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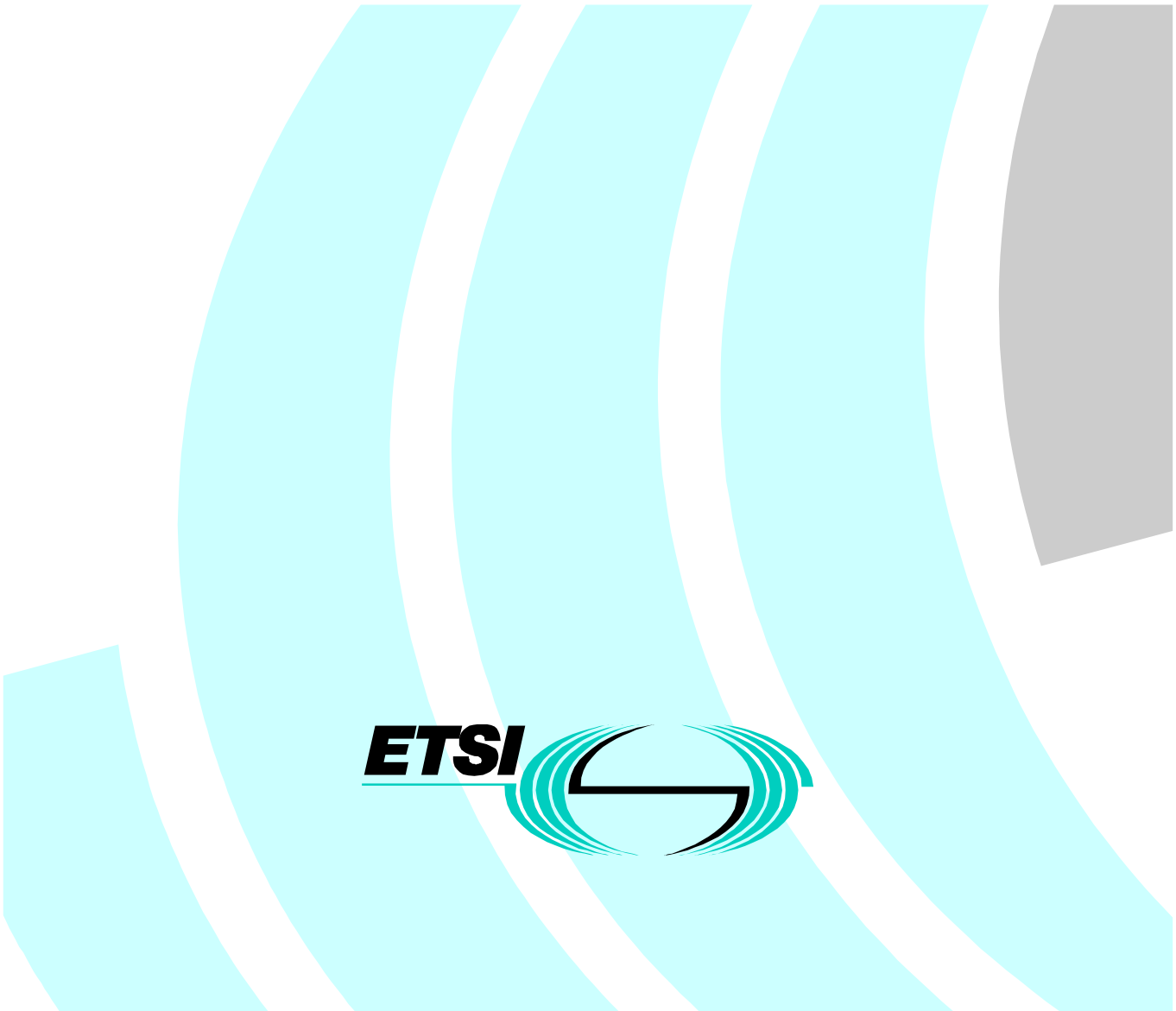
Candidate Harmonized European Standard (Telecommunications series)

Terrestrial Trunked Radio (TETRA); Attachment requirements for TETRA terminal equipment; Part 1: Civil access



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Contents

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Foreword

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

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

The present document, together with EN 301 435-2, is intended to become a Harmonized Standard, the reference of which will be published in the Official Journal of the European Communities referencing the Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility ("the EMC Directive") (89/336/EEC as amended).

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

1 Scope

The present document specifies the technical characteristics to be provided by TErrestrial Trunked Radio (TETRA) terminal equipment, which uses the TETRA technology. It applies to terminal equipment operating within the frequency ranges, which are expected to be allocated to TETRA when member states have implemented ERC Decision ERC/DEC/(96)/4 [44].

The objective of the present document is to ensure that no disturbance occurs to the public telecommunications network, to ensure proper inter-working of TETRA terminals with TETRA networks, so that communication can be routed successfully through the applicable network(s), and to ensure interworking of TETRA terminal with TETRA terminal under control of a network management mechanism to avoid interference.

In addition to the present document, other Harmonized Standards may apply.

Requirements apply to the network interface and the Radio Frequency (RF) Air Interface of the equipment.

TETRA terminal equipment consists of several elements. The present document is structured to enable the approval of the individual elements as separate items. Because of the need for effective use of the radio spectrum, the essential air interface characteristics will always apply. For each essential requirement a test is given including measurement methods.

In the present document there are no Electromagnetic Compatibility (EMC) requirements in terms of the Terminal Directive 98/13/EC [41], article 5c.

NOTE: Technical requirements for EMC performance are covered by the relevant standards applicable to the EMC Directive 89/336/EEC [43] which also lays down the conformity assessment procedure.

The present document is based on the radio and protocol provisions of ETS 300 392, ETS 300 394 and ETS 300 396.

2 References

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

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

[1] ETSI EN 300 392-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".

[2] ETSI EN 300 392-7: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 7: Security".

[3] ETSI ETS 300 392-10: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1".

[4] ETSI ETS 300 392-11: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary services stage 2".

[5] ETSI ETS 300 392-12: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3".

[6] ETSI ETS 300 392-14: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 14: Protocol Implementation Conformance Statement (PICS) proforma specification".

[7] ETSI TS 100 392-15: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 15: TETRA frequency bands, duplex spacings and channel numbering".

[8] ETSI ETS 300 394-1: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 1: Radio".

[9] ETSI ETS 300 394-2-1: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 2: Protocol testing specification for Voice plus Data (V+D); Sub-part 1: Test suite structure and test purposes".

[10] ETSI ETS 300 394-2-2: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 2: Protocol testing specification for Voice plus Data (V+D); Sub-part 2: Abstract Test Suite (ATS) for Network (NWK) layer".

[11] ETSI ETS 300 394-2-3: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 2: Protocol testing specification for Voice plus Data (V+D); Sub-part 3: Abstract Test Suite (ATS) for Logical Link Control (LLC)".

[12] ETSI ETS 300 394-2-4: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 2: Protocol testing specification for Voice plus Data (V+D); Sub-part 4: Abstract Test Suite (ATS) for Medium Access Control (MAC)".

[13] ETSI ETS 300 394-5-1: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security; Sub-part 1: Protocol Implementation Conformance Statement (PICS) proforma specification".

[14] ETSI ETS 300 394-5-2: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security; Sub-part 2: Protocol testing specification for TETRA security".

[15] ETSI ETS 300 394-5-3: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security; Sub-part 3: Abstract Test Suite (ATS)".

[16] ETSI ETS 300 396-2: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 2: Radio aspects".

[17] ETSI ETS 300 396-3: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 3: Mobile Station to Mobile Station (MS-MS) Air Interface (AI) protocol".

[18] ETSI EN 300 396-4: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 4: Type 1 repeater air interface".

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

[20] ETSI ETS 300 396-6 (1996): "Terrestrial Trunked Radio (TETRA); Direct Mode Operation (DMO); Part 6: Security".

[21] ETSI EN 300 396-7: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 7: Type 2 repeater air interface".

[22] ETSI ETS 300 396-8-1: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 8: Protocol Implementation Conformance Statement (PICS) proforma specification; Sub-part 1: Mobile Station to Mobile Station (MS-MS) Air Interface (AI)".

[23] ETSI EN 300 396-8-2: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 8: Protocol Implementation Conformance Statement (PICS) proforma specification; Sub-part 2: Type 1 repeater Air Interface (AI)".

