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Candidate Harmonized European Standard (Telecommunications series)

**Terrestrial Trunked Radio (TETRA);
Harmonized EN for TETRA equipment covering essential
requirements under article 3.2 of the R&TTE Directive;
Part 1: Voice plus Data (V+D)**



Reference

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Foreword

This Candidate Harmonized European Standard (Telecommunications series) has been produced by ETSI Project Terrestrial Trunked Radio (TETRA), and is now submitted for the ETSI standards One-step Approval Procedure.

The present document is intended to become a Harmonized Standard, the reference of which will be published in the Official Journal of the European Communities referencing the Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity ("the R&TTE Directive") [1].

The present document is part 1 of a multi-part deliverable covering Harmonized EN for TETRA equipment covering essential requirements under article 3.2 of the R&TTE directive, as identified below:

Part 1: "Voice + Data (V+D)";

Part 2: "Direct Mode Operation (DMO)".

| Proposed national transposition dates | |
|--|---------------------------------|
| Date of latest announcement of this EN (doa): | 3 months after ETSI publication |
| Date of latest publication of new National Standard or endorsement of this EN (dop/e): | 6 months after doa |
| Date of withdrawal of any conflicting National Standard (dow): | 6 months after doa |

Introduction

The present document is part of a set of standards designed to fit in a modular structure to cover all radio and telecommunications terminal equipment under the R&TTE Directive [1]. Each standard is a module in the structure. The modular structure is shown in figure 1.

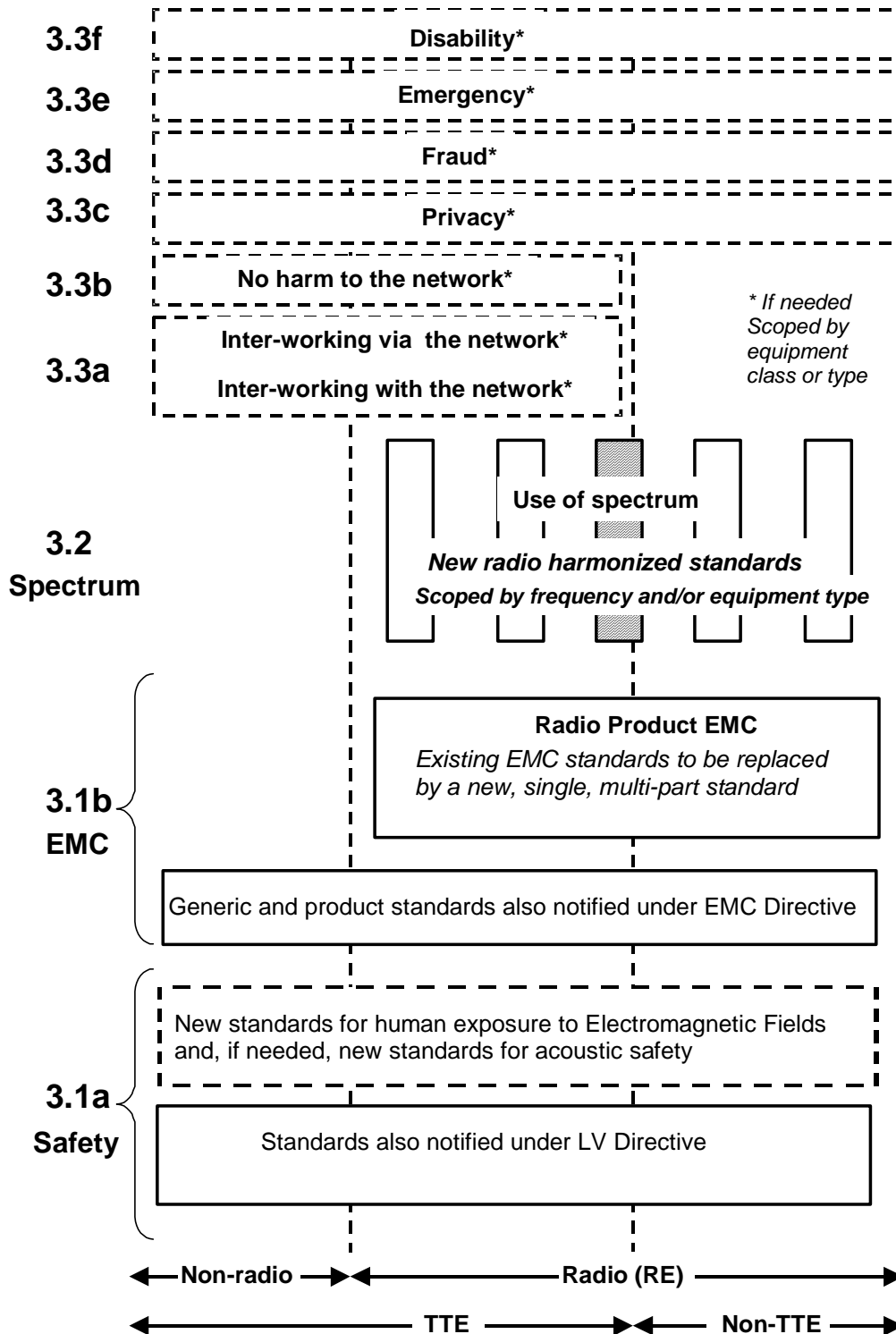


Figure 1: Modular structure for the various standards used under the R&TTE Directive

The left hand edge of the figure shows the different clauses of article 3 of the R&TTE Directive [1].

For article 3.3 various horizontal boxes are shown. Dotted lines indicate that at the time of publication of the present document, essential requirements in these areas have to be adopted by the Commission. If such essential requirements are adopted, and as far and as long as they are applicable, they will justify individual standards whose scope is likely to be specified by function or interface type.

The vertical boxes show the standards under article 3.2 for the use of the radio spectrum by radio equipment. The scopes of these standards are specified either by frequency (normally in the case where frequency bands are harmonized) or by radio equipment type.

For article 3.1b the diagram shows the new single multi-part product EMC standard for radio, and the existing collection of generic and product standards currently used under the EMC Directive [2]. The parts of the present document will become available in the second half of 2000, and the existing separate product EMC standards will be used until it is available.

For article 3.1a the diagram shows the existing safety standards currently used under the LV Directive [3] and new standards covering human exposure to electromagnetic fields. New standards covering acoustic safety may also be required.

The bottom of the figure shows the relationship of the standards to radio equipment and telecommunications terminal equipment. A particular equipment may be radio equipment, telecommunications terminal equipment or both. A radio spectrum standard will apply if it is radio equipment. An article 3.3 standard will apply as well only if the relevant essential requirement under the R&TTE Directive [1] is adopted by the Commission and if the equipment in question is covered by the scope of the corresponding standard. Thus, depending on the nature of the equipment, the essential requirements under the R&TTE Directive [1] may be covered in a set of standards.

The modularity principle has been taken because:

- it minimizes the number of standards needed. Because equipment may, in fact, have multiple interfaces and functions it is not practicable to produce a single standard for each possible combination of functions that may occur in an equipment;
- it provides scope for standards to be added:
 - under article 3.2 when new frequency bands are agreed; or
 - under article 3.3 should the Commission take the necessary decisionswithout requiring alteration of standards that are already published;
- it clarifies, simplifies and promotes the usage of Harmonized Standards as the relevant means of conformity assessment.

1 Scope

The present document specifies the technical characteristics to be provided by Terrestrial Trunked Radio (TETRA) radio and telecommunications terminal equipment, which uses the TETRA technology for Trunked Mode Operation at the air interface to support the Voice plus Data (V+D) functionality.

The present document applies at the TETRA Voice plus Data (V+D) Air interface of the following radio and telecommunications terminal equipment types:

- 1) TETRA Base Station (BS);
- 2) TETRA Mobile Station (MS);
- 3) TETRA DMO Gateway (DM-GATE);
- 4) TETRA TMO Repeater (TMO-REP).

It applies to terminal equipment operating within the frequency ranges, allocated to TETRA by the ERC Decisions ERC/DEC/(96)01 [21] and ERC/DEC/(96)04 [22].

These radio equipment types are capable of operating in all or any part of the frequency bands given below:

Table 1: Radio communications service frequency bands

| Type of Service | Radio communications service frequency bands (MHz) | |
|---------------------------------------|--|---------------|
| | Uplink | Downlink |
| Emergency Access, ERC/DEC/(96)01 [21] | 380 to 385 | 390 to 395 |
| Civil Access, ERC/DEC/(96)04 [22] | 410 to 420 | 420 to 430 |
| Civil Access, ERC/DEC/(96)04 [22] | 870 to 876 | 915 to 921 |
| Civil Access, ERC/DEC/(96)04 [22] | 450 to 460 | 460 to 470 |
| Civil Access, ERC/DEC/(96)04 [22] | 385 to 390 | 395 to 399,99 |

The present document is intended to cover the provisions of Directive 1999/5/EC (R&TTE Directive) [1], article 3.2, which states that "..... radio equipment shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communications and orbital resources so as to avoid harmful interference".

In addition to the present document, other ENs that specify technical requirements in respect of essential requirements under other parts of article 3 of the R&TTE Directive [1] will apply to equipment within the scope of the present document.

NOTE: A list of such ENs is included on the web site <http://www.newapproach.org>.

2 References

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

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).

[2] Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive).

- [3] Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (LV Directive).
- [4] ETSI TS 100 392-2 (v2.3.1, 2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".
- [5] ETSI TS 100 392-7 (v2.1.1, 2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 7: Security".
- [6] ETSI ETS 300 392-14 (Edition 1, 1997): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 14: Protocol Implementation Conformance Statement (PICS) proforma specification".
- [7] ETSI TS 100 392-15 (v1.1.1, 2000): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 15: TETRA frequency bands, duplex spacings and channel numbering".
- [8] ETSI TS 100 394-1 (v2.3.1, 2000): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 1: Radio".
- [9] ETSI ETS 300 394-2-1 (Edition 1, 1998): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 2: Protocol testing specification for Voice plus Data (V+D); Sub-part 1: Test suite structure and test purposes".
- [10] ETSI ETS 300 394-2-2 (Edition 1, 1998): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 2: Protocol testing specification for Voice plus Data (V+D); Sub-part 2: Abstract Test Suite (ATS) for Network (NWK) layer".
- [11] ETSI ETS 300 394-2-3 (Edition 1, 1998): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 2: Protocol testing specification for Voice plus Data (V+D); Sub-part 3: Abstract Test Suite (ATS) for Logical Link Control (LLC)".
- [12] ETSI ETS 300 394-2-4 (Edition 1, 1998): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 2: Protocol testing specification for Voice plus Data (V+D); Sub-part 4: Abstract Test Suite (ATS) for Medium Access Control (MAC)".
- [13] ETSI ETS 300 394-4-8 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 8: Test suite structure and test purposes (TSS&TP) for Direct Mode Gateway (DM-GATE)".
- [14] ETSI ETS 300 394-4-10 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 10: Abstract Test Suite (ATS) for Direct Mode Gateway (DM-GATE)".
- [15] ETSI ETS 300 394-5-1 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security; Sub-part 1: Protocol Implementation Conformance Statement (PICS) proforma specification".
- [16] ETSI ETS 300 394-5-2 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security; Sub-part 2: Protocol testing specification for TETRA security".
- [17] ETSI ETS 300 394-5-3 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security; Sub-part 3: Abstract Test Suite (ATS)".
- [18] ETSI ETS 300 396-5 (Edition 1, 2000): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 5: Gateway air interface".
- [19] ETSI ETS 300 396-8-3 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 8: Protocol Implementation Conformance Statement (PICS) proforma specification; Sub-part 3: Gateway Air Interface (AI)".
- [20] ETSI TS 101 789-1 (v1.1.1, 2000): "Terrestrial Trunked Radio (TETRA); TMO Repeaters; Part 1: Requirements, test methods and limits".

- [21] CEPT ERC/DEC/(96)01: "ERC Decision of 7 March 1996 on the harmonized frequency band to be designated for the introduction of the Digital Land Mobile System for the Emergency Services".
- [22] CEPT ERC/DEC/(96)04: "ERC Decision of 7 March 1996 on the frequency bands for the introduction of the Trans European Trunked Radio System (TETRA)".
- [23] ETSI ETR 028 (Edition 2, 1994): "Radio Equipment and Systems (RES); Uncertainties in the measurement of mobile radio equipment characteristics".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in the R&TTE Directive [1] and the following apply:

acknowledged data transfer: service provided by the layer below which gives an acknowledgement back over the air interface from the lower layer peer entity. This service is used by the layer 3 entities to get a secure transmission including re-transmissions

announced cell re-selection: cell re-selection where MS-MLE informs the SwMI both in the old cell (leaving cell) and in the new cell (arriving cell) that cell change is performed

Associated Control CHannel (ACCH): dedicated signalling channel associated with a channel that has been assigned for circuit mode traffic. It comprises the Fast Associated Control CHannel (FACCH), which uses frames 1 to 18 when there is no traffic in a given direction, or the Slow Associated Control CHannel (SACCH), which is always available in frame 18 when there is traffic

attached: a MS is said to be attached to a cell when the MS is camped and registered on the cell. The MS may be in idle mode (i.e. not actively processing a transaction) or in active mode (i.e. actively processing a transaction in reception and/or in transmission). It is the MM, which decides when a MS is said to be attached

basic link: bi-directional connectionless path between one or several MS and a BS, with a provision of both unacknowledged and acknowledged services on a single message basis

broadcast: unidirectional point to multi-point mode of transmission

cell re-selection: act of changing the serving cell from an old cell to a new cell. The cell re-selection is performed by procedures located in the MLE and in the MAC. When the re-selection is made and possible registration is performed, the MS is said to be attached to the cell

common control channels: control channels transmitted by the infrastructure to control the MS population. They comprise the Main Control Channel (MCCH) and common Secondary Control Channels (SCCH)

Direct Mode GATEway (DM-GATE): device which provides gateway connectivity between a Direct Mode Mobile Station and the TETRA V+D network. The gateway provides the interface between TETRA DMO and TETRA V+D mode

direct set-up signalling: signalling procedure where immediate communication can take place between the calling and the called users without the alerting process and without an explicit response from the called user that he has answered

duplex frequency spacing: fixed frequency spacing between up and downlink frequencies directions

environmental profile: range of environmental conditions under which equipment within the scope of the present document is required to comply with the provisions of the present document

Individual TETRA Subscriber Identity (ITSI): identity used to specify an individual TETRA user. An ITSI cannot be shared by multiple users

initial cell selection: act of choosing a first serving cell to register in. The initial cell selection is performed by procedures located in the MLE and in the MAC. When the cell selection is made and possible registration is performed, the MS is said to be attached to the cell

Linearization CHannels (BLCH and CLCH): channels, which may be used by the equipment to linearize its transmitter. The linearization burst contains no useful bits

logical channel: generic term for any distinct data path. Logical channels are considered to operate between logical endpoints

Main Control Channel (MCCH): principal common control channel transmitted by the infrastructure to control the MSs in a cell. The frequency of the main carrier for the cell is broadcast by the infrastructure, and the MCCH is located on timeslot 1 of the main carrier

on/off hook signalling: signalling procedure, which includes an alerting process to the called user. An explicit response from the called user that he has answered is waited before the call can be set-up

Random Challenge (RAND1, RAND2): random value generated by the infrastructure to authenticate a user or in an MS to authenticate the infrastructure, respectively

Random Seed (RS): random value used to derive a session authentication key from the authentication key

Response (RES1, RES2): value calculated in the MS from RAND1 and a session key to prove the authenticity of a user to the infrastructure or by the infrastructure from RAND2 and a session key to prove its authenticity to a user, respectively

Secondary Control Channel (SCCH): control channel other than the MCCH

TETRA Equipment Identity (TEI): electronic serial number that is permanently embedded in the TETRA equipment

TMO Repeater: bi-directional Radio Frequency (RF) amplifier which can amplify and transmit a received Mobile Station (MS) signal in the TETRA MS transmit band, simultaneously it can amplify and transmit a received Base Station (BS) RF signal in the TETRA BS transmit band

Trunked Mode operation (TMO): mode of operation where a network is used for communication

unacknowledged data transfer: service provided by the layer below which does not give any acknowledgement back to over the air interface from the lower layer peer entity

unannounced cell re-selection: cell re-selection where the MS-MLE does not inform the old cell (leaving cell) that it intends to change to a new cell. Only the new cell (arriving cell) is informed about the MS-MLE

undeclared cell re-selection: cell re-selection where the MS-MLE does not inform the old cell (leaving cell) nor the new cell (arriving cell) that cell change is performed

useful part of a burst: modulation symbol times SN0 to SNmax of a burst

V+D operation: mode of operation where MSs may communicate via the TETRA V+D air interface, which is controlled by the TETRA Switching and Management Infrastructure (SwMI)

3.2 Abbreviations

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

| | |
|------|------------------------------------|
| AACH | Access Assignment CHannel |
| ACCH | Associated Control CHannel |
| AT | ATtachment |
| ATS | Abstract Test Suite |
| BA | Basic link, Acknowledged service |
| BCCH | Broadcast Control CHannel |
| BI | Behaviour Invalid |
| BLCH | Base station Linearization CHannel |
| BNCH | Broadcast Network CHannel |
| BS | Base Station |

| | |
|---------|--|
| BSCH | Broadcast Synchronization CHannel |
| BV | Behaviour Valid |
| CA | CApability test |
| CC | Call Control |
| CLCH | Common Linearization CHannel |
| CM | Circuit Mode |
| CMCE | Circuit Mode Control Entity |
| CR | Cell Reselection |
| CSS | Carrier Specific Signalling |
| DM-GATE | Direct Mode GATEway |
| DM-MS | Direct Mode Mobile Station |
| DMO | Direct Mode Operation |
| EMC | Electro-Magnetic Compatibility |
| EN | European Norme |
| EN-RT | EN Requirement Table |
| ETS | European Telecommunication Standard |
| FCS | Frame Check Sequence |
| GC | Group Call |
| GSSI | Group Short Subscriber Identity |
| GW | Direct Mode GateWay |
| HD | Half-slot Down-link |
| HU | Half-slot Up-link |
| IC | Individual Call |
| ID | IDentity |
| IMP | IMPlicit |
| ITSI | Individual TETRA Subscriber Identity |
| IUT | Implementation Under Test |
| L3 | Layer 3 |
| LA | Location Area |
| LLC | Logical Link Control |
| LV | Low Voltage |
| MA | MAintenance |
| MAC | Medium Access Control |
| MCC | Mobile Country Code |
| MCCH | Main Control CHannel |
| MCM | Minimum Control Mode |
| MLE | Mobile Link Entity |
| MM | Mobility Management |
| MNC | Mobile Network Code |
| MNI | Mobile Network Identity |
| MS | Mobile Station |
| NB | Network Broadcast |
| NCM | Normal Control Mode |
| NWK | NetWorK layer |
| OC | Outgoing Call |
| PD | Permanent Disable |
| PDU | Protocol Data Unit |
| PICS | Protocol Implementation Conformance Statement |
| PIXIT | Protocol Implementation eXtra Information for Testing |
| R&TTE | Radio and Telecommunications Terminal Equipment |
| RA | Random Access |
| RAND1 | RANDom challenge 1 |
| RE | REserved Access (for MAC layer), or REgistration (for MLE layer), or Radio Equipment |
| RES2 | RESponse 2 |
| RF | Radio Frequency |
| RS | Random Seed |
| RT | Requirements Table |
| s | Seconds |
| SCCH | Secondary Control CHannel |
| SCH | Signalling CHannel |
| SCH/F | Signalling CHannel, Full-slot |
| SCH/H | Signalling CHannel, Half-slot |

| | |
|-------|---|
| SDU | Service Data Unit |
| Sec | Security |
| SED | Secure Enable/Disable |
| SSI | Short Subscriber Identity |
| STCH | STealing CHannel |
| SU | Set-Up |
| SwMI | Switching and Management Infrastructure |
| TC | Transmission Control |
| TCH | Traffic CHannel |
| TD | Temporary Disable |
| TEI | TETRA Equipment Identity |
| TETRA | TErrestrial Trunked RAdio |
| TI | TImer |
| TM | TETRA MAC layer |
| TMO | Trunked Mode Operation |
| TP | Test Purpose |
| TSS | Test Suite Structure |
| TTCN | Tree and Tabular Combined Notation |
| V+D | Voice and Data |

4 Technical requirements specifications

4.1 Environmental profile

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be declared by the supplier.

To avoid unnecessary interference in the radio spectrum, the equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the declared operational environmental profile.

4.2 Conformance requirements

This clause references the conformance requirements by cross-reference to the requirements in the standards specifying TETRA. It also contains a reference to the relevant test to verify compliance with the requirement.

NOTE: This clause does not specify the exact status (e.g. mandatory or optional) of the listed features, services and requirements. This is specified in the EN Requirements Tables (EN-RT) in annex A.

The following table headings are applicable to the tables in this clause:

| | |
|--------------------------------|---|
| Requirement reference: | Reference for the requirement within the present document. |
| Standard reference: | Reference to clause(s) in the reference standard specification. |
| Description: | A short description of the requirement. |
| Technical phenomena: | Associated technical phenomena, as defined in annex A of EG 201 399 (see annex E). |
| Test case limit value: | For radio layer tables; Reference to test case limit values to be applied for compliance verification. |
| Test method reference: | For radio layer tables; Reference to relevant test method to perform compliance verification for the requirement. |
| Test purpose reference: | For non-radio layer tables; Reference to test purpose to assess compliance with the requirement. |
| Test case reference: | For non-radio layer tables; Reference to relevant test case to perform compliance verification for the requirement. |

4.2.1 Requirements associated with frequency and channel allocation

Table 2: General requirements associated with frequency band allocation

| Requirement reference | Standard reference | Description | Technical phenomena | Test case limit value | Test method reference |
|-----------------------|---------------------|---|---------------------------|-----------------------|---------------------------------------|
| 4.2.1/1 | ERC/DEC/(96)01 [21] | Harmonized frequency band for the Digital Land Mobile System for the Emergency Services | Frequency error/stability | - | Implicit by other radio layer testing |
| 4.2.1/2 | ERC/DEC/(96)04 [22] | Frequency bands for the Trans European Trunked Radio System (TETRA) | Frequency error/stability | - | Implicit by other radio layer testing |

Table 3: Requirements associated with frequency and channel allocation for MS, BS and Gateway

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test case limit value (note 2) | Test method reference (note 3) |
|-----------------------|----------------------------------|--|---------------------------|--------------------------------|--------------------------------|
| 4.2.1/3 | 6.2 | Frequency bands and channel arrangements | Frequency error/stability | - | Implicit by 10.2.1/10.2.2 |
| 4.2.1/4 | ETSI TS 100 392-15 [7], clause 5 | TETRA Frequency bands | Frequency error/stability | - | Implicit by 10.2.1/10.2.2 |
| 4.2.1/5 | ETSI TS 100 392-15 [7], clause 6 | Duplex spacing | Frequency error/stability | - | Implicit by 10.2.1/10.2.2 |
| 4.2.1/6 | 7.5 | BS requirement for synchronization | Frequency error/stability | 7.3.2.2 | 10.2 and 10.2.2 |
| 4.2.1/7 | 7.6 | MS requirement for synchronization | Frequency error/stability | 7.3.2.2 and 7.3.4.2 | 10.2, 10.2.1 and 10.4 |
| 4.2.1/8 | 9.5.2 | Mapping of BCCH and CLCH | Designation of channels | - | Implicit by MAC layer testing |
| 4.2.1/9 | 9.5.3 | Mapping of SCH | Designation of channels | - | Implicit by MAC layer testing |
| 4.2.1/10 | 9.5.4 | Mapping of TCH and STCH | Designation of channels | - | Implicit by CMCE layer testing |
| 4.2.1/11 | 9.5.5 | Mapping of AACH | Designation of channels | - | Implicit by MAC layer testing |

NOTE 1: The requirements are specified in ETSI TS 100 392-2 [4] under the given clause, except when otherwise stated.

NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [8], clause 7.

NOTE 3: The test methods are specified in ETSI TS 100 394-1 [8], clauses 8 to 10.

4.2.2 Requirements associated with transmitting functions

Table 4: Requirements associated with transmitting functions for MS, BS and Gateway

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test case limit value (note 2) | Test method reference (note 3) |
|-----------------------|-----------------------------|---|--|--------------------------------|---------------------------------|
| 4.2.2/1 | 6.4.1.1 | Nominal power of BS transmitters | Transmitter power | 7.1.1.2 | 8.1 and 8.1.2 |
| 4.2.2/2 | 6.4.1.2 | Nominal power of MS transmitters | Transmitter power | 7.1.1.2 | 8.1 and 8.1.1 |
| 4.2.2/3 | 6.4.1.2 | Nominal MS power control levels | Transmitter power | 7.1.1.2 | 8.1 and 8.1.1 |
| 4.2.2/4 | 10.2 | RF power control | Transmitter power | 7.3.5.2 | 10.5 |
| 4.2.2/5 | 10.3.1 | Measurement of received signal strength | Transmitter power | 7.3.5.2 | 10.5 |
| 4.2.2/6 | 23.4.4.2 | MS open loop power control | Transmitter power | 7.3.5.2 | 10.5 |
| 4.2.2/7 | 6.4.2.2.1 | Unwanted conducted emission over the useful part of the burst | Adjacent channel power | 7.1.3.2 | 8.3 |
| 4.2.2/8 | 6.4.2.2.2 | Unwanted conducted emission during the switching transients | Adjacent channel power | 7.1.4.2 | 8.4 |
| 4.2.2/9 | 6.4.2.4 | Unwanted conducted emission during CLCH and BLCH | Adjacent channel power | 7.1.7.2 | 8.7, 8.7.1 and 8.7.2 |
| 4.2.2/10 | 6.4.2.3 | Unwanted conducted emission far from the carrier | Spurious emissions | 7.1.5.2 | 8.5 |
| 4.2.2/11 | 6.4.2.5 | Unwanted conducted emission in the non-transmit state | Spurious emissions | 7.2.8.2 | 9.8 |
| 4.2.2/12 | 6.4.3 | Unwanted radiated emissions | Spurious emissions | 7.1.6.2 | 8.6 |
| 4.2.2/13 | 6.4.6.2 | BS transmitter intermodulation attenuation | Inter-modulation attenuation | 7.1.8.2.2 | 8.8 and 8.8.2 |
| 4.2.2/14 | 6.4.6.3 | MS transmitter intermodulation attenuation | Inter-modulation attenuation | 7.1.8.2.1 | 8.8 and 8.8.1 |
| 4.2.2/15 | 6.4.7 | Intra-BS transmitter intermodulation attenuation | Inter-modulation attenuation | 7.1.8.2.3 | 8.8 and 8.8.3 |
| 4.2.2/16 | 6.4.5 | BS output power time mask | Transient behaviour of the transmitter | 7.1.1.2 | 8.1 and 8.1.2 |
| 4.2.2/17 | 6.4.5 | MS output power time mask | Transient behaviour of the transmitter | 7.1.1.2 | 8.1 and 8.1.1 |
| 4.2.2/18 | 6.4.5.1 | BS output power in non-active transmit state | Transient behaviour of the transmitter | 7.1.2.2 | 8.2 |
| 4.2.2/19 | 6.4.5.2 | MS output power in non-active transmit state | Transient behaviour of the transmitter | 7.1.2.2 | 8.2 |
| 4.2.2/20 | 7.4 | Timing of transmitted signal | Transient behaviour of the transmitter | - | Implicit by MAC layer testing |
| 4.2.2/21 | 5.2 | Modulation type | Modulation Accuracy | - | Implicit by 10.1.3 |
| 4.2.2/22 | 6.6.1.2 | Modulation accuracy | Modulation Accuracy | 7.3.1.2 | 10.1, 10.1.1, 10.1.2 and 10.1.3 |

NOTE 1: The requirements are specified in ETSI TS 100 392-2 [4] under the given clause.

NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [8], clause 7.

NOTE 3: The test methods are specified in ETSI TS 100 394-1 [8], clauses 8 to 10.

