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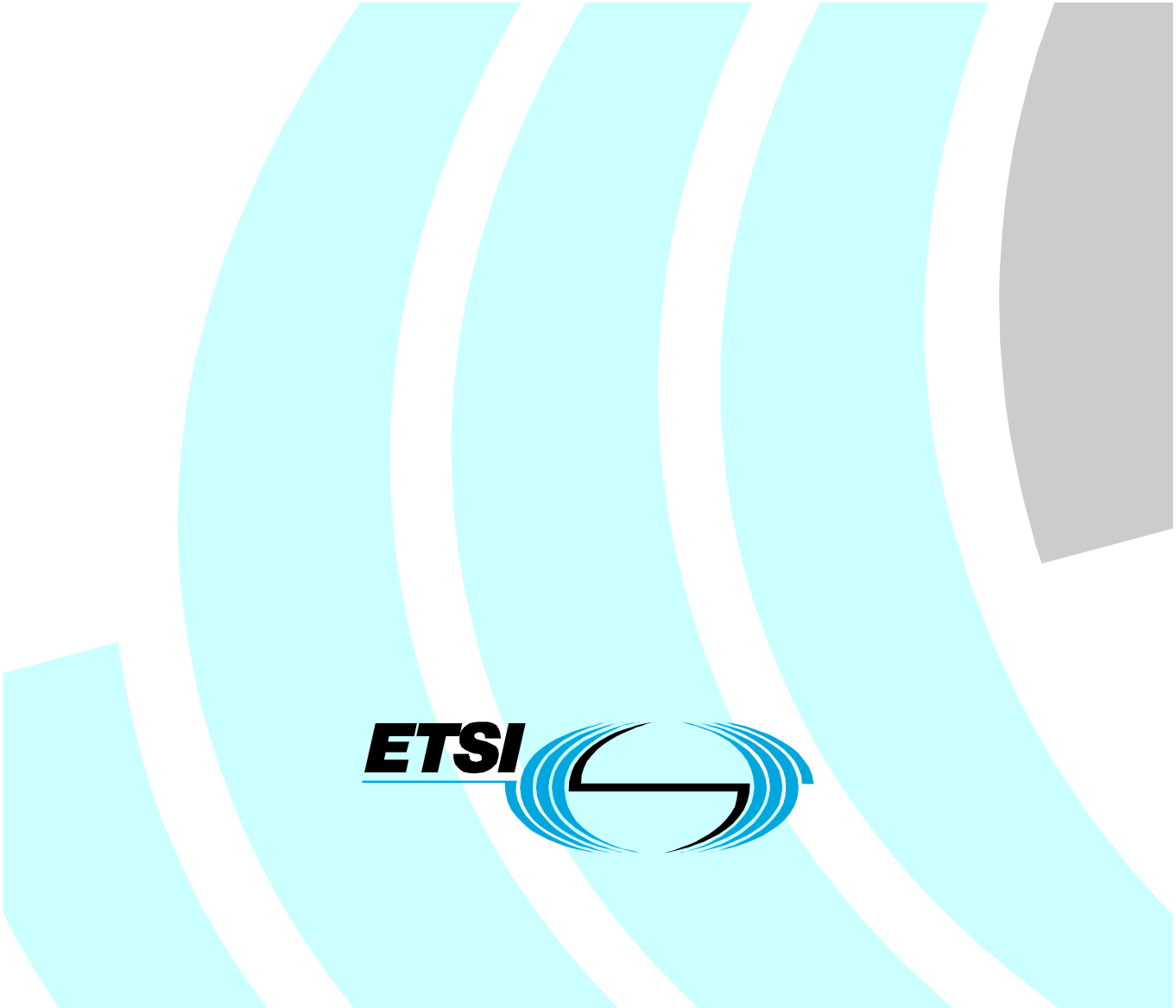
Candidate Harmonized European Standard (Telecommunications series)

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)



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Foreword

This Candidate Harmonized European Standard (Telecommunications series) has been produced by ETSI Project Terrestrial Trunked Radio (TETRA).

