC connection release redirection to UTRA TDD observed during repeated tests shall be at least 90%.

NOTE: The time delay can be expressed as: $T_{RRC_procedure_delay} + T_{identify-UTRA TDD} + T_{SI-UTRA TDD} + T_{RA}$, where:

 $T_{RRC_{procedure_{delay}}} = 110 \text{ ms}$, which is specified in section 6.3.2.3.

 $T_{identify-UTRA TDD} = 500 \text{ ms}$; which is defined in section 6.3.2.3.

T_{SI-UTRA TDD}: Maximum repetition period of relevant system info blocks that need to be received by the UE during RRC connection release redirection to UTRA TDD cell. 1280 ms is assumed in this test case.

 $T_{RA} = 40$ ms, this is the additional delay caused by the random access procedure.

This gives a total delay of 1930 ms.

A.6.3.8 E-UTRA FDD RRC connection release redirection to UTRA TDD without SI provided

A.6.3.8.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs the RRC connection release with redirection from the E-UTRA FDD to the target UTRA TDD cell within $T_{connection_release_redirect_UTRA TDD}$. This test will partly verify the RRC connection release with redirection to UTRA TDD requirements in section 6.3.2.3.

The test parameters are given in table A.6.3.8.1-1, table A.6.3.8.1-2, and table A.6.3.8.1-3. No measurement gaps are configured. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. The "*RRCConnectionRelease*" message not containing the relevant system information of Cell 2 shall be sent to the UE during period T1 and the start of T2 is the instant when the last TTI containing the RRC message, "*RRCConnectionRelease*", is received by the UE from Cell 1.

Table A.6.3.8.1-1: General test parameters for E-UTRA FDD RRC connection release redirection to UTRA TDD without SI provided

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1.
PCFICH/PDCCH/PHICH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
Time offset between cells	ms	3	Asynchronous cells
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
CP length		Normal	Applicable to cell 1
UTRA RF Channel Number		1	One UTRA TDD carrier frequency is used.
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA TDD cell list size		none	No explicit neighbour list is provided to the UE
T1	S	5	
T2	S	2	

Parameter	Unit	Cell	1				
		T1	T2				
E-UTRA RF Channel Number		1					
BW _{channel}	MHz	10					
OCNG Patterns defined in		OP.1 F	DD				
A.3.2.1.1 (OP.1 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB	0					
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
	dB						
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4				
$N_{oc}^{}$ Note 3	dBm/15 kHz	-98	3				
\hat{E}_s/N_{oc}	dB	4	4				
RSRP Note 4	dBm/15 kHz	-94	-94				
SCH_RP	dBm/15 kHz	-94	-94				
Propagation Condition		AWO	3N				
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.							
Note 3: Interference from othe	Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant						
over subcarriers and	time and shall be	e modelled as AWGN of appropri	ate power for $N_{ m oc}$ to be				
fulfilled.							
Note 4: RSRP levels have be		other parameters for information	purposes. They are not				
settable parameters t	hemselves.						

Table A.6.3.8.1-2: Cell specific test parameters for cell 1 in E-UTRA FDD RRC connection release redirection to UTRA TDD test without SI provided

Table A.6.3.8.1-3: Cell specific test parameters for cell 2 in E-UTRA FDD RRC connection release
redirection to UTRA TDD test without SI provided

	Parameter	Unit		Cell 2 (UT	(RA TDD)		
Timeslot	ot Number		()	DwPTS		
			T1	T2	T1	T2	
UTRA RE	Channel Number ^{Note1}			Char	nnel 1		
PCCPCH	I_Ec/lor	dB	-4.77	-4.77			
DwPCH_		dB			0	0	
OCNS_E	c/lor ^{Note2}	dB	-1.76	-1.76			
\hat{I}_{or}/I_{oc}		dB	-inf	8	-inf	8	
I _{oc}		dBm/1.28 MHz -80					
PCCPCH	PCCPCH RSCP Note3 dBm			-76.77	n.a.	n.a.	
	L_Ec/Io	dB	-inf	-5.41	n.a.	n.a.	
DwPCH_	DwPCH_Ec/lo		n.a.	n.a.	-inf	-0.64	
Propagat	ion Condition			AW	'GN		
Note 1:	frequency's channel number.						
Note 2:	e 2: The power of the OCNS channel that is added shall make the total power from the						
cell to be equal to I _{or} . Note 3: P-CCPCH RSRP, PCCPCH_Ec/Io and DwPCH_Ec/Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

A.6.3.8.2 Test Requirements

The UE shall start to transmit the SYNCH-UL sequence in the UpPTS to Cell 2 less than 1930 ms from the beginning of time period T2.

The rate of correct RRC connection release redirection to UTRA TDD observed during repeated tests shall be at least 90%.

NOTE: The time delay can be expressed as: $T_{RRC_procedure_delay} + T_{identify-UTRA TDD} + T_{SI-UTRA TDD} + T_{RA}$, where:

 $T_{RRC_{procedure_{delay}}} = 110 \text{ ms}$, which is specified in section 6.3.2.3.

 $T_{identify-UTRA TDD} = 500 \text{ ms}$; which is defined in section 6.3.2.3.

T_{SI-UTRA TDD}: Maximum repetition period of relevant system info blocks that need to be received by the UE during RRC connection release redirection to UTRA TDD cell. 1280 ms is assumed in this test case.

 $T_{RA} = 40$ ms, this is the additional delay caused by the random access procedure.

This gives a total delay of 1930 ms.

A.6.3.9 Redirection from E-UTRAN FDD to UTRAN FDD without System Information

A.6.3.9.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct performing the RRC connection release with redirection to the target UTRAN FDD cell. This test will partly verify the RRC connection release with redirection to UTRAN FDD cell requirements in section 6.3.2.1.

The test parameters are given in Tables A.6.3.9.1-1, A.6.3.9.1-2 and A.6.3.9.1-3 below. The test consists of two successive time periods, with time duration of T1, and T2 respectively. The "*RRCConnectionRelease*" message not containing any system information of Cell 2 shall be sent to the UE during period T1. The start of T2 is the instant when the last TTI containing the RRC message is sent to the UE. Prior to time duration T2, the UE shall not have any timing information of Cell 2 is powered up at the beginning of the T2.

Table A.6.3.9.1-1: General test parameters for RRC Connection Release with Redirection from E-UTRAN FDD to UTRAN FDD under AWGN propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference	As specified in section A.3.1.1.1.
		Measurement Channel R.0	
		FDD	
PCFICH/PDCCH/PHICH parameters		DL Reference	As specified in section A.3.1.2.1.
(E-UTRAN FDD)		Measurement Channel R.6	
		FDD	
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Bandwidth	MH	10	
(BW _{channel})	Z		
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used.
Inter-RAT (UTRA FDD)		CPICH Ec/lo	
measurement quantity			
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
UTRA FDD cell list size		None	No explicit neighbour list is provided to the UE
T1	S	≤5	
T2	S	2	

Parameter	Unit	Cell	1			
		T1	T2			
E-UTRA RF Channel Number		1				
BW _{channel}	MHz	10				
OCNG Pattern defined in						
A.3.2.1.1 (OP.1 FDD)		OP.1 F	DD			
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0				
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{NOTE 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4			
$N_{_{oc}}$ Note 3	dBm/15 kHz	-98				
\hat{E}_{s}/N_{oc}	dB	4	4			
RSRP Note 4	dBm/15 kHz	-94	-94			
SCH_RP	dBm/15 kHz	-94	-94			
Propagation Condition		AWO	3N			
Note 1: OCNG shall be used such that the cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant						
over subcarriers and	time and shall be	e modelled as AWGN of appropri	ate power for $N_{_{oc}}$ to be			
fulfilled. Note 4: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

Table A.6.3.9.1-2: Cell specific test parameters for cell #1 E-UTRAN FDD to UTRAN FDD RRC release with redirection under AWGN propagation conditions

Table A.6.3.9.1-3: Cell specific test parameters for cell #2 E-UTRAN FDD to UTRAN FDD RRC release with redirection under AWGN propagation conditions

Parameter	Unit	Cell 2	2				
		T1	T1				
UTRA RF Channel Number		1					
CPICH_Ec/lor	dB	-10					
PCCPCH_Ec/lor	dB	-12					
SCH_Ec/lor	dB	-12					
PICH_Ec/lor	dB	-15					
DPCH_Ec/lor	dB	N/A					
OCNS		-0.941					
\hat{I}_{or}/I_{oc}	dB	_ 00	0.02				
I _{oc}	dBm/3.84 MHz	-70					
CPICH_Ec/Io ^{Note 3}	dB	- ∞	-13				
Propagation Condition	AWGN						
Note 1: The DPCH level is controlled by the power control loop.							
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal							
to I _{or} .	to I _{or} .						
Note 3: This gives an SCH E	Note 3: This gives an SCH Ec/lo of -15dB						

A.6.3.9.2 Test Requirements

The UE shall start to send random access to the target UTRA FDD cell (Cell 2) less than 1930 ms from the beginning of time period T2.

The rate of correct "RRC connection release with redirection to UTRAN" observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this case can be expressed as

 $T_{connection_release_redirect_UTRA~FDD} = T_{RRC_procedure_delay} + T_{identify_UTRA~FDD} + T_{SI_UTRA~FDD} + T_{RA}$

where

 $T_{RRC_{procedure_{delay}}} = 110 \text{ ms}$

 $T_{identify-UTRA FDD} = 500 \text{ ms}$

 $T_{SI-UTRA FDD}$ = the time required for acquiring all the relevant system information of the target UTRA FDD cell. This time depends upon whether the UE is provided with the relevant system information of the target UTRA FDD cell or not by the E-UTRAN before the RRC connection is released. Since no SI is provided, 1280 ms is assumed in this test case.

 T_{RA} = The additional delay caused by the random access procedure. 40 ms is assumed in this test case.

This gives a total of 1930 ms.

A.6.3.10 Redirection from E-UTRAN FDD to GERAN when System Information is not provided

A.6.3.10.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs the RRC connection release with redirection from the E-UTRA FDD to the target GERAN cell within $T_{connection_release_redirect_GERAN}$. This test will partly verify the RRC connection release with redirection to GERAN requirements in section 6.3.2.2.

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The test parameters are given in Tables A.6.3.10.1-1, A.6.3.10.1-2 and A.6.3.10.1-3 below. No measurement gaps are configured. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. The start of T2 is the instant when the last TTI containing the RRC message, *"RRCConnectionRelease"*, is received by the UE from cell 1. The *"RRCConnectionRelease"* message shall not contain any system information of cell 2.

Table A.6.3.10.1-1: General test parameters for RRC connection release with redirection from E-UTRAN FDD to GERAN in AWGN

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference	As specified in section A.3.1.1.1.
		Measurement Channel R.0	
		FDD	
PCFICH/PDCCH/PHICH parameters		DL Reference	As specified in section A.3.1.2.1.
(E-UTRAN FDD)		Measurement Channel R.6	
		FDD	
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on Absolute RF Channel Number 1
			(GSM cell)
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Bandwidth	MH	10	
(BW _{channel})	Z		
DRX		OFF	
Monitored GSM cell list size		6 GSM neighbour including	Only the list of GERAN carrier frequencies is
		ARFCN 1	provided in the "RRCConnectionRelease"
			message.
T1	S	≤5	
T2	S	4	

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.1.1 (OP.1 FDD)		OP.1 FDD			
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB]			
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4 4			
\hat{E}_s/N_{oc}	dB	4	4		
N _{oc}	dBm/15 kHz	-98			
RSRP	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
Propagation Condition	AWGN				
		II is fully allocated and a constant	total transmitted power		
spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant					
		•			
over subcarriers and	time and shall be	e modelled as AWGN of appropri	ate power for N_{oc} to be		
fulfilled. Note 3: RSRP levels have be settable parameters t		other parameters for information	purposes. They are not		

Table A.6.3.10.1-2: Cell specific test parameters for E-UTRA FDD cell (cell #1) for RRC connection release with redirection from E-UTRAN FDD to GERAN in AWGN

Table A.6.3.10.1-3: Cell specific test parameters for GERAN cell (cell #2) for RRC connection release with redirection from E-UTRAN FDD to GERAN in AWGN

Parameter	Unit	Cell 2	
		T1	T2
Absolute RF Channel Number		ARFNC 1	
RXLEV	dBm	-Infinity	-75
GSM BSIC		N/A	Valid

A.6.3.10.2 Test Requirements

The UE shall begin to send access bursts on RACH of the target GERAN cell (cell #2) less than 3020 ms from the beginning of time period T2.

The rate of correct "RRC connection release with redirection to GERAN" observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this test case is expressed as:

 $T_{connection_release_redirect_GERAN} = T_{RRC_procedure_delay} + T_{identify_GERAN} + T_{SI_GERAN} + T_{RA}$

 $T_{RRC_procedure_delay} = 110$ ms, which is the time for processing the received message "*RRCConnectionRelease*.

 $T_{identify-GERAN} = 1000$ ms, which is the time for identifying the target GERAN cell.

 $T_{SI-GERAN} = 1900$ ms, which is the maximum time allowed to read BCCH data from the target GERAN cell.

 $T_{RA} = 10$ ms, which is about 2 GSM frames (2*4.65 ms) to account for the GSM timing uncertainty.

A.6.3.11 Redirection from E-UTRAN TDD to GERAN when System Information is not provided

A.6.3.11.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs the RRC connection release with redirection from the E-UTRA TDD to the target GERAN cell within $T_{connection_release_redirect_GERAN}$. This test will partly verify the RRC connection release with redirection to GERAN requirements in section 6.3.2.2.

The test parameters are given in Tables A.6.3.11.1-1, A.6.3.11.1-2 and A.6.3.11.1-3 below. No measurement gaps are configured. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. The start of T2 is the instant when the last TTI containing the RRC message, "*RRCConnectionRelease*", is received by the UE from cell 1. The "*RRCConnectionRelease*" message shall not contain any system information of cell 2.

Table A.6.3.11.1-1: General test parameters for RRC connection release with redirection from E-UTRAN TDD to GERAN in AWGN

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Active		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on Absolute RF Channel Number 1 (GSM cell)
CP length		Normal	Applicable to cell 1
Special subframe configuration		6	As specified in table 4.2.1 in TS 36.211. The same configuration applies to all cells.
Uplink-downlink configuration		1	
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
DRX		OFF	
Monitored GSM cell list size		6 GSM neighbour including ARFCN 1	Only the list of GERAN carrier frequencies is provided in the "RRCConnectionRelease" message.
T1	S	≤5	
T2	S	4	

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.2.1 (OP.1 TDD)		OP.1	TDD		
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB]			
PHICH_RB	dB	0			
PDCCH_RA	dB]			
PDCCH_RB	dB]			
PDSCH_RA	dB]			
PDSCH_RB	dB]			
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4		
\hat{E}_s/N_{oc}	dB	4	4		
N _{oc}	dBm/15 kHz	-98			
RSRP	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
Propagation Condition	AWGN				
		I is fully allocated and a constan	t total transmitted power		
spectral density is ac					
Note 2: Interference from oth	er cells and nois	e sources not specified in the tes	t is assumed to be constant		
over subcarriers and	time and shall be	e modelled as AWGN of appropri	ate power for $N_{_{oc}}$ to be		
fulfilled.					
	RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.				

Table A.6.3.11.1-2: Cell specific test parameters for E-UTRA TDD cell (cell #1) for RRC connection release with redirection from E-UTRAN TDD to GERAN in AWGN

Table A.6.3.11.1-3: Cell specific test parameters for GERAN cell (cell #2) for RRC connection release with redirection from E-UTRAN TDD to GERAN in AWGN

Parameter	Unit	Cell 2	
		T1	T2
Absolute RF Channel Number		ARFNC 1	
RXLEV	dBm	-Infinity	-75
GSM BSIC		N/A	Valid

A.6.3.11.2 Test Requirements

The UE shall begin to send access bursts on RACH of the target GERAN cell (cell #2) less than 3020 ms from the beginning of time period T2.

The rate of correct "RRC connection release with redirection to GERAN" observed during repeated tests shall be at least 90%.

NOTE: The test requirement in this test case is expressed as:

 $T_{connection_release_redirect_GERAN} = T_{RRC_procedure_delay} + T_{identify_GERAN} + T_{SI_GERAN} + T_{RA}$

 $T_{RRC_procedure_delay} = 110$ ms, which is the time for processing the received message "*RRCConnectionRelease*.

 $T_{identify-GERAN} = 1000$ ms, which is the time for identifying the target GERAN cell.

 $T_{SI-GERAN} = 1900$ ms, which is the maximum time allowed to read BCCH data from the target GERAN cell.

 $T_{RA} = 10$ ms, which is about 2 GSM frames (2*4.65 ms) to account for the GSM timing uncertainty.

A.6.3.12 E-UTRAN TDD RRC connection release redirection to UTRAN FDD without SI provided

A.6.3.12.1 Test Purpose and Environment

The purpose of this test is to verify that the UE performs the RRC connection release with redirection from the E-UTRAN TDD to the target UTRAN FDD cell within $T_{connection_release_redirect_UTRAN FDD}$. This test will partly verify the RRC connection release with redirection to UTRAN FDD requirements in section 6.3.2.1.

The test parameters are given in table A.6.3.12.1-1, table A.6.3.12.1-2, and table A.6.3.12.1-3. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2. The "*RRCConnectionRelease*" message not containing any system information of Cell 2 shall be sent to the UE during period T1. The start of T2 is the instant when the last TTI containing the RRC message, "*RRCConnectionRelease*", is received by the UE from Cell 1.

Table A.6.3.12.1-1: General test parameters for E-UTRAN TDD RRC connection release redirection to UTRAN FDD without SI provided

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Active cell		Cell 1	Cell 1 is on E-UTRAN RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRAN RF channel number 1.
E-UTRAN RF Channel Number		1	One E-UTRAN TDD carrier frequency is used.
E-UTRAN Channel Bandwidth (BW _{channel})	MHz	10	
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
CP length		Normal	Applicable to cell 1
UTRAN RF Channel Number		1	One UTRAN TDD carrier frequency is used.
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRAN FDD cell list size		None	No explicit neighbour list is provided to the UE
T1	S	≤5	
T2	S	2	

Parameter	Unit	Cell	1			
		T1	T2			
E-UTRAN RF Channel		1				
Number						
BW _{channel}	MHz	10				
OCNG Pattern defined in		OP.1 ⁻	רחח			
A.3.2.2.1 (OP.1 TDD)		01.1				
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0				
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB	1				
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4			
N_{oc} Note 3	dBm/15 kHz	-98	3			
\hat{E}_s / N_{oc}	dB	4	4			
RSRP ^{Note 4}	dBm/15 kHz	-94	-94			
SCH_RP	dBm/15 kHz	-94	-94			
Propagation Condition		AWO				
Note 1: OCNG shall be use	sed such that the cell is fully allocated and a constant total transmitted power sachieved for all OFDM symbols.					
Note 2: The resources for u	The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Interference from other cells and noise sources not specified in the test is assumed to be constant					
over subcarriers and	over subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be					
fulfilled. Note 4: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

Table A.6.3.12.1-2: Cell specific test parameters for cell 1 in E-UTRAN TDD RRC connection release redirection to UTRAN FDD test without SI provided

Table A.6.3.12.1-3: Cell specific test parameters for cell 2 in E-UTRAN TDD RRC connection release redirection to UTRAN FDD test without SI provided

Parameter	Unit	Cell 2			
		T1	T1		
UTRAN RF Channel Number		1			
CPICH_Ec/lor	dB	-10			
PCCPCH_Ec/lor	dB	-12			
SCH_Ec/lor	dB	-12			
PICH_Ec/lor	dB	-15			
DPCH_Ec/lor	dB	N/A			
OCNS		-0.941			
\hat{I}_{or}/I_{oc}	dB	-∞	0.02		
I _{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/Io ^{Note 3}	dB	-∞	-13		
Propagation Condition		AWGN			
Note 1: The DPCH level is controlled by the power control loop.					
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal					
to I _{or} .					
Note 3: This gives an SCH Ec/lo of -15dB					

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A.6.3.12.2 Test Requirements

The UE shall start to send random access to the target UTRAN FDD cell (Cell 2) less than 1930 ms from the beginning of time period T2.

The rate of correct RRC connection release redirection to UTRAN FDD observed during repeated tests shall be at least 90%.

NOTE: The time delay can be expressed as: $T_{RRC_procedure_delay} + T_{identify-UTRAN FDD} + T_{SI-UTRAN FDD} + T_{RA}$, where:

 $T_{RRC procedure delay} = 110 \text{ ms}$, which is specified in section 6.3.2.1.

 $T_{identify-UTRAN FDD} = 500 \text{ ms}$; which is defined in section 6.3.2.1.

 $T_{SI-UTRAN FDD}$: Maximum repetition period of relevant system info blocks that need to be received by the UE during RRC connection release redirection to UTRAN FDD cell. 1280 ms is assumed in this test case.

 $T_{RA} = 40$ ms, this is the additional delay caused by the random access procedure.

This gives a total delay of 1930 ms.

A.7 Timing and Signalling Characteristics

A.7.1 UE Transmit Timing

A.7.1.1 E-UTRAN FDD – UE Transmit Timing Accuracy Tests

A.7.1.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE is capable of following the frame timing change of the connected eNode B and that the UE initial transmit timing accuracy, maximum amount of timing change in one adjustment, minimum and maximum adjustment rate are within the specified limits. This test will verify the requirements in section 7.1.2.

For this test a single cell is used. Table A.7.1.1.1-1 defines the strength of the transmitted signals and the propagation condition. The transmit timing is verified by the UE transmitting sounding reference symbols using the configuration defined in Table A.7.1.1.1-2.

D escription		Value			
Parameter	Unit	Test 1	Test 2	Test 3	
E-UTRA RF Channel Number		1	1	1	
Channel Bandwidth (BW _{channel})	MHz	10	10	1.4	
DRX cycle	ms	OFF	80 ^{Note5}	OFF	
PDCCH/PCFICH/PHICH					
Reference measurement		R.6 FDD	R.6 FDD	R.8 FDD	
channel ^{Note1}					
OCNG Pattern ^{Note2}		OP.2 FDD	OP.2 FDD	OP.4 FDD	
PBCH_RA					
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA	dB	0	0	0	
PHICH_RB		C C	Ū	Ũ	
PDCCH_RA					
PDCCH_RB					
OCNG_RA ^{Note3}	-				
OCNG_RB ^{Note3}					
N _{oc}	dBm/15 kHz	-98	-98	-98	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	3	3	3	
\hat{E}_s/N_{oc}	dB	3	3	3	
Io ^{Note4}	dBm/9 MHz	-65.5	-65.5	N/A	
10	dBm/1.08 MHz	N/A	N/A	-74.7	
Propagation condition	-	AWGN	AWGN	AWGN	
Note 1: For the reference measurement channels, see section A.3.1. Note 2: For the OCNG pattern, see section A.3.2. Note 3: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.					

Table A.7.1.1.1-1: Test Parameters for UE Transmit Timing Accuracy Tests for E-UTRAN FDD

Note 4: lo level has been derived from other parameters for information purpose. It is not a settable parameter.

Note 5: DRX related parameters are defined in Table A.7.1.1.1-3.

ETSI

Table A.7.1.1.1-2: Sounding Reference Symbol Configuration to be used in UE Transmit Timing Accuracy Tests for E-UTRAN FDD

Field	Test 1	Test 2	Test 3	Comment	
Field		Value			
srsBandwidthConfiguration	bw5	bw5	bw7		
srsSubframeConfiguration	sc1	sc3	sc1		
ackNackSrsSimultaneousTransmission	FALSE	FALSE	FALSE		
srsMaxUpPTS	N/A	N/A	N/A	Not applicable for FDD	
srsBandwidth	0	0	0	No hopping	
srsHoppingBandwidth	hbw0	hbw0	hbw0		
frequencyDomainPosition	0	0	0		
duration	TRUE	TRUE	TRUE	Indefinite duration	
Srs-ConfigurationIndex	0	77	0	SRS periodicity of 2ms and 80 ms for Test 1 and 2, respectively.	
transmissionComb	0	0	0		
cyclicShift	cs0	cs0	cs0	No cyclic shift	
Note: For further information see section 6.3.2 in 3GPP TS 36.331.					

Table A.7.1.1.1-3: drx-Configuration to be used in UE Transmit Timing Accuracy Test 2 for E-UTRANFDD

E . L I	Test2	Comment	
Field	Value		
onDurationTimer	psf1		
drx-InactivityTimer	psf1		
drx-RetransmissionTimer	psf1		
longDRX-CycleStartOffset	sf80		
shortDRX	disable		
Note: For further information see se	ection 6.3.2 in 3GPP TS	36.331.	

A.7.1.1.2 Test Requirements

For parameters specified in Tables A.7.1.1.1-1 and A.7.1.1.1-2, the initial transmit timing accuracy, the maximum amount of timing change in one adjustment, the minimum and the maximum adjustment rate shall be within the limits defined in section 7.1.2.

The following sequence of events shall be used to verify that the requirements are met.

For the 10MHz channel bandwith, the test sequence shall be carried out in RRC_CONNECTED for both non-DRX and DRX with a cycle length of 80 ms (Tests 1 and 2, respectively):

- a) After a connection is set up with the cell, the test system shall verify that the UE transmit timing offset is within $N_{TA} \times T_S \pm 12 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1.
- b) The test system adjusts the downlink transmit timing for the cell by $+64 \times T_s$ (approximately $+2\mu s$) compared to that in (a).
- c) The test system shall verify that for Test 1 the adjustment step size and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within $N_{TA} \times T_S \pm 12 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1. Skip this step for Test 2.
- d) The test system shall verify that the UE transmit timing offset stays within $N_{TA} \times T_S \pm 12 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1. For test 2 the UE transmit timing offset shall be verified for the first transmission in the DRX cycle immediately after DL timing adjustment.

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For the 1.4MHz channel bandwith, the test sequence shall be carried out in RRC_CONNECTED for non-DRX (Tests 3):

- a) After a connection is set up with the cell, the test system shall verify that the UE transmit timing offset is within $N_{TA} \times T_S \pm 24 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1.
- b) The test system adjusts the downlink transmit timing for the cell by $+128 \times T_s$ (approximately $+4\mu s$) compared to that in (a).
- c) The test system shall verify that the adjustment step size and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within $N_{TA} \times T_S \pm 24 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1.
- d) The test system shall verify that the UE transmit timing offset stays within $N_{TA} \times T_S \pm 24 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1.

A.7.1.2 E-UTRAN TDD - UE Transmit Timing Accuracy Tests

A.7.1.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE is capable of following the frame timing change of the connected eNode B and that the UE initial transmit timing accuracy, maximum amount of timing change in one adjustment, minimum and maximum adjustment rate are within the specified limits. This test will verify the requirements in section 7.1.2.

For this test a single cell is used. Table A.7.1.2.1-1 defines the strength of the transmitted signals and the propagation condition. The transmit timing is verified by the UE transmitting sounding reference symbols using the configuration defined in Table A.7.1.2.1-2.

Parameter	Unit	Value			
		Test 1	Test 2	Test 3	
E-UTRA RF Channel Number		1	1	1	
Channel Bandwidth (BW _{channel})	MHz	10	10	1.4	
Special subframe configuration ^{Note1}		6	6	6	
Uplink-downlink configuration ^{Note2}		1	1	1	
DRX cycle	ms	OFF	80 ^{Note7}	OFF	
PDCCH/PCFICH/PHICH					
Reference measurement channel ^{Note3}		R.6 TDD	R.6 TDD	R.8 TDD	
OCNG Pattern ^{Note4}		OP.2 TDD	OP.2 TDD	OP.4 TDD	
PBCH_RA	dB	0	0	0	
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA		-	_		
PHICH_RB		0	0	0	
PDCCH_RA					
PDCCH RB					
OCNG_RA ^{Note5}					
OCNG_RB ^{Note5}					
N _{oc}	dBm/1 5 kHz	-98	-98	-98	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	3	3	3	
$\hat{E}_{_s}/N_{_{oc}}$	dB	3	3	3	
	dBm/9 MHz	-65.5	-65.5	N/A	
lo ^{Note6}	dBm/1 .08 MHz	N/A	N/A	-74.7	
Propagation condition	-	AWGN	AWGN	AWGN	
Note 1: For the special subframe configuration see table 4.2-1 in 3GPP TS 36.211. Note 2: For the uplink-downlink configuration see table 4.2-2 in 3GPP TS 36.211. Note 3: For the reference measurement channels, see section A.3.1. Note 4: For the OCNG pattern, see section A.3.2. Note 5: OCNG shall be used such that both cells are fully allocated and a constant total					
transmitted power spectral density is achieved for all OFDM symbols. Note 6: lo level has been derived from other parameters for information purpose. It is not a					

Table A.7.1.2.1-1: Test Parameters for UE Transmit Timing Accuracy Tests for E-UTRAN TDD

settable parameter. Note 7: DRX related parameters are defined in Table A.7.1.2.1-3.

Test 1	Test 2	Tset3	Comment	
Value			Comment	
bw5	bw5	bw7		
sc3	sc3	sc3	Once every 5 subframes	
FALSE	FALSE	FALSE		
FALSE	FALSE	FALSE		
0	0	0	No hopping	
hbw0	hbw0	hbw0		
0	0	0		
TRUE	TRUE	TRUE	Indefinite duration	
15	85	15	SRS periodicity of 10 and 80 ms for Test 1 and 2, respectively.	
0	0	0		
cs0	cs0	cs0	No cyclic shift	
	bw5 sc3 FALSE FALSE 0 hbw0 0 TRUE 15 0	Valuebw5bw5sc3sc3FALSEFALSEFALSEFALSE00hbw0hbw000TRUETRUE15850000	Value bw5 bw5 bw7 sc3 sc3 sc3 FALSE FALSE FALSE FALSE FALSE FALSE 0 0 0 hbw0 hbw0 hbw0 0 0 0 TRUE TRUE TRUE 15 85 15 0 0 0	

Table A.7.1.2.1-2: Sounding Reference Symbol Configuration to be used in UE Transmit Timing Accuracy Tests for E-UTRAN TDD

Table A.7.1.2.1-3: DRX Configuration to be used in UE Transmit Timing Accuracy Test 2 for E-UTRANTDD

Field	Test2	Comment
Field	Value	
onDurationTimer	psf1	
drx-InactivityTimer	psf1	
drx-RetransmissionTimer	psf1	
longDRX-CycleStartOffset	sf80	
shortDRX	disable	
Note: For further information see section	6.3.2 in 3GP	P TS 36.331.

A.7.1.2.2 Test Requirements

For parameters specified in Tables A.7.1.2.1-1 and A.7.1.2.1-2, the initial transmit timing accuracy, the maximum amount of timing change in one adjustment, the minimum and the maximum adjustment rate shall be within the limits defined in section 7.1.2.

The following sequence of events shall be used to verify that the requirements are met.

For the 10MHz channel bandwith, the test sequence shall be carried out in RRC_CONNECTED for both non-DRX and DRX with a cycle length of 80 ms (Tests 1 and 2, respectively):

- a) After a connection is set up with the cell, the test system shall verify that the UE transmit timing offset is within $(N_{TA} + 624) \times T_S \pm 12 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1.
- b) The test system adjusts the downlink transmit timing for the cell by $+64 \times T_s$ (approximately $+2\mu s$) compared to that in (a).
- c) The test system shall verify that for test 1 the adjustment step size and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within $(N_{TA} + 624) \times T_S \pm 12 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1. Skip this step for test 2.
- d) The test system shall verify that the UE transmit timing offset stays within $(N_{TA} + 624) \times T_S \pm 12 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1. For test 2 the UE transmit timing offset shall be verified for the first transmission in the DRX cycle immediately after DL timing adjustment.

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For the 1.4MHz channel bandwith, the test sequence shall be carried out in RRC_CONNECTED for non-DRX (Tests 3):

- a) After a connection is set up with the cell, the test system shall verify that the UE transmit timing offset is within $(N_{TA} + 624) \times T_S \pm 24 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1.
- b) The test system adjusts the downlink transmit timing for the cell by $+128 \times T_s$ (approximately $+4\mu s$) compared to that in (a).
- c) The test system shall verify that the adjustment step size and the adjustment rate shall be according to the requirements in section 7.1.2 until the UE transmit timing offset is within $(N_{TA}+624)\times T_S \pm 24\times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1.
- d) The test system shall verify that the UE transmit timing offset stays within $(N_{TA} + 624) \times T_S \pm 24 \times T_S$ with respect to the first detected path (in time) of the corresponding downlink frame of cell 1.

A.7.2 UE Timing Advance

A.7.2.1 E-UTRAN FDD – UE Timing Advance Adjustment Accuracy Test

A.7.2.1.1 Test Purpose and Environment

The purpose of the test is to verify E-UTRAN FDD Timing Advance adjustment accuracy requirements, defined in section 7.3.2.2, in an AWGN model.

The test parameters are given in tables A.7.2.1.1-1, A.7.2.1.1-2, and A.7.2.1.1-3. The test consists of two successive time periods, with time duration of T1 and T2 respectively. In each time period, timing advance commands are sent to the UE and Sounding Reference Signals (SRS), as specified in table A.7.2.1.1-3, are sent from the UE and received by the test equipment. By measuring the reception of the SRS, the transmit timing, and hence the timing advance adjustment accuracy, can be measured.

During time period T1, the test equipment shall send one message with a Timing Advance Command MAC Control Element, as specified in Section 6.1.3.5 in TS 36.321. The Timing Advance Command value shall be set to 31, which according to Section 4.2.3 in TS 36.213 results in zero adjustment of the Timing Advance. In this way, a reference value for the timing advance used by the UE is established.

During time period T2, the test equipment shall send a sequence of messages with Timing Advance Command MAC Control Elements, with Timing Advance Command value specified in table A.7.2.1.1-2. This value shall result in changes of the timing advance used by the UE, and the accuracy of the change shall then be measured, using the SRS sent from the UE.

As specified in Section 7.3.2.1, the UE adjusts its uplink timing at sub-frame n+6 for a timing advance command received in sub-frame n. This delay must be taken into account when measuring the timing advance adjustment accuracy, via the SRS sent from the UE.

The UE Time Alignment Timer, described in Section 5.2 in TS 36.321, shall be configured so that it does not expire in the duration of the test.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Timing Advance Command (T_A) value during T1		31	N_{TA} = 0 for the purpose of establishing a reference value from which the timing advance adjustment accuracy can be measured during T2
Timing Advance Command (T_A) value during T2		[39]	N _{TA} = [128]
DRX		OFF	
T1	S	5	
T2	S	5	

Table A.7.2.1.1-1: General Test Parameters for E-UTRAN FDD Timing Advance Accuracy Test

Parameter	Unit		Value		
		T1	T2		
E-UTRA RF Channel Number			1		
BW _{channel}	MHz		10		
OCNG Patterns defined in A.3.2.1.1			OP.1 FDD		
(OP.1 FDD)					
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	7			
PDCCH_RA	dB		0		
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note1}	dB				
OCNG_RB ^{Note1}	dB				
Timing Advance Command (T _A)		31	[39]		
\hat{E}_{s}/I_{ot}	dB		3		
N _{oc}	dBm/15 KHz		-98		
\hat{E}_s/N_{oc}	dB		3		
Io ^{Note2}	dBm/9 MHz	-65.5			
Propagation Condition			AWGN		
Note 1: OCNG shall be used such that spectral density is achieved for Note 2: lo level has been deri parameter.	or all OFDM sym	bols.	stant total transmitted power on purpose. It is not a settable		

Table A.7.2.1.1-2: Cell specific Test Parameters for E-UTRAN FDD Timing Advance Accuracy Test

Table A.7.2.1.1-3: Sounding Reference Symbol Configuration for E-UTRAN FDD Transmit Timing Accuracy Test

Field	Value	Comment			
srsBandwidthConfiguration	bw5				
srsSubframeConfiguration	sc3	Once every 5 subframes			
ackNackSrsSimultaneousTransmission	FALSE				
srsMaxUpPTS	N/A	Not applicable for E-UTRAN FDD			
srsBandwidth	0	No hopping			
srsHoppingBandwidth	hbw0				
frequencyDomainPosition	0				
Duration	TRUE	Indefinite duration			
Srs-ConfigurationIndex	7	SRS periodicity of 10.			
transmissionComb	0				
cyclicShift	cs0	No cyclic shift			
Note: For further information see section 6.3.2 in 3GPP TS 36.331.					

A.7.2.1.2 Test Requirements

The UE shall apply the signalled Timing Advance value to the transmission timing at the designated activation time i.e. 6 sub frames after the reception of the timing advance command.

The Timing Advance adjustment accuracy shall be within the limits specified in section 7.3.2.2.

The rate of correct Timing Advance adjustments observed during repeated tests shall be at least 90%.

A.7.2.2 E-UTRAN TDD – UE Timing Advance Adjustment Accuracy Test

A.7.2.2.1 Test Purpose and Environment

The purpose of the test is to verify E-UTRAN TDD Timing Advance adjustment accuracy requirements, defined in section 7.3.2.2, in an AWGN model.

The test parameters are given in tables A.7.2.2.1-1, A.7.2.2.1-2, and A.7.2.2.1-3. The test consists of two successive time periods, with time duration of T1 and T2 respectively. In each time period, timing advance commands are sent to the UE and Sounding Reference Signals (SRS), as specified in table A.7.2.2.1-3, are sent from the UE and received by the test equipment. By measuring the reception of the SRS, the transmit timing, and hence the timing advance adjustment accuracy, can be measured.

During time period T1, the test equipment shall send one message with a Timing Advance Command MAC Control Element, as specified in Section 6.1.3.5 in TS 36.321. The Timing Advance Command value shall be set to 31, which according to Section 4.2.3 in TS 36.213 results in zero adjustment of the Timing Advance. In this way, a reference value for the timing advance used by the UE is established.

During time period T2, the test equipment shall send a sequence of messages with Timing Advance Command MAC Control Elements, with Timing Advance Command value specified in table A.7.2.1.1-2. This value shall result in changes of the timing advance used by the UE, and the accuracy of the change shall then be measured, using the SRS sent from the UE.

As specified in Section 7.3.2.1, the UE adjusts its uplink timing at sub-frame n+6 for a timing advance command received in sub-frame n. This delay must be taken into account when measuring the timing advance adjustment accuracy, via the SRS sent from the UE.

The UE Time Alignment Timer, described in Section 5.2 in TS 36.321, shall be configured so that it does not expire in the duration of the test.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Timing Advance Command (T_A) value during T1		31	$N_{TA} = 0$ for the purpose of establishing a reference value from which the timing advance adjustment accuracy can be measured during T2
Timing Advance Command (T_A) value during T2		39	N _{TA} = 128
DRX		OFF	
T1	S	5	
T2	S	5	

Table A.7.2.2.1-1: General Test Parameters for E-UTRAN TDD Timing Advance Accuracy Test

Parameter	Unit		Value				
		T1	T2				
E-UTRA RF Channel Number			1				
BW _{channel}	MHz	10					
Special subframe configuration ^{Note1}		6					
Uplink-downlink configuration ^{Note2}			1				
OCNG Patterns defined in A.3.2.2.1			OP.1 TDD				
(OP.1 TDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB		0				
PDCCH_RA	dB	0					
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note3}	dB						
OCNG_RB ^{Note3}	dB						
Timing Advance Command (T _A)		31	[39]				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB		3				
N _{oc}	dBm/15 KHz		-98				
\hat{E}_s/N_{oc}	dB		3				
Io ^{Note4}	dBm/9 MHz		-65.5				
Propagation Condition			AWGN				
Note 1: For the special subframe com Note 2: For the uplink-downlink config Note 3: OCNG shall be used such that	juration see table 4	.2-2 in 3GPP TS 36.2	5.211. 211.				
spectral density is achieved fo Note 4: lo level has been deri parameter.	or all OFDM symbo	S.	· · · · · · · · · · · · · · · · · · ·				

Table A.7.2.2.1-2: Cell specific Test Parameters for E-UTRAN TDD Timing Advance Accuracy Test

 Table A.7.2.2.1-3: Sounding Reference Symbol Configuration for E-UTRAN TDD Transmit Timing

 Accuracy Test

Field	Value	Comment
srsBandwidthConfiguration	bw5	
srsSubframeConfiguration	sc3	Once every 5 subframes
ackNackSrsSimultaneousTransmission	FALSE	
srsMaxUpPTS	N/A	
srsBandwidth	bw0	No hopping
srsHoppingBandwidth	hbw0	
frequencyDomainPosition	0	
Duration	TRUE	Indefinite duration
Srs-ConfigurationIndex	15	SRS periodicity of 10ms.
transmissionComb	0	
cyclicShift	cs0	No cyclic shift
Note: For further information see section	6.3.2 in 3GPP T	S 36.331.

A.7.2.2.2 Test Requirements

The UE shall apply the signalled Timing Advance value to the transmission timing at the designated activation time i.e. 6 sub frames after the reception of the timing advance command.

The Timing Advance adjustment accuracy shall be within the limits specified in section 7.3.2.2.

A.7.3 Radio Link Monitoring

In the following section, any uplink signal transmitted by the UE is used for detecting the In-/Out-of-Sync state of the UE. In terms of measurement, the uplink signal is verified on the basis of the UE output power:

- UE output power higher than Transmit OFF power -50 dBm (as defined in TS 36.101 [5] clause 6.3.3.1) means uplink signal
- UE output power equal to or less than Transmit OFF power -50 dBm (as defined in TS 36.101 [5] clause 6.3.3.1) means no uplink signal

A.7.3.1 E-UTRAN FDD Radio Link Monitoring Test for Out-of-sync

A.7.3.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE properly detects the out of sync and in sync for the purpose of monitoring downlink radio link quality of the serving cell. This test will partly verify the E-UTRAN FDD radio link monitoring requirements in section 7.6.

The test parameters are given in Tables A.7.3.1.1-1, A.7.3.1.1-2 and A.7.3.1.1-3 below. There is one cell (cell 1), which is the active cell, in the test. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. Figure A.7.3.1.1-4 shows the variation of the downlink SNR in the active cell to emulate out-of-sync and in-sync states. Prior to the start of the time duration T1, the UE shall be fully synchronized to cell 1. The UE shall be configured for periodic CQI reporting in PUCCH 1-0 mode with a reporting periodicity of 2 ms.

P	Parameter			Va	alue		Comment	
			Test 1	Test 2	Test 3	Test 4		
PCFICH/PDC parameters	CH/PHICH		R.6 FDD	R.7 FDD	R.6 FDD	R.7 FDD	As specified in section A.3.1.2.1. None of the PDCCH are intended for the UE under test	
OCNG param	eters		OP.2 FDD	OP.2 FDD	OP.2 FDD	OP.2 FDD	As specified in section A.3.2.1.2.	
Active cell			Cell 1	Cell 1	Cell 1	Cell 1	Cell 1 is on E-UTRA RF channel number 1	
CP length			Normal	Normal	Normal	Normal		
E-UTRĂ RF C	hannel Number		1	1	1	1	One E-UTRA FDD carrier frequency is used.	
E-UTRA Char (BW _{channel})	nel Bandwidth	MHz	10	10	10	10		
	atrix and Antenna		1x2 Low	2x2 Low	1x2 Low	2x2 Low	Correlation Matrix and Antenna Configuration are defined in TS 36.101 [5] Annex B.2.3.2	
	DCI format		1A	1A	1A	1A	As defined in section 5.3.3.1.3 in TS 36.212	
Out of sync transmission	Number of Control OFDM symbols		2	2	2	2	Out of sync threshold Q _{out} and the	
parameters	Aggregation level	CCE	8	8	8	8	corresponding	
(Note 1)	ρ _A , ρ _B		0	-3	0	-3	hypothetical	
	Ratio of PDCCH to RS EPRE	dB	4	1	4	1	PDCCH/PCFICH transmission	
	Ratio of PCFICH to RS EPRE	dB	4	1	4	1	parameters are as specified in section 7.6.1 and Table 7.6.1-1 respectively.	
DRX			OFF	OFF	OFF	OFF		
Layer 3 filterin	g		Enabled	Enabled	Enabled	Enabled	Counters: N310 = 1; N311 = 1	
T310 timer		ms	0	0	0	0	T310 is disabled	
T311 timer		ms	1000	1000	1000	1000	T311 is enabled	
	eporting mode		PUCCH 1-0	PUCCH 1-0	PUCCH 1-0	PUCCH 1-0	As defined in table 7.2.2-1 in TS 36.213.	
CQI reporting		ms	2	2	2	2	Minimum CQI reporting periodicity	
Propagation c	hannel		AWGN	AWGN	ETU 70 Hz	ETU 70 Hz		
T1		S	1	1	1	1		
T2		S	0.4	0.4	0.4	0.4		
Т3		s	0.5	0.5	0.5	0.5		

Table A.7.3.1.1-1: General test parameters for E-UTRAN FDD out-of-sync testing

Parameter	Unit		Test 1			Test 2			
		T1	T2	Т3	T1	T2	Т3		
E-UTRA RF Channel			1			1			
Number									
BW _{channel}	MHz		10			10			
Correlation Matrix			1x2 Low			2x2 Low			
and Antenna									
Configuration									
OCNG Pattern									
defined in A.3.2.1			OP.2 FDD			OP.2 FDD			
(FDD)									
ρ _Α , ρ _Β			0			-3			
PCFICH_RB	dB		4			1			
PDCCH_RA	dB		4			1			
PDCCH_RB	dB		4			1			
PBCH_RA	dB								
PBCH_RB	dB								
PSS_RA	dB								
SSS_RA	dB		0			0			
PHICH_RA	dB		0		-3				
PHICH_RB	dB								
PDSCH_RA	dB								
PDSCH_RB	dB								
OCNG_RA ^{Note 1}	dB								
OCNG_RB ^{Note 1}	dB								
SNR Note 6	dB	-4.7	-9.5	-13.5	-4.7	-9.5	-13.5		
N _{oc}	dBm/15		-98			-98			
	kHz								
Propagation condition			AWGN			AWGN			
	be used such						constant		
	tted power spe								
	esources for Co	QI reporting	g are assigi	ned to the	UE prior to	the start o	f time		
period T1.	od T1. timers and layer 3 filtering related parameters are configured prior to the start of time								
	nd layer 3 filte	ring related	parameter	s are conf	igured prio	r to the sta	rt of time		
period T1.		DCCH for UEs other than the device under test as part of OCNG.							
Note 5: SNR levels of REs.	correspond to t	the signal to noise ratio over the cell-specific reference signal							
	time periods T		3 is denote	ed as SNR	1, SNR2 a	nd SNR3			
respectively	in figure A.7.3.	1.1-4.							

Table A.7.3.1.1-2: Cell specific test parameters for E-UTRAN FDD (cell # 1) for out-of-sync radio link monitoring tests # 1 and # 2

Parameter	Unit		Test 3			Test 4	
		T1	T2	Т3	T1	T2	Т3
E-UTRA RF Channel			1			1	
Number							
BW _{channel}	MHz	10				10	
Correlation Matrix			1x2 Low			2x2 Low	
and Antenna							
Configuration							
OCNG Pattern							
defined in A.3.2.1			OP.2 FDD			OP.2 FDD	
(FDD)							
ρ _Α , ρ _Β			0			-3	
PCFICH_RB	dB		4			1	
PDCCH_RA	dB		4			1	
PDCCH_RB	dB		4			1	
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB		-		-3		
PHICH_RA	dB		0				
PHICH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB					-	
SNR Note 6	dB	-1.4	-5.5	-11.5	-2.3	-6.2	-12.2
N _{oc}	dBm/15		-98			-98	
	kHz						
Propagation condition			ETU 70 Hz			ETU 70 Hz	
Note 1: OCNG shall	be used such	that the res	sources in a	ell # 1 are	fully alloca	ated and a	constant
total transmit	ted power spe	ctral densi	ty is achiev	ed for all C)FDM syml	bols.	
	sources for CO	QI reporting	g are assig	ned to the	UE prior to	the start o	f time
period T1.							
Note 3: The timers a period T1.	nd layer 3 filter	ring related	l parameter	s are conf	igured prio	r to the sta	rt of time
	ontains PDCCI	H for LIFs (other than t	he device i	inder test	as nart of (CNG
REs.		the signal to noise ratio over the cell-specific reference signal					
Note 6: The SNR in t	time periods T [.] in figure A.7.3.		T3 is denote	ed as SNR	1, SNR2 a	nd SNR3	

Table A.7.3.1.1-3: Cell specific test parameters for E-UTRAN FDD (cell # 1) for out-of-sync radio link monitoring tests # 3 and # 4

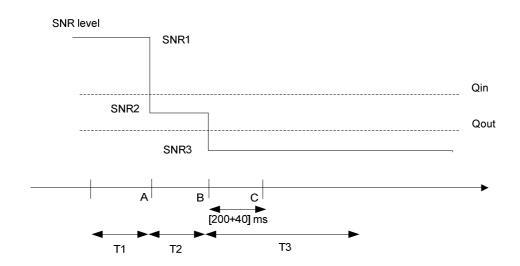


Figure A.7.3.1.1-4 SNR variation for out-of-sync testing

A.7.3.1.2 Test Requirements

The UE behaviour in each test during time durations T1, T2 and T3 shall be as follows:

During the period from time point A to time point B UE shall transmit uplink signal at least in all subframes configured for CQI transmission according to the configured CQI reporting mode (PUCCH 1-0).

The UE shall stop transmitting uplink signal no later than time point C (240 ms from the start of the time duration T3).

The rate of correct events observed during repeated tests shall be at least 90%.

A.7.3.2 E-UTRAN FDD Radio Link Monitoring Test for In-sync

A.7.3.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE properly detects the out of sync and in sync for the purpose of monitoring downlink radio link quality of the serving cell. This test will partly verify the E-UTRAN FDD radio link monitoring requirements in section 7.6.

The test parameters are given in Tables A.7.3.2.1-1 and A.7.3.2.1-2 below. There is one cell (cell 1), which is the active cell, in the test. The test consists of five successive time periods, with time duration of T1, T2, T3, T4 and T5 respectively. Figure A.7.3.2.1-3 shows the variation of the downlink SNR in the active cell to emulate out-of-sync and in-sync states. Prior to the start of the time duration T1, the UE shall be fully synchronized to cell 1. The UE shall be configured for periodic CQI reporting in PUCCH 1-0 mode with a reporting periodicity of 2 ms.

Parameter		Unit	Va	lue	Comment
			Test 1	Test 2	
PCFICH/PDCCH/PHICH parameters			R.6 FDD	R.7 FDD	As specified in section A.3.1.2.1. None of the PDCCH are intended for the UE under test
OCNG parame	eters		OP.2 FDD	OP.2 FDD	As specified in section A.3.2.1.2.
Active cell			Cell 1	Cell 1	Cell 1 is on E-UTRA RF channel number 1
CP length			Normal	Normal	
E-UTRA RF C	hannel Number		1	1	One E-UTRA FDD carrier frequency is used.
E-UTRA Chan (BW _{channel})		MHz	10	10	
Correlation Ma Configuration	trix and Antenna		1x2 Low	2x2 Low	Correlation Matrix and Antenna Configuration are defined in TS 36.101 [5] Annex B.2.3.2
	DCI format		1C	1C	As defined in section 5.3.3.1.4 in TS 36.212
In sync transmission	Number of Control OFDM symbols		2	2	In sync threshold Q _{in} and the corresponding
parameters	Aggregation level	CCE	4	4	hypothetical
(Note 1)	ρ _Α , ρ _Β		0	-3	PDCCH/PCFICH
	Ratio of PDCCH to RS EPRE		0	-3	transmission parameters are as specified in sectior
	Ratio of PCFICH to RS EPRE		4	1	and Table 7.6.1-2 respectively.
	DCI format		1A	1A	As defined in section 5.3.3.1.3 in TS 36.212
Out of sync transmission	Number of Control OFDM symbols		2	2	Out of sync threshold Q _{out} and the corresponding
parameters	Aggregation level	CCE	8	8	hypothetical
(Note 1)	ρ _Α , ρ _Β		0	-3	PDCCH/PCFICH transmission parameters
	Ratio of PDCCH to RS EPRE	dB	4	1	are as specified in sectior 7.6.1 and Table 7.6.1-1
	Ratio of PCFICH to RS EPRE	dB	4	1	respectively.
DRX			OFF	OFF	
Layer 3 filtering	g		Enabled	Enabled	Counters: N310 = 1; N311 = 1
T310 timer		ms	2000	2000	T310 is enabled
T311 timer		ms	1000	1000	T311 is enabled
Periodic CQI re			PUCCH 1-0	PUCCH 1-0	As defined in table 7.2.2- in TS 36.213.
CQI reporting		ms	2	2	Minimum CQI reporting periodicity
Propagation ch	nannel		ETU 70 Hz	ETU 70 Hz	
T1		S	0.5	0.5	
T2		S	0.4	0.4	
Т3		S	1.46	1.46	
		S	0.4	0.4	
T4 T5				1	

Table A.7.3.2.1-1: General test parameters for E-UTRAN FDD in-sync testing

Parameter	Unit			Tes	t 1					Test 2					
		T1 T2 T3 T4 T5					Т5	T1	T2	T3	Т	4	T5		
E-UTRA RF Channel		1									1				
Number															
BW _{channel}	MHz			10							10				
Correlation Matrix				1x2 L	_ow					2x	2 Lov	v			
and Antenna															
Configuration															
OCNG Pattern												_			
defined in A.3.2.1			(OP.2	FDD					OP	.2 FD	D			
(FDD)															
ρ _A , ρ _B				0							-3				
PCFICH_RB	dB			4							1				
PDCCH_RA	dB			0							-3				
PDCCH_RB	dB			0							-3				
PBCH_RA	dB														
PBCH_RB	dB														
PSS_RA	dB														
SSS_RA	dB			0							-3				
PHICH_RA	dB			0				-3							
PHICH_RB	dB														
PDSCH_RA	dB														
PDSCH_RB	dB														
OCNG_RA ^{Note 1}	dB														
OCNG_RB ^{Note 1}	dB				_	<u> </u>				_	10.0				
SNR ^{Note 6}	dB	-1.4	-5.5	-11		-6.4	-1.4	-2.3	-6.		12.2	-7.3	-2.3		
N_{oc}	dBm/15			-98	8						-98				
	kHz														
Propagation condition				ETU 7							J 70 I				
	be used such						fully allo	cated a	nd a d	consta	nt tot	al trans	mitted		
	al density is a														
Note 2: The uplink resources for CQI reporting are assigned to the UE prior to the start of time period T1. Note 3: The timers and layer 3 filtering related parameters are configured prior to the start of time period T1.															
												eriod T1			
	ontains PDCCI														
	correspond to t														
	time periods T1, T2, T3, T4 and T5 is denoted as SNR1, SNR2, SNR3, SNR4 and SNR5								(5						
respectively	in figure A.7.3.	2.1-3.													

Table A.7.3.2.1-2: Cell specific test parameters for E-UTRAN FDD (cell # 1) for in-sync radio link monitoring tests # 1 and # 2

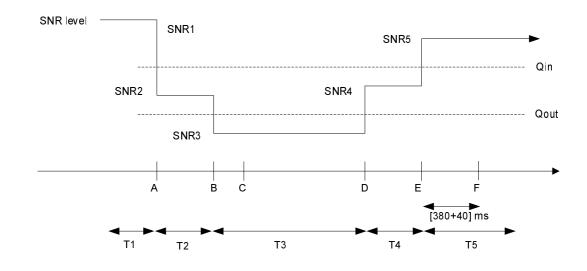


Figure A.7.3.2.1-3 SNR variation for in-sync testing

A.7.3.2.2 Test Requirements

The UE behaviour in each test during time durations T1, T2, T3, T4 and T5 shall be as follows:

During the period from time point A to time point F (420 ms after the start of time duration T5) the UE shall transmit uplink signal at least in all subframes configured for CQI transmission according to the configured CQI reporting mode (PUCCH 1-0).

The rate of correct events observed during repeated tests shall be at least 90%.

A.7.3.3 E-UTRAN TDD Radio Link Monitoring Test for Out-of-sync

A.7.3.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UE properly detects the out of sync and in sync for the purpose of monitoring downlink radio link quality of the serving cell. This test will partly verify the E-UTRAN TDD radio link monitoring requirements in section 7.6.

The test parameters are given in Tables A.7.3.3.1-1, A.7.3.3.1-2 and A.7.3.3.1-3 below. There is one cell (cell 1), which is the active cell, in the test. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. Figure A.7.3.3.1-4 shows the variation of the downlink SNR in the active cell to emulate out-of-sync and in-sync states. Prior to the start of the time duration T1, the UE shall be fully synchronized to cell 1. The UE shall be configured for periodic CQI reporting in PUCCH 1-0 mode with a reporting periodicity of 1 ms.

Pa	arameter	Unit		Va	lue		Comment
			Test 1	Test 2	Test 3	Test 4	
PCFICH/PDCCH/PHICH parameters			R.6 TDD	R.7 TDD	R.6 TDD	R.7 TDD	As specified in section A.3.1.2.2. None of the PDCCH are intended for the UE under test
OCNG parame	eters		OP.2 TDD	OP.2 TDD	OP.2 TDD	OP.2 TDD	As specified in section A.3.2.2.2.
Active cell			Cell 1	Cell 1	Cell 1	Cell 1	Cell 1 is on E-UTRA RF channel number 1
CP length			Normal	Normal	Normal	Normal	
	hannel Number		1	1	1	1	One E-UTRA TDD carrier frequency is used.
E-UTRA Chan (BW _{channel})		MHz	10	10	10	10	
Correlation Ma Configuration	atrix and Antenna		1x2 Low	2x2 Low	1x2 Low	2x2 Low	Correlation Matrix and Antenna Configuration are defined in TS 36.101 [5] Annex B.2.3.2
	DCI format		1A	1A	1A	1A	As defined in section 5.3.3.1.3 in TS 36.212
Out of sync transmission	Number of Control OFDM symbols		2	2	2	2	Out of sync threshold Q _{out} and the corresponding
parameters	Aggregation level	CCE	8	8	8	8	hypothetical
(Note 1)	ρ _Α , ρ _Β		0	-3	0	-3	PDCCH/PCFICH
	Ratio of PDCCH to RS EPRE	dB	4	1	4	1	transmission parameters are as specified in section
	Ratio of PCFICH to RS EPRE	dB	4	1	4	1	7.6.1 and Table 7.6.1-1 respectively.
DRX			OFF	OFF	OFF	OFF	
Layer 3 filterin	g		Enabled	Enabled	Enabled	Enabled	Counters: N310 = 1; N311 = 1
T310 timer		ms	0	0	0	0	T310 is disabled
T311 timer		ms	1000	1000	1000	1000	T311 is enabled
Periodic CQI r	eporting mode		PUCCH 1-0	PUCCH 1-0	PUCCH 1-0	PUCCH 1-0	As defined in table 7.2.2-1 in TS 36.213.
CQI reporting	periodicity	ms	1	1	1	1	Minimum CQI reporting periodicity
Propagation cl	nannel		AWGN	AWGN	ETU 70 Hz	ETU 70 Hz	
T1		S	1	1	1	1	
T2		S	0.4	0.4	0.4	0.4	
Т3	Т3		0.5	0.5	0.5	0.5	
	DCCH/PCFICH corr eference Measurem			of sync transm	ission parame	eters need not	be included in the

Table A.7.3.3.1-1: General test parameters for E-UTRAN TDD out-of-sync testing

Parameter	Unit		Test 1			Test 2			
		T1	T2	T3	T1	T2	T3		
E-UTRA RF Channel			1			1			
Number									
BW _{channel}	MHz		10			10			
Correlation Matrix			1x2 Low			2x2 Low			
and Antenna									
Configuration									
Special subframe			6			6			
configuration ^{Note1}									
Uplink-downlink			1			1			
configuration ^{Note2}									
OCNG Pattern									
defined in A.3.2.2			OP.2 TDD			OP.2 TDD			
(TDD)									
ρ _A , ρ _B	. 1000		0			-3			
PCFICH_RB	dB		4			1			
PDCCH_RA	dB		4			1			
PDCCH_RB	dB		4			1			
PBCH_RA	dB								
PBCH_RB	dB								
PSS_RA	dB								
SSS_RA	dB		0		-3				
PHICH_RA	dB		0						
PHICH_RB	dB								
PDSCH_RA	dB								
PDSCH_RB	dB								
OCNG_RA ^{Note 3}	dB								
OCNG_RB ^{Note 3}	dB		1	I		1	1		
SNR Note 8	dB	-5.1	-9.1	-13.1	-5.2	-9.2	-13.2		
N_{oc}	dBm/15		-98			-98			
	kHz								
Propagation condition			AWGN			AWGN			
Note 1: For the spec	ial subframe co	onfiguratio	n see table	4.2-1 in 30	GPP TS 36	.211.			
	k-downlink cor								
Note 3: OCNG shall	be used such	that the res	sources in o	cell # 1 are	fully alloca	ated and a	constant		
total transmit	tted power spe	ctral densi	ity is achiev	ed for all C	OFDM sym	bols.			
	sources for Co	QI reportin	g are assig	ned to the	UE prior to	the start c	f time		
period T1.									
period T1.		DRCCH for UEs other than the device worder test as part of CONC							
		CCH for UEs other than the device under test as part of OCNG.							
Note 7: SNR levels of REs.	correspond to t	the signal to noise ratio over the cell-specific reference signal							
	time periods T	1 T2 and -	T3 is donot	ad as SND		nd SNID2			
	in figure A.7.3.			eu as Sink	i, SINKZ a	IN SINKS			
respectively	in ingule A.L.S.	5.1-4.							