Table 5: Requirements associated with transmitting functions for TMO repeater

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test case limit value (note 2) | Test method reference (note 3) |
|--|-----------------------------|---------------------------------------|------------------------------|--------------------------------|--------------------------------|
| 4.2.2/23 | 4.2.4 | Output power | Transmitter power | 5.5.4.3 | 5.5.4.2 |
| 4.2.2/24 | 4.2.3.2 | Out of band gain | Spurious emissions | 5.5.3.3 | 5.5.3.2 |
| 4.2.2/25 | 4.2.5 | Adjacent channel power | Adjacent channel power | 5.5.5.3 | 5.5.5.2 |
| 4.2.2/26 | 4.2.1 | Spurious emissions and wideband noise | Spurious emissions | 5.5.1.3 | 5.5.1.2 |
| 4.2.2/27 | 4.2.2 | Intermodulation attenuation | Inter-modulation attenuation | 5.5.2.3 | 5.5.2.2 |
| 4.2.2/28 | 4.2.6 | Modulation accuracy | Modulation Accuracy | 5.5.6.3 | 5.5.6.2 |
| NOTE 1: The requirements are specified in ETSI TS 101 789-1 [20] under the given clause. | | | | | |
| NOTE 2: The test case limit values are specified in ETSI TS 101 789-1 [20] under the given clause. | | | | | |
| NOTE 3: The test methods are specified in ETSI TS 101 789-1 [20] under the given clause. | | | | | |

4.2.3 Requirements associated with receiving functions

Table 6: Requirements associated with receiving functions for MS, BS and Gateway

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test case limit value (note 2) | Test method reference (note 3) |
|---|-----------------------------|--|-------------------------------------|--------------------------------|--------------------------------|
| 4.2.3/1 | 6.5.2.2 | Spurious response rejection | Spurious response rejection | 7.2.6.2 | 9.6 |
| 4.2.3/2 | 6.5.3.2 | Intermodulation response rejection | Inter-modulation response rejection | 7.2.7.2 | 9.7, 9.7.1 and 9.7.2 |
| 4.2.3/3 | 6.5.1.2 | Blocking characteristics | Blocking or desensitization | 7.2.5.2 | 9.5, 9.5.1 and 9.5.2 |
| 4.2.3/4 | 6.5.4.2 | Unwanted conducted emission in reception | Spurious emissions | 7.2.8.2 | 9.8 |
| 4.2.3/5 | 6.5.5 | Unwanted radiated emission | Spurious emissions | 7.2.9.2 | 9.9 |
| NOTE 1: The requirements are specified in ETSI TS 100 392-2 [4] under the given clause. | | | | | |
| NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [8], clause 7. | | | | | |
| NOTE 3: The test methods are specified in ETSI TS 100 394-1 [8], clauses 8 to 10. | | | | | |

4.2.4 Requirements associated with control and monitoring functions

4.2.4.1 Requirements for the radio layer

Table 7: Requirements for the radio layer associated with control and monitoring function for MS, BS and Gateway

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test case limit value (note 2) | Test method reference (note 3) |
|---|-----------------------------|---|------------------------------|--|--|
| 4.2.4.1/1 | 6.6.2.1 | Nominal error rate | Network interface bit errors | 7.2.2.2 | 9.2, 9.2.1 and 9.2.2 |
| 4.2.4.1/2 | 6.6.2.2 | Dynamic reference sensitivity performance | Network interface bit errors | 7.2.3.2 | 9.3, 9.3.1, 9.3.2 and 9.3.3 |
| 4.2.4.1/3 | 6.6.2.2.1 | BS dynamic reference sensitivity performance | Network interface bit errors | 7.2.3.2 | 9.3 and 9.3.2 |
| 4.2.4.1/4 | 6.6.2.2.2 | MS dynamic reference sensitivity performance | Network interface bit errors | 7.2.3.2 | 9.3 and 9.3.1 |
| 4.2.4.1/5 | 6.6.2.3 | Receiver performance at reference interference ratios | Network interface bit errors | 7.2.4.2 | 9.4, 9.4.1 and 9.4.2 |
| 4.2.4.1/6 | 6.6.2.3.1 | BS receiver performance at reference interference ratios | Network interface bit errors | 7.2.4.2 | 9.4 and 9.4.2 |
| 4.2.4.1/7 | 6.6.2.3.2 | MS receiver performance at reference interference ratios | Network interface bit errors | 7.2.4.2 | 9.4 and 9.4.1 |
| 4.2.4.1/8 | 6.6.2.4 | Static reference sensitivity performance | Network interface bit errors | Implicit by 7.2.5.2, 7.2.6.2 and 7.2.7.2 | Implicit by 9.5.1, 9.5.2, 9.6, 9.7.1 and 9.7.2 |
| 4.2.4.1/9 | 6.6.2.4.1 | BS static reference sensitivity performance | Network interface bit errors | Implicit by 7.2.5.2, 7.2.6.2 and 7.2.7.2 | Implicit by 9.5.2, 9.6, and 9.7.2 |
| 4.2.4.1/10 | 6.6.2.4.2 | MS static reference sensitivity performance | Network interface bit errors | Implicit by 7.2.5.2, 7.2.6.2 and 7.2.7.2 | Implicit by 9.5.1, 9.6 and 9.7.1 |
| 4.2.4.1/11 | 6.6.2.5 | MS receiver performance for synchronization burst acquisition | Network interface bit errors | - | Implicit by MAC layer testing |
| NOTE 1: The requirements are specified in ETSI TS 100 392-2 [4] under the given clause. | | | | | |
| NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [8], clause 7. | | | | | |
| NOTE 3: The test methods are specified in ETSI TS 100 394-1 [8], clauses 8 to 10. | | | | | |

4.2.4.2 Requirements for the lower MAC layer

Table 8: Requirements for the lower MAC layer associated with control and monitoring function for MS and Gateway

| Requirement reference | Standard reference (note) | Description | Technical phenomena | Test purpose reference | Test case reference |
|--|---------------------------|--|--|------------------------|--------------------------------------|
| 4.2.4.2/1 | 8.3.1 | Error control scheme for Access Assignment CHannel (AACH) | Error control by coding and decoding of logical channels | - | Implicit by Upper MAC layer testing. |
| 4.2.4.2/2 | 8.3.2 | Error control scheme for Broadcast Synchronization CHannel (BSCH) | Error control by coding and decoding of logical channels | - | Implicit by Upper MAC layer testing. |
| 4.2.4.2/3 | 8.3.4.1 | Error control scheme for mapping onto Half-bursts on the Downlink (SCH/HD), Broadcast Network CHannel (BNCH) and STealing Channel (STCH) | Error control by coding and decoding of logical channels | - | Implicit by Upper MAC layer testing. |
| 4.2.4.2/4 | 8.3.4.2 | Error control scheme for Signalling CHannel for mapping onto Half-bursts on the Uplink (SCH/HU) | Error control by coding and decoding of logical channels | - | Implicit by Upper MAC layer testing. |
| 4.2.4.2/5 | 8.3.4.3 | Error control scheme for Signalling CHannel for mapping onto Full-bursts (SCH/F) | Error control by coding and decoding of logical channels | - | Implicit by Upper MAC layer testing. |
| NOTE: The requirements are specified in ETSI TS 100 392-2 [4], under the given clause. | | | | | |

4.2.4.3 Requirements for the upper MAC layer

Table 9: Requirements for the upper MAC layer associated with control and monitoring function for MS and Gateway

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test purpose reference (note 2) | Test case reference (note 3) |
|-----------------------|-----------------------------|---|--|---------------------------------|--------------------------------------|
| 4.2.4.3/1 | 23.3.3.2 | MS operation during frames 1-17 in minimum mode | Logical channel arrangement | TP/MAC/BV/MI-01 | MAC_BV_MI_01 |
| 4.2.4.3/2 | 23.3.3.3 | MS operation during frame 18 in minimum mode | Logical channel arrangement | TP/MAC/BV/MI-01 | MAC_BV_MI_01 |
| 4.2.4.3/3 | 23.8.4.1.1 | Transmission of uplink stealing | Logical channel arrangement | - | Implicit by CMCE layer testing. |
| 4.2.4.3/4 | 23.8.4.2.2 | Reception of downlink stealing | Logical channel arrangement | - | Implicit by CMCE layer testing. |
| 4.2.4.3/5 | 23.4.2.1.2 | Transmission of TM-SDU not requiring fragmentation | Control of communication in logical channels | TP/MAC/CA-01 | MAC_CA_01 |
| 4.2.4.3/6 | 23.4.2.1.2 | Fragmentation of uplink TM-SDU, when a transmission starts in a full slot granted by the BS | Control of communication in logical channels | TP/MAC/BV/RE-01 | MAC_BV_RE_01 |
| 4.2.4.3/7 | 23.4.2.1.2 | Fragmentation of uplink TM-SDU, using random access to start the process | Control of communication in logical channels | TP/MAC/BV/RE-03 | MAC_BV_RE_03 |
| 4.2.4.3/8 | 23.4.2.2 | Fill bit addition | Control of communication in logical channels | - | Implicit by other MAC layer testing. |
| 4.2.4.3/9 | 23.4.3.1.1 | Reception of unfragmented TM-SDU | Control of communication in logical channels | TP/MAC/CA-01 | MAC_CA_01 |

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test purpose reference (note 2) | Test case reference (note 3) |
|-----------------------|-----------------------------|---|---|---|--|
| 4.2.4.3/10 | 23.4.3.1.1 | Reception of fragmented TM-SDU | Control of communication in logical channels | TP/MAC/BV/RA-01 | MAC_BV_RA_01 |
| 4.2.4.3/11 | 23.4.3.2 | Fill bit deletion | Control of communication in logical channels | - | Implicit by other MAC layer testing. |
| 4.2.4.3/12 | 23.4.3.3 | PDU dissociation | Control of communication in logical channels | - | Implicit by other MAC layer testing. |
| 4.2.4.3/13 | 23.3.1.1 | Receiving and decoding of messages on the downlink MCCH | Correct interpretation of Network control information | - | Implicit by other MAC layer testing. |
| 4.2.4.3/14 | 23.3.1.3 | Receiving messages on the ACCH | Correct interpretation of Network control information | - | Implicit by CMCE layer testing. |
| 4.2.4.3/15 | 23.3.3.1 | Beginning of minimum mode | Correct interpretation of Network control information | TP/MAC/BV/MI-01, TP/MAC/BI/MI-01 | MAC_BV_MI_01, MAC_BI_MI_01 |
| 4.2.4.3/16 | 23.3.3.5 | End of minimum mode | Correct interpretation of Network control information | TP/MAC/BV/MI-02 | MAC_BV_MI_02 |
| 4.2.4.3/17 | 23.6.1 | Reception and decoding of BNCH and BSCH | Correct interpretation of Network control information | - | Implicit by other MAC layer testing. |
| 4.2.4.3/18 | 23.6.2 | Acquiring cell synchronization | Correct interpretation of Network control information | - | Implicit by other MAC layer testing. |
| 4.2.4.3/19 | 23.6.3 | Acquiring network information | Correct interpretation of Network control information | - | Implicit by other MAC layer testing. |
| 4.2.4.3/20 | 23.8.2.2 | Timing of change of mode | Correct interpretation of Network control information | - | Implicit by CMCE layer testing. |
| 4.2.4.3/21 | 23.4.1.2.1 | Recognition of destination address in downlink messages | Network interface addressing | - | Implicit by other MAC layer testing. |
| 4.2.4.3/22 | 23.4.1.2.2 | Source address in uplink messages | Network interface addressing | - | Implicit by other MAC layer testing. |
| 4.2.4.3/23 | 23.5.1.4.1 | Reception of ACCESS-DEFINE PDU | Control of random access | - | Implicit by other MAC layer testing. |
| 4.2.4.3/24 | 23.5.1.4.2 | Reception of ACCESS-ASSIGN PDU | Control of random access | - | Implicit by other MAC layer testing. |
| 4.2.4.3/25 | 23.5.1.4.3 | Initiating a random access | Control of random access | - | Implicit by other MAC layer testing. |
| 4.2.4.3/26 | 23.5.1.4.4 | Checking for appropriate access code | Control of random access | TP/MAC/BI/RA-01 | MAC_BI_RA_01 |
| 4.2.4.3/27 | 23.5.1.4.5 | First try procedure | Control of random access | TP/MAC/BI/RA-02, TP/MAC/BI/RA-02, TP/MAC/BI/RA-02 | MAC_BI_RA_02, MAC_TI_02 |
| 4.2.4.3/28 | 23.5.1.4.8 | Re-try procedure | Control of random access | TP/MAC/BI/RA-02, TP/MAC/BI/RA-02 | MAC_BI_RA_02, MAC_TI_02 |
| 4.2.4.3/29 | 23.5.1.4.9 | Abandoning random access attempt | Control of random access | TP/MAC/BI/RA-02 | MAC_BI_RA_02 |
| 4.2.4.3/30 | 23.5.2.1 | Reservation requirement | Control of radio resource allocation | TP/MAC/BV/RE-01, TP/MAC/BV/RE-03 | MAC_BV_RE_01, MAC_BV_RE_03 |
| 4.2.4.3/31 | 23.5.2.2 | Slot granting | Control of radio resource allocation | TP/MAC/BV/RE-01, TP/MAC/BV/RE-02, TP/MAC/BV/RE-03 | MAC_BV_RE_01, MAC_BV_RE_02, MAC_BV_RE_03 |

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test purpose reference (note 2) | Test case reference (note 3) |
|---|-----------------------------|--|---|---------------------------------|--------------------------------|
| 4.2.4.3/32 | 23.5.4.2.2 | Replace current main control channel with specified channel | Control of radio resource allocation | - | Implicit by MLE layer testing. |
| 4.2.4.3/33 | 23.5.4.2.2 | Quit current main control channel and go to specified channel | Control of radio resource allocation | - | Implicit by MLE layer testing. |
| 4.2.4.3/34 | 23.5.4.2.2 | Replace current main control channel with specified channel, plus MCCH/SCCH or CSS | Control of radio resource allocation | - | Implicit by MLE layer testing. |
| 4.2.4.3/35 | 23.5.4.2.3 | Replace current assigned channel with specified channel | Control of radio resource allocation | - | Implicit by MLE layer testing. |
| 4.2.4.3/36 | 23.5.4.2.3 | Quit current assigned channel and go to specified channel | Control of radio resource allocation | - | Implicit by MLE layer testing. |
| 4.2.4.3/37 | 23.5.4.2.3 | Replace current assigned channel with specified channel, plus MCCH/SCCH or CSS | Control of radio resource allocation | - | Implicit by MLE layer testing. |
| 4.2.4.3/38 | 23.7.1.1 | Path loss parameter C1 calculation | Monitoring functions for cell selection | - | Implicit by MLE layer testing. |
| 4.2.4.3/39 | 23.7.1.2 | Path loss parameter C2 calculation | Monitoring functions for cell selection | - | Implicit by MLE layer testing. |
| 4.2.4.3/40 | 23.7.3.1 | Downlink measurements | Monitoring functions for cell selection | - | Implicit by MLE layer testing. |
| 4.2.4.3/41 | 23.7.4.2 | Monitoring measurements | Monitoring functions for cell selection | - | Implicit by MLE layer testing. |
| 4.2.4.3/42 | 23.7.4.3 | Signal strength measurements | Monitoring functions for cell selection | - | Implicit by MLE layer testing. |
| 4.2.4.3/43 | 23.7.5.2 | Scanning measurements | Monitoring functions for cell selection | - | Implicit by MLE layer testing. |
| NOTE 1: The requirements are specified in ETSI TS 100 392-2 [4], under the given clause. | | | | | |
| NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [9], clause 8. | | | | | |
| NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-4 [12], annex A. | | | | | |

4.2.4.4 Requirements for the LLC layer

Table 10: Requirements for the LLC layer associated with control and monitoring function for MS and Gateway

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test purpose reference (note 2) | Test case reference (note 3) |
|---|-----------------------------|---|-------------------------------------|---|--|
| 4.2.4.4/1 | 22.3.2.1 | Initial basic link data transmission | Control of basic link communication | TP/LLC/CA/BA-01 | LLC_CA_BA_01 |
| 4.2.4.4/2 | 22.3.2.3 | Acknowledged basic link data transmission | Control of basic link communication | TP/LLC/CA/BA-02 | LLC_CA_BA_02 |
| 4.2.4.4/3 | 22.3.2.3 | FCS calculation in transmission in acknowledged basic link | Control of basic link communication | TP/LLC/CA/BA-06 | LLC_CA_BA_06 |
| 4.2.4.4/4 | 22.3.2.3 | SDU numbering in transmission in acknowledged basic link | Control of basic link communication | TP/LLC/BV/BA-01 | LLC_BV_BA_01 |
| 4.2.4.4/5 | 22.3.2.3 | Acknowledgement transmission in acknowledged basic link | Control of basic link communication | TP/LLC/CA/BA-07, TP/LLC/CA/BA-08, TP/LLC/CA/BA-09 | LLC_CA_BA_07, LLC_CA_BA_08, LLC_CA_BA_09 |
| 4.2.4.4/6 | 22.3.2.3, A.2 | Retransmission counts based on parameter N.252 in acknowledged basic link | Control of basic link communication | TP/LLC/BV/BA-02 | LLC_BV_BA_02 |
| 4.2.4.4/7 | 22.3.2.3, A.1 | Retransmission in acknowledged basic link based on timer T.251 | Control of basic link communication | TP/LLC/TI/BA-01 | LLC_TI_BA_01 |
| 4.2.4.4/8 | 22.3.2.3 | Acknowledgement reception in acknowledged basic link | Control of basic link communication | TP/LLC/CA/BA-03, TP/LLC/CA/BA-04, TP/LLC/CA/BA-05 | LLC_CA_BA_03, LLC_CA_BA_04, LLC_CA_BA_05 |
| 4.2.4.4/9 | 22.3.2.3 | SDU numbering in reception in acknowledged basic link | Control of basic link communication | TP/LLC/BV/BA-03 | LLC_BV_BA_03 |
| 4.2.4.4/10 | 22.3.2.3 | FCS checking in reception in acknowledged basic link | Control of basic link communication | TP/LLC/BI/BA-01 | LLC_BI_BA_01 |
| NOTE 1: The requirements are specified in ETSI TS 100 392-2 [4], under the given clause. | | | | | |
| NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [9], clause 7. | | | | | |
| NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-3 [11], annex A. | | | | | |

4.2.4.5 Requirements for the MLE layer

Table 11: Requirements for the MLE layer associated with control and monitoring function for MS and Gateway

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test purpose reference (note 2) | Test case reference (note 3) |
|---|-----------------------------|------------------------------------|--------------------------------------|---|--|
| 4.2.4.5/1 | 18.3.4.6 | Initial cell selection | Control functions for usage of cells | TP/NWK/MLE/CA/CR-01 | NWK_MLE_CA_CR_01 |
| 4.2.4.5/2 | 18.3.4.7.2 | Undeclared cell re-selection | Control functions for usage of cells | TP/NWK/MLE/CA/CR-02 | NWK_MLE_CA_CR_02 |
| 4.2.4.5/3 | 18.3.4.7.3 | Unannounced cell re-selection | Control functions for usage of cells | TP/NWK/MLE/CA/CR-03, TP/NWK/MLE/BV/CR-01, TP/NWK/MLE/BV/CR-02, TP/NWK/MLE/BV/RE-01, TP/NWK/MLE/BV/RE-03 | NWK_MLE_CA_CR_03, NWK_MLE_BV_CR_01, NWK_MLE_BV_CR_02, NWK_MLE_BV_RE_01, NWK_MLE_BV_RE_03 |
| 4.2.4.5/4 | 18.3.4.7.4 | Announced type 3 cell re-selection | Control functions for usage of cells | TP/NWK/MLE/CA/CR-04, TP/NWK/MLE/BV/CR-03, TP/NWK/MLE/TI-01, TP/NWK/MLE/TI-02 | NWK_MLE_CA_CR_04, NWK_MLE_BV_CR_03, NWK_MLE_TI_01, NWK_MLE_TI_02 |
| 4.2.4.5/5 | 18.3.6.5 | Usage of neighbour cell enquiry | Control functions for usage of cells | TP/NWK/MLE/BV/NB-02 | NWK_MLE_BV_NB_02 |
| NOTE 1: The requirements are specified in ETSI TS 100 392-2 [4], under the given clause. | | | | | |
| NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [9], clause 6. | | | | | |
| NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [10], annex A. | | | | | |

4.2.4.6 Requirements for the MM layer

Table 12: Requirements for the MM layer associated with control and monitoring function for MS

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test purpose reference (note 2) | Test case reference (note 3) |
|---|-----------------------------|---|--------------------------------------|--|---|
| 4.2.4.6/1 | 16.4.1.1 | MLE initiated normal registration | Control functions for usage of cells | TP/NWK/MM/BV/RE-02 | NWK_MM_BV_RE_02 |
| 4.2.4.6/2 | 16.4.2 | User application initiated registration | Control functions for usage of cells | TP/NWK/MM/CA-02, TP/NWK/MM/CA-03, TP/NWK/MM/BV/RE-01 | NWK_MM_CA_02, NWK_MM_CA_03, NWK_MM_BV_RE_01 |
| 4.2.4.6/3 | 16.4.3 | Infrastructure initiated registration | Control functions for usage of cells | TP/NWK/MM/BV/RE-07, | NWK_MM_BV_RE_07 |
| 4.2.4.6/4 | 16.8.1 | Infrastructure initiated attachment of group identities | Control of group attach/detach | TP/NWK/MM/BV/AT-01 | NWK_MM_BV_AT_01 |
| 4.2.4.6/5 | 16.8.1 | Infrastructure initiated detachment of group identities | Control of group attach/detach | TP/NWK/MM/BV/AT-02 | NWK_MM_BV_AT_02 |
| 4.2.4.6/6 | 16.8.2 | MS initiated attachment of group identities | Control of group attach/detach | TP/NWK/MM/BV/AT-03 | NWK_MM_BV_AT_03 |
| 4.2.4.6/7 | 16.8.2 | MS initiated detachment of group identities | Control of group attach/detach | TP/NWK/MM/BV/AT-04 | NWK_MM_BV_AT_04 |
| 4.2.4.6/8 | 16.8.3 | Infrastructure initiated group identity report request | Control of group attach/detach | TP/NWK/MM/BV/AT-01 | NWK_MM_BV_AT_01 |
| NOTE 1: The requirements are specified in ETSI TS 100 392-2 [4], under the given clause. | | | | | |
| NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [9], clause 6. | | | | | |
| NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [10], annex A. | | | | | |

Table 13: Requirements for the MM layer associated with control and monitoring function for Gateway

| Requirement reference | Standard reference | Description | Technical phenomena | Test purpose reference (note 1) | Test case reference (note 2) |
|--|--|---------------------------------------|--------------------------------------|---------------------------------|------------------------------|
| 4.2.4.6/9 | ETS 300 396-5 [18] clause 10.3.1, ETSI TS 100 392-2 [4] clause 16.4.1.1 | Normal roaming registration | Control functions for usage of cells | DMO_GATE_GWMM_CA_02 | DMO_GATE_GWMM_CA_02 |
| 4.2.4.6/10 | ETS 300 396-5 [18] clause 10.3.1, ETSI TS 100 392-2 [4] clause 16.4.2 | Registration at power up | Control functions for usage of cells | DMO_GATE_GWMM_BV_01 | DMO_GATE_GWMM_BV_01 |
| 4.2.4.6/11 | ETS 300 396-5 [18] clause 10.3.1, ETSI TS 100 392-2 [4] clause 16.4.3 | Infrastructure initiated registration | Control functions for usage of cells | DMO_GATE_GWMM_BV_04 | DMO_GATE_GWMM_BV_04 |
| NOTE 1: The test purposes, as referenced, are specified in ETS 300 394-4-8 [13], clause 6. | | | | | |
| NOTE 2: The test cases, as referenced, are specified in ETS 300 394-4-10 [14], annex A. | | | | | |

4.2.4.7 Requirements for the CMCE layer

Table 14: Requirements for the CMCE layer associated with control and monitoring function for MS

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test purpose reference (note 2) | Test case reference (note 3) |
|-----------------------|-----------------------------|---|-----------------------------|---|---|
| 4.2.4.7/1 | 14.5.1.1.1 | Incoming individual call set-up | TX call set up control | TP/NWK/CMCE/IC/CA/SU-02, TP/NWK/CMCE/IC/CA/SU-03 | NWK_CMCE_IC_CA_SU_02, NWK_CMCE_IC_CA_SU_03 |
| 4.2.4.7/2 | 14.5.1.1.2 | Outgoing individual call set-up | TX call set up control | TP/NWK/CMCE/IC/CA/SU-04, TP/NWK/CMCE/IC/BV/OC-01, TP/NWK/CMCE/IC/BV/OC-02, TP/NWK/CMCE/IC/CA/SU-05, TP/NWK/CMCE/IC/BV/OC-03 | NWK_CMCE_IC_CA_SU_04, NWK_CMCE_IC_BV_OC_01, NWK_CMCE_IC_BV_OC_02, NWK_CMCE_IC_CA_SU_05, NWK_CMCE_IC_BV_OC_03 |
| 4.2.4.7/3 | 14.5.1.1.3 | Colliding individual call set-up | TX call set up control | TP/NWK/CMCE/IC/BV/CC-01, TP/NWK/CMCE/IC/BV/CC-02 | NWK_CMCE_IC_BV_CC_01, NWK_CMCE_IC_BV_CC_02 |
| 4.2.4.7/4 | 14.5.2.1.2 | Outgoing group call set-up | TX call set up control | TP/NWK/CMCE/GC/CA/SU-01, TP/NWK/CMCE/GC/BV/OC-01 | NWK_CMCE_GC_CA_SU_01, NWK_CMCE_GC_BV_OC_01 |
| 4.2.4.7/5 | 14.5.2.1.3 | Colliding group call set-up | TX call set up control | TP/NWK/CMCE/GC/BV/CC-01 | NWK_CMCE_GC_BV_CC_01 |
| 4.2.4.7/6 | 14.5.1.2.1 | Transmission control in individual call | TX enable/disable control | TP/NWK/CMCE/IC/BV/MA/TC-01, TP/NWK/CMCE/IC/BV/MA/TC-02, TP/NWK/CMCE/IC/BV/MA/TC-03, TP/NWK/CMCE/IC/BV/MA/TC-04, TP/NWK/CMCE/IC/BV/MA/TC-05, TP/NWK/CMCE/IC/BV/MA/TC-06 | NWK_CMCE_IC_BV_MA_TC_01, NWK_CMCE_IC_BV_MA_TC_02, NWK_CMCE_IC_BV_MA_TC_03, NWK_CMCE_IC_BV_MA_TC_04, NWK_CMCE_IC_BV_MA_TC_05, NWK_CMCE_IC_BV_MA_TC_06 |
| 4.2.4.7/7 | 14.5.1.4 | U-plane switching in individual call | TX enable/disable control | TP/NWK/CMCE/IC/BV/MA/TC-06 | NWK_CMCE_IC_BV_MA_TC_06 |
| 4.2.4.7/8 | 14.5.2.2.1 | Transmission control in group call | TX enable/disable control | TP/NWK/CMCE/GC/BV/MA/TC-01, TP/NWK/CMCE/GC/BV/MA/TC-02, TP/NWK/CMCE/GC/BV/MA/TC-03, TP/NWK/CMCE/GC/BV/MA/TC-04, TP/NWK/CMCE/GC/BV/MA/TC-05, TP/NWK/CMCE/GC/BV/MA/TC-06, TP/NWK/CMCE/GC/BV/MA/TC-07, TP/NWK/CMCE/GC/TC-07 | NWK_CMCE_GC_BV_MA_TC_01, NWK_CMCE_GC_BV_MA_TC_02, NWK_CMCE_GC_BV_MA_TC_03, NWK_CMCE_GC_BV_MA_TC_04, NWK_CMCE_GC_BV_MA_TC_05, NWK_CMCE_GC_BV_MA_TC_06, NWK_CMCE_GC_BV_MA_TC_07, NWK_CMCE_GC_TC_07 |
| 4.2.4.7/9 | 14.5.2.4 | U-plane switching in group call | TX enable/disable control | TP/NWK/CMCE/GC/BV/MA/TC-06 | NWK_CMCE_GC_BV_MA_TC-06 |
| 4.2.4.7/10 | 14.5.1.2.4 | Individual call restoration | Control of call maintenance | - | Implicit by MLE protocol testing. |
| 4.2.4.7/11 | 14.5.2.2.4 | Group call restoration | Control of call maintenance | TP/NWK/CMCE/GC/BV/MA/CR-01 | NWK_CMCE_GC_BV_MA_CR_01 |
| 4.2.4.7/12 | 14.5.1.3.1 | Individual call disconnection | Control of call disconnect | TP/NWK/CMCE/IC/CA/CD-01 | NWK_CMCE_IC_CA_CD_01 |
| 4.2.4.7/13 | 14.5.1.3.3 | Reception of disconnection request in individual call | Control of call disconnect | TP/NWK/CMCE/IC/CA/CD-02, TP/NWK/CMCE/IC/CA/CD-03 | NWK_CMCE_IC_CA_CD_02, NWK_CMCE_IC_CA_CD_03 |

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test purpose reference (note 2) | Test case reference (note 3) |
|---|-----------------------------|--|----------------------------|---|---|
| 4.2.4.7/14 | 14.5.1.3.4 | Expiry of call related timers resulting in disconnection in individual calls | Control of call disconnect | TP/NWK/CMCE/IC/TI-01, TP/NWK/CMCE/IC/TI-02, TP/NWK/CMCE/IC/TI-03, TP/NWK/CMCE/IC/TI-04, TP/NWK/CMCE/IC/TI-05, TP/NWK/CMCE/IC/TI-06, TP/NWK/CMCE/IC/TI-07, TP/NWK/CMCE/IC/TI-08, TP/NWK/CMCE/IC/TI-10, TP/NWK/CMCE/IC/TI-13 | NWK_CMCE_IC_TI_01, NWK_CMCE_IC_TI_02, NWK_CMCE_IC_TI_03, NWK_CMCE_IC_TI_04, NWK_CMCE_IC_TI_05, NWK_CMCE_IC_TI_06, NWK_CMCE_IC_TI_07, NWK_CMCE_IC_TI_08, NWK_CMCE_IC_TI_10, NWK_CMCE_IC_TI_13 |
| 4.2.4.7/15 | 14.5.1.3.4 | Expiry of call related timers resulting in call release in individual calls | Control of call disconnect | TP/NWK/CMCE/IC/TI-11, TP/NWK/CMCE/IC/TI-12 | NWK_CMCE_IC_TI_11, NWK_CMCE_IC_TI_12 |
| 4.2.4.7/16 | 14.5.2.3.3 | Network initiated group call disconnection | Control of call disconnect | TP/NWK/CMCE/GC/CA/CD-01, TP/NWK/CMCE/GC/BV/CD-01 | NWK_CMCE_GC_CA_CD_01, NWK_CMCE_GC_BV_CD_01 |
| 4.2.4.7/17 | 14.5.2.3.5 | Expiry of call related timers resulting in disconnection in group calls | Control of call disconnect | TP/NWK/CMCE/GC/TI-02, TP/NWK/CMCE/GC/TI-03 | NWK_CMCE_GC_TI_02, NWK_CMCE_GC_TI_03 |
| 4.2.4.7/18 | 14.5.2.3.5 | Expiry of call related timers resulting in call release in group calls | Control of call disconnect | TP/NWK/CMCE/GC/TI-01, TP/NWK/CMCE/GC/TI-04, TP/NWK/CMCE/GC/TI-05, TP/NWK/CMCE/GC/TI-06 | NWK_CMCE_GC_TI_01, NWK_CMCE_GC_TI_04, NWK_CMCE_GC_TI_05, NWK_CMCE_GC_TI_06 |
| NOTE 1: The requirements are specified in ETSI TS 100 392-2 [4], under the given clause. NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [9], clause 6. NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [10], annex A. | | | | | |