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC laying down a procedure for the provision of information in the field of technical standards and regulations.

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 plus Data (V+D)";

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

Technical specifications relevant to Directive 1999/5/EC [1] are given in annex A.

National transposition dates	
Date of adoption of this EN:	14 December 2001
Date of latest announcement of this EN (doa):	31 March 2002
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 September 2002
Date of withdrawal of any conflicting National Standard (dow):	30 September 2003

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.

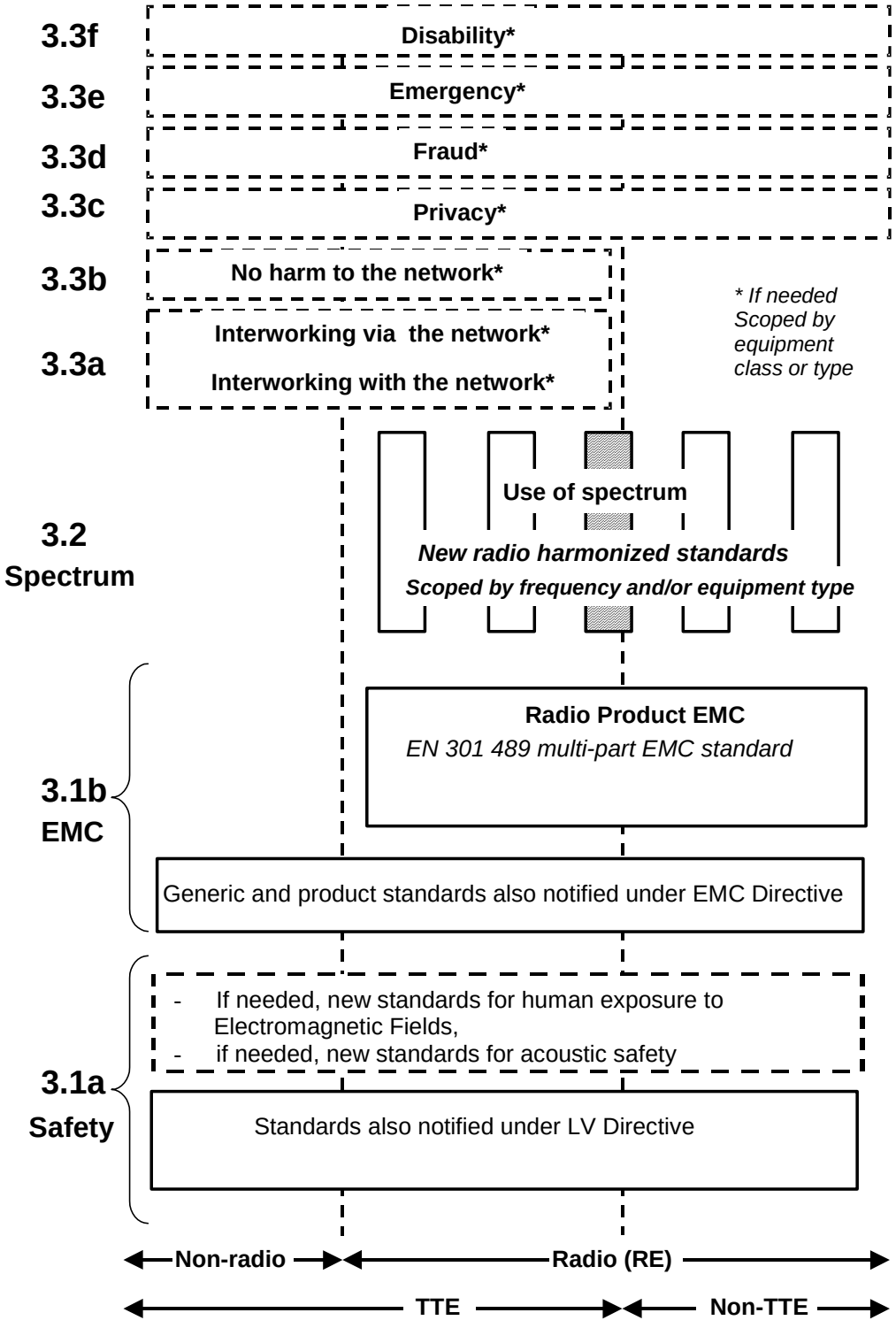

Figure 1: Modular structure for the various standards used under the R&TTE Directive

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 EN 301 489, the multi-part product EMC standard for radio used under the EMC Directive [2].