Table A.7.3.3.1-2: Cell specific test parameters for E-UTRAN TDD (cell # 1) for out-of-sync radio link monitoring tests # 1 and # 2

Parameter	Unit		Test 3			Test 4			
		T1	T2	T3	T1	T2	T3		
E-UTRA RF Channel			1			1			
Number									
BW _{channel}	MHz		10			10			
Correlation Matrix			1x2 Low			2x2 Low			
and Antenna									
Configuration									
Special subframe			6			6			
configuration ^{Note1}									
Uplink-downlink			1			1			
configuration ^{Note2}									
OCNG Pattern									
defined in A.3.2.2			OP.2 TDD			OP.2 TDD			
(TDD)									
ρ _A , ρ _B			0			-3			
PCFICH_RB	dB		4			1			
PDCCH_RA	dB		4			1			
PDCCH_RB	dB		4			1			
PBCH_RA	dB								
PBCH_RB	dB								
PSS_RA	dB								
SSS_RA	dB		-			-			
PHICH_RA	dB		0			-3			
PHICH_RB	dB								
PDSCH_RA	dB								
PDSCH_RB	dB								
OCNG_RA ^{Note 3}	dB								
OCNG_RB ^{Note 3}	dB								
SNR ^{Note 8}	dB	-1.4	-5.3	-11.3	-2.3	-5.9	-11.9		
N_{oc}	dBm/15		-98			-98			
	kHz								
Propagation condition			ETU 70 Hz			ETU 70 Hz	2		
Note 1: For the spec	ial subframe co	onfiguratior	n see table	4.2-1 in 30	GPP TS 36	.211.			
Note 2: For the uplin	k-downlink cor	figuration :	see table 4	.2-2 in 3GI	PP TS 36.2	211.			
Note 3: OCNG shall	be used such	that the res	ources in a	cell # 1 are	fully alloca	ated and a	constant		
	tted power spe								
	esources for Co	QI reporting	g are assig	ned to the	UE prior to	the start c	of time		
period T1.									
	nd layer 3 filte	er 3 filtering related parameters are configured prior to the start of time							
period T1.		CCH for UEs other than the device under test as part of OCNG.							
	correspond to t	he signal to	o noise rati	o over the	cell-specifi	c reference	e signal		
REs.		'0 and T0 '-					. in finance		
	me periods T1, T		denoted as	SINKI, SNR	z and SNR3	respectivel	y in tigure		
A.7.3.3.1-4.									

Table A.7.3.3.1-3: Cell specific test parameters for E-UTRAN TDD (cell # 1) for out-of-sync radio link monitoring tests # 3 and # 4

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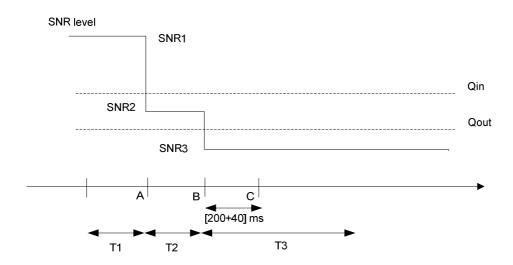


Figure A.7.3.3.1-4. SNR variation for out-of-sync testing

A.7.3.3.2 Test Requirements

The UE behaviour in each test during time durations T1, T2 and T3 shall be as follows:

During the period from time point A to time point B the UE shall transmit uplink signal at least in all uplink subframes configured for CQI transmission according to the configured CQI reporting mode (PUCCH 1-0).

The UE shall stop transmitting uplink signal no later than time point C (240 ms after the start of the time duration T3).

The rate of correct events observed during repeated tests shall be at least 90%.

A.7.3.4 E-UTRAN TDD Radio Link Monitoring Test for In-sync

A.7.3.4.1 Test Purpose and Environment

The purpose of this test is to verify that the UE properly detects the out of sync and in sync for the purpose of monitoring downlink radio link quality of the serving cell. This test will partly verify the E-UTRAN TDD radio link monitoring requirements in section 7.6.

The test parameters are given in Tables A.7.3.4.1-1 and A.7.3.4.1-2 below. There is one cell (cell 1), which is the active cell, in the test. The test consists of five successive time periods, with time duration of T1, T2, T3, T4 and T5 respectively. Figure A.7.3.4.1-3 shows the variation of the downlink SNR in the active cell to emulate out-of-sync and in-sync states. Prior to the start of the time duration T1, the UE shall be fully synchronized to cell 1. The UE shall be configured for periodic CQI reporting in PUCCH 1-0 mode with a reporting periodicity of 1 ms.

Pa	rameter	Unit	Va	lue	Comment	
			Test 1	Test 2		
PCFICH/PDCCH/PHICH parameters			R.6 TDD	R.7 TDD	As specified in section A.3.1.2.2. None of the PDCCH are intended for the UE under test	
OCNG parame	eters		OP.2 TDD	OP.2 TDD	As specified in section A.3.2.2.2.	
Active cell			Cell 1	Cell 1	Cell 1 is on E-UTRA RF channel number 1	
CP length			Normal	Normal		
E-UTRA RF C	hannel Number		1	1	One E-UTRA FDD carrier frequency is used.	
E-UTRA Chan (BW _{channel})	nel Bandwidth	MHz	10	10		
Correlation Ma Configuration	trix and Antenna		1x2 Low	2x2 Low	Correlation Matrix and Antenna Configuration are defined in TS 36.101 [5] Annex B.2.3.2	
	DCI format		1C	1C	As defined in section 5.3.3.1.4 in TS 36.212	
In sync transmission	Number of Control OFDM symbols		2	2	In sync threshold Q _{in} and the corresponding	
parameters	Aggregation level	CCE	4	4	hypothetical	
(Note 1)	ρ _A , ρ _B		0	-3	PDCCH/PCFICH	
	Ratio of PDCCH to RS EPRE		0	-3	transmission parameters are as specified in section	
	Ratio of PCFICH to RS EPRE		4	1	and Table 7.6.1-2 respectively.	
	DCI format		1A	1A	As defined in section 5.3.3.1.3 in TS 36.212	
Out of sync transmission	Number of Control OFDM symbols		2	2	Out of sync threshold Q _{out} and the corresponding	
parameters	Aggregation level	CCE	8	8	hypothetical	
(Note 1)	ρ _Α , ρ _Β		0	-3	PDCCH/PCFICH transmission parameters	
	Ratio of PDCCH to RS EPRE	dB	4	1	are as specified in sectio 7.6.1 and Table 7.6.1-1	
	Ratio of PCFICH to RS EPRE	dB	4	1	respectively.	
DRX			OFF	OFF		
Layer 3 filtering	g		Enabled	Enabled	Counters: N310 = 1; N311 = 1	
T310 timer		ms	2000	2000	T310 is enabled	
T311 timer		ms	1000	1000	T311 is enabled	
Periodic CQI re			PUCCH 1-0	PUCCH 1-0	As defined in table 7.2.2-1 in TS 36.213.	
CQI reporting	•	ms	1	1	Minimum CQI reporting periodicity	
Propagation ch	nannel		ETU 70 Hz	ETU 70 Hz		
T1		S	0.5	0.5		
T2		S	0.4	0.4		
Т3		S	1.46	1.46		
T4		S	0.4	0.4		
T5		S	1	1		
	DCCH/PCFICH corr					

Table A.7.3.4.1-1: General test parameters for E-UTRAN TDD in-sync testing

Parameter	Unit	Test 1					Т	est 2						
		T1	T2	T3	T4		T5	T1	T2	T3	T	4	Т5	1
E-UTRA RF Channel				1							1			
Number														
BW _{channel}	MHz			1				10						
Correlation Matrix				1x2	Low					2x	2 Lov	V		
and Antenna														
Configuration								-						
Special subframe				6	5						6			
configuration ^{Note1} Uplink-downlink				1	1						1			
configuration ^{Note2}				1							1			
OCNG Pattern														
defined in A.3.2.2				OP.2	חחד						.2 TD	п		
(TDD)				OF.Z	ססו					UF.	.2 10	U		
ρ _A , ρ _B				C)						-3			
PCFICH_RB	dB			4	ŀ						1			
PDCCH_RA	dB	0							-3					
PDCCH_RB	dB	0			-3									
PBCH_RA	dB			`										
PBCH_RB	dB													
PSS_RA	dB													
SSS_RA	dB													
PHICH_RA	dB			C)			-3						
PHICH_RB	dB													
PDSCH_RA	dB													
PDSCH_RB	dB													
OCNG_RA ^{Note 3}	dB													
OCNG_RB ^{Note 3}	dB		1				1					-		
SNR Note 8	dB	-1.4	-5.3	-11	.3	-6.4	-1.4	-2.3	-5	.9 -	11.9	-7.	3	-2.3
N_{oc}	dBm/15			-9	8						-98			
	kHz													
Propagation condition		ETU 70 Hz ETU 70 Hz												
	ial subframe co													
	k-downlink cor													
	Note 3: OCNG shall be used such that the resources in cell # 1 are fully allocated and a constant total transmitted													
	ral density is a													
Note 4: The uplink resources for CQI reporting are assigned to the UE prior to the start of time period T1.														
Note 5: The timers and layer 3 filtering related parameters are configured prior to the start of time period T1.														
Note 6: The signal contains PDCCH for UEs other than the device under test as part of OCNG.														
Note 7: SNR levels correspond to the signal to noise ratio over the cell-specific reference signal REs.														
Note 8: The SNR in time periods T1, T2, T3, T4 and T5 is denoted as SNR1, SNR2, SNR3, SNR4 and SNR5 respectively in figure A.7.3.4.1-3.														
respectively	in figure A.7.3.	4.1-3.												

Table A.7.3.4.1-2: Cell specific test parameters for E-UTRAN TDD (cell # 1) for in-sync radio linkmonitoring tests # 1 and # 2

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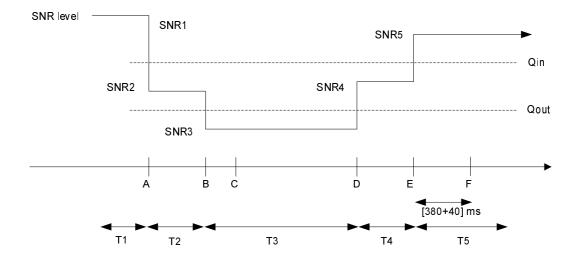


Figure A.7.3.4.1-3. SNR variation for in-sync testing

A.7.3.4.2 Test Requirements

The UE behaviour in each test during time durations T1, T2, T3, T4 and T5 shall be as follows:

During the period from time point A to time point F (420 ms after the start of time duration T5) the UE shall transmit uplink signal at least in all uplink subframes configured for CQI transmission according to the configured CQI reporting mode (PUCCH 1-0).

The rate of correct events observed during repeated tests shall be at least 90%.

A.7.3.5 E-UTRAN FDD Radio Link Monitoring Test for Out-of-sync in DRX

A.7.3.5.1 Test Purpose and Environment

The purpose of this test is to verify that the UE properly detects the out of sync and in sync for the purpose of monitoring downlink radio link quality of the serving cell when DRX is used. This test will partly verify the E-UTRAN FDD radio link monitoring requirements in section 7.6.

The test parameters are given in Tables A.7.3.5.1-1, A.7.3.5.1-2, A.7.3.5.1-3 and A.7.3.5.1-4. There is one cell (cell 1), which is the active cell, in the test. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. Figure A.7.3.5.1-5 shows the variation of the downlink SNR in the active cell to emulate out-of-sync and in-sync states. Prior to the start of the time duration T1, the UE shall be fully synchronized to cell 1. The UE shall be configured for periodic CQI reporting in PUCCH 1-0 mode with a reporting periodicity of 2 ms. In the test, DRX configuration is enabled and DRX inactivity timer has already been expired, i.e. UE tries to decode PDCCH and to send periodic CQI during the period when On-duration timer is running. Time alignment timers shall be set to "infinity" so that UL timing alignment is maintained during the test.

Table A.7.3.5.1-1: General test parameters for E-UTRAN FDD out-of-	sync tests in DRX
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Parameter		Unit	Va	lue	Comment
			Test 1	Test 2	
PCFICH/PDCCH/PHICH parameters			R.7 FDD	R.6 FDD	As specified in section A.3.1.2.1. None of the PDCCH are intended for the UE under test
OCNG parame	eters		OP.2 FDD	OP.2 FDD	As specified in section A.3.2.1.2.
Active cell			Cell 1	Cell 1	Cell 1 is on E-UTRA RF channel number 1
CP length			Normal	Normal	
	hannel Number		1	1	One E-UTRA FDD carrier frequency is used.
E-UTRA Chan (BW _{channel})	nel Bandwidth	MHz	10	10	
Correlation Ma Configuration	atrix and Antenna		2x2 Low	1x2 Low	Correlation Matrix and Antenna Configuration are defined in TS 36.101 [5] Annex B.2.3.2
	DCI format		1A	1A	As defined in section 5.3.3.1.3 in TS 36.212
Out of sync transmission parameters	Number of Control OFDM symbols		2	2	Out of sync threshold Q _{out} and the corresponding hypothetical PDCCH/PCFICH transmission
(Note 1)	Aggregation level	CCE	8	8	parameters are as specified in section 7.6.1 and Table 7.6.1-
	ρ _A , ρ _B		-3	0	1 respectively.
	Ratio of PDCCH to RS EPRE	dB	1	4	
	Ratio of PCFICH to RS EPRE	dB	1	4	
DRX cycle		ms	40	1280	See Table A.7.3.5.1-3
Layer 3 filterin	g		Enabled	Enabled	Counters: N310 = 1; N311 = 1
T310 timer		ms	0	0	T310 is disabled
T311 timer		ms	1000	1000	T311 is enabled
Periodic CQI r			PUCCH 1-0	PUCCH 1-0	As defined in table 7.2.2-1 in TS 36.213.
CQI reporting		ms	2	2	Minimum CQI reporting periodicity
Propagation channel			ETU 70 Hz	AWGN	
T1		S	4	32	
T2		S	1.6	12.8	
Т3		S	1.8	13	
Note 1: PD be	CCH/PCFICH cor	respond eferenc	ding to the out e Measureme	of sync transm nt Channel.	ission parameters need not

Parameter	Unit		Test 1			Test 2		
		T1	T1 T2 T3		T1	T2	T3	
E-UTRA RF Channel			1			1		
Number								
BW _{channel}	MHz		10			10		
Correlation Matrix			2x2 Low			1x2 Low		
and Antenna								
Configuration								
OCNG Pattern								
defined in A.3.2.1			OP.2 FDD			OP.2 FDD		
(FDD)								
ρ _A , ρ _B			-3			0		
PCFICH_RB	dB		1			4		
PDCCH_RA	dB		1			4		
PDCCH_RB	dB		1		4			
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB				_			
PHICH_RA	dB	-3			0			
PHICH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note1}	dB							
OCNG_RB ^{Note1}	dB							
SNR Note 6	dB	-2.3	-6.2	-12.2	-4.7	-9.5	-13.5	
N_{oc}	dBm/15		-98			-98		
1 ° oc	kHz							
Propagation condition			ETU 70 Hz	7		AWGN		
Note 1: OCNG shall	be used such	that the res	sources in	cell # 1 are	fully alloca	ated and a	constant	
	tted power spe							
Note 2: The uplink resources for CQI reporting are assigned to the UE prior to the start of time								
period T1.								
Note 3: The timers and layer 3 filtering related parameters are configured prior to the start of time								
period T1.								
	ontains PDCCI							
Note 5: SNR levels correspond to the signal to noise ratio over the cell-specific reference signal								
REs.	–							
	time periods T		3 is denot	ed as SNR	1, SNR2 a	nd SNR3		
respectively in figure A.7.3.5.1-5.								

Table A.7.3.5.1-2: Cell specific test parameters for E-UTRAN FDD (cell # 1) for out-of-sync radio link monitoring tests # 1 and # 2 in DRX

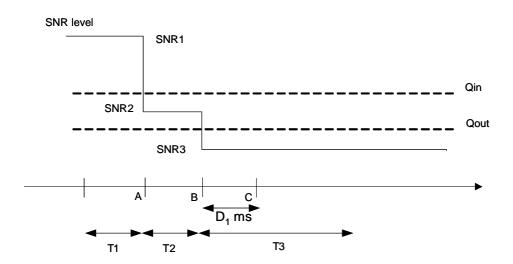
Table A.7.3.5.1-3: DRX-Configuration for E-UTRAN FDD out-of-sync tests

Field	Test1 Value	Test2 Value	Comment
onDurationTimer	psf2	psf2	As specified in section 6.3.2 in 3GPP
drx-InactivityTimer	psf1	psf1	TS 36.331
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	disable	disable	

Table A.7.3.5.1-4: TimeAlignmentTimer -Configuration for E-UTRAN FDD out-of-sync testing

Field	Test1	Test2	Comment
Field	Value	Value	
TimeAlignmentTimer	infinity	infinity	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	0	0	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

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A.7.3.5.2 Test Requirements

The UE behaviour in each test during time durations T1, T2 and T3 shall be as follows:

In test 1 and test 2 during the period from time point A to time point B the UE shall transmit uplink signal at least once every DRX cycle, in the On-duration part of the cycle in the subframe according to the configured CQI reporting mode (PUCCH 1-0).

In test 1 the UE shall stop transmitting uplink signal no later than time point C (duration $D_1 = 900$ ms after the start of time duration T3).

In test 2 the UE shall stop transmitting uplink signal no later than time point C (duration $D_1 = 6500$ ms after the start of time duration T3).

The rate of correct events observed during repeated tests shall be at least 90%.

A.7.3.6 E-UTRAN FDD Radio Link Monitoring Test for In-sync in DRX

A.7.3.6.1 Test Purpose and Environment

The purpose of this test is to verify that the UE properly detects the out of sync and in sync for the purpose of monitoring downlink radio link quality of the serving cell when DRX is used. This test will partly verify the E-UTRAN FDD radio link monitoring requirements in section 7.6.

The test parameters are given in Tables A.7.3.6.1-1, A.7.3.6.1-2, A.7.3.6.1-3 and A.7.3.6.1-4. There is one cell (cell 1), which is the active cell, in the test. The test consists of five successive time periods, with time duration of T1, T2, T3, T4 and T5 respectively. Figure A.7.3.6.1-5 shows the variation of the downlink SNR in the active cell to emulate out-of-sync and in-sync states. Prior to the start of the time duration T1, the UE shall be fully synchronized to cell 1. The UE shall be configured for periodic CQI reporting in PUCCH 1-0 mode with a reporting periodicity of 2 ms. In the test, DRX configuration is enabled and DRX inactivity timer has already been expired, i.e. UE tries to decode PDCCH and to send periodic CQI during the period when On-duration timer is running. Time alignment timers shall be set to "infinity" so that UL timing alignment is maintained during the test.

Param	neter	Unit	Value	Comment
PCFICH/PDCCH/PHIC	CH parameters		R.6 FDD	As specified in section A.3.1.2.1. None of the PDCCH are intended for the UE under test
OCNG parameters			OP.2 FDD	As specified in section A.3.2.1.2.
Active cell			Cell 1	Cell 1 is on E-UTRA RF channel number 1
CP length			Normal	
E-UTRA RF Channel N			1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Ban	dwidth (BW _{channel})	MHz	10	
Correlation Matrix and Configuration	Antenna		1x2 Low	Correlation Matrix and Antenna Configuration are defined in TS 36.101 [5] Annex B.2.3.2
	DCI format		1C	As defined in section 5.3.3.1.4 in TS 36.212
In sync transmission parameters	Number of Control OFDM symbols		2	In sync threshold Q _{in} and the corresponding hypothetical
(Note 1)	Aggregation level	CCE	4	PDCCH/PCFICH transmission
	ρ _A , ρ _B		0	parameters are as specified in
	Ratio of PDCCH to RS EPRE		0	section and Table 7.6.1-2 respectively.
	Ratio of PCFICH to RS EPRE		4	
	DCI format		1A	As defined in section 5.3.3.1.3 in TS 36.212
Out of sync transmission	Number of Control OFDM symbols		2	Out of sync threshold Q _{out} and the corresponding hypothetical
parameters	Aggregation level	CCE	8	PDCCH/PCFICH transmission
(Note 1)	ρ _Α , ρ _Β		0	parameters are as specified in section 7.6.1 and Table 7.6.1-1
	Ratio of PDCCH to RS EPRE	dB	4	respectively.
	Ratio of PCFICH to RS EPRE	dB	4	
DRX cycle		ms	40	See Table A.7.3.6.1-3
Layer 3 filtering			Enabled	Counters: N310 = 1; N311 = 1
T310 timer		ms	2000	T310 is enabled
T311 timer		ms	1000	T311 is enabled
Periodic CQI reporting mode			PUCCH 1-0	As defined in table 7.2.2-1 in TS 36.213.
CQI reporting periodic	ity	ms	2	Minimum CQI reporting periodicity
Propagation channel			AWGN	
T1		S	4	
T2		S	1.6	
T3		S	1.46	
T4		S	0.4	
T5		S	4	
				out of sync transmission Measurement Channel.

Table A.7.3.6.1-1: General test parameters for E-UTRAN FDD in-sync test in DRX

Unit	Test 1						
	T1 T2 T3 T4 T						
	1						
MHz			10				
			1x2 Low				
			-				
			-				
-			-				
			0				
-							
-							
-			0				
-							
-	-4.7	-9.5		-8.7	-4.7		
			-98				
KHZ			AW/GN				
l such that the	rosourcos in	coll # 1 aro f		and a consta	nt total		
				anu a consta			
Note 3: The timers and layer 3 filtering related parameters are configured prior to the start of time period T1.							
PDCCH for UF	s other than	the device ur	nder test as n	art of OCNG			
 Note 5: SNR levels correspond to the signal to noise ratio over the cell-specific reference signal REs. Note 6: The SNR in time periods T1, T2, T3, T4 and T5 is denoted as SNR1, SNR2, SNR3, SNR4 and SNR5 respectively in figure A.7.3.6.1-5. 							
	MHz MHz dB dB dB dB dB dB dB dB dB dB	T1 MHz MHz dB dB <td>T1 T2 MHz </td> <td>T1 T2 T3 MHz 10 MHz 10 1x2 Low 1x2 Low OP.2 FDD 0 dB 4 dB 0 dB -4.7 -9.5 -13.5 dBm/15 -98 kHz AWGN d such that the resources in cell # 1 are fully allocated bectral density is achieved for all OFDM symbols. s for CQI reporting are assigned to the UE prior to the r 3 filtering related parameters are configured prior to</td> <td>T1 T2 T3 T4 Image: Minipage strain of the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured parameters are configured prior to the start of time index sont index</td>	T1 T2 MHz	T1 T2 T3 MHz 10 MHz 10 1x2 Low 1x2 Low OP.2 FDD 0 dB 4 dB 0 dB -4.7 -9.5 -13.5 dBm/15 -98 kHz AWGN d such that the resources in cell # 1 are fully allocated bectral density is achieved for all OFDM symbols. s for CQI reporting are assigned to the UE prior to the r 3 filtering related parameters are configured prior to	T1 T2 T3 T4 Image: Minipage strain of the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured prior to the start of time in 3 filtering related parameters are configured parameters are configured prior to the start of time index sont index		

Table A.7.3.6.1-2: Cell specific test parameters for E-UTRAN FDD (cell # 1) for in-sync radio link monitoring test # 1 in DRX

Table A.7.3.6.1-3: DRX-Configuration for E-UTRAN FDD out-of-sync tests

Field	Value	Comment
onDurationTimer	psf2	As specified in section 6.3.2 in 3GPP
drx-InactivityTimer	psf1	TS 36.331
drx-RetransmissionTimer	psf1	
longDRX-CycleStartOffset	sf40	
shortDRX	disable	

Field	Value	Comment
TimeAlignmentTimer	infinity	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	0	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

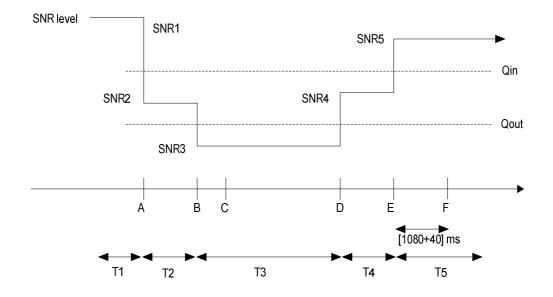


Figure A.7.3.6.1-5 SNR variation for in-sync testing in DRX

A.7.3.6.2 Test Requirements

The UE behaviour in each test during time durations T1, T2, T3, T4 and T5 shall be as follows:

During the period from time point A to time point F (1120 ms after the start of time duration T5) the UE shall transmit uplink signal at least once every DRX cycle, in the On-duration part of the cycle in the subframe according to the configured CQI reporting mode (PUCCH 1-0).

The rate of correct events observed during repeated tests shall be at least 90%.

A.7.3.7 E-UTRAN TDD Radio Link Monitoring Test for Out-of-sync in DRX

A.7.3.7.1 Test Purpose and Environment

The purpose of this test is to verify that the UE properly detects the out of sync and in sync for the purpose of monitoring downlink radio link quality of the serving cell when DRX is used. This test will partly verify the E-UTRAN TDD radio link monitoring requirements in section 7.6.

The test parameters are given in Tables A.7.3.7.1-1, A.7.3.7.1-2, A.7.3.7.1-3 and A.7.3.7.1-4. There is one cell (cell 1), which is the active cell, in the test. The test consists of three successive time periods, with time duration of T1, T2 and T3 respectively. Figure A.7.3.7.1-5 shows the variation of the downlink SNR in the active cell to emulate out-of-sync and in-sync states. Prior to the start of the time duration T1, the UE shall be fully synchronized to cell 1. The UE shall be configured for periodic CQI reporting in PUCCH 1-0 mode with a reporting periodicity of 1 ms. In the test, DRX configuration is enabled and DRX inactivity timer has already been expired, i.e. UE tries to decode PDCCH and to send periodic CQI during the period when On-duration timer is running. Time alignment timers shall be set to "infinity" so that UL timing alignment is maintained during the test.

Test 1 Test 2 PCFICH/PDCCH/PHICH parameters R.7 TDD R.6 TDD As specified in section A.3.1.2.2. None of the DDCCH are intended for the UE under test OCNG parameters OP.2 TDD OP.2 TDD As specified in section A.3.2.2. Active cell Cell 1 Cell 1 Cell 1 is on E-UTRA RF channel number 1 CP length Normal Normal Cell 1 Cell 1 is on E-UTRA RF channel number 1 E-UTRA Channel Bandwidth (BW-gause) MHz 10 10 Correlation Matrix and Antenna Configuration are defined in S 28.101 [5] Annex B.2.3.2 Out of sync transmission parameters Number of Control OFDM symbols 2.2 2 Out of sync transmission parameters Number of Control OFDM symbols 2.2 2 Out of sync transmission parameters Ratio of POCCH to RS EPRE 8 parameters are as specified in section 7.6.1 and Table 7.6.1-1 Ratio of PDCCH to RS EPRE B1 4 4 1 1 respecified in table 7.2.2-1 in TS 36.213. T310 timer ms 0 T310 is disabled 1 1 1 PRCHTPE Enabled Enabled Courters: N310 = 1; N311 = 1 1 </th <th colspan="2" rowspan="2">Parameter</th> <th>Unit</th> <th colspan="2">Value</th> <th>Comment</th>	Parameter		Unit	Value		Comment
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Propagation channelETU 70 HzAWGN.T1s432T2s1.612.8T3s1.813Note 1:PDCCH/PCFICH corresponding to the out of sync transmission parameters need not	Periodic CQI reporting mode			PUCCH 1-0	PUCCH 1-0	
Propagation channelETU 70 HzAWGNT1s432T2s1.612.8T3s1.813Note 1:PDCCH/PCFICH corresponding to the out of sync transmission parameters need not			ms	1	1	Minimum CQI reporting
T2s1.612.8T3s1.813Note 1:PDCCH/PCFICH corresponding to the out of sync transmission parameters need not	Propagation channel			ETU 70 Hz	AWGN	
T3 s 1.8 13 Note 1: PDCCH/PCFICH corresponding to the out of sync transmission parameters need not	T1		s	4	32	
Note 1: PDCCH/PCFICH corresponding to the out of sync transmission parameters need not	T2		s	1.6	12.8	
	Т3		s	1.8	13	
be included in the Reference Measurement Channel.						ission parameters need not
	be	included in the R	eferenc	e Measureme	nt Channel.	

Parameter	Unit		Test 1			Test 2	
		T1	T2	T3	T1	T2	T3
E-UTRA RF Channel			1			1	
Number							
BW _{channel}	MHz		10			10	
Correlation Matrix			2x2 Low			1x2 Low	
and Antenna							
Configuration							
Special subframe configuration Note1			6			6	
Uplink-downlink configuration ^{Note2}			1			1	
OCNG Pattern							
defined in A.3.2.2 (TDD)			OP.2 TDD			OP.2 TDD)
ρ _A , ρ _B			-3			0	
PCFICH_RB	dB		1			4	
PDCCH_RA	dB		1			4	
PDCCH_RB	dB		1			4	
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PHICH_RA	dB		-3		0		
PHICH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note3}	dB						
OCNG_RB ^{Note3}	dB						-
SNR Note 8	dB	-2.3	-5.9	-11.9	-5.1	-9.1	-13.1
N_{oc}	dBm/15		-98			-98	
	kHz						
Propagation condition			ETU 70 Hz			AWGN	
	ial subframe c						
	k-downlink cor						
Note 3: OCNG shall be used such that the resources in cell # 1 are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.							
Note 4: The uplink resources for CQI reporting are assigned to the UE prior to the start of time period T1.							
Note 5: The timers and layer 3 filtering related parameters are configured prior to the start of time period T1.							
	correspond to t						
Note 8: The SNR in	time periods T ^r in figure A.7.3.		T3 is denot	ed as SNR	1, SNR2 a	nd SNR3	

Table A.7.3.7.1-2: Cell specific test parameters for E-UTRAN TDD (cell # 1) for out-of-sync radio linkmonitoring tests # 1 and # 2 in DRX

Table A.7.3.7.1-3: DRX-Configuration for E-UTRAN TDD out-of-sync tests

Field	Test1 Value	Test2 Value	Comment
onDurationTimer	psf2	psf2	As specified in section 6.3.2 in 3GPP
drx-InactivityTimer	psf1	psf1	TS 36.331
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	disable	disable	

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Field	Test1	Test2	Comment
Fleid	Value	Value	
TimeAlignmentTimer	infinity	infinity	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	2	2	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

Table A.7.3.7.1-4: TimeAlignmentTimer -Configuration for E-UTRAN TDD out-of-sync testing

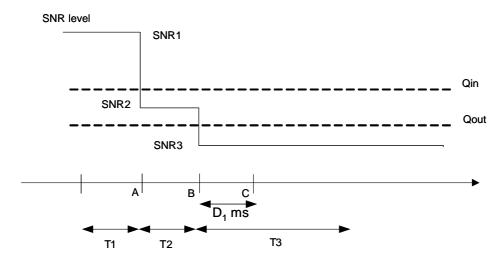


Figure A.7.3.7.1-5 SNR variation for out-of-sync testing in DRX

A.7.3.7.2 Test Requirements

The UE behaviour in each test during time durations T1, T2 and T3 shall be as follows:

In test 1 and test 2 during the period from time point A to time point B the UE shall transmit uplink signal at least once every DRX cycle, in the On-duration part of the cycle in the uplink subframe according to the configured CQI reporting mode (PUCCH 1-0).

In test 1 the UE shall stop transmitting uplink signal no later than time point C (duration $D_1 = 900$ ms after the start of time duration T3).

In test 2 the UE shall stop transmitting uplink signal no later than time point C (duration $D_1 = 6500$ ms after the start of time duration T3).

The rate of correct events observed during repeated tests shall be at least 90%.

A.7.3.8 E-UTRAN TDD Radio Link Monitoring Test for In-sync in DRX

A.7.3.8.1 Test Purpose and Environment

The purpose of this test is to verify that the UE properly detects the out of sync and in sync for the purpose of monitoring downlink radio link quality of the serving cell when DRX is used. This test will partly verify the E-UTRAN TDD radio link monitoring requirements in section 7.6.

The test parameters are given in Tables A.7.3.8.1-1, A.7.3.8.1-2, A.7.3.8.1-3 and A.7.3.8.1-4. There is one cell (cell 1), which is the active cell, in the test. The test consists of five successive time periods, with time duration of T1, T2, T3, T4 and T5 respectively. Figure A.7.3.8.1-5 shows the variation of the downlink SNR in the active cell to emulate out-of-sync and in-sync states. Prior to the start of the time duration T1, the UE shall be fully synchronized to cell 1. The UE shall be configured for periodic CQI reporting in PUCCH 1-0 mode with a reporting periodicity of 1 ms. In the test, DRX configuration is enabled and DRX inactivity timer has already been expired, i.e. UE tries to decode PDCCH and to send periodic CQI during the period when On-duration timer is running. Time alignment timers shall be set to "infinity" so that UL timing alignment is maintained during the test.

Parameter		Unit	Value	Comment
PCFICH/PDCCH/PHICH parameters			R.6 TDD	As specified in section A.3.1.2.2. None of the PDCCH are intended for the UE under test
OCNG parameters		OP.2 TDD	As specified in section A.3.2.2.2.	
Active cell			Cell 1	Cell 1 is on E-UTRA RF channel number 1
CP length			Normal	
E-UTRA RF Channel I	Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Ban		MHz	10	
Correlation Matrix and Configuration	Antenna		1x2 Low	Correlation Matrix and Antenna Configuration are defined in TS 36.101 [5] Annex B.2.3.2
	DCI format		1C	As defined in section 5.3.3.1.4 in TS 36.212
In sync transmission parameters	Number of Control OFDM symbols		2	In sync threshold Q _{in} and the corresponding hypothetical
(Note 1)	Aggregation level	CCE	4	PDCCH/PCFICH transmission
	ρ _A , ρ _B		0	parameters are as specified in
	Ratio of PDCCH to RS EPRE		0	section and Table 7.6.1-2 respectively.
	Ratio of PCFICH to RS EPRE		4	
	DCI format		1A	As defined in section 5.3.3.1.3 in TS 36.212
Out of sync transmission	Number of Control OFDM symbols		2	Out of sync threshold Q _{out} and the corresponding hypothetical
parameters	Aggregation level	CCE	8	PDCCH/PCFICH transmission
(Note 1)	ρ _Α , ρ _Β		0	parameters are as specified in section 7.6.1 and Table 7.6.1-1
	Ratio of PDCCH to RS EPRE	dB	4	respectively.
	Ratio of PCFICH to RS EPRE	dB	4	
DRX cycle		ms	40	See Table A.7.3.8.1-3
Layer 3 filtering			Enabled	Counters: N310 = 1; N311 = 1
T310 timer		ms	2000	T310 is enabled
T311 timer		ms	1000	T311 is enabled
Periodic CQI reporting mode			PUCCH 1-0	As defined in table 7.2.2-1 in TS 36.213.
CQI reporting periodicity		ms	1	Minimum CQI reporting periodicity
Propagation channel			AWGN	
T1		S	4	
T2	S	1.6		
T3	S	1.46		
T4		S	0.4	
T5		S	4	
				out of sync transmission Measurement Channel.

Table A.7.3.8.1-1: General test parameters for E-UTRAN TDD in-sync test in DRX

Parameter	Unit			Test 1		
		T1	T2	T3	Τ4	T5
E-UTRA RF Channel Number				1		
BW _{channel}	MHz			10		
Correlation Matrix and				1x2 Low		
Antenna Configuration						
Special subframe				6		
configuration ^{Note1}						
Uplink-downlink				1		
configuration ^{Note2}						
OCNG Pattern defined in						
A.3.2.2 (TDD)				OP.2 TDD		
ρα, ρβ				0		
PCFICH_RB	dB			4		
PDCCH_RA	dB			0		
PDCCH_RB	dB			0		
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PHICH_RA	dB			0		
PHICH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note3}	dB					
OCNG_RB ^{Note3}	dB					
SNR ^{Note 8}	dB	-5.1	-9.1	-13.1	-9.1	-5.1
N _{oc}	dBm/15			-98		
1 voc	kHz					
Propagation condition				AWGN		
Note 1: For the special subfr	ame configura	tion see table	e 4.2-1 in 3G	PP TS 36.211		
Note 2: For the uplink-downl						
Note 3: OCNG shall be used					and a consta	ant total
transmitted power sp	pectral density	is achieved f	or all OFDM	symbols.		
Note 4: The uplink resources for CQI reporting are assigned to the UE prior to the start of time period T1.						
Note 5: The timers and layer 3 filtering related parameters are configured prior to the start of time period						
T1.						
Note 6: The signal contains PDCCH for UEs other than the device under test as part of OCNG.						
Note 7: SNR levels correspo						
Note 8: The SNR in time per			is denoted as	s SNR1, SNR	2, SNR3, SN	NR4 and
SNR5 respectively in	n figure A.7.3.8	3.1-5.				

Table A.7.3.8.1-2: Cell specific test parameters for E-UTRAN TDD (cell # 1) for in-sync radio link monitoring test # 1 in DRX

Table A.7.3.8.1-3: DRX-Configuration for E-UTRAN TDD out-of-sync tests

Field	Value	Comment
onDurationTimer	psf2	As specified in section 6.3.2 in 3GPP
drx-InactivityTimer	psf1	TS 36.331
drx-RetransmissionTimer	psf1	
longDRX-CycleStartOffset	sf40	
shortDRX	disable	

Table A.7.3.8.1-4: *TimeAlignmentTimer* -Configuration for E-UTRAN TDD out-of-sync testing

Field	Value	Comment
TimeAlignmentTimer	infinity	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	2	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

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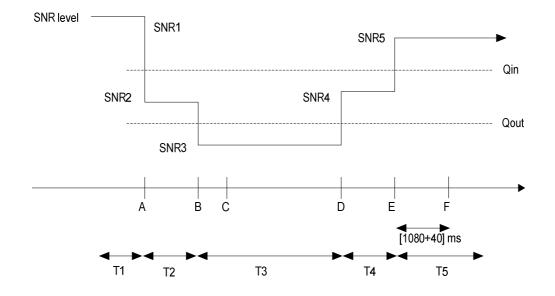


Figure A.7.3.8.1-5 SNR variation for in-sync testing in DRX

A.7.3.8.2 Test Requirements

The UE behaviour in each test during time durations T1, T2, T3, T4 and T5 shall be as follows:

During the period from time point A to time point F (1120 ms after the start of time duration T5) the UE shall transmit uplink signal at least once every DRX cycle, in the On-duration part of the cycle in the uplink subframe according to the configured CQI reporting mode (PUCCH 1-0).

The rate of correct events observed during repeated tests shall be at least 90%.

A.8 UE Measurements Procedures

The reference channels in this section assume transmission of PDSCH with a maximum number of 5 HARQ transmissions unless otherwise specified.

A.8.1 E-UTRAN FDD Intra-frequency Measurements

A.8.1.1 E-UTRAN FDD-FDD intra-frequency event triggered reporting under fading propagation conditions in asynchronous cells

A.8.1.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the FDD intra-frequency cell search requirements in section 8.1.2.2.1.1.

The test parameters are given in Table A.8.1.1.1-1 and A.8.1.1.1-2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.1.1.1-1: General test parameters for E-UTRAN FDD-FDD intra-frequency event triggered reporting under fading propagation conditions in asynchronous cells

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH		DL Reference Measurement	As specified in section A.3.1.2.1
parameters		Channel R.6 FDD	
Active cell		Cell 1	
Neighbour cell		Cell 2	Cell to be identified.
E-UTRA RF Channel		1	One FDD carrier frequency is used.
Number			
Channel Bandwidth	MHz	10	
(BW _{channel})			
A3-Offset	dB	-6	
CP length		Normal	
Hysteresis	dB	0	
Time To Trigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX			OFF
Time offset between cells		3 ms	Asynchronous cells
T1	S	5	
T2	S	5	

Parameter	Unit	Ce	ll 1		Cell 2		
		T1	T2	T1	T2		
E-UTRA RF Channel			1		1		
Number							
BW _{channel}	MHz	1	0		10		
OCNG Patterns							
defined in A.3.2.1.1		OP.1	FDD	OF	P.2 FDD		
(OP.1 FDD) and in							
A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB	,	`		0		
PHICH_RA	dB	(J		0		
PHICH_PB	dB						
PDCCH_RA	dB						
PDCCH_PB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB		-				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	-1.46	-Infinity	-1.46		
$N_{_{oc}}$ Note 3	dBm/15 KHz			-98			
\hat{E}_s/N_{oc}	dB	4	4	-Infinity	4		
RSRP Note 4	dBm/15 KHz	-94	-94	-Infinity	-94		
SCH_RP Note 4	dBm/15 KHz	-94	-94	-Infinity	-94		
Propagation Condition			E	TU70			
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.							
Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.							
Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over							
subcarriers and tim	e and shall be mo	delled as AWGN o	of appropriate po	wer for $N_{_{oc}}$ to be	e fulfilled.		
Note 4: RSRP and SCH_RF settable parameter	Plevels have been						

Table A.8.1.1.1-2: Cell specific test parameters for E-UTRAN FDD-FDD intra-frequency event triggered reporting under fading propagation conditions in asynchronous cells

A.8.1.1.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 800 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.1.2 E-UTRAN FDD-FDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells

A.8.1.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the FDD intra-frequency cell search requirements in section 8.1.2.2.1.1

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The test parameters are given in Table A.8.1.2.1-1 and A.8.1.2.1-2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event A3 is used. PDCCHs indicating new transmissions or retransmissions should be sent continuously to ensure that the UE would not enter the DRX state. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.1.2.1-1: General test parameters for E-UTRAN FDD-FDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH		DL Reference Measurement	As specified in section A.3.1.2.1
parameters		Channel R.6 FDD	
Active cell		Cell 1	
Neighbour cell		Cell 2	Cell to be identified.
E-UTRA RF Channel		1	One FDD carrier frequency is used.
Number			
Channel Bandwidth	MHz	10	
(BW _{channel})			
A3-Offset	dB	-6	
CP length		Normal	
Hysteresis	dB	0	
Time To Trigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		DRX_L	As specified in section A.3.3
Time offset between cells		3 μs	Synchronous cells
T1	S	5	
T2	S	5	

Parameter	Unit	Cell 1		0	Cell 2		
		T1	T2	T1	T2		
E-UTRA RF Channel			1		1		
Number							
BW _{channel}	MHz	1	0		10		
OCNG Patterns							
defined in A.3.2.1.1		OP.1	FDD	OP	.2 FDD		
(OP.1 FDD) and in							
A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB		2	0			
PHICH_RA	dB		0				
PHICH_RB	dB						
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	-1.46	-Infinity	-1.46		
$N_{_{oc}}$ Note 3	dBm/15 KHz			-98			
\hat{E}_s/N_{oc}	dB	4	4	-Infinity	4		
RSRP Note 4	dBm/15 KHz	-94	-94	-Infinity	-94		
SCH_RP Note 4	dBm/15 KHz	-94	-94	-Infinity	-94		
Propagation Condition			Ē	TU70	•		
achieved for all OF Note 2: The resources for u	Propagation Condition ETU70 Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.						
Note 3: Interference from ot	her cells and noise sou		d in the test is ass	umed to be consta	nt over subcarriers		

Table A.8.1.2.1-2: Cell specific test parameters for E-UTRAN FDD-FDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells

and time and shall be modelled as AWGN of appropriate power for $\,N_{_{oc}}\,$ to be fulfilled.

Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.8.1.2.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 800 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.1.3 E-UTRAN FDD-FDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells with DRX

A.8.1.3.1 Test Purpose and Environment

The purpose of the two tests is to verify that the UE makes correct reporting of an event in DRX. The tests will partly verify the FDD-FDD intra-frequency cell search in DRX requirements in section 8.1.2.2.1.2.

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The test parameters are given in Tables A.8.1.3.1-1, A.8.1.3.1-2, A.8.1.3.1-3 and A.8.1.3.1-4. In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE is allocated with PUSCH resource at every DRX cycle.

In Test 2 the uplink time alignent is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

Parameter	Unit	Va	lue	Comment
		Test 1	Test 2	
PDSCH parameters		DL Reference Me Channel R.0 FDI		As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Me Channel R.6 FDI		As specified in section A.3.1.2.1
Active cell		Cell 1		
Neighbour cell		Cell 2		Cell to be identified.
E-UTRA RF Channel Number		1		One FDD carrier frequency is used.
Channel Bandwidth (BW _{channel})	MHz	10		
A3-Offset	dB	-6		
CP length		Normal		
Hysteresis	dB	0		
Time To Trigger	S	0		
Filter coefficient		0		L3 filtering is not used
DRX		ON		DRX related parameters are defined in Table A.8.1.3.1-3
Time offset between cells		3 μs		Synchronous cells
T1	S	5		
T2	S	5	30	

Table A.8.1.3.1-1: General test parameters for E-UTRAN FDD-FDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells when DRX is used

Table A.8.1.3.1-2: Cell specific test parameters for E-UTRAN FDD-FDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells when DRX is used

Parameter	Unit	Ce	ll 1	(Cell 2	
		T1	T2	T1	T2	
E-UTRA RF Channel		1		1		
Number						
BW _{channel}	MHz	1	0		10	
OCNG Patterns						
defined in A.3.2.1.1		OP.1	FDD	OP	.2 FDD	
(OP.1 FDD) and in						
A.3.2.1.2 (OP.2 FDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB	()		0	
PHICH_RB	dB					
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
\hat{E}_{s}/I_{ot}	dB	4	-1.46	-Infinity	-1.46	
$N_{oc}^{ m Note 2}$	dBm/15 KHz			-98		
\hat{E}_{s}/N_{oc}	dB	4	4	-Infinity	4	
RSRP Note 3	dBm/15 KHz	-94	-94	-Infinity	-94	
SCH RP Note 3	dBm/15 KHz	-94	-94	-Infinity	-94	
Propagation Condition		ETU70				
Note 1: OCNG shall be used achieved for all OF	DM symbols.	-	and a constant to	tal transmitted pow		
Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{\alpha c}$ to be fulfilled.						
Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

Table A.8.1.3.1-3: DRX-Configuration for E-UTRAN FDD-FDD intra-frequency event triggered reporting in DRX under fading propagation conditions in synchronous cells

Field	Test1 Value	Test2 Value	Comment
onDurationTimer	psf1	psf1	As specified in section 6.3.2 in
drx-InactivityTimer	psf1	psf1	3GPP TS 36.331
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	disable	disable	

Table A.8.1.3.1-4: *TimeAlignmentTimer* -Configuration for E-UTRAN FDD-FDD intra-frequency event triggered reporting in DRX under fading propagation conditions in synchronous cells

Field	Test1 Value	Test2 Value	Comment
TimeAlignmentTimer	sf500	sf500	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	0	0	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

A.8.1.3.2 Test Requirements

In Test 1, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 800 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2 to the moment when the UE send the measurement report on PUSCH.

In Test 2, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 25600 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2 to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event A3 measurement report.
- A.8.1.4 Void

A.8.1.5 E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

A.8.1.5.1 Test Purpose and Environment

This test is to verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps in section 8.1.2.2.3.

The test scenario comprises of one E-UTRA FDD carrier and two cells as given in tables A.8.1.5.1-1 and A.8.1.5.1-2. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would have ACK/NACK sending during identifying a new CGI of E-UTRAN cell. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report.

A RRC message implying SI reading shall be sent to the UE during period T2, after the UE has reported Event A3. The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE. The start of T3 is the instant when the last TTI containing the RRC message implying SI reading is sent to the UE.

Table A.8.1.5.1-1: General test parameters for E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.3 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Active cell		Cell 1	
Neighbour cell		Cell 2	Cell to be identified.
E-UTRA RF Channel Number		1	Only one FDD carrier frequency is used.
Channel Bandwidth (BW _{channel})	MHz	10	
CP length		Normal	
A3-Offset	dB	-3	
Hysteresis	dB	0	
Time To Trigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331.
Time offset between cells	ms	3	Asynchronous cells
T1	S	5	
T2	S	≤10	
Т3	S	5	

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	T3	T1	T2	Т3
E-UTRA RF Channel			1			1	
Number							
BW _{channel}	MHz		10			10	
OCNG Patterns defined in		OP.10	OP.10	OP.10	OP.2	OP.2	OP.2
A.3.2.1.10 (OP.10 FDD)		FDD	FDD	FDD	FDD	FDD	FDD
and in A.3.2.1.2 (OP.2							
FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB		0			0	
PHICH_PB	dB						
PDCCH_RA	dB						
PDCCH_PB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	8	-3.3	-3.3	-Infinity	2.36	2.36
$N_{oc}^{}$ Note 2	dBm/15 KHz		•	-9	98		
\hat{E}_s/N_{oc}	dB	8	8	8	-Infinity	11	11
RSRP ^{Note 3}	dBm/15 KHz	-90	-90	-90	-Infinity	-87	-87
SCH_RP ^{Note3}	dBm/15 KHz	-90	-90	-90	-Infinity	-87	-87
Propagation Condition				AW	GN		
Note 1: OCNG shall be used su achieved for all OFDM	symbols.	-				-	
	Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{ac} to be fulfilled.						
Note 3: RSRP and SCH RP lev			00				hla

Table A.8.1.5.1-2: Cell specific test parameters for E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.8.1.5.2 Test Requirements

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3.

Test requirement = RRC Procedure delay + $T_{identify CGL, intra}$ + reporting delay

= 15 + 150 + 2ms from the start of T3

= 167 ms, allow 170 ms.

The UE shall be scheduled continuously throughout the test, and from the start of T3 until 170 ms at least 80 ACK/NACK shall be detected as being transmitted by the UE.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The overall 80 ACK/NACK number is caused by two parts. Firstly, at least 60 ACK/NACK shall be sent during identifying the cell global identifier of cell 2 according to the requirement in Section 8.1.2.2.3.1. Secondly, given that continuous DL data allocation, additional 20 ACK/NACK shall be sent from the start of T3 until 170 ms excludes 150 ms for identifying the cell global identifier of cell 2.

A.8.1.6 E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

A.8.1.6.1 Test Purpose and Environment

This test is to verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps in section 8.1.2.2.3. The requirement is verified in a DRX configuration.

The test scenario comprises of one E-UTRA FDD carrier and two cells as given in tables A.8.1.6.1-1, A.8.1.6.1-2, A.8.1.6.1-3 and A.8.1.6.1-4. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report.

A RRC message implying SI reading shall be sent to the UE during period T2, after the UE has reported Event A3. The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE. The start of T3 is the instant when the last TTI containing the RRC message implying SI reading is sent to the UE.

In the test UE needs to be provided at least once every 1280ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE sends scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

Table A.8.1.6.1-1: General test parameters for E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement	As specified in section A.3.1.1.1
		Channel R.0 FDD	
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1
		Channel R.6 FDD	
Active cell		Cell 1	
Neighbour cell		Cell 2	Cell to be identified.
E-UTRA RF Channel Number		1	Only one FDD carrier frequency is
			used.
Channel Bandwidth (BW _{channel})	MHz	10	
CP length		Normal	
A3-Offset	dB	-3	
Hysteresis	dB	0	
Time To Trigger	s	0	
Filter coefficient		0	L3 filtering is not used
DRX		ON	DRX related parameters are
			defined in Table A.8.1.6.1-3
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in
			TS 36.331.
Time offset between cells	ms	3	Asynchronous cells
Τ1	S	5	
T2	S	≤30	UE should report cell within 25.6s
			(20 DRX cycles)
Т3	S	5	

Table A.8.1.6.1-2: Cell specific test parameters for E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	T3	T1	T2	Т3
E-UTRA RF Channel			1	<u> </u>		1	•
Number							
BW _{channel}	MHz		10			10	
OCNG Patterns defined in		OP.1	OP.1	OP.1	OP.2	OP.2	OP.2
A.3.2.1.1 (OP.1 FDD) and		FDD	FDD	FDD	FDD	FDD	FDD
in A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB		0			0	
PHICH_PB	dB						
PDCCH_RA	dB						
PDCCH_PB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	8	-3.3	-3.3	-Infinity	2.36	2.36
N_{oc} Note 2	dBm/15 KHz			-9	8		
\hat{E}_s/N_{oc}	dB	8	8	8	-Infinity	11	11
RSRP Note 3	dBm/15 KHz	-90	-90	-90	-Infinity	-87	-87
SCH_RP ^{Note3}	dBm/15 KHz	-90	-90	-90	-Infinity	-87	-87
Propagation Condition				AW	GN		
Note 1: OCNG shall be used suc achieved for all OFDM Note 2: Interference from other of	symbols.	-					-
and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.							
Note 3: RSRP and SCH_RP lev parameters themselves	els have been derive		00		urposes. The	y are not setta	able

Table A.8.1.6.1-3: DRX configuration for E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Field	Value	Comment
onDurationTimer	psf1	As specified in section 6.3.2 in
drx-InactivityTimer	psf1	3GPP TS 36.331
drx-RetransmissionTimer	psf1	
longDRX-CycleStartOffset	sf1280	
shortDRX	disable	

Table A.8.1.6.1-4: *TimeAlignmentTimer* -Configuration for E-UTRAN FDD - FDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Field	Value	Comment
TimeAlignmentTimer	Infinity	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	0	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

A.8.1.6.2 Test Requirements

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3.

Test requirement = RRC Procedure delay + $T_{identify CGI, intra}$ + reporting delay

= 15 + [150] + 2ms from the start of T3

= [167] ms, allow [170] ms.

The rate of correct events observed during repeated tests shall be at least 90%.

A.8.2 E-UTRAN TDD Intra-frequency Measurements

A.8.2.1 E-UTRAN TDD-TDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells

A.8.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the TDD intra-frequency cell search requirements in section 8.1.2.2.2.1.

The test parameters are given in Table A.8.2.1.1-1 and A.8.2.1.1-2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event A3 is used. PDCCHs indicating new transmissions or retransmissions should be sent continuously to ensure that the UE would not enter the DRX state. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.2.1.1-1: General test parameters for E-UTRAN TDD-TDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Active cell		Cell 1	
Neighbour cell		Cell 2	Cell to be identified.
E-UTRA RF Channel Number		1	One TDD carrier frequency is used.
Channel Bandwidth (BW _{channel})	MHz	10	
A3-Offset	dB	-6	
CP length		Normal	
Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211. The same configuration in both cells
Uplink-downlink configuration		1	As specified in table 4.2-2 in TS 36.211. The same configuration in both cells
Hysteresis	dB	0	
Time To Trigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		DRX_L	As specified in section A.3.3
Time offset between cells		3 μs	Synchronous cells
T1	S	5	
T2	S	5	

Table A.8.2.1.1-2: Cell specific test parameters for E-UTRAN TDD-TDD intra-frequency event triggered
reporting under fading propagation conditions in synchronous cells

Parameter	Unit	Ce	II 1	C	Cell 2	
		T1	T2	T1	T2	
E-UTRA RF Channel			1		1	
Number						
BW _{channel}	MHz	1	0		10	
OCNG Pattern defined						
in A.3.2.2.1 (OP.1		OP.1	TDD	OP	.2 TDD	
TDD) and in A.3.2.2.2						
(OP.2)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB	-				
SSS_RA	dB	-				
PCFICH_RB	dB	-				
PHICH_RA	dB		0		0	
PHICH_RB	dB		0		0	
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$N_{_{oc}}$ Note 3	dBm/15 kHz			-98		
RSRP Note 4	dBm/15 kHz	-94	-94	-Infinity	-94	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	-1.46	-Infinity	-1.46	
SCH_RP Note 4	dBm/15 kHz	-94	-94	-Infinity	-94	
\hat{E}_s/N_{oc}	dB	4	4	-Infinity	4	
Propagation Condition			Ē	TU70		
Note 1: OCNG shall be used	Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.					
Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers						
and time and shall be modelled as AWGN of appropriate power for $N_{_{ m oc}}$ to be fulfilled.						
Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

A.8.2.1.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 800 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.2.2 E-UTRAN TDD-TDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells with DRX

A.8.2.2.1 Test Purpose and Environment

The purpose of the two tests is to verify that the UE makes correct reporting of an event in DRX. The tests will partly verify the TDD-TDD intra-frequency cell search in DRX requirements in section 8.1.2.2.1.2.

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The test parameters are given in Tables A.8.1.3.1-1, A.8.1.3.1-2, A.8.1.3.1-3 and A.8.1.3.1-4. In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE is allocated with PUSCH resource at every DRX cycle.

In Test 2 the uplink time alignent is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

Parameter	Unit	Va	lue	Comment
		Test 1	Test 2	
		DL Reference	Measurement	
PDSCH parameters		Channel R.0 T	DD	As specified in section A.3.1.1.2
		DL Reference	Measurement	
PCFICH/PDCCH/PHICH		Channel R.6 T	DD	As specified in section A.3.1.2.2
parameters				
Active cell		Cell 1		
Neighbour cell		Cell 2		Cell to be identified.
E-UTRA RF Channel Number		1		One TDD carrier frequency is used.
Channel Bandwidth (BW _{channel})	MHz	10		
A3-Offset	dB	-6		
CP length		Normal		
Special subframe configuration		6		As specified in table 4.2-1 in TS 36.211.
-				The same configuration in both cells
Uplink-downlink configuration		1		As specified in table 4.2-2 in TS 36.211.
-				The same configuration in both cells
Hysteresis	dB	0		
Time To Trigger	S	0		
Filter coefficient		0		L3 filtering is not used
DRX		ON		DRX related parameters are defined in
				Table A.8.2.2.1-3
Time offset between cells		3 μs		Synchronous cells
T1	S	5		
T2	S	5	30	

Table A.8.2.2.1-1: General test parameters for E-UTRAN TDD-TDD intra-frequency event triggered	
reporting under fading propagation conditions in synchronous cells when DRX is used	

Table A.8.2.2.1-2: Cell specific test parameters for E-UTRAN TDD-TDD intra-frequency event triggered reporting under fading propagation conditions in synchronous cells when DRX is used

Parameter	Unit	Ce	II 1	C	Cell 2		
		T1	T2	T1	T2		
E-UTRA RF Channel			1		1		
Number							
BW _{channel}	MHz	1	0		10		
OCNG Pattern defined							
in A.3.2.2.1 (OP.1		OP.1	TDD	OP	.2 TDD		
TDD) and in A.3.2.2.2							
(OP.2)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB	0 0					
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$N_{_{oc}}$ Note 2	dBm/15 kHz			-98			
RSRP Note 3	dBm/15 kHz	-94	-94	-Infinity	-94		
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	-1.46	-Infinity	-1.46		
SCH_RP Note 3	dBm/15 kHz	-94	-94	-Infinity	-94		
\hat{E}_s / N_{oc}	dB	4	4	-Infinity	4		
Propagation Condition		ETU70					
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers							
Note 3: RSRP and SCH_RF	and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

 Table A.8.2.2.1-3: DRX-Configuration for E-UTRAN TDD-TDD intra-frequency event triggered reporting in DRX under fading propagation conditions in synchronous cells

Field	Test1	Test2	Comment
Field	Value	Value	
onDurationTimer	psf1	psf1	As specified in section 6.3.2 in
drx-InactivityTimer	psf1	psf1	3GPP TS 36.331
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	disable	disable	

Field	Test1	Test2	Comment
Fleid	Value	Value	
TimeAlignmentTimer	sf500	sf500	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	2	2	For further information see section 6.3.2 in 3GPP TS 36.331 and section 10.1 in 3GPP TS 36.213.

Table A.8.2.2.1-4: TimeAlignmentTimer -Configuration for E-UTRAN TDD-TDD intra-frequency event triggered reporting in DRX under fading propagation conditions in synchronous cells

A.8.2.2.2 Test Requirements

In Test 1, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 800 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2 to the moment when the UE send the measurement report on PUSCH.

In Test 2, the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 25600 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2 to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.

NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event A3 measurement report.

A.8.2.3 E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

A.8.2.3.1 Test Purpose and Environment

This test is to verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps in section 8.1.2.2.4.

The test scenario comprises of one E-UTRA TDD carrier and two cells as given in tables A.8.2.3.1-1 and A.8.2.3.1-2. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would have ACK/NACK sending during identifying a new CGI of E-UTRAN cell. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report.

A RRC message implying SI reading shall be sent to the UE during period T2, after the UE has reported Event A3. The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE. The start of T3 is the instant when the last TTI containing the RRC message implying SI reading is sent to the UE.

Table A.8.2.3.1-1: General test parameters for E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Active cell		Cell 1	
Neighbour cell		Cell 2	Cell to be identified.
E-UTRA RF Channel Number		1	Only one TDD carrier frequency is used.
Channel Bandwidth (BWchannel)	MHz	10	
CP length		Normal	
Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211. The same configuration in both cells
Uplink-downlink configuration		1	As specified in table 4.2-2 in TS 36.211. The same configuration in both cells
A3-Offset	dB	-3	
Hysteresis	dB	0	
Time To Trigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331.
Time offset between cells	μs	3	Synchronous cells
T1	s	5	-
T2	S	≤10	
ТЗ	S	5	

Table A.8.2.3.1-2: Cell specific test parameters for E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit		Cell 1			Cell 2			
		T1	T2	T3	T1	T2	Т3		
E-UTRA RF Channel			1			1			
Number									
BW _{channel}	MHz		10	-		10			
OCNG Patterns defined in		OP.1	OP.1	OP.1	OP.2	OP.2	OP.2		
A.3.2.2.1 (OP.1 TDD) and		TDD	TDD	TDD	TDD	TDD	TDD		
in A.3.2.2.2 (OP.2 TDD)									
PBCH_RA	dB								
PBCH_RB	dB								
PSS_RA	dB								
SSS_RA	dB								
PCFICH_RB	dB								
PHICH_RA	dB	0 0							
PHICH_RB	dB								
PDCCH_RA	dB								
PDCCH_RB	dB								
PDSCH_RA	dB								
PDSCH_RB	dB								
OCNG_RA ^{Note 1}	dB]							
OCNG_RB ^{Note 1}	dB								

$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	8	-3.3	-3.3	-Infinity	2.36	2.36
$N_{_{oc}}$ Note 2	dBm/15 KHz	3m/15 KHz -98					
\hat{E}_s/N_{oc}	dB	8	8	8	-Infinity	11	11
RSRP ^{Note 3}	dBm/15 KHz	-90	-90	-90	-Infinity	-87	-87
SCH_RP ^{Note3}	dBm/15 KHz	-90	-90	-90	-Infinity	-87	-87
Propagation Condition	AWGN						
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time							
and shall be modelled as AWGN of appropriate power for $N_{_{lpha\!C}}$ to be fulfilled.							
	Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

A.8.2.3.2 Test Requirements

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within [170] milliseconds from the start of T3.