Table 15: Requirements for the CMCE layer associated with control and monitoring function for Gateway

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test purpose reference (note 2) | Test case reference (note 3) |
|--|-----------------------------|---|----------------------------|---|---|
| 4.2.4.7/19 | 9.3.2.1 | Outgoing call to V+D | TX call set up control | DMO_GATE_GWCC_CM_BV_SU_01, DMO_GATE_GWCC_CM_BV_SU_02, DMO_GATE_GWCC_CM_BV_SU_10, DMO_GATE_GWCC_CM_BV_TI_04, DMO_GATE_GWCC_CM_BV_TI_05 | DMO_GATE_GWCC_CM_BV_SU_01, DMO_GATE_GWCC_CM_BV_SU_02, DMO_GATE_GWCC_CM_BV_SU_10, DMO_GATE_GWCC_CM_BV_TI_04, DMO_GATE_GWCC_CM_BV_TI_05 |
| 4.2.4.7/20 | 9.3.2.2 | Colliding call set-up at the V+D | TX call set up control | DMO_GATE_GWCC_CM_BV_CC_01, DMO_GATE_GWCC_CM_BV_CC_02 | DMO_GATE_GWCC_CM_BV_CC_01, DMO_GATE_GWCC_CM_BV_CC_02 |
| 4.2.4.7/21 | 9.3.3.1.1 | Transmitting U-TX CEASED by end of DM-MS call | TX enable/disable control | DMO_GATE_GWCC_CM_BV_CT_01 | DMO_GATE_GWCC_CM_BV_CT_01 |
| 4.2.4.7/22 | 9.3.3.1.2 | Reception of D-TX CEASED by end of V+D call | TX enable/disable control | DMO_GATE_GWCC_CM_BV_CT_02 | DMO_GATE_GWCC_CM_BV_CT_02 |
| 4.2.4.7/23 | 9.3.3.2 | Reception of D-TX INTERRUPT from V+D | TX enable/disable control | DMO_GATE_GWCC_CM_BV_CT_04 | DMO_GATE_GWCC_CM_BV_CT_04 |
| 4.2.4.7/24 | 9.3.3.3 | Permission to transmit granted to another party | TX enable/disable control | DMO_GATE_GWCC_CM_BV_CT_03 | DMO_GATE_GWCC_CM_BV_CT_03 |
| 4.2.4.7/25 | 9.3.3.4.1 | Transmitting U-TX DEMAND at request for transmission from DM-MS | TX enable/disable control | DMO_GATE_GWCC_CM_BV_CT_05 | DMO_GATE_GWCC_CM_BV_CT_05 |
| 4.2.4.7/26 | 9.3.3.5 | V+D permission to transmit withdrawn during a call | TX enable/disable control | DMO_GATE_GWCC_CM_BV_CT_06 | DMO_GATE_GWCC_CM_BV_CT_06 |
| 4.2.4.7/27 | 9.3.4.2.1 | Reception of transmission interrupt from V+D | TX enable/disable control | DMO_GATE_GWCC_CM_BV_CT_09 | DMO_GATE_GWCC_CM_BV_CT_09 |
| 4.2.4.7/28 | 9.3.3.9.1 | Transmission of U-DISCONNECT on receipt of DM-RELEASE from current master | Control of call disconnect | DMO_GATE_GWCC_CM_BV_CD_01 | DMO_GATE_GWCC_CM_BV_CD_01 |
| 4.2.4.7/29 | 9.3.3.9.2 | Receipt of D-RELEASE from SwMI | Control of call disconnect | DMO_GATE_GWCC_CM_BV_CD_02, DMO_GATE_GWCC_CM_BV_CD_03 | DMO_GATE_GWCC_CM_BV_CD_02, DMO_GATE_GWCC_CM_BV_CD_03 |
| 4.2.4.7/30 | 9.3.3.9.3 | Transmission of U-DISCONNECT at expiry of call length timer | Control of call disconnect | DMO_GATE_GWCC_CM_BV_TI_02 | DMO_GATE_GWCC_CM_BV_TI_02 |
| 4.2.4.7/31 | 9.3.4.1.3 | Termination of call on receipt of preemption request from DM-MS | Control of call disconnect | DMO_GATE_GWCC_CM_BV_CT_08 | DMO_GATE_GWCC_CM_BV_CT_08 |
| NOTE 1: The requirements are specified in ETS 300 396-5 [18] under the given clause. | | | | | |
| NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-8 [13], clause 6. | | | | | |
| NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-10 [14], annex A. | | | | | |

4.2.4.8 Requirements for the security functions

Table 16: Requirements for the security functions associated with control and monitoring function for MS and Gateway

| Requirement reference | Standard reference (note 1) | Description | Technical phenomena | Test purpose reference (note 2) | Test case reference (note 3) |
|--|-----------------------------|---|---------------------------|---------------------------------|------------------------------|
| 4.2.4.8/1 | 5.4.3.1 | Permanent disabling of an MS using authentication | TX enable/disable control | TP/Sec_VD/SED/PD/02 | Sec_VD_SED_BV_PD_02 |
| 4.2.4.8/2 | 5.4.3.1 | Temporary disabling of an MS using authentication | TX enable/disable control | TP/Sec_VD/SED/TD/01 | Sec_VD_SED_BV_TD_01 |
| 4.2.4.8/3 | 5.4.5 | Temporary disabling of an MS without authentication | TX enable/disable control | TP/Sec_VD/SED/TD/05 | Sec_VD_SED_BV_TD_05 |
| NOTE 1: The requirements are specified in ETSI TS 100 392-7 [5], under the given clause. | | | | | |
| NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-5-2 [16], clause 6. | | | | | |
| NOTE 3: The test cases, as referenced, are specified in ETS 300 394-5-3 [17], annex A. | | | | | |

5 Testing for compliance with technical requirements

5.1 Environmental conditions for testing

Radio testing shall be performed at normal and extreme test conditions as specified in ETSI TS 100 394-1 [8].

For tests on equipment at extreme ambient temperatures measurements shall be made at an upper temperature and a lower temperature defined as follows:

- the lower temperature shall be the lowest intended operational temperature;
- the upper temperature shall be the highest intended operational temperature.

Protocol testing shall be performed within the intended environmental conditions of the IUT.

5.2 Interpretation of the measurement results

The interpretation of the results recorded in a test report for the measurements described in the present document shall be as follows:

- the measured value related to the corresponding limit will be used to decide whether an equipment meets the requirements of the present document;
- the value of the measurement uncertainty for the measurement of each parameter shall be included in the test report;
- the recorded value of the measurement uncertainty shall be, for each measurement, equal to or lower than the figures in table 17.

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with ETR 028 [23] and shall correspond to an expansion factor (coverage factor) $k = 1,96$ (which provide confidence levels of 95 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table 17 is based on such expansion factors.

Table 17: Maximum measurement uncertainty

| Parameter | Uncertainty |
|--|---|
| Mean transmitted RF carrier power | ±0,75 dB |
| Transmitted RF carrier power versus time: RF power relative to 0 dB reference (0 dBc to -45 dBc) RF power relative to 0 dB reference (< -45 dBc to -73 dBc) | ±1,0 dB ±1,5 dB |
| Unwanted output power in non-active transmit state: RF power relative to 0 dB reference (0 dBc to -45 dBc) RF power relative to 0 dB reference (< -45 dBc to -73 dBc) | ±1,0 dB ±1,5 dB |
| Adjacent channel power: RF power (0 dB reference) RF power relative to 0 dB reference (0 dBc to -45 dBc) RF power relative to 0 dB reference (< -45 dBc to -73 dBc) RF power (absolute limit values) | ±1,0 dB ±1,0 dB ±1,5 dB ±1,0 dB |
| Unwanted emissions far from the carrier; discrete spurious: RF power (offsets within f_{rb}) RF power (offsets > f_{rb} , not TETRA filtered); $f \leq 1$ GHz RF power (offsets > f_{rb} , not TETRA filtered); $1 \text{ GHz} < f \leq 2 \text{ GHz}$ RF power (offsets > f_{rb} , not TETRA filtered); $2 \text{ GHz} < f \leq 4 \text{ GHz}$ RF power (offsets > f_{rb} , not TETRA filtered); $4 \text{ GHz} < f \leq 12,75 \text{ GHz}$ | ±1,5 dB ±1,5 dB ±2,0 dB ±3,0 dB ±4,0 dB |
| Unwanted emissions far from the carrier; wideband noise: RF power relative to 0 dB reference (0 dBc to -45 dBc) RF power relative to 0 dB reference (< -45 dBc to -105 dBc) | ±1,0 dB ±1,5 dB |
| Unwanted radiated emissions: RF power (not TETRA filtered) | ±4,0 dB |
| Unwanted emissions during the BLCH/CLCH (linearization): RF power (0 dB reference) RF power relative to 0 dB reference (0 dBc to -45 dBc) RF power relative to 0 dB reference (< -45 dBc to -73 dBc) | ±1,0 dB ±1,0 dB ±1,5 dB |
| Unwanted conducted emissions: RF power (not TETRA filtered); $f \leq 1 \text{ GHz}$ RF power (not TETRA filtered); $1 \text{ GHz} < f \leq 2 \text{ GHz}$ RF power (not TETRA filtered); $2 \text{ GHz} < f \leq 4 \text{ GHz}$ RF power (not TETRA filtered); $4 \text{ GHz} < f \leq 12,75 \text{ GHz}$ | ±1,5 dB ±2,0 dB ±3,0 dB ±4,0 dB |
| Tx intermodulation attenuation RF power (0 dB reference) RF power (not TETRA filtered) relative to 0 dB reference (0 dBc to -45 dBc) RF power (not TETRA filtered) relative to 0 dB reference (< -45 dBc to -73 dBc) | ±1,0 dB ±1,0 dB ±1,5 dB |
| RF power for MS link control | ±0,75 dB |
| Modulation accuracy: RMS vector error Peak vector error Residual carrier magnitude | ±1,0 % ±3,0 % ±1,0 % |
| Carrier frequency accuracy: Frequency $300 \text{ MHz} \leq f \leq 520 \text{ MHz}$ Frequency $520 \text{ MHz} < f \leq 1 \text{ GHz}$ | ±0,02 ppm ±0,01 ppm |
| Timing uncertainty | ±1/16 symbol |

5.3 Essential radio test suites

This clause provides the references for the tests essential to assessment of conformity with the requirements of the present document in accordance with annex III of the R&TTE Directive [1].

5.3.1 Reference test specifications

The tests referenced in this clause are defined in corresponding TETRA conformance testing specifications:

- a) radio conformance testing specification, ETSI TS 100 394-1 [8];
- b) protocol conformance testing specifications:
 - Test Suite Structure (TSS) and Test Purposes (TPs) for V+D, ETS 300 394-2-1 [9];
 - Test Suite Structure (TSS) and Test Purposes (TPs) for DMO Gateway, ETS 300 394-4-8 [13];
 - Test Suite Structure (TSS) and Test Purposes (TPs) for Security, ETS 300 394-5-2 [16];
 - ATS for NWK layer, ETS 300 394-2-2 [10];
 - ATS for LLC layer, ETS 300 394-2-3 [11];
 - ATS for MAC layer, ETS 300 394-2-4 [12];
 - ATS for DMO Gateway, ETS 300 394-4-10 [14];
 - ATS for Security, ETS 300 394-5-3 [17].

NOTE: The ATSs for protocol testing are written in TTCN according to ISO/IEC 9646-3 (see annex E).
 For detailed information on conventions used for TPs refer to ETS 300 394-2-1 [9], clause 5.
 For detailed information on ATS conventions refer to: ETS 300 394-2-2 [10], clause 5 for NWK layer;
 ETS 300 394-2-3 [11], clause 5 for LLC layer; ETS 300 394-2-4 [12], clause 5 for upper MAC layer;
 ETS 300 394-4-8 [13], clause 5 for DMO Gateway; and ETS 300 394-5-2 [16] clause 5 for Security.

Not all the tests defined for the conformance testing are relevant to assess compliance with the justified requirements and the tests referenced in this clause are the ones corresponding to the justified requirements in clause 4 in the present document.

To allow test case selection for the purposes of the present document, the test case index and test case selection expression definitions, and test suite parameter definitions are specified for the radio layer.

For protocol layers the TSS, test case index, test case selection expression definitions, and test suite parameter definitions are redefined and those tables are included for each ATS in this clause. The ATS conventions for the protocol conformance testing have been followed in the present document to allow one to one mapping with the test cases in the conformance test suites and the redefined structural parts in the present document.

All the tables for testing in this clause follow the TTCN format in ISO/IEC 9646-3 (see annex E).

5.3.2 Test configuration

The test configurations given or referenced in the present document do not imply a specific realization of test equipment or arrangement or use of specific test devices to assess compliance with the requirements. However, any test configuration and equipment used shall provide the test conditions specified in the tests to enable testing according to the present document, including support of the test modes and the means to provide a decoded data output, as described in ETSI TS 100 394-1 [8], clause 4.1.1.

In the case of a protocol test resulting in a fail verdict, the corresponding test case execution will be repeated at least once to ensure the result being caused by the requirements in the test case.

The manufacturer of the IUT shall provide an interface for connecting the IUT to the test system for testing according to the present document. This interface may be located in the IUT or it may exist in an additional device dedicated for testing purposes. The interface may be based on a specific test connector protocol or it may use radio interface. Specification for the actual interface being used is outside the scope of the present document.

The IUT may need parameterization or special initialization for testing. Those actions shall be performed according to any specific instructions provided by the manufacturer and are outside the scope of the present document.

5.3.3 Radio layer test specification

5.3.3.1 Radio layer test specification for BS, MS and DM-GATE

5.3.3.1.1 Test case index for radio layer for BS, MS and DM-GATE

Table 18: Test case index for radio layer for BS, MS and DM-GATE

| Test Case Index | | | |
|--|---------------------------------|--|---|
| Test case limit value reference (note 1) | Test method reference (note 2) | Selection reference | Description |
| 7.1.1.2 a) | 8.1 and 8.1.1 a), b2) and d) | MS_or_GW | To test that the output power for MS and GW corresponds to the declared power class. |
| 7.1.1.2 b) | 8.1 and 8.1.1 a), b), c) and d) | MS_or_GW | To test the MS and GW transmitter output power versus time. |
| 7.1.1.2 a) | 8.1 and 8.1.1 c) | MS_or_GW | To test the nominal MS and GW power control levels. |
| 7.1.1.2 a) | 8.1 and 8.1.2 a), b2) and d) | BS | To test that the output power for the BS corresponds to the declared power class. |
| 7.1.1.2 b) | 8.1 and 8.1.2 a), b) and d) | BS_Discontinuous_Transmission | To test the BS transmitter output power versus time. |
| 7.1.1.2 a) and b) | 8.1 and 8.1.2 c) and d) | BS_Several_Power_Classes | To test that the output power for the BS corresponds to the declared power class and transmitter output power versus time. |
| 7.1.2.2 | 8.2 | Discontinuous_Transmission | To test the output power in the non-active transmit state. |
| 7.1.3.2 | 8.3 | BS_or_MS_or_GW | To test the adjacent channel power due to modulation. |
| 7.1.4.2 | 8.4 | Discontinuous_Transmission | To test the adjacent channel power during switching transients. |
| 7.1.5.2 | 8.5 | BS_or_MS_or_GW | To test the unwanted conducted emission far from the carrier. |
| 7.1.6.2 | 8.6 | BS_or_MS_or_GW | To test the unwanted radiated emission in the active transmit state. |
| 7.1.7.2 | 8.7 and 8.7.1 | MS_or_GW | To test the MS and GW unwanted conducted emission during CLCH. |
| 7.1.7.2 | 8.7 and 8.7.2 | BS | To test the BS unwanted conducted emission during BLCH. |
| 7.1.8.2.1 | 8.8 and 8.8.1 | MS_or_GW | To test the MS and GW transmitter intermodulation attenuation. |
| 7.1.8.2.2 | 8.8 and 8.8.2 | BS_Several_Transmitters_Or_Collocated_With_Other_RE | To test the BS transmitter intermodulation: - Minimum 70 dB attenuation. |
| 7.1.8.2.2 | 8.8 and 8.8.2 | BS_Single_Transmitter_And_Not_Collocated_With_Other_RE | To test the BS transmitter intermodulation: - Minimum 40 dB attenuation. |
| 7.1.8.2.3 | 8.8 and 8.8.3 | BS_Several_Transmitters | To test the intra-BS transmitter intermodulation attenuation. |
| 7.2.2.2 | 9.2 and 9.2.1 | MS_or_GW_Class_A | To test the nominal error rate of a class A MS and GW. ETSI TS 100 394-1 [8], table A.1; nominal error: - TCH/7,2, TU50, -85 dBm, - TCH/7,2, STAT, -20 dBm. |
| 7.2.2.2 | 9.2 and 9.2.1 | MS_or_GW_Class_B | To test the nominal error rate of a class B MS and GW. ETSI TS 100 394-1 [8], table A.2; nominal error: - TCH/7,2, TU50, -85 dBm, - TCH/7,2, STAT, -20 dBm. |
| 7.2.2.2 | 9.2 and 9.2.1 | MS_or_GW_Class_E | To test the nominal error rate of a class E MS and GW. ETSI TS 100 394-1 [8], table A.3; nominal error: - TCH/7,2, TU50, -85 dBm, - TCH/7,2, STAT, -20 dBm. |

| Test Case Index | | | |
|--|--------------------------------|---------------------------------|--|
| Test case limit value reference (note 1) | Test method reference (note 2) | Selection reference | Description |
| 7.2.2.2 | 9.2 and 9.2.2 | BS_Class_A | To test the nominal error rate of a class A BS. ETSI TS 100 394-1 [8], table A.7; nominal error: - TCH/7,2, TU50, -85 dBm, - TCH/7,2, STAT, -20 dBm. |
| 7.2.2.2 | 9.2 and 9.2.2 | BS_Class_B | To test the nominal error rate of a class B BS. ETSI TS 100 394-1 [8], table A.8; nominal error: - TCH/7,2, TU50, -85 dBm, - TCH/7,2, STAT, -20 dBm. |
| 7.2.3.2 | 9.3 and 9.3.1 | MS_or_GW_Class_A | To test the dynamic reference sensitivity performance of a class A MS and GW. ETSI TS 100 394-1 [8], table A.1; sensitivity: - SCH/F, TU50, -103 (-97) dBm, - BSCH, HT200, -103 dBm. |
| 7.2.3.2 | 9.3 and 9.3.1 | MS_or_GW_Class_A_Protected_Data | To test the dynamic reference sensitivity performance of a class A MS and GW supporting protected circuit mode data. ETSI TS 100 394-1 [8], table A.1; sensitivity: - TCH/2,4, N=1, HT200, -103 dBm. |
| 7.2.3.2 | 9.3 and 9.3.1 | MS_or_GW_Class_B | To test the dynamic reference sensitivity performance of a class B MS and GW. ETSI TS 100 394-1 [8], table A.2; sensitivity: - SCH/F, TU50, - 103 (- 97) dBm, - BSCH, TU50, - 103 dBm. |
| 7.2.3.2 | 9.3 and 9.3.1 | MS_or_GW_Class_B_Protected_Data | To test the dynamic reference sensitivity performance of a class B MS and GW supporting protected circuit mode data. ETSI TS 100 394-1 [8], table A.2; sensitivity: - TCH/2,4, N=1, TU50, -103 dBm. |
| 7.2.3.2 | 9.3 and 9.3.1 | MS_or_GW_Class_E | To test the dynamic reference sensitivity performance of a class E MS and GW. ETSI TS 100 394-1 [8], table A.3; sensitivity: - SCH/F, TU50, -103 (-97) dBm, - BSCH, EQ200, -103 dBm. |
| 7.2.3.2 | 9.3 and 9.3.1 | MS_or_GW_Class_E_Protected_Data | To test the dynamic reference sensitivity performance of a class E MS and GW supporting protected circuit mode data. ETSI TS 100 394-1 [8], table A.3; sensitivity: - TCH/2,4, N=1, EQ200, -103 dBm. |
| 7.2.3.2 | 9.3 and 9.3.2 | BS_Class_A | To test the dynamic reference sensitivity performance of a class A BS. ETSI TS 100 394-1 [8], table A.7; sensitivity: - SCH/F, TU50, -106 (-100) dBm. |
| 7.2.3.2 | 9.3 and 9.3.2 | BS_Class_A_Protected_Data | To test the dynamic reference sensitivity performance of a class A BS supporting protected circuit mode data. ETSI TS 100 394-1 [8], table A.7; sensitivity: - TCH/2,4, N=1, HT200, -106 dBm. |
| 7.2.3.2 | 9.3 and 9.3.2 | BS_Class_B | To test the dynamic reference sensitivity performance of a class B BS. ETSI TS 100 394-1 [8], table A.8; sensitivity: - SCH/F, TU50, -106 (-100) dBm. |
| 7.2.3.2 | 9.3 and 9.3.2 | BS_Class_B_Protected_Data | To test the dynamic reference sensitivity performance of a class B BS supporting protected circuit mode data. ETSI TS 100 394-1 [8], table A.8; sensitivity: - TCH/2,4, N=1, TU50, -106 dBm. |
| 7.2.3.2 | 9.3 and 9.3.3 | MS_or_GW | To test the dynamic reference sensitivity performance of an MS and GW. ETSI TS 100 394-1 [8], table A.11: - SCH/F, TU50, -103 dBm, - AACH, TU50, -103 dBm. |
| 7.2.3.2 | 9.3 and 9.3.3 | BS | To test the dynamic reference sensitivity performance of a BS. ETSI TS 100 394-1 [8], table A.11: - SCH/F, TU50, -106 dBm. |

| Test Case Index | | | |
|--|--------------------------------|---------------------|---|
| Test case limit value reference (note 1) | Test method reference (note 2) | Selection reference | Description |
| 7.2.4.2 | 9.4 and 9.4.1 | MS_or_GW_Class_A | To test the reference interference performance of a class A MS and GW. ETSI TS 100 394-1 [8], table A.1: - co-channel interference, - adjacent channel interference. |
| 7.2.4.2 | 9.4 and 9.4.1 | MS_or_GW_Class_B | To test the reference interference performance of a class B MS and GW. ETSI TS 100 394-1 [8], table A.2: - co-channel interference, - adjacent channel interference. |
| 7.2.4.2 | 9.4 and 9.4.1 | MS_or_GW_Class_E | To test the reference interference performance of a class E MS and GW. ETSI TS 100 394-1 [8], table A.3: - co-channel interference, - adjacent channel interference. |
| 7.2.4.2 | 9.4 and 9.4.2 | BS_Class_A | To test the reference interference performance of a class A BS. ETSI TS 100 394-1 [8], table A.7: - co-channel interference, - adjacent channel interference. |
| 7.2.4.2 | 9.4 and 9.4.2 | BS_Class_B | To test the reference interference performance of a class B BS. ETSI TS 100 394-1 [8], table A.8: - co-channel interference, - adjacent channel interference. |
| 7.2.5.2 | 9.5 and 9.5.1 | MS_or_GW_Class_A | To test the blocking characteristics of a class A MS and GW. ETSI TS 100 394-1 [8], table A.1; blocking. |
| 7.2.5.2 | 9.5 and 9.5.1 | MS_or_GW_Class_B | To test the blocking characteristics of a class B MS and GW. ETSI TS 100 394-1 [8], table A.2; blocking. |
| 7.2.5.2 | 9.5 and 9.5.1 | MS_or_GW_Class_E | To test the blocking characteristics of a class E MS and GW. ETSI TS 100 394-1 [8], table A.3; blocking. |
| 7.2.5.2 | 9.5 and 9.5.2 | BS_Class_A | To test the blocking characteristics of a class A BS. ETSI TS 100 394-1 [8], table A.7; blocking. |
| 7.2.5.2 | 9.5 and 9.5.2 | BS_Class_B | To test the blocking characteristics of a class B BS. ETSI TS 100 394-1 [8], table A.8; blocking. |
| 7.2.6.2 | 9.6 | MS_or_GW_Class_A | To test the spurious response rejection of a class A MS and GW. ETSI TS 100 394-1 [8], table A.1; spurious response. |
| 7.2.6.2 | 9.6 | MS_or_GW_Class_B | To test the spurious response rejection of a class B MS and GW. ETSI TS 100 394-1 [8], table A.2; spurious response. |
| 7.2.6.2 | 9.6 | MS_or_GW_Class_E | To test the spurious response rejection of a class E MS and GW. ETSI TS 100 394-1 [8], table A.3; spurious response. |
| 7.2.6.2 | 9.6 | BS_Class_A | To test the spurious response rejection of a class A BS. ETSI TS 100 394-1 [8], table A.7; spurious response. |
| 7.2.6.2 | 9.6 | BS_Class_B | To test the spurious response rejection of a class B BS. ETSI TS 100 394-1 [8], table A.8; spurious response. |
| 7.2.7.2 | 9.7 and 9.7.1 | MS_or_GW_Class_A | To test the intermodulation response rejection of a class A MS and GW. ETSI TS 100 394-1 [8], table A.1; intermodulation. |
| 7.2.7.2 | 9.7 and 9.7.1 | MS_or_GW_Class_B | To test the intermodulation response rejection of a class B MS and GW. ETSI TS 100 394-1 [8], table A.2; intermodulation. |
| 7.2.7.2 | 9.7 and 9.7.1 | MS_or_GW_Class_E | To test the intermodulation response rejection of a class E MS and GW. ETSI TS 100 394-1 [8], table A.3; intermodulation. |
| 7.2.7.2 | 9.7 and 9.7.2 | BS_Class_A | To test the intermodulation response rejection of a class A BS. ETSI TS 100 394-1 [8], table A.7; intermodulation. |
| 7.2.7.2 | 9.7 and 9.7.2 | BS_Class_B | To test the intermodulation response rejection of a class B BS. ETSI TS 100 394-1 [8], table A.8; intermodulation. |
| 7.2.8.2 | 9.8 | BS_or_MS_or_GW | To test the unwanted conducted emission. |
| 7.2.9.2 | 9.9 | BS_or_MS_or_GW | To test the unwanted radiated emission. |
| 7.3.1.2 | 10.1, 10.1.1 and 10.1.3 | MS_or_GW | To test the modulation accuracy of an MS and GW. |

| Test Case Index | | | |
|--|--------------------------------|---------------------|--|
| Test case limit value reference (note 1) | Test method reference (note 2) | Selection reference | Description |
| 7.3.1.2 | 10.1, 10.1.2 and 10.1.3 | BS | To test the modulation accuracy of a BS. |
| 7.3.2.2 | 10.2, 10.2.1 | MS_or_GW | To test the carrier frequency error of an MS and GW. |
| 7.3.2.2 | 10.2, 10.2.2 | BS | To test the carrier frequency error of a BS. |
| 7.3.4.2 | 10.4 | MS_or_GW | To test the frame alignment performance of an MS and GW. |
| 7.3.5.2 | 10.5 | MS_or_GW | To test the MS and GW adaptive power control. |
| NOTE 1: The test case limit values, as referenced, are specified in ETSI TS 100 394-1 [8], clause 7. | | | |
| NOTE 2: The test methods, as referenced, are specified in ETSI TS 100 394-1 [8], clauses 8 to 10. | | | |

5.3.3.1.2 Test case selection expression definitions for radio layer for BS, MS and DM-GATE

Table 19: Test case selection expression definitions for radio layer for BS, MS and DM-GATE

| Test Case Selection Expression Definitions | | |
|--|---|--|
| Expression Name | Selection Expression | Comments |
| BS_or_MS_or_GW | EN_RT_RADIO_LAYER | Radio layer for BS, MS or DM-GATE supported. |
| MS_or_GW | (EN_RT_MS OR EN_RT_DM_GATE) AND EN_RT_RADIO_LAYER | MS or DM-GATE equipment supporting radio layer. |
| BS | EN_RT_BS AND EN_RT_RADIO_LAYER | BS equipment supporting radio layer. |
| BS_Several_Power_Classes | PIC_BS_MORE_POWER_CLASSES | BS equipment implementing more than one power class. |
| BS_Several_Transmitters | EN_RT_BS AND EN_RT_RADIO_LAYER AND NOT PIC_BS_SINGLE_TX | BS equipment with more than one transmitter. |
| BS_Several_Transmitters_Or_Collocated_With_Other_RE | EN_RT_BS AND EN_RT_RADIO_LAYER AND NOT (PIC_BS_SINGLE_TX AND PIC_BS_NOT_COLLOCATED) | BS equipment with more than one transmitter or to be collocated with other radio equipment operating in the same frequency band. |
| BS_Single_Transmitter_And_Not_Collocated_With_Other_RE | PIC_BS_SINGLE_TX AND PIC_BS_NOT_COLLOCATED | BS equipment with single transmitter and not to be collocated with other radio equipment operating in the same frequency band. |
| BS_Discontinuous_Transmission | EN_RT_BS AND (PIC_CARRIER_SHARING OR PIC_MCCH_SHARING) | BS equipment operating in discontinuous mode. |
| Discontinuous_Transmission | (EN_RT_BS AND (PIC_CARRIER_SHARING OR PIC_MCCH_SHARING)) OR ((EN_RT_MS OR EN_RT_DM_GATE) AND EN_RT_RADIO_LAYER) | BS equipment operating in discontinuous mode, or MS or DM-GATE equipment. |
| MS_or_GW_Class_A | (EN_RT_MS OR EN_RT_DM_GATE) AND PIC_CLASS_A | MS or DM-GATE equipment intended for class A environment. |
| MS_or_GW_Class_B | (EN_RT_MS OR EN_RT_DM_GATE) AND PIC_CLASS_B | MS or DM-GATE equipment intended for class B environment. |
| MS_or_GW_Class_E | (EN_RT_MS OR EN_RT_DM_GATE) AND PIC_CLASS_E | MS or DM-GATE equipment intended for class E environment. |
| BS_Class_A | EN_RT_BS AND PIC_CLASS_A | BS equipment intended for class A environment. |
| BS_Class_B | EN_RT_BS AND PIC_CLASS_B | BS equipment intended for class B environment. |
| MS_or_GW_Class_A_Protected_Data | (EN_RT_MS OR EN_RT_DM_GATE) AND PIC_CLASS_A AND PIX_PROTECTED_DATA | MS or DM-GATE equipment intended for class A environment supporting protected circuit mode data. |
| MS_or_GW_Class_B_Protected_Data | (EN_RT_MS OR EN_RT_DM_GATE) AND PIC_CLASS_B AND PIX_PROTECTED_DATA | MS or DM-GATE equipment intended for class B environment supporting protected circuit mode data. |
| MS_or_GW_Class_E_Protected_Data | (EN_RT_MS OR EN_RT_DM_GATE) AND PIC_CLASS_E AND PIX_PROTECTED_DATA | MS or DM-GATE equipment intended for class E environment supporting protected circuit mode data. |

| Test Case Selection Expression Definitions | | |
|--|---|---|
| Expression Name | Selection Expression | Comments |
| BS_Class_A_Protected_Data | EN_RT_BS AND PIC_CLASS_A AND PIX_PROTECTED_DATA | BS equipment intended for class A environment supporting protected circuit mode data. |
| BS_Class_B_Protected_Data | EN_RT_BS AND PIC_CLASS_B AND PIX_PROTECTED_DATA | BS equipment intended for class B environment supporting protected circuit mode data. |