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 decisions

  without 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 [17] and ERC/DEC(96)04 [18].

These radio equipment types are capable of operating in all or any part of the frequency bands given in table 1.

Table 1: Radio communications service frequency bands

Type of Service	Radio communications service frequency bands (MHz)	
	Uplink	Downlink
Emergency Access, ERC/DEC(96)01 [17]	380 to 385	390 to 395
Civil Access, ERC/DEC(96)04 [18]	410 to 420	420 to 430
Civil Access, ERC/DEC(96)04 [18]	870 to 876	915 to 921
Civil Access, ERC/DEC(96)04 [18]	450 to 460	460 to 470
Civil Access, ERC/DEC(96)04 [18]	385 to 390	395 to 399,99

The present document is intended to cover the provisions of Directive 1999/5/EC [1] (R&TTE Directive), 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 EN 300 392-2 (V2.3.2) (2001): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".

[5] 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".

[6] 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".

[7] ETSI EN 300 394-1 (V2.3.1) (2001): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 1: Radio".

[8] 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".

[9] 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".

[10] 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)".

[11] 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)".

[12] 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)".

[13] 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)".

[14] ETSI ETS 300 396-5 (Edition 1) (2000): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 5: Gateway air interface".

[15] 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)".

[16] ETSI TS 101 789-1 (V1.1.1) (2000): "Terrestrial Trunked Radio (TETRA); TMO Repeaters; Part 1: Requirements, test methods and limits".

[17] CEPT ERC/DEC/(96)01: "ERC Decision of 7 March 1996 on the harmonised frequency band to be designated for the introduction of the Digital Land Mobile System for the Emergency Services".

[18] 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)".

[19] 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

NOTE: 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

NOTE: 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: an MS is said to be attached to a cell when the MS is camped and registered on the cell

NOTE: 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

NOTE: 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

NOTE: 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

NOTE: 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

NOTE: An ITSI cannot be shared by multiple users.

initial cell selection: act of choosing a first serving cell to register in

NOTE: 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

NOTE: 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

NOTE: 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

NOTE: An explicit response from the called user that he has answered is waited before the call can be set-up.

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

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

NOTE: 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
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
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
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
RE	REserved Access (for MAC layer), or REgistration (for MLE layer), or Radio Equipment
RF	Radio Frequency
RT	Requirements Table
SCCH	Secondary Control CHannel
SCH	Signalling CHannel
SCH/F	Signalling CHannel, Full-slot
SCH/H	Signalling CHannel, Half-slot
SDU	Service Data Unit
SSI	Short Subscriber Identity
STCH	STealing CHannel
SU	Set-Up
SwMI	Switching and Management Infrastructure
TC	Transmission Control
TCH	Traffic CHannel
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 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 bibliography).

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 [17]	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 [18]	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 (see note 1)	Description	Technical phenomena	Test case limit value (see note 2)	Test method reference (see 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	TS 100 392-15 [6], clause 5	TETRA Frequency bands	Frequency error/stability	-	Implicit by 10.2.1/10.2.2
4.2.1/5	TS 100 392-15 [6], 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 EN 300 392-2 [4] under the given clause, except when otherwise stated. NOTE 2: The test case limit values are specified in EN 300 394-1 [7], clause 7. NOTE 3: The test methods are specified in EN 300 394-1 [7], 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 (see note 1)	Description	Technical phenomena	Test case limit value (see note 2)	Test method reference (see 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 EN 300 392-2 [4] under the given clause.
NOTE 2: The test case limit values are specified in EN 300 394-1 [7], clause 7.
NOTE 3: The test methods are specified in EN 300 394-1 [7], clauses 8 to 10.

