TECHNICAL BASIS for REGULATION

TBR 5

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Foreword

This Technical Basis for Regulation (TBR) has been produced by the Special Mobile Group (SMG) Technical Committee of the European Telecommunications Standards Institute (ETSI). This TBR covers the general access requirements for terminal equipment for the Global System for Mobile communications (GSM) mobile services.

This TBR contains the procedures and requirements for the approval testing of GSM terminal equipment for access.

The requirements of other TBRs apply in addition to this TBR.

For each test, *SUPPLEMENTARY INFORMATION* is provided, giving a justification why this item has been selected for regulatory testing, and a reference to the relevant article of the Terminal Directive [1].

This TBR is based on the I-ETS 300 020-1 [2].

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1 Scope

This Technical Basis for Regulation (TBR) specifies the technical requirements to be met by terminal equipment capable of connection to a public telecommunications network. These requirements apply to terminals for phase 1 of the public land mobile radio service utilising constant envelope modulation, operating in the 900 MHz band with a channel separation of 200 kHz, and carrying 8 full rate traffic channels per carrier according to the Time Division Multiple Access (TDMA) principle.

The objective of this TBR is to cover the requirements for Global System for Mobile (GSM) communications access to the network.

For each conformance requirement, one or more test purposes are given. For each test purpose, a single reference is given to the test method in I-ETS 300 020-1 [2]. The requirements apply at the air interface and the SIM-ME interface for the access requirements, which may be stimulated to perform the tests by additional equipment if necessary.

The measurement uncertainty is handled, as described in I-ETS 300 020-1 [2].

This TBR covers the essential requirements of the Terminal Directive 91/263/EEC [1] Articles 4d, 4e, 4f. Non access related aspects of speech telephony, where Article 4g has been applied, are covered by TBR 9 [7].

The Terminal Directive 91/263/EEC [1] Articles 4a and 4b are covered by other directives, and, therefore, not by this TBR.

In this TBR, there are no EMC technical requirements in terms of the Terminal Directive 91/263/EEC [1], Article 4c.

NOTE: Technical Requirments for EMC performance and testing of the equipment are covered by the relevant standards applicable to the EMC Directive 89/336/EEC, Annex A.

Terminal equipment may be subject to additional requirements in other Common Technical Regulations (CTR) depending on the equipments' functionality.

I-ETS 300 020-1 [2] constitutes the full conformance test suite for GSM. The verification of the conformance requirements in this TBR is based on the tests described in this reference. The set of requirements in I-ETS 300 020-1 [2] and the set of requirements in this TBR need not be identical.

2 Normative references

This TBR incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revision of any of these publications apply to the requirements specified in this TBR, only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] Terminal Directive 91/263/EEC: "Council directive of 29 April 1991 on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity. ("The Terminal Directive")".

[2] I-ETS 300 020-1: "European digital cellular telecommunications system (phase 1); Mobile station conformity specifications, ETSI 1992" (GSM 11.10 v.3.14.0).

[3] CCITT Recommendation X.290 (1991): "Open Systems Interconnection - Conformance Testing Methodology and Framework, General Concepts".

[4] CCITT Recommendation X.291 (1991): "Open Systems Interconnection - Conformance Testing Methodology and Framework, Abstract Test Suite Specification".

[5] CCITT Recommendation X.294 (1991): "Open Systems Interconnection - Conformance Testing Methodology and Framework, Requirements on Test Laboratories and Clients for the Conformance Assessment Process".

[6] ETS 300 085 (1990): "Integrated Services Digital Network (ISDN); 3,1 kHz telephony teleservice attachment requirements for handset terminals".

[7] TBR 9: "European digital cellular telecommunications system; Attachment requirements for Global System for Mobile communications (GSM) mobile stations; Telephony".

3 Information from the client to the test laboratory

The applicability of the individual tests in this TBR is dependent on the type of equipment submitted for type testing.

The information required to be supplied from the client to the test laboratory appears in I-ETS 300 020-1 [2] Annex 3.

NOTE: The terms PICS and PIXIT in I-ETS 300 020-1 [2] do not represent the same concepts as the corresponding terms in CCITT Recommendation X.290 [3] and CCITT Recommendation X.291 [4].

In most cases, compliance with Conformance Requirements in this TBR are checked by type testing, however two other situations may occur. These are identified by the following terms:

1) "Special Test Situation 1"

   is used where the Conformance Requirement can be checked by an acknowledged test, referenced in the relevant section, but it may not be feasible to have this test performed, by a test house, for type testing.

2) "Special Test Situation 2"

   is used where the Conformance Requirement cannot be adequately tested by a unique test description without unduly restricting the flexibility of implementation.

4 Other requirements for GSM mobile stations

Some special test functions (I-ETS 300 020-1 III [2]) shall be implemented by the manufacturer.

5 Structure of the TBR

- Test group objective (only where applicable): gives a narration of the common objective for a group of closely related test cases.

- Test purpose (single or multiple): describes the purpose for performing a particular test i.e. which behaviour, action, etc. is to be tested.

- Test case references (procedures in GSM 11.10); points to the detailed test method and procedure in GSM 11.10 to be used for the test.

- Conformance requirement: describes the requirements to be met in the test.

- Requirement reference (from the core specifications): identifies the GSM core specification(s) accommodating the requirement(s) for these test results. The identification is as accurate as possible, basically down to a logical unit of the given specification (chapter, section, subsection, etc.) determined on a per case basis.

6 References to GSM core specifications

This TBR incorporates by versioned references provisions from other GSM specifications. These documents are considered as further evidence when using this TBR.

Note: This list covers the scope for all GSM related TBRs and thus may contain more than actually referred to in this TBR.

Number	Version	Title
GSM		
02.02	3.2.0	Bearer Services Supported by a GSM PLMN
02.03	3.4.0	Teleservices Supported by a GSM PLMN
02.04	3.7.1	Description of Supplementary Services
02.06	3.2.0	Types of Mobile Stations
02.07	3.4.1	Mobile Station Features
02.09	3.1.0	Security Aspects
02.11	3.7.0	Service Accessibility
02.16	3.0.1	International MS Equipment Identities
02.17	3.2.0	Subscriber Identity Modules, Functional Characteristics
02.30	3.9.0	Man-machine Interface of the Mobile Station
02.40	3.2.0	Procedures for Call Progress Indications
02.82	3.6.1	Call Offering Supplementary Services
02.88	3.6.1	Call Restriction Supplementary Services
03.03	3.6.0	Numbering, Addressing and Identification
03.05	3.2.0	Technical performance objectives
03.10	3.3.0	GSM PLMN Connection Types
03.13	3.0.2	Discontinuous Reception (DRX) in the GSM System
03.14	3.0.2	Support of DTMF via the GSM System
03.20	3.3.2	Security-related Network Functions
03.40	3.6.0	Technical Realization of Short Message Service Point-to-point
03.41	3.4.0	Technical Realization of Short Message Service Cell Broadcast
03.43	3.0.1	Technical Realization of Videotex
03.44	3.0.1	Support of Teletex in a GSM PLMN
03.45	3.3.0	Technical Realization of Facsimile Group 3 Service - transparent
03.46	3.2.1	Technical Realization of Facsimile Group 3 Service - non transparent
03.50	3.3.0	Transmission Planning Aspects of the Speech Service in the GSM PLMN System
04.01	3.0.1	MS-BSS Interface - General Aspects and Principles
04.02	3.0.2	GSM PLMN Access Reference Configuration
04.03	3.0.3	MS-BSS Interface : Channel Structures and Access Capabilities
04.04	3.3.4	MS-BSS Layer 1 - General Requirements
04.05	3.1.5	MS-BSS Data Link Layer - General Aspects
04.06	3.9.0	MS-BSS Data Link Layer Specification
04.07	3.3.3	Mobile Radio Interface Signalling Layer 3 -General Aspects
04.08	3.13.0	Mobile Radio Interface - Layer 3 Specification
04.10	3.2.3	Mobile Radio Interface Layer 3 -Supplementary Services Specification -General Aspects
04.11	3.3.0	Point-to-point Short Message Service Support on Mobile Radio Interface
04.12	3.2.1	Cell Broadcast Short Message Service Support on Mobile Radio Interface
04.21	3.4.0	Rate Adaptation on MS-BSS Interface
04.22	3.7.0	Radio Link Protocol for Data and Telematic Services on the MS-BSS Interface
04.80	3.2.0	Mobile Radio Interface Layer 3 - SS Specification - Formats and Coding

04.82	3.1.3	Mobile Radio Interface Layer 3 - Call Offering SS Specification
04.88	3.1.3	Mobile Radio Interface Layer 3 - Call Restriction SS Specification
05.01	3.3.2	Physical Layer on the Radio Path (General Description)
05.02	3.6.1	Multiplexing and Multiple Access on the Radio Path
05.03	3.5.1	Channel Coding
05.04	3.1.2	Modulation
05.05	3.15.0	Radio Transmission and Reception
05.08	3.7.0	Radio Subsystem Link Control
05.10	3.5.1	Radio Subsystem Synchronization
06.01	3.0.0	Speech Processing Functions : General Description
06.10	3.2.0	GSM Full Rate Speech Transcoding
06.11	3.0.1	Substitution and Muting of Lost Frames for Full-rate Speech Traffic Channels
06.12	3.0.1	Comfort Noise Aspects for Full Rate Speech Traffic Channels
06.31	3.1.0	Discontinuous Transmission (DTX) for Full Rate Speech Traffic Channels
06.32	3.0.0	Voice Activity Detection
07.01	3.14.0	General on Terminal Adaptation Functions for MSs
07.02	3.8.0	Terminal Adaptation Functions for Services Using Asynchronous Bearer Capabilities
07.03	3.4.0	Terminal Adaptation Functions for Services Using Synchronous Bearer Capabilities
09.02	3.8.0	Mobile Application Part Specification
11.11	3.13.0	Specification of the Internal Logical Organization of the SIM and its Interfaces
11.40	3.6.0	System Simulator Specification (MS conformance test system)
12.10	3.0.1	Maintenance Provisions for Operational Integrity of Mss

7 Abbreviations

For the purposes of this TBR the following abbreviations apply:

Abbreviation	**Full Term**
ACK	ACKnowledgement
ARFCN	Absolute Radio Frequency Channel Number
ATR	Answer To Reset
ATT	ATTach (flag)
BA	BCCH Allocation
BC	Bearer Capability
BCCH	Broadcast Control CHannel
BER	Bit Error Ratio
BFI	Bad Frame Indication
BTS	Base Transceiver Station
CC	Call Control
CCH	Control CHannel
CCCH	Common Control CHannel
CFB	Call Forwarding mobile subscriber Busy
CFNRc	Call Forwarding MS Not Reachable
CFU	Call Forwarding Unconditional
CKSN	Ciphering Key Sequence Number
CLK	CLocK
CM	Connection management
CTR	Common Technical Regulations
DCCH	Dedicated Control CHannel
DISC	DISConnect frame
DM	Disconnect Mode (frame)
DRX	Discontinuous Reception (mechanisim)
DTE	Data Terminal Equipment

DTMF	Dual Tone Multi Frequency
DTX	Discontinuous Transmission (mechanism)
EA	Address field Extension bit
EL	Length indicator field Extension bit
etu	elementary time unit
F	Final bit
FACCH	Fast Associated Control CHannel
FER	Frame Erasure Ratio
HLR	Home Location Register
HPLMN	Home PLMN
I	Information (frame)
IMEI	International Mobile station Equipment Identity
IMSI	International Mobile Subscriber Identity
L	Length indicator
LA	Location Area
LAC	Location Area Code
LAI	Location Area Identification
M	More data bit
ME	Mobile Entity
MM	Mobility Management
MMI	Man Machine Interface
MO	Mobile Originated
MOC	Mobile Originated Call
MS	GSM Mobile Station
MT	Mobile terminated
MTC	Mobile terminated Call
N(R)	Receive sequence Number
N(S)	Send sequence Number
N(SD)	SenD sequence Number
NPI	Number Plan Identification
OACSU	Off Air Call Set Up
P	Poll bit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PLMN	Public Land Mobile Network
PRC	structured PRoCedures
RA	Random mode request information field
RACH	Random Access CHannel
RAND	RANDom number (authentication)
RBER	Residual Bit Error Ratio
REJ	REJect (frame)
RF	Radio Frequency
RMS	Root Mean Square (value)
RNR	Receiver Not Ready (frame)
RR	Radio Resource (management entity / connection)
RR	Receive Ready (frame) (in L2)
RST	Reset
RXLEV	Received signal LEVel
RXQUAL	Received signal QUALity

RXQUAL_FULL	Received signal QUALity assessed over the FULL set of TDMA frames within a SACCH block
RXQUAL_SUB	Received signal QUALity assessed over a SUBset of 12 TDMA frames
S	S counter
SABM	Set Asynchronous Balanced Mode (frame)
SACCH	Slow Associated Control CHannel
SAPI	Service Access Point Identifier
SDCCH	Stand-alone Dedicated Control CHannel
SIM	Subscriber Identity Module
SMS	Short Message Service
SRES	Signed RESponse (authentication)
SS	System Simulator
TA	Terminal Adapter
TCH	Traffic CHannel
TCH/FS	Full rate Traffic CHannel for Speech
TCH/HS	Half rate Traffic CHannel for Speech
TDMA	Time Division Multiple Access
TE	Terminal equipment
TI	Transaction Identifier
TMSI	Temporary Mobile Subscriber Identity
TN	Timeslot Number
TON	Type Of Number
TXPWR	Transmit PoWeR: Tx power level in the MS_TXPWR_REQUEST and MS_TXPWR_CONF parameters
U	Unnumbered (frame)
UA	Unnumbered Acknowledge (frame)
UI	Unnumbered Information (frame)
V(SD)	SenD state Variable

8 General tests and procedures

8.1 Support and non-support of services

Test purpose:

1) To verify that the MS, for the case of the Multinumbering scheme/ISDN, accepts a SETUP message, where the Information Elements for Bearer Capability and Lower and Higher Layer Compatibility are compatible with the Bearer Services/Teleservices declared as supported by the MS, by sending a CALL CONFIRMED message.

   This is verified for all Bearer Services/Teleservices described in GSM 07.01 and declared as supported by the MS. Information for Lower and Higher Layer Compatibility are present if applicable to the services supported by the MS. For negotiable parameters only one value has to be used and that value must be supported by the MS.

2) To verify that the MS in the "Null" state, U0, when receiving a SETUP messages containing incompatible Information Elements for Bearer Capability or Lower or Higher Layer Compatibility, will either ignore the message, or respond with a RELEASE COMPLETE message.

   This is verified for two among the set of Bearer Capabilities and Lower or Higher Layer Compatibility Information described in Annex II of GSM 07.01 and declared as non supported by the MS. This choice of two Bearer Capabilities together with Lower or Higher Layer Compatibility information is randomly performed by the test house.

Test case:

GSM 11.10 II.1.2.1

Conformance requirement:

1) The MS shall check the Information Elements for Bearer Capability and if any, the Information Elements for Lower and Higher Layer Compatibility in a received SETUP message, and if it agrees to the proposed set, it shall respond with a CALL CONFIRMED message.

2) The MS in the "Null" state, U0, ready to receive a SETUP shall reject a SETUP with Information Elements for Bearer Capability or Lower or Higher Layer Compatibility, which are incompatible with the Bearer Services/Teleservices supported by the MS shall send a RELEASE COMPLETE message or ignore the SETUP message.

   The preferred behaviour is the sending by the MS of a RELEASE COMPLETE message.

Requirement reference:

1) GSM 04.08 5.2.2.2, GSM 04.08 5.2.2.3.

2) GSM 04.08 5.2.2.2, GSM 04.08 5.2.2.3.1 GSM 07.01 6.3.1, GSM 04.08 B.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) If this requirement is not met, the MS will not be able to establish an incoming call compatible with its implemented Bearer Services/Teleservices.

2) If this requirement is not met, the MS will not be able to reject a call not corresponding to its implemented Bearer Capabilities. Hence a radio resource may be uselessly kept.

EC Terminal Directive:

TP1: Article 4f.
TP2: Article 4e.

8.2 Support of single numbering scheme

Test purpose:

1) To verify that the MS, for the case of the Single Numbering Scheme, accepts a SETUP message, where the Information Elements for Bearer Capability and Lower and Higher Layer Compatibility are missing by sending a CALL CONFIRMED message, which includes the single or multiple Bearer Capabilities, according to the actual configuration on the MS.

   This is verified for all Bearer Services/Teleservices described in GSM 07.01 and declared as supported by the MS.

2) To verify that the MS includes a correctly encoded Repeat Indicator if it includes multiple Bearer Capabilities in the CALL CONFIRMED message.

Test case:

GSM 11.10 II.1.2.2.

Conformance requirement:

1) The MS shall respond with a CALL CONFIRMED message including the single or multiple Bearer Capability, according to the actual configuration of the MS. Two bearer capabilities can be present only in the cases described in GSM 07.01.

2) The Repeat Indicator Information Element shall be included in the CALL CONFIRMED message, when the in-call modification procedure is used, and no Bearer Capability Information Element is included in the received SETUP message.

Requirement reference:

1) GSM 04.08 5.2.2.2, GSM 04.08 5.2.2.3.1, GSM 04.08 9.3.2, GSM 07.01 6.3.3

2) GSM 04.08 9.3.2

SUPPLEMENTARY INFORMATION:

Test case justification:

1) If this requirement is not met, the MS will not be able to establish an incoming call using the Single Numbering Scheme.

2) If this requirement is not met, an MS will not be able to use alternative services in the Single Numbering Scheme.

EC Terminal Directive reference:

TP1: Article 4f.
TP2: Article 4f.

8.3 IMEI Security

Test Purpose:

To verify that the physical protection of the IMEI is sufficiently secure.

Test Case:

The manufacturer submitting his equipment for Type Approval shall make the declarations listed in the "Requirements" below.

The manufacturer shall give justification to support his claim that he meets the requirements.

Conformance requirement:

1. Programming Security:

   The manufacturer declares that concerning the programming security he has taken necessary and sufficient steps to ensure that either, the IMEI cannot to electrically changed once initially programmed, or, secure password techniques have been adopted to prevent unauthorised re-programming of the IMEI.

2. Mechanical Security:

   The manufacturer declares that he has taken necessary and sufficient steps to ensure that unauthorised individuals or organisations cannot economically replace the component in which the IMEI is stored and thereby provide the MS with a different IMEI.

3. Technical Knowledge and availability of programme:

   The manufacturer declares that he takes the necessary measurers to ensure that the technical knowledge for changing the IMEI (where applicable) will remain securely under his control and that the knowledge of the programme content will be restricted to his authorised representative(s) on a need to know basis.

Requirement reference:

GSM 02.09, 3.5.3.

9 Spurious emissions

9.1 MS allocated a channel (conducted spurious emissions)

Test purpose:

1) To verify that conducted spurious emissions, in the frequency band 100 kHz to 935 MHz and 960 MHz to 12,75 GHz, from the MS when allocated a channel do not exceed the requirements under extreme test voltage conditions.

   This applies only to mobiles with a permanent antenna connector.

2) To verify that conducted spurious emissions, in the frequency band 935 MHz to 960 MHz, from the MS when allocated a channel do not exceed:

   - 71 dBm for class 1 MS;

   - 79 dBm for class 2, 3, 4 or 5 MS;

   except in five GSM RF channels of 200 kHz, where exceptions at up to -36 dBm are permitted. This applies to each set of measurements, grouped by the hopping frequencies.

Test case:

1) GSM 11.10, II.2.2.1, II.2.2.2.1.

2) GSM 11.10, II.3.4 (step n).

Conformance requirement:

The spurious power emitted by the mobile, when allocated a channel, shall be no more than:

1) - 36 dBm in the frequency band 9 kHz - 1 GHz;

   - 30 dBm in the frequency band 1 - 12,75 GHz;

2) - 76 dBm for class 1 MS in the frequency band 935 - 960 MHz;

- 84 dBm for class 2, 3, 4 or 5 MS in the frequency band 935 - 960 MHz;

except in five GSM RF channels of 200 kHz, where exceptions at up to -36 dBm are permitted. This applies to each set of measurements, grouped by the hopping frequencies.

Requirement reference:

1) GSM 05.05, 1/4.3.3; GSM 11.10, Annex 1 TC2.2.

2) GSM 05.05, 4.3.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS shall cause interference in the GSM system as well as in other systems.

EC Terminal Directive reference:

Test purpose 1: Article 4e.
Test purpose 2: Article 4e.

9.2 MS in idle mode (conducted spurious emissions)

Test purpose:

To verify that conducted spurious emissions, in the frequency band 100 kHz to 12,75 GHz, from the MS when in idle mode under extreme test voltage conditions do not exceed the requirements.

This applies only to mobiles with a permanent antenna connector.

Test case:

GSM 11.10, II.2.2.1, II.2.2.2.2.

Conformance requirement:

The spurious power emitted by a mobile, when in idle mode, shall be no more than:

- 57 dBm in the frequency band 9 kHz - 1 GHz;

- 47 dBm in the frequency band 1 - 12,75 GHz.

Requirement reference:

GSM 05.05, 1/4.3.3; GSM 11.10, Annex 1 TC2.2

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS shall cause interference in the GSM system as well as in other systems.

EC Terminal Directive reference:

Article 4e.

9.3 MS allocated a channel (radiated spurious emissions)

Test purpose:

To verify that radiated spurious emissions ("cabinet radiation"), in the frequency band 30 MHz to 4 GHz, from the MS when allocated a channel do not exceed the requirements under extreme test voltage conditions.

Test case:

GSM 11.10, II.2.2.3, II.2.2.3.1.

Conformance requirement:

The radiated spurious power emitted by the mobile, when allocated a channel, shall be no more than:

- 36 dBm in the frequency band 30 MHz - 1 GHz;

- 30 dBm in the frequency band 1 - 4 GHz.

Requirement reference:

GSM 05.05, 1/4.3.3; GSM 11.10, Annex 1 TC2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS shall cause interference in the GSM system, in other systems, as well as in other electronic equipment.

EC Terminal Directive reference:

Article 4e.

9.4 MS in idle mode (radiated spurious emissions)

Test purpose:

To verify that radiated spurious emissions ("cabinet radiation"), in the frequency band 30 MHz to 4 GHz, from the MS when in idle mode do not exceed the requirements under extreme test voltage conditions.

Test case:

GSM 11.10, II.2.2.3, II.2.2.3.2.

Conformance requirement:

The radiated spurious power emitted by a mobile, when in idle mode, shall be no more than:

- 57 dBm in the frequency band 30 MHz - 1 GHz;

- 47 dBm in the frequency band 1 - 4 GHz.

Requirement reference:

GSM 05.05, 1/4.3.3 GSM 11.10, Annex 1 TC2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS shall cause interference in the GSM system, in other systems, as well as in other electronic equipment.

EC Terminal Directive reference:

Article 4e.

10 Transmitter

10.1 Phase error and frequency error

Test purpose:

1) To verify that the phase error on the useful part of the bursts transmitted by the MS does not exceed the requirements.

2) To verify that the phase error on the useful part of the bursts transmitted by the MS, if vibrated, does not exceed the requirements.

3) To verify that the phase error on the useful part of the bursts transmitted by the MS does not exceed the requirements under extreme test conditions.

4) To verify that the MS carrier frequency error does not exceed the requirements.

5) To verify that the MS carrier frequency error, if the MS is being vibrated, does not exceed the requirements.

6) To verify that the MS carrier frequency error does not exceed the requirements under extreme test conditions.

Test case:

GSM 11.10, II.3.1.1.

Conformance requirement:

1a/2a/3a. The RMS phase error (difference between the phase error trajectory and its linear regression on the active part of the timeslot) for each burst shall not be greater than 5 degrees.

1b/2b/3b. The maximum peak deviation during the useful part of each burst shall be less than 20 degrees.

4/5/6. The MS carrier frequency shall be accurate to within 0,1 ppm, or accurate to within 0,1 ppm compared to signals received from the BS.

Requirement reference:

1) GSM 05.05, 4.6;

2) GSM 05.05, 1/4.6 GSM 11.10, II.3.1.1 step j);

3) GSM 05.05, 1/4.6 GSM 11.10, Annex 1 TC2.2;

4) GSM 05.10, 6.1;

5) GSM 05.10, 6.1 GSM 05.05, 1 GSM 11.10, II.3.1.1 step j);

6) GSM 05.10, 6.1 GSM 05.05, 1/4.4 GSM 11.10, Annex 1 TC2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, radio resources are used whilst it might not be possible to establish a connection or the quality of the connection will be bad and a call might be dropped.

EC Terminal Directive reference:

Test purpose 1:Article 4e.
Test purpose 2:Article 4e.
Test purpose 3:Article 4e.
Test purpose 4:Article 4e.
Test purpose 5:Article 4e.
Test purpose 6:Article 4e.

10.2 Frequency error under multipath and interference conditions

Test purpose:

To verify that at reference sensitivity the MS carrier frequency error under conditions of multipath, Doppler shift and interference does not exceed the values given in GSM 11.10, II.3.2.2.

Test case:

GSM 11.10, II.3.2.1.

Conformance requirement:

At 3 dB below reference sensitivity, the MS carrier frequency error for each burst shall be accurate to within 0,1 ppm compared to signals received from the BS

Requirement reference:

GSM 05.10, 6.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, radio resources are used whilst it might not be possible to establish a connection to the network or the quality of the connection will be bad and a call might be dropped.

EC Terminal Directive reference:

Article 4e.

10.3 Peak transmitter carrier power and burst timing

Test purpose:

1) To verify that the maximum peak output power of the MS is within the requirements.

2) To verify that the maximum peak output power of the MS is within the requirements under extreme test conditions.

3) To verify that all power control levels are implemented in the MS and have nominal peak power levels within the requirements.

4) To verify that all power control levels have nominal peak power levels within the requirements under extreme test conditions.

5) To verify that the step in the peak power transmitted by the MS at consecutive power control levels is within the requirements.

6) To verify that the step in the peak power transmitted by the MS at consecutive power control levels is within the requirements under extreme test conditions.

7) To verify that the output power relative to time, with a time reference as defined in GSM 11.10, II.3.3.2.1 or if so declared by the MS manufacturer with a deviation of the burst by 1/2 bit prior to this time reference, when sending a normal burst is within the requirements.

8) To verify that the output power relative to time, with a time reference as defined in GSM 11.10, II.3.3.2.1 or if so declared by the MS manufacturer with a deviation of the burst by 1/2 bit prior to this time reference, when sending a normal burst under extreme test conditions is within the requirements.

9) To verify that the MS uses the maximum power control level according to its power class if commanded to a power control level exceeding its power class.

10) To verify that for normal bursts the MS transmissions to the BS are timed correctly.

11) To verify that for normal bursts the MS transmissions to the BS are timed correctly under extreme test conditions.

12) To verify that the output power relative to time, with a time reference as defined in GSM 11.10, II.3.3.2.1 or (if so declared by the MS manufacturer) with a deviation of the burst by 1/2 bit prior to this time reference, when sending an access burst is within the requirements.

13) To verify that the output power relative to time, with a time reference as defined in GSM 11.10, II.3.3.2.1 or (if so declared by the MS manufacturer) with a deviation of the burst by 1/2 bit prior to this time reference, when sending an access burst under extreme test conditions is within the requirements.

14) To verify that for an access burst the MS transmission to the BS is timed correctly.

15) To verify that for an access burst the MS transmission to the BS is timed correctly under extreme test conditions.

Test case:

GSM 11.10, II.3.3.2.1 for MS with antenna connector.

GSM 11.10, II.3.3.2.2 for MS with integral antenna, and which cannot be connected to an external antenna.

Conformance requirement:

1) The maximum peak power, according to the power class of the mobile, shall be as given in GSM 05.05, 4.1.1, first table with a tolerance of ± 2 dB.

2) The maximum peak power, according to the power class of the mobile, shall be as given in GSM 05.05, 4.1.1, first table with a tolerance of ± 2,5 dB.

3) The power control steps shall have the nominal peak power levels as given in GSM 05.05, 4.1.1, second table, from level 15 up to the maximum peak power corresponding to the class of the mobile station, with a tolerance of ± 3 dB. Whenever the power control level corresponds to the power class of the mobile, the tolerance shall be ± 2 dB.

4) The power control steps shall have the nominal peak power levels as given in GSM 05.05, 4.1.1, second table, from level 15 up to the maximum peak power corresponding to the class of the mobile station, with a tolerance of ± 4 dB. Whenever the power control level corresponds to the power class of the mobile, the tolerance shall be ± 2,5 dB.

5/6) The peak power actually transmitted by the MS at consecutive power control steps shall form a monotonic sequence, and the interval between power steps shall be 2 ± 1,5 dB.

7/8) The output power relative to time shall be within the power/time template given in GSM 05.05, Annex 2, top figure.

9) When accessing a cell on the RACH and before receiving the first power command during a communication on a DCCH or TCH (after an IMMEDIATE ASSIGNMENT), the MS shall use either the power level defined by the MS_TXPWR_MAX_CCH parameter broadcast on the BCCH of the cell, or the maximum TXPWR of the MS as defined by its power class, whichever is the lower.

10/11) The transmissions from the MS to the BS, measured at the MS antenna, shall be 468.75-TA bit periods behind the transmissions received from the BS, where TA is the last timing advance received from the current serving BS. The tolerance on these timings shall be ± 1 bit period.

12/13) The output power relative to time shall be within the power/time template given in GSM 05.05, Annex 2, bottom figure.

14/15) The transmission of an access burst from the MS to the BS, measured at the MS antenna, shall be an integer number of timeslot periods behind the transmissions received from the BS. (This corresponds to an integer number of timeslot periods less 30 bit periods relative to any CCCH midamble centre). The tolerance on these timings shall be +/- 1 bit period.

Requirement reference:

1) GSM 05.05, 4.1.1;

2) GSM 05.05, 1/4.1.1 GSM 11.10, Annex 1 TC2.2;

3) GSM 05.05, 4.1.1 GSM 05.08, 4.2;

4) GSM 05.05, 1/4.1.1 GSM 05.08, 4.2 GSM 11.10, Annex 1 TC2.2;

5) GSM 05.05, 4.1.1;

6) GSM 05.05, 1/4.1.1 GSM 11.10, Annex 1 TC2.2;

7) GSM 05.05, 4.5.2/Annex 2, top figure;

8) GSM 05.05, 1/4.5.2/Annex 2, top figure GSM 11.10, Annex 1 TC2.2;

9) GSM 05.08, 4.2;

10) GSM 05.10, 6.4;

11) GSM 05.10, 6.4 GSM 05.05, 1/4.4 GSM 11.10, Annex 1 TC2.2;

12) GSM 05.05, 4.5.2/Annex 2, bottom figure;

13) GSM 05.05, 1/4.5.2/Annex 2, bottom figure GSM 11.10, Annex 1 TC2.2;

14) GSM 05.10, 6.6;

15) GSM 05.10, 6.6 GSM 05.05, 1/4.4 GSM 11.10, Annex 1 TC2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If any of the requirements 1, 2, 3, 4, 5 and 6 is not met, the MS may either cause interference within the GSM system, or the planned system coverage will not be reached.

If any of the requirements 7, 8, 12 and 13 is not met the burst transmitted by the MS may interfere with time adjacent burst or the network may not be able to demodulate the burst.

If the requirement 9 is not met radio resources will be used whilst it might not be possible to establish a call or the quality will be bad and a call might be dropped.

If any of the requirements 10, 11, 14 and 15 is not met the burst transmitted by the MS may overlap and therefore interfere with time adjacent bursts from other MS.

EC Terminal Directive reference:

Test purposes 1:	*Article 4e.*
Test purposes 2:	*Article 4e.*
Test purposes 3:	*Article 4e.*
Test purposes 4:	*Article 4e.*
Test purposes 5:	*Article 4e.*
Test purposes 6:	*Article 4e.*
Test purposes 7:	*Article 4e.*
Test purposes 8:	*Article 4e.*
Test purposes 9:	*Article 4e.*
Test purposes 10:	*Article 4e.*
Test purposes 11:	*Article 4e.*
Test purposes 12:	*Article 4e.*
Test purposes 13:	*Article 4e.*
Test purposes 14:	*Article 4e.*
Test purposes 15:	*Article 4e.*

10.4 Output RF spectrum, modulation and switching transients

Test purpose:

1) To verify that the output RF spectrum due to modulation does not exceed the values given in GSM 11.10, II.3.4.2.2 table II.3.4.2.

2) To verify that the output RF spectrum due to modulation under extreme voltage conditions does not exceed the values given in GSM 11.10, II.3.4.2.2 table II.3.4.2.

3) To verify that the output RF spectrum due to switching transients does not exceed the values given in the GSM 11.10, II.3.4.2.2 second table.

4) To verify that the output RF spectrum due to switching transients under extreme voltage conditions does not exceed the values given in the GSM 11.10, II.3.4.2.2 second table.

Test case:

GSM 11.10, II.3.4.2.1.

Conformance requirement:

1/2) The level of the output RF spectrum due to modulation shall be no more than given in the table in GSM 05.05, 4.2.1, where, in the combined range 400 to 1800 kHz above and below the carrier, in one GSM RF channel of 200 kHz, exceptions at up to -36 dBm are permitted.

3/4) The level of the output RF spectrum due to switching transients shall be no more than given in the table "a) Mobile Station:" in GSM 05.05, 4.2.2.

Requirement reference:

1) GSM 05.05, 4.2/4.2.1;

2) GSM 05.05, 1/4.2/ 4.2.1 GSM 11.10, Annex 1 TC2.2;

3) GSM 05.05, 4.2/4.2.2;

4) GSM 05.05, 1/4.2/4.2.2 GSM 11.10, Annex 1 TC2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS shall cause interference in the GSM system.

EC Terminal Directive reference:

Test purpose 1:Article 4e.
Test purpose 2:Article 4e.
Test purpose 3:Article 4e.
Test purpose 4:Article 4e.

11 Receiver

Reference: GSM 05.05

11.1 Sensitivity

Test Group objective:

To verify the performance at reference sensitivity on TCH/FS and the FACCH control channel.

Subgroups:

1) TCH-Full Rate Speech (TCH);

2) Control Channel (CCH).

11.1.1 Reference Sensitivity for TCH/FS

Test purpose:

1) To verify that at reference sensitivity and normal test conditions the FER for TCH/FS does not exceed the requirements for propagation conditions STATIC and TU50.

2) To verify that at reference sensitivity and at normal test conditions the RBER for Class Ib bits for TCH/FS does not exceed the requirements for propagation conditions STATIC and TU50.

3) To verify that at reference sensitivity and at normal test conditions the RBER for Class II bits for TCH/FS does not exceed the requirements for propagation conditions STATIC, TU50, RA250 and HT100.

4) To verify that at reference sensitivity and at extreme test conditions the RBER for Class II bits for TCH/FS does not exceed the requirements for propagation conditions STATIC, TU50, RA250 and HT100.

Test case:

GSM 11.10 II.4.2.1.2/3.

Conformance requirement:

1) The FER shall be within the requirements of table 1 in GSM 05.05.

2) The RBER shall be within the requirements of table 1 in GSM 05.05.

3) The RBER shall be within the requirements of table 1 in GSM 05.05.

4) The RBER shall be within the requirements of table 1 in GSM 05.05.

Requirement reference:

GSM 05.05 6.2, GSM 05.05 table 1.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP2: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP3: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP4: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

EC Terminal Directive reference:

Test purpose 1:Article 4e.
Test purpose 2:Article 4e.
Test purpose 3:Article 4e.
Test purpose 4:Article 4e.

11.1.2 Reference sensitivity for Control Channel (CCH)

Test purpose:

1) To verify that at normal test condition the FER for the control channel FACCH fulfils the requirement in GSM 05.05 table 1 under the propagation condition TU50.

2) To verify that the BER for the traffic channel TCH/F9.6 fulfils the requirement in GSM 05.05 table 1 at normal test condition.

3) To verify that the BER for the traffic channel TCH/F4.8 fulfils the requirement in GSM 05.05 table 1 at normal test condition.

4) To verify that the BER for the traffic channel TCH/F2.4 fulfils the requirement in GSM 05.05 table 1 at normal test condition.

Test case:

GSM 11.10 II.4.2.3.2/3

Conformance requirement:

1) The FER shall be within the requirements of table 1 in GSM 05.05.

2) The BER shall be within the requirements of table 1 in GSM 05.05.

3) The BER shall be within the requirements of table 1 in GSM 05.05.

4) The BER shall be within the requirements of table 1 in GSM 05.05.

Requirement reference:

GSM 05.05 6.2, GSM 05.05 table 1

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other uses and a poor overall spectrum efficiency.

Moreover, if the mobile fails this test layer 2 will have many retransmissions and the link could be broken, thus preventing attachment of the mobile to the network, or the establishment of a call.

TP2: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP3: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP4: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

EC Terminal Directive reference:

Test purpose 1: Articles 4e and 4f.
Test purpose 2: Article 4e.
Test purpose 3: Article 4e.
Test purpose 4: Article 4e.

11.2 Usable Receiver Input Level Range

Test Purpose:

To verify that the nominal error rate of the Class II bits for TCH/FS does not exceed the requirements for high level signals under both STATIC and EQ50 propagation conditions at normal test conditions.

Test case:

GSM 11.10 II.4.3.2/3 (EQ50 at 73 dBmicroVolt emf (dBµV) and STATIC at 98 dBmicroVolt emf (dBµV)).

Conformance requirement:

The BER shall be within the requirements of section 6.1 in GSM 05.05 for EQ50 at 73 dBmicroVolt emf (dBµV) and STATIC at 98 dBmicroVolt emf (dBµV).

Requirement reference:

GSM 05.05 6.1

SUPPLEMENTARY INFORMATION:

Test case justification:

If the mobile station fails this test the receiver performance will be degraded under high signal levels and high error rate will be reported to the BTS.

EC Terminal Directive reference:

Article 4e.

11.3 Co-channel rejection

Test Group objective:

To verify the performance at reference co-channel interference for the TCH/FS and the FACCH control channel under propagation condition TU3.

Subgroups:

1) TCH-Full Rate Speech (TCH);

2) Control Channel (CCH).

11.3.1 TCH-Full Rate Speech

Test purpose:

1) To verify that at reference co-channel interference for the TCH/FS channel under propagation condition TU3, pseudo-ideal frequency hopping and no frequency hopping the FER for TCH/FS does not exceed the requirements.

2) To verify that at reference co-channel interference for the TCH/FS channel under propagation condition TU3, pseudo-ideal frequency hopping and no frequency hopping the RBER for Class Ib bits on the TCH/FS does not exceed the requirements.

3) To verify that at reference co-channel interference for the TCH/FS channel under propagation condition TU3, pseudo-ideal frequency hopping and no frequency hopping the RBER for Class II bits on the TCH/FS does not exceed the requirements.

Test case:

GSM 11.10 II.4.4.2/3

Conformance requirement:

1) The FER shall be within the requirements of table 2 in GSM 05.05.

2) The Class Ib RBER shall be within the requirements of table 2 in GSM 05.05.

3) The Class II RBER shall be within the requirements of table 2 in GSM 05.05.

Requirement reference:

GSM 05.05 6.3, GSM 05.05 table 2.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP2: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP3: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

EC Terminal Directive reference:

Test purpose 1:Article 4e.
Test purpose 2:Article 4e.
Test purpose 3:Article 4e.

11.3.2 Control Channel

Test purpose:

To verify that at reference co-channel interference for the FACCH under propagation condition TU3 the FER for the FACCH does not exceed the requirements.

Test case:

GSM 11.10 II.4.4.2/3

Conformance requirement:

The FER shall be within the requirements of table 2 in GSM 05.05.

Requirement reference:

GSM 05.05 6.3, GSM 05.05 table 2

SUPPLEMENTARY INFORMATION:

Test case justification:

A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other uses and a poor overall spectrum efficiency.

Moreover, if the mobile fails this test layer 2 will have many retransmissions and the link could be broken, thus preventing attachment of the mobile to the network, or the establishment of a call.

EC Terminal Directive reference:

Articles 4e and 4f.

11.4 Adjacent channel rejection

Test Group objective:

To verify the performance for the TCH/FS channel at reference adjacent channel interference under propagation condition TU50 under normal and extreme temperature and voltage conditions.

Subgroups:

1) Adjacent interferer 200 kHz (I2W)

2) Adjacent interferer 400 kHz (I4W)

11.4.1 Adjacent interferer 200 kHz (I2W)

Test purpose:

1) To verify that with adjacent channel interference at 200 kHz above and below the wanted signal frequency and signal level 9 dB above wanted signal level the FER for TCH/FS does not exceed the requirements under TU50 and under normal test conditions.

2) To verify that with adjacent channel interference at 200 kHz above and below the wanted signal frequency and signal level 9 dB above wanted signal level the Class Ib RBER for TCH/FS does not exceed the requirements under TU50 and under normal test conditions.

3) To verify that with adjacent channel interference at 200 kHz above and below the wanted signal frequency and signal level 9 dB above wanted signal level the Class II RBER for TCH/FS does not exceed the requirements under TU50 and under normal test conditions.

4) To verify that with adjacent channel interference at 200 kHz above and below the wanted signal frequency and signal level 9 dB above wanted signal level the FER for the FACCH does not exceed the requirements under TU50 and under normal test conditions.

5) To verify that with adjacent channel interference at 200 kHz above and below the wanted signal frequency and signal level 9 dB above wanted signal level the Class II RBER for TCH/FS does not exceed the requirements under TU50 and under extreme test conditions.

6) To verify that with adjacent channel interference at 200 kHz above and below the wanted signal frequency and signal level 9 dB above wanted signal level the FER for FACCH does not exceed the requirements under TU50 and under extreme test conditions.

Test case:

GSM 11.10 II.4.5.2/3.

Conformance requirement:

1) The FER shall be within the requirements of table 2 in GSM 05.05.

2) The Class Ib RBER shall be within the requirements of table 2 in GSM 05.05.

3) The Class II RBER shall be within the requirements of table 2 in GSM 05.05.

4) The FER for non-speech mobiles shall be within the requirements of table 2 in GSM 05.05.

5) The Class II RBER shall be within the requirements of table 2 in GSM 05.05.

6) The FER for non-speech mobiles shall be within the requirements of table 2 in GSM 05.05.

Requirement reference:

GSM 05.05 6.3, GSM 05.05 table 2.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP2: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP3: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP4: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other uses and a poor overall spectrum efficiency.

Moreover, if the mobile fails this test layer 2 will have many retransmissions and the link could be broken, thus preventing attachment of the mobile to the network, or the establishment of a call.

TP5: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP6: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other uses and a poor overall spectrum efficiency.

Moreover, if the mobile fails this test layer 2 will have many retransmissions and the link could be broken, thus preventing attachment of the mobile to the network, or the establishment of a call.

EC Terminal Directive reference:

Test purpose 1:Article 4e.
Test purpose 2:Article 4e.
Test purpose 3:Article 4e.
Test purpose 4:Articles 4e and 4f.
Test purpose 5:Article 4e.
Test purpose 6:Articles 4e and 4f.

11.4.2 Adjacent interferer 400 kHz (I4W)

Test purpose:

1) To verify that with static adjacent channel interference at 400 kHz above or below the wanted signal frequency and signal level 41 dB above wanted signal level the FER for TCH/FS does not exceed the requirements with the wanted signal under TU50 conditions and under normal test conditions.

2) To verify that with static adjacent channel interference at 400 kHz above or below the wanted signal frequency and signal level 41 dB above wanted signal level the Class Ib RBER for TCH/FS does not exceed the requirements with the wanted signal under TU50 conditions and under normal test conditions.

3) To verify that with static adjacent channel interference at 400 kHz above or below the wanted signal frequency and signal level 41 dB above wanted signal level the Class II RBER for TCH/FS does not exceed the requirements with the wanted signal under TU50 conditions and under normal test conditions.

4) To verify that with static adjacent channel interference at 400 kHz above or below the wanted signal frequency and signal level 41 dB above wanted signal level the FER for the FACCH does not exceed the requirements with the wanted signal under TU50 conditions and under normal test conditions.

5) To verify that with static adjacent channel interference at 400 kHz above or below the wanted signal frequency and signal level 41 dB above wanted signal level the Class II RBER for TCH/FS does not exceed the requirements with the wanted signal under TU50 conditions and under extreme test conditions.

6) To verify that with static adjacent channel interference at 400 kHz above or below the wanted signal frequency and signal level 41 dB above wanted signal level the FER for FACCH does not exceed the requirements with the wanted signal under TU50 conditions and under extreme test conditions.

Test case:

GSM 11.10 II.4.5.2/3.

Conformance requirement:

1) Due to test equipment limitations (dynamic range of fading simulator) it is not possible to simulate the exact test conditions defined in GSM 05.05 which are TU 50. The basic RF performance requirement in GSM 05.05 has been used to define measurement limits for the implementable test conditions in GSM 11.10 section II.4.5.

   The conformance requirement for the MS in GSM 11.10 section II.4.5 under static conditions are equivalent to the conformance requirement of GSM 05.05 6.3 and GSM 05.05 table 2.

2) Due to test equipment limitations (dynamic range of fading simulator) it is not possible to simulate the exact test conditions defined in GSM 05.05 which are TU 50. The basic RF performance requirement in GSM 05.05 has been used to define measurement limits for the implementable test conditions in GSM 11.10 section II.4.5.

   The conformance requirement for the MS in GSM 11.10 section II.4.5 under static conditions are equivalent to the conformance requirement of GSM 05.05 6.3 and GSM 05.05 table 2.

3) Due to test equipment limitations (dynamic range of fading simulator) it is not possible to simulate the exact test conditions defined in GSM 05.05 which are TU 50. The basic RF performance requirement in GSM 05.05 has been used to define measurement limits for the implementable test conditions in GSM 11.10 section II.4.5.

   The conformance requirement for the MS in GSM 11.10 section II.4.5 under static conditions are equivalent to the conformance requirement of GSM 05.05 6.3 and GSM 05.05 table 2.

4) Due to test equipment limitations (dynamic range of fading simulator) it is not possible to simulate the exact test conditions defined in GSM 05.05 which are TU 3. The basic RF performance requirement in GSM 05.05 has been used to define measurement limits for the implementable test conditions in GSM 11.10 section II.4.5.

   The conformance requirement for the MS in GSM 11.10 section II.4.5 under static conditions are equivalent to the conformance requirement of GSM 05.05 6.3 and GSM 05.05 table 2.

5) Due to test equipment limitations (dynamic range of fading simulator) it is not possible to simulate the exact test conditions defined in GSM 05.05 which are TU 50. The basic RF performance requirement in GSM 05.05 has been used to define measurement limits for the implementable test conditions in GSM 11.10 section II.4.5.

   The conformance requirement for the MS in GSM 11.10 section II.4.5 under static conditions are equivalent to the conformance requirement of GSM 05.05 6.3 and GSM 05.05 table 2.

6) Due to test equipment limitations (dynamic range of fading simulator) it is not possible to simulate the exact test conditions defined in GSM 05.05 which are TU 50. The basic RF performance requirement in GSM 05.05 has been used to define measurement limits for the implementable test conditions in GSM 11.10 section II.4.5.

   The conformance requirement for the MS in GSM 11.10 section II.4.5 under static conditions are equivalent to the conformance requirement of GSM 05.05 6.3 and GSM 05.05 table 2.

Requirement reference:

GSM 05.05 6.3

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP2: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP3: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP4: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other uses and a poor overall spectrum efficiency.

Moreover, if the mobile fails this test layer 2 will have many retransmissions and the link could be broken, thus preventing attachment of the mobile to the network, or the establishment of a call.

TP5: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other users and a poor overall spectrum efficiency.

TP6: A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other uses and a poor overall spectrum efficiency.

Moreover, if the mobile fails this test layer 2 will have many retransmissions and the link could be broken, thus preventing attachment of the mobile to the network, or the establishment of a call.

EC Terminal Directive reference:

Test purpose 1:Article 4e.
Test purpose 2:Article 4e.
Test purpose 3:Article 4e.
Test purpose 4:Articles 4e and 4f.
Test purpose 5:Article 4e.
Test purpose 6:Articles 4e and 4f.

11.5 Intermodulation rejection

Test purpose:

1) To verify that due to the presence of two unwanted signals with a specific frequency relationship to the wanted signal frequency the Class II RBER for TCH/FS does not exceed the requirements under normal test conditions.

2) To verify that due to the presence of two unwanted signals with a specific frequency relationship to the wanted signal frequency the FER for FACCH does not exceed the requirements under normal test conditions.

Test case:

GSM 11.10 II.4.6.2/3.

Conformance requirement:

1) The Class II RBER shall be within the requirements of table 1 in GSM 05.05.

2) The FER for a non-speech mobile shall be within the requirements of table 1 in GSM 05.05.

Requirement reference:

GSM 05.05 5.2, GSM 05.05 table 1.

SUPPLEMENTARY INFORMATION:

Test case justification:

A mobile station failing this test would cause network reactions (e.g higher transmitted power, unnecessary or unsuccessful handovers, unsuccessful use of radio channels, ...) resulting in higher interference to other uses and a poor overall spectrum efficiency.

Moreover, if the mobile fails this test layer 2 will have many retransmissions and the link could be broken, thus preventing attachment of the mobile to the network, or the establishment of a call.

EC Terminal Directive reference:

Test purpose 1:Article 4f.
Test purpose 2:Articles 4e and 4f.

11.6 Blocking and spurious response

Test Group objective:

To verify the performance of the mobile in the presence of an unwanted signal on frequencies outside the current and the adjacent channels.

Subgroups:

1) TCH-Full Rate Speech;

2) TCH Control Channel.

11.6.1 TCH-Full Rate Speech

Test purpose:

1) To verify that in the presence of an unwanted signal on frequencies outside the current and the adjacent channels the RBER for Class II bits for TCH/FS does not exceed the requirements in frequency range 100 kHz to 4 GHz.

2) To verify that in the presence of an unwanted signal on frequencies outside the current and the adjacent channels the RBER for Class II bits for TCH/FS does not exceed the requirements for mobiles with or without an antenna connector in the frequency range 4 GHz to 12,75 GHz.

Test case:

GSM 11.10 II.4.7.

Conformance requirement:

1) The RBER shall be within the requirements of table 1 in GSM 05.05.

2) The RBER shall be within the requirements of table 1 in GSM 05.05.

Requirement reference:

GSM 05.05 5.1, GSM 05.05 5.3, GSM 05.05 table 1.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: If the MS does not meet this requirement the link management may fail and force the network to higher TX power and possibly hand overs.

TP2: If the MS does not meet this requirement the link management may fail and force the network to higher TX power and possibly hand overs.

EC Terminal Directive reference:

Test purpose 1: Article 4e.
Test purpose 2: Article 4e.

11.6.2 TCH Control Channel

Test purpose:

1) To verify that in the presence of an unwanted signal on frequencies outside the current and the adjacent channels the FER for FACCH does not exceed the requirements for mobiles with or without an antenna connector in the frequency range 100 kHz to 4 GHz.

2) To verify that in the presence of an unwanted signal on frequencies outside the current and the adjacent channels the FER for FACCH does not exceed the requirements for mobiles with or without an antenna connector in the frequency range 4 GHz to 12,75 GHz.

Test case:

GSM 11.10 II.4.7.

Conformance requirement:

1) The FER shall be within the requirements of table 1 in GSM 05.05.

2) The FER shall be within the requirements of table 1 in GSM 05.05.

Requirement reference:

GSM 05.05 5.1, GSM 05.05 5.3, GSM 05.05 table 1.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: If the MS does not meet this requirement the link management may fail and force the network to higher TX power and possibly hand overs.

TP2: If the MS does not meet this requirement the link management may fail and force the network to higher TX power and possibly hand overs.

EC Terminal Directive reference:

Test purpose 1: Article 4e.
Test purpose 2: Article 4e.

12 Tests of Layer 2 signalling functions

12.1 Timing requirements and frame format

Test group objective

To verify the Layer 2 Signalling functions for SAPI 0 on SDCCH and FACCH.

12.1.1 Timing requirements

Test purpose:

To verify that if the MS has to respond to a command it does it within T200.

Test case:

GSM 11.10 all test cases of Part II.5.2.

Conformance requirement:

The MS, if it has to respond, shall do so within T200.

Requirement reference:

GSM 04.06 section 5.8.1 (implicit requirement).

SUPPLEMENTARY INFORMATION:

Test case justification:

The whole signalling system of the air interface is settled on some response times, one of the most significant of them being T200. If the MS is not compliant with respect to T200 layer 3 procedures can be harmed (Article 4f).

EC Terminal Directive reference:

Article 4f.

12.1.2 Frame format

Test purpose:

1) To verify that the MS sets bits 6 through 8 of the address field to zero.

2) To verify that the MS sets the address extension bit (EA bit) to 1.

3) To verify that the MS sets the length indicator field extension bit (EL bit) to 1.

Test case:

GSM 11.10 all test cases of part II.5.2.

Conformance requirement:

1) The MS shall set bits 6 through 8 of the address field to zero.

2) The MS shall set the address extension bit (EA bit) to 1.

3) The MS shall set the length indicator field extension bit (EL bit) to 1.

Requirement reference:

GSM 04.06 sections 3.2 and 3.3.3 (TP 1), 2.3 and 3.2 (TP 2), 2.5 and 3.6 (TP 3).

SUPPLEMENTARY INFORMATION:

Test case justification:

If bits are not correctly set the network will ignore the frames and it will not be possible to establish a link (TP 1, TP 2, TP 3).

EC Terminal Directive reference:

TP 1, TP 2, TP 3: Article 4f.

12.2 Initialisation when contention resolution required

Test group objective

To verify the Layer 2 signalling in case of initialisation with contention resolution.

12.2.1 Normal initialisation

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that when contention resolution is required (the MS was paged) the MS transmits an SABM command with the P bit set to 1, the length of the information field set to a value different from 0, the information field set to Paging Response.

2) To verify that after an UA response with the F bit set to 1 and the information field set to the same value as the one included by the MS in the SABM, the MS does not transmit any other SABM but sends UI fill frames.

Test case:

GSM 11.10 II.5.2.2.1.1.1.

Conformance requirement:

1) When contention resolution is required the MS shall transmit an SABM command with the P bit set to 1, the length of the information field set to a value different from 0, the information field set to Paging Response.

2) After an UA response with the F bit set to 1 and the information field set to the same value as the one included by the MS in the SABM, the MS shall not transmit any other SABM but send UI fill frames.

Requirement reference:

GSM 04.06 5.4.1.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If contention resolution does not work correctly then the access to the network may fail systematically.

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4f.

12.2.2 Initialisation failure

12.2.2.1 Loss of UA frame

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that the MS repeats its SABM frame after timeout of T200 in case of a loss of a Layer 2 UA frame during initialisation.

2) To verify that after the UA response sent in response to the second SABM the MS does not transmit any other SABM but sends a UI fill frame.

Test case:

GSM 11.10 II.5.2.2.1.1.2.1.

Conformance requirement:

1) After timeout of T200 the MS shall repeat its SABM frame, in case of a loss of a Layer 2 UA frame during initialisation.

2) After the UA response sent in response to the second SABM the MS shall not transmit any other SABM but send a UI fill frame.

Requirement reference:

TP 1: GSM 04.06 5.4.1.4 and 5.4.1.5.

TP 2: GSM 04.06 5.4.1.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the retransmission after T200 is not implemented, the link cannot be established as soon as the SABM or the UA are lost during transmission.

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4f.

12.2.2.2 UA frame with different information field

Test purpose:

This test is performed twice: on SDCCH and on FACCH.

To verify that the MS leaves the channel and returns to idle mode when multiple frame establishment fails because a UA frame with a different information field is received in response to the SABM frame.

Test case:

GSM 11.10 II.5.2.2.1.1.2.2.

Conformance requirement:

When multiple frame establishment fails, because a UA frame with a different information field is received in response to the SABM frame, the MS shall leave the channel and return to idle mode.

Requirement reference:

GSM 04.06 5.4.1.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this procedure does not work correctly then two MS can be on the same channel and none will access the network in good conditions.