5.3.3.1.3 Test suite parameter definitions for radio layer for BS, MS and DM-GATE

Table 20: Test suite parameter definitions for radio layer for BS, MS and DM-GATE

| Test Suite Parameter Declarations | | | |
|--|---------|----------------------|--|
| Parameter Name | Type | PICS/PIXIT Reference | Comments |
| EN_RT_BS | BOOLEAN | A.1.1, table A.1/1 | BS equipment. |
| EN_RT_MS | BOOLEAN | A.1.1, table A.1/2 | MS equipment. |
| EN_RT_DM_GATE | BOOLEAN | A.1.1, table A.1/3 | DM-GATE equipment. |
| EN_RT_RADIO_LAYER | BOOLEAN | A.1.2, table A.1/1 | Radio layer for BS, MS and DM-GATE equipment supported. |
| PIC_BS_MORE_POWER_CLASSES | BOOLEAN | A.2.1, table A.5/1 | BS equipment implementing more than one power class. |
| PIC_BS_SINGLE_TX | BOOLEAN | A.2.1, table A.5/2 | BS equipment with only one transmitter. |
| PIC_BS_NOT_COLLOCATED | BOOLEAN | A.2.1, table A.5/3 | BS equipment to be collocated with other radio equipment operating in the same frequency band. |
| PIC_CLASS_A | BOOLEAN | A.2.1, table A.5/4 | Equipment intended for class A environment. |
| PIC_CLASS_B | BOOLEAN | A.2.1, table A.5/5 | Equipment intended for class B environment. |
| PIC_CLASS_E | BOOLEAN | A.2.1, table A.5/6 | Equipment intended for class E environment. |
| PIC_CARRIER_SHARING | BOOLEAN | A.1.3, table A.3/2 | Equipment supporting Downlink Carrier Timesharing Transmission. |
| PIC_MCCH_SHARING | BOOLEAN | A.1.3, table A.3/3 | Equipment supporting Downlink Main Control Channel Timesharing Transmission. |
| PIX_PROTECTED_DATA | BOOLEAN | B.1, table B.2/1 | Equipment supporting protected circuit mode data. |
| Detailed Comments | | | |
| The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document. | | | |

5.3.3.2 Radio layer test specification for TMO-REP

5.3.3.2.1 Test case index for radio layer for TMO-REP

Table 21: Test case index for radio layer for TMO-REP

| Test Case Index | | | |
|---|--------------------------------|---------------------|--|
| Test case limit value reference (note 1) | Test method reference (note 2) | Selection reference | Description |
| 5.5.1.3 | 5.5.1.2 | TMO_REP | Spurious emissions and wideband noise. |
| 5.5.2.3 | 5.5.2.2 | TMO_REP | Intermodulation attenuation. |
| 5.5.3.3 | 5.5.3.2 | TMO_REP | Out of band gain. |
| 5.5.4.3 | 5.5.4.2 | TMO_REP | Output power. |
| 5.5.5.3 | 5.5.5.2 | TMO_REP | Adjacent channel power. |
| 5.5.6.3 | 5.5.6.2 | TMO_REP | Modulation accuracy. |
| NOTE 1: The test case limit values, as referenced, are specified in ETSI TS 101 789-1 [20], clause 5. | | | |
| NOTE 2: The test methods, as referenced, are specified in ETSI TS 101 789-1 [20], clause 5. | | | |

5.3.3.2.2 Test case selection expression definitions for radio layer for TMO-REP

Table 22: Test case selection expression definitions for radio layer for TMO-REP

| Test Case Selection Expression Definitions | | |
|--|-----------------------|------------------------------------|
| Expression Name | Selection Expression | Comments |
| TMO_REP | EN_RT_TMO_RADIO_LAYER | Radio layer for TMO-REP supported. |

5.3.3.2.3 Test suite parameter definitions for radio layer for TMO-REP

Table 23: Test suite parameter definitions for radio layer for TMO-REP

| Test Suite Parameter Declarations | | | |
|--|---------|----------------------|------------------------------------|
| Parameter Name | Type | PICS/PIXIT Reference | Comments |
| EN_RT_TMO_RADIO_LAYER | BOOLEAN | A.1.2, table A.1/2 | Radio layer for TMO-REP supported. |
| Detailed Comments | | | |
| The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document. | | | |

5.3.4 MAC layer test specification

5.3.4.1 Test suite structure for MAC layer

Table 24: Test suite structure for MAC layer

| Test Suite Structure | | |
|----------------------|---|---|
| Suite Name: | MAC | |
| Standards Reference: | ETSI TS 100 392-2 [4] | |
| PICS Reference: | ETS 300 392-14 [6] | |
| PIXIT Reference: | ETS 300 394-2-4 [12], annex B | |
| Test Method(s): | Embedded single party remote test method | |
| Comments: | | |
| Test Group Reference | Selection Reference | Test Group Objective |
| MAC/ | Applicable_to_all_IUTs | Check the dynamic requirements of the MAC layer. |
| MAC/CA/ | Applicable_to_all_IUTs | Check the basic capabilities of the MAC layer. |
| MAC/BV/ | Applicable_to_all_IUTs | Check the valid behaviour requirements of the MAC layer. |
| MAC/BV/MI/ | Minimum_mode_supported | Check the minimum mode functionality. |
| MAC/BV/RA/ | Applicable_to_all_IUTs | Check random access. |
| MAC/BV/RE/ | Applicable_to_all_IUTs | Check reserved access. |
| MAC/BI/ | Applicable_to_all_IUTs | Check invalid behaviour of the MAC layer. |
| MAC/BI/MI/ | Minimum_mode_not_supported_and_CC_supported | Check invalid behaviour of MS or GW not supporting minimum mode operations. |
| MAC/BI/RA/ | Applicable_to_all_IUTs | Check invalid behaviour of random access. |
| MAC/BI/ | Applicable_to_all_IUTs | Check the timers of the MAC layer. |

5.3.4.2 Test case index for MAC layer

Table 25: Test case index for MAC layer

| Test Case Index | | | |
|----------------------|--------------|---|--|
| Test Group Reference | Test Case Id | Selection Reference | Description |
| MAC/CA/ | MAC_CA_01 | Applicable_to_all_IUTs | Check the random access using an LLC acknowledgement. |
| MAC/BV/MI/ | MAC_BV_MI_01 | Minimum_mode_supported | Check the uplink transmission in minimum mode. |
| MAC/BV/MI/ | MAC_BV_MI_02 | Minimum_mode_supported | Check uplink transmission after end of minimum mode. |
| MAC/BV/RA/ | MAC_BV_RA_01 | Applicable_to_all_IUTs | Check the downlink transmission of a fragmented message. |
| MAC/BV/RE/ | MAC_BV_RE_01 | Applicable_to_all_IUTs | Check uplink transmission of a fragmented message when capacity has been granted. |
| MAC/BV/RE/ | MAC_BV_RE_02 | Applicable_to_all_IUTs | Check the delay mechanism of allocated uplink signalling capacity. |
| MAC/BV/RE/ | MAC_BV_RE_03 | Applicable_to_all_IUTs | Check uplink transmission of a fragmented message when capacity is requested when starting the transmission. |
| MAC/BI/MI/ | MAC_BI_MI_01 | Minimum_mode_not_supported_and_CC_supported | Check that an IUT not supporting minimum mode does not initiate random access during minimum mode. |
| MAC/BI/RA/ | MAC_BI_RA_01 | Applicable_to_all_IUTs | Check that the IUT does not transmit when no random access transmission is allowed for the IUT. |
| MAC/BI/RA/ | MAC_BI_RA_02 | Applicable_to_all_IUTs | Check that the IUT retries random access according to the ALOHA parameter Nu. |
| MAC/BI/ | MAC_TI_02 | Applicable_to_all_IUTs | Check that the random access attempt is repeated within WT downlink signalling opportunities. |

5.3.4.3 Test case selection expression definitions for MAC layer

Table 26: Test case selection expression definitions for MAC layer

| Test Case Selection Expression Definitions | | |
|---|---|---|
| Expression Name | Selection Expression | Comments |
| Applicable_to_all_IUTs | (EN_RT_MS OR EN_RT_DM_GATE) AND EN_RT_MAC_LAYER | MS or DM-GATE equipment supporting MAC. |
| Minimum_mode_supported | PIC_MINIMUM_MODE AND (EN_RT_MS OR EN_RT_DM_GATE) AND EN_RT_MAC_LAYER | MS or DM-GATE equipment supporting minimum mode. |
| Minimum_mode_not_supported_and_CC_supported | ((NOT PIC_MINIMUM_MODE) AND PIC_CALL_CONTROL) AND (EN_RT_MS OR EN_RT_DM_GATE) AND EN_RT_MAC_LAYER | MS or DM-GATE equipment not supporting minimum mode, but supporting CC. |

5.3.4.4 Test suite parameter definitions for MAC layer

Table 27: Test suite parameter definitions for MAC layer

| Test Suite Parameter Declarations | | | |
|--|---------------------|----------------------|--|
| Parameter Name | Type | PICS/PIXIT Reference | Comments |
| EN_RT_MS | BOOLEAN | A.1.1, table A.1/2 | MS equipment. |
| EN_RT_DM_GATE | BOOLEAN | A.1.1, table A.1/3 | DM-GATE equipment. |
| EN_RT_MAC_LAYER | BOOLEAN | A.1.2, table A.2/4 | MAC supported. |
| PIC_MINIMUM_MODE | BOOLEAN | A.1.3, table A.3/6 | Indicate whether minimum mode procedures are supported. |
| PIC_CALL_CONTROL | BOOLEAN | A.7.1, table A.43/1 | Indicate whether CMCE call control service is supported. |
| PIX_GSSI_1 | GSSI_Type | B.2, table B.4/1 | A group identifier. |
| PIX_GSSI_2 | GSSI_Type | B.2, table B.4/2 | A group identifier. |
| PIX_GSSI_3 | GSSI_Type | B.2, table B.4/3 | A group identifier. |
| PIX_SSI | SSI_Type | B.2, table B.4/4 | The ITSI value of the MS. |
| PIX_HOME_LA | MM_LocationAreaType | B.2, table B.4/5 | Home location area of the MS. |
| PIX_HOME_MCC | MM_MCC_Type | B.2, table B.4/6 | Home mobile country code of the MS. |
| PIX_HOME_MNC | MM_MNC_Type | B.2, table B.4/7 | Home mobile network code of the MS. |
| PIX_NEW_LOCATION_AREA_1 | MM_LocationAreaType | B.2, table B.4/8 | Unique registration area in the home MCC and MNC. |
| PIX_NEW_LOCATION_AREA_2 | MM_LocationAreaType | B.2, table B.4/9 | Unique registration area in the home MCC and MNC. |
| PIX_NEW_LOCATION_AREA_3 | MM_LocationAreaType | B.2, table B.4/10 | Unique registration area in the home MCC and MNC. |
| Detailed Comments | | | |
| The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document. | | | |

5.3.5 LLC layer test specification

5.3.5.1 Test suite structure for LLC layer

Table 28: Test suite structure for LLC layer

| Test Suite Structure | | |
|----------------------|--|---|
| Suite Name: | LLC | |
| Standards Reference: | ETSI TS 100 392-2 [4] | |
| PICS Reference: | ETS 300 392-14 [6] | |
| PIXIT Reference: | ETS 300 394-2-3 [11], annex B | |
| Test Method(s): | The embedded version of the remote single party testing method | |
| Comments: | | |
| Test Group Reference | Selection Reference | Test Group Objective |
| LLC/CA/ | Applicable_to_all_IUTs | To test the basic capabilities of the LLC entity of the IUT. |
| LLC/CA/BA/ | Applicable_to_all_IUTs | To test the basic capabilities of the LLC entity of the IUT, when operating in basic link, acknowledged data transfer mode. |
| LLC/BV/ | Applicable_to_all_IUTs | To test the valid behaviour of the LLC entity of the IUT. |
| LLC/BV/BA/ | Applicable_to_all_IUTs | To test the valid behaviour of the LLC entity of the IUT, when using the basic link, acknowledged data transfer. |
| LLC/BI/ | Applicable_to_all_IUTs | To test the invalid behaviour of the LLC entity of the IUT. |
| LLC/BI/BA/ | BLA_with_FCS_in_reception_supported | To test the invalid behaviour of the LLC entity of the IUT, when using the basic link, acknowledged data transfer. |
| LLC/TI/ | Applicable_to_all_IUTs | To test the protocol behaviour related to timers of the LLC entity of the IUT. |
| LLC/TI/BA/ | Applicable_to_all_IUTs | To test the protocol behaviour related to timers of the LLC entity of the IUT when using basic link, acknowledged service. |

5.3.5.2 Test case index for LLC layer

Table 29: Test case index for LLC layer

| Test Case Index | | | |
|----------------------|--------------|--|--|
| Test Group Reference | Test Case Id | Selection Reference | Description |
| LLC/CA/BA/ | LLC_CA_BA_01 | Applicable_to_all_IUTs | IUT transmits a BL-DATA or BL-DATA PDU with SDU number 0 at the first time after power up. |
| LLC/CA/BA/ | LLC_CA_BA_02 | Applicable_to_all_IUTs | IUT transmits BL-DATA correctly when no data is to be acknowledged. |
| LLC/CA/BA/ | LLC_CA_BA_03 | Applicable_to_all_IUTs | IUT accepts a BL-ACK without data as an acknowledgement to BL-DATA. |
| LLC/CA/BA/ | LLC_CA_BA_04 | Applicable_to_all_IUTs | IUT accepts a BL-ACK with data as an acknowledgement to BL-DATA. |
| LLC/CA/BA/ | LLC_CA_BA_05 | Applicable_to_all_IUTs | IUT accepts a BL-ADATA as an acknowledgement to BL-DATA. |
| LLC/CA/BA/ | LLC_CA_BA_06 | BLA_with_FCS_in_transmission_supported | IUT calculates the FCS correctly with basic link acknowledged data transfer PDUs. |
| LLC/CA/BA/ | LLC_CA_BA_07 | Applicable_to_all_IUTs | IUT sends an acknowledgement to BL-DATA with no FCS. |
| LLC/CA/BA/ | LLC_CA_BA_08 | Applicable_to_all_IUTs | IUT sends an acknowledgement to BL-DATA with correct FCS. |
| LLC/CA/BA/ | LLC_CA_BA_09 | Applicable_to_all_IUTs | IUT sends an acknowledgement to BL-ADATA. |
| LLC/BV/BA/ | LLC_BV_BA_01 | Applicable_to_all_IUTs | IUT increments the SDU numbers correctly in basic link acknowledged data transfer. |
| LLC/BV/BA/ | LLC_BV_BA_02 | Applicable_to_all_IUTs | IUT repeats an unacknowledged BL-DATA PDU up to the minimum value of N.252 times. |
| LLC/BV/BA/ | LLC_BV_BA_03 | Applicable_to_all_IUTs | IUT sends the acknowledgements with correct SDU numbers in acknowledged basic link. |
| LLC/BI/BA/ | LLC_BI_BA_01 | BLA_with_FCS_in_reception_supported | IUT does not accept a BL-DATA with incorrect FCS. |
| LLC/TI/BA/ | LLC_TI_BA_01 | Applicable_to_all_IUTs | IUT implements timer T.251 correctly. |

5.3.5.3 Test case selection expression definitions for LLC layer

Table 30: Test case selection expression definitions for LLC layer

| Test Case Selection Expression Definitions | | |
|--|--|--|
| Expression Name | Selection Expression | Comments |
| Applicable_to_all_IUTs | (EN_RT_MS OR EN_RT_DM_GATE) AND EN_RT_LLC_LAYER | MS or DM-GATE equipment supporting LLC. |
| BLA_with_FCS_in_reception_supported | PIC_BLA_FCS_IN_RECEPTION | Acknowledged basic link data reception implemented with optional FCS checking. |
| BLA_with_FCS_in_transmission_supported | PIC_BLA_FCS_IN_TRANSMISSION | Acknowledged basic link data transmission implemented with optional FCS calculation. |

5.3.5.4 Test suite parameter definitions for LLC layer

Table 31: Test suite parameter definitions for LLC layer

| Test Suite Parameter Declarations | | | |
|--|---------|----------------------|---|
| Parameter Name | Type | PICS/PIXIT Reference | Comments |
| EN_RT_MS | BOOLEAN | A.1.1, table A.1/2 | MS equipment. |
| EN_RT_DM_GATE | BOOLEAN | A.1.1, table A.1/3 | DM-GATE equipment. |
| EN_RT_LLC_LAYER | BOOLEAN | A.1.2, table A.2/5 | LLC supported. |
| PIC_BLA_FCS_IN_RECEPTION | BOOLEAN | A.4, table A.27/3 | Acknowledged basic link data reception implemented with optional FCS checking. |
| PIC_BLA_FCS_IN_TRANSMISSION | BOOLEAN | A.4, table A.27/4 | Acknowledged basic link data transmission implemented with optional FCS calculation. |
| PIC_N_252_MIN | INTEGER | A.4, table A.29/1 | The minimum value of LLC constant N.252 whether the stealing repeats are used or not. |
| PIC_T_251 | INTEGER | A.4, table A.30/1 | The value of LLC timer T.251. |
| Detailed Comments | | | |
| The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document. | | | |

5.3.6 Mobile Link Entity (MLE) test specification

5.3.6.1 Test suite structure for Mobile Link Entity (MLE)

Table 32: Test suite structure for Mobile Link Entity (MLE)

| Test Suite Structure | | |
|----------------------|--|--|
| Suite Name: | NWK | |
| Standards Reference: | ETSI TS 100 392-2 [4] | |
| PICS Reference: | ETS 300 392-14 [6] | |
| PIXIT Reference: | ETS 300 394-2-2 [10], annex B | |
| Test Method(s): | The embedded variant of the remote single party test method | |
| Comments: | | |
| Test Group Reference | Selection Reference | Test Group Objective |
| NWK/ | Applicable_to_all_IUTs | Check the dynamic behaviour requirements of the network layer protocols. |
| NWK/MLE/ | Applicable_to_all_IUTs | Check the dynamic behaviour requirements of the MLE protocol. |
| NWK/MLE/CA/ | Applicable_to_all_IUTs | Check basic MLE protocol capabilities. |
| NWK/MLE/CA/CR/ | Applicable_to_all_IUTs | Check cell re-selection basic features. |
| NWK/MLE/BV/ | Individual_or_group_call_or_neighbour_cell_enquiry_supported | Check MLE valid behaviour. |
| NWK/MLE/BV/CR/ | Individual_or_group_call_supported | Check cell re-selection procedures. |
| NWK/MLE/BV/NB/ | Neighbour_cell_enquiry_supported | Check neighbour cell enquiry procedure. |
| NWK/MLE/BV/RE/ | Individual_or_group_call_supported | Check CMCE call restoration after cell re-selection. |
| NWK/MLE/TI/ | Individual_call_supported | Check timers during cell re-selection. |

5.3.6.2 Test case index for Mobile Link Entity (MLE)

Table 33: Test case index for Mobile Link Entity (MLE)

| Test Case Index | | | |
|----------------------|------------------|--|--|
| Test Group Reference | Test Case Id | Selection Reference | Description |
| NWK/MLE/CA/CR/ | NWK_MLE_CA_CR_01 | Applicable_to_all_IUTs | Check initial cell selection. |
| NWK/MLE/CA/CR/ | NWK_MLE_CA_CR_02 | Applicable_to_all_IUTs | Check undeclared cell re-selection. |
| NWK/MLE/CA/CR/ | NWK_MLE_CA_CR_03 | Individual_call_supported | Check unannounced cell re-selection. |
| NWK/MLE/CA/CR/ | NWK_MLE_CA_CR_04 | Individual_call_supported | Check announced type 3 cell re-selection. |
| NWK/MLE/BV/CR/ | NWK_MLE_BV_CR_01 | Individual_call_supported | Check cell re-selection when a radio link failure occurs. |
| NWK/MLE/BV/CR/ | NWK_MLE_BV_CR_02 | Group_call_supported | Check unannounced cell re-selection with CMCE call restoration. |
| NWK/MLE/BV/CR/ | NWK_MLE_BV_CR_03 | Individual_call_supported | Check announced type 3 cell re-selection with CMCE call restoration. |
| NWK/MLE/BV/NB/ | NWK_MLE_BV_NB_02 | Individual_call_and_neighbour_cell_enquiry_supported | Check that neighbour cell enquiry is used only when supported by the serving cell. |
| NWK/MLE/BV/RE/ | NWK_MLE_BV_RE_01 | Group_call_supported | Check CMCE call restoration when cell re-selection within the same location area. |
| NWK/MLE/BV/RE/ | NWK_MLE_BV_RE_03 | Individual_call_supported | Check CMCE call restoration that is failed by the tester. |
| NWK/MLE/TI/ | NWK_MLE_TI_01 | Individual_call_supported | Check type 3 cell re-selection with time-out of timer T.370. |
| NWK/MLE/TI/ | NWK_MLE_TI_02 | Individual_call_supported | Check announced type 3 re-selection with BS controlled delay. |

5.3.6.3 Test case selection expression definitions for Mobile Link Entity (MLE)

Table 34: Test case selection expression definitions for Mobile Link Entity (MLE)

| Test Case Selection Expression Definitions | | |
|--|---|---|
| Expression Name | Selection Expression | Comments |
| Applicable_to_all_IUTs | (EN_RT_MS OR EN_RT_DM_GATE) AND EN_RT_MLE_LAYER | MS or DM-GATE equipment supporting MLE. |
| Individual_or_group_call_or_neighbour_cell_enquiry_supported | PIC_INDIVIDUAL_CALL_SUPPORTED OR PIC_GROUP_CALL_SUPPORTED OR PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED | IUT supports individual or group call, or neighbour cell enquiry. |
| Individual_or_group_call_supported | PIC_INDIVIDUAL_CALL_SUPPORTED OR PIC_GROUP_CALL_SUPPORTED | IUT supports individual or group call. |
| Neighbour_cell_enquiry_supported | PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED | IUT supports neighbour cell enquiry. |
| Individual_call_supported | PIC_INDIVIDUAL_CALL_SUPPORTED | IUT supports individual call. |
| Group_call_supported | PIC_GROUP_CALL_SUPPORTED | IUT supports group call. |
| Individual_call_and_neighbour_cell_enquiry_supported | (PIC_INDIVIDUAL_CALL_SUPPORTED AND PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED) | IUT supports individual call and neighbour cell enquiry. |

5.3.6.4 Test suite parameter definitions for Mobile Link Entity (MLE)

Table 35: Test suite parameter definitions for Mobile Link Entity (MLE)

| Test Suite Parameter Declarations | | | |
|--|-------------------|----------------------|---|
| Parameter Name | Type | PICS/PIXIT Reference | Comments |
| EN_RT_MS | BOOLEAN | A.1.1, table A.1/2 | MS equipment. |
| EN_RT_DM_GATE | BOOLEAN | A.1.1, table A.1/3 | DM-GATE equipment. |
| EN_RT_MLE_LAYER | BOOLEAN | A.1.2, table A.2/6 | MLE supported. |
| PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED | BOOLEAN | A.5, table A.31/3 | Neighbour cell enquiry supported. |
| PIC_INDIVIDUAL_CALL_SUPPORTED | BOOLEAN | A.7.1, table A.44/1 | IUT supports individual call. |
| PIC_GROUP_CALL_SUPPORTED | BOOLEAN | A.7.1, table A.44/2 | IUT supports group call. |
| PIX_CHANNEL_1 | MainCarrierNoType | B.3, table B.5/1 | Define the channel that the MS initially tries to camp on to. |
| PIX_CHANNEL_2 | MainCarrierNoType | B.3, table B.5/2 | Another channel that the MS is capable of receiving. |
| PIX_COUNTRY_CODE | MCC_Type | B.3, table B.5/3 | Home country code of the MS. |
| PIX_NETWORK_CODE | MNC_Type | B.3, table B.5/4 | Home network code of the MS. |
| PIX_LOCATION_AREA | LocationAreaType | B.3, table B.5/5 | Home location area of the MS. |
| PIX_NEW_LOCATION_AREA | LocationAreaType | B.3, table B.5/6 | A location area outside the MS home location area. |
| PIX_MS_ITSI | ITSI_Type | B.3, table B.5/7 | ITSI of the IUT. |
| Detailed Comments | | | |
| The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document. | | | |

5.3.7 Mobility Management (MM) test specification

5.3.7.1 Mobility Management (MM) test specification for MS

5.3.7.1.1 Test suite structure for Mobility Management (MM) for MS

Table 36: Test suite structure for Mobility Management (MM) for MS

| Test Suite Structure | | |
|----------------------|---|--|
| Suite Name: | NWK | |
| Standards Reference: | ETSI TS 100 392-2 [4] | |
| PICS Reference: | ETS 300 392-14 [6] | |
| PIXIT Reference: | ETS 300 394-2-2 [10], annex B | |
| Test Method(s): | The embedded variant of the remote single party test method | |
| Comments: | | |
| Test Group Reference | Selection Reference | Test Group Objective |
| NWK/ | Applicable_to_all_IUTs | Check the dynamic behaviour requirements of the network layer protocols. |
| NWK/MM/ | Applicable_to_all_IUTs | Check the dynamic behaviour requirements of the MM protocol. |
| NWK/MM/CA/ | Applicable_to_all_IUTs | To test the basic capabilities of the MM module of the IUT. |
| NWK/MM/BV/ | Applicable_to_all_IUTs | To test the valid behaviour of the MM module of the IUT. |
| NWK/MM/BV/RE/ | Applicable_to_all_IUTs | To test the valid registration behaviour of the MM module of the IUT. |
| NWK/MM/BV/AT/ | SwMI_or_IUT_initiated_group_ID_handling_supported | To test the valid attachment/detachment of group identities behaviour of the MM module of the IUT. |

5.3.7.1.2 Test case index for Mobility Management (MM) for MS

Table 37: Test case index for Mobility Management (MM) for MS

| Test Case Index | | | |
|----------------------|-----------------|--|---|
| Test Group Reference | Test Case Id | Selection Reference | Description |
| NWK/MM/CA/ | NWK_MM_CA_02 | Applicable_to_all_IUTs | Power on with registration capability. |
| NWK/MM/CA/ | NWK_MM_CA_03 | Direct_call_setup_supported | User initiated registration capability. |
| NWK/MM/BV/RE/ | NWK_MM_BV_RE_01 | Applicable_to_all_IUTs | Registration to home network. |
| NWK/MM/BV/RE/ | NWK_MM_BV_RE_02 | Applicable_to_all_IUTs | Roaming registration. |
| NWK/MM/BV/RE/ | NWK_MM_BV_RE_07 | Applicable_to_all_IUTs | SwMI initiated registration. |
| NWK/MM/BV/AT/ | NWK_MM_BV_AT_01 | SwMI_initiated_group_ID_handling_with_report_request_supported | Check SwMI initiated attachment of group IDs. |
| NWK/MM/BV/AT/ | NWK_MM_BV_AT_02 | SwMI_initiated_group_ID_handling_with_report_request_supported | Check SwMI initiated detachment of group IDs. |
| NWK/MM/BV/AT/ | NWK_MM_BV_AT_03 | IUT_initiated_group_ID_handling_supported | Check IUT initiated attachment of group IDs. |
| NWK/MM/BV/AT/ | NWK_MM_BV_AT_04 | IUT_initiated_group_ID_handling_supported | Check IUT initiated detachment of group IDs. |

5.3.7.1.3 Test case selection expression definitions for Mobility Management (MM) for MS

Table 38: Test case selection expression definitions for Mobility Management (MM) for MS

| Test Case Selection Expression Definitions | | |
|--|---|--|
| Expression Name | Selection Expression | Comments |
| Applicable_to_all_IUTs | EN_RT_MS AND EN_RT_MM_MS | MS equipment supporting MM. |
| SwMI_or_IUT_initiated_group_ID_handling_supported | PIC_MM_SWMI_INITIATED_GID_REPORT_REQUEST_SUPPORTED OR PIC_MM_IUT_INITIATED_GID_HANDLING_SUPPORTED | IUT supports SwMI initiated group ID attachment/detachment report request or IUT initiated group ID attachment/detachment. |
| Direct_call_setup_supported | PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED | IUT supports direct set-up signalling. |
| SwMI_initiated_group_ID_handling_with_report_request_supported | PIC_MM_SWMI_INITIATED_GID_REPORT_REQUEST_SUPPORTED | IUT supports SwMI initiated group ID attachment/detachment report request. |
| IUT_initiated_group_ID_handling_supported | PIC_MM_IUT_INITIATED_GID_HANDLING_SUPPORTED | IUT supports IUT initiated group ID attachment/detachment. |