Table 5: Requirements associated with transmitting functions for TMO repeater

Requirement reference	Standard reference (see note 1)	Description	Technical phenomena	Test case limit value (see note 2)	Test method reference (see 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 TS 101 789-1 [16] under the given clause. NOTE 2: The test case limit values are specified in TS 101 789-1 [16] under the given clause. NOTE 3: The test methods are specified in TS 101 789-1 [16] 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 (see note 1)	Description	Technical phenomena	Test case limit value (see note 2)	Test method reference (see 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 EN 300 392-2 [4] under the given clause. NOTE 2: The test case limit values are specified in EN 300 394-1 [7], clause 7. NOTE 3: The test methods are specified in EN 300 394-1 [7], 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 (see note 1)	Description	Technical phenomena	Test case limit value (see note 2)	Test method reference (see 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 EN 300 392-2 [4] under the given clause.
NOTE 2: The test case limit values are specified in EN 300 394-1 [7], clause 7.
NOTE 3: The test methods are specified in EN 300 394-1 [7], 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 (see 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 EN 300 392-2 [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 (see note 1)	Description	Technical phenomena	Test purpose reference (see note 2)	Test case reference (see 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 (see note 1)	Description	Technical phenomena	Test purpose reference (see note 2)	Test case reference (see 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/TI-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/TI-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 (see note 1)	Description	Technical phenomena	Test purpose reference (see note 2)	Test case reference (see 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 EN 300 392-2 [4], under the given clause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [8], clause 8.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-4 [11], 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 (see note 1)	Description	Technical phenomena	Test purpose reference (see note 2)	Test case reference (see 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 EN 300 392-2 [4], under the given clause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [8], clause 7.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-3 [10], 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 (see note 1)	Description	Technical phenomena	Test purpose reference (see note 2)	Test case reference (see 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 EN 300 392-2 [4], under the given clause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [8], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [9], 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 (see note 1)	Description	Technical phenomena	Test purpose reference (see note 2)	Test case reference (see 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 EN 300 392-2 [4], under the given clause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [8], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [9], 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 (see note 1)	Test case reference (see note 2)
4.2.4.6/9	ETS 300 396-5 [14] clause 10.3.1, EN 300 392-2 [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 [14] clause 10.3.1, EN 300 392-2 [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 [14] clause 10.3.1, EN 300 392-2 [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 [12], clause 6.
NOTE 2: The test cases, as referenced, are specified in ETS 300 394-4-10 [13], 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 (see note 1)	Description	Technical phenomena	Test purpose reference (see note 2)	Test case reference (see 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/TI-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_TI_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 (see note 1)	Description	Technical phenomena	Test purpose reference (see note 2)	Test case reference (see 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 EN 300 392-2 [4], under the given clause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [8], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [9], annex A.

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

Requirement reference	Standard reference (see note 1)	Description	Technical phenomena	Test purpose reference (see note 2)	Test case reference (see 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 pre-emption 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 [14] under the given clause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-8 [12], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-10 [13], 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 EN 300 394-1 [7].

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 16.

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with ETR 028 [19] 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 16 is based on such expansion factors.