[24] ETSI ETS 300 396-8-3: "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)".

[25] ETSI ETS 300 396-8-4: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 8: Protocol Implementation Conformance Statement (PICS) proforma specification; Sub-part 4: Type 2 Repeater Air Interface (AI)".

[26] ETSI TS 100 396-10: "Terrestrial Trunked Radio (TETRA) Technical requirements for Direct Mode Operation (DMO) Part 10: Managed Direct Mode Operation (DMO)".

[27] ETSI ETS 300 394-4-1: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 1: Test suite structure and test purposes (TSS&TP) for Mobile Station to Mobile Station (MS-MS) Air Interface (AI)".

[28] ETSI ETS 300 394-4-2: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 2: Abstract Test Suite (ATS) for Mobile Station to Mobile Station (MS-MS) Air Interface (AI)".

[29] ETSI EN 300 394-4-3: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 3: Test suite structure and test purposes (TSS&TP) for Mobile Station (MS) Repeater type 1".

[30] ETSI EN 300 394-4-4: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 4: Test suite structure and test purposes (TSS&TP) for Direct Mode Repeater (DM-REP) type 1".

[31] ETSI EN 300 394-4-5: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 5: Abstract Test Suite (ATS) for Mobile Station (MS) Repeater type 1".

[32] ETSI EN 300 394-4-6: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 6: Abstract Test Suite (ATS) for Direct Mode Repeater (DM-REP) type 1".

[33] ETSI ETS 300 394-4-7: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 7: Test suite structure and test purposes (TSS&TP) for Mobile Station to Gateway (MS-GW) Air Interface (AI)".

[34] ETSI ETS 300 394-4-8: "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)".

[35] ETSI ETS 300 394-4-9: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 9: Abstract Test Suite (ATS) for Mobile Station (MS) Gateway".

[36] ETSI ETS 300 394-4-10: "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)".

[37] ETSI EN 300 394-4-11: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 11: Test Suite Structure and Test Purposes (TSS&TP) for Mobile Station Repeater type 2".

[38] ETSI EN 300 394-4-12: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 12: Test Suite Structure and Test Purposes (TSS&TP) for Repeater type 2".

[39] ETSI EN 300 394-4-13: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 13: Abstract Test Suite (ATS) for Mobile station Repeater type 2".

[40] ETSI EN 300 394-4-14: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 14: Abstract Test Suite (ATS) for Repeater type 2".

[41] Directive 98/13/EC of the European Parliament and of the Council of 12 February 1998 relating to telecommunications terminal equipment and satellite earth station equipment, including the mutual recognition of their conformity.

[42] ISO/IEC 9646-3 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The tree and tabular combined notation". (See also CCITT Recommendation X.292 (1992)).

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

[44] 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)".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

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

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

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

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

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

Bit Error Ratio (BER): limit ratio of the bits wrongly received to all bits received in a given logical channel.

broadcast: unidirectional point to multi-point mode of transmission.

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

changeover: within a call, the process of effecting a transfer of the master role (and hence transmitting MS) at the end of one call transaction so that another can commence.

Common Cipher Key (CCK): cipher key that is generated by the infrastructure to protect group addressed signalling and traffic.

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

Direct Mode (DM): mode of simplex operation where mobile subscriber radio units may communicate using radio frequencies which may be monitored by, but which are outside the control of, the TETRA V+D network. DM is performed without intervention of any base station.

Direct Mode Call Control (DMCC): layer 3 entity responsible for setting up and maintaining a call in DMO.

Direct Mode channel: specific grouping of timeslots in the DM multiplex structure related to a particular DM RF carrier i.e. DM frequency (or to a pair of duplex-spaced RF carriers for operation with a type 1B or type 2 DM-REP). The grouping may not always be fixed, but in DMO when operating in frequency efficient mode as an example, there are two DM channels, identified by the letters A and B.

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

Direct Mode Mobility Management (DMMM): layer 3 entity responsible for registration to a gateway in DMO.

Direct Mode Mobile Station (DM-MS): physical grouping that contains all of the mobile equipment that is used to obtain TETRA DM services.

Direct Mode REPeater (DM-REP): device that operates in TETRA DMO and provides a repeater function to enable two or more DM-MSs to extend their coverage range. It may be either a DM-REP type 1, supporting a single call on the air interface, or a DM-REP type 2, supporting two calls on the air interface. A DM-REP type 1 may operate on either a single RF carrier (DM-REP type 1A) or a pair of duplex-spaced RF carriers (DM-REP type 1B). A DM-REP type 2 operates on a pair of duplex-spaced RF carriers.

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.

DM-REP presence signal: message transmitted by a DM-REP in order to indicate its presence on an RF carrier.

DM-REP type 1: DM repeater that supports a single call on the air interface. There are two varieties of type 1 DM-REP:

- **DM-REP type 1A:** which operates on a single RF carrier;
- **DM-REP type 1B:** which operates on a pair of duplex-spaced RF carriers, one used as the "uplink" from DM-MSs to the DM-REP and the other used as the "downlink" from the DM-REP to DM-MSs.

DM-REP type 2: DM repeater that is capable of supporting two simultaneous type 2 calls on the air interface. A type 2 DM-REP operates on a pair of duplex-spaced RF carriers, one used as the "uplink" from DM-MSs to the DM-REP and the other used as the "downlink" from the DM-REP to DM-MSs. The protocol for type 2 calls through a type 2 DM-REP is based on the protocol for frequency efficient mode in ETS 300 396-3 [17]. (A DM-REP type 2 may also optionally offer type 1B calls using the protocol defined in EN 300 396-4 [18]).

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

Group Cipher Key (GCK): long lifetime cipher key known by the infrastructure and MS to protect group addressed signalling and traffic.

Group TETRA Subscriber Identity (GTSI): identity used to set up and receive group calls. A TETRA user may have multiple GTSIs associated to its ITSI. Multiple user may have the same GTSI as a valid reception address.

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

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

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

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

Managed DMO (M-DMO): direct interworking between two DMO Mobile Stations under control of a network by a management mechanism to avoid interference

master: direct Mode equipment that is either active in a call transaction transmitting traffic or control data, or is reserving the channel by means of channel reservation signalling and hence is providing synchronization information to the channel.

Message Erasure Rate (MER): limit ratio of the messages detected as wrong by the receiver to all messages received in a given logical channel.

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

presence signal: message transmitted by a DM-REP or a gateway in order to indicate its presence on an RF carrier.

Probability of Undetected Erroneous Message (PUEM): limit ratio of the erroneous messages detected as right by the receiver to all messages received in a given logical channel.

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

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

Sealed Common Cipher Key (SCCK): common cipher key cryptographically sealed with a particular user's derived cipher key. In this form the keys are distributed over the air interface.

Sealed Group Cipher Key (SGCK): group cipher key cryptographically sealed with a particular user's derived cipher key. In this form the keys are distributed over the air interface.

Sealed Static Cipher Key (SSCK): static cipher key cryptographically sealed with a particular user's secret key. In this form the keys are distributed over the air interface.

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

slave: direct Mode equipment that is receiving traffic and/or signalling and hence is deriving synchronization information from the channel.

solicited registration: registration request which is made by a DM-MS during a registration phase initiated by a gateway.

Static Cipher Key (SCK): cipher key that is independent of any other key that may be used if no (successful) authentication has taken place.

surveillance: process of monitoring the quality of the radio link to the serving cell for V+D, and the process of determining the current state of the DM RF carrier for DMO.

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

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

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

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

unsolicited registration: registration request which is made by a DM-MS at any time other than within a registration phase.