5.3.7.1.4 Test suite parameter definitions for Mobility Management (MM) for MS

Table 39: Test suite parameter definitions for Mobility Management (MM) for MS

| Test Suite Parameter Declarations | | | |
|--|------------------|----------------------|---|
| Parameter Name | Type | PICS/PIXIT Reference | Comments |
| EN_RT_MS | BOOLEAN | A.1.1, table A.1/2 | MS equipment. |
| EN_RT_MM_MS | BOOLEAN | A.1.2, table A.2/7 | MM for MS supported |
| PIC_MM_IUT_INITIATED_GID_HANDLING_SUPPORTED | BOOLEAN | A.6.1, table A.39/2 | IUT initiated group ID attachment/detachment. |
| PIC_MM_SWMI_INITIATED_GID_REPORT_REQUEST_SUPPORTED | BOOLEAN | A.6.1, table A.39/3 | SwMI initiated group ID attachment/detachment report request. |
| PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED | BOOLEAN | A.7.1, table A.44/2 | Direct set-up signalling is supported. |
| PIX_COUNTRY_CODE | MCC_Type | B.4, table B.6/1 | Home country code of the MS. |
| PIX_NETWORK_CODE | MNC_Type | B.4, table B.6/2 | Home network code of the MS. |
| PIX_LOCATION_AREA | LocationAreaType | B.4, table B.6/3 | Home location area of the MS. |
| PIX_NEW_LOCATION_AREA | LocationAreaType | B.4, table B.6/4 | A location area outside the MS home location area. |
| PIX_MS_TEI | TEI_Type | B.4, table B.6/5 | TEI of the IUT, 60 bits. |
| PIX_MS_ITSI | ITSI_Type | B.4, table B.6/6 | ITSI of the IUT. |
| Detailed Comments | | | |
| The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document. | | | |

5.3.7.2 Mobility Management (MM) test specification for DM-GATE

5.3.7.2.1 Test suite structure for Mobility Management (MM) for DM-GATE

Table 40: Test suite structure for Mobility Management (MM) for DM-GATE

| Test Suite Structure | | |
|----------------------|---|---|
| Suite Name: | DMO_GATE | |
| Standards Reference: | ETS 300 396-5 [18] | |
| PICS Reference: | ETS 300 396-8-3 [19] | |
| PIXIT Reference: | ETS 300 394-4-10 [14], annex B | |
| Test Method(s): | The embedded variant of the remote single party test method | |
| Comments: | | |
| Test Group Reference | Selection Reference | Test Group Objective |
| DMO_GATE/ | Applicable_to_Gateways | Check the dynamic behaviour requirements of the network layer protocols of a Gateway. |
| DMO_GATE/GWMM/ | GWMM_ILU | To test the dynamic behaviour requirements of the GWMM protocol. |
| DMO_GATE/GWMM/CA/ | GWMM_ILU | To test the basic capabilities of the GWMM module of the IUT. |
| DMO_GATE/GWMM/BV/ | GWMM_ILU | To test the valid behaviour of the GWMM module of the IUT. |

5.3.7.2.2 Test case index for Mobility Management (MM) for DM-GATE

Table 41: Test case index for Mobility Management (MM) for DM-GATE

| Test Case Index | | | |
|----------------------|---------------------|---------------------|--|
| Test Group Reference | Test Case Id | Selection Reference | Description |
| DMO_GATE/GWMM/CA/ | DMO_GATE_GWMM_CA_02 | GWMM_ILU | MM initiates registration. |
| DMO_GATE/GWMM/BV/ | DMO_GATE_GWMM_BV_01 | GWMM_ILU | Check U-LOCATION UPDATE DEMAND PDU parameters. |
| DMO_GATE/GWMM/BV/ | DMO_GATE_GWMM_BV_04 | GWMM_ILU | Check U-LOCATION UPDATE DEMAND PDU when having received the D-LOCATION UPDATE COMMAND PDU. |

5.3.7.2.3 Test case selection expression definitions for Mobility Management (MM) for DM-GATE

Table 42: Test case selection expression definitions for Mobility Management (MM)

| Test Case Selection Expression Definitions | | |
|--|--|---|
| Expression Name | Selection Expression | Comments |
| Applicable_to_Gateways | EN_RT_DM_GATE AND EN_RT_GWMM | DM-GATE equipment supporting GWMM. |
| GWMM_ILU | EN_RT_GWMM AND PIX_IMP_U_LOCATION_UPDATE_PDU | True if GWMM supported and it is possible to cause the IUT to send a U-LOCATION UPDATE PDU. |

5.3.7.2.4 Test suite parameter definitions for Mobility Management (MM) for DM-GATE

Table 43: Test suite parameter definitions for Mobility Management (MM) for DM-GATE

| Test Suite Parameter Declarations | | | |
|--|-----------|----------------------|--|
| Parameter Name | Type | PICS/PIXIT Reference | Comments |
| EN_RT_DM_GATE | BOOLEAN | A.1.1, table A.1/3 | DM-GATE equipment. |
| EN_RT_GWMM | BOOLEAN | A.1.2, table A.2/8 | GWMM supported. |
| PIX_MS_ITSI | ITSI_Type | B.4, table B.7/1 | ITSI of the IUT. |
| PIX_IMP_U_LOCATION_UPDATE_PDU | BOOLEAN | B.4, table B.7/2 | It is possible to cause the IUT to send a U-LOCATION UPDATE PDU. |
| Detailed Comments | | | |
| The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document. | | | |

5.3.8 Circuit Mode Control Entity (CMCE) test specification

5.3.8.1 Circuit Mode Control Entity (CMCE) test specification for MS

5.3.8.1.1 Test suite structure for Circuit Mode Control Entity (CMCE) for MS

Table 44: Test suite structure for Circuit Mode Control Entity (CMCE) for MS

| Test Suite Structure | | |
|-----------------------|---|---|
| Suite Name: | NWK | |
| Standards Reference: | ETSI TS 100 392-2 [4] | |
| PICS Reference: | ETS 300 392-14 [6] | |
| PIXIT Reference: | ETS 300 394-2-2 [10], annex B | |
| Test Method(s): | The embedded variant of the remote single party test method | |
| Comments: | | |
| Test Group Reference | Selection Reference | Test Group Objective |
| NWK/ | Applicable_to_all_IUTs | Check the dynamic behaviour requirements of the network layer protocols. |
| NWK/CMCE/ | CMCE_supported | To test the behaviour of the CMCE module of the IUT. |
| NWK/CMCE/IC/ | Individual_call_supported | To test the behaviour of the CMCE module of the IUT, when operating in individual call mode. |
| NWK/CMCE/IC/CA/ | Individual_call_supported | To test the basic capabilities of the CMCE module of the IUT, when operating in individual call mode. |
| NWK/CMCE/IC/CA/SU/ | Call_setup_supported | To test the basic capabilities of the CMCE module of the IUT during call set-up, when operating in individual call mode. |
| NWK/CMCE/IC/CA/CD/ | Individual_call_supported | To test the basic capabilities of the CMCE module of the IUT during call disconnection, when operating in individual call mode. |
| NWK/CMCE/IC/BV/ | Call_setup_supported | To test the valid behaviour of the CMCE module of the IUT, when operating in individual call mode. |
| NWK/CMCE/IC/BV/OC/ | Call_setup_supported | To test the valid behaviour of the CMCE module of the IUT during outgoing call, when operating in individual call mode. |
| NWK/CMCE/IC/BV/CC/ | Call_setup_supported | To test the valid behaviour of the CMCE module of the IUT during Colliding calls, when operating in individual call mode. |
| NWK/CMCE/IC/BV/MA/ | Call_setup_supported | To test the valid behaviour of the CMCE module of the IUT during call maintenance, when operating in individual call mode. |
| NWK/CMCE/IC/BV/MA/TC/ | Call_setup_supported | To test the valid behaviour of the CMCE module of the IUT during transmission control, when operating in individual call mode. |
| NWK/CMCE/IC/TV/ | Call_setup_supported | To test the timers of the CMCE module of the IUT, when operating in individual call mode. |
| NWK/CMCE/GC/ | Group_call_supported | To test the behaviour of the CMCE module of the IUT, when operating in group call mode. |
| NWK/CMCE/GC/CA/ | Group_call_supported | To test the basic capabilities of the CMCE module of the IUT, when operating in group call mode. |
| NWK/CMCE/GC/CA/SU/ | Group_call_supported | To test the basic capabilities of the CMCE module of the IUT during call set-up, when operating in group call mode. |
| NWK/CMCE/GC/CA/CD/ | Group_call_supported | To test the basic capabilities of the CMCE module of the IUT during call disconnection, when operating in group call mode. |
| NWK/CMCE/GC/BV/ | Group_call_supported | To test the valid behaviour of the CMCE module of the IUT, when operating in group call mode. |
| NWK/CMCE/GC/BV/OC/ | Group_call_supported | To test the valid behaviour of the CMCE module of the IUT during outgoing call, when operating in group call mode. |
| NWK/CMCE/GC/BV/CC/ | Group_call_supported | To test the valid behaviour of the CMCE module of the IUT during colliding calls, when operating in group call mode. |

| Test Suite Structure | | |
|---|----------------------|---|
| Suite Name: NWK | | |
| Standards Reference: ETSI TS 100 392-2 [4] | | |
| PICS Reference: ETS 300 392-14 [6] | | |
| PIXIT Reference: ETS 300 394-2-2 [10], annex B | | |
| Test Method(s): The embedded variant of the remote single party test method | | |
| Comments: | | |
| Test Group Reference | Selection Reference | Test Group Objective |
| NWK/CMCE/GC/BV/MA/ | Group_call_supported | To test the valid behaviour of the CMCE module of the IUT during call maintenance, when operating in group call mode. |
| NWK/CMCE/GC/BV/MA/TC/ | Group_call_supported | To test the valid behaviour of the CMCE module of the IUT during transmission control, when operating in group call mode. |
| NWK/CMCE/GC/BV/MA/CR/ | Group_call_supported | To test the valid behaviour of the CMCE module of the IUT during call restoration, when operating in group call mode. |
| NWK/CMCE/GC/BV/CD/ | Group_call_supported | To test the valid behaviour of the CMCE module of the IUT during call disconnection, when operating in group call mode. |
| NWK/CMCE/GC/TC/ | Group_call_supported | To test the timers of the CMCE module of the IUT, when operating in group call mode. |

5.3.8.1.2 Test case index for Circuit Mode Control Entity (CMCE) for MS

Table 45: Test case index for Circuit Mode Control Entity (CMCE) for MS

| Test Case Index | | | |
|-----------------------|-------------------------|--|--|
| Test Group Reference | Test Case Id | Selection Reference | Description |
| NWK/CMCE/IC/CA/SU/ | NWK_CMCE_IC_CA_SU_02 | Hook_signalling_supported | Incoming individual call to IUT, Hook signalling, verify IUT sends U-ALERT and U-CONNECT. |
| NWK/CMCE/IC/CA/SU/ | NWK_CMCE_IC_CA_SU_03 | Direct_signalling_supported | Incoming individual call to IUT, Direct signalling, verify IUT sends U-CONNECT. |
| NWK/CMCE/IC/CA/SU/ | NWK_CMCE_IC_CA_SU_04 | Hook_signalling_supported | IUT sends outgoing call using U-SETUP, accepts D-ALERT in response. |
| NWK/CMCE/IC/CA/SU/ | NWK_CMCE_IC_CA_SU_05 | Direct_signalling_supported | IUT sends U-SETUP for Direct signalling, individual mode outgoing call, accepts D-CONNECT. |
| NWK/CMCE/IC/CA/CD/ | NWK_CMCE_IC_CA_CD_01 | User_initiated_individual_call_disconnection_supported | Incoming call from tester, IUT initiates clearing, sending U-DISCONNECT. |
| NWK/CMCE/IC/CA/CD/ | NWK_CMCE_IC_CA_CD_02 | Individual_call_supported | Incoming call from tester, call released by tester with D-RELEASE. |
| NWK/CMCE/IC/CA/CD/ | NWK_CMCE_IC_CA_CD_03 | Individual_call_supported | Incoming call from tester, tester initiates clearing sending D-DISCONNECT, expects U-RELEASE in response. |
| NWK/CMCE/IC/BV/OC/ | NWK_CMCE_IC_BV_OC_01 | Hook_signalling_supported | IUT establishes outgoing call with hook signalling, tester replies with D-CALL-PROCEEDING, D-ALERT and then D-CONNECT. |
| NWK/CMCE/IC/BV/OC/ | NWK_CMCE_IC_BV_OC_02 | Hook_signalling_supported | IUT establishes outgoing call with hook signalling, tester replies with D-CONNECT. |
| NWK/CMCE/IC/BV/OC/ | NWK_CMCE_IC_BV_OC_03 | Direct_signalling_supported | IUT establishes outgoing call with direct signalling, tester replies with D-CALL-PROCEEDING followed by D-CONNECT. |
| NWK/CMCE/IC/BV/CC/ | NWK_CMCE_IC_BV_CC_01 | Hook_signalling_supported | Call Collision between 2 calls using hook signalling - IUT keeps one and releases the other. |
| NWK/CMCE/IC/BV/CC/ | NWK_CMCE_IC_BV_CC_02 | Direct_signalling_supported | Call Collision between 2 calls using direct signalling - IUT keeps one and releases the other. |
| NWK/CMCE/IC/BV/MA/TC/ | NWK_CMCE_IC_BV_MA_TC_01 | Direct_signalling_supported | Direct signalling call established, check IUT's u-plane is transmitting. |

| Test Case Index | | | |
|-----------------------|-------------------------|--|---|
| Test Group Reference | Test Case Id | Selection Reference | Description |
| NWK/CMCE/IC/BV/MA/TC/ | NWK_CMCE_IC_BV_MA_TC_02 | Call_setup_supported | Call established with TX permission for IUT, IUT sends U-TX-CEASED and stops transmitting. |
| NWK/CMCE/IC/BV/MA/TC/ | NWK_CMCE_IC_BV_MA_TC_03 | Call_setup_supported | Call established with TX permission for IUT, IUT sends TX-CEASED, receives TX-GRANTED but granted to another user, check IUT doesn't transmit. |
| NWK/CMCE/IC/BV/MA/TC/ | NWK_CMCE_IC_BV_MA_TC_04 | Call_setup_supported | Call established with no TX permission for IUT, IUT requests and is granted TX permission, check IUT does transmit. |
| NWK/CMCE/IC/BV/MA/TC/ | NWK_CMCE_IC_BV_MA_TC_05 | Call_setup_supported | Call established to IUT, no TX permission granted, IUT requests TX permission, is refused, check IUT is still receiving. |
| NWK/CMCE/IC/BV/MA/TC/ | NWK_CMCE_IC_BV_MA_TC_06 | Hook_signalling_supported | IUT sends outgoing call indicating Hook signalling, receives D-ALERT and D-CONNECT with TX permission granted to another user. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_01 | Hook_signalling_supported | Test Duration of T301, IUT should clear call if it doesn't receive D-CONNECT-ACK before T301 expires, during incoming individual call, hook signalling. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_02 | Hook_signalling_supported | Test Duration of T310 for individual call, hook signalling. IUT should clear call if call doesn't end before T310 expires. T310 set by tester. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_03 | Direct_signalling_supported | Test Duration of T301, IUT should clear call if it doesn't receive D-CONNECT-ACK before T301 expires, during incoming individual call, direct signalling. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_04 | Direct_signalling_supported | Test Duration of T310 for individual call, direct signalling. IUT should clear call if call doesn't end before T310 expires. T310 set by tester. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_05 | Hook_signalling_supported | Test duration of T303, IUT should clear call if it doesn't receive a response to its U-SETUP before T303 expires, during outgoing individual call using hook signalling. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_06 | Hook_signalling_supported | Test duration of T302, IUT should clear call if it doesn't receive a D-CONNECT in response to its U-SETUP before T302 expires, during outgoing individual call using hook signalling. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_07 | Direct_signalling_supported | Test duration of T303, IUT should clear call if it doesn't receive a response to its U-SETUP before T303 expires, during outgoing individual call using direct signalling. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_08 | Direct_signalling_supported | Test duration of T302, IUT should clear call if it doesn't receive a D-CONNECT in response to its U-SETUP before T302 expires, during outgoing individual call using direct signalling. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_10 | Hook_signalling_supported | Receive outgoing hook signalling call, send a D-ALERT in response, but before continuing with a D-CONNECT, restart the call set-up timer T302 by sending a D-INFO. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_11 | Call_setup_supported | Test call restoration timer T306. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_12 | User_initiated_individual_call_disconnection_supported | Test call disconnect timer T308. |
| NWK/CMCE/IC/TI/ | NWK_CMCE_IC_TI_13 | Call_setup_supported | Establish incoming call, receive a U-CONNECT in response, respond with a D-CONNECT-ACK, restart the call time-out T310 by sending a D-INFO, and check that T310 is reset. |
| NWK/CMCE/GC/CA/SU/ | NWK_CMCE_GC_CA_SU_01 | Group_call_supported | IUT establishes outgoing point to multipoint call with direct signalling, tester replies with D-CALL-PROCEEDING followed by D-CONNECT. |

| Test Case Index | | | |
|-----------------------|-------------------------|----------------------|--|
| Test Group Reference | Test Case Id | Selection Reference | Description |
| NWK/CMCE/GC/CA/CD/ | NWK_CMCE_GC_CA_CD_01 | Group_call_supported | Call disconnection capability test. |
| NWK/CMCE/GC/BV/OC/ | NWK_CMCE_GC_BV_OC_01 | Group_call_supported | Outgoing call, normal case. |
| NWK/CMCE/GC/BV/CC/ | NWK_CMCE_GC_BV_CC_01 | Group_call_supported | Colliding calls. |
| NWK/CMCE/GC/BV/MA/TC/ | NWK_CMCE_GC_BV_MA_TC_01 | Group_call_supported | Test behaviour after giving TX Granted permission in D-CONNECT. |
| NWK/CMCE/GC/BV/MA/TC/ | NWK_CMCE_GC_BV_MA_TC_02 | Group_call_supported | Call established with TX permission for IUT, IUT sends U-TX-CEASED and stops transmitting. |
| NWK/CMCE/GC/BV/MA/TC/ | NWK_CMCE_GC_BV_MA_TC_03 | Group_call_supported | Call established with TX permission for IUT, IUT sends TX-CEASED, receives TX-GRANTED but granted to another user, check IUT doesn't transmit. |
| NWK/CMCE/GC/BV/MA/TC/ | NWK_CMCE_GC_BV_MA_TC_04 | Group_call_supported | Check that IUT can make TX request and accepts TX Granted. |
| NWK/CMCE/GC/BV/MA/TC/ | NWK_CMCE_GC_BV_MA_TC_05 | Group_call_supported | Check that IUT behaves correctly having received TX Not Granted to its TX Grant request. |
| NWK/CMCE/GC/BV/MA/TC/ | NWK_CMCE_GC_BV_MA_TC_06 | Group_call_supported | Check IUT behaviour after D-TX INTERRUPT where TX is granted to another user. |
| NWK/CMCE/GC/BV/MA/TC/ | NWK_CMCE_GC_BV_MA_TC_07 | Group_call_supported | Check IUT behaviour after D-TX WAIT reception. |
| NWK/CMCE/GC/BV/MA/CR/ | NWK_CMCE_GC_BV_MA_CR_01 | Group_call_supported | Call restoration. |
| NWK/CMCE/GC/BV/CD/ | NWK_CMCE_GC_BV_CD_01 | Group_call_supported | Call released by tester with D-RELEASE. |
| NWK/CMCE/GC/TI/ | NWK_CMCE_GC_TI_01 | Group_call_supported | Test call length timer T310 by pressing the IUT tangent. |
| NWK/CMCE/GC/TI/ | NWK_CMCE_GC_TI_02 | Group_call_supported | Test call initiated timer T303. |
| NWK/CMCE/GC/TI/ | NWK_CMCE_GC_TI_03 | Group_call_supported | Test call set-up timer T302. |
| NWK/CMCE/GC/TI/ | NWK_CMCE_GC_TI_04 | Group_call_supported | Test call length timer T310 using outgoing call. |
| NWK/CMCE/GC/TI/ | NWK_CMCE_GC_TI_05 | Group_call_supported | Test call time-out timer T310 reset after D-INFO PDU. |
| NWK/CMCE/GC/TI/ | NWK_CMCE_GC_TI_06 | Group_call_supported | Test call restoration timer T307. |
| NWK/CMCE/GC/TI/ | NWK_CMCE_GC_TI_07 | Group_call_supported | Test call transmission timer T311. |

5.3.8.1.3 Test case selection expression definitions for Circuit Mode Control Entity (CMCE) for MS

Table 46: Test case selection expression definitions for Circuit Mode Control Entity (CMCE) for MS

| Test Case Selection Expression Definitions | | |
|--|---|--|
| Expression Name | Selection Expression | Comments |
| Applicable_to_all_IUTs | EN_RT_MS | MS equipment. |
| CMCE_supported | EN_RT_MS AND EN_RT_CMCE_SUPPORTED | MS equipment supporting CMCE. |
| Individual_call_supported | PIC_INDIVIDUAL_CALL_SUPPORTED | IUT supports individual call. |
| Call_setup_supported | PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED OR PIC_ON_OFF_HOOK_SIGNALLING_SUPPORTED | IUT supports call setup. |
| Group_call_supported | PIC_GROUP_CALL_SUPPORTED | IUT supports group call. |
| Hook_signalling_supported | PIC_ON_OFF_HOOK_SIGNALLING_SUPPORTED | IUT supports on/off hook signalling. |
| Direct_signalling_supported | PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED | IUT supports direct setup signalling. |
| User_initiated_individual_call_disconnection_supported | PIC_USER_INITIATED_INDIVIDUAL_CALL_DISCONNECTION_SUPPORTED | IUT supports user initiated individual call disconnection. |

5.3.8.1.4 Test suite parameter definitions for Circuit Mode Control Entity (CMCE) for MS

Table 47: Test suite parameter definitions for Circuit Mode Control Entity (CMCE) for MS

| Test Suite Parameter Declarations | | | |
|--|-----------|----------------------|--|
| Parameter Name | Type | PICS/PIXIT Reference | Comments |
| EN_RT_MS | BOOLEAN | A.1.1, table A.1/2 | MS equipment. |
| EN_RT_CMCE_SUPPORTED | BOOLEAN | A.1.2, table A.2/9 | CMCE for MS supported. |
| PIC_ON_OFF_HOOK_SIGNALLING_SUPPORTED | BOOLEAN | A.7.1, table A.44/1 | On/off hook signalling is supported. |
| PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED | BOOLEAN | A.7.1, table A.44/2 | Direct set-up signalling is supported. |
| PIC_INDIVIDUAL_CALL_SUPPORTED | BOOLEAN | A.7.1, table A.44/1 | IUT supports individual call. |
| PIC_GROUP_CALL_SUPPORTED | BOOLEAN | A.7.1, table A.44/2 | IUT supports group call. |
| PIC_USER_INITIATED_INDIVIDUAL_CALL_DISCONNECTION_SUPPORTED | BOOLEAN | A.7.1, table A.52/1 | IUT supports user initiated individual call disconnection. |
| PIX_T303 | INTEGER | B.5, table B.8/1 | Duration of the T303 in the IUT. |
| PIX_T308 | INTEGER | B.5, table B.8/2 | Duration of the T308 in the IUT. |
| PIX_T311 | INTEGER | B.5, table B.8/3 | Duration of the T311 in the IUT. |
| PIX_MS_ITSI | ITSI_Type | B.5, table B.8/4 | ITSI of the IUT. |
| Detailed Comments | | | |
| The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document. | | | |

5.3.8.2 Circuit Mode Control Entity (CMCE) test specification for DM-GATE

5.3.8.2.1 Test suite structure for Circuit Mode Control Entity (CMCE) for DM-GATE

Table 48: Test suite structure for Circuit Mode Control Entity (CMCE) of a Gateway

| Test Suite Structure | | |
|---|----------------------------|---|
| Suite Name: DMO_GATE | | |
| Standards Reference: ETS 300 396-5 [18] | | |
| PICS Reference: ETS 300 396-8-3 [19] | | |
| PIXIT Reference: ETS 300 394-4-10 [14], annex B | | |
| Test Method(s): The embedded variant of the remote single party test method | | |
| Comments: | | |
| Test Group Reference | Selection Reference | Test Group Objective |
| DMO_GATE/ | Applicable_to_Gateways | Check the dynamic behaviour requirements of the network layer protocols of a Gateway. |
| DMO_GATE/GWCC/ | GWCC_supported | To test the dynamic behaviour requirements of the GWCC protocol. |
| DMO_GATE/GWCC/CM/ | Circuit_Mode_Call | To test the valid behaviour of the GWCC module when operating a CM call. |
| DMO_GATE/GWCC/CM/BV/ | Circuit_Mode_Call | To test the valid behaviour of the GWCC module. |
| DMO_GATE/GWCC/CM/BV/SU/ | Circuit_Mode_Call | To test the basic capabilities of the GWCC module of the IUT during call setup. |
| DMO_GATE/GWCC/CM/BV/CD/ | Circuit_Mode_Call | To test the basic capabilities of the GWCC module of the IUT during call disconnection. |
| DMO_GATE/GWCC/CM/BV/CC/ | Circuit_Mode_Call | To test the basic capabilities of the GWCC module of the IUT during call collision. |
| DMO_GATE/GWCC/CM/BV/CT/ | Circuit_Mode_Call | To test the basic capabilities of the GWCC module of the IUT during call transmission. |
| DMO_GATE/GWCC/CM/BV/TI/ | Circuit_Mode_Call | To test the timers of the GWCC module of the IUT. |

5.3.8.2.2 Test case index for Circuit Mode Control Entity (CMCE) for DM-GATE

Table 49: Test case index for Circuit Mode Control Entity (CMCE) for DM-GATE

| Test Case Index | | | |
|-------------------------|---------------------------|-----------------------------------|--|
| Test Group Reference | Test Case Id | Selection Reference | Description |
| DMO_GATE/GWCC/CM/BV/SU/ | DMO_GATE_GWCC_CM_BV_SU_01 | Outgoing_CM_Call | Individual outgoing call set-up, TX granted to the Gateway. |
| DMO_GATE/GWCC/CM/BV/SU/ | DMO_GATE_GWCC_CM_BV_SU_02 | Outgoing_CM_Call | Individual outgoing call set-up, TX granted to the called party. |
| DMO_GATE/GWCC/CM/BV/SU/ | DMO_GATE_GWCC_CM_BV_SU_10 | Outgoing_CM_Call | Individual outgoing call set-up (without D-CALL PROCEEDING), TX granted to no party. |
| DMO_GATE/GWCC/CM/BV/CD/ | DMO_GATE_GWCC_CM_BV_CD_01 | Outgoing_CM_Call | Check disconnection from master DM-MS. |
| DMO_GATE/GWCC/CM/BV/CD/ | DMO_GATE_GWCC_CM_BV_CD_02 | Circuit_Mode_Call | Check disconnection initiated by the SwMI. |
| DMO_GATE/GWCC/CM/BV/CD/ | DMO_GATE_GWCC_CM_BV_CD_03 | Circuit_Mode_Call | Check release initiated by the network. |
| DMO_GATE/GWCC/CM/BV/CC/ | DMO_GATE_GWCC_CM_BV_CC_01 | Incoming_Outgoing_Individual_Call | Individual call collision. |
| DMO_GATE/GWCC/CM/BV/CC/ | DMO_GATE_GWCC_CM_BV_CC_02 | Incoming_Outgoing_Group_Call | Group call collision. |
| DMO_GATE/GWCC/CM/BV/CT/ | DMO_GATE_GWCC_CM_BV_CT_01 | Outgoing_CM_Call_ITC | End of transmission from DM-MS, or pre-emption from Gate for ongoing call. |
| DMO_GATE/GWCC/CM/BV/CT/ | DMO_GATE_GWCC_CM_BV_CT_02 | Outgoing_CM_Call | End of transmission from V+D. |
| DMO_GATE/GWCC/CM/BV/CT/ | DMO_GATE_GWCC_CM_BV_CT_03 | Incoming_Individual_Call | Incoming V+D transmission during DM channel reservation TX granted to another party. |
| DMO_GATE/GWCC/CM/BV/CT/ | DMO_GATE_GWCC_CM_BV_CT_04 | Incoming_Individual_Call | Transmission interruption during channel occupation (Gateway master). |
| DMO_GATE/GWCC/CM/BV/CT/ | DMO_GATE_GWCC_CM_BV_CT_05 | Incoming_Individual_Call_ITD | Demand for transmission from DM-MS during channel reservation. |
| DMO_GATE/GWCC/CM/BV/CT/ | DMO_GATE_GWCC_CM_BV_CT_06 | Incoming_Individual_Call | V+D permission to transmit withdrawn. |
| DMO_GATE/GWCC/CM/BV/CT/ | DMO_GATE_GWCC_CM_BV_CT_08 | Incoming_Individual_Call_ITD | Demand for transmission from DM-MS during channel occupation. |
| DMO_GATE/GWCC/CM/BV/CT/ | DMO_GATE_GWCC_CM_BV_CT_09 | Outgoing_CM_Call | Transmission interruption during channel occupation (Gateway slave). |
| DMO_GATE/GWCC/CM/BV/TI/ | DMO_GATE_GWCC_CM_BV_TI_02 | Incoming_Individual_Call | Check T310 time out. |
| DMO_GATE/GWCC/CM/BV/TI/ | DMO_GATE_GWCC_CM_BV_TI_04 | Outgoing_CM_Call | Check T303 time out. |
| DMO_GATE/GWCC/CM/BV/TI/ | DMO_GATE_GWCC_CM_BV_TI_05 | Outgoing_CM_Call | Check T302 time out. |