Table 16: 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)	±1,0 dB
RF power relative to 0 dB reference (< -45 dBc to -73 dBc)	±1,5 dB
Unwanted output power in non-active transmit state:	
RF power relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power relative to 0 dB reference (< -45 dBc to -73 dBc)	±1,5 dB
Adjacent channel power:	
RF power (0 dB reference)	±1,0 dB
RF power relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power relative to 0 dB reference (< -45 dBc to -73 dBc)	±1,5 dB
RF power (absolute limit values)	±1,0 dB
Unwanted emissions far from the carrier; discrete spurious:	
RF power (offsets within f_{rb})	±1,5 dB
RF power (offsets > f_{rb}, not TETRA filtered); f ≤ 1 GHz	±1,5 dB
RF power (offsets > f_{rb}, not TETRA filtered); 1 GHz < f ≤ 2 GHz	±2,0 dB
RF power (offsets > f_{rb}, not TETRA filtered); 2 GHz < f ≤ 4 GHz	±3,0 dB
RF power (offsets > f_{rb}, not TETRA filtered); 4 GHz < f ≤ 12,75 GHz	±4,0 dB
Unwanted emissions far from the carrier; wideband noise:	
RF power relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power relative to 0 dB reference (< -45 dBc to -105 dBc)	±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)	±1,0 dB
RF power relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power relative to 0 dB reference (< -45 dBc to -73 dBc)	±1,5 dB
Unwanted conducted emissions:	
RF power (not TETRA filtered); f ≤ 1GHz	±1,5 dB
RF power (not TETRA filtered); 1 GHz < f ≤ 2 GHz	±2,0 dB
RF power (not TETRA filtered); 2 GHz < f ≤ 4 GHz	±3,0 dB
RF power (not TETRA filtered); 4 GHz < f ≤ 12,75 GHz	±4,0 dB
Tx intermodulation attenuation	
RF power (0 dB reference)	±1,0 dB
RF power (not TETRA filtered) relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power (not TETRA filtered) relative to 0 dB reference (< -45 dBc to -73 dBc)	±1,5 dB
RF power for MS link control	±0,75 dB
Modulation accuracy:	
RMS vector error	±1,0 %
Peak vector error	±3,0 %
Residual carrier magnitude	±1,0 %
Carrier frequency accuracy:	
Frequency 300 MHz ≤ f ≤ 520 MHz	±0,02 ppm
Frequency 520 MHz < f ≤ 1 GHz	±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, EN 300 394-1 [7];

b) protocol conformance testing specifications:

- Test Suite Structure (TSS) and Test Purposes (TPs) for V+D, ETS 300 394-2-1 [8];
- Test Suite Structure (TSS) and Test Purposes (TPs) for DMO Gateway, ETS 300 394-4-8 [12];
- ATS for NWK layer, ETS 300 394-2-2 [9];
- ATS for LLC layer, ETS 300 394-2-3 [10];
- ATS for MAC layer, ETS 300 394-2-4 [11];
- ATS for DMO Gateway, ETS 300 394-4-10 [13].

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

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 bibliography).

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 EN 300 394-1 [7], 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 17: Test case index for radio layer for BS, MS and DM-GATE

Test Case Index			
Test case limit value reference (see note 1)	**Test method reference (see 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], table A.3; 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_A	To test the nominal error rate of a class A BS. EN 300 394-1 [7], table A.7; nominal error: - TCH/7,2, TU50, -85 dBm, - TCH/7,2, STAT, -20 dBm.

Test Case Index			
Test case limit value reference (see note 1)	**Test method reference (see note 2)**	**Selection reference**	**Description**
7.2.2.2	9.2 and 9.2.2	BS_Class_B	To test the nominal error rate of a class B BS. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], table A.11: - SCH/F, TU50, -106 dBm.
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. EN 300 394-1 [7], table A.1: - co-channel interference, - adjacent channel interference.

Test Case Index			
Test case limit value reference (see note 1)	**Test method reference (see note 2)**	**Selection reference**	**Description**
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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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. EN 300 394-1 [7], 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 (see note 1)	**Test method reference (see 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 EN 300 394-1 [7], clause 7. NOTE 2: The test methods, as referenced, are specified in EN 300 394-1 [7], clauses 8 to 10.			

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

Table 18: 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 19: 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 20: Test case index for radio layer for TMO-REP

Test Case Index			
Test case limit value reference (see note 1)	**Test method reference (see 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 TS 101 789-1 [16], clause 5. NOTE 2: The test methods, as referenced, are specified in TS 101 789-1 [16], clause 5.			