EC Terminal Directive reference:

Article 4f.

12.2.2.3 Information frame or supervisory frames in response to an SABM frame

Test purpose:

These tests are performed twice: on SDCCH and on FACCH

1) To verify that the MS ignores information frame when received in response to the SABM frame and sends again its SABM after timeout of T200.

2) To verify that the MS ignores RR frames when received in response to the SABM frame and sends again its SABM after timeout of T200.

3) To verify that the MS ignores REJ frames when received in response to the SABM frame and sends again its SABM after timeout of T200.

Test case:

GSM 11.10 II.5.2.2.1.1.2.3.

Conformance requirement:

1) The MS shall ignore information frames, when received in response to the SABM frame, and re-send its SABM after timeout of T200.

2) The MS shall ignore RR frames, when received in response to the SABM frame, and re-send its SABM after timeout of T200.

3) The MS shall ignore REJ frames, when received in response to the SABM frame, and re-send its SABM after timeout of T200.

Requirement reference:

GSM 04.06 5.4.1.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS has not received acceptance for the L2 establishment contention resolution cannot be checked and access to the network will not be done in good conditions.

EC Terminal Directive reference:

TP1: Article 4f.
TP2: Article 4f.
TP3: Article 4f.

12.2.3 Initialisation denial

Test purpose:

This test is performed twice: on SDCCH and on FACCH.

To verify that the MS does not repeat its SABM if the network side indicates that it is unable to enter the multiple frame established state with a DM frame with the F bit set to 1.

Test case:

GSM 11.10 II.5.2.2.1.1.3.

Conformance requirement:

The MS shall not repeat its SABM if the network side indicates that it is unable to enter the multiple frame established state with a DM frame with the F bit set to 1.

Requirement reference:

GSM 04.06 sections 5.4.1.4 and 5.4.1.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not leave a channel when the network request it, it can use radio resources that are allocated to other mobiles (Article 4e).

EC Terminal Directive reference:

Article 4e.

12.2.4 Total initialisation failure

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that the MS repeats its SABM after timeout of T200.

2) To verify that the MS repeats its SABM exactly N200 times in case of no response from the system to requests to initialise the data link.

3) To verify that after N200 retransmissions of the SABM the MS returns to idle mode.

Test case:

GSM 11.10 II.5.2.2.1.1.4.

Conformance requirement:

1) The MS shall repeat its SABM after timeout of T200.

2) The MS shall repeat its SABM exactly N200 times in the case of no response from the system to requests to initialise the data link.

3) After N200 retransmissions of the SABM the MS shall return to idle mode.

Requirement reference:

GSM 04.06 section 5.4.1.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not repeat its SABM, access to the network will not be possible in case of a loss of the SABM frame (Article 4f).

If the MS does not return to idle mode after having unsuccessfully attempted to initialise the data link, it can use radio resources that are allocated to other mobiles (Article 4e).

EC Terminal Directive reference:

TP 1, TP 2: Article 4f.

TP 3: Article 4e.

12.3 Initialisation, contention resolution not required

Test group objective

To verify the Layer 2 signalling in case of initialisation without contention resolution.

12.3.1 Normal initialisation

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that when contention resolution is not required (the network has used an Assignment Command) the MS transmits an SABM command with the P bit set to 1 and the length of the information field to 0.

2) To verify that the MS does not transmit any other SABM after a UA with F bit set to 1 in response to its SABM.

3) To verify that the MS then starts transmitting an I frame with N(S) and N(R) set to 0 and with the information field set to Assignment Complete and fill frames.

Test case:

GSM 11.10 II.5.2.2.1.2.1.

Conformance requirement:

1) When contention resolution is not required (i.e the network has used an Assignment Command) the MS shall transmit an SABM command with the P bit set to 1 and the length of the information field to 0.

2) The MS shall not transmit any other SABM after a UA with F bit set to 1 is received in response to its SABM.

3) The MS shall then start transmitting an I frame with N(S) and N(R) set to 0 and with the information field set to Assignment Complete and fill frames.

Requirement reference:

TP 1, TP 2: GSM 04.06 5.4.1.2.

TP 3: GSM 04.06 5.4.1.2, 5.5.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the initialisation of multiple-frame operation does not work correctly then the access to the network can be rejected.

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4f.
TP 3: Article 4f.

12.3.2 Initialisation failure

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that when contention resolution is not required the MS repeats its SABM frame after timeout of T200 in case of a loss of a Layer 2 UA frame during initialisation.

2) To verify that after the UA with F bit set to 1 sent in response to the second SABM the MS does not transmit any other SABM.

3) To verify that the MS then starts transmitting an I frame with N(S) and N(R) set to 0 and with the information field set to Assignment Complete and fill frames.

Test case:

GSM 11.10 II.5.2.2.1.2.2.

Conformance requirement:

1) When contention resolution is not required the MS shall repeat its SABM frame after timeout of T200 in the case of a loss of a Layer 2 UA frame during initialisation.

2) After the UA, with F bit set to 1 sent in response to the second SABM, the MS shall not transmit any other SABM.

3) The MS shall then start transmitting an I frame with N(S) and N(R) set to 0 and with the information field set to Assignment Complete and fill frames.

Requirement reference:

TP 1: GSM 04.06 5.4.1.2 and 5.4.1.3.

TP 2: GSM 04.06 5.4.1.2.

TP 3: GSM 04.06 5.4.1.2 and 5.5.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not react correctly to a loss of a layer 2 UA frame during initialisation, then access to network can be rejected.

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4f.
TP 3: Article 4f.

12.3.3 Initialisation denial

Test purpose:

This test is performed twice: on SDCCH and on FACCH.

To verify that when contention resolution is not required, if the network side indicates that it is unable to enter the multiple frame established state, the MS does not repeat its SABM.

Test case:

GSM 11.10 II.5.2.2.1.2.3.

Conformance requirement:

When contention resolution is not required, if the network side indicates that it is unable to enter the multiple frame established state, the MS shall not repeat its SABM.

Requirement reference:

GSM 04.06 section 5.4.1.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not leave a channel when the network requests it, it can use radio resources that are allocated to other mobiles.

EC Terminal Directive reference:

Article 4e.

12.3.4 Total initialisation failure

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that the MS repeats its SABM after timeout of T200.

2) To verify that the MS repeats its SABM exactly N200 times in case of no response from the system to requests to initialise the data link.

3) To verify that after N200 retransmissions of the SABM the MS returns to idle mode.

Test case:

GSM 11.10 II.5.2.2.1.2.4.

Conformance requirement:

1) The MS shall repeat its SABM after timeout of T200.

2) The MS shall repeat its SABM exactly N200 times in the case of no response from the system to requests to initialise the data link.

3) After N200 retransmissions of the SABM the MS shall return to idle mode.

Requirement reference:

GSM 04.06 section 5.4.1.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not repeat its SABM in case of a loss of the SABM frame, access to network will not be possible (Article 4f).

If the MS does not leave the channel after having unsuccessfully attempted to initialise the data link, it can use radio resources that are allocated to other mobiles (Article 4e).

EC Terminal Directive reference:

TP 1, TP 2: Article 4f.

TP 3: Article 4e.

12.4 Normal information transfer

12.4.1 Sequence counting and I frame acknowledgements

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that the MS, when not in timer recovery state, acknowledges a valid received I frame where P is set to 0 with an RR frame or with an I frame with F bit set to 0.

2) To verify that the MS correctly increments its receive sequence number modulus 8 each time an information frame is received.

3) To verify that the MS assigns the value of 0 to N(S) in the first I frame sent after establishment of the link.

4) To verify that the MS increments its send sequence counter modulus 8 each time an information frame is sent.

5) To verify that the MS does not repeat its I frame when an RR frame, acknowledging it, is received.

Test case:

GSM 11.10 II.5.2.2.2.1.

Conformance requirement:

1) The MS, when not in timer recovery state, shall acknowledge a valid received I frame where P is set to 0 with an RR frame or with an I frame with F bit set to 0.

2) The MS shall correctly increment its receive sequence number modulus 8 each time an information frame is received.

3) The MS shall assign the value of 0 to N(S) in the first I frame sent after establishment of the link.

4) The MS shall increment its send sequence counter modulus 8 each time an information frame is sent.

5) The MS shall not repeat its I frame when an RR frame, acknowledging it, is received.

Requirement reference:

TP 1, TP 2: GSM 04.06 sections 3.5.2, 5.5.2, 5.5.2.2;

TP 3: GSM 04.06 5.4.1.2, 5.4.1.4, 5.5.1;

TP 4: GSM 04.06 3.5.2, 5.5.1;

TP 5: GSM 04.06 3.5.2, 5.5.1, 5.5.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not correctly manage its sequence number, it will not be possible to send and receive information to/from it.

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4f.
TP 3: Article 4f.
TP 4: Article 4f.
TP 5: Article 4f.

12.4.2 Receipt of an I frame in the timer recovery state

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that when an information frame is not acknowledged the MS repeats it with the P bit set to 1 (enters the timer recovery state) after timeout of T200.

2) To verify that when the MS has entered the timer recovery state it acknowledges a received I frame with P bit set to 0 with an RR frame with F bit set to 0 or with a repetition of the I frame which caused the MS to enter the timer recovery state.

3) To verify that when the MS has entered the timer recovery state the reception of a frame with the F bit set to 1, acknowledging the I frame sent, enables the MS to leave this state.

Test case:

GSM 11.10 II.5.2.2.2.2, II.5.2.2.4.1, II.5.2.2.4.2, II.5.2.2.6.3

Conformance requirement:

1) When an information frame is not acknowledged the MS shall repeat it with the P bit set to 1 (enters the timer recovery state) after timeout of T200.

2) When the MS has entered the timer recovery state it shall acknowledge a received I frame, with P bit set to 0, with an RR frame, with F bit set to 0, or with a repetition of the I frame which caused the MS to enter the timer recovery state.

3) When the MS has entered the timer recovery state the reception of a frame with the F bit set to 1, acknowledging the I frame sent, shall enable the MS to leave this state.

Requirement reference:

TP 1: GSM 04.06 5.5.1, 5.5.7;

TP 2: GSM 04.06 5.5.2, 5.5.2.2;

TP 3: GSM 04.06 5.5.3, 5.5.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not repeat unacknowledged I frame or does not behave correctly when in timer recovery state, it will not be possible to send and receive information to/from the network when transmission errors occur and connection will be broken.

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4f.
TP 3: Article 4f.

12.4.3 Segmentation and concatenation

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that a Layer 3 message longer than N201 octets is sent in several Layer 2 information frames with the M bit set to 1 and the length indicator set to N201 except in the last one where the M bit is set to 0.

2) To verify that the MS accepts a Layer 3 message sent in more than one information frame.

3) To verify that when the last segment of a Layer 3 message has been transmitted by the MS but was not acknowledged and the MS receives a Handover Command message, after establishment of Layer 2 without contention resolution and after transmission by the MS of a Handover Complete message on the new channel, the MS re-sends the whole Layer 3 message.

Test case:

GSM 11.10 II.5.2.2.2.3.

Conformance requirement:

1) The MS shall send a Layer 3 message, which is longer than N201 octets, in several Layer 2 information frames with the M bit set to 1 and the length indicator set to N201 except in the last one where the M bit is set to 0.

   Special Test Situation 2, see section 3.

2) The MS shall accept a Layer 3 message sent in more than one information frame.

3) When the last segment of a Layer 3 message has been transmitted by the MS but has not been acknowledged and the MS receives a Handover Command message, after establishment of Layer 2 without contention resolution and after transmission by the MS of a Handover Complete message on the new channel, the MS shall re-send the whole Layer 3 message.

Requirement reference:

TP 1: GSM 04.06 5.5.1;

TP 2: GSM 04.06 5.5.2;

TP 3: GSM 04.06 5.4.3.2, 5.4.3.3.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does correctly manage the segmentation, concatenation, suspend and resume procedures, then a transmission failure will be detected by the network and information will be lost.

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4f.
TP 3: Article 4f.

12.5 Normal Layer 2 disconnection

Test purpose:

This test is performed twice: on SDCCH and on FACCH.

To verify that in multiframe established state at reception of a Layer 2 DISC frame with the P bit set to 1 the MS acknowledges it with a UA frame with the F bit set to 1 and returns to the idle state.

Test case:

GSM 11.10 II.5.2.2.3.

Conformance requirement:

When in multiframe established state, at the reception of a Layer 2 DISC frame with the P bit set to 1, the MS shall acknowledge it with a UA frame with the F bit set to 1 and return to the idle state.

Requirement reference:

GSM 04.06 5.4.4.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not leave the channel when requested by the network, it can use radio resources that will be allocated to other mobiles (Article 4e). The support of this procedure by the MS is needed to perform connection clearing (Article 4f).

EC Terminal Directive reference:

Articles 4e and 4f.

12.6 RR response frame loss (MS to SS)

Test purpose:

This test is performed twice: on SDCCH and on FACCH.

To verify that if the network repeats an already acknowledged information frame with the P bit set to 1 (simulating the loss of the RR frame acknowledging the first I frame), the MS answers with a RR or a REJ frame with the F bit set to 1 and with N(R) indicating the N(S) expected in the next I frame.

Test case:

GSM 11.10 II.5.2.2.4.3.

Conformance requirement:

If the network repeats an already acknowledged information frame with the P bit set to 1 (simulating the loss of the RR frame acknowledging the first I frame), the MS shall answer with a RR or a REJ frame with the F bit set to 1 and with N(R) indicating the N(S) expected in the next I frame.

Requirement reference:

GSM 04.06 5.7.1 (for the REJ frame)

As an RR response does not harm the network in this case, such a response is allowed too though not explicitly written in GSM 04.06.

SUPPLEMENTARY INFORMATION:

Test case justification:

The behaviour of the MS in case of a loss a MS to network RR frame must be as specified in order be able to hold the connection in such a case (Article 4f).

EC Terminal Directive reference:

Article 4f.

12.7 Test of frame transmission with incorrect C/R value

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that the MS takes no action upon reception of a I frame with C set to 0.

2) To verify that the MS takes no action upon reception of a SABM frame with C set to 0.

Test case:

TP1: GSM 11.10 II.5.2.2.5.1;

TP2: GSM 11.10 II.5.2.2.5.2.

Conformance requirement:

1) The MS shall not take any action upon reception of a I frame with C set to 0.

2) The MS shall not take any action upon reception of a SABM frame with C set to 0.

Requirement reference:

TP1 and TP2: GSM 04.06 5.7.3, Annex G, G.2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

Such a case can happen in case of residual error and the connection shall not be released nor the frames be taken into account (Article 4f).

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4f.

12.8 Test of errors in the control field

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

1) To verify that at the reception of an I frame with a N(S) sequence error with P bit set to 0 the MS sends a REJ frame with F bit set to 0 and with N(R) indicating the N(S) expected in the next I frame.

2) To verify that at the reception of an I frame with a N(S) sequence error with P bit set to 1 the MS sends a REJ frame with F bit set to 1 with N(R) indicating the N(S) expected in the next I frame.

3) To verify that the MS detects a N(R) sequence error and performs a release (normal release by sending a DISC with P bit set to 1 or local end release by entering idle state).

Test case:

TP1 and TP2: GSM 11.10 II.5.2.2.6.1;

TP3: GSM 11.10 II.5.2.2.6.2.

Conformance requirement:

1) At the reception of an I frame with a N(S) sequence error with P bit set to 0 the MS shall send a REJ frame with F bit set to 0 and with N(R) indicating the N(S) expected in the next I frame.

2) At the reception of an I frame with a N(S) sequence error with P bit set to 1 the MS shall send a REJ frame with F bit set to 1 with N(R) indicating the N(S) expected in the next I frame.

3) The MS shall detect a N(R) sequence error and perform a release (normal release by sending a DISC with P bit set to 1 or local end release by entering idle state).

Requirement reference:

TP 1, TP 2: GSM 04.06 5.7.1;

TP 3: GSM 04.06 5.4.4.2, 5.4.4.4, 5.6.2, 5.6.4, 5.7.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

Handling of send and receive sequence numbers are a basic and essential functionality of Layer 2. A misfunctioning could have unpredictable consequences. Reception of an I frame with N(S) or N(R) sequence error can happen in case of residual error (Article 4f).

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4f.
TP 3: Article 4f.

12.9 Test on receipt of invalid frame

Test purpose:

These tests are performed twice: on SDCCH and on FACCH.

To verify that the MS ignores invalid frames:

1.1 RR frame with the Length Indicator greater than zero;

1.2 REJ frame with the EA bit set to zero;

1.3 SABM frame with the EL bit set to zero;

1.4 DM frame with the Length Indicator greater than zero;

1.5 DISC frame with the M bit set to 1;

1.6 I frame with the Length Indicator greater than N201;

1.7 I frame with the M bit set to 1 and the Length Indicator less than N201.

2.1 UA frame with the EA bit set to zero;

2.2 command frames with correct Address and Length Indicator field but with a non-implemented control field (control field values: xxx1 1101, xxx1 1011, xxx1 0111, 01x1 1111, 1xx1 1111, 0011 0011, 1xx1 0011);

3 To verify that faulty N(R) in ignored frames are discarded.

Test case:

GSM 11.10 II.5.2.2.7.

Conformance requirement:

1.1 The MS shall ignore an invalid RR frame with the Length Indicator greater than zero;

1.2 The MS shall ignore an invalid REJ frame with the EA bit set to zero;

1.3 The MS shall ignore an invalid SABM frame with the EL bit set to zero;

1.4 The MS shall ignore an invalid DM frame with the Length Indicator greater than zero;

1.5 The MS shall ignore an invalid DISC frame with the M bit set to 1;

1.6 The MS shall ignore an invalid I frame with the Length Indicator greater than N201;

1.7 The MS shall ignore an invalid I frame with the M bit set to 1 and the Length Indicator less than N201;

2.1 The MS shall ignore an invalid UA frame with the EA bit set to zero;

2.2 The MS shall ignore an invalid command frame with correct Address and Length Indicator field but with a non-implemented control field (control field values: xxx1 1101, xxx1 1011, xxx1 0111, 01x1 1111, 1xx1 1111, 0011 0011, 1xx1 0011);

3 Faulty N(R) in ignored frames shall be discarded.

Requirement reference:

GSM 04.06 5.7.3 and Annex G G.1 and (TP1.1: G.4.3, TP 1.2: G.2.3, TP 1.3: G.4.1, TP 1.4: G.4.4, TP 1.5: G.4.4, TP 1.6: G.4.2, TP 1.7: G.4.2, TP 2.1 G.2.3, TP 2.2 G.3.2, TP 3: G.4.3 and G 2.3).

SUPPLEMENTARY INFORMATION:

Test case justification:

Reception of frames tackled in TP 1 can happen in case of residual error. Frames such of as that tackled in TP 2 can be introduced in phase 2. For both types the MS of phase 1 shall not react and not release the link (Article 4f).

EC Terminal Directive reference:

TP 1.1: Article 4f.
TP 1.2: Article 4f.
TP 1.3: Article 4f.
TP 1.4: Article 4f.
TP 1.5: Article 4f.
TP 1.6: Article 4f.
TP 1.7: Article 4f.
TP 2.1: Article 4f.
TP 2.2: Article 4f.
TP 3: Article 4f.

13 Initial Tests

13.1 Scheduling of the channel request transmission

Test group objective

The correct functioning of the Random Access CHannel (RACH) is ensured by an Aloha like protocol specified in GSM 04.08. Namely at the sending of a CHANNEL REQUEST the MS starts a timer which is the sum of a fixed duration and of a random duration the distribution of which is specified. This timer is stopped when the MS receives an answer from the network. If this timer expires the MS repeats its CHANNEL REQUEST provided that this will not make the MS exceeding the maximum number of retransmission authorized by the network. Thus these tests aim to verify that the MS is compliant to this protocol.

13.1.1 Txinteger is low, non-combined case

Test purposes:

1) To verify that the MS spreads an initial CHANNEL REQUEST message with equal probability on approximately the correct number of timeslots, this CHANNEL REQUEST being sent within one second after the sending of the PAGING REQUEST message when the following conditions apply:

   - the CCCH is not combined with SDCCHs;
   - the maximum number of retransmissions is equal to 1;
   - Txinteger is put to 5.

   For the test method it is assumed that the MS answers to paging within one second.

2) To verify that the MS spreads retransmissions of a CHANNEL REQUEST message with equal probability on Tx-integer timeslots when the following conditions apply:

   - the CCCH is not combined with SDCCHs;

   - the maximum number of retransmissions is equal to 1;

   - Txinteger is put to 5.

3) To verify that all CHANNEL REQUESTs sent contain Establishment Cause "Answer to Paging".

Test case:

GSM 11.10 II.5.3.2.1.1.3.

Conformance requirement:

1) The MS shall spread an initial CHANNEL REQUEST message, with equal probability on approximately the correct number of timeslots, after the sending of a PAGING REQUEST message when the following conditions apply:

   - the CCCH is not combined with SDCCHs;

   - the maximum number of retransmissions is equal to 1;

   - Txinteger is put to 5.

2) The MS shall spread retransmissions of a CHANNEL REQUEST message, with equal probability, on Tx-integer timeslots when the following conditions apply:

   - the CCCH is not combined with SDCCHs;

   - the maximum number of retransmissions is equal to 1;

   - Txinteger is put to 5.

3) All CHANNEL REQUEST messages sent shall contain Establishment Cause "Answer to Paging".

(There is no Conformance requirement concerning the time to react to paging).

Requirement reference:

TP1: GSM 04.08 section 3.3.1.1;

TP2: GSM 04.08 section 3.3.1.1;

TP3: GSM 04.08 section 9.1.8.

SUPPLEMENTARY INFORMATION:

Test case justification:

The purpose of the protocol the verification of which is made by this test is to reduce the number of collisions which are likely to occur on a random access channel. Collisions may reduce drastically the efficiency of the radio spectrum use.

Non-combined case is used.

TX-integer (number of RACH slots to spread retransmissions) is put to a low value in order to test the accuracy of the probability distribution law implemented by the MS with a good confidence interval and without too many samples.

EC Terminal Directive reference:

Articles 4d and 4e.

13.1.2 Txinteger is low, combined case

Test purposes:

1) To verify that the MS spreads an initial CHANNEL REQUEST message with equal probability on approximately the correct number of timeslots, this CHANNEL REQUEST being sent within one second after the sending of the PAGING REQUEST message when the following conditions apply:

   - the CCCH is combined with SDCCHs;
   - the maximum number of retransmissions is equal to 1;
   - Txinteger is put to 5.

   For the test method it is assumed that the MS answers to paging within one second.

2) To verify that the MS spreads retransmissions of a CHANNEL REQUEST message with equal probability on Tx-integer timeslots when the following conditions apply:

   - the CCCH is combined with SDCCHs;
   - the maximum number of retransmissions is equal to 1;
   - Txinteger is put to 5.

3) To verify that all CHANNEL REQUESTs sent contain Establishment Cause "Answer to Paging".

Test case:

GSM 11.10 II.5.3.2.1.1.4.

Conformance requirement:

1) The MS shall spread an initial CHANNEL REQUEST message, with equal probability on approximately the correct number of timeslots, after the sending of a PAGING REQUEST message when the following conditions apply:

   - the CCCH is combined with SDCCHs;
   - the maximum number of retransmissions is equal to 1;
   - Txinteger is put to 5.

2) The MS shall spread retransmissions of a CHANNEL REQUEST message with equal probability on Tx-integer timeslots when the following conditions apply:

   - the CCCH is combined with SDCCHs;
   - the maximum number of retransmissions is equal to 1;
   - Txinteger is put to 5.

3) All CHANNEL REQUEST messages sent shall contain Establishment Cause "Answer to Paging".

(There is no conformance requirement concerning the time to react to paging).

Requirement reference:

TP1: GSM 04.08 section 3.3.1.1;

TP2: GSM 04.08 section 3.3.1.1;

TP3: GSM 04.08 section 9.1.8.

SUPPLEMENTARY INFORMATION:

Test case justification:

The purpose of the protocol the verification of which is made by this test is to reduce the number of collisions which are likely to occur on a random access channel. Collisions may reduce drastically the efficiency of the radio spectrum use.

Combined case is used.

TX-integer (number of RACH slots to spread retransmissions) is put to a low value in order to test the accuracy of the probability distribution law implemented by the MS with a good confidence interval and without too many samples.

EC Terminal Directive reference:

Articles 4d and 4e.

13.1.3 Txinteger and Maxretrans are put to random values, non combined case

Test purposes:

1) To verify that the MS spreads retransmissions of a CHANNEL REQUEST message with equal probability on Tx-integer timeslots, the first CHANNEL REQUEST being sent within one second after the sending of the PAGING REQUEST message when the following conditions apply:

   - the CCCH is not combined with SDCCHs;
   - the maximum number of retransmissions is equal to one of the following values: 1, 2, 4, 7;
   - Txinteger is put to any of the allowed values among those which are greater or equal to 6.

   For the test method it is assumed that the MS answers to paging within one second.

2) To verify that the MS does not retransmit another CHANNEL REQUEST message when Max-retrans is reached.

3) To verify that all CHANNEL REQUESTs sent contain Establishment Cause "Answer to Paging".

Test case:

GSM 11.10 II.5.3.2.1.1.5.

Conformance requirement:

1) The MS shall spread retransmissions of a CHANNEL REQUEST message, with equal probability on Tx-integer timeslots, after the sending of the PAGING REQUEST message when the following conditions apply:

   - the CCCH is not combined with SDCCHs;

   - the maximum number of retransmissions is equal to one of the following values: 1, 2, 4, 7;

   - Txinteger is put to any of the allowed values among those which are greater or equal to 6.

   For the test method it is assumed that the MS answers to paging within one second.

2) The MS shall not retransmit another CHANNEL REQUEST message when Max-retrans is reached.

3) All CHANNEL REQUEST messages sent shall contain Establishment Cause "Answer to Paging".

(There is no conformance requirement concerning the time to react to paging).

Requirement reference:

TP1: GSM 04.08 section 3.3.1.1;

TP2: GSM 04.08 section 3.3.1.1;

TP3: GSM 04.08 section 9.1.8.

SUPPLEMENTARY INFORMATION:

Test case justification:

The purpose of the protocol the verification of which is made by this test is to reduce the number of collisions which are likely to occur on a random access channel.

Non combined case is used.

The maximum number of retransmissions may be greater than 1.

TX-integer (number of RACH slots to spread retransmissions) is put to a high value which is realistic. Together with the other tests, this checks that the MS takes into account the whole range of values which may be broadcast by the network.

EC Terminal Directive reference:

Article 4d.

13.1.4 Txinteger and Maxretrans are put to random values, combined case

Test purposes:

1) To verify that the MS spreads retransmissions of a CHANNEL REQUEST message with equal probability on Tx-integer timeslots, the first CHANNEL REQUEST being sent within one second after the sending of the PAGING REQUEST message when the following conditions apply:

   - the CCCH is combined with SDCCHs;
   - the maximum number of retransmissions is equal to one of the following values: 1, 2, 4, 7;
   - Txinteger is put to any of the allowed values among those which are greater or equal to 6.

   For the test method it is assumed that the MS answers to paging within one second.

2) To verify that the MS does not retransmit another CHANNEL REQUEST message when Max-retrans is reached.

3) To verify that all CHANNEL REQUESTs sent contain Establishment Cause "Answer to Paging".

Test case:

GSM 11.10 II.5.3.2.1.1.6.

Conformance requirement:

1) The MS shall spread retransmissions of a CHANNEL REQUEST message, with equal probability on Tx-integer timeslots, after the sending of a PAGING REQUEST message when the following conditions apply:

   - the CCCH is combined with SDCCHs;
   - the maximum number of retransmissions is equal to one of the following values: 1, 2, 4, 7;
   - Txinteger is put to any of the allowed values among those which are greater or equal to 6.

2) The MS shall not retransmit another CHANNEL REQUEST message when Max-retrans is reached.

3) All CHANNEL REQUEST messages sent shall contain Establishment Cause "Answer to Paging".

(There is no conformance requirement concerning the time to react to paging).

Requirement reference:

TP1: GSM 04.08 section 3.3.1.1;

TP2: GSM 04.08 section 3.3.1.1;

TP3: GSM 04.08 section 9.1.8.

SUPPLEMENTARY INFORMATION:

Test case justification:

The purpose of the protocol the verification of which is made by this test is to reduce the number of collisions which are likely to occur on a random access channel.

Combined case is used.

The maximum number of retransmissions may be greater than 1.

TX-integer (number of RACH slots to spread retransmissions) is put to a high value which is realistic. Together with the other tests, this checks that the MS takes into account the whole range of values which may be broadcast by the network.

EC Terminal Directive reference:

Articles 4d and 4e.

13.1.5 Test of random generator

Test purpose:

To verify that different MSs of one product series do not produce the same sequences of random values.

Test case:

No test method is available, a MS manufacturer declaration is required in GSM 11.10 II.5.3.2.1.2.

Conformance requirement:

Different MSs from one product series shall not produce the same sequences of random values.

Special Test Situation 2, see clause 3.

Requirement reference:

GSM 04.08 sections 3.3.1.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

This is of particular importance for the random trials used for Txinteger. Otherwise these values are not random when seen by the network and collisions may occur repeatedly.

EC Terminal Directive reference:

Articles 4d and 4e.

13.2 IMSI detach/attach

Test group objective

The objective of tests II.5.3.2.2.1 and II.5.3.2.2.2 is to verify that the MS does not perform IMSI detach when it enters an inactive state and when this is not allowed by the network. This check is performed in two cases namely switch off and SIM removal.

In the other tests it is assumed that the network requires the MSs to perform the IMSI attach/detach procedures. It is verified that the MS performs IMSI detach procedure when it enters an inactive state. This check is performed in two cases namely switch off and SIM removal. It is then verified that the MS performs the IMSI attach procedure in the two following cases: SIM insertion and switch on.

13.2.1 IMSI attach and detach are not allowed, SIM remains continuously in the ME

Test purpose:

1) To verify that the MS does not perform IMSI detach procedure upon deactivation, when the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach".

2) To verify that the MS does not perform IMSI attach procedure upon activation, when the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach".

Test case:

GSM 11.10 II.5.3.2.2.3, II.5.3.2.2.4 (one test case described by two paragraphs).

Conformance requirement:

1) When the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach", the MS shall not perform the IMSI detach procedure upon deactivation.

2) When the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach", the MS shall not perform the IMSI attach procedure upon activation.

Requirement reference:

TP1: GSM 04.08 section 4.3.4;

TP2: GSM 04.08 section 4.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS aims to perform this procedure in the case where it is not allowed by the network it will require uselessly a radio resource.

EC Terminal Directive reference:

Article 4e.

13.2.2 IMSI attach and detach are not allowed, SIM is removed and put again

Test purpose:

1) To verify that the MS does not perform IMSI detach procedure if the Subscriber Identity Module is removed when the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach".

2) To verify that the MS does not perform IMSI attach procedure if the Subscriber Identity Module is inserted, when the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach".

Test case:

GSM 11.10 II.5.3.2.2.5, II.5.3.2.2.6 (one test case described by two paragraphs).

Conformance requirement:

1) The MS shall not perform the IMSI detach procedure if the Subscriber Identity Module is removed when the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach".

2) The MS shall not perform the IMSI attach procedure if the Subscriber Identity Module is inserted, when the Attach-detach flag in the Control Channel Description of the System Information Type 3 indicates "MSs in the cell are not allowed to apply IMSI attach and detach".

These requirements are only meaningful for MSs where the removal of the SIM does not yield the removal of the power supply.

Requirement reference:

TP1: GSM 04.08 section 4.3.4;

TP2: GSM 04.08 section 4.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS aims to perform this procedure in the case where it is not allowed by the network it will require a uselessly radio resource.

EC Terminal Directive reference:

Article 4e.

13.2.3 IMSI attach and detach are required, the MS is powered off

Test purpose:

To verify that the MS correctly performs IMSI detach procedure upon switch off when it is required by the network to do so. This comprises the following steps:

- the MS establishes an RR connection;

- the MS sends an IMSI DETACH INDICATION message to the network, this message includes the identity of the MS.

Test case:

GSM 11.10 II.5.3.2.2.7, II.5.3.2.2.8 (one test case described by two paragraphs).

Conformance requirement:

The MS shall correctly perform the IMSI detach procedure, upon switch off, when it is required by the network to do so.

This applies only to mobile stations supporting soft power down.

Requirement reference:

GSM 04.08 sect 4.3.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

The purpose of the IMSI detach procedure is to avoid unnecessary incoming call establishment attempts which imply the use of resources of the Network Sub-System (Article 4d) and of the downlink CCCH (Article 4e).

EC Terminal Directive reference:

Article 4e.

13.2.4 IMSI attach and detach are required, the MS is powered on

Test purposes:

1) To verify that the MS correctly performs IMSI attach procedure upon switch on when the IMSI attach procedure is required by the network. This comprises the following steps:

   - the MS establishes an RR connection;

   - the MS sends a LOCATION UPDATING REQUEST message to the network, this message includes the following elements: the location updating type is put to "IMSI attach", the LAI is the one stored in the SIM and the identity field contains the identity of the MS.

2) To verify that the MS correctly acknowledges the implicit TMSI reallocation procedure which is part of this IMSI attach procedure, this means the sending by the MS of the TMSI REALLOCATION COMPLETE message.

Test case:

GSM 11.10 II.5.3.2.2.9, II.5.3.2.2.10 (one test case described by two paragraphs).

This test shall be performed after the one described in II.5.3.2.2.3.

Conformance requirement:

1) The MS shall correctly perform the IMSI attach procedure upon switch on when the IMSI attach procedure is required by the network.

2) The MS shall correctly acknowledge the implicit TMSI reallocation procedure, which is part of this IMSI attach procedure, this means that the MS shall send a TMSI REALLOCATION COMPLETE message.

Requirement reference:

TP1: GSM 04.08 sect 4.4.3;

TP1: GSM 04.08 sect 4.4.4.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: If the MS is not able to perform IMSI attach after having performed IMSI detach it will not receive incoming calls.

TP2: If the MS does not take into account a TMSI allocated during the IMSI attach procedure, it will not receive incoming calls.

EC Terminal Directive reference:

Article 4f.

13.2.5 IMSI attach and detach are required, SIM is removed

Test purpose:

To verify that the MS correctly performs IMSI detach procedure upon SIM removal when it is required by the network to do so. This comprises the following steps:

- the MS establishes an RR connection;
- the MS sends an IMSI DETACH INDICATION message to the network, this message includes the identity of the MS.

Test case:

GSM 11.10 II.5.3.2.2.11, II.5.3.2.2.12 (one test case described by two paragraphs).

Conformance requirement:

The MS shall correctly perform the IMSI detach procedure upon SIM removal when it is required by the network to do so.

This requirement does not apply to mobile stations where the removal of the SIM yields the removal of the power supply.

Requirement reference:

GSM 04.08 section 4.3.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

The purpose of the IMSI detach procedure is to avoid unnecessary incoming call establishment attempts which imply the use of resources of the Network Sub-System (Article 4d) and of the downlink CCCH (Article 4e).

EC Terminal Directive reference:

Article 4e.

13.2.6 IMSI attach and detach are required, SIM is inserted

Test purposes:

1) To verify that the MS correctly performs IMSI attach procedure following SIM insertion and switch on when the IMSI attach procedure is required by the network. This comprises the following steps:

   - the MS establishes an RR connection;

   - the MS sends a LOCATION UPDATING REQUEST message to the network, this message includes the following elements: the location updating type is put to "IMSI attach", the LAI is the one stored in the SIM and the identity field contains the identity of the MS.

2) To verify that the MS correctly acknowledges the implicit TMSI reallocation procedure which is part of this IMSI attach procedure, this means the sending by the MS of the TMSI REALLOCATION COMPLETE message.

Test case:

GSM 11.10 II.5.3.2.2.13, II.5.3.2.2.14 (one test case described by two paragraphs).

Conformance requirements:

1) The MS shall correctly perform the IMSI attach procedure, following SIM insertion and switch on when the IMSI attach procedure is required by the network.

2) The MS shall correctly acknowledge the implicit TMSI reallocation procedure which is part of this IMSI attach procedure. This means that the MS shall send a TMSI REALLOCATION COMPLETE message.

Requirement reference:

GSM 04.08 sect 4.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: If the MS is not able to perform IMSI attach after having performed IMSI detach it will not receive incoming calls.

TP2: If the MS does not take into account a TMSI allocated during the IMSI attach procedure, it will not receive incoming calls.

EC Terminal Directive reference:

Article 4f.

13.3 Test of sequenced MM/CC message transfer

Test purpose:

To verify that MS implements correctly the "send state variable V(SD)" ("Send duplicated") included in the transmitted MM and CM messages. This implies some transmissions of the IDENTITY RESPONSE message with the correct value of N(SD).

Test case:

GSM 11.10 II.5.3.2.3.

Conformance requirement:

The MS shall implement correctly the "send state variable V(SD)" ("Send duplicated"), included in transmitted MM and CM messages.

Requirement reference:

GSM 04.08 sect 2.4.1

SUPPLEMENTARY INFORMATION:

Test case justification:

If this send state variable is not correctly used by the MS MM or CM messages may be lost or duplicated at channel change.

EC Terminal Directive reference:

Article 4f.

14 Test of MS functions in idle mode

14.1 MS indication of available PLMNs

Test purpose:

To verify that the MS at switch on presents the available PLMNs to the user if no suitable cell of the HPLMN has been found in the case where the inserted SIM contains a PLMN selector with the HPLMN only and an empty forbidden PLMN list.

Test case:

GSM 11.10 II.5.3.3.2.2, II.5.3.3.2.3 (one test case described by two paragraphs).

Conformance requirement:

The MS, at switch on, shall present to the user the available PLMNs if no suitable cell of the HPLMN has been found in the case where the inserted SIM contains a PLMN selector with the HPLMN only and an empty forbidden PLMN list.

Requirement reference:

GSM 05.08, sect. 6.2 and GSM 02.11, sect. 3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

A MS failing the test might have implemented a mechanism to filter out some PLMNs and to offer only some selected "befriended" PLMNs to the user.

The PLMN selection process is the first part of the cell selection process which is a necessary precondition for basic connection establishment. Hence if the MS is not able to provide the user with these indications, the user may be unable to select a PLMN and thus to get service.

EC Terminal Directive reference:

Article 4f.

14.2 MS will send only if BSS is "On air"

Test purpose:

To verify that the MS will not produce any RF transmission if no BSS is received.

Test case:

GSM 11.10 II.5.3.3.3.2, II.5.3.3.3.3 (one test case described by two paragraphs).

Conformance requirement:

The MS shall not produce any RF output in the two following cases: an outgoing call is attempted, an emergency call is attempted.

Requirement reference:

GSM 05.08, sect. 6.2 and GSM 02.11, sect. 3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not follow correctly this procedure it may produce useless radio activities that are harmful for GSM or other networks (e.g. 900 MHz analogue cellular networks).

EC Terminal Directive reference:

Article 4d.

15 Test of L3 error handling

15.1 Errors in L3 messages

15.1.1 Wrong protocol discriminator

Test purpose:

To verify that the MS ignores messages containing unknown protocol discriminators in the special case of a message coded otherwise like a CC STATUS ENQUIRY message.

Test case:

II.5.3.5.1.1.

Conformance requirement:

The MS shall ignore messages containing unknown protocol discriminators in the special case of a message which is coded like a CC STATUS ENQUIRY message.

Requirement reference:

TS GSM 04.08, section 8.2;

TS GSM 04.08, section 10.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. If the MS doesn't ignore messages with unknown protocol discriminators, it can react in unpredictable ways on transmission errors and on messages introduced in later phases.

EC Terminal Directive reference:

Articles 4d and 4f.

15.2 Test of MS reaction to errors in Transaction Identifier

15.2.1 Test of TI error in RR management message

Test purpose:

To verify that the MS ignores RR messages containing an incorrect transaction identifier in the special case of a PAGING REQUEST TYPE 1 message.

Test case:

II.5.3.5.2.1.

Conformance requirement:

The MS shall ignore RR messages containing an incorrect transaction identifier in the special case of a PAGING REQUEST TYPE 1 message.

Requirement reference:

TS GSM 04.08, section 8.4.1;

TS GSM 04.08, section 10.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. If the MS doesn't ignore RR messages with incorrect transaction identifier, it can react in unpredictable ways on transmission errors and on messages introduced in later phases. It is possible that in later phases messages with PD RR are introduced which use a TI value <> 0 so that these messages are ignored by phase 1 MSes.

EC Terminal Directive reference:

Articles 4d and 4f.

15.2.2 Test of TI error in MM message

Test purpose:

To verify that the MS ignores MM messages containing an incorrect transaction identifier in the special case of an IDENTITY REQUEST message.

Test case:

II.5.3.5.2.2.

Conformance requirement:

The MS shall ignore MM messages containing an incorrect transaction identifier in the special case of an IDENTITY REQUEST message.

Requirement reference:

TS GSM 04.08, section 8.4.2;

TS GSM 04.08, section 10.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. If the MS doesn't ignore MM messages with incorrect transaction identifier, it can react in unpredictable ways on transmission errors and on messages introduced in later phases. It is possible that in later phases messages with PD MM are introduced which use a TI value <> 0 so that these messages are ignored by phase 1 MS.

EC Terminal Directive reference:

Articles 4d and 4f.

15.2.3 Test of TI error in CC message

15.2.3.1 Test of TI error in CC message - 1st case

Test purpose:

To verify that the MS with a call control entity in state U10, "Active", upon receipt of a DISCONNECT message which includes a transaction identifier which is not recognized as relating to active call or call in progress, sends a RELEASE COMPLETE message with cause #81 and the latter TI without changing the state of the active call (this is verified by use of the status enquiry procedure).

Test case:

II.5.3.5.2.3, procedure (1), Requirement (1).

Conformance requirement:

If the MS has a call control entity in state U10, "Active", upon receipt of a DISCONNECT message which includes a transaction identifier which is not recognized as relating to the active call or call in progress, the MS shall send a RELEASE COMPLETE message with cause #81 and the latter TI without changing the state of the active call.

Requirement reference:

TS GSM 04.08, section 8.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS doesn't behave as required, common methods of the network to solve error conditions cannot be applied. Also parallel transactions or the attempt to establish or to clear parallel transactions might endanger a connection.

EC Terminal Directive reference:

Articles 4d and 4f.

15.2.3.2 Test of TI error in CC message - 2nd case

Test purpose:

To verify that the MS with a call control entity in state U10, "Active", ignores a RELEASE COMPLETE message which includes a transaction identifier which has not been allocated and does not change the state of the active call (this is verified by use of the status enquiry procedure).

Test case:

II.5.3.5.2.3, procedure (2), Requirement (2).

Conformance requirement:

If the MS has a call control entity in state U10, "Active", it shall ignore a RELEASE COMPLETE message which includes a transaction identifier which has not been allocated and it shall not change the state of the active call.

Requirement reference:

TS GSM 04.08, section 8.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS doesn't ignore that CC messages with incorrect transaction identifier, common methods of the network to solve error conditions cannot be applied. Also parallel transactions or the attempt to establish or to clear parallel transactions might endanger a connection.

EC Terminal Directive reference:

Articles 4d and 4f.

15.2.3.3 Test of TI error in CC message - 3rd case

Test purpose:

To verify that the MS with a call control entity in state U10, "active", ignores a SETUP message which includes a transaction identifier related to a mobile originated call without changing the state of the active call (this is verified by use of the status enquiry procedure).

Test case:

II.5.3.5.2.3, procedure (3), requirement (3).

Conformance requirement:

If the MS has a call control entity in state U10, "active", it shall ignore a SETUP message which includes a transaction identifier related to a mobile originated call without changing the state of the active call.

Requirement reference:

TS GSM 04.08, section 8.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS doesn't behave as specified, the general mechanism of transaction identifiers distinguishing different CC transactions is implemented incorrectly with unpredictable consequences. Furthermore, the MS is not stable under error conditions or in the case of a special transmission error.

EC Terminal Directive reference:

Articles 4d and 4f.

15.2.3.4 Test of TI error in CC message - 4th case

Test purpose:

To verify that the MS with a call control entity in state U10, "Active", ignores a SETUP message which includes the transaction identifier related to the active call without changing the state of the active call (this is verified by use of the status enquiry procedure).

Test case:

II.5.3.5.2.3, procedure (4), requirement (4).

Conformance requirement:

A SETUP message with transaction identifier relating to an active call or a call in progress is to be ignored by the MS.

Requirement reference:

TS GSM 04.08, section 8.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

The defined behaviour allows the network to repeat a SETUP message during call establishment if delays have been detected without risking the MS aborting the connection.

EC Terminal Directive reference:

Articles 4d and 4f.

15.3 Test of message type errors

15.3.1 Test of MS reaction to non-existent message type - CC protocol

Test purpose:

To verify that a MS , with a CC entity in state U10, "Call Active", upon receipt of a message with CC protocol discriminator and message type "1111 1111", returns a STATUS message with cause #97 or #98 to its peer entity without changing the state of the active call (this is verified by use of the status enquiry procedure.

Test case:

II.5.3.5.3.1.

Conformance requirement:

An MS, with a CC entity in state U10, "Call Active", upon receipt of a message with CC protocol discriminator and message type "1111 1111", shall return a STATUS message with cause #97 or #98 to its peer entity without changing the state of the active call.

Requirement reference:

TS GSM 04.08 section 8.5, TS GSM 04.08 section 5.5.3.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. This test case checks that the MS can maintain an established call with a protocol message implemented in coming GSM phases. If this behaviour is incorrectly implemented in the MS, calls might be wrongly and untimely released, incorrect use of network resources becomes possible.

EC Terminal Directive reference:

Articles 4d and 4f.

15.3.2 Test of MS reaction to message inconsistent with Call Control PD

Test purpose:

To verify that the MS with a CC entity in CC-state U10, "Call Active", upon receipt of a message with MM Protocol Discriminator and message type not defined for MM but encoded like DISCONNECT for CC, sends an MM STATUS with cause value #97 or #98 without changing the state of the active call (this is checked by use of the status enquiry procedure).

Test case:

II.5.3.5.3.2.

Conformance requirement:

An MS, with a CC entity in CC-state U10, "Call Active", upon receipt of a message with MM Protocol Discriminator and message type not defined for MM but encoded like DISCONNECT for CC, shall send an MM STATUS with cause value #97 or #98 without changing the state of the active call.

Requirement reference:

TS GSM 04.08 section 8.5, TS GSM 04.08 section 5.5.3.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. If the MS does not behave as required, it can react in unpredictable ways on MM messages introduced in later phases it may also have implemented a wrong parsing algorithm so that decoding of messages follows unpredictable ways. Call maintenance might be endangered if the MS doesn't behave as required.

EC Terminal Directive reference:

Articles 4d and 4f.

15.3.3 Test of MS reaction to message inconsistent with call state

Test purpose:

To verify that the MS with a CC entity in CC-state U10, "Call Active", upon receiving a CALL PROCEEDING message (which is a message inconsistent with call state U10), responds with a STATUS message with cause #98 or #97 without changing the state of the active call (this is checked by use of the status enquiry procedure).

Test case:

II.5.3.5.3.3.

Conformance requirement:

An MS, with a CC entity in CC-state U10, "Call Active", upon receiving a CALL PROCEEDING message (which is a message inconsistent with call state U10), shall respond with a STATUS message with cause #98 or #97 without changing the state of the active call.

Requirement reference:

TS GSM 04.08 section 8.5, TS GSM 04.08 section 5.5.3.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. If the MS does not behave as required, the MS and may react in unpredictable ways if in future changes of the protocol are made.

EC Terminal Directive reference:

Articles 4d and 4f.

15.4 Test of general information element errors

15.4.1 Test of MS response to duplicated Information Elements

Test purpose:

To verify that a MS in "Idle, Updated" state having received a LOCATION UPDATING ACCEPT containing IMSI followed by TMSI, does not respond to a PAGING REQUEST TYPE 1 message with TMSI but responds to paging with IMSI (this indicates that the first mobile identity IE was used and the second one was ignored).

Test case:

II.5.3.5.4.2.

Conformance requirement:

An MS in "Idle, Updated" state having received a LOCATION UPDATING ACCEPT containing IMSI followed by TMSI, shall not respond to a PAGING REQUEST TYPE 1 message with TMSI but shall respond to paging with IMSI.

Requirement reference:

TS GSM 04.08 section 4.4.4.5, TS GSM 04.08 section 3.3.2.3, TS GSM 04.08 section 8.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. This test case checks that the MS upon receiving duplicated information elements shall use the necessary ones beginning with the first one and ignore what is unnecessary. If the MS cannot make the correct choice when given duplicated information, then the MS is behaving in an unpredictable and unstable manner under networks using an allowed option of the protocols (which might be applied in future extended protocols). The tested behaviour is relevant for call setup and maintenance.

EC Terminal Directive reference:

Articles 4d and 4f.

15.5 Test of MS reaction to mandatory information element errors

15.5.1 Test of MS reaction to Mandatory Information Element errors in RR message

15.5.1.1 Test of MS reaction to Mandatory Information Element errors in RR message - CHANNEL RELEASE

Test purpose:

To verify that the MS in RR connected mode releases the connection upon receipt of a CHANNEL RELEASE message with missing RR cause (which is "mandatory" in that message).

Test case:

II.5.3.5.5.1, Procedure (i) Requirement (i), 2).

Conformance requirement:

An MS in RR connected mode shall release the connection upon receipt of a CHANNEL RELEASE message with missing RR cause (which is "mandatory" in that message).

Requirement reference:

TS GSM 04.08 section 8.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

In future extensions of the protocols the network may send a CHANNEL RELEASE without cause. Whatever future changes in this message may be, the MS must react properly on it because this is the only way to guarantee that the network may get rid of useless radio activities.

EC Terminal Directive reference:

Articles 4d and 4f.

15.5.1.2 Test of MS reaction to Mandatory Information Element errors in RR message - CIPHER MODE COMMAND

Test purpose:

To verify that the MS in RR connected mode upon receipt of a CIPHER MODE COMMAND message with missing "Cipher mode setting" IE (which is "mandatory" in that message) reports with an RR STATUS message with correct cause value.

Test case:

II.5.3.5.5.1, Procedure (ii) Requirement (ii), 2).

Conformance requirement:

An MS in RR connected mode upon receipt of a CIPHER MODE COMMAND message with missing "Cipher mode setting" IE (which is "mandatory" in that message) shall report with an RR STATUS message with correct cause value.

Requirement reference:

TS GSM 04.08 section 8.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS reacts improperly to messages with erroneous mandatory Information Elements, then the MS is in an unpredictable state under error, future or abnormal conditions.

EC Terminal Directive reference:

Articles 4d and 4f.

15.5.2 Test of MS reaction to Mandatory Information Element errors in MM message

Test purpose:

To verify that the MS with a CC entity in CC-state U10, "Call Active", upon receipt of MM messages with erroneous mandatory Information Elements, responds with an MM STATUS message with cause value #100 without changing the state of the active call (this is verified by use of the status enquiry procedure).

Test case:

II.5.3.5.5.2.

Conformance requirement:

An MS with a CC entity in CC-state U10, "Call Active", upon receipt of MM messages with erroneous mandatory Information Elements, shall respond with an MM STATUS message with cause value #100 without changing the state of the active call.

Requirement reference:

TS GSM 04.08 section 8.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS reacts improperly to messages with erroneous mandatory Information Elements, then the MS is in an unpredictable state under error conditions.

EC Terminal Directive reference:

Articles 4d and 4f.

15.5.3 Test of MS reaction to Mandatory information Element errors in CC message.

15.5.3.1 Test of MS reaction to Mandatory Information Element errors in CC message - 1st case

Test purpose:

To verify that a MS with a CC entity in CC-state U10, "active", upon receipt of call control RELEASE message with missing cause Information Element, returns a RELEASE COMPLETE message indicating the invalid information element contents to its peer entity and proceeds to release the call.

Test case:

II.5.3.5.5.3, procedure/requirement (i).

Conformance requirement:

An MS with a CC entity in CC-state U10, "active", upon receipt of call control RELEASE message with missing cause Information Element, shall return a RELEASE COMPLETE message indicating the invalid information element contents to its peer entity and proceed to release the call.

Requirement reference:

TS GSM 04.08 section 8.7.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not respond to a call release message with missing cause as required, the MS cannot be considered to be stable under error conditions or under protocol variants that may be used in coming phases, this might lead to unwanted radio activities.

EC Terminal Directive reference:

Articles 4d and 4f.

15.5.3.2 Test of MS reaction to Mandatory Information Element errors in CC message - 2nd case

Test purpose:

To verify that the MS with a CC entity in CC-state U10, "active", upon receipt of call control DISCONNECT message with missing cause Information Element, returns a RELEASE with cause #100 to its peer entity and proceeds with call clearing.

Test case:

II.5.3.5.5.3, procedure/requirement (ii).

Conformance requirement:

An MS with a CC entity in CC-state U10, "active", upon receipt of call control DISCONNECT message with missing cause Information Element, shall return a RELEASE with cause #100 to its peer entity and proceed with call clearing.

Requirement reference:

TS GSM 04.08 section 8.7.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not respond to a call release message with missing cause as required, the MS cannot be considered to be stable under error conditions or under protocol variants that may be used in coming phases, this might lead to unwanted radio activities.

EC Terminal Directive reference:

Articles 4d and 4f.

15.5.3.3 Test of MS reaction to Mandatory Information Element errors in CC message - 3rd case

Test purpose:

To verify that the MS with a CC entity in CC-state U10, "active", upon receipt of call control STATUS message with missing cause Information Element, returns a STATUS message with cause #100 without changing the state of the active call (this is verified by use of the status enquiry procedure).

Test case:

II.5.3.5.5.3, procedure/requirement (iv).

Conformance requirement:

An MS with a CC entity in CC-state U10, "active", upon receipt of call control STATUS message with missing cause Information Element, shall return a STATUS message with cause #100 without changing the state of the active call.

Requirement reference:

TS GSM 04.08 section 8.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS in call active state, does not ignore an erroneous message and respond appropriately, the MS cannot be considered to be stable under error conditions.

EC Terminal Directive reference:

Articles 4d and 4f.

15.6 Test of MS reaction to non-mandatory information element errors

15.6.1 Test of MS reaction to non-mandatory information element errors in RR message

15.6.1.1 Test of MS reaction to unrecognized information element in RR message on a dedicated control channel - comprehension required

Test purpose:

To verify that the MS with a CC entity in CC-state U10, "active", upon receipt of a HANDOVER COMMAND with unknown IE that is encoded as "comprehension required", does not perform the handover but report an RR STATUS indicating "invalid information element contents".

Test case:

II.5.3.5.6.1.3, procedure/requirements 1.

Conformance requirement:

An MS with a CC entity in CC-state U10, "active", upon receipt of a HANDOVER COMMAND with unknown IE that is encoded as "comprehension required", shall not perform the handover but shall report an RR STATUS indicating "invalid information element contents".

Requirement reference:

TS GSM 04.08 section 8.8.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. If a MS does not behave as required, the mechanism of "comprehension required" may not be correctly implemented in the MS. This would endanger the compatibility mechanisms, and such a MS might be unacceptable in coming phases.

EC Terminal Directive reference:

Articles 4d and 4f.

15.6.1.2 Test of MS reaction to unrecognized information element in RR message on a dedicated control channel - comprehension not required

Test purpose:

To verify that the MS with a CC entity in CC-state U10, "active", upon receipt of a HANDOVER COMMAND with unknown IE that is not encoded as "comprehension required", performs the handover and then sends an RR STATUS with cause value #100.

Test case:

II.5.3.5.6.1.3, procedure/requirements 2.

Conformance requirement:

An MS with a CC entity in CC-state U10, "active", upon receipt of a HANDOVER COMMAND with unknown IE that is not encoded as "comprehension required", shall perform the handover and then send an RR STATUS with cause value #100.

Requirement reference:

TS GSM 04.08 section 8.8.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. If a MS does not behave as required, essential mechanisms for extension of protocols in later phases may not be correctly implemented in the MS. This would endanger the compatibility mechanisms, and such a MS might be unacceptable in coming phases.