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 Symbols

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

Um	TETRA Voice plus Data (V+D) air interface
Ud	TETRA Direct Mode (DM) air interface

3.3 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
AU	AUthentication
BA	Basic link, Acknowledged service
BU	Basic link, Unacknowledged service
BI	Behaviour invalid
BNCH	Broadcast Network CHannel
BS	Base Station
BSCH	Broadcast Synchronization CHannel
CA	CApability test
Cat.	Category
CC	Call Control
CCK	Common Cipher Key
CLCH	Common Linearization CHannel
CM	Circuit Mode
CMCE	Circuit Mode Control Entity
CONP	Connection Oriented Network Protocol
CR	Cell Reselection
CSS	Carrier Specific Signalling
CT	Control of Transmission
CTR	Common Technical Requirement
CU	Channel Usage
DM	Direct Mode
DM-GATE	Direct Mode GATEway
DM-MS	Direct Mode Mobile Station
DM-REP	Direct Mode REPeater
DM-REP1	Direct Mode REPeater type 1
DM-REP2	Direct Mode REPeater type 2
DMCC	Direct Mode Call Control
DMMM	Direct Mode Mobility Management
DMO	Direct Mode Operation
EN	ENable
ETS	European Telecommunication Standard
FCS	Frame Check Sequence
GC	Group Call
GCK	Group Cipher Key
GSSI	Group Short Subscriber Identity
GTSI	Group TETRA Subscriber Identity
GW	GateWay
GWCC	GateWay Call Control
GWMM	GateWay Mobility Management
HD	Half-slot Down-link
HU	Half-slot Up-link
IC	Individual Call
ID	IDle Channel
II	Infrastructure Initiated
IMP	IMPlicit
ITSI	Individual TETRA Subscriber Identity

IUT	Implementation Under Test
KH	Key Holder
KS	Key Sealer
KU	Key User
L3	Layer 3
LA	Location Area
LLC	Logical Link Control
LS	Line Station
M-DMO	Managed DMO
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
MS-GW	Mobile Station to GateWay operation
MS-MS	Mobile Station to Mobile Station operation
MS-REP1	Mobile Station to Repeater type 1 operation
MS-REP2	Mobile Station to Repeater type 2 operation
MSMS	Mobile Station to Mobile Station
NB	Network Broadcast
NCM	Normal Control Mode
NWK	NetWorK layer
OC	Outgoing Call
OTAR	On The Air Rekeying
PD	Permanent Disable
PDU	Protocol Data Unit
PEI	Peripheral Equipment Interface
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PUEM	Probability of Undetected Erroneous Message
RA	Random Access
RAND1	RANDom challenge 1
RE	REserved Access (for MAC layer) or REgistration (for MLE layer)
REG	REGistration
RES2	RESponse 2
RF	Radio Frequency
RO	Receive Occupation
RR	Receive Reservation
RS	Random Seed
RT	Requirements Table
SCCH	Secondary Control CHannel
SCCK	Sealed Common Cipher Key
SCH	Signalling CHannel
SCH/F	Signalling CHannel, Full-slot
SCH/H	Signalling CHannel, Half-slot
SCH/S	Signalling CHannel, Synchronization
SCK	Static Cipher Key
SCKN	Static Cipher Key Number
SCLNP	Specific ConnectionLess Network Protocol
SDS	Short Data Services
SDU	Service Data Unit
Sec	Security
SED	Secure Enable/Disable
SGCK	Sealed GCK
SIM	Subscriber Identity Module
SM	Signalling Messages
SS	Supplementary Service

SSCK	Sealed SCK
SSI	Short Subscriber Identity
STCH	STealing CHannel
SU	Set-Up
SwMI	Switching and Management Infrastructure
TAR	TARget
TC	Transmission Control
TCH	Traffic CHannel
TD	Tempory Disable
TEI	TETRA Equipment Identity
TETRA	TErrestrial Trunked RAdio
TI	TImer or Terminal Initiated (for Security)
TM	TETRA MAC layer
TSS	Test Suite Structure
TP	Test Purpose
TR	Transmit Reservation
TTCN	Tree and Tabular Combined Notation
TXO	Transmit Occupation
V+D	Voice and Data
VD	Voice and Data
VN	Version Number

4 Requirements

This clause references the requirements from the standards specifying TETRA. It also contains the justifications for inclusion of the requirements, and 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 Requirements Tables (RT) in annex A.

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

- **Requirement reference:** Reference to a (sub)clause(s) in the reference specification.
- **Description:** A short description of the requirement.
- **Category (Cat.):** The category in which the relative item falls under the article 5 in the Council Directive 98/13/EC [41].

  The interpretation of category column in all tables is as follows:

  d falls under item (d) from Article 5 of Council Directive 98/13/EC [41], "protection of the network from harm";

  e falls under item (e) from Article 5 of Council Directive 98/13/EC [41], "effective use of radio frequency spectrum";

  f falls under item (f) from Article 5 of Council Directive 98/13/EC [41], "interworking with the network";

  g falls under item (g) from Article 5 of Council Directive 98/13/EC [41], "interworking via the network, in justified cases".

NOTE: There are no EMC technical requirements in the present document, which are specific to the equipment in terms of item (c) from Article 5 of Council Directive 98/13/EC [41]. Other technical aspects of EMC performance and testing of the equipment are covered by the relevant requirements of the EMC Directive, 89/336/EEC [43].

- **Justification:** The justification for the requirement against the indicated category.
- **Test method reference:** For physical layer tables, a test method is referenced for each requirement.

- **Test case limit value:** For physical layer tables, the limit values are indicated for a requirement when applicable.
- **Test purpose reference:** For protocol layer tables, at least one test purpose is referenced for each requirement.
- **Test case reference:** For protocol layer tables, at least one test case is referenced for each requirement.

4.1 Environmental profile

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

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

4.2 Requirements at the Um air interface

4.2.1 Physical layer requirements

This subclause contains the radio layer requirements at the Um air interface.

Table 1: Radio layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
5.2	Modulation type.	d, e	Incorrect modulation will lead to disturbance of other TETRA users.	-	Implicit by 10.1.3.
6.2	Frequency bands and channel arrangements.	d, e	Incorrect use of frequency bands and channel arrangements may cause unnecessary interference in the radio spectrum.	-	Implicit by 10.2.1/10.2.2
6.4.1.1	BS transmitter output power.	d, e	Maladjustment of the RF output power may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.1.1.2	8.1 and 8.1.2
6.4.1.2	MS transmitter output power.	d, e	Maladjustment of the RF output power may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.1.1.2	8.1 and 8.1.1
6.4.1.2	MS nominal transmitter output power control levels.	d, e	Maladjustment of the RF output power may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.1.1.2	8.1 and 8.1.1
6.4.2.2.1	Unwanted conducted emission over the useful part of the burst.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.3.2	8.3
6.4.2.2.2	Unwanted conducted emission during the switching transients.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.4.2	8.4
6.4.2.3	Unwanted conducted emission far from the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.5.2	8.5
6.4.2.4	Unwanted conducted emission during CLCH and BLCH.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.7.2	8.7, 8.7.1 and 8.7.2
6.4.2.5	Unwanted conducted emission in the non-transmit state.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.8.2	9.8
6.4.3	Unwanted radiated emissions.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.6.2	8.6
6.4.5	BS output power time mask.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.1.2	8.1 and 8.1.2
6.4.5	MS output power time mask.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.1.2	8.1 and 8.1.1
6.4.5.1	BS output power in non-active transmit state.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.2.2	8.2
6.4.5.2	MS output power in non-active transmit state.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.2.2	8.2
6.4.6.2	BS transmitter intermodulation attenuation.	d, e	A transmitter intermodulation attenuation below an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.8.2.2	8.8 and 8.8.2
6.4.6.3	MS transmitter intermodulation attenuation.	d, e	A transmitter intermodulation attenuation below an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.8.2.1	8.8 and 8.8.1
6.4.7	Intra-BS transmitter intermodulation attenuation.	d, e	A transmitter Intra-BS intermodulation attenuation below an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.8.2.3	8.8 and 8.8.3