Test requirement = RRC Procedure delay + $T_{identify CGI, intra}$ + reporting delay

= 15 + [150] + 2ms from the start of T3

= [167] ms, allow [170] ms.

The UE shall be scheduled continuously throughout the test, and from the start of T3 until [170] ms at least [47] ACK/NACK shall be detected as being transmitted by the UE.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The overall [47] ACK/NACK number is caused by two parts. Firstly, at least [35] ACK/NACK shall be sent during identifying the cell global identifier of cell 2 according to the requirement for UL/DL configuration #1 in Table 8.1.2.2.4.1-1 of Section 8.1.2.2.4.1. Secondly, given that continuous DL data allocation, additional [12] ACK/NACK shall be sent from the start of T3 until [170] ms excludes [150] ms for identifying the cell global identifier of cell 2.

A.8.2.4 E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

A.8.2.4.1 Test Purpose and Environment

This test is to verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps in section 8.1.2.2.4. The requirement is verified in a DRX configuration.

The test scenario comprises of one E-UTRA TDD carrier and two cells as given in tables A.8.2.4.1-1, A.8.2.4.1-2, A.8.2.4.1-3 and A.8.2.4.1-4. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report.

A RRC message implying SI reading shall be sent to the UE during period T2, after the UE has reported Event A3. The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE. The start of T3 is the instant when the last TTI containing the RRC message implying SI reading is sent to the UE.

In the test UE needs to be provided at least once every 1280ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE sends scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

Table A.8.2.4.1-1: General test parameters for E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Active cell		Cell 1	
Neighbour cell		Cell 2	Cell to be identified.
E-UTRA RF Channel Number		1	Only one TDD carrier frequency is used.
Channel Bandwidth (BWchannel)	MHz	10	
CP length		Normal	
Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211. The same configuration in both cells
Uplink-downlink configuration		1	As specified in table 4.2-2 in TS 36.211. The same configuration in both cells
A3-Offset	dB	-3	
Hysteresis	dB	0	
Time To Trigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		ON	DRX related parameters are defined in Table A.8.2.4.1-3
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331.
Time offset between cells	μs	3	Synchronous cells
T1	s	5	
T2	S	≤30	UE should report cell within 25.6s (20 DRX cycles)
ТЗ	S	5	

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	T3	T1	T2	T3
E-UTRA RF Channel			1			1	•
Number							
BW _{channel}	MHz		10			10	
OCNG Patterns defined in		OP.1	OP.1	OP.1	OP.2	OP.2	OP.2
A.3.2.2.1 (OP.1 TDD) and		TDD	TDD	TDD	TDD	TDD	TDD
in A.3.2.2.2 (OP.2 TDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB		0			0	
PHICH_RB	dB						
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	8	-3.3	-3.3	-Infinity	2.36	2.36
N_{oc} Note 2	dBm/15 KHz			-6	98		
\hat{E}_s/N_{oc}	dB	8	8	8	-Infinity	11	11
	dBm/15 KHz	-90	-90	-90	-Infinity	-87	-87
SCH_RP Note3	dBm/15 KHz	-90	-90	-90	-Infinity	-87	-87
Propagation Condition				AW	'GN		•
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time							
and shall be modelled as AWGN of appropriate power for N_{ac} to be fulfilled.							
Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

Table A.8.2.4.1-2: Cell specific test parameters for E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

 Table A.8.2.4.1-3: DRX configuration for E-UTRAN TDD - TDD Intra-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Field	Value	Comment
onDurationTimer	psf1	As specified in section 6.3.2 in
drx-InactivityTimer	psf1	3GPP TS 36.331
drx-RetransmissionTimer	psf1	
longDRX-CycleStartOffset	sf1280	
shortDRX	disable	

Table A.8.2.4.1-4: TimeAlignmentTimer -Configuration for E-UTRAN TDD - TDD Intra frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Field	Value	Comment
TimeAlignmentTimer	Infinity	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	2	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

A.8.2.4.2 Test Requirements

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3.

Test requirement = RRC Procedure delay + $T_{identify CGI, intra}$ + reporting delay

= 15 + 150 + 2ms from the start of T3

= 167 ms, allow 170 ms.

The rate of correct events observed during repeated tests shall be at least 90%.

A.8.3 E-UTRAN FDD - FDD Inter-frequency Measurements

A.8.3.1 E-UTRAN FDD-FDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells

A.8.3.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the FDD-FDD inter-frequency cell search requirements in section 8.1.2.3.

The test parameters are given in Tables A.8.3.1.1-1 and A.8.3.1.1-2. In this test, there are two cells on different carrier frequencies and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.3.1.1-1: General test parameters for E-UTRAN FDD-FDD inter-frequency event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH		DL Reference Measurement	As specified in section A.3.1.2.1
parameters		Channel R.6 FDD	
E-UTRA RF Channel		1, 2	Two FDD carrier frequencies are used.
Number			
Channel Bandwidth	MHz	10	
(BW _{channel})			
Active cell		Cell 1	Cell 1 is on RF channel number 1
Neighbour cell		Cell 2	Cell 2 is on RF channel number 2
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
CP length		Normal	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF
Time offset between cells		3 ms	Asynchronous cells
T1	S	5	
T2	S	5	

Parameter	Unit	Cell 1		C	ell 2	
		T1	T2	T1	T2	
E-UTRA RF Channel			1		2	
Number						
BW _{channel}	MHz	10 10			10	
OCNG Patterns						
defined in A.3.2.1.1		OP.1	FDD	OP.:	2 FDD	
(OP.1 FDD) and in						
A.3.2.1.2 (OP.2 FDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB		n	0		
PHICH_RB	dB		0			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$N_{_{oc}}$ Note 3	dBm/15 kHz			-98		
RSRP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	-Infinity	7	
SCH_RP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91	
\hat{E}_{s}/N_{oc}	dB	4 4 -Infinity			7	
Propagation Condition		ETU70				
Note 1: OCNG shall be used achieved for all OF Note 2: The resources for up Note 3: Interference from oth	DM symbols. blink transmission are a	assigned to the U	E prior to the sta	rt of time period T2.		
	ha madallad as AWGN					

Table A.8.3.1.1-2: Cell specific test parameters for E-UTRAN FDD-FDD inter-frequency event triggered reporting under fading propagation conditions in synchronous cells

and time and shall be modelled as AWGN of appropriate power for $\,N_{_{oc}}\,$ to be fulfilled.

Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.8.3.1.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 3840 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.3.2 E-UTRAN FDD-FDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells

A.8.3.2.1 Test Purpose and Environment

The purpose of these tests is to verify that the UE makes correct reporting of an event in DRX. These test will partly verify the FDD-FDD inter-frequency cell search requirements when DRX is used in section 8.1.2.3.

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The common test parameters are given in Tables A.8.3.2.1-1 and A.8.3.2.1-2. DRX configuration for Test1 and Test2 are given in Table A.8.3.2.1-3 and time alignment timer and scheduling request related parameters in Table A.8.3.2.1-4. In this tests, there are two cells on different carrier frequencies and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE is allocated with PUSCH resource at every DRX cycle. In Test 2 the uplink time alignment is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. The tests consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Parameter	Unit	Test 1	Test 2	Comment	
		Va	lue		
PDSCH parameters		DL Reference Measurement		As specified in section A.3.1.1.1 Note that	
		Channel R.0 FDD		UE may only be allocated at On Duration	
PCFICH/PDCCH/PHICH		DL Reference Me	easurement	As specified in section A.3.1.2.1.	
parameters		Channel R.6 FDD)		
E-UTRA RF Channel		1,	2	Two FDD carrier frequencies are used.	
Number					
Channel Bandwidth	MHz	1	0		
(BW _{channel})					
Active cell		Ce	1	Cell 1 is on RF channel number 1	
Neighbour cell		Ce	2	Cell 2 is on RF channel number 2	
Gap Pattern Id		0		As specified in 3GPP TS 36.133 section 8.1.2.1.	
A3-Offset	dB	-	6		
Hysteresis	dB	()		
CP length		Normal			
TimeToTrigger	S	()		
Filter coefficient		()	L3 filtering is not used	
PRACH configuration		4	1	As specified in table 5.7.1-2 in TS 36.211	
Access Barring Information	-	Not	Sent	No additional delays in random access	
5				procedure.	
DRX		ON		DRX related parameters are defined in	
				Table A.8.3.2.1-3	
Time offset between cells		3 ו	ns	Asynchronous cells	
T1	S	Ļ	5		
T2	S	5	30		

Table A.8.3.2.1-1: General test parameters for E-UTRAN FDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Parameter	Unit	Ce	Cell 1		Cell 2	
		T1	T2	T1	T2	
E-UTRA RF Channel			1		2	
Number						
BW _{channel}	MHz	1	0		10	
OCNG Patterns						
defined in A.3.2.1.1		OP.1	FDD	OF	2.2 FDD	
(OP.1 FDD) and in						
A.3.2.1.2 (OP.2 FDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB			0		
PHICH_RB	dB	()			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$N_{_{oc}}$ Note 2	dBm/15 kHz			-98		
RSRP Note 3	dBm/15 kHz	-94	-94	-Infinity	-91	
\hat{E}_{s}/I_{ot}	dB	4	4	-Infinity	7	
SCH_RP Note 3	dBm/15 kHz	-94	-94	-Infinity	-91	
\hat{E}_{s}/N_{oc}	dB	4	4	-Infinity	7	
Propagation Condition				ETU70		
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers						
and time and shall	be modelled as AWG	N of appropriate po	ower for N_{oc} to	be fulfilled.		
Note 3: RSRP and SCH_RF parameters themse	Plevels have been der		00		They are not settable	

Table A.8.3.2.1-2: Cell specific test parameters for E-UTRAN FDD-FDD inter-frequency event triggered reporting under fading propagation conditions in synchronous cells

Table A.8.3.2.1-3: drx-Configuration to be used in E-UTRAN FDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Field	Test1	Test2	Comment
Field	Value	Value	
onDurationTimer	psf1	psf1	
drx-InactivityTimer	psf1	psf1	
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	disable	disable	

Table A.8.3.2.1-4: *TimeAlignmentTimer* and *sr-ConfigIndex* -Configuration to be used in E-UTRAN FDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Field	Test1 Value	Test2 Value	Comment
TimeAlignmentTimer	sf500	sf500	For further information see section 6.3.2 in 3GPP TS 36.331.
sr-ConfigIndex	0	0	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213

A.8.3.2.2 Test Requirements

In Test1 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 3840 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE send the measurement report on PUSCH.

In Test2 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 20*1280ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event A3 measurement report

A.8.3.3 E-UTRAN FDD-FDD inter-frequency event triggered reporting under AWGN propagation conditions in asynchronous cells with DRX when L3 filtering is used

A.8.3.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event in DRX when L3 filtering is used. This test will partly verify the FDD-FDD inter-frequency cell search in DRX requirements in section 8.1.2.3.1.2 and the UE behaviour with the *filterCoefficent* defined in [2].

The test parameters are given in Tables A.8.3.3.1-1, A.8.3.3.1-2, A.8.3.3.1-3 and A.8.3.3.1-4. In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 and the filter coefficient is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. In this test, there are two cells on different carrier frequencies and gap pattern configuration # 1 as defined in Table 8.1.2.1-1 is provided.

The uplink time aligment is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

Table A.8.3.3.1-1: General test parameters for E-UTRAN FDD-FDD inter-frequency event triggered reporting under AWGN propagation conditions in asynchronous cells with DRX when L3 filtering is used

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Active cell		Cell 1	
Neighbour cell		Cell 2	Cell to be identified.
E-UTRA RF Channel Number		1, 2	Two FDD carrier frequencies are used.
Channel Bandwidth (BW _{channel})	MHz	10	
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Neighbour A3-Offset Ofn	dB	-14	
CP length		Normal	
Hysteresis	dB	0	
Time To Trigger	S	0	
Filter coefficient		9	L3 filtering is used
DRX		ON	DRX related parameters are defined in Table A.8.3.3.1-3
Time offset between cells		3 ms	Asynchronous cells
T1	S	30	
T2	S	9	

Table A.8.3.3.1-2: Cell specific test parameters for E-UTRAN FDD-FDD inter-frequency event triggered reporting under AWGN propagation conditions in asynchronous cells with DRX when L3 filtering is used

Parameter	Unit	Ce	ll 1		Cell 2	
		T1	T2	T1	T2	
E-UTRA RF Channel			1		2	
Number						
BW _{channel}	MHz	10			10	
OCNG Patterns						
defined in A.3.2.1.1		OP.1	FDD		P.2 FDD	
(OP.1 FDD) and in		01.1			.2100	
A.3.2.1.2 (OP.2 FDD)						
PBCH_RA	dB	_				
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB			0		
PHICH_RB	dB	()			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	4	24	
$N_{oc}^{\rm Note 2}$	dBm/15 KHz			-98		
\hat{E}_s/N_{oc}	dB	4	4	4	24	
RSRP Note 3	dBm/15 KHz	-94	-94	-94	-74	
SCH_RP Note 3	dBm/15 KHz	-94	-94	-94	-74	
Propagation Condition				AWGN		
Note 1: OCNG shall be used achieved for all OFI Note 2: Interference from oth	DM symbols.					
and time and shall I	be modelled as AWG	N of appropriate po	ower for $N_{\rm eff}$ to	be fulfilled.		
Note 3: RSRP and SCH_RP					They are not settable	
parameters themse				maion purposes.	They are not solidble	

Table A.8.3.3.1-3: DRX-Configuration for E-UTRAN FDD-FDD inter-frequency event triggered reporting in DRX under AWGN propagation conditions in asynchronous cells with DRX when L3 filtering is used

Field	Value	Comment
onDurationTimer	psf1	As specified in section 6.3.2 in
drx-InactivityTimer	psf1	3GPP TS 36.331
drx-RetransmissionTimer	psf1	
longDRX-CycleStartOffset	sf1280	
shortDRX	disable]

Table A.8.3.3.1-4: *TimeAlignmentTimer* -Configuration for E-UTRAN FDD-FDD inter-frequency event triggered reporting in DRX under AWGN propagation conditions in asynchronous cells with DRX when L3 filtering is used

Field	Value	Comment
TimeAlignmentTimer	sf500	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	0	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

A.8.3.3.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 6400 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2 to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event A3 measurement report.

A.8.3.4 E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

A.8.3.4.1 Test Purpose and Environment

This test is to verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps in section 8.1.2.3.5.

The test scenario comprises of two E-UTRA FDD carriers and one cell on each carrier as given in tables A.8.3.4.1-1 and A.8.3.4.1-2. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would have ACK/NACK sending during identifying a new CGI of E-UTRAN cell. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-frequency monitoring.

A RRC message implying SI reading shall be sent to the UE during period T2, after the UE has reported Event A3. The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE. The start of T3 is the instant when the last TTI containing the RRC message implying SI reading is sent to the UE. Measurement gaps shall be deconfigured before the start of T3.

Table A.8.3.4.1-1: General test parameters for E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.3 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
E-UTRA RF channel number		1, 2	Two FDD carrier frequencies are used.
Channel Bandwidth (BW _{channel})	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1.
Neighbour cell		Cell 2	Cell 1 is on RF channel number 2.
CP length		Normal	
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331.
Time offset between cells	ms	3	Asynchronous cells
T1	S	5	
T2	S	≤10	
ТЗ	S	5	

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	T3	T1	T2	Т3
E-UTRA RF Channel			1			2	
Number							
BW _{channel}	MHz		10	-		10	
OCNG Patterns defined in		OP.10	OP.10	OP.10	OP.2	OP.2	OP.2
A.3.2.1.10 (OP.10 FDD)		FDD	FDD	FDD	FDD	FDD	FDD
and in A.3.2.1.2 (OP.2							
FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB		0			0	
PHICH_RA	dB		0			0	
PHICH_PB	dB	-					
PDCCH_RA	dB	-					
PDCCH_PB	dB	-					
PDSCH_RA	dB	-					
PDSCH_RB	dB	-					
OCNG_RANote 1	dB						
OCNG_RB ^{Note 1}	dB		-				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	4	-Infinity	7	7
$N_{oc}^{ m Note 2}$	dBm/15 KHz			-9	8		
\hat{E}_s/N_{oc}	dB	4	4	4	-Infinity	7	7
RSRP ^{Note 3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
SCH_RP ^{Note3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
Propagation Condition			•	AW	GN	•	
Note 1: OCNG shall be us	ed such that both	cells are fully	y allocated a	nd a constar	nt total trans	mitted powe	r spectral
density is achieve	d for all OFDM syr	nbols.					
Note 2: Interference from							
subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.							
	RP levels have been neters themselves		om other par	rameters for	information	purposes. T	ney are

Table A.8.3.4.1-2: Cell specific test parameters for E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

A.8.3.4.2 Test Requirements

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3.

Test requirement = RRC Procedure delay + $T_{identify_CGI, inter}$ + reporting delay

= 15 + 150 + 2ms from the start of T3

= 167 ms, allow 170 ms.

The UE shall be scheduled continuously throughout the test, and from the start of T3 until 170 ms at least 80 ACK/NACK shall be detected as being transmitted by the UE.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The overall 80 ACK/NACK number is caused by two parts. Firstly, at least 60 ACK/NACK shall be sent during identifying the cell global identifier of cell 2 according to the requirement in Section 8.1.2.3.5.1. Secondly, given that continuous DL data allocation, and the measurement gaps have been deconfigured before the start of T3, additional 20 ACK/NACK shall be sent from the start of T3 until 170 ms excludes 150 ms for identifying the cell global identifier of cell 2.

A.8.3.5 E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

This test is to verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps in section 8.1.2.3.5. The requirement is verified in a DRX configuration.

The test scenario comprises of two E-UTRA FDD carriers and one cell on each carrier as given in tables A.8.3.5.1-1, A.8.3.5.1-2, A.8.3.5.1-3 and A.8.3.5.1-4. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-frequency monitoring.

A RRC message implying SI reading shall be sent to the UE during period T2, after the UE has reported Event A3. The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE. The start of T3 is the instant when the last TTI containing the RRC message implying SI reading is sent to the UE. Measurement gaps shall be deconfigured before the start of T3.

In the test UE needs to be provided at least once every 1280ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE sends scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

Table A.8.3.5.1-1: General test parameters for E-UTRAN FDD - FDD Inter-frequency identification of a
new CGI of E-UTRA cell using autonomous gaps with DRX

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
E-UTRA RF channel number		1, 2	Two FDD carrier frequencies are used.
Channel Bandwidth (BW _{channel})	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1.
Neighbour cell		Cell 2	Cell 1 is on RF channel number 2.
CP length		Normal	
Gap Pattern Id		0	As specified in 3GPP TS 36.133
			section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		ON	DRX related parameters are defined in Table A.8.3.5.1-3
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331.
Time offset between cells	ms	3	Asynchronous cells
T1	S	5	
Τ2	S	≤30	UE should report cell within 25.6s (20 DRX cycles)
ТЗ	S	5	

Parameter	Unit	Cell 1				Cell 2	
		T1	T2	T3	T1	T2	T3
E-UTRA RF Channel			1			2	
Number							
BW _{channel}	MHz		10			10	
OCNG Patterns defined in		OP.1	OP.1	OP.1	OP.2	OP.2	OP.2
A.3.2.1.1 (OP.1 FDD) and		FDD	FDD	FDD	FDD	FDD	FDD
in A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB		0			0	
PHICH_PB	dB						
PDCCH_RA	dB						
PDCCH_PB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	4	-Infinity	7	7
$N_{oc}^{ m Note 2}$	dBm/15 KHz			-9	8		
\hat{E}_s/N_{oc}	dB	4	4	4	-Infinity	7	7
RSRP ^{Note 3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
SCH_RP ^{Note3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
Propagation Condition							•
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over							
subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.							
Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

Table A.8.3.5.1-2: Cell specific test parameters for E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

 Table A.8.3.5.1-3: DRX configuration for E-UTRAN FDD - FDD Inter-frequency identification of a new

 CGI of E-UTRA cell using autonomous gaps with DRX

Field	Value	Comment
onDurationTimer	psf1	As specified in section 6.3.2 in
drx-InactivityTimer	psf1	3GPP TS 36.331
drx-RetransmissionTimer	psf1	
longDRX-CycleStartOffset	sf1280	
shortDRX	disable	

Table A.8.3.5.1-4: TimeAlignmentTimer -Configuration for E-UTRAN FDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Field	Value	Comment
TimeAlignmentTimer	Infinity	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	0	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

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A.8.3.5.2 Test Requirements

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3.

Test requirement = RRC Procedure delay + $T_{identify CGI, inter}$ + reporting delay

= 15 + [150] + 2ms from the start of T3

= [167] ms, allow [170] ms.

The rate of correct events observed during repeated tests shall be at least 90%.

A.8.4 E-UTRAN TDD - TDD Inter-frequency Measurements

A.8.4.1 E-UTRAN TDD-TDD Inter-frequency event triggered reporting under fading propagation conditions in synchronous cells

A.8.4.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the TDD-TDD inter-frequency cell search requirements in section 8.1.2.3.4.

The test parameters are given in Table A.8.4.1.1-1 and A.8.4.1.1-2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.4.1.1-1: General test parameters for E-UTRAN TDD-TDD inter-frequency event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
		DL Reference Measurement	
PDSCH parameters		Channel R.0 TDD	As specified in section A.3.1.1.2
		DL Reference Measurement	
PCFICH/PDCCH/PHICH		Channel R.6 TDD	As specified in section A.3.1.2.2
parameters			
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211. The same configuration in both cells
Uplink-downlink configuration		1	As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2
CP length		Normal	
E-UTRA RF Channel Number		1, 2	Two TDD carrier frequencies are used.
Channel Bandwidth (BWchannel)	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1
Neighbour cell		Cell 2	Cell 2 is on RF channel number 2
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
Time offset between cells		3 μs	Synchronous cells
T1	S	5	
T2	S	10	

Parameter	Unit	Cel	11	Ce	ell 2	
		T1	T2	T1	T2	
E-UTRA RF Channel		1			2	
Number						
BW _{channel}	MHz	1()	1	10	
OCNG Pattern defined						
in A.3.2.2.1 (OP.1		OP.1	TDD	OP.2	2 TDD	
TDD) and in A.3.2.2.2						
(OP.2)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB				•	
PHICH_RB	dB	0			0	
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB				-	
\hat{E}_{s}/I_{ot}	dB	4	4	-Infinity	7	
$N_{_{oc}}$ Note 3	dBm/15 kHz			-98		
RSRP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91	
SCH_RP Note 4	dBm/15 kHz	-94	-94	-infinity	-91	
\hat{E}_s / N_{oc}	dB	4	4	-Infinity	7	
Propagation Condition	Propagation Condition ETU70					
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE priori to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers						
and time and shall	and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.					

Table A.8.4.1.1-2: Cell specific test parameters for E-UTRAN TDD-TDD inter-frequency event triggered reporting under fading propagation conditions in synchronous cells

Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.8.4.1.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 7680 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.4.2 E-UTRAN TDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in synchronous cells

A.8.4.2.1 Test Purpose and Environment

The purpose of these tests is to verify that the UE makes correct reporting of an event in DRX. These test will partly verify the TDD-TDD inter-frequency cell search requirements when DRX is used in section 8.1.2.3.

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The common test parameters are given in Tables A.8.4.2.1-1 and A.8.4.2.1-2. DRX configuration for Test1 and Test2 are given in Table A.8.4.2.1-3 and time alignment timer and scheduling request related parameters in Table A.8.4.2.1-4. In these tests, there are two cells on different carrier frequencies and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignent timer to keep UE uplink time alignend. Furthermore UE is allocated with PUSCH resource at every DRX cycle. In Test 2 the uplink time alignent is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. The tests consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Parameter	Unit	Test 1	Test 2	Comment
		Value		
PDSCH parameters		DL Reference Me	easurement	As specified in section A.3.1.1.2. Note that
		Channel R.0 TDD)	UE may only be allocated at On Duration
PCFICH/PDCCH/PHICH		DL Reference Me	easurement	As specified in section A.3.1.2.2.
parameters		Channel R.6 TDD)	
E-UTRA RF Channel		1,	2	Two TDD carrier frequencies are used.
Number				
Channel Bandwidth	MHz	1	0	
(BW _{channel})				
Active cell		Ce	1	Cell 1 is on RF channel number 1
Neighbour cell		Ce	2	Cell 2 is on RF channel number 2
Gap Pattern Id		()	As specified in 3GPP TS 36.133 section
-				8.1.2.1.
Uplink-downlink			1	As specified in 3GPP TS 36.211 section
configuration				4.2 Table 4.2-2
Special subframe		6	6	As specified in table 4.2-1 in TS 36.211.
configuration				The same configuration in both cells
A3-Offset	dB	-(6	
Hysteresis	dB	0		
CP length		Nor	mal	
TimeToTrigger	S	()	
Filter coefficient		()	L3 filtering is not used
PRACH configuration		4	1	As specified in table 5.7.1-3 in TS 36.211
Access Barring Information	-	Not Sent		No additional delays in random access
, i i i i i i i i i i i i i i i i i i i				procedure.
DRX		ON		DRX related parameters are defined in
				Table A.8.4.2.1-3
Time offset between cells		3 μs		Synchronous cells
T1	s	5		
T2	S	5	30	

Table A.8.4.2.1-1: General test parameters for E-UTRAN TDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Parameter	Unit	Cell 1		(Cell 2	
		T1	T2	T1	T2	
E-UTRA RF Channel		1			2	
Number						
BW _{channel}	MHz	1	0		10	
OCNG Patterns						
defined in A.3.2.1.1		OP.1	TDD	OF	.2 TDD	
(OP.1 TDD) and in						
A.3.2.1.2 (OP.2 TDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	()		0	
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$N_{_{oc}}$ Note 2	dBm/15 kHz			-98		
RSRP Note 3	dBm/15 kHz	-94	-94	-Infinity	-91	
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	4	4	-Infinity	7	
SCH_RP Note 3	dBm/15 kHz	-94	-94	-Infinity	-91	
\hat{E}_{s}/N_{oc}	dB	4	4	-Infinity	7	
Propagation Condition ETU70						
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers						
and time and shall be modelled as AWGN of appropriate power for N_{ac} to be fulfilled.						
Note 3: RSRP and SCH_RF	Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.					

Table A.8.4.2.1-2: Cell specific test parameters for E-UTRAN TDD-TDD inter-frequency event triggered reporting under fading propagation conditions in synchronous cells

Table A.8.4.2.1-3: drx-Configuration to be used in E-UTRAN TDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Field	Test1 Value	Test2 Value	Comment
onDurationTimer	psf1	psf1	
drx-InactivityTimer	psf1	psf1	
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	disable	disable	

Table A.8.4.2.1-4: *TimeAlignmentTimer* and *sr-ConfigIndex* -Configuration to be used in E-UTRAN TDD-TDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Field	Test1 Value	Test2 Value	Comment
TimeAlignmentTimer	sf500	sf500	For further information see section 6.3.2 in 3GPP TS 36.331.
sr-ConfigIndex	2	2	For further information see section 6.3.2 in 3GPP TS 36.331 and 10.1 in 3GPP TS 36.213.

A.8.4.2.2 Test Requirements

In Test1 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 3840 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE send the measurement report on PUSCH.

In Test2 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 20*1280ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event A3 measurement report

A.8.4.3 E-UTRAN TDD-TDD inter-frequency event triggered reporting under AWGN propagation conditions in synchronous cells with DRX when L3 filtering is used

A.8.4.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event in DRX when L3 filtering is used. This test will partly verify the TDD-TDD inter-frequency cell search in DRX requirements in section 8.1.2.3.2.2 and the UE behaviour with the filterCoefficent defined in [2].

The test parameters are given in Tables A.8.4.3.1-1, A.8.4.3.1-2, A.8.4.3.1-3 and A.8.4.3.1-4. In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 and the filter coefficient is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. In this test, there are two cells on different carrier frequencies and gap pattern configuration # 1 as defined in Table 8.1.2.1-1 is provided.

The uplink time aligment is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

Table A.8.4.3.1-1: General test parameters for E-UTRAN TDD-TDD inter-frequency event triggered reporting under AWGN propagation conditions with DRX when L3 filtering is used

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement	As specified in section A.3.1.1.2
		Channel R.0 TDD	
PCFICH/PDCCH/PHICH		DL Reference Measurement	As specified in section A.3.1.2.2
parameters		Channel R.6 TDD	
Active cell		Cell 1	
Neighbour cell		Cell 2	Cell to be identified.
E-UTRA RF Channel Number		1, 2	Two TDD carrier frequencies are
			used.
Channel Bandwidth (BW _{channel})	MHz	10	
Time offset between cells	μs	3	synchronous cells
Gap Pattern Id		1	As specified in 3GPP TS 36.133
			section 8.1.2.1.
Uplink-downlink configuration		1	As specified in table 4.2.2 in TS
of cells			36.211
Special subframe configuration		6	As specified in table 4.2.1 in TS
of cells			36.211
Neighbour A3-Offset Ofn	dB	-14	
CP length		Normal	
Hysteresis	dB	0	
Time To Trigger	S	0	
Filter coefficient		9	L3 filtering is used
DRX		ON	DRX related parameters are
			defined in Table A.8.4.3.1-3
T1	S	30	
T2	S	9	

Parameter	Unit	Cell 1		C	ell 2	
		T1	T2	T1	T2	
E-UTRA RF Channel Number		1			2	
BW _{channel}	MHz	10		1	0	
OCNG Patterns defined in A.3.2.2.1		OP.1	TDD	OP.2	TDD	
(OP.1 TDD) and in A.3.2.2.2 (OP.2						
TDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB		0		0	
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	4	24	
$N_{oc}^{ m Note 2}$	dBm/15 KHz		-{	98		
\hat{E}_s/N_{oc}	dB	4	4	4	24	
RSRP ^{Note 3}	dBm/15 KHz	-94	-94	-94	-74	
SCH_RP Note 3	dBm/15 KHz	-94	-94	-94	-74	
Propagation Condition	AWGN					
Note 1: OCNG shall be used such that bo	th cells are fully al	ocated and a	a constant to	tal transmitte	ed power	
spectral density is achieved for all						
Note 2: Interference from other cells and r	noise sources not :	specified in t	he test is as	sumed to be	constant	
over subcarriers and time and sha	all be modelled as	AWGN of ap	propriate po	wer for $N_{\scriptscriptstyle oc}$	to be	
fulfilled.						
Note 3: RSRP and SCH_RP levels have b	RSRP and SCH_RP levels have been derived from other parameters for information purposes. They					
are not settable parameters them:	selves.			-	-	

Table A.8.4.3.1-2: Cell specific test parameters for E-UTRAN TDD-TDD inter-frequency event triggered reporting under AWGN propagation conditions with DRX when L3 filtering is used

Table A.8.4.3.1-3: DRX-Configuration for E-UTRAN TDD-TDD inter-frequency event triggered reporting in DRX under AWGN propagation conditions with DRX when L3 filtering is used

Field	Value	Comment
onDurationTimer	psf1	As specified in section 6.3.2 in 3GPP TS 36.331
drx-InactivityTimer	psf1	
drx-RetransmissionTimer	sf1	
longDRX-CycleStartOffset	sf1280	
shortDRX	disable	

Table A.8.4.3.1-4: TimeAlignmentTimer -Configuration for E-UTRAN TDD-TDD inter-frequency event triggered reporting in DRX under AWGN propagation conditions with DRX when L3 filtering is used

Field	Value	Comment
TimeAlignmentTimer	sf500	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	2	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

A.8.4.3.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 6400 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of

time period T2 to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event A3 measurement report

A.8.4.4 E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

A.8.4.4.1 Test Purpose and Environment

This test is to verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps in section 8.1.2.3.7.

The test scenario comprises of two E-UTRA TDD carriers and one cell on each carrier as given in tables A.8.4.4.1-1 and A.8.4.4.1-2. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would have ACK/NACK sending during identifying a new CGI of E-UTRAN cell. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-frequency monitoring.

A RRC message implying SI reading shall be sent to the UE during period T2, after the UE has reported Event A3. The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE. The start of T3 is the instant when the last TTI containing the RRC message implying SI reading is sent to the UE. Measurement gaps shall be deconfigured before the start of T3.

Table A.8.4.4.1-1: General test parameters for E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.1
E-UTRA RF channel number		1, 2	Two TDD carrier frequencies are used.
Channel Bandwidth (BW _{channel})	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1.
Neighbour cell		Cell 2	Cell 1 is on RF channel number 2.
CP length		Normal	
Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211. The same configuration in both cells
Uplink-downlink configuration		1	As specified in table 4.2-2 in TS 36.211. The same configuration in both cells
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	Ĩ
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331.
Time offset between cells	μs	3	Synchronous cells
T1	s	5	
T2	S	≤10	
Т3	S	5	

Parameter	Unit	Cell 1				Cell 2	Cell 2		
		T1	T2	Т3	T1	T2	T3		
E-UTRA RF Channel			1	•		2			
Number									
BW _{channel}	MHz		10			10			
OCNG Patterns defined in		OP.1	OP.1	OP.1	OP.2	OP.2	OP.2		
A.3.2.2.1 (OP.1 TDD) and		TDD	TDD	TDD	TDD	TDD	TDD		
n A.3.2.2.2 (OP.2 TDD)									
PBCH_RA	dB								
PBCH_RB	dB								
PSS_RA	dB								
SSS_RA	dB								
PCFICH_RB	dB								
PHICH_RA	dB		0			0			
PHICH_RB	dB								
PDCCH_RA	dB								
PDCCH_RB	dB								
PDSCH_RA	dB								
PDSCH_RB	dB								
DCNG_RA ^{Note 1}	dB								
DCNG_RB ^{Note 1}	dB								
\hat{E}_{s}/I_{ot}	dB	4	4	4	-Infinity	7	7		
N_{oc} Note 2	dBm/15 KHz		•	-!	98		1		
\hat{E}_s / N_{oc}	dB	4	4	4	-Infinity	7	7		
RSRP ^{Note 3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91		
SCH_RP ^{Note3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91		
Propagation Condition			•	AW	/GN	-	•		
Note 1: OCNG shall be used su	uch that both cells are	fully allocated	d and a consta	nt total transi	mitted power s	pectral densit	y is		
achieved for all OFDM									
Note 2: Interference from other	cells and noise source	es not specifi	ed in the test is	s assumed to	be constant o	ver subcarrier	s and time		
and shall be modelled	as AWGN of appropri	ate power for	N to be fu	lfilled.					

Table A.8.4.4.1-2: Cell specific test parameters for E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.8.4.4.2 Test Requirements

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3.

 $Test \ requirement = RRC \ Procedure \ delay + \ T_{identify_CGI, inter} + reporting \ delay$

= 15 + 150 + 2ms from the start of T3

= 167 ms, allow 170 ms.

The UE shall be scheduled continuously throughout the test, and from the start of T3 until 170 ms at least 42 ACK/NACK shall be detected as being transmitted by the UE.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The overall 42 ACK/NACK number is caused by two parts. Firstly, at least 30 ACK/NACK shall be sent during identifying the cell global identifier of cell 2 according to the requirement in Section 8.1.2.3.7.1. Secondly, given that continuous DL data allocation, and the measurement gaps have been deconfigured before the start of T3, additional 12 ACK/NACK shall be sent from the start of T3 until 170 ms excludes 150 ms for identifying the cell global identifier of cell 2.

A.8.4.5 E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

A.8.4.5.1 Test Purpose and Environment

This test is to verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps in section 8.1.2.3.7. The requirement is verified in a DRX configuration.

The test scenario comprises of two E-UTRA TDD carriers and one cell on each carrier as given in tables A.8.4.5.1-1, A.8.4.5.1-2, A.8.4.5.1-3 and A.8.4.5.1-4. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-frequency monitoring.

A RRC message implying SI reading shall be sent to the UE during period T2, after the UE has reported Event A3. The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE. The start of T3 is the instant when the last TTI containing the RRC message implying SI reading is sent to the UE. Measurement gaps shall be deconfigured before the start of T3.

In the test UE needs to be provided at least once every 1280ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE sends scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.1
E-UTRA RF channel number		1, 2	Two TDD carrier frequencies are used.
Channel Bandwidth (BW _{channel})	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1.
Neighbour cell		Cell 2	Cell 1 is on RF channel number 2.
CP length		Normal	
Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211. The same configuration in both cells
Uplink-downlink configuration		1	As specified in table 4.2-2 in TS 36.211. The same configuration in both cells
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		ON	DRX related parameters are defined in Table A.8.4.5.1-3
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331.
Time offset between cells	μs	3	Synchronous cells
T1	s	5	
Τ2	S	≤30	UE should report cell within 25.6s (20 DRX cycles)
T3	S	5	

Table A.8.4.5.1-1: General test parameters for E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Table A.8.4.5.1-2: Cell specific test parameters for E-UTRAN TDD - TDD Inter-frequency identification
of a new CGI of E-UTRA cell using autonomous gaps with DRX

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	T3	T1	T2	T3
E-UTRA RF Channel			1	•		2	
Number							
BW _{channel}	MHz		10			10	
OCNG Patterns defined in		OP.1	OP.1	OP.1	OP.2	OP.2	OP.2
A.3.2.2.1 (OP.1 TDD) and		TDD	TDD	TDD	TDD	TDD	TDD
in A.3.2.2.2 (OP.2 TDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB		0			0	
PHICH_RB	dB						
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
\hat{E}_{s}/I_{ot}	dB	4	4	4	-Infinity	7	7
$N_{oc}^{\rm Note 2}$	dBm/15 KHz			-9	98		
\hat{E}_s/N_{oc}	dB	4	4	4	-Infinity	7	7
RSRP ^{Note 3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
SCH_RP ^{Note3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
Propagation Condition			•	AW		•	•
Note 1: OCNG shall be used sur achieved for all OFDM Note 2: Interference from other of	symbols.					•	-
and shall be modelled a	as AWGN of appropri	iate power for	$\cdot N_{oc}$ to be fu	ulfilled.			
Note 3: RSRP and SCH_RP lev parameters themselves	els have been derive				urposes. The	y are not setta	able

Table A.8.4.5.1-3: DRX configuration for E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Field	Value	Comment
onDurationTimer	psf1	As specified in section 6.3.2 in
drx-InactivityTimer	psf1	3GPP TS 36.331
drx-RetransmissionTimer	psf1	
longDRX-CycleStartOffset	sf1280	
shortDRX	disable	

Table A.8.4.5.1-4: TimeAlignmentTimer -Configuration for E-UTRAN TDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps with DRX

Field	Value	Comment
TimeAlignmentTimer	Infinity	As specified in section 6.3.2 in 3GPP TS 36.331
sr-ConfigIndex	2	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

A.8.4.5.2 Test Requirements

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3.

Test requirement = RRC Procedure delay + $T_{identify CGI, inter}$ + reporting delay

= 15 + 150 + 2ms from the start of T3

= 167 ms, allow 170 ms.

The rate of correct events observed during repeated tests shall be at least 90%.

A.8.5 E-UTRAN FDD - UTRAN FDD Measurements

A.8.5.1 E-UTRAN FDD - UTRAN FDD event triggered reporting under fading propagation conditions

A.8.5.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the E-UTRAN FDD- UTRAN FDD cell search requirements in section 8.1.2.4.1.

The test parameters are given in Tables A.8.5.1.1-1, A.8.5.1.1-2 and A.8.5.1.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.5.1.1-1: General test parameters for E-UTRAN FDD-UTRAN FDD event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1.
PCFICH/PDCCH/PHICH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1.
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used.
Inter-RAT (UTRA FDD) measurement quantity		CPICH Ec/lo	
b1-Threshold-UTRA	dB	-18	CPICH Ec/lo threshold for event B1.
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA FDD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list.
T1	S	5	
T2	S	6	

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.1.1 (OP.1 FDD)		OP.1 F	DD		
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4		
\hat{E}_s/N_{oc}	dB	4	4		
N _{oc}	dBm/15 kHz	-98			
RSRP	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94 -94			
Propagation Condition		ETU			
Note 1: OCNG shall be used	such that both ce	ells are fully allocated and a cons	stant total transmitted power		
spectral density is achieved for all OFDM symbols.					
Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.					

Table A.8.5.1.1-2: Cell specific test parameters for E-UTRAN FDD (cell # 1) for event triggered reporting of UTRAN FDD cell under fading propagation conditions

Table A.8.5.1.1-3: Cell specific test parameters for UTRAN FDD (cell # 2) for event triggered reporting of UTRAN FDD cell under fading propagation conditions

Parameter	Unit	Cell 2			
		T1	T2		
UTRA RF Channel Number		1			
CPICH_Ec/lor	dB	-10			
PCCPCH_Ec/lor	dB	-12			
SCH_Ec/lor	dB	-12			
PICH_Ec/lor	dB	-15			
DPCH_Ec/lor	dB	N/A			
OCNS		-0.941			
\hat{I}_{or}/I_{oc}	dB	-Infinity	-1.8		
I _{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/lo	dB	-Infinity -14			
Propagation Condition		Case 5 (Note 3)			
	: The DPCH level is controlled by the power control loop.				
Note 2: The power of the OC	CNS channel that is added shall make the total power from the cell to be equal				
to l _{or} .	to I _{or} .				
Note 3: Case 5 propagation	3: Case 5 propagation conditions are defined in Annex A of 3GPP TS 25.101.				

A.8.5.1.2 Test Requirements

The UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 4800 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.5.2 E-UTRAN FDD - UTRAN FDD SON ANR cell search reporting under AWGN propagation conditions

A.8.5.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of the strongest UTRAN cell for SON automatic neighbour relations. This test will partly verify the E-UTRAN FDD - UTRAN FDD cell search requirements for identification of a new UTRA FDD cell for SON given in section 8.1.2.4.7.1.

The test parameters are given in Tables A.8.5.2.1-1, A.8.5.2.1-2 and A.8.5.2.1-3 below. In the measurement control information it is indicated to the UE that periodical reporting with the purpose 'reportStrongestCellsForSON' is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. Prior to the start of time period T1, an interRATperiodic measurement reporting configuration with purpose reportStrongestCellsForSON is configured, and linked to a UTRA measurement object corresponding to channel UARFCN 1. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.5.2.1-1: General test parameters for E-UTRAN FDD-UTRAN FDD cell search reporting for SON ANR in AWGN propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement	As specified in section A.3.1.1.1.
		Channel R.0 FDD	
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1.
(E-UTRAN FDD)		Channel R.6 FDD	
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section
			8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Bandwidth	MHz	10	
(BW _{channel})			
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used.
Inter-RAT (UTRA FDD)		CPICH Ec/lo	
measurement quantity			
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA FDD cell list size		None	No explicit neighbour list is provided to the UE
T1	S	>5	During T1, cell 2 shall be powered off, and
			during the off time the primary scrambling
			code shall be changed, The intention is to
			ensure that cell 2 has not been detected by
			the UE prior to the start of period T2.
T2	S	6	

Parameter	Unit	Cell 1				
		T1	T2			
E-UTRA RF Channel Number		1				
BW _{channel}	MHz	10				
OCNG Pattern defined in						
A.3.2.1.1 (OP.1 FDD)		OP.1 FDD				
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0				
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4 4				
Noce Note 3	dBm/15 kHz	-98	3			
\hat{E}_s/N_{oc}	dB	4	4			
RSRP ^{Note 4}	dBm/15 kHz	-94	-94			
SCH_RP	dBm/15 kHz	-94	-94			
Propagation Condition		AWO	GN			
Note 1: OCNG shall be used spectral density is acl Note 2: The resources for upl	OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. The resources for uplink transmission are assigned to the UE prior to the start of time period T2.					
		·				
fulfilled. Note 4: RSRP levels have be	over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.					

Table A.8.5.2.1-2: Cell specific test parameters for E-UTRAN FDD (cell # 1) for UTRAN FDD cell search for SON ANR under AWGN propagation conditions

Table A.8.5.2.1-3: Cell specific test parameters for UTRAN FDD (cell # 2) for UTRAN FDD cell search for SON ANR under AWGN propagation conditions

Parameter	Unit	Cell 2		
		T1	T2	
UTRA RF Channel Number		1		
CPICH_Ec/lor	dB	-10		
PCCPCH_Ec/lor	dB	-12		
SCH_Ec/lor	dB	-12		
PICH_Ec/lor	dB	-15		
DPCH_Ec/lor	dB	N/A		
OCNS		-0.941		
\hat{I}_{or}/I_{oc}	dB	-Infinity	-3.35	
I _{oc}	dBm/3.84 MHz	-70		
CPICH_Ec/lo	dB	-Infinity	-15	
Propagation Condition		AWGN		
Note 1: The DPCH level is co				
Note 2: The power of the OC	CNS channel that is added shall make the total power from the cell to be equal			
to I _{or} .				

A.8.5.2.2 Test Requirements

The UE shall send the first measurement report containing the primary scrambling code of cell 2, with a measurement reporting delay less than 4800 ms from the beginning of time period T2.

The rate of correct measurement reports observed with this delay during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.5.3 E-UTRAN FDD-UTRAN FDD event triggered reporting when DRX is used under fading propagation conditions

A.8.5.3.1 Test Purpose and Environment

The purpose of these tests is to verify that the UE makes correct reporting of an event in DRX. These tests will partly verify the E-UTRAN FDD-UTRAN FDD cell search requirements when DRX is used in section 8.1.2.4.1.2.

In these tests, there are two cells, one E-UTRAN cell and one UTRAN cell, and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

The common test parameters are given in Table A.8.5.3.1-1. Cell specific test parameters are given in Table A.8.5.3.1-2 for E-UTRAN and in Table A.8.5.3.1-5 for UTRAN. DRX configuration for Test1 and Test2 are given in Table A.8.5.2.1-3 and time alignment timer and scheduling request related parameters in Table A.8.5.2.1-4.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE is allocated with PUSCH resource at every DRX cycle. In Test 2 the uplink time alignment is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event B1 is used. The tests consist of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.5.3.1-1: General test parameters for E-UTRAN FDD-UTRAN FDD event triggered reporting when DRX is used in fading propagation conditions

Parameter	Unit	Test 1	Test 2	Comment
		Value		
PDSCH parameters (E-		DL Reference Measurement		As specified in section A.3.1.1.1 Note that
UTRAN FDD)		Channel R.0 FDD)	UE may only be allocated at On Duration
PCFICH/PDCCH/PHICH		DL Reference Me	asurement	As specified in section A.3.1.2.1.
parameters (E-UTRAN FDD)		Channel R.6 FDD		
Gap Pattern Id		C)	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Ce	ll 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Ce	2	Cell 2 is on UTRA RF channel number 1.
CP length		Nor	mal	Applicable to cell 1
E-UTRA RF Channel		1		One E-UTRA FDD carrier frequency is
Number				used.
E-UTRA Channel Bandwidth	MHz	1	0	
(BW _{channel})				
UTRA RF Channel Number		1		One UTRA FDD carrier frequency is used.
Inter-RAT (UTRA FDD)		CPICH Ec/lo		
measurement quantity				
b1-Threshold-UTRA	dB	-18		CPICH Ec/lo threshold for event B1.
Hysteresis	dB	0		
TimeToTrigger	S	0)	
Filter coefficient		0		L3 filtering is not used
PRACH configuration		4		As specified in table 5.7.1-2 in TS 36.211
Access Barring Information	-	Not Sent		No additional delays in random access procedure.
DRX		ON		DRX related parameters are defined in Table A.8.5.3.1-3
Monitored UTRA FDD cell		12		UTRA cells on UTRA RF channel 1
list size				provided in the cell list.
T1	S	5	5	
T2	S	6	30	

Table A.8.5.3.1-2: Cell specific test parameters for E-UTRAN FDD (cell #1) event triggered reporting of UTRAN FDD cell when DRX is used under fading propagation conditions

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.1.1 (OP.1 FDD)		OP.1 FDD			
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB	7			
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4 4			
N_{oc} Note 2	dBm/15 kHz	-98	3		
RSRP ^{Note 3}	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
\hat{E}_s/N_{oc}	dB	4	4		
Propagation Condition		ETU	70		
	such that both co	ells are fully allocated and a cons	stant total transmitted power		
spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant					
over subcarriers and time and shall be modelled as AWGN of appropriate power for ${}^{N_{oc}}$ to be fulfilled.					
	P levels have been derived from other parameters for information purposes. le parameters themselves.				

Table A.8.5.3.1-3: drx-Configuration to be used in E-UTRAN FDD-UTRAN FDD event triggered reporting when DRX is used in fading propagation conditions

Field	Test1	Test2	Comment
Field	Value	Value	
onDurationTimer	psf1	psf1	
drx-InactivityTimer	psf1	psf1	
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	Disable	Disable	

IION SEE SECIION 0.3.2 IN SUFF 13 30.331

Table A.8.5.3.1-4: TimeAlignmentTimer and sr-ConfigIndex -Configuration to be used in E-UTRAN FDD-UTRAN FDD event triggered reporting when DRX is used in fading propagation conditions

Field	Test1 Value	Test2 Value	Comment
TimeAlignmentTimer	sf500	sf500	For further information see section 6.3.2 in 3GPP TS 36.331.
sr-ConfigIndex	0	0	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

Table A.8.5.3.1-5: Cell specific test parameters for UTRAN FDD (cell # 2) for event triggered reporting of UTRAN FDD cell when DRX is used under fading propagation conditions

Parameter	Unit	Cell 2			
		T1	T2		
UTRA RF Channel Number		1			
CPICH_Ec/lor	dB	-10			
PCCPCH_Ec/lor	dB	-12			
SCH_Ec/lor	dB	-12			
PICH_Ec/lor	dB	-15			
DPCH_Ec/lor	dB	N/A			
OCNS		-0.941			
\hat{I}_{or}/I_{oc}	dB	-Infinity	-1.8		
I _{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/lo	dB	-Infinity	-14		
Propagation Condition		Case 5 (Note 3)			
	The DPCH level is controlled by the power control loop.				
Note 2: The power of the OC	OCNS channel that is added shall make the total power from the cell to be equal				
to l _{or} .	to I _{or} .				
Note 3: Case 5 propagation					

A.8.5.3.2 Test Requirements

In Test1 the UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 2400 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE sends the measurement report on PUSCH.

In Test2 the UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 20*1280ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event B1 measurement report

A.8.5.4 E-UTRAN FDD - UTRAN FDD enhanced cell identification under AWGN propagation conditions

A.8.5.4.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct enhanced reporting of UTRAN cells. This test will partly verify the Enhanced UTRA FDD cell identification requirements in section 8.1.2.4.1.1.1a.

The test parameters are given in Tables A.8.5.4.1-1, A.8.5.4.1-2 and A.8.5.4.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time period T1, gaps are activated and an interRAT measurement reporting configuration is configured, and linked to a UTRA measurement object corresponding to channel UARFCN 1. Prior to time duration T2, the UE shall not have any timing information of cell 2. Cell 2 is powered up at the beginning of the T2.

Table A.8.5.4.1-1: General test parameters for E-UTRAN FDD - UTRAN FDD enhanced cell identification under AWGN propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement	As specified in section A.3.1.1.1.
		Channel R.0 FDD	
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1.
(E-UTRAN FDD)		Channel R.6 FDD	
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section
			8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Bandwidth	MHz	10	
(BW _{channel})			
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used.
Inter-RAT (UTRA FDD)		CPICH Ec/lo	
measurement quantity			
b1-Threshold-UTRA	dB	-18	CPICH Ec/lo threshold for event B1.
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA FDD cell list size		12	UTRA cells on UTRA RF channel 1 provided
			in the cell list
T1	S	5	
T2	S	2	

Parameter	Unit	Cell 1				
		T1	T2			
E-UTRA RF Channel Number		1				
BW _{channel}	MHz	10				
OCNG Pattern defined in						
A.3.2.1.1 (OP.1 FDD)		OP.1 FDD				
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0				
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{NOTE 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4			
$N_{_{oc}}$ Note 3	dBm/15 kHz	-98	3			
\hat{E}_s/N_{oc}	dB	4	4			
RSRP ^{Note 4}	dBm/15 kHz	-94	-94			
SCH_RP	dBm/15 kHz	-94	-94			
Propagation Condition		AWO				
Note 1: OCNG shall be used spectral density is acl Note 2: The resources for upl	OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.					
over subcarriers and	s and time and shall be modelled as AWGN of appropriate power for N_{ac} to be					

Table A.8.5.4.1-2: Cell specific test parameters for cell #1 E-UTRAN FDD - UTRAN FDD enhanced cell identification under AWGN propagation conditions

Table A.8.5.4.1-3: Cell specific test parameters for cell #2 E-UTRAN FDD - UTRAN FDD enhanced cell identification under AWGN propagation conditions

Parameter	Unit	Cell 2			
		T1	T2		
UTRA RF Channel Number		1			
CPICH_Ec/lor	dB	-10			
PCCPCH_Ec/lor	dB	-12			
SCH_Ec/lor	dB	-12			
PICH_Ec/lor	dB	-15			
DPCH_Ec/lor	dB	N/A			
OCNS		-0.941			
\hat{I}_{or}/I_{oc}	dB	- ∞	0.02		
I _{oc}	dBm/3.84 MHz	-70	-70		
CPICH_Ec/Io ^{Note 3}	dB	-∞	-13		
Propagation Condition		AWGN			
Note 1: The DPCH level is c	ontrolled by the p	ower control loop.			
Note 2: The power of the OC	CNS channel that is added shall make the total power from the cell to be equal				
to I _{or} .					
-	gives an SCH Ec/lo of -15dB				

A.8.5.4.2 Test Requirements

The UE shall send the first measurement report containing the primary scrambling code of cell 2, with a measurement reporting delay less than [960] ms from the beginning of time period T2. The rate of correct measurement reports observed with this delay during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH

A.8.6 E-UTRAN TDD - UTRAN FDD Measurements

A.8.6.1 E-UTRAN TDD - UTRAN FDD event triggered reporting under fading propagation conditions

A.8.6.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the E-UTRAN TDD- UTRAN FDD cell search requirements in section 8.1.2.4.2.

The test parameters are given in Tables A.8.6.1.1-1, A.8.6.1.1-2 and A.8.6.1.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
Special subframe configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211. Applicable to cell 1.
Uplink-downlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211. Applicable to cell 1.
CP length		Normal	Applicable to cell 1.
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used.
Inter-RAT (UTRA FDD) measurement quantity		CPICH Ec/lo	
b1-Threshold-UTRA	dB	-18	CPICH Ec/lo threshold for event B1.
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list.
T1	S	5	
T2	S	6	

Table A.8.6.1.1-1: General test parameters for E-UTRAN TDD-UTRAN FDD event triggered reporting in fading propagation conditions

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.2.1 (OP.1 TDD)		OP.1 1	rdd		
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4		
\hat{E}_s/N_{oc}	dB	4	4		
N _{oc}	dBm/15 kHz	-98	3		
RSRP	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
Propagation Condition		ETU	70		
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power					
spectral density is achieved for all OFDM symbols.					
Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.					

Table A.8.6.1.1-2: Cell specific test parameters for E-UTRAN TDD (cell # 1) for event triggered reporting of UTRAN FDD cell under fading propagation conditions

Table A.8.6.1.1-3: Cell specific test parameters for UTRAN FDD (cell # 2) for event triggered reporting of UTRAN FDD cell under fading propagation conditions

Parameter	Unit	Cell	2		
		T1	T2		
UTRA RF Channel Number		1			
CPICH_Ec/lor	dB	-10			
PCCPCH_Ec/lor	dB	-12			
SCH_Ec/lor	dB	-12			
PICH_Ec/lor	dB	-15			
DPCH_Ec/lor	dB	N/A			
OCNS		-0.94	1		
\hat{I}_{or}/I_{oc}	dB	-Infinity	-1.8		
I _{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/lo	dB	-Infinity	-14		
Propagation Condition	Case 5 (Note 3)				
Note 1: The DPCH level is co	level is controlled by the power control loop.				
Note 2: The power of the OC	ne power of the OCNS channel that is added shall make the total power from the cell to be equal				
to I _{or} .					
Note 3: Case 5 propagation conditions are defined in Annex A of 3GPP TS 25.101.					

A.8.6.1.2 Test Requirements

The UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 4800 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.7 E-UTRAN TDD – UTRAN TDD Measurements

A.8.7.1 E-UTRAN TDD to UTRAN TDD cell search under fading propagation conditions

- A.8.7.1.1 Test Purpose and Environment
- A.8.7.1.1.1 Void

A.8.7.1.1.2 1.28 Mcps TDD option

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the E-UTRA TDD to UTRA TDD cell search requirements in section 8.1.2.4.3 under fading propagation conditions.

This test scenario comprised of 1 E-UTRA TDD serving cell, and 1 UTRA TDD cell to be searched. Test parameters are given in Table A.8.7.1.1.2-1, A.8.7.1.1.2-2, and A.8.7.1.1.2-3. Gap pattern configuration #0 as defined in table 8.1.2.1-1 is provided.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Active cell		Cell 1	E-UTRA TDD cell
Neighbour cell		Cell 2	UTRA 1.28Mcps TDD Cell
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
CP length of cell 1		normal	
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
Time offset between cells		3 ms	Asynchronous cells
Ofn	dB	0	
Thresh	dBm	-87	
T1	S	5	
T2	S	10	

Table A.8.7.1.1.2-1: General test parameters for E-UTRA TDD to UTRA(1.28 Mcps TDD OPTION) cell search in fading propagation conditions

Table A.8.7.1.1.2-2: Cell specific test parameters for cell search E-UTRA TDD to UTRA TDD test case (cell 1)

Parameter	Unit	Ce	II 1		
		T1	T2		
E-UTRA RF Channel		1			
Number					
BW _{channel}	MHz	1	0		
OCNG Pattern defined in			TDD		
A.3.2.2.1 (OP.1 TDD)		01.1			
PBCH_RA	dB	-			
PBCH_RB	dB	-			
PSS_RB	dB				
SSS_RB	dB				
PCFICH_PA	dB				
PHICH_PA	dB				
PHICH_PB	dB	0	0		
PDCCH_PA	dB				
PDCCH_PB	dB				
PDSCH_PA	dB				
PDSCH_PB	dB	_			
OCNG_RA ^{Note1}	dB	_			
OCNG_RB ^{Note1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	9	9		
\hat{E}_{s}/N_{oc}	dB	9	9		
N _{oc}	dBm/15kHz	-6	98		
RSRP	dBm/15kHz	-89	-89		
SCH_RP	dBm/15kHz	-89	-89		
Propagation Condition		ETI	U70		
Note 1: OCNG shall be	used such that cel	Il is fully allocat	ted and a		
constant total transmitted power spectral density is achieved					
for all OFDM symbols.					
Note 2: The resources for uplink transmission are assigned to the UE					
prior to the start	of time period T2.				

Parameter	Unit		Cell 2	(UTRA)	
Timeslot Number				· /	PTS
		T1	T2	T1	T2
UTRA RF Channel Number ^{NOTE1}			Char	nel 2	
PCCPCH_Ec/lor	dB	-3	-3		
DwPCH_Ec/lor	dB			0	0
OCNS_Ec/lor ^{NOTE2}	dB	-3	-3		
\hat{I}_{or}/I_{oc}	dB	-inf	5	-inf	5
I _{oc}	dBm/1.28 MHz	-80			
PCCPCH RSCP	dBm	-inf	-78	n.a.	n.a.
Propagation Condition			Case	3 ^{NOTE3}	
 Note 1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number. Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to l_{or}. Note 3: Case 3 propagation conditions are defined in Annex B of 3GPP TS 25.102 					

Table A.8.7.1.1.2-3: Cell specific test parameters for cell search E-UTRA TDD to UTRA TDD test case (cell 2)

- A.8.7.1.1.3 Void
- A.8.7.1.2 Test Requirements
- A.8.7.1.2.1 Void

A.8.7.1.2.2 1.28 Mcps TDD option

The UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 6400 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.
- A.8.7.1.2.3 Void

A.8.7.2 E-UTRAN TDD-UTRAN TDD cell search when DRX is used under fading propagation conditions

A.8.7.2.1 Test Purpose and Environment

The purpose of these tests is to verify that the UE makes correct reporting of an event in DRX. These tests will partly verify the E-UTRAN TDD to UTRAN TDD inter-RAT cell search requirements when DRX is used in section 8.1.2.4.3.2 under fading propagation conditions.