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

Table 21: 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 22: 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 23: Test suite structure for MAC layer

Test Suite Structure		
Suite Name: MAC Standards Reference: EN 300 392-2 [4] PICS Reference: ETS 300 392-14 [5] PIXIT Reference: ETS 300 394-2-4 [11], 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/TI/	Applicable_to_all_IUTs	Check the timers of the MAC layer.

5.3.4.2 Test case index for MAC layer

Table 24: 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/TI/	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 25: 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 26: 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 27: Test suite structure for LLC layer

Test Suite Structure		
Suite Name: LLC Standards Reference: EN 300 392-2 [4] PICS Reference: ETS 300 392-14 [5] PIXIT Reference: ETS 300 394-2-3 [10], 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 28: 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 29: 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 30: 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 31: Test suite structure for Mobile Link Entity (MLE)

Test Suite Structure		
Suite Name: NWK Standards Reference: EN 300 392-2 [4] PICS Reference: ETS 300 392-14 [5] PIXIT Reference: ETS 300 394-2-2 [9], 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 32: 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 33: 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 34: 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 35: Test suite structure for Mobility Management (MM) for MS

Test Suite Structure		
Suite Name: NWK Standards Reference: EN 300 392-2 [4] PICS Reference: ETS 300 392-14 [5] PIXIT Reference: ETS 300 394-2-2 [9], 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_support ed	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 36: 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 37: 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 38: 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_SUPPORT ED	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 39: Test suite structure for Mobility Management (MM) for DM-GATE

Test Suite Structure		
Suite Name: DMO_GATE Standards Reference: ETS 300 396-5 [14] PICS Reference: ETS 300 396-8-3 [15] PIXIT Reference: ETS 300 394-4-10 [13], 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 40: 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 41: 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 42: 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 43: Test suite structure for Circuit Mode Control Entity (CMCE) for MS

Test Suite Structure		
Suite Name: NWK Standards Reference: EN 300 392-2 [4] PICS Reference: ETS 300 392-14 [5] PIXIT Reference: ETS 300 394-2-2 [9], 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/TI/	Call_setup_supported	To test the timers of the CMCE module of the IUT, when operating in individual call mode.

Test Suite Structure		
Suite Name: NWK Standards Reference: EN 300 392-2 [4] PICS Reference: ETS 300 392-14 [5] PIXIT Reference: ETS 300 394-2-2 [9], 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/	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.
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/TI/	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 44: 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.

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Reference**	**Description**
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.
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 does not 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 does not 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 does not 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 does not 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 does not 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 does not 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 does not 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 does not receive a response to its U-SETUP before T303 expires, during outgoing individual call using direct signalling.

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Reference**	**Description**
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_08	Direct_signalling_supported	Test duration of T302, IUT should clear call if it does not 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.
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 does not 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 45: 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 46: 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 47: 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 [14] PICS Reference: ETS 300 396-8-3 [15] PIXIT Reference: ETS 300 394-4-10 [13], 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 48: 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 49: 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 50: 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.			

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

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:

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)	EN 300 392-2	o.1	
2	TETRA Mobile Station (MS)	EN 300 392-2	o.1	
3	TETRA DMO Gateway (DM-GATE)	ETS 300 396-5	o.1	
4	TETRA TMO Repeater (TMO-REP)	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 (see note)	Status	Support
1	Radio Layer for BS, MS and DM-GATE	5, 6	c201	
2	Radio Layer for TMO-REP	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	
NOTE: The protocols are specified in EN 300 392-2 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 (see 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.2	
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.3	
NOTE: The capabilities or features are specified in EN 300 392-2 under the given clause(s).				