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
6.5.1.2	Blocking characteristics.	e	Insufficient blocking characteristics of the receiver may lead to an unnecessarily high number of radio transmission attempts.	7.2.5.2	9.5, 9.5.1 and 9.5.2
6.5.2.2	Spurious response rejection.	d, e	Insufficient spurious response rejection may lead to an unnecessarily high number of radio transmission attempts.	7.2.6.2	9.6
6.5.3.2	Intermodulation response rejection.	d, e	Insufficient intermodulation response rejection may lead to an unnecessarily high number of radio transmission attempts.	7.2.7.2	9.7, 9.7.1 and 9.7.2
6.5.4.2	Unwanted conducted emission in reception.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.8.2	9.8
6.5.5	Unwanted radiated emission.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.9.2	9.9
6.6.1.2	Modulation accuracy.	e, f	Insufficient modulation accuracy may lead to the transmission of incorrect data.	7.3.1.2	10.1, 10.1.1, 10.1.2 and 10.1.3
6.6.2.1	Nominal error rate.	e, f	An unacceptable nominal error rate may lead to the reception of incorrect data.	7.2.2.2	9.2, 9.2.1 and 9.2.2
6.6.2.2	Dynamic reference sensitivity performance.	e, f	An unacceptable dynamic reference sensitivity performance may lead to the reception of incorrect data.	7.2.3.2	9.3, 9.3.1, 9.3.2 and 9.3.3
6.6.2.2.1	BS dynamic reference sensitivity performance.	e, f	An unacceptable dynamic reference sensitivity performance may lead to the reception of incorrect data.	7.2.3.2	9.3 and 9.3.2
6.6.2.2.2	MS dynamic reference sensitivity performance.	e, f	An unacceptable dynamic reference sensitivity performance may lead to the reception of incorrect data.	7.2.3.2	9.3 and 9.3.1
6.6.2.3	Reference interference performance.	e, f	An unacceptable reference interference performance may lead to the reception of incorrect data.	7.2.4.2	9.4, 9.4.1 and 9.4.2
6.6.2.3.1	BS reference interference performance.	e, f	An unacceptable reference interference performance may lead to the reception of incorrect data.	7.2.4.2	9.4 and 9.4.2
6.6.2.3.2	MS reference interference performance.	e, f	An unacceptable reference interference performance may lead to the reception of incorrect data.	7.2.4.2	9.4 and 9.4.1
6.6.2.4	Static reference sensitivity performance.	e, f	An unacceptable static reference sensitivity performance may lead to the reception of incorrect data.	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.
6.6.2.4.1	BS static reference sensitivity performance.	e, f	An unacceptable static reference sensitivity performance may lead to the reception of incorrect data.	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.
6.6.2.4.2	MS static reference sensitivity performance.	e, f	An unacceptable static reference sensitivity performance may lead to the reception of incorrect data.	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.
6.6.2.5	MS receiver performance for synchronization burst acquisition.	d, e	An insufficient synchronization burst acquisition may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
7.4	Timing of transmitted signal.	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
7.5	BS requirement for synchronization.	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	7.3.2.2	10.2 and 10.2.2

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
7.6	MS requirement for synchronization.	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	7.3.2.2 and 7.3.4.2	10.2, 10.2.1 and 10.4
9.5.2	Mapping of BCCH and CLCH.	d, e	Incorrect mapping of BCCH and CLCH may cause interference with other users.	-	Implicit by MAC layer testing.
9.5.3	Mapping of SCH.	d, e	Incorrect mapping of SCH may cause interference with other users.	-	Implicit by MAC layer testing.
9.5.4	Mapping of TCH and STCH.	d, e	Incorrect mapping of TCH and STCH may cause interference with other users.	-	Implicit by CMCE layer testing.
9.5.5	Mapping of AACH.	d, e	Incorrect mapping of AACH may cause interference with other users.	-	Implicit by MAC layer testing.
10.2	RF power control.	d, e, f	An insufficient RF power control may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.3.5.2	10.5
10.3.1	Received signal strength.	d, e, f	If the received signal strength is not measured sufficiently accurate this may lead to a maladjustment of the RF output power and thus either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.3.5.2	10.5
23.4.4.2	MS open loop power control.	d, e, f	An insufficient RF power control may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.3.5.2	10.5
TS 100 392-15 [7], clause 5	TETRA Frequency bands.	d, e	Incorrect use of frequency bands may cause unnecessary interference in the radio spectrum.	-	Implicit by 10.2.1/10.2.2
TS 100 392-15 [7], clause 6	Duplex spacing	d, e	Incorrect Duplex spacing may cause unnecessary interference in the radio spectrum.	-	Implicit by 10.2.1/10.2.2

NOTE 1: The requirements are specified in EN 300 392-2 [1] under the given subclause, except when otherwise stated.
NOTE 2: The test case limit values are specified in ETS 300 394-1 [8], clause 7.
NOTE 3: The test methods are specified in ETS 300 394-1 [8], clauses 8 to 10.

In addition to the requirements specified in table 1, the following applies for the TETRA V+D civil access for the frequency bands and channel arrangements defined in subclause 6.2 of EN 300 392-2 [1], and clauses 5 and 6 of TS 100 392-15 [7]:

The operational frequencies shall be within the ranges defined by ERC Decision ERC/DEC/(96)04 [44] for civil usage, i.e:

- the uplink RF carrier frequencies shall be within one or more of the bands 410 MHz to 420 MHz, 870 MHz to 876 MHz, 450 MHz to 460 MHz and 385 MHz to 390 MHz;

- the downlink RF carrier frequencies shall be within one or more of the bands 420 MHz to 430 MHz, 915 MHZ to 921 MHz, 460 MHz to 470 MHz and 395 MHz to 399,99 MHz.

The duplex spacing, D, shall correspond to the values allowed by ERC Decision ERC/DEC/(96)04 [44] for civil usage, i.e. it shall be:

- 10 MHz for operation within the bands 410 MHz to 430 MHz, 450 MHz to 470 MHz and 385 MHz to 390/395 MHz to 399,99 MHz;

- 45 MHz for operation within the band 870-876/915-921 MHz.

The requirements for frequency bands and channel arrangements are tested implicitly.

4.2.2 Layer 2 requirements

This subclause contains the layer 2 requirements at the Um air interface for MS.

Table 2: Lower MAC layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference	Test case reference (note 2)
8.3.1	Error control scheme for Access Assignment CHannel (AACH).	d, e	Incorrect decoding of AACH may cause interference with other users.	-	Implicit by Upper MAC layer testing.
8.3.2	Error control scheme for Broadcast Synchronization CHannel (BSCH).	d, e	Incorrect decoding of BSCH may cause interference with other users.	-	Implicit by Upper MAC layer testing.
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).	d, e	Incorrect decoding of BNCH may cause interference with other users. Incorrect coding/decoding of SCH/HD and STCH may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
8.3.4.2	Error control scheme for Signalling CHannel for mapping onto Half-bursts on the Uplink (SCH/HU).	e	Incorrect coding of SCH/HU may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
8.3.4.3	Error control scheme for Signalling CHannel for mapping onto Full-bursts (SCH/F).	d, e	Incorrect coding/decoding of SCH/F may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
NOTE 1: The requirements are specified in EN 300 392-2 [1], under the given subclause. NOTE 2: The test cases, as referenced, are specified in ETS 300 394-2-4 [12], annex A.					

Table 3: Upper MAC layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
23.3.1.1	Receiving and decoding of messages on the downlink MCCH.	e, f	Incorrect reception and decoding of the MCCH may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.3.1.3	Receiving messages on the ACCH.	e, f	Incorrect reception of messages on the ACCH may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by CMCE layer testing.
23.3.3.1	Beginning of minimum mode.	e	Incorrect detection of minimum mode operation may cause unwanted transmission attempts.	TP/MAC/BV/MI-01, TP/MAC/BI/MI-01	MAC_BV_MI_01, MAC_BI_MI_01
23.3.3.2	MS operation during frames 1-17 in minimum mode.	e, f	Incorrect operation during minimum mode may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BV/MI-01	MAC_BV_MI_01
23.3.3.3	MS operation during frame 18 in minimum mode.	e, f	Incorrect operation during minimum mode may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BV/MI-01	MAC_BV_MI_01
23.3.3.5	End of minimum mode.	e, f	Incorrect detection of end of minimum mode may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BV/MI-02	MAC_BV_MI_02
23.4.1.2.1	Recognition of destination address in downlink messages.	e, f	Incorrect recognition of destination address may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.4.1.2.2	Source address in uplink messages.	e, f	Use of incorrect source address may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.4.2.1.2	Transmission of TM-SDU not requiring fragmentation.	e, f	Incorrect transmission of TM-SDU not requiring fragmentation may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/CA-01	MAC_CA_01
23.4.2.1.2	Fragmentation of uplink TM-SDU, when a transmission starts in a full slot granted by the BS.	e, f	Incorrect fragmentation may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BV/RE-01	MAC_BV_RE_01
23.4.2.1.2	Fragmentation of uplink TM-SDU, using random access to start the process.	e, f	Incorrect fragmentation may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BV/RE-03	MAC_BV_RE_03
23.4.2.2	Fill bit addition.	e, f	Incorrect addition of fill bits may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.4.3.1.1	Reception of unfragmented TM-SDU.	e, f	Incorrect reception of unfragmented TM-SDU may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/CA-01	MAC_CA_01