The common test parameters are given in Tables A.8.7.2.1-1, A.8.7.2.1-2 and A.8.7.2.1-3. DRX configuration for Test1 and Test2 are given in Table A.8.7.2.1-4 and time alignment timer and scheduling request related parameters in Table

A.8.7.2.1-5. In these tests, there are two cells, 1 E-UTRAN TDD serving cell and 1 UTRAN TDD cell to be searched, Gap pattern configuration # 0 as defined in table 8.1.2.1-1 is provided.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignent timer to keep UE uplink time alignend. Furthermore UE is allocated with PUSCH resource at every DRX cycle. In Test 2 the uplink time alignent is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event B1 is used. The tests consist of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.7.2.1-1: General test parameters for E-UTRAN TDD to UTRAN 1.28Mcps TDD cell search when DRX is used in fading propagation conditions

Parameter	Unit	Test 1	Test 2	Comment
		Va	lue	
PDSCH parameters		DL Reference Measurement		As specified in section A.3.1.1.2. Note that
		Channel R.0 TDD)	UE may only be allocated at On Duration
PCFICH/PDCCH/PHICH		DL Reference Me	easurement	As specified in section A.3.1.2.2.
parameters		Channel R.6 TDD)	
Active cell		Cell 1		E-UTRAN TDD cell
Neighbour cell		Cell 2		UTRAN 1.28Mcps TDD cell
Gap Pattern Id		0		As specified in 3GPP TS 36.133 section 8.1.2.1.
Uplink-downlink configuration		1		As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2
Special subframe		6		As specified in table 4.2-1 in TS 36.211.
configuration				The same configuration in both cells
PRACH configuration		4		As specified in table 5.7.1-3 in 3GPP TS 36.211
CP length of cell 1		Normal		
Ofn	dB	0		
Thresh	dBm	-83		Absolute P-CCPCH RSCP threshold for event B1
Hysteresis	dB	0		
TimeToTrigger	S	0		
Filter coefficient		0		L3 filtering is not used
Access Barring Information	-	Not Sent		No additional delays in random access procedure.
DRX		ON		DRX related parameters are defined in Table A.8.4.2.1-3
Time offset between cells		3 ms		Asynchronous cells
T1	S	5		
T2	S	8	30	

T1T2E-UTRA RF Channel1Number1BWchannelMHz10OCNG Patterns definedOP.1 TDDin A.3.2.1.1 (OP.1 TDD)OP.1 TDDPBCH_RAdBPSS_RBdBSSS_RBdBPCFICH_PAdBPHICH_PAdBPDCCH_PAdBPDCCH_PBdBOCNG_RANote1dBOCNG_RBNote1dB d_s/I_{ot} dB k_s/N_{oc} dBA4 k_s/N_{oc} dBPropagation ConditionETU70Note 1:OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.Note 3:RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters for information purposes. They are not settable parameters themselves.	Pa	arameter	Unit	Ce	ell 1	
NumberMHz10BWchannelMHz10OCNG Patterns definedOP.1 TDDin A.3.2.1.1 (OP.1 TDD)OP.1 TDDPBCH_RAdBPBCH_RBdBPSS_RBdBSSS_RBdBPCFICH_PAdBPHICH_PBdBPDCCH_PAdBPDCCH_PAdBPDSCH_PAdBPDSCH_PAdBOCNG_RANote1dBOCNG_RBNote1dB \hat{E}_s/N_{oc} dBRSRP Note 3dBm/15kHz-94-94SCH_RP Note 3dBm/15kHzOCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.Note 3:RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable				T1	T2	
BWChannelMHz10OCNG Patterns defined in A.3.2.1.1 (OP.1 TDD)OP.1 TDDPBCH_RAdBPBCH_RBdBPSS_RBdBSSS_RBdBPCFICH_PAdBPHICH_PBdBPDCCH_PAdBPDSCH_PBdBOCNG_RANote1dBOCNG_RANote1dB $dB_r/1_{ort}$ dB $dB_r/1_{ort}$ dB N_{oc} dBNote 2dBm/15kHzRSRP Note 3dBm/15kHzSCH_RP Note 3dBm/15kHzOCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.Note 3:RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable	E-UTRA	RF Channel			1	
OCNG Patterns defined in A.3.2.1.1 (OP.1 TDD)OP.1 TDDPBCH_RAdBPBCH_RBdBPSS_RBdBSSS_RBdBPCFICH_PAdBPHICH_PAdBPHICH_PBdBPDCCH_PAdBPDCH_PBdBOCNG_RANote1dBOCNG_RANote1dB dB 4 \hat{E}_s/N_{oc} dBm/15kHz-98RSRP Note 3dBm/15kHzSCH_RP Note 3dBm/15kHzOCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.Note 3:RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable	Number					
In A.3.2.1.1 (OP.1 TDD)PBCH_RAdBPBCH_RBdBPBCH_RBdBPSS_RBdBPCFICH_PAdBPHICH_PAdBPHICH_PAdBPDCCH_PAdBPDCCH_PAdBPDCCH_PAdBPDCH_PBdBOCNG_RANote1dBOCNG_RBNote1dB \hat{k}_s/N_{oc} dB \hat{k}_s/N_{oc} dBRSRP Note 3dBm/15kHz-98eTU70Note 1:OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.Note 3:RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable	BWchan	nel	MHz	1	0	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	OCNG P	atterns defined		OP.1	TDD	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$					-	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$						
SSS_RBdBPCFICH_PAdBPHICH_PAdBPHICH_PBdBO0PDCCH_PAdBPDCCH_PBdBPDSCH_PAdBPDSCH_PBdBOCNG_RANote1dBOCNG_RBNote1dB dB 4 \hat{E}_s/N_{oc} dB N_{oc} Note 2RSRP Note 3dBm/15kHz-94-94SCH_RP Note 3dBm/15kHzOCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.Note 3:RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable			-			
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$			-			
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	SSS_RB		dB			
$\begin{array}{ c c c c c }\hline PHICH_PB & dB & dB & 0 & 0 \\ \hline PDCCH_PA & dB & \\ \hline PDCCH_PB & dB & \\ \hline PDSCH_PB & dB & \\ \hline OCNG_RANote1 & dB & \\ \hline OCNG_RBNote1 & dB & \\ \hline \hline c_s/I_{ot} & dB & 4 & 4 \\ \hline \hline \hat k_s/N_{oc} & dB & 4 & 4 \\ \hline N_{oc} & Note 2 & \\ \hline RSRP^{Note 3} & dBm/15kHz & -94 & -94 \\ \hline SCH_RP^{Note 3} & dBm/15kHz & -94 & -94 \\ \hline Propagation Condition & ETU70 \\ \hline Note 1: & OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. \\ \hline Note 2: & Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. \\ \hline Note 3: & RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable \\ \hline \end{array}$						
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	PHICH_F	PA	dB			
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$			dB	0	0	
$\begin{array}{ c c c c c } \hline PDSCH_PA & dB & dB & \\ \hline PDSCH_PB & dB & \\ \hline OCNG_RANote1 & dB & \\ \hline OCNG_RBNote1 & dB & \\ \hline \hat{E}_s/I_{ot} & & \\ \hline \hat{E}_s/N_{oc} & & \\ \hline & & \\ \hline N_{oc} & & \\ \hline N_{oc} & & \\ \hline & & \\ \hline N_{oc} & & \\ \hline & & \\ \hline N_{oc} & & \\ \hline \hline & & \\ \hline & & \\ \hline & & \\ \hline \hline \hline \\ \hline \hline & & \\ \hline \hline \hline \hline$			dB			
$\begin{array}{ c c c c c }\hline PB & dB & dB & \\ \hline OCNG_RANote1 & dB & \\ \hline OCNG_RBNote1 & dB & \\ \hline \hat{E}_s/I_{ot} & & & & & & & & & \\ \hline \hat{E}_s/N_{oc} & & & & & & & & & & & \\ \hline \hat{E}_s/N_{oc} & & & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & & \\ \hline N_{oc} & & & & & & & & & \\ \hline Note 1: & & & & & & & & & \\ \hline OCNG & shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. \\ \hline Note 2: & & & & & & & & & \\ \hline Note 2: & & & & & & & & & \\ \hline Note 2: & & & & & & & & & & \\ \hline Note 2: & & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & & & & & & \\ \hline Note 3: & & & & & & & & & & & & & & & & & & $						
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$\begin{array}{ c c c c c }\hline OCNG_RBNote1 & dB & dB & dB & dA & dB & dB & A & A & A & A & A & A & A & A & A & $						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	OCNG_F	RBNote1				
E_s/N_{oc} dBm/15kHz -98 N_{oc} Note 2 dBm/15kHz -94 RSRP Note 3 dBm/15kHz -94 SCH_RP Note 3 dBm/15kHz -94 Propagation Condition ETU70 Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable	\hat{E}_s/I_{ot}		dB	4	4	
Noc Note 2 dBm/15kHz -98 RSRP Note 3 dBm/15kHz -94 -94 SCH_RP Note 3 dBm/15kHz -94 -94 Propagation Condition ETU70 ETU70 Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable	\hat{E}_s / N_{oc}		dB	4	4	
KSRP dBm/15kHz -94 -94 SCH_RP Note 3 dBm/15kHz -94 -94 Propagation Condition ETU70 Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable			dBm/15kHz	-{	98	
SCH_RP Note 3 dBm/15kHz -94 -94 Propagation Condition ETU70 Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable	RSRP Not	e 3	dBm/15kHz	-94	-94	
Propagation Condition ETU70 Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable	SCH RP	Note 3			-	
 Note 1: OCNG shall be used such that cell is fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for ^N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable 						
constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for $\frac{N_{oc}}{N_{oc}}$ to be fulfilled.Note 3:RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable			used such that cel			
Note 2:Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.Note 3:RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable		constant total tra	ansmitted power s			
in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable						
time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable	Note 2:	· · · · · · · · · · · · · · · · · · ·				
for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable						
Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable						
Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable		for N_{oc} to be fulfilled				
parameters for information purposes. They are not settable	Note 3.					
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Table A.8.7.2.1-2: Cell specific test parameters for E-UTRAN TDD to UTRAN 1.28Mcps TDD cell search when DRX is used in fading propagation conditions(cell 1)

Table A.8.7.2.1-3: Cell specific test parameters for E-UTRAN TDD to UTRAN 1.28Mcps TDD cell search when DRX is used in fading propagation conditions(cell 2)

Parameter		Unit		Cell 2 (UTRA)		
Timeslot	Number		(0	Dw	PTS
			T1	T2	T1	T2
UTRA RF Number N	Channel NOTE1			Chanr	nel 2	
PCCPCH	L_Ec/lor	dB	-3	-3		
DwPCH_		dB			0	0
OCNS_E	c/lor ^{NOTE2}	dB	-3	-3		
\hat{I}_{or}/I_{oc}		dB	-inf	9	-inf	9
I_{oc}		dBm/1.28 MHz	-80			
PCCPCH	RSCP	dBm	-inf	-74	n.a.	n.a.
Propagat Condition			Case 3 ^{NOTE3}			
Note 1:	te 1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number.					
Note 2:		r of the OCNS channel that is added shall make the r from the cell to be equal to lor.				
Note 3:		agation condition			nex B of	3GPP

Table A.8.7.2.1-4: drx-Configuration to be used in E-UTRAN TDD to UTRAN 1.28Mcps TDD cell search when DRX is used in fading propagation conditions

Field	Test1	Test2	Comment
Field	Value	Value	
onDurationTimer	psf1	psf1	
drx-InactivityTimer	psf1	psf1	
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	disable	disable	

Table A.8.7.2.1-5: TimeAlignmentTimer and sr-ConfigIndex -Configuration to be used in E-UTRAN TDD to UTRAN 1.28Mcps TDD cell search when DRX is used in fading propagation conditions

Field	Test1	Test2	Comment
Field	Value	Value	
TimeAlignmentTimer	sf500	sf500	For further information see section 6.3.2 in 3GPP TS 36.331.
sr-ConfigIndex	2	2	For further information see section 6.3.2 in 3GPP TS 36.331 and 10.1 in 3GPP TS 36.213.

A.8.7.2.2 Test Requirements

In Test1 the UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 6400ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE send the measurement report on PUSCH.

In Test2 the UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 25.6s from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

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- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event B1 measurement report

A.8.7.3 E-UTRAN TDD - UTRAN TDD SON ANR cell search reporting in AWGN propagation conditions

A.8.7.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of the strongest UTRAN TDD cell for SON automatic neighbour relations. This test will partly verify the E-UTRAN TDD - UTRAN TDD cell search requirements for identification of a new UTRA TDD cell for SON given in section 8.1.2.4.13.

In the measurement control information it is indicated to the UE that periodical reporting with the purpose 'reportStrongestCellsForSON' is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. Prior to the start of time period T1, an interRATperiodic measurement reporting configuration with purpose reportStrongestCellsForSON is configured, and linked to a UTRA measurement object corresponding to channel UARFCN 1. During time duration T1, the UE shall not have any timing information of cell 2.

A.8.7.3.2 Test Parameters

The test parameters are given in Tables A.8.7.3.1-1, A.8.7.3.1-2 and A.8.7.3.1-3.

Table A.8.7.3.1-1: General test parameters for E-UTRAN TDD-UTRAN TDD cell search reporting for SON ANR in AWGN propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
UTRA RF Channel Number		1	One UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
Inter-RAT (UTRA TDD) measurement quantity		P-CCPCH RSCP	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA TDD cell list size		None	No explicit neighbour list is provided to the UE
T1	S	>5	During T1, cell 2 shall be powered off, and during the off time the primary scrambling code shall be changed, The intention is to ensure that cell 2 has not been detected by the UE prior to the start of period T2.
T2	S	14	

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Patterns defined in		OP.1 TDD			
A.3.2.2.1 (OP.1 TDD)		OP.11DD			
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RANote 1	dB				
OCNG_RB ^{Note 1}	dB				
\hat{E}_{s}/I_{ot}	dB	4	4		
$N_{_{oc}}$ Note 3	dBm/15 kHz	-98			
\hat{E}_{s}/N_{oc}	dB	4	4		
RSRP Note 4	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
Propagation Condition	AWGN				
Note 1:OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:The resources for uplink transmission are assigned to the UE prior to the start of time period T2.					
Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as					
AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.					
Note 4: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.					

Table A.8.7.3.1-2: Cell specific test parameters for E-UTRAN TDD (cell # 1) for UTRAN TDD cell search for SON ANR under AWGN propagation conditions

Table A.8.7.3.1-3: Cell specific test parameters for UTRAN TDD (cell # 2) for UTRAN TDD cell search for SON ANR under AWGN propagation conditions

Parameter	Unit	Cell 2				
		T1		T2		
UTRA RF Channel number Note2		Channel 2				
DL timeslot number		0	DwPTS	0	DwPTS	
PCCPCH_Ec/lor	dB	-3		-3		
DwPCH_Ec/lor	dB	0			0	
OCNS_Ec/lor	dB	-3		-3		
Îor/loc	dB	-Infinity 5		5		
PCCPCH RSCP Note1	dBm	-Infinity	n.a.	-73	n.a.	
Io Note1	dBm/1.28MHz	-Infinity -70.88).88	
loc	dBm/1.28MHz	-75				
Propagation condition		AWGN				
Note 1: PCCPCH RSCP and lo levels have been calculated from other parameters for						
information purposes. They are not settable parameters themselves.						
Note 2: In the case of multi-frequency network of 1.28 Mcps TDD, the UTRA RF Channel						
Number can be set for the primary frequency in this test.						

A.8.7.3.3 Test Requirements

The UE shall send the first measurement report containing the physical cell identity of cell 2, with a measurement reporting delay less than 12800 ms from the beginning of time period T2.

The rate of correct measurement reports observed with this delay during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.7.4 E-UTRAN TDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions

A.8.7.4.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct enhanced reporting of UTRAN TDD cells. This test will partly verify the Enhanced UTRA TDD cell identification requirements in section 8.1.2.4.3.1.1a under AWGN propagation conditions.

The test parameters are given in Tables A.8.7.4.1-1, A.8.7.4.1-2 and A.8.7.4.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods of T1 and T2 respectively. During time period T1, measurement gaps are activated and an inter-RAT measurement reporting configuration is configured with linkage to a UTRA measurement object corresponding to UARFCN channel number 1. Prior to time duration T2, the UE shall not have any timing information of cell 2. Cell 2 is powered up at the beginning of T2.

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
Time offset between cells	ms	3	Asynchronous cells
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier
			frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
CP length		Normal	Applicable to cell 1
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
UTRA RF Channel Number		1	One UTRA TDD carrier frequency is used.
Inter-RAT (UTRA TDD) measurement quantity		P-CCPCH RSCP	
Thresh	dBm	-83	Absolute P-CCPCH RSCP threshold for event B1
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	-
Monitored UTRA TDD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list
T1	S	5	
T2	S	2	

Table A.8.7.4.1-1: General test parameters for E-UTRAN TDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions

Parameter	Unit	Cell	1			
		T1	T2			
E-UTRA RF Channel Number		1				
BW _{channel}	MHz	10)			
OCNG Pattern defined in						
A.3.2.2.1 (OP.1 TDD)		OP.1	TDD			
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0				
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4			
Noc Note 3	dBm/15 kHz	-98	3			
\hat{E}_{s}/N_{oc}	dB	4	4			
RSRP ^{Note 4}	dBm/15 kHz	-94	-94			
SCH_RP	dBm/15 kHz	-94	-94			
Propagation Condition		AWO	GN			
	9					
Note 2: The resources for upl	The resources for uplink transmission are assigned to the UE prior to the start of time period T2.					
Note 3: Interference from othe	3: Interference from other cells and noise sources not specified in the test is assumed to be constant					
over subcarriers and	over subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be					

Table A.8.7.4.1-2: Cell specific test parameters for cell 1 in E-UTRAN TDD - UTRAN TDD enhanced cell identification test under AWGN propagation conditions

 Table A.8.7.4.1-3: Cell specific test parameters for cell 2 in E-UTRAN TDD - UTRAN TDD enhanced cell identification test under AWGN propagation conditions

Parameter	Unit		Cell 2 (U	FRA TDD)		
Timeslot Number		0		Dw	PTS	
		T1	T2	T1	T2	
UTRA RF Channel Number ^{Note1}			Char	nnel 1		
P-CCPCH_Ec/lor	dB	-4.77	-4.77			
DwPCH_Ec/lor	dB			0	0	
OCNS_Ec/lor ^{Note2}	dB	-1.76	-1.76			
\hat{I}_{or}/I_{oc}	dB	-inf	8	-inf	8	
I _{oc}	dBm/1.28 MHz		-8	30		
P-CCPCH RSCP Note3	dBm	-inf	-76.77	n.a.	n.a.	
P-CCPCH_Ec/Io Note3	dB	-inf	-5.41	n.a.	n.a.	
DwPCH_Ec/Io Note3	dB	n.a.	n.a.	-inf	-0.64	
Propagation Condition			AW	'GN		
Note 1: In the case of multi-frequer channel number.	In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's					
Note 2: The power of the OCNS ch	The power of the OCNS channel that is added shall make the total power from the cell to be equal					
to I _{or} .	01					
	 P-CCPCH RSRP, PCCPCH_Ec/lo and DwPCH_Ec/lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves. 					

A.8.7.4.2 Test Requirements

The UE shall send the first measurement report containing the primary scrambling code of cell 2, with a measurement reporting delay less than 1120 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct measurement reports observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH

A.8.8 E-UTRAN FDD – GSM Measurements

A.8.8.1 E-UTRAN FDD – GSM event triggered reporting in AWGN

A.8.8.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter-RAT (GSM) measurements. This test will partly verify the E-UTRAN FDD - GSM cell search requirements in section 8.1.2.4.5.

The test parameters are given in Tables A.8.8.1.1-1, A.8.8.1.1-2 and A.8.8.1.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1.
PCFICH/PDCCH/PHICH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1.
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on Absolute RF Channel Number 1 (GSM cell)
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
Inter-RAT (GSM) measurement quantity		GSM Carrier RSSI	
b1-Threshold-GERAN	dBm	-80	GSM Carrier RSSI threshold for event B1.
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored GSM cell list size		6 GSM neighbours including ARFCN 1	List of GSM cells provided before T2 starts.
T1	S	5	
T2	S	5	

Table A.8.8.1.1-1: General test parameters for E-UTRAN FDD-GSM event triggered reporting in AWGN

Parameter	Unit	Cell	1		
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.1.1 (OP.1 FDD)		OP.1 I	FDD		
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4		
\hat{E}_s/N_{oc}	dB	4	4		
N _{oc}	dBm/15 kHz	-98	3		
RSRP	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
Propagation Condition		AWC	GN		
		ells are fully allocated and a cons	stant total transmitted power		
spectral density is ac					
Note 2: The resources for upl	ink transmission	are assigned to the UE prior to t	he start of time period T2.		

Table A.8.8.1.1-2: Cell specific test parameters for E-UTRAN FDD (cell # 1) for event triggered reporting of GSM cell in AWGN

Table A.8.8.1.1-3: Cell specific test parameters for GSM (cell # 2) for event triggered reporting of GSM cell in AWGN

Parameter	Unit	Cell 2	
		T1	T2
Absolute RF Channel Number		ARFNC 1	
RXLEV	dBm	-Infinity	-75
GSM BSIC		N/A	Valid

A.8.8.1.2 Test Requirements

The UE shall send one Event B1 triggered measurement report including BSIC of cell # 2, with a measurement reporting delay less than 3120 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE 1: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

NOTE 2: The delay for GSM cell identification with BSIC verified is equal to 3120 ms, which is the sum of the event triggered measurement reporting delay and the initial BSIC identification delay.

The event triggered measurement reporting delay = $2*T_{\text{Measurement Period, GSM}} = 2*480\text{ms} = 960\text{ms}$.

Initial BSIC identification delay = 2160 ms.

A.8.8.2 E-UTRAN FDD-GSM event triggered reporting when DRX is used in AWGN

A.8.8.2.1 Test Purpose and Environment

The purpose of these tests is to verify that the UE makes correct reporting of an event in DRX. These tests will partly verify the E-UTRAN FDD-GSM cell search requirements when DRX is used in section 8.1.2.4.5.2.

In these tests, there are two cells, one E-UTRAN cell and one GSM cell, and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

The common test parameters are given in Table A.8.8.2.1-1. Cell specific test parameters are given in Table A.8.8.2.1-2 for E-UTRAN and in Table A.8.8.2.1-5 for GSM. DRX configuration for Test1 and Test2 are given in Table A.8.8.2.1-3 and time alignment timer and scheduling request related parameters in Table A.8.8.2.1-4.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE is allocated with PUSCH resource at every DRX cycle. In Test 2 the uplink time alignment is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event B1 is used. The tests consist of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Parameter	Unit	Test 1	Test 2	Comment
		Value		
PDSCH parameters (E-		DL Reference Measurement		As specified in section A.3.1.1.1.
UTRAN FDD)		Channel R.0 FDE)	
PCFICH/PDCCH/PHICH		DL Reference Me		As specified in section A.3.1.2.1.
parameters (E-UTRAN FDD)		Channel R.6 FDE)	
Gap Pattern Id)	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Ce	1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Ce	2	Cell 2 is on Absolute RF Channel Number 1 (GSM cell)
CP length		Nor	mal	Applicable to cell 1
E-UTRA RF Channel			1	One E-UTRA FDD carrier frequency is
Number				used.
E-UTRA Channel Bandwidth	MHz	1	0	
(BW _{channel})				
Inter-RAT (GSM)		GSM Car	rier RSSI	
measurement quantity				
B1-Threshold-GERAN	dBm	-80		GSM Carrier RSSI threshold for event B1.
Hysteresis	dB	0		
TimeToTrigger	S	0		
Filter coefficient		()	L3 filtering is not used
PRACH configuration		4	4	As specified in table 5.7.1-2 in TS 36.211
Access Barring Information	-	Not Sent		No additional delays in random access procedure.
DRX		ON		DRX related parameters are defined in Table A.8.8.2.1-3
Monitored GSM cell list size		6 GSM neighbours including ARFCN 1		List of GSM cells provided before T2 starts.
T1	S	Ę	5	
T2	S	5	45	

Table A.8.8.2.1-1: General test parameters for E-UTRAN FDD-GSM event triggered reporting when DRX is used in AWGN

Parameter	Unit	Cell	1		
		T1	T2		
E-UTRA RF Channel Number					
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.1.1 (OP.1 FDD)		OP.1 F	DD		
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{NOTE 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4		
$N_{oc}^{\rm Note 2}$	dBm/15 kHz	-98			
RSRP ^{Note 3}	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
\hat{E}_s/N_{oc}	dB	4	4		
Propagation Condition		AWG	N .		
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.					
	Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant				
over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes.					
They are not settable					

Table A.8.8.2.1-2: Cell specific test parameters for E-UTRAN FDD (cell #1) event triggered reporting of GSM cell when DRX is used in AWGN

Table A.8.8.2.1-3: drx-Configuration to be used in E-UTRAN FDD-GSM event triggered reporting when DRX is used in AWGN

Field	Test1	Test2	Comment
Field	Value	Value	
onDurationTimer	psf1	psf1	
drx-InactivityTimer	psf1	psf1	
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	Disable	Disable	

Note: For further information see section 6.3.2 in 3GPP TS 36.331.

Table A.8.8.2.1-4: TimeAlignmentTimer and sr-ConfigIndex -Configuration to be used in E-UTRAN FDD-GSM event triggered reporting when DRX is used in AWGN

Field	Test1 Value	Test2 Value	Comment
TimeAlignmentTimer	sf500	sf500	For further information see section 6.3.2 in 3GPP TS 36.331.
sr-ConfigIndex	0	0	For further information see section 6.3.2 in 3GPP TS 36.331 and section 10.1 in 3GPP TS 36.213.

Table A.8.8.2.1-5: Cell specific test parameters for GSM (cell # 2) for event triggered reporting of GSM cell when DRX is used in AWGN

Parameter	Unit	Cell 2	
		T1	T2
Absolute RF Channel Number		ARFNC 1	
RXLEV	dBm	-Infinity	-75
GSM BSIC		N/A	Valid

A.8.8.2.2 Test Requirements

In Test1 the UE shall send one Event B1 triggered measurement report including BSIC of cell # 2, with a measurement reporting delay less than 3120 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE send the measurement report on PUSCH.

In Test2 the UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 42.8 seconds from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event B1 measurement report

A.8.8.3 E-UTRAN FDD – GSM event triggered reporting in AWGN with enhanced BSIC identification

A.8.8.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter-RAT (GSM) measurements with enhanced BSIC identification. This test will partly verify the E-UTRAN FDD - GSM cell search requirements in section 8.1.2.4.5.1.2a

The test parameters are given in Tables A.8.8.3.1-1, A.8.8.1.1-2 and A.8.8.3.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. Prior time duration T1, the UE shall not have any timing information of cell 2. During time period T1, gaps are activated and an interRAT measurement reporting configuration is configured, and linked to a GSM measurement object including channel ARFCN 1. Cell 2 is powered up at the beginning of T2.

Table A.8.8.3.1-1: General test parameters for E-UTRAN FDD-GSM event triggered reporting in AWGN
with enhanced BSIC identification

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1.
PCFICH/PDCCH/PHICH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1.
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on Absolute RF Channel Number 1 (GSM cell)
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
Inter-RAT (GSM) measurement quantity		GSM Carrier RSSI	
b1-Threshold-GERAN	dBm	-80	GSM Carrier RSSI threshold for event B1.
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored GSM cell list size		6 GSM neighbours including ARFCN 1	List of GSM cells provided before T2 starts.
Τ1	S	5	T1 ends at the end of the last TTI where the measurement configuration is given
T2	S	3	

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.1.1 (OP.1 FDD)		OP.1 F	-DD		
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB	0			
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4		
\hat{E}_s/N_{oc}	dB	4	4		
N _{oc}	dBm/15 kHz	-98	3		
RSRP	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
Propagation Condition					
	such that both co	ells are fully allocated and a cons	stant total transmitted power		
spectral density is ac	spectral density is achieved for all OFDM symbols.				
Note 2: The resources for upl	ink transmission	are assigned to the UE prior to t	he start of time period T2.		

Table A.8.8.3.1-2: Cell specific test parameters for E-UTRAN FDD (cell # 1) for event triggered reporting of GSM cell in AWGN with enhanced BSIC identification

 Table A.8.8.3.1-3: Cell specific test parameters for GSM (cell # 2) for event triggered reporting of GSM cell in AWGN with enhanced BSIC identification

Parameter	Unit	Cell 2	
		T1	T2
Absolute RF Channel Number		AF	RFCN 1
RXLEV	dBm	-∞	-75
GSM BSIC		N/A	Valid

A.8.8.3.2 Test Requirements

The UE shall send one Event B1 triggered measurement report including BSIC of cell # 2, with a measurement reporting delay less than [2280] ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.
- NOTE 2: The delay for GSM cell identification with BSIC verified is equal to 2280 ms, which is the sum of the event triggered measurement reporting delay and the enhanced initial BSIC identification delay.

The event triggered measurement reporting delay = $2*T_{\text{Measurement Period, GSM}} = 2*480 \text{ms} = 960 \text{ms}.$

Initial BSIC identification delay = 1320 ms.

A.8.9 E-UTRAN FDD - UTRAN TDD measurements

A.8.9.1 E-UTRAN FDD - UTRAN TDD event triggered reporting in fading propagation conditions

A.8.9.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. The test will partly verify the E-UTRAN FDD - UTRAN TDD cell search requirements in section 8.1.2.4.4 in fading environment.

The test parameters are given in Table A.8.9.1.1-1, A.8.9.1.1-2 and A.8.9.1.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.9.1.1-1: General test parameters for Event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel TBD	As specified in TS 36.101 section TBD
PCFICH/PDCCH/PHICH		DL Reference Measurement	As specified in section A.3.1.2.1
parameters		Channel R.6 FDD	
Active cell		Cell 1	E-UTRA FDD Cell 1
Neighbour cell		Cell 2	UTRA TDD Cell 2 is to be identified.
Gap Pattern Id		1	As specified in TS 36.133 section8.1.2.1. Measurement Gap Repetition Period = 80ms
Inter-RAT measurement quantity		UTRA TDD PCCPCH RSCP	
Threshold other system	dBm	-75	UTRA TDD PCCPCH RSCP threshold for event B1.
Hysteresis	dB	0	
CP length		Normal	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX			OFF
T1	S	5	
T2	S	15	

Parameter	Unit Cell 1					
		T1	T2			
E-UTRA RF Channel		1				
Number						
BW _{channel}	MHz	1(C			
OCNG Patterns defined		OP.1	FDD			
in A.3.2.1.1 (OP.1 FDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0				
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
N _{oc}	dBm/15KH	-9	8			
	Z		-			
RSRP	dBm	-94	-94			
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	4	4			
P-SCH_RP	dBm	-9	4			
S-SCH_RP	dBm	dBm -94				
Propagation Condition	Propagation Condition ETU70					
Note 1: OCNG shall be use						
constant total transmitted p	power spectral	density is achieved	d for all OFDM			
symbols.						
Note 2: The resources for		ssion are assigned	to the UE prior			
to the start of time period 1	2.					

Table A.8.9.1.1-2: Cell specific test parameters for Event triggered reporting of UTRA TDD neighbours in fading propagation conditions (cell1)

Table A.8.9.1.1-3: Cell specific test parameters for Event triggered reporting of UTRA TDD neighbours in fading propagation conditions (cell2)

Parameter	Unit		Cell 2			
		T1		•	Т2	
Timeslot Number		0	DwPTS	0	DwPTS	
UTRA RF Channel			Cha	nnel1		
Number (NOTE1)						
PCCPCH_Ec/lor	dB	-Inf	inity	-3		
DwPCH_Ec/lor	dB	-Inf	finity		0	
OCNS_Ec/lor		-Inf	finity	-3		
\hat{I}_{or}/I_{oc}	dB	-Infinity		9		
I _{oc}	dBm/1.28 MHz	-70				
PCCPCH_RSCP Note 3	dB	-Infinity		-64		
lo ^{Note 3}	dBm/1.28 MHz	-7(-70.00			
Propagation		Case 3 (NOTE2)				
Condition						
NOTE1: The DPCH of	NOTE1: The DPCH of the cell is located in a timeslot other than 0.					
NOTE2: Case 3 propagation conditions are specified in TS25.102 Annex B						
NOTE3: PCCPCH_RSRP and Io levels have been derived from other parameters for						
information p	ourposes. They are	not settab	le paramete	rs themselv	/es.	

A.8.9.1.2 Test Requirements

The UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 12800 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to [2] x TTI_{DCCH} higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.9.2 E-UTRAN FDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions

A.8.9.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct enhanced reporting of UTRAN cells. This test will partly verify the enhanced UTRA TDD cell identification requirements in section 8.1.2.4.4 under AWGN propagation conditions.

This test scenario comprised of 1 E-UTRA FDD serving cell, and 1 UTRA TDD cell to be searched. Test parameters are given in Table A.8.9.2.1-1, A.8.9.2.1-2, and A.8.9.2.1-3. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time period T1, gaps are activated and an interRAT measurement reporting configuration is configured, and linked to a UTRA measurement object corresponding to channel UARFCN 1. Prior to time duration T2, the UE shall not have any timing information of cell 2. Cell 2 is powered up at the beginning of the T2.

Table A.8.9.2.1-1: General test parameters for E-UTRAN FDD- UTRAN TDD enhanced cell search in AWGN propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1.
PCFICH/PDCCH/PHICH parameters (E-UTRAN FDD)		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1.
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on UTRA RF channel number 1.
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA FDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
UTRA RF Channel Number		1	One UTRA TDD carrier frequency is used.
Inter-RAT (UTRA TDD) measurement quantity		P-CCPCH RSCP	
Thresh	dBm	-83	Absolute P-CCPCH RSCP threshold for event B1
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA TDD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list
Time offset between cells	ms	3	
T1	S	5	
T2	S	2	

Parameter	Unit	Cel	1			
		T1	T2			
E-UTRA RF Channel Number		1				
BW _{channel}	MHz	1	0			
OCNG Patterns defined in		OP.1				
A.3.2.1.1 (OP.1 FDD)		UP.1	FDD			
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	C)			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB]				
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4			
N_{oc} Note 3	dBm/15 kHz	-9	8			
\hat{E}_s/N_{oc}	dB	4	4			
RSRP Note 4	dBm/15 kHz	-94	-94			
SCH_RP	dBm/15 kHz	-94	-94			
Propagation Condition		AW	GN			
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as						
AWGN of appropriate power for N_{oc} to be fulfilled. Note 4: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

Table A.8.9.2.1-2: Cell specific test parameters for cell #1 E-UTRAN FDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions

Parameter	Unit		Cell 2 (UT	(RA TDD)		
Timeslot Number		0		Dw	DwPTS	
		T1	T2	T1	T2	
UTRA RF Channel Number ^{Note1}			Char	nel 1		
P-CCPCH_Ec/lor	dB	-4.77	-4.77			
DwPCH_Ec/lor	dB			0	0	
OCNS_Ec/lor ^{Note2}	dB	-1.76	-1.76			
\hat{I}_{or}/I_{oc}	dB	-inf	8	-inf	8	
I _{oc}	dBm/1.28 MHz		-8	30		
P-CCPCH RSCP Note3	dBm	-inf	-76.77	n.a.	n.a.	
P-CCPCH_Ec/lo Note3	dB	-inf	-5.41	n.a.	n.a.	
DwPCH_Ec/Io Note3	dB	n.a.	n.a.	-inf	-0.64	
Propagation Condition			AW	'GN		
Note 1: In the case of multi-frequency cell, the UTRA RF Channel Number is the primary frequency's channel number.						
Note 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal						
to I _{or} .						
Note 3: P-CCPCH RSRP, PCCPCH_Ec/lo and DwPCH_Ec/lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

Table A.8.9.2.1-3: Cell specific test parameters for cell #2 E-UTRAN FDD - UTRAN TDD enhanced cell identification under AWGN propagation conditions

A.8.9.2.2 Test Requirements

The UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 1120 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.10 E-UTRAN TDD – GSM Measurements

A.8.10.1 E-UTRAN TDD – GSM event triggered reporting in AWGN

A.8.10.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter-RAT (GSM) measurements. This test will partly verify the E-UTRAN TDD - GSM cell search requirements in section 8.1.2.4.6.

The test parameters are given in Tables A.8.10.1.1-1, A.8.8.1.1-2 and A.8.10.1.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on Absolute RF Channel Number 1 (GSM cell)
Special subframe configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211
Uplink-downlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
Inter-RAT (GSM) measurement quantity		GSM Carrier RSSI	
b1-Threshold-GERAN	dBm	-80	GSM Carrier RSSI threshold for event B1.
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored GSM cell list size		6 GSM neighbours including ARFCN 1	List of GSM cells provided before T2 starts.
T1	S	5	
T2	S	5	

Table A.8.10.1.1-1: General test parameters for E-UTRAN TDD-GSM event triggered reporting in AWGN

Parameter	Unit	Cell 1			
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.2.1 (OP.1 TDD)		OP.1 T	DD		
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{NOTE 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4		
$N_{_{oc}}$ Note 3	dBm/15 kHz	-98			
\hat{E}_{s}/N_{oc}	dB	4	4		
RSRP ^{Note 4}	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
Propagation Condition	AWGN				
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant					
	over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{ac} to be				
 fulfilled. Note 4: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves. 					

Table A.8.10.1.1-2: Cell specific test parameters for E-UTRAN TDD (cell # 1) for event triggered reporting of GSM cell in AWGN

Table A.8.10.1.1-3: Cell specific test parameters for GSM (cell # 2) for event triggered reporting of GSM cell in AWGN

Parameter	Unit	Cell 2	
		T1	T2
Absolute RF Channel Number		ARFNC 1	
RXLEV	dBm	-Infinity	-75
GSM BSIC		N/A	Valid
Propagation Condition		A	WGN

A.8.10.1.2 Test Requirements

The UE shall send one Event B1 triggered measurement report including the valid BSIC of cell # 2, with a measurement reporting delay less than 3120 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE 1: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

NOTE 2: The delay for GSM cell identification with BSIC verified is equal to 3120 ms, which is the sum of the event triggered measurement reporting delay and the initial BSIC identification delay.

The event triggered measurement reporting delay = $2*T_{\text{Measurement Period, GSM}} = 2*480\text{ms} = 960\text{ms}$.

Initial BSIC identification delay = 2160 ms.

A.8.10.2 E-UTRAN TDD-GSM event triggered reporting when DRX is used in AWGN

A.8.10.2.1 Test Purpose and Environment

The purpose of these tests is to verify that the UE makes correct reporting of an event in DRX. These tests will partly verify the E-UTRAN TDD-GSM cell search requirements when DRX is used in section 8.1.2.4.6.

In these tests, there are two cells, one E-UTRAN cell and one GSM cell, and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

The common test parameters are given in Table A.8.10.2.1-1. Cell specific test parameters are given in Table A.8.10.2.1-2 for E-UTRAN and in Table A.8.10.2.1-5 for GSM. DRX configuration for Test1 and Test2 are given in Table A.8.10.2.1-3 and time alignment timer and scheduling request related parameters in Table A.8.10.2.1-4.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE is allocated with PUSCH resource at every DRX cycle. In Test 2 the uplink time alignment is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event B1 is used. The tests consist of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Parameter	Unit	Test 1	Test 2	Comment	
		Va	ue		
PDSCH parameters (E-		DL Reference Measurement		As specified in section A.3.1.1.2. Note that	
UTRAN TDD)		Channel R.0 TDD		UE may only be allocated at On Duration	
PCFICH/PDCCH/PHICH		DL Reference Me	asurement	As specified in section A.3.1.2.2.	
parameters (E-UTRAN TDD)		Channel R.6 TDD)		
Gap Pattern Id		()	As specified in 3GPP TS 36.133 section	
				8.1.2.1.	
Active cell		Ce	1	Cell 1 is on E-UTRA RF channel number	
				1.	
Neighbour cell		Ce	2	Cell 2 is on Absolute RF Channel Number	
				1 (GSM cell)	
Special subframe		6	6	As specified in table 4.2-1 in TS 36.211.	
configuration					
Uplink-downlink				As specified in 3GPP TS 36.211 section	
configuration				4.2 Table 4.2-2	
CP length		Nor	mal	Applicable to cell 1	
E-UTRA RF Channel				One E-UTRA TDD carrier frequency is	
Number				used.	
E-UTRA Channel Bandwidth	MHz	1	0		
(BW _{channel})					
Inter-RAT (GSM)		GSM Carrier RSSI			
measurement quantity					
B1-Threshold-GERAN	dBm	-8	-	GSM Carrier RSSI threshold for event B1.	
Hysteresis	dB	(
TimeToTrigger	S	()		
Filter coefficient		(L3 filtering is not used	
PRACH configuration		4		As specified in table 5.7.1-2 in TS 36.211	
Access Barring Information	-	Not Sent		No additional delays in random access	
				procedure.	
DRX		ON		DRX related parameters are defined in	
				Table A.8.10.2.1-3	
Monitored GSM cell list size		6 GSM neighbours including		List of GSM cells provided before T2	
		ARFCN 1		starts.	
T1	S	5			
T2	S	5	45		

Table A.8.10.2.1-1: General test parameters for E-UTRAN TDD-GSM event triggered reporting when DRX is used in AWGN

Parameter	Unit	Cell	1			
		T1	T2			
E-UTRA RF Channel Number		1				
3W _{channel} MHz		10				
OCNG Patterns defined in						
A.3.2.2.1 (OP.1 TDD)		OP.1 T	DD			
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0				
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{NOTE 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4			
N_{oc} Note 2	dBm/15 kHz	-98				
RSRP ^{Note 3}	dBm/15 kHz	-94	-94			
SCH_RP	dBm/15 kHz	-94	-94			
\hat{E}_s / N_{oc}	dB	4	4			
Propagation Condition		AWG	N			
spectral density is achieved for all OFDM symbols.						
Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant						
over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes.						
They are not settable						

Table A.8.10.2.1-2: Cell specific test parameters for E-UTRAN TDD (cell #1) event triggered reporting of GSM cell when DRX is used in AWGN

Table A.8.10.2.1-3: drx-Configuration to be used in E-UTRAN TDD-GSM event triggered reporting when DRX is used in AWGN

Field	Test1 Value	Test2 Value	Comment
onDurationTimer	psf1	psf1	
		1 -	
drx-InactivityTimer	psf1	psf1	
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	Disable	Disable	
Note: For further information see section	n 6.3.2 in 3GF	PTS 36.331	

 Table A.8.10.2.1-4: TimeAlignmentTimer and sr-ConfigIndex -Configuration to be used in E-UTRAN TDD-GSM event triggered reporting when DRX is used in AWGN

Field	Test1 Value	Test2 Value	Comment
	value	value	
TimeAlignmentTimer	sf500	sf500	For further information see section 6.3.2 in 3GPP TS 36.331.
sr-ConfigIndex	2	2	For further information see section 6.3.2 in 3GPP TS 36.331 and section 10.1 in 3GPP TS 36.213.

Table A.8.10.2.1-5: Cell specific test parameters for GSM (cell # 2) for event triggered reporting of GSM cell when DRX is used in AWGN

Parameter	Unit	Cell 2	
		T1	T2
Absolute RF Channel Number		AF	RFNC 1
RXLEV	dBm	-Infinity	-75
GSM BSIC		N/A	Valid

A.8.10.2.2 Test Requirements

In Test1 the UE shall send one Event B1 triggered measurement report including BSIC of cell # 2, with a measurement reporting delay less than 3120 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE send the measurement report on PUSCH.

In Test2 the UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 42.8 seconds from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event B1 measurement report

A. 8.11 Monitoring of Multiple Layers

A. 8.11.1 Multiple E-UTRAN FDD-FDD Inter-frequency event triggered reporting under fading propagation conditions

A. 8.11.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of multiple events. This test will partly verify the FDD-FDD inter-frequency cell search requirements in section 8.1.2.3.

The test parameters are given in Tables A.8.11.1.1.1-1 and A.8.11.1.1.1-2. In this test, there are three cells on different carrier frequencies and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2 or cell 3.

Table A. 8.11.1.1-1: General test parameters for Inter-frequency E-UTRA FDD – E-UTRA FDD and E-
UTRA FDD cell search under fading

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
E-UTRA RF Channel Number		1, 2, 3	Three FDD carrier frequencies are used.
Channel Bandwidth (BW _{channel})	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1
Neighbour cell		Cell 2 and cell 3	Cell 2 is on RF channel number 2 and cell 3 is on RF channel number 3
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
CP length		Normal	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF
Time offset between E- UTRAN FDD cells		3 ms	Asynchronous cells
T1	S	5	
T2	S	10	

Parameter	Unit	C	ell 1	Cel	2	Cell 3	
		T1	T2	T1	T2	T1	T2
E-UTRA RF Channel Number			1	2		3	
BW _{channel}	MHz		10	10)	10	
OCNG Patterns defined in A.3.2.1.1 (OP.1 FDD) and in A.3.2.1.2 (OP.2 FDD)			1 FDD	OP.2		OP.2 FDD)
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB		0	0		0	
PHICH_RB	dB		0	0		0	
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note}	dB						
$N_{oc}^{}$ Note 3	dBm/15 kHz				-98		
RSRP Note 4	dBm/15 kHz	-98	-98	-Infinity	-95	-Infinity	-95
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	0	0	-Infinity	3	-Infinity	3
SCH_RP Note 4	dBm/15 kHz	-98	-98	-Infinity	-95	-Infinity	-95
\hat{E}_{s}/N_{oc}	dB	0	0	-Infinity	3	-Infinity	3
Propagation Condition		AV	AWGN ETU70		ETU70		
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total							
 transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of 							
appropriate	e power for	$N_{oc}{ m to}$	be fulfille	ed.			
appropriate power for N_{oc} to be fulfilled. Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

Table A. 8.11.1.1-2: Cell specific test parameters for Inter-frequency E-UTRA FDD – E-UTRA FDD and E-UTRA FDD cell search under fading

A. 8.11.1.2 Test Requirements

The UE shall send Event A3 triggered measurement reports for both cell 2 and cell 3, with a measurement reporting delay less than 7680 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.11.2 E-UTRAN TDD – E-UTRAN TDD and E-UTRAN TDD Interfrequency event triggered reporting under fading propagation conditions

A.8.11.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of two events. This test will partly verify the TDD-TDD inter-frequency cell search requirements in section 8.1.2.3.

The test parameters are given in Tables A.8.11.2.1-1 and A.8.11.2.1-2. In this test, there are three cells on different carrier frequencies and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time duration of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2 and cell 3.

Table A.8.11.2.1-1: General test parameters for E-UTRAN TDD - E-UTRAN TDD and E-UTRAN TDD Inter-frequency event triggered reporting under fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211. The same configuration in both cells
Uplink-downlink configuration		1	As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2
E-UTRA RF Channel Number		1, 2, 3	Three TDD carrier frequencies are used.
Channel Bandwidth (BW _{channel})	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1
Neighbor cells		Cell 2 and Cell 3	Cell 2 and 3 are on RF channel numbers 2 and 3 respectively
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
CP length		Normal	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF
Time offset between cells		3 μs	Synchronous cells
T1	S	5	
T2	S	10	

Table A.8.11.2.1-2: Cell specific test parameters for E-UTRAN TDD - E-UTRAN TDD and E-UTRAN TDD Inter-frequency event triggered reporting under fading propagation conditions cells

Parameter	Unit	Cell 1		Cel	Cell 2		Cell 3	
		T1	T2	T1	T2	T1	T2	
E-UTRA RF Channel Number		1		2		3		
BW _{channel}	MHz		10	10)	10)	
OCNG Patterns defined in A.3.2.2.1 (OP.1 TDD) and in A.3.2.2.2 (OP.2 TDD)		OP.1 TDD		OP.2 TDD		OP.2 TDD		
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB					0		
PHICH_RB	dB		0	0				
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RA ^{Note 1}	dB							
OCNG_RB ^{Note 1}	dB							
N_{oc} Note 3	dBm/15 kHz			-98				
RSRP Note 4	dBm/15 kHz	-98	-98	-inf	-95	-inf	-95	
\hat{E}_{s}/I_{ot}	dB	0	0	-inf	3	-inf	3	
SCH_RP Note 4	dBm/15 kHz	-98	-98	-inf	-95	-inf	-95	
\hat{E}_s/N_{oc}	dB	0	0	-inf	3	-inf	3	
Propagation Condition		AWGN ETU70 ETU70					170	
Note 1:OCNG shall be used such that all cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.Note 2:The resources for uplink transmission are assigned to the UE prior to the start of time period T2.Note 3:Interference from other cells and noise sources not specified in the test is assumed to be constant over								
subcarriers and	subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.							
Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.								

A.8.11.2.2 Test Requirements

The UE shall send one Event A3 triggered measurement report for cell 2 with a measurement reporting delay less than 7680 ms from the beginning of time period T2.

The UE shall send one Event A3 triggered measurement report for cell 3 with a measurement reporting delay less than 7680 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE 1: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.11.3 E-UTRAN FDD-FDD Inter-frequency and UTRAN FDD event triggered reporting under fading propagation conditions

A.8.11.3.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event when doing inter frequency and UTRAN FDD measurements. This test will partly verify the FDD-FDD inter-frequency cell search requirements in section 8.1.2.3 and the E-UTRAN FDD- UTRAN FDD cell search requirements in section 8.1.2.4.1.

The test parameters are given in Tables A.8.11.3.1-1, A.8.11.3.1-2 and A.8.11.3.1-3. In this test, there are two cells on different carrier frequencies and one cell on UTRAN carrier frequency and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 and B2 is used. The test consists of two successive time periods, with time duration of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2 and cell 3.

Table A.8.11.3.1-1: General test parameters for Combined inter-frequency and UTRAN event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN FDD)		DL Reference Measurement	As specified in section A.3.1.1.1.
		Channel R.0 FDD	
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement	As specified in section A.3.1.2.1.
(E-UTRAN FDD)		Channel R.6 FDD	
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cells		Cell 2, 3	Cell 2 is on E-UTRA RF channel number 2.
			Cell 3 is on UTRA RF channel number 1.
CP length		Normal	Applicable to cell 1
E-UTRA RF Channel Number		1,2	Two FDD carrier frequencies are used.
E-UTRA Channel Bandwidth	MHz	10	
(BW _{channel})			
UTRA RF Channel Number		1	One UTRA FDD carrier frequency is used.
E-UTRAN FDD measurement		RSRP	
quantity			
Inter-RAT (UTRA FDD)		CPICH Ec/N0	
measurement quantity			
A3-Offset	dB	-6	
b2-Threshold-E-UTRA	dB	-86	RSRP threshold for event B2.
b2-Threshold-UTRA	dB	-18	CPICH Ec/N0 threshold for event B2.
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
Monitored UTRA FDD cell list size		12	UTRA cells on UTRA RF channel 1 provided
			in the cell list.
Time offset between cells		3 ms	Asynchronous cells
T1	S	5	
T2	S	8	

Parameter	Unit	Се	ll 1	Ce	12	
		T1	T2	T1	T2	
E-UTRA RF Channel			1	2	2	
Number						
BW _{channel}	MHz	1	0	1	0	
OCNG Patterns						
defined in A.3.2.1.1		OP.1	FDD	OP.2	FDD	
(OP.1 FDD) and in						
A.3.2.1.2 (OP.2 FDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB		_	0		
PHICH_RB	dB	()			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
N _{oc} Note 3	dBm/15 kHz			-98		
RSRP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	-Infinity	7	
SCH_RP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91	
\hat{E}_s/N_{oc}	dB	4	4	-Infinity	7	
Propagation Condition		AW	GN	ETL	J70	
 Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant 						
over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes.						
They are not s	ettable parameters	themselves.				

Table A.8.11.3.1-2: Cell specific test parameters for Combined inter-frequency and UTRAN event triggered reporting in fading propagation conditions

Parameter	Unit	Cell 3	3		
		T1	T2		
UTRA RF Channel Number		1			
CPICH_Ec/lor	dB	-10			
PCCPCH_Ec/lor	dB	-12			
SCH_Ec/lor	dB	-12			
PICH_Ec/lor	dB	-15			
DPCH_Ec/lor	dB	N/A			
OCNS		-0.941			
\hat{I}_{or}/I_{oc}	dB	-Infinity	-1.8		
I _{oc}	dBm/3.84 MHz	-70			
CPICH_Ec/lo	dB	-Infinity	-14		
Propagation Condition		Case 5 (N	ote 3)		
Note 1: The DPCH level is c					
Note 2: The power of the OC	lote 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal				
to I _{or} .	to I _{or} .				
Note 3: Case 5 propagation	conditions are de	fined in Annex A of 3GPP TS 25.1	01.		

Table A.8.11.3.1-3: Cell specific test parameters for UTRAN FDD (cell # 3) for event triggered reporting of UTRAN FDD cell under fading propagation conditions

A.8.11.3.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 7680 ms from the beginning of time period T2.

The UE shall send one Event B2 triggered measurement report, with a measurement reporting delay less than 4800 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.11.4 InterRAT E-UTRA TDD to E-UTRA TDD and UTRA TDD cell search test case

A.8.11.4.1 Test Purpose and Environment

This test is to verify that the UE makes correct reporting of an event when doing inter frequency measurements and UTRA TDD measurements. The test will partly verify the requirements in section 8.1.2.3.2 combined 8.1.2.4.3 under fading propagation conditions.

This test scenario comprised of 2 E-UTRA TDD cells operating on different frequency, and 1 UTRA TDD cell. Test parameters are given in table A.8.11.4.1-1, A.8.11.4.1-2, and A.8.11.4.1-3. Gap pattern configuration #0 as defined in section 8.1.2.1 is provided.

The test consists of 2 successive time periods, with time duration T1 and T2. In the measurement control information it is indicated to the UE that event-triggered reporting with Event A3 and B2 shall be used.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference	As specified in section A.3.1.1.2
		Measurement	
		Channel R.0 TDD	
PCFICH/PDCCH/PHICH		DL Reference	As specified in section A.3.1.2.2
parameters		Measurement	
		Channel R.6 TDD	
Active cell		Cell 1	E-UTRA TDD cell is on RF channel number 1
Neighbour cell		Cell 2	E-UTRA TDD cell is on RF channel number 2
		Cell 3	1.28Mcps TDD cell
CP length of cell1 and cell2		Normal	
Uplink-downlink configuration		1	As specified in Table 4.2-2 in TS 36.211. The
of cell1 and cell2			same configuration in both cells
Special subframe		6	As specified in table 4.2-1 in TS 36.211. The
configuration of cell1 and			same configuration in both cells
cell2			
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section
			8.1.2.1.
E-UTRAN TDD		RSRP	
measurement quantity			
UTRAN TDD measurement		RSCP	
quantity			
DRX		OFF	
Ofn	dB	0	Parameter for A3 and B2 event
Ocn	dB	0	Parameter for A3 event
Hysteresis	dB	0	Parameter for A3 and B2 event
Ofs	dB	0	Parameter for A3 event
Ocs	dB	0	Parameter for A3 event
A3-Offset	dB	-6	Parameter for A3 event
Thresh1	dBm	-86	Absolute E-UTRAN RSRP threshold for event
			B2
Thresh2	dBm	-84	Absolute UTRAN RSCP threshold for event B2
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
Time offset between E-	μs	3	Synchronous cells
UTRAN TDD cells			
T1	S	>5	During T1, cell 2 and cell 3 shall be powered
			off. During the off time the physical layer cell
			identity of cell 2 shall be changed, and the
			primary scrambling code of cell 3 shall be
			changed.
T2	S	15	

Table A.8.11.4.1-1: General test parameters for combined E-UTRA TDD inter-frequency and UTRA TDD cells search under fading propagation conditions

Parameter	Unit	Ce	ll 1	Cell 2		
		T1 T2		T1	T2	
E-UTRA RF Channel				2	2	
Number						
BWchannel	MHz	1	0	1	0	
OCNG Pattern defined						
in A.3.2.2.1 (OP.1		OP.1	TDD	OP.2 TDD		
TDD) and in A.3.2.2.2						
(OP.2)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0 0)	
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RANote 1	dB					
OCNG_RBNote 1	dB					
\hat{E}_s/I_{ot}	dB	4	4	-Infinity	7	
\hat{E}_{s}/N_{oc}	dB	4	4	-Infinity	7	
N _{oc}	dBm/15 kHz		-(98		
RSRP	dBm/15 kHz	-94	-94	-Infinity	-91	
SCH_RP	dBm/15 kHz	-94	-94	-infinity	-91	
Propagation Condition						
 Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE priori to the start of time period T2. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information 						
purposes. They are not settable parameters themselves.						

Table A.8.11.4.1-2: Cell specific test parameters for combined E-UTRAN TDD inter-frequency and UTRA TDD cell search under fading propagation conditions(cell1 and cell2)

Table A.8.11.4.1-3: Cell specific test parameters for combined E-UTRA TDD inter-frequency and UTRA TDD cell search under fading propagation conditions(cell3)

Pa	rameter	Unit	Unit Cell 3 (UTR		(UTRA)	JTRA)	
Timeslot Number			0		DwPTS		
			T1	T2	T1	T2	
UTRA RE	- Channel		Channel 3				
Number*							
PCCPCH	I_Ec/lor	dB	-3				
DwPCH_	Ec/lor	dB			0)	
OCNS_Ec/lor		dB	-3				
\hat{I}_{or}/I_{oc}		dB	-Infinity	9	-Infinity	9	
I_{oc}		dBm/1.28 MHz -80					
PCCPCH RSCP dBm			-Infinity	finity -74 n.a.			
Propagat	tion Condition	Case 3					
Note1: The DPCH of all cells are located in a timeslot other than 0.							
Note2:	Note2: In the case of multi-frequency network, the UTRA RF Channel Number						
Note3:	can be set for the primary frequency in this test. Note3: P-CCPCH RSCP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

A.8.11.4.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 7680ms from the beginning of time period T2.

The UE shall send one Event B2 triggered measurement report, with a measurement reporting delay less than 12.8s from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.11.5 Combined E-UTRAN FDD – E-UTRA FDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions

A.8.11.5.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of multiple events when doing inter frequency and GSM measurements. This test will partly verify the E-UTRAN FDD-FDD inter-frequency cell search requirements in section 8.1.2.3.1 and simultaneously the E-UTRAN FDD- GSM cell search requirements in section 8.1.2.4.5.

The test parameters are given in Tables A.8.11.5.1-1, A.8.11.5.1-2 and A.8.11.5.1-3. In this test, there are two cells on different carrier frequencies and one GSM cell. Gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 and B2 is used. The test consists of two successive time periods, with time duration of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2 and cell 3.

Table A.8.11.5.1-1: General test parameters for combined E-UTRAN FDD – E-UTRA FDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E-		DL Reference Measurement	As specified in section A.3.1.1.1.
UTRAN FDD)		Channel R.0 FDD	
PCFICH/PDCCH/PHICH		DL Reference Measurement	As specified in section A.3.1.2.1.
parameters		Channel R.6 FDD	
(E-UTRAN FDD)			
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cells		Cell 2, 3	Cell 2 is on E-UTRA RF channel number 2. Cell 3 is on Absolute RF Channel Number 3 (GSM cell).
CP length		Normal	Applicable to cell 1 and cell 2
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
E-UTRAN FDD measurement quantity		RSRP	
Hysteresis	dB	0	Parameter for A3 and B2 event
	4D	°	
A3-Offset	dB	-6	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF
Time offset between E- UTRAN FDD cells	ms	3 ms	Asynchronous cells
Inter-RAT (GSM) measurement quantity		GSM Carrier RSSI	
b2-Threshold-E-UTRA	dBm	-83	RSRP threshold for event B2. This is the threshold for E-UTRA in the B2 configuration. E- UTRA serving cell RSCP is below this throughout the test to account for measurement accuracy and fading
b2-Threshold-GERAN	dBm	-80	GSM Carrier RSSI threshold for event B2.
Monitored GSM cell list size		6 GSM neighbours including ARFCN 3	List of GSM cells provided before T2 starts.
T1	S	5	
T2	S	10	

Table A.8.11.5.1-2: Cell specific test parameters for E-UTRAN FDD cells for combined E-UTRAN FDD – E-UTRA FDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions

Parameter	Unit	Cell 1 T1 T2		Cell 2		
				T1	T2	
E-UTRA RF Channel			1		2	
Number						
BW _{channel}	MHz	1	0	1	0	
OCNG Patterns						
defined in A.3.2.1.1		OP.1	FDD	OP.2	FDD	
(OP.1 FDD) and in						
A.3.2.1.2 (OP.2 FDD)						
PBCH_RA	dB	-				
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB	0 0				
PHICH_RA	dB					
PHICH_RB	dB					
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$N_{_{oc}}$ Note 3	dBm/15 kHz			-98		
RSRP ^{Note 4}	dBm/15 kHz	-94	-94	-Infinity	-91	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	-Infinity	7	
SCH_RP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91	
\hat{E}_s/N_{oc}	dB	4 4 -Infinity 7				
Propagation Condition		ET	J70	ETI	J70	
Note 1: OCNG shall be used	d such that both cells a					
achieved for all OF	DM symbols.					
Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2.						
Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers						
and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.						
Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

Table A.8.11.5.1-3: Cell specific test parameters for GSM (cell # 3) for combined E-UTRAN FDD – E-UTRA FDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions

Parameter	Unit	Cell 3	
		T1	T2
Absolute RF Channel Number		ARFCN3	
RXLEV	dBm	-Infinity	-75
GSM BSIC		N/A	Valid

A.8.11.5.2 Test Requirements

The UE shall send one Event A3 triggered measurement report for cell 2, with a measurement reporting delay less than 7680 ms from the beginning of time period T2.

The UE shall send one Event B2 triggered measurement report including BSIC of cell 3, with a measurement reporting delay less than [7200] ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.
- NOTE 2: The delay for GSM cell identification with BSIC verified is equal to [7200] ms, which is the sum of the event triggered measurement reporting delay and the initial BSIC identification delay.

The event triggered measurement reporting delay = $2*T_{\text{Measurement Period, GSM}} = 2*N_{\text{freq}}*480\text{ms} = 1920\text{ms}$.

Initial BSIC identification delay = [5280] ms, when one carrier frequency other than GSM is monitored in the gaps.

A.8.11.6 Combined E-UTRAN TDD – E-UTRA TDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions

A.8.11.6.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of multiple events when doing inter frequency and GSM measurements. This test will partly verify the E-UTRAN TDD-TDD inter-frequency cell search requirements in section 8.1.2.3.2 and simultaneously the E-UTRAN TDD- GSM cell search requirements in section 8.1.2.4.6.