5.3.8.2.3 Test case selection expression definitions for Circuit Mode Control Entity (CMCE) for DM-GATE

Table 50: Test case selection expression definitions for Circuit Mode Control Entity (CMCE) for DM-GATE

| Test Case Selection Expression Definitions | | |
|--|--|---|
| Expression Name | Selection Expression | Comments |
| Applicable_to_Gateways | EN_RT_DM_GATE | DM-GATE equipment. |
| GWCC_supported | EN_RT_DM_GATE AND EN_RT_GWCC | DM-GATE equipment supporting GWCC. |
| Circuit_Mode_Call | PIC_CIRCUIT_MODE_CALL | IUT supports circuit mode call. |
| Outgoing_CM_Call | PIC_INCOMING_DM_CALL AND PIX_IMP_U_SETUP_PDU | True if the IUT supports outgoing call |
| Incoming_Outgoing_Individual_Call | PIC_ACCEPT_INDIVIDUAL_CALL AND PIC_INCOMING_VD_CALL AND PIC_INCOMING_DM_CALL AND PIX_IMP_U_SETUP_PDU | True if the IUT accepts incoming individual and outgoing call from V+D. |
| Incoming_Outgoing_Group_Call | PIC_ACCEPT_GROUP_CALL AND PIC_INCOMING_VD_CALL AND PIC_INCOMING_DM_CALL AND PIX_IMP_U_SETUP_PDU | True if the IUT accepts incoming group and outgoing call from V+D. |
| Outgoing_CM_Call_ITC | PIC_INCOMING_DM_CALL AND PIX_IMP_U_SETUP_PDU AND PIX_IMP_U_TX_CEASED_PDU | True if the IUT supports outgoing call (i.e. incoming call from DM-MS) and it is possible to cause the IUT to send a U-TX CEASED PDU. |
| Incoming_Individual_Call | PIC_ACCEPT_INDIVIDUAL_CALL AND PIC_INCOMING_VD_CALL | True if the IUT accepts incoming individual call from V+D. |
| Incoming_Individual_Call_ITD | PIC_ACCEPT_INDIVIDUAL_CALL AND PIC_INCOMING_VD_CALL AND PIX_IMP_U_TX_DEMAND_PDU | True if the IUT accepts incoming individual call from V+D and it is possible to cause the IUT to send a U-TX DEMAND PDU. |

5.3.8.2.4 Test suite parameter definitions for Circuit Mode Control Entity (CMCE) for DM-GATE

Table 51: Test suite parameter definitions for Circuit Mode Control Entity (CMCE) for DM-GATE

| Test Suite Parameter Declarations | | | |
|--|-----------|----------------------|---|
| Parameter Name | Type | PICS/PIXIT Reference | Comments |
| EN_RT_DM_GATE | BOOLEAN | A.1.1, table A.1/3 | DM-GATE equipment. |
| EN_RT_GWCC | BOOLEAN | A.1.2, table A.2/10 | GWCC supported. |
| PIC_CIRCUIT_MODE_CALL | BOOLEAN | A.7.2, table A.56/1 | IUT supports circuit mode call. |
| PIC_ACCEPT_INDIVIDUAL_CALL | BOOLEAN | A.7.2, table A.57/1 | IUT accepts individual circuit mode calls. |
| PIC_ACCEPT_GROUP_CALL | BOOLEAN | A.7.2, table A.57/2 | IUT accepts group circuit mode calls. |
| PIC_INCOMING_VD_CALL | BOOLEAN | A.7.2, table A.57/3 | IUT accepts incoming calls from V+D. |
| PIC_INCOMING_DM_CALL | BOOLEAN | A.7.2, table A.57/4 | IUT accepts incoming calls from DM-MS. |
| PIX_T303 | INTEGER | B.5, table B.9/1 | Duration of the T303 in the IUT in seconds. |
| PIX_MS_ITSI | ITSI_Type | B.5, table B.9/2 | ITSI of the IUT. |
| PIX_DM_MS_MNI | MNI_Type | B.5, table B.9/3 | Value of the MNI of the DM-MS. |
| PIX_DM_MS_SSI | SSI_Type | B.5, table B.9/4 | Value of the SSI of the DM-MS. |
| PIX_IMP_U_SETUP_PDU | BOOLEAN | B.5, table B.9/5 | It is possible to cause the IUT to initiate an outgoing call. |
| PIX_IMP_U_TX_DEMAND_PDU | BOOLEAN | B.5, table B.9/6 | It is possible to cause the IUT to send a U-TX DEMAND PDU. |
| PIX_IMP_U_TX_CEASED_PDU | BOOLEAN | B.5, table B.9/7 | It is possible to cause the IUT to send a U-TX CEASED PDU. |
| Detailed Comments | | | |
| The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document. | | | |

5.3.9 Security test specification

5.3.9.1 Test suite structure for V+D security

Table 52: Test suite structure for V+D security

| Test Suite Structure | | |
|---|---------------------|--|
| Suite Name: Security | | |
| Standards Reference: ETSI TS 100 392-7 [5] | | |
| PICS Reference: ETS 300 394-5-1 [15] | | |
| PIXIT Reference: ETS 300 394-5-3 [17], annex C | | |
| Test Method(s): The embedded variant of the remote single party test method | | |
| Comments: | | |
| Test Group Reference | Selection Reference | Test Group Objective |
| Sec_VD/ | VD_Security_Supp | To test the behaviour of the Voice + Data security module of the IUT. |
| Sec_VD/SED/ | VD_SED_Supp | To test the V+D security module of the IUT, when operating the enable and disable procedures at layer 3. |
| Sec_VD/SED/BV/ | VD_SED_Supp | To test the V+D security module of the IUT, when operating the valid behaviour of the enable and disable procedures. |
| Sec_VD/SED/BV/TD/ | VD_SED_Supp | To test the V+D security module of the IUT, when operating the temporary disable procedures. |
| Sec_VD/SED/BV/PD/ | VD_SED_Supp | To test the V+D security module of the IUT, when operating the permanent disabling procedures. |

5.3.9.2 Test case index for V+D security

Table 53: Test case index for V+D security

| Test Case Index | | | |
|----------------------|---------------------|-----------------------------------|--|
| Test Group Reference | Test Case Id | Selection Reference | Description |
| Sec_VD/SED/TD/ | Sec_VD_SED_BV_TD_01 | VD_SED_Auth_Temp_Disable_Supp | Temporary disable terminal (TEI) with authentication. |
| Sec_VD/SED/TD/ | Sec_VD_SED_BV_TD_05 | VD_SED_Non_Auth_Temp_Disable_Supp | Temporary disable equipment (ITSI) without authentication. |
| Sec_VD/SED/PD/ | Sec_VD_SED_BV_PD_02 | VD_SED_Auth_Perm_Disable_Supp | Permanently disable terminal (ITSI) with authentication. |

5.3.9.3 Test case selection expression definitions for V+D security

Table 54: Test case selection expression definitions for V+D security

| Test Case Selection Expression Definitions | | |
|--|--|---|
| Expression Name | Selection Expression | Comments |
| VD_Security_Supp | (EN_RT_MS OR EN_RT_DM_GATE) AND (EN_RT_SEC_SUPP AND PIX_VD_L3) | MS or DM-GATE equipment supporting V+D security. |
| VD_SED_Supp | PIC_VD_SED_SUPP AND PIX_VD_L3 AND PIX_IMP_LOCATION_UPDATE_Type | Enable/Disable procedures supported. |
| VD_SED_Auth_Perm_Disable_Supp | PIC_VD_SED_Perm_Disable_Auth_SUPP AND PIX_VD_L3 AND PIX_IMP_LOCATION_UPDATE_Type | Permanent disable with authentication procedure supported. |
| VD_SED_Auth_Temp_Disable_Supp | PIC_VD_SED_Temp_Disable_Auth_SUPP AND PIX_VD_L3 AND PIX_IMP_LOCATION_UPDATE_Type | Temporary disable with authentication procedure supported. |
| VD_SED_Non_Auth_Disable_Supp | PIC_VD_SED_Temp_Disable_Non_Auth_SUPP AND PIX_VD_L3 AND PIX_IMP_LOCATION_UPDATE_Type | Temporary disable without authentication procedure supported. |

5.3.9.4 Test suite parameter definitions for V+D security

Table 55: Test suite parameter definitions for V+D security

| Test Suite Parameter Declarations | | | |
|--|---------------------|----------------------|--|
| Parameter Name | Type | PICS/PIXIT Reference | Comments |
| EN_RT_MS | BOOLEAN | A.1.1, table A.1/2 | MS equipment. |
| EN_RT_DM_GATE | BOOLEAN | A.1.1, table A.1/3 | DM-GATE equipment. |
| EN_RT_SEC_SUPP | BOOLEAN | A.1.2, table A.2/11 | V+D security supported. |
| PIC_VD_SED_SUPP | BOOLEAN | A.8, table A.61/2 | Secure enable/disable supported. |
| PIC_VD_SED_Perm_Disable_Auth_SUPP | BOOLEAN | A.8, table A.63/1 | True if the IUT supports permanent disabling with authentication. |
| PIC_VD_SED_Temp_Disable_Auth_SUPP | BOOLEAN | A.8, table A.63/2 | True if the IUT supports temporary disabling with authentication. |
| PIC_VD_SED_Temp_Disable_Non_Auth_SUPP | BOOLEAN | A.8, table A.63/3 | True if the IUT supports temporary disabling without authentication. |
| PIX_IMP_LOCATION_UPDATE_Type | BOOLEAN | B.6, table B.10/1 | Sending of U-LOCATION UPDATE PDU implemented. |
| PIX_VD_L3 | BOOLEAN | B.6, table B.11/1 | Testing the layer 3 of the security Voice + Data protocol. |
| PIX_MS_ITSI | TSI_Type | B.6, table B.12/1 | ITSI of the IUT. |
| PIX_TEI | TEI_Type | B.6, table B.12/2 | TEI. |
| PIX_RAND1 | RandomChallengeType | B.6, table B.13/1 | Value of Random challenge (RAND1). |
| PIX_RS | RandomSeedType | B.6, table B.13/2 | Value of the Random seed (RS). |
| PIX_RES2 | ResponseValueType | B.6, table B.13/3 | Value of the result RES2. |
| Detailed Comments | | | |
| The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document. | | | |

Annex A (normative): The EN Requirements Table (EN-RT)

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the EN-RT proforma in this annex so that it can be used for its intended purposes and may further publish the completed EN-RT.

The EN Requirements Table (EN-RT) serves a number of purposes, as follows:

- it provides a tabular summary of all the requirements;
- it shows the status of each EN-R, whether it is essential to implement in all circumstances (Mandatory), or whether the requirement is dependent on the supplier having chosen to support a particular optional service or functionality (Optional). In particular it enables the EN-Rs associated with a particular optional service or functionality to be grouped and identified;
- when completed in respect of a particular equipment it provides a means to undertake the static assessment of conformity with the EN.

Key to columns:

| | |
|---------------------------|--|
| No. | Table entry number; |
| EN Reference | Reference number of conformance requirement within the present document; |
| EN-R | Title of conformance requirement within the present document; |
| Standard reference | References to standard where the requirements are specified; |
| Status | Status of the entry as follows: <ul style="list-style-type: none"> m Mandatory, shall be implemented under all circumstances. o Optional, may be provided, but if provided shall be implemented in accordance with the requirements. o.n This status is used for mutually exclusive or selectable options among a set. The integer "n" shall refer to a unique group of options within the EN-RT. The requirement for each numbered group is defined immediately following the table. ci Conditional - the requirement on the capability ("m", "o", "n" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression, which is defined immediately following the table. n Not a requirement. The entry is outside the scope of the present document and it is not a requirement that the feature is supported. n/a Not applicable - in the given context, it is impossible to use the capability. |
| Support | This is the column for the manufacturer's declaration of whether the particular item is supported by the implementation. For the purposes of the static assessment of conformity with the EN, the column shall be completed in respect of a particular equipment as follows: <ul style="list-style-type: none"> y Yes, the item is implemented. n No, the item is not implemented. n/a Not applicable - in the given context, it is impossible to use the capability. |

| | |
|-------------------------|---|
| Allowed values | Specifies the allowed (range of) values for a parameter (only used when a declaration of supported values is required for the purposes of testing). |
| Supported values | Is the column for the manufacturer's statement of the implemented (range of) values for a parameter (only to be filled in when allowed values are specified). |
| Transmission | Specifies whether the support of sending a message, frame or information element is required. |
| Reception | Specifies whether the support of receiving a message, frame or information element is required. |

A.1 General capabilities of equipment

A.1.1 Type of equipment

Table A.1: Type of equipment

| No. | Equipment type | Standard reference | Status | Support |
|-----|------------------------------|--------------------|--------|---------|
| 1 | TETRA Base Station (BS) | ETSI TS 100 392-2 | o.1 | |
| 2 | TETRA Mobile Station (MS) | ETSI TS 100 392-2 | o.1 | |
| 3 | TETRA DMO Gateway (DM-GATE) | ETS 300 396-5 | o.1 | |
| 4 | TETRA TMO Repeater (TMO-REP) | ETSI TS 101 789-1 | o.1 | |

o.1: It is mandatory to support at least one of these items.

A.1.2 Protocol layers

Table A.2: Protocol layers

| No. | Protocol layers | Standard reference (note) | Status | Support |
|-----|--|---------------------------|--------|---------|
| 1 | Radio Layer for BS, MS and DM-GATE | 5, 6 | c201 | |
| 2 | Radio Layer for TMO-REP | ETSI TS 101 789-1 | c202 | |
| 3 | Lower Medium Access Control (Lower MAC) | 8 | c203 | |
| 4 | Upper Medium Access Control (Upper MAC) | 21, 23 | c203 | |
| 5 | Logical Link Control (LLC) | 21, 22 | c203 | |
| 6 | Mobile Link Entity (MLE) | 17, 18 | c203 | |
| 7 | Mobility Management (MM) for MS | 15, 16 | c204 | |
| 8 | Mobility Management (MM) for Gateway | 16, ETS 300 396-5 | c205 | |
| 9 | Circuit Mode Control Entity (CMCE) for MS | 11, 12, 13, 14 | c206 | |
| 10 | Circuit Mode Control Entity (CMCE) for Gateway | 14, ETS 300 396-5 | c205 | |
| 11 | Security | ETSI TS 100 392-7 | c203 | |

NOTE: The protocols are specified in ETSI TS 100 392-2 under the given clause(s), unless otherwise stated.

c201: IF A.1/1 or A.1/2 or A.1/3-- BS or MS or DM-GATE
THEN m
ELSE n

c202: IF A.1/4 -- TMO-REP
THEN m
ELSE n

c203: IF A.1/2 or A.1/3 -- MS or DM-GATE
THEN m
ELSE n

- c204: IF A.1/2 -- MS
THEN m
ELSE n
- c205: IF A.1/3 -- DM-GATE
THEN m
ELSE n
- c206: IF A.1/2 -- MS
THEN o
ELSE n

A.1.3 Modes of operation

Table A.3: Modes of operation

| Prerequisite: A.1/1 or A.1/2 or A.1/3 -- BS or MS or DM-GATE | | | | |
|--|--|--|--------|---------|
| No. | Capability or feature name | Standard reference (note) | Status | Support |
| 1 | Downlink Continuous Transmission (D-CT) | 4.11.1.1 | c301 | |
| 2 | Downlink Carrier Timesharing Transmission (D-CTT) | 4.11.1.2, 19.3.4, 19.3.5.1, 23.3.2.1, 23.3.2.3 | c302 | |
| 3 | Downlink Main Control Channel Timesharing Transmission (D-MCCTT) | 4.11.1.3, 19.3.4, 19.3.5.2, 23.3.2.2 | c302 | |
| 4 | Multiple Slot Transmission (U-MST) | 4.11.1.4, 23.3.1.4 | o | |
| 5 | Normal Control Mode (NCM) | 4.11.2.1, 19.3.1 | m | |
| 6 | Minimum Control Mode (MCM) | 4.11.2.2, 19.3.3, 23.3.3 | o | |

NOTE: The capabilities or features are specified in ETSI TS 100 392-2 under the given clause(s).

- o.2: It is mandatory to support at least one of these items.
- c301: IF A.1/1 -- BS
THEN o.2
ELSE m
- c302: IF A.1/1 -- BS
THEN o.2
ELSE n

A.1.4 Environmental profile

Table A.4: Environmental profile

| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
|-----|--------------|---|-----------------------------|--------|---------|
| 1 | 4.1 | Compliance with all requirements within the boundary limits of the declared operational environmental profile | 4.1 | m | |

NOTE 1: This EN-R is justified under article 3.2 of the R&TTE Directive [1].
NOTE 2: The requirement is specified in the present document under the given clause.

A.2 Radio layer requirements

A.2.1 Radio layer capabilities and features

Table A.5: Radio layer capabilities and features

| Prerequisite: A.2/1 Radio Layer for BS, MS and DM-GATE | | | | |
|--|--|---------------------------|--------|---------|
| No. | Capability or feature name | Standard reference (note) | Status | Support |
| 1 | BS equipment implementing more than one power class | 6.4.1.1 | c501 | |
| 2 | BS equipment with only one transmitter | 6.4.6.2 | c501 | |
| 3 | BS equipment not intended to be collocated with other radio equipment operating in the same frequency band | 6.4.6.2 | c501 | |
| 4 | Class A equipment | 6.6.2 | o.3 | |
| 5 | Class B equipment | 6.6.2 | o.3 | |
| 6 | Class E equipment | 6.6.2 | c502 | |

NOTE: The capabilities or features are specified in ETSI TS 100 392-2 under the given clause.

o.3: It is mandatory to support one of these items.

c501: IF A.1/1 -- BS
 THEN o
 ELSE n/a

c502: IF A.1/2 or A.1/3 -- MS or DM-GATE
 THEN o.3
 ELSE n/a

A.2.2 Radio layer requirements associated with frequency and channel allocation

Table A.6: RF carrier frequency bands and duplex spacing for BS, MS and DM-GATE

| Prerequisite: A.2/1 Radio Layer for BS, MS and DM-GATE | | | | | | | | | | |
|--|---|-----------------------|---------------|----------------------|--|--------|---------|-----------------------|----------|----------------------|
| No. | EN Reference | EN-R (note 1) | | | Standard reference (note 2) | Status | Support | Supported values | | |
| | | Frequency range (MHz) | | Duplex spacing (MHz) | | | | Frequency range (MHz) | | Duplex spacing (MHz) |
| | | Uplink | Downlink | | | | | Uplink | Downlink | |
| 1 | 4.2.1/3, 4.2.1/4, 4.2.1/5, 4.2.1/1 | 380 to 385 | 390 to 395 | 10 | 6.2, ETSI TS 100 392-15, clauses 5 and 6, ERC/DEC/(96)01 | o.4 | | | | |
| 2 | 4.2.1/3, 4.2.1/4, 4.2.1/5, 4.2.1/2 | 410 to 420 | 420 to 430 | 10 | 6.2, ETSI TS 100 392-15, clauses 5 and 6, ERC/DEC/(96)04 | o.4 | | | | |
| 3 | 4.2.1/3, 4.2.1/4, 4.2.1/5, 4.2.1/2 | 870 to 876 | 915 to 921 | 45 | 6.2, ETSI TS 100 392-15, clauses 5 and 6, ERC/DEC/(96)04 | o.4 | | | | |
| 4 | 4.2.1/3, 4.2.1/4, 4.2.1/5, 4.2.1/2 | 450 to 460 | 460 to 470 | 10 | 6.2, ETSI TS 100 392-15, clauses 5 and 6, ERC/DEC/(96)04 | o.4 | | | | |
| 5 | 4.2.1/3, 4.2.1/4, 4.2.1/5, 4.2.1/2 | 385 to 390 | 395 to 399,99 | 10 | 6.2, ETSI TS 100 392-15, clauses 5 and 6, ERC/DEC/(96)04 | o.4 | | | | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The parameters are specified in ETSI TS 100 392-2 under the given clause(s), unless otherwise stated.

o.4: It is mandatory to support at least one of these items.

Table A.7: RF carrier frequency bands for TMO-REP

| Prerequisite A.2/2 -- Radio Layer for TMO-REP | | | | | | | | | | |
|---|--------------|-----------------------|---------------|----------------------|--------------------|--------|---------|-----------------------|----------|----------------------|
| No. | EN Reference | EN-R (note) | | | Standard reference | Status | Support | Supported values | | |
| | | Frequency range (MHz) | | Duplex spacing (MHz) | | | | Frequency range (MHz) | | Duplex spacing (MHz) |
| | | Uplink | Downlink | | | | | Uplink | Downlink | |
| 1 | 4.2.1/1 | 380 to 385 | 390 to 395 | | ERC/DEC/(96)01 | o.5 | | | | |
| 2 | 4.2.1/2 | 410 to 420 | 420 to 430 | | ERC/DEC/(96)04 | o.5 | | | | |
| 3 | 4.2.1/2 | 870 to 876 | 915 to 921 | | ERC/DEC/(96)04 | o.5 | | | | |
| 4 | 4.2.1/2 | 450 to 460 | 460 to 470 | | ERC/DEC/(96)04 | o.5 | | | | |
| 5 | 4.2.1/2 | 385 to 390 | 395 to 399,99 | | ERC/DEC/(96)04 | o.5 | | | | |

NOTE: These EN-Rs are justified under article 3.2 of the R&TTE Directive.

o.5: It is mandatory to support at least one of these items.

Table A.8: Frequency synchronization and channel allocation

| Prerequisite: A.2/1 Radio Layer for BS, MS and DM-GATE | | | | | |
|--|--------------|------------------------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.1/6 | BS requirement for synchronization | 7.5 | c801 | |
| 2 | 4.2.1/7 | MS requirement for synchronization | 7.6 | c802 | |
| 3 | 4.2.1/8 | Mapping of BCCH and CLCH | 9.5.2 | c802 | |
| 4 | 4.2.1/9 | Mapping of SCH | 9.5.3 | c802 | |
| 5 | 4.2.1/10 | Mapping of TCH and STCH | 9.5.4 | c802 | |
| 6 | 4.2.1/11 | Mapping of AACH | 9.5.5 | c802 | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive [1].
NOTE 2: The requirement is specified in ETSI TS 100 392-2 [4] under the given clause.

c801: IF A.1/1 -- BS
THEN m
ELSE n/a

c802: IF A.1/2 or A.1/3 -- MS or DM-GATE
THEN m
ELSE n/a

A.2.3 Radio layer requirements associated with transmitting functions

Table A.9: Output power and power classes

| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support | Allowed power classes | Supported power classes |
|-----|--------------|--------------------------------------|---------------------------------|--------|---------|-----------------------|-------------------------|
| 1 | 4.2.2/1 | BS output power and power class | 6.4.1.1 | c901 | | [1..10] | |
| 2 | 4.2.2/2 | MS output power and power class | 6.4.1.2 | c902 | | [1..4, 1L..4L] | |
| 3 | 4.2.2/23 | TMO-REP output power and power class | ETSI TS 101 789-1, clause 4.2.4 | c903 | | [1..4, 1L..4L] | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The parameters are specified in ETSI TS 100 392-2 under the given clause, unless otherwise stated.

c901: IF A.1/1 -- BS
THEN m
ELSE n/a

c902: IF A.1/2 or A.1/3 -- MS or DM-GATE
THEN m
ELSE n/a

c903: IF A.1/4 -- TMO-REP
THEN m
ELSE n/a

Table A.10: Other transmitter requirements for BS, MS and DM-GATE

| Prerequisite: A.2/1 | | Radio Layer for BS, MS and DM-GATE | | | |
|---------------------|--------------|---|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.2/3 | Nominal MS power control levels | 6.4.1.2 | c1001 | |
| 2 | 4.2.2/4 | RF power control | 10.2 | c1001 | |
| 3 | 4.2.2/5 | Measurement of received signal strength | 10.3.1 | c1001 | |
| 4 | 4.2.2/6 | MS open loop power control | 23.4.4.2 | c1001 | |
| 5 | 4.2.2/7 | Unwanted conducted emission over the useful part of the burst | 6.4.2.2.1 | m | |
| 6 | 4.2.2/8 | Unwanted conducted emission during the switching transients | 6.4.2.2.2 | c1002 | |
| 7 | 4.2.2/9 | Unwanted conducted emission during CLCH and BLCH | 6.4.2.4 | m | |
| 8 | 4.2.2/10 | Unwanted conducted emission far from the carrier | 6.4.2.3 | m | |
| 9 | 4.2.2/11 | Unwanted conducted emission in the non-transmit state | 6.4.2.5 | c1003 | |
| 10 | 4.2.2/12 | Unwanted radiated emissions | 6.4.3 | m | |
| 11 | 4.2.2/13 | BS transmitter intermodulation attenuation | 6.4.6.2 | c1004 | |
| 12 | 4.2.2/14 | MS transmitter intermodulation attenuation | 6.4.6.3 | c1001 | |
| 13 | 4.2.2/15 | Intra-BS transmitter intermodulation attenuation | 6.4.7 | c1005 | |
| 14 | 4.2.2/16 | BS output power time mask | 6.4.5 | c1006 | |
| 15 | 4.2.2/17 | MS output power time mask | 6.4.5 | c1001 | |
| 16 | 4.2.2/18 | BS output power in non-active transmit state | 6.4.5.1 | c1006 | |
| 17 | 4.2.2/19 | MS output power in non-active transmit state | 6.4.5.2 | c1001 | |
| 18 | 4.2.2/20 | Timing of transmitted signal | 7.4 | c1001 | |
| 19 | 4.2.2/21 | Modulation type | 5.2 | m | |
| 20 | 4.2.2/22 | Modulation accuracy | 6.6.1.2 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The requirement is specified in ETSI TS 100 392-2 under the given clause.

c1001: IF A.1/2 or A.1/3 -- MS or DM-GATE
THEN m
ELSE n/a

c1002: IF (A.1/1 AND (A.3/2 OR A.3/3)) OR A.1/2 or A.1/3
THEN m -- BS operating discontinuous mode, or MS or DM-GATE
ELSE n/a

c1003: IF (A.1/1 AND NOT A.3/1) OR A.1/2 or A.1/3
THEN m -- BS not operating continuous mode, or MS or DM-GATE
ELSE n/a

c1004: IF A.1/1 -- BS
THEN m
ELSE n/a

c1005: IF A.1/1 AND NOT A.5/2
THEN m -- BS with more than one transmitter
ELSE n/a

c1006: IF A.1/1 AND (A.3/2 OR A.3/3)
THEN m -- BS operating discontinuous mode
ELSE n/a

Table A.11: Other transmitter requirements for TMO-REP

| Prerequisite: A.2/2 -- Radio Layer for TMO-REP | | | | | |
|--|--------------|---------------------------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.2/24 | Out of band gain | 4.2.3.2 | m | |
| 2 | 4.2.2/25 | Adjacent channel power | 4.2.5 | m | |
| 3 | 4.2.2/26 | Spurious emissions and wideband noise | 4.2.1 | m | |
| 4 | 4.2.2/27 | Intermodulation attenuation | 4.2.2 | m | |
| 5 | 4.2.2/28 | Modulation accuracy | 4.2.6 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The requirement is specified in ETSI TS 101 789-1 under the given clause.

A.2.4 Radio layer requirements associated with receiving functions

Table A.12: Receiver requirements for BS, MS and DM-GATE

| Prerequisite: A.2/1 Radio Layer for BS, MS and DM-GATE | | | | | |
|--|--------------|--|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.3/1 | Spurious response rejection | 6.5.2.2 | m | |
| 2 | 4.2.3/2 | Intermodulation response rejection | 6.5.3.2 | m | |
| 3 | 4.2.3/3 | Blocking characteristics | 6.5.1.2 | m | |
| 4 | 4.2.3/4 | Unwanted conducted emission in reception | 6.5.4.2 | c1203 | |
| 5 | 4.2.3/5 | Unwanted radiated emission | 6.5.5 | c1203 | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive [1].
NOTE 2: The requirement is specified in ETSI TS 100 392-2 [4] under the given clause.

c1203: IF (A.1/1 AND NOT A.3/1) OR A.1/2 or A.1/3
THEN m -- BS not operating continuous mode or MS or DM-GATE
ELSE n/a

A.2.5 Radio layer requirements associated with control and monitoring functions

Table A.13: Network interface bit error requirements for BS, MS and DM-GATE

| Prerequisite: A.2/1 Radio Layer for BS, MS and DM-GATE | | | | | |
|--|--------------|---|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.1/1 | Nominal error rate | 6.6.2.1 | m | |
| 2 | 4.2.4.1/2 | Dynamic reference sensitivity performance | 6.6.2.2 | m | |
| 3 | 4.2.4.1/3 | BS dynamic reference sensitivity performance | 6.6.2.2.1 | c1301 | |
| 4 | 4.2.4.1/4 | MS dynamic reference sensitivity performance | 6.6.2.2.2 | c1302 | |
| 5 | 4.2.4.1/5 | Receiver performance at reference interference ratios | 6.6.2.3 | m | |
| 6 | 4.2.4.1/6 | BS receiver performance at reference interference ratios | 6.6.2.3.1 | c1301 | |
| 7 | 4.2.4.1/7 | MS receiver performance at reference interference ratios | 6.6.2.3.2 | c1302 | |
| 8 | 4.2.4.1/8 | Static reference sensitivity performance | 6.6.2.4 | m | |
| 9 | 4.2.4.1/9 | BS static reference sensitivity performance | 6.6.2.4.1 | c1301 | |
| 10 | 4.2.4.1/10 | MS static reference sensitivity performance | 6.6.2.4.2 | c1302 | |
| 11 | 4.2.4.1/11 | MS receiver performance for synchronization burst acquisition | 6.6.2.5 | c1302 | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The requirement is specified in ETSI TS 100 392-2 under the given clause.

c1301: IF A.1/1 -- BS
THEN m
ELSE n/a

c1302: IF A.1/2 or A.1/3 -- MS or DM-GATE
THEN m
ELSE n/a

A.3 Medium Access Control (MAC) layer requirements

A.3.1 Lower MAC layer

Table A.14: Error control schemes of Lower MAC

| Prerequisite: A.2/3 AND (A.1/2 or A.1/3) -- Lower MAC for MS or DM-GATE | | | | | |
|---|--------------|---|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.2/1 | Error control scheme for Access Assignment CHannel (AACH) | 8.3.1 | m | |
| 2 | 4.2.4.2/2 | Error control scheme for Broadcast Synchronization CHannel (BSCH) | 8.3.2 | m | |
| 3 | 4.2.4.2/3 | Error control scheme for mapping onto H-bursts on the Downlink (SCH/HD), Broadcast Network CHannel (BNCH) and STealing Channel (STCH) | 8.3.4.1 | m | |
| 4 | 4.2.4.2/4 | Error control scheme for Signalling CHannel for mapping onto Half-bursts on the Uplink (SCH/HU) | 8.3.4.2 | m | |
| 5 | 4.2.4.2/5 | Error control scheme for Signalling CHannel for mapping onto Full-bursts (SCH/F) | 8.3.4.3 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The error control schemes are specified in ETSI TS 100 392-2 under the given clause.