EC Terminal Directive reference:

Articles 4d and 4f.

15.6.2 Test of MS reaction to non-mandatory information element errors in MM message.

15.6.2.1 Test of MS reaction to non-mandatory information element errors in MM messages - comprehension required

Test purpose:

1) To verify that the MS, having sent a LOCATION UPDATING REQUEST message, upon receipt of a LOCATION UPDATING ACCEPT message with unknown optional information element that is coded as "comprehension required", returns an MM-STATUS message with cause #100, and after T3210 expiry aborts the RR-connection.

2) To verify that after actions and re-actions of test purpose 1 and after T3211 expiry, the MS starts a new location updating procedure (because it otherwise had ignored the LOCATION UPDATING ACCEPT), and, upon receipt of a LOCATION UPDATING ACCEPT with TMSI sends a TMSI REALLOCATION COMPLETE (so that the location update procedure with implicit TMSI re-allocation works correctly in the special condition given).

Test case:

II.5.3.5.6.2, procedure/requirements 1.

Conformance requirement:

1) An MS, having sent a LOCATION UPDATING REQUEST message, upon receipt of a LOCATION UPDATING ACCEPT message with unknown optional information element that is coded as "comprehension required", shall return an MM-STATUS message with cause #100, and after T3210 expiry abort the RR-connection.

2) An MS upon receipt of a LOCATION UPDATING ACCEPT with TMSI shall send a TMSI REALLOCATION COMPLETE.

Requirement reference:

For test purpose/conformance requirement 1: TS GSM 04.08 sections 8.8.1 and 4.4;

For test purpose/conformance requirement 2: TS GSM 04.08 sections 8.8.1, 4.3.1, and 4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

For test purpose 1: The tested behaviour is required for interworking with upgraded networks. If a MS does not behave as required, the mechanism of "comprehension required" may not be correctly implemented in the MS. This would endanger the compatibility mechanisms, and such a MS might be unacceptable in coming phases.

For test purpose 2: Same as for test purpose 1, and in addition: The location updating procedure must also work under specific pre-conditions.

EC Terminal Directive reference:

Articles 4d and 4f.

15.6.2.2 Test of MS reaction to non-mandatory information element errors in MM messages - comprehension not required

Test purpose:

To verify that the MS, having sent a LOCATION UPDATING REQUEST message, upon receipt of a LOCATION UPDATING ACCEPT message with unknown optional information element that is not coded as "comprehension required", returns an MM-STATUS message with cause #99, and after T3210 expiry aborts the RR-connection that afterwards, it responds correctly to paging (because it regarded the location updating procedure as successful).

Test case:

II.5.3.5.6.2, procedure/requirements 2.

Conformance requirement:

An MS, having sent a LOCATION UPDATING REQUEST message, upon receipt of a LOCATION UPDATING ACCEPT message with unknown optional information element that is not coded as "comprehension required", shall return an MM-STATUS message with cause #99, and after T3210 expiry abort the RR-connection.

Afterwards, the MS shall responds correctly to paging.

Requirement reference:

TS GSM 04.08 section 8.8.1 and 4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. If a MS does not behave as required, essential mechanisms for extension of protocols in later phases may not be correctly implemented in the MS. This would endanger the compatibility mechanisms, and such a MS might be unacceptable in coming phases.

EC Terminal Directive reference:

Articles 4d and 4f.

15.6.3 Test of MS reaction to non-mandatory information element errors in CC message.

15.6.3.1 Test of MS reaction to non-mandatory information element errors in CC messages - 1st case

Test purpose:

To verify that a MS with a CC entity in CC-state U1, "Call Initiated", upon receiving a CALL PROCEEDING message with an unknown optional information element that is not encoded as "comprehension required", returns a STATUS message with cause #99, "information element non-existent or not implemented" without changing the state of the active call (this is checked by use of the status enquiry procedure).

Test case:

II.5.3.5.6.3, procedure/requirements 1.

Conformance requirement:

An MS with a CC entity in CC-state U1, "Call Initiated", upon receiving a CALL PROCEEDING message with an unknown optional information element that is not encoded as "comprehension required", shall return a STATUS message with cause #99, "information element non-existent or not implemented" without changing the state of the active call.

Requirement reference:

TS GSM 04.08 section 8.8.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. If a MS does not behave as required, essential mechanisms for extension of protocols in later phases may not be correctly implemented in the MS. This would endanger the compatibility mechanisms, and such a MS might be unacceptable in coming phases.

EC Terminal Directive reference:

Articles 4d and 4f.

15.6.3.2 Test of MS reaction to non-mandatory information element errors in CC messages - 2nd case

Test purpose:

To verify that a MS with a CC entity in CC-state U3, "Call Proceeding ", upon receiving a CONNECT message with the coding "Comprehension Required" in an optional information element, returns a STATUS message with cause #100, "invalid information element contents" without changing the state of the call in progress (this is verified by use of the status enquiry procedure).

Test case:

II.5.3.5.6.3, procedure/requirements 2.

Conformance requirement:

An MS with a CC entity in CC-state U3, "Call Proceeding ", upon receiving a CONNECT message with the coding "Comprehension Required" in an optional information element, shall return a STATUS message with cause #100, "invalid information element contents" without changing the state of the call in progress.

Requirement reference:

TS GSM 04.08 section 8.8.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. If a MS does not behave as required, the mechanism of "comprehension required" may not be correctly implemented in the MS. This would endanger the compatibility mechanisms, and such a MS might be unacceptable in coming phases.

EC Terminal Directive reference:

Articles 4d and 4f.

15.6.3.3 Test of MS reaction to non-mandatory information element errors in CC messages - 3rd case

Test purpose:

To verify that a MS with a CC entity in mobile terminating CC-state U10, "active", upon receipt of a DISCONNECT with an unknown optional information element that is not encoded as "comprehension required", proceeds with the call release and return a RELEASE message, but will indicate the detection of the unknown information element, by including a Cause I.E. with value #99.

Test case:

II.5.3.5.6.3, procedure/requirements 3.

Conformance requirement:

An MS with a CC entity in mobile terminating CC-state U10, "active", upon receipt of a DISCONNECT with an unknown optional information element that is not encoded as "comprehension required", shall proceed with the call release and return a RELEASE message, but the MS will also indicate the detection of the unknown information element, by including a Cause i.e. with value #99.

Requirement reference:

TS GSM 04.08 section 8.8.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. On detecting unknown optional i.e. on or during the call release protocol, the MS shall proceed with the call release but give an indication of detected error to its peer. If the handling of error conditions during call release phase is incorrect, the MS can react in an unpredictable manner to information elements to be introduced in later phases.

EC Terminal Directive reference:

Articles 4d and 4f.

15.6.3.4 Test of MS reaction to non-mandatory information element errors in CC messages - 4th case

Test purpose:

To verify that a MS with a mobile terminating CC entity in CC-state U11, "Disconnect Request", upon receipt of a RELEASE message with an error in an optional information element, proceeds with the call release and return a RELEASE COMPLETE message, but will also indicate the detection of the erroneous information element, by including a Cause i.e. with value #99.

Test case:

II.5.3.5.6.3, procedure/requirements 4.

Conformance requirement:

An MS with a mobile terminating CC entity in CC-state U11, "Disconnect Request", upon receipt of a RELEASE message with an error in an optional information element, shall proceed with the call release and return a RELEASE COMPLETE message, but the MS shall also indicate the detection of the erroneous information element, by including a Cause i.e. with value #99.

Requirement reference:

TS GSM 04.08 section 8.8.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. On detecting erroneous optional i.e. on or during the call release protocol, the MS shall proceed with the call release but give an indication of detected error to its peer. If the handling of error conditions during call release phase is incorrect, the MS can react in an unpredictable manner to transmission errors and to information elements to be to introduced in later phases.

EC Terminal Directive reference:

Articles 4d and 4f.

15.6.3.5 Test of MS reaction to non-mandatory information element errors in CC messages - 5th case

Test purpose:

To verify that a MS with a mobile terminating CC entity in CC-state U19, "Release Request", upon receiving a RELEASE COMPLETE message with an erroneous optional information element, ignores the error of the optional information element and proceeds with the call release.

Test case:

II.5.3.5.6.3, procedure/requirements 5.

Conformance requirement:

An MS with a mobile terminating CC entity in CC-state U19, "Release Request", upon receiving a RELEASE COMPLETE message with an erroneous optional information element, shall ignore the error of the optional information element and proceed with the call release.

Requirement reference:

TS GSM 04.08 section 8.8.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The tested behaviour is required for interworking with upgraded networks. On detecting erroneous optional i.e. on or during the call release protocol, the MS shall proceed with the call release. If the handling of error conditions during call release phase is incorrect, the MS can react in an unpredictable manner to transmission errors and to information elements to be to introduced in later phases.

EC Terminal Directive reference:

Articles 4d and 4f.

16 Elementary procedures for Radio Resource management

16.1 Immediate assignment

Test group objective:

To verify that an MS, which sent a CHANNEL REQUEST message, is able to seize the radio resources allocated through an immediate assignment procedure.

16.1.1 Assignment procedure

Test purposes:

1) To verify that, following a PAGING REQUEST message, the MS can correctly set up an RR connection on the SDCCH/8 described in the IMMEDIATE ASSIGNMENT message, in the non combined case. This comprises the following steps:

   - the MS sends a CHANNEL REQUEST message with the establishment cause put to "Answer to paging";

   - the MS goes to the allocated SDCCH and sends a PAGING RESPONSE message with its identity and its classmark.

2) To verify that, following a PAGING REQUEST message, the MS can correctly set up an RR connection on the TCH/FACCH described in the IMMEDIATE ASSIGNMENT message in the non combined case. This comprises the following steps:

   - the MS sends a CHANNEL REQUEST message with the establishment cause put to "Answer to paging";

   - the MS goes to the allocated TCH/FACCH and sends a PAGING RESPONSE message with its identity and its classmark.

Test case:

TP1: GSM 11.10, II.5.3.6.1.3;

TP2: GSM 11.10, II.5.3.6.1.4.

Conformance requirement:

1) Following a PAGING REQUEST message, the MS shall correctly set up an RR connection on the SDCCH/8 described in the IMMEDIATE ASSIGNMENT message, in the non combined case.

2) Following a PAGING REQUEST message, the MS shall correctly set up an RR connection on the TCH/FACCH described in the IMMEDIATE ASSIGNMENT message in the non combined case.

Requirement reference:

TP1 and TP2: GSM 04.08, section 3.3.1.2.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not implement the procedure correctly the allocated resources may be wasted because they remain reserved by the network until T3101 expiry (Article 4e), the MS may use wrong channels (Article 4d), or connections could not be established (Article 4f).

EC Terminal Directive reference:

Articles 4d, 4e and 4f.

16.1.2 Extended assignment

Test purposes:

1) To verify that the MS can correctly identify its own assignment and correctly seize the allocated channel when the following applies:

   - an IMMEDIATE ASSIGNMENT EXTENDED message is used;
   - combined case is used;
   - an SDCCH/4 is allocated;
   - the identity of the MS under test is conveyed in the first of the information fields aimed to contain an MS identity.

2) To verify that the MS can correctly identify its own assignment and correctly seize the allocated channel when the following applies:

   - an IMMEDIATE ASSIGNMENT EXTENDED message is used;
   - combined case is used;
   - an SDCCH/8 is allocated;
   - the identity of the MS under test is conveyed in the second of the information fields aimed to contain an MS identity.

3) To verify that the MS takes into account an IMMEDIATE ASSIGNMENT EXTENDED message when it contains one of its last three random references,

4) To verify that the MS ignores an IMMEDIATE ASSIGNMENT EXTENDED which does not contain one of its last 3 CHANNELS REQUESTs.

Test case:

TP1 and TP3. GSM 11.10, II.5.3.6.1.5.1 and II.5.3.6.1.5.2;

TP4. GSM 11.10, II.5.3.6.1.5.3 and II.5.3.6.1.5.4;

TP2 and TP3. GSM 11.10, II.5.3.6.1.5.5 and II.5.3.6.1.5.6.

Conformance requirement:

TP1: The MS shall go to the allocated SDCCH/4 and send a PAGING RESPONSE message containing its identity and its classmark;

TP2: The MS shall go to the allocated SDCCH/8 and send a PAGING RESPONSE message containing its identity and its classmark;

TP3: Same as test purpose;

TP4: Same as test purpose.

Requirement reference:

TP1 to TP4. GSM 04.08, section 3.3.1.2.1

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not implement the procedure correctly the allocated resources may be wasted because they remain reserved by the network until T3101 expiry (Article 4e), the MS may use wrong channels (Article 4d), or connections could not be established (Article 4f).

EC Terminal Directive reference:

TP1: Articles 4d, 4e and 4f.
TP2: Articles 4d, 4e and 4f.
TP3: Article 4e.
TP4: Article 4d.

16.1.3 Assignment rejection

Test purposes:

1) To verify that the MS takes into account all its last three random references messages when included in an IMMEDIATE ASSIGNMENT REJECT.

2) To verify that the MS, after the assignment rejection, does not transmit for a duration indicated in the information field "Wait Indication" of the IMMEDIATE ASSIGNMENT REJECT message.

3) To verify that, after an assignment rejection, the MS can perform a cell reselection (idle mode operation) and that the MS does not transmit until the cell reselection.

Test case:

TP1. GSM 11.10, II.5.3.6.1.6.1 and II.5.3.6.1.6.2;

TP2. GSM 11.10, II.5.3.6.1.6.3 and II.5.3.6.1.6.4.

Conformance requirement:

TP1: The MS shall respond to the Paging Request message by sending a Channel Request message with establishment cause set to "Answer to Paging". After the reception of IMMEDIATE ASSIGNMENT REJECT, the MS shall not transmit during the time indicated in the "Wait Indication field of the IMMEDIATE ASSIGNMENT REJECT message, and then answer to the paging request.

TP2: After an assignment rejection, the MS shall perform a cell reselection (idle mode operation) and the MS shall not transmit until the cell reselection.

Requirement reference:

TP1 and TP2. GSM 04.08, section 3.3.1.2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not implement the procedure correctly, the MS might continue uselessly its transmissions (Article 4d), or could not perform idle mode operations (Article 4f).

EC Terminal Directive reference:

TP1: Article 4d.
TP2: Article 4f.

16.1.4 Ignore assignment for another MS

Test purposes:

1) To verify that an MS having sent a CHANNEL REQUEST and waiting for the answer from the network, ignores an IMMEDIATE ASSIGNMENT message with a request reference containing a wrong frame number.

2) To verify that, when the MS is waiting for an assignment for its own, it ignores an IMMEDIATE ASSIGNMENT message with a request reference containing a wrong random access information.

Test case:

TP1 and TP2. GSM 11.10, II.5.3.6.1.7.

Conformance requirement:

1) An MS waiting for a response from the network, following the sending of a CHANNEL REQUEST, shall ignore an IMMEDIATE ASSIGNMENT message with a request reference containing a wrong frame number.

2) An MS is waiting for an assignment of its own, shall ignore an IMMEDIATE ASSIGNMENT message with a request reference containing a wrong random access information.

Requirement reference:

TP1 and TP2. GSM 04.08, section 3.3.1.2.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not implement the procedure correctly, the MS might interfere with a connection establishment that does not concern it (Article 4d).

EC Terminal Directive reference:

Article 4d.

16.2 Test of paging

Test group objective:

To test that a MS is able to determine its CCCH group and paging group correctly and that the MS will respond to the paging procedure to establish a radio connection.

16.2.1 Normal paging

16.2.1.1 Paging request type 1

Test purposes:

1) To verify that the MS responds correctly to various PAGING REQUEST TYPE 1 messages, when the page mode is set to normal paging, in the following cases:

   1.1 The MS is addressed with its IMSI in the first Mobile Identity field. The optional Mobile Identity field is not present.

   1.2 The MS is addressed with its TMSI in the first Mobile Identity field. The optional Mobile Identity field specifies an IMSI different from that of the MS.

   1.3 The first Mobile Identity field specifies a TMSI different from that of the MS. The optional Mobile Identity field addresses the MS by its IMSI.

   1.4 The first Mobile Identity field specifies a TMSI different from that of the MS. The optional Mobile Identity field contains the correct TMSI of the MS.

2) To verify that the MS ignores some PAGING REQUEST TYPE 1 messages with incorrect information, when the page mode is set to normal paging, in the following cases.

   2.1 The MS is addressed with its IMEI in the first Mobile Identity field. The optional Mobile Identity field is not present.

   2.2 The MS is addressed with its TMSI in the first Mobile Identity field, but the type of identity in this field is set to "No Identity". The optional Mobile Identity field is not present.

Test case:

TP1 and TP2. GSM 11.10, II.5.3.6.2.1.3 and II.5.3.6.2.1.4.

Conformance requirement:

1) The MS shall respond correctly to various PAGING REQUEST TYPE 1 messages, when the page mode is set to normal paging, in the following cases:

   1.1 The MS is addressed with its IMSI in the first Mobile Identity field. The optional Mobile Identity field is not present.

   1.2 The MS is addressed with its TMSI in the first Mobile Identity field. The optional Mobile Identity field specifies an IMSI different from that of the MS.

   1.3 The first Mobile Identity field specifies a TMSI different from that of the MS. The optional Mobile Identity field addresses the MS by its IMSI.

   1.4 The first Mobile Identity field specifies a TMSI different from that of the MS. The optional Mobile Identity field contains the correct TMSI of the MS.

2) An MS shall ignore PAGING REQUEST TYPE 1 messages with incorrect information, when the page mode is set to normal paging, in the following cases:

   2.1 The MS is addressed with its IMEI in the first Mobile Identity field. The optional Mobile Identity field is not present.

   2.2 The MS is addressed with its TMSI in the first Mobile Identity field, but the type of identity in this field is set to "No Identity". The optional Mobile Identity field is not present.

Requirement reference:

TP1 and TP2. GSM 04.08, section 3.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The correct implementation of this paging procedure in the MS is essential for basic establishment of a connection (Article 4f). If the MS does not ignore paging messages with incorrect contents, it might send useless CHANNEL REQUEST messages (Article 4d).

EC Terminal Directive reference:

TP1: Article 4f.
TP2: Article 4d.

16.2.1.2 Paging request type 2

Test purposes:

1) To verify that the MS responds correctly to various PAGING REQUEST TYPE 2 messages, when the page mode is set to normal paging, in the following cases:

   1.1 The MS is addressed in the first TMSI field.

   1.2 The MS is addressed in the second TMSI field.

   1.3 The MS is addressed in the optional Mobile Identity field with its TMSI.

   1.4 The MS is addressed in the optional Mobile Identity field with its IMSI.

2) To verify that the MS ignores some PAGING REQUEST TYPE 2 messages with incorrect informations, when the page mode is set to normal paging, in the following cases:

2.1 The MS is addressed in the optional Mobile Identity field with its IMEI.

2.2 The MS is addressed in the optional Mobile Identity field with its TMSI, but the type of identity in this field is set to "No Identity".

Test case:

TP1 and TP2. GSM 11.10, II.5.3.6.2.1.5 and II.5.3.6.2.1.6.

Conformance requirement:

1) The MS shall respond correctly (by sending CHANNEL REQUEST messages with an Establishment Cause set to "Answer to Paging") to various PAGING REQUEST TYPE 2 messages, when the page mode is set to normal paging, in the following cases:

1.1 The MS is addressed in the first TMSI field.

1.2 The MS is addressed in the second TMSI field.

1.3 The MS is addressed in the optional Mobile Identity field with its TMSI.

1.4 The MS is addressed in the optional Mobile Identity field with its IMSI.

2) The MS shall ignore PAGING REQUEST TYPE 2 messages with incorrect informations, when the page mode is set to normal paging, in the following cases:

2.1 The MS is addressed in the optional Mobile Identity field with its IMEI.

2.2 The MS is addressed in the optional Mobile Identity field with its TMSI, but the type of identity in this field is set to "No Identity".

Requirement reference:

TP1 and TP2. GSM 04.08, section 3.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The correct implementation of this paging procedure in the MS is essential for basic establishment of a connection (Article 4f). If the MS does not ignore paging messages with incorrect contents, it might send useless CHANNEL REQUEST messages (Article 4d).

EC Terminal Directive reference:

TP1: Article 4f.
TP2: Article 4d.

16.2.1.3 Paging request type 3

Test purpose:

To verify that the MS responds correctly to various PAGING REQUEST TYPE 3 messages, when the page mode is set to normal paging. The MS shall send CHANNEL REQUEST messages , with an Establishment Cause set to "Answer to Paging", until the network answers. The number of CHANNEL REQUEST messages is limited by the parameter Max-retrans. After the assignment procedure, the MS shall send a PAGING RESPONSE message on the channel assigned by the network.

The following ways of addressing the MS are tested:

1) The MS is addressed in the first TMSI field.

2) The MS is addressed in the second TMSI field.

3) The MS is addressed in the third TMSI field.

4) The MS is addressed in the fourth TMSI field.

Test case:

GSM 11.10, II.5.3.6.2.1.7 and II.5.3.6.2.1.8.

Conformance requirement:

An MS shall respond correctly to various PAGING REQUEST TYPE 3 messages, when the page mode is set to normal paging. The MS shall send CHANNEL REQUEST messages , with an Establishment Cause set to "Answer to Paging", until the network answers. The number of CHANNEL REQUEST messages shall be limited by the parameter Max-retrans. After the assignment procedure, the MS shall send a PAGING RESPONSE message on the channel assigned by the network.

Requirement reference:

GSM 04.08, section 3.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The correct implementation of this paging procedure in the MS is essential for basic establishment of a connection (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.2.1.4 MS with no more TMSI available

Test purpose:

To verify that the MS, when in the "idle, roaming not allowed" state (location updating procedure rejected by the network with cause #11 : PLMN not allowed), does not answer to paging messages which addresses the MS by its former TMSI.

One test from II.5.3.6.2.1.1 to II.5.3.6.2.1.3 which address the MS by its TMSI is repeated in this condition.

Test case:

GSM 11.10, II.5.3.6.2.1.9 and II.5.3.6.2.1.10.

Conformance requirement:

An MS, in the "idle, roaming not allowed" state (location updating procedure rejected by the network with cause #11 : PLMN not allowed), shall not answer to paging messages which addresses the MS by its former TMSI.

Requirement reference:

GSM 04.08, sections 3.3.2 and 4.4.4.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this procedure is not implemented, the MS might interfere in a paging procedure that does not concern it (Article 4d).

EC Terminal Directive reference:

Article 4d.

16.2.2 Extended paging

Test purposes:

1) To verify that the MS is operating in the extended page mode when this is ordered by the network in a PAGING REQUEST message not addressing the MS but on the paging subchannel which corresponds to the MS's identity. When extended page mode is applied, the MS shall answer paging messages in the next but one paging sub block.

2) To verify that the MS is operating in the extended page mode when this is ordered by the network in an IMMEDIATE ASSIGNMENT message on the paging subchannel which corresponds to the MS's identity. When extended page mode is applied, the MS shall answer paging messages in the next but one paging sub block.

Test case:

TP1. GSM 11.10, II.5.3.6.2.2, procedure 1 and requirements 1.

TP2. GSM 11.10, II.5.3.6.2.2, procedure 2 and requirements 2.

Conformance requirement:

1) The MS shall operate in the extended page mode when this is ordered by the network in a PAGING REQUEST message not addressing the MS but on the paging subchannel which corresponds to the MS's identity.

2) The MS shall operate in the extended page mode when this is ordered by the network in an IMMEDIATE ASSIGNMENT message on the paging subchannel which corresponds to the MS's identity.

Requirement reference:

TP1 and TP2. GSM 04.08, section 3.3.2 GSM 05.02, section 6.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

The correct implementation of this procedure in the MS is essential for basic establishment of a connection (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.2.3 Paging reorganisation

Test purposes:

1) To verify that the MS, after reception of a message with page mode set to "paging reorganisation", answers to paging messages (with page mode set to "normal paging") sent on its old CCCH in some paging block which is not belonging to the MS's paging sub-channel.

2) To verify that, when the network changes the paging group of the MS by modifying BCCH parameters (CCCH-CONF set to "1 basic physical channel used for CCCH combined with SDCCH", and BS-AG-BLKS-RES set to "2 blocks reserved for access grant"), the MS calculates its new paging group and answers to paging messages on its new paging subchannel.

3) To verify that, when the network changes the paging group of the MS by modifying BCCH parameters (CCCH-CONF set to "2 basic physical channels used for CCCH, not combined with SDCCHs" and BS-AG-BLKS-RES set to "2 blocks reserved for access grant"), the MS calculates its new paging group and answers to paging messages on its new paging subchannel.

4) To verify that the MS, after reception of a message with page mode set to "paging reorganisation", answers to paging messages (with page mode set to "normal paging") sent in a former Access Grant block.

Test case:

TP1 and TP2. GSM 11.10, II.5.3.6.2.3, procedure 1 and requirements 1.

TP1 and TP3. GSM 11.10, II.5.3.6.2.3, procedure 2 and requirements 2.

TP4 GSM 11.10, II.5.3.6.2.3, procedure 3 and requirements 3.

Conformance requirement:

1) An MS, after reception of a message with page mode set to "paging reorganisation", shall answer to paging messages (with page mode set to "normal paging") sent on its old CCCH in paging block which do not belong to the MS's paging sub-channel.

2) When the network changes the paging group of the MS by modifying BCCH parameters (CCCH-CONF set to "1 basic physical channel used for CCCH combined with SDCCH", and BS-AG-BLKS-RES set to "2 blocks reserved for access grant"), the MS shall calculate its new paging group and answer to paging messages on its new paging subchannel.

3) When the network changes the paging group of the MS by modifying BCCH parameters (CCCH-CONF set to "2 basic physical channels used for CCCH, not combined with SDCCHs" and BS-AG-BLKS-RES set to "2 blocks reserved for access grant"), the MS shall calculate its new paging group and answer to paging messages on its new paging subchannel.

4) An MS, after reception of a message with page mode set to "paging reorganisation", shall answer to paging messages (with page mode set to "normal paging") sent in a former Access Grant block.

Requirement reference:

TP1 to TP4. GSM 04.08, section 3.3.2 GSM 05.02, section 6.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not implement this procedure correctly, it can not recalculate its new paging group and then can not interwork with the network (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.2.4 No change of page mode

Test purpose:

To verify that the MS, after reception of first a message with page mode set to "extended paging" then another message with page mode set to "no change", remembers the page mode from the previous message and answers to paging messages in the next but one paging sub block.

Test case:

GSM 11.10, II.5.3.6.2.4.

Conformance requirement:

An MS, after first receiving a message with page mode set to "extended paging" and then another message with page mode set to "no change", shall remember the page mode from the previous message and answer to paging messages in the next but one paging sub block.

Requirement reference:

GSM 04.08, section 3.3.2 GSM 05.02, section 6.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not implement correctly this procedure, it can not interwork with the network (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.3 Measurement report

Test group objective:

To verify that the MS sends continuously measurement reports containing reception characteristics from serving and neighbouring cells.

16.3.1 No neighbouring cells

Test purpose:

To verify that, when the MS is having a call in progress and when the network does not give any information about neighbouring cells, the MS reports "no neighbouring cells".

Test case:

GSM 11.10, II.5.3.6.3.3, procedure 1 and requirements 1.

Conformance requirement:

The MS shall continuously send MEASUREMENT REPORT messages on every SACCH blocks and the measurement valid indication shall be set to valid (0) within the second block at the latest.

Requirement reference:

GSM 04.08, section 3.4.1.2 GSM 05.08, section 8.

SUPPLEMENTARY INFORMATION:

Test case justification:

The measurement reports that are sent by the MS are used by the network to determine whether a handover procedure should be performed and towards which cell it can be performed (Article 4f). For its measurements, the MS has to follow the indications broadcasted by the network in the SYSTEM INFORMATION messages.

EC Terminal Directive reference:

Article 4f.

16.3.2 All neighbours present

Test purpose:

To verify that, when the MS is having a call in progress on the serving cell and when the network gives information about neighbouring cells, the MS reports appropriate results.

Test case:

GSM 11.10, II.5.3.6.3.3, procedure 2 and requirements 2.

Conformance requirement:

The MS shall continuously send MEASUREMENT REPORT messages on every SACCH blocks and the measurement valid indication shall be set to valid (0) within the second block at the latest. After 20 seconds the order of values in the MEASUREMENT REPORT message shall contain measurement results for the 6 strongest BCCH carriers among those monitored by the MS and the place of each BCCH measurement in the message shall be in accordance with the increasing RXLEVs measured for each BCCH.

Requirement reference:

GSM 04.08, section 3.4.1.2 GSM 05.08, section 8.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS is able to cope with an environment comprising a lot of cells. The measurement reports that are sent by the MS are used by the network to determine whether a handover procedure should be performed and towards which cell it can be performed (Article 4f). For its measurements, the MS has to follow the indications broadcasted by the network in the SYSTEM INFORMATION messages.

EC Terminal Directive reference:

Article 4f.

16.3.3 Combination of barred cells and un-permitted PLMNs

Test purpose:

To verify that, when the MS is having a call in progress on the serving cell and when a combination of normal neighbours, barred cells and un-permitted PLMNs is "on air", the MS reports only on neighbouring cells for which it is allowed to do so.

Test case:

GSM 11.10, II.5.3.6.3.3, procedure 3 and requirements 3.

Conformance requirement:

The MS shall continuously send MEASUREMENT REPORTs on every SACCH blocks and the measurement valid indication shall be set to valid (0) within the second block at the latest. After 20 seconds the messages shall contain measurement results only for the BCCH carriers among those for which the MS is allowed to report (in this case 4 BCCHs) and the place of each BCCH measurement in the message shall be in accordance with the increasing RXLEVs measured for each BCCH.

Requirement reference:

GSM 04.08, section 3.4.1.2 GSM 05.08, section 8.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case verifies that the MS does not report about cells which are suitable from a radio propagation point of view but which could not accommodate the MS for other reasons. The measurement reports that are sent by the MS are used by the network to determine whether a handover procedure should be performed and towards which cell it can be performed (Article 4f). For its measurements, the MS has to follow the indications broadcasted by the network in the SYSTEM INFORMATION messages.

EC Terminal Directive reference:

Article 4f.

16.3.4 Use of DTX in the measurement report

Test purpose:

To verify that the MS reports the appropriate results after having performed a handover towards a cell where the following applies:

- DTX (discontinuous transmission) shall be used;
- PWRC is set (measurements on the serving BCCH frequency shall not be used).

Test case:

GSM 11.10, II.5.3.6.3.3, procedure 4 and requirements 4.

Conformance requirement:

After the sending of the HANDOVER COMPLETE, the MS shall continuously send measurement reports on every SACCH blocks, the measurement valid indication shall be set to valid (0) within the second block at the latest and the DTX-USED field shall be set to "DTX used". After 20 seconds the order of values in the MEASUREMENT REPORT message shall contain measurement results for the 6 strongest BCCH carriers among those monitored by the MS and the place of each BCCH measurement in the message shall be in accordance with the increasing RXLEVs measured for each BCCH.

Requirement reference:

GSM 04.08, section 3.4.1.2 GSM 05.08, section 8.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

In this test case it is verified that the MS takes into account DTX and PWRC parameters. If it was not the case the reported measurements would not be accurate.

The measurement reports that are sent by the MS are used by the network to determine whether a handover procedure should be performed and towards which cell it can be performed (Article 4f). For its measurements, the MS has to follow the indications broadcasted by the network in the SYSTEM INFORMATION messages.

EC Terminal Directive reference:

Article 4f.

16.4 Test of dedicated channel assignment

Test group objective:

To verify that the MS can correctly seize a new dedicated channel when being already allocated a dedicated channel, this transition being performed inside the same cell.

16.4.1 Assignment completion

Test purposes:

1) To verify that the MS can switch to the channel defined in the ASSIGNMENT COMMAND, establish the link and send an ASSIGNMENT COMPLETE message when the network makes the mobile station to perform the following transitions, frequency hopping being used on some of these channels:

   1.1 from SDCCH to TCH/F;

   1.2 from TCH/F to TCH/H (Not applicable to GSM Phase 1);

   1.3 from TCH/H to TCH/F (Not applicable to GSM Phase 1);

   1.4 from TCH/F to TCH/F;

   1.5 from TCH/F to TCH/F.

2) To verify that the MS does not increment V(SD) when repeating a message, after completion of the assignment procedure.

3) To verify that the MS takes into account "starting time" information element of the ASSIGNMENT COMMAND message.

4) To verify that the MS establishes the link with the power level specified in the ASSIGNMENT COMMAND message.

5) To verify that the MS can switch to the channel defined in the ASSIGNMENT COMMAND, establish the link and send an ASSIGNMENT COMPLETE message when frequency hopping is used on the allocated channel and not on the previous one and reciprocally.

Test case:

TP1 to TP5. GSM 11.10, II.5.3.6.4.2.

Conformance requirement:

1) An MS shall switch to the channel defined in the ASSIGNMENT COMMAND, establish the link and send an ASSIGNMENT COMPLETE message when the network instructs the MS to perform the following transitions, frequency hopping being used on some of these channels:

   1.1 from SDCCH to TCH/F;

   1.2 from TCH/F to TCH/H (Not applicable to GSM Phase 1);

   1.3 from TCH/H to TCH/F (Not applicable to GSM Phase 1);

   1.4 from TCH/F to TCH/F;

   1.5 from TCH/F to TCH/F.

2) An MS shall not increment V(SD) when repeating a message, after completion of the assignment procedure.

3) The MS shall take into account "starting time" information element of the ASSIGNMENT COMMAND message.

4) The MS shall establish the link with the power level specified in the ASSIGNMENT COMMAND message.

5) The MS shall switch to the channel defined in the ASSIGNMENT COMMAND, establish the link and send an ASSIGNMENT COMPLETE message when frequency hopping is used on the allocated channel and not on the previous one and reciprocally.

Requirement reference:

TP1 to TP5. GSM 04.08, section 3.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the assignment procedure is not correctly implemented by the MS, connections can not be established (Article 4f). If the correct power level is not applied this harms the network (Article 4d).

EC Terminal Directive reference:

TP1, TP2, TP3, TP5: Article 4f.

TP4: Article 4d.

16.4.2 Assignment failure

Test purpose:

To verify that the MS applies correctly the assignment failure procedure, this comprises the following steps:

- the MS tries to activate the new channel indicated in the ASSIGNMENT COMMAND message;
- the MS reactivates the old channel with the power previously used on this channel;
- the MS establishes the main signalling link on the old channel;
- the MS sends an ASSIGNMENT FAILURE message.

Test case:

GSM 11.10, II.5.3.6.4.3.

Conformance requirement:

The MS shall correctly apply the assignment failure procedure.

Requirement reference:

GSM 04.08, section 3.4.3.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the assignment failure procedure is not correctly implemented by the MS, that MS can not be able to re-establish the old link (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.5 Test of handover

Test group objective:

To verify that the MS is able to perform the handover procedure, that is leaving a dedicated channel and seizing another dedicated channel typically in another cell.

To verify that the MS is able to handle abnormal cases of the handover procedures.

16.5.1 Non synchronized handover during call in progress towards a TCH/F without frequency hopping

Test purposes:

To verify that the MS correctly applies the handover procedure in the non-synchronized case when call is in progress and when handover is performed towards a TCH/F without frequency hopping, this comprises the following steps:

1) 1.1 The MS sends continuously access bursts at the power level specified in the HANDOVER COMMAND message including the correct handover reference, on the main DCCH of the target cell until the reception of the PHYSICAL INFORMATION.

   1.2 The MS starts transmitting access bursts at the point in time ordered by the HANDOVER COMMAND message.

2) The MS activates the channel in sending and receiving mode, and connect the channel in the range of (0..3) s after the transmission time of the PHYSICAL INFORMATION.

3) The MS uses the correct timing advance, as specified in the PHYSICAL INFORMATION message.

4) The MS establishes the signalling link on the new channel.

5) The MS sends the HANDOVER COMPLETE message on the target cell within 10 seconds after the transmission of the HANDOVER COMMAND.

6) The MS sends the HANDOVER COMPLETE message on the target cell after the link layer is successfully established.

Test case:

TP1.1 and TP2 to TP6: GSM 11.10, II.5.3.6.5.4.1;

TP1 to TP6: GSM 11.10, II.5.3.6.5.4.11.

Conformance requirement:

The MS shall correctly apply the handover procedure in the non-synchronized case when a call is in progress and when handover is performed towards a TCH/F without frequency hopping.

Requirement reference:

TP1 to TP6 GSM 04.08, section 3.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the handover procedure is not correctly implemented by the MS, it is impossible to switch a call in progress from one cell to another cell (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.5.2 Non synchronized handover during call in progress, from a TCH/H without frequency hopping to a TCH/H with frequency hopping

Test purposes:

To verify that the MS correctly applies the handover procedure in the non-synchronized case when call is in progress and when handover is performed from a TCH/H without frequency hopping to a TCH/H with frequency hopping, this comprises the following steps:

1) 1.1 The MS sends continuously access bursts at the power level specified in the HANDOVER COMMAND message including the correct handover reference, on the main DCCH of the target cell until the reception of the PHYSICAL INFORMATION.

   1.2 The MS starts transmitting access bursts at the ordered point in time ordered by the HANDOVER COMMAND message.

2) The MS activates the channel in sending and receiving mode, and connect the channel in the range of 3 s after the transmission of the PHYSICAL INFORMATION.

3) The MS uses the correct timing advance, as specified in the PHYSICAL INFORMATION message.

4) The MS establishes the signalling link on the new channel.

5) The MS sends the HANDOVER COMPLETE message on the target cell within 10 seconds after the transmission of the HANDOVER COMMAND.

6) The MS sends the HANDOVER COMPLETE message on the target cell after the link layer is successfully established.

Test case:

TP1.1 and TP2 to TP6 GSM 11.10, II.5.3.6.5.4.2;

TP1 to TP6: GSM 11.10, II.5.3.6.5.4.11.

Conformance requirement:

The MS shall correctly apply the handover procedure in the non-synchronized case when a call is in progress and when handover is performed from a TCH/H without frequency hopping to a TCH/H with frequency hopping.

This test does not apply to MSs not supporting TCH/H.

Requirement reference:

TP1 to TP6 GSM 04.08, section 3.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the handover procedure is not correctly implemented by the MS, it is impossible to switch a call in progress from one cell to another cell (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.5.3 Non synchronized handover during call establishment from TCH/F with frequency hopping to TCH/F with frequency hopping

Test purposes:

To verify that the MS correctly applies the handover procedure from TCH/F with frequency hopping to TCH/F with frequency hopping in the non-synchronized case when call is in progress, this comprises the following steps numbered from 1 to 7:

1) 1.1 The MS sends continuously access bursts at the power level specified in the HANDOVER COMMAND message including the correct handover reference, on the main DCCH of the target cell until the reception of the PHYSICAL INFORMATION.

   1.2 The MS starts transmitting access bursts at the ordered point in time ordered by the HANDOVER COMMAND message.

2) The MS activates the channel in sending and receiving mode, and connect the channel in the range of 3 s after the transmission of the PHYSICAL INFORMATION.

3) The MS uses the correct timing advance, as specified in the PHYSICAL INFORMATION message.

4) The MS establishes the signalling link on the new channel.

5) The MS sends the HANDOVER COMPLETE message on the target cell within 10 seconds after the transmission of the HANDOVER COMMAND.

6) The MS sends the HANDOVER COMPLETE message on the target cell after the link layer is successfully established.

7) If during a call establishment a Layer 3 message (MM or CC) just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS will send again this Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

Test case:

TP1.1 and TP2 to TP7: GSM 11.10, II.5.3.6.5.4.4;

TP1 to TP7: GSM 11.10, II.5.3.6.5.4.11.

Conformance requirement:

The MS shall correctly apply the handover procedure from TCH/F with frequency hopping to TCH/F with frequency hopping in the non-synchronized case when a call is in progress.

If during call establishment a Layer 3 message (MM or CC) just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS shall send the Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

Requirement reference:

TP1 to TP6: GSM 04.08, section 3.4.4;

TP7: GSM 04.08, section 3.4.4 and GSM 04.08, section 2.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the handover procedure is not correctly implemented by the MS, it is impossible to switch a call in establishment phase from one cell to another cell (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.5.4 Non synchronized handover during call establishment from SDCCH with frequency hopping to TCH/F without frequency hopping

Test purposes:

To verify that the MS correctly applies the handover procedure from SDCCH with frequency hopping to TCH/F without frequency hopping in the non-synchronized case, during call establishment, this comprises the following steps:

1) 1.1 The MS sends continuously access bursts at the power level specified in the HANDOVER COMMAND message including the correct handover reference, on the main DCCH of the target cell until the reception of the PHYSICAL INFORMATION.

   1.2 The MS starts transmitting access bursts at the ordered point in time ordered by the HANDOVER COMMAND message.

2) The MS activates the channel in sending and receiving mode, and connect the channel in the range of 3 s after the transmission of the PHYSICAL INFORMATION.

3) The MS uses the correct timing advance, as specified in the PHYSICAL INFORMATION message.

4) The MS establishes the signalling link on the new channel.

5) The MS sends the HANDOVER COMPLETE message on the target cell within 10 seconds after the transmission of the HANDOVER COMMAND.

6) The MS sends the HANDOVER COMPLETE message on the target cell after the link layer is successfully established.

7) To verify that, if during a call establishment a Layer 3 message (MM or CC) just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS will send again this Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

Test case:

TP1.1 and TP2 to TP7: GSM 11.10, II.5.3.6.5.4.5;

TP1 to TP7: GSM 11.10, II.5.3.6.5.4.11.

Conformance requirement:

The MS shall correctly apply the handover procedure from SDCCH with frequency hopping to TCH/F without frequency hopping in the non-synchronized case, during call establishment.

If during call establishment a Layer 3 message (MM or CC) just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS shall send the Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

Requirement reference:

TP1 to TP6: GSM 04.08, section 3.4.4;

TP7: GSM 04.08, section 3.4.4 and GSM 04.08, section 2.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the handover procedure is not correctly implemented by the MS, it is impossible to switch a call in establishment phase from one cell to another cell (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.5.5 Synchronized handover during call in progress from TCH/F with frequency hopping to TCH/F without frequency hopping

Test purposes:

To verify that the MS correctly applies the handover procedure from TCH/F with frequency hopping to TCH/F without frequency hopping in the synchronized case, when call is in progress, this comprises the following steps:

1) 1.1 In four successive slots on the main DCCH, the MS sends access bursts at the power level specified in HANDOVER COMMAND with the correct handover reference.

   1.2 The MS starts transmitting access bursts at the ordered point in time ordered by the HANDOVER COMMAND message.

2) The MS activates the channel in sending and receiving mode, and connects the channel in the range of 3 seconds after the transmission of the HANDOVER COMMAND.

3) The MS computes the correct timing advance and uses it.

4) The MS establishes the signalling link on the new channel.

5) The MS sends the HANDOVER COMPLETE message on the target cell so that it is received within 10 seconds after the transmission of the HANDOVER COMMAND message.

Test case:

TP1.1 and TP2 to TP5: GSM 11.10, II.5.3.6.5.4.6;

TP1 to TP5: GSM 11.10, II.5.3.6.5.4.11.

Conformance requirement:

The MS shall correctly apply the handover procedure from TCH/F with frequency hopping to TCH/F without frequency hopping in the synchronized case, when a call is in progress.

Requirement reference:

TP1, TP2, TP4 and TP5: GSM 04.08, section 3.4.4;

TP3: GSM 05.10, section 6.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the handover procedure is not correctly implemented by the MS, it is impossible to switch a call in progress from one cell to another cell (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.5.6 Synchronized handover during call in progress from TCH/H with frequency hopping to TCH/H without frequency hopping

Test purposes:

To verify that the MS correctly applies the handover procedure from TCH/H with frequency hopping to TCH/H without frequency hopping in the synchronized case, when call is in progress, this comprises the following steps:

1) 1.1 In four successive slots on the main DCCH, the MS sends access bursts at the power level specified in HANDOVER COMMAND with the correct handover reference.

   1.2 The MS starts transmitting access bursts at the ordered point in time ordered by the HANDOVER COMMAND message.

2) The MS activates the channel in sending and receiving mode, and connects the channel in the range of 3 seconds after the transmission of the HANDOVER COMMAND.

3) The MS computes the correct timing advance and uses it.

4) The MS establishes the signalling link on the new channel.

5) The MS sends the HANDOVER COMPLETE message on the target cell so that it is received within 10 seconds after the transmission of the HANDOVER COMMAND message.

Test case:

TP1.1 and TP2 to TP5: GSM 11.10, II.5.3.6.5.4.7;

TP1 to TP5: GSM 11.10, II.5.3.6.5.4.11.

Conformance requirement:

The MS shall correctly apply the handover procedure from TCH/H with frequency hopping to TCH/H without frequency hopping in the synchronized case, when a call is in progress.

This requirement does not apply to MSs not supporting TCH/H.

Requirement reference:

TP1, TP2, TP4 and TP5: GSM 04.08, section 3.4.4;

TP3: GSM 05.10, section 6.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the handover procedure is not correctly implemented by the MS, it is impossible to switch a call in progress from one cell to another cell (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.5.7 Synchronized handover during call establishment from SDCCH with frequency hopping to SDCCH with frequency hopping

Test purposes:

To verify that the MS correctly applies the handover procedure from SDCCH with frequency hopping to SDCCH with frequency hopping in the synchronized case, during call establishment, this comprises the following steps numbered from 1 to 6:

1) 1.1 In four successive slots on the main DCCH, the MS sends access bursts at the power level specified in HANDOVER COMMAND with the correct handover reference.

   1.2 The MS starts transmitting access bursts at the ordered point in time ordered by the HANDOVER COMMAND message.

2) The MS activates the channel in sending and receiving mode, and connects the channel in the range of 3 seconds after the transmission of the HANDOVER COMMAND.

3) The MS computes the correct timing advance and uses it.

4) The MS establishes the signalling link on the new channel.

5) The MS sends the HANDOVER COMPLETE message on the target cell so that it is received within 10 seconds after the transmission of the HANDOVER COMMAND message.

6) To verify that, if during a call establishment a Layer 3 message (MM or CC) just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS will send again this Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

Test case:

TP1.1 and TP2 to TP6: GSM 11.10, II.5.3.6.5.4.8;

TP1 to TP6: GSM 11.10, II.5.3.6.5.4.11.

Conformance requirement:

The MS shall correctly apply the handover procedure from SDCCH with frequency hopping to SDCCH with frequency hopping in the synchronized case, during call establishment.

If during call establishment a Layer 3 message (MM or CC) just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS shall send the Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

Requirement reference:

TP1, TP2,TP4 and TP5: GSM 04.08, section 3.4.4;

TP3: GSM 05.10, section 6.6;

TP6: GSM 04.08, section 3.4.4 and GSM 04.08, section 2.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the handover procedure is not correctly implemented by the MS, it is impossible to switch a call in establishment phase from one cell to another cell (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.5.8 Synchronized handover during call establishment from TCH/F without frequency hopping to TCH/F with frequency hopping

Test purposes:

To verify that the MS correctly applies the handover procedure from TCH/F without frequency hopping to TCH/F with frequency hopping in the synchronized case, during call establishment, this comprises the following steps numbered from 1 to 6:

1) 1.1 In four successive slots on the main DCCH, the MS sends access bursts at the power level specified in HANDOVER COMMAND with the correct handover reference.

   1.2 The MS starts transmitting access bursts at the ordered point in time ordered by the HANDOVER COMMAND message.

2) The MS activates the channel in sending and receiving mode, and connects the channel in the range of 3 seconds after the transmission of the HANDOVER COMMAND.

3) The MS computes the correct timing advance and uses it.

4) The MS establishes the signalling link on the new channel.

5) The MS sends the HANDOVER COMPLETE message on the target cell so that it is received within 10 seconds after the transmission of the HANDOVER COMMAND message.

6) To verify that, if during a call establishment a Layer 3 message (MM or CC) just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS will send again this Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

Test case:

TP1.1 and TP2 to TP6: GSM 11.10, II.5.3.6.5.4.9;

TP1 to TP6: GSM 11.10, II.5.3.6.5.4.11.

Conformance requirement:

The MS shall correctly apply the handover procedure from TCH/F without frequency hopping to TCH/F with frequency hopping in the synchronized case, during call establishment.

If during call establishment a Layer 3 message (MM or CC) just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS shall send the Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

Requirement reference:

TP1, TP2, TP4 and TP5: GSM 04.08, section 3.4.4;

TP3: GSM 05.10, section 6.6;

TP6: GSM 04.08, section 3.4.4 and GSM 04.08, section 2.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the handover procedure is not correctly implemented by the MS, it is impossible to switch a call in establishment phase from one cell to another cell (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.5.9 Synchronized handover during call establishment from SDCCH without frequency hopping to TCH/F without frequency hopping

Test purposes:

To verify that the MS correctly applies the handover procedure from SDCCH without frequency hopping to TCH/F without frequency hopping in the synchronized case, during call establishment, this comprises the following steps numbered from 1 to 6:

1) 1.1 In four successive slots on the main DCCH, the MS sends access bursts at the power level specified in HANDOVER COMMAND with the correct handover reference.

   1.2 The MS starts transmitting access bursts at the ordered point in time ordered by the HANDOVER COMMAND message.

2) The MS activates the channel in sending and receiving mode, and connects the channel in the range of 3 seconds after the transmission of the HANDOVER COMMAND.

3) The MS computes the correct timing advance and uses it.

4) The MS establishes the signalling link on the new channel.

5) The MS sends the HANDOVER COMPLETE message on the target cell so that it is received within 10 seconds after the transmission of the HANDOVER COMMAND message.

6) To verify that, if during a call establishment a Layer 3 message (MM or CC) just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS will send again this Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

Test case:

TP1.1 and TP2 to TP6: GSM 11.10, II.5.3.6.5.4.10;

TP1 to TP6: GSM 11.10, II.5.3.6.5.4.11.

Conformance requirement:

The MS shall correctly apply the handover procedure from SDCCH without frequency hopping to TCH/F without frequency hopping in the synchronized case, during call establishment.

If during call establishment a Layer 3 message (MM or CC) just sent by the MS is not Layer 2 acknowledged before the channel change caused by the HANDOVER COMMAND message, the MS shall send the Layer 3 message to the new cell, using the same value in the N(SD) field, after the handover procedure.

Requirement reference:

TP1, TP2, TP4 and TP5: GSM 04.08, section 3.4.4;

TP3: GSM 05.10, section 6.6;

TP6: GSM 04.08, section 3.4.4 and GSM 04.08, section 2.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the handover procedure is not correctly implemented by the MS, it is impossible to switch a call in establishment phase from one cell to another cell (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.5.10 Layer 3 failure on the target cell during non synchronized handover procedure from TCH/F with frequency hopping to TCH/F without frequency hopping

Test purpose:

To verify that the MS returns to the old channel in the case of an handover failure caused by the non reception of the PHYSICAL INFORMATION message, this comprises the following steps:

1) The MS establishes the signalling link on the old channel.

2) Then the MS sends an HANDOVER FAILURE message using the old power level.

3) When sending the HANDOVER FAILURE message the MS uses the power level assigned before the sending of the HANDOVER COMMAND message.

Test case:

GSM 11.10, II.5.3.6.5.4.12.

Conformance requirement:

The MS shall return to the old channel in the case of an handover failure caused by the non reception of the PHYSICAL INFORMATION message.

Requirement reference:

GSM 04.08, section 3.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1, TP2: If the handover failure procedure is not correctly implemented by the MS, the link between the MS and the network will be lost (Article 4f).

TP3: If the correct power level is not followed, the interference level will be increased (Article 4d).

EC Terminal Directive reference:

Articles 4d and 4f.

16.5.11 Layer 1 failure on the target cell during non synchronized handover procedure from TCH/F without frequency hopping to TCH/F with frequency hopping

Test purpose:

To verify that the MS returns to the old channel in the case of an handover failure caused by a layer 1 failure on the target cell, this comprises the following steps:

1) The MS establishes the signalling link on the old channel.

2) Then the MS sends an HANDOVER FAILURE message using the old power level.

3) When sending the HANDOVER FAILURE message the MS uses the power level assigned before the sending of the HANDOVER COMMAND message.

Test case:

GSM 11.10, II.5.3.6.5.4.13.

Conformance requirement:

The MS shall return to the old channel in the case of an handover failure caused by a layer 1 failure on the target cell.

Requirement reference:

GSM 04.08, section 3.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1, TP2: If the handover failure procedure is not correctly implemented by the MS, the link between the MS and the network will be lost (Article 4f).

TP3: If the correct power level is not followed, the interference level will be increased (Article 4d)

EC Terminal Directive reference:

Articles 4d and 4f.

16.6 Frequency redefinition

Test purpose:

To verify that the MS, after receiving a FREQUENCY REDEFINITION message, starts using the new frequencies and hopping sequence at the timeslot indicated in the message when the MS is allocated a dedicated channel (SDCCH, TCH/F or TCH/H) when value T(k) is used in the FREQUENCY REDEFINITION message, this yields the following behaviours:

- the MS must correctly modify the frequencies/hopping sequences it uses at the exact indicated timeslot;

- each burst is transmitted at the right frequency.

Test case:

GSM 11.10, II.5.3.6.6.

Conformance requirement:

An MS, after receiving a FREQUENCY REDEFINITION message, shall start using the new frequencies and hopping sequence at the timeslot indicated in the message when the MS is allocated a dedicated channel (SDCCH, TCH/F or TCH/H) when value T(k) is used in the FREQUENCY REDEFINITION message.

The behaviour described in the test purpose is applied for each combination of a value T(k) (k = 1,2,3) and of a channel type. The used channels are listed in the test purpose.

TCH/H is not used for an MS which does not support it.

Requirement reference:

GSM 04.08, section 3.4.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not implement correctly the frequency redefinition procedure, it could not interwork with the network as soon as this procedure is triggered (Article 4f) the MS might also use wrong frequencies (Article 4d).

EC Terminal Directive reference:

Articles 4d and 4f.

16.7 Transmission mode change

Test purpose:

1) To verify, when the MS is having a speech call in progress on a TCH/F and when the network sends a CHANNEL MODE MODIFY message, that the MS sends a CHANNEL MODE MODIFY ACKNOWLEDGE message with value corresponding to the new mode of operation.

2) To verify when the MS is having a speech call in progress on a TCH/H and when the network sends a CHANNEL MODE MODIFY message, that the MS sends a CHANNEL MODE MODIFY ACKNOWLEDGE message with value corresponding to the new mode of operation.

Test case:

GSM 11.10, II.5.3.6.7.

Conformance requirement:

TP1: For each of the new modes supported by the MS and included in the CHANNEL MODE MODIFY message the MS shall send the CHANNEL MODE MODIFY ACKNOWLEDGE message with this new mode, this applies to the following modes: signalling, speech full rate, speech half rate, data 9.6, data 4.8/F and data 2.4/F.

TP2: For each of the new modes supported by the MS and included in the CHANNEL MODE MODIFY message the MS shall send the CHANNEL MODE MODIFY ACKNOWLEDGE message with this new mode, this applies to the following modes: data 4.8/H and data 2.4/H.

This requirement does not apply for MSs not supporting TCH/H.

Requirement reference:

GSM 04.08, section 3.4.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this procedure is not implemented correctly by the MS, the network could not request the MS to change the channel mode (of coding, decoding and transcoding) of one channel (Article 4f).

EC Terminal Directive reference:

Article 4f.

16.8 Ciphering mode setting

Test group objective:

To verify that the MS responds correctly to the CIPHERING MODE COMMAND message and adopts the mode as indicated in the cipher mode setting.

Test purpose:

1) To verify that the MS correctly applies the ciphering procedure during an outgoing call establishment when this establishment includes an authentication procedure the outcome of which is successful and when the cipher mode setting information element is put to the value "start ciphering".

2) To verify that a further authentication procedure does not make the MS to use the key determined by this new authentication.