The test parameters are given in Tables A.8.11.6.1-1, A.8.11.6.1-2 and A.8.11.6.1-3. In this test, there are two cells on different carrier frequencies and one GSM cell. Gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 and B2 is used. The test consists of two successive time periods, with time duration of T1 and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2 and cell 3.

Table A.8.11.6.1-1: General test parameters for combined E-UTRAN TDD – E-UTRA TDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters (E- UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Special subframe configuration of cell1 and cell2		6	As specified in table 4.2-1 in TS 36.211. The same configuration in both cells
Uplink-downlink configuration of cell1 and cell2		1	As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cells		Cell 2, 3	Cell 2 is on E-UTRA RF channel number 2. Cell 3 is on Absolute RF Channel Number 3 (GSM cell).
CP length		Normal	Applicable to cell 1 and cell 2
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
E-UTRAN TDD measurement quantity		RSRP	
Hysteresis	dB	0	Parameter for A3 and B2 event
A3-Offset	dB	-6	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF
Time offset between E- UTRAN TDD cells	μs	3	Synchronous cells
Inter-RAT (GSM) measurement quantity		GSM Carrier RSSI	
b2-Threshold-E-UTRÁ	dBm	-83	RSRP threshold for event B2. This is the threshold for E-UTRA in the B2 configuration. E- UTRA serving cell RSCP is below this throughout the test to account for measurement accuracy and fading
b2-Threshold-GERAN	dBm	-80	GSM Carrier RSSI threshold for event B2.
Monitored GSM cell list size		6 GSM neighbours including ARFCN 3	List of GSM cells provided before T2 starts.
T1	S	5	
T2	S	10	

Table A.8.11.6.1-2: Cell specific test parameters for E-UTRAN TDD cells for combined E-UTRAN TDD – E-UTRA TDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions

Parameter	Unit	Cell 1 T1 T2		Cell 2			
				T1	T2		
E-UTRA RF Channel			1		2		
Number							
BW _{channel}	MHz	1	0	1	0		
OCNG Patterns							
defined in A.3.2.2.1		OP.1	TDD	OP.2	TDD		
(OP.1 TDD) and in							
A.3.2.2.2 (OP.2 TDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB	0 0					
PHICH_RA	dB						
PHICH_RB	dB						
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$N_{_{oc}}$ Note 3	dBm/15 kHz			-98			
RSRP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91		
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	-Infinity	7		
SCH_RP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91		
\hat{E}_s/N_{oc}	dB	-34 -34 -initially -31 4 4 -Infinity 7					
Propagation Condition							
Note 1: OCNG shall be used	Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is						
	achieved for all OFDM symbols.						
Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers							
and time and shall be modelled as AWGN of appropriate power for $N_{_{OC}}$ to be fulfilled.							
Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.							

Table A.8.11.6.1-3: Cell specific test parameters for GSM (cell # 3) for combined E-UTRAN TDD – E-UTRA TDD and GSM cell search. E-UTRA cells in fading; GSM cell in static propagation conditions

Parameter	Unit	Cell 3	
		T1	T2
Absolute RF Channel Number		ARFCN3	
RXLEV	dBm	-Infinity	-75
GSM BSIC		N/A	Valid

A.8.11.6.2 Test Requirements

The UE shall send one Event A3 triggered measurement report for cell 2, with a measurement reporting delay less than 7680 ms from the beginning of time period T2.

The UE shall send one Event B2 triggered measurement report including BSIC of cell 3, with a measurement reporting delay less than [7200] ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

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- NOTE 1: The actual overall delays measured in the test may be up to 2xTTI_{DCCH} higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.
- NOTE 2: The delay for GSM cell identification with BSIC verified is equal to [7200] ms, which is the sum of the event triggered measurement reporting delay and the initial BSIC identification delay.

The event triggered measurement reporting delay = $2*T_{\text{Measurement Period, GSM}} = 2*N_{\text{freq}}*480\text{ms} = 1920\text{ms}$.

Initial BSIC identification delay = [5280] ms, when one carrier frequency other than GSM is monitored in the gaps.

A.8.12 RSTD Intra-frequency Measurements

A.8.12.1 E-UTRAN FDD intra-frequency RSTD measurement reporting delay test case

A.8.12.1.1 Test Purpose and Environment

The purpose of the test is to verify that the RSTD measurement meets the requirements specified in Section 8.1.2.5.1 in an environment with fading propagation conditions.

In the test there are three synchronous cells: Cell 1, Cell 2 and Cell 3. Cell 1 is the reference as well as the serving cell. Cell 2 and Cell 3 are the neighbour cells. All cells are on the same RF channel.

The test consists of three consecutive time intervals, with duration of T1, T2 and T3. Cell 1 is active in T1, T2 and T3, whilst Cell 2 and Cell 3 are activated only in the beginning of T2. Cell 2 is active until the end of T3, and Cell 3 is active until the end of T2. The beginning of the time interval T2 shall be aligned with the first PRS positioning subframe of a positioning occasion in the reference cell, where the PRS positioning occasion is as defined in Section 8.1.2.5.1. Cell 1 transmits PRS in T2, while Cell 2 transmits PRS only in T3, and Cell 3 transmits PRS only in T2. Note: The information on when PRS is muted is conveyed to the UE using PRS muting information.

The OTDOA assistance data as defined in TS 36.355, Section 6.5.1, shall be provided to the UE during T1. The last TTI containing the OTDOA assistance data shall be provided to the UE ΔT ms before the start of T2, where $\Delta T = 150$ ms is the maximum processing time of the OTDOA assistance data.

The test parameters are as given in Table A.8.12.1.1-1, Table A.8.12.1.1-2, Table A.8.12.1.1-3 and Table A.8.12.1.1-4.

Parameter	Unit	Value	Comment
Reference cell		Cell 1	Reference cell is the cell in the OTDOA assistance data with respect to which the RSTD measurement is defined, as specified in 3GPP TS 36.214 [4] and 3GPP TS 36.355 [24]. The reference cell is the serving cell in this test case.
Neighbor cells		Cell 2 and Cell 3	Cell 2 and Cell 3 appear at random places in the neighbour cell list in the OTDOA assistance data, but Cell 2 always appears in the first half of the list, whilst Cell 3 appears in the second half of the list.
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Channel Bandwidth (BW _{channel})	MHz	10	
PRS Bandwidth	RB	50	PRS bandwidth is as indicated in prs-Bandwidth in the OTDOA assistance data defined in [24]. Here, PRS are transmitted over the system bandwidth
PRS configuration index <i>I</i> _{PRS}		171	This corresponds to periodicity of 320 ms and PRS subframe offset of $I_{PRS} - 160$ subframes, as defined in 3GPP TS 36.211 [16], Table 6 10 4.2.1
Number of consecutive downlink positioning subframes $N_{\rm PRS}$		1	Table 6.10.4.3-1 As defined in 3GPP TS 36.211 [16]. The number of subframes in a positioning occasion
Physical cell ID PCI		(PCI of Cell 1 – PCI of Cell 2)mod6=0 and (PCI of Cell 1 – PCI of Cell 3)mod6=0	The cell PCIs are selected such that the relative shifts of PRS patterns among cells are as given by the test parameters
CP length		Normal	
DRX		ON	DRX parameters are further specified in Table A.8.12.1.1-3
Radio frame transmit time offset between the cells at the UE antenna connector	μs	Cell 2 to Cell 1: 1 Cell 3 to Cell 1: -1	Synchronous cells
Expected RSTD	μs	Cell 2: 3 Cell 3: 3 Other neighbour cells: randomly between -3 and 3	The expected RSTD is what is expected at the receiver. The corresponding parameter in the OTDOA assistance data specified in TS 36.355 [24] is the expectedRSTD indicator
Expected RSTD uncertainty for all neighbour cells	μs	5	The corresponding parameter in the OTDOA assistance data specified in TS 36.355 [24] is the expectedRSTD-Uncertainty index
Number of cells provided in OTDOA assistance data		16	Including the reference cell
PRS muting info		Cell 1: '11110000' Cell 2: '00001111' Cell 3: '11110000'	Correponds to prs-MutingInfo defined in TS 36.355 [24]
Т1	s	3	The length of the time interval from the beginning of each test
T2	s	1.28	The length of the time interval that follows immediately after time interval T1

Table A.8.12.1.1-1: General test parameters for E-UTRAN FDD intra-frequency RSTD measurement reporting delay under fading propagation conditions

ТЗ	s	1.28	The length of the time interval that follows immediately after
			time interval T2

Table A.8.12.1.1-2: Cell-specific test parameters for E-UTRAN FDD intra-frequency RSTD measurement reporting delay under fading propagation conditions during T1

Parameter	Unit	Cell 1	Cell 2	Cell 3	
E-UTRA RF		1	1	1	
Channel Number		I	1	I	
OCNG patterns		OP.5 FDD	N/A	N/A	
defined in A.3.2.1					
PBCH_RA	+				
PBCH_RB	+				
PSS_RA					
SSS_RA	-				
PCFICH_RB		_			
PHICH_RA	dB	0	N/A	N/A	
PHICH_RB					
PDCCH_RA					
PDCCH_RB	+				
OCNG_RA ^{Note 1}					
OCNG_RB ^{Note 1}					
$N_{_{oc}}$ Note 3	dBm/ 15 kHz	-95			
PRS $\hat{ ext{E}}_{ ext{s}}/N_{oc}$	dB	-Infinity	-Infinity -Infinity		
lo ^{Note 4}	dBm/ 9 MHz	-67.22	-67.22 N/A		
$\hat{\mathrm{E}}_{\mathrm{s}}/N_{oc}$	dB	0	-Infinity	-Infinity	
Propagation Condition			ETU30		
transmitted	l power spe	such that active cell (Ce	ed for all OFDM symbo	ols.	
Note 2: The resour period T2.	The resources for uplink transmission are assigned to the UE prior to the start of time period T2.				
Note 3: Interferenc					
appropriate	appropriate power for $N_{_{oc}}$ to be fulfilled.				
		erived from other paran ot settable test parame		or information	

Para	meter	Unit	C	ell 1	Ce	12	Ce	ell 3
			T2	T3	T2	T3	T2	T3
E-UTRA R				1	1			1
Channel N OCNG pat							OP.6	1
defined in			OP.	5 FDD	OP.6	FDD	FDD	N/A
PBCH_RA								
PBCH_RE	3							
PSS_RA								
SSS_RA								
PCFICH_I				_				
PHICH_R		dB		0	C		0	N/A
PHICH_R								
PDCCH_F								
PDCCH_F	KB ∧ Note 1							
OCNG_R	A R ^{Note 1}							
PRS_RA	5	dD	-3	N/A	N/A	3	3	N/A
		dB	-3	IN/A	IN/A	3	3	IN/A
N_{oc} Note 3		dBm/ 15 kHz	-98	-95	-98	-95	-98	-95
PRS \hat{E}_{s}/k		dB	-1	-Infinity	-Infinity	-7	-7	-Infinity
PRS $\hat{E}_{s}/2$	${f I}_{_{ m ot}}^{}$ Note 4	dB	-1.79	-Infinity	-Infinity	-7	-9.54	-Infinity
lo Note 4		dBm/ 9 MHz	-69.55	-67.08	-69.55	-67.08	-69.55	N/A
PRP ^{Note 4}		dBm/ 15 kHz	-99	-Infinity	-Infinity	-102	-105	-Infinity
RSRP Note		dBm/ 15 kHz	-96	-93	-105	-105	-108	-Infinity
$\hat{\mathrm{E}}_{\mathrm{s}}/N$	Note 4	dB	2	2	-7	-10	-10	-Infinity
Propagation Condition	on				ETU	30		
Note 1:	OCNG sha	ll be used s	such that a	active cells (all, except C	cell 3 in T3) are fully a	llocated
	and a cons	tant total tr	ansmitted	power spec	tral density	is achieved		
				subframes v				
Note 2:		ces for upli	nk transm	ission are as	ssigned to th	ne UE prior	to the star	rt of time
Note 3:	period T2.	e from othe	er cells and	d noise sour	ces not spe	cified in the	e test are a	ssumed
11010 0.	Interference from other cells and noise sources not specified in the test are assumed to be constant over subcarriers and time and shall be modelled as AWGN of							
	appropriate power for N_{oc} to be fulfilled.							
Note 4:	If PRS_RA is not "N/A", $\hat{ ext{E}}_{ m s}/N_{_{oc}}$, PRS $\hat{ ext{E}}_{ m s}/ ext{I}_{ m ot}$, Io, RSRP and PRP levels have been							
	derived from "N/A", lo ar information	m other par nd RSRP le purpose.	rameters a evels have These are	and are given been deriven not settable pols of DL po	n for informa ed from othe test parame	ation purpo r paramete eters. Interf	se. If PRS	_RA is given for

Table A.8.12.1.1-3: Cell-specific test parameters for E-UTRAN FDD intra-frequency RSTD measurement reporting delay under fading propagation conditions during T2 and T3

Table A.8.12.1.1-4: DRX parameters for the test of E-UTRAN FDD intra-frequency RSTD measurement reporting delay under fading propagation conditions

Field	Value	Comment
onDurationTimer	psf1	
drx-InactivityTimer	psf1	As apposition in 2000 TS
drx-RetransmissionTimer	sf1	As specified in 3GPP TS 36.331 [2], Section 6.3.2
longDRX-CycleStartOffset	sf320	30.331 [2], Section 0.3.2
shortDRX	Disable	

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A.8.12.1.2 Test Requirements

The RSTD measurement fulfils the requirements specified in Section 8.1.2.5.1.

The UE shall perform and report the RSTD measurements for Cell 2 and Cell 3 with respect to the reference cell in the OTDOA assistance data, Cell 1, within 2560 ms starting from the beginning of time interval T2.

The rate of the correct events for each neighbour cell observed during repeated tests shall be at least 90%, where the reported RSTD measurement for each correct event shall be within the RSTD reporting range specified in Section 9.1.10.3, i.e., between RSTD_0000 and RSTD_12711.

NOTE: The RSTD measurement time in the test is derived from the following expression,

 $T_{PRS}(M-1)+160\left|\frac{n}{M}\right|$, where M = 8 and n = 16 are the parameters specified in Section 8.1.2.5.1,

Table 8.1.2.5.1-1, under Note 1. This gives the total RSTD measurement time of 2560 ms for Cell 2 and Cell 3 with respect to the reference cell Cell 1.

A.8.12.2 E-UTRAN TDD intra-frequency RSTD measurement reporting delay test case

A.8.12.2.1 Test Purpose and Environment

The purpose of the test is to verify that the RSTD measurement meets the requirements specified in Section 8.1.2.5.2 in an environment with fading propagation conditions.

In the test there are three synchronous cells: Cell 1, Cell 2 and Cell 3. Cell 1 is the reference as well as the serving cell. Cell 2 and Cell 3 are the neighbour cells. All cells are on the same RF channel.

The test consists of three consecutive time intervals, with duration of T1 and T2. Cell 1 is active in T1, T2 and T3, whilst Cell 2 and Cell 3 are activated only in the beginning of T2. Cell 2 is active until the end of T3, and Cell 3 is active until the end of T2. The beginning of the time interval T2 shall be aligned with the first PRS positioning subframe of a positioning occasion in the reference cell, where the PRS positioning occasion is as defined in Section 8.1.2.5.1. Cell 1 transmits PRS in T2, while Cell 2 transmits PRS only in T3, and Cell 3 transmits PRS only in T2. Note: The information on when PRS is muted is conveyed to the UE using PRS muting information.

The OTDOA assistance data as defined in TS 36.355, Section 6.5.1, shall be provided to the UE during T1. The last TTI containing the OTDOA assistance data shall be provided to the UE ΔT ms before the start of T2, where $\Delta T = 150$ ms is the maximum processing time of the OTDOA assistance data.

The test parameters are as given in Table A.8.12.2.1-1, Table A.8.12.2.1-2, Table A.8.12.2.1-3, and Table A.8.12.2.1-4.

Table A.8.12.2.1-1: General test parameters for E-UTRAN TDD intra-frequency RSTD measurement reporting delay under fading propagation conditions

Parameter	Unit	Value	Comment
Reference cell		Cell 1	Reference is the cell in the OTDOA assistance data with respect to which the RSTD measurement is defined, as specified in 3GPP TS 36.214 [4] and 3GPP TS 36.355 [24]. The reference cell is the serving cell in this test case.
Neighbor cells		Cell 2 and Cell 3	Cell 2 and Cell 3 appear at random places in the neighbour cell list in the OTDOA assistance data, but Cell 2 always appears in the first half of the list, whilst Cell 3 appears in the second half of the list.
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Channel Bandwidth (BW _{channel})	MHz	10	
PRS Bandwidth	RB	50	PRS bandwidth is as indicated in <i>prs- Bandwidth</i> in the OTDOA assistance data defined in [24]. Here, PRS are transmitted over the system bandwidth
PRS configuration index <i>I</i> _{PRS}		174	This corresponds to periodicity of 320 ms and PRS subframe offset of I_{PRS} –160 subframes, as defined in 3GPP TS 36.211 [16], Table 6.10.4.3-1
Number of consecutive downlink positioning subframes $N_{\rm PRS}$		1	As defined in 3GPP TS 36.211 [16]. The number of subframes in a positioning occasion
Physical cell ID PCI		(PCI of Cell 1 – PCI of Cell 2)mod6=0 and (PCI of Cell 1 – PCI of Cell 3)mod6=0	The cell PCIs are selected such that the relative shifts of PRS patterns among cells are as given by the test parameters As specified in TS 36.211 [16], Section
TDD uplink-downlink configuration		1	4.2; corresponds to a configuration with 5 ms switch-point periodicity and two downlink consecutive subframes
TDD special subframe configuration		6	As specified in TS 36.211 [16], Section 4.2; corresponds to DwPTS of $19760 \cdot T_s$ and UpPTS of $4384 \cdot T_s$
CP length		Normal	The same CP length applies for DL and UL
DRX		ON	DRX parameters are further specified in Table A.8.12.2.1-3
Radio frame transmit time offset between the cells at the UE antenna connector	μs	Cell 2 to Cell 1: 1 Cell 3 to Cell 1: -1	Synchronous cells
Expected RSTD	μs	Cell 2: 3 Cell 3: 3 Other neighbour cells: randomly between -3 and 3	The expected RSTD is what is expected at the receiver. The corresponding parameter in the OTDOA assistance data specified in TS 36.355 [24] is the expectedRSTD indicator
Expected RSTD uncertainty for all neighbour cells	μs	5	The corresponding parameter in the OTDOA assistance data specified in TS 36.355 [24] is the expectedRSTD- Uncertainty index
Number of cells provided in OTDOA assistance data		16	Including the reference cell
PRS muting info		Cell 1: '11110000' Cell 2: '00001111' Cell 3: '11110000'	Correponds to prs-MutingInfo defined in TS 36.355 [24]
T1	S	3	The length of the time interval from the beginning of each test
T2	S	1.28	The length of the time interval that follows immediately after time interval T1

Тэ	•	1.29	The length of the time interval that
15	5	1.20	follows immediately after time interval T2

Table A.8.12.2.1-2: Cell-specific test parameters for E-UTRAN TDD intra-frequency RSTD measurement reporting delay under fading propagation conditions during T1

Parameter	Unit	Cell 1	Cell 2	Cell 3		
E-UTRA RF		1	1	1		
Channel Number		•	•			
OCNG patterns		OP.1 TDD	N/A	N/A		
defined in A.3.2.2						
PBCH_RA						
PBCH_RB						
PSS_RA						
SSS_RA						
PCFICH_RB						
PHICH_RA	dB	0	N/A	N/A		
PHICH_RB						
PDCCH_RA						
PDCCH_RB OCNG_RA ^{Note 1}						
OCNG_RB ^{Note 1}						
PRS_RA						
	dBm/					
N _{oc} Note 3	15 kHz		-95			
PRS $\hat{ ext{E}}_{ ext{s}}/N_{oc}$	dB	-Infinity	-Infinity	-Infinity		
lo Note 4	dBm/ 9 MHz	-67.22 N/A		N/A		
$\hat{\mathbf{E}}_{s}/N_{oc}$	dB	0	-Infinity	-Infinity		
Propagation Condition			ETU30			
transmitted	shall be used such that active cell (Cell 1) is fully allocated and a constant total tted power spectral density is achieved for all OFDM symbols. ources for uplink transmission are assigned to the UE prior to the start of time					
period T2.						
	ference from other cells and noise sources not specified in the test are assumed constant over subcarriers and time and shall be modelled as AWGN of					
appropriate	appropriate power for $N_{ m ac}$ to be fulfilled.					
		erived from other paran ot settable test parame		for information		

Parameter	Unit	Ce	ll 1	Cel	2	Cell 3	
		T2	T3	T2	T3	T2	T3
E-UTRA RF			1	1			1
Channel Number OCNG patterns						OP.2	
defined in A.3.2.2		OP.1	TDD	OP.2	TDD	TDD	N/A
PBCH_RA							
PBCH_RB							
PSS_RA							
SSS_RA							
PCFICH_RB	_						
PHICH_RA	dB	()	0		0	N/A
PHICH_RB							
PDCCH_RA	_						
PDCCH_RB OCNG_RA ^{Note 1}	_						
OCNG_RA	_						
PRS_RA	dB	-3	N/A	N/A	3	3	N/A
	dBm/	Ũ	10/7	11/7 (Ű		1.1// (
Note 3	15 kHz	-98	-95	-98	-95	-98	-95
PRS $\hat{\mathrm{E}}_{\mathrm{s}}/N_{oc}$	dB	-1	-Infinity	-Infinity	-7	-7	-Infinity
PRS \hat{E}_{s}/I_{ot} Note 4	dB	-1.79	-Infinity	-Infinity	-7	-9.54	-Infinity
Io Note 4	dBm/ 9 MHz	-69.55	-67.08	-69.55	-67.08	-69.55	N/A
PRP Note 4	dBm/ 15 kHz	-99	-Infinity	-Infinity	-102	-105	-Infinity
RSRP Note 4	dBm/ 15 kHz	-96	-93	-105	-105	-108	-Infinity
${ m \hat{E}}_{ m s}/N_{\it oc}$ Note 4	dB	2	2	-7	-10	-10	-Infinity
Propagation Condition				ETU	30		
Note 1: OCNG sha and a cons	Condition						
Note 2: The resou period T2.		nk transmi	ssion are a	ssigned to th	ne UE prior	to the star	rt of time
Note 3: Interference	Interference from other cells and noise sources not specified in the test are assumed to be constant over subcarriers and time and shall be modelled as AWGN of						
appropriat	appropriate power for N_{oc} to be fulfilled.						
Note 4: If PRS_RA is not "N/A", ${ m \hat{E}}_{ m s}/N_{_{oc}}$, PRS ${ m \hat{E}}_{ m s}/{ m I}_{_{ m ot}}$, Io, RSRP and PRP levels have been							
"N/A", lo a information	nd RSRP le n purpose.	evels have These are	been deriv not settabl	en for informa ed from othe e test param positioning su	r paramete eters. Inter	rs and are	given for

Table A.8.12.2.1-3: Cell-specific test parameters for E-UTRAN TDD intra-frequency RSTD measurement reporting delay under fading propagation conditions

Table A.8.12.2.1-4: DRX parameters for the test of E-UTRAN TDD intra-frequency RSTD measurement reporting delay under fading propagation conditions

Field	Value	Comment
onDurationTimer	psf1	
drx-InactivityTimer	psf1	As appointed in 2000 TS
drx-RetransmissionTimer	sf1	As specified in 3GPP TS 36.331 [2], Section 6.3.2.
longDRX-CycleStartOffset	sf320	30.331 [2], Section 0.3.2.
shortDRX	disable	

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A.8.12.2.2 Test Requirements

The RSTD measurement time fulfils the requirements specified in Section 8.1.2.5.2.

The UE shall perform and report the RSTD measurements for Cell 2 and Cell 3 with respect to the reference cell in the OTDOA assistance data, Cell 1, within 2560 ms starting from the beginning of time interval T2.

The rate of the correct events for each neighbour cell observed during repeated tests shall be at least 90%, where the reported RSTD measurement for each correct event shall be within the RSTD reporting range specified in Section 9.1.10.3, i.e., between RSTD_0000 and RSTD_12711.

NOTE: The RSTD measurement reporting delay in the test is derived from the following expression,

 $T_{PRS}(M-1)+160\left|\frac{n}{M}\right|$, where M=8 and n=16 are the parameters specified for this test case in

Section 8.1.2.5.2, Table 8.1.2.5.2-1, under Note 1. This gives the total RSTD measurement time of 2560 ms for Cell 2 and Cell 3 with respect to the reference cell Cell 1.

A.8.13 Void

A.8.14 E-UTRAN TDD - FDD Inter-frequency Measurements

A.8.14.1 E-UTRAN TDD-FDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells

A.8.14.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the TDD-FDD inter-frequency cell search requirements in section 8.1.2.3.3.

The test parameters are given in Tables A.8.14.1.1-1 and A.8.14.1.1-2. In this test, there are two cells on different carrier frequencies and gap pattern configuration #0 as defined in Table 8.1.2.1-1 is provided.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Parameter	Unit	Value	Comment
Cell 1 PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
Cell 1 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Cell1 Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211.
Cell1 Uplink-downlink configuration		1	As specified in TS 36.211 section 4.2 Table 4.2-2.
Cell 2 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Cell 1 E-UTRA TDD RF Channel Number		1	One TDD carrier frequency is used.
Cell 2 E-UTRA FDD RF Channel Number		2	One FDD carrier frequency is used.
Channel Bandwidth (BW _{channel})	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1
Neighbour cell		Cell 2	Cell 2 is on RF channel number 2
Gap Pattern Id		0	As specified in TS 36.133 section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
CP length		Normal	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF
Time offset between cells		3 ms	Asynchronous cells
T1	S	5	
T2	S	5	

Table A.8.14.1.1-1: General test parameters for E-UTRAN TDD-FDD inter-frequency event triggered reporting in fading propagation conditions

Table A.8.14.1.1-2: Cell specific test parameters for E-UTRAN TDD-FDD inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells

Parameter	Unit	C	ell 1	C	Cell 2		
		T1	T2	T1	T2		
E-UTRA RF Channel			1		2		
Number							
BW _{channel}	MHz		10		10		
OCNG Patterns							
defined in A.3.2.2.1		OP.	1 TDD	OP	.2 FDD		
(OP.1 TDD) and in							
A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB		•		•		
PHICH_RB	dB		0		0		
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$N_{_{oc}}$ Note 3	dBm/15 kHz			-98			
RSRP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91		
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	4	4	-Infinity	7		
SCH_RP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91		
\hat{E}_{s}/N_{oc}	dB	4 4 -Infinity					
Propagation Condition				ETU70	•		
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE prior to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers							
and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.							

Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

A.8.14.1.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 3840 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.14.2 E-UTRAN TDD-FDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells

A.8.14.2.1 Test Purpose and Environment

The purpose of these tests is to verify that the UE makes correct reporting of an event in DRX. These test will partly verify the TDD-FDD inter-frequency cell search requirements when DRX is used in section 8.1.2.3.

The common test parameters are given in Tables A.8.14.2.1-1 and A.8.14.2.1-2. DRX configuration for Test1 and Test2 are given in Table A.8.14.2.1-3 and time alignment timer and scheduling request related parameters in Table A.8.14.2.1-4. In these tests, there are two cells on different carrier frequencies and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignent timer to keep UE uplink time alignend. Furthermore UE is allocated with PUSCH resource at every DRX cycle. In Test 2 the uplink time alignent is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. The tests consist of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.14.2.1-1: General test parameters for E-UTRAN TDD-FDD inter-frequency event triggered
reporting when DRX is used in fading propagation conditions

Value Cell1 PDSCH parameters DL Reference Measurement Channel R.0 TDD As specified in section A.3.1.1.2. Note that UE may only be allocated at <i>On Duration</i> Cell1PCFICH/PDCCH/PHIC DL Reference Measurement Channel R.6 TDD As specified in section A.3.1.2.2. Cell2PDSCH parameters DL Reference Measurement Channel R.0 TDD As specified in section A.3.1.1.1. Note that Channel R.0 FDD Cell2PCFICH/PDCCH/PHIC DL Reference Measurement Channel R.0 FDD As specified in section A.3.1.2.1. H parameters DL Reference Measurement Channel R.6 FDD As specified in section A.3.1.2.1. E-UTRA RF Channel 1 one TDD carrier frequencies is used. Number 2 one FDD carrier frequencies is used. Number 2 Cell 1 Cell 1 is on RF channel number 1 Neighbour cell Cell 2 Cell 1 Cell 3 user 1 As specified in 3GPP TS 36.211 section 4.1.2.1. Cell Uplink-downlink configuration 1 As specified in 13GPP TS 36.211 is configuration in both cells <th>Parameter</th> <th>Unit</th> <th>Test 1</th> <th>Test 2</th> <th>Comment</th>	Parameter	Unit	Test 1	Test 2	Comment
Channel R.0 TDDUE may only be allocated at On DurationCell1PCFICH/PDCCH/PHICDL Reference Measurement Channel R.6 TDDAs specified in section A.3.1.2.2.Cell2 PDSCH parametersDL Reference Measurement Channel R.0 FDDLe may only be allocated at On DurationCell2PCFICH/PDCCH/PHICDL Reference Measurement Channel R.6 FDDAs specified in section A.3.1.2.1.H parametersChannel R.6 FDDAs specified in section A.3.1.2.1.E-UTRA RF Channel Number1one TDD carrier frequencies is used.E-UTRA RF Channel Number2one FDD carrier frequencies is used.Reference Measurement Horanel BandwidthMHz10(BW channel)2one FDD carrier frequencies is used.NumberCell 1Cell 1 is on RF channel number 1Neighbour cellCell 2Cell 2 is on RF channel number 2Gap Pattern Id0As specified in 3GPP TS 36.133 section 8.1.2.1.Cell1 Uplink-downlink configuration1As specified in able 4.2-1 in TS 36.211configuration4B-6HysteresisdB0CP lengthNormalTimeToTriggers0Filter coefficient0L3 filtering is not usedPRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cellsTime offset between cells3 msAsynchronous cells			Va	lue	
Cell1PCFICH/PDCCH/PHIC H parameters DL Reference Measurement Channel R.6 TDD As specified in section A.3.1.2.2. Cell2 PDSCH parameters DL Reference Measurement Channel R.0 FDD As specified in section A.3.1.1. Note that UE may only be allocated at <i>On Duration</i> Cell2PCFICH/PDCCH/PHIC DL Reference Measurement Channel R.6 FDD As specified in section A.3.1.2.1. E-UTRA RF Channel 1 one TDD carrier frequencies is used. Number 1 one FDD carrier frequencies is used. Number 2 one FDD carrier frequencies is used. Number 10 (BW channel) Active cell Cell 1 Cell 1 is on RF channel number 1 Neighbour cell Cell 2 Cell 2 is on RF channel number 2 Gap Pattern Id 0 As specified in 3GPP TS 36.211 section 8.1.2.1. Cell1 Uplink-downlink configuration 1 As specified in able 4.2-1 in TS 36.211. Coll Special subframe configuration 6 As specified in table 4.2-1 in TS 36.211. Coll Special subframe configuration 6 As specified in table 4.2-1 in TS 36.211. Coll Special subframe configuration 6 As specified in table 4.2-1 TimeToTrigger 8 </td <td>Cell1 PDSCH parameters</td> <td></td> <td>DL Reference Me</td> <td>asurement</td> <td></td>	Cell1 PDSCH parameters		DL Reference Me	asurement	
H parameters Channel R.6 TDD Cell2 PDSCH parameters DL Reference Measurement As specified in section A.3.1.1.1. Note that UE may only be allocated at On Duration Cell2PCFICH/PDCCH/PHIC DL Reference Measurement As specified in section A.3.1.2.1. H parameters 0 DL Reference Measurement As specified in section A.3.1.2.1. H parameters 0 0 Top Carrier frequencies is used. Number 1 one TDD carrier frequencies is used. Number 2 one FDD carrier frequencies is used. Number 10 Cell 1 is on RF channel number 1 Number 10 Cell 1 is on RF channel number 1 Number 1 0 As specified in 3GPP TS 36.133 section Active cell Cell 1 Cell 2 is on RF channel number 2 Gap Pattern Id 0 As specified in 3GPP TS 36.211 section configuration 4.2 Table 4.2-2 Cell 1 Special subframe configuration 4 As specified in table 4.2-1 in TS 36.211. configuration 4B -6 Hysteresis dB 0 CP length Normal TimeToTrigger s			Channel R.0 TDD)	
Cell2 PDSCH parameters DL Reference Measurement Channel R.0 FDD As specified in section A.3.1.1.1 Note that UE may only be allocated at On Duration Cell2PCFICH/PDCCH/PHIC DL Reference Measurement Channel R.6 FDD As specified in section A.3.1.2.1 E-UTRA RF Channel 1 one TDD carrier frequencies is used. Number 2 one FDD carrier frequencies is used. Number 2 one FDD carrier frequencies is used. Number 10 0 Channel Bandwidth MHz 10 (BW_channel) MHz 10 Active cell Cell 1 Cell 1 is on RF channel number 1 Neighbour cell Cell 2 Cell 2 is on RF channel number 2 Gap Pattern Id 0 As specified in 3GPP TS 36.133 section 8.1.2.1 Cell Uplink-downlink configuration 1 As specified in able 4.2-1 in TS 36.211. Cell Special subframe configuration 6 As specified in table 4.2-1 in TS 36.211. As-Offset dB -6 -6 Hysteresis dB 0 12 filtering is not used Filter coefficient 0 L3 filtering is not used	Cell1PCFICH/PDCCH/PHIC		DL Reference Me	asurement	As specified in section A.3.1.2.2.
Cell2PCFICH/PDCCH/PHIC H parametersChannel R.0 FDDUE may only be allocated at On DurationCell2PCFICH/PDCCH/PHIC H parametersDL Reference Measurement Channel R.6 FDDAs specified in section A.3.1.2.1.E-UTRA RF Channel Number1one TDD carrier frequencies is used.E-UTRA RF Channel Number2one FDD carrier frequencies is used.Channel Bandwidth (BW channel)MHz10Channel Bandwidth (BW channel)MHz10Channel Bandwidth (BW channel)MHz10Cell 1Cell 1Cell 1 is on RF channel number 1Neighbour cellCell 2Cell 2 is on RF channel number 2Gap Pattern Id0As specified in 3GPP TS 36.133 section 8.1.2.1.Cell 1 Uplink-downlink configuration1As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2Cell 1 Special subframe configuration6As specified in table 4.2-1 in TS 36.211. The same configuration in both cellsA3-OffsetdB-6HysteresisdB0CP lengthNormalTimeToTriggers0Filter coefficient0L3 filtering is not usedPRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cells					
Cell2PCFICH/PDCCH/PHIC H parameters DL Reference Measurement Channel R.6 FDD As specified in section A.3.1.2.1. E-UTRA RF Channel Number 1 one TDD carrier frequencies is used. E-UTRA RF Channel Number 2 one FDD carrier frequencies is used. Channel Bandwidth (BW _{channel}) MHz 10 Channel Bandwidth (BW _{channel}) MHz 0 Active cell Cell 1 Cell 1 is on RF channel number 1 Neighbour cell Cell 2 Cell 2 is on RF channel number 2 Gap Pattern Id 0 As specified in 3GPP TS 36.133 section 8.1.2.1. Cell 1 Uplink-downlink configuration 1 As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2 Cell 1 Special subframe configuration 6 As specified in table 4.2-1 in TS 36.211. The same configuration in both cells A3-Offset dB -6 -6 Hysteresis dB 0 -13 filtering is not used PRACH configuration 4 As specified in table 5.7.1-3 in TS 36.211 Access Barring Information - Not Sent No additional delays in random access procedure. DRX ON DRX related parameters are defined i	Cell2 PDSCH parameters		DL Reference Me	asurement	As specified in section A.3.1.1.1. Note that
H parameters Channel R.6 FDD E-UTRA RF Channel 1 one TDD carrier frequencies is used. Number 2 one FDD carrier frequencies is used. Number 2 one FDD carrier frequencies is used. Channel Bandwidth MHz 10 (BW_channel) Cell 1 Cell 1 is on RF channel number 1 Active cell Cell 2 Cell 2 is on RF channel number 2 Gap Pattern Id 0 As specified in 3GPP TS 36.133 section 8.1.2.1. Cell Uplink-downlink 1 As specified in 3GPP TS 36.211 section 8.1.2.1. Cell Special subframe 6 As specified in table 4.2-1 in TS 36.211. configuration 4.2 Table 4.2-2 Cell Special subframe configuration 4B -6 Hysteresis dB 0 CP length Normal TimeToTrigger Filter coefficient 0 L3 filtering is not used PRACH configuration - Not Sent No additional delays in random access procedure. DRX related parameters are defined in Table A.8.14.2.1-3 Time offset between cells 3 ms Asynchronous cells Time offset between cells					
E-UTRA RF Channel 1 one TDD carrier frequencies is used. Number 2 one FDD carrier frequencies is used. Channel Bandwidth MHz 10 (BWchannet) Cell 1 Cell 1 is on RF channel number 1 Active cell Cell 2 Cell 2 is on RF channel number 1 Neighbour cell Cell 2 Cell 2 is on RF channel number 2 Gap Pattern Id 0 As specified in 3GPP TS 36.133 section 8.1.2.1. Cell1 Uplink-downlink 1 As specified in 3GPP TS 36.211 section 0.8.1.2.1. Cell1 Special subframe 6 As specified in table 4.2-2 Cell1 Special subframe 6 As specified in table 4.2-1 in TS 36.211. configuration 4B -6 Hysteresis dB 0 CP length Normal 1 Time ToTrigger s 0 Filter coefficient 0 L3 filtering is not used PRACH configuration -4 As specified in table 5.7.1-3 in TS 36.211 Access Barring Information - Not Sent No additional delays in random access procedure. DRX ON DRX related parameters are defined in Table A.8.14.2.1-3	Cell2PCFICH/PDCCH/PHIC				As specified in section A.3.1.2.1.
Number2one FDD carrier frequencies is used.E-UTRA RF Channel2one FDD carrier frequencies is used.NumberChannel BandwidthMHz10Channel BandwidthMHz10(BW_channel)Cell 1Cell 1 is on RF channel number 1Neighbour cellCell 2Cell 2 is on RF channel number 2Gap Pattern Id0As specified in 3GPP TS 36.133 section8.1.2.1.Cell Uplink-downlink1As specified in 3GPP TS 36.211 sectionconfiguration6As specified in table 4.2-1 in TS 36.211.configuration6As specified in table 4.2-1 in TS 36.211.A3-OffsetdB-6HysteresisdB0CP lengthNormalTime TorFiggers0Filter coefficient0L3 filtering is not usedPRACH configuration-Not SentNo additional delays in random access procedure.DRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cells			Channel R.6 FDD)	
E-UTRA RF Channel Number 2 one FDD carrier frequencies is used. Channel Bandwidth (BW _{channel}) MHz 10 Active cell Cell 1 Cell 1 is on RF channel number 1 Neighbour cell Cell 2 Cell 2 is on RF channel number 1 Reighbour cell 0 As specified in 3GPP TS 36.133 section 8.1.2.1. Cell Uplink-downlink configuration 1 As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2 Cell Special subframe configuration 6 As specified in table 4.2-1 in TS 36.211. The same configuration 4 As specified in table 4.2-1 in TS 36.211. A3-Offset dB -6 Hysteresis dB 0 CP length Normal TimeToTrigger s 0 Filter coefficient 0 L3 filtering is not used PRACH configuration 4 As specified in table 5.7.1-3 in TS 36.211 Access Barring Information - Not Sent No additional delays in random access procedure. DRX ON DRX related parameters are defined in Table A.8.14.2.1-3 Table A.8.14.2.1-3			1		one TDD carrier frequencies is used.
NumberMHz10Channel Bandwidth (BWchannel)MHz10Active cellCell 1Cell 1 is on RF channel number 1Neighbour cellCell 2Cell 2 is on RF channel number 2Gap Pattern Id0As specified in 3GPP TS 36.133 section 8.1.2.1.Cell Uplink-downlink configuration1As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2Cell Special subframe configuration6As specified in table 4.2-1 in TS 36.211.Cell Special subframe configuration6As specified in table 4.2-1 in TS 36.211.A3-OffsetdB-6-6HysteresisdB0-6Filter coefficient0L3 filtering is not usedPRACH configuration4As specified in table 5.7.1-3 in TS 36.211Access Barring Information-Not SentNo additional delays in random access procedure.DRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cellsTime offset between cells3 msAsynchronous cellsT1s5-					
Channel Bandwidth (BW_channel)MHz10Active cellCell 1Cell 1 is on RF channel number 1Neighbour cellCell 2Cell 2 is on RF channel number 2Gap Pattern Id0As specified in 3GPP TS 36.133 section 8.1.2.1.Cell 1 Uplink-downlink configuration1As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2Cell 1 Special subframe configuration6As specified in table 4.2-1 in TS 36.211. The same configuration in both cellsA3-OffsetdB-6HysteresisdB0CP lengthNormalTime To Triggers0PRACH configuration4As specified in table 5.7.1-3 in TS 36.211Access Barring Information-Not SentDRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cellsT1s55	E-UTRA RF Channel		2	2	one FDD carrier frequencies is used.
(BW_channel)Cell 1Cell 1 is on RF channel number 1Active cellCell 2Cell 2 is on RF channel number 2Gap Pattern Id0As specified in 3GPP TS 36.133 section 8.1.2.1.Cell 1 Uplink-downlink configuration1As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2Cell 1 Special subframe configuration6As specified in table 4.2-1 in TS 36.211. The same configuration in both cellsA3-OffsetdB-6HysteresisdB0CP lengthNormalTime To Triggers0Filter coefficient0L3 filtering is not usedPRACH configuration-Not SentNot SentNo additional delays in random access procedure.DRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cells					
Active cellCell 1Cell 1 is on RF channel number 1Neighbour cellCell 2Cell 2 is on RF channel number 2Gap Pattern Id0As specified in 3GPP TS 36.133 section 8.1.2.1.Cell1 Uplink-downlink configuration1As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2Cell1 Special subframe 		MHz	1	0	
Neighbour cellCell 2Cell 2 is on RF channel number 2Gap Pattern Id0As specified in 3GPP TS 36.133 section 8.1.2.1.Cell1 Uplink-downlink1As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2Cell1 Special subframe6As specified in table 4.2-1 in TS 36.211. The same configuration in both cellsA3-OffsetdB-6HysteresisdB0CP lengthNormalTimeToTriggers0Filter coefficient0L3 filtering is not usedPRACH configuration-Not SentAccess Barring Information-Not SentDRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cellsT1s55					
Gap Pattern Id0As specified in 3GPP TS 36.133 section 8.1.2.1.Cell1 Uplink-downlink configuration1As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2Cell1 Special subframe configuration6As specified in table 4.2-1 in TS 36.211. The same configuration in both cellsA3-OffsetdB-6HysteresisdB0CP lengthNormalTimeToTriggers0Filter coefficient0L3 filtering is not usedPRACH configuration-Not SentNo additional delays in random access procedure.DRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cellsT1s5					
Cell 1 Uplink-downlink configuration18.1.2.1.Cell 1 Special subframe configuration1As specified in 3GPP TS 36.211 section 4.2 Table 4.2-2Cell 1 Special subframe configuration6As specified in table 4.2-1 in TS 36.211. The same configuration in both cellsA3-OffsetdB-6HysteresisdB0CP lengthNormalTimeToTriggers0Filter coefficient0L3 filtering is not usedPRACH configuration4As specified in table 5.7.1-3 in TS 36.211Access Barring Information-Not SentDRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cellsT1s5			Ce	2	
configuration4.2 Table 4.2-2Cell1 Special subframe configuration6As specified in table 4.2-1 in TS 36.211. The same configuration in both cellsA3-OffsetdB-6HysteresisdB0CP lengthNormalTimeToTriggers0Filter coefficient0L3 filtering is not usedPRACH configuration4As specified in table 5.7.1-3 in TS 36.211Access Barring Information-Not SentDRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cellsT1s55	Gap Pattern Id		()	8.1.2.1.
Cell1 Special subframe configuration6As specified in table 4.2-1 in TS 36.211. The same configuration in both cellsA3-OffsetdB-6HysteresisdB0CP lengthNormalTimeToTriggers0Filter coefficient0L3 filtering is not usedPRACH configuration4As specified in table 5.7.1-3 in TS 36.211Access Barring Information-Not SentDRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cellsT1s55	Cell1 Uplink-downlink				As specified in 3GPP TS 36.211 section
configurationThe same configuration in both cellsA3-OffsetdB-6HysteresisdB0CP lengthNormalTimeToTriggers0Filter coefficient0L3 filtering is not usedPRACH configuration4As specified in table 5.7.1-3 in TS 36.211Access Barring Information-Not SentDRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cellsT1s5					
A3-Offset dB -6 Hysteresis dB 0 CP length Normal TimeToTrigger s 0 Filter coefficient 0 L3 filtering is not used PRACH configuration 4 As specified in table 5.7.1-3 in TS 36.211 Access Barring Information - Not Sent No additional delays in random access procedure. DRX ON DRX related parameters are defined in Table A.8.14.2.1-3 DRX related parameters are defined in Table A.8.14.2.1-3 Time offset between cells 3 ms Asynchronous cells T1 s 5			6	6	
Hysteresis dB 0 CP length Normal TimeToTrigger s 0 Filter coefficient 0 L3 filtering is not used PRACH configuration 4 As specified in table 5.7.1-3 in TS 36.211 Access Barring Information - Not Sent No additional delays in random access procedure. DRX ON DRX related parameters are defined in Table A.8.14.2.1-3 Time offset between cells 3 ms Asynchronous cells T1 s 5	configuration				The same configuration in both cells
CP length Normal TimeToTrigger s 0 Filter coefficient 0 L3 filtering is not used PRACH configuration 4 As specified in table 5.7.1-3 in TS 36.211 Access Barring Information - Not Sent No additional delays in random access procedure. DRX ON DRX related parameters are defined in Table A.8.14.2.1-3 Time offset between cells 3 ms Asynchronous cells T1 s 5	A3-Offset	dB	-(6	
TimeToTriggers0Filter coefficient0L3 filtering is not usedPRACH configuration4As specified in table 5.7.1-3 in TS 36.211Access Barring Information-Not SentNo additional delays in random access procedure.DRXONDRX related parameters are defined in Table A.8.14.2.1-3Time offset between cells3 msAsynchronous cellsT1s5	Hysteresis	dB	()	
Filter coefficient 0 L3 filtering is not used PRACH configuration 4 As specified in table 5.7.1-3 in TS 36.211 Access Barring Information - Not Sent No additional delays in random access procedure. DRX ON DRX related parameters are defined in Table A.8.14.2.1-3 Time offset between cells 3 ms Asynchronous cells T1 s 5	CP length		Nor	mal	
PRACH configuration 4 As specified in table 5.7.1-3 in TS 36.211 Access Barring Information - Not Sent No additional delays in random access procedure. DRX ON DRX related parameters are defined in Table A.8.14.2.1-3 Time offset between cells 3 ms Asynchronous cells T1 s 5	TimeToTrigger	S	()	
Access Barring Information - Not Sent No additional delays in random access procedure. DRX ON DRX related parameters are defined in Table A.8.14.2.1-3 Time offset between cells 3 ms Asynchronous cells T1 s 5	Filter coefficient		()	L3 filtering is not used
DRX ON DRX related parameters are defined in Table A.8.14.2.1-3 Time offset between cells 3 ms Asynchronous cells T1 s 5	PRACH configuration		4		As specified in table 5.7.1-3 in TS 36.211
DRX ON DRX related parameters are defined in Table A.8.14.2.1-3 Time offset between cells 3 ms Asynchronous cells T1 s 5	Access Barring Information	-	Not Sent		-
T1 s 5	DRX		ON		DRX related parameters are defined in
T1 s 5	Time offset between cells	1	3 ms		Asynchronous cells
		S			
T2 S 5 30	T2	S	5	30	

Table A.8.14.2.1-2: Cell specific test parameters for E-UTRAN TDD-FDD inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells

Parameter	Unit	Ce	1	0	Cell 2		
		T1	T2	T1	T2		
E-UTRA RF Channel					2		
Number							
BW _{channel}	MHz	1	0		10		
OCNG Patterns							
defined in A.3.2.2.1		OP.1	TDD	OP	.2 FDD		
(OP.1 TDD) and in							
A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB	-					
PBCH_RB	dB	-					
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB		`		0		
PHICH_RB	dB	()		0		
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB	-					
PDSCH_RB	dB	-					
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$N_{_{oc}}$ Note 2	dBm/15 kHz			-98			
RSRP Note 3	dBm/15 kHz	-94	-94	-Infinity	-91		
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	-Infinity	7		
SCH_RP ^{Note 3}	dBm/15 kHz	-94	-94	-Infinity	-91		
\hat{E}_s/N_{oc}	dB	4	4	-Infinity	7		
Propagation Condition	ETU70						
	Il be used such that both cells are fully allocated and a constant total transmitted power						
	spectral density is achieved for all OFDM symbols.						
Note 2: Interference fr	ence from other cells and noise sources not specified in the test is assumed to be constant						
over subcarrie	over subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be						
fulfilled.	fulfilled.						
Note 3: RSRP and SC	H_RP levels have b	been derived from	m other parame	ters for informati	on purposes.		
	ettable parameters		-		-		

Table A.8.14.2.1-3: drx-Configuration to be used in E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Field	Test1	Test2	Comment
Field	Value	Value	
onDurationTimer	psf1	psf1	
drx-InactivityTimer	psf1	psf1	
drx-RetransmissionTimer	psf1	psf1	
longDRX-CycleStartOffset	sf40	sf1280	
shortDRX	disable	disable	

Table A.8.14.2.1-4: *TimeAlignmentTimer* and *sr-ConfigIndex* -Configuration to be used in E-UTRAN TDD-FDD inter-frequency event triggered reporting when DRX is used in fading propagation conditions

Field	Test1 Value	Test2 Value	Comment
TimeAlignmentTimer	sf500	sf500	For further information see section 6.3.2 in 3GPP TS 36.331.
sr-ConfigIndex	2	2	For further information see section 6.3.2 in 3GPP TS 36.331 and 10.1 in 3GPP TS 36.213.

A.8.14.2.2 Test Requirements

In Test1 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 3840 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE send the measurement report on PUSCH.

In Test2 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 20*1280ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event A3 measurement report

A.8.14.3 E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

A.8.14.3.1 Test Purpose and Environment

This test is to verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps in section 8.1.2.3.6.

The test scenario comprises of one E-UTRA FDD carriers and one cell on each carrier as given in tables A.8.14.3.1-1 and A.8.14.3.1-2. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would have ACK/NACK sending during identifying a new CGI of E-UTRAN cell. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-frequency monitoring.

A RRC message implying SI reading shall be sent to the UE during period T2, after the UE has reported Event A3. The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE. The start of T3 is the instant when the last TTI containing the RRC message implying SI reading is sent to the UE. Measurement gaps shall be deconfigured before the start of T3.

Table A.8.14.3.1-1: General test parameters for E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit	Value	Comment
Cell1PDSCH parameters		Channel R.0 TDD	As specified in section A.3.1.1.2
Cell1 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Cell2 PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
Cell2 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Cell1 E-UTRA RF channel number		1	One TDD carrier is used
Cell2 E-UTRA RF channel number		2	One FDD carrier is used
Channel Bandwidth (BW _{channel})	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1.
Neighbour cell		Cell 2	Cell 1 is on RF channel number 2.
CP length		Normal	
Cell1 special subframe configuration		6	As specified in table 4.2-1 in TS 36.211.
Cell1 Uplink-downlink configuration		1	As specified in table 4.2-2 in TS 36.211.
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331.
Time offset between cells	ms	3	Asynchronous cells
T1	S	5	
T2	S	≤10	
Т3	S	5	

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	T3	T1	T2	T3
E-UTRA RF Channel		1 2					
Number							
BW _{channel}	MHz		10			10	
OCNG Patterns defined in		OP.1	OP.1	OP.1	OP.2	OP.2	OP.2
A.3.2.2.1 (OP.1 TDD) and		TDD	TDD	TDD	FDD	FDD	FDD
in A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB		0			0	
PHICH_PB	dB						
PDCCH_RA	dB						
PDCCH_PB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	4	-Infinity	7	7
$N_{_{oc}}$ Note 2	dBm/15 KHz			-9	8		
\hat{E}_{s}/N_{oc}	dB	4	4	4	-Infinity	7	7
RSRP ^{Note 3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
SCH_RP ^{Note3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
Propagation Condition	AWGN						
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over							
	subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.						

Table A.8.14.3.1-2: Cell specific test parameters for E-UTRAN TDD - FDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

A.8.14.3.2 Test Requirements

not settable parameters themselves.

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3.

 $Test \ requirement \ = RRC \ Procedure \ delay + \ T_{identify_CGI, inter} + reporting \ delay$

= 15 + 150 + 2ms from the start of T3

= 167 ms, allow 170 ms.

The UE shall be scheduled continuously throughout the test, and from the start of T3 until 170 ms at least 42 ACK/NACK shall be detected as being transmitted by the UE.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The overall 42 ACK/NACK number is caused by two parts. Firstly, at least 30 ACK/NACK shall be sent during identifying the cell global identifier of cell 2 according to the requirement in Section 8.1.2.3.7.1. Secondly, given that continuous DL data allocation, and the measurement gaps have been deconfigured before the start of T3, additional 12 ACK/NACK shall be sent from the start of T3 until 170 ms excludes 150 ms for identifying the cell global identifier of cell 2.

A.8.15 E-UTRAN FDD-TDD Inter-frequency Measurements

A.8.15.1 E-UTRAN FDD-TDD Inter-frequency event triggered reporting under fading propagation conditions in asynchronous cells

A.8.15.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the FDD-TDD inter-frequency cell search requirements in section 8.1.2.3.4.

The test parameters are given in Table A.8.15.1.1-1 and A.8.15.1.1-2 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event A3 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.15.1.1-1: General test parameters for E-UTRAN FDD-TDD inter-frequency event triggered reporting in fading propagation conditions

Parameter	Unit	Value	Comment
Cell 1 PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
Cell 1 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Cell 2 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Gap Pattern Id		1	As specified in TS 36.133 section 8.1.2.1.
Cell2 Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211. Applicable to Cell 2.
Cell2 Uplink-downlink configuration		1	As specified in TS 36.211 section 4.2 Table 4.2-2. Applicable to Cell 2.
CP length		Normal	
Cell 1 E-UTRA FDD RF Channel Number		1	One TDD carrier frequency is used.
Cell 2 E-UTRA TDD RF Channel Number		2	One FDD carrier frequency is used.
Channel Bandwidth (BWchannel)	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1
Neighbour cell		Cell 2	Cell 2 is on RF channel number 2
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
Time offset between cells		3 ms	Asynchronous cells
T1	S	5	
T2	S	10	

Table A.8.15.1.1-2: Cell specific test parameters for E-UTRAN FDD-TDD inter-frequency event triggered reporting under fading propagation conditions in synchronous cells

Parameter	Unit	Ce	II 1	C	ell 2	
		T1	T2	T1	T2	
E-UTRA RF Channel			1		2	
Number						
BW _{channel}	MHz	1	0	,	10	
OCNG Pattern defined						
in A.3.2.1.1 (OP.1		OP.1	FDD	OP.2	2 TDD	
FDD) and in A.3.2.2.2						
(OP.2 TDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB		-		•	
PHICH_RB	dB		0		0	
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB]				
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	-Infinity	7	
$N_{oc}^{ m Note 3}$	dBm/15 kHz			-98		
RSRP Note 4	dBm/15 kHz	-94	-94	-Infinity	-91	
SCH_RP Note 4	dBm/15 kHz	-94	-94	-infinity	-91	
\hat{E}_s/N_{oc}	dB	4	4	-Infinity	7	
Propagation Condition			E	TU70		
 Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: The resources for uplink transmission are assigned to the UE priori to the start of time period T2. Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant 						
over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes.						
	H_RP levels have t ettable parameters		m other parame	ters for informatio	n purposes.	

A.8.15.1.2 Test Requirements

The UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 7680 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.15.2 E-UTRAN FDD-TDD Inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells

A.8.15.2.1 Test Purpose and Environment

The purpose of these tests is to verify that the UE makes correct reporting of an event in DRX. These tests will partly verify the FDD-TDD inter-frequency cell search requirements when DRX is used in section 8.1.2.3.4.

The common test parameters are given in Tables A.8.15.2.1-1 and A.8.15.2.1-2. DRX configuration for Test1 and Test2 are given in Table A.8.15.2.1-3 and time alignment timer and scheduling request related parameters in Table A.8.15.2.1-4. In these tests, there are two cells on different carrier frequencies and gap pattern configuration # 0 as defined in Table 8.1.2.1-1 is provided.

In Test 1 UE needs to be provided at least once every 500ms with new Timing Advance Command MAC control element to restart the Time alignment timer to keep UE uplink time alignment. Furthermore UE is allocated with PUSCH resource at every DRX cycle. In Test 2 the uplink time alignment is not maintained and UE needs to use RACH to obtain UL allocation for measurement reporting.

In the measurement control information, it is indicated to the UE that event-triggered reporting with Event A3 is used. The tests consist of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.15.2.1-1: General test parameters for E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells

Parameter	Unit	Test 1	Test 2	Comment
		Va	lue	
Cell 1 PDSCH parameters		DL Reference	Measurement	As specified in section A.3.1.1.1 Note that
		Channel R.0 FDD		UE may only be allocated at On Duration
Cell 1		DL Reference Measurement		As specified in section A.3.1.2.1.
PCFICH/PDCCH/PHICH		Channel R.6 FDD		
parameters				
Cell 2 PDSCH parameters			Measurement	As specified in section A.3.1.1.2 Note that
			R.0 TDD	UE may only be allocated at On Duration
Cell 2			Measurement	As specified in section A.3.1.2.2.
PCFICH/PDCCH/PHICH		Channel	R.6 TDD	
parameters				
Cell 1 E-UTRA FDD RF			1	One FDD carrier frequency is used.
Channel Number				
Cell 2 E-UTRA TDD RF		2	2	One TDD carrier frequency is used.
Channel Number				
Channel Bandwidth	MHz	1	0	
(BW _{channel})				
Active cell			ll 1	Cell 1 is on RF channel number 1
Neighbour cell			11 2	Cell 2 is on RF channel number 2
Gap Pattern Id)	As specified in 3GPP TS 36.133 section 8.1.2.1.
A3-Offset	dB	-	6	
Hysteresis	dB		0	
CP length		Nor	mal	
TimeToTrigger	S	()	
Filter coefficient)	L3 filtering is not used
E-UTRA FDD PRACH		4	4	As specified in table 5.7.1-2 in TS 36.211
configuration				
Cell 2 Special subframe			6	As specified in table 4.2-1 in TS 36.211
configuration				
Cell 2 Uplink-downlink		1		As specified in table 4.2-2 in TS 36.211
configuration				
E-UTRA TDD Access	-	Not Sent		No additional delays in random access
Barring Information				procedure.
DRX		ON		DRX related parameters are defined in
				Table A.8.15.2.1-3
Time offset between cells	ms		3	Asynchronous cells
T1	S		5	
T2	S	5	30	

Parameter	Unit	Ce	ll 1	(C	Cell 2	
		T1	T2	T1	T2	
E-UTRA RF Channel		1			2	
Number						
BW _{channel}	MHz	1	0		10	
OCNG Patterns						
defined in A.3.2.1.1		OP.1	FDD	OP	.2 TDD	
(OP.1 FDD) and in						
A.3.2.2.2 (OP.2 TDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB		`		0	
PHICH_RB	dB	()		0	
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$N_{_{oc}}^{_{ m Note 2}}$	dBm/15 kHz			-98		
RSRP Note 3	dBm/15 kHz	-94	-94	-Infinity	-91	
\hat{E}_{s}/I_{ot}	dB	4	4	-Infinity	7	
SCH_RP Note 3	dBm/15 kHz	-94	-94	-Infinity	-91	
\hat{E}_{s}/N_{oc}	dB	4	4	-Infinity	7	
Propagation Condition	ETU70					
Note 1: OCNG shall b	e used such that bo	th cells are fully	allocated and a	constant total tra	ansmitted power	
	ty is achieved for all					
Note 2: Interference fr	rom other cells and i	noise sources no	ot specified in th	e test is assume	d to be constant	
over subcarrie	ers and time and sha	all be modelled a	s AWGN of app	propriate power f	or $N_{\scriptscriptstyle oc}$ to be	
fulfilled.						
	CH_RP levels have b		m other parame	ters for informati	on purposes.	
They are not settable parameters themselves.						

Table A.8.15.2.1-2: Cell specific test parameters for E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells

Table A.8.15.2.1-3: drx-Configuration to be used in E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells

Field	Test1 Value	Test2 Value	Comment			
onDurationTimer	psf1	psf1				
drx-InactivityTimer	psf1	psf1				
drx-RetransmissionTimer	psf1	psf1				
longDRX-CycleStartOffset	sf40	sf1280				
shortDRX	disable	disable				
Note: For further information see section 6.3.2 in 3GPP TS 36.331.						

Table A.8.15.2.1-4: *TimeAlignmentTimer* and *sr-ConfigIndex* -Configuration to be used in E-UTRAN FDD-TDD inter-frequency event triggered reporting when DRX is used under fading propagation conditions in asynchronous cells

Field	Test1	Test2	Comment
Field	Value	Value	
TimeAlignmentTimer	sf500	sf500	For further information see section 6.3.2 in 3GPP TS 36.331.
sr-ConfigIndex	0	0	For further information see section 6.3.2 in 3GPP TS 36.331 and section10.1 in 3GPP TS 36.213.