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

c301: IF A.1/1 -- BS
THEN o.4
ELSE m

c302: IF A.1/1 -- BS
THEN o.4
ELSE n

A.1.4 Environmental profile

Table A.4: Environmental profile

No.	**EN Reference**	**EN-R (see note 1)**	**Standard reference (see 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. 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 (see 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.5	
5	Class B equipment	6.6.2	o.5	
6	Class E equipment	6.6.2	c502	
NOTE: The capabilities or features are specified in EN 300 392-2 under the given clause.				

o.5: 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.5
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 (see note 1)**			**Standard reference (see 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, TS 100 392-15, clauses 5 and 6, ERC/DEC/(96)01	o.6				
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, TS 100 392-15, clauses 5 and 6, ERC/DEC/(96)04	o.6				
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, TS 100 392-15, clauses 5 and 6, ERC/DEC/(96)04	o.6				
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, TS 100 392-15, clauses 5 and 6, ERC/DEC/(96)04	o.6				
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, TS 100 392-15, clauses 5 and 6, ERC/DEC/(96)04	o.6				
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive. NOTE 2: The parameters are specified in EN 300 392-2 under the given clause(s), unless otherwise stated.										

o.6: 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 (see note)**		**Standard reference**	**Status**	**Support**	**Supported values**	
		Frequency range (MHz)					**Frequency range (MHz)**	
		Uplink	**Downlink**				**Uplink**	**Downlink**
1	4.2.1/1	380 to 385	390 to 395	ERC/DEC/(96)01	o.7			
2	4.2.1/2	410 to 420	420 to 430	ERC/DEC/(96)04	o.7			
3	4.2.1/2	870 to 876	915 to 921	ERC/DEC/(96)04	o.7			
4	4.2.1/2	450 to 460	460 to 470	ERC/DEC/(96)04	o.7			
5	4.2.1/2	385 to 390	395 to 399,99	ERC/DEC/(96)04	o.7			
NOTE: These EN-Rs are justified under article 3.2 of the R&TTE Directive.								

o.7: 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 (see note 1)**	**Standard reference (see 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. NOTE 2: The requirement is specified in EN 300 392-2 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 (see note 1)**	**Standard reference (see 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	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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 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 (see note 1)**	**Standard reference (see 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. NOTE 2: The requirement is specified in EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note)	**Status**	**Support**	**Standard reference (see 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 EN 300 392-2 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 (see note)	**Status**	**Support**	**Standard reference (see 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 EN 300 392-2 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 (see note)	**Status**	**Support**	**Standard reference (see note)**	**Status**	**Support**
1	MAC-TRAFFIC	21.4.6	c2401		21.4.6	c2401	
NOTE: The PDUs are specified in EN 300 392-2 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 (see note 1)**	**Standard reference (see note 2)**	**Status**	**Support**	**Values**	
						Allowed	**Supported**
1	4.2.4.3/29	T.205	B.1	m		5..60 multiframes	
NOTE 1: This EN-R is justified under article 3.2 of the R&TTE Directive. NOTE 2: The constant is specified in EN 300 392-2 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 (see note)**	**Status**	**Support**
1	Basic link acknowledged service	22.2.1, 22.3.2	m	
NOTE: The features are specified in EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)	**Status**	**Support**	**Standard reference (see 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 (see note 2)		21.2.2.1	c2801	
5	BL-ADATA with FCS	21.2.2.2	m (see note 2)		21.2.2.2	c2801	
6	BL-DATA with FCS	21.2.2.3	m (see note 2)		21.2.2.3	c2801	
NOTE 1: The PDUs are specified in EN 300 392-2 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 (see note 1)**	**Standard reference (see note 2)**	**Status**	**Support**	**Values**	
						Allowed	**Supported**
1	4.2.4.4/6	N.252	A.2	m		1 .. 5, 3 .. 5 (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 under the given clause.					

Table A.32: MLE cell re-selection procedures

Prerequisite: A.31/2 -- Cell re-selection					
No.	**EN Reference**	**EN-R (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note)	**Status**	**Support**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see 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 EN 300 392-2 under the given clause(s).				

Table A.36: MM registration procedures

Prerequisite: A.35/1 -- Registration procedures					
No.	**EN Reference**	**EN-R (see note 1)**	**Standard reference (see 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 EN 300 392-2 under the given clause.					