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
23.4.3.1.1	Reception of fragmented TM-SDU.	e, f	Incorrect reception of fragmented TM-SDU may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BV/RA-01	MAC_BV_RA_01
23.4.3.2	Fill bit deletion.	e, f	Incorrect deletion of fill bits may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.4.3.3	PDU dissociation.	e, f	Incorrect PDU disassociation may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.5.1.4.1	Reception of ACCESS-DEFINE PDU.	e, f	Incorrect reception of the ACCESS-DEFINE PDU may cause incorrect random access transmission leading to unwanted transmission attempts or preventing transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.5.1.4.2	Reception of ACCESS-ASSIGN PDU.	d, e, f	Incorrect reception of the ACCESS-ASSIGN PDU may cause interference with other users and unwanted transmission attempts.	-	Implicit by MAC layer testing.
23.5.1.4.3	Initiating a random access.	e, f	Incorrect random access transmission may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.5.1.4.4	Checking for appropriate access code.	e, f	Incorrect checking for access code may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BI/RA-01	MAC_BI_RA_01
23.5.1.4.5	First try procedure.	e, f	Incorrect first try procedure may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BI/RA-02, TP/MAC/TI-02	MAC_BI_RA_02, MAC_TI_02
23.5.1.4.8	Re-try procedure.	e, f	Incorrect re-try procedure may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BI/RA-02, TP/MAC/TI-02	MAC_BI_RA_02, MAC_TI_02
23.5.1.4.9	Abandoning random access attempt.	e	Incorrect abandoning of random access may cause unwanted transmission attempts.	TP/MAC/BI/RA-02	MAC_BI_RA_02
23.5.2.1	Reservation requirement.	e, f	Incorrect reservation of transmission capacity may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BV/RE-01, TP/MAC/BV/RE-03	MAC_BV_RE_01, MAC_BV_RE_03
23.5.2.2	Slot granting.	d, e, f	Incorrect recognition of granted slots may cause interference with other users, loss of radio spectrum capacity or prevent transfer of upper layer messages.	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
23.5.4.2.2	Replace current main control channel with specified channel.	d, e, f	Incorrect reception of channel allocation commands may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by MLE layer testing.
23.5.4.2.2	Quit current main control channel and go to specified channel.	d, e, f	Incorrect reception of channel allocation commands may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by MLE layer testing.

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
23.5.4.2.2	Replace current main control channel with specified channel, plus MCCH/SCCH or CSS.	d, e, f	Incorrect reception of channel allocation commands may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by MLE layer testing.
23.5.4.2.3	Replace current assigned channel with specified channel.	d, e, f	Incorrect reception of channel allocation commands may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by MLE layer testing.
23.5.4.2.3	Quit current assigned channel and go to specified channel.	d, e, f	Incorrect reception of channel allocation commands may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by MLE layer testing.
23.5.4.2.3	Replace current assigned channel with specified channel, plus MCCH/SCCH or CSS.	d, e, f	Incorrect reception of channel allocation commands may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by MLE layer testing.
23.6.1	Reception and decoding of BNCH and BSCH.	d, e, f	Incorrect reception and decoding of BNCH and BSCH may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
23.6.2	Acquiring cell synchronization.	d, e, f	Incorrect cell synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
23.6.3	Acquiring network information.	d, e, f	Incorrect decoding of network information may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
23.7.1.1	Path loss parameter C1 calculation.	e, f	Incorrect path loss calculation may prevent attachment or cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.7.1.2	Path loss parameter C2 calculation.	e, f	Incorrect path loss calculation may cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.7.3.1	Downlink measurements.	e, f	Incorrect downlink measurements may prevent attachment or cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.7.4.2	Monitoring measurements.	e, f	Incorrect monitoring measurements may cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.7.4.3	Signal strength measurements.	e, f	Incorrect signal strength measurements may prevent attachment or cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.7.5.2	Scanning measurements.	e, f	Incorrect scanning measurements may cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.8.2.2	Timing of change of mode.	e, f	Incorrect timing of change of mode may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by CMCE layer testing.

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
23.8.4.1.1	Transmission of uplink stealing.	e, f	Incorrect implementation of stealing may cause unnecessary transmission attempts or prevent transfer of upper layer traffic.	-	Implicit by CMCE layer testing.
23.8.4.2.2	Reception of downlink stealing.	e, f	Incorrect implementation of stealing may cause unnecessary transmission attempts or prevent transfer of upper layer traffic.	-	Implicit by CMCE layer testing.
NOTE 1: The requirements are specified in EN 300 392-2 [1], under the given subclause. NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [9], clause 8. NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-4 [12], annex A.					

Table 4: LLC layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
22.3.2.1	Initial basic link data transmission.	e, f	Incorrect SDU-number usage in initial transmission may cause unnecessary transmission attempts over the air interface and may prevent registration.	TP/LLC/CA/BA-01	LLC_CA_BA_01
22.3.2.3	Acknowledged basic link data transmission.	e, f	Incorrect PDU-type in transmission may cause unwanted transmission attempts or prevent data transfer of upper layer messages.	TP/LLC/CA/BA-02	LLC_CA_BA_02
22.3.2.3	FCS calculation in transmission in acknowledged basic link.	e	Incorrect FCS calculation will cause unnecessary transmission attempts.	TP/LLC/CA/BA-06	LLC_CA_BA_06
22.3.2.3	SDU numbering in transmission in acknowledged basic link.	e	Incorrect SDU-number incrementation may cause unnecessary transmission attempts.	TP/LLC/BV/BA-01	LLC_BV_BA_01
22.3.2.3	Acknowledgement transmission in acknowledged basic link.	e	Failing acknowledgement transmission will cause unnecessary transmission attempts.	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
22.3.2.3	Retransmission counts based on parameter N.252 in acknowledged basic link.	e	Incorrect implementation of parameter N.252 may cause unnecessary transmission attempts.	TP/LLC/BV/BA-02	LLC_BV_BA_02
22.3.2.3	Retransmission in acknowledged basic link based on timer T.251.	e	Incorrect implementation of timer T.251 may cause unnecessary transmission attempts.	TP/LLC/TI/BA-01	LLC_TI_BA_01
22.3.2.3	Acknowledgement reception in acknowledged basic link.	e	Failing acknowledgement reception will cause unnecessary transmission attempts.	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
22.3.2.3	SDU numbering in reception in acknowledged basic link.	e	Incorrect interpretation of SDU-numbers in reception will cause unnecessary transmission attempts.	TP/LLC/BV/BA-03	LLC_BV_BA_03
22.3.2.3	FCS checking in reception in acknowledged basic link.	e	Incorrect FCS checking in reception will cause unnecessary transmission attempts.	TP/LLC/BI/BA-01	LLC_BI_BA_01
22.3.2.4.2	Basic link unacknowledged data reception.	e, f	To guarantee basic reliable data transfer for upper layers as basis for group addressing and thereby efficient usage of radio frequency spectrum.	TP/LLC/CA/BU-03	LLC_CA_BU_03
22.3.2.4.2	FCS checking in reception in unacknowledged basic link.	e	Incorrect FCS checking in reception may cause unnecessary transmission attempts on the upper layers.	TP/LLC/BI/BU-01, TP/LLC/CA/BU-04	LLC_BI_BU_01, LLC_CA_BU_04

NOTE 1: The requirements are specified in EN 300 392-2 [1], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [9], clause 7.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-3 [11], annex A.

4.2.3 Layer 3 requirements

This subclause contains the layer 3 requirements at the Um air interface for MS.