A.8.15.2.2 Test Requirements

In Test1 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 3840 ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE send the measurement report on PUSCH.

In Test2 the UE shall send one Event A3 triggered measurement report, with a measurement reporting delay less than 20*1280ms from the beginning of time period T2. The measurement reporting delay is defined as the time from the beginning of time period T2, to the moment when the UE starts to send preambles on the PRACH for scheduling request (SR) to obtain allocation to send the measurement report on PUSCH.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

- NOTE 1: The actual overall delays measured in the test may be up to one DRX cycle higher than the measurement reporting delays above because UE is allowed to delay the initiation of the measurement reporting procedure to the next until the Active Time.
- NOTE 2: In order to calculate the rate of correct events the system simulator shall verify that it has received correct Event A3 measurement report

A.8.15.3 E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

A.8.15.3.1 Test Purpose and Environment

This test is to verify the requirement for identification of a new CGI of E-UTRA cell with autonomous gaps in section 8.1.2.3.8.

The test scenario comprises of one E-UTRA FDD carrier and one E-UTRA TDD carrier and one cell on each carrier as given in tables A.8.15.3-1 and A.8.15.3-2. PDCCHs indicating new transmissions should be sent continuously to ensure that the UE would have ACK/NACK sending during identifying a new CGI of E-UTRAN cell. The test consists of three successive time periods, with time durations of T1, T2 and T3 respectively. At the start of time duration T1, the UE does not have any timing information of cell 2. Starting T2, cell 2 becomes detectable and the UE is expected to detect and send a measurement report. Gap pattern configuration with id #0 as specified in Table 8.1.2.1-1 is configured before T2 begins to enable inter-frequency monitoring.

A RRC message implying SI reading shall be sent to the UE during period T2, after the UE has reported Event A3. The RRC message shall create a measurement report configuration with purpose *reportCGI* and *si-RequestForHO* set to TRUE. The start of T3 is the instant when the last TTI containing the RRC message implying SI reading is sent to the UE. Measurement gaps shall be deconfigured before the start of T3.

Table A.8.15.3-1: General test parameters for E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

Parameter	Unit	Value	Comment
Cell1 PDSCH parameters		DL Reference Measurement Channel R.3 FDD	As specified in section A.3.1.1.1
Cell1 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
Cell2 PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
E-UTRA RF channel number		1, 2	One FDD and one TDD carrier frequency are used.
Channel Bandwidth (BW _{channel})	MHz	10	
Active cell		Cell 1	Cell 1 is on RF channel number 1.
Neighbour cell		Cell 2	Cell 1 is on RF channel number 2.
CP length		Normal	
Cell 2 Special subframe configuration		6	As specified in table 4.2-1 in TS 36.211.
Cell 2 Uplink-downlink configuration		1	As specified in table 4.2-2 in TS 36.211.
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section 8.1.2.1.
A3-Offset	dB	-6	
Hysteresis	dB	0	
TimeToTrigger	s	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
si-RequestForHO		TRUE	As specified in section 5.5.3.1 in TS 36.331.
Time offset between cells	ms	3	Asynchronous cells
T1	S	5	
T2	s	≤10	
ТЗ	s	5	

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	Т3	T1	T2	Т3
E-UTRA RF Channel			1			2	
Number							
BW _{channel}	MHz		10			10	
OCNG Patterns defined in		OP.10	OP.10	OP.10	OP.2	OP.2	OP.2
A.3.2.1.10 (OP.10 FDD)		FDD	FDD	FDD	TDD	TDD	TDD
and in A.3.2.2.1 (OP.2							
TDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB		0			0	
PHICH_RA	dB		0			0	
PHICH_PB	dB						
PDCCH_RA	dB						
PDCCH_PB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RANote 1	dB						
OCNG_RB ^{Note 1}	dB		r	1		r	[
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4	4	-Infinity	7	7
N_{oc} Note 2	dBm/15 KHz			-9	8		
\hat{E}_s/N_{oc}	dB	4	4	4	-Infinity	7	7
RSRP Note 3	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
SCH_RP ^{Note3}	dBm/15 KHz	-94	-94	-94	-Infinity	-91	-91
Propagation Condition			•	AW	GN	•	
Note 1: OCNG shall be us	ed such that both	cells are fully	y allocated a	nd a constar	nt total trans	mitted powe	r spectral
	d for all OFDM syr					-	-
Note 2: Interference from	other cells and noi	se sources r	not specified	in the test is	assumed to	be constan	t over
subcarriers and time and shall be modelled as AWGN of appropriate power for $N_{_{oc}}$ to be fulfilled.							
	RP levels have been neters themselves		om other par	ameters for	information	purposes. T	ney are

Table A.8.15.3-2: Cell specific test parameters for E-UTRAN FDD - TDD Inter-frequency identification of a new CGI of E-UTRA cell using autonomous gaps

A.8.15.3.2 Test Requirements

The UE shall transmit a measurement report containing the cell global identifier of cell 2 within 170 milliseconds from the start of T3.

Test requirement = RRC Procedure delay + $T_{identify_CGI, inter}$ + reporting delay

= 15 + 150 + 2ms from the start of T3

= 167 ms, allow 170 ms.

The UE shall be scheduled continuously throughout the test, and from the start of T3 until 170 ms at least 60 ACK/NACK shall be detected as being transmitted by the UE.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The overall 80 ACK/NACK number is caused by two parts. Firstly, at least 60 ACK/NACK shall be sent during identifying the cell global identifier of cell 2 according to the requirement in Section 8.1.2.3.5.1. Secondly, given that continuous DL data allocation, and the measurement gaps have been deconfigured before the start of T3, additional 20 ACK/NACK shall be sent from the start of T3 until 170 ms excludes 150 ms for identifying the cell global identifier of cell 2.

A.8.16 Void

A.8.17 E-UTRAN TDD – HRPD Measurements

A. 8.17.1 E-UTRAN TDD-HRPD event triggered reporting under fading propagation conditions

A.8.17.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the E-UTRAN TDD- HRPD cell search requirements in section 8.1.2.4.12.

The test parameters are given in Tables A.8.17.1.1-1, A.8.17.1.1-2 and A.8.17.1.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Table A.8.17.1.1-1: General test parameters for E-UTRAN TDD to HRPD event triggered reporting under fading propagation conditions

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
Active cell		Cell 1	E-UTRAN TDD cell
Neighbouring cell		Cell 2	HRPD cell
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
E-UTRAN TDD measurement quantity		RSRP	
Inter-RAT (HRPD) measurement quantity		CDMA2000 HRPD Pilot Strength	
b1-ThresholdCDMA2000	dB	-7	Absolute 'CDMA2000 HRPD Pilot Strength' threshold for event B1
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	Non-DRX test
Access Barring Information	-	Not sent	No additional delays in random access procedure
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
HRPD RF Channel Number		1	One HRPD carrier frequency is used.
HRPD neighbour cell list size		8	HRPD cells on HRPD RF channel 1 provided in the cell list before T2.
cdma2000-SearchWindowSize		8 (60 PN chips)	Search window size as defined in section 6.3.5 in 3GPP TS 36.331
T1	S	5	
T2	S	3	

Parameter	Unit	Cell 1 (E	E-UTRA)			
		T1	T2			
E-UTRA RF Channel			1			
number						
BW _{channel}	MHz		0			
OCNG Patterns defined in		OP.1	TDD			
TS36.133 A.3.2.2.1 (OP.1						
TDD)						
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	(0			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
N_{oc} Note 2	dBm/15	-9	98			
	kHz					
RSRP Note 3	dBm/15	-98	-98			
	KHz					
\hat{E}_s/N_{oc}	dB	0	0			
\hat{E}_s/I_{ot}	dB	0	0			
Propagation Condition			U70			
		both cells are fully a				
	smitted powe	r spectral density is	s achieved for all			
OFDM symbols.						
	Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall					
be modelled as A	WGN of appro	opriate power for Λ	V_{oc} to be fulfilled.			
		d from other parame				

Table A.8.17.1.1-2: Cell specific test parameters for E-UTRAN TDD cell#1 for event triggered reporting under fading propagation conditions

Parameter	Unit	Cell 2 (HRPD)		
		T1	T2	
$\frac{\text{Control } E_{b}}{N_{t}}$ (38.4 kbps)	dB	21		
$\frac{\text{Control} \text{E}_{b}}{\text{N}_{t}} $ (76.8 kbps)	dB	18		
\hat{I}_{or}/I_{oc}	dB	-infinity	0	
I _{oc}	dBm/1.2288 MHz	-55		
CDMA2000 HRPD Pilot Strength	dB	-infinity	-3	
Propagation Condition		ET	U70	

Table A.8.17.1.1-3: Cell specific test parameters for HRPD (cell # 2) for event triggered reporting under fading propagation conditions

A.8.17.1.2 Test Requirements

The UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 2134 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to $2xTTI_{DCCH}$ higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.18 E-UTRAN TDD – CDMA2000 1X Measurements

A.8.18.1 E-UTRAN TDD – CDMA2000 1X event triggered reporting under fading propagation conditions

A.8.18.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UE makes correct reporting of an event. This test will partly verify the E-UTRAN TDD- CDMA2000 1X cell search requirements in section 8.1.2.4.10.

The test parameters are given in Tables A.8.18.1.1-1, A.8.18.1.1-2 and A.8.18.1.1-3 below. In the measurement control information it is indicated to the UE that event-triggered reporting with Event B1 is used. The test consists of two successive time periods, with time duration of T1, and T2 respectively. During time duration T1, the UE shall not have any timing information of cell 2.

Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Active cell		Cell 1	Cell 1 is on E-UTRA RF channel number 1.
Neighbour cell		Cell 2	Cell 2 is on CDMA2000 1X RF channel number 1.
Special subframe configuration		6	As specified in table 4.2-1 in 3GPP TS 36.211. Applicable to cell 1.
Uplink-downlink configuration		1	As specified in table 4.2-2 in 3GPP TS 36.211. Applicable to cell 1.
CP length		Normal	Applicable to cell 1.
E-UTRA RF Channel Number		1	One E-UTRA TDD carrier frequency is used.
E-UTRA Channel Bandwidth (BW _{channel})	MHz	10	
CDMA2000 1X Channel Number		1	One CDMA2000 1X carrier frequency is used.
Inter-RAT (CDMA2000 1X) measurement quantity		CDMA2000 1xRTT Pilot Strength	
B1-Threshold-CDMA2000	dB	-14	Absolute 'CDMA2000 1xRTT Pilot Strength' threshold for event B1
Hysteresis	dB	0	
Time To Trigger	ms	0	
Filter coefficient		0	L3 filtering is not used.
DRX		OFF	
cdma2000 1X neighbour cell list size		8	cdma2000 1X cells on cdma2000 1X RF channel 1 provided in the cell list before T2.
cdma2000-SearchWindowSize		8 (60 PN chips)	Search window size as defined in section 6.3.5 in 3GPP TS 36.331
T1	S	5	
T2	S	3	

Table A.8.18.1.1-1: General test parameters for E-UTRAN TDD-CDMA2000 1X event triggered reporting in fading propagation conditions

Table A.8.18.1.1-2: Cell specific test parameters for E-UTRAN TDD (cell # 1) for event triggered reporting of CDMA2000 1X cell under fading propagation conditions

Parameter	Unit	Cell	1		
		T1	T2		
E-UTRA RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Pattern defined in					
A.3.2.2.1 (OP.1 TDD)		OP.1	TDD		
PBCH_RA	dB				
PBCH_RB	dB				
PSS_RA	dB				
SSS_RA	dB				
PCFICH_RB	dB				
PHICH_RA	dB				
PHICH_RB	dB	0			
PDCCH_RA	dB				
PDCCH_RB	dB				
PDSCH_RA	dB				
PDSCH_RB	dB				
OCNG_RA ^{Note 1}	dB				
OCNG_RB ^{Note 1}	dB				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4	4		
\hat{E}_s/N_{oc}	dB	4	4		
N _{oc}	dBm/15 kHz	-98	3		
RSRP	dBm/15 kHz	-94	-94		
SCH_RP	dBm/15 kHz	-94	-94		
Propagation Condition		ETU			
		ells are fully allocated and a cons	stant total transmitted power		
spectral density is ac	hieved for all OF	DM symbols.			
Note 2: The resources for upl	ink transmission	are assigned to the UE prior to t	the start of time period T2.		

Table A.8.18.1.1-3: Cell specific test parameters for CDMA2000 1X (cell # 2) for event triggered reporting of CDMA2000 1X cell under fading propagation conditions

Parameter	Unit	Cell 2 (cdma2000 1X)		
		T1	T2	
$\frac{\text{Pilot } E_{c}}{I_{\text{or}}}$	dB		-7	
$\frac{\text{Sync } E_{c}}{I_{\text{or}}}$	dB	-16		
$\frac{\text{Paging } E_{c}}{I_{or}} $ (4.8 kbps)	dB	-12		
\hat{I}_{or}/I_{oc}	dB	-infinity	0	
I _{oc}	dBm/1.2288 MHz	-	55	
CDMA2000 1xRTT Pilot Strength	dB	-infinity	-10	
Propagation Condition		ET	⁻ U70	

A.8.18.1.2 Test Requirements

The UE shall send one Event B1 triggered measurement report, with a measurement reporting delay less than 2134 ms from the beginning of time period T2.

The UE shall not send event triggered measurement reports, as long as the reporting criteria are not fulfilled.

The rate of correct events observed during repeated tests shall be at least 90%.

NOTE: The actual overall delays measured in the test may be up to 2xTTIDCCH higher than the measurement reporting delays above because of TTI insertion uncertainty of the measurement report in DCCH.

A.8.19 CSG Proximity Indication Testing Case for E-UTRAN FDD – FDD Inter frequency

Note : The test case in this section forms the basis for a signalling test for CSG proximity detection.

A.8.19.1 Test Purpose and Environment

The purpose of this test is to verify the UE has implemented properly the feature for indicating that the UE is entering or leaving the proximity of one or more CSG member cells based on proximity detection with an autonomous search function, as defined by the requirements in Section 6.4.

The test case consists of three successive segments: Test Preparation, Negative Test, and Positive Test. The test scenario comprises of three E-UTRAN FDD cells on different carriers. Cell 1 represents the serving cell in the proximity of the CSG cell, Cell 2 the CSG cell, and Cell 3 the serving cell not in the proximity of the CSG cell. The description of the test procedure is shown in Table A.8.19-1. The general test parameters and cell specific test parameters are presented in Table A.8.19-2 and Table A.8.19-3 respectively.

Parameter	Cell Status	Comment
	·	Test Preparation
Initial Condition	Cell 1 is active	Clean up the UE memory to be free from previously stored cell information for proximity detection. Turn on the UE and allow sufficient time for the UE to select to Cell 1
Time duration T1	Cell 1 and Cell 2 are active	Turn on Cell 2 at the start of T1. Perform manual CSG selection towards Cell 2. The UE is expected to store necessary information for later proximity.detection
End condition		Turn off the UE. Turn off Cell 1 and Cell 2.
		Negative Test
Initial Condition	Cell 3 is active	Turn on Cell 3. Turn on the UE and set up the UE in connected mode with Cell 3.
Time duration T2	Cell 3 is active	Configure the UE with proximity indication control by sending the Reconfiguration message with ReportProximityConfig at the start of T2. The UE is not expected to report "entering" proximity in the negative test.
End condition		Turn off the UE. Turn off Cell 3.
		Positive Test
Initial Condition	Cell 1 is active	Turn on Cell 1. Turn on the UE and set up the UE in connected mode with Cell 1.
Time duration T3	Cell 1 and Cell 2 are active	Turn on Cell 2 at the start of T3. Configure the UE with proximity indication control by sending the Reconfiguration message with reportProximityConfig at the start of T3. The UE is expected to report "entering" proximity before end of T3.
End condition		Turn off the UE. Turn off Cell 1 and Cell 2.

Table A.8.19-1: Description of the test procedures

estimation.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PDSCH allocation	n _{PRB}	2—3	13—36
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
A3-Offset	dB	-4	
Hysteresis	dB	0	
TimeToTrigger	S	0	
Filter coefficient		0	L3 filtering is not used
DRX		off	As specified in section A.3.3
PRACH configuration		4	As specified in table 5.7.1-2 in 3GPP TS 36.211
Access Barring Information	-	Not sent	No additional delays in random access procedure
Time offset between cells		3 ms	Asynchronous cells
Gap pattern configuration Id		0	As specified in Table 8.1.2.1-1 started before T1 starts
Time duration T1	S	[10]	Defined to give enough time for the UE to complete the manual selection to Cell 2
Time duration T2	S	[360]	Defined to be longer enough to see whether the UE will report enter "proximity" indication.
Time duration T3 ^{Note 1}	S	[<=360]	The time duration for a UE to report enters "proximity" when the UE is near a CSG cell.
	_		
To reduce test time, T3 may e Note 2: The test case assumes an en 3GPP signals, such as GPS a	end once vironment and WiFi.	UE reports entering "proximity" t where CSG proximity detection When the test case is being explored and the test case is being explored a	on results not being impact by non- kecuted, the UE may ignore any
radio signals which are not pr	ovided by	the test setup which it would o	otherwise use in proximity

Table A.8.19-2: General test parameters for E-UTRAN FDD-FDD inter frequency cell proximity detection test case

ETSI

Parameter	Unit		Cell 1			Cell 2	
		T1	T2	Т3	T1	T2	T3
E-UARFCN	1		Channel 1		Channel 2		
CSG indicator			False		True	N/A	True
Physical cell global		1	1	1	2	N/A	2
identity							
CSG identity			Not sent	•	Sent	N/A	Sent
BW _{channel}	MHz	10			10		
OCNG Patterns		OP.1 FDD	N/A	OP.2 FDD	OP.2	N/A	OP.2
defined in A.3.2.1.1					FDD		FDD
(OP.1 FDD) and in							
A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB		0		0		
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
\hat{E}_s/I_{ot}	dB	0	-inf	4	7	-inf	7
$N_{_{oc}}$ Note 2	dBm/15 kHz		-98			-98	
\hat{E}_{s}/N_{oc}	dB	0	-inf	4	7	-inf	7
RSRP Note 3	dBm/15 KHz	-98	-inf	-94	-91	-inf	-91
Propagation Condition			AWGN			AWGN	
Note 1: OCNG shall b density is ach	be used such that l nieved for all OFDN rom other cells an	/I symbols.	ully allocated			mitted power	-
subcarriers ar	nd time and shall b	e modelled as	AWGN of an	propriate pow	ver for $N_{\rm co}$ t	o be fulfilled.	
	have been derived				00		abla

Table A.8.19-3: Cell specific test parameters for E-UTRAN FDD-FDD inter frequency cell proximity detection test case

Note 3: RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Parameter	Unit	Cell 3					
		T1	T2	Т3			
E-UARFCN		Channel 1					
CSG indicator		False					
Physical cell global		3					
identity							
CSG identity			Not sent				
BW _{channel}	MHz		10				
OCNG Patterns			N/A				
defined in A.3.2.1.1							
(OP.1 FDD) and in							
A.3.2.1.2 (OP.2 FDD)							
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB		0				
PHICH_RB	dB		0				
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
\hat{E}_s/I_{ot}	dB		-inf				
$N_{oc}^{ m Note 2}$	dBm/15 kHz		-98				
\hat{E}_s/N_{oc}	dB		-inf				
RSRP Note 3	dBm/15 KHz		-inf				
Propagation Condition		AWGN					
	e used such that b	oth cells are fu	Illy allocated and	l a constant			
total transmitte Note 2: Interference fr	ed power spectral om other cells and e constant over su	density is achied noise sources	eved for all OFD	M symbols. the test is			
AWGN of app	ropriate power for	for N_{ac} to be fulfilled.					
Note 3: RSRP levels I	RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves						

Table A.8.19-4: Cell specific test parameters for E-UTRAN FDD-FDD inter frequency cell proximity detection test case (Cell 3)

A.8.19.2 Test Requirements

The UE shall not send an "entering" proximity indication in T2 during Negative Test.

The UE shall send an "entering" proximity indication in T3during Positive Test.

A.9 Measurement Performance Requirements

Unless explicitly stated otherwise:

- Reported measurements shall be within defined range of accuracy limits defined in Section 9 for 90 % of the reported cases.
- Cell 1 is the serving cell.
- Measurements are performed in RRC_CONNECTED state.

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- The reference channels assume transmission of PDSCH with a maximum number of 5 HARQ transmissions unless otherwise specified.

A.9.1 RSRP

A.9.1.1 FDD Intra frequency case

A.9.1.1.1 Test Purpose and Environment

The purpose of this test is to verify that the RSRP measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.1.2 for FDD intra frequency measurements.

A.9.1.1.2 Test parameters

In this set of test cases all cells are on the same carrier frequency. Both absolute and relative accuracy of RSRP intra frequency measurements are tested by using the parameters in Table A.9.1.1.2-1. In all test cases, Cell 1 is the serving cell and Cell 2 the target cell.

Pa	rameter	Unit	Tes			st 2		st 3	
E-UTRA RF Channel Number		Onic	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2	
	iannei Number	MHz		<u> </u>		<u>1</u>		1 0	
BW _{channel}			10			10		10	
Measurement bandwidth		n _{PRB}	22—27		22—27		22—27		
	nce measurement		R.0 FDD	-	R.0 FDD	-	R.0 FDD	-	
channel defined in A.3.1.1.1 PDSCH allocation		12			13—36		13—36		
	-	n _{PRB}	13—36	-	13—30	-	13—30	-	
PDCCH/PCFICH/PHICH Reference measurement channel defined in			R.6 FDD		R.6 FDD		R.6 FDD		
A.3.1.2.1			10.0		14.0		14.0		
	s defined in A.3.2.1.1		OP.1	OP.2	OP.1	OP.2	OP.1	OP.2	
(OP.1 FDD) and A.3.2.1.2 (OP.2			FDD	FDD	FDD	FDD	FDD	FDD	
FDD) PBCH_RA									
PBCH RB								l	
PSS_RA]			0	0	0	0	
SSS_RA		{							
PCFICH_RB PHICH_RA		-							
PHICH RB		dB	0	0					
PDCCH_RA		, ad	Ŭ	U					
PDCCH_RB]		l					
PDSCH_RA								l	
PDSCH_RB OCNG_RA ^{Note1}								l	
OCNG_RA		-							
	Bands 1, 4, 6, 10,	dBm/15 kHz	-106	-106	-88	-88	116		
$N_{\scriptscriptstyle oc}$ Note2	11, 18, 19 and 21						-116		
	Bands 2, 5 and 7						-114		
	Bands 3, 8, 12, 13, 14, 17 and 20						-113		
	Band 9						-115		
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$		dB	2.5	-6	2.5	-6	0.46	-5.76	
RSRP ^{Note3}	Bands 1, 4, 6, 10,	dBm/15 kHz	-100	-105	-82	-87			
	11, 18, 19 and 21						-113	-117	
	Bands 2, 5 and 7						-111	-115	
	Bands 3, 8, 12, 13,						-110	-114	
	14, 17 and 20 Band 9						-112	-116	
lo ^{Note3}	Bands 1, 4, 6, 10,	dBm/9 MHz	-70.27	-70.27	-52.27	-52.27			
	11, 18, 19 and 21						-82.43		
	Bands 2, 5 and 7						-80.43		
	Bands 3, 8, 12, 13, 14, 17 and 20						-79.43		
	Band 9						-81.43		
\hat{E}_s/N_{oc}		dB	6	1	6	1	3	-1	
Propagation condition		-	AW			'GN	AWGN		
	IG shall be used such t	that both cells ar							
Note 1: OCN	tral density is achieved	d for all OFDM s	ymbols.						
spec			roop not on	ocified in t	ha tast is a	secumed to	he consta	nt over	
spec	ference from other cell	s and noise sou	rces not sp						
spec Note 2: Inter			-						
spec Note 2: Inter subc Note 3: RSR	ference from other cell	hall be modelled een derived fron	as AWGN	of approp	riate powe	r for N_{oc}	to be fulfille	ed.	

 settable parameters themselves.

 Note 4:
 RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

A.9.1.1.3 Test Requirements

The RSRP measurement accuracy shall fulfil the requirements in section 9.1.2.

A.9.1.2 TDD Intra frequency case

A.9.1.2.1 Test Purpose and Environment

The purpose of this test is to verify that the RSRP measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.1.2 for TDD intra frequency measurements.

A.9.1.2.2 Test parameters

In this set of test cases all cells are on the same carrier frequency. Both absolute and relative accuracy of RSRP intra frequency measurements are tested by using the parameters in Table A.9.1.2.2-1. In all test cases, Cell 1 is the serving cell and Cell 2 the target cell.

Unit MHz n _{PRB}	R.0 TDD 13—36	Cell 2 1 0 -27 -27 - TDD OP.2 TDD	e 1	0 5 1 -27 - -	1 22- R.0 TDD 13-36	Cell 2 1 0 5 1 -27 -27 - TDD OP.2 OP.2
n _{PRB}	1 22- R.0 TDD 13-36 R.6	0 6 1 27 - - TDD OP.2	1 22- R.0 TDD 13-36 R.6	0 5 -27 - - TDD OP.2	1 22- R.0 TDD 1336 R.6 OP.1	0 6 1 27 - - TDD OP.2
n _{PRB}	R.0 TDD 13-36 R.6 OP.1	6 1 27 - - TDD OP.2	22- R.0 TDD 13-36 R.6	-27 -27 - TDD OP.2	22- R.0 TDD 1336 R.6 OP.1	6 1 27 - TDD OP.2
	22- R.0 TDD 13-36 R.6	1 27 - TDD OP.2	22- R.0 TDD 13-36 R.6	I -27 - - TDD OP.2	22- R.0 TDD 13-36 R.6 OP.1	1 27 - TDD OP.2
	22- R.0 TDD 13-36 R.6	-27 - - TDD OP.2	22- R.0 TDD 13-36 R.6	-27 - - TDD OP.2	22- R.0 TDD 13-36 R.6 OP.1	-27 -27 - - TDD OP.2
	R.0 TDD 13—36 R.6 ⁻¹ OP.1	- - TDD OP.2	R.0 TDD 13—36 R.6	- - TDD OP.2	R.0 TDD 13—36 R.6 OP.1	- TDD OP.2
n _{PRB}	TDD 13—36 R.6 ⁻¹ OP.1	TDD OP.2	TDD 13—36 R.6 ⁻¹ OP.1	OP.2	TDD 13—36 R.6 OP.1	OP.2
n _{PRB}	R.6 ⁻	TDD OP.2	R.6 ⁻ OP.1	OP.2	R.6 OP.1	OP.2
	OP.1	OP.2	OP.1	OP.2	OP.1	OP.2
					1	TDD
dB	0	0	0	0	0	0
dBm/15 kHz	-106	-106	-88	-88	-1	16
dB	2.5	-6	2.5	-6	0.5	-5.76
dBm/15 kHz	-100	-105	-82	-87	-113	-117
dBm/9 MHz	-70.27	-70.27	-52.27	-52.27	-82	2.43
dB	6	1	6	1	3	-1
-	AW	'GN	AW	GN	AW	/GN
	dBm/15 kHz dBm/9 MHz dB	dBm/15 kHz -100 dBm/9 MHz -70.27 dB 6 - AW	dBm/15 kHz -100 -105 dBm/9 MHz -70.27 -70.27 dB 6 1 - AWGN ownlink configurations see Tables 4.2-1 ar	dBm/15 kHz -100 -105 -82 dBm/9 MHz -70.27 -70.27 -52.27 dB 6 1 6 - AWGN AW ownlink configurations see Tables 4.2-1 and 4.2-2 in 3 -22 in 3	dBm/15 kHz -100 -105 -82 -87 dBm/9 MHz -70.27 -70.27 -52.27 -52.27 dB 6 1 6 1 - AWGN AWGN AWGN ownlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36	dBm/15 kHz -100 -105 -82 -87 -113 dBm/9 MHz -70.27 -70.27 -52.27 -52.27 -82 dB 6 1 6 1 3

Table A.9.1.2.2-1: RSRP TDD Intra frequency test parameters

time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. Note 4: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters

themselves.

Note 5: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

A.9.1.2.3 Test Requirements

The RSRP measurement accuracy shall fulfil the requirements in section 9.1.2.

A.9.1.3 FDD—FDD Inter frequency case

A.9.1.3.1 Test Purpose and Environment

The purpose of this test is to verify that the RSRP measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.1.3 for FDD—FDD inter frequency measurements.

A.9.1.3.2 Test parameters

In this set of test cases the cells are on different carrier frequencies. Both absolute and relative accuracy of RSRP intra frequency measurements are tested by using the parameters in Table A.9.1.3.2-1 In all test cases, Cell 1 is the serving cell and Cell 2 the target cell. The inter frequency measurements are supported by a measurement gap.

			Te	st 1	Test 2		
Pa	rameter	Unit	Cell 1 Cell 2		Cell 1	Cell 2	
E-UTRA RF Cha	nnel Number		1	2	1	2	
BW _{channel}		MHz	10	10	10	10	
Gap Pattern Id		=	0	-	0	-	
Measurement ba	undwidth	n	- 22-	-27	- 22_	-27	
		n _{PRB}		21		21	
channel defined	ce measurement in A.3.1.1.1		R.0 FDD	-	R.0 FDD	-	
PDSCH allocation	n	n_{PRB}	13—36	-	13—36	-	
PDCCH/PCFICH measurement ch A.3.1.2.1	I/PHICH Reference annel defined in		R.6	FDD	R.6	FDD	
	defined in A.3.2.1.1		OP.1	OP.2	OP.1	OP.2	
	A.3.2.1.2 (OP.2 FDD)		FDD	FDD	FDD	FDD	
PBCH_RA							
PBCH_RB							
PSS_RA SSS_RA							
PCFICH_RB PHICH_RA							
PHICH RB		dB	0	0	0	0	
PDCCH_RA				0	, , , , , , , , , , , , , , , , , , ,		
PDCCH_RB							
PDSCH_RA							
PDSCH_RB							
OCNG_RANote1							
OCNG_RBNote	-						
	Bands 1, 4, 6, 10, 11, 18, 19 and 21				(N _{oc}	-117	
$N_{_{oc}}$ Note2	Bands 2, 5 and 7		-88.65	-88.65	for Channel	-115	
	Bands 3, 8, 12, 13,	dDin/ TO KITZ	00.00			-114	
	14, 17 and 20 Band 9	-			2 +8dB)	-116	
<u>^ /</u>	Danu 9				-	-110	
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$		dB	10	10	13	-4	
	Bands 1, 4, 6, 10, 11, 18 , 19 and 21				(RSRP	-121	
RSRP ^{Note3}	Bands 2, 5 and 7	alDree /4 E tot to	70.05	70.05	for Cell	-119	
RSRP	Bands 3, 8, 12, 13,	dBm/15 kHz	-78.65	-78.65	2 +25dB)	110	
	14, 17 and 20					-118	
	Band 9					-120	
	Bands 1, 4, 6, 10, 11, 18, 19 and 21		50.45		(lo for	-87.76	
Io ^{Note3}	Bands 2, 5 and 7				Channel	-85.76	
10.000	Bands 3, 8, 12, 13,	dBm/9 MHz	-50.45	-50.45	2 +19.75d	-84.76	
	14, 17 and 20				B)		
<u>^</u>	Band 9				_,	-86.76	
\hat{E}_{s}/N_{oc}		dB	10	10	13	-4	
Propagation con	dition	_	AW	/GN	AW	GN	
Note 1: OCN	VG shall be used such	n that both cells a	re fully allo	cated and	a constant	total	
tran Note 2: Inte to be	smitted power spectra ference from other ce e constant over subca	al density is achie ells and noise sou arriers and time ar	ved for all (rces not sp	OFDM sym	nbols. the test is a	assumed	
Note 3: RSF purp	ropriate power for No RP and Io levels have poses. They are not se	been derived fror ettable parameter	s themselv	es.			
	RP minimum requirem e at each receiver an		assuming	independ	ent interfer	ence and	

Table A.9.1.3.2-1: RSRP FDD—FDD Inter frequency test parameters

A.9.1.3.3 Test Requirements

The RSRP measurement accuracy shall fulfil the requirements in section 9.1.3.

A.9.1.4 TDD—TDD Inter frequency case

A.9.1.4.1 Test Purpose and Environment

The purpose of this test is to verify that the RSRP measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.1.3 for TDD—TDD inter frequency measurements.

A.9.1.4.2 Test parameters

In this set of test cases the cells are on different carrier frequencies. Both absolute and relative accuracy of RSRP intra frequency measurements are tested by using the parameters in Table A.9.1.4.2-1. In all test cases, Cell 1 is the serving cell and Cell 2 the target cell. The inter frequency measurements are supported by a measurement gap.

$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Test 2		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Cell 2		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	2		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	10		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$			
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	-		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $,		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	-		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	-		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	2		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	OP.2 TDD		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	0		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	U		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	-117		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	-4		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	-121		
Propagation condition - AWGN AWGN	87.76		
	-4		
Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and	4.2-		
2 in 3GPP TS 36.211. Note 2: OCNG shall be used such that both cells are fully allocated and a constant tota	اد		
transmitted power spectral density is achieved for all OFDM symbols.			
Note 3: Interference from other cells and noise sources not specified in the test is assu to be constant over subcarriers and time and shall be modelled as AWGN of	umed		
appropriate power for $N_{\scriptscriptstyle oc}$ to be fulfilled.			
Note 4: RSRP and lo levels have been derived from other parameters for information			
purposes. They are not settable parameters themselves. Note 5: RSRP minimum requirements are specified assuming independent interference noise at each receiver antenna port.	e and		

Table A.9.1.4.2-1: RSRF	P TDD—TDD Inter freq	uency test parameters
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A.9.1.4.3 Test Requirements

The RSRP measurement accuracy shall fulfil the requirements in section 9.1.3.

A.9.1.5 FDD—TDD Inter frequency case

A.9.1.5.1 Test Purpose and Environment

The purpose of this test is to verify that the RSRP measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.1.3 for FDD—TDD inter frequency measurements.

A.9.1.5.2 Test parameters

In this set of test cases the cells are on different carrier frequencies. Both absolute and relative accuracy of RSRP inter frequency measurements are tested by using the parameters in Table A.9.1.5.2-1 and Table A.9.1.5.2-2. In all test cases, Cell 1 is the serving cell and Cell 2 the target cell. Cell 1 is FDD cell and Cell 2 is TDD cell. The inter frequency measurements are supported by a measurement gap.

		T		T		
Parameter	Unit		st 1 1	Test 2 Cell 1		
E-UTRA RF Channel Number			<u>11 1</u>	1		
BW _{channel}	MHz		0		0	
Gap Pattern Id			0		0	
					•	
Measurement bandwidth	n _{PRB}	22-	-27	22-	–27	
PDSCH Reference measurement channel defined in A.3.1.1.1		R.0 FDD		R.0	FDD	
PDSCH allocation	n _{PRB}	13—36		13-	-36	
PDCCH/PCFICH/PHICH	PKB	10 00		-		
Reference measurement channel		PA	FDD	Pe	חח	
defined in A.3.1.2.1		11.0		R.6 FDD		
OCNG Patterns defined in						
A.3.2.1.1 (OP.1 FDD) and		OP 1	FDD	OP 1	FDD	
A.3.2.1.2 (OP.2 FDD)		OP.1 FDD		OF.IFDD		
PBCH_RA						
PBCH RB						
PSS_RA	-					
SSS RA	-					
PCFICH_RB						
PHICH_RA						
PHICH_RB	dB	0	0	0	0	
PDCCH_RA	UD UD	0		0	Ŭ	
PDCCH_RB						
PDSCH_RA	-					
PDSCH RB						
OCNG_RANote1						
OCNG_RBNote						
N_{oc} Note2	dBm/15 kHz	-88.65		-104		
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	1	0	1	3	
RSRPNote3 dBm/15 kHz -78.65 -91						
IoNote3	dBm/9 MHz	-50	.45	-63	.01	
\hat{E}_s/N_{oc}	dB	1	0	1	3	
Propagation condition	-	AW	'GN	AW	GN	
Note 1: OCNG shall be used suc					total	
transmitted power spectra	al density is achiev	/ed for all (OFDM sym	nbols.		
Note 2: Interference from other c	ells and noise sour	rces not sp	ecified in t	the test is a	assumed	
to be constant over subca	arriers and time an	d shall be	modelled a	as AWGN	of	
N						
appropriate power for N						
Note 3: RSRP and lo levels have				or informati	on	
purposes. They are not s						
Note 4: RSRP minimum requirem		lassuming	independ	ent interfer	ence and	
noise at each receiver an	tenna port.					

Table A.9.1.5.2-1: RSRP FDD—TDD Inter frequency test parameters (FDD Cell1)

Parameter	Unit	Test 1	Test 2
	Unit	Cell 2	Cell 2
E-UTRA RF Channel Number		2	2
BW _{channel}	MHz	10	10
Special subframe configuration ^{Note1}		6	6
Uplink-downlink configuration ^{Note1}		1	1
Gap Pattern Id		-	-
Measurement bandwidth	10	22—27	22—27
PDSCH Reference measurement	n _{PRB}	22—21	22—21
channel defined in A.3.1.1.2		-	-
PDSCH allocation	n _{PRB}	-	-
PDCCH/PCFICH/PHICH			
Reference measurement channel		R.6 TDD	R.6 TDD
defined in A.3.1.2.2			
OCNG Patterns defined in			
A.3.2.2.1 (OP.1 TDD) and		OP.2 TDD	OP.2 TDD
A.3.2.2.2 (OP.2 TDD)			
PBCH_RA			
PBCH_RB			
PSS_RA	-		
SSS_RA	-		
PCFICH_RB	-		
PHICH_RA	-	0	
PHICH_RB	dB		0
PDCCH_RA	-		
PDCCH_RB	-		
PDSCH_RA	-		
PDSCH_RB	-		
OCNG_RA ^{Note2}			
OCNG_RB ^{Note2}			
$N_{oc}^{ m Note3}$	dBm/15 kHz	-88.65	-112
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	10	-4
RSRP ^{Note4}	dBm/15 kHz	-78.65	-116
loNote4	dBm/9 MHz	-50.45	-82.76
\hat{E}_s/N_{oc}	dB	10	-4
Propagation condition	-	AWGN	AWGN
Note 1: For special subframe and	l uplink-downlink c	configurations see Tal	bles 4.2-1 and 4.2-
2 in 3GPP TS 36.211.			
Note 2: OCNG shall be used such			
transmitted power spectra			
Note 3: Interference from other co			
to be constant over subca	arriers and time ar	nd shall be modelled a	as AWGN of
appropriate power for N_{c}			
		n other personators fo	rinformation
Note 4: RSRP and lo levels have			ninormation
purposes. They are not s Note 5: RSRP minimum requirem			ant interference and
noise at each receiver an		assuming independe	
noise at each receiver an	terma port.		

Table A.9.1.5.2-2: RSRP FDD—TDD Inter frequency test parameters (TDD cell2)

A.9.1.5.3 Test Requirements

The RSRP measurement accuracy shall fulfil the requirements in section 9.1.3.

A.9.2 RSRQ

A.9.2.1 FDD Intra frequency case

A.9.2.1.1 Test Purpose and Environment

The purpose of this test is to verify that the RSRQ measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.1.5.

A.9.2.1.2 Test parameters

In this test case all cells are on the same carrier frequency. The absolute accuracy of RSRQ intra frequency measurement is tested by using the parameters in Table A.9.2.1.2-1. In all test cases, Cell 1 is the serving cell and Cell 2 the target cell.

Parameter		Unit		st 1		st 2	Te	st 3
		Unit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Cha	annel Number			1		1		1
BW _{channel}		MHz	1	0	10		10	
Measurement ba	andwidth	n_{PRB}	22—27		22—27		22—27	
	PDSCH Reference measurement channel defined in A.3.1.1.1		R.0 FDD	-	R.0 FDD	-	R.0 FDD	-
PDSCH allocation	on	n _{PRB}	13—36	-	13—36	-	13—36	-
	H/PHICH Reference nannel defined in		R.6	FDD	R.6	FDD	R.6	FDD
OCNG Patterns	defined in A.3.2.1.1 A.3.2.1.2 (OP.2 FDD)		OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD	OP.1 FDD	OP.2 FDD
PBCH_RA								
PBCH_RB								
PSS_RA								
SSS_RA								
PCFICH_RB								
PHICH_RA								
PHICH_RB		dB	0	0	0	0	0	0
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA ^{Note1}								
OCNG RB ^{Note1}								
_	Bands 1, 4, 6, 10, 11, 18, 19 and 21		94.76	-84 76	-103.85	-103.85	-116	
$N_{_{oc}}$ Note2	Bands 2, 5 and 7	dBm/15 kHz					-1	14
oc	Bands 3, 8, 12, 13,	dBm/15 kHz	-84.76	-84.76				40
	14, 17 and 20						-1	13
	Band 9						-1	15
$\hat{\mathrm{E}}_{_{\mathrm{s}}}/\mathrm{I}_{_{\mathrm{ot}}}$		dB	-1.76	-1.76	-4.7	-4.7	-5.46	-5.46
	Bands 1, 4, 6, 10, 11, 18, 19 and 21						-120	-120
RSRP ^{Note3}	Bands 2, 5 and 7		04 70	04 70	400 75	400 75	-118	-118
RORP	Bands 3, 8, 12, 13,	dBm/15 kHz	-81.76	-81.76	-106.75	-106.75		
	14, 17 and 20						-117	-117
	Band 9						-119	-119
	Bands 1, 4, 6, 10, 11, 18, 19 and 21							
RSRQ ^{Note3}	Bands 2, 5 and 7	dB	-14.77	-14.77	-16.76	-16.76	-17.34	-17.34
	Bands 3, 8, 12, 13,	-						
	14, 17 and 20 Band 9							
	Bands 1, 4, 6, 10, 11, 18, 19 and 21						-85.67	
Note3	Bands 2, 5 and 7						-8.3	6.67
Io ^{Note3}	Bands 3, 8, 12, 13,	dBm/9 MHz	-50	-50	-73	-73		2.67
	14, 17 and 20 Band 9							.67
\hat{E}_{s}/N_{oc}		dB	3	3	-2.9	-2.9	-4	-4
Propagation con	dition	-	۵۱۸	'GN	Δ١٨	/GN	Δ١٨	/GN
Note 1: OCNG s	shall be used such that be d for all OFDM symbols.	oth cells are fully all						
Note 2: Interfere	nce from other cells and					e constant o	ver subcarri	ers and
time an	d shall be modelled as A	WGN of appropriat	e power for	IV_{oc} to be	tulfilled.			
	RSRP and Io levels have							

parameters themselves. Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

A.9.2.1.3 Test Requirements

The RSRQ measurement accuracy shall fulfil the requirements in Section 9.1.5.

A.9.2.2 TDD Intra frequency case

A.9.2.2.1 Test Purpose and Environment

The purpose of this test is to verify that the RSRQ measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.1.5.

A.9.2.2.2 Test parameters

In this test case all cells are on the same carrier frequency. The absolute accuracy of RSRQ intra frequency measurement is tested by using the parameters in Table A.9.2.2.2-1. In all test cases, Cell 1 is the serving cell and Cell 2 the target cell.

Parameter		Unit		Test 1		st 2	-	st 3
		Unit	Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Ch	annel Number			1	1		1	
BW _{channel}	Noto1	MHz		0	10		10	
Special subfram	ne configuration ^{Note1}			6	6		6	
Uplink-downlink	configuration ^{Note1}			1	1		1	
Measurement b	andwidth	n _{PRB} 22—27		22—27		22—27		
	nce measurement		R.0	-	R.0	-	R.0	-
channel defined	l in A.3.1.1.2		TDD		TDD		TDD	
PDSCH allocati	on	$n_{\scriptscriptstyle PRB}$	13—36	-	13—36	-	13—36	-
measurement c	H/PHICH Reference hannel defined in		R.6 TDD		R.6 TDD		R.6 TDD	
A.3.1.2.2			05.4	00.0	05.4	0.0.0	0.5.4	
	defined in A.3.2.2.1		OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.2 TDD	OP.1 TDD	OP.: TDE
PBCH_RA	1 A.3.2.2.2 (OP.2 TDD)		עטי	עטי	עטי	עטי	עטי	
PBCH_RA								
PSS_RA								
SSS RA								
PCFICH RB								
PHICH_RA								
PHICH RB		JD		0	0	0	0	0
PDCCH_RA		dB	0	0	0	0	0	0
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA ^{Note2}								
OCNG_RB ^{Note2}								
OCNG_RB								
$N_{_{oc}}$ Note3	Bands 33, 34, 35, 36, 37, 38, 39 and 40	dBm/15 kHz	-84.76	-84.76	-103.85	-103.85	-1	16
\hat{E}_{s}/I_{ot}		dB	-1.76	-1.76	-4.7	-4.7	-5.46	-5.4
	Bands 33, 34, 35,		+		1			1
RSRP ^{Note4}	36, 37, 38, 39 and 40	dBm/15 kHz	-81.76	-81.76	-106.75	-106.75	-120	-120
RSRQ ^{Note4}	Bands 33, 34, 35, 36, 37, 38, 39 and 40	dB	-14.77	-14.77	-16.76	-16.76	-17.34	-17.3
Io ^{Note4}	Bands 33, 34, 35, 36, 37, 38, 39 and 40	dBm/9 MHz	-50	-50	-73	-73	-85	5.67
\hat{E}_{s}/N_{oc}		dB	3	3	-2.9	-2.9	-4	-4
Propagation cor	ndition	-	AW	/GN	AW	/GN	AW	/GN
Note 1: For spectronic Spectronic Spectronic Spectro S	cial subframe and uplink- shall be used such that be ed for all OFDM symbols. ence from other cells and	oth cells are fully al	tions see Tal located and	oles 4.2-1 a a constant t	nd 4.2-2 in 3 otal transmit	GPP TS 36 ted power s	.211. pectral den	sity is

time and shall be modelled as AWGN of appropriate power for $N_{\it oc}$ to be fulfilled.

Note 4: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. Note 5: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver

antenna port.

A.9.2.2.3 **Test Requirements**

The RSRQ measurement accuracy shall fulfil the requirements in Sections 9.1.5.

A.9.2.3 FDD—FDD Inter frequency case

A.9.2.3.1 Test Purpose and Environment

The purpose of this test is to verify that the RSRQ measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.1.6.

A.9.2.3.2 Test parameters

In this test case the two cells are on different carrier frequencies and measurement gaps are provided. Both RSRQ inter frequency absolute and relative accuracy requirements are tested by using test parameters in Table A.9.2.3.2-1. In all tests, Cell 1 is the serving cell and Cell 2 the target cell.

Table A.9.2.3.2-1: RSRQ FDD—FDD Inter fre	equency test parameters
---	-------------------------

$\begin{array}{c c} N_{oc} & 11, 18\\ \hline Bands\\ \hline Bands\\ Bands\\ 14, 17\\ \hline Bands\\ \hline 14, 17\\ \hline Bands\\ \hline 14, 17\\ \hline Bands\\ 11, 18\\ \hline Bands\\ 14, 17\\ \hline Bands\\ 14, 17\\ \hline Bands\\ 11, 18\\ \hline Bands\\ 11$	mber surement 1.1 Reference efined in in A.3.2.1.1	Unit MHz n _{PRB} n _{PRB}	Cell 1 1 10 0 22– R.0 FDD 13–36 R.6 OP.1 FDD	Cell 2 2 10 - -27 - - FDD OP.2 FDD	R.0 FDD 13—36	Cell 2 2 10 - -27 - FDD OP.2 FDD	Cell 1 1 10 0 22 R.0 FDD 1336 R.6 F OP.1 FDD	-
$\begin{array}{c c c c c c c } & & & & & & & & & & & & & & & & & & &$	surement 1.1 Reference efined in in A.3.2.1.1	n _{PRB}	10 0 22- R.0 FDD 13-36 R.6 OP.1	10 -27 -27 - FDD OP.2	10 0 22- R.0 FDD 13-36 R.6 OP.1	10 -27 - FDD OP.2	10 0 22 R.0 FDD 1336 R.6 F	10 - 27 - DD OP.2
Gap Pattern IdMeasurement bandwidthPDSCH Reference meas channel defined in A.3.1.PDSCH allocationPDCCH/PCFICH/PHICH measurement channel defined i (OP.1 FDD) and A.3.2.1.2OCNG Patterns defined i (OP.1 FDD) and A.3.2.1.2PBCH_RAPBCH_RBPSS_RASSS_RAPCFICH_RBPHICH_RBPDCCH_RAPDCCH_RAPDCCH_RAPDCCH_RAPDSCH_RAPDSCH_RAPDSCH_RAPDSCH_RAPDSCH_RADOCNG_RANote1OCNG_RBNote1OCNG_RBNote2Ê_s/I_otBands11, 18 Bands11, 18 Bands14, 17 Band 9Bands 14, 17 BandsRSRPNote3RSRQNote3Bands 14, 17 BandsIoNote3Bands 14, 17 BandsIoNote3Bands 11, 18 BandsIoNote3Bands 11, 18 BandsIoNote3Bands 11, 18 BandsBands 11, 18 Bands	Reference efined in in A.3.2.1.1	n _{PRB}	0 22- R.0 FDD 13-36 R.6 OP.1	-27 -27 - - FDD OP.2	0 22- R.0 FDD 13-36 R.6 OP.1	-27 -27 - - FDD OP.2	0 22 R.0 FDD 1336 R.6 F	- 27 - - DD OP.2
$\begin{array}{c c c c c c } \measurement bandwidth \\ \begin{tabular}{lllllllllllllllllllllllllllllllllll$	Reference efined in in A.3.2.1.1	n _{PRB}	R.0 FDD 13—36 R.6 OP.1	- - FDD OP.2	R.0 FDD 13—36 R.6 OP.1	- - FDD OP.2	R.0 FDD 13—36 R.6 F	- - DD OP.2
$\begin{array}{c} \mbox{channel defined in A.3.1.} \\ \mbox{PDSCH allocation} \\ \mbox{PDCCH/PCFICH/PHICH} \\ \mbox{measurement channel defined in (OP.1 FDD) and A.3.2.1.? \\ \mbox{OCNG Patterns defined in (OP.1 FDD) and A.3.2.1.? \\ \mbox{PBCH_RA} \\ \mbox{PBCH_RA} \\ \mbox{PBCH_RB} \\ \mbox{PSS_RA} \\ \mbox{SSS_RA} \\ \mbox{PCFICH_RB} \\ \mbox{PDCCH_RB} \\ \mbox{PDCCH_RA} \\ \mbox{PDCCH_RB} \\ \mbox{PDCCH_RB} \\ \mbox{PDCCH_RB} \\ \mbox{PDCCH_RB} \\ \mbox{PDCCH_RB} \\ \mbox{PDCCH_RB} \\ \mbox{PDSCH_RA} \\ \mbox{PDSCH_RA} \\ \mbox{PDSCH_RA} \\ \mbox{PDSCH_RA} \\ \mbox{PDSCH_RB} \\ \mbox{OCNG_RA}^{Note1} \\ \mbox{OCNG_RB}^{Note1} \\ \mbox{OCNG_RB}^{Note1} \\ \mbox{OcNG_RB}^{Note1} \\ \mbox{Bands} \\ \mbox{14, 17} \\ \mbox{Bands} \\ \mbox{14, 17} \\ \mbox{Bands} \\ \m$	1.1 Reference efined in in A.3.2.1.1	n _{PRB}	13—36 R.6 OP.1	- FDD OP.2	13—36 R.6 OP.1	- FDD OP.2	13—36 R.6 F	OP.2
$\begin{array}{c c} eq:poly_poly_poly_poly_poly_poly_poly_poly_$	efined in in A.3.2.1.1		R.6	FDD OP.2	R.6 OP.1	FDD OP.2	R.6 F	OP.2
measurement channel de A.3.1.2.1 OCNG Patterns defined i (OP.1 FDD) and A.3.2.1.2 PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB PHICH_RA PHICH_RA PDCCH_RA PDCCH_RA PDSCH_RA PDSCH_RA PDSCH_RA OCNG_RA ^{Note1} OCNG_RB ^{Note1} OCNG_RB ^{Note1} Bands 11, 18 Bands 14, 17 Band S Ê_s/I_ot RSRP ^{Note3} Bands 11, 18 Bands 11, 18 Bands 14, 17 Band S 14, 17 Band S 15 15 15 15 15 15 15 15 15 15	efined in in A.3.2.1.1		OP.1	OP.2	OP.1	OP.2		OP.2
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		dB					OP.1 FDD	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		dB						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		dB						
$\begin{array}{c c} \label{eq:response} OCNG_RA^{Note1} \\ \hline OCNG_RB^{Note1} \\ \hline OCNG_RB^{Note1} \\ \hline Bands \\ 11, 18 \\ Bands \\ 14, 17 \\ Band S \\ \hline Bands \\ 14, 17 \\ Band S \\ \hline Bands \\ 14, 17 \\ Band S \\ \hline Bands \\ 11, 18 \\ Bands \\ 14, 17 \\ Band S \\ \hline Bands \\ 14, 17 \\ Band S \\ \hline Bands \\ 14, 17 \\ Band S \\ \hline Bands \\ 14, 17 \\ Band S \\ \hline Bands \\ 11, 18 \\ Bands \\ 14, 17 \\ Band S \\ \hline Bands \\ 11, 18 \\ Bands \\ 14, 17 \\ Band S \\ \hline Bands \\ 11, 18 \\ Bands \\ 11, 18 \\ Bands \\ 14, 17 \\ Band S \\ \hline Bands \\ 11, 18 \\ Bands \\ 14, 17 \\ \hline Band S \\ \hline Bands \\ 14, 17 \\ \hline Band S \\ \hline Bands \\ 14, 17 \\ \hline Band S \\ \hline Bands \\ 14, 17 \\ \hline Band S \\ \hline Bands \\ 14, 17 \\ \hline Band S \\ \hline Bands \\ 14, 17 \\ \hline Band S \\ \hline Bands \\ 14, 17 \\ \hline Band S \\ \hline Bands \\ \hline Bands \\ 11, 18 \\ \hline Bands \\ \hline$		-	0	0	0	0	0	0
$\begin{array}{c c} & & \text{Bands} \\ 11, 18 \\ \text{Bands} \\ 14, 17 \\ \text{Bands} \\ 11, 18 \\ \text{Bands} \\ 14, 17 \\ \text{Bands} \\ 14, 17 \\ \text{Bands} \\ 14, 17 \\ \text{Bands} \\ 11, 18 \\ \text{Bands} \\ 11, 18 \\ \text{Bands} \\ 11, 18 \\ \text{Bands} \\ 14, 17 \\ \text{Bands} \\ 11, 18 \\ \text{Bands} \\ 14, 17 \\ \text{Bands} \\ 11, 18 \\ 11, $								
$\frac{\hat{E}_{s}/I_{ot}}{\hat{E}_{s}/I_{ot}}$	5 1, 4, 6, 10, 5, 19 and 21 5 2, 5 and 7 5 3, 8, 12, 13,	dBm/15 kHz	-80	-80	-104.70	-104.70	-119.50 -117.50 -116.50	-119.50 -117.50 -116.50
RSRP ^{Note3} Bands 11, 18 Bands Bands 14, 17 Band 5 Bands 11, 18 Bands 11, 18 Bands 14, 17 Band 5 Bands 14, 17 Band 5 Bands		_					-118.50	-118.50
RSRP ^{Note3} Bands 11, 18 Bands Bands 14, 17 Band 5 Bands 11, 18 Bands 11, 18 Bands 14, 17 Band 5 Bands 14, 17 Band 5 Bands		dB	-1.75	-1.75	-4.0	-4.0	-4.0	-4.0
RSRQ ^{Note3} Bands 11, 17 Bands 11, 18 Bands Bands 14, 17 Bands 14, 17 Bands 14, 17 Bands 14, 17 Bands 11, 18 Bands 11, 18 Bands 14, 17	3 1, 4, 6, 10, 3 ,19 and 21 3 2, 5 and 7		04.75	04 75	400.70	-108.70	-123.50 -121.50	-123.50 -121.50
RSRQ ^{Note3} RSRQ ^{Note3} Bands 14, 17 Bands 14, 18 Bands 14, 17 Bands 14, 18 Bands 14, 18 Bands Ba	3, 8, 12, 13, and 20 9	- dBm/15 kHz	-81.75	-81.75	-108.70	-108.70	-120.50 -122.50	-120.50 -122.50
11, 18 Bands	5 1, 4, 6, 10, 5,19 and 21 5 2, 5 and 7 5 3, 8, 12, 13, 6 and 20 9	dB	-14.76	-14.76	-16.25	-16.25	-16.25	-16.25
Bands	3 1, 4, 6, 10, 3 ,19 and 21 3 2, 5 and 7	dDm/0 Milia	50	50	75.40	75.46	-90.26 -88.26	-90.26 -88.26
14, 17 Band 9	3, 8, 12, 13, and 20	dBm/9 MHz	-50	-50	-75.46	-75.46	-87.26 -89.26	-87.26 -89.26
\hat{E}_s/N_{oc}	<u>.</u>	dB	-1.75	-1.75	-4.0	-4.0	-69.26	-69.26
Propagation condition		-	AW	GN	AW	'GN	AWO	
Note 1: OCNG shal spectral der Note 2: Interference		h that both cell red for all OFD ells and noise	s are fully a M symbols sources no	allocated a t specified	ind a constant	ant total tra	ansmitted pov d to be consta	wer ant over
subcarriers Note 3: RSRQ, RSF are not setta Note 4: RSRP and I	e from other c		derived from	GN of app m other pa	ropriate po rameters fo	wer for N _d or informati	oc to be fulfill on purposes	ed. . They

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A.9.2.3.3 Test Requirements

The RSRQ measurement accuracy shall fulfil the requirements in Section 9.1.6.

A.9.2.4 TDD—TDD Inter frequency case

A.9.2.4.1 Test Purpose and Environment

The purpose of this test is to verify that the RSRQ measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.1.6.

A.9.2.4.2 Test parameters

In this test case the two cells are on different carrier frequencies and measurement gaps are provided. Both RSRQ inter frequency absolute and relative accuracy requirements are tested by using test parameters in Table A.9.2.4.2-1. In all tests, Cell 1 is the serving cell and Cell 2 the target cell.

F	Parameter	Unit	Tes	st 1	Те	st 2	Tes	st 3
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
E-UTRA RF Cł	nannel Number		1	2	1	2	1	2
BW _{channel}		MHz	10	10	10	10	10	10
Gap Pattern Id	e Note1		0	-	0	-	0	-
Special subtrar	me configuration Note1			6		6	6	
Uplink-downlin	k configuration Note1		-	1	1		1	
Measurement I	pandwidth	n_{PRB}	22-	-27	22-	—27	22–	-27
PDSCH Refere	ence measurement				R.0 TDD		R.0 TDD	
channel define	d in A.3.1.1.2		R.0 TDD	-	R.0 IDD	-	R.0 IDD	-
PDSCH allocat	tion	n _{PRB}	13—36	-	13—36	-	13—36	-
PDCCH/PCFIC	CH/PHICH Reference							
	channel defined in		R.6	TDD	R.6	TDD	R.6	TDD
A.3.1.2.2								
	s defined in A.3.2.2.1		OP.1	OP.2	OP.1	OP.2	OP.1	OP.2
PBCH RA	d A.3.2.2.2 (OP.2 TDD)		TDD	TDD	TDD	TDD	TDD 0	TDD 0
PBCH_RA							0	0
PSS_RA								
SSS RA								
PCFICH_RB					0	0		
PHICH_RA				0				
PHICH_RB		dB	0					
PDCCH_RA								
PDCCH_RB								
PDSCH_RA								
PDSCH_RB								
OCNG_RA ^{Note2}								
OCNG_RB ^{Note2}								
N_{oc} Note3	Bands 33, 34, 35, 36, 37, 38, 39 and 40	dBm/15 kHz	-80	-80	-104.70	-104.70	-119.50	-119.50
\hat{E}_{s}/I_{ot}		dB	-1.75	-1.75	-4.0	-4.0	-4.0	-4.0
	Bands 33, 34, 35,							
RSRP ^{Note4}	36, 37, 38, 39 and 40	dBm/15 kHz	-81.75	-81.75	-108.70	-108.70	-123.50	-123.50
RSRQ ^{Note4}	Bands 33, 34, 35, 36, 37, 38, 39 and 40	dB	-14.76	-14.76	-16.25	-16.25	-16.25	-16.25
lo ^{Note4}	Bands 33, 34, 35, 36, 37, 38, 39 and 40	dBm/9 MHz	-50	-50	-75.46	-75.46	-90.26	-90.26
\hat{E}_{s}/N_{oc}		dB	-1.75	-1.75	-4.0	-4.0	-4.0	-4.0
Propagation co	ndition	-	AW	'GN	AW	/GN	AW	ĠN
Note 1: For spe Note 2: OCNG achiev	ecial subframe and uplink- shall be used such that be red for all OFDM symbols. ence from other cells and	oth cells are fully all	ions see Tab ocated and a	eles 4.2-1 ar a constant to	nd 4.2-2 in 3 otal transmitt	GPP TS 36.2 ed power sp	211. ectral density	/ is
and sh	nall be modelled as AWGN	l of appropriate pov	ver for $N_{_{oc}}$	to be fulfille	d.			
Note 4: RSRQ, param Note 5: RSRP	RSRP and lo levels have eters themselves. and RSRQ minimum requ na port.	been derived from	other param	eters for info	ormation pur			

Test Requirements A.9.2.4.3

The RSRQ measurement accuracy shall fulfil the requirements in Section 9.1.6.