3) To verify that the MS correctly applies the ciphering procedure during an outgoing call establishment when this establishment includes an authentication procedure the outcome of which is successful and when the cipher mode setting information element is put to the value "no ciphering".

4) To verify that the MS is able to apply ciphering when no authentication procedure is triggered during the call establishment and that the MS is able to continue the call establishment.

5) To verify that the MS releases the RR connection when a Layer 2 failure happens during the ciphering procedure, this failure being caused by N200 timer T200 expiries. following the hereafter outlined process, the MS releases the RR connection.

- a call is originated by the MS and the network sends a CIPHERING MODE COMMAND message with Ciphering Mode Setting information element set to "start ciphering".

- the network ignores messages coming from the MS.

- the MS repeats its CIPHER MODE COMPLETE messages in ciphered mode, after N200 times, and then the MS shall release the RR connection.

Test case:

TP1 and TP2. GSM 11.10, II.5.3.6.8.3.1;

TP3. GSM 11.10, II.5.3.6.8.3.2;

TP4. GSM 11.10, II.5.3.6.8.3.3;

TP5. GSM 11.10, II.5.3.6.8.3.4.

Conformance requirement:

TP1: When the MS receives the CIPHERING MODE COMMAND message with Ciphering Mode Setting information element set to "start ciphering", the MS starts ciphering and deciphering:

- the MS responds with a CIPHERING MODE COMPLETE message in ciphered mode;

- the ciphering uses the cipher key determined during the authentication procedure.

TP2: The MS responds to the AUTHENTICATION REQUEST message with an AUTHENTICATION RESPONSE message and continue to use the ciphering key obtained from the previous authentication procedure.

TP3: When the MS receives a CIPHERING MODE COMMAND message with Ciphering Mode Setting information element set to "no ciphering" the MS responds in non ciphered mode with a CIPHERING MODE COMPLETE message.

- the MS continue the call establishment.

TP4: When the MS receives the CIPHERING MODE COMMAND message with Ciphering Mode Setting information element set to "start ciphering", the MS starts ciphering and deciphering:

- the MS responds with a CIPHERING MODE COMPLETE message in ciphered mode;

- the ciphering uses the previously stored cipher key;

- the MS sends the SETUP message after the completion of the ciphering procedure.

TP5: The MS responds with the CIPHER MODE COMPLETE message in ciphered mode.

The MS repeats this message after T200 expiry, this occurring N200 times.

The MS releases the RR connection.

Requirement reference:

TP1 to TP4. GSM 04.08, section 3.4.7;

TP5: GSM 04.08, section 3.5.2 and GSM 04.06, section 5.5.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the ciphering procedure is not correctly implemented in the MS, the MS can not interwork with the network because they can not understand each other (Article 4f).

EC Terminal Directive reference:

TP1: Article 4f.
TP2: Article 4f.
TP3: Article 4f.
TP4: Article 4f.
TP5: Article 4e.

16.9 Classmark change

Test purpose:

To verify that if the RF power capabilities of the MS are changed, either in idle mode or during a call, this change is signalled to the network.

The procedures described shall apply only to an MS which supports this feature.

1) If a change occurs when the MS is in idle mode, the MS shall include the new RF power capability in the "Mobile Station Classmark 2" information element of the future CM SERVICE REQUEST message (for MO calls) or PAGING RESPONSE message (for MT calls).

2) If a change occurs during a call, the MS shall send a CLASSMARK CHANGE message with the new RF power capability in the "Mobile Station Classmark 2" information element.

Test case:

TP1 and TP2. GSM 11.10, II.5.3.6.11.

Conformance requirement:

If the RF power capabilities of the MS are changed, either in idle mode or during a call, this change shall be signalled to the network.

Requirement reference:

TP1 and TP2. GSM 04.08, section 3.4.10.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this procedure is not correctly implemented in the MS, there are no other means for the MS to indicate any change in its RF power capability to the network (Article 4e).

EC Terminal Directive reference:

Article 4e.

16.10 Channel release

Test group objective:

To verify that, after having received a CHANNEL RELEASE message, the MS correctly frees its dedicated channels by initiating a Layer 2 disconnection process on the main signalling link.

Test purpose:

1) To verify that the MS is able to correctly release its SDCCH after having received a CHANNEL RELEASE message with a valid RR cause value field, and returns to the "idle" state when the Layer 2 disconnection is acknowledged by the network.

2) To verify that the MS is able to correctly release its SDCCH after having received a CHANNEL RELEASE message with a valid RR cause value field, and returns to the "idle" state when timer T3110 expires (due to Layer 2 disconnection not acknowledged by the network).

3) To verify that the MS is able to correctly release its TCH after having received a CHANNEL RELEASE message with a valid RR cause value field, and returns to the "idle" state when the Layer 2 disconnection is acknowledged by the network.

4) To verify that the MS is able to correctly release its TCH after having received a CHANNEL RELEASE message with RR cause field set to 'abnormal release unspecified", and returns to the "idle" state when timer T3110 expires (due to Layer 2 disconnection not acknowledged by the network).

Test case:

TP1 to TP4. GSM 11.10, II.5.3.6.12.

Conformance requirement:

TP1 and TP3. After the acknowledgement of the Layer 2 disconnection by the network the MS shall not produce any further RF-transmission.

TP2 and TP4. After the expiry of timer T3110 the MS shall not produce any further RF-transmission.

Requirement reference:

TP1 to TP4. GSM 04.08, section 3.5.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS does not implement correctly the channel release procedure, connections could not be cleared when required by the network or the circumstances (Article 4f).

EC Terminal Directive reference:

Article 4f.

17 Elementary procedures of Mobility Management (MM)

17.1 Test of TMSI reallocation procedure

Test purpose:

1) To verify that the Mobile Station acknowledges a new TMSI when explicitly allocated during a location updating procedure or an incoming call.

2) To verify that when the power supply is interrupted the Mobile Station is able to store the TMSI in a non-volatile memory.

3) To verify that the Mobile Station answers to paging with this TMSI and includes it in the Paging Response message.

Test case:

GSM 11.10 II.5.3.7.1.2.

Conformance requirement:

1) A Mobile Station shall acknowledge a new TMSI when explicitly allocated during a location updating procedure or an incoming call.

2) If the power supply is interrupted the Mobile Station shall store the TMSI in non-volatile memory.

3) A Mobile Station shall answer paging with this TMSI and includes it in the Paging Response message.

TP 2 applies only to Mobile Stations where disconnection of the power supply is possible.

Requirement reference:

GSM 04.08 sect 4.3.1.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The purpose of the TMSI Reallocation procedure is to assign a new Temporary identity for the Mobile Station. If the message is not understood by the Mobile Station, the network can not establish a link to the Mobile Station.

EC Terminal Directive reference:

Article 4f.

17.2 Test of authentication procedure

Test purpose:

1) To verify that the Mobile Station correctly responds to the Authentication Request message by sending an Authentication Response message with the SRES information field set to the same value as the one produced by the authentication algorithm in the SS.

2) To verify that the Mobile Station indicates in a Paging Response message the ciphering key sequence number which was allocated to it through the authentication procedure.

3) To verify that after reception of an Authentication Reject message the Mobile Station:

3.1 does not answer to paging;

3.2 rejects any request for a mobile originating call.

4) To verify that after reception of an Authentication Reject message the Mobile Station, if it supports speech, accepts a request for an emergency call by sending a Channel Request message with the establishment cause set to "emergency call".

Test case:

GSM 11.10 II.5.3.7.2.2.

Conformance requirement:

1) A Mobile Station shall correctly respond to an Authentication Request message by sending an Authentication Response message with the SRES information field set to the same value as the one produced by the authentication algorithm in the network.

2) A Mobile Station shall indicate in a Paging Response message the ciphering key sequence number which was allocated to it through the authentication procedure.

3) After reception of an Authentication Reject message the Mobile Station:

3.1 shall not answer paging

3.2 shall reject any request for a mobile originating call

4) After reception of an Authentication Reject message the Mobile Station, if it supports speech, shall accept a request for an emergency call by sending a Channel Request message with the establishment cause set to "emergency call".

TP 4 is applicable only if the Mobile Station supports speech.

Requirement reference:

GSM 04.08 section 4.3.2, GSM 03.20 section 3.2.

TP 1: GSM 04.08 4.3.2.2. TP 2: GSM 04.08 4.3.2.4. TP3 and 4: GSM 04.08 4.3.2.5

SUPPLEMENTARY INFORMATION:

Test case justification:

If the Mobile Station is unable to answer correctly to this procedure the purpose of which is to verify its identity the network will clear the connection (Article 4f).

If the Mobile Station does not correctly indicate the Ciphering Key Sequence Number, it will not be possible to establish a connection (Article 4f).

In case of Authentication rejection the Mobile Station does not have rights to access the network thus the purpose of the test is to avoid any disturbance for the network (Article 4d). Emergency calls are still allowed (Article 4f).

EC Terminal Directive reference:

TP 1, TP 2, TP 3: Article 4f.

TP 3.1 and TP 3.2: Article 4d.

17.3 Test of identification procedure

Test purpose:

1) To verify that when requested by the network the Mobile Station sends its IMSI.

2) To verify that when requested by the network the Mobile Station sends the TMSI which was previously allocated.

3) To verify that when requested by the network the Mobile Station sends its IMEI as stored in the Mobile Equipment.

Test case:

GSM 11.10 II.5.3.7.3.2.

Conformance requirement:

1) When requested by the network the Mobile Station shall send its IMSI.

2) When requested by the network the Mobile Station shall send the TMSI which it was previously allocated.

3) When requested by the network the Mobile Station shall send its IMEI as stored in the Mobile Equipment.

Requirement reference:

GSM 04.08 section 4.3.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

In some abnormal cases it is necessary for the network to ask the mobile station its IMSI or TMSI. If the Mobile Station is not able to answer the connection establishment cannot be completed (Article 4f).

If the Mobile Station does not indicate correctly its IMEI the network operator will not be able to verify that the considered mobile equipment has been type approved and therefore the network operator will not be able to trace ME which harm the network (Article 4d).

EC Terminal Directive reference:

TP 1 and TP 2: Article 4f.

TP 3: Article 4d.

17.4 Test of location updating procedure

17.4.1 Location updating accepted

Test group objective

To test the behaviour of the Mobile Station if the network accepts the location updating of the Mobile Station.

Test purpose:

1.1 To verify that if the network accepts the location updating of the Mobile Station and reallocates a TMSI in the Location Updating Accept message the Mobile Station acknowledges the reception of a new TMSI.

1.2 To verify that the Mobile Station answers to paging with this TMSI and includes it in a Paging Response message.

2 To verify that if the network accepts the location updating of the Mobile Station and the Location Updating Accept message contains neither TMSI nor IMSI, the Mobile Station answers to paging when addressed with the previously allocated TMSI and includes it in the Paging Response message.

3.1 To verify that if the network accepts the location updating of the Mobile Station by use of a Location Updating Accept message containing the IMSI of the Mobile Station, the Mobile Station does not answer to paging with the previously allocated TMSI.

3.2 To verify that the Mobile Station still answers to paging with IMSI.

Test case:

GSM 11.10 II.5.3.7.4.1: Procedure 1 (TP 1.1 and 1.2), Procedure 2 (TP 2), Procedure 3 (TP 3.1 and 3.2).

Conformance requirement:

1.1 If the network accepts a location updating from the Mobile Station and reallocates a TMSI in the Location Updating Accept message the Mobile Station shall acknowledge the reception of the new TMSI.

1.2 The Mobile Station shall answer to paging with this TMSI and include it in a Paging Response message.

2 If the network accepts a location updating from the Mobile Station and the Location Updating Accept message contains neither TMSI nor IMSI, the Mobile Station shall answer to paging when addressed with the previously allocated TMSI and include it in the Paging Response message.

3.1 If the network accepts a location updating from the Mobile Station by use of a Location Updating Accept message containing the IMSI of the Mobile Station, the Mobile Station shall not answer paging with the previously allocated TMSI.

3.2 The Mobile Station shall still answer paging with IMSI.

Requirement reference:

GSM 04.08 section 4.4.4.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This procedure is used to register the Mobile Station in the network. If it is not performed correctly, a Mobile Terminating call can not be established (Article 4f).

When the network wants to delete the previously allocated TMSI it will harm the network if the Mobile Station still uses it (Article 4d).

EC Terminal Directive reference:

TP 1.1, TP 1.2, TP 2, TP 3.2: Article 4f.

TP 3.1: Article 4d.

17.4.2 Location updating reject

Test group objective

To test the behaviour of the Mobile Station if the network rejects the location updating of the Mobile Station.

17.4.2.1 Location updating reject cause "IMSI unknown in HLR"

Test purpose:

1) To verify that if the network rejects the location updating of the Mobile Station with the cause "IMSI unknown in HLR" the Mobile Station:

   1.1 does not perform normal location updating;

   1.2 does not perform periodic location updating;

   1.3 does not respond to paging with IMSI;

   1.4 does not respond to paging with TMSI;

   1.5 rejects any request for Mobile Originating call establishment;

   1.6 does not perform IMSI detach if powered down.

2) To verify that if the network rejects the location updating of the Mobile Station with the cause "IMSI unknown in HLR" the Mobile Station, if it supports speech, accepts a request for an emergency call by sending a Channel Request message with the establishment cause set to "emergency call".

Test case:

GSM 11.10 II.5.3.7.4.2.1.

Conformance requirement:

1) If the network rejects a location updating from the Mobile Station with the cause "IMSI unknown in HLR" the Mobile Station shall:

   1.1 not perform normal location updating;

   1.2 not perform periodic location updating;

1.3 not respond to paging with IMSI;

1.4 not respond to paging with TMSI;

1.5 reject any request for Mobile Originating call establishment;

1.6 not perform IMSI detach if powered down.

2) If the network rejects a location updating from the Mobile Station with the cause "IMSI unknown in HLR" the Mobile Station, if it supports speech, shall accept a request for an emergency call by sending a Channel Request message with the establishment cause set to "emergency call".

TP 1.6 applies only to Mobile Station where the disconnection of the power supply is possible.

TP 2 is applicable only if the Mobile Station supports speech.

Requirement reference:

GSM 04.08 sections 4.4.4.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

In such cases the mobile subscriber has no right to perform any activity in the network, thus the purpose of this test is to avoid any disturbance for the network (Article 4d).

Emergency calls are still allowed (Article 4f).

EC Terminal Directive reference:

TP 1: Article 4d.
TP 2: Article 4f.

17.4.2.2 Location updating reject cause "PLMN not allowed"

Test purpose:

1) To verify that if the network rejects the location updating of the Mobile Station with the cause "PLMN not allowed" the Mobile Station:

1.1 does not perform periodic updating;

1.2 does not perform IMSI detach when switched off;

1.3 does not perform IMSI attach when switched on in the same location area;

1.4 does not perform normal location updating when in the same PLMN.

2) To verify that if the network rejects the location updating of the Mobile Station with the cause "PLMN not allowed" the Mobile Station:

2.1 performs normal location updating when a new PLMN is entered;

2.2 accepts a request for an emergency call, if it supports speech, by sending a Channel Request message with the establishment cause set to "emergency call".

Test case:

GSM 11.10 II.5.3.7.4.2.2.

Conformance requirement:

1) If the network reject a location updating from the Mobile Station with the cause "PLMN not allowed" the Mobile Station shall:

   1.1 not perform periodic updating;

   1.2 not perform IMSI detach when switched off;

   1.3 not perform IMSI attach when switched on in the same location area;

   1.4 not perform normal location updating when in the same PLMN.

2) If the network rejects a location updating from the Mobile Station with the cause "PLMN not allowed" the Mobile Station shall:

   2.1 perform normal location updating when a new PLMN is entered;

   2.2 accept a request for an emergency call, if it supports speech, by sending a Channel Request message with the establishment cause set to "emergency call".

TP 1.2 and 1.3 apply only if the Mobile Station has a On/Off switch.

TP 2.2 is applicable only if the Mobile Station supports speech.

Requirement reference:

GSM 04.08 section 4.4.4.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this procedure does not work correctly the network will be overloaded by requests from Mobile Stations which do not have the rights to access the network (Article 4d).

If the Mobile Station does not perform a normal location updating procedure when a new PLMN is entered it will not receive incoming calls in some cases where it would have been possible (Article 4f).

Emergency calls are still allowed (Article 4f).

EC Terminal Directive reference:

TP 1: Article 4d.
TP 2.1, TP 2.2: Article 4f.

17.4.2.3 Location updating reject cause "Location area not allowed"

Test purpose:

1) To verify that if the network rejects the location updating of the Mobile Station with the cause "Location Area not allowed" the Mobile Station:

   1.1 does not perform periodic updating;

1.2 does not respond to paging with TMSI;

1.3 rejects any request for Mobile Originating call establishment;

1.4 does not perform IMSI detach.

2) To verify that if the network rejects the location updating of the Mobile Station with the cause "Location Area not allowed" the Mobile Station:

2.1 responds to paging with IMSI and includes in the Paging Response message its IMSI in the Mobile Identity field and "no key available" in the Ciphering Key Sequence Number field,

2.2 performs normal location updating when a new location area is entered,

2.3 accepts a request for an emergency call, if it supports speech, by sending a Channel Request message with the establishment cause set to "emergency call".

Test case:

GSM 11.10 II.5.3.7.4.2.3

Conformance requirement:

1) If the network rejects a location updating from the Mobile Station with the cause "Location Area not allowed" the Mobile Station shall:

1.1 not perform periodic updating;

1.2 not respond to paging with TMSI;

1.3 reject any request for Mobile Originating call establishment;

1.4 not perform IMSI detach.

2) If the network rejects a location updating from the Mobile Station with the cause "Location Area not allowed" the Mobile Station shall:

2.1 respond to paging with IMSI and include in the Paging Response message its IMSI in the Mobile Identity field and "no key available" in the Ciphering Key Sequence Number field;

2.2 perform normal location updating when a new location area is entered;

2.3 accept a request for an emergency call, if it supports speech, by sending a Channel Request message with the establishment cause set to "emergency call".

TP 2.3 is applicable only if the Mobile Station supports speech.

Requirement reference:

GSM 04.08 sections 4.4.4.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this procedure does not work correctly the network will be overloaded by requests from Mobile Station which do not have the rights to access the network (Article 4d).

If the Mobile Station does not perform a normal location updating procedure when a new Location area is entered it will not receive incoming calls in some cases where it would have been possible (Article 4f).

Emergency calls are still allowed (Article 4f).

EC Terminal Directive reference:

TP 1: Article 4d.

TP 2.1, TP 2.2, TP 2.3: Article 4f.

17.4.3 Abnormal cases during location updating procedure

17.4.3.1 Random access fails

Test purpose:

1) To verify that when during the RR connection establishment phase of a normal location updating procedure, channel requests are not answered by the network, the Mobile Station

   1.1 sends (Max-Retrans+1) Channel Request messages;

   1.2 does not try to establish a connection during a period of T3213;

   1.3 then performs a normal location updating procedure as it is still necessary.

2) To verify that when during the RR connection establishment phase of a normal location updating procedure, channel requests are not answered by the network, the Mobile Station:

   2.1 sends (Max-Retrans+1) Channel Request messages;

   2.2 does not repeat the complete procedure if the original cause of the location updating procedure has disappeared.

Test case:

GSM 11.10 II.5.3.7.4.3.1: Procedure 1 (TP 1.1, 1.2 and 1.3), Procedure 2 (TP 2.1 and 2.2).

Conformance requirement:

1) If during the RR connection establishment phase of a normal location updating procedure, channel requests are not answered by the network, the Mobile Station shall:

   1.1 send (Max-Retrans+1) Channel Request messages;

   1.2 not try to establish a connection during a period of T3213;

   1.3 then perform a normal location updating procedure as it is still necessary.

2) If during the RR connection establishment phase of a normal location updating procedure, channel requests are not answered by the network, the Mobile Station shall:

   2.1 send (Max-Retrans+1) Channel Request messages;

   2.2 not repeat the complete procedure if the original cause of the location updating procedure has disappeared.

Requirement reference:

GSM 04.08 section 4.4.4.8 (all TP) and GSM 05.08 section 6.6.2 (TP 1.3 and 2.2).

SUPPLEMENTARY INFORMATION:

Test case justification:

If the Mobile Station does not try to indicate to the network its new location it will not be possible to establish a call (Article 4f).

If the Mobile Station does not respect timer T3213 it will harm the network (Article 4d).

If the Mobile Station restarts the procedure though it is no more necessary the network will be overloaded with unnecessary requests (Article 4d).

EC Terminal Directive reference:

TP 1.1, TP 1.3, TP 2.1: Article 4f.

TP 1.2, TP 2.2: Article 4d.

17.4.3.2 Attempt counter smaller than 4, stored LAI different from broadcast LAI

Test purpose:

1) To verify that when a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure, if the attempt counter is smaller than 4 and after expiry of T3211, the Mobile Station sends again its Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "normal location updating".

2) To check that when a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure the Mobile Station:

   2.1 does not answer to paging with the previously allocated TMSI;

   2.2 does not perform the IMSI detach procedure, when switched off.

3) To verify that when a failure such as case e) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure and when an emergency call establishment is requested by the user the Mobile Station, if it supports speech, sends a CM Service Request message with CM Service Type IE set to "emergency call establishment", CKSN IE set to "no key available" and Mobile Identity IE set to its IMSI and after acceptance by the network sends an Emergency Setup message.

4) To verify that when a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure the Mobile Station uses request for a Mobile Originating call establishment as triggering of a normal location updating procedure and sends a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

5) To check that when a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure the Mobile Station answers to paging with IMSI and sends a Paging Response message with CKSN IE set to "no key available" and Mobile Identity IE set to its IMSI.

6) To verify that when a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure the Mobile Station performs a normal location updating procedure as soon as it enters a new cell.

Test case:

GSM 11.10 II.5.3.7.4.3.2: Procedure 1 (TP 1), Procedure 2 (TP 2.1 and 2.2), Procedure 3 (TP 3), Procedure 4 (TP 4), Procedure 5 (TP 5), Procedure 6 (TP 6).

Conformance requirement:

1) When a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure, if the attempt counter is smaller than 4 and after expiry of T3211, the Mobile Station shall re-send its Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "normal location updating".

2) When a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure the Mobile Station shall:

   2.1 not answer to paging with the previously allocated TMSI;

   2.2 not perform the IMSI detach procedure, when switched off.

3) When a failure such as case e) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure and when an emergency call establishment is requested by the user the Mobile Station, if it supports speech, shall send a CM Service Request message with CM Service Type IE set to "emergency call establishment", CKSN IE set to "no key available" and Mobile Identity IE set to its IMSI and after acceptance by the network it shall send an Emergency Setup message.

4) When a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure the Mobile Station shall use a request for a Mobile Originating call establishment as a trigger for a normal location updating procedure and shall send a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

5) When a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure the Mobile Station shall answer to paging with IMSI and shall send a Paging Response message with CKSN IE set to "no key available" and Mobile Identity IE set to its IMSI.

6) When a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a normal location updating procedure the Mobile Station shall perform a normal location updating procedure as soon as it enters a new cell.

TP 2.2 apply only if the Mobile Station has a On/Off switch.

TP 3 is applicable only if the Mobile Station supports speech.

Requirement reference:

GSM 04.08 section 4.4.4.8 (all TP) and GSM 05.08 section 6.6.2 (TP 6).

SUPPLEMENTARY INFORMATION:

Test case justification:

Such failure cases can happen and if the Mobile Station does not react correctly it will not be possible to establish a call (Article 4f) and the Mobile Station can harm the network (Article 4d)

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4d.
TP 3: Article 4f.
TP 4: Article 4f.
TP 5: Article 4f.
TP 6: Article 4f.

17.4.3.3 Attempt counter greater or equal to 4, stored LAI different from broadcast LAI

Test purpose:

1) To verify that when four failures such as cases d) to g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a normal location updating procedure the Mobile Station:

   1.1 does not perform normal location updating procedures;

   1.2 performs periodic location updating after T3212 expiry by sending a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "periodic updating";

   1.3 Then if the periodic location updating was unsuccessful, after T3211 expiry the Mobile Station sends a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

2) To verify that when four failures such as cases d), f), g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a normal location updating procedure the Mobile Station, if it supports speech, can perform an emergency call i.e. the Mobile Station sends a CM Service Request message with the CM Service Type IE set to "emergency call establishment", CKSN IE set to "no key is available" and Mobile Identity IE set to its IMSI and then sends an Emergency Setup message.

3) To verify that when four failures such as cases d), f), g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a normal location updating procedure:

   3.1 the Mobile Station uses request for a Mobile Originating call establishment as triggering of a normal location updating procedure and sends a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating";

   3.2 after a location updating triggered by request from CM layer which was unsuccessful, after T3211 expiry the Mobile Station sends a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

4) To check that when four failures such as cases d), f), g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a normal location updating procedure the Mobile Station answers to paging with IMSI i.e. sends a Channel Request message with the Establishment Cause IE set to "answer to paging" and then sends a Paging Response message with the Mobile Identity IE set to its IMSI and CKSN IE set to "no key is available".

5) To verify that when four failures such as cases d), f), g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a normal location updating procedure:

   5.1 the Mobile Station performs a normal location updating procedure if it enters a new cell;

5.2 if this location updating was unsuccessful, after T3211 expiry the Mobile Station sends a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

Test case:

GSM 11.10 II.5.3.7.4.3.3: Procedure 1 (TP 1.1, 1.2, 1.3), Procedure 2 (TP 2), Procedure 3 (TP 3.1 and 3.2), Procedure 4 (TP 4), Procedure 5 (TP 5.1 and 5.2)

Conformance requirement:

1) When four failures such as cases d) to g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a normal location updating procedure the Mobile Station shall:

1.1 not perform normal location updating procedures;

1.2 perform periodic location updating after T3212 expiry by sending a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "periodic updating";

1.3 if the periodic location updating was unsuccessful, after T3211 expiry the Mobile Station shall send a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

2) When four failures such as cases d), f), g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a normal location updating procedure the Mobile Station, if it supports speech, shall be able to perform an emergency call i.e. the Mobile Station is able to send a CM Service Request message with the CM Service Type IE set to "emergency call establishment", CKSN IE set to "no key is available" and Mobile Identity IE set to its IMSI and then send an Emergency Setup message.

3) When four failures such as cases d), f), g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a normal location updating procedure:

3.1 the Mobile Station shall use a request for a Mobile Originating call establishment as a trigger for a normal location updating procedure and shall send a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating";

3.2 after a location updating triggered by a request from the CM layer which was unsuccessful, after T3211 expiry the Mobile Station shall send a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

4) When four failures such as cases d), f), g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a normal location updating procedure the Mobile Station shall answer to paging with IMSI i.e. send a Channel Request message with the Establishment Cause IE set to "answer to paging" and then send a Paging Response message with the Mobile Identity IE set to its IMSI and CKSN IE set to "no key is available".

5) When four failures such as cases d), f), g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a normal location updating procedure:

5.1 the Mobile Station shall perform a normal location updating procedure if it enters a new cell;

5.2 if this location updating is unsuccessful, after T3211 expiry the Mobile Station shall send a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

TP 2 is applicable only if the Mobile Station supports speech.

Requirement reference:

GSM 04.08 section 4.4.4.8 (for all TP) and GSM 05.08 section 6.6.2 (for TP 5.1).

SUPPLEMENTARY INFORMATION:

Test case justification:

Such failure cases can happen and if the Mobile Station does not react correctly it will not be possible to establish a call (Article 4f) and the Mobile Station can harm the network (Article 4d).

EC Terminal Directive reference:

TP 1.1: Article 4d.

TP 1.2, TP 1.3, TP 2, TP 3.1, TP 3.2, TP 4, TP 5.1, TP 5.2: Article 4f.

17.4.3.4 Attempt counter smaller than 4, stored LAI equal to broadcast LAI

Test purpose:

1) To verify that when a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a periodic location updating procedure (the broadcast LAI is equal to the stored LAI):

   1.1 the Mobile Station can perform a mobile originated call i.e. sends a Channel Request with the establishment cause IE set to "Other services requested by the user" and then a CM Service Request message with the CM Service Type IE set to "Mobile Originating call establishment", CKSN and LAI set to those which have been allocated to the Mobile Station, Mobile Identity IE set to the TMSI which has been allocated to the Mobile Station;

   1.2 then the Mobile Station does not attempt a location updating procedure.

2) To verify that when a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during an IMSI attach procedure (the broadcast LAI is equal to the stored LAI):

   2.1 the Mobile Station can perform a mobile originated call i.e. sends a Channel Request with the establishment cause IE set to "Other services requested by the user" and then a CM Service Request message with the CM Service Type IE set to "Mobile Originating call establishment", CKSN and LAI set to those which have been allocated to the Mobile Station, Mobile Identity IE set to the TMSI which has been allocated to the Mobile Station;

   2.2 then the Mobile Station does not attempt a location updating procedure.

3) 3.1 To verify that when a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a periodic location updating procedure and the attempt counter is smaller than 4 the Mobile Station sends after T3211 expiry a Location Updating Request message with the Mobile Identity IE set to the TMSI which has been allocated to the Mobile Station, CKSN IE and LAI set to those which have been allocated to the Mobile Station and the Location Updating type set to "periodic updating".

3.2 and that when its attempt counter reaches value 4 (four failures such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a periodic location updating procedure) after T3212 expiry the Mobile Station sends a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "periodic updating".

4) To verify that when its attempt counter reaches value 4 (four failures such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a periodic location updating procedure) the Mobile Station uses a request for a Mobile Originating call as triggering of a location updating procedure.

5) 5.1 To verify that when a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during an IMSI attach procedure and the attempt counter is smaller than 4 the Mobile Station sends after T3211 expiry a Location Updating Request message with the Mobile Identity IE set to the TMSI which has been allocated to the Mobile Station, CKSN IE and LAI set to those which have been allocated to the Mobile Station and the Location Updating type set to "IMSI attach".

5.2 and that when its attempt counter reaches value 4 (four failures such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during an IMSI attach procedure) after T3212 expiry the Mobile Station sends a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "periodic updating".

6) To verify that when its attempt counter reaches value 4 (four failures such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during an IMSI attach procedure) the Mobile Station uses a request for a Mobile Originating call as triggering of a location updating procedure.

Test case:

GSM 11.10 II.5.3.7.4.3.4: Procedure 1 (TP 1.1 and 1.2), Procedure 2 (TP 2.1 and 2.2), Procedure 3 (TP 3.1 and 3.2), Procedure 4 (TP 4), Procedure 5 (TP 5.1, 5.2, 6).

Conformance requirement:

1) When a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a periodic location updating procedure (the broadcast LAI is equal to the stored LAI),

1.1 the Mobile Station shall be able to perform a mobile originated call i.e. send a Channel Request with the establishment cause IE set to "Other services requested by the user" and then a CM Service Request message with the CM Service Type IE set to "Mobile Originating call establishment", CKSN and LAI set to those which have been allocated to the Mobile Station, Mobile Identity IE set to the TMSI which has been allocated to the Mobile Station

1.2 then the Mobile Station shall not attempt a location updating procedure.

2) When a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during an IMSI attach procedure (the broadcast LAI is equal to the stored LAI).

2.1 the Mobile Station shall be able to perform a mobile originated call i.e. send a Channel Request with the establishment cause IE set to "Other services requested by the user" and then a CM Service Request message with the CM Service Type IE set to "Mobile Originating call establishment", CKSN and LAI set to those which have been allocated to the Mobile Station, Mobile Identity IE set to the TMSI which has been allocated to the Mobile Station

2.2 then the Mobile Station shall not attempt a location updating procedure.

3) 3.1 When a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during a periodic location updating procedure and the attempt counter is smaller than 4 the Mobile Station shall send, after T3211 expiry, a Location Updating Request message with the Mobile Identity IE set to the TMSI which has been allocated to the Mobile Station, CKSN IE and LAI set to those which have been allocated to the Mobile Station and the Location Updating type set to "periodic updating".

3.2 and when the Mobile Station's attempt counter reaches the value 4 (four failures such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a periodic location updating procedure) after T3212 expiry it shall send a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "periodic updating".

4) When the Mobile Station's attempt counter reaches the value 4 (four failures such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during a periodic location updating procedure) it shall use a request for a Mobile Originating call as a trigger for a location updating procedure.

5) 5.1 When a failure such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 has occurred during an IMSI attach procedure and the attempt counter is smaller than 4 the Mobile Station shall send, after T3211 expiry, a Location Updating Request message with the Mobile Identity IE set to the TMSI which has been allocated to the Mobile Station, CKSN IE and LAI set to those which have been allocated to the Mobile Station and the Location Updating type set to "IMSI attach".

5.2 and when the Mobile Station's attempt counter reaches the value 4 (four failures such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during an IMSI attach procedure) after T3212 expiry it shall send a Location Updating Request message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "periodic updating".

6) When the Mobile Station's attempt counter reaches the value 4 (four failures such as cases d), f) and g) of section 4.4.4.8 of Rec GSM 04.08 have occurred during an IMSI attach procedure) it shall use a request for a Mobile Originating call as a trigger for a location updating procedure.

Requirement reference:

GSM 04.08 section 4.4.4.8.

SUPPLEMENTARY INFORMATION:

Test case justification:

Such failure cases can happen and if the Mobile Station does not react correctly it will not be possible to establish a call (Article 4f).

EC Terminal Directive reference:

TP 1.2, TP 2.2: Article 4d.

TP 1.1, TP 2.1, TP 3.1, TP 3.2, TP 4, TP 5.1, TP 5.2, TP 6: Article 4f.

17.4.4 Test of periodic updating

Test purpose:

1 To verify that the Mobile Stations perform spreading of the time before performing a location updating when the location updating timer value is reduced.

2.1 To verify that the Mobile Station resets the timer T3212 of the periodic location updating procedure when a mobile originated call has been performed, when T3212 is set to 6 minutes and to 12 minutes

2.2 To verify that the Mobile Station resets the timer T3212 of the periodic location updating procedure when the Mobile Station has responded to paging, when T3212 is set to 6 minutes and to 12 minutes.

2.3 To verify that the Mobile Station stores the current timer value related to periodic location updating when it is switched off, when T3212 is set to 6 minutes and to 12 minutes.

3 To verify that when an IMSI attach procedure is started, the Mobile Station performs a periodic location updating after T3212 expiry, when T3212 is set to 6 minutes.

Test case:

TP 1: GSM 11.10 II.5.3.7.4.5.1;

TP 2: GSM 11.10 II.5.3.7.4.5.2 Procedures 1 and 3;

TP 3: GSM 11.10 II.5.3.7.4.5.2 Procedure 2.

Conformance requirement:

1 The Mobile Stations shall perform spreading of the time before performing a location updating when the location updating timer value is reduced.

2 Special Test Situation 2, see clause 3.

2.1 The Mobile Station shall reset the timer T3212 of the periodic location updating procedure when a mobile originated call has been performed, when T3212 is set to 6 minutes and to 12 minutes.

2.2 The Mobile Station shall reset the timer T3212 of the periodic location updating procedure when the Mobile Station has responded to paging, when T3212 is set to 6 minutes and to 12 minutes.

2.3 The Mobile Station shall store the current timer value related to periodic location updating when it is switched off, when T3212 is set to 6 minutes and to 12 minutes.

3 When an IMSI attach procedure is started, the Mobile Station shall perform a periodic location updating after T3212 expiry, when T3212 is set to 6 minutes.

Requirement reference:

GSM 04.08 section 4.4.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) When the location updating timer value is reduced, Mobile Stations, the last location updating of which has taken place longer ago than the new timer value indicates, shall spread their reaction time before performing a location updating, to prevent a collision of many location updatings from all those Mobile Stations. If this is not done correctly the network will be overloaded with requests from different Mobile Stations.

2) If the Mobile Station does not respect the value of T3212 and does not reset it as specified in Rec GSM 04.08 the network will received requests which are in fact not needed and resources will be wasted.

3) If the Mobile Station does not store the current value of the timer related to periodic location updating at switched off, requests for periodic location updating will not be randomized and the network will be overloaded by all request during a little time interval.

EC Terminal Directive reference:

TP 1, TP 2.1, TP 2.2, TP 2.3, TP 3: Article 4d.

17.5 MM connection establishment

17.5.1 MM connection establishment with cipher mode setting

Test purpose:

1) To verify that the Mobile Station can correctly set up an MM connection in a Mobile Originating call and sends a CM Service Request message with CM Service Type information element set to "MO call establishment", CKSN information element as stored in the SIM and Mobile Identity information element set to the TMSI.

2) To verify that the Mobile Station interprets cipher mode setting as acceptance of its CM service request i.e. sends its Setup message.

Test case:

GSM 11.10 II.5.3.7.5.2.3/5.

Conformance requirement:

1) The Mobile Station shall be able to correctly set up an MM connection in a Mobile Originating call and send a CM Service Request message with CM Service Type information element set to "MO call establishment", CKSN information element as stored in the SIM and Mobile Identity information element set to the TMSI

2) The Mobile Station shall be able to interpret cipher mode setting as acceptance of its CM service request i.e. send its Setup message.

Requirement reference:

GSM 04.08 sections 4.5.1.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this procedure does not work it will not be possible to establish a call.

EC Terminal Directive reference:

TP 1, TP 2: Article 4f.

17.5.2 MM connection establishment rejected with cause "IMSI unknown in VLR"

Test purpose:

1) To verify that the Mobile Station can correctly set up an MM connection in a Mobile Originating call and sends a CM Service Request message with CM Service Type information element set to "MO call establishment", CKSN information element as stored in the SIM and Mobile Identity information element set to the TMSI.

2) To verify that the Mobile Station, when receiving a CM SERVICE REJECT message with reject cause "IMSI unknown in VLR" waits for the network to release the RR connection.

3) To verify that the Mobile Station then performs a location updating procedure.

Test case:

GSM 11.10 II.5.3.7.5.5.

Conformance requirement:

1) The Mobile Station shall be able to correctly set up an MM connection in a Mobile Originating call and send a CM Service Request message with CM Service Type information element set to "MO call establishment", CKSN information element as stored in the SIM and Mobile Identity information element set to the TMSI.

2) The Mobile Station, when receiving a CM SERVICE REJECT message with reject cause "IMSI unknown in VLR" shall wait for the network to release the RR connection.

3) The Mobile Station shall then be able to perform a location updating procedure.

Requirement reference:

GSM 04.08 sections 4.5.1.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this procedure does not work it will not be possible to establish a call.

EC Terminal Directive reference:

TP 1: Article 4f.
TP 2: Article 4d.
TP 3: Article 4f.

18 Tests related to circuit switched Call Control (CC)

18.1 Circuit switched Call Control state machine

18.1.1 Establishment of an outgoing call

18.1.1.1 U0 null state

Test purpose:

To verify that upon initiation of an outgoing basic call by user the MS initiates establishment of an MM connection, using as first MM message a CM SERVICE REQUEST message with CM service type "Mobile originating call establishment or packet mode connection establishment".

Test case:

II.5.3.8.1.2.2.1, trigger/input: MNCC_SETUP_REQ observable output: MM-connection establishment.

Conformance requirement:

Upon initiation of an outgoing basic call by user the MS shall initiate establishment of an MM connection, using as first MM message a CM SERVICE REQUEST message with CM service type "Mobile originating call establishment or packet mode connection establishment".

Requirement reference:

TS GSM 04.08 section 5.2.1.1, TS GSM 04.08 section 4.5.1.1, TS GSM 04.08 section 3.3.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks the initial part of basic call establishment.

If the procedure is incorrectly implemented in the MS, outgoing calls will fail.

The test purpose is covered by tests in II.5.3.7.5.2 of GSM 11.10 (test purpose II.5.3.7.5.1 of this document).

EC Terminal Directive reference:

Article 4f.

18.1.1.2 U0.1 MM connection pending

18.1.1.2.1 U0.1 MM connection pending - 1st case

Test purpose:

To verify that a CC entity of the MS in CC-state U0.1, "MM-connection pending", upon the MS receiving a CM SERVICE REJECT message, returns to CC state U0, "Null".

Test case:

II.5.3.8.1.2.2.2, trigger input: "CM_SERVICE_REJ received" observable output: MNCC_REJ_IND

Conformance requirement:

Upon receiving indication of an MM-connection establishment being rejected, CC entity should inform upper layer of this rejection.

Requirement reference:

TS GSM 04.08, section 4.5.1.1 , TS GSM 04.07, section 3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks refusal of the MM connection for an outgoing call, if the network cannot accept the service. Initiator of the request should be informed.

If the procedure is incorrectly implemented in the MS, refusal of an MM connection might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.2.2 U0.1 MM connection pending - 2nd case

Test purpose:

To verify that a CC entity of the MS in CC-state U0.1, "MM-connection pending", upon the MS receiving a CM SERVICE ACCEPT message, sends a SETUP message specifying the Called party BCD number that was entered into the MS and then enters CC state U1, "Call initiated".

Test case:

II.5.3.8.1.2.2.2, trigger input: "CM_SERVICE_ACC received" observable output: "send SETUP".

Conformance requirement:

A CC entity of the MS in CC-state U0.1, "MM-connection pending", upon the MS receiving a CM SERVICE ACCEPT message, shall send a SETUP message specifying the Called party BCD number that was entered into the MS and then enter CC state U1, "Call initiated".

Requirement reference:

TS GSM 04.08, section 4.5.1.1, TS GSM 04.08, section 5.2.1.1.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks part of the establishment of an outgoing call. If the procedure is incorrectly implemented in the MS, establishment of an outgoing call might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.2.3 U0.1 MM connection pending - 3rd case

Test purpose:

To verify that after the MS with a CC entity in state U0.1, "MM-connection pending", has detected a lower layer failure and has returned to idle mode, the CC entities relating to the seven mobile originating transaction identifiers are in state U0, "Null".

Test case:

II.5.3.8.1.2.2.2, observable output: MM-connection release.

Conformance requirement:

Upon a lower layer failure the MS releases the MM connection in progress and returns to idle mode. In that state no call exists, and the CC entities relating to the seven mobile originating transaction identifiers are in state U0, "Null".

Requirement reference:

TS GSM 04.08, section 4.5.1.2, TS GSM 04.08, section 5.1.2.1, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks that if the radio link breaks during the establishment of an outgoing call, the MS returns to the well defined initial states.

If the procedure is incorrectly implemented in the MS, lower layer failures might lead to inconsistent states of the MS.

EC Terminal Directive reference:

Article 4f.

18.1.1.3 U1 call initiated

18.1.1.3.1 U1 call initiated - 1st case

Test purpose:

To verify that a CC entity of the MS in CC-state U1, "Call initiated", upon receipt of a CALL PROCEEDING message, enters CC state U3, "Mobile originating call proceeding".

Test case:

II.5.3.8.1.2.2.3, trigger input: "CALL_PROC received".

Conformance requirement:

A CC entity of the MS in CC-state U1, "Call initiated", upon receipt of a CALL PROCEEDING message, shall enter CC state U3, "Mobile originating call proceeding".

Requirement reference:

TS GSM 04.08, section 5.2.1.1.1, 5.2.1.1.2, 5.2.1.1.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks part of the establishment of an outgoing call. If the procedure is incorrectly implemented in the MS, establishment of an outgoing call might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.3.2 U1 call initiated - second case

Test purpose:

1) To verify that a CC entity of the MS in CC-state U1, "Call initiated", upon receipt of a RELEASE COMPLETE message with valid cause value, enters CC state U0, "Null".

2) To verify that in returning to idle mode, the CC entities relating to the seven mobile originating transaction identifiers are in state U0, "Null".

Test case:

For both Test purposes:

II.5.3.8.1.2.2.3, trigger input: "REL_COM received" observable output: MM-connection release.

Conformance requirement:

1) A CC entity of the MS in CC-state U1, "Call initiated", upon receipt of a RELEASE COMPLETE message with valid cause value, shall enter CC state U0, "Null".

2) On returning to idle mode, the CC entities relating to the seven mobile originating transaction identifiers shall be in state U0, "Null".

Requirement reference:

For Test purpose 1 - TS GSM 04.08, section 5.4.2, TS GSM 04.08, section 5.4.4;

For Test purpose 2 - TS GSM 04.08, section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks clearing of a outgoing call in progress, initiated by the network because the call information is invalid or the requested service is unauthorized or unavailable.

If the procedure is incorrectly implemented in the MS, normal clearing of an outgoing call in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.3.3 U1 call initiated - 3rd case

Test purpose:

To verify that a CC entity of the MS in CC-state U1, "Call initiated", upon expiry of T303 (accuracy +/-20% between reception of CM SERVICE REQUEST and DISCONNECT by SS) sends a DISCONNECT message to its peer entity and enters state U11, "Disconnect request".

Test case:

II.5.3.8.1.2.2.3, "wait timeout T303" observable output: "send DISC".

Conformance requirement:

A CC entity of the MS in CC-state U1, "Call initiated", upon expiry of T303 (accuracy +/-20% between reception of CM SERVICE REQUEST and DISCONNECT by SS) shall send a DISCONNECT message to its peer entity and enter state U11, "Disconnect request".

Requirement reference:

TS GSM 04.08, section 5.2.1.1, TS GSM 04.08, section 5.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks that the MS initiates clearing of a outgoing call in progress if after a reasonable time no further reaction of the network was received upon a SETUP message, so that the CC connection must be in an error condition.

If the procedure is incorrectly implemented in the MS, calls in error might block resources for a long time.

EC Terminal Directive reference:

Articles 4d, 4e, and 4f.

18.1.1.3.4 U1 call initiated - 4th case

Test purpose:

To verify that after the MS with a CC entity in state U1 "Call initiated", has detected a lower layer failure and has returned to idle mode, the CC entities relating to the seven mobile originating transaction identifiers are in state U0, "Null".

Test case:

II.5.3.8.1.2.2.3, trigger input: lower layer failure observable output: MM-connection release.

Conformance requirement:

Upon a lower layer failure MM informs the relevant CM entities that the MM connection has been interrupted. As call re-establishment is not allowed, the CC entity must perform a local release. The MS returns to idle mode. In that state no call exists, and the CC entities relating to the seven mobile originating transaction identifiers are in state U0, "Null".

Requirement reference:

TS GSM 04.08, section 4.5.2.3, TS GSM 04.08, section 5.1.2.1, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks that if the radio link breaks during the establishment of an outgoing call, the MS returns to the well defined initial states.

If the procedure is incorrectly implemented in the MS, lower layer failures might lead to inconsistent states of the MS.

EC Terminal Directive reference:

Article 4f.

18.1.1.3.5 U1 call initiated - 5th case

Test purpose:

To verify that a CC entity of the MS in CC-state U1, "Call initiated", upon receipt of an ALERTING message, enters CC state U4, "Call delivered".

Test case:

II.5.3.8.1.2.2.3, trigger input: "ALERTING received".

Conformance requirement:

A CC entity of the MS in CC-state U1, "Call initiated", upon receipt of an ALERTING message, shall enter CC state U4, "Call delivered".

Requirement reference:

TS GSM 04.08, section 5.2.1.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks part of the establishment of an outgoing call with a protocol variant which will be implemented in coming GSM phases.

If the procedure is incorrectly implemented in the MS, establishment of an outgoing call between a phase 1 MS and a phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.3.6 U1 call initiated - 6th case

Test purpose:

To verify that a CC entity of the MS in CC-state U1, "Call initiated", upon receipt of a CONNECT message, sends a CONNECT ACKNOWLEDGE message to its peer entity and enters CC state U10, "Active".

Test case:

II.5.3.8.1.2.2.3, trigger input: "CONN received" observable output: "send CONN_ACK".

Conformance requirement:

A CC entity of the MS in CC-state U1, "Call initiated", upon receipt of a CONNECT message, shall send a CONNECT ACKNOWLEDGE message to its peer entity and enter CC state U10, "Active".

Requirement reference:

TS GSM 04.08, section 5.2.1.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks part of the establishment of an outgoing call with a protocol variant which will be implemented in coming GSM phases.

If the procedure is incorrectly implemented in the MS, establishment of an outgoing call between a phase 1 MS and a phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.3.7 U1 call initiated - 7th case

Test purpose:

To verify that a CC entity of the MS in CC-state U1, "Call initiated", upon receipt of an unknown message from its peer entity returns a STATUS message.

Test case:

II.5.3.8.1.2.2.3, trigger input: "unknown message received" observable output: "send STATUS".

Conformance requirement:

A CC entity of the MS in CC-state U1, "Call initiated", upon receipt of an unknown message from its peer entity shall return a STATUS message.

Requirement reference:

TS GSM 04.08 section 8.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of an outgoing call with a protocol variant which will be implemented in coming GSM phases. If this procedure is incorrectly implemented in the MS, establishment of an outgoing call between phase 1 MS and phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.4 U3 MS originating call proceeding

18.1.1.4.1 U3 MS originating call proceeding - first case

Test purpose:

To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a ALERTING message enters CC-state U4, "Call Delivered".

Test case:

II.5.3.8.1.2.2.4, trigger input: "ALERT received".

Conformance requirement:

A CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a ALERTING message shall enter CC-state U4, "Call Delivered".

Requirement reference:

TS GSM 04.08 section 5.2.1.1.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of an outgoing call.

If this procedure is incorrectly implemented in the MS, establishment of an outgoing call might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.4.2 U3 MS originating call proceeding - 2nd case

Test purpose:

1) To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a CONNECT message returns a "CONNECT ACKNOWLEDGE" message to its peer entity and enters the CC state U10, "Active".

2) To verify that the MS stops locally generated indication, if any.

Test case:

For Test purpose 1 - II.5.3.8.1.2.2.4, trigger input: "CONN received" observable output: "send CONNECT_ACK".

For Test purpose 2 - II.5.3.8.1.2.2.4, (footnote 2).

Conformance requirement:

1) A CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a CONNECT message shall return a "CONNECT ACKNOWLEDGE" message to its peer entity and enter the CC state U10, "Active".

2) The MS shall then stop any locally generated indication.

Requirement reference:

TS GSM 04.08 section 5.2.1.1.6. for both test purposes.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of an outgoing call. If this procedure is incorrectly implemented in the MS, establishment of an outgoing call might not work and there might be continuing improper indication to the user of the call in progress status.

EC Terminal Directive reference:

Article 4f.

18.1.1.4.3 U3 MS originating call proceeding - 3rd case

Test purpose:

1) To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a PROGRESS message with valid cause values stays in CC-state U3;

2) To verify that after receipt of the PROGRESS message timer T310 is stopped.

Test case:

For Test purpose 1 - II.5.3.8.1.2.2.4, trigger input: "PROGRESS received";

For Test purpose 2 - II.5.3.8.1.2.2.4, footnote 4).

Conformance requirement:

1) A CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a PROGRESS message with valid cause values shall stay in CC-state U3;

2) After receipt of the PROGRESS message timer T310 shall be stopped.

Requirement reference:

TS GSM 04.08 section 5.2.1.1.4, TS GSM 04.08 section 11.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS is able to maintain its call establishment state when told to do so by the network. If this procedure is incorrectly implemented, MS may perform untimely releases of call establishments.

EC Terminal Directive reference:

Article 4f.

18.1.1.4.4 U3 MS originating call proceeding - 5th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a DISCONNECT with progress indicator #8, either returns a RELEASE message and enters the CC-state U19, "Release Request", or enters state U12 where it stays.

Test case:

II.5.3.8.1.2.2.4, trigger input: "DISC received" with footnote mark "2)" (first entry of 2nd table) observable output: marked with footnote "3)".

Conformance requirement:

A CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a DISCONNECT with progress indicator #8, shall either return a RELEASE message and enter the CC-state U19, "Release Request", or enter state U12 where it stays.

Requirement reference:

TS GSM 04.08 section 5.2.1.1.3, TS GSM 04.08 section 5.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks during the establishment of an outgoing call, the MS can perform a release when instructed to do so by the network in the case where the network announces availability of in-band information. If this procedure is incorrectly implemented in the MS, normal clearing of an outgoing call in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.4.5 U3 MS originating call proceeding - 7th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a DISCONNECT without progress indicator returns a RELEASE message and enters the CC-state U19, "Release Request".

Test case:

II.5.3.8.1.2.2.4, trigger input: "DISC received" with footnote mark "1)" (second entry of 2nd table) observable output: "send REL".

Conformance requirement:

A CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a DISCONNECT without progress indicator shall return a RELEASE message and enter the CC-state U19, "Release Request".

Requirement reference:

TS GSM 04.08 section 5.2.1.1.3, TS GSM 04.08 section 5.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks during the establishment of an outgoing call, the MS can perform a release when instructed to do so by the network. If this procedure is incorrectly implemented in the MS, normal clearing of an outgoing call in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.4.6 U3 MS originating call proceeding - 8th case

Test purpose:

1) To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a RELEASE will return a RELEASE_COMPLETE and enter the CC-state U0, "Null".

2) To verify that the MS on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile originating transaction identifiers are in CC-state U0, "Null".

Test case:

For Test purpose 1 - II.5.3.8.1.2.2.4, trigger input: "REL received" observable output: "send REL_COM";

For Test purpose 2 - II.5.3.8.1.2.2.4, observable output: MM-connection release.

Conformance requirement:

1) A CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a RELEASE will return a RELEASE_COMPLETE and enter the CC-state U0, "Null".

2) The MS on returning to the idle mode shall release the MM-connection and the CC-entities relating to the seven mobile originating transaction identifiers shall be in CC-state U0, "Null".

Requirement reference:

For Test purpose 1 - TS GSM 04.08 section 5.4.2, TS GSM 04.08 section 5.4.4.

For Test purpose 2 - TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks during the establishment of an outgoing call, the MS when instructed by the network to terminate the call establishment shall do so in a well defined manner. If this procedure is incorrectly implemented in the MS, normal clearing of an outgoing call in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.4.7 U3 MS originating call proceeding - 9th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Test case:

II.5.3.8.1.2.2.4, trigger input: MNCC_DISC_REQ observable output: "send DISC".

Conformance requirement:

A CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Requirement reference:

TS GSM 04.07 section 3.2.2, TS GSM 04.08 section 5.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS - on request by a user who wishes to terminate an outgoing call during its establishment stages - will do so in a well defined manner. If this procedure is incorrectly implemented in the MS, normal clearing of an outgoing call in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.4.8 U3 MS originating call proceeding - 10th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", when allocated a traffic channel by the network performing the assignment procedure, performs a layer 2 establishment on the FACCH without changing the state of the call in progress.

Test case:

II.5.3.8.1.2.2.4, trigger input: "TCH allocation" observable output: "Layer 2 establishment on FACCH".

Conformance requirement:

A CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding", when allocated a traffic channel by the network performing the assignment procedure, shall perform a layer 2 establishment on the FACCH without changing the state of the call in progress.

Requirement reference:

TS GSM 04.08 section 3.4.3, TS GSM 04.08 section 5.2.1.1.9.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS in going through a traffic channel allocation can establish the layer 2 connection on the FACCH associated with the allocated traffic channel.

EC Terminal Directive reference:

Article 4f.

18.1.1.4.9 U3 MS originating call proceeding - 11th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding" will, upon expiry of timer T310, initiate call release by sending DISCONNECT and enter the CC-state U11, "Disconnect Request".

Test case:

II.5.3.8.1.2.2.4, trigger: "wait T310 timeout" Observable output: "send DISC".

Conformance requirement:

A CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding" shall, upon expiry of timer T310, initiate call release by sending DISCONNECT and enter the CC-state U11, "Disconnect Request".

Requirement reference:

TS GSM 04.08 section 5.2.1.1.3. - Abnormal case, TS GSM 04.08 section 5.4.3, TS GSM 04.08 section 11.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS when in CC-state U3, "Call Proceeding" will wait a certain length of time (timer T310) after which if there is no response from the network, the MS shall initiate call release in a well defined manner. If this procedure is incorrectly implemented the MS might end up waiting forever in a state or that normal clearing of an outgoing call in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.4.10 U3 MS originating call proceeding - 12th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding" having detected a lower layer failure and having returned to idle mode, the CC entities relating to the seven mobile originating transaction identifiers are in state U0, "Null".