Table 5: MLE protocol requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
18.3.4.6	Initial cell selection.	e, f	Incorrectly implemented initial cell selection may cause unnecessary transmission attempts and prevent attachment.	TP/NWK/MLE/CA/CR-01	NWK_MLE_CA_CR_01
18.3.4.7.2	Undeclared cell re-selection.	e, f	Incorrectly implemented undeclared cell re-selection may cause unnecessary registration attempts and prevent attachment.	TP/NWK/MLE/CA/CR-02	NWK_MLE_CA_CR_02
18.3.4.7.3	Unannounced cell re-selection.	e, f	Incorrectly implemented unannounced cell re-selection may prevent attachment or cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	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
18.3.4.7.4	Announced type 3 cell re-selection.	e, f	Incorrectly implemented announced type 3 cell re-selection may prevent attachment or cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	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
18.3.6.5	Usage of neighbour cell enquiry.	e	Incorrect BS service details element interpretation in reception may cause disallowed transmission attempts.	TP/NWK/MLE/BV/NB-02	NWK_MLE_BV_NB_02

NOTE 1: The requirements are specified in EN 300 392-2 [1], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [9], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [10], annex A.

Table 6: MM protocol requirements at the Um air interface for a non-Gateway

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
16.4.1.1	MLE initiated normal registration.	e, f	Incorrectly implemented MLE initiated normal registration may prevent attachment, cause unnecessary registration attempts, and cause disallowed L3 transmission attempts. Additional requirements for attachment/detachment of group identities apply when this operation is performed within registration.	TP/NWK/MM/BV/RE-02	NWK_MM_BV_RE _02
16.4.2	User application initiated registration.	e, f	Incorrect implementation of user application initiated registration may cause unnecessary registration attempts or prevent attachment to a network, and cause disallowed L3 transmission attempts. Additional requirements for attachment/detachment of group identities apply when this operation is performed within registration.	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
16.4.3	Infrastructure initiated registration.	e, f	Incorrectly implemented infrastructure initiated registration may cause unnecessary traffic channel allocation, and disallowed L3 transmission attempts. Additional requirements for attachment/detachment of group identities apply when this operation is performed within registration.	TP/NWK/MM/BV/RE-07,	NWK_MM_BV_RE_07
16.8.1	Infrastructure initiated attachment of group identities.	e, f	Incorrect group identity attachment may cause unnecessary traffic channel allocation and partially prevent interworking.	TP/NWK/MM/BV/AT-01	NWK_MM_BV_AT_01
16.8.1	Infrastructure initiated detachment of group identities.	e, f	Incorrectly implemented group identity detachment may cause unwanted L3 transmission attempts and partially prevent interworking.	TP/NWK/MM/BV/AT-02	NWK_MM_BV_AT_02
16.8.2	MS initiated attachment of group identities.	e, f	Incorrect group identity attachment may cause unnecessary traffic channel allocation and partially prevent interworking.	TP/NWK/MM/BV/AT-03	NWK_MM_BV_AT_03
16.8.2	MS initiated detachment of group identities.	e, f	Incorrectly implemented group identity detachment may cause unwanted L3 transmission attempts and partially prevent interworking.	TP/NWK/MM/BV/AT-04	NWK_MM_BV_AT_04

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
16.8.3	Infrastructure initiated group identity report request.	e, f	Infrastructure initiated group identity report request is part of the group identity attachment procedure. Incorrect group identity attachment may cause unnecessary traffic channel allocation and partially prevent interworking.	TP/NWK/MM/BV/AT-01	NWK_MM_BV_AT_01
NOTE 1: The requirements are specified in EN 300 392-2 [1], under the given subclause. NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [9], clause 6. NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [10], annex A.					

Table 7: MM protocol requirements at the Um air interface for a Gateway

Requirement reference	Description	Cat.	Justification	Test purpose reference (note 1)	Test case reference (note 2)
ETS 300 396-5 [19] subclause 10.3.1, EN 300 392-2 [1] subclause 16.4.1.1	Normal roaming registration.	e, f	Incorrectly implemented normal roaming registration may prevent attachment, cause unnecessary registration attempts, and cause disallowed L3 transmission attempts.	DMO_GATE_GWMM_CA_02	DMO_GATE_GWMM_CA_02
ETS 300 396-5 [19] subclause 10.3.1, EN 300 392-2 [1] subclause 16.4.2	Registration at power up	e, f	Incorrect implementation of registration at power up may cause unnecessary registration attempts or prevent attachment to a network, and cause disallowed L3 transmission attempts.	DMO_GATE_GWMM_BV_01	DMO_GATE_GWMM_BV_01
ETS 300 396-5 [19] subclause 10.3.1, EN 300 392-2 [1] subclause 16.4.3	Infrastructure initiated registration.	e, f	Incorrectly implemented infrastructure initiated registration may cause unnecessary traffic channel allocation, and disallowed L3 transmission attempts.	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 [34], clause 6. NOTE 2: The test cases, as referenced, are specified in ETS 300 394-4-10 [36], annex A.					

Table 8: CMCE protocol requirements at the Um air interface for a non-Gateway

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
14.5.1.1.1	Incoming individual call set-up.	e, f	To avoid unnecessary traffic channel allocation and to ensure correct interworking with and through the network.	TP/NWK/CMCE/IC/CA/SU-01, TP/NWK/CMCE/IC/CA/SU-02, TP/NWK/CMCE/IC/CA/SU-03	NWK_CMCE_IC_CA_SU_01, NWK_CMCE_IC_CA_SU_02, NWK_CMCE_IC_CA_SU_03
14.5.1.1.2	Outgoing individual call set-up.	e, f	Incorrectly implemented outgoing call set-up may cause unnecessary call set-up attempts and prevent interworking.	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
14.5.1.1.3	Colliding individual call set-up.	e, f	Incorrect implementation of colliding call set-up procedure may cause unnecessary traffic channel allocation in the network and prevent interworking.	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
14.5.1.2.1	Transmission control in individual call.	e, f	Incorrect implementation of transmission control may lead into radio interference, interference with other users, and unnecessary and disallowed transmission attempts. Incorrect information of the transmission status may prevent interworking.	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
14.5.1.2.4	Individual call restoration.	e	Incorrectly implemented call restoration may lead into unnecessary traffic channel allocation in the network and cause unnecessary transmission attempts.	-	Implicit by MLE protocol testing.
14.5.1.3.1	Individual call disconnection.	e, f	To ensure, that MS disconnects the call enabling the network to deallocate the traffic channel used and to ensure interworking.	TP/NWK/CMCE/IC/CA/CD-01	NWK_CMCE_IC_CA_CD_01
14.5.1.3.3	Reception of disconnection request in individual call.	e, f	To ensure, that MS disconnects the call enabling the network to deallocate the traffic channel used and to ensure interworking.	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 (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
14.5.1.3.4	Expiry of call related timers resulting in disconnection in individual calls.	e, f	To ensure, that MS disconnects the call enabling the network to deallocate the traffic channel used and to ensure interworking.	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
14.5.1.3.4	Expiry of call related timers resulting in call release in individual calls.	e	Incorrect implementation of call release procedures may lead in disallowed transmission requests.	TP/NWK/CMCE/IC/TI-11, TP/NWK/CMCE/IC/TI-12	NWK_CMCE_IC_TI_11, NWK_CMCE_IC_TI_12
14.5.1.4	U-plane switching in individual call.	e	Incorrectly implemented U-plane switching may cause radio interference and interference with other users.	TP/NWK/CMCE/IC/BV/MA/TC-06	NWK_CMCE_IC_BV_MA_TC_06
14.5.2.1.2	Outgoing group call set-up.	e, f	Incorrectly implemented outgoing call set-up may cause unnecessary call set-up attempts and prevent interworking.	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
14.5.2.1.3	Colliding group call set-up.	e, f	Incorrect implementation of colliding call set-up procedure may cause unnecessary traffic channel allocation in the network and prevent interworking.	TP/NWK/CMCE/GC/BV/CC-01	NWK_CMCE_GC_BV_CC_01
14.5.2.2.1	Transmission control in group call.	e, f	Incorrect implementation of transmission control may lead into radio interference, interference with other users, and unnecessary and disallowed transmission attempts. Incorrect information of the transmission status may prevent interworking.	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	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
14.5.2.2.4	Group call restoration.	e	Incorrectly implemented call restoration may lead into unnecessary traffic channel allocation in the network and cause unnecessary transmission attempts.	TP/NWK/CMCE/GC/BV/MA/CR-01	NWK_CMCE_GC_BV_MA_CR_01
14.5.2.3.3	Network initiated group call disconnection.	e, f	To ensure, that MS disconnects the call enabling the network to deallocate the traffic channel used and to ensure interworking.	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