A.9.2.4A FDD—TDD Inter frequency case

A.9.2.4A.1 Test Purpose and Environment

The purpose of this test is to verify that the RSRQ measurement accuracy is within the specified limits. This test will verify the requirements in Sections 9.1.6.1 and 9.1.6.2 for FDD—TDD inter frequency measurements.

A.9.2.4A.2 Test parameters

In this set of test cases the two cells are on different carrier frequencies. Both absolute and relative accuracy of RSRQ inter frequency measurements are tested by using the parameters in Table A.9.2.4A.2-1 and Table A.9.2.4A.2-2. In all test cases, Cell 1 is the PCell and Cell 2 the target cell. Cell 1 is FDD cell and Cell 2 is TDD cell. The inter frequency measurements are supported by a measurement gap.

Parameter	Unit	Test 1	Test 2	Test 3
	Onic	Cell 1	Cell 1	Cell 1
E-UTRA RF Channel Number		1	1	1
BW _{channel}	MHz	10	10	10
Gap Pattern Id		0	0	0
Measurement bandwidth	n _{PRB}	22—27	22—27	22—27
PDSCH Reference measurement channel defined in A.3.1.1.1		R.0 FDD	R.0 FDD	R.0 FDD
PDSCH allocation	n_{PRB}	13—36	13—36	13—36
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.1		R.6 FDD	R.6 FDD	R.6 FDD
OCNG Patterns defined in A.3.2.1.1 (OP.1 FDD) and A.3.2.1.2 (OP.2 FDD)		OP.1 FDD	OP.1 FDD	OP.1 FDD
PBCH_RA PBCH_RB PSS_RA SSS_RA PCFICH_RB				
PHICH_RA PHICH_RB PDCCH_RA PDCCH_RB	dB	0	0	0
PDSCH_RA PDSCH_RA OCNG_RA ^{Note1} OCNG_RB ^{Note1}				
N_{oc} Note2	dBm/15 kHz	-80	-104.70	-114.5
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	-1.75	-4.0	-4.0
RSRP ^{Note3}	dBm/15 kHz	-81.75	-108.70	-118.5
RSRQ ^{Note3}	dB	-14.76	-16.25	-16.25
o ^{Note3}	dBm/9 MHz	-50	-75.46	-85.26
\hat{E}_s/N_{oc}	dB	-1.75	-4.0	-4.0
Propagation condition	-	AWGN	AWGN	AWGN
Note 1: OCNG shall be used such spectral density is achiev spectral density is achiev Interference from other or subcarriers and time and	h that both cell ed for all OFD ells and noise shall be mode	M symbols. sources not specified lled as AWGN of app	in the test is assumed ropriate power for $N_{ m c}$	d to be constant ove c^{pc} to be fulfilled.
Note 3: RSRQ, RSRP and Io leve are not settable parameter	els have been o ers themselves	derived from other pa	rameters for informati	on purposes. They

Table A.9.2.4A.2-1: RSRQ FDD—TDD Inter frequency test parameters (FDD Cell1)

Note 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Parameter F Channel Number rn Id bframe configuration	Unit MHz	Test 1 Cell 2 2	Test 2 Cell 2 2	Test 3 Cell 2
rn ld	MHz	2		
rn ld	MHz			2
		10	10	10
		-	-	-
		6	6	6
vnlink configuration Note1		1	1	1
nent bandwidth	n _{PRB}	22—27	22—27	22—27
		-	-	-
location	n_{PRB}	-	-	-
measurement channel		R.6 TDD	R.6 TDD	R.6 TDD
OP.1 TDD) and		OP.2 TDD	OP.2 TDD	OP.2 TDD
RB A B RA	dB	0	0	0
RA RB A ^{Note2}				
	dBm/15 kHz	-80	-104.70	-114.50
	dB	-1.75	-4.0	-4.0
	dBm/15 kHz	-81.75	-108.70	-118.50
ł	dB	-14.76	-16.25	-16.25
	dBm/9 MHz	-50	-75.46	-85.26
	dB	-1.75	-4.0	-4.0
on condition	-	AWGN	AWGN	AWGN
36.211. OCNG shall be used such spectral density is achiev Interference from other co subcarriers and time and RSRQ, RSRP and lo leve are not settable parameter	h that both cells ar ed for all OFDM sy ells and noise sour shall be modelled els have been deriv ers themselves.	e fully allocated and mbols. rces not specified in t as AWGN of approp ved from other param	a constant total tran the test is assumed the test of N_{oc} neters for information	smitted power to be constant over to be fulfilled. n purposes. They
	36.211. OCNG shall be used such spectral density is achiev Interference from other or subcarriers and time and RSRQ, RSRP and lo leve are not settable parameter RSRP and RSRQ minimum	eference measurement efined in A.3.1.1.2 location n location n CFICH/PHICH measurement channel A.3.1.2.2 tterns defined in OP.1 TDD) and OP.2 TDD) A B <	eference measurement - location n location n location n CFICH/PHICH R.6 TDD measurement channel R.6 TDD A.3.1.2.2 OP.2 TDD tterns defined in OP.2 TDD OP.1 TDD) and OP.2 TDD OP.2 TDD) OP.2 TDD RB A A A B A B A B A B A B A B A B A B A B A B A B A B A B A B A CA B A B CA B <td< td=""><td>eference measurement fined in A.3.1.1.2 - - location n n location n R.6 TDD R.6 TDD CFICH/PHICH R.6 TDD R.6 TDD A.6 TDD Masses R.6 TDD OP.2 TDD OP.2 TDD OP.1 TDD) and OP.2 TDD OP.2 TDD OP.2 TDD A A A A A B A A A A B A A A A B A A A A B A A A A B A A A A B A A A A B A A A A B A A A A B A A A A A B A A A A A A A B A A B -1.75 -4.0 A A A A</td></td<>	eference measurement fined in A.3.1.1.2 - - location n n location n R.6 TDD R.6 TDD CFICH/PHICH R.6 TDD R.6 TDD A.6 TDD Masses R.6 TDD OP.2 TDD OP.2 TDD OP.1 TDD) and OP.2 TDD OP.2 TDD OP.2 TDD A A A A A B A A A A B A A A A B A A A A B A A A A B A A A A B A A A A B A A A A B A A A A B A A A A A B A A A A A A A B A A B -1.75 -4.0 A A A A

Table A.9.2.4A.2-2: RSRQ FDD—TDD Inter frequency test parameters (TDD cell2)

A.9.2.4A.3 Test Requirements

The RSRQ measurement accuracy shall fulfil the requirements in sections 9.1.6.1 and 9.1.6.2.

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- A.9.2.5 Void
- A.9.2.5.1 Void
- A.9.2.5.2 Void

Table A.9.2.5.2-1: Void

Table A.9.2.5.2-2: Void

A.9.2.5.3 Void

A.9.3 UTRAN FDD CPICH RSCP

A.9.3.1 E-UTRAN FDD

A.9.3.1.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH RSCP absolute measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.2.1. There are two different test setups with different UTRAN parameters.

A.9.3.1.2 Parameters

The test parameters are given in Tables A.9.3.1.2-1, A.9.3.1.2-2 and A.9.3.1.2-3 below.

Table A.9.3.1.2-1: General test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN FDD

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH		DL Reference Measurement	As specified in section A.3.1.2.1
parameters		Channel R.6 FDD	
E-UTRAN RF Channel		1	One E-UTRAN FDD carrier frequency is
Number			used.
UTRAN RF Channel		1	One UTRAN FDD carrier frequency is
Number			used.
E-UTRAN Channel	MHz	10	
Bandwidth (BW _{channel})			
Active cell		Cell 1	E-UTRAN cell 1 on RF channel number 1
Neighbor cells		Cell 2	UTRAN cell 2 on RF channel number 1
Gap Pattern Id		0	As specified in 3GPP TS 36.133 section
			8.1.2.1.
Inter-RAT (UTRAN FDD)		CPICH RSCP	
measurement quantity			
Monitored UTRA FDD cell		12	UTRA cells on UTRA RF channel 1
list size			provided in the cell list.
CP length		Normal	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF

Parameter	Unit	Test 1	Test 2			
E-UTRAN RF Channel		1				
Number		I				
BW _{channel}	MHz	1	0			
OCNG Patterns defined in A.3.2.1.1 (OP.1 FDD)		OP.1	FDD			
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	()			
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB	7				
OCNG_RB ^{Note 1}	dB					
N_{oc} Note 2	dBm/15 kHz	-9	98			
RSRP ^{Note 3}	dBm/15 kHz	-9)4			
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	2	4			
SCH_RP ^{Note 3}	dBm/15 kHz	-9)4			
\hat{E}_s/N_{oc}	dB	4				
Propagation Condition		AW	'GN			
Note 1: OCNG shall be used such t			otal transmitted power			
spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant						
over subcarriers and time a	over subcarriers and time and shall be modeled as AWGN of appropriate power for $N_{_{oc}}$ to be					
fulfilled. Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

Table A.9.3.1.2-2: E-UTRAN FDD cell specific test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN FDD

	Parameter	Unit	Test 1	Test 2
			Cell 2	Cell 2
CPICH_Ec/lor		dB	-10	-10
PCCPCH_Ec/lor		dB	-12	-12
	SCH_Ec/lor	dB	-12	-12
	PICH_Ec/lor	dB	-15	-15
	DPCH_Ec/lor	dB	-	-
	OCNS_Ec/lor	dB	-0.94	-0.94
loc	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz		-94.46
	Band II, V, VII		00.00	-92.46
	Band III, VIII, XII, XIII, XIV, XX		-60.00	-91.46
	Band IX (Note 2)			-93.46
	Îor/loc		9.54	-9.54
CPICH RSCP,	Band I, IV, VI, X, XI, XIX, XXI	dBm		-114.0
Note 1	Band II, V, VII		60.46	-112.0
	Band III, VIII, XII, XIII, XIV, XX		-60.46	-111.0
	Band IX (Note 2)			-113.0
lo, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz		-94.0
	Band II, V, VII		50.00	-92.0
	Band III, VIII, XII, XIII, XIV, XX		-50.00	-91.0
	Band IX (Note 2)			-93.0
Pr	opagation condition	-	AWGN	AWGN
NOTE 2: F	CPICH RSCP and Io levels have They are not settable parameters For the UE which supports both E performance requirements for Ba	themselves. and III and B nd III shall ap	and IX operating frequencies plug to the multi-band UE.	, the measurement
	e done sequentially. Test 1 shall 2 shall be set within 5 seconds so			

Table A.9.3.1.2-3: UTRAN FDD cell specific test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN FDD

A.9.3.1.3 Test Requirements

The CPICH RSCP measurement absolute accuracy shall meet the requirements in Section 9.2.1.

A.9.3.2 E-UTRAN TDD

A.9.3.2.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH RSCP absolute measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.2.1. There are three different test setups with different UTRAN parameters.

A.9.3.2.2 Parameters

The test parameters are given in Tables A.9.3.2.2-1, A.9.3.2.2-2 and A.9.3.2.2-3 below.

Table A.9.3.2.2-1: General test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN TDD

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
E-UTRAN RF Channel Number		1	One E-UTRAN TDD carrier frequency is used.
UTRAN RF Channel Number		1	One UTRAN FDD carrier frequency is used.
E-UTRAN Channel Bandwidth (BW _{channel})	MHz	10	
Active cell		Cell 1	E-UTRAN cell 1 on RF channel number 1
Neighbor cells		Cell 2	UTRAN cell 2 on RF channel number 1
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Inter-RAT (UTRAN FDD) measurement quantity		CPICH RSCP	
Monitored UTRA FDD cell list size		12	UTRA cells on UTRA RF channel 1 provided in the cell list.
CP length		Normal	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF

ETSI

Parameter	Unit	Test 1	Test 2			
E-UTRAN RF Channel Number			1			
BW _{channel}	MHz	1	10			
Special subframe configuration ^{Note1}			6			
Uplink-downlink configuration ^{Note1}			1			
OCNG Patterns defined in A.3.2.2.1			TDD			
(OP.1 TDD)		01.1				
PBCH_RA	dB					
PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB		0			
PDCCH_RA	dB					
PDCCH_RB	dB	-				
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 2}	dB					
OCNG_RB ^{Note 2}	dB					
$N_{_{oc}}$ Note 3	dBm/15 kHz	-!	98			
RSRP ^{Note 4}	dBm/15 kHz	-94				
\hat{E}_{s}/I_{ot}	dB	4				
SCH_RP Note 4	dBm/15 kHz	-94				
\hat{E}_s/N_{oc}	dB		4			
Propagation Condition			/GN			
Note 1: For special subframe and in 3GPP TS 36.211.	Note 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2					
	ote 2: OCNG shall be used such that all cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.					
Note 3: Interference from other ce						
appropriate power for $N_{_{ m ov}}$	appropriate power for N_{oc} to be fulfilled.					
Note 4: RSRP and SCH_RP levels						

Table A.9.3.2.2-2: E-UTRAN TDD cell specific test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN TDD

	Parameter	Unit	Test 1	Test 2	
			Cell 2	Cell 2	
CPICH_Ec/lor		dB	-10	-10	
	PCCPCH_Ec/lor	dB	-12	-12	
	SCH_Ec/lor	dB	-12	-12	
	PICH_Ec/lor	dB	-15	-15	
	DPCH_Ec/lor	dB	-	-	
	OCNS_Ec/lor	dB	-0.94	-0.94	
loc	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz		-94.46	
	Band II, V, VII		60.00	-92.46	
	Band III, VIII, XII, XIII, XIV, XX		-60.00	-91.46	
	Band IX (Note 2)			-93.46	
	Îor/loc	dB	9.54	-9.54	
CPICH RSCP,	Band I, IV, VI, X, XI, XIX, XXI	dBm		-114.0	
Note 1	Band II, V, VII		00.40	-112.0	
	Band III, VIII, XII, XIII, XIV, XX		-60.46	-111.0	
	Band IX (Note 2)		-	-113.0	
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz		-94.0	
	Band II, V, VII		50.00	-92.0	
	Band III, VIII, XII, XIII, XIV, XX		-50.00	-91.0	
	Band IX (Note 2)			-93.0	
	opagation condition	-	AWGN	AWGN	
	CPICH RSCP and lo levels ha			eters for information	
purposes. They are not settable parameters themselves. NOTE 2: For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE. Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

Table A.9.3.2.2-3: UTRAN FDD cell specific test parameters for UTRAN FDD CPICH RSCP absolute measurement accuracy test in E-UTRAN TDD

A.9.3.2.3 Test Requirements

The CPICH RSCP measurement absolute accuracy shall meet the requirements in Section 9.2.1.

A.9.4 UTRAN FDD CPICH Ec/No

A.9.4.1 E-UTRAN FDD

A.9.4.1.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH Ec/No absolute measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.2.3. There are three different test setups with different UTRAN parameters.

A.9.4.1.2 Parameters

The test parameters are given in Tables A.9.4.1.2-1, A.9.4.1.2-2 and A.9.4.1.2-3 below.

UTRAN RF Channel

E-UTRAN Channel

Bandwidth (BW_{channel})

Inter-RAT (UTRAN FDD)

measurement quantity Monitored UTRA FDD cell

Number

Active cell

list size

DRX

CP length

Filter coefficient

Neighbor cells

Gap Pattern Id

One UTRAN FDD carrier frequency is

E-UTRAN cell 1 on RF channel number 1

UTRAN cell 2 on RF channel number 1 As specified in 3GPP TS 36.133 section

UTRA cells on UTRA RF channel 1

provided in the cell list.

L3 filtering is not used

used.

8.1.2.1.

OFF

accuracy test in E-UTRAN FDD						
Parameter	Unit	Value	Comment			
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1			
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1			
E-UTRAN RF Channel Number		1	One E-UTRAN FDD carrier frequency is used.			

1

10

0

12

0

OFF

Normal

Cell 1

Cell 2

CPICH Ec/N0

MHz

Table A.9.4.1.2-1: General test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN FDD

Table A.9.4.1.2-2: E-UTRAN FDD cell specific test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN FDD

Parameter	Unit	Test 1	Test 2	Test 3	
E-UTRAN RF Channel Number		1			
BW _{channel}	MHz	10			
OCNG Patterns defined in A.3.2.1.1 (OP.1 FDD)		OP.1 FDD			

PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB	0					
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note 1}	dB						
OCNG_RB ^{Note 1}	dB						
N_{oc} Note 2	dBm/15 kHz	-98					
RSRP ^{Note 3}	dBm/15 kHz	-94					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4					
SCH_RP ^{Note 3}	dBm/15 kHz	-94					
\hat{E}_s/N_{oc}	dB	4					
Propagation Condition		AWGN					
Note 1: OCNG shall be used such that	t all cells are fully	allocated and a constant total transmitted power					
spectral density is achieved f							
		not specified in the test is assumed to be constant					
over subcarriers and time and	over subcarriers and time and shall be modeled as AWGN of appropriate power for $N_{_{oc}}$ to be						
fulfilled.							
Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes.							
They are not settable parame	eters themselves.						

Table A.9.4.1.2-3: UTRAN FDD cell specific test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN FDD

	Parameter	Unit	Test 1	Test 2	Test 3
	Falametei	Onit	Cell 2	Cell 2	Cell 2
	CPICH_Ec/lor	dB	-10	-10	-10
F	PCCPCH_Ec/lor	dB	-12	-12	-12
	SCH_Ec/lor	dB	-12	-12	-12
	PICH_Ec/lor	dB	-15	-15	-15
	DPCH_Ec/lor	dB	-	-	-
	OCNS_Ec/lor	dB	-0.94	-0.94	-0.94
	Band I, IV, VI, X, XI, XIX, XXI				-94.46
loc	Band II, V, VII	dBm/ 3.84	-52.22	-87.27	-92.46
	Band III, VIII, XII, XIII, XIV, XX	MHz		0	-91.46
	Band IX (Note 2)				-93.46
	Îor/loc	dB	-1.75	-4.7	-9.54
CP	ICH Ec/lo, Note 1	dBm	-14.0	-16.0	-20.0
	Band I, IV, VI, X, XI, XIX, XXI				-94
lo, Note	Band II, V, VII	dBm/ 3.84	-50	-86	-92.0
1	Band III, VIII, XII, XIII, XIV, XX	MHz			-91.0
	Band IX (Note 2)				-93
Pro	pagation condition	-	AWGN	AWGN	AWGN
NOTE 1: CPICH Ec/lo and lo levels have been calculated from other parameters for information purposes. They are not settable parameters themselves. NOTE 2: For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

A.9.4.1.3 Test Requirements

The CPICH Ec/No measurement absolute accuracy shall meet the requirements in Section 9.2.3.

The effect of assumed thermal noise and noise generated in the receiver (-99 dBm for frequency bands I, IV, VI, X, XI, XIX and XXI; -98 dBm for frequency band IX, -97dBm for frequency bands II, V and VII; -95.5dBm for frequency band XXV and XXVI; and -96dBm for frequency band III) shall be added into the required accuracy. The test requirements for the absolute CPICH_Ec/Io measurement are shown in Table A.9.4.1.3-1.

Table A.9.4.1.3-1: CPICH_	Ec/lo absolute accuracy
---------------------------	-------------------------

		Accuracy [dB]		Conditions	
Parameter Unit		Normal condition	Extreme condition	lo [dBm/3,84 MHz]	
CPICH_Ec/lo dB		-2.71.5 for -14 \leq CPICH Ec/lo -3.22 for -16 \leq CPICH Ec/lo $<$ -14 -4.23 for -20 \leq CPICH Ec/lo $<$ -16	-4.23	-9487(Band I, IV, VI, X, XI, XIX, XXI) -9285 (Band II, V, VII) -90.583.5 (Band XXV, XXVI (Note 2)) -9184 (Band III, VIII, XII, XIII, XIV, XX, XXII) 9386 (Band IX (Note 1))	
		\pm 1.5 for -14 \leq CPICH Ec/lo \pm 2 for -16 \leq CPICH Ec/lo < -14 \pm 3 for -20 \leq CPICH Ec/lo < -16	± 3	-8750(Band I, IV, VI, X, XI, XIX, XXI) -8550 (Band II, V, VII) -83.550 (Band XXV, XXVI (Note 2)) -8450 (Band III, VIII, XII, XIII, XIV, XX, XXII) -8650 (Band IX (Note 1))	
NOTE1: For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.					
NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.					

A.9.4.2 E-UTRAN TDD

A.9.4.2.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH Ec/No absolute measurement accuracy is within the specified limits. This test will verify the requirements in Section 9.2.3. There are three different test setups with different UTRAN parameters.

A.9.4.2.2 Parameters

The test parameters are given in Tables A.9.4.2.2-1, A.9.4.2.2-2 and A.9.4.2.2-3 below.

Active cell

list size

DRX

CP length

Filter coefficient

Neighbor cells

Gap Pattern Id

Inter-RAT (UTRAN FDD)

measurement quantity Monitored UTRA FDD cell E-UTRAN cell 1 on RF channel number 1

UTRAN cell 2 on RF channel number 1

UTRA cells on UTRA RF channel 1

provided in the cell list.

L3 filtering is not used

8.1.2.1.

OFF

As specified in 3GPP TS 36.133 section

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
E-UTRAN RF Channel Number		1	One E-UTRAN TDD carrier frequency is used.
UTRAN RF Channel Number		1	One UTRAN FDD carrier frequency is used.
E-UTRAN Channel Bandwidth (BWchannel)	MHz	10	

Cell 1

Cell 2

CPICH Ec/N0

0

12

0

OFF

Normal

Table A.9.4.2.2-1: General test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN TDD

Table A.9.4.2.2-2: E-UTRAN TDD cell specific test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN TDD

Parameter	Unit	Test 1	Test 2	Test 3
E-UTRAN RF Channel Number		1		
BW _{channel}	MHz	10		
Special subframe configuration ^{Note1}		6		
Uplink-downlink configuration ^{Note1}		1		
OCNG Patterns defined in A.3.2.1.2 (OP.1 TDD)		OP.1 TDD		

PBCH_RA	dB	
PBCH_RB	dB	
PSS_RA	dB	
SSS_RA	dB	
PCFICH_RB	dB	
PHICH_RA	dB	
PHICH_RB	dB	0
PDCCH_RA	dB	
PDCCH_RB	dB	
PDSCH_RA	dB	
PDSCH_RB	dB	
OCNG_RA ^{Note 2}	dB	1
OCNG_RB ^{Note 2}	dB	1
N _{oc} Note 3	dBm/15	00
	kHz	-98
RSRP ^{Note 4}	dBm/15	-94
	kHz	-94
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	4
SCH_RP ^{Note 4}	-	· · · · · · · · · · · · · · · · · · ·
SCH_RP	dBm/15	-94
A 1	kHz	
\hat{E}_{s}/N_{oc}	dB	4
Propagation Condition		AWGN
	nk-downlink config	gurations see Tables 4.2-1 and 4.2-2 in 3GPP TS
36.211.		
		allocated and a constant total transmitted power
spectral density is achieved for		

Note 3: Interference from other cells and noise sources not specified in the test is assumed to be constant

over subcarriers and time and shall be modeled as AWGN of appropriate power for $\,N_{_{oc}}\,$ to be fulfilled.

Note 4: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Parameter		Unit	Test 1	Test 2	Test 3
	Parameter	Unit	Cell 2	Cell 2	Cell 2
	CPICH_Ec/lor	dB	-10	-10	-10
F	PCCPCH_Ec/lor	dB	-12	-12	-12
	SCH_Ec/lor	dB	-12	-12	-12
	PICH_Ec/lor	dB	-15	-15	-15
	DPCH_Ec/lor	dB	-	-	-
	OCNS_Ec/lor	dB	-0.94	-0.94	-0.94
	Band I, IV, VI, X, XI, XIX, XXI				-94.46
loc	Band II, V, VII	dBm/ 3.84	-52.22	-87.27	-92.46
100	Band III, VIII, XII, XIII, XIV, XX	MHz	-52.22	-01.21	-91.46
	Band IX (Note 2)				-93.46
	Îor/loc	dB	-1.75	-4.7	-9.54
CP	ICH Ec/lo, Note 1	dBm	-14.0	-16.0	-20.0
	Band I, IV, VI, X, XI, XIX, XXI	j,			-94
lo,	Band II, V, VII	dBm/	50	90	-92.0
Note 1	Band III VIII VII	3.84 MHz	-50	-86	-91.0
	Band IX (Note 2)				-93
Pro	pagation condition	-	AWGN	AWGN	AWGN
NOTE NOTE	2: For the UE which s	rs themselve supports both	e been calculated from other p s. n Band III and Band IX operat apply to the multi-band UE.		
Tests			all be done first. After test 1 h	as been executed test paran	neters for tests 2 and 3 shall
			UE does not loose the Cell 2		

Table A.9.4.2.2-3: UTRAN FDD cell specific test parameters for UTRAN FDD CPICH Ec/No absolute measurement accuracy test in E-UTRAN TDD

A.9.4.2.3 Test Requirements

The CPICH Ec/No measurement absolute accuracy shall meet the requirements in Section 9.2.3.

The effect of assumed thermal noise and noise generated in the receiver (-99 dBm for frequency bands I, IV, VI, X, XI, XIX and XXI; -98 dBm for frequency band IX, -97dBm for frequency bands II, V and VII; -95.5dBm for frequency band XXV and XXVI; and -96dBm for frequency band III) shall be added into the required accuracy. The test requirements for the absolute CPICH_Ec/Io measurement are shown in Table A.9.4.2.3-1.

Table A.9.4.2.3-1: CPICH	Ec/lo absolute accuracy
--------------------------	-------------------------

		Accuracy [dB]	Conditions	
Parameter Unit		Normal condition	Extreme condition	lo [dBm/3,84 MHz]
		-2.71.5 for $-14 \le$ CPICH Ec/lo -3.22 for $-16 \le$ CPICH Ec/lo < -14 -4.23 for $-20 \le$ CPICH Ec/lo < -16		-9487(Band I, IV, VI, X, XI, XIX, XXI) -9285 (Band II, V, VII) -90.583.5 (Band XXV, XXVI (Note 2)) -9184 (Band III, VIII, XII, XIII, XIV, XX, XXII) 9386 (Band IX (Note 1))
CPICH_Ec/lo	Ec/lo dB	\pm 1.5 for -14 \leq CPICH Ec/lo \pm 2 for -16 \leq CPICH Ec/lo $<$ -14 \pm 3 for -20 \leq CPICH Ec/lo $<$ -16	± 3	-8750(Band I, IV, VI, X, XI, XIX, XXI) -8550 (Band II, V, VII) -83.550 (Band XXV, XXVI (Note 2)) -8450 (Band III, VIII, XII, XIII, XIV, XX, XXII) -8650 (Band IX (Note 1))

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NOTE1: For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE
 NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies..

A.9.5 UTRAN TDD measurement

A.9.5.1 P-CCPCH RSCP absolute accuracy for E-UTRAN FDD

A.9.5.1.1 Test Purpose and Environment

The purpose of this test is to verify that the UTRAN TDD P-CCPCH RSCP measurement absolute accuracy is within the specified limits. This test will verify the requirements in section 9.3.1 and applies to UE supporting this capability.

Gap pattern configuration with id #1 as specified in Table 8.1.2.1-1 is provided. In the measurement control information it is indicated to the UE that periodic reporting of the UTRA TDD P-CCPCH RSRP measurement is used.

A.9.5.1.2 Test parameters

In this set of test cases there are two cells. Cell 1 is a E-UTRA FDD cell and cell 2 is a UTRA TDD cell. The absolute accuracy of P-CCPCH RSCP measurements are tested by using test parameters in Table A.9.5.1-1, Table A.9.5.1-2, and Table A.9.5.1-3. In all test cases, Cell 1 is the serving cell and Cell 2 is the target cell.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 FDD	As specified in section A.3.1.1.1
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 FDD	As specified in section A.3.1.2.1
E-UTRAN RF Channel Number		1	One E-UTRAN FDD carrier frequency is used.
UTRAN RF Channel Number		2	One UTRAN TDD carrier frequency is used.
E-UTRAN Channel Bandwidth (BWchannel)	MHz	10	
Active cell		Cell 1	E-UTRAN FDD cell 1 on RF channel number 1
Neighbor cells		Cell 2	1.28Mcps UTRA TDD cell 2 on RF channel number 2
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
CP length of cell 1		Normal	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	OFF
Inter-RAT (UTRAN TDD) measurement quantity		P-CCPCH RSRP	

Table A.9.5.1-1: General test parameters for UTRA TDD P-CCPCH RSCP measurement absolute accuracy in E-UTRAN FDD

Parameter	Unit	Test 1 Test 2 Test 3					
E-UTRA RF Channel Number		1					
BWchannel	MHz	10					
OCNG Patterns defined in A.3.2.1.1 (OP.1		OP.1 FDD					
FDD)		OF.1 FDD					
PBCH_RA							
PBCH_RB							
PSS_RA							
SSS_RA							
PCFICH_RB							
PHICH_RA							
PHICH_RB	dB	0					
PDCCH_RA							
PDCCH_RB							
PDSCH_RA							
PDSCH_RB							
OCNG_RA ^{Note1}							
OCNG_RB ^{Note1}							
$N_{oc}^{ m Note2}$	dBm/15 kHz	-98					
\hat{E}_s / I_{ot}	dB	4					
RSRP ^{Note3}	dBm/15 kHz	-94					
Io ^{Note3}	dBm/9 MHz	-64.76					
\hat{E}_s / N_{oc}	dB	4					
Propagation condition	-	AWGN					
Note 1: OCNG shall be used such that both	cells are fully all	ocated and a constant					
total transmitted power spectral de	ensity is achieve	d for all OFDM symbols.					
Note 2: Interference from other cells and noise sources not specified in the test is							
assumed to be constant over subcarriers and time and shall be modelled as							
	N						
AWGN of appropriate power for							
Note 3: RSRP and lo levels have been derived from other parameters for information							
purposes. They are not settable parameters themselves.							
Note 4: RSRP minimum requirements are specified assuming independent							
interference and noise at each receiver antenna port.							

Table A.9.5.1-2: UTRA TDD P-CCPCH RSCP measurement tests parameters (cell 1)

Table A.9.5.1-3: UTRA TDD P-CCPCH RSCP measurement tests parameters (cell 2)

Paramete	er Uni	t	Test 1		Tes	st 2	Test 3	
DL timeslot number		0			DwPTS		0	DwPTS
UTRA RF Channel nu	Imber Note2	(Channel 2		Channel 2		Channel 2	
PCCPCH_Ec/lor	dB	-3			-3		-3	
DwPCH_Ec/lor	dB			0		0		0
OCNS_Ec/lor	dB	-3			-3		-3	
loc	dBm/1.2	8MHz	-54.1		-75.2		-97	
Îor/loc	dB		2		5		()
PCCPCH RSCP Note1	dBn	า -55	.1		-73.2		-100	
lo Note1	dBm/1.2	8MHz	-50		-6	9	-9)4
Propagation condition	1				AW	GN		
Note 1: PCCPCH F	Note 1: PCCPCH RSCP and lo levels have been calculated from other parameters for information purposes. They							
are not set	are not settable parameters themselves.							
Note 2: In the case of multi-frequency network of 1.28 Mcps TDD, the UTRA RF Channel Number ca				ber can be	set for			
the primary frequency in this test.								

A.9.5.1.3 Test Requirements

The UTRA TDD P-CCPCH RSCP measurement accuracy shall meet the requirements in section 9.3.1.

A.9.5.2 P-CCPCH RSCP absolute accuracy for E-UTRAN TDD

A.9.5.2.1 Test Purpose and Environment

The purpose of this test is to verify that the UTRAN TDD P-CCPCH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.3.1 and applies to UE supporting this capability.

Gap pattern configuration with id #1 as specified in Table 8.1.2.1-1 is provided. In the measurement control information it is indicated to the UE that periodic reporting of the UTRA TDD P-CCPCH RSRP measurement is used.

A.9.5.2.2 Test parameters

In this set of test cases there are two cells. Cell 1 is a E-UTRA TDD cell and cell 2 is a UTRA TDD cell. The absolute accuracy of P-CCPCH RSCP measurements are tested by using test parameters in Table A.9.5.2-1, Table A.9.5.2-2, and Table A.9.5.2-3. In all test cases, Cell 1 is the serving cell and Cell 2 is the target cell.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2
PCFICH/PDCCH/PHICH parameters		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2
E-UTRAN RF Channel Number		1	One E-UTRAN TDD carrier frequency is used.
UTRAN RF Channel Number		2	One UTRAN TDD carrier frequency is used.
E-UTRAN Channel Bandwidth (BWchannel)	MHz	10	
Active cell		Cell 1	E-UTRA TDD cell1 on RF channel number 1
Neighbour cell		Cell 2	1.28Mcps UTRA TDD Cell2 on RF channel number 2
Gap Pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
CP length of cell 1		Normal	
Filter coefficient		0	L3 filtering is not used
DRX		OFF	
Time offset between cells	ms	3	Asynchronous cells
Inter-RAT (UTRAN TDD)		P-CCPCH RSCP	
measurement quantity			

Parameter	Unit	Test 1 Test 2 Test 3				
E-UTRA RF Channel Number		1				
BWchannel	MHz	10				
OCNG Patterns defined in A.3.2.2.1 (OP.1		OP.1 TDD				
TDD)		OF.I IDD				
PBCH_RA						
PBCH_RB						
PSS_RA						
SSS_RA						
PCFICH_RB						
PHICH_RA						
PHICH_RB	dB	0				
PDCCH_RA						
PDCCH_RB						
PDSCH_RA						
PDSCH_RB						
OCNG_RA ^{Note1}						
OCNG_RB ^{Note1}						
N _{oc} Note2	dBm/15 kHz	-98				
\hat{E}_s / I_{ot}	dB	4				
RSRP ^{Note3}	dBm/15 kHz	-94				
Io ^{Note3}	dBm/9 MHz	-64.76				
\hat{E}_s / N_{oc}	dB	4				
Propagation condition	-	AWGN				
Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as						
AWGN of appropriate power for N_{ac} to be fulfilled.						
Note 3: RSRP and lo levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						
Note 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.						

Table A.9.5.2-2: UTRA TDD P-CCPCH RSCP measurement tests parameters (cell 1)

Table A.9.5.2-3: UTRA TDD P-CCPCH RSCP measurement tests parameters (cell 2)

Parameter	Unit	Tes	Test 1		Test 2		Test 3	
DL timeslot number		0		DwPTS		0	DwPTS	
UTRA RF Channel number Note2		Channel 2		Channel 2		Channel 2		
PCCPCH_Ec/lor	dB	-3		-3		-3		
DwPCH_Ec/lor	dB		0		0		0	
OCNS_Ec/lor	dB	-3		-3		-3		
loc	dBm/1.28MHz	-54.1		-75.2		-97		
Îor/loc	dB	2		Ę	5		0	
PCCPCH RSCP Note1	dBm	-55.1		-73.2		-100		
lo Note1	dBm/1.28MHz	-50		-6	9	-(94	
Propagation condition AWGN								
Note 1: PCCPCH RSCP and lo levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
Note 2: In the case of multi-frequency network of 1.28 Mcps TDD, the UTRA RF Channel Number can be set for								

Note 2: In the case of multi-frequency network of 1.28 Mcps TDD, the UTRA RF Channel Number can be set for the primary frequency in this test.

A.9.5.2.3 Test Requirements

The UTRA TDD P-CCPCH RSCP measurement accuracy shall meet the requirements in section 9.3.1.

A.9.6 GSM Carrier RSSI

A.9.6.1 E-UTRAN FDD

A.9.6.1.1 Test Purpose and Environment

The purpose of this test is to verify that the GSM Carrier RSSI measurement accuracy is within the specified limits when the active cell is E-UTRAN FDD. This test will verify the requirements in section 9.4.1. There are 12 different test setups with different signal levels for the GSM cells.

Measurement gaps are configured to measure on the GSM cells. Table A.9.6.1.1-2 defines the cell specific test parameters for the E-UTRAN FDD cell. In the measurement control information it is indicated to the UE that periodic reporting of the GSM RSSI measurement is used. The limits of the GSM test parameters in terms of GSM BCCH received level at the receiver inputs are defined in Table A.9.6.1.1-3.

Parameter	Unit	Value	Comment
PDSCH parameters		DL Reference Measurement Channel	As specified in section A.3.1.1.1.
(E-UTRAN FDD)		R.0 FDD	
PCFICH/PDCCH/PHICH		DL Reference Measurement Channel	As specified in section A.3.1.2.1.
parameters		R.6 FDD	
(E-UTRAN FDD)			
Active cell	-	Cell 1	
DRX	-	OFF	
Gap pattern Id		1	As specified in 3GPP TS 36.133
			section 8.1.2.1.
Filtering coefficient	-	0	L3 filtering is not used.
Inter-RAT measurement		GSM Carrier RSSI	
quantity			
Monitored cell list size		6 GSM neighbours including ARFCN 1	Included in the Measurement
			control information

Table A.9.6.1.1.-2: E-UTRAN FDD Cell specific test parameters for GSM Carrier RSSI accuracy test in E-UTRAN FDD

Parameter	Unit	Tests 1-12
E-UTRAN RF Channel Number		1
BW _{channel}	MHz	10
OCNG Patterns defined in A.3.2.1.1 (OP.1 FDD)		OP.1 FDD

PBCH RA	dB					
 PBCH_RB	dB					
PSS_RA	dB					
SSS_RA	dB					
PCFICH_RB	dB					
PHICH_RA	dB					
PHICH_RB	dB	0				
PDCCH_RA	dB					
PDCCH_RB	dB					
PDSCH_RA	dB					
PDSCH_RB	dB					
OCNG_RA ^{Note 1}	dB					
OCNG_RB ^{Note 1}	dB					
$N_{_{oc}}$ Note 2	dBm/15 kHz	-98				
RSRP ^{Note 3}	dBm/15 kHz	-94				
$\hat{\mathrm{E}}_{\mathrm{s}}/\mathrm{I}_{\mathrm{ot}}$	dB	4				
SCH_RP ^{Note 3}	dBm/15 kHz	-94				
\hat{E}_s / N_{oc}	dB	4				
Propagation Condition		AWGN				
density is achieved	for all OFDM symbols	e fully allocated and a constant total transmitted power spectral s. urces not specified in the test is assumed to be constant over				
subcarriers and time and shall be modeled as AWGN of appropriate power for N_{ac} to be fulfilled.						
Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.						

Table A.9.6.1.1-3: BCCH signal levels at receiver input i	in dBm
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Step	BCCH1	BCCH2	BCCH3	BCCH4	BCCH5	BCCH6
1	-38.5	-38.5	NA	NA	NA	NA
2	-48.5	-48.5	NA	NA	NA	NA
3	-70.5	-70.5	NA	NA	NA	NA
4	-109.5	-109.5	NA	NA	NA	NA
5	-57.5	NA	-54.5	NA	NA	NA
6	-64.5	NA	-59.5	NA	NA	NA
7	-71.5	NA	NA	-64.5	NA	NA
8	-78.5	NA	NA	-69.5	NA	NA
9	-85.5	NA	NA	NA	-74.5	NA
10	-92.5	NA	NA	NA	-79.5	NA
11	-99.5	NA	NA	NA	NA	-84.5
12	-106.5	NA	NA	NA	NA	-89.5

A.9.6.1.2 Test Requirements

The GSM Carrier RSSI measurement accuracy shall meet the requirements in section 9.4.1.

A.9.6.2 E-UTRAN TDD

A.9.6.2.1 Test Purpose and Environment

The purpose of this test is to verify that the GSM Carrier RSSI measurement accuracy is within the specified limits when the active cell is E-UTRAN TDD. This test will verify the requirements in section 9.4.1. There are 12 different test setups with different signal levels for the GSM cells.

Measurement gaps are configured to measure on the GSM cells. Table A.9.6.2.1-2 defines the cell specific test parameters for the E-UTRAN TDD cell. In the measurement control information it is indicated to the UE that periodic reporting of the GSM RSSI measurement is used. The limits of the GSM test parameters in terms of GSM BCCH received level at the receiver inputs are defined in Table A.9.6.2.1-3.

Table A.9.6.2.1-1: Genera	al GSM Carrier	RSSI test	parameters
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Parameter	Unit	Value	Comment
PDSCH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.0 TDD	As specified in section A.3.1.1.2.
PCFICH/PDCCH/PHICH parameters (E-UTRAN TDD)		DL Reference Measurement Channel R.6 TDD	As specified in section A.3.1.2.2.
Active cell	-	Cell 1	
DRX	-	OFF	
Uplink-downlink configuration of cell 1		1	As specified in table 4.2.2 in TS 36.211
Special subframe configuration of cell 1		6	As specified in table 4.2.1 in TS 36.211
Gap pattern Id		1	As specified in 3GPP TS 36.133 section 8.1.2.1.
Filtering coefficient	-	0	L3 filtering is not used.
Inter-RAT measurement quantity		GSM Carrier RSSI	
Monitored cell list size		6 GSM neighbours including ARFCN 1	Included in the Measurement control information

Table A.9.6.2.1-2: E-UTRAN TDD Cell specific test parameters for GSM Carrier RSSI accuracy test in E-UTRAN TDD

Parameter	Unit	Tests 1 - 12
E-UTRAN RF Channel Number		1
BW _{channel}	MHz	10
OCNG Patterns defined in A.3.2.2.1 (OP.1 TDD)		OP.1 TDD

PBCH_RA	dB	
PBCH_RB	dB	
PSS_RA	dB	
SSS_RA	dB	
PCFICH_RB	dB	
PHICH_RA	dB	
PHICH_RB	dB	0
PDCCH_RA	dB	
PDCCH_RB	dB	
PDSCH_RA	dB	
PDSCH_RB	dB	
OCNG_RA ^{Note 1}	dB	
OCNG_RB ^{Note 1}	dB	
$N_{oc}^{ m Note 2}$	dBm/15 kHz	-98
RSRP ^{Note 3}	dBm/15 kHz	-94
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	4
SCH_RP ^{Note 3}	dBm/15 kHz	-94
\hat{E}_{s}/N_{oc}	dB	4
Propagation Condition		AWGN
Note 1: OCNG shall be used su	ch that all cells are fully	allocated and a constant total transmitted power spectral

Note 1: OCNG shall be used such that all cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over

subcarriers and time and shall be modeled as AWGN of appropriate power for $\,N_{oc}\,$ to be fulfilled.

Note 3: RSRP and SCH_RP levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

Step	BCCH1	BCCH2	BCCH3	BCCH4	BCCH5	BCCH6
1	-38.5	-38.5	NA	NA	NA	NA
2	-48.5	-48.5	NA	NA	NA	NA
3	-70.5	-70.5	NA	NA	NA	NA
4	-109.5	-109.5	NA	NA	NA	NA
5	-57.5	NA	-54.5	NA	NA	NA
6	-64.5	NA	-59.5	NA	NA	NA
7	-71.5	NA	NA	-64.5	NA	NA
8	-78.5	NA	NA	-69.5	NA	NA
9	-85.5	NA	NA	NA	-74.5	NA
10	-92.5	NA	NA	NA	-79.5	NA
11	-99.5	NA	NA	NA	NA	-84.5
12	-106.5	NA	NA	NA	NA	-89.5

Table A.9.6.2.1-3: BCCH signal levels at receiver input in dBm

A.9.6.2.2 Test Requirements

The GSM Carrier RSSI measurement accuracy shall meet the requirements in section 9.4.1.

A.9.7 UE Rx – Tx Time Difference

A.9.7.1 E-UTRAN FDD UE Rx – Tx time difference case

A.9.7.1.1 Test Purpose and Environment

The purpose of this test is to verify that the E-UTRAN FDD UE Rx - Tx time difference measurement accuracy is within the specified limits in Section 9.1.9.

There is only one active cell in the test. The tested UE is connected with the serving cell, configured to transmit SRS signals periodically, and signaled to report UE Rx - Tx time difference measurement. The test equipment measures the transmit timing of the UE using the transmitted SRS, and measures the receive timing using the downlink CRS. The test equipment then compares the difference of these two timings to the UE Rx-Tx measurement reported by the UE.

A.9.7.1.2 Test parameters

The parameters for this test case are defined in Table A.9.7.1.2-1, and the SRS configuration used is defined in Table A.9.7.1.2-2.

Parameter	Unit	Test 1	Test 2				
E-UTRAN RF Channel Number		1	1				
BW _{channel}	MHz	1.4	10				
DRX		0	FF				
PDSCH Reference measurement channel defined in A.3.1.1.1		R.2 FDD	R.0 FDD				
PDSCH allocation	n _{PRB}	2—3	13—36				
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.3.1.2.1		R.8 FDD	R.6 FDD				
OCNG Patterns defined in A.3.2.1.3 (OP.3 FDD) and A.3.2.1.1 (OP.1 FDD)		OP.3 FDD	OP.1 FDD				
PBCH_RA	dB						
PBCH_RB	dB						
PSS_RA	dB						
SSS_RA	dB						
PCFICH_RB	dB						
PHICH_RA	dB						
PHICH_RB	dB	0	0				
PDCCH_RA	dB						
PDCCH_RB	dB						
PDSCH_RA	dB						
PDSCH_RB	dB						
OCNG_RA ^{Note1}	dB	-					
OCNG_RB ^{Note1}	dB	-					
Note2	dBm/15 kHz	-98	-98				
RSRP Note3	dBm/15 kHz	-101	-101				
\hat{E}_s/N_{oc}	dB	-3	-3				
lo Note3	dBm/1.08 MHz	-77.66	N/A				
	dBm/9 MHz	N/A	-68.45				
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	-3	-3				
Propagation Condition		AW	/GN				
Note 1: OCNG shall be used such that the resources in the active cell are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols. Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modeled as AWGN of appropriate power for N _{oc} to be fulfilled.							
Note 3: RSRP and Io levels have been derived from other parameters to parameters themselves.	for information purpo	oses. They are	not settable				

Table A.9.7.1.2-1: FDD UE Rx – Tx time difference test parameters

Table A.9.7.1.2-2: Sounding Reference Symbol Configuration to be used in FDD UE Rx – Tx time difference test

Field	Test 1	Test 2	Comment
Field	Va	lue	Comment
srsBandwidthConfiguration	bw7	bw5	
srsSubframeConfiguration	S	c1	
ackNackSrsSimultaneousTransmission	FAI	LSE	
srsMaxUpPTS	N	/A	Not applicable for FDD
srsBandwidth	0		No hopping
srsHoppingBandwidth	hbw0		
frequencyDomainPosition	0		
Duration	TRUE		Indefinite duration
Srs-ConfigurationIndex	(0	SRS periodicity of 2ms for all
			Tests.
transmissionComb	0		
cyclicShift	C	s0	No cyclic shift
Note: For further information see section	on 6.3.2 in 3GPF	P TS 36.331.	

A.9.7.1.3 Test Requirements

The UE Rx – Tx time difference measurement accuracy shall fulfill the requirements in Section 9.1.9.

A.9.7.2 E-UTRA TDD

A.9.7.2.1 Test Purpose and Environment

The purpose of this test is to verify that the E-UTRAN TDD UE Rx-Tx time difference measurement accuracy is within the specified limits in section 9.1.9.

There is only one cell in the test. The tested UE is connected with the serving cell, configured to transmit SRS signals periodcally, and signaled to report UE Rx - Tx time difference measurement. The test equipment measures the transmit timing of the UE using the transmitted SRS, and measures the receive timing using the downlink CRS. The test equipment then compares the difference of these two timings to the UE Rx - Tx measurement reported by the UE.

A.9.7.2.2 Test parameters

The parameters for this test case are defined in Table A.9.7.2.2-1, and the SRS configuration used is defined in Table A.9.7.2.2-2.

Parameter	Unit	Tests 1	Tests 2					
E-UTRAN RF Channel Number	-	1	1					
BW _{channel}	MHz	1.4	10					
Uplink-downlink configuration of cell Note1		1	1					
Special subframe configuration of cell Note1		6	6					
PDSCH Reference measurement channel defined in	-	R.2 TDD	R.0 TDD					
A.3.1.1.2								
PDSCH allocation	n _{PRB}	2-3	13-36					
PDCCH/PCFICH/PHICH Reference measurement	-	R.8 TDD	R.6 TDD					
channel defined in A.3.1.2.2								
OCNG Patterns defined in A.3.2.2.3 (OP.3 TDD) and	-	OP.3 TDD	OP.1 TDD					
A.3.2.2.1 (OP.1 TDD)								
PBCH_RA	dB							
PBCH_RB	dB							
PSS_RA	dB							
SSS_RA	dB							
PCFICH_RB	dB							
PHICH_RA	dB							
PHICH_RB	dB	0	0					
PDCCH_RA	dB							
PDCCH_RB	dB							
PDSCH_RA	dB							
PDSCH_RB	dB							
OCNG_RANote2	dB							
OCNG_RB ^{Note2}	dB							
N _{oc} Note 3	dBm/15 kHz	-98	-98					
RSRP ^{Note 4}	dBm/15 kHz	-101	-101					
\hat{E}_s/N_{oc}	dB	-3	-3					
Io Note 4	dBm/1.08 MHz	-77.66	N/A					
	dBm/9 MHz	N/A	-68.45					
$\hat{\mathbf{E}}_{s}/\mathbf{I}_{ot}$	dB	-3	-3					
Propagation Condition			'GN					
Note 1: For special subframe and uplink-downlink co	nfigurations see T	ables 4.2-1 a	nd 4.2-2 in					
3GPP TS 36.211.								
Note 2: OCNG shall be used such that the cell is fully		constant total	transmitted					
power spectral density is achieved for all OF			1.4					
Note 3: Interference from other cells and noise source	es not specified ir	the test is as	ssumed to					
	be constant over subcarriers and time and shall be modeled as AWGN of appropriate							
power for N_{oc} to be fulfilled.								
Note 4: RSRP and lo levels have been derived from	other parameters	for informatio	n purposes.					
They are not settable parameters themselve								

Table A.9.7.2.2-2: Sounding Reference Symbol Configuration to be used in TDD UE Rx – Tx time difference test

Field	Test 1	Test 2	Comment		
Field	Va	ue	Comment		
srsBandwidthConfiguration	bw7	bw5			
srsSubframeConfiguration	SC	:1			
ackNackSrsSimultaneousTransmission	FAL	SE			
srsMaxUpPTS	TR	UE			
srsBandwidth	0		0		No hopping
srsHoppingBandwidth	hbw0				
frequencyDomainPosition	()			
Duration	TR	UE	Indefinite duration		
Srs-ConfigurationIndex	1	0	SRS periodicity of 10ms for all		
transmissionComb	()	Tests.		
cyclicShift	CS	60	No cyclic shift		
Note: For further information see section	on 6.3.2 in 3GPF	TS 36.331.			

A.9.7.2.3 Test Requirements

The UE Rx – Tx time difference measurement accuracy shall fulfill the requirements in section 9.1.9.

A.9.8 RSTD

A.9.8.1 E-UTRAN FDD RSTD intra frequency case

A.9.8.1.1 Test Purpose and Environment

The purpose of this test is to verify that the RSTD intra-frequency measurement accuracy is within the specified limits in section 9.1.10.1 in AWGN channels.

In the test, there are two synchronous cells, Cell 1 as the reference cell and Cell 2 as the neighbour cell on the same frequency.

The OTDOA assistance data as defined in TS 36.355, Section 6.5.1, shall be provided to the UE before the measurement period. The last TTI containing the OTDOA assistance data shall be provided to the UE Δ T ms before the start of measurement period, where Δ T = 150 ms is the maximum processing time of the OTDOA assistance data.

A time span of $T_{RSTD IntraFreqFDD, E-UTRAN}$ is provided for the measurement period, and PRS are configured according to I_{PRS} in Tables A.9.8.1.1-1 and A.9.8.1.1-2 during this time.

The test parameters are given in Table A.9.8.1.1-1 and Table A.9.8.1.1-2.

Table A.9.8.1.1-1: General Test Parameters for intra frequency RSTD Tests for E-UTRAN FDD

Parameter	Unit		Comment					
		Test1	Test2	lue Test3	Test4			
PCFICH/PDCCH/PHICH parameters		R.8	FDD	R.6 FDD		As specified in section A.3.1.2.1		
OCNG Patterns defined in A.3.2.1		OP.7 FDD		OP.6 FDD		OP.7 FDD OP.6 FDD such that a constant spectral of achieved symbols of those in t		OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols (other than those in the PRS subframes).
Reference cell			Ce					
Neighbour cell E-UTRA RF Channel				<u> 2</u>		One FDD carrier		
Number						frequency is used.		
Channel Bandwidth (BW _{channel})	MHz	1	.4	1	0			
PRS Bandwidth	RB	e	6 50 i			PRS bandwidth is as indicated in <i>prs</i> - <i>Bandwidth</i> in the OTDOA assistance data defined in [24].		
PRS configuration Index I _{PRS}		40 0				As defined in 3GPP TS 36.211		
Number of consecutive positioning downlink subframes $N_{\rm PRS}$		6 1				As defined in 3GPP TS 36.211		
prs-MutingInfo			Cell 1: '1 Cell 2: '1	1110000'		See section 6.5.1.2 in 3GPP TS 36.355 for more information		
Cell ID		(Cell ID of cell 1 – Cell ID of cell 2) mod $6 = 0$	(Cell ID of cell 1 – Cell ID of cell 2) mod 6 = 1	(Cell ID of cell 1 – Cell ID of cell 2) mod $6 = 0$	(Cell ID of cell 1 – Cell ID of cell 2) mod $6 = 3$			
expectedRSTD	us	Cell 2: 1 Other neighbour cells: randomly between -3 and 3	Cell 2: -1 Other neighbour cells: randomly between -3 and 3	Cell 2: -1 Other neighbour cells: randomly between -3 and 3	Cell 2: 1 Other neighbour cells: randomly between -3 and 3			
expectedRSTDUncertainty for all neighbour cells	us	5	5	5	5			
CP length				mal				
DRX Radio frame transmit time offset between the cells at the UE antenna connector	us	OFF Cell 2 to Cell 1: -3				Cell 2 to Cell 1: 3		
Number of cells provided in OTDOA assistance data		16				The number of cells includes the reference cell		
T _{RSTD} IntraFreqFDD, E-UTRAN	ms		Derived according to the RSTD measurement requirements specified in Section 8.1.2.5.1					

Devenueter	l lucit	Те	st1	Те	st2	Те	st3	Те	Test4	
Parameter	Unit	Cell1	Cell2	Cell1	Cell2	Cell1	Cell2	Cell1	Cell2	
E-UTRA RF Channel					1	1				
Number										
PBCH_RA										
PBCH_RB										
PSS_RA										
SSS_RA										
PCFICH_RB										
PHICH_RA	dB	0	0	0	0	0	0	0	0	
PHICH_RB										
PDCCH_RA										
PDCCH_RB										
OCNG_RA ^{Note1}										
OCNG_RB ^{Note1}										
PRS_RA	dB	0	0	-3	0	0	0	-3	0	
$N_{_{oc}}^{_{ m Note2}}$	dBm/15 kHz	-98	-98	-98	-98	-98	-98	-98	-98	
PRS $\hat{\mathrm{E}}_{\mathrm{s}}/N_{oc}$	dB	-2.37	-8.02	-6	-13	-2.37	-8.02	-6	-13	
PRS $\hat{E}_{_s}/I_{_{ot}}$ Note3	dB	-3	-10	-6	-13	-3	-10	-6	-13	
lo Note3	dBm/1.08 MHz	-78.92	-78.92	-79.21	-79.21	N/A	N/A	N/A	N/A	
	dBm/9 MHz	N/A	N/A	N/A	N/A	-69.72	-69.72	-70	-70	
PRP ^{Note3}	dBm/15kHz	-100.37	-106.02	-104	-111	-100.37	-106.02	-104	-111	
${ m \hat{E}_s}/N_{oc}$ Note 3	dB	-2.37	-8.02	-3	-13	-2.37	-8.02	-3	-13	
RSRP Note 3	dBm/15kHz	-100.37	-106.02	-101	-111	-100.37	-106.02	-101	-111	
Propagation					AW	GN				
condition						-				
	l be used such the							ower spe	ctral	
	chieved for all OF									
Note 2: Interference	from other cells	and noise s	ources not	specified	in the test	t is assume	d to be con	stant ove	r	
subcarriers	and time and sha	ll be model	led as AWC	GN of app	ropriate po	ower for N	$_{oc}$ to be full	filled.		
Note 3: $\hat{\mathrm{E}}_{\mathrm{s}}/N_{\mathit{oc}}$, P	Note 3: \hat{E}_s/N_{ac} , PRS \hat{E}_s/I_{at} , Io, RSRP and PRP levels have been derived from other parameters for information									
	hey are not setta or SSS in the OI				alues are	derived in t	he case tha	it there is	no	

Table A.9.8.1.1-2: Cell Specific Test Parameters for intra frequency RSTD Tests for E-UTRAN FDD

A.9.8.1.2 Test Requirements

The RSTD measurement accuracy shall fulfill the requirements in section 9.1.10.1.

A.9.8.2 E-UTRAN TDD RSTD intra frequency case

A.9.8.2.1 Test Purpose and Environment

The purpose of this test is to verify that the RSTD intra-frequency measurement accuracy is within the specified limits in section 9.1.10.1 in AWGN channels.

In the test, there are two synchronous cells, Cell 1 as the reference cell and Cell 2 as the neighbour cell on the same frequency.

The OTDOA assistance data as defined in TS 36.355, Section 6.5.1, shall be provided to the UE before the measurement period. The last TTI containing the OTDOA assistance data shall be provided to the UE Δ T ms before the start of measurement period, where Δ T = 150 ms is the maximum processing time of the OTDOA assistance data.

A time span of $T_{RSTD IntraFreqTDD, E-UTRAN}$ is provided for the measurement period, and PRS are configured according to I_{PRS} in Tables A.9.8.2.1-1 and A.9.8.2.1-2 during this time.

The test parameters are given in Table A.9.8.2.1-1 and Table A.9.8.2.1-2.

Table A.9.8.2.1-1: General Test Parameters for intra frequency RSTD Tests for E-UTRAN TDD

Parameter	Unit		Va	Comment		
	•	Test1	Test2	Test3	Test4	
PCFICH/PDCCH/PHICH parameters		R.8	TDD	R.6	TDD	As specified in section A.3.1.2.2
OCNG Patterns defined in A.3.2.2		OP.4	TDD		2 TDD	OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols (other than those in the PRS subframes). There is no PDSCH allocated in the subframe transmitting PRS.
Reference cell Neighbour cell				ell 1 ell 2		
E-UTRA RF Channel Number				1		One TDD carrier frequency is used.
Channel Bandwidth (BW _{channel})	MHz	1	.4	1	0	
PRS Bandwidth	RB	(6	5	50	PRS bandwidth is as indicated in prs- Bandwidth in the OTDOA assistance data defined in [24].
Special subframe configuration		(6		6	As specified in table 4.2-1 in TS 36.211. The same configuration in both cells.
Uplink-downlink configuration		:	3		1	As specified in table 4.2-2 in TS 36.211 and table 8.1.2.5.2-2. The same configuration in both cells.
PRS configuration Index I _{PRS}		Ç	9	1	4	As defined in 3GPP TS 36.211
Number of consecutive positioning downlink subframes $N_{\rm PRS}$		(6		1	As defined in 3GPP TS 36.211
prs-MutingInfo			Cell 2: '1	1110000' 1110000'		See section 6.5.1.2 in 3GPP TS 36.355 for more information
Cell ID		(Cell ID of cell 1 – Cell ID of cell 2) mod $6 = 0$	(Cell ID of cell 1 – Cell ID of cell 2) mod 6 = 1	$\begin{array}{c} (\text{Cell ID of} \\ \text{cell 1} - \text{Cell} \\ \text{ID of cell 2} \\ \text{mod 6} = 0 \end{array}$	(Cell ID of cell $1 - Cell$ ID of cell 2) mod $6 = 3$	
expectedRSTD	us	Cell 2: 1 Other neighbour cells: randomly between -3 and 3	Cell 2: -1 Other neighbour cells: randomly between -3 and 3	Cell 2: -1 Other neighbour cells: randomly between -3 and 3	Cell 2: 1 Other neighbour cells: randomly between -3 and 3	
expectedRSTDUncertainty for all neighbour cells	us	5	5			
CP length				mal		
DRX Radio frame transmit time offset between the cells at the UE antenna connector	us			FF Cell 1: -3		Cell 2 to Cell 1: 3

Number of cells provided in OTDOA assistance data		16	The number of cells includes the reference cell
T _{RSTD IntraFreqTDD, E-UTRAN}	ms	2560	Derived according to the RSTD measurement requirements specified in Section 8.1.2.5.2

Table A.9.8.2.1-2: Cell Specific Test Parameters for intra frequency RSTD Tests for E-UTRAN TDD

Devenueter	Unit	Те	st1	Те	st2	Те	st3	Те	st4		
Parameter	Unit	Cell1	Cell2	Cell1	Cell2	Cell1	Cell2	Cell1	Cell2		
E-UTRA RF Channel					1						
Number			1			1		1	1		
PBCH_RA											
PBCH_RB											
PSS_RA											
SSS_RA											
PCFICH_RB											
PHICH_RA	dB	0	0	0	0	0	0	0	0		
PHICH_RB											
PDCCH_RA											
PDCCH_RB											
OCNG_RA ^{Note1}											
OCNG_RB ^{Note1}											
PRS_RA	dB	0	0	-3	0	0	0	-3	0		
N_{oc} Note2	dBm/15 kHz	-98	-98	-98	-98	-98	-98	-98	-98		
PRS $\hat{\mathrm{E}}_{\mathrm{s}}/N_{\mathit{oc}}$	dB	-2.37	-8.02	-6	-13	-2.37	-8.02	-6	-13		
PRS $\hat{E}_{_s}/I_{_{ot}}$ Note3	dB	-3	-10	-6	-13	-3	-10	-6	-13		
lo ^{Note3}	dBm/1.08 MHz	-78.92	-78.92	-79.21	-79.21	N/A	N/A	N/A	N/A		
	dBm/9 MHz	N/A	N/A	N/A	N/A	-69.72	-69.72	-70	-70		
PRP ^{Note3}	dBm/15kHz	-100.37	-106.02	-104	-111	-100.37	-106.02	-104	-111		
${\hat{\rm E}}_{ m s}/N_{\it oc}$ Note 3	dB	-2.37	-8.02	-3	-13	-2.37	-8.02	-3	-13		
RSRP Note 3	dBm/15kHz	-100.37	-106.02	-101	-111	-100.37	-106.02	-101	-111		
Propagation condition					AW	GN					
	be used such the	at both cells	s are fullv a	located a	nd a cons	tant total tra	ansmitted p	ower spe	ctral		
	chieved for all OF										
	the subframe trai						•				
subcarriers	and time and sha	ll be model	led as AWC	SN of app	ropriate po	ower for N	$_{oc}$ to be full	filled.			
Note 3: $\hat{\mathrm{E}}_{\mathrm{s}}/N_{oc}$, P											
purposes. T	hey are not setta or SSS in the OI	ble parame	ters themse	elves. lo v							

A.9.8.2.2 Test Requirements

The RSTD measurement accuracy shall fulfill the requirements in section 9.1.10.1.