Table A.37: MLE initiated registration procedures

Prerequisite: A.36/1 -- MLE initiated registration					
No.	**EN Reference**	**EN-R (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note)**	**Standard reference EN 300 392-2**	**Standard reference ETS 300 396-5**	**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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note)**	**Status**	**Support**
1	Call Control (CC)	11.2	o	
NOTE: The services are specified in EN 300 392-2 under the given clause.				

Table A.44: CC features

Prerequisite: A.43/1 -- CC				
No.	**CC feature**	**Standard reference (see note)**	**Status**	**Support**
1	Individual call	14.5.1	m	
2	Group call	14.5.2	m	
NOTE: The features are specified in EN 300 392-2 under the given clause.				

Table A.45: CC Individual call signalling functions

Prerequisite: A.44/1 -- Individual call				
No.	**Signalling function**	**Standard reference (see note)**	**Status**	**Support**
1	On/off hook signalling	14.5.1.1	o.8	
2	Direct set-up signalling	14.5.1.1	o.8	
NOTE: The signalling functions are specified in EN 300 392-2 under the given clause(s).				

o.8: 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 under the given clause(s).					

Table A.48: CC individual call maintenance functions

Prerequisite: A.44/1 -- Individual call					
No.	**EN Reference**	**EN-R (see note 1)**	**Standard reference (see 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 EN 300 392-2 under the given clause(s).					

Table A.49: CC group call maintenance functions

Prerequisite: A.44/2 -- Group call					
No.	**EN Reference**	**EN-R (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 under the given clause(s).					

Table A.52: CC individual call clearance functions

Prerequisite: A.44/1 -- Individual call					
No.	**EN Reference**	**EN-R (see note 1)**	**Standard reference (see 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 EN 300 392-2 under the given clause(s).					

Table A.53: CC group call clearance functions

Prerequisite: A.44/2 -- Group call					
No.	**EN Reference**	**EN-R (see note 1)**	**Standard reference (see 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 EN 300 392-2 under the given clause(s).					

Table A.54: CC PDUs

Prerequisite: A.43/1 -- CC				
No.	**PDU (see note 1)**	**Standard reference (see 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 EN 300 392-2 under the given clause.				

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

Table A.55: CC timers

Prerequisite: A.43/1 -- CC							
No.	**EN Reference**	**EN-R (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see 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 (see note)**	**Status**	**Support**
1	Individual circuit mode call	9	o.9	
2	Group circuit mode call	9	o.9	
3	Accept incoming call from V+D	9.3.1	o.10	
4	Accept incoming call from DM-MS	9.3.2	o.10	
NOTE: The features are specified in ETS 300 396-5 under the given clause.				

o.9: It is mandatory to support at least one of these items
o.10: 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 (see note 1)**	**Standard reference (see 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 pre-emption 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 (see note 1)**	**Standard reference (see 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 EN 300 392-2 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 (see note 1)**	**Standard reference (see 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

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

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) (see 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	410 to 420	420 to 430		
3	870-876/915-921	870 to 876	915 to 921		
4	450-470	450 to 460	460 to 470		
5	385-390/395-399,99	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	EN 300 392-2	

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.	

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

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 essentiele 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 Direktive; Part 1; Voice plus Data (V+D)
Greek	Εναρμονισμένο ΕΝ για εξοπλισμό TETRA για την κάλυψη των ουσιωδών απαιτήσεων του αρθρου 3.2 της Οδηγίας R&TTE – Μέρος 1: Φωνή συν Δεδομένα (V+D)
Icelandic	Samraemdur evropskur stadall (EN) fyrir TETRA taeki sem naer yfir grunnkrofur skv. 3.2 gr. i R&TTE tilskipuninni; 1. hluti: Tal og gagnaflutningur (V+D)
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 requesitos essenciais incluidos no articulo 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 articulo 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

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 bibliography), 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 behaviour 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 301 489-1: "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements".
- 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".

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