Test case:

II.5.3.8.1.2.2.4, trigger input: lower layer failure Observable output: MM-connection release.

Conformance requirement:

If a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding" has detected a lower layer failure and has returned to idle mode, the CC entities relating to the seven mobile originating transaction identifiers shall be in state U0, "Null".

Requirement reference:

TS GSM 04.08 section 4.5.2.3, TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that if the radio link breaks during the establishment of an outgoing call, the MS returns to a well defined initial state. If this procedure is incorrectly implemented in the MS, lower layer failures might lead to inconsistent states of the MS.

EC Terminal Directive reference:

Article 4f.

18.1.1.4.11 U3 MS originating call proceeding - 13th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding" having received an unknown message from its peer entity returns a STATUS message.

Test case:

II.5.3.8.1.2.2.4, trigger input: "unknown message received" Observable output: "send STATUS".

Conformance requirement:

A CC-entity of the MS in CC-state U3, "Mobile Originating Call Proceeding" having received an unknown message from its peer entity shall return a STATUS message.

Requirement reference:

TS GSM 04.08 section 8.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of an outgoing call with a protocol variant which will be implemented in coming GSM phases. If this procedure is incorrectly implemented in the MS, establishment of an outgoing call between a phase 1 MS and a phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.5 U4 call delivered.

18.1.1.5.1 U4 call delivered - 1st case

Test purpose:

To verify that a CC-entity of the MS in CC-state U4, "Call Delivered", upon receipt of the CONNECT message returns a CONNECT_ACKNOWLEDGE to its peer entity and enters the CC-state U10, "Active".

Test case:

II.5.3.8.1.2.2.5, trigger input: "CONN received" observable output: "send CONN_ACK".

Conformance requirement:

A CC-entity of the MS in CC-state U4, "Call Delivered", upon receipt of the CONNECT message shall return a CONNECT_ACKNOWLEDGE to its peer entity and enter the CC-state U10, "Active".

Requirement reference:

TS GSM 04.08 section 5.2.1.1.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks part of the establishment of an outgoing call. If the procedure is incorrectly implemented in the MS, establishment of an outgoing call might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.5.2 U4 call delivered - 2nd case

Test purpose:

To verify that a CC-entity of the MS in CC-state U4, "Call Delivered", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Test case:

II.5.3.8.1.2.2.5, trigger input: MNCC_DISC_REQ Observable output: "send DISC".

Conformance requirement:

A CC-entity of the MS in CC-state U4, "Call Delivered", upon request by the user to terminate shall send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Requirement reference:

TS GSM 04.07 section 3.2.2,TS GSM 04.08 section 5.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS - on request by a user who wishes to terminate an outgoing call during its establishment stages - will do so in a well defined manner. If this procedure is incorrectly implemented in the MS, normal clearing of an outgoing call in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.5.3 U4 call delivered - case 3a

Test purpose:

To verify that a CC-entity of the MS in CC-state U4, "Call Delivered" shall, upon receipt of a DISCONNECT with a progress indicator indicating in-band information either sends a RELEASE message and enters state U19, or enters state U12 where it stays.

Test case:

II.5.3.8.1.2.2.5, trigger input: "DISC received" with footnote mark "2)" (DISC received with Progress Indicator = 8).

Conformance requirement:

A CC-entity of the MS in CC-state U4, "Call Delivered" shall, upon receipt of a DISCONNECT with a progress indicator indicating in-band information either send a RELEASE message and enter state U19, or enter state U12 where it stays.

Requirement reference:

TS GSM 04.08 section 3.4.3.1, TS GSM 04.08 section 5.1.3, TS GSM 04.08 section 5.4.4.1, TS GSM 04.08 section 5.5.1, TS GSM 04.08 section 5.2.1.1.9.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks during the establishment of an outgoing call, the MS, when instructed to disconnect with availability of in-band information, correctly proceeds to release the call. If this procedure is incorrectly implemented in the MS, normal clearing of an outgoing call in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.5.4 U4 call delivered - 4th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U4, "Call Delivered", upon receipt of a DISCONNECT without progress indicator, returns a RELEASE message and enters the CC-state U19, "Release Request".

Test case:

II.5.3.8.1.2.2.5, trigger input: "DISC received" with footnote mark "1)" (second entry of second table) observable output: "send REL".

Conformance requirement:

A CC-entity of the MS in CC-state U4, "Call Delivered", upon receipt of a DISCONNECT without progress indicator, shall return a RELEASE message and enter the CC-state U19, "Release Request".

Requirement reference:

TS GSM 04.08 section 5.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks during the establishment of an outgoing call, the MS can perform a release when instructed to do so by the network. If this procedure is incorrectly implemented in the MS, normal clearing of an outgoing call in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.5.5 U4 call delivered - 5th case

Test purpose:

1) To verify that a CC-entity of the MS in CC-state U4, "Call Delivered", upon receipt of the RELEASE message will respond with the RELEASE_COMPLETE message and enter the CC-state U0, "Null";

2) To verify that the MS on returning the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile originating transaction identifiers are in CC-state U0, "Null".

Test case:

For Test purpose 1 - II 5.3.8.1.2.2.5, trigger input: "REL received" observable output: "send REL_COM";

For Test purpose 2 - II.5.3.8.1.2.2.5, observable output: MM-connection release.

Conformance requirement:

1) A CC-entity of the MS in CC-state U4, "Call Delivered", upon receipt of the RELEASE message shall respond with the RELEASE_COMPLETE message and enter the CC-state U0, "Null";

2) The MS on returning to idle mode shall release the MM-connection and the CC-entities relating to the seven mobile originating transaction identifiers shall be in CC-state U0, "Null".

Requirement reference:

For Test purpose 1 - TS GSM 04.08 section 5.4.2, TS GSM 04.08 section 5.4.4.

For Test purpose 2 - TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks during the establishment of an outgoing call, the MS when instructed by the network to terminate the call establishment shall do so in a well defined manner. If this procedure is incorrectly implemented in the MS, normal clearing of an outgoing call in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.5.6 U4 call delivered - 6th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U4, "Call Delivered" having detected a lower layer failure and has returned to idle mode, the CC-entities relating to the seven mobile originating transaction identifiers are in CC-state U0, "Null".

Test case:

II5.3.8.1.2.2.5, trigger input: lower layer failure observable output: MM-connection release.

Conformance requirement:

When CC-entity of the MS in CC-state U4, "Call Delivered" has detected a lower layer failure and has returned to idle mode, the CC-entities relating to the seven mobile originating transaction identifiers shall be in CC-state U0, "Null".

Requirement reference:

TS GSM 04.08 section 4.5.2.3, TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS terminates call establishment in a well defined manner if it detects a lower layer failure. If it does not do so the MS might end up in an undefined or inconsistent state.

EC Terminal Directive reference:

Article 4f.

18.1.1.5.7 U4 call delivered - 7th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U4, "Call Delivered", when allocated a traffic channel by the network performing the assignment procedure, shall perform a layer 2 establishment on the FACCH without changing the state of the call in progress.

Test case:

II.5.3.8.1.2.2.5, trigger input: "TCH allocation" Observable output: "Layer 2 establishment on FACCH".

Conformance requirement:

A CC-entity of the MS in CC-state U4, "Call Delivered", when allocated a traffic channel by the network performing the assignment procedure, shall perform a layer 2 establishment on the FACCH without changing the state of the call in progress.

Requirement reference:

TS GSM 04.08 section 3.4.3, TS GSM 04.08 section 5.2.1.1.9.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS in going through a traffic channel allocation can establish the layer 2 connection on the FACCH associated with the allocated traffic channel. If this function is incorrectly implemented in the MS, call establishment will not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.5.8 U4 call delivered - 8th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U4, "Call Delivered", having received an unknown message from its peer entity returns a STATUS message.

Test case:

II.5.3.8.1.2.2.5, trigger input: "unknown message received" Observable output: "send STATUS".

Conformance requirement:

A CC-entity of the MS in CC-state U4, "Call Delivered", having received an unknown message from its peer entity shall return a STATUS message.

Requirement reference:

TS GSM 04.08 section 8.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of an outgoing call with a protocol variant which will be implemented in coming GSM phases. If this procedure is incorrectly implemented in the MS, establishment of an outgoing call between a phase 1 MS and a phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.6 U10 call active

18.1.1.6.1 U10 call active - 1st case

Test purpose:

To verify that the a CC-entity of the MS in CC-state U10, "Call Active", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Test case:

II.5.3.8.1.2.2.6, trigger input: MNCC_DISC_REQ observable output: "send DISC".

Conformance requirement:

A CC-entity of the MS in CC-state U10, "Call Active", upon request by the user to terminate shall send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Requirement reference:

TS GSM 04.07 section 3.2.2, TS GSM 04.08 section 5.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that a MS having established an outgoing call can on request of the user initiate call release in an well defined orderly manner. If this procedure is incorrectly implemented in the MS, then release of established calls will not work properly and the MS can end up in inconsistent states, or call clearing is not possible in a normal way for the user.

EC Terminal Directive reference:

Article 4f.

18.1.1.6.2 U10 call active - 2nd case

Test purpose:

1) To verify that the a CC-entity of the MS in CC-state U10, "Call Active", upon receipt of the RELEASE will respond with the RELEASE_COMPLETE message and enter the CC-state U0, "Null";

2) To verify that the MS on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile originating transaction identifiers are in CC-state U0, "Null".

Test case:

For Test purpose 1 - II.5.3.8.1.2.2.6, trigger input: "REL received" observable output: "send REL_COM";

For Test purpose 2 - II.5.3.8.1.2.2.6, observable output: MM-connection release.

Conformance requirement:

1) A CC-entity of the MS in CC-state U10, "Call Active", upon receipt of the RELEASE shall respond with the RELEASE_COMPLETE message and enter the CC-state U0, "Null";

2) When the MS returns to the idle mode it shall release the MM-connection and the CC-entities relating to the seven mobile originating transaction identifiers shall be in CC-state U0, "Null".

Requirement reference:

For Test purpose 1 - TS GSM 04.08 section 5.4.2, TS GSM 04.08 section 5.4.4.

For Test purpose 2 - TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS, when instructed by the network to do so, shall release the established connection and the associated resources. If this procedure is incorrectly implemented, the release of the established connection might not work and any allocated resources might be locked up thus hindering the network and the MS.

EC Terminal Directive reference:

Article 4f.

18.1.1.6.3 U10 call active - 3rd case

Test purpose:

To verify that the a CC-entity of the MS in CC-state U10, "Call Active", upon receipt of a DISCONNECT message without progress indicator, returns a RELEASE message and enters the CC-state U19, "Release Request".

Test case:

II.5.3.8.1.2.2.6, trigger input: "DISC received" observable output: "send REL".

Conformance requirement:

A CC-entity of the MS in CC-state U10, "Call Active", upon receipt of a DISCONNECT message without progress indicator, shall return a RELEASE message and enter the CC-state U19, "Release Request".

Requirement reference:

TS GSM 04.08 section 5.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks the part where having reached the Call Active state , the MS can - when instructed by the network - proceed to the call release phase.

EC Terminal Directive reference:

Article 4f.

18.1.1.6.4 U10 call active - case 4a

Test purpose:

To verify that a CC-entity of the MS in CC-state U10, "Call Active", upon receipt of a DISCONNECT message with a Progress Indicator indicating in-band information, either sends a RELEASE message and enter state U19, "release request", or enters the CC-state U12, "Disconnect Indication", where it stays.

Test case:

II.5.3.8.1.2.2.6, trigger input: "DISC received with Progress Indicator = 8".

Conformance requirement:

A CC-entity of the MS in CC-state U10, "Call Active", upon receipt of a DISCONNECT message with a Progress Indicator indicating in-band information, shall either send a RELEASE message and enter state U19, "release request", or enter the CC-state U12, "Disconnect Indication", where it stays.

Requirement reference:

TS GSM 04.08 section 3.4.3.1, TS GSM 04.08 section 5.4.4.1, TS GSM 04.08 section 5.5.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that having reached the Call Active state, the MS - when instructed by the network - can react properly on a disconnection by the network if in-band information was announced.

EC Terminal Directive reference:

Article 4f.

18.1.1.7 U11 disconnect request

18.1.1.7.1 U11 disconnect request - 1st case

Test purpose:

To verify that a CC-entity of the MS in CC-state U11, "Disconnect Request", upon receipt of a DISCONNECT message, returns to its peer entity the RELEASE message and enters the CC-state U19, "Release Request".

Test case:

II.5.3.8.1.2.2.7. , trigger input: "DISC received" observable output: "send REL".

Conformance requirement:

A CC-entity of the MS in CC-state U11, "Disconnect Request", upon receipt of a DISCONNECT message, shall return to its peer entity the RELEASE message and enter the CC-state U19, "Release Request".

Requirement reference:

TS GSM 04.08 section 5.4.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that in case of clear collision when both the MS and the Network initiated the call clearing, the MS can respond correctly to the collision case. If this procedure is incorrectly implemented in the MS, call clearing might not work properly and the MS might end up in undefined and inconsistent states. Further the resources of the network might be incorrectly held by the MS for a longer period than expected.

EC Terminal Directive reference:

Article 4f.

18.1.1.7.2 U11 disconnect request - 2nd case

Test purpose:

1) To verify that a CC-entity of the MS in CC-state U11, "Disconnect Request", upon receipt of the RELEASE message shall return RELEASE_COMPLETE and enter the CC-state U0, "Null".

2) To verify that the MS on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile originating transaction identifiers are in CC-state U0, "Null".

Test case:

For Test purpose 1 - II.5.3.8.1.2.2.7, trigger input: "REL received" observable output: "send REL_COM";

For Test purpose 2 - II.5.3.8.1.2.2.7. , observable output: MM-connection release.

Conformance requirement:

1) A CC-entity of the MS in CC-state U11, "Disconnect Request", upon receipt of the RELEASE message shall return RELEASE_COMPLETE and enter the CC-state U0, "Null".

2) On returning to the idle mode the MS shall release the MM-connection and the CC-entities relating to the seven mobile originating transaction identifiers shall be in CC-state U0, "Null".

Requirement reference:

For Test purpose 1 - TS GSM 04.08 section 5.4.3.

For Test purpose 2 - TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS when in a connection release phase, behaves in a well defined manner. If this procedure is incorrectly implemented in the MS, call clearing might not work properly and the MS might end up in undefined and inconsistent states. Further the resources of the network might be incorrectly held by the MS for a longer period than expected.

EC Terminal Directive reference:

Article 4f.

18.1.1.7.3 U11 disconnect request - 3rd case

Test purpose:

To verify that a CC-entity of the MS in CC-state U11, "Disconnect Request" shall on expiry of T305, proceeds ahead with the connection release procedure by sending the RELEASE message to its peer entity and enters the CC-state U19, "Release Request".

Test case:

II.5.3.8.1.2.2.7, trigger input: "timeout T305" observable output: "send REL".

Conformance requirement:

A CC-entity of the MS in CC-state U11, "Disconnect Request" shall on expiry of T305, proceed with the connection release procedure by sending the RELEASE message to its peer entity and shall enter the CC-state U19, "Release Request".

Requirement reference:

TS GSM 04.08 section 5.4.3, TS GSM 04.08 section 11.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS having entered the call release phase shall wait for a predefined reasonable period of time. After that time if there is no reply to proceed, the MS will on its own initiation proceed further with the call release. If this procedure is incorrectly implemented, the call release of the MS might not work properly or that the MS might wait excessively longer than reasonable required to complete its release procedure.

EC Terminal Directive reference:

Article 4f.

18.1.1.7.4 U11 disconnect request - 4th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U11, "Disconnect Request" having detected a lower layer failure returns to the idle mode. The CC entities relating to the seven mobile originating transaction identifiers are thus in state U0, "Null".

Test case:

II.5.3.8.1.2.2.7, trigger input: lower layer failure observable output: MM-connection release.

Conformance requirement:

A CC-entity of the MS in CC-state U11, "Disconnect Request" having detected a lower layer failure shall return to the idle mode. The CC entities relating to the seven mobile originating transaction identifiers shall be in state U0, "Null".

Requirement reference:

TS GSM 04.08 section 4.5.2.3, TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that if the radio link breaks during the release of a call, the MS returns to a well defined initial state. If this procedure is incorrectly implemented in the MS, lower layer failure might lead to the MS being in undefined and inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.7.5 U11 disconnect request - 5th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U11, "Disconnect Request" having received an unknown message from its peer entity returns a STATUS message.

Test case:

II.5.3.8.1.2.2.8, trigger input: "unknown message received" Observable output: "send STATUS".

Conformance requirement:

A CC-entity of the MS in CC-state U11, "Disconnect Request" having received an unknown message from its peer entity shall return a STATUS message.

Requirement reference:

TS GSM 04.08 section 8.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the release of an outgoing call with a protocol variant which will be implemented in coming GSM phases. If this procedure is incorrectly implemented in the MS, establishment of an outgoing call between a phase 1 MS and a phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.8 U12 disconnect indication.

18.1.1.8.1 U12 Disconnect Indication - 1st case

Test purpose:

To verify that a CC-entity of the MS in CC-state U12, "Disconnect Indication" being in network initiated call release phase, shall, upon receiving an "on-hook" indication from the user sends a RELEASE to its peer entity and enters CC-state U19, "Release Request".

Test case:

II.5.3.8.1.2.2.8, trigger input: "MNCC_REL_REQ (on-hook)" observable output: "send REL".

Conformance requirement:

A CC-entity of the MS in CC-state U12, "Disconnect Indication" being in network initiated call release phase, shall, upon receiving an "on-hook" indication from the user send a RELEASE to its peer entity and enter CC-state U19, "Release Request".

Requirement reference:

TS GSM 04.07 section 3.2.2, TS GSM 04.08 section 5.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case is to check that the MS already in call release phase initiated by the network shall on detecting that the user has gone "on-hook" returns to the network the proper protocol indication. If this procedure is incorrectly implemented in the MS, call release of the MS might not work and the MS might end up in undefined and inconsistent states. Further network resources might be held up for an unnecessary length of time.

EC Terminal Directive reference:

Article 4f.

18.1.1.8.2 U12 Disconnect Indication - 2nd case

Test purpose:

1) To verify that a CC-entity of the MS in CC-state U12, "Disconnect Indication", upon receipt of a RELEASE message returns to its peer entity the RELEASE_COMPLETE message and enters the CC-state U0, "Null";

2) To verify that the MS on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile originating transaction identifiers are in CC-state U0, "Null".

Test case:

For Test purpose 1 - II.5.3.8.1.2.2.8, trigger input: "REL received" observable output: "send REL_COM";

For Test purpose 2 - II.5.3.8.1.2.2.8. , observable output: MM-connection release.

Conformance requirement:

1) A CC-entity of the MS in CC-state U12, "Disconnect Indication", upon receipt of a RELEASE message shall return to its peer entity the RELEASE_COMPLETE message and enter the CC-state U0, "Null";

2) On returning to the idle mode the MS shall release the MM-connection and the CC-entities relating to the seven mobile originating transaction identifiers shall be in CC-state U0, "Null".

Requirement reference:

For Test purpose 1 - TS GSM 04.08 section 5.4.

For Test purpose 2 - TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that during the release of a call, the MS behaves in a well defined manner. If this procedure is incorrectly implemented in the MS, normal call clearing might not work, or that the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.8.3 U12 Disconnect Indication - 3rd case

Test purpose:

To verify that a CC-entity of the MS in CC-state U12, "Disconnect Indication" having detected a lower layer failure returns to idle mode. The CC-entities relating to the seven mobile originating transaction identifiers are thus in state U0, "Null".

Test case:

II 5.3.8.1.2.2.8, trigger input: lower layer failure observable output: MM-connection release.

Conformance requirement:

A CC-entity of the MS in CC-state U12, "Disconnect Indication" having detected a lower layer failure shall return to idle mode. The CC-entities relating to the seven mobile originating transaction identifiers shall be in state U0, "Null".

Requirement reference:

TS GSM 04.08 section 4.5.3.2, TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that if the radio link breaks during call clearing, the MS reacts in a proper manner and returns to a well defined state. If this procedure is incorrectly implemented, lower layer failures might cause the MS to be in undefined and inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.8.4 U12 Disconnect Indication - 4th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U12, "Disconnect Indication" having received an unknown message from its peer entity returns a STATUS message.

Test case:

II.5.3.8.1.2.2.8, trigger input: "unknown message received" Observable output: "send STATUS".

Conformance requirement:

A CC-entity of the MS in CC-state U12, "Disconnect Indication" having received an unknown message from its peer entity shall return a STATUS message.

Requirement reference:

TS GSM 04.08 section 8.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the release of an outgoing call with a protocol variant which will be implemented in coming GSM phases. If this procedure is incorrectly implemented in the MS, establishment of an outgoing call between a phase 1 MS and a phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.1.9 U19 Release Request.

18.1.1.9.1 U19 Release Request - 1st case

Test purpose:

To verify that a CC-entity of the MS in CC-state U19, "Release Request" will, upon the first expiry of timer T308 send the RELEASE message to its peer entity and remain in the CC-state U19.

Test case:

II.5.3.8.1.2.2.9, trigger input: "1st timeout T308" observable output: "send REL".

Conformance requirement:

A CC-entity of the MS in CC-state U19, "Release Request" will, upon the first expiry of timer T308 send the RELEASE message to its peer entity and remain in the CC-state U19.

Requirement reference:

TS GSM 04.08 section 5.4.4.3, TS GSM 04.08 section 11.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the release procedure and the associated guard timers of the MS are working properly. If this procedure is incorrectly implemented, the MS might not perform the proper connection release and might end up in undefined and inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.9.2 U19 Release Request - 2nd case

Test purpose:

1) To verify that a CC-entity of the MS in CC-state U19, "Release Request", upon the 2nd expiry of the timer T308, enters the CC-state U0, "Null".

2) To verify that subsequently the MS proceeds with releasing the MM-connection and enters the idle mode with the CC entities relating to the seven mobile originating transaction identifiers in state U0, "Null".

Test case:

For Test purpose 1 - II.5.3.8.1.2.2.9, trigger input: "2nd timeout T308";

For Test purpose 2 - II.5.3.8.1.2.2.9. , observable output: MM-connection release.

Conformance requirement:

1) A CC-entity of the MS in CC-state U19, "Release Request", upon the 2nd expiry of the timer T308, shall enter the CC-state U0, "Null".

2) Subsequently the MS shall proceed with releasing the MM-connection and enter the idle mode with the CC entities relating to the seven mobile originating transaction identifiers in state U0, "Null".

Requirement reference:

For Test purpose 1 - TS GSM 04.08 section 5.4.4.3, TS GSM 04.08 section 11.3;

For Test purpose 2 - TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS shall allow a reasonable period of time to perform the release procedure after which the MS shall proceed with clearing the radio link. If this procedure is incorrectly implemented in the MS, clearing of a connection might proceed improperly with the MS ending in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.1.9.3 U19 Release Request - 3rd case

Test purpose:

To verify that a CC-entity of the MS in CC-state U19, "Release Request", upon receipt of a RELEASE, shall release the MM-connection and enters the CC-state U0, "Null" with the CC entities relating to the seven mobile originating transaction identifiers in state U0, "Null".

Test case:

II.5.3.8.1.2.2.9, trigger input: "REL received" observable output: MM-connection release.

Conformance requirement:

A CC-entity of the MS in CC-state U19, "Release Request", upon receipt of a RELEASE, shall release the MM-connection and enter the CC-state U0, "Null" with the CC entities relating to the seven mobile originating transaction identifiers in state U0, "Null".

Requirement reference:

TS GSM 04.08 section 5.4.5, TS GSM 04.08 section 11.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS during a call clearing phase shall respond to clear collision in a proper defined manner. If this procedure is incorrectly implemented, the call clearing in the MS might not work and the MS might end up in an undefined or inconsistent state.

EC Terminal Directive reference:

Article 4f.

18.1.1.9.4 U19 Release Request - 4th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U19, "Release Request", upon receipt of a RELEASE_COMPLETE, shall release the MM-connection and enters the CC-state U0, "Null" with the CC entities relating to the seven mobile originating transaction identifiers in state U0, "Null".

Test case:

II.5.3.8.1.2.2.9, trigger input: "REL_COM received" observable output: MM-connection release.

Conformance requirement:

A CC-entity of the MS in CC-state U19, "Release Request", upon receipt of a RELEASE_COMPLETE, shall release the MM-connection and enter the CC-state U0, "Null" with the CC entities relating to the seven mobile originating transaction identifiers in state U0, "Null".

Requirement reference:

TS GSM 04.08 section 5.4.5, TS GSM 04.08 section 11.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS performs call clearing phase in a proper well defined manner. If this procedure is incorrectly implemented, the call clearing in the MS might not work and the MS might end up in an undefined or inconsistent state.

EC Terminal Directive reference:

Article 4f.

18.1.1.9.5 U19 Release Request - 5th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U19, "Release Request", having detected a lower layer failure, returns to the idle mode, the CC entities relating to the seven mobile originating transaction identifiers are in state U0, "Null".

Test case:

II.5.3.8.1.2.2.9, trigger input: lower layer failure observable output: MM-connection release.

Conformance requirement:

A CC-entity of the MS in CC-state U19, "Release Request", having detected a lower layer failure, shall return to the idle mode, the CC entities relating to the seven mobile originating transaction identifiers shall be in state U0, "Null".

Requirement reference:

TS GSM 04.08 section 4.5.2.3, TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that if the radio link breaks during call clearing, the MS returns to a well defined initial state. If this procedure is incorrectly implemented in the MS, lower layer failures might lead the MS to be in undefined or inconsistent states

EC Terminal Directive reference:

Article 4f.

18.1.2 Incoming Call

18.1.2.1 U0 Null state

18.1.2.1.1 U0 Null state - 1st case

Test purpose:

To verify that upon receipt of the SETUP message, the CC entity moves from CC-state U0, "Null" and either sends a CALL PROCEEDING message or enters CC-state U6, "Call Present".

Test case:

II.5.3.8.1.3.2.1, trigger input: "SETUP received" and footnote 6.

Conformance requirement:

Upon receipt of the SETUP message, the CC entity shall move from CC-state U0, "Null" and either send a CALL PROCEEDING message or enter CC-state U6, "Call Present".

Requirement reference:

TS GSM 04.08 section 4.5.1.3, TS GSM 04.08 section 5.2.2.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of a mobile terminating call. If this procedure is incorrectly implemented in the MS, establishment of an incoming call might not work.

EC Terminal Directive reference:

Article 4f.

18.1.2.1.2 U0 Null state - 2nd case

Test purpose:

To verify that a CC entity of the MS, upon receipt of SETUP containing non supported bearer capability, returns a RELEASE COMPLETE with correct cause value to its peer entity.

Test case:

II.5.3.8.1.3.2.1, trigger input: "SETUP received" and footnote 3) observable output: "send REL_COM".

Conformance requirement:

A CC entity of the MS, upon receipt of SETUP containing non supported bearer capability, shall return a RELEASE COMPLETE with correct cause value to its peer entity.

Requirement reference:

TS GSM 04.08 section 5.2.2.2, TS GSM 04.08 Annex B.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of a mobile terminating call. If this procedure is incorrectly implemented in the MS, the MS might attempt to cater for incompatible bearer services thereby ending in undefined and inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.2.2 U6 Call Present

18.1.2.2.1 U6 Call Present - 1st case

Test purpose:

To verify that a CC entity of the MS in CC-state U6, "Call Present", upon receipt of indication of user accepting the incoming call, sends CALL_CONFIRM to its peer entity and either sends an ALERTING message or enters CC-state U9, "MS Terminating Call Confirmed".

Test case:

II.5.3.8.1.3.2.2, trigger input: "MNCC_CALL_CONF_REQ" observable output: "send CALL_CONF.

Conformance requirement:

A CC entity of the MS in CC-state U6, "Call Present", upon receipt of indication of user accepting the incoming call, shall send CALL_CONFIRM to its peer entity and either send an ALERTING message or enter CC-state U9, "MS Terminating Call Confirmed".

Requirement reference:

TS GSM 04.07 section 3.2.2, TS GSM 04.08 section 5.2.2.3.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of a mobile terminating call. If this procedure is incorrectly implemented in the MS, establishment of an incoming call might not work.

EC Terminal Directive reference:

Article 4f.

18.1.2.2.2 U6 Call Present - 2nd case

Test purpose:

To verify that a CC entity of the MS in CC-state U6, "Call Present", shall upon receipt of a rejection indication of the incoming call from the user, shall send RELEASE_COMPLETE with the appropriate cause value to its peer entity and enter the CC-state U0, "Null". The CC entities relating to the seven mobile terminating transaction identifiers are then in state U0, "Null".

Test case:

II.5.3.8.1.3.2.2, trigger input: "MNCC_REJ_REQ" observable output: "send REL_COM".

Conformance requirement:

A CC entity of the MS in CC-state U6, "Call Present", shall upon receipt of a rejection indication of the incoming call from the user, send RELEASE_COMPLETE with the appropriate cause value to its peer entity and enter the CC-state U0, "Null". The CC entities relating to the seven mobile terminating transaction identifiers shall be in state U0, "Null".

Requirement reference:

TS GSM 11.10, Annex B (for PICS/PIXIT statement), TS GSM 04.07 section 3.2.2, TS GSM 04.08 section 5.2.2.3.1, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that if a MS has the means to reject an incoming call, then the user exercising this means shall cause the MS to release that incoming call. If this procedure is incorrectly implemented in a MS that is said to have the means of rejecting an incoming call, then a user exercising that means might cause the MS to be in an undefined and inconsistent state.

EC Terminal Directive reference:

Article 4f.

18.1.2.2.3 U6 Call Present - 3rd case

Test purpose:

To verify that a CC entity of the MS in CC-state U6, "Call Present", having detected a lower layer failure returns to idle mode with the CC entities relating to the seven mobile terminating transaction identifiers in CC-state U0, "Null".

Test case:

II.5.3.8.1.3.2.2, trigger input: lower layer failures observable output: MM-connection release.

Conformance requirement:

A CC entity of the MS in CC-state U6, "Call Present", having detected a lower layer failure shall return to idle mode with the CC entities relating to the seven mobile terminating transaction identifiers in CC-state U0, "Null".

Requirement reference:

TS GSM 04.08 section 4.5.2.3, TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that if the radio link breaks during the establishment of an incoming call, the MS returns to a well defined initial state. If this procedure is incorrectly implemented in the MS, lower layer failures might lead to inconsistent states in the MS.

EC Terminal Directive reference:

Article 4f.

18.1.2.2.4 U6 Call Present - 4th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U6, "Call Present" having received an unknown message from its peer entity returns a STATUS message.

Test case:

II.5.3.8.1.3.2.2, trigger input: "unknown message received" Observable output: "send STATUS".

Conformance requirement:

A CC-entity of the MS in CC-state U6, "Call Present" having received an unknown message from its peer entity shall return a STATUS message.

Requirement reference:

TS GSM 04.08 section 8.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of an incoming call with a protocol variant which will be implemented in coming GSM phases. If this procedure is incorrectly implemented in the MS, establishment of an incoming call between a phase 1 MS and a phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.2.3 U9 MS Terminating Call Confirmed.

18.1.2.3.1 U9 MS Terminating Call Confirmed - 1st case

Test purpose:

To verify that a CC entity in CC-state U9, "MS Terminating Call Confirmed", (if signalled by the network in previous SETUP message that it may alert) will either send a ALERT message to its peer entity and enter state U7, or send a CONNECT message to its peer entity and enter U8.

Test case:

II.5.3.8.1.3.2.3, trigger input: "MNCC_ALERT_REQ" and "MNCC_SETUP_RSP" observable output: "send ALERT" and "send CONN".

Conformance requirement:

A CC entity in CC-state U9, "MS Terminating Call Confirmed", (if signalled by the network in previous SETUP message that it may alert) shall either send a ALERT message to its peer entity and enter state U7, or send a CONNECT message to its peer entity and enter U8.

Requirement reference:

TS GSM 04.08 section 5.2.2.3.2, TS GSM 11.10, Annex 3 - section 2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of an incoming call. If this test procedure is incorrectly implemented in the MS, incoming calls might fail.

EC Terminal Directive reference:

Article 4f.

18.1.2.3.2 U9 MS Terminating Call Confirmed - 3rd case

Test purpose:

To verify that a CC-entity of the MS in CC-state U9, "MS Terminating Call Confirmed", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Test case:

II.5.3.8.1.3.2.3, trigger input: MNCC_DISC_REQ Observable output: "send DISC".

Conformance requirement:

A CC-entity of the MS in CC-state U9, "MS Terminating Call Confirmed", upon request by the user to terminate shall send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Requirement reference:

TS GSM 04.07 section 3.2.2, TS GSM 04.08 section 5.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS - on request by a user who wishes to terminate an incoming call during its establishment stages - will do so in a well defined manner. If this procedure is incorrectly implemented in the MS, normal clearing of an incoming call establishment in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.2.3.3 U9 MS Terminating Call Confirmed - 4th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U9, "MS Terminating Call Confirmed", upon receipt of a DISCONNECT returns a RELEASE message and enters the CC-state U19, "Release Request".

Test case:

II.5.3.8.1.3.2.3, trigger input: "DISC received" observable output: "send REL".

Conformance requirement:

A CC-entity of the MS in CC-state U9, "MS Terminating Call Confirmed", upon receipt of a DISCONNECT shall return a RELEASE message and enter the CC-state U19, "Release Request".

Requirement reference:

TS GSM 04.08 section 5.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks during the establishment of an incoming call, the MS can perform a release when instructed to do so by the network. If this procedure is incorrectly implemented in the MS, normal clearing of an incoming call establishment in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.2.3.4 U9 MS Terminating Call Confirmed - 5th case

Test purpose:

1) To verify that a CC-entity of the MS in CC-state U9, "MS Terminating Call Confirmed", upon receipt of a RELEASE will return a RELEASE_COMPLETE and enter the CC-state U0, "Null".

2) To verify that the MS on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile terminating transaction identifiers are in CC-state U0, "Null".

Test case:

For Test purpose 1

- II.5.3.8.1.3.2.3, trigger input: "REL received" observable output: "send REL_COM".

For Test purpose 2

- II.5.3.8.1.3.2.3, observable output: MM-connection release.

Conformance requirement:

1) A CC-entity of the MS in CC-state U9, "MS Terminating Call Confirmed", upon receipt of a RELEASE shall return a RELEASE_COMPLETE and enter the CC-state U0, "Null".

2) On returning to the idle mode the MS shall release the MM-connection and the CC-entities relating to the seven mobile terminating transaction identifiers shall be in CC-state U0, "Null".

Requirement reference:

For Test purpose 1 - TS GSM 04.08 section 5.4.4.

For Test purpose 2 - TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks during the establishment of an incoming call, the MS when instructed by the network to terminate the call establishment shall do so in a well defined manner. If this procedure is incorrectly implemented in the MS, normal clearing of an incoming call establishment in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.2.3.5 U9 MS Terminating Call Confirmed - 6th case

Test purpose:

To verify that a CC entity of the MS in CC-state U9, "MS Terminating Call Confirmed", having detected a lower layer failure returns to idle mode with the CC entities relating to the seven mobile terminating transaction identifiers in CC-state U0, "Null".

Test case:

II.5.3.8.1.3.2.3, trigger input: lower layer failures observable output: MM-connection release.

Conformance requirement:

A CC entity of the MS in CC-state U9, "MS Terminating Call Confirmed", having detected a lower layer failure shall return to idle mode with the CC entities relating to the seven mobile terminating transaction identifiers in CC-state U0, "Null".

Requirement reference:

TS GSM 04.08 section 4.5.2.3, TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that if the radio link breaks during the establishment of an incoming call, the MS returns to a well defined initial state. If this procedure is incorrectly implemented in the MS, lower layer failures might lead to inconsistent states in the MS.

EC Terminal Directive reference:

Article 4f.

18.1.2.3.6 U9 MS Terminating Call Confirmed - 7th case

Test purpose:

To verify that a CC-entity of the MS in CC-state U9, "MS Terminating Call Confirmed" having received an unknown message from its peer entity returns a STATUS message.

Test case:

II.5.3.8.1.3.2.3, trigger input: "unknown message received" Observable output: "send STATUS".

Conformance requirement:

A CC-entity of the MS in CC-state U9, "MS Terminating Call Confirmed" having received an unknown message from its peer entity shall return a STATUS message.

Requirement reference:

TS GSM 04.08 section 8.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of an incoming call with a protocol variant which will be implemented in coming GSM phases. If this procedure is incorrectly implemented in the MS, establishment of an incoming call between a phase 1 MS and a phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.2.4 U7 Call Received

18.1.2.4.1 U7 Call Received - 1st case

Test purpose:

To verify that a CC entity of a MS in CC-state U7, "Call Received", upon a user accepting the incoming call, shall send a CONNECT message to its peer entity and enter the CC-state U8, "Connect Request".

Test case:

II.5.3.8.1.3.2.4, trigger input: "MNCC_SETUP_RSP" observable output: "send CONN".

Conformance requirement:

A CC entity of a MS in CC-state U7, "Call Received", upon a user accepting the incoming call, shall send a CONNECT message to its peer entity and enter the CC-state U8, "Connect Request".

Requirement reference:

TS GSM 04.07 section 3.2.2, TS GSM 04.08 5.2.2.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that on a user accepting an incoming call, the MS indicates that call acceptance to the network. If this procedure is incorrectly implemented, incoming call to that MS might fail.

EC Terminal Directive reference:

Article 4f.

18.1.2.4.2 U7 Call Received - 2nd case

Test purpose:

To verify that a CC entity of a MS in CC-state U7, "Call Received", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Test case:

II.5.3.8.1.3.2.4, trigger input: MNCC_DISC_REQ Observable output: "send DISC".

Conformance requirement:

A CC entity of a MS in CC-state U7, "Call Received", upon request by the user to terminate shall send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Requirement reference:

TS GSM 04.07 section 3.2.2, TS GSM 04.08 section 5.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS - on request by a user who wishes to terminate an incoming call during its establishment stages - will do so in a well defined manner. If this procedure is incorrectly implemented in the MS, normal clearing of an incoming call establishment in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.2.4.3 U7 Call Received - 3rd case

Test purpose:

To verify that a CC entity of a MS in CC-state U7, "Call Received", upon receipt of a DISCONNECT with a progress indicator indicating in-band information from network, if a TCH was not assigned, returns a RELEASE message and enters the CC-state U19, "Release Request".

Test case:

II.5.3.8.1.3.2.4, trigger input: "DISC received" observable output: "send REL" and footnote 1.

Conformance requirement:

A CC entity of a MS in CC-state U7, "Call Received", upon receipt of a DISCONNECT with a progress indicator indicating in-band information from network, if a TCH was not assigned, shall return a RELEASE message and enter the CC-state U19, "Release Request".

Requirement reference:

TS GSM 04.08 section 5.4.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS during the establishment of an incoming call, will go on in the release if a TCH was not assigned, but the network announces PI #8. The function allows networks simplified call release.

EC Terminal Directive reference:

Article 4f.

18.1.2.4.4 U7 Call Received - 4th case

Test purpose:

1) To verify that a CC entity of a MS in CC-state U7, "Call Received", upon receipt of a RELEASE will return a RELEASE_COMPLETE and enter the CC-state U0, "Null".

2) To verify that the MS on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile terminating transaction identifiers are in CC-state U0, "Null".

Test case:

For Test purpose 1 - II.5.3.8.1.3.2.4, trigger input: "REL received" observable output: "send REL_COM";

For Test purpose 2 - II.5.3.8.1.3.2.4, observable output: MM-connection release.

Conformance requirement:

1) A CC entity of a MS in CC-state U7, "Call Received", upon receipt of a RELEASE shall return a RELEASE_COMPLETE and enter the CC-state U0, "Null".

2) On returning to the idle mode the MS shall release the MM-connection and the CC-entities relating to the seven mobile terminating transaction identifiers shall be in CC-state U0, "Null".

Requirement reference:

For Test purpose 1 - TS GSM 04.08 section 5.4.4.

For Test purpose 2 - TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks during the establishment of an incoming call, the MS when instructed by the network to terminate the call establishment shall do so in a well defined manner. If this procedure is incorrectly implemented in the MS, normal clearing of an incoming call establishment in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.2.4.5 U7 Call Received - 6th case

Test purpose:

To verify that a CC entity of a MS in CC-state U7, "Call Received", having detected a lower layer failure returns to idle mode with the CC entities relating to the seven mobile terminating transaction identifiers in CC-state U0, "Null".

Test case:

II.5.3.8.1.3.2.4, trigger input: lower layer failures observable output: MM-connection release.

Conformance requirement:

A CC entity of a MS in CC-state U7, "Call Received", having detected a lower layer failure shall return to idle mode with the CC entities relating to the seven mobile terminating transaction identifiers in CC-state U0, "Null".

Requirement reference:

TS GSM 04.08 section 4.5.2.3, TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that if the radio link breaks during the establishment of an incoming call, the MS returns to a well defined initial state. If this procedure is incorrectly implemented in the MS, lower layer failures might lead to inconsistent states in the MS.

EC Terminal Directive reference:

Article 4f.

18.1.2.4.6 U7 Call Received - 7th case

Test purpose:

To verify that a CC entity of a MS in CC-state U7, "Call Received", having received an unknown message from its peer entity returns a STATUS message.

Test case:

II.5.3.8.1.3.2.4, trigger input: "unknown message received" Observable output: "send STATUS".

Conformance requirement:

A CC entity of a MS in CC-state U7, "Call Received", having received an unknown message from its peer entity shall return a STATUS message.

Requirement reference:

TS GSM 04.08 section 8.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of an incoming call with a protocol variant which will be implemented in coming GSM phases. If this procedure is incorrectly implemented in the MS, establishment of an incoming call between a phase 1 MS and a phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.2.4.7 U7 Call Received - 8th case

Test purpose:

To verify that a CC entity of a MS in CC-state U7, "Call Received", when allocated a traffic channel by the network performing the assignment procedure, shall perform a layer 2 establishment on the FACCH without changing the state of the call in progress.

Test case:

II.5.3.8.1.3.2.4, trigger input: "TCH allocation" Observable output: "Layer 2 establishment on FACCH".

Conformance requirement:

A CC entity of a MS in CC-state U7, "Call Received", when allocated a traffic channel by the network performing the assignment procedure, shall perform a layer 2 establishment on the FACCH without changing the state of the call in progress.

Requirement reference:

TS GSM 04.08 section 3.4.3, TS GSM 04.08 section 5.2.2.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS, during establishment of an incoming call, in going through a traffic channel allocation can establish the layer 2 connection on the FACCH associated with the allocated traffic channel. If this function is incorrectly implemented in the MS, call establishment will not work if such an assignment occurs.

EC Terminal Directive reference:

Article 4f.

18.1.2.5 U8 Connect Request.

18.1.2.5.1 U8 Connect Request - 1st case

Test purpose:

To verify that a CC entity of a MS in CC-state U8, "Connect Request", upon receipt of CONNECT_REQUEST shall enter the CC-state U10, "Call Active".

Test case:

II.5.3.8.1.3.2.5, trigger input: "CONN_ACK received".

Conformance requirement:

A CC entity of a MS in CC-state U8, "Connect Request", upon receipt of CONNECT_REQUEST shall enter the CC-state U10, "Call Active".

Requirement reference:

TS GSM 04.08 section 5.2.2.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of a mobile terminating call. If this procedure is incorrectly implemented in the MS, establishment of an incoming call might not work.

EC Terminal Directive reference:

Article 4f.

18.1.2.5.2 U8 Connect Request - 2nd case

Test purpose:

To verify that a CC entity of a MS in CC-state U8, "Connect Request", having waited for a reasonable length of time (expiry of timer T313) without receiving the appropriate protocol message to complete the incoming call, shall initiate the clearing of that incoming call by sending the CC message DISCONNECT and enter the CC-state U11, "Disconnect Request".

Test case:

II.5.3.8.1.3.2.5, trigger input: wait for T313 timeout observable output: "send DISC".

Conformance requirement:

A CC entity of a MS in CC-state U8, "Connect Request", having waited for a reasonable length of time (expiry of timer T313) without receiving the appropriate protocol message to complete the incoming call, shall initiate the clearing of that incoming call by sending the CC message DISCONNECT and enter the CC-state U11, "Disconnect Request".

Requirement reference:

TS GSM 04.08 section 5.2.2.6, TS GSM 04.08 section 5.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS shall only wait for a reasonable predefined length of time to complete establishment of the incoming call, after which if the incoming call will be released. If this procedure is incorrectly implemented in the MS, the MS might end up in an undefined and inconsistent state with the network resources held up for excessive length of time.

EC Terminal Directive reference:

Articles 4e and 4f.

18.1.2.5.3 U8 Connect Request - 3rd case

Test purpose:

To verify that a CC entity of a MS in CC-state U8, "Connect Request", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Test case:

II.5.3.8.1.3.2.5, trigger input: MNCC_DISC_REQ observable output: "send DISC".

Conformance requirement:

A CC entity of a MS in CC-state U8, "Connect Request", upon request by the user to terminate shall send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

Requirement reference:

TS GSM 04.07 section 3.2.2, TS GSM 04.08 section 5.4.3, TS GSM 11.10, Annex 3 - section 2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

EC Terminal Directive reference:

Article 4f.

18.1.2.5.4 U8 Connect Request - 4th case

Test purpose:

To verify that a CC entity of a MS in CC-state U8, "Connect Request", upon receipt of a DISCONNECT without progress indicator, returns a RELEASE message and enters the CC-state U19, "Release Request".

Test case:

II.5.3.8.1.3.2.5, trigger input: "DISC received" observable output: "send REL".

Conformance requirement:

A CC entity of a MS in CC-state U8, "Connect Request", upon receipt of a DISCONNECT without progress indicator, shall return a RELEASE message and enter the CC-state U19, "Release Request".

Requirement reference:

TS GSM 04.08 section 5.4.4, TS GSM 04.08 section 5.4.4.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that during establishment of an incoming call, the MS can perform a release of that incoming call, when instructed by the network to do so. If this procedure is incorrectly implemented in the MS, normal clearing of an incoming call establishment in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.2.5.5 U8 Connect Request - case 5a

Test purpose:

To verify that a CC entity of a MS in CC-state U8, "Connect Request", upon receipt of a DISCONNECT with a progress indicator indicating in-band information from the network either sends a RELEASE message and enters state U19, or enters the CC-state U12, "Disconnect Indication", where it stays.

Test case:

II.5.3.8.1.3.2.5, trigger input: "DISC received with Progress Indicator = 8".

Conformance requirement:

A CC entity of a MS in CC-state U8, "Connect Request", upon receipt of a DISCONNECT with a progress indicator indicating in-band information from the network shall either send a RELEASE message and enter state U19, or enter the CC-state U12, "Disconnect Indication", where it stays.

Requirement reference:

TS GSM 04.08 section 3.4.3.1, TS GSM 04.08 section 5.1.3. - note,;

TS GSM 04.08 section 5.2.2.7, TS GSM 04.08 section 5.4.4, TS GSM 04.08 section 5.5.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS during the establishment of an incoming call, can, when the networks disconnects with PI #8, moves to the incoming call release phase. If this procedure is incorrectly implemented in the MS, clearing of an incoming call establishment in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.2.5.6 U8 Connect Request - 6th case

Test purpose:

1) To verify that a CC entity of a MS in CC-state U8, "Connect Request", upon receipt of a RELEASE will return a RELEASE_COMPLETE and enter the CC-state U0, "Null".

2) To verify that the MS on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile terminating transaction identifiers are in CC-state U0, "Null".

Test case:

For Test purpose 1 - II.5.3.8.1.3.2.5, trigger input: "REL received" observable output: "send REL_COM";

For Test purpose 2 - II.5.3.8.1.3.2.5, observable output: MM-connection release.

Conformance requirement:

1) A CC entity of a MS in CC-state U8, "Connect Request", upon receipt of a RELEASE shall return a RELEASE_COMPLETE and enter the CC-state U0, "Null".

2) On returning to the idle mode the MS shall release the MM-connection and the CC-entities relating to the seven mobile terminating transaction identifiers shall be in CC-state U0, "Null".

Requirement reference:

For Test purpose 1 - TS GSM 04.08 section 5.4.4.

For Test purpose 2 - TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks during the establishment of an incoming call, the MS when instructed by the network to terminate the call establishment shall do so in a well defined manner. If this procedure is incorrectly implemented in the MS, normal clearing of an incoming call establishment in progress might not work, or the MS might end up in undefined or inconsistent states.

EC Terminal Directive reference:

Article 4f.

18.1.2.5.7 U8 Connect Request - 7th case

Test purpose:

To verify that a CC entity of a MS in CC-state U8, "Connect Request", having detected a lower layer failure returns to idle mode with the CC entities relating to the seven mobile terminating transaction identifiers in CC-state U0, "Null".

Test case:

II.5.3.8.1.3.2.5, trigger input: lower layer failures observable output: MM-connection release.

Conformance requirement:

A CC entity of a MS in CC-state U8, "Connect Request", having detected a lower layer failure shall return to idle mode with the CC entities relating to the seven mobile terminating transaction identifiers in CC-state U0, "Null".

Requirement reference:

TS GSM 04.08 section 4.5.2.3, TS GSM 04.08 section 4.5.3, TS GSM 04.08 section 5.5.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that if the radio link breaks during the establishment of an incoming call, the MS returns to a well defined initial state. If this procedure is incorrectly implemented in the MS, lower layer failures might lead to inconsistent states in the MS.

EC Terminal Directive reference:

Article 4f.

18.1.2.5.8 U8 Connect Request - 8th case

Test purpose:

To verify that a CC entity of a MS in CC-state U8, "Connect Request", when allocated a traffic channel by the network performing the assignment procedure, shall perform a layer 2 establishment on the FACCH without changing the state of the call in progress.

Test case:

II.5.3.8.1.3.2.5, trigger input: "TCH allocation" Observable output: "Layer 2 establishment on FACCH".

Conformance requirement:

A CC entity of a MS in CC-state U8, "Connect Request", when allocated a traffic channel by the network performing the assignment procedure, shall perform a layer 2 establishment on the FACCH without changing the state of the call in progress.

Requirement reference:

TS GSM 04.08 section 3.4.3, TS GSM 04.08 section 5.2.2.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that the MS, during establishment of an incoming call, in going through a traffic channel allocation can establish the layer 2 connection on the FACCH associated with the allocated traffic channel. If this function is incorrectly implemented in the MS, call establishment will not work if such an assignment occurs.

EC Terminal Directive reference:

Article 4f.

18.1.2.5.9 U8 Connect Request - 9th case

Test purpose:

To verify that a CC entity of a MS in CC-state U8, "Connect Request", having received an unknown message from its peer entity returns a STATUS message.

Test case:

II.5.3.8.1.3.2.5, trigger input: "unknown message received" Observable output: "send STATUS".

Conformance requirement:

A CC entity of a MS in CC-state U8, "Connect Request", having received an unknown message from its peer entity shall return a STATUS message.

Requirement reference:

TS GSM 04.08 section 8.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks part of the establishment of an incoming call with a protocol variant which will be implemented in coming GSM phases. If this procedure is incorrectly implemented in the MS, establishment of an incoming call between a phase 1 MS and a phase 2 network might not work.

EC Terminal Directive reference:

Article 4f.

18.1.3 In call functions

18.1.3.1 U10 call active - 6th case

Test purpose:

To verify that the MS after successful completion of a channel assignment or channel mode modify will remain in the call active state.

Test case:

II.5.3.8.1.4.1.1 trigger input: MMCC_SYNC_IND received.

Conformance requirement:

The MS after successful completion of a channel assignment or channel mode modify shall remain in the call active state.

Requirement reference:

TS GSM 04.08, section 5.3.4.3.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS fails this test, elementary call maintenance could be endangered.

EC Terminal Directive reference:

Article 4f.

18.1.3.2 U10 call active - 7th case

Test purpose:

To verify that the MS, when returning to the old channel after handover failure and establishing correctly the link, will remain in the call active state.

Test case:

II.5.3.8.1.4.1.1 trigger input: MMCC_SYNC_IND received.

Conformance requirement:

The MS, when returning to the old channel after handover failure and having established the link, shall remain in the call active state.

Requirement reference:

TS GSM 04.08, section 5.3.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS fails this test, elementary call maintenance could be endangered.

EC Terminal Directive reference:

Article 4f.

18.2 Emergency call establishment

18.2.1 Emergency call establishment (idle updated)

Test purpose:

1) To verify that the MS in the "idle, updated" state as after a successful location update, after the number 112 has been entered by user, sends a CHANNEL REQUEST message with correct establishment cause ("Emergency call");

2) To verify that after assignment of a dedicated channel the first layer message sent by the MS on the assigned dedicated channel is a CM SERVICE REQUEST message specifying the correct CKSN and TMSI , with CM Service Type "Emergency Call Establishment";

3) To verify that authentication and cipher mode setting are performed successfully;

4) To verify that after cipher mode setting acceptance by the SS, the MS sends an EMERGENCY SETUP message;

5) To verify that the emergency call is correctly established, the SS sending a CALL PROCEEDING message and then an ALERT message, then correct performance of assignment of an appropriate speech traffic channel, then correct performance of a connect procedure;

6) To verify that the call is cleared correctly.

Test case:

For Test purpose 1 - II.5.3.8.2.4.1/2;

For Test purpose 2 - II.5.3.8.2.4.3/4;

For Test purpose 3 - II.5.3.8.2.4.5;

For Test purpose 4 - II.5.3.8.2.4.6;

For Test purpose 5 and 6 - II.5.3.8.2.4.7 (except for the audio path).

Conformance requirement:

1) The MS in the "idle, updated" state, as after a successful location update, after the number 112 has been entered by user, shall send a CHANNEL REQUEST message with correct establishment cause ("Emergency call");

2) After assignment of a dedicated channel the first layer message sent by the MS on the assigned dedicated channel shall be a CM SERVICE REQUEST message specifying the correct CKSN and TMSI , with CM Service Type "Emergency Call Establishment";

3) Authentication and cipher mode setting shall be performed successfully;

4) After cipher mode setting acceptance by the network, the MS shall send an EMERGENCY SETUP message;

5) The emergency call shall be correctly established;

6) The call shall be cleared correctly.

Requirement reference:

For Test purpose 1 and 2:

TS GSM 04.08 section 3.3.1, TS GSM 04.08 section 5.2.1, TS GSM 04.08 section 4.5.1.5, TS GSM 02.30 section 4.

For Test purpose 3:

TS GSM 04.08 section 3.4.7, TS GSM 04.08 section 4.3.2.

For Test purpose 4:

TS GSM 04.08 section 5.2.1.2.

For Test purpose 5:

TS GSM 04.08 section 5.2.1.1.

For Test purpose 6:

TS GSM 04.08 section 5.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks the establishment of an emergency call. If the procedure is incorrectly implemented in the MS, establishment of emergency calls might not work.

EC Terminal Directive reference:

Article 4f.

18.2.2 Emergency call establishment (Idle, no IMSI)

Test purpose:

1) To verify that the MS in the "Idle, Updated" state as after a successful location update, with the SIM then removed, will after the number 112 has been entered by the user, sends a CHANNEL REQUEST message with the correct establishment cause ("Emergency Call");

2) To verify that after the assignment of a dedicated channel the first Layer 3 message sent by the MS on the assigned dedicated channel is a CM SERVICE REQUEST message specifying the correct CKSN and IMEI, with CM Service Type "Emergency Call Establishment";

3) To verify that after receipt of CM_SERVICE_ACCEPT, the MS shall then send an EMERGENCY_SETUP message;

4) To verify that the emergency call is subsequently correctly established, with the SS sending a CALL PROCEEDING message and then an ALERT message, then subsequently performing the correct assignment of the appropriate speech traffic channel, ending with the correct performance of the connect procedure;

5) To verify that the call is cleared correctly.

Test case:

For Test purpose 1 - II.5.3.8.2.6.1/2;

For Test purpose 2 - II.5.3.8.2.6.3/4;

For Test purpose 3 - II.5.3.8.2.6.5/6;

For Test purpose 4 and 5 - II.5.3.8.2.6.7 (except for the two way audio path).