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
14.5.2.3.5	Expiry of call related timers resulting in disconnection in group calls.	e, f	To ensure, that MS disconnects the call enabling the network to deallocate the traffic channel used and to ensure interworking.	TP/NWK/CMCE/GC/TI-02 TP/NWK/CMCE/GC/TI-03	NWK_CMCE_GC_TI_02 NWK_CMCE_GC_TI_03
14.5.2.3.5	Expiry of call related timers resulting in call release in group calls.	e	Incorrect implementation of call release procedures may lead in disallowed transmission requests.	TP/NWK/CMCE/GC/TI-01 TP/NWK/CMCE/GC/TI-04 TP/NWK/CMCE/GC/TI-05 TP/NWK/CMCE/GC/TI-06 TP/NWK/CMCE/GC/TI-07	NWK_CMCE_GC_TI_01 NWK_CMCE_GC_TI_04 NWK_CMCE_GC_TI_05 NWK_CMCE_GC_TI_06 NWK_CMCE_GC_TI_07
14.5.2.4	U-plane switching in group call.	e	Incorrectly implemented U-plane switching may cause radio interference and interference with other users.	TP/NWK/CMCE/GC/BV/MA/TC-06, TP/NWK/CMCE/GC/TI-07	NWK_CMCE_GC_BV_MA_TC-06, NWK_CMCE_GC_TI_07
14.5.2.5	Acceptance of group- addressed channel allocation	e	Incorrect implementation of the channel allocation reception may cause radio interference and interference with other users.	-	Implicit by group call set-up and maintenance function testing.
NOTE 1: The requirements are specified in EN 300 392-2 [1], under the given subclause. NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [9], clause 6. NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [10], annex A.					

Table 9: CMCE requirements at the Um air interface for Gateway operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
9.3.2.1	Outgoing call to V+D	e	Incorrectly implemented outgoing call set-up may cause unnecessary call set-up attempts and prevent interworking.	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_02, DMO_GATE_GWCC_CM_BV_SU_10, DMO_GATE_GWCC_CM_BV_TI_04, DMO_GATE_GWCC_CM_BV_TI_05
9.3.2.2	Colliding call set-up at the V+D	e	Incorrect implementation of colliding call set-up procedure may cause unnecessary traffic channel allocation in the network and prevent interworking.	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
9.3.3.1.1	Transmitting U-TX CEASED by end of DM-MS call	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	DMO_GATE_GWCC_CM_BV_CT_01	DMO_GATE_GWCC_CM_BV_CT_01
9.3.3.1.2	Reception of D-TX CEASED by end of V+D call	e, f	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	DMO_GATE_GWCC_CM_BV_CT_02	DMO_GATE_GWCC_CM_BV_CT_02
9.3.3.2	Reception of D-TX INTERRUPT from V+D	e, f	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	DMO_GATE_GWCC_CM_BV_CT_04	DMO_GATE_GWCC_CM_BV_CT_04
9.3.3.3	Permission to transmit granted to another party	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	DMO_GATE_GWCC_CM_BV_CT_03	DMO_GATE_GWCC_CM_BV_CT_03
9.3.3.4.1	Transmitting U-TX DEMAND at request for transmission from DM-MS	e	Incorrect implementation of transmission control may lead into radio interference, interference with other users, and unnecessary and disallowed transmission attempts.	DMO_GATE_GWCC_CM_BV_CT_05	DMO_GATE_GWCC_CM_BV_CT_05
9.3.3.5	V+D permission to transmit withdrawn during a call	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	DMO_GATE_GWCC_CM_BV_CT_06	DMO_GATE_GWCC_CM_BV_CT_06
9.3.3.9.1	Transmission of U-DISCONNECT on receipt of DM-RELEASE from current master	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	DMO_GATE_GWCC_CM_BV_CD_01	DMO_GATE_GWCC_CM_BV_CD_01
9.3.3.9.2	Receipt of D-RELEASE from SwMI	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	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

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
9.3.3.9.3	Transmission of U-DISCONNECT at expiry of call length timer		Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	DMO_GATE_GWCC_CM_BV_TI_02	DMO_GATE_GWCC_CM_BV_TI_02
9.3.4.1.3	Termination of call on receipt of preemption request from DM-MS		To ensure disconnection of the call enabling the network to deallocate the traffic channel used.	DMO_GATE_GWCC_CM_BV_CT_08	DMO_GATE_GWCC_CM_BV_CT_08
9.3.4.2.1	Reception of D-TX INTERRUPT from V+D		Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	DMO_GATE_GWCC_CM_BV_CT_09	DMO_GATE_GWCC_CM_BV_CT_09
NOTE 1: The requirements are specified in ETS 300 396-5 [19] under the given subclause. NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-8 [34], clause 6. NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-10 [36], annex A.					

4.2.4 Security requirements

This subclause contains the security requirements at the Um air interface for MS.

Table 10: Security requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
4.2.5	Encrypted Short Identity mechanism	e,f	To guarantee reliable signalling when security class 2 or 3 is used, and thereby efficient usage of radio frequency spectrum.	-	Implicit by other security testing.
4.4.2.1	Authentication of a MS by SwMI.	e, f	Incorrect authentication of the terminal will prevent call establishment and access to other services, cause unwanted registration attempts, and may cause misuse of traffic channels.	TP/Sec_VD/AU/BV/II/01	Sec_VD_AU_BV_II_01
4.4.2.2	Authentication of a SwMI by MS.	e, f	Incorrect authentication of the SwMI will prevent call establishment and access to other services, cause unwanted registration attempts, and may cause misuse of traffic channels.	TP/Sec_VD/AU/BV/TI/01	Sec_VD_AU_BV_TI_01
4.4.2.3	Mutual authentication of MS and SwMI initiated by SwMI.	e, f	Incorrect authentication will prevent call establishment and access to other services, cause unwanted registration attempts, and may cause misuse of traffic channels.	TP/Sec_VD/AU/BV/II/02	Sec_VD_AU_BV_II_02
4.4.2.4	Mutual authentication of MS and SwMI initiated by MS.	e, f	Incorrect authentication will prevent call establishment and access to other services, cause unwanted registration attempts, and may cause misuse of traffic channels.	TP/Sec_VD/AU/BV/TI/02	Sec_VD_AU_BV_TI_02
4.4.2.5	Authentication of an MS by SwMI during registration.	e, f	Incorrect authentication of the terminal will prevent call establishment and access to other services, cause unwanted registration attempts, and may cause misuse of traffic channels.	TP/Sec_VD/AU/BV/REG/01	Sec_VD_AU_BV_REG_01
4.4.2.6	Authentication of a SwMI by MS during registration.	e, f	Incorrect authentication of the SwMI will prevent call establishment and access to other services, cause unwanted registration attempts, and may cause misuse of traffic channels.	TP/Sec_VD/AU/BV/REG/02	Sec_VD_AU_BV_REG_02
4.4.2.7	Mutual authentication of MS and SwMI initiated by MS during registration.	e, f	Incorrect authentication will prevent call establishment and access to other services, cause unwanted registration attempts, and may cause misuse of traffic channels.	TP/Sec_VD/AU/BV/REG/TEI/03	Sec_VD_AU_BV_REG_TEI_03