A.3.2 Upper MAC layer

Table A.15: Upper MAC features

| Prerequisite: A.2/4 AND (A.1/2 or A.1/3) -- Upper MAC for MS or DM-GATE | | | | |
|---|---|---------------------------|--------|---------|
| No. | Upper MAC feature | Standard reference (note) | Status | Support |
| 1 | Control channel usage procedures | 23.3 | m | |
| 2 | General MAC procedures | 23.4 | m | |
| 3 | PDU transfer for signalling messages procedures | 23.5 | m | |
| 4 | PDU transfer for broadcast messages procedures | 23.6 | m | |
| 5 | Layer management communication procedures | 23.7 | m | |
| 6 | PDU transfer for traffic procedures | 23.8 | c1501 | |

NOTE: The requirements are specified in ETSI TS 100 392-2 under the given clause.

c1501: IF A.43/1 -- CC supported
 THEN m
 ELSE n/a

Table A.16: Upper MAC control channel usage procedures

| Prerequisite: A.15/1 -- Control channel usage procedures | | | | | |
|--|--------------|---|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.3/13 | Receiving and decoding of messages on the downlink MCCH | 23.3.1.1 | m | |
| 2 | 4.2.4.3/14 | Receiving messages on the ACCH | 23.3.1.3 | c1601 | |
| 3 | 4.2.4.3/15 | Beginning of minimum mode | 23.3.3.1 | m | |
| 4 | 4.2.4.3/1 | MS operation during frames 1-17 in minimum mode | 23.3.3.2 | c1602 | |
| 5 | 4.2.4.3/2 | MS operation during frame 18 in minimum mode | 23.3.3.3 | c1602 | |
| 6 | 4.2.4.3/16 | End of minimum mode | 23.3.3.5 | c1602 | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
 NOTE 2: The requirements are specified in ETSI TS 100 392-2 under the given clause.

c1601: IF A.43/1 -- CC supported
 THEN m
 ELSE n/a

c1602: IFA.3/6 -- Minimum mode supported
 THEN m
 ELSE n/a

Table A.17: General MAC procedures

| Prerequisite: A.15/2 -- General MAC procedures | | | | | |
|---|--------------|---|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.3/21 | Recognition of destination address in downlink messages | 23.4.1.2.1 | m | |
| 2 | 4.2.4.3/22 | Source address in uplink messages | 23.4.1.2.2 | m | |
| 3 | 4.2.4.3/5 | Transmission of TM-SDU not requiring fragmentation | 23.4.2.1.2 | m | |
| 4 | 4.2.4.3/6 | Fragmentation of uplink TM-SDU, when a transmission starts in a full slot granted by the BS | 23.4.2.1.2 | m | |
| 5 | 4.2.4.3/7 | Fragmentation of uplink TM-SDU, using random access to start the process | 23.4.2.1.2 | m | |
| 6 | 4.2.4.3/8 | Fill bit addition | 23.4.2.2 | m | |
| 7 | 4.2.4.3/9 | Reception of unfragmented TM-SDU | 23.4.3.1.1 | m | |
| 8 | 4.2.4.3/10 | Reception of fragmented TM-SDU | 23.4.3.1.1 | m | |
| 9 | 4.2.4.3/11 | Fill bit deletion | 23.4.3.2 | m | |
| 10 | 4.2.4.3/12 | PDU dissociation | 23.4.3.3 | m | |
| NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive. | | | | | |
| NOTE 2: The requirements are specified in ETSI TS 100 392-2 under the given clause. | | | | | |

Table A.18: Upper MAC PDU transfer for signalling messages procedures

| Prerequisite: A.15/3 -- PDU transfer for signalling messages procedures | | | | | |
|---|--------------|--|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.3/23 | Reception of ACCESS-DEFINE PDU | 23.5.1.4.1 | m | |
| 2 | 4.2.4.3/24 | Reception of ACCESS-ASSIGN PDU | 23.5.1.4.2 | m | |
| 3 | 4.2.4.3/25 | Initiating a random access | 23.5.1.4.3 | m | |
| 4 | 4.2.4.3/26 | Checking for appropriate access code | 23.5.1.4.4 | m | |
| 5 | 4.2.4.3/27 | First try procedure | 23.5.1.4.5 | m | |
| 6 | 4.2.4.3/28 | Re-try procedure | 23.5.1.4.8 | m | |
| 7 | 4.2.4.3/29 | Abandoning random access attempt | 23.5.1.4.9 | m | |
| 8 | 4.2.4.3/30 | Reservation requirement | 23.5.2.1 | m | |
| 9 | 4.2.4.3/31 | Slot granting | 23.5.2.2 | m | |
| 10 | 4.2.4.3/32 | Replace current MCCH with specified channel | 23.5.4.2.2 | o | |
| 11 | - | Additional channel allocation procedure | 23.5.4.2.2 | n | n/a |
| 12 | 4.2.4.3/33 | Quit current MCCH and go to specified channel | 23.5.4.2.2 | o | |
| 13 | 4.2.4.3/34 | Replace current MCCH with specified channel, plus MCCH/SCCH or CSS | 23.5.4.2.2 | o | |
| 14 | - | Reception of channel allocation on common SCCH | 23.5.4.2.2 | n | n/a |
| 15 | 4.2.4.3/35 | Replace current assigned channel with specified channel | 23.5.4.2.3 | m | |
| 16 | - | Additional channel allocation procedure | 23.5.4.2.3 | n | n/a |
| 17 | 4.2.4.3/36 | Quit current assigned channel and go to specified channel | 23.5.4.2.3 | m | |
| 18 | 4.2.4.3/37 | Replace current assigned channel with specified channel, plus MCCH/SCCH or CSS | 23.5.4.2.3 | m | |
| NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive. | | | | | |
| NOTE 2: The requirements are specified in ETSI TS 100 392-2 under the given clause. | | | | | |

Table A.19: Upper MAC PDU transfer for broadcast messages procedures

| Prerequisite: A.15/4 -- PDU transfer for broadcast messages procedures | | | | | |
|--|--------------|---|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.3/17 | Reception and decoding of BNCH and BSCH | 23.6.1 | m | |
| 2 | 4.2.4.3/18 | Acquiring cell synchronization | 23.6.2 | m | |
| 3 | 4.2.4.3/19 | Acquiring network information | 23.6.3 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The requirements are specified in ETSI TS 100 392-2 under the given clause.

Table A.20: Upper MAC layer management communication procedures

| Prerequisite: A.15/5 -- Layer management communication procedures | | | | | |
|---|--------------|------------------------------------|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.3/38 | Path loss parameter C1 calculation | 23.7.1.1 | m | |
| 2 | 4.2.4.3/39 | Path loss parameter C2 calculation | 23.7.1.2 | m | |
| 3 | 4.2.4.3/40 | Downlink measurements | 23.7.3.1 | m | |
| 4 | 4.2.4.3/41 | Monitoring measurements | 23.7.4.2 | m | |
| 5 | 4.2.4.3/42 | Signal strength measurements | 23.7.4.3 | m | |
| 6 | 4.2.4.3/43 | Scanning measurements | 23.7.5.2 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The requirements are specified in ETSI TS 100 392-2 under the given clause.

Table A.21: Upper MAC PDU transfer for traffic procedures

| Prerequisite: A.15/6 -- PDU transfer for traffic procedures | | | | | |
|---|--------------|---------------------------------|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.3/20 | Timing of change of mode | 23.8.2.2 | m | |
| 2 | 4.2.4.3/3 | Transmission of uplink stealing | 23.8.4.1.1 | m | |
| 3 | 4.2.4.3/4 | Reception of downlink stealing | 23.8.4.2.2 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The requirements are specified in ETSI TS 100 392-2 under the given clause.

Table A.22: MAC PDUs for uplink and downlink

| Prerequisite: A.2/4 AND (A.1/2 or A.1/3) -- Upper MAC for MS or DM-GATE | | | | | | | |
|---|--------------|---------------------------|--------|---------|---------------------------|--------|---------|
| No. | PDU | Reception | | | Transmission | | |
| | | Standard reference (note) | Status | Support | Standard reference (note) | Status | Support |
| 1 | MAC-ACCESS | - | n/a | n/a | 21.4.2.1 | m | |
| 2 | MAC-END-HU | - | n/a | n/a | 21.4.2.2 | m | |
| 3 | MAC-DATA | - | n/a | n/a | 21.4.2.3 | m | |
| 4 | MAC-FRAG | 21.4.3.2 | m | | 21.4.2.4 | m | |
| 5 | MAC-END | 21.4.3.3 | m | | 21.4.2.5 | m | |
| 6 | MAC-RESOURCE | 21.4.3.1 | m | | - | n/a | n/a |

NOTE: The PDUs are specified in ETSI TS 100 392-2 under the given clause.

Table A.23: MAC PDUs for broadcast

| Prerequisite: A.2/4 AND (A.1/2 or A.1/3) -- Upper MAC for MS or DM-GATE | | | | | | | |
|---|---------------|---------------------------|--------|---------|---------------------------|--------|---------|
| No. | PDU | Reception | | | Transmission | | |
| | | Standard reference (note) | Status | Support | Standard reference (note) | Status | Support |
| 1 | SYSINFO | 21.4.4.1 | m | | - | n/a | n/a |
| 2 | SYNC | 21.4.4.2 | m | | - | n/a | n/a |
| 3 | ACCESS-DEFINE | 21.4.4.3 | m | | - | n/a | n/a |
| 4 | ACCESS-ASSIGN | 21.4.7 | m | | - | n/a | n/a |

NOTE: The PDUs are specified in ETSI TS 100 392-2 under the given clause.

Table A.24: MAC PDUs for the U-plane

| Prerequisite: A.2/4 AND (A.1/2 or A.1/3) -- Upper MAC for MS or DM-GATE | | | | | | | |
|---|-------------|---------------------------|--------|---------|---------------------------|--------|---------|
| No. | PDU | Reception | | | Transmission | | |
| | | Standard reference (note) | Status | Support | Standard reference (note) | Status | Support |
| 1 | MAC-TRAFFIC | 21.4.6 | c2401 | | 21.4.6 | c2401 | |

NOTE: The PDUs are specified in ETSI TS 100 392-2 under the given clause.

c2401: IF A.43/1 -- CC supported
 THEN m
 ELSE n/a

Table A.25: MAC timers

| Prerequisite: A.2/4 AND (A.1/2 or A.1/3) -- Upper MAC for MS or DM-GATE | | | | | | | |
|---|--------------|---------------|-----------------------------|--------|---------|------------------|-----------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support | Values | |
| | | | | | | Allowed | Supported |
| 1 | 4.2.4.3/29 | T.205 | B.1 | m | | 5..60 multiframe | |

NOTE 1: This EN-R is justified under article 3.2 of the R&TTE Directive.
 NOTE 2: The constant is specified in ETSI TS 100 392-2 under the given clause.

A.4 Logical Link Control (LLC) layer requirements

Table A.26: LLC features

| Prerequisite: A.2/5 AND (A.1/2 or A.1/3) -- LLC for MS or DM-GATE | | | | |
|---|---------------------------------|---------------------------|--------|---------|
| No. | LLC feature | Standard reference (note) | Status | Support |
| 1 | Basic link acknowledged service | 22.2.1, 22.3.2 | m | |

NOTE: The features are specified in ETSI TS 100 392-2 under the given clause(s).

Table A.27: LLC basic link procedures for acknowledged service

| Prerequisite: A.26/1 -- Acknowledged basic link | | | | | |
|---|--|---------------------------------|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.4/5, 4.2.4.4/9 | Data reception | 22.3.2.3 | m | |
| 2 | 4.2.4.4/1, 4.2.4.4/2, 4.2.4.4/4, 4.2.4.4/6, 4.2.4.4/7, 4.2.4.4/8 | Data transmission | 22.3.2.1, 22.3.2.3 | m | |
| 3 | 4.2.4.4/10 | FCS checking in reception | 22.3.1.5, 22.3.2.3 | o | |
| 4 | 4.2.4.4/3 | FCS calculation in transmission | 22.3.1.5, 22.3.2.3 | o | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The procedures are specified in ETSI TS 100 392-2 under the given clause.

Table A.28: LLC basic link PDUs for acknowledged service

| Prerequisite: A.26/1 -- Acknowledged basic link | | | | | | | |
|---|----------------------|-----------------------------|---------------|---------|-----------------------------|--------|---------|
| No. | PDU | Reception | | | Transmission | | |
| | | Standard reference (note 1) | Status | Support | Standard reference (note 1) | Status | Support |
| 1 | BL-ACK without FCS | 21.2.2.1 | m | | 21.2.2.1 | m | |
| 2 | BL-ADATA without FCS | 21.2.2.2 | m | | 21.2.2.2 | m | |
| 3 | BL-DATA without FCS | 21.2.2.3 | m | | 21.2.2.3 | m | |
| 4 | BL-ACK with FCS | 21.2.2.1 | m (note 2) | | 21.2.2.1 | c2801 | |
| 5 | BL-ADATA with FCS | 21.2.2.2 | m (note 2) | | 21.2.2.2 | c2801 | |
| 6 | BL-DATA with FCS | 21.2.2.3 | m (note 2) | | 21.2.2.3 | c2801 | |

NOTE 1: The PDUs are specified in ETSI TS 100 392-2 under the given clause.
NOTE 2: It is not mandatory for an implementation to check the FCS of a received PDU, but it shall be capable of receiving and decoding PDUs containing an FCS field.

c2801: IF A.27/4 -- FCS calculation in transmission in acknowledged basic link
THEN m
ELSE n/a

Table A.29: LLC constants for basic link

| Prerequisite: A.26/1 -- Acknowledged basic link | | | | | | | |
|---|--------------|---------------|-----------------------------|--------|---------|----------------------------|-----------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support | Values | |
| | | | | | | Allowed | Supported |
| 1 | 4.2.4.4/6 | N.252 | A.2 | m | | 1 .. 5, 3 .. 5 (note 3) | |

NOTE 1: This EN-R is justified under article 3.2 of the R&TTE Directive.
NOTE 2: The constant is specified in ETSI TS 100 392-2 under the given clause.
NOTE 3: The first range applies, when stealing repeats are not used for the PDU being transmitted. The second range applies when stealing repeats are used.

Table A.30: LLC basic link timers

| Prerequisite: A.26/1 -- Acknowledged basic link | | | | | | | |
|---|--------------|---------------|-----------------------------|--------|---------|---------------------|-----------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support | Values | |
| | | | | | | Allowed | Supported |
| 1 | 4.2.4.4/7 | T.251 | A.1 | m | | 4 signalling frames | |

NOTE 1: This EN-R is justified under article 3.2 of the R&TTE Directive.
NOTE 2: The constant is specified in ETSI TS 100 392-2 under the given clause.

A.5 Mobile Link Entity (MLE) requirements

Table A.31: MLE features

| Prerequisite: A.2/6 AND (A.1/2 or A.1/3) -- MLE for MS or DM-GATE | | | | | |
|---|------------------------------------|------------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.5/1 | Initial cell selection | 18.3.4.6 | m | |
| 2 | 4.2.4.5/2, 4.2.4.5/3, 4.2.4.5/4 | Cell re-selection | 18.3.4.7 | m | |
| 3 | 4.2.4.5/5 | Neighbour cell enquiry | 18.3.6.5 | o | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The features are specified in ETSI TS 100 392-2 under the given clause.

Table A.32: MLE cell re-selection procedures

| Prerequisite: A.31/2 -- Cell re-selection | | | | | |
|---|--------------|------------------------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.5/2 | Undeclared cell re-selection | 18.3.4.7.2 | m | |
| 2 | 4.2.4.5/3 | Unannounced cell re-selection | 18.3.4.7.3 | m | |
| 3 | 4.2.4.5/4 | Announced type 3 cell re-selection | 18.3.4.7.4 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The procedures are specified in ETSI TS 100 392-2 under the given clause.

Table A.33: MLE PDUs

| Prerequisite: A.2/6 AND (A.1/2 or A.1/3) -- MLE for MS or DM-GATE | | | | | | | |
|---|----------------------|------------------------------|--------|---------|------------------------------|--------|---------|
| No. | PDU | Reception | | | Transmission | | |
| | | Standard reference (note) | Status | Support | Standard reference (note) | Status | Support |
| 1 | MLE service user PDU | 18.4.1.3 | m | | 18.4.1.3 | m | |
| 2 | D-NWRK-BROADCAST | 18.4.1.4.1 | m | | n/a | n/a | n/a |
| 3 | D-NEW-CELL | 18.4.1.4.2 | m | | n/a | n/a | n/a |
| 4 | D-PREPARE-FAIL | 18.4.1.4.3 | c3301 | | n/a | n/a | n/a |
| 5 | D-RESTORE-ACK | 18.4.1.4.4 | m | | n/a | n/a | n/a |
| 6 | D-RESTORE-FAIL | 18.4.1.4.5 | m | | n/a | n/a | n/a |
| 7 | U-PREPARE | n/a | n/a | n/a | 18.4.1.4.6 | m | |
| 8 | U-RESTORE | n/a | n/a | n/a | 18.4.1.4.7 | m | |
| 9 | D-MLE-SYNC | 18.4.2.1 | m | | n/a | n/a | n/a |
| 10 | D-MLE-SYSINFO | 18.4.2.2 | m | | n/a | n/a | n/a |

NOTE: The PDUs are specified in ETSI TS 100 392-2 under the given clause.

c3301: IF (A.31/3) -- Neighbour cell enquiry
THEN m
ELSE n/a

Table A.34: MLE timers

| Prerequisite: A.2/6 AND (A.1/2 or A.1/3) -- MLE for MS or DM-GATE | | | | | | | |
|---|----------------------|------------------|--------------------------------|--------|---------|---------|-----------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support | Values | |
| | | | | | | Allowed | Supported |
| 1 | 4.2.4.5/4, 4.2.4.5/5 | T.370 | 18.6.2 | m | | 5 s | |

NOTE 1: This EN-R is justified under article 3.2 of the R&TTE Directive.
NOTE 2: The timer value is specified in ETSI TS 100 392-2 under the given clause.

A.6 Mobility Management (MM) requirements

A.6.1 MM requirements for an MS

Table A.35: MM features

| Prerequisite: A.2/7 AND A.1/2 -- MM for MS | | | | |
|--|--|---------------------------|--------|---------|
| No. | MM feature | Standard reference (note) | Status | Support |
| 1 | Registration procedures | 16.4 | m | |
| 2 | Attachment/detachment of group identities procedures | 16.8 | o | |

NOTE: The features are specified in ETSI TS 100 392-2 under the given clause(s).

Table A.36: MM registration procedures

| Prerequisite: A.35/1 -- Registration procedures | | | | | |
|---|--------------|---|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.6/1 | MLE initiated registration | 16.4.1.1 | m | |
| 2 | 4.2.4.6/2 | User application initiated registration | 16.4.2 | o | |
| 3 | 4.2.4.6/2 | User application initiated registration procedure at power up | 16.4.2 | m | |
| 4 | 4.2.4.6/3 | Infrastructure initiated registration | 16.4.3 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The procedures are specified in ETSI TS 100 392-2 under the given clause.

Table A.37: MLE initiated registration procedures

| Prerequisite: A.36/1 -- MLE initiated registration | | | | | |
|--|--------------|-------------------------------|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.6/1 | Normal roaming registration | 16.4.1.1 | m | |
| 2 | - | Normal migration registration | 16.4.1.1 | n | n/a |

NOTE 1: This EN-R is justified under article 3.2 of the R&TTE Directive.
NOTE 2: The procedures are specified in ETSI TS 100 392-2 under the given clause.

Table A.38: User application initiated registration procedures

| Prerequisite: A.36/2 -- User application initiated registration | | | | | |
|---|--------------|-----------------------------------|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.6/2 | No new ITSI registration | 16.4.2 | o | |
| 2 | 4.2.4.6/2 | New ITSI registration | 16.4.2 | m | |
| 3 | - | New unexchanged ITSI registration | 16.4.2 | n | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The procedures are specified in ETSI TS 100 392-2 under the given clause.

Table A.39: MM attachment/detachment of group identities procedures

| Prerequisite: A.35/2 -- Attachment/detachment of group identities procedures | | | | | |
|--|-------------------------|--|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.6/4, 4.2.4.6/5 | Infrastructure initiated attachment/detachment of group identities procedure | 16.8.1 | o | |
| 2 | 4.2.4.6/6, 4.2.4.6/7 | MS initiated attachment/detachment of group identities procedure | 16.8.2 | o | |
| 3 | 4.2.4.6/8 | Infrastructure initiated group identity report request | 16.8.3 | c3901 | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The procedures are specified in under the given clause.

c3901: IF A.39/1 -- Infrastructure initiated attachment/detachment
THEN m
ELSE n/a

Table A.40: MM PDUs

| Prerequisite: A.2/7 AND A.1/2 -- MM for MS | | | | |
|--|--|--------------------------------|--------|---------|
| No. | PDU (note 1) | Standard reference (note 2) | Status | Support |
| 1 | D-ATTACH/DETACH GROUP IDENTITY | 16.9.2.1 | c4001 | |
| 2 | D-ATTACH/DETACH GROUP IDENTITY ACKNOWLEDGEMENT | 16.9.2.2 | c4002 | |
| 3 | D-LOCATION UPDATE ACCEPT | 16.9.2.7 | m | |
| 4 | D-LOCATION UPDATE COMMAND | 16.9.2.8 | m | |
| 5 | D-LOCATION UPDATE REJECT | 16.9.2.9 | m | |
| 6 | U-ATTACH/DETACH GROUP IDENTITY | 16.9.3.1 | c4002 | |
| 7 | U-ATTACH/DETACH GROUP IDENTITY ACKNOWLEDGEMENT | 16.9.3.2 | c4001 | |
| 8 | U-LOCATION UPDATE DEMAND | 16.9.3.4 | m | |

NOTE 1: The D-PDUs are received, and the U-PDUs are transmitted by the MS.
NOTE 2: The PDUs are specified in ETSI TS 100 392-2 under the given clause.

c4001: IF A.39/1 -- Infrastructure initiated attachment/detachment of group identities
THEN m
ELSE n/a

c4002: IF A.39/2 -- Mobile initiated attachment/detachment of group identities
THEN m
ELSE n/a

A.6.2 MM requirements for a Gateway

Table A.41: MM registration procedures for a Gateway

| Prerequisite: A.2/8 AND A.1/3 -- MM for DM-GATE | | | | | | |
|---|--------------|---------------------------------------|--|--|--------|---------|
| No. | EN Reference | EN-R (note) | Standard reference ETSI TS 100 392-2 [4] | Standard reference ETS 300 396-5 [18] | Status | Support |
| 1 | 4.2.4.6/9 | Normal roaming registration | 16.4.1.1 | 10.3.1 | m | |
| 2 | 4.2.4.6/10 | Registration at power up | 16.4.2 | 10.3.1 | m | |
| 3 | 4.2.4.6/11 | Infrastructure initiated registration | 16.4.3 | 10.3.1 | m | |

NOTE: These EN-Rs are justified under article 3.2 of the R&TTE Directive.

Table A.42: MM PDUs for a Gateway

| Prerequisite: A.2/8 AND A.1/3 -- MM for DM-GATE | | | | |
|---|---------------------------|--------------------------------|--------|---------|
| No. | PDU (note 1) | Standard reference (note 2) | Status | Support |
| 1 | D-MM STATUS | 16.9.2.5.7 | o | |
| 2 | D-LOCATION UPDATE ACCEPT | 16.9.2.7 | m | |
| 3 | D-LOCATION UPDATE COMMAND | 16.9.2.8 | m | |
| 4 | D-LOCATION UPDATE REJECT | 16.9.2.9 | m | |
| 5 | U-LOCATION UPDATE DEMAND | 16.9.3.4 | m | |
| 6 | U-MM STATUS | 16.9.3.5.8 | o | |

NOTE 1: The D-PDUs are received, and the U-PDUs are transmitted by the Gateway.
NOTE 2: The PDUs are specified in under the given clause.

A.7 Circuit Mode Control Entity (CMCE) requirements

A.7.1 CMCE requirements for an MS

Table A.43: CMCE services

| Prerequisite: A.2/9 AND A.1/2 -- CMCE for MS | | | | |
|--|-------------------|---------------------------|--------|---------|
| No. | CMCE service | Standard reference (note) | Status | Support |
| 1 | Call Control (CC) | 11.2 | o | |

NOTE: The services are specified in ETSI TS 100 392-2 under the given clause.

Table A.44: CC features

| Prerequisite: A.43/1 -- CC | | | | |
|----------------------------|-----------------|---------------------------|--------|---------|
| No. | CC feature | Standard reference (note) | Status | Support |
| 1 | Individual call | 14.5.1 | m | |
| 2 | Group call | 14.5.2 | m | |

NOTE: The features are specified in ETSI TS 100 392-2 under the given clause.

Table A.45: CC Individual call signalling functions

| Prerequisite: A.44/1 -- Individual call | | | | |
|---|--------------------------|---------------------------|--------|---------|
| No. | Signalling function | Standard reference (note) | Status | Support |
| 1 | On/off hook signalling | 14.5.1.1 | o.6 | |
| 2 | Direct set-up signalling | 14.5.1.1 | o.6 | |

NOTE: The signalling functions are specified in ETSI TS 100 392-2 [4] under the given clause(s).

o.6: It is mandatory to support at least one of these items.

Table A.46: CC individual call set-up functions

| Prerequisite: A.44/1 -- Individual call | | | | | |
|---|--------------|-------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.7/1 | Incoming call | 14.5.1.1.1 | m | |
| 2 | 4.2.4.7/2 | Outgoing call | 14.5.1.1.2 | m | |
| 3 | 4.2.4.7/3 | Colliding calls | 14.5.1.1.3 | m | |
| 4 | 4.2.4.7/7 | U-plane switching | 14.5.1.4 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The functions are specified in ETSI TS 100 392-2 under the given clause(s).

Table A.47: CC group call set-up functions

| Prerequisite: A.44/2 -- Group call | | | | | |
|------------------------------------|--------------|-------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.7/4 | Outgoing call | 14.5.2.1.2 | m | |
| 2 | 4.2.4.7/5 | Colliding calls | 14.5.2.1.3 | m | |
| 3 | 4.2.4.7/9 | U-plane switching | 14.5.2.4 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The functions are specified in ETSI TS 100 392-2 under the given clause(s).

Table A.48: CC individual call maintenance functions

| Prerequisite: A.44/1 -- Individual call | | | | | |
|---|--------------|------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.7/10 | Call restoration | 14.5.1.2.4 | m | |

NOTE 1: This EN-R is justified under article 3.2 of the R&TTE Directive.
NOTE 2: The functions are specified in ETSI TS 100 392-2 under the given clause(s).

Table A.49: CC group call maintenance functions

| Prerequisite: A.44/2 -- Group call | | | | | |
|------------------------------------|--------------|------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.7/11 | Call restoration | 14.5.2.2.4 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The functions are specified in ETSI TS 100 392-2 under the given clause(s).

Table A.50: CC individual call transmission requests/grants/information functions

| Prerequisite: A.44/1 -- Individual call | | | | | |
|---|--------------|---------------------------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.7/6 | Request to transmit | 14.5.1.2.1 | m | |
| 2 | 4.2.4.7/6 | Transmission granted | 14.5.1.2.1 | m | |
| 3 | 4.2.4.7/6 | Transmission not granted | 14.5.1.2.1 | m | |
| 4 | 4.2.4.7/6 | Transmission request queued | 14.5.1.2.1 | m | |
| 5 | 4.2.4.7/6 | Permission to transmit withdrawn | 14.5.1.2.1 | m | |
| 6 | - | Permission to continue withdrawn call | 14.5.1.2.1 | n | n/a |
| 7 | 4.2.4.7/6 | End of transmission | 14.5.1.2.1 | m | |
| 8 | 4.2.4.7/6 | Stop-transmission order | 14.5.1.2.1 | m | |
| 9 | 4.2.4.7/7 | U-plane switching | 14.5.1.4 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The functions are specified in ETSI TS 100 392-2 under the given clause(s).