Conformance requirement:

Provided that the network operator does not refuse it, any user even without the proper network subscription should be allowed to make an emergency call.

Requirement reference:

For Test purpose 1 and 2:

- TS GSM 04.08 section 3.3.1, TS GSM 04.08 section 5.2.1;
- TS GSM 04.08 section 4.5.1.5;
- TS GSM 05.08, section 6.8, TS GSM 02.30, section 4.

For Test purpose 3:

- TS GSM 04.08 section 5.2.1.2.

For Test purpose 4:

- TS GSM 04.08 section 5.2.1.1.

For Test purpose 5:

- TS GSM 04.08 section 5.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks the establishment of an emergency call without a SIM. If this procedure is incorrectly implemented in the MS, establishment of emergency calls might not work.

EC Terminal Directive reference:

Article 4f.

18.2.3 Emergency Call Rejection

Test purpose:

1) To verify that the MS in the "Idle, Updated" state as after a successful location update, with the SIM then removed, will after the number 112 has been entered by the user, sends a CHANNEL REQUEST message with the correct establishment cause ("Emergency Call");

2) To verify that after the assignment of a dedicated channel the first Layer 3 message sent by the MS on the assigned dedicated channel is a CM SERVICE REQUEST message specifying the correct CKSN and IMEI, with CM Service Type "Emergency Call Establishment";

3) To verify that on subsequent reception of CM_SERVICE_REJECT, the MS proceeds no further with the emergency call establishment.

Test case:

For Test purpose 1 - II.5.3.8.2.7.1/2;

For Test purpose 2 - II.5.3.8.2.7.3/4;

For Test purpose 3 - II.5.3.8.2.7.5.

Conformance requirement:

1) The MS in the "Idle, Updated" state as after a successful location update, with the SIM then removed, shall after the number 112 has been entered by the user, send a CHANNEL REQUEST message with the correct establishment cause ("Emergency Call");

2) After the assignment of a dedicated channel the first Layer 3 message sent by the MS on the assigned dedicated channel shall be a CM SERVICE REQUEST message specifying the correct CKSN and IMEI, with CM Service Type "Emergency Call Establishment";

3) On subsequent reception of CM_SERVICE_REJECT, the MS shall proceed no further with the emergency call establishment.

Requirement reference:

For Test purpose 1 and 2:

- TS GSM 04.08 section 3.3.1, TS GSM 04.08 section 5.2.1;

- TS GSM 04.08 section 4.5.1.5, TS GSM 02.30, section 4

For Test purpose 3:

- TS GSM 04.08 section 4.5.1.5;

- TS GSM 04.08 section 4.5.1.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that when a user without a SIM card makes an emergency call on a MS whose Equipment Identification is not accepted by the network, shall not proceed any further with the emergency call establishment, if the network refuses that establishment on the basis of the unacceptable equipment identification.

EC Terminal Directive reference:

Article 4f.

18.3 Call Re-establishment

18.3.1 Call present, re-establishment allowed (No verification of audio path)

Test purpose:

1) To verify that if call re-establishment is allowed, the MS having a CC entity in state U10, "active", will after radio link timeout initiate the immediate assignment procedure on the correct cell by sending the CHANNEL REQUEST message with correct establishment cause.

2) To verify that after receipt of an IMMEDIATE ASSIGNMENT message, the MS sends the correct initial layer 3 message on the dedicated channel, the message containing correct values for CKSN, MS classmark 2, Mobile identity, and LAI.

3) To verify that upon receipt of a CIPHER MODE COMMAND message, the MS activates ciphering and sends the message CIPHERING MODE COMPLETE.

4) To verify that upon receipt of an ASSIGNMENT COMMAND message the MS sends the message ASSIGNMENT COMPLETE on the correct channel.

Test case:

For Test purpose 1 to 4:

- SS performs II.5.3.8.3.3.2. Procedure, while MS follows II.5.3.8.3.3.3. Requirements.

Conformance requirement:

1) If call re-establishment is allowed, the MS having a CC entity in state U10, "active", shall after radio link timeout initiate the immediate assignment procedure on the correct cell by sending the CHANNEL REQUEST message with correct establishment cause.

2) After receipt of an IMMEDIATE ASSIGNMENT message, the MS shall send the correct initial layer 3 message on the dedicated channel, the message containing correct values for CKSN, MS classmark 2, Mobile identity, and LAI.

3) Upon receipt of a CIPHER MODE COMMAND message, the MS shall activate ciphering and send the message CIPHERING MODE COMPLETE.

4) Upon receipt of an ASSIGNMENT COMMAND message the MS shall send the message ASSIGNMENT COMPLETE on the correct channel.

Requirement reference:

For Test purpose 1 and 2:

- TS GSM 04.08 section 3.3.1;
- TS GSM 04.08 section 4.5.1.6;
- TS GSM 04.08 section 5.5.4;
- TS GSM 05.08, section 6.7.2.

For Test purpose 3:

- TS GSM 04.08 section 3.4.7.

For Test purpose 4:

- TS GSM 04.08 section 3.4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks call re-establishment. This procedure is applied for holding the connection corresponding to a call.

EC Terminal Directive reference:

Article 4f.

18.3.2 Call Present , re-establishment not allowed

Test purpose:

To verify that the MS having a CC entity in state U10, "Call Active", upon detecting a radio link timeout, shall - when not allowed by the network to perform re-establishment - return to the "idle, updated" state.

Test case:

II.5.3.8.3.4.2, trigger input: Procedure b)II.5.3.8.3.4.3, observable output: Requirements 1.

Conformance requirement:

The MS having a CC entity in state U10, "Call Active", upon detecting a radio link timeout, shall - when not allowed by the network to perform re-establishment - return to the "idle, updated" state.

Requirement reference:

TS GSM 04.08 section 3.2.2.1, TS GSM 04.08 section 10.5.2.17 - RE bit.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that if call re-establishment is prohibited by the network, the MS with an active call, shall upon detecting a radio link timeout return to the predefined "idle, updated" state and not attempt to re-establish that call.

EC Terminal Directive reference:

Article 4f.

18.3.3 Call under establishment, re-establishment allowed

Test purpose:

To verify that the MS having a CC entity in the process of establishing a mobile originating call, upon detecting a radio link timeout, shall return to the "idle, updated" state even if call re-establishment is allowed by the network.

Test case:

II.5.3.8.3.5.2, trigger input: Procedure c)II.5.3.8.3.5.3, observable output: Requirements 1.

Conformance requirement:

The MS having a CC entity in the process of establishing a mobile originating call, upon detecting a radio link timeout, shall return to the "idle, updated" state even if call re-establishment is allowed by the network.

Requirement reference:

TS GSM 04.08 section 3.2.2.1, TS GSM 04.08 section 5.5.4, TS GSM 04.08 section 10.5.2.17 - RE bit.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test case checks that even if call re-establishment is allowed by the network, the MS during mobile originating call establishment will not attempt to re-establish a failed radio link. If this procedure is incorrectly implemented, the MS might end up in undefined states and wrongly attempt to access network resources that is not yet allowed for it to use.

EC Terminal Directive reference:

Articles 4e and 4f.

18.4 DTMF information transfer

Test purpose:

To verify that an MS supporting the Mobile originating DTMF protocol control procedure, having a CC entity for speech in state U10, "Active": when made to trigger stopping of transmission of the DTMF tone at a point in time greater than or equal to timer value "Ts" after receiving the corresponding START DTMF ACKNOWLEDGE message, sends a STOP DTMF message.

Test case:

II.5.3.8.4.4-5 (ignoring the requirement on timing).

Conformance requirement:

An MS supporting the Mobile originating DTMF protocol control procedure, having a CC entity for speech in state U10, "Active": when made to trigger stopping of transmission of the DTMF tone at a point in time greater than or equal to timer value "Ts" after receiving the corresponding START DTMF ACKNOWLEDGE message, shall send a STOP DTMF message.

Requirement reference:

TS GSM 04.08, 5.3.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS supporting uplink DTMF does not fulfil the requirement, it might for the rest of a call block the DTMF resources (so harming the network), at the same time the call would be deranged. The function is part of the basic signalling procedure.

EC Terminal Directive reference:

Articles 4d and 4f.

18.5 User to User signalling

Test purpose:

To verify that inclusion of the 'user-user' information element in downlink call control messages SETUP and DISCONNECT causes no adverse effects on MS operation.

Test case:

II.5.3.8.5, procedure 1 and procedure 2.

Conformance requirement:

The inclusion of the 'user-user' information element in downlink call control messages SETUP and DISCONNECT shall cause no adverse effects on MS operation.

Requirement reference:

TS GSM 04.08, 10.5.4.18, TS GSM 04.08, 5.4.4, TS GSM 04.08, 5.2.2,TS GSM 04.08, 10.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test case checks that inclusion of user-user information into SETUP and DISCONNECT in the downlink direction does not affect the call control procedures. The test does not at all check whether end to end information is treated correctly.

If the feature is incorrectly implemented in the MS, a MS come into undefined states during call establishment or call release, if the remote ISDN user provides user-user information.

EC Terminal Directive reference:

Articles 4d, 4e, and 4f.

19 Testing of structured procedures

19.1 MS originating call establishment, early assignment, release initiated by network (No verification of audio path)

Test purpose:

1) To verify that the MS in "Idle, Updated" state with a TMSI assigned, when made to initiate a call for a selected teleservice that is supported by the MS as declared in a PICS/PIXIT statement, starts to initiate an immediate assignment procedure by sending the CHANNEL REQUEST message with correct establishment cause.

2) To verify that subsequently after receipt of an IMMEDIATE ASSIGNMENT message allocating an SDCCH, after completion of establishment of the signalling link, after having sent a CM SERVICE REQUEST message, after having successfully performed authentication and cipher mode setting procedures, the MS sends a SETUP message with correct parameters.

3) To verify that subsequently, after receipt of a CALL PROCEEDING message and of an ASSIGNMENT COMMAND message allocating an appropriate TCH, after having completed the traffic channel early assignment procedure by replying with ASSIGNMENT COMPLETE message, after receipt of an ALERTING message and a CONNECT message, the MS returns the CONNECT ACKNOWLEDGE message.

4) To verify that subsequently upon the network initiating call clearing by sending a DISCONNECT message, the MS proceed to release the call with RELEASE.

5) To verify that subsequently, upon receipt of a RELEASE COMPLETE message and a CHANNEL RELEASE message, the MS enters the idle, updated state.

Test case:

TP1: II.5.3.9.2.2, Method of test, b) and c) II.5.3.9.2.3, Requirement 2).

TP2: II.5.3.9.2.2, Method of test, c), d), e), f), and g) II.5.3.9.2.3, Requirement 3), 4), and 5).

TP3: II.5.3.9.2.2, Method of test, h), i), j), and k) II.5.3.9.2.3, Requirement 6) and 8).

TP4: II.5.3.9.2.2, Method of test, l) II.5.3.9.2.3, Requirement 9).

TP5: II.5.3.9.2.2 , Method of test, m) II.5.3.9.2.3, Requirement 10).

Conformance requirement:

1) An MS in "Idle, Updated" state with a TMSI assigned, when made to initiate a call for a selected teleservice that is supported by the MS as declared in a PICS/PIXIT statement, shall start to initiate an immediate assignment procedure by sending the CHANNEL REQUEST message with correct establishment cause.

2) Subsequently after receipt of an IMMEDIATE ASSIGNMENT message allocating an SDCCH, after completion of establishment of the signalling link, after having sent a CM SERVICE REQUEST message, after having successfully performed authentication and cipher mode setting procedures, the MS shall send a SETUP message with correct parameters.

3) Subsequently, after receipt of a CALL PROCEEDING message and of an ASSIGNMENT COMMAND message allocating an appropriate TCH, after having completed the traffic channel early assignment procedure by replying with ASSIGNMENT COMPLETE message, after receipt of an ALERTING message and a CONNECT message, the MS shall return the CONNECT ACKNOWLEDGE message.

4) Subsequently upon the network initiating call clearing by sending a DISCONNECT message, the MS shall proceed to release the call with RELEASE.

5) Subsequently, upon receipt of a RELEASE COMPLETE message and a CHANNEL RELEASE message, the MS shall enter the idle, updated state.

Requirement reference:

TP1: TS GSM 04.08 section 3.3.1.

TP2: TS GSM 04.08 section 5.2.1.1.1.

TP3: TS GSM 04.08 section 5.2.1.1.6.

TP4: TS GSM 04.08 section 5.4.4.

TP5: TS GSM 04.08, section 5.4.4 and 3.5.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: The establishment cause may be used as criterion for channel allocation: Rejection of random access with incorrect cause, rejection of random access for MOC when no TCH is free. If the tested function is incorrectly implemented in the MS, the establishment of mobile originating calls might fail or the network resources might be misused.

TP2: This test purpose includes checking of the correct parameters, this is not included in II.5.3.7.2. If the tested parameters are incorrectly used by the MS, the establishment of mobile originating calls might fail or the network resources might be misused or endangered.

TP3: The test purpose completes the test purposes from II.5.3.8.1.2.2 by use of an different preamble which reflects the normal sequence of operation during a MOC. Correct function of CC is not guaranteed independently from the preamble and configuration of lower (sub-)layers. If the tested functions are incorrectly implemented in the MS, the establishment of mobile originating calls might fail or the network resources might be misused or endangered.

TP4 and TP5: The test purpose completes the test purposes from II.5.3.8.1.2 by use of an different preamble which reflects the normal sequence of operation during a MOC. Correct function of CC is not guaranteed independently from the preamble and configuration of lower (sub-)layers. If the tested functions are incorrectly implemented in the MS, the clearing of mobile originating calls might fail.

EC Terminal Directive reference:

TP1: Articles 4e and 4f.
TP2: Articles 4d, 4e and 4f.
TP3: Articles 4d, 4e and 4f.
TP4: Articles 4d, 4e and 4f.
TP5: Articles 4d, 4e and 4f.

19.2 MS originating call establishment, late assignment (no verification of audio path)

Test purpose:

1) To verify that the MS in "Idle, Updated" state with a TMSI assigned, when made to initiate a call for a selected teleservice that is supported by the MS as declared in a PICS/PIXIT statement, starts to initiate an immediate assignment procedure by sending the CHANNEL REQUEST message with correct establishment cause.

2) To verify that subsequently after receipt of an IMMEDIATE ASSIGNMENT message allocating an SDCCH, after completion of establishment of the signalling link, after having sent a CM SERVICE REQUEST message, after having successfully performed authentication and cipher mode setting procedures, the MS sends a SETUP message with correct parameters.

3) To verify that subsequently the MS, upon receipt of a CALL PROCEEDING message followed by an ALERTING message and an ASSIGNMENT COMMAND message allocating an appropriate TCH, sends an ASSIGNMENT COMPLETE message.

4) To verify that subsequently, after the specific suite of actions, the MS after receiving a CONNECT message returns a CONNECT ACKNOWLEDGE message.

Test case:

TP1: II.5.3.9.3.2, Method of test, a) II.5.3.9.3.3, Requirement 1).

TP2: II.5.3.9.3.2, Method of test, b) II.5.3.9.3.3, Requirement 1).

TP3: II.5.3.9.3.2, Method of test, b), c) II.5.3.9.3.3, Requirement 3).

TP4: II.5.3.9.3.2, Method of test, d) II.5.3.9.3.3, Requirement 4).

Conformance requirement:

1) An MS in "Idle, Updated" state with a TMSI assigned, when made to initiate a call for a selected teleservice that is supported by the MS as declared in a PICS/PIXIT statement, shall start to initiate an immediate assignment procedure by sending the CHANNEL REQUEST message with correct establishment cause.

2) Subsequently after receipt of an IMMEDIATE ASSIGNMENT message allocating an SDCCH, after completion of establishment of the signalling link, after having sent a CM SERVICE REQUEST message, after having successfully performed authentication and cipher mode setting procedures, the MS shall send a SETUP message with correct parameters.

3) Subsequently the MS, upon receipt of a CALL PROCEEDING message followed by an ALERTING message and an ASSIGNMENT COMMAND message allocating an appropriate TCH, shall send an ASSIGNMENT COMPLETE message.

4) Subsequently, after the specific suite of actions, the MS after receiving a CONNECT message shall return a CONNECT ACKNOWLEDGE message.

Requirement reference:

TP1: TS GSM 04.08 section 3.3.1.

TP2: TS GSM 04.08 section 5.2.1.1.1.

TP3: TS GSM 04.08 section 3.4.3.

TP4: TS GSM 04.08 section 5.2.1.1.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

TP1: The establishment cause may be used as criterion for channel allocation: Rejection of random access with incorrect cause, rejection of random access for MOC when no TCH is free. If the tested function is incorrectly implemented in the MS, the establishment of mobile originating calls might fail or the network resources might be misused.

TP2: This test purpose includes checking of the correct parameters, this is not included in II.5.3.7.2. If the tested parameters are incorrectly used by the MS, the establishment of mobile originating calls might fail or the network resources might be misused or endangered.

TP3: The assignment procedure can be initiated by the network in any suitable MM and CC state, whatever the preamble be. This independence must be checked in some selected cases, especially in the actual situation of the test purpose which reflects the normal sequence of operation during a MOC with late assignment. If the tested functions are incorrectly implemented in the MS, the establishment of mobile originating calls using late assignment might fail or the network resources might be misused or endangered.

TP4: The test purpose completes the test purposes from II.5.3.8.1.2.2 by use of an different preamble which reflects the normal sequence of operation during a MOC with late assignment. Correct function of CC is not guaranteed independently from the preamble and configuration of lower (sub-)layers. If the tested functions are incorrectly implemented in the MS, the establishment of mobile originating calls using late assignment might fail or the network resources might be misused or endangered.

EC Terminal Directive reference:

TP1: Articles 4e and 4f.
TP2: Articles 4d, 4e, and 4f.
TP3: Articles 4d, 4e, and 4f.
TP4: Articles 4d, 4e, and 4f.

19.3 MS terminating call establishment, early assignment, release initiated by MS (no verification of audio path)

Test purpose:

1) To verify that the MS in "Idle, Updated" state with a TMSI assigned, after being paged by the network on the correct paging subchannel, after initiating the immediate assignment procedure by sending the CHANNEL REQUEST message, after receipt of an IMMEDIATE ASSIGNMENT message allocating an SDCCH, after having established the data link, after having sent a PAGING RESPONSE message, after having performed successful authentication and cipher mode setting procedures, after receipt of a SETUP message not containing a signal information element, returns a CALL CONFIRMED message.

2) To verify that subsequently, the SS sending an ASSIGNMENT COMMAND message, the MS successfully continues a mobile terminating call establishment with early assignment of traffic channel:

   a) by replying to the ASSIGNMENT command with an ASSIGNMENT COMPLETE message; and

   b) by continuing the call establishment by either sending one or two CONNECT messages or sending an ALERTING message,

steps a) and b) being performed in any permitted interleaving.

3) To verify that if an ALERTING had been sent, subsequently, when the user accepts the call (possibly internal action as declared in PICS/PIXIT statement), the MS returns a CONNECT message.

4) To verify that subsequently upon receipt of a CONNECT ACKNOWLEDGE message the MS can initiate call clearing by sending a DISCONNECT message.

5) To verify that the MS in this phase of call release, upon receipt of a RELEASE message, returns a RELEASE COMPLETE message, releasing the RR-connection and returns to "Idle, Updated" state.

6) To verify that subsequently the MS, upon receipt of a CHANNEL RELEASE message, releases the RR-connection and returns to "Idle, Updated" state.

Test case:

TP1: II.5.3.9.4.2, Method of test, b), c), d), e), f), g), and h) II.5.3.9.4.3, Requirement 5).

TP2: II.5.3.9.4.2, Method of test, i), j) II.5.3.9.4.3, Requirements 5), 6), 7).

TP3: II.5.3.9.4.2, Method of test, j) II.5.3.9.4.3, Requirements 7) and 9).

TP4: II.5.3.9.4.2, Method of test, k), l) II.5.3.9.4.3, Requirement 11).

TP5: II.5.3.9.4.2, Method of test, m) II.5.3.9.4.3, Requirement 12).

TP6: II.5.3.9.4.2, Method of test, n) II.5.3.9.4.3, Requirement 13).

Conformance requirement:

1) The MS shall acknowledge the SETUP message with a CALL CONFIRMED message, if compatibility checking was successful, the MS is not busy, and the user does not refuse the call.

2) The MS on acceptance of the call sends a CONNECT, otherwise user alerting is initiated. ASSIGNMENT COMMAND is answered by ASSIGNMENT COMPLETE.

3) An MS indicates acceptance of a MT call by sending CONNECT.

4) Subsequently upon receipt of a CONNECT ACKNOWLEDGE message the MS can initiate call clearing by sending a DISCONNECT message.

5) The MS in this phase of call release, upon receipt of a RELEASE message, shall return a RELEASE COMPLETE message, releasing the RR-connection and return to "Idle, Updated" state.

6) Subsequently the MS, upon receipt of a CHANNEL RELEASE message, shall release the RR-connection and return to "Idle, Updated" state.

Requirement reference:

TP1: TS GSM 04.08, section 5.2.2.3.1.

TP2: TS GSM 04.08, section 5.2.2.3.2, 3.4.3.1.

TP3: TS GSM 04.08 section 5.2.2.5.

TP4, TP5: TS GSM 04.08 section 5.4.

TP6: TS GSM 04.08, section 3.5.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test purposes relate to the normal sequence of protocol during an MTC. This sequence is not applied in tests of call control in II.5.3.8. If any one or a series of these procedures are incorrectly implemented in the MS, the establishment and clearing of mobile terminating calls might fail or the network resources might be misused or endangered.

EC Terminal Directive reference:

Articles 4d, 4e, and 4f.

19.4 MS terminating call establishment, late assignment (No verification of audio path)

Test purpose:

1) To verify that the MS in "Idle, Updated" state with a TMSI assigned, after being paged by the network on the correct paging subchannel, after initiating the immediate assignment procedure by sending the CHANNEL REQUEST message, after receipt of an IMMEDIATE ASSIGNMENT message allocating an SDCCH, after having established the data link, after having sent a PAGING RESPONSE message, after having performed successful authentication and cipher mode setting procedures, after receipt of a SETUP message containing a signal information element, returns:

   - a CALL CONFIRMED message followed by an ALERTING message;

- or an ALERTING message;

- or a CALL CONFIRMED message and then a CONNECT message.

2) To verify that subsequently the MS, if it had not yet sent a CONNECT message, upon acceptance of the call, sends a CONNECT message.

3) To verify that subsequently after receipt of an ASSIGNMENT COMMAND, the MS sends a ASSIGNMENT COMPLETE message.

Test case:

TP1: II.5.3.9.5.2, Method of test, a) II.5.3.9.5.3, Requirement 2).

TP2: II.5.3.9.5.2, Method of test, b) II.5.3.9.5.3, Requirement 4).

TP3: II.5.3.9.5.2, Method of test, c) II.5.3.9.5.3, Requirement 5).

Conformance requirement:

TP1: The MS shall acknowledge the SETUP message with a CALL CONFIRMED message, if compatibility checking was successful, the MS is not busy, and the user does not refuse the call.

TP2: The MS on acceptance of the call sends a CONNECT, otherwise user alerting is initiated.

TP3: ASSIGNMENT COMMAND is answered by ASSIGNMENT COMPLETE.

Requirement reference:

TP1: TS GSM 04.08, section 5.2.2.3.1.

TP2: TS GSM 04.08, section 5.2.2.3.2.

TP3: TS GSM 04.08, section 3.4.3.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

The test purposes relate to the normal sequence of protocol during an MTC with OACSU. This sequence is not applied in tests of call control in II.5.3.8. If any one or a series of these procedures are incorrectly implemented in the MS, the establishment and clearing of mobile terminating calls might fail or the network resources might be misused or endangered.

EC Terminal Directive reference:

Articles 4d, 4e, and 4f.

20 Synchronization to the system

20.1 Receive/Transmit Delay

20.1.1 Absolute Delay and Timing Advance Setting

Test purpose:

1) To verify that the MS transmits access bursts respecting the absolute receive/transmit delay requirements and using a timing advance value of 0.

2) To verify that the MS respects the absolute receive/transmit delay requirements for normal bursts.

3) To verify that the MS implements a new timing advance value as specified in the requirement.

4) To verify that the MS sends the current timing advance on the uplink SACCH as defined in the requirements.

Test case:

GSM 11.10 II.6.1.2.1.

Conformance requirement:

1) The MS Random Access burst transmission, measured at the MS antenna, shall be 3 timeslots behind the transmissions received from the BTS (i.e. Timing Advance value of 0 for the Random Access burst sent), with an absolute tolerance of +/- 1 bit period.

2) The MS normal burst transmissions to the BTS, measured at the MS antenna, shall be 3 timeslots-Timing Advance behind the transmissions received from the BTS. The tolerance on these timings shall be +/- 1 bit period.

3) When the MS receives a new value of Timing Advance from the BTS on the SACCH, it shall implement the new value of Timing Advance at the first TDMA frame belonging to the next reporting period.

4) The MS shall signal the used Timing Advance to the BTS as defined in GSM 05.10, in the L1 header described in GSM 04.04 7.2.

Requirement reference:

1) GSM 05.10 6.4, GSM 05.10 6.6;

2) GSM 05.10 6.4;

3) GSM 05.10 6.5;

4) GSM 05.10 6.4 ,GSM 04.04 7.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) If the timing advance value is not 0 for the RA burst, the network calculates the timing advance value for normal bursts incorrectly. In such case the MS may not be able to create a link to the BTS, and the faulty MS may interfere with the TX bursts of other MS's.

2) If the MS uses an incorrect timing for TX bursts, the link to the BTS may be disconnected and the faulty MS may interfere with the TX bursts of other MS's.

3) If the MS implements the new TA value too late, the connection between the MS and the BTS may be degraded or lost and the MS may interfere with other users.

4) Without the information of the actual TA value the network cannot adjust the TA correctly. This can lead to disconnection of the link, and the MS may interfere with TX bursts of other MS's.

EC Terminal Directive reference:

Article 4f.

20.1.2 Reception Time Tracking Speed

Test purpose:

1) To verify that the MS adapts its transmit time to 7.4 microsecond change in the timing of the received signal under the TU50 condition, in the limits given in the figure of the section II.6.1.2.2.

2) To verify that the MS adapts its transmit time to 7.4 microsecond change in the timing of the received signal under the RA250 condition in the limits given in the figure of the section II.6.1.2.2.

Test case:

GSM 11.10 II.6.1.2.2.

Conformance requirement:

1) The MS shall adjust its timebase in steps of 1/4 bit period, in intervals not less than 1 s and not greater than 2 s until the timing difference is less than 1/2 bit periods in the conditions described in chapter 6 of GSM 05.10.

2) The MS shall adjust its timebase in steps of 1/4 bit period, in intervals not less than 1 s and not greater than 2 s until the timing difference is less than 1/2 bit periods in the conditions described in chapter 6 of GSM 05.10.

Requirement reference:

GSM 05.10 6.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS cannot adapt itself to the changes in the timing the link between the MS and the BTS will be lost.

EC Terminal Directive reference:

Article 4f.

20.2 Access Times During Handover

20.2.1 Intra-Cell Handover

Test purpose:

1) To verify that the MS, when commanded to handover on a new ARFCN and a new Timeslot Number within the same cell, Starting Time not used in the ASSIGNMENT_COMMAND, will transmit on the new channel within 131 ms of the last timeslot containing the ASSIGNMENT_COMMAND.

2) To verify that the MS, when commanded to handover on a new ARFCN and a new Timeslot Number within the same cell, Starting Time not used in the ASSIGNMENT_COMMAND, will transmit on the new channel within 27.7 ms of the last complete speech/data frame or message block sent on the old channel.

Test case

1) GSM 11.10 II.6.1.3.1 req 1).

2) GSM 11.10 II.6.1.3.1 req 2).

Conformance requirement:

1) When the MS receives an intracell channel change command or a handover command it shall be ready to transmit on the new channel within 120 ms of the last timeslot of the message block containing the command.

2) The time between the end of the last complete speech or data frame or message block sent on the old channel and the time the MS is ready to transmit on the new channel shall be less than 20 ms.

Requirement reference:

GSM 05.10 6.8.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) If the MS cannot meet this requirement it may not be possible to handover the MS before the link degrades.

2) If the MS cannot meet this requirement the interrupt in the connection may become too long (e.g. in the TCH/FS case there can be an audible break in the connection).

EC Terminal Directive reference:

Article 4f.

20.2.2 Inter-Cell Handover

Test purpose:

1) To verify that the MS, when commanded to handover on a new ARFCN and a new Timeslot Number in a new, not synchronised, cell, Starting Time not used in the HANDOVER_COMMAND, will transmit on the new channel within 142.6 ms of the last timeslot containing the HANDOVER_COMMAND.

2) To verify that the MS, when commanded to handover on a new ARFCN and a new Timeslot Number in a new, not synchronised, cell, Starting Time not used in the HANDOVER_COMMAND, will transmit on the new channel within 39.2 ms of the last complete speech or data frame or message block sent on the old channel.

3) To verify that the MS, when it receives a new Timing Advance value in response to a handover access burst, is ready to transmit using the new Timing Advance value within 50 ms of the end of the last timeslot of the message block containing the new Timing Advance value.

4) To verify that the MS uses a Timing Advance value of 0 for the Handover Access bursts sent.

Test case:

1) GSM 11.10 II.6.1.3.2 req 1);

2) GSM 11.10 II.6.1.3.2 req 2);

3) GSM 11.10 II.6.1.3.2 req 3);

4) GSM 11.10 II.6.1.3.2 req 4).

Conformance requirement:

1) When the MS receives a handover command it shall be ready to transmit on the new channel within 120ms of the last timeslot of the message block containing the HANDOVER_COMMAND.

2) The time between the end of the last complete speech or data frame or message block sent on the old channel and the time the MS is ready to transmit on the new channel shall be less than 20 ms.

3) When the MS receives a new Timing Advance value in response to a handover access burst, the MS shall be ready to transmit using the new Timing Advance value within 40 ms of the end of the last timeslot of the message block containing the new Timing Advance value.

4) The MS shall use a Timing Advance value of 0 for the Handover Access bursts sent.

Requirement reference:

1) GSM 05.10 6.8, GSM 05.05 Annex 3;

2) GSM 05.10 6.8 ,GSM 05.05 Annex 3;

3) GSM 05.10 6.9;

4) GSM 05.10 6.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) If the MS cannot meet this requirement it may not be possible to handover the MS before the link degrades.

2) If the MS cannot meet this requirement, the interrupt in the connection may become too long (e.g. in the TCH/FS case there can be an audible break).

3) If the MS cannot read the new TA value the MS may remain transmitting the access bursts for longer time than specified, or transmit the traffic information with a wrong time alignment causing too long a break in the connection and may interfere with other users.

4) If the timing advance value is not 0 for the access burst, the network calculates the timing advance value for normal bursts incorrectly. In such case the MS-BTS link can be disconnected and the faulty MS may interfere with TX bursts of other MS's.

EC Terminal Directive reference:

TP1: Article 4f.
TP2: Article 4f.
TP3: Article 4f.
TP4: Article 4f.

20.3 Temporary Reception Gaps

Test purpose:

1) To verify that, during a temporary total loss of signal of 63 SACCH block periods, the MS carrier frequency is accurate to within 0.2 ppm of the signals previously received from the BTS.

2) To verify that, the MS transmissions to the BTS, measured at the MS antenna, is 3 timeslots behind the transmissions received from the BTS. The tolerance on these timings is +/-1 bit period.

3) To verify that, during a temporary total loss of signal, of up to 63 SACCH block periods, the MS transmission timing may have drifted resulting in an error not greater than +/-6.048 µs (0.2 ppm of 63 SACCH blocks).

Test case:

1) GSM 11.10 II.6.1.4.1 req 1);

2) GSM 11.10 II.6.1.4.1 req 2);

3) GSM 11.10 II.6.1.4.1 req 4).

Conformance requirement:

1) During a temporary total loss of signal, of up to 64 SACCH block periods, the MS shall update its timebase with a clock which is accurate to within 0.2 ppm of the signals previously received from the BTS. The MS shall use the same frequency source for both RF frequency generation and clocking the timebase. This requirement is applicable only to the MS's where the call cannot be released automatically.

2) The MS shall time its transmissions to the BTS according to signals received from the BTS. The MS transmissions to the BTS, measured at the MS antenna, shall be 3 timeslots - Timing Advance behind the transmissions received from the BTS, where Timing Advance is the last timing advance received from the current serving BTS. This requirement is applicable only to the MS's where the call cannot be released automatically.

3) During a temporary total loss of signal, of up to 64 SACCH block periods, the MS shall update its timebase with a clock which is accurate to within 0.2 ppm of the signals previously received from the BTS. This requirement is applicable only to the MS's where the call cannot be released automatically.

Requirement reference:

1) GSM 05.10 6.7, GSM 05.10 6.1;

2) GSM 05.10 6.4;

3) GSM 05.10 6.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) If the MS can not maintain its carrier accuracy it may interfere with other users of the spectrum.

2) If the MS cannot meet the requirement and there is a loss of the BTS signal during 64 SACCH frames the MS may be transmitting with incorrect timing, which can lead to disconnection of the link and may also cause interference to TX bursts of other MS's.

3) If the transmission timing on the MS drifts more than specified, the BTS may not be able receive the MS bursts after the gap.

EC Terminal Directive reference:

Article 4f.

20.4 Channel Release after Unrecoverable Errors

Test purpose:

1) To verify that the MS can extract the RADIO_LINK_TIMEOUT value from the System Information #3 and initialize the counter S with this value.

2) To verify that the counter S will reach its maximum, RADIO_LINK_TIMEOUT, after 32 error free SACCH blocks.

3) To verify that the MS will decrease the counter S by 1 on reception of an erroneous SACCH frame.

4) To verify that the MS will increase S by 2 on reception of an error free SACCH frame.

5) To verify that the MS declares RADIO_LINK_FAILURE and clears the RR-connection when the counter S reaches 0.

Test case:

1) GSM 11.10 II.6.1.5.2/3, II.6.1.5.4/5, II.6.1.5.6/7;

2) GSM 11.10 II.6.1.5.2/3, II.6.1.5.4/5, II.6.1.5.6/7;

3) GSM 11.10 II.6.1.4.1, II.6.1.5.2/3, II.6.1.5.4/5, II.6.1.5.6/7;

4) GSM 11.10 II.6.1.4.1 ,II.6.1.5.2/3, II.6.1.5.4/5, II.6.1.5.6/7;

5) GSM 11.10 II.6.1.4.1 ,II.6.1.5.2/3 ,II.6.1.5.4/5 ,II.6.1.5.6/7.

Conformance requirement:

1) The RADIO_LINK_TIMEOUT parameter, transmitted by each BTS in the BCCH System Information #3 and #6 data, must be received by the MS and used for initializing the counter S. This requirement is applicable only to the MS's where the call cannot be released automatically.

2) S shall not exceed the value of RADIO_LINK_TIMEOUT.This requirement is applicable only to the MS's where the call cannot be released automatically.

3) If the MS is unable to decode a SACCH message, S is decreased by 1. This requirement is applicable only to the MS's where the call cannot be released automatically.

4) In the case of a successful reception of a SACCH message S is increased by 2. This requirement is applicable only to the MS's where the call cannot be released automatically.

5) If S reaches 0 a radio link failure shall be declared. The action to be taken is specified in GSM Recommendation 04.08. This requirement is applicable only to the MS's where the call cannot be released automatically.

Requirement reference:

1) GSM 05.08 5.2;

2) GSM 05.08 5.2, GSM 04.04 10.5.2.3;

3) GSM 05.08 5.2 ,GSM 04.08 3.5.2.1;

4) GSM 05.08 5.2, GSM 04.08 3.5.2.1;

5) GSM 05.08 5.2 ,GSM 04.08 3.5.2.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) If the MS initializes the S counter incorrectly the MS may release a call which is of good quality, or maintain a call past the point at which it can be terminated correctly.

2) If the S counter value exceeds the RADIO_LINK_TIMEOUT value the call release, based on the radio link timeout, may be performed too late, i.e. beyond the point at which a normal release can be performed.

3) If the MS decreases the counter with a value different from 1 the MS may release a call with a good quality, or maintain a call past the point at which it can be terminated correctly.

4) If the MS increments the counter S with a value other than 2 the MS may release a call with a good quality, or maintain a call past the point at which it can be terminated correctly.

5) If the MS declares RADIO_LINK_FAILURE and clears the connection with other S value than 0 the MS may release a call with a good quality, or maintain a call past the point at which it can be terminated correctly.

EC Terminal Directive reference:

Article 4f.

20.5 Cell Selection/Reselection

20.5.1 Cell Selection

Test purpose:

To verify that the MS selects after switch-on the suitable cell according to the cell selection algorithm defined in GSM 05.08 6.2, under the initial conditions described in GSM 11.10 II.6.1.6.2 and II.6.1.6.3. The following items are verified:

1) The MS selects a cell belonging to the Home PLMN.

2) The MS selects a cell with the C1 parameter > 0.

3) The MS selects a cell with CELL_BAR_ACCESS set to 0 (not barred).

4) The MS selects the correct cell irrespective of the Access Class value .

5) The MS selects initially the cell with the highest signal strength value.

6) The cell selection will be performed even if the stored BA information is incorrect.

Test case:

GSM 11.10 II.6.1.6.3/4.

Conformance requirement:

An MS shall select, after switch-on, the suitable cell according to the cell selection algorithm defined in GSM 05.08 6.2, under the initial conditions described in GSM 11.10 II.6.1.6.2 and II.6.1.6.3.

Requirement reference:

GSM 05.08 6.1, GSM 05.08 6.2, GSM 05.08 6.3, GSM 05.08 6.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

The MS shall camp on the correct cell after the switch-on (i.e. the MS shall choose the correct PLMN and the cell that offers the best connection). When selecting the cell the MS must interpret and use the BCCH data (e.g. CELL_BAR_ACCESS, RXLEV_ACCESS_MIN) correctly so that the "suitable cell" will be selected, because otherwise the MS may select a cell that cannot give the best service or service at all. Also the MS should not select another cell if the access class restrictions prevent the MS from communicating with the chosen cell.

EC Terminal Directive reference:

Article 4f.

20.5.2 Cell Reselection

Test purpose:

To verify that the MS will perform cell reselection on a cell according to the cell reselection algorithm defined in GSM 05.08 6.6, under the initial conditions described in GSM 11.10 II.6.1.6.1 and II.6.1.6.6 . The following items are verified:

1) The cell with the best C1 value will be selected even if the MS selects another cell initially after switch-on.

2) The MS selects a new cell if the RA requests have not been answered on the old cell.

3) The MS selects a new cell belonging to the Home PLMN.

4) The MS selects a new cell with the C1 parameter > 0.

5) The MS selects a new cell with CELL_BAR_ACCESS set to 0 (not barred).

6) The MS selects a new cell if the Downlink Signalling counter has reached 0 on the old cell.

7) The MS selects a new cell if the old cell becomes barred.

8) The MS applies the CELL_RESELECT_HYSTERESIS when selecting a new cell if the new cell has a Location Area Code different from the old cell.

Test case:

GSM 11.10 II.6.1.6.6/7.

Conformance requirement:

An MS shall perform cell reselection on a cell according to the cell reselection algorithm defined in GSM 05.08 6.6, under the initial conditions described in GSM 11.10 II.6.1.6.1 and II.6.1.6.6.

Requirement reference:

GSM 05.08 6.4, GSM 05.08 6.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met the MS may not choose the cell which gives the best connection, or it makes cell reselection too often (this decreases the probability to get the MS paged, and in the boundary of two location areas the MS may be toggling between the two LA's causing unnecessary location updates).

EC Terminal Directive reference:

Article 4f.

20.5.3 Cell Selection after Release of TCH and SDCCH

Test purpose:

1) To verify that the MS performs cell selection after normal release of a traffic channel (TCH).

2) To verify that the MS initiates the call re-establishment if the re-establishment is allowed and a radio link failure occurs.

3) To verify that the MS doesn't attempt the call re-establishment to a cell where the re-establishment is not allowed.

Test case:

TP 1: GSM 11.10 II.6.1.6.9 steps a) to f), II.6.1.6.10;

TP 2: GSM 11.10 II.6.1.6.9 steps g) to h), II.6.1.6.10;

TP 3: GSM 11.10 II.6.1.6.9 steps i) to k), II.6.1.6.10.

Conformance requirement:

1) An MS shall perform cell selection after normal release of a traffic channel (TCH).

2) An MS shall initiate call re-establishment if re-establishment is allowed and a radio link failure occurs.

3) An MS shall not attempt call re-establishment to a cell where re-establishment is not allowed.

Requirement reference:

GSM 05.08 6.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

If these requirements are not met the MS may not be able to select the cell offering the best connection after the release of a dedicated channel.

EC Terminal Directive reference:

Article 4f.

20.5.4 Cell Selection (Abnormal Cases and Emergency Calls)

Test purpose:

1) To verify that the MS will perform cell reselection and selection so that no RA responses will be sent in response to the paging messages, when there are only cells belonging to a forbidden PLMN.

2) To verify that the MS can initiate emergency calls when other GSM cells than suitable cells of the selected PLMN are available.

3) To verify that the MS will perform cell selection when a suitable cell of the selected PLMN becomes available.

4) To verify that if the SIM card is not inserted the ME doesn't respond to paging messages with RA requests.

5) To verify that emergency calls can be initiated without SIM card.

Test case:

1) GSM 11.10 II.6.1.6.12, steps a) and b), II.6.1.6.13;

2) GSM 11.10 II.6.1.6.12, steps c) to d), II.6.1.6.13;

3) GSM 11.10 II.6.1.6.12, steps e) to f), II.6.1.6.13;

4) GSM 11.10 II.6.1.6.12, steps g) and h), II.6.1.6.1;

5) GSM 11.10 II.6.1.6.12, steps i) and j), II.6.1.6.13.

Conformance requirement:

1) An MS shall perform cell reselection and selection so that no RA responses will be sent in response to the paging messages, when there are only cells belonging to a forbidden PLMN.

2) An MS shall be able to initiate emergency calls when other GSM cells than suitable cells of the selected PLMN are available.

3) An MS shall perform cell selection when a suitable cell of the selected PLMN becomes available.

4) If the SIM card is not inserted the ME shall not respond to paging messages with RA requests.

5) The MS shall be able to initiate emergency calls without SIM card.

Requirement reference:

GSM 05.08 6.8.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) *If the MS does not fulfil the requirement, the MS may try to establish connection to a non-permitted network (causing unnecessary load to the network).*

2) *It is essential that the MS user is able to make an emergency call, even if there are only other cells available than suitable GSM cells of the selected PLMN.*

3) *If the MS fails to select a suitable cell of the selected PLMN when it comes available, the MS may remain camped on a cell which does not offer any service to the MS user (other than emergency calls).*

4) *The MS shall not try to establish any other calls than emergency calls if there is no valid subscriber identity in the MS, because the non-emergency call attempts would cause unnecessary load to the network.*

5) *It is essential that the MS user is able to make an emergency call, even if there is no SIM card inserted in the MS.*

EC Terminal Directive reference:

TP1: Article 4d.
TP2: Article 4f.
TP3: Article 4f.
TP4: Article 4d.
TP5: Article 4f.

20.6 RX Measurement

20.6.1 Signal Strength

Test purpose:

1) To verify that the RMS received signal level at the receiver input is reported by the MS to the BTS over the full range of -110dBm to -48 dBm with a relative accuracy of +/- 1dB within any 20dB portion of the total measurement range.

2) To verify that the RMS received signal level at the receiver input is reported by the MS to the BTS over the full range of -110dBm to -48 dBm with an absolute accuracy of +/- 4dB from -110 dBm to -70dBm under normal conditions and +/- 6dB over the full range under both normal and extreme conditions.

3) To verify that if the received signal level falls below the reference sensitivity level for the class of MS then the MS shall report a level between the reference sensitivity level and the actual received level.

Test case:

GSM 11.10 II.6.2.1.1.

Conformance requirement:

1) The RMS received signal level at the receiver input shall be reported by the MS over the full range of -110dBm to -48 dBm with a relative accuracy of +/- 1dB within any 20dB portion of the total measurement range.

2) The RMS received signal level at the receiver input shall be reported by the MS over the full range of -110dBm to -48 dBm with an absolute accuracy of +/- 4dB from -110 dBm to -70dBm under normal conditions and +/- 6dB over the full range under both normal and extreme conditions.

3) If the received signal level falls below the reference sensitivity level for the class of MS or BTS then the MS or BTS shall report a level between the reference sensitivity level and the actual received level.

Requirement reference:

GSM 05.08 8.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) If the RX_LEVEL parameter is incorrectly reported to the network, the handovers may be based on an incorrect information leading to sub-optimal use of the network resources and in the extreme to the inability to maintain a call.

2) The same as in II.6.2.1.1/tp1.

3) The same as in II.6.2.1.1/tp1.

EC Terminal Directive reference:

Article 4f.

20.6.2 Signal Quality

20.6.2.1 Signal Quality under Static Conditions

Test purpose:

1) To verify under static conditions that the received signal quality is measured and reported to the eight levels of RXQUAL_FULL and RXQUAL_SUB by the MS in a manner that can be related to an equivalent average BER before channel decoding (i.e chip error ratio), assessed over the reporting period of 1 SACCH block (104 TDMA frames) for the TCH/FS. The probability that the correct RXQUAL band is reported shall meet the values given in the specification GSM 05.08 8.2.4.

2) To verify that the reported parameters (RXQUAL) is the received signal quality, averaged over the reporting period of length one SACCH block (104 TDMA frames on the TCH).

Test case:

GSM 11.10 II.6.2.2.1.

Conformance requirement:

1) The received signal quality shall be measured by the MS in a manner that can be related to an equivalent average BER before channel decoding (i.e chip error ratio), assessed over the reporting period of 1 SACCH block, in static conditions. When the quality is assessed over the full-set and sub-set of frames, eight levels of RXQUAL are defined and shall be mapped to the equivalent BER before channel decoding as per the table in GSM 05.08 8.2.4.

2) The reported parameters (RXQUAL) shall be the received signal quality, averaged over the reporting period of length one SACCH block.

Requirement reference:

1) GSM 05.08 8.2.2, 8.2.4;

2) GSM 05.08 8.2.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) The quality parameters are essential for the RF power control and as handover criteria. If the parameters are reported incorrectly, it may lead to sub-optimal use of network resources and in the extreme to the inability to maintain a call.

2) The same as in II.6.2.2.1/tp2.

EC Terminal Directive reference:

Article 4f.

20.6.2.2 Signal Quality under TU50 Propagation Conditions

Test purpose:

1) To verify, under TU50 conditions, that the received signal quality is measured and reported to the five levels (0 to 4) of RXQUAL_FULL by the MS in a manner that can be related to an equivalent average BER before channel decoding (i.e chip error ratio), assessed over the reporting period of 1 SACCH block (104 TDMA frames) for the TCH/FS. The probability that the correct RXQUAL band is reported shall meet the values referred in the specification GSM 05.08 8.2.4, and given in the specification GSM 11.10 II.6.2.2.2.2.

2) To verify that the reported parameters (RXQUAL) is the received signal quality, averaged over the reporting period of length one SACCH block (104 TDMA frames on the TCH).

Test case:

GSM 11.10 II.6.2.2.2.

Conformance requirement:

1) The received signal quality shall be measured by the MS in a manner that can be related to an equivalent average BER before channel decoding (i.e chip error ratio), assessed over the reporting period of 1 SACCH block, in TU50 conditions. When the quality is assessed over the full-set and sub-set of frames, eight levels of RXQUAL are defined and five (0 to 4) shall be mapped to the equivalent BER before channel decoding as required in GSM 05.08 8.2.4.

2) The reported parameters (RXQUAL) shall be the received signal quality, averaged over the reporting period of length one SACCH block.

Requirement reference:

1) GSM 05.08 8.2.2;

2) GSM 05.08 8.2.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) The same as in II.6.2.2.1/tp1.

2) The same as in II.6.2.2.1/tp1.

EC Terminal Directive reference:

Article 4f.

20.7 Power Control

Test purpose:

1) To verify that the MS will employ the RF power level indicated by the SS in the TXPWR field.

2) To verify that the MS will confirm the power level that it is currently employing by setting the MS_TXPWR_CONF field in the uplink SACCH L1 header to its current power setting. The value of this field is the power setting actually used by the mobile for the last burst of the previous SACCH period.

3) To verify that when accessing a cell on the RACH and before receiving the first power command during a communication on a TCH, the MS shall use either the power level defined by the MS_TXPWR_MAX_CCH parameter broadcast on the BCCH of the cell, or the maximum TXPWR of the MS as defined by its power class, whichever is the lower.

4) To verify that the MS upon receipt of a command from the SACCH will change its RF power level to the new level at a rate of one nominal 2dB power step every 60ms.

5) To verify that the MS will commence the change of power level at the first TDMA frame belonging to the next reporting period.

6) To verify that in case of new channel assignment the commanded power level is applied on the new channel on the first TDMA frame.

Test case:

GSM 11.10 II.6.3.

Conformance requirement:

1) The RF power level to be employed by the MS is indicated by means of the TXPWR field sent either in the layer 1 header of each downlink SACCH message block, or in a dedicated signalling block.

2) The MS shall confirm the power level that it is currently employing by setting the MS_TXPWR_CONF field in the uplink SACCH L1 header to its current power setting.

3) When accessing a cell on the random access and before receiving the first power command during a communication on a TCH, the MS shall use either the power level defined by the MS_TXPWR_MAX_CCH parameter broadcast on the BCCH of the cell, or the maximum TXPWR of the MS as defined by its power class, whichever is the lower.

4) Upon receipt of a command from the SACCH to change its RF power level, the MS shall change to the new level at a rate of one nominal 2dB power step every 60ms.

5) The change shall commence at the first TDMA frame belonging to the next reporting period.

6) In case of channel change the commanded power level shall be applied on the new channel immediately.

Requirement reference:

1) GSM 05.08 4.2;

2) GSM 05.08 4.2;

3) GSM 05.08 4.2;

4) GSM 05.08 4.7;

5) GSM 05.08 4.7;

6) GSM 05.08 4.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) Power control enables minimal use of MS TX-power, and thus efficient use of the radio spectrum

2) The BTS needs to know the actual power used by the MS so as to calculate any power change command needed.

3) The MS shall keep a reasonable power level in order not to interfere too much with the transmission by other mobiles. This maximum power level is broadcast by each cell.

4) The MS shall use a new power level when commanded by the network. If the change is very rapid the BTS may miss the transmissions due to an incorrect AGC setting.

5) To keep a correct assessment of the radio channel it is essential always to use the right power level and to change at reporting period boundaries.

6) For the efficient use of radio spectrum the MS shall always use the power setting commanded by the BTS. In the case of a channel change the link requirements will be different and are calculated in advance of the instruction to change.

EC Terminal Directive reference:

TP1: Article 4e.
TP2: Article 4e.
TP3: Article 4e.
TP4: Article 4e.
TP5: Article 4e.
TP6: Article 4e.

21 Testing of the ME/SIM (subscriber identification module) interface

21.1 Test Sequence 1

Test purpose:

1) To verify that the ME uses the IMSI as it is stored on the SIM.

2) To verify that the ME can handle IMSIs of less than the maximum length.

Test case:

GSM 11.10, II.8.1.

Conformance requirement:

On the receipt of an IMMEDIATE ASSIGNMENT message the MS shall send PAGING RESPONSE containing the correct IMSI as it is stored in the SIM.

Requirement references:

GSM 11.11, 4.2.1;

GSM 04.08, 10.5.1.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS will not be able to identify itself to the network and therefore not to establish a connection.

EC Terminal Directive reference:

Article 4f.

21.2 Test Sequence 2

Test purpose:

1) To verify that the ME uses the TMSI as it is stored on the SIM.

2) To verify that the ME can handle TMSIs of less then the maximum length.

Test case:

GSM 11.10, II.8.2.

Conformance requirement:

On the receipt of an IMMEDIATE ASSIGNMENT message the MS shall send PAGING RESPONSE containing the correct TMSI as it is stored in the SIM.

Requirement references:

GSM 11.11, 4.2.1;

GSM 04.08, 10.5.1.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS will not be able to identify itself to the network.

EC Terminal Directive reference:

Article 4f.

21.3 Test Sequence 3

Test purpose:

1) To verify that when a SIM with a different TMSI value is introduced into the ME, the ME uses the new TMSI value.

2) To verify that the ME can handle TMSIs of maximum length.

Test case:

GSM 11.10, II.8.3.

Conformance requirement:

On a receipt of an IMMEDIATE ASSIGNMENT message the MS shall send PAGING RESPONSE containing the correct TMSI as it is stored in the SIM.

Requirement reference:

GSM 11.11, 4.2.1;

GSM 04.08, 10.5.1.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS will not be able to send its correct identification to the network.

EC Terminal Directive reference:

Article 4f.

21.4 Test Sequence 4

Test purpose:

1) To verify that when a SIM with a different IMSI value is introduced into the ME, the values previously used by the ME have been deleted after the SIM initialisation procedure.

2) To verify that the ME can handle an IMSI of maximum length.

3) To verify that after Ciphering Mode Setting the ME updates the SIM with the new value of the Cipher Key Sequence Number at call termination.

4) To verify that the TMSI data-field in the SIM is correctly updated by the ME at call termination.

Test case:

GSM 11.10, II.8.4.

Conformance requirements:

1/2) After the receipt of the IMMEDIATE ASSIGNMENT message the MS shall send PAGING RESPONSE containing the correct IMSI as it is stored in the SIM.

3/4) After call termination the SIM shall contain the correct Cipher Key Sequence Number and TMSI received by the MS during the Authentication and TMSI Reallocation procedures.

Requirement reference:

GSM 02.17, 3.2.1;

GSM 04.08, 10.5.1.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

1/2) If this requirement is not met, the MS will not be able to identify itself to the network and therefore not to establish a connection.

3/4) If this requirement is not met, the Cipher Key Sequence Number and TMSI will be invalid if the SIM is used again, which will cause additional signalling traffic.

EC Terminal Directive reference:

Article 4f.

21.5 Test Sequence 5

Test purpose:

1) To verify that the ME does not attempt to access PLMNs stored in the Forbidden PLMN data-field in the SIM in automatic PLMN selection mode.

2) To verify that the Forbidden PLMN data-field is correctly updated by the ME after the receipt of a LOCATION UPDATED REJECTED message with the reason PLMN NOT ALLOWED.

3) To verify that the Location-Information data-field in the SIM is correctly updated during the SIM deactivation procedure.

Test case:

GSM 11.10, II.8.5.

Conformance requirement:

1) The MS shall only attempt a LOCATION UPDATE in automatic PLMN selection mode if it receives a BCCH containing a LAI that is not indicated in the Forbidden PLMN data-field in the SIM.

2) After the receipt of a LOCATION UPDATE REJECTED message with the reason PLMN NOT ALLOWED the ME shall update the forbidden PLMN data-field in the SIM.

3) During the SIM deactivation procedure the ME shall update the Location Information data-field in the SIM.

Requirement references:

GSM 02.11, 3.2.2.1;

GSM 11.11, 4.2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If these requirements are not met, the MS will try to access 'forbidden' PLMNs, even when it has been rejected before. Furthermore, a LOCATION UPDATE procedure will be introduced at any time the MS is switched on. Depending on the network settings this may include a TMSI REALLOCATION procedure and cause additional signalling traffic.

EC Terminal Directive reference:

Articles 4d and 4f.

21.6 Test Sequence 7 - Electrical Tests

21.6.1 Test of Power Transition Phases

21.6.1.1 Phase preceding ME Power-On

Test purpose:

To verify that there are no residual voltages on the SIM/ME interface before the ME is powered on.

Test case:

GSM 11.10, II.8.7.1.1.