Annex B (informative): Change history:

Change H Date	TSG#	TSG Doc.	CR	R	Subject	Old	New
2007-	RP#3	RP-071037		ev	Approved version in TSG RAN#38	-	8.0.0
12 2008-	8 RP#3	DD 090102	2			800	8.1.0
2008- 03	9	RP-080123			Updates of TS36.133	8.0.0	0.1.0
2008- 05	RP#4 0	RP-080325	3		Updates of TS36.133	8.1.0	8.2.0
2008-	RP#4	RP-080644	006	1	E-UTRAN TDD intra frequency	8.2.0	8.3.0
09	1 RP#4		000	1	measurements when DRX is used	0.0.0	0.0.0
2008- 09	RP#4	RP-080644	800	1	E-UTRAN TDD - UTRAN TDD measurements	8.2.0	8.3.0
2008-	RP#4	RP-080644	012		RSRQ reporting Range	8.2.0	8.3.0
09 2008-	1 RP#4	RP-080644	018	1	Interfrequency and UTRA interRAT DRX	8.2.0	8.3.0
09	1				peformance requirements		
2008- 09	RP#4 1	RP-080644	020	1	Additions to UE transmit timing requirements	8.2.0	8.3.0
2008- 09	RP#4 1	RP-080644	043		Received interference power measurement performance requirement	8.2.0	8.3.0
2008-	RP#4	RP-080644	044		Cell Synchronization requirement for E-UTRA	8.2.0	8.3.0
09 2008-	1 RP#4	RP-080644	047	+	TDD Power Headroom Requirements	8.2.0	8.3.0
09 2008-	1 RP#4	RP-080644	048		Event Triggering and Reporting Criteria	8.2.0	8.3.0
09	1				Capability Requirements		
2008- 09	RP#4 1	RP-080642	004		Correction of E-UTRAN to UTRAN TDD handover	8.2.0	8.3.0
2008- 09	RP#4 1	RP-080642	016	1	Definition of Symbols	8.2.0	8.3.0
2008- 09	RP#4	RP-080642	019	1	Idle mode requirements updates	8.2.0	8.3.0
2008- 09	RP#4	RP-080642	021	1	General updates to 36.133	8.2.0	8.3.0
2008- 09	RP#4	RP-080642	023	1	Handover requirements for E-UTRAN to cdma200 HRPD/1x	8.2.0	8.3.0
2008-	RP#4	RP-080642	024		Inter-frequency and inter-RAT measurement	8.2.0	8.3.0
09 2008-	1 RP#4	RP-080642	025		requirements for multiple layer monitoring Side conditions for UE measurement	8.2.0	8.3.0
09	1				procedures and measurement performance	0.2.0	0.0.0
					requirements		
2008- 09	RP#4 1	RP-080642	026		Correction to cell reselection Requirement from E-UTRAN to HRPD/cdma200 1x	8.2.0	8.3.0
2008- 09	RP#4	RP-080642	027		IRAT Measurement requirements in TS 36.133	8.2.0	8.3.0
2008-	RP#4	RP-080713	022	1	Corrections to Handover requirements	8.2.0	8.3.0
09 2008-	1 RP#4	RP-080713	028		Measurement reporting requirements	8.2.0	8.3.0
09 2008-	1 RP#4	RP-080713	029	2	RRC re-establishment requirements	8.2.0	8.3.0
09 2008-	1 RP#4	RP-080713	032	<u> </u>	Correction to UE measurement requirements	8.2.0	8.3.0
09	1						<u> </u>
2008- 09	RP#4 1	RP-080713	033		Correction for the definition of interruption time	8.2.0	8.3.0
2008- 09	RP#4	RP-080713	040	1	Correction to idle mode higher priority search requirements	8.2.0	8.3.0
2008-	RP#4	RP-080713	045		E-UTRAN TDD inter frequency	8.2.0	8.3.0
09 2008-	1 RP#4	RP-080713	046		measurement requirements Updates of the Measurement procedures in	8.2.0	8.3.0

09	1				RRC_Connected state from RAN 4#47bis		
2008-	RP#4	RP-080919	53		and RAN 4#48 Introduction of 700MHz Bands 12, 14 and 17	8.3.0	8.4.0
12	2			<u> </u>			
2008- 12	RP#4 2	RP-080928	88	1	CR to 36.133 on Radio Link Failure Monitoring	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080929	51		Correction to idle mode requirements	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080929	52		Definition of out of service area	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080929	54		Measurement requirements for UTRAN TDD cells in idle state	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080929	69	2	Correction of Inter-RAT UTRA cell reselection requirement	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080929	55		Correction of E_UTRAN cell measurement requirements in idle state	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080930	76		Correction to HO Requirements	8.3.0	8.4.0
2008- 12	 RP#4 2	RP-080931	71		Random access requirements	8.3.0	8.4.0
2008- 12	 RP#4 2	RP-080932	85		Cell phase synchronization error for large cell	8.3.0	8.4.0
2008- 12	RP#4	RP-080932	63	4	Synchronization Requirements for E-UTRAN to 1xRTT and HRPD Handovers	8.3.0	8.4.0
2008- 12	RP#4	RP-080933	49		E-UTRAN TDD-TDD intra/inter frequency measurement reporting requirements	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080933	50		E-UTRAN FDD – UTRAN FDD Measurement reporting requirements	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080933	58		Measurement requirement for E-UTRAN TDD to UTRAN TDD/FDD when DRX is used	8.3.0	8.4.0
2008- 12	RP#4	RP-080933	60		Interfrequency and GSM measurement performance requirements in large DRX	8.3.0	8.4.0
2008- 12	2 RP#4 2	RP-080933	62		Correction of implementation margin for transmission gap.	8.3.0	8.4.0
2008- 12	2 RP#4 2	RP-080933	72		Alignement of DRX cycle dependent requirements	8.3.0	8.4.0
2008- 12	RP#4	RP-080933	73	1	Alignement of side conditions for mobility measurements	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080933	66	1	Measurement models in RRC_CONNECTED	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080933	78	1	Limitation of maximum number of layers for multiple monitoring	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080933	83	1	GSM Cell identification requirements for parallel monitoring	8.3.0	8.4.0
2008- 12	RP#4	RP-080933	87		UE transmit timing requirement	8.3.0	8.4.0
2008-	RP#4	RP-080933	56		Correction of TS 36.133 section 8.1.2.1.1.	8.3.0	8.4.0
12 2008- 12	2 RP#4 2	RP-080934	77		Correction to RSRQ Report Mapping	8.3.0	8.4.0
2008- 12	RP#4		86		Missing side conditions for RSRP and RSRQ	8.3.0	8.4.0
2008- 12	2 RP#4	RP-080935	81	1	Phase I RRM Test Cases	8.3.0	8.4.0
2008- 12	2 RP#4 2		80	1	Test Configuration for RRM Tests: Measurement Reference Channels and OCNG	8.3.0	8.4.0
2008- 12	RP#4 2	RP-080936	75		Cdma200 1xRTT Measurement	8.3.0	8.4.0
2008-	RP#4	RP-080937	74	1	Requirements E-UTRA to UTRA cell search requirements for SON	8.3.0	8.4.0
12 2009- 03	2 RP#4	RP-090182	101	1	Correction of A3-offset parameter in RRM	8.4.0	8.5.0
03 2009-	3 RP#4	RP-090182	105		test case Some Editorial Corrections	8.4.0	8.5.0
03 2009-	3 RP#4	RP-090182	145		Clarifications for the DRX state	8.4.0	8.5.0
03	3						

2009- 03	RP#4 3	RP-090183	89		Modification on measurements of UTRAN TDD cells	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090183	91		Clarification of the correct behavior when Treselection is not a multiple of idle mode	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090183	98		reselection evaluation period Clarification of 'Out of Service Area' Concept and Definition	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090183	118		Radio link monitoring	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090183	142	1	Update of RRC_IDLE state mobility side conditions	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090183	150		UE measurement capability in Idle mode	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090184	133		Removal of RRC re-establishment procedure delay	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090184	138	1	Correction for the UE Re-establishment delay requirement	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090185	92	2	Cell phase synchronization accuracy	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090185	97		Radio link monitoring in DRX	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090185	120		UE Transmit Timing	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090185	137	1	Clarification of the reference point for the UE initial transmission timing control requirement	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	90		Correction of section 8.1.2.2.2.2 in TS36.133	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	93	1	cdma2000 1xRTT and HRPD Measurement Requirements	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	94		Event Triggered Periodic Reporting Requirements for IRAT Measurements	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	95		Measurement Reporting Requirements for E- UTRAN TDD – UTRAN TDD Measurements	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	99	1	Clarification of UE behavior when measurement gap is used	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	100		E-UTRA to UTRA cell search requirements in DRX for SON	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	110	1	Correction to GSM BSIC Requirements for Parallel Monitoring	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	117		Alignment of terminology for GAP	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	134		Inter frequency and Inter RAT cell search requirement when DRX is used	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	139		Correction of E-UTRAN FDD – UTRAN FDD measurements when no DRX	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	146		Addition of the definition of "when DRX is used"	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090186	147	1	Corrections to E-UTRAN inter-frequency side conditions	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090187	96		Correction to Intra-frequency RSRP Accuracy Requirements	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090187	136	1	Power Headroom reporting delay	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	103	1	E-UTRAN -GSM Handover Test Case	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	104	1	E-UTRAN FDD - UTRAN TDD Cell Search Test Cases in Fading	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	106	1	E-UTRA FDD to UTRA FDD Handover Test Case	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	107	1	Correction of E-UTRA FDD-FDD Intra- frequency cell reselection test case	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	108	1	Correction of E-UTRA FDD-FDD priority based Inter-frequency cell reselection test	8.4.0	8.5.0
2009-	RP#4	RP-090370	111		case E-UTRAN TDD - UTRAN FDD Handover Test	8.4.0	8.5.0
03 2009-	3 RP#4	RP-090370	112	1	Case E-UTRAN FDD - GSM Cell Search Test Case	8.4.0	8.5.0
2000-	111 #4		114	1.1		0.7.0	0.0.0

03	3		I		in AWGN		
2009- 03	RP#4 3	RP-090370	113		E-UTRAN - UTRAN FDD Cell Search Test Cases in Fading	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	114	1	E-UTRAN UE Timing Accuracy Related Test Cases	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	115	1	Inclusion of MBSFN Configurations for RRM Test Cases	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	116		E-UTRAN FDD HRPD Cell Reselection Test Case; HRPD of Low Priority	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	122	1	Clarification on Annex A.9: Measurement performance requirements	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	125		E-UTRA TDD – UTRA TDD cell reselection: UTRA is of higher priority	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	126		E-UTRA TDD – UTRA TDD cell reselection: UTRA is of lower priority	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	127		E-UTRA FDD – UTRA TDD cell reselection	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	128	1	E-UTRA TDD-UTRA TDD cell search (fading)	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	129	1	E-UTRA TDD-UTRA TDD handover	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	132	1	Addition of E-UTRA FDD to UTRA FDD reselection test cases	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	141	1	Correction and introduction of some test related parameters	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	143		Description of Annex A in TS 36.133	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	148		Reselection from E-UTRA to GSM cell test case	8.4.0	8.5.0
2009- 03	RP#4 3	RP-090370	149		Radio Link Monitoring Test Cases	8.4.0	8.5.0
2009- 05	RP#4 4	RP-090546	151		E-UTRA FDD UTRA TDD HO delay test case	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	153		Correction of CQI reporting periodicity for TDD RLM test cases	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	157		Correction to inter RAT reselection requirements to exclude equal priority. (Technically Endorsed CR in R4-50bis - R4- 091092)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	167		Clarification of the number of monitoring carriers in idle mode. (Technically Endorsed CR in R4-50bis - R4-091394)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	180		Correction of Core spec references in A.9 Measurements performance test cases	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	984		UTRA FDD-E-UTRA FDD/ TDD handover test cases	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	184		SON ANR UTRAN FDD Cell Search Test Case	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	187		E-UTRAN FDD cdma2000 1x RTT Cell Reselection Test Case; Cdma2000 1X of Low Priority	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	188		E-UTRAN FDD cdma2000 HO Test cases	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	190		E-UTRAN Random Access Test Cases	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	191		E-UTRAN RRC Re-establishment Test Cases	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	192		E-UTRAN TDD - GSM Cell Search Test Case in AWGN	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	197		Correction to E-UTRAN FDD - GSM Handover Test case	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	173	1	Correction of cell reselection test cases	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	179	1	Test cases of E-UTRA TDD intra-frequency cell search in fading environment when DRX is used	8.5.0	8.6.0
2009-	RP#4	RP-090546	152	1	E-UTRA TDD GSM handover test case	8.5.0	8.6.0

05	4						
2009- 05	4 RP#4 4	RP-090546	178	1	Test cases of E-UTRA FDD intra-frequency cell search in fading environment when DRX	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	201	1	is used Test case for E-UTRA FDD E-UTRA FDD inter frequency cell search when DRX is used in fading conditions	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	185	1	in fading conditions Correction to Radio Link Monitoring Tests	8.5.0	8.6.0
2009- 05	RP#4	RP-090546	203		Correction to E-UTRAN FDD to HRPD Cell Reselection Test Case	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	177	1	Introduction of New Reference Channels and OCNG Patterns for 1.4MHz Bandwidth	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090546	200	2	Test case for E-UTRA TDD E-UTRA TDD inter frequency cell search when DRX is used in fading conditions	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090547	158		Alignment of inter frequency and inter RAT RRM reselection testcases with core requirements. (Technically Endorsed CR in R4-50bis - R4-091094)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090547	160		Correction relating E-ÚTRAN TDD - UE Transmit Timing Accuracy Tests. (Technically Endorsed CR in R4-50bis - R4-091198)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090547	165		Modifications of T3 and the verification point for in-sync test cases. (Technically Endorsed CR in R4-50bis - R4-091386)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090547	172		E-UTRAN UE Timing Accuracy Related Test Cases. (Technically Endorsed CR in R4- 50bis - R4-091517)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090547	171	1	Reference measurement Channels for Radio Link Monitoring Tests with 2 Antennas. (Technically Endorsed CR in R4-50bis - R4- 091508)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090548	170		Misalignment between TS36.133 and TS36.321. (Technically Endorsed CR in R4- 50bis - R4-091457)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090548	193		Correction to Inter-RAT HO Interruption Time Definition	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090548	195		CR c2k RRC delay	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090548	196		CR c2k interruption time	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090548	162		Clarifications to UE UL timing requirements. (Technically Endorsed CR in R4-50bis - R4- 091357)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090548	176		Corrections of Random Access Requirements	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090548	154		Correction of TGRP in clause 8.1.2.1.1	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090548	168		Clarifications for the Relative RSRP and RSRQ measurement requirements. (Technically Endorsed CR in R4-50bis - R4- 091407)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090549	161		E-UTRÁN UTRAN HO Command Processing Delay. (Technically Endorsed CR in R4-50bis - R4-091291)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090549	175		Corrections of Cell Reselection Requirements in Idle Mode	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090549	181	2	Removal of [] from ranking criteria in Idle mode cell reselection	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090550	156		Correction on the TDD-TDD inter frequency measurements. (Technically Endorsed CR in R4-50bis - R4-091071)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090550	159		Correction to the Referenced Section Number for Tinter1. (Technically Endorsed CR in R4- 50bis - R4-091153)	8.5.0	8.6.0
2009-	RP#4	RP-090551	166		Further clarification of DRX/Non-DRX state.	8.5.0	8.6.0

05	4				(Technically Endorsed CR in R4-50bis - R4- 091389)		
2009- 05	RP#4 4	RP-090551	202		Correction on reference to 3GPP2 specification	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090551	169		OCNG simplification. (Technically Endorsed CR in R4-50bis - R4-091410)	8.5.0	8.6.0
2009- 05	RP#4 4	RP-090559	155		Introduction of Extended LTE800 requirements. (Technically Endorsed CR in R4-50bis - R4-091063)	8.6.0	9.0.0
2009- 05	RP#4 5	RP-090817	211		Correction to TDD RMC references in RLM test cases	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090880	205		Introduction of Reference DRX configurations	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090880	207		Addition of DRX configurations into non DRX test cases	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090880	225		Correction to HO Test Cases	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090880	227		Correction to E-UTRAN GSM BSIC Identification Requirements with DRX	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090880	259		Corrections of Test Cases	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090880	314		E-UTRA FDD - E-UTRA FDD and UTRA FDD cell search test cases	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090880	315		E-UTRAN Radio Link Monitoring Test Cases in DRX	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090880	316		Inter-frequency E-UTRA - E-UTRA HO test cases: unknown target cell	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090880	263	2	E-UTRA FDD UTRA FDD Blind Handover test case: unknown target cell	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090836	321	1	Small corrections to Measurements performance tests parameters	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090836	285	1	E-UTRAN GSM Cell Search in DRX Test Cases	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090836	267		Set 3.2. E-UTRA TDD to UTRA TDD cell search in DRX under fading	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090836	269		Set 3.6. Test case of E-UTRA TDD to E- UTRA TDD and UTRA TDD combined cell search under fading	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090836	271		Set 3.12. E-UTRA TDD to UTRA TDD blind handover test	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090836	279		E-UTRAN FDD - UTRAN FDD Cell Search in DRX Test Cases	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090836	281		E-UTRAN TDD- E-UTRAN TDD and E- UTRAN TDD Inter-frequency Cell Search Test Case	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090836	283		E-UTRAN GSM Blind Handover Test Cases	9.0.0	9.1.0
2009- 05	8 RP#4 5	RP-090836	287		E-UTRAN FDD cdma2000 Blind HO Test cases	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090836	302		RRM Test case for multiple E-UTRAN FDD- FDD Inter-frequency event triggered reporting under fading propagation conditions	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090836	304		Fading reselection test case between E- UTRA and UTRA (UTRA of lower priority	9.0.0	9.1.0
2009- 05	8 RP#4 5	RP-090828	233		CR SI HRPD correction	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090879	215	1	Corrections to Measurements of HRPD cells and cdma2000 1X	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090879	231		CR reference correction	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090879	235	1	Corrections to Measurements of GSM cells in RRC_IDLE	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090879	247		Range of Idle Mode Es/lot side conditions	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090879	249		Removal of [] from Tdetect, Tmeasure and Tevaluate	9.0.0	9.1.0
2009-	RP#4	RP-090879	245	1	Clarification to applicability of RSRP side	9.0.0	9.1.0

05	5				conditions in Idle mode		
2009-	RP#4	RP-090879	317		CR Idle mode IF measurement condition	9.0.0	9.1.0
05	5 RP#4	DD 000070	010	-		0.0.0	0.1.0
2009- 05	RP#4 5	RP-090879	318		CR Idle mode IF measurement period	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090879	217	2	Corrections to E-UTRAN RRC_IDLE state mobility requirements	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090814	265	1	Correction to Random Access	9.0.0	9.1.0
2009-	RP#4	RP-090816	221		E-UTRAN TDD-TDD inter frequency cell	9.0.0	9.1.0
05	5				search/measurement requirements when DRX is used		
2009- 05	RP#4 5	RP-090816	223		E-UTRAN inter RAT measurement requirements	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090816	229		Correction to Monitoring of Multiple Layers Using Gaps	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090816	219	1	E-UTRAN FDD-FDD inter frequency measurements when DRX is used	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090816	322		CR GSM measurement period	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090816	323		CR cdma2000 1x and HRPD number of carriers	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090816	213	1	Editorial correction on E-UTRAN inter frequency measurements	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090816	261	1	E-UTRAN TDD intra frequency measurements	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090816	319	1	Clarification of the number of monitoring cells for intra frequency measurements	9.0.0	9.1.0
2009- 05	RP#4 5	RP-090815	237		Correction of timing advance adjustment accuracy test case	9.0.0	9.1.0
2009-	RP#4	RP-090815	291		Correction to UE Transmit Timing	9.0.0	9.1.0
05 2009-	5 RP-46	RP-091275	329		Requirements Defining requirements for UTRA TDD	9.1.0	9.2.0
12					measurements for SON (Technically endorsed at RAN 4 52bis in R4-093512)		
2009- 12	RP-46	RP-091272	332		Modification of test case of E-UTRA TDD intra frequency cell reselection (Technically	9.1.0	9.2.0
					endorsed at RAN 4 52bis in R4-093552)		
2009- 12	RP-46	RP-091272	333		Modification of test case of E-UTRA TDD inter frequency cell reselection (Technically endorsed at RAN 4 52bis in R4-093553)	9.1.0	9.2.0
2009-	RP-46	RP-091286	334		Introduction of Extended LTE1500	9.1.0	9.2.0
12					requirements for TS36.133 (Technically endorsed at RAN 4 52bis in R4-093636)		
2009-	RP-46	RP-091272	336		Addition of E-UTRA TDD to UTRA FDD	9.1.0	9.2.0
12					reselection test cases (Technically endorsed at RAN 4 52bis in R4-093686)		
2009- 12	RP-46	RP-091271	338		Correction of missing accuracy requirements for UTRAN FDD (Technically endorsed at RAN 4 52bis in R4-093689)	9.1.0	9.2.0
2009-	RP-46	RP-091275	340		CR cdma2000 HRPD measurement period	9.1.0	9.2.0
12					(Technically endorsed at RAN 4 52bis in R4-093720)		
2009- 12	RP-46	RP-091275	342		CR cdma2000 1x measurement period (Technically endorsed at RAN 4 52bis in R4- 093721)	9.1.0	9.2.0
2009- 12	RP-46	RP-091272	344		Correction for E-UTRAN FDD - UTRAN FDD Cell Search in DRX Test Cases (Technically	9.1.0	9.2.0
2009-	RP-46	RP-091272	346		endorsed at RAN 4 52bis in R4-093890) Revise geometry factors for Intra freq	9.1.0	9.2.0
12 2009-	RP-46	RP-091271	348		Reselection Test Cases Corrections on RRM parameters for Bands	9.1.0	9.2.0
12 2009-	RP-46	RP-091271	351	1	12, 14, 17 Corrections to PDSCH RMC-s	9.1.0	9.2.0
12 2009-	RP-46	RP-091271	353		Corrections of TS36.133	9.1.0	9.2.0
12							

RP-46	RP-091275	356	1		9.1.0	9.2.0
RP-46	RP-091275	358	1	E-UTRAN TDD - UTRAN TDD cell search for	9.1.0	9.2.0
RP-46	RP-091275	361		Cell Search Requirements for Intra-LTE	9.1.0	9.2.0
RP-46	RP-091273	365		Combined E-UTRAN interfrequency and	9.1.0	9.2.0
RP-46	RP-091271	367	1	Correction in UE UTRA TDD P-CCPCH RSCP measurement capability for R9	9.1.0	9.2.0
RP-46	RP-091273	374		E-UTRAN GSM RSSI Measurement Accuracy Tests	9.1.0	9.2.0
RP-46	RP-091273	375		E-UTRAN UTRAN FDD CPICH RSCP Measurement Accuracy Tests	9.1.0	9.2.0
RP-46	RP-091273	376		Measurement Accuracy Tests	9.1.0	9.2.0
RP-46				Cell Timing Change Requirements for Event Triggered Reporting		9.2.0
RP-46						9.2.0
-					9.1.0	9.2.0
RP-46	RP-091271	387		Editorial corrections to the time units for RRC Re-establishment test cases	9.1.0	9.2.0
RP-46	RP-091272	389	1	Introduction of cell search test case in DRX to verify L3 filtering	9.1.0	9.2.0
RP-46	RP-091271	391		Correction to ONCG Patterns	9.1.0	9.2.0
RP-46	RP-091275	329		Defining requirements for UTRA TDD measurements for SON (Technically endorsed at RAN 4 52bis in R4-093512)	9.1.0	9.2.0
RP-46	RP-091272	332		Modification of test case of E-UTRA TDD intra frequency cell reselection (Technically endorsed at RAN 4 52bis in R4-093552)	9.1.0	9.2.0
RP-46	RP-091272	333		Modification of test case of E-UTRA TDD inter frequency cell reselection (Technically	9.1.0	9.2.0
RP-47	RP-100254	410			9.2.0	9.3.0
RP-47	RP-100254	405	1	UE measurement capability requirements in	9.2.0	9.3.0
RP-47	RP-100254	423		Correction to UE Measurement Capability	9.2.0	9.3.0
RP-47	RP-100254	412		Removal of activation time from interRAT	9.2.0	9.3.0
RP-47	RP-100254	417	1	Correction to UE Transmit Timing Requirements	9.2.0	9.3.0
RP-47	RP-100254	402		Correction of E-UTRAN TDD inter frequency measurements_R9	9.2.0	9.3.0
RP-47	RP-100254	414	1	Enhanced GSM Requirements for CSFB	9.2.0	9.3.0
RP-47	RP-100254	415	1	Enhanced UTRA FDD Requirements for CSFB	9.2.0	9.3.0
RP-47	RP-100255	399		Correction of RSRP value in E-UTRAN FDDFDD Inter frequency reselection test	9.2.0	9.3.0
RP-47	RP-100255	397		Addition of missing Es/Noc parameters in RRM test cases	9.2.0	9.3.0
RP-47	RP-100255	421		Correction to RRC Re-establishment Test Case	9.2.0	9.3.0
RP-47	RP-100255	427	1		9.2.0	9.3.0
RP-47	RP-100255	419	1		9.2.0	9.3.0
RP-47	RP-100262	407			9.2.0	9.3.0
RP-47	RP-100263	413		Introduction of LTE in 800 MHz for Europe requirements in TS 36.133	9.2.0	9.3.0
	RP-46 RP-47 RP-46 RP-47 RP-47	RP-46 RP-091275 RP-46 RP-091275 RP-46 RP-091273 RP-46 RP-091271 RP-46 RP-091271 RP-46 RP-091271 RP-46 RP-091272 RP-46 RP-091272 RP-46 RP-091272 RP-46 RP-091272 RP-46 RP-091272 RP-47 RP-091272 RP-46 RP-091272 RP-47 RP-100254 RP-47 <td< td=""><td>RP-46 RP-091275 358 RP-46 RP-091273 361 RP-46 RP-091273 367 RP-46 RP-091273 374 RP-46 RP-091273 374 RP-46 RP-091273 375 RP-46 RP-091273 376 RP-46 RP-091273 376 RP-46 RP-091273 378 RP-46 RP-091271 380 RP-46 RP-091271 387 RP-46 RP-091271 387 RP-46 RP-091271 389 RP-46 RP-091271 391 RP-46 RP-091272 332 RP-46 RP-091272 333 RP-46 RP-091272 333 RP-47 RP-100254 410 RP-47 RP-100254 412 RP-47 RP-100254 402 RP-47 RP-100254 412 RP-47 RP-100254 412 RP-47 RP-100254</td><td>RP-46 RP-091275 358 1 RP-46 RP-091275 361 . RP-46 RP-091273 365 . RP-46 RP-091273 365 . RP-46 RP-091273 374 . RP-46 RP-091273 374 . RP-46 RP-091273 376 . RP-46 RP-091273 376 . RP-46 RP-091273 376 . RP-46 RP-091271 380 . RP-46 RP-091271 381 . RP-46 RP-091271 381 . RP-46 RP-091271 381 . RP-46 RP-091271 381 . RP-46 RP-091272 332 . RP-46 RP-091272 333 . RP-47 RP-100254 410 . RP-47 RP-100254 410 . RP-47 RP-100254 412</td><td>Accuracy measurement in E-UTRAN RP-46 RP-091275 358 1 E-UTRAN TDD - UTRAN TDD cell search for SON RP-46 RP-091273 365 Cell Search Requirements for Intra-LTE Handover to Unknown Target Cell RP-46 RP-091273 365 Combined E-UTRAN interfrequency and GSM cell search test cases (Scenario set 3.2) RP-46 RP-091273 374 E-UTRAN CSM RSSI Measurement Accuracy Tests RP-46 RP-091273 374 E-UTRAN UTRAN FDD CPICH RSCP Measurement Accuracy Tests RP-46 RP-091273 375 E-UTRAN UTRAN FDD CPICH Er/No Measurement Accuracy Tests RP-46 RP-091271 380 Correction to Power Headroom Requirements for LTRAN UTRAN FDD CPICH Er/No Measurement Accuracy Tests RP-46 RP-091271 382 Editorial corrections to 36.133 RP-46 RP-091271 387 Editorial corrections to NCG Patterns RP-46 RP-091271 387 Editorial corrections to NCG Patterns RP-46 RP-091271 387 Editorial corrections to NCG Patterns RP-46 RP-091272 329 Defining requirements for UTRA TDD measurement for SON (Technically endorsed at RAN 4 5</td><td>accuracy measurement in E-UTRAN excuracy measurement in E-UTRAN RP-46 RP-091275 368 1 E-UTRAN TDD - UTRAN TDD cell search for 9.1.0 SON SON SON SON 9.1.0 RP-46 RP-091275 361 Combined E-UTRAN interfrequency and GN cell search frequency and RP-46 9.1.0 RP-46 RP-091271 367 1 Correction in UE UTRA TDD P-CCPCH 9.1.0 RP-46 RP-091273 374 E-UTRAN GSM RSSI Measurement Capability for R9 9.1.0 RP-46 RP-091273 375 E-UTRAN UTRAN FDD CPICH RSCP 9.1.0 RP-46 RP-091273 376 E-UTRAN UTRAN FDD CPICH Ec/N0 9.1.0 RP-46 RP-091275 378 Cell Timing Change Requirements for Event Triggered Reporting 9.1.0 RP-46 RP-091271 380 Correction to Power Headroom Requirements 9.1.0 Re-46 RP-091271 381 Editorial corrections to 36.133 9.1.0 Re-46 RP-091271 382 Editorial correction to ONCG Patterns 9.1.0 RP-46 RP-091272 3</td></td<>	RP-46 RP-091275 358 RP-46 RP-091273 361 RP-46 RP-091273 367 RP-46 RP-091273 374 RP-46 RP-091273 374 RP-46 RP-091273 375 RP-46 RP-091273 376 RP-46 RP-091273 376 RP-46 RP-091273 378 RP-46 RP-091271 380 RP-46 RP-091271 387 RP-46 RP-091271 387 RP-46 RP-091271 389 RP-46 RP-091271 391 RP-46 RP-091272 332 RP-46 RP-091272 333 RP-46 RP-091272 333 RP-47 RP-100254 410 RP-47 RP-100254 412 RP-47 RP-100254 402 RP-47 RP-100254 412 RP-47 RP-100254 412 RP-47 RP-100254	RP-46 RP-091275 358 1 RP-46 RP-091275 361 . RP-46 RP-091273 365 . RP-46 RP-091273 365 . RP-46 RP-091273 374 . RP-46 RP-091273 374 . RP-46 RP-091273 376 . RP-46 RP-091273 376 . RP-46 RP-091273 376 . RP-46 RP-091271 380 . RP-46 RP-091271 381 . RP-46 RP-091271 381 . RP-46 RP-091271 381 . RP-46 RP-091271 381 . RP-46 RP-091272 332 . RP-46 RP-091272 333 . RP-47 RP-100254 410 . RP-47 RP-100254 410 . RP-47 RP-100254 412	Accuracy measurement in E-UTRAN RP-46 RP-091275 358 1 E-UTRAN TDD - UTRAN TDD cell search for SON RP-46 RP-091273 365 Cell Search Requirements for Intra-LTE Handover to Unknown Target Cell RP-46 RP-091273 365 Combined E-UTRAN interfrequency and GSM cell search test cases (Scenario set 3.2) RP-46 RP-091273 374 E-UTRAN CSM RSSI Measurement Accuracy Tests RP-46 RP-091273 374 E-UTRAN UTRAN FDD CPICH RSCP Measurement Accuracy Tests RP-46 RP-091273 375 E-UTRAN UTRAN FDD CPICH Er/No Measurement Accuracy Tests RP-46 RP-091271 380 Correction to Power Headroom Requirements for LTRAN UTRAN FDD CPICH Er/No Measurement Accuracy Tests RP-46 RP-091271 382 Editorial corrections to 36.133 RP-46 RP-091271 387 Editorial corrections to NCG Patterns RP-46 RP-091271 387 Editorial corrections to NCG Patterns RP-46 RP-091271 387 Editorial corrections to NCG Patterns RP-46 RP-091272 329 Defining requirements for UTRA TDD measurement for SON (Technically endorsed at RAN 4 5	accuracy measurement in E-UTRAN excuracy measurement in E-UTRAN RP-46 RP-091275 368 1 E-UTRAN TDD - UTRAN TDD cell search for 9.1.0 SON SON SON SON 9.1.0 RP-46 RP-091275 361 Combined E-UTRAN interfrequency and GN cell search frequency and RP-46 9.1.0 RP-46 RP-091271 367 1 Correction in UE UTRA TDD P-CCPCH 9.1.0 RP-46 RP-091273 374 E-UTRAN GSM RSSI Measurement Capability for R9 9.1.0 RP-46 RP-091273 375 E-UTRAN UTRAN FDD CPICH RSCP 9.1.0 RP-46 RP-091273 376 E-UTRAN UTRAN FDD CPICH Ec/N0 9.1.0 RP-46 RP-091275 378 Cell Timing Change Requirements for Event Triggered Reporting 9.1.0 RP-46 RP-091271 380 Correction to Power Headroom Requirements 9.1.0 Re-46 RP-091271 381 Editorial corrections to 36.133 9.1.0 Re-46 RP-091271 382 Editorial correction to ONCG Patterns 9.1.0 RP-46 RP-091272 3

2010- 03	RP-47	RP-100264	395		Corrections for Extended UMTS1500 in	9.2.0	9.3.0
2010- 03	RP-47	RP-100269	393		TS36.133(Rel-9) AOA and TA measurement report mappings	9.2.0	9.3.0
2010- 03	RP-47	RP-100269	403	2	Mapping of UE RxTx time difference measurement	9.2.0	9.3.0
2010- 03	RP-47	RP-100266	425	2	Home eNode B synchronization requirement	9.2.0	9.3.0
2010- 03	RP-47	RP-100266	424	2	Minimum requirements on SI reading for HeNB inbound mobility	9.2.0	9.3.0
2010- 06	RP-48	RP-100622	473		Clarification on radio link monitoring	9.3.0	9.4.0
2010- 06					Corrections of section numbering on the test case of E-UTRAN FDD-FDD inter-frequency	9.3.0	9.4.0
2010-	RP-48	RP-100622	472		cell search requirements for L3 fitering	9.3.0	9.4.0
06 2010-	RP-48	RP-100622	466	1	Correction to RRM Test Cases	9.3.0	9.4.0
06 2010-	RP-48	RP-100622	464		Correction to RRM Requirements Correction to Absolute RSRP/RSRQ	9.3.0	9.4.0
06 2010-	RP-48	RP-100622	462	1	Definitions UE Measurement Capability Requirements	9.3.0	9.4.0
06 2010-	RP-48	RP-100622	457		for CDMA2000 Correction of E-UTRAN Inter-frequency Cell	9.3.0	9.4.0
06 2010-	RP-48	RP-100622	455	1	Re-selection Requirements	9.3.0	9.4.0
06 2010-	RP-48	RP-100622	451	1	Correction to idle mode requirements(Rel-9)	9.3.0	9.4.0
06 2010-	RP-48	RP-100622	449	1	Editorial corrections to 36.133(Rel-9) Correction to TDD intrafrequency accuracy	9.3.0	9.4.0
06 2010-	RP-48	RP-100622	447		test case Correction of Io value in E-UTRAN FDD and	9.3.0	9.4.0
06 2010-	RP-48	RP-100622	441	1	TDD Inter frequency RSRP tests Corrections to CSG SI reading core	9.3.0	9.4.0
06 2010-	RP-48	RP-100627	444	2	requirement	9.3.0	9.4.0
06 2010-	RP-48	RP-100627	445	1	RSRQ idle mode requirements Test cases for R9 cell reselection	9.3.0	9.4.0
06 2010-	RP-48	RP-100630	470	1	enhancements Missing E-UTRA - UTRA FDD DRX	9.3.0	9.4.0
06 2010-	RP-48	RP-100630	460		Requirements Corrections to enhanced cell identification	9.3.0	9.4.0
06 2010-	RP-48	RP-100631	442	2	core requirement Applicability of mobility requirements with	9.3.0	9.4.0
06 2010-	RP-48	RP-100632	469		inter-frequency RSTD measurements UE Rx-Tx Time Difference Measurement	9.3.0	9.4.0
06 2010-	RP-48	RP-100632	439		Requirements for E-CID CR UE RX-TX time-difference measurement	9.3.0	9.4.0
06 2010-	RP-48	RP-100632	438	2	requirement RSTD Measurement Requirements for	9.3.0	9.4.0
06 2010-	RP-48	RP-100632	433	5	OTDOA	9.3.0	9.4.0
06 2010-	RP-48	RP-100632	432	5	RSTD Accuracy Requirements for OTDOA		
09 2010-	RP-49	RP-100914	477	1	Cell identity change time in RRM Test cases A clarification text in the RSTD intra-	9.4.0	9.5.0
09 2010-	RP-49	RP-100919	537		frequency accuracy requirements Correction of drx-RetransmissionTimer	9.4.0	9.5.0
09 2010-	RP-49	RP-100920	506		parameters Correction of Io value in RSRP FDD and TDD	9.4.0	9.5.0
09 2010-	RP-49	RP-100915	508		Intra frequency test	9.4.0	9.5.0
09 2010-	RP-49	RP-100920	521	1	Editorial corrections to 36.133 (R9) Alignment of REFSENS between 36.101 and	9.4.0	9.5.0
09 2010-	RP-49	RP-100914	523		36.133(R9) Correction of Time to Trigger unit for	9.4.0	9.5.0
09	RP-49	RP-100920	525	1	36.133(R9)	9.4.0	9.5.0

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2010- 09	RP-49	RP-100915	505	1	Corrections to 36.133(R9)	9.4.0	9.5.0
2010-	RP-49	DD 100000	528	1	E-UTRAN FDD Intra Frequency RSTD	0.4.0	050
09 2010-	RP-49	RP-100920	528	1	Measurement Accuracy test case Correction to Enhanced BSIC Verification	9.4.0	9.5.0
09	RP-49	RP-100919	538	1	Requirements	9.4.0	9.5.0
2010- 09	RP-49	RP-100919	539		Enhanced CSFB Requirements with DRX	9.4.0	9.5.0
2010-							
09 2010-	RP-49	RP-100919	540		Correction to E-CID Requirements Addition of UTRA and GSM enhanced cell	9.4.0	9.5.0
2010-	RP-49	RP-100920	544	1	identification test cases	9.4.0	9.5.0
2010-					E-UTRAN FDD UE Rx – Tx Time Difference		
09 2010-	RP-49	RP-100920	547	1	Measurement Accuracy test case Scrambling code change time in RRM Test	9.4.0	9.5.0
09	RP-49	RP-100914	479	1	cases	9.4.0	9.5.0
2010-		DD 400044	F 40		Introduction of CSG cell reselection	0.4.0	050
09 2010-	RP-49	RP-100914	549		requirements correction of redundant Hysteresis(Hys) for	9.4.0	9.5.0
09	RP-49	RP-100920	527		36.133(R9)	9.4.0	9.5.0
2010- 09	RP-49	RP-100920	488	2	Test case for TDD UE Rx-Tx time difference measurement	9.4.0	9.5.0
2010-	116-49	111-100920	400		Clarification of Radio link monitoring test	J.4.U	3.3.0
09	RP-49	RP-100914	483	<u> </u>	cases	9.4.0	9.5.0
2010- 09	RP-49	RP-100915	485	1	Test case for E-UTRA TDD event triggered reporting when L3 filtering is used in R9	9.4.0	9.5.0
2010-	111-43	11 100310			E-UTRA TDD - UTRA TDD cell reselection in	0.4.0	0.0.0
09	DD (0		407		fading propagation conditions: UTRA TDD is		0.5.0
2010-	RP-49	RP-100915	487		of lower priority in R9 Test case for E-UTRAN TDD in the existence	9.4.0	9.5.0
09	RP-49	RP-100924	492		of non-allowed CSG cell	9.4.0	9.5.0
2010-		DD 100015	10.1		DDCCLL A zero setter level for DDM tests	0.4.0	050
09 2010-	RP-49	RP-100915	494		PDCCH Aggregation level for RRM tests Correction of ES/lot value in E-UTRAN	9.4.0	9.5.0
09	RP-49	RP-100915	503		RSRQ FDD intra frequency test	9.4.0	9.5.0
2010- 09	RP-49	RP-100915	496		Corrections to RRM OCNG Patterns	9.4.0	9.5.0
2010-	KF-49	KF-100915	490			9.4.0	9.5.0
09	RP-49	RP-100919	498		RRC timer accuracy requirement	9.4.0	9.5.0
2010- 09	RP-49	RP-100915	501		Correction of OCNG	9.4.0	9.5.0
2010-							
09	RP-49	RP-100914	477	1	Cell identity change time in RRM Test cases	9.4.0	9.5.0
2010- 09	RP-49	RP-100919	537	1	A clarification text in the RSTD intra- frequency accuracy requirements	9.4.0	9.5.0
2010-				1	Correction of drx-RetransmissionTimer		
09 2010-	RP-49	RP-100920	506		parameters Correction of Io value in RSRP FDD and TDD	9.4.0	9.5.0
2010- 09	RP-49	RP-100915	508	1	Intra frequency test	9.4.0	9.5.0
2010-							
09 2010-	RP-49	RP-100920	521	1	Editorial corrections to 36.133 (R9) Alignment of REFSENS between 36.101 and	9.4.0	9.5.0
09	RP-49	RP-100914	523		36.133(R9)	9.4.0	9.5.0
2010-	DD 10			4	Correction of Time to Trigger unit for		
09 2010-	RP-49	RP-100920	525	1	36.133(R9)	9.4.0	9.5.0
09	RP-49	RP-100915	505	1	Corrections to 36.133(R9)	9.4.0	9.5.0
2010-	BD 40	PD 100020	520	4	E-UTRAN FDD Intra Frequency RSTD	040	0.5.0
09 2010-	RP-49	RP-100920	528	1	Measurement Accuracy test case Correction to Enhanced BSIC Verification	9.4.0	9.5.0
09	RP-49	RP-100919	538	1	Requirements	9.4.0	9.5.0
2010-	RP-49	RP-100919	539		Enhanced CSFB Requirements with DRX	010	9.5.0
09 2010-	116-49	111-100919	559	1		9.4.0	3.3.0
09	RP-49	RP-100919	540		Correction to E-CID Requirements	9.4.0	9.5.0
2010- 09	RP-49	RP-100920	544	1	Addition of UTRA and GSM enhanced cell identification test cases	9.4.0	9.5.0
03	111-49	111-100920	J 4 4	1	เนอกแกษสแบก เออเ ษสอออ	3.4.0	9.0.0

2010-					E-UTRAN FDD UE Rx – Tx Time Difference		
09	RP-49	RP-100920	547	1	Measurement Accuracy test case	9.4.0	9.5.0
2010- 09	RP-49	RP-100914	479	1	Scrambling code change time in RRM Test cases	9.4.0	9.5.0
2010-	111-43	100314	475		Introduction of CSG cell reselection	3.4.0	3.3.0
09	RP-49	RP-100914	549		requirements	9.4.0	9.5.0
2010- 09	RP-49	RP-100920	527		correction of redundant Hysteresis(Hys) for 36.133(R9)	9.4.0	9.5.0
2010- 09	RP-49	RP-100920	488	2	Test case for TDD UE Rx-Tx time difference measurement	9.4.0	9.5.0
2010-					Clarification of Radio link monitoring test		
09 2010-	RP-49	RP-100914	483		cases Test case for E-UTRA TDD event triggered	9.4.0	9.5.0
09	RP-49	RP-100915	485		reporting when L3 filtering is used in R9	9.4.0	9.5.0
2010- 09					E-UTRA TDD - UTRA TDD cell reselection in fading propagation conditions: UTRA TDD is		
00	RP-49	RP-100915	487		of lower priority in R9	9.4.0	9.5.0
2010-			100		Test case for E-UTRAN TDD in the existence		
09 2010-	RP-49	RP-100924	492		of non-allowed CSG cell	9.4.0	9.5.0
09	RP-49	RP-100915	494		PDCCH Aggregation level for RRM tests	9.4.0	9.5.0
2010-					Correction of ES/lot value in E-UTRAN		
09 2010-	RP-49	RP-100915	503		RSRQ FDD intra frequency test	9.4.0	9.5.0
09	RP-49	RP-100915	496		Corrections to RRM OCNG Patterns	9.4.0	9.5.0
2010-							
09 2010-	RP-49	RP-100919	498		RRC timer accuracy requirement	9.4.0	9.5.0
09	RP-49	RP-100915	501		Correction of OCNG	9.4.0	9.5.0
2010-	RP-50	RP-101331	634		Corrections to 36.133 performance	9.5.0	
12 2010-	RP-50	RP-101331	637		requirements Correction to intra frequency cell identification	9.5.0	9.6.0 9.6.0
12					time		
2010- 12	RP-50	RP-101331	591	1	Correction to Radio link monitoring test cases	9.5.0	9.6.0
2010- 12	RP-50	RP-101331	565	1	Corrections and Clarifications to TS36.133	9.5.0	9.6.0
2010- 12	RP-50	RP-101332	562		PDCCH Aggregation Level for RRM Tests	9.5.0	9.6.0
2010- 12	RP-50	RP-101332	570		MIMO correlation scenario for RLM test cases	9.5.0	9.6.0
2010-	RP-50	RP-101332	579		Removal of [] from PDSCH and	9.5.0	9.6.0
12					PCFICH/PDCCH/PHICH Measurement		
2010-	RP-50	RP-101332	584		Channel references in Annex A. Enabling HARQ for RRM Tests	9.5.0	9.6.0
12	NI -50	101332	504			3.5.0	3.0.0
2010- 12	RP-50	RP-101335	642	1	Completion of CSG cell reselection requirements	9.5.0	9.6.0
2010- 12	RP-50	RP-101343	567		Clarification of measurements requirements for HRPD and cdma2000 1x	9.5.0	9.6.0
2010-	RP-50	RP-101343	588		Addition of Band 18, 19 and 21 into UE Rx -	9.5.0	9.6.0
12 2010-	RP-50	RP-101343	603		Tx time difference requirements Correction to Enhanced GSM Cell	9.5.0	9.6.0
12					Identification Requirements		
2010- 12	RP-50	RP-101343	551	3	E-UTRAN TDD Intra Frequency RSTD Measurement Accuracy test case	9.5.0	9.6.0
2010- 12	RP-50	RP-101343	639		Correction to Enhanced UTRA FDD Cell Identification Requirements	9.5.0	9.6.0
2010- 12	RP-50	RP-101343	631	1	Correction of reselection requirement for UTRAN FDD cells	9.5.0	9.6.0
2010-	RP-50	RP-101343	620	2	Correction for Measurements of inter-RAT cells	9.5.0	9.6.0
12 2010-	RP-50	RP-101343	597	1	E-UTRAN FDD intra-frequency RSTD	9.5.0	9.6.0
12 2010-	RP-50	RP-101343	599	1	measurement reporting delay test case E-UTRAN TDD intra-frequency RSTD	9.5.0	9.6.0
12		DD 404007	647		measurement reporting delay test case	0.5.0	0.6.0
2010-	RP-50	RP-101387	647	<u> </u>	Removal of square brackets from scope of	9.5.0	9.6.0

12					TS36.133		
2011- 04	RP-51	RP-110340	0662	-	Correction to E-UTRAN TDD in-sync test requirements	9.6.0	9.7.0
2011- 04	RP-51	RP-110348	0664	1	RSTD requirements, RMC and OCNG patterns	9.6.0	9.7.0
2011- 04	RP-51	RP-110339	0675	-	Modification on test case of E-UTRA TDD to UTRA TDD cell reselection(R9)	9.6.0	9.7.0
2011- 04	RP-51	RP-110348	0678	2	Corrections to RSTD measurement for Rel-9	9.6.0	9.7.0
2011- 04	RP-51	RP-110339	0680	1	Value of MS_TXPWR_MAX_CCH for EUTRA-GSM reselection test cases A.4.4.x	9.6.0	9.7.0
2011- 04	RP-51	RP-110339	0686	1	Rearrangement of Time periods for EUTRA- UTRA reselection test case A.4.3.1.1	9.6.0	9.7.0
2011- 04	RP-51	RP-110339	0689	1	Removal of "Force to Cell 2" during initialisation for EUTRA-UTRA reselection test case A.4.3.1.2	9.6.0	9.7.0
2011- 04	RP-51	RP-110340	0692	1	SNR for RRM A.8.x test cases using ETU70	9.6.0	9.7.0
2011- 04	RP-51	RP-110339	0702	-	Correction to test cases of E-UTRA to UTRA cell reselection when UE is in idle state	9.6.0	9.7.0
2011- 04	RP-51	RP-110347	0708	1	Addition of test cases for FDD intra-frequency SI reading using autonomous gaps with both non DRX and DRX for Rel-9	9.6.0	9.7.0
2011- 04	RP-51	RP-110347	0710	1	Addition of test cases for FDD inter-frequency SI reading using autonomous gaps with both non DRX and DRX for Rel-9	9.6.0	9.7.0
2011- 04	RP-51	RP-110339	0718	1	Modification on Test Requirements in E- UTRA - UTRA TDD SON Test Case (A.8.7.3) (R9)	9.6.0	9.7.0
2011- 04	RP-51	RP-110348	0726	2	Requirements for reporting criteria with positioning measurements	9.6.0	9.7.0
2011- 04	RP-51	RP-110340	0735	-	Correction of RLM evaluation period in DRX	9.6.0	9.7.0
2011- 04	RP-51	RP-110340	0738	-	Correction of inter-frequency measurement accuracy test cases	9.6.0	9.7.0
2011- 04	RP-51	RP-110339	0743	-	Modification on Test Requirements in E- UTRA GSM cell reselection Test Case (A.4.4) (R9)	9.6.0	9.7.0
2011- 04	RP-51	RP-110348	0746	-	Correction on FDD Intra Frequency RSTD Measurement Accuracy test case	9.6.0	9.7.0
2011- 04	RP-51	RP-110348	0750	1	RSTD test case corrections	9.6.0	9.7.0
2011- 04	RP-51	RP-110344	0752	-	Correction of serving cell performance requirements for autonomous SI acquisition	9.6.0	9.7.0
2011- 06	RP-52	RP-110786	764		Rearrangement of Time periods for EUTRA- UTRA reselection test case A.4.3.4.1	9.7.0	9.8.0
2011- 06	RP-52	RP-110786	767		Removal of "Force to Cell 2" during initialisation for EUTRA -UTRA reselection test cases	9.7.0	9.8.0
2011- 06	RP-52	RP-110787	770		Clarification of Radio link monitoring test requirements (The CR was not implemented as it is not based on the latest version of the specification)	9.7.0	9.8.0
2011- 06	RP-52	RP-110794	796		Editorial Correction to Cell Re-selection Requirements	9.7.0	9.8.0
2011- 06	RP-52	RP-110789	807		Correction to side conditions for TDD inter- frequency CGI identification for ReI-9	9.7.0	9.8.0
2011- 06	RP-52	RP-110786	813		Correction to inter-RAT cell identificiation time in DRX for Rel-9	9.7.0	9.8.0
2011- 06	RP-52	RP-110787	816		Correction to identification time of UTRA FDD cell for SON in DRX for Rel-9	9.7.0	9.8.0
2011- 06	RP-52	RP-110787	821		Correction to requirements of E-UTRAN TDDUTRAN TDD measurements for SON when DRX is used for Rel-9	9.7.0	9.8.0
	RP-52	RP-110794	779	1	Correction to RSTD measurement for Rel-9	9.7.0	9.8.0

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2011- 06	RP-52	RP-110789	855		Correction on E-UTRAN FDD RSTD intra frequency case	9.7.0	9.8.0
2011-	RP-52	RP-110790	803	1	Addition of test cases for TDD intra-frequency	9.7.0	9.8.0
06					SI reading using autonomous gaps with both non DRX and DRX for Rel-9		
2011-	RP-52	RP-110790	805	1	Addition of test cases for TDD inter-frequency	9.7.0	9.8.0
06					SI reading using autonomous gaps with both non DRX and DRX for Rel-9		
2011-	RP-52	RP-110787	827	1	Addition of missing EsNoc parameters in E- UTRAN TDD UTRAN TDD Measurements	9.7.0	9.8.0
06					test cases for Rel-9		
2011- 09	RP-53	RP-111246	862		Thresholds and margins for reporting of neighbour cells in RRM test A.8.9.1	9.8.0	9.9.0
2011- 09	RP-53	RP-111246	901		Thresholds and margins for RRM tests A.5.2.1 and A.5.2.2	9.8.0	9.9.0
2011- 09	RP-53	RP-111246	904		Thresholds and margins for RRM tests A.5.2.4 and A.5.2.5	9.8.0	9.9.0
2011- 09	RP-53	RP-111247	888		Removing [] in section 8.1.2.2.2.2 for Rel-9	9.8.0	9.9.0
2011- 09	RP-53	RP-111247	914		Adding condition of UTRA TDD measurement report delay requirements applied	9.8.0	9.9.0
2011-	RP-53	RP-111247	929		Clarify time points and time duration for RLM	9.8.0	9.9.0
09 2011-	RP-53	RP-111250	948	1	tests A.7.3.x Correction of references	9.8.0	9.9.0
09							
2011- 09	RP-53	RP-111251	925	1	Adding enhanced UTRA TDD cell identification requirements for Rel-9	9.8.0	9.9.0
2011-	RP-53	RP-111251	968		CR for E-UTRAN FDD GSM event triggered	9.8.0	9.9.0
09					reporting in AWGN with enhanced BSIC identification in R9		
2011-	RP-53	RP-111252	893		Requirements for RRC Connection Release	9.8.0	9.9.0
09 2011-	RP-53	RP-111252	959		with Redirection Missing RSRQ in Intra-frequency	9.8.0	9.9.0
09					measurement requirements		
2011- 09	RP-53	RP-111252	964	1	Requirements for RRC Connection Release with Redirection for TDD in R9	9.8.0	9.9.0
2011- 12	RP-54	RP-111681	981		Corrections of inter-frequency measurement accuracy RSRP test cases	9.9.0	9.10.0
2011- 12	RP-54	RP-111682	983		Removing [] in CSFB requirement for Rel-9	9.9.0	9.10.0
2011- 12	RP-54	RP-111683	986		Clarification on RSTD test cases	9.9.0	9.10.0
2011- 12	RP-54	RP-111683	991		Clarification on PRS bandwidth	9.9.0	9.10.0
2011- 12	RP-54	RP-111683	1000		Test case for enhanced UTRA TDD cell identification for R9	9.9.0	9.10.0
2011-	RP-54	RP-111683	1002		Test case for RRC connection release	9.9.0	9.10.0
12 2011-	RP-54	RP-111683	1015		redirection to UTRA TDD for R9 E-UTRAN FDD - UTRAN TDD enhanced cell	9.9.0	9.10.0
12	111-04	11111003	1015		identification test under AWGN propagation conditions in R9	9.9.0	3.10.0
2011- 12	RP-54	RP-111683	1017	1	E-UTRAN FDD RRC connection release with redirection to UTRAN TDD in R9	9.9.0	9.10.0
2011- 12	RP-54	RP-111681	1030		Correction for the identification time in DRX for UTRA TDD in R9	9.9.0	9.10.0
2011-	RP-54	RP-111681	1038	1	Correction of E-UTRAN TDD-TDD inter	9.9.0	9.10.0
12 2011-	RP-54	RP-111683	1040		frequency handover test case in R9 Clarification of Expected RSTD and Expected	9.9.0	9.10.0
12					RSTD uncertainty in RSTD test cases in R9		
2011- 12	RP-54	RP-111680	1042		Thresholds and margins for RRM tests A.8.11.3 and A.8.11.4	9.9.0	9.10.0
2011-	RP-54	RP-111683	1045		Thresholds and margins for RRM tests	9.9.0	9.10.0
12 2011-	RP-54	RP-111683	1048		A.8.11.5 and A.8.11.6 RRC Connection Release with Redirection	9.9.0	9.10.0
12 2011-	RP-54	RP-111683	1050		from E-UTRAN FDD to GERAN RRC Connection Release with Redirection	9.9.0	9.10.0
12					from E-UTRAN TDD to GERAN		

12 RP-54 RP-111683 1065 Test cases for RRC connection release with redirection to UTRAN FDD 9.9.0 2011- RP-54 RP-111683 1073 Applicable PRS BW for RSTD accuracy requirements 9.9.0 2012- RP-55 RP-120294 1076 1 RSTD signalling modifications 9.10.0 30 RP-55 RP-120294 1076 1 RSTD signalling modifications 9.10.0 03 RP-55 RP-120294 1078 1 Test case for E-UTRA TDD RRC connection release redirection to UTRA TDD without SI provided for R9 9.10.0 2012- RP-55 RP-120294 1080 1 Test case for E-UTRA FDD RRC connection release redirection to UTRA TDD without SI provided for R9 9.10.0 2012- RP-55 RP-120291 1083 Thresholds and margins for E-UTRAN to C2K 9.10.0 03 RP-55 RP-120294 1086 Addition of E-UTRAN TDD-HRPD Cell 9.10.0 03 RP-55 RP-120293 1088 Addition of E-UTRAN TDD-cdma2000 1X Cell 9.10.0 03 RP-55 RP-120293 1088 <th>) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0</th>) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0) 9.11.0
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	09					UTRA		

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2012- 09	RP-57	RP-121301	1451		Editorial correction RRM	9.12.0	9.13.0
2012- 12	RP-58	RP-121850	1468		Remove [] from 10% requirement in RRM Test cases A.4.2.7 and A.4.2.8	9.13.0	9.14.0
2012- 12	RP-58	RP-121859	1512	1	E-UTRAN CSG Proximity Indication Requirements (Rel-9)	9.13.0	9.14.0
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2012- 12	RP-58	RP-121852	1551		Correcting inconsistency between inter-RAT UTRA measurements and requirements	9.13.0	9.14.0
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2013- 03	RP-59	RP-130261	1580	1	Correction to CSG proxmity requirement	9.14.0	9.15.0
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2013- 03	RP-59	RP-130261	1640	1	Modification of PRS configuration for RSTD measurement reporting delay test cases(Rel- 9)	9.14.0	9.15.0
2013- 06	RP-60	RP-130763	1646		Correction to test parameters for combined E- UTRA - E-UTRA and GSM cell search - Rel 9	9.15.0	9.16.0
2013- 06	RP-60	RP-130763	1671		Remove [] from GCI identification Test cases A.8.4.4 and A.8.4.5	9.15.0	9.16.0
2013- 06	RP-60	RP-130761	1675		Cell 1 levels for RSRP Test cases A.9.1.3 and A.9.1.4	9.15.0	9.16.0
2013- 06	RP-60	RP-130761	1681		Update on the GSM carrier RSSI measurement period when DRX is used	9.15.0	9.16.0
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2013- 06	RP-60	RP-130763	1718		A clarification on measurement gap pattern in RSTD requirements	9.15.0	9.16.0
2013- 06	RP-60	RP-130763	1740		Time Alignment Timer in Test Case A.8.2.4	9.15.0	9.16.0
2013- 06	RP-60	RP-130763	1741		RRM: Adding required measurement gap	9.15.0	9.16.0
2013- 06	RP-60	RP-130761	1747		TDD PRACH configuration index for Test Cases A.8.7.2, A.8.15.2	9.15.0	9.16.0
2013- 06	RP-60	RP-130763	1750	1	GSM cell list size for Test Cases A.6.3.10, A.6.3.11	9.15.0	9.16.0
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2013- 06	RP-60	RP-130763	1765	1	Corrections of E-UTRAN FDD CSG Proximity Indication Test Case (Rel-9)	9.15.0	9.16.0
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2013- 12	RP-62	RP-131925	2075	1	Correction in RSTD requirements	9.17.0	9.18.0
2013-	RP-62	RP-131925	2108	2	Corrections to CGI Reading in Autonomous	9.17.0	9.18.0

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03-	RP-63	RP-140367	2230		Missing condition in CGI identification	9.18.0	9.19.0
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09-	RP-65	RP-141526	2521	1	Tolerance levels for measurements on	9.20.0	9.21.0
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History

	Document history							
V9.1.0	October 2009	Publication						
V9.2.0	February 2010	Publication						
V9.3.0	April 2010	Publication						
V9.4.0	July 2010	Publication						
V9.5.0	October 2010	Publication						
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V9.21.0	October 2014	Publication						
V9.22.0	February 2015	Publication						