Table A.51: CC group call transmission requests/grants/information functions

| Prerequisite: A.44/2 -- Group call | | | | | |
|------------------------------------|--------------|---------------------------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.7/8 | Request to transmit | 14.5.2.2.1 | m | |
| 2 | 4.2.4.7/8 | Transmission granted | 14.5.2.2.1 | m | |
| 3 | 4.2.4.7/8 | Transmission not granted | 14.5.2.2.1 | m | |
| 4 | 4.2.4.7/8 | Transmission request queued | 14.5.2.2.1 | m | |
| 5 | 4.2.4.7/8 | Permission to transmit withdrawn | 14.5.2.2.1 | m | |
| 6 | - | Permission to continue withdrawn call | 14.5.2.2.1 | n | n/a |
| 7 | 4.2.4.7/8 | End of transmission | 14.5.2.2.1 | m | |
| 8 | 4.2.4.7/8 | Stop-transmission order | 14.5.2.2.1 | m | |
| 9 | 4.2.4.7/9 | U-plane switching | 14.5.2.4 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The functions are specified in ETSI TS 100 392-2 under the given clause(s).

Table A.52: CC individual call clearance functions

| Prerequisite: A.44/1 -- Individual call | | | | | |
|---|------------------------|------------------------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.7/12 | User initiated disconnection | 14.5.1.3.1 | o | |
| 2 | 4.2.4.7/13 | Reception of release request | 14.5.1.3.3 | m | |
| 3 | 4.2.4.7/13 | Reception of disconnection request | 14.5.1.3.3 | m | |
| 4 | 4.2.4.7/14, 4.2.4.7/15 | Expiry of timers | 14.5.1.3.4 | m | |
| 5 | 4.2.4.7/7 | U-plane switching | 14.5.1.4 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The functions are specified in ETSI TS 100 392-2 under the given clause(s).

Table A.53: CC group call clearance functions

| Prerequisite: A.44/2 -- Group call | | | | | |
|------------------------------------|------------------------|------------------------------------|--------------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.7/16 | Reception of disconnection request | 14.5.2.3.3 | m | |
| 2 | 4.2.4.7/17, 4.2.4.7/18 | Expiry of timers | 14.5.2.3.5 | m | |
| 3 | 4.2.4.7/9 | U-plane switching | 14.5.2.4 | m | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The functions are specified in ETSI TS 100 392-2 under the given clause(s).

Table A.54: CC PDUs

| Prerequisite: A.43/1 -- CC | | | | |
|----------------------------|-----------------------|--------------------------------|--------|---------|
| No. | PDU (note 1) | Standard reference (note 2) | Status | Support |
| 1 | D-ALERT | 14.7.1.1 | c5401 | |
| 2 | D-CALL-PROCEEDING | 14.7.1.2 | m | |
| 3 | D-CALL-RESTORE | 14.7.1.3 | m | |
| 4 | D-CONNECT | 14.7.1.4 | m | |
| 5 | D-CONNECT ACKNOWLEDGE | 14.7.1.5 | m | |
| 6 | D-DISCONNECT | 14.7.1.6 | m | |
| 7 | D-INFO | 14.7.1.8 | m | |
| 8 | D-RELEASE | 14.7.1.9 | m | |
| 9 | D-SETUP | 14.7.1.12 | m | |
| 10 | D-TX-CEASED | 14.7.1.13 | m | |
| 11 | D-TX-GRANTED | 14.7.1.15 | m | |
| 12 | D-TX-INTERRUPT | 14.7.1.16 | m | |
| 13 | D-TX-WAIT | 14.7.1.17 | m | |
| 14 | U-ALERT | 14.7.2.1 | c5401 | |
| 15 | U-CALL-RESTORE | 14.7.2.2 | m | |
| 16 | U-CONNECT | 14.7.2.3 | m | |
| 17 | U-DISCONNECT | 14.7.2.4 | m | |
| 18 | U-RELEASE | 14.7.2.9 | m | |
| 19 | U-SETUP | 14.7.2.10 | m | |
| 20 | U-TX-CEASED | 14.7.2.11 | m | |
| 21 | U-TX-DEMAND | 14.7.2.12 | m | |

NOTE 1: The D-PDUs are received, and the U-PDUs are transmitted by the MS.
NOTE 2: The PDUs are specified in ETSI TS 100 392-2 under the given clause.

c5401: IF A.44/1 [4] -- On/off hook signalling
THEN m
ELSE n/a

Table A.55: CC timers

| Prerequisite: A.43/1 -- CC | | | | | | | |
|----------------------------|------------------------|------------------|--------------------------------|--------|---------|---------------|------------------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support | Allowed range | Supported values |
| 1 | 4.2.4.7/14 | T301 | 14.6 | m | | 0..30 s | |
| 2 | 4.2.4.7/14, 4.2.4.7/17 | T302 | 14.6 | m | | 0..60 s | |
| 3 | 4.2.4.7/14, 4.2.4.7/17 | T303 | 14.6 | m | | 0..60 s | |
| 4 | 4.2.4.7/15 | T306 | 14.6 | m | | 4..6 s | |
| 5 | 4.2.4.7/18 | T307 | 14.6 | m | | 6..8 s | |
| 6 | 4.2.4.7/15 | T308 | 14.6 | m | | 0..10 s | |
| 7 | 4.2.4.7/14, 4.2.4.7/18 | T310 | 14.6 | m | | ≥ 5 s | |
| 8 | 4.2.4.7/6, 4.2.4.7/8 | T311 | 14.6 | m | | 0..300 s | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The functions are specified in ETSI TS 100 392-2 under the given clause(s).

A.7.2 CMCE requirements for a Gateway

Table A.56: CMCE services for a Gateway

| Prerequisite: A.2/10 -- CMCE, Gateway | | | | |
|---------------------------------------|---------------------------|---------------------------|--------|---------|
| No. | CMCE service | Standard reference (note) | Status | Support |
| 1 | Circuit Mode Call Control | 9.3 | o | |

NOTE: The services are specified in ETS 300 396-5 under the given clause.

Table A.57: Circuit Mode Call Control features for a Gateway

| Prerequisite: A.56/1 -- Circuit Mode Call Control | | | | |
|---|---------------------------------|---------------------------|--------|---------|
| No. | CC feature | Standard reference (note) | Status | Support |
| 1 | Individual circuit mode call | 9 | o.7 | |
| 2 | Group circuit mode call | 9 | o.7 | |
| 3 | Accept incoming call from V+D | 9.3.1 | o.8 | |
| 4 | Accept incoming call from DM-MS | 9.3.2 | o.8 | |

NOTE: The features are specified in ETS 300 396-5 under the given clause.

o.7: It is mandatory to support at least one of these items

o.8: It is mandatory to support at least one of these items

Table A.58: Gateway circuit mode call control procedures

| Prerequisite: A.56/1 -- Circuit mode call control for a Gateway | | | | | |
|---|--------------|---|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.7/19 | Outgoing call to V+D | 9.3.2.1 | c5801 | |
| 2 | 4.2.4.7/20 | Colliding call set-up at the V+D | 9.3.2.2 | c5802 | |
| 3 | 4.2.4.7/21 | Transmitting U-TX CEASED by end of DM-MS call | 9.3.3.1.1 | c5801 | |
| 4 | 4.2.4.7/22 | Reception of D-TX CEASED by end of V+D call | 9.3.3.1.2 | c5803 | |
| 5 | 4.2.4.7/23 | Reception of D-TX INTERRUPT from V+D | 9.3.3.2 | c5803 | |
| 6 | 4.2.4.7/24 | Permission to transmit granted to another party | 9.3.3.3 | m | |
| 7 | 4.2.4.7/25 | Transmitting U-TX DEMAND at request for transmission from DM-MS | 9.3.3.4.1 | m | |
| 8 | 4.2.4.7/26 | V+D permission to transmit withdrawn during a call | 9.3.3.5 | m | |
| 9 | 4.2.4.7/28 | Transmission of U-DISCONNECT on receipt of DM-RELEASE from current master | 9.3.3.9.1 | c5801 | |
| 10 | 4.2.4.7/29 | Receipt of D-RELEASE from SwMI | 9.3.3.9.2 | m | |
| 11 | 4.2.4.7/30 | Transmission of U-DISCONNECT at expiry of call length timer | 9.3.3.9.3 | m | |
| 12 | 4.2.4.7/31 | Termination of call on receipt of preemption request from DM-MS | 9.3.4.1.3 | m | |
| 13 | 4.2.4.7/27 | Reception of transmission interrupt from V+D | 9.3.4.2.1 | c5801 | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The procedures are specified in ETS 300 396-5 under the given clause(s).

c5801: IF A.57/4 -- Accept incoming call from DM-MS
THEN m
ELSE n/a

c5802: IF A.57/3 AND A.57/4 -- Accept incoming call from V+D and accept incoming call from DM-MS
THEN m
ELSE n/a

c5803: IF A.57/3 -- Accept incoming call from V+D
THEN m
ELSE n/a

Table A.59: CC PDUs for Gateway

| Prerequisite: A.56/1 -- Circuit mode call control for a Gateway | | | | |
|---|-----------------------|--------------------------------|--------|---------|
| No. | PDU (note 1) | Standard reference (note 2) | Status | Support |
| 1 | D-CALL-PROCEEDING | 14.7.1.2 | c5901 | |
| 2 | D-CONNECT | 14.7.1.4 | c5901 | |
| 3 | D-CONNECT ACKNOWLEDGE | 14.7.1.5 | c5902 | |
| 4 | D-RELEASE | 14.7.1.9 | m | |
| 5 | D-SETUP | 14.7.1.12 | c5902 | |
| 6 | D-TX-CEASED | 14.7.1.13 | m | |
| 7 | D-TX-GRANTED | 14.7.1.15 | m | |
| 8 | D-TX-INTERRUPT | 14.7.1.16 | m | |
| 9 | U-CONNECT | 14.7.2.3 | c5902 | |
| 10 | U-DISCONNECT | 14.7.2.4 | m | |
| 11 | U-SETUP | 14.7.2.10 | c5901 | |
| 12 | U-TX-CEASED | 14.7.2.11 | m | |
| 13 | U-TX-DEMAND | 14.7.2.12 | m | |

NOTE 1: The D-PDUs are received, and the U-PDUs are transmitted by the Gateway.
NOTE 2: The PDUs are specified in ETSI TS 100 392-2 under the given clause.

c5901: IF A.57/4 -- Accept incoming call from DM-MS
THEN m
ELSE n/a

c5902: IF A.57/3 -- Accept incoming call from V+D
THEN m
ELSE n/a

Table A.60: CC timers for Gateway

| Prerequisite: A.56/1 -- Circuit mode call control for a Gateway | | | | | | | |
|---|--------------|------------------|--------------------------------|--------|---------|---------------|------------------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support | Allowed range | Supported values |
| 1 | 4.2.4.7/19 | T302 | 9.3.2.1 | c6001 | | 0..60 s | |
| 2 | 4.2.4.7/19 | T303 | 9.3.2.1 | c6001 | | 0..60 s | |
| 3 | 4.2.4.7/30 | T310 | 9.3.3.9.3 | m | | ≥ 5 s | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
NOTE 2: The timers are specified in ETS 300 396-5 under the given clause(s).

c6001: IF A.57/4 -- Accept incoming call from DM-MS
THEN m
ELSE n/a

A.8 Security

Table A.61: Security features

| Prerequisite: A.2/11 -- Security | | | | |
|----------------------------------|-----------------------|---------------------------|--------|---------|
| No. | Security feature | Standard reference (note) | Status | Support |
| 1 | Authentication | 4.1 | o | |
| 2 | Secure enable/disable | 5 | m | |

NOTE: The features are specified in ETSI TS 100 392-7 under the given clause.

Table A.62: Secure enable/disable types

| Prerequisite: A.61/2 -- Secure enable/disable | | | | |
|---|----------------------------|---------------------------|--------|---------|
| No. | Secure enable/disable type | Standard reference (note) | Status | Support |
| 1 | Disable ITSI temporarily | 5.3.2 | m | |
| 2 | Disable ITSI permanently | 5.3.2 | c6201 | |
| 3 | Disable TEI temporarily | 5.3.1 | m | |
| 4 | Disable TEI permanently | 5.3.1 | c6201 | |

NOTE: The procedures are specified in ETSI TS 100 392-7 under the given clause.

c6201: IF A.61/1 -- Authentication supported
 THEN m
 ELSE o

Table A.63: Secure enable/disable procedures

| Prerequisite: A.61/2 -- Secure enable/disable | | | | | |
|---|--------------|--|-----------------------------|--------|---------|
| No. | EN Reference | EN-R (note 1) | Standard reference (note 2) | Status | Support |
| 1 | 4.2.4.8/1 | Permanent disabling of an MS using authentication. | 5.4.3.1 | c6301 | |
| 2 | 4.2.4.8/2 | Temporary disabling of an MS using authentication. | 5.4.3.1 | c6301 | |
| 3 | 4.2.4.8/3 | Temporary disabling of an MS without authentication. | 5.4.5 | c6302 | |

NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.
 NOTE 2: The procedures are specified in ETSI TS 100 392-7 under the given clause.

c6301: IF A.61/1 -- Authentication supported
 THEN m
 ELSE n/a

c6302: IF NOT A.61/1 -- Authentication not supported
 THEN o
 ELSE m

Table A.64: PDUs for Secure enable/disable

| Prerequisite: A.61/2 -- Secure enable/disable | | | | |
|---|---------------------------|-----------------------------|--------|---------|
| No. | PDU (note 1) | Standard reference (note 2) | Status | Support |
| 1 | D-DISABLE | 5.4.8.1 | m | |
| 2 | U-DISABLE STATUS | 5.4.8.3 | m | |
| 3 | D-AUTHENTICATION RESULT | 4.4.7.4 | c6401 | |
| 4 | U-AUTHENTICATION RESPONSE | 4.4.7.11 | c6401 | |
| 5 | U-AUTHENTICATION RESULT | 4.4.7.12 | c6401 | |

NOTE: The PDUs are specified in ETSI TS 100 392-7 under the given clause.

c6401: IF A.61/1 -- Authentication supported
 THEN m
 ELSE n/a

Annex B (normative): Declarations on capabilities and parameters supported

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The following tables supplement the EN-RT giving further information required to perform test case selection and to parameterize the test suites referred to in the present document.

The supplier of the implementation shall state the values for the implementation according to the IUT capabilities.

B.1 Radio layer

Table B.1: Test mode frequency bands

| Item | Frequency band (MHz) (note) | Minimum range (MHz) | | Supported range (MHz) | |
|------|--------------------------------|---------------------|---------------|-----------------------|----------|
| | | Uplink | Downlink | Uplink | Downlink |
| 1 | 380-385/390-395 | 380 to 385 | 390 to 395 | | |
| 2 | 410-430 MHz | 410 to 420 | 420 to 430 | | |
| 3 | 870-876/915-921 MHz | 870 to 876 | 915 to 921 | | |
| 4 | 450-470 MHz | 450 to 460 | 460 to 470 | | |
| 5 | 385-390/395-399,99 MHz | 385 to 390 | 395 to 399,99 | | |

NOTE: One or more complete frequency bands shall be supported.

Table B.2: Traffic channel data types

| Prerequisite: 1/1 or A.1/2 or A.1/3 -- BS or MS or Gateway | | | |
|--|-----------------------------|-------------------|---------|
| Item | Data type | Reference | Support |
| 1 | Protected circuit mode data | ETSI TS 100 392-2 | |

Table B.3: Environmental profile

| No. | Operational temperature | Reference | Support |
|-----|--|------------|---------|
| 1 | Lowest intended operational temperature | Clause 4.1 | |
| 2 | Highest intended operational temperature | Clause 4.1 | |

B.2 Medium Access Control (MAC)

Table B.4: MAC parameters

| Prerequisite: A.2/4 AND (A.1/2 or A.1/3) -- Upper MAC for MS or DM-GATE | | | | |
|---|-------------------------|---------------------|---|--------------------|
| Item | Parameter | Parameter type | Explanation | Value or reference |
| 1 | PIX_GSSI_1 | GSSI_Type | Group identifier. | |
| 2 | PIX_GSSI_2 | GSSI_Type | Group identifier. | |
| 3 | PIX_GSSI_3 | GSSI_Type | Group identifier. | |
| 4 | PIX_SSI | SSI_Type | ITSI value of the MS. | |
| 5 | PIX_HOME_LA | MM_LocationAreaType | Home location area of the MS. | |
| 6 | PIX_HOME_MCC | MM_MCC_Type | Home mobile country code of the MS. | |
| 7 | PIX_HOME_MNC | MM_MCC_Type | Home mobile network code of the MS. | |
| 8 | PIX_NEW_LOCATION_AREA_1 | MM_LocationAreaType | Unique registration area in the home MCC and MNC. | |
| 9 | PIX_NEW_LOCATION_AREA_2 | MM_LocationAreaType | Unique registration area in the home MCC and MNC. | |
| 10 | PIX_NEW_LOCATION_AREA_3 | MM_LocationAreaType | Unique registration area in the home MCC and MNC. | |

B.3 Mobile Link Entity (MLE)

Table B.5: MLE parameters

| Prerequisite: A.2/6 AND (A.1/2 or A.1/3) -- MLE for MS or DM-GATE | | | | |
|---|-----------------------|-------------------|---|--------------------|
| Item | Parameter | Parameter type | Explanation | Value or reference |
| 1 | PIX_CHANNEL_1 | MainCarrierNoType | A channel that the IUT initially tries to camp on to. | |
| 2 | PIX_CHANNEL_2 | MainCarrierNoType | Another channel that the IUT is capable of selecting. | |
| 3 | PIX_COUNTRY_CODE | MCC_Type | Home country code of the IUT. | |
| 4 | PIX_NETWORK_CODE | MNC_Type | Home network code of the IUT. | |
| 5 | PIX_LOCATION_AREA | LocationAreaType | Home location area of the IUT. | |
| 6 | PIX_NEW_LOCATION_AREA | LocationAreaType | A location area outside the IUT home location area. | |
| 7 | PIX_MS_ITSI | ITSI_type | ITSI of the IUT. | |

B.4 Mobility Management (MM)

Table B.6: MM parameters for MS

| Prerequisite: A.2/7 AND A.1/2 -- MM for MS | | | | |
|--|-----------------------|------------------|---|--------------------|
| Item | Parameter | Parameter type | Explanation | Value or reference |
| 1 | PIX_COUNTRY_CODE | MCC_Type | Home country code of the IUT. | |
| 2 | PIX_NETWORK_CODE | MNC_Type | Home network code of the IUT. | |
| 3 | PIX_LOCATION_AREA | LocationAreaType | Home location area of the IUT. | |
| 4 | PIX_NEW_LOCATION_AREA | LocationAreaType | A location area outside the IUT home location area. | |
| 5 | PIX_MS_TEI | TEI_Type | TEI of the IUT, 60 bits. | |
| 6 | PIX_MS_ITSI | ITSI_type | ITSI of the IUT. | |

Table B.7: MM parameters and implicit send events for Gateway

| Prerequisite: A.2/8 AND A.1/3 -- MM for DM-GATE | | | | |
|---|-------------------------------|----------------|--|--------------------|
| Item | Parameter | Parameter type | Explanation | Value or reference |
| 1 | PIX_MS_ITSI | ITSI_type | ITSI of the IUT. | |
| 2 | PIX_IMP_U_LOCATION_UPDATE_PDU | BOOLEAN | It is possible to cause the IUT to send a U-LOCATION UPDATE PDU. | |

B.5 Circuit Mode Control Entity (CMCE)

Table B.8: CC parameters for MS

| Prerequisite: A.43/1 -- CC | | | | |
|----------------------------|-------------|----------------|---|--------------------|
| Item | Parameter | Parameter type | Explanation | Value or reference |
| 1 | PIX_T303 | INTEGER | Duration of the T303 in the IUT in seconds. | |
| 2 | PIX_T308 | INTEGER | Duration of the T308 in the IUT in seconds. | |
| 3 | PIX_T311 | INTEGER | Duration of the T311 in the IUT in seconds. | |
| 4 | PIX_MS_ITSI | ITSI_type | ITSI of the IUT. | |

Table B.9: CC parameters and implicit send events for Gateway

| Prerequisite: A.56/1 -- Circuit Mode Call Control | | | | |
|---|-------------------------|----------------|---|--------------------|
| Item | Parameter | Parameter type | Explanation | Value or reference |
| 1 | PIX_T303 | INTEGER | Duration of the T303 in the IUT in seconds. | |
| 2 | PIX_MS_ITSI | ITSI_type | ITSI of the IUT. | |
| 3 | PIX_DM_MS_MNI | MNI_Type | Value of the MNI of the DM-MS | |
| 4 | PIX_DM_MS_SSI | SSI_Type | Value of the SSI of the DM-MS | |
| 5 | PIX_IMP_U_SETUP_PDU | BOOLEAN | It is possible to cause the IUT to initiate an outgoing call. | |
| 6 | PIX_IMP_U_TX_DEMAND_PDU | BOOLEAN | It is possible to cause the IUT to send a U-TX DEMAND PDU. | |
| 7 | PIX_IMP_U_TX_CEASED_PDU | BOOLEAN | It is possible to cause the IUT to send a U-TX CEASED PDU. | |

B.6 Security

Table B.10: Implicit send events for Security

| Prerequisite: A.2/11 -- Security | | | | |
|----------------------------------|------------------------------|----------------|--|--------------------|
| Item | Parameter | Parameter type | Explanation | Value or reference |
| 1 | PIX_IMP_LOCATION_UPDATE_Type | BOOLEAN | It is possible to cause IUT to send U-LOCATION UPDATE DEMAND PDU having given location update type and ITSI. | |

Table B.11: Configuration parameter values for Security

| Prerequisite: A.2/11 -- Security | | | | |
|----------------------------------|-----------|----------------|--|--------------------|
| Item | Parameter | Parameter type | Explanation | Value or reference |
| 1 | PIX_VD_L3 | BOOLEAN | Configuration set to test the Voice+Data layer 3 security protocol | |

Table B.12: General parameter values for Security

| Prerequisite: A.2/11 -- Security | | | | |
|----------------------------------|-------------|----------------|-----------------|--------------------|
| Item | Parameter | Parameter type | Explanation | Value or reference |
| 1 | PIX_MS_ITSI | ITSI_Type | ITSI of the IUT | |
| 2 | PIX_TEI | TEI_Type | TEI | |

Table B.13: Authentication parameter values for Security

| Prerequisite: A.2/11 -- Security | | | | |
|----------------------------------|-----------|---------------------|-----------------------------------|--------------------|
| Item | Parameter | Parameter type | Explanation | Value or reference |
| 1 | PIX_RAND1 | RandomChallengeType | Value of Random challenge (RAND1) | |
| 2 | PIX_RS | RandomSeedType | Value of the Random seed (RS) | |
| 3 | PIX_RES2 | ResponseValueType | Value of the result RES2 | |

Annex C (informative): The EN title in the official languages

NOTE: This annex is to be removed by the ETSI secretariat at the time of publication.

| Language | EN title |
|------------|--|
| Danish | Harmoniseret EN for TETRA udstyr, som dækker de væsentlige krav i R&TTE direktivets artikel 3.2; Del 1: Tale plus Data (V+D) |
| Dutch | Geharmoniseerde EN voor TETRA apparatuur, omvattend de essentiële eisen onder artikel 3.2. van de R&TTE richtlijn; Deel 1: Voice en Data (V+D) |
| English | Harmonized EN for TETRA equipment covering essential requirements under article 3.2 of the R&TTE directive; Part 1: Voice plus Data (V+D) |
| Finnish | Harmonisoitu EN TETRA laitteille sisältäen keskeiset, R&TTE direktiivin artiklan 3.2 mukaiset vaatimukset; Osa 1: Puhe ja Data (V+D) |
| French | Norme Harmonisée pour équipements TETRA couvrant les exigences essentielles de l'article 3.2 de la Directive R&TTE; Partie 1: Voix plus Données (V+D) |
| German | Harmonisierte EN für TETRA-Endgeräte und -Infrastruktur entsprechend den wesentlichen Anforderungen unter Artikel 3.2 der R&TTE Directive; Part 1: Voice plus Data (V+D) |
| Greek | Εναρμονισμένο EN για εξοπλισμό TETRA για την κάλυψη των ουσιωδών απαιτήσεων του άρθρου 3.2 της Οδηγίας R&TTE – Μέρος 1: Φωνή συν Δεδομένα (V+D) |
| Icelandic | |
| Italian | EN Norma Europea Armonizzata per apparati TETRA relativa ai requisiti essenziali contemplati dall' articolo 3.2 della Direttiva R&TTE; Parte1: Voce e Dati (V+D) |
| Portuguese | Harmonização da norma europeia para equipamentos TETRA, cobrindo os requisitos essenciais incluídos no artigo 3.2 da directiva R&TTE; Parte 1: Voz e Dados (V+D) |
| Spanish | Estandar Europeo (EN) armonizado para equipamiento TETRA, relativo a los requisitos esenciales del artículo 3.2 de la directiva R&TTE; Parte 1: Voz y Datos (V+D) |
| Swedish | Harmoniserad EN för TETRA-utrustning omfattande väsentliga krav enligt artikel 3.2 i R&TTE-direktivet; Del 1: Tal och Data (V+D) |

Annex D (informative): Justifications for requirements

NOTE: This annex is to be removed by the ETSI secretariat at the time of publication.

Table D.1 provides the justification for inclusion of the conformance requirements in clause 4.2 to cover the provisions of Directive 1999/5/EC (R&TTE Directive) [1], article 3.2.

The justifications are made against the associated technical phenomena (defined in annex A of EG 201 399 (see annex E), which are included in the tables in clause 4.2.

Table D.1: Justifications for requirements associated with technical phenomena

| Function | Technical Phenomena | Justification |
|---|--|--|
| Frequency and channel allocation | Frequency error/stability | Incorrect use of frequency bands or insufficient synchronization causes interference with other users. |
| | Designation of channels | Incorrect designation of channels causes interference with other users. |
| Transmitting | Transmitter power | Maladjustment of the RF output power cause interference with other users. |
| | Adjacent channel power | Adjacent channel power above an acceptable level cause interference with other users. |
| | Spurious emissions | Spurious emissions above an acceptable level cause interference with other users. |
| | Inter-modulation attenuation | A transmitter intermodulation attenuation below an acceptable level cause interference with other users. |
| | Transient behavior of the transmitter | Violation of the given RF power time mask or insufficient timing of transmitted signal cause interference with other users. |
| | Modulation Accuracy | Incorrect modulation or insufficient modulation accuracy lead to the transmission of incorrect data and lead to an unnecessarily high number of radio transmission attempts and therefore interference to other users. |
| Receiving | Spurious response rejection | Insufficient spurious response rejection lead to an unnecessarily high number of radio transmission attempts and therefore interference to other users. |
| | Inter-modulation response rejection | Insufficient inter-modulation response rejection lead to an unnecessarily high number of radio transmission attempts and therefore interference to other users. |
| | Blocking or desensitization | Insufficient blocking characteristics of the receiver lead to an unnecessarily high number of radio transmission attempts and therefore interference to other users. |
| | Spurious emissions | Spurious emissions above an acceptable level cause interference with other users. |
| Control and Monitoring | Network interface bit errors | An unacceptable nominal error rate or reference sensitivity performance, or an insufficient synchronization burst acquisition lead to the reception of incorrect data and incorrect setting of the transmitter thus causing interference with other users. |
| | Error control by coding and decoding of logical channels | Incorrect coding/decoding of logical channels cause unnecessary transmissions and thus cause interference with other users. |
| | Logical channel arrangement | Incorrect implementation of the logical channel arrangement cause unnecessary transmission attempts and thus harmful interference to other users. |
| | Control of communication in logical channels | Incorrect control of communication in logical channels cause unwanted transmission attempts and thus harmful interference to other users. |
| | Correct interpretation of Network control information | Incorrect interpretation of Network control information cause unwanted transmission attempts and thus harmful interference to other users. |
| | Network interface addressing | Incorrect coding and decoding of network interface addressing cause unwanted transmission attempts and thus harmful interference to other users. |
| | Control of random access | Incorrect control of random access cause unwanted transmission attempts and thus harmful interference to other users. |
| | Control of radio resource allocation | Incorrect control of radio resource allocation cause unwanted transmission attempts and thus harmful interference to other users. |
| Monitoring functions for cell selection | Incorrect implementation of monitoring functions for cell selection cause unwanted transmission attempts and thus harmful interference to other users. | |

| Function | Technical Phenomena | Justification |
|----------|--------------------------------------|---|
| | Control of basic link communication | Incorrect control of basic link communication cause unnecessary transmission attempts over the air interface and thus harmful interference to other users. |
| | Control functions for usage of cells | Incorrectly implemented cell selection and registration cause unnecessary transmission attempts and thus harmful interference to other users. |
| | Control of group attach/detach | Incorrect group identity attachment cause unnecessary traffic channel allocation and thus harmful interference to other users. |
| | TX call set up control | Incorrectly implemented TX call set-up cause unnecessary call set-up attempts and thus harmful interference to other users. |
| | TX enable/disable control | Incorrectly implemented enable/disable control result in disallowed transmission attempts and unnecessary traffic channel allocation and thus harmful interference to other users. |
| | Control of call maintenance | Incorrectly implemented control of call maintenance lead into unnecessary traffic channel allocation in the network and cause unnecessary transmission attempts and thus harmful interference to other users. |
| | Control of call disconnect | Incorrect implementation of call disconnect procedures prevent the network in deallocating the traffic channel and lead to disallowed transmission requests and thus harmful interference to other users. |

Annex E (informative): Bibliography

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- ETSI EN 301 435-2: "Terrestrial Trunked Radio (TETRA); Attachment requirements for TETRA terminal equipment; Part 2: Emergency access".
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- ETSI EN 301 489-18: "ElectroMagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 18: Specific conditions for Terrestrial Trunked Radio (TETRA) equipment".

History

| Document history | | | |
|-------------------------|---------------|-----------------------------|--|
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