Conformance requirement:

The voltages across the contacts shall correspond to inactive levels, i.e. between 0 and 0,4V.

Requirement reference:

GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, unforeseeable damages in SIM data may occur. As a result network security and performance will suffer from degradation due to faulty data transmitted by the MS.

EC Terminal Directive reference:

Articles 4d, and 4f.

21.6.1.2 Phase during SIM Power-On

Test purpose:

To verify the contact activation sequence on the SIM/ME interface during SIM power-on.

Test case:

GSM 11.10, II.8.7.1.2.

Conformance requirement:

The contacts shall be activated in the correct order.

Requirement reference:

GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME might not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4d.

21.6.1.3 Phase During Power Off

Test purpose:

To verify the contact deactivation sequence on the SIM/ME interface during SIM power-off.

Test case:

GSM 11.10, II.8.7.1.3.

Conformance requirement:

The contacts shall be deactivated in the correct order.

Requirement reference:

GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, unforeseeable damages in SIM data may occur. As a result network security and performance will suffer from degradation due to faulty data transmitted by the MS.

EC Terminal Directive reference:

Articles 4d, and 4f.

21.6.2 Electrical Tests on each ME Contact

21.6.2.1 Electrical Tests on Contact C1

21.6.2.1.1 Test 1

Test purpose:

1) To verify the nominal voltage on contact C1 (Vcc) at maximum current, under normal test conditions.

Test case:

GSM 11.10, II.8.7.2.1.1.

Conformance requirement:

1) The voltage shall be within the specified range, i.e 5V +/- 10 % with Icc at 10 mA.

Requirement references:

1) GSM 11.11, 6.2.3, 6.2.5

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, unforeseeable damages in SIM data may occur. As a result network security and performance will suffer from degradation due to faulty data transmitted by the MS.

EC Terminal Directive reference:

TP1: Articles 4d and 4f.

21.6.2.1.2 Test 2

Test purpose:

To verify the voltage does not collapse when subjected to current spikes.

Test case:

GSM 11.10, II.8.7.2.1.2.

Conformance requirement:

1) The voltage shall be within the specified range, i.e. 5V +/- 10 %, when subjected to current spikes up to a maximum charge of 40 nAs with no more than 400 ns duration and an amplitude of at most 200 mA.

2) The voltage shall be within the specified range, i.e. 5V +/- 10 %, when subjected to current spikes up to a maximum charge of 40 nAs with no more than 400 ns duration and an amplitude of at most 200 mA under extreme test conditions.

Requirement references:

1) GSM 11.11, 6.2.3, 6.2.5;

2) GSM 11.11, 6.2.3, 6.2.5;

GSM 11.10, Annex 1 TC 2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, unforeseeable damages in SIM data may occur. As a result network security and performance will suffer from degradation due to faulty data transmitted by the MS.

EC Terminal Directive reference:

Articles 4d and 4f.

21.6.2.2 Electrical Tests on Contact C2

21.6.2.2.1 Test on contact C2 = low level RST

Test purpose:

1) To verify the voltage on contact C2 (RST) at low level, under normal test conditions.

Test case:

GSM 11.10, II.8.7.2.2.1.

Conformance requirement:

1) The voltage shall be within the specified range, i.e. between -0.3V and +0.6V for a current of -200 µA.

Requirement references:

1) GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, unforeseeable damages in SIM data may occur. As a result network security and performance will suffer from degradation due to faulty data transmitted by the MS.

EC Terminal Directive reference:

TP1: Articles 4d and 4f.

21.6.2.2.2 Test on contact C2 = high level RST

Test purpose:

To verify the voltage on contact C2 (RST) at high level.

Test case:

GSM 11.10, II.8.7.2.2.2.

Conformance requirement:

1) The voltage shall be within the specified range, i.e. between 4V and Vcc + 0.3V for a current of 200 µA.

2) The voltage shall be within the specified range, i.e. between 4V and Vcc + 0.3V for a current of 200 µA under extreme test conditions.

Requirement references:

1) GSM 11.11, 6;

2) GSM 11.11, 6

GSM 11.10, Annex 1, TC 2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, unforeseeable damages in SIM data may occur. As a result network security and performance will suffer from degradation due to faulty data transmitted by the MS.

EC Terminal Directive reference:

Articles 4d and 4f.

21.6.2.3 Electrical Tests on Contact C3

21.6.2.3.1 Test on contact C3 = CLK at low level

Test purpose:

To verify the voltage on contact C3 (CLK) at low level, under normal test conditions.

Test case:

GSM 11.10, II.8.7.2.3.1.

Conformance requirement:

The voltage shall be within the specified range, i.e. between -0,3V and +0,6V for a current of -200 µA.

Requirement references:

GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, unforeseeable damages in SIM data may occur. As a result network security and performance will suffer from degradation due to faulty data transmitted by the MS.

EC Terminal Directive reference:

Articles 4d and 4f.

21.6.2.3.2 Test on contact C3 = CLK switch from low level to high level

Test purpose:

To verify the rise time on contact C3 (CLK).

Test case:

GSM 11.10, II.8.7.2.3.2.

Conformance requirement:

The rise time shall be within the specified range, i.e. up to 9% of the total time period, and shall not exceed 0,5 µs.

Requirement reference:

GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.6.2.3.3 Test on contact C3 = CLK at high level

Test purpose:

To verify the voltage on contact C3 (CLK) at high level, under normal test conditions.

Test case:

GSM 11.10, II.8.7.2.3.3.

Conformance requirement:

The voltage shall be within the specified range, i.e. between 4V and Vcc + 0,3V for a current of 20 µA.

Requirement references:

GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, unforeseeable damages in SIM data may occur. As a result network security and performance will suffer from degradation due to faulty data transmitted by the MS.

EC Terminal Directive reference:

Articles 4d and 4f.

21.6.2.3.4 Test on contact C3 = CLK switch from high level to low level

Test purpose:

To verify the fall time on contact C3.

Test case:

GSM 11.10, II.8.7.2.3.4.

Conformance requirement:

The fall time shall be within the specified range, i.e. up to 9% of the total time period, and shall not exceed 0,5 µs.

Requirement reference:

GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.6.2.3.5 Clock cycle ratio test

Test purpose:

To verify the clock cycle ratio on contact C3.

Test case:

GSM 11.10, II.8.7.2.3.5.

Conformance requirement:

The clock cycle ratio shall be within the specified range.

Requirement reference:

GSM 11.11, 6.2.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.6.2.4 Electrical Tests on Contact C6 (Vpp) *

Test purpose:

To verify the voltage on contact C6 (Vpp) in case of IC Card SIMs.

Test case:

GSM 11.10, II.8.7.2.4.

Conformance requirement:

The ME shall provide contact C6 in an idle state equal to the condition of Vcc, under normal test conditions.

Requirement references:

GSM 11.11, 6.1.2;

GSM 11.10, Annex 1, TC 2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME may not be able to update SIM data which will lead to a SIM communication breakdown. Therefore the ME will not be able to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.6.2.5 Electrical Tests on Contact C7 (I/O)

Test purpose:

1) To verify the voltage level on contact C7 (I/O) during ME-input, i.e. ME reading.

2) To verify the voltage level on contact C7 (I/O) during ME-output, i.e. ME writing.

Test case:

GSM 11.10, II.8.7.2.5.

Conformance requirement:

1) The voltage shall be within the specified range for input, i.e between 0 and 0,4V (low level) for I = 1 mA and between 3,8V and Vcc + 0,3V (high level) for I = -20 µA.

2) The voltage shall be within the specified range for output, i.e between 0 and 0,8V (low level) for I = 1 mA and between 0,7 * Vcc and Vcc + 0,3V (high level) for I = +/-20 µA.

Requirement reference:

1) GSM 11.11, 6;

2) GSM 11.11, 6

GSM 11.10, Annex1, TC 2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, unforeseeable damages in SIM data may occur. As a result network security and performance will suffer from degradation due to faulty data transmitted by the MS.

EC Terminal Directive reference:

TP1: Articles 4d and 4f.
TP2: Articles 4d and 4f.

21.7 Test Sequence 8 - Access Control

Test purpose:

To verify that the MS attempts network access according to the access control specifications if:

1) there is no SIM in the ME and Emergency Calls are not allowed by network.

2) there is no SIM in the ME and Emergency Calls are allowed by network.

3) there is a SIM in the ME with an Access Class from 0 to 9 and no calls are allowed by network.

4) there is a SIM in the ME with an Access Class from 0 to 9 and only Emergency Calls are allowed by network.

5) there is a SIM in the ME with an Access Class from 0 to 9 and all calls are allowed by network.

6) there is a SIM in the ME with an Access Class 11 or 15 and the MS is not in HPLMN or there is a SIM in the ME with an Access Class 12, 13 or 14 and the MS is not in HPLMN Country and no calls are allowed by the network or Emergency calls only are allowed by the network or all calls are allowed by the network.

7) there is a SIM in the ME with an Access Class 11 or 15 and the MS is in HPLMN or there is a SIM in the ME with an Access Class 12, 13 or 14 and the MS is in the HPLMN Country and no calls are allowed by the network or Emergency calls only are allowed by the network.

8) there is a SIM in the ME with an Access Class 11 or 15 and the MS is in HPLMN or there is a SIM in the ME with an Access Class 12, 13 or 14 and the MS is in the HPLMN Country and all calls are allowed by the network.

Test case:

GSM 11.10, II.8.8.

Conformance requirements:

1) The ME shall not attempt a call set-up.

2) The ME shall only be able to set up Emergency Calls.

3) The MS shall not attempt a call set-up.

4) The MS shall only be able to set up Emergency Calls.

5) The MS shall be able to set up all calls.

6) The MS shall react according to the network parameters.

7) The MS shall only be able to set up Emergency Calls.

8) The MS shall be able to set up all calls.

Requirement references:

GSM 02.11, 4;

GSM 02.30, 4.4.2.1;

GSM 04.08, 3.3.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If these requirements are not met, the MS will not react according to the Access Control parameters transmitted by the network.

EC Terminal Directive reference:

Article 4d.

21.8 Test Sequence 9 - Exchange Protocol Tests

21.8.1 Character Transmission

21.8.1.1 Bit/Character duration during the transmission from the ME to the SIM.

Test purpose:

To verify the bit/character duration during the transmission from the ME to the SIM.

Test case:

GSM 11.10, II.8.9.1.1.

Conformance requirement:

The bit/character duration time shall be within the specified range.

Special Test Situation 1, see clause 3.

Requirement reference:

GSM 11.11, 5.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.8.1.2 Bit/Character duration during the transmission from the SIM to the ME.

Test purpose:

To verify the acceptance of maximum and minimum bit/character duration during the transmission from the SIM to the ME.

Test case:

GSM 11.10, II.8.9.1.2.

Conformance requirement:

Responses with maximum and minimum bit/character duration times shall be accepted by the ME.

Special Test Situation 1, see clause 3.

Requirement reference:

GSM 11.11, 5.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.8.1.3 Inter-character delay

Test purpose:

1) To verify the correct adaption of the inter-character delay during the transmission from the ME to the SIM by evaluation of the character TC1 indicated in the ATR.

2) To verify that the ME accepts the minimum and maximum inter-character delays during the transmission from the SIM to the ME.

Test case:

GSM 11.10, II.8.9.1.3.

Conformance requirement:

1) The ME shall accept or reject the SIM according to the value N indicated in TC1.

   Special Test Situation 1, see clause 3.

2) The ME shall accept characters with minimum or maximum inter-character delay transmitted from the SIM to the ME.

   Special Test Situation 1, see clause 3.

Requirement reference:

GSM 11.11, 5.2, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.8.1.4 Error Handling

21.8.1.4.1 Error handling during the transmission from the ME to the SIM

Test purpose:

To verify the error handling during the transmission from the ME to the SIM.

Test case:

GSM 11.10, II.8.9.1.4.1.

Conformance requirement:

On the receipt of an error signal the ME shall repeat the previously transmitted character.

Special Test Situation 1, see clause 3.

Requirement reference:

GSM 11.11, 5.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.8.1.4.2 Error handling during the transmission from the SIM to the ME

Test purpose:

To verify the error handling during the transmission from the SIM to the ME.

Test case:

GSM 11.10, II.8.9.1.4.2.

Conformance requirement:

On the detection of a parity error the ME shall send an error signal.

Special Test Situation 1, see section 3.

Requirement reference:

GSM 11.11, 5.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.8.2 Answer to Reset (RST)

21.8.2.1 Sorts of RST

21.8.2.1.1 Internal Reset

Test purpose:

To verify that the ME accepts a SIM with internal reset.

Test case:

GSM 11.10, II.8.9.2.1.1.

Conformance requirement:

The ME shall accept a SIM with internal reset by recognizing the ATR within the specified time range.

Special Test Situation 1, see clause 3.

Requirement reference:

GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not work with a SIM with an internal reset.

EC Terminal Directive reference:

Article 4f.

21.8.2.1.2 Active Low Reset

Test purpose:

To verify that the ME accepts a SIM with active low reset.

Test case:

GSM 11.10, II.8.9.2.1.2.

Conformance requirement:

The ME shall accept a SIM with active low reset by putting the RST contact to state H. The signal timing shall be in accordance with the specifications.

Special Test Situation 1, see clause 3.

Requirement reference:

GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not work with a SIM with an active low reset.

EC Terminal Directive reference:

Article 4f.

21.8.2.2 Characters of the Answer to Reset

Test purpose:

To verify that the ME adopts the appropriate data encoding convention and initial etu (elementary time unit) time defined in the initial character TS of the Answer to Reset.

Test case:

GSM 11.10, II.8.9.2.2.

Conformance requirement:

The ME shall adopt the data encoding convention and initial etu time defined in the initial character TS of the ATR.

Special Test Situation 1, see clause 3.

Requirement reference:

GSM 11.11, 5.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS will not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.8.3 Command Processing

21.8.3.1 Procedure Bytes ACK

Test purpose:

To verify that the ME uses correctly the different modes of data transmission as specified.

Test case:

GSM 11.10, II.8.9.3.1.

Conformance requirement:

Commands shall be executed correctly in either mode of data transmission.

Special Test Situation 1, see clause 3.

Requirement reference:

GSM 11.11, 6.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME will not be able to communicate with the SIM and therefore not to establish a connection to the network.

EC Terminal Directive reference:

Article 4f.

21.9 Test Sequence 10 - Evaluation of Directory Characteristics

21.9.1 Operating speed in Authentication Procedure

Test purpose:

To verify that the authentication procedure is done with a frequency of at least 13/4 MHz if the bit b2 in the directory characteristics is set to 1.

Test case:

GSM 11.10, II.8.10.1.

Conformance requirement:

The frequency of the clock shall be at last 13/4 MHz during the authentication procedure.

Special Test Situation 1, see clause 3.

Requirement reference:

GSM 11.11, 6.2.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS will not be able to authenticate itself to the network within the required time.

EC Terminal Directive reference:

Article 4f.

21.9.2 Clock Stop

Test purpose:

To verify that the clock is not switched off, if the bit b1 in the directory characteristics is set to 0.

Test case:

GSM 11.10, II.8.10.2.

Conformance requirement:

The ME shall not switch off the clock.

Requirement reference:

GSM 11.11, 6.2.4.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, unforeseeable damages in SIM data may occur. As a result network security and performance will suffer from degradation due to faulty data transmitted by the MS.

EC Terminal Directive reference:

Articles 4d and 4f.

21.10 Test Sequence 11 - Mechanical Tests

21.10.1 Contact Pressure

Test purpose:

To verify that the contact pressure of each contacting element is not greater than 0,5 N when each of the following types of card is used:

i) unembossed;

ii) embossed on the contact side;

III) embossed on the opposite side to the contacts.

NOTE: Only type i) applies if the ME accepts only plug-in SIMs.

Test case:

GSM 11.10, II.8.11.1.

Conformance requirement:

The contact pressure of each contacting element shall not be greater than 0.5 N.

Special Test Situation 2, see clause 3.

Requirement reference:

GSM 11.11, 6.1.2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME might destroy the SIM contact pads, which will lead to transmission errors or breakdown. Therefore the MS will not be able to establish a connection to the network.

EC Terminal Directive reference:

Article 4d.

21.10.2 Contact Shape

Test purpose:

To verify that the radius of curvature of the contacting elements is greater than or equal to 0,8 mm in the contact area on both axes.

Test case:

GSM 11.10, II.8.11.2.

Conformance requirement:

The radius of curvature of the contacting elements shall be greater than or equal to 0.8 mm in the contact area of both axes.

Special Test Situation 2, see clause 3.

Requirement reference:

GSM 11.11, 6.1.2.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the ME might destroy the SIM contact pads, which will lead to transmission errors or breakdown. As a result network security and performance will suffer from degradation due to faulty data transmitted by the ME.

EC Terminal Directive reference:

Article 4d.

22 Autocalling restrictions

22.1 Constraining the access to a single number (rec. GSM 02.07 category 3)

Test purpose:

A MS, supporting autocalling capability and having no numbers in its blacklist, shall not be permitted to make call setup reattempts (to a single B number) which contravene the minimum durations between call attempts given in rec GSM 02.07 Annex 1 where the reason for failure is defined in rec GSM 02.07 Annex 1 category 3 cause numbers.

To verify that after the maximum number of call attempts there are no further call attempts prior to manual intervention.

Test case:

Rec GSM 11.10 II.9.2.

Conformance requirement:

A MS, supporting autocalling capability and having no numbers in its blacklist, shall not make call setup reattempts (to a single B number) which contravene the minimum durations between call attempts given in rec GSM 02.07 Annex 1 and the maximum number of repetitions (prior to manual intervention) where the reason for failure is defined in rec GSM 02.07 Annex 1 category 3 cause numbers.

Special Test Situation 1, see clause 3.

Requirement reference:

Rec. GSM 02.07 Section 2 table 1 Item 1.16 note 2 (Annex 1 Cat 3).

SUPPLEMENTARY INFORMATION:

Test case justification:

a) to prevent apparatus capable of automatic calling from repeatedly disturbing subscribers where the number being called may be an erroneous number.

b) To safeguard the network and in particular the scarce radio resource from uncontrolled repeated automated call attempts.

EC Terminal Directive:

Articles 4d and 4e.

22.2 Constraining the access to a single number (rec. GSM 02.07 categories 1&2)

Test purpose:

A MS, supporting autocalling capability and having no numbers in its blacklist, shall not be permitted to make call setup reattempts (to a single B number) which contravene the minimum durations between call attempts given in rec GSM 02.07 Annex 1 where the reason for failure is defined in rec GSM 02.07 Annex 1 categories 1 & 2 cause numbers.

To verify that after the maximum number of call attempts there are no further call attempts prior to manual intervention.

Test case:

Rec. GSM 11.10 II.9.3.

Conformance requirement:

A MS, supporting autocalling capability and having no numbers in its blacklist, shall not make call setup reattempts (to a single B number) which contravene the minimum durations between call attempts given in rec GSM 02.07 Annex 1 and the maximum number of repetitions (prior to manual intervention) where the reason for failure is defined in rec GSM 02.07 Annex 1 categories 1 & 2 cause numbers.

Special Test Situation 1, see clause 3.

Requirement reference:

Rec. GSM 02.07 Section 2 table 1 Item 1.16 note 2 (Annex 1 Cat 1 & Cat 2).

SUPPLEMENTARY INFORMATION:

Test case justification:

a) to prevent apparatus capable of automatic calling from repeatedly disturbing subscribers where the number being called may be an erroneous number.

b) To safeguard the network and in particular the scarce radio resource from uncontrolled repeated automated call attempts.

EC Terminal Directive:

Articles 4d and 4e.

22.3 Behaviour of the MS when its list of blacklisted numbers is full

Test purpose:

A MS, supporting autocalling capability and having a blacklist containing the maximum number of B numbers as declared by the manufacturer (blacklist "full"), shall not permit an automatic call attempt to any other B number.

Test case:

Rec GSM 11.10 II.9.4.

Conformance requirement:

The MS shall not initiate an automatic call attempt.

Special Test Situation 1, see clause 3.

Requirement reference:

Rec. GSM 02.07 Section 2 table 1 Item 1.16 note 2 (Annex 1)

SUPPLEMENTARY INFORMATION:

Test case justification:

a) to prevent apparatus capable of automatic calling from repeatedly disturbing subscribers where the number being called may be an erroneous number.

b) To safeguard the network and in particular the scarce radio resource from uncontrolled repeated automated call attempts.

EC Terminal Directive:

Articles 4d and 4e.

23 Short message service

23.1 SMS Mobile Terminated - Case 1

Test purpose:

To verify that an MS supporting a Point-to-point Mobile Terminated Short Message Service,

1) when allocated an SDCCH and an SABM frame on SAPI-3 is sent to the MS on this SDCCH it responds with a UA frame on SAPI-3.

2) when allocated a TCH and an SABM frame on SAPI-3 is sent to the MS on the SACCH it responds with a UA frame on SAPI-3.

Test case:

1) GSM 11.10 II.11.2.2.1 req. 1).

2) GSM 11.10 II.11.2.2.1 req 6) 7) 8).

Conformance requirement:

A data link layer entity receiving an SABM, if it is able to enter the multiple-frame-established-state shall respond with a UA frame.

Requirement reference:

GSM 04.11 2.3, GSM 04.06 5.4.1.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

This test checks the basic functions for establishment and connection for SMS if SMS is supported by the MS.

EC Terminal Directive reference:

Article 4f.

23.2 SMS Mobile Terminated - Case 2

Test purpose:

To verify that for an MS supporting the Point-to-point Mobile Terminated Short Message Service, if the Short Message transfer was initiated when a call was active and the network has initiated the call clearing, the SMS transfer on the SACCH continues although the call is terminated.

Test case:

GSM 11.10 II.11.2.2.1 req. 7).

Conformance requirement:

An active MS shall be able to receive a short message at any time independently of whether or not there is a speech or data call in progress.

Requirement reference:

GSM 03.40, 3.1;

GSM 04.11 2.1, 2.2, 5.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

The ability of the MS to receive a Short Message depends upon the availability of the RR, according to the layered model of the Radio Interface.

If this requirement is not met, the MS will not be able to finalize an ongoing Point-to-point Short Message transfer, which was initiated while a TCH was allocated, when the entity using the TCH finalizes its transaction.

Further this test checks the ability of the MS to handle parallel transactions.

EC Terminal Directive reference:

Articles 4e and 4f.

23.3 SMS Mobile Terminated - Case 3

Test purpose:

To verify that for an MS supporting the Point-to-point Mobile Terminated Short Message Service, if the Short Message transfer was initiated when a call was active and the MS has initiated the call clearing, the SMS transfer on the SACCH continues although the call is terminated.

Test case:

GSM 11.10 II.11.2.2.1 req. 8).

Conformance requirement:

An active MS shall be able to receive a short message at any time independently of whether or not there is a speech or data call in progress.

Requirement reference:

GSM 03.40, 3.1;

GSM 04.11 2.1, 2.2, 5.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

The ability of the MS to receive a Short Message depends upon the availability of the RR, according to the layered model of the Radio Interface.

If this requirement is not met, the MS will not be able to finalize an ongoing Point-to-point Short Message transfer, which was initiated while a TCH was allocated, when the entity using the TCH finalizes its transaction.

Further this test checks the ability of the MS to handle parallel transactions.

EC Terminal Directive reference:

Articles 4e and 4f.

23.4 SMS Mobile Originated - Case 1

Test purpose:

To verify that an MS supporting the Point-to-point Mobile Originated Short Message Service initiates submission of a Short Message by sending a CHANNEL_REQUEST with cause "Other Services requested", when no DCCH is available.

Test case:

GSM 11.10 II.11.2.2.2 req. 1) 7).

Conformance requirement:

The MS requests a radio resource by sending a CHANNEL REQUEST on the RACH. The "Establishment Cause" for Short Message Service shall be "Other Services requested".

Requirement reference:

GSM 04.08: 3.3.1.1, 9.1.8.

SUPPLEMENTARY INFORMATION:

Test case justification:

The establishment cause may be used by the network in order to decide whether or not to allocate a channel.

EC Terminal Directive reference:

Article 4f.

23.5 SMS Mobile Originated - Case 2

Test purpose:

TP1: To verify that an MS supporting Point-to-point Mobile Originating Short Message Service, in idle mode, when made to send a Short Message, after having initiated the random access procedure and after having received an immediate assignment message allocating an SDCCH, sends a CM-SERVICE REQUEST message indicating CM Service type as "Short Message Transfer" piggybacked in the SABM sent on SAPI 0.

TP2: To verify that an MS supporting Point-to-point Mobile Originating Short Message Service, having a call control entity in state U10, "active", when made to send a Short Message, sends a CM-SERVICE REQUEST message indicating CM Service type as "Short Message Transfer" sent in a Layer 2 I frame on the FACCH.

Test case:

TP1: GSM 11.10 II.11.2.2.2 req. 1);

TP2: GSM 11.10 II.11.2.2.2 req.7).

Conformance requirement:

To perform MM-connection establishment, the MS shall send a CM-SERVICE_REQUEST, when the radio resource is allocated.

Requirement reference:

GSM 04.08: 4.5.1.1, 9.2.7, 10.5.3.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS will not be able to initiate the basic establishment of lower layers and lower sublayers for Point-to-point Mobile Originated Short Messages.

EC Terminal Directive reference:

Articles 4e and 4f.

23.6 SMS Mobile Originated - Case 3

Test purpose:

TP1: To verify that an MS supporting Point-to-point Mobile Originating Short Message Service, when made, in idle mode, to send a Short Message, after completion of allocation of an SDCCH, having sent a CM-SERVICE REQUEST message, does not initiate establishment of SAPI 3 acknowledged mode before the MM connection establishment has been completed in the case where the MM connection establishment is completed by completion of the cipher mode setting procedure which is performed after authentication.

TP2: To verify that an MS supporting Point-to-point Mobile Originating Short Message Service, having a call control entity in state U10, "active", when made to send a Short Message, having sent a CM-SERVICE REQUEST message, does not initiate establishment of SAPI 3 acknowledged mode before the MM connection establishment has been completed in the case where that completion is done by the SS sending a CM SERVICE ACCEPT message.

Test case:

TP1: GSM 11.10 II.11.2.2.2 req. 1);

TP2: GSM 11.10 II.11.2.2.2 req. 7).

Conformance requirement:

An indication from the RR-sublayer that the ciphering mode setting is completed, or reception of a CM-SERVICE- ACCEPT message, shall be treated as a service acceptance indication by the Mobile Station.

Requirement reference:

GSM 04.11 2.3, GSM 04.06 5.4.1.2, GSM 04.08 4.5.1.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS may send unauthorized and unforeseen messages to the network, possibly bringing the network into trouble.

EC Terminal Directive reference:

Articles 4d and 4f.

23.7 SMS Mobile Originated - Case 4

Test purpose:

To verify that an MS supporting the Point-to-point Mobile Originated Short Message Service, upon receipt of a CHANNEL RELEASE message during SMS submission, sends a Layer 2 Disconnect command for SAPI-0 to disconnect the main signalling link (SDCCH or FACCH).

Test case:

GSM 11.10 II.11.2.2.2 req. 4) 7).

Conformance requirement:

On receipt of a CHANNEL RELEASE message, the MS disconnects the main signalling link. A data link layer entity shall initiate a request for release of multiple frame operation by transmitting the Disconnect command.

Requirement reference:

GSM 04.08 3.5.1.1, GSM 04.06 5.4.4.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS will not be able to terminate in the fastest possible way the main signalling link after the sending of a Point-to-point Mobile Originated Short Message.

EC Terminal Directive reference:

Articles 4e and 4f.

23.8 SMS Mobile Originated - Case 5

Test purpose:

To verify that an MS supporting Point-to-point Mobile Originated Short Message Service, when a CM-SERVICE_REJECT with reject cause "Service option not supported" or "Service option temporarily out of order" is received in response to a CM-SERVICE_REQUEST, the MS does not establish SAPI 3.

Test case:

GSM 11.10 II.11.2.2.2 req. 9).

Conformance requirement:

If a CM-SERVICE_REJECT message is received, the requesting sublayer entity is informed, and the MM-sublayer returns to the previous state.

Requirement reference:

GSM 04.08 4.5.1.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS will not be able to handle rejection of the Short Message Service submission by the network and will try to establish SAPI 3.

EC Terminal Directive reference:

Article 4e.

23.9 SMS Mobile Originated - Case 6

Test purpose:

To verify that an MS is able to respond to a paging requested during the transmission of a Cell Broadcast Short Message.

Test case:

GSM 11.10 II.11.2.3 req. 1).

Conformance requirement:

In idle mode, the MS shall listen to the BCCH and to the paging sub-channel for the paging group the MS belongs to.

Special Test Situation 1, see clause 3.

Requirement reference:

GSM 04.08 3.2.1.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS will not be able to respond to a paging request sent during transmission of a Cell Broadcast Short Message.

EC Terminal Directive reference:

Article 4f.

24 Supplementary services

24.1 Call Forwarding

24.1.1 Registration

Test purpose:

To verify that an MS supporting at least one of the supplementary services CFU, CFB, CFNRy, or CFNRc, when made to initiate the registration procedure for one of these supplementary services, selected from among the supported ones (as declared by the manufacturer), transmits a REGISTER message with the correct transaction identifier.

Test case:

GSM 11.10 II.12.2.1.1 step A (for one supplementary service, skipping the requirements on parameters except transaction identifier, PDU, and message type).

Conformance requirement:

The MS shall be able to transmit a REGISTER message encoded with Facility information element for registration of the selected Call Offering Service.

Requirement reference:

GSM 04.80 2.7, GSM 04.82 1.2, GSM 04.82 2.2, GSM 04.82 3.2, GSM 04.82 4.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, essential parts of the basic call establishment procedure for a connection might not work.

EC Terminal Directive reference:

Article 4f.

24.1.2 Erasure

Test purpose:

To verify that an MS, supporting the relevant SS, transmits a REGISTER message encoded with correct Facility information element for EraseSS for each of CFU, CFB, CFNRy, and CFNRc.

Test case:

GSM 11.10 II.12.2.1.2.1 step A.

Conformance requirement:

The MS shall be able to transmit a REGISTER message encoded with Facility information element for erasure of CFU, CFB, CFNRy, and CFNRc.

Requirement reference:

GSM 04.80 2.7, GSM 04.82 1.3, GSM 04.82 2.3, GSM 04.82 3.3, GSM 04.82 4.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the CFU, CFB, CFNRy, and CFNRc can not be erased.

EC Terminal Directive reference:

TP1: Article 4f (SS).

24.1.3 Normal Operation

24.1.3.1 Test Case 1

Test purpose:

To verify that an MS having a call control entity in state U10, "active", upon reception of a FACILITY message with Facility Information element containing NotifySS for the CFB stays in U10.

Test case:

GSM 11.10 II.12.2.1.7.1.1, b), c), d).

Conformance requirement:

An MS having a call control entity in state U10, "active", shall upon reception of a FACILITY message with Facility Information element containing NotifySS for the CFB stay in U10.

Requirement reference:

GSM 04.10, section 3.2.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, an existing call might be endangered by the notification.

EC Terminal Directive reference:

Article 4e and 4f.

24.1.3.2 Test Case 2

Test purpose:

To verify that an MS having an outgoing call in progress, upon receipt of an ALERTING with Facility Information element containing NotifySS for one of the CFU, CFB, CFNRy, or CFNRc continues correctly with establishment of the call.

Test case:

GSM 11.10 II.12.2.1.7.1.2.

Conformance requirement:

An MS having an outgoing call in progress, shall upon receipt of an ALERTING with Facility Information element containing NotifySS for one of the CFU, CFB, CFNRy, or CFNRc continue correctly to establishment of the call.

Requirement reference:

GSM 04.10, section 3.2.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, a call setup might fail due to a notification.

EC Terminal Directive reference:

Article 4f.

24.2 Call Barring

24.2.1 Registration;

Test purpose:

1) To verify that an MS, if it supports the relevant functionality, is able to transmit a REGISTER message containing Facility information element with invoke for RegisterPassword for the barring services.

2) To verify that an MS, it supports the relevant functionality, for the barring services is able to transmit a FACILITY message containing Facility information element with return result GetPassword after reception of a FACILITY message containing Facility information element with invoke for GetPassword.

Test case:

1) GSM 11.10 II.12.8.1 step 1;

2) GSM 11.10 II.12.8.1 step 2, 3, 4.

Conformance requirement:

1) If the barring services are subscribed with "control by subscriber using password", it shall be possible to change the password.

2) If the barring services are subscribed with "control by subscriber using password", it shall be possible to change the password.

Requirement reference:

1) GSM 04.80 2.7, GSM 04.10 6.2.1, GSM 04.88 1.2, GSM 04.88 2.2;

2) GSM 04.80 2.3, GSM 04.10 6.2.1, GSM 04.88 1.2, GSM 04.88 2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) If this requirement is not met, the MS will not be able to change the password for barring services.

2) If this requirement is not met, the MS will not be able to change the password and handle the situation where a wrong password is used for the barring services.

EC Terminal Directive reference:

TP1: Article 4f.
TP2: Article 4f.

24.2.2 Activation

Test purpose:

To verify that an MS, if it supports the relevant functionality, transmits a REGISTER message encoded with correct Facility information element with invoke for AtivateSS for activation of one of the BAOC, BOIC, BOIC-exHC, BAIC, and BAIC-Roam.

Test case:

GSM 11.10 II.12.8.3 A step 1, B2 step 1 (for one BA SS only).

Conformance requirement:

If the barring services are subscribed with "control by subscriber using password", the MS shall be able to transmit a REGISTER message encoded with Facility information element for activation the barring services.

Requirement reference:

GSM 04.80 2.7, GSM 04.88 1.3, GSM 04.88 2.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the barring services can not be activated.

EC Terminal Directive reference:

TP1: Article 4f (SS).

24.3 Future Services

24.3.1 Operation not yet specified

Test purpose:

To verify that an MS supporting sending of unstructured SS data relating to a single IA5 character, when made to send such an unstructured SS data within a call transmits either a REGISTER message with PD indicating non-call related SS and TI with right direction or a FACILITY message with PD and TI related to the active call.

Test case:

GSM 11.10 II.12.9.7 step A (checking of parameters restricted to TI, PD and message type).

Conformance requirement:

An MS supporting sending of unstructured SS data relating to a single IA5 character, when made to send such an unstructured SS data within a call shall transmit either a REGISTER message with PD indicating non-call related SS and TI with right direction or a FACILITY message with PD and TI related to the active call.

Requirement reference:

GSM 04.10 3.2.6, GSM 04.80 2.7.

SUPPLEMENTARY INFORMATION:

Test case justification:

If the MS doesn't behave as required, an existing call might be endangered, and the basic establishment of the connection for the relevant SS would fail.

EC Terminal Directive reference:

Article 4f.

25 Mobile station features

25.1 Called Number

Test purpose:

1) To verify that an MS with MMI, when made to establish a call sends a SETUP message, which includes the "Numbering plan identification" in the "Called party BCD number" of the SETUP message for an outgoing call with the value "ISDN/telephony numbering plan (E.164/E.163)".

2) To verify that an MS with MMI, when made to establish a call without use of the "+-key" function, sends a SETUP message, which includes the "Type of number" in the "Called party BCD number" of the SETUP message for an outgoing call with the value "unknown".

3) To verify that an MS with MMI, implementing the "+-key" function, when made to establish a call with use of the "+-key" function, sends a SETUP message, which includes the "Type of number" in the "Called party BCD number" of the SETUP message for an outgoing call with the value "international number.

Test case:

1) GSM 11.10 II.16.1 req. 2), 3);

2) GSM 11.10 II.16.1 req. 2);

3) GSM 11.10 II.16.1 req. 3).

Conformance requirement:

1) The "Numbering plan identification" is included in the Called party BCD number Information element of the SETUP message for an outgoing call.

   An MS with MMI shall as default use the Numbering Plan Identification CCITT E164, unless otherwise indicated by the user.

2) The "Type of number" is included in the Called party BCD number Information element of the SETUP message for an outgoing call.

   An MS with MMI shall, if the "+" is not entered, and a number is entered, set the Type of Number to "unknown".

3) The "Type of number" is included in the Called party BCD number Information element of the SETUP message for an outgoing call.

   An MS with MMI shall, if the "+" is entered, and a number is entered, set the Type of Number to "International".

Requirement reference:

1) GSM 04.08 10.5.4.6, GSM 02.30 2.3;

2) GSM 04.08 10.5.4.6, GSM 02.30 2.3;

3) GSM 04.08 10.5.4.6, GSM 02.30 2.3.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) Call setup with wrong NPI will fail the call, and may harm the network.

2) Call setup with wrong TON will fail the call, and an invalid TON may harm the network.

3) Call setup with wrong TON will fail the call, and an invalid TON may harm the network.

EC Terminal Directive reference:

TP1: Articles 4d and 4f.
TP2: Articles 4d and 4f.
TP3: Articles 4d and 4f.

25.2 Network Selection/Indication

Test purpose:

1) To verify that the MS with SIM containing in the PLMN selector field at least one PLMN different from the Home PLMN, when in automatic PLMN selection mode, selects its Home PLMN, if available, upon switching on and when the IMSI is available. (This is verified by observation of the location updating procedure).

2) To verify that the MS, when it looses radio coverage for its selected PLMN and in automatic PLMN selection mode, selects the PLMN with the highest priority among the PLMNs stored on the SIM, if the Home PLMN is unavailable.

3) To verify that the MS, when in automatic PLMN selection mode with PLMN selector field containing a given PLMN, does not attempt to access that PLMN after having initiated a location updating procedure towards that network and having received a LOCATION UPDATING REJECT message with the cause "PLMN not allowed".

4) To verify that the MS, when in automatic PLMN selection mode, does not select another PLMN if the selected PLMN is still available.

5) To verify that the MS, when it looses radio coverage for its selected PLMN, and in automatic PLMN selection mode, selects its Home PLMN, if available.

6) To verify that the MS, when in manual PLMN selection mode, is able to attempt an access to a PLMN for which it has previously received a LOCATION UPDATING REJECT with the cause "PLMN not allowed".

7) To verify that the MS, upon switching on and when the IMSI is available, and in automatic PLMN selection mode, selects the PLMN with the highest priority among the PLMNs stored on the SIM, if the Home PLMN is unavailable.

8) To verify that the MS again can perform automatic selection of a PLMN for which it has previously received a LOCATION UPDATING REJECT message with the cause "PLMN not allowed", when manual PLMN selection in the meantime has resulted in a LOCATION UPDATING ACCEPT message.

9) To verify that the MS, when in manual PLMN selection mode, selects its Home PLMN, if available, upon switching on and when the IMSI is available.

Test case:

1) GSM 11.10 II.16.3.2.1d;

2) GSM 11.10 II.16.3.2.1g, II.16.3.2.1x;

3) GSM 11.10 II.16.3.2.1j;

4) GSM 11.10 II.16.3.2.1m;

5) GSM 11.10 II.16.3.2.1n;

6) GSM 11.10 II.16.3.2.1r;

7) GSM 11.10 II.16.3.2.1v;

8) GSM 11.10 II.16.3.2.1v;

9) GSM 11.10 II.16.3.2.2d.

Conformance requirement:

1) Upon switching on, and when an IMSI is available, the MS shall select its Home PLMN and perform the cell selection procedure.

2) If the Home PLMN is unavailable and the MS is in automatic PLMN selection mode, it shall attempt to select a suitable cell and accesses the PLMNs in turn, in the order of priority as stored in the SIM, when it looses radio coverage for its selected PLMN.

3) The MS shall mark a PLMN, for which it has received a LOCATION UPDATING REJECT with the cause "PLMN not allowed", as forbidden on the SIM. The MS, when in automatic PLMN selection mode, shall not attempt to access a PLMN marked as forbidden on the SIM.

4) No explicit conformance requirement. The requirement is implicit, because GSM 02.11 only describes selection of new PLMN for the following cases: 1) loss of radio coverage, and 2) search procedure at the user's request.

5) If the MS loses radio coverage for its selected PLMN, and the MS is in automatic PLMN selection mode, it shall attempt to select its Home PLMN.

6) The MS shall mark a PLMN, for which it has received a LOCATION UPDATING REJECT message with the cause "PLMN not allowed", as forbidden on the SIM. The MS, when in manual PLMN selection mode, shall be able to attempt to access a PLMN marked as forbidden on the SIM.

7) If the Home PLMN is unavailable and the MS is in automatic PLMN selection mode, it shall attempt to select a suitable cell and accesses the PLMNs in turn, in the order of priority as stored in the SIM, upon switching on and when the IMSI is available.

8) The MS shall delete a PLMN from the list of forbidden PLMNs, when a successful location update has been performed to that PLMN.

9) Upon switching on, and when an IMSI is available, the MS shall select its Home PLMN and perform the cell selection procedure.

Requirement reference:

1) GSM 02.11 3.2.2;

2) GSM 02.11: 3.2.4, 3.2.2, 3.2.2.1;

3) GSM 02.11 3.2.2.1, GSM 04.08 4.4.4.6;

4) GSM 02.11: 3.2.4, 3.2.5;

5) GSM 02.11: 3.2.4, 3.2.2;

6) GSM 02.11 3.2.2.1;

7) GSM 02.11: 3.2.2, 3.2.2.1;

8) GSM 02.11 3.2.2.1;

9) GSM 02.11 3.2.2.

SUPPLEMENTARY INFORMATION:

Test case justification:

1) PLMN selection is the first part of cell selection process. Cell selection process is necessary for call establishment. If an inappropriate PLMN is selected, the MS might produce unwanted signalling towards that network. The MS might be considered as absent in the PLMN in which it is registered.

2) PLMN selection is the first part of cell selection process. Cell selection process is necessary for call establishment. If an inappropriate PLMN is selected, the MS might produce unwanted signalling towards that network. The MS might be considered as absent in the PLMN in which it is registered.

3) PLMN selection is the first part of cell selection process. Cell selection process is necessary for call establishment. If an inappropriate PLMN is selected, the MS might produce unwanted signalling towards that network. The MS might be considered as absent in the PLMN in which it is registered. Possible inconsistencies between PLMN selector field and list of forbidden PLMNs must be checked.

4) PLMN selection is the first part of cell selection process. Cell selection process is necessary for call establishment. If an inappropriate PLMN is selected, the MS might produce unwanted signalling towards that network. The MS might be considered as absent in the PLMN in which it is registered. Selection of new PLMN causes a lot of unnecessary signalling and harms the network.

5) PLMN selection is the first part of cell selection process. Cell selection process is necessary for call establishment. If an inappropriate PLMN is selected, the MS might produce unwanted signalling towards that network. The MS might be considered as absent in the PLMN in which it is registered.

6) If this requirement is not met, the MS will not be able to perform manual selection of a PLMN marked as forbidden on the SIM. If e.g. the network could not (yet) offer access to the MS for some time (e.g. necessary links were not yet installed), then it would be impossible for the MS to access the network after the access has been made possible (unless it performs rejected location updates in 4 other countries).

7) PLMN selection is the first part of cell selection process. Cell selection process is necessary for call establishment. If an inappropriate PLMN is selected, the MS might produce unwanted signalling towards that network. The MS might be considered as absent in the PLMN in which it is registered.

8) PLMN selection is the first part of cell selection process. Cell selection process is necessary for call establishment. If an inappropriate PLMN is selected, the MS might produce unwanted signalling towards that network. The MS might be considered as absent in the PLMN in which it is registered.

9) PLMN selection is the first part of cell selection process. Cell selection process is necessary for call establishment. If an inappropriate PLMN is selected, the MS might produce unwanted signalling towards that network. The MS might be considered as absent in the PLMN in which it is registered.

EC Terminal Directive reference:

TP1: Article 4f.
TP2: Article 4f.
TP3: Articles 4d, 4e, and 4f.
TP4: Articles 4d, 4e, and 4f.
TP5: Article 4f.
TP6: Article 4f.
TP7: Article 4f.
TP8: Article 4f.
TP9: Article 4f.

25.3 Subscription Identity Management

Test purpose:

To verify that an MS without SIM card will not accept an incoming call.

Test case:

GSM 11.10 II.16.7e.

Conformance requirement:

An MS can only be operated, if a valid IMSI is present.

Requirement reference:

GSM 02.17 2.1

SUPPLEMENTARY INFORMATION:

Test case justification:

If this requirement is not met, the MS may be able to use the identity of a subscriber after he/she has removed his/her SIM, this yields that calls may be connected and charged in an abnormal way.

EC Terminal Directive reference:

Article 4f.

25.4 Barring of Outgoing Calls

Test purpose:

To verify that an MS for which a local facility to bar outgoing calls has been declared as being implemented, is able to establish an emergency call if this facility is activated.

Test case:

GSM 11.10 II.16.8.

Conformance requirement:

An MS may have an optional facility to bar outgoing calls. Such barring facility shall not prevent the transmission on emergency calls.

Requirement reference:

GSM 02.07 Table 3 #3.5.

SUPPLEMENTARY INFORMATION:

Test case justification:

Important user facility for emergency calls.

EC Terminal Directive reference:

Article 4f.

25.5 Prevention of Unauthorized Calls

Test purpose:

To verify that an MS for which a local facility to prevent unauthorized use has been declared to be implemented, is able to establish an emergency call, if this facility is activated.

Test case:

GSM 11.10 II.16.9.

Conformance requirement:

An MS may have an optional facility to prevent unauthorized use. Such facility shall not prevent the transmission on emergency calls.

Requirement reference:

GSM 02.07 Table 3 #3.6.

SUPPLEMENTARY INFORMATION:

Test case justification:

Important user facility for emergency calls.

EC Terminal Directive reference:

Article 4f.

Annex A (informative): TBR 5 MATRIX

TBR Identification	GSM 11.10 Test Case	GSM Core Specification	Terminal Directive
8.1/tp 1	II.1.2.1	04.08, 5.2.2.2/5.2.2.3.1	4f
8.1/tp 2	II.1.2.1	04.08, 5.2.2.2/5.2.2.3.1/B.3.2 07.01, 6.3.1	4e
8.2/tp 1	II.1.2.2	04.08, 5.2.2.2/5.2.2.3.1 04.08, 9.3.2 07.01, 6.3.3	4f
8.2/tp 2	II.1.2.2	04.08, 9.3.2	4f
9.1/tp 1	II.2.2.2.1	05.05, 1/4.3.3 11.10, Annex 1 TC2.2	4e
9.1/tp 2	II.3.4 (step n)	05.05, 4.3.3	4e
9.2	II.2.2.2.2	05.05, 1/4.3.3 11.10, Annex 1 TC2.2	4e
9.3	II.2.2.3 II.2.2.3.1	05.05, 1/4.3.3 11.10, Annex 1 TC2.2	4e
9.4	II.2.2.3 II.2.2.3.2	05.05, 1/4.3.3 11.10, Annex 1 TC2.2	4e
10.1/tp 1	II.3.1.1	05.05, 4.6	4e
10.1/tp 2	II.3.1.1	05.05, 1/4.6 11.10, II.3.1.1 step j)	4e
10.1/tp 3	II.3.1.1	05.05, 1/4.6 11.10, Annex 1 TC2.2	4e
10.1/tp 4	II.3.1.1	05.10, 6.1	4e
10.1/tp 5	II.3.1.1	05.10, 6.1 05.05, 1 11.10, II.3.1.1 step j)	4e
10.1/tp 6	II.3.1.1	05.10, 6.1 05.05, 1/4.4 11.10, Annex 1 TC2.2	4e
10.2	II.3.2.1	05.10, 6.1	4e
10.3/tp 1	II.3.3.2.1 II.3.3.2.2	05.05, 4.1.1	4e
10.3/tp 2	II.3.3.2.1 II.3.3.2.2	05.05, 1/4.1.1 11.10, Annex 1 TC2.2	4e
10.3/tp 3	II.3.3.2.1 II.3.3.2.2	05.05, 4.1.1 05.08, 4.2	4e
10.3/tp 4	II.3.3.2.1 II.3.3.2.2	05.05, 1/4.1.1 05.08, 4.2 11.10, Annex 1 TC2.2	4e
10.3/tp 5	II.3.3.2.1 II.3.3.2.2	05.05, 4.1.1	4e
10.3/tp 6	II.3.3.2.1 II.3.3.2.2	05.05, 1/4.1.1 11.10, Annex 1 TC2.2	4e
10.3/tp 7	II.3.3.2.1 II.3.3.2.2	05.05, 4.5.2/Annex 2 top figure	4e
10.3/tp 8	II.3.3.2.1 II.3.3.2.2	05.05, 1/4.5.2/Annex 2 top figure 11.10, Annex 1 TC2.2	4e
10.3/tp 9	II.3.3.2.1 II.3.3.2.2	05.08, 4.2	4e
10.3/tp10	II.3.3.2.1 II.3.3.2.2	05.10, 6.4	4e

TBR Identification	GSM 11.10 Test Case	GSM Core Specification	Terminal Directive
10.3/tp11	II.3.3.2.1 II.3.3.2.2	05.10, 6.4 05.05, 1/4.4 11.10, Annex 1 TC2.2	4e
10.3/tp12	II.3.3.2.1 II.3.3.2.2	05.05, 4.5.2/Annex 2 bottom figure	4e
10.3/tp13	II.3.3.2.1 II.3.3.2.2	05.05, 1/4.5.2/Annex 2 bottom figure 11.10, Annex 1 TC2.2	4e
10.3/tp14	II.3.3.2.1 II.3.3.2.2	05.10, 6.6	4e
10.3/tp15	II.3.3.2.1 II.3.3.2.2	05.10, 6.6 05.05, 1/4.4 11.10, Annex 1 TC2.2	4e
10.4/tp 1	II.3.4.2.1	05.05, 4.2/4.2.1	4e
10.4/tp 2	II.3.4.2.1	05.05, 1/4.2/4.2.1 11.10, Annex 1 TC2.2	4e
10.4/tp 3	II.3.4.2.1	05.05, 4.2/4.2.2	4e
10.4/tp 4	II.3.4.2.1	05.05, 1/4.2/4.2.2 11.10, Annex 1 TC2.2	4e
11.1.1/tp 1	II.4.2.1.2/3	05.05, 6.2 05.05, Table 1	4e
11.1.1/tp 2	II.4.2.1.2/3	05.05, 6.2 05.05, Table 1	4e
11.1.1/tp 3	II.4.2.1.2/3	05.05, 6.2 05.05, Table 1	4e
11.1.1/tp 4	II.4.2.1.2/3	05.05, 1/6.2 05.05, Table 1	4e
11.1.2/tp 1	II.4.2.3.2/3	05.05, 6.2 05.05, Table 1	4e
11.1.2/tp 2	II.4.2.3.2/3	05.05, 1/6.2 05.05, Table 1	4e
11.1.2/tp 3	II.4.2.3.2/3	05.05, 6.2 05.05, Table 1	4e
11.1.2/tp 4	II.4.2.3.2/3	05.05, 6.2 05.05, Table 1	4e
11.2	II.4.3.2/3	05.05, 6.1	4e
11.3.1/tp 1	II.4.4.2/3	05.05, 6.3 05.05, Table 2	4e
11.3.1/tp 2	II.4.4.2/3	05.05, 6.3 05.05, Table 2	4e
11.3.1/tp 3	II.4.4.2/3	05.05, 6.3 05.05, Table 2	4e
11.3.2	II.4.4.2/3	05.05, 6.3 05.05, Table 2	4e
11.4.1/tp 1	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e
11.4.1/tp 2	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e
11.4.1/tp 3	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e
11.4.1/tp 4	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e
11.4.1/tp 5	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e

TBR Identification	GSM 11.10 Test Case	GSM Core Specification	Terminal Directive
11.4.1/tp 6	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4f
11.4.2/tp 1	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e
11.4.2/tp 2	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e
11.4.2/tp 3	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e
11.4.2/tp 4	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e
11.4.2/tp 5	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e
11.4.2/tp 6	II.4.5.2/3	05.05, 6.3 05.05, Table 2	4e
11.5/tp 1	II.4.6.2/3	05.05, 5.2 05.05, Table 1	4f
11.5/tp 2	II.4.6.2/3	05.05, 5.2 05.05, Table 1	4f
11.6.1/tp 1	II.4.7	05.05, 5.1/5.3 05.05, Table 1	4e
11.6.1/tp 2	II.4.7	05.05, 5.1/5.3 05.05, Table 1	4e
11.6.2/tp 1	II.4.7	05.05, 5.1/5.3 05.05, Table 1	4e
11.6.2/tp 2	II.4.7	05.05, 5.1/5.3 05.05, Table 1	4e
12.1.1	II.5.2	04.06, 5.8.1	4f
12.1.2/tp 1	II.5.2	04.06, 3.2/3.3.3	4f
12.1.2/tp 2	II.5.2	04.06, 2.3/3.2	4f
12.1.2/tp 3	II.5.2	04.06, 2.5/3.6	4f
12.2.1/tp 1	II.5.2.2.1.1.1	04.06, 5.4.1.4	4f
12.2.1/tp 2	II.5.2.2.1.1.1	04.06, 5.4.1.4	4f
12.2.2.1/tp 1	II.5.2.2.1.1.2.1	04.06, 5.4.1.4/5.4.1.5	4f
12.2.2.1/tp 2	II.5.2.2.1.1.2.1	04.06, 5.4.1.5	4d
12.2.2.2	II.5.2.2.1.1.2.2	04.06, 5.4.1.4	4f
12.2.2.3/tp 1	II.5.2.2.1.1.2.3	04.06, 5.4.1.4	4f
12.2.2.3/tp 2	II.5.2.2.1.1.2.3	04.06, 5.4.1.4	4f
12.2.2.3/tp 3	II.5.2.2.1.1.2.3	04.06, 5.4.1.4	4f
12.2.3	II.5.2.2.1.1.3	04.06, 5.4.1.4/5.4.1.2	4e
12.2.4/tp 1	II.5.2.2.1.1.4	04.06, 5.4.1.5	4f
12.2.4/tp 2	II.5.2.2.1.1.4	04.06, 5.4.1.5	4f
12.2.4/tp 3	II.5.2.2.1.1.4	04.06, 5.4.1.5	4e
12.3.1/tp 1	II.5.2.2.1.2.1	04.06, 5.4.1.2	4f
12.3.1/tp 2	II.5.2.2.1.2.1	04.06, 5.4.1.2	4f
12.3.1/tp 3	II.5.2.2.1.2.1	04.06, 5.4.1.2/5.5.1	4f
12.3.2/tp 1	II.5.2.2.1.2.2	04.06, 5.4.1.2/5.4.1.3	4f
12.3.2/tp 2	II.5.2.2.1.2.2	04.06, 5.4.1.2	4f
12.3.2/tp 3	II.5.2.2.1.2.2	04.06, 5.4.1.2/5.5.1	4f
12.3.3	II.5.2.2.1.2.3	04.06, 5.4.1.2	4e
12.3.4/tp 1	II.5.2.2.1.2.4	04.06, 5.4.1.3	4f
12.3.4/tp 2	II.5.2.2.1.2.4	04.06, 5.4.1.3	4f
12.3.4/tp 3	II.5.2.2.1.2.4	04.06, 5.4.1.3	4e
12.4.1/tp 1	II.5.2.2.2.1	04.06, 3.5.2/5.5.2/5.5.2.2	4f

TBR Identification	GSM 11.10 Test Case	GSM Core Specification	Terminal Directive
12.4.1/tp 2	II.5.2.2.2.1	04.06, 3.5.2/5.5.2/5.5.2.2	4f
12.4.1/tp 3	II.5.2.2.2.1	04.06, 5.4.1.2/5.4.1.4/5.5.1	4f
12.4.1/tp 4	II.5.2.2.2.1	04.06, 3.5.2/5.5.1	4f
12.4.1/tp 5	II.5.2.2.2.1	04.06, 3.5.2/5.5.1/5.5.3	4f
12.4.2/tp 1	II.5.2.2.2.2 II.5.2.2.4.1/2 II.5.2.2.6.3	04.06, 5.5.1/5.5.7	4f
12.4.2/tp 2	II.5.2.2.2.2 II.5.2.2.4.1/2 II.5.2.2.6.3	04.06, 5.5.2/5.5.2.2	4f
12.4.2/tp 3	II.5.2.2.2.2 II.5.2.2.4.1/2 II.5.2.2.6.3	04.06, 5.5.3/5.5.7	4f
12.4.3/tp 1	II.5.2.2.2.3	04.06, 5.5.1	4f
12.4.3/tp 2	II.5.2.2.2.3	04.06, 5.5.2	4f
12.4.3/tp 3	II.5.2.2.2.3	04.06, 5.4.3.2/5.4.3.3.1	4f
12.5	II.5.2.2.3	04.06, 5.4.4.2	4e, 4f
12.6	II.5.2.2.4.3	04.06, 5.7.1	4f
12.7/tp 1	II.5.2.2.5.1	04.06, 5.7.3/Annex G.2.2	4f
12.7/tp 2	II.5.2.2.5.2	04.06, 5.7.3/Annex G.2.2	4f
12.8/tp 1	II.5.2.2.6.1	04.06, 5.7.1	4f
12.8/tp 2	II.5.2.2.6.1	04.06, 5.7.1	4f
12.8/tp 3	II.5.2.2.6.2	04.06, 5.4.4.2/5.4.4.4 04.06, 5.6.2/5.6.4 04.06, 5.7.4	4f
12.9/tp 1.1	II.5.2.2.7	04.06, 5.7.3/Annex G.1, G.4.3	4f
12.9/tp 1.2	II.5.2.2.7	04.06, 5.7.3/Annex G.1, G.2.3	4f
12.9/tp 1.3	II.5.2.2.7	04.06, 5.7.3/Annex G.1, G.4.1	4f
12.9/tp 1.4	II.5.2.2.7	04.06, 5.7.3/Annex G.1, G.4.4	4f
12.9/tp 1.5	II.5.2.2.7	04.06, 5.7.3/Annex G.1, G.4.4	4f
12.9/tp 1.6	II.5.2.2.7	04.06, 5.7.3/Annex G.1, G.4.2	4f
12.9/tp 1.7	II.5.2.2.7	04.06, 5.7.3/Annex G.1, G.4.2	4f
12.9/tp 2.1	II.5.2.2.7	04.06, 5.7.3/Annex G.1, G.2.3	4f
12.9/tp 2.2	II.5.2.2.7	04.06, 5.7.3/Annex G.1, G.3.2	4f
12.9/tp 3	II.5.2.2.7	04.06, 5.7.3/Annex G.1 G.4.3 G.2.3	4f
13.1.1/tp 1	II.5.3.2.1.1.3	04.08, 3.3.1.1	4d, 4e
13.1.1/tp 2	II.5.3.2.1.1.3	04.08, 3.3.1.1	4d, 4e
13.1.1/tp 3	II.5.3.2.1.1.3	04.08, 9.1.8	4d, 4e
13.1.2/tp 1	II.5.3.2.1.1.4	04.08, 3.3.1.1	4d, 4e
13.1.2/tp 2	II.5.3.2.1.1.4	04.08, 3.3.1.1	4d, 4e
13.1.2/tp 3	II.5.3.2.1.1.4	04.08, 9.1.8	4d, 4e
13.1.3/tp 1	II.5.3.2.1.1.5	04.08, 3.3.1.1	4d, 4e
13.1.3/tp 2	II.5.3.2.1.1.5	04.08, 3.3.1.1	4d, 4e
13.1.3/tp 3	II.5.3.2.1.1.5	04.08, 9.1.8	4d, 4e
13.1.4/tp 1	II.5.3.2.1.1.6	04.08, 3.3.1.1	4d, 4e
13.1.4/tp 2	II.5.3.2.1.1.6	04.08, 3.3.1.1	4d, 4e
13.1.4/tp 3	II.5.3.2.1.1.6	04.08, 9.1.8	4d, 4e
13.1.5	II.5.3.2.1.2	04.08, 3.3.1/3.3.1.1/3.3.1.2 04.08, 3.3.2.2	4d, 4e
13.2.1/tp 1	II.5.3.2.2.3/4	04.08, 4.3.4	4e
13.2.1/tp 2	II.5.3.2.2.3/4	04.08, 4.4.3	4e
13.2.2/tp 1	II.5.3.2.2.5/6	04.08, 4.3.4	4e

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13.2.2/tp 2	II.5.3.2.2.5/6	04.08, 4.4.3	4e
13.2.3	II.5.3.2.2.7/8	04.08, 4.3.4	4e, 4d
13.2.4/tp 1	II.5.3.2.2.9/10	04.08, 4.4.3	4f
13.2.4/tp 2	II.5.3.2.2.9/10	04.08, 4.4.4.5	4f
13.2.5	II.5.3.2.2.11/12	04.08, 4.3.4	4e, 4d
13.2.6/tp 1	II.5.3.2.2.13/14	04.08, 4.4.3	4f
13.2.6/tp 2	II.5.3.2.2.13/14	04.08, 4.4.3	4f
13.3	II.5.3.2.3	04.08, 2.4.1	4f
14.1	II.5.3.3.2.2/3	05.08, 6.2 02.11, 3.2	4f
14.2	II.5.3.3.3.2/3 req 2)	05.08, 6.2 02.11, 3.2	4d
15.1.1	II.5.3.5.1.1	04.08, 8.2 04.08, 10.2	4d, 4f
15.2.1	II.5.3.5.2.1	04.08, 8.2 04.08, 10.3	4d, 4f
15.2.2	II.5.3.5.2.2	04.08, 8.2 04.08, 10.3	4d, 4f
15.2.3.1	II.5.3.5.2.3 proc.1) II.5.3.5.2.3 req.1)	04.08, 8.4	4d, 4f
15.2.3.2	II.5.3.5.2.3 proc.2) II.5.3.5.2.3 req.2)	04.08, 8.4	4d, 4f
15.2.3.3	II.5.3.5.2.3 proc.3) II.5.3.5.2.3 req.3)	04.08, 8.4	4d, 4f
15.2.3.4	II.5.3.5.2.3 proc.4) II.5.3.5.2.3 req.4)	04.08, 8.4	4d, 4f
15.3.1	II.5.3.5.3.1	04.08, 8.5/5.5.3.1	4d, 4f
15.3.2	II.5.3.5.3.2	04.08, 8.5/5.5.3.1	4d, 4f
15.3.3	II.5.3.5.3.3	04.08, 8.5/5.5.3.1	4d, 4f
15.4.1	II.5.3.5.4.2	04.08, 4.4.4.5/3.3.2.3/8.6	4d, 4f
15.5.1.1	II.5.3.5.5.1 proc.i) II.5.3.5.5.1 req.i)	04.08, 8.7	4d, 4f
15.5.1.2	II.5.3.5.5.1 proc.ii) II.5.3.5.5.1 req.ii)	04.08, 8.7	4d, 4f
15.5.2	II.5.3.5.5.2	04.08, 8.7	4d, 4f
15.5.3.1	II.5.3.5.5.3 proc.i) II.5.3.5.5.3 req.i)	04.08, 8.7.3	4d, 4f
15.5.3.2	II.5.3.5.5.3 proc.ii) II.5.3.5.5.3 req.ii)	04.08, 8.7.3	4d, 4f
15.5.3.3	II.5.3.5.5.3 proc.iv) II.5.3.5.5.3 req.iv)	04.08, 8.7	4d, 4f
15.6.1.1	II.5.3.5.6.1.3 proc.1) II.5.3.5.6.1.3 req.1)	04.08, 8.8.1	4d, 4f
15.6.1.2	II.5.3.5.6.1.3 proc.2) II.5.3.5.6.1.3 req.2)	04.08, 8.8.1	4d, 4f
15.6.2.1/tp 1	II.5.3.5.6.2 proc.1) II.5.3.5.6.2 req.1)	04.08, 8.8.1/4.4	4d, 4f
15.6.2.1/tp 2	II.5.3.5.6.2 proc.1) II.5.3.5.6.2 req.1)	04.08, 8.8.1/4.3.1/4.4	4d, 4f
15.6.2.2	II.5.3.5.6.2 proc.2) II.5.3.5.6.2 req.2)	04.08, 8.8.1/4.4	4d, 4f
15.6.3.1	II.5.3.5.6.3 proc.1) II.5.3.5.6.3 req.1)	04.08, 8.8.1	4d, 4f

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15.6.3.2	II.5.3.5.6.3 proc.2) II.5.3.5.6.3 req.2)	04.08, 8.8.1	4d, 4f
15.6.3.3	II.5.3.5.6.3 proc.3) II.5.3.5.6.3 req.3)	04.08, 8.8.1	4d, 4f
15.6.3.4	II.5.3.5.6.3 proc.4) II.5.3.5.6.3 req.4)	04.08, 8.8.1	4d, 4f
15.6.3.5	II.5.3.5.6.3 proc.5) II.5.3.5.6.3 req.5)	04.08, 8.8.1	4d, 4f
16.1.1/tp 1	II.5.3.6.1.3	04.08, 3.3.1.2.1	4d, 4e, 4f
16.1.1/tp 2	II.5.3.6.1.4	04.08, 3.3.1.2.1	4d, 4e, 4f
16.1.2/tp 1	II.5.3.6.1.5.1/2	04.08, 3.3.1.2.1	4d, 4e, 4f
16.1.2/tp 2	II.5.3.6.1.5.5/6	04.08, 3.3.1.2.1	4d, 4e, 4f
16.1.2/tp 3	II.5.3.6.1.5.1/2 II.5.3.6.1.5/6	04.08, 3.3.1.2.1	4e
16.1.2/tp 4	II.5.3.6.1.5.3/4	04.08, 3.3.1.2.1	4d
16.1.3/tp 1	II.5.3.6.1.6.1/2	04.08, 3.3.1.2.2	4d
16.1.3/tp 2	II.5.3.6.1.6.3/4	04.08, 3.3.1.2.2	4f
16.1.4/tp 1	II.5.3.6.1.7	04.08, 3.3.1.2.1	4d
16.1.4/tp 2	II.5.3.6.1.7	04.08, 3.3.1.2.1	4d
16.2.1.1/tp 1	II.5.3.6.2.1.3/4	04.08, 3.3.2	4f
16.2.1.1/tp 2	II.5.3.6.2.1.3/4	04.08, 3.3.2	4d
16.2.1.2/tp 1	II.5.3.6.2.1.5/6	04.08, 3.3.2	4f
16.2.1.2/tp 2	II.5.3.6.2.1.5/6	04.08, 3.3.2	4d
16.2.1.3	II.5.3.6.2.1.7/8	04.08, 3.3.2	4f
16.2.1.4	II.5.3.6.2.1.9/10	04.08, 3.3.2/4.4.4.6	4d
16.2.2/tp 1	II.5.3.6.2.2 proc.1) II.5.3.6.2.2 req.1)	04.08, 3.3.2 05.02, 6.5	4f
16.2.2/tp 2	II.5.3.6.2.2 proc.2) II.5.3.6.2.2 req.2)	04.08, 3.3.2 05.02, 6.5	4f
16.2.3/tp 1	II.5.3.6.2.3 proc.1)/2) II.5.3.6.2.3 req.1)/2)	04.08, 3.3.2 05.02, 6.5	4f
16.2.3/tp 2	II.5.3.6.2.3 proc.1) II.5.3.6.2.3 req.1)	04.08, 3.3.2 05.02, 6.5	4f
16.2.3/tp 3	II.5.3.6.2.3 proc.2) II.5.3.6.2.3 req.2)	04.08, 3.3.2 05.02, 6.5	4f
16.2.3/tp 4	II.5.3.6.2.3 proc.3) II.5.3.6.2.3 req.3)	04.08, 3.3.2 05.02, 6.5	4f
16.2.4	II.5.3.6.2.4	04.08, 3.3.2 05.02, 6.5	4f
16.3.1	II.5.3.6.3.3 proc.1) II.5.3.6.3.3 req.1)	04.08, 3.4.1.2 05.08, 8	4f
16.3.2	II.5.3.6.3.3 proc.2) II.5.3.6.3.3 req.2)	04.08, 3.4.1.2 05.08, 8	4f
16.3.3	II.5.3.6.3.3 proc.3) II.5.3.6.3.3 req.3)	04.08, 3.4.1.2 05.08, 8	4f
16.3.4	II.5.3.6.3.3 proc.4) II.5.3.6.3.3 req.4)	04.08, 3.4.1.2 05.08, 8.4	4f
16.4.1/tp 1	II.5.3.6.4.2	04.08, 3.4.3	4f
16.4.1/tp 2	II.5.3.6.4.2	04.08, 3.4.3	4f
16.4.1/tp 3	II.5.3.6.4.2	04.08, 3.4.3	4f
16.4.1/tp 4	II.5.3.6.4.2	04.08, 3.4.3	4d
16.4.1/tp 5	II.5.3.6.4.2	04.08, 3.4.3	4f
16.4.2	II.5.3.6.4.3	04.08, 3.4.3.3	4f

TBR Identification	GSM 11.10 Test Case	GSM Core Specification	Terminal Directive
16.5.1/tp 1	II.5.3.6.5.4.1/11	04.08, 3.4.4	4f
16.5.1/tp 2	II.5.3.6.5.4.1/11	04.08, 3.4.4	4f
16.5.1/tp 3	II.5.3.6.5.4.1/11	04.08, 3.4.4	4f
16.5.1/tp 4	II.5.3.6.5.4.1/11	04.08, 3.4.4	4f
16.5.1/tp 5	II.5.3.6.5.4.1/11	04.08, 3.4.4	4f
16.5.1/tp 6	II.5.3.6.5.4.1/11	04.08, 3.4.4	4f
16.5.2/tp 1	II.5.3.6.5.4.2/11	04.08, 3.4.4	4f
16.5.2/tp 2	II.5.3.6.5.4.2/11	04.08, 3.4.4	4f
16.5.2/tp 3	II.5.3.6.5.4.2/11	04.08, 3.4.4	4f
16.5.2/tp 4	II.5.3.6.5.4.2/11	04.08, 3.4.4	4f
16.5.2/tp 5	II.5.3.6.5.4.2/11	04.08, 3.4.4	4f
16.5.2/tp 6	II.5.3.6.5.4.2/11	04.08, 3.4.4	4f
16.5.3/tp 1	II.5.3.6.5.4.4/11	04.08, 3.4.4	4f
16.5.3/tp 2	II.5.3.6.5.4.4/11	04.08, 3.4.4	4f
16.5.3/tp 3	II.5.3.6.5.4.4/11	04.08, 3.4.4	4f
16.5.3/tp 4	II.5.3.6.5.4.4/11	04.08, 3.4.4	4f
16.5.3/tp 5	II.5.3.6.5.4.4/11	04.08, 3.4.4	4f
16.5.3/tp 6	II.5.3.6.5.4.4/11	04.08, 3.4.4	4f
16.5.3/tp 7	II.5.3.6.5.4.4/11	04.08, 3.4.4/2.4	4f
16.5.4/tp 1	II.5.3.6.5.4.5/11	04.08, 3.4.4	4f
16.5.4/tp 2	II.5.3.6.5.4.5/11	04.08, 3.4.4	4f
16.5.4/tp 3	II.5.3.6.5.4.5/11	04.08, 3.4.4	4f
16.5.4/tp 4	II.5.3.6.5.4.5/11	04.08, 3.4.4	4f
16.5.4/tp 5	II.5.3.6.5.4.5/11	04.08, 3.4.4	4f
16.5.4/tp 6	II.5.3.6.5.4.5/11	04.08, 3.4.4	4f
16.5.4/tp 7	II.5.3.6.5.4.5/11	04.08, 3.4.4/2.4	4f
16.5.5/tp 1	II.5.3.6.5.4.6/11	04.08, 3.4.4	4f
16.5.5/tp 2	II.5.3.6.5.4.6/11	04.08, 3.4.4	4f
16.5.5/tp 3	II.5.3.6.5.4.6/11	05.10, 6.6	4f
16.5.5/tp 4	II.5.3.6.5.4.6/11	04.08, 3.4.4	4f
16.5.5/tp 5	II.5.3.6.5.4.6/11	04.08, 3.4.4	4f
16.5.6/tp 1	II.5.3.6.5.4.7/11	04.08, 3.4.4	4f
16.5.6/tp 2	II.5.3.6.5.4.7/11	04.08, 3.4.4	4f
16.5.6/tp 3	II.5.3.6.5.4.7/11	05.10, 6.6	4f
16.5.6/tp 4	II.5.3.6.5.4.7/11	04.08, 3.4.4	4f
16.5.6/tp 5	II.5.3.6.5.4.7/11	04.08, 3.4.4	4f
16.5.7/tp 1	II.5.3.6.5.4.8/11	04.08, 3.4.4	4f
16.5.7/tp 2	II.5.3.6.5.4.8/11	04.08, 3.4.4	4f
16.5.7/tp 3	II.5.3.6.5.4.8/11	05.10, 6.6	4f
16.5.7/tp 4	II.5.3.6.5.4.8/11	04.08, 3.4.4	4f
16.5.7/tp 5	II.5.3.6.5.4.8/11	04.08, 3.4.4	4f
16.5.7/tp 6	II.5.3.6.5.4.8/11	04.08, 3.4.4/2.4	4f
16.5.8/tp 1	II.5.3.6.5.4.9/11	04.08, 3.4.4	4f
16.5.8/tp 2	II.5.3.6.5.4.9/11	04.08, 3.4.4	4f
16.5.8/tp 3	II.5.3.6.5.4.9/11	05.10, 6.6	4f
16.5.8/tp 4	II.5.3.6.5.4.9/11	04.08, 3.4.4	4f
16.5.8/tp 5	II.5.3.6.5.4.9/11	04.08, 3.4.4	4f
16.5.8/tp 6	II.5.3.6.5.4.9/11	04.08, 3.4.4/2.4	4f
16.5.9/tp 1	II.5.3.6.5.4.10/11	04.08, 3.4.4	4f
16.5.9/tp 2	II.5.3.6.5.4.10/11	04.08, 3.4.4	4f
16.5.9/tp 3	II.5.3.6.5.4.10/11	05.10, 6.6	4f
16.5.9/tp 4	II.5.3.6.5.4.10/11	04.08, 3.4.4	4f

TBR Identification	GSM 11.10 Test Case	GSM Core Specification	Terminal Directive
16.5.9/tp 5	II.5.3.6.5.4.10/11	04.08, 3.4.4	4f
16.5.9/tp 6	II.5.3.6.5.4.10/11	04.08, 3.4.4/2.4	4f
16.5.10/tp 1	II.5.3.6.5.4.12	04.08, 3.4.4	4d, 4f
16.5.10/tp 2	II.5.3.6.5.4.12	04.08, 3.4.4	4d, 4f
16.5.10/tp 3	II.5.3.6.5.4.12	04.08, 3.4.4	4d, 4f
16.5.11/tp 1	II.5.3.6.5.4.13	04.08, 3.4.4	4d, 4f
16.5.11/tp 2	II.5.3.6.5.4.13	04.08, 3.4.4	4d, 4f
16.5.11/tp 3	II.5.3.6.5.4.13	04.08, 3.4.4	4d, 4f
16.6	II.5.3.6.6	04.08, 3.4.5	4d, 4f
16.7/tp 1	II.5.3.6.7	04.08, 3.4.6	4f
16.7/tp 2	II.5.3.6.7	04.08, 3.4.6	4f
16.8/tp 1	II.5.3.6.8.3.1	04.08, 3.4.7	4f
16.8/tp 2	II.5.3.6.8.3.1	04.08, 3.4.7	4f
16.8/tp 3	II.5.3.6.8.3.2	04.08, 3.4.7	4f
16.8/tp 4	II.5.3.6.8.3.3	04.08, 3.4.7	4f
16.8/tp 5	II.5.3.6.8.3.4	04.08, 3.5.2 04.06, 5.5.7	4e
16.9/tp 1	II.5.3.6.11	04.08, 3.4.10	4e
16.9/tp 2	II.5.3.6.11	04.08, 3.4.10	4e
16.10/tp 1	II.5.3.6.12	04.08, 3.5.1	4f
16.10/tp 2	II.5.3.6.12	04.08, 3.5.1	4f
16.10/tp 3	II.5.3.6.12	04.08, 3.5.1	4f
16.10/tp 4	II.5.3.6.12	04.08, 3.5.1	4f
17.1/tp 1	II.5.3.7.1.2	04.08, 4.3.1.2	4f
17.1/tp 2	II.5.3.7.1.2	04.08, 4.3.1.2	4f
17.1/tp 3	II.5.3.7.1.2	04.08, 4.3.1.2	4f
17.2/tp 1	II.5.3.7.2.2	04.08, 4.3.2/4.3.2.2 03.20, 3.2	4f
17.2/tp 2	II.5.3.7.2.2	04.08, 4.3.2/4.3.2.4 03.20, 3.2	4f
17.2/tp 3	II.5.3.7.2.2	04.08, 4.3.2/4.3.2.5 03.20, 3.2	4d, 4f
17.2/tp 4	II.5.3.7.2.2	04.08, 4.3.2/4.3.2.5 03.20, 3.2	4d
17.3/tp 1	II.5.3.7.3.2	04.08, 4.3.3.2	4f
17.3/tp 2	II.5.3.7.3.2	04.08, 4.3.3.2	4f
17.3/tp 3	II.5.3.7.3.2	04.08, 4.3.3.2	4d
17.4.1/tp 1	II.5.3.7.4.1 proc.1	04.08, 4.4.4.5	4f
17.4.1/tp 2	II.5.3.7.4.1 proc.2	04.08, 4.4.4.5	4f
17.4.1/tp 3	II.5.3.7.4.1 proc.3	04.08, 4.4.4.5	4d, 4f
17.4.2.1/tp 1	II.5.3.7.4.2.1	04.08, 4.4.4.6	4d
17.4.2.1/tp 2	II.5.3.7.4.2.1	04.08, 4.4.4.6	4f
17.4.2.2/tp 1	II.5.3.7.4.2.2	04.08, 4.4.4.6	4d
17.4.2.2/tp 2	II.5.3.7.4.2.2	04.08, 4.4.4.6	4f
17.4.2.3/tp 1	II.5.3.7.4.2.3	04.08, 4.4.4.6	4d
17.4.2.3/tp 2	II.5.3.7.4.2.3	04.08, 4.4.4.6	4f
17.4.3.1/tp 1	II.5.3.7.4.3.1 proc.1	04.08, 4.4.4.8 05.08, 6.6.2	4d, 4f
17.4.3.1/tp 2	II.5.3.7.4.3.1 proc.2	04.08, 4.4.4.8 05.08, 6.6.2	4d, 4f
17.4.3.2/tp 1	II.5.3.7.4.3.2 proc.1	04.08, 4.4.4.8	4f
17.4.3.2/tp 2	II.5.3.7.4.3.2 proc.2	04.08, 4.4.4.8	4d

TBR Identification	GSM 11.10 Test Case	GSM Core Specification	Terminal Directive
17.4.3.2/tp 3	II.5.3.7.4.3.2 proc.3	04.08, 4.4.4.8	4f
17.4.3.2/tp 4	II.5.3.7.4.3.2 proc.4	04.08, 4.4.4.8	4f
17.4.3.2/tp 5	II.5.3.7.4.3.2 proc.5	04.08, 4.4.4.8	4f
17.4.3.2/tp 6	II.5.3.7.4.3.2 proc.6	04.08, 4.4.4.8 05.08, 6.6.2	4f
17.4.3.3/tp 1	II.5.3.7.4.3.3 proc.1	04.08, 4.4.4.8	4d, 4f
17.4.3.3/tp 2	II.5.3.7.4.3.3 proc.2	04.08, 4.4.4.8	4f
17.4.3.3/tp 3	II.5.3.7.4.3.3 proc.3	04.08, 4.4.4.8	4f
17.4.3.3/tp 4	II.5.3.7.4.3.3 proc.4	04.08, 4.4.4.8	4f
17.4.3.3/tp 5	II.5.3.7.4.3.3 proc.5	04.08, 4.4.4.8 05.08, 6.6.2	4f
17.4.3.4/tp 1	II.5.3.7.4.3.4 proc.1	04.08, 4.4.4.8	4d, 4f
17.4.3.4/tp 2	II.5.3.7.4.3.4 proc.2	04.08, 4.4.4.8	4d, 4f
17.4.3.4/tp 3	II.5.3.7.4.3.4 proc.3	04.08, 4.4.4.8	4f
17.4.3.4/tp 4	II.5.3.7.4.3.4 proc.4	04.08, 4.4.4.8	4f
17.4.3.4/tp 5	II.5.3.7.4.3.4 proc.5	04.08, 4.4.4.8	4f
17.4.3.4/tp 6	II.5.3.7.4.3.4 proc.5	04.08, 4.4.4.8	4f
17.4.4/tp 1	II.5.3.7.4.5.1	04.08, 4.4.2	4d
17.4.4/tp 2	II.5.3.7.4.5.2 proc.1/3	04.08, 4.4.2	4d
17.4.4/tp 3	II.5.3.7.4.5.2 proc.2	04.08, 4.4.2	4d
17.5.1/tp 1	II.5.3.7.5.2.3/5	04.08, 4.5.1.1	4f
17.5.1/tp 2	II.5.3.7.5.2.3/5	04.08, 4.5.1.1	4f
17.5.2/tp 1	II.5.3.7.5.5.3/5	04.08, 4.5.1.1	4f
17.5.2/tp 2	II.5.3.7.5.5.3/5	04.08, 4.5.1.1	4d
17.5.2/tp 3	II.5.3.7.5.5.3/5	04.08, 4.5.1.1	4f
18.1.1.1	II.5.3.8.1.2.2.1	04.08, 5.2.1.1/4.5.1.1/3.3.1	4f
18.1.1.2.1	II.5.3.8.1.2.2.2	04.08, 4.5.1.04.07, 3.2	4f
18.1.1.2.2	II.5.3.8.1.2.2.2	04.08, 4.5.1.1/5.2.1.1.1	4f
18.1.1.2.3	II.5.3.8.1.2.2.2	04.08, 4.5.1.2/5.1.2.1/5.5.3.2	4f
18.1.1.3.1	II.5.3.8.1.2.2.3	04.08, 5.2.1.1	4f
18.1.1.3.2/tp 1	II.5.3.8.1.2.2.3	04.08, 5.4.2/5.4.4	4f
18.1.1.3.2/tp 2	II.5.3.8.1.2.2.3	04.08, 5.5.3.2	4f
18.1.1.3.3	II.5.3.8.1.2.2.3	04.08, 5.2.1.1/5.4	4d, 4e, 4f
18.1.1.3.4	II.5.3.8.1.2.2.3	04.08, 4.5.2.3/5.1.2.1/5.5.3.2	4f
18.1.1.3.5	II.5.3.8.1.2.2.3	04.08, 5.2.1.1	4f
18.1.1.3.6	II.5.3.8.1.2.2.3	04.08, 5.2.1.1	4f
18.1.1.3.7	II.5.3.8.1.2.2.3	04.08, 8.5	4f
18.1.1.4.1	II.5.3.8.1.2.2.4	04.08, 5.2.1.1.5	4f
18.1.1.4.2/tp 1	II.5.3.8.1.2.2.4	04.08, 5.2.1.1.6	4f
18.1.1.4.2/tp 2	II.5.3.8.1.2.2.4	04.08, 5.2.1.1.6	4f
18.1.1.4.3/tp 1	II.5.3.8.1.2.2.4	04.08, 5.2.1.1.4/11.3	4f
18.1.1.4.3/tp 2	II.5.3.8.1.2.2.4	04.08, 5.2.1.1.4/11.3	4f
18.1.1.4.4	II.5.3.8.1.2.2.4	04.08, 5.2.1.1.3/5.4.4	4f
18.1.1.4.5	II.5.3.8.1.2.2.4	04.08, 5.2.1.1.3/5.4.4	4f
18.1.1.4.6/tp 1	II.5.3.8.1.2.2.4	04.08, 5.4.2/5.4.4	4f
18.1.1.4.6/tp 2	II.5.3.8.1.2.2.4	04.08, 4.5.3/5.5.3.2	4f
18.1.1.4.7	II.5.3.8.1.2.2.4	04.07, 3.2.2 04.08, 5.4.3	4f
18.1.1.4.8	II.5.3.8.1.2.2.4	04.08, 3.4.3/5.2.1.1.9	4f
18.1.1.4.9	II.5.3.8.1.2.2.4	04.08, 5.2.1.1.3/5.4.3/11.3	4f
18.1.1.4.10	II.5.3.8.1.2.2.4	04.08, 4.5.2.3/4.5.3/5.5.3.2	4f
18.1.1.4.11	II.5.3.8.1.2.2.4	04.08, 5.5.3.2	4f

TBR Identification	GSM 11.10 Test Case	GSM Core Specification	Terminal Directive
18.1.1.5.1	II.5.3.8.1.2.2.5	04.08, 5.2.1.1.6	4f
18.1.1.5.2	II.5.3.8.1.2.2.5	04.07, 3.2.2 04.08, 5.4.3	4f
18.1.1.5.3	II.5.3.8.1.2.2.5	04.08, 3.4.3.1/5.1.3/5.4.4.1/5.5.1/5.2.1.1.9	4f
18.1.1.5.4	II.5.3.8.1.2.2.5	04.08, 5.4.4	4f
18.1.1.5.5/tp 1	II.5.3.8.1.2.2.5	04.08, 5.4.2/5.4.4	4f
18.1.1.5.5/tp 2	II.5.3.8.1.2.2.5	04.08, 4.5.4/5.5.3.2	4f
18.1.1.5.6	II.5.3.8.1.2.2.5	04.08, 4.5.2.3/4.5.3/5.5.3.2	4f
18.1.1.5.7	II.5.3.8.1.2.2.5	04.08, 3.4.3/5.2.1.1.9	4f
18.1.1.5.8	II.5.3.8.1.2.2.5	04.08, 5.5.3.2	4f
18.1.1.6.1	II.5.3.8.1.2.2.6	04.07, 3.2.2 04.08, 5.4.3	4f
18.1.1.6.2/tp 1	II.5.3.8.1.2.2.6	04.08, 5.4.2/5.4.4	4f
18.1.1.6.2/tp 2	II.5.3.8.1.2.2.6	04.08, 4.5.3/5.5.3.2	4f
18.1.1.6.3	II.5.3.8.1.2.2.6	04.08, 5.4.4	4f
18.1.1.6.4	II.5.3.8.1.2.2.6	04.08, 3.4.3.1/5.4.4.1/5.5.1	4f
18.1.1.7.1	II.5.3.8.1.2.2.7	04.08, 5.4.5	4f
18.1.1.7.2/tp 1	II.5.3.8.1.2.2.7	04.08, 5.4.3	4f
18.1.1.7.2/tp 2	II.5.3.8.1.2.2.7	04.08, 4.5.3/5.5.3.2	4f
18.1.1.7.3	II.5.3.8.1.2.2.7	04.08, 5.4.3/11.3	4f
18.1.1.7.4	II.5.3.8.1.2.2.7	04.08, 4.5.2.3/4.5.3/5.5.3.2	4f
18.1.1.8.1	II.5.3.8.1.2.2.8	04.07, 3.2.2 04.08, 5.4.4	4f
18.1.1.8.2/tp 1	II.5.3.8.1.2.2.8	04.08, 5.4	4f
18.1.1.8.2/tp 2	II.5.3.8.1.2.2.8	04.08, 4.5.3/5.5.3.2	4f
18.1.1.8.3	II.5.3.8.1.2.2.8	04.08, 4.5.3.2/4.5.3/5.5.3.2	4f
18.1.1.8.4	II.5.3.8.1.2.2.8	04.08, 5.5.3.2	4f
18.1.1.9.1	II.5.3.8.1.2.2.9	04.08, 5.4.4.3/11.3	4f
18.1.1.9.2/tp 1	II.5.3.8.1.2.2.9	04.08, 5.4.4.3/11.3	4f
18.1.1.9.2/tp 2	II.5.3.8.1.2.2.9	04.08, 4.5.3/5.5.3.2	4f
18.1.1.9.3	II.5.3.8.1.2.2.9	04.08, 5.4.5/11.3/5.5.3.2	4f
18.1.1.9.4	II.5.3.8.1.2.2.9	04.08, 5.4.5/11.3/5.5.3.2	4f
18.1.1.9.5	II.5.3.8.1.2.2.9	04.08, 4.5.2.3/4.5.3/5.5.3.2	4f
18.1.2.1.1	II.5.3.8.1.3.2.1	04.08, 4.5.1.3/5.2.2.1	4f
18.1.2.1.2	II.5.3.8.1.3.2.1	04.08, 5.2.2.2/Annex B	4f
18.1.2.2.1	II.5.3.8.1.3.2.2	04.07, 3.2.2 04.08, 5.2.2.3.1	4f
18.1.2.2.2	II.5.3.8.1.3.2.2	04.07, 3.2.2 04.08, 5.2.2.3.1/5.5.3.2 11.10, Annex B	4f
18.1.2.2.3	II.5.3.8.1.3.2.2	04.08, 4.5.2.3/4.5.3/5.5.3.2	4f
18.1.2.2.4	II.5.3.8.1.3.2.2	04.08, 5.5.3.2	4f
18.1.2.3.1	II.5.3.8.1.3.2.3	04.08, 5.2.2.3.2 11.10, Annex 3 2.2	4f
18.1.2.3.2	II.5.3.8.1.3.2.3	04.07, 3.2.2 04.08, 5.4.3	4f
18.1.2.3.3	II.5.3.8.1.3.2.3	04.08, 5.4.4	4f
18.1.2.3.4/tp 1	II.5.3.8.1.3.2.3	04.08, 5.4.4	4f
18.1.2.3.4/tp 2	II.5.3.8.1.3.2.3	04.08, 4.5.3/5.5.3.2	4f
18.1.2.3.5	II.5.3.8.1.3.2.3	04.08, 4.5.2.3/4.5.3/5.5.3.2	4f
18.1.2.3.6	II.5.3.8.1.3.2.3	04.08, 5.5.3.2	4f

TBR Identification	GSM 11.10 Test Case	GSM Core Specification	Terminal Directive
18.1.2.4.1	II.5.3.8.1.3.2.4	04.07, 3.2.2 04.08, 5.2.2.5	4f
18.1.2.4.2	II.5.3.8.1.3.2.4	04.07, 3.2.2 04.08, 5.4.3	4f
18.1.2.4.3	II.5.3.8.1.3.2.4	04.08, 5.4.4	4f
18.1.2.4.4/tp 1	II.5.3.8.1.3.2.4	04.08, 5.4.4	4f
18.1.2.4.4/tp 2	II.5.3.8.1.3.2.4	04.08, 4.5.3/5.5.3.2	4f
18.1.2.4.5	II.5.3.8.1.3.2.4	04.08, 4.5.2.3/4.5.3/5.5.3.2	4f
18.1.2.4.6	II.5.3.8.1.3.2.4	04.08, 5.5.3.2	4f
18.1.2.4.7	II.5.3.8.1.3.2.4	04.08, 3.4.3/5.2.2.7	4f
18.1.2.5.1	II.5.3.8.1.3.2.5	04.08, 5.2.2.6	4f
18.1.2.5.2	II.5.3.8.1.3.2.5	04.08, 5.2.2.6/5.4.3	4e, 4f
18.1.2.5.3	II.5.3.8.1.3.2.5	04.07, 3.2.2 04.08, 5.4.3 11.10, Annex 3 2.2	4f
18.1.2.5.4	II.5.3.8.1.3.2.5	04.08, 5.4.4/5.4.4.2	4f
18.1.2.5.5	II.5.3.8.1.3.2.5	04.08, 3.4.3.1/5.1.3/5.2.2.7/5.4.4/5.5.1	4f
18.1.2.5.6/tp 1	II.5.3.8.1.3.2.5	04.08, 5.4.4	4f
18.1.2.5.6/tp 2	II.5.3.8.1.3.2.5	04.08, 4.5.3/5.5.3.2	4f
18.1.2.5.7	II.5.3.8.1.3.2.5	04.08, 4.5.2.3/4.5.3/5.5.3.2	4f
18.1.2.5.8	II.5.3.8.1.3.2.5	04.08, 3.4.4/5.2.2.7	4f
18.1.2.5.9	II.5.3.8.1.3.2.5	04.08, 5.5.3.2	4f
18.1.3.1	II.5.3.8.1.4.1.1	04.08, 5.3.4.3.2	4f
18.1.3.2	II.5.3.8.1.4.1.1	04.08, 5.3.4.3	4f
18.2.1/tp 1	II.5.3.8.2.4.1/2	04.08, 3.3.1/5.2.1/4.5.1.5 02.30, 4	4f
18.2.1/tp 2	II.5.3.8.2.4.3/4	04.08, 3.3.1/5.2.1/4.5.1.5 02.30, 4	4f
18.2.1/tp 3	II.5.3.8.2.4.5	04.08, 3.4.7/4.3.2	4f
18.2.1/tp 4	II.5.3.8.2.4.6	04.08, 5.2.1.2	4f
18.2.1/tp 5	II.5.3.8.2.4.7	04.08, 5.2.1.1	4f
18.2.1/tp 6	II.5.3.8.2.4.7	04.08, 5.4	4f
18.2.2/tp 1	II.5.3.8.2.6.1/2	04.08, 3.3.1/5.2.1/4.5.1.5 05.08, 6.8 02.30, 4	4f
18.2.2/tp 2	II.5.3.8.2.6.3/4	04.08, 3.3.1/5.2.1/4.5.1.5 05.08, 6.8 02.30, 4	4f
18.2.2/tp 3	II.5.3.8.2.6.5/6	04.08, 5.2.1.2	4f
18.2.2/tp 4	II.5.3.8.2.6.7	04.08, 5.2.1.1	4f
18.2.2/tp 5	II.5.3.8.2.6.7	04.08, 5.4	4f
18.2.3/tp 1	II.5.3.8.2.7.1/2	04.08, 3.3.1/5.2.1/4.5.1.5 02.30, 4	4f
18.2.3/tp 2	II.5.3.8.2.7.3/4	04.08, 3.3.1/5.2.1/4.5.1.5 02.30, 4	4f
18.2.3/tp 3	II.5.3.8.2.7.5	04.08, 4.5.1.5/4.5.1.1	4f
18.3.1/tp 1	II.5.3.8.3.3.2/3	04.08, 3.3.1/4.5.1.6/5.5.4 05.08, 6.7.2	4f
18.3.1/tp 2	II.5.3.8.3.3.2/3	04.08, 3.3.1/4.5.1.6/5.5.4 05.08, 6.7.2	4f
18.3.1/tp 3	II.5.3.8.3.3.2/3	04.08, 3.4.7	4f
18.3.1/tp 4	II.5.3.8.3.3.2/3	04.08, 3.4.3	4f

TBR Identification	GSM 11.10 Test Case	GSM Core Specification	Terminal Directive
18.3.2	II.5.3.8.3.4.2 proc.b) II.5.3.8.3.4.3 req.1	04.08, 3.2.2.1/10.5.2.17	4f
18.3.3	II.5.3.8.3.5.2 proc.c) II.5.3.8.3.5.3 req.1	04.08, 3.2.2.1/5.5.4/10.5.2.17	4e, 4f
18.4	II.5.3.8.4.4-5	04.08, 5.3.3	4d, 4f
18.5	II.5.3.8.5 proc.1/2	04,08, 10.1/10.5.4.18 04.08, 5.4.4/5.2.2	4d, 4e, 4f
19.1/tp 1	II.5.3.9.2.2 b)/c) II.5.3.9.2.3 2)	04.08, 3.3.1	4e, 4f
19.1/tp 2	II.5.3.9.2.2 c)/d)/e)/f)/g) II.5.3.9.2.3 3)/4)/5)	04.08, 5.2.1.1.1	4d, 4e, 4f
19.1/tp 3	II.5.3.9.2.2 h)/i)/j)/k) II.5.3.9.2.3 6)/8)	04.08, 5.2.1.1.6	4d, 4e, 4f
19.1/tp 4	II.5.3.9.2.2 l) II.5.3.9.2.3 9)	04.08, 5.4.4	4d, 4e, 4f
19.1/tp 5	II.5.3.9.2.2 m) II.5.3.9.2.3 10)	04.08, 5.4.4/3.5.1	4d, 4e, 4f
19.2/tp 1	II.5.3.9.3.2 a) II.5.3.9.3.3 1)	04.08, 3.3.1	4e, 4f
19.2/tp 2	II.5.3.9.3.2 b) II.5.3.9.3.3 1)	04.08, 5.2.1.1.1	4d, 4e, 4f
19.2/tp 3	II.5.3.9.3.2 b)/c) II.5.3.9.3.3 3)	04.08, 3.4.3	4d, 4e, 4f
19.2/tp 4	II.5.3.9.3.2 d) II.5.3.9.3.3 4)	04.08, 5.2.1.1.6	4d, 4e, 4f
19.3/tp 1	II.5.3.9.4.2 b)-h) II.5.3.9.4.3 5)	04.08, 5.2.2.3.1	4d, 4e, 4f
19.3/tp 2	II.5.3.9.4.2 i)/j) II.5.3.9.4.3 5)/6)/7)	04.08, 5.2.2.3.2/3.4.3.1	4d, 4e, 4f
19.3/tp 3	II.5.3.9.4.2 j) II.5.3.9.4.3 7)/9)	04.08, 5.2.2.5	4d, 4e, 4f
19.3/tp 4	II.5.3.9.4.2 k)/l) II.5.3.9.4.3 11)	04.08, 5.4	4d, 4e, 4f
19.3/tp 5	II.5.3.9.4.2 m) II.5.3.9.4.3 12)	04.08, 5.4	4d, 4e, 4f
19.3/tp 6	II.5.3.9.4.2 n) II.5.3.9.4.3 13)	04.08, 3.5.1	4d, 4e, 4f
19.4/tp 1	II.5.3.9.5.2 a) II.5.3.9.5.3 2)	04.08, 5.2.2.3.1	4d, 4e, 4f
19.4/tp 2	II.5.3.9.5.2 b) II.5.3.9.5.3 4)	04.08, 5.2.2.3.2	4d, 4e, 4f
19.4/tp 3	II.5.3.9.5.2 c) II.5.3.9.5.3 5)	04.08, 3.4.3.1	4d, 4e, 4f
20.1.1/tp 1	II.6.1.2.1	05.10, 6.4/6.6	4f
20.1.1/tp 2	II.6.1.2.1	05.10, 6.4	4f
20.1.1/tp 3	II.6.1.2.1	05.10, 6.5	4f
20.1.1/tp 4	II.6.1.2.1	05.10, 6.4 04.04, 7.2	4f
20.1.2/tp 1	II.6.1.2.2	05.10, 6.2	4f
20.1.2/tp 2	II.6.1.2.2	05.10, 6.2	4f
20.2.1/tp 1	II.6.1.3.1 req 1	05.10, 6.8	4f
20.2.1/tp 2	II.6.1.3.1 req 2	05.10, 6.8	4f

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20.2.2/tp 1	II.6.1.3.2 req 1	05.10, 6.8 05.05, Annex 3	4f
20.2.2/tp 2	II.6.1.3.2 req 2	05.10, 6.8 05.05, Annex 3	4f
20.2.2/tp 3	II.6.1.3.2 req 3	05.10, 6.9	4f
20.2.2/tp 4	II.6.1.3.2 req 4	05.10, 6.6	4f
20.3/tp 1	II.6.1.4.1 req 1	05.10, 6.1/6.7	4f
20.3/tp 2	II.6.1.4.1 req 2	05.10, 6.4	4f
20.3/tp 3	II.6.1.4.1	05.10, 6.7	4f
20.4/tp 1	II.6.1.5.2/3 II.6.1.5.4/5 II.6.1.5.6/7	05.08, 5.2	4f
20.4/tp 2	II.6.1.5.2/3 II.6.1.5.4/5 II.6.1.5.6/7	05.08, 5.2 04.04, 10.5.2.3	4f
20.4/tp 3	II.6.1.4.1 II.6.1.5.2-7	05.08, 5.2 04.08, 3.5.2.1	4f
20.4/tp 4	II.6.1.4.1 II.6.1.5.2-7	05.08, 5.2 04.08, 3.5.2.1	4f
20.4/tp 5	II.6.1.4.1 II.6.1.5.2-7	05.08, 5.2 04.08, 3.5.2.1	4f
20.5.1/tp 1	II.6.1.6.3/4	05.08, 6.1/6.2/6.3/6.4	4f
20.5.1/tp 2	II.6.1.6.3/4	05.08, 6.1/6.2/6.3/6.4	4f
20.5.1/tp 3	II.6.1.6.3/4	05.08, 6.1/6.2/6.3/6.4	4f
20.5.1/tp 4	II.6.1.6.3/4	05.08, 6.1/6.2/6.3/6.4	4f
20.5.1/tp 5	II.6.1.6.3/4	05.08, 6.1/6.2/6.3/6.4	4f
20.5.1/tp 6	II.6.1.6.3/4	05.08, 6.1/6.2/6.3/6.4	4f
20.5.2tp 1	II.6.1.6.6/7	05.08, 6.4/6.6	4f
20.5.2tp 2	II.6.1.6.6/7	05.08, 6.4/6.6	4f
20.5.2tp 3	II.6.1.6.6/7	05.08, 6.4/6.6	4f
20.5.2tp 4	II.6.1.6.6/7	05.08, 6.4/6.6	4f
20.5.2tp 5	II.6.1.6.6/7	05.08, 6.4/6.6	4f
20.5.2tp 6	II.6.1.6.6/7	05.08, 6.4/6.6	4f
20.5.2tp 7	II.6.1.6.6/7	05.08, 6.4/6.6	4f
20.5.2tp 8	II.6.1.6.6/7	05.08, 6.4/6.6	4f
20.5.3/tp 1	II.6.1.6.9 a) - f) II.6.1.6.10	05.08, 6.7	4f
20.5.3/tp 2	II.6.1.6.9 g)-h) II.6.1.6.10	05.08, 6.7	4f
20.5.3/tp 3	II.6.1.6.9 i)-k) II.6.1.6.10	05.08, 6.7	4f
20.5.4/tp 1	II.6.1.6.12/13	05.08, 6.8	4d
20.5.4/tp 2	II.6.1.6.12/13	05.08, 6.8	4f
20.5.4/tp 3	II.6.1.6.12/13	05.08, 6.8	4f
20.5.4/tp 4	II.6.1.6.12 g)-h_ II.6.1.6.13	05.08, 6.8	4d
20.5.4/tp 5	II.6.1.6.12 i)-j) II.6.1.6.13	05.08, 6.8	4f
20.6.1/tp 1	II.6.2.1.1	05.08, 8.1	4f
20.6.1/tp 2	II.6.2.1.1	05.08, 8.1	4f
20.6.1/tp 3	II.6.2.1.1	05.08, 8.1	4f
20.6.2.1/tp 1	II.6.2.2.1	05.08, 8.2.2/8.2.4	4f
20.6.2.1/tp 2	II.6.2.2.1	05.08, 8.2.3	4f

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20.6.2.2/tp 1	II.6.2.2.2	05.08, 8.2.2	4f
20.6.2.2/tp 2	II.6.2.2.2	05.08, 8.2.3	4f
20.7/tp 1	II.6.3	05.08, 4.2	4e
20.7/tp 2	II.6.3	05.08, 4.2	4e
20.7/tp 3	II.6.3	05.08, 4.2	4e
20.7/tp 4	II.6.3	05.08, 4.7	4e
20.7/tp 5	II.6.3	05.08, 4.7	4e
20.7/tp 6	II.6.3	05.08, 4.7	4e
21.1/tp 1	II.8.1	04.08, 10.5.1.4 11.11, 4.2.1	4f
21.1/tp 2	II.8.1	04.08, 10.5.1.4 11.11, 4.2.1	4f
21.2/tp 1	II.8.2	04.08, 10.5.1.4 11.11, 4.2.1	4f
21.2/tp 2	II.8.2	04.08, 10.5.1.4 11.11, 4.2.1	4f
21.3/tp 1	II.8.3	04.08, 10.5.1.4 11.11, 4.2.1	4f
21.3/tp 2	II.8.3	04.08, 10.5.1.4 11.11, 4.2.1	4f
21.4/tp 1	II.8.4	04.08, 10.5.1.4 02.17, 3.2.1	4f
21.4/tp 2	II.8.4	04.08, 10.5.1.4 02.17, 3.2.1	4f
21.4/tp 3	II.8.4	04.08, 10.5.1.4 02.17, 3.2.1	4f
21.4/tp 4	II.8.4	04.08, 10.5.1.4 02.17, 3.2.1	4f
21.5/tp 1	II.8.5	02.11, 3.2.2.1 11.11, 4.2.2	4d, 4f
21.5/tp 2	II.8.5	02.11, 3.2.2.1 11.11, 4.2.2	4d, 4f
21.5/tp 3	II.8.5	02.11, 3.2.2.1 11.11, 4.2.2	4d, 4f
21.6.1.1	II.8.7.1.1	11.11, 6	4d, 4f
21.6.1.2	II.8.7.1.2	11.11, 6	4d
21.6.1.3	II.8.7.1.3	11.11, 6	4d, 4f
21.6.2.1.1	II.8.7.2.1.1	11.11, 6.2.3, 6.2.5	4d, 4f
21.6.2.1.2	II.8.7.2.1.2	11.11, 6.2.3, 6.2.5	4d, 4f
21.6.2.2.1	II.8.7.2.2.1	11.11, 6	4d, 4f
21.6.2.2.2	II.8.7.2.2.2	11.11, 6	4d, 4f
21.6.2.3.1	II.8.7.2.3.1	11.11, 6	4d, 4f
21.6.2.3.2	II.8.7.2.3.2	11.11, 6	4f
21.6.2.3.3	II.8.7.2.3.3	11.11, 6	4d, 4f
21.6.2.3.4	II.8.7.2.3.4	11.11, 6	4f
21.6.2.3.5	II.8.7.2.3.5	11.11, 6.2.1	4f
21.6.2.4	II.8.7.2.4	11.11, 6.1.2	4f
21.6.2.5/tp 1	II.8.7.2.5	11.11, 6	4d, 4f
21.6.2.5/tp 2	II.8.7.2.5	11.11, 6	4d, 4f
21.7/tp 1	II.8.8	02.11, 4 02.30, 4.4.2.1 04.08, 3.3.1	4d

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21.7/tp 2	II.8.8	02.11, 4 02.30, 4.4.2.1 04.08, 3.3.1	4d
21.7/tp 3	II.8.8	02.11, 4 02.30, 4.4.2.1 04.08, 3.3.1	4d
21.7/tp 4	II.8.8	02.11, 4 02.30, 4.4.2.1 04.08, 3.3.1	4d
21.7/tp 5	II.8.8	02.11, 4 02.30, 4.4.2.1 04.08, 3.3.1	4d
21.7/tp 6	II.8.8	02.11, 4 02.30, 4.4.2.1 04.08, 3.3.1	4d
21.7/tp 7	II.8.8	02.11, 4 02.30, 4.4.2.1 04.08, 3.3.1	4d
21.7/tp 8	II.8.8	02.11, 4 02.30, 4.4.2.1 04.08, 3.3.1	4d
21.8.1.1	II.8.9.1.1	11.11, 5.4	4f
21.8.1.2	II.8.9.1.2	11.11, 5.4	4f
21.8.1.3	II.8.9.1.3	11.11, 5.2, 6	4f
21.8.1.4.1	II.8.9.1.4.1	11.11, 5.5	4f
21.8.1.4.2	II.8.9.1.4.2	11.11, 5.5	4f
21.8.2.1.1	II.8.9.2.1.1	11.11, 6	4f
21.8.2.1.2	II.8.9.2.1.2	11.11, 6	4f
21.8.2.2	II.8.9.2.2	11.11, 5.2	4f
21.8.3.1	II.8.9.3.1	11.11, 6	4f
21.9.1	II.8.10.1	11.11, 6.2.1	4f
21.9.2	II.8.10.2	11.11, 6.2.4	4d, 4f
21.10.1	II.8.11.1	11.11, 6.1.2.2	4d
21.10.2	II.8.11.2	11.11, 6.1.2.3	4d
22.1	II.9.2	02.07, 2 Table 1 Item 1.16	4d, 4e
22.2	II.9.3	02.07, 2 Table 1 Item 1.16	4d, 4e
22.3	II.9.4	02.07, 2 Table 1 Item 1.16	4d, 4e
23.1/tp 1	II.11.2.2.1 req.1)	04.06, 5.4.1.2 04.11, 2.3	4f
23.1/tp 2	II.11.2.2.1 req 6-8)	04.11, 2.3 04.06, 5.4.1.2	4f
23.2	II.11.2.2.1 req.7)	04.11, 2.1/2.2/5.3 03.40, 3.1	4e, 4f
23.3	II.11.2.2.1 req.8)	04.11, 2.1/2.2/5.3 03.40, 3.1	4e, 4f
23.4	II.11.2.2.2 req.1)/7)	04.08, 3.3.1.1/9.1.8	4f
23.5/tp 1	II.11.2.2.2 req.1)	04.08, 4.5.11/9.2.7 04.08, 10.5.3.3	4f, 4e
23.5/tp 2	II.11.2.2.2 req 7)	04.08, 4.5.1.1/9.2.7 04.08, 10.5.3.3	4e, 4f
23.6/tp 2	II.11.2.2.2 req.1)	04.11, 2.3 04.06, 5.4.1.2	4d, 4f

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23.6/tp 2	II.11.2.2.2 req 7)	04.11, 2.3 04.06, 5.4.1.2 04.08, 4.5.1.1	4d, 4f
23.7	II.11.2.2.2 req.4)/7)	04.08, 3.5.1.1 04.06, 5.4.4.2	4e, 4f
23.8	II.11.2.2.2 req.9)	04.08, 4.5.1.1	4e
23.9	II.11.2.3 req.3)	04.08, 3.2.1	4f
24.1.1	II.12.2.1.1 step A	04.80, 2.7 04.82, 1.2/2.2/3.2/4.2	4f
24.1.2	II.12.2.1.2.1 step A	04.80, 2.7 04.82, 1.3/2.3/3.3/4.3	4f
24.1.3.1	II.12.2.1.7.1.1 b-d)	04.10, 3.2.3	4e, 4f
24.1.3.2	II.12.2.1.7.1.2	04.10, 3.2.3	4f
24.2.1/tp 1	II.12.8.1 step 1	04.80, 2.7 04.10, 6.2.1 04.88, 1.2/2.2	4f
24.2.1/tp 2	II.12.8.1 step 2, 3, 4	04.80, 2.3 04.10, 6.2.1 04.88, 1.2/2.2	4f
24.2.2	II.12.8.3 A step 1 II.12.8.3 B2 step 1	04.80, 2.7 04.88, 1.3/2.3	4f
24.3.1	II.12.9.7 step A	04.10, 3.2.6 04.80, 2.7	4f
25.1/tp 1	II.16.1	04.08, 10.5.4.6	4d, 4f
25.1/tp 2	II.16.1	04.08, 10.5.4.6	4d, 4f
25.1/tp 3	II.16.1	04.08, 10.5.4.6	4d, 4f
25.2/tp 1	II.16.3.2.1d	02.11, 3.2.2	4f
25.2/tp 2	II.16.3.2.1g/1x	02.11, 3.2.4/3.2.2/3.2.2.1	4f
25.2/tp 3	II.16.3.2.1j	02.11, 3.2.2.1 04.08, 4.4.4.6	4d, 4e, 4f
25.2/tp 4	II.16.3.2.1m	02.11, 3.2.4/3.2.5	4d, 4e, 4f
25.2/tp 5	II.16.3.2.1n	02.11, 3.2.4/3.2.2	4f
25.2/tp 6	II.16.3.2.1r	02.11, 3.2.2.1	4f
25.2/tp 7	II.16.3.2.1v	02.11, 3.2.2/3.2.2.1	4f
25.2/tp 8	II.16.3.2.1v	02.11, 3.2.2.1	4f
25.2/tp 9	II.16.3.2.2d	02.11, 3.2.2	4f
25.3	II.16.7e	02.17, 2.1	4f
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History

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