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
4.4.2.8	Mutual authentication of MS and SwMI initiated by SwMI during registration.	e, f	Incorrect authentication will prevent call establishment and access to other services, cause unwanted registration attempts, and may cause misuse of traffic channels.	TP/Sec_VD/AU/BV/REG/TEI/04	Sec_VD_AU_BV_REG_TEI_04
4.4.3.1	Key transfer mechanism for CCK initiated by SwMI.	e, f	Incorrect Common Cipher Key (CCK) reception may prevent correct interworking with the network, prevent access to network services, and cause misuse of traffic channels preventing effective use of radio frequency spectrum in individual and group calls.	TP/Sec_VD/OTAR/BV/CCK/01	Sec_VD_OTAR_BV_CCK_01
4.4.3.2	Key transfer mechanism for CCK initiated by MS.	e, f	Incorrect Common Cipher Key (CCK) reception may prevent correct interworking with the network, prevent access to network services, and cause misuse of traffic channels preventing effective use of radio frequency spectrum in individual and group calls.	TP/Sec_VD/OTAR/BV/CCK/03	Sec_VD_OTAR_BV_CCK_03
4.4.4.1	Key transfer mechanism for SCK requested by MS.	e, f	Incorrect Static Cipher Key (SCK) reception may prevent correct interworking with the network, prevent access to network services, and cause misuse of traffic channels preventing effective use of radio frequency spectrum in individual calls.	-	Implicit by other security tests.
4.4.4.2	Key transfer mechanism for SCK initiated by SwMI.	e, f	Incorrect Static Cipher Key (SCK) reception may prevent correct interworking with the network, prevent access to network services, and cause misuse of traffic channels preventing effective use of radio frequency spectrum in individual calls.	TP/Sec_VD/OTAR/BV/SCK/02	Sec_VD_OTAR_BV_SCK_01
4.4.5.1	Key transfer mechanism for GCK requested by MS.	e, f	Incorrect Group Cipher Key (GCK) reception may prevent correct interworking with the network, prevent access to network services, and cause misuse of traffic channels preventing effective use of radio frequency spectrum in group calls.	TP/Sec_VD/OTAR/BV/GCK/01	Sec_VD_OTAR_BV_GCK_01
4.4.5.2	Key transfer mechanism for GCK initiated by SwMI.	e, f	Incorrect Group Cipher Key (GCK) reception may prevent correct interworking with the network, prevent access to network services, and cause misuse of traffic channels preventing effective use of radio frequency spectrum in group calls.	TP/Sec_VD/OTAR/BV/GCK/02	Sec_VD_OTAR_BV_GCK_02

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
4.4.6	Notification of key change	e,f	Incorrect handling of key change notifications may prevent correct interworking with the network, prevent access to network services, and cause misuse of traffic channels preventing effective use of radio frequency spectrum in individual and group calls.	-	Implicit by testing of key transfer mecanism.
5.4.3.1	Permanent disabling of an MS using authentication.	e	Incorrect MS operation when permanently disabled may cause disallowed transmission attempts. Disabling of equipment provides mechanism to prevent defective MS loading the network whilst disabling the user prevents unauthorized use of the network.	TP/Sec_VD/SED/PD/02	Sec_VD_ SED_BV_PD_02
5.4.3.1	Temporary disabling of an MS using authentication.	e	Incorrect MS operation when temporarily disabled may cause disallowed transmission attempts. Disabling of equipment provides mechanism to prevent defective MS loading the network whilst disabling the user prevents unauthorized use of the network.	-	Implicit by enabling testing
5.4.5	Temporary disabling of an MS without authentication.	e	Incorrect MS operation when temporarily disabled may cause disallowed transmission attempts. Disabling of equipment provides mechanism to prevent defective MS loading the network whilst disabling the user prevents unauthorized use of the network.	-	Implicit by enabling testing
5.4.3.2	Enabling an MS using authentication.	e	Incorrectly implemented enabling procedure may result in disallowed transmission attempts and unnecessary traffic channel allocation.	TP/Sec_VD/SED/BV/EN/01	Sec_VD_SED_BV_EN_01
5.4.4	Enabling an MS without authentication.	e	Incorrectly implemented enabling procedure may result in disallowed transmission attempts and unnecessary traffic channel allocation.	TP/Sec_VD/SED/BV/EN/05	Sec_VD_SED_BV_EN_05
6.4	Air interface encryption.	e, f	Incorrectly implemented air interface encryption may prevent interworking with the network and cause misuse of traffic and signalling channels.	-	Implicit by CC testing (note 4).

NOTE 1: The requirements are specified in EN 300 392-7 [2], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-5-2 [14], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-5-3 [15], annex A.
NOTE 4: For the CC testing of the terminals supporting security, the supported security features shall be enabled.

4.2.5 Other entities at the Um air interface

There are no essential requirements for:

- any of the Supplementary Services (SSs), ETS 300 392-10 [3], ETS 300 392-11 [4], and ETS 300 392-12 [5];
- TETRA Connection Oriented Network Protocol (CONP), EN 300 392-2 [1], clause 25;
- TETRA Specific Connectionless Network Protocol (SCLNP), EN 300 392-2 [1], clause 27.

4.3 Requirements at the Ud air interface

4.3.1 Mobile station air interface protocol

4.3.1.1 Physical layer requirements

This subclause contains the radio layer requirements for the mobile station air interface.

Table 11: Mobile Station Radio layer requirements at the Ud air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
5.2	Modulation type.	d, e	Incorrect modulation will lead to disturbance of other TETRA users.	-	Implicit by 10.1.3.
6.2	Frequency bands and channel arrangements	d, e	Incorrect use of frequency bands and channel arrangements may cause unnecessary interference in the radio spectrum.	-	Implicit by F.6.4.3
6.4.2	Transmitter output power.	d, e	Maladjustment of the RF output power may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.1.1.2 a) and F.5, table F.2	8.1, 8.1.1 a), b) b2), c) and d) and F.4, table F.1
6.4.3.2.1	Unwanted conducted emission over the useful part of the burst.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.3.2	8.3 and F.4, table F.1
6.4.3.2.2	Unwanted conducted emission during the switching transients.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.4.2	8.4
6.4.3.3.1	Unwanted conducted discrete spurious emission far from the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.5.2 and F.5, table F.2	8.5
6.4.3.3.2	Unwanted conducted wideband noise emission far from the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.5.2 and F.5, table F.2	8.5
6.4.3.4	Unwanted conducted emission during LCH.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.7.2	8.7, and 8.7.1
6.4.3.5	Unwanted conducted emission in the non-transmit state.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.8.2	9.8
6.4.4	Unwanted radiated emissions.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.6.2	8.6
6.4.6	RF output power time mask.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	F.6.2.1	F.6.2.2
6.4.6	RF output power in non-active transmit state.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.2.2	8.2

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
6.4.7.2	Transmitter intermodulation attenuation.	d, e	An intermodulation attenuation below an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.8.2.1	8.8 and 8.8.1
6.5.1.2	Blocking characteristics.	e	Insufficient blocking characteristics of the receiver may lead to an unnecessarily high number of radio transmission attempts	7.2.5.2 and F.5 table F.2	9.5 and 9.5.1
6.5.2.2	Spurious response rejection.	d, e	Insufficient spurious response rejection may lead to an unnecessarily high number of radio transmission attempts.	7.2.6.2 and F.5, table F.2	9.6
6.5.3.2	Intermodulation response rejection.	d, e	Insufficient intermodulation response rejection may lead to an unnecessarily high number of radio transmission attempts	7.2.7.2 and F.5, table F.2	9.7 and 9.7.1
6.5.4.2	Unwanted conducted emission in reception.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.8.2	9.8
6.5.5	Unwanted radiated emission.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.9.2	9.9
6.6.1.2	Modulation accuracy.	e, f	Insufficient modulation accuracy may lead to the transmission of incorrect data.	7.3.1.2	10.1, 10.1.1 and 10.1.3
6.6.2.1	Nominal error rate.	e, f	An unacceptable nominal error rate may lead to the reception of incorrect data.	7.2.2.2 and F.5, table F.2	9.2 and 9.2.1
6.6.2.2	Dynamic reference sensitivity performance.	e, f	An unacceptable dynamic reference sensitivity performance may lead to the reception of incorrect data.	7.2.3.2 and F.5, table F.2	9.3, 9.3.1 and 9.3.3
6.6.2.3	Reference interference performance.	e, f	An unacceptable reference interference performance may lead to the reception of incorrect data.	7.2.4.2 and F.5, table F.2	9.4 and 9.4.1
6.6.2.4	Static reference sensitivity performance.	e, f	An unacceptable static reference sensitivity performance may lead to the reception of incorrect data.	Implicit by 7.2.5.2, 7.2.6.2, 7.2.7.2 and F.5, table F.2	Implicit by 9.5.1, 9.6 and 9.7.1.
6.6.2.5	MS receiver performance for synchronization burst acquisition.	d, e	An insufficient synchronization burst acquisition may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
7.2	DM-MS synchronization requirement.	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
7.3.2	Relationship between counters	d, e	An incorrect relation between the counters may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
7.4	RF frequency accuracy	d, e	An insufficient RF frequency accuracy may cause unnecessary interference in the radio spectrum.	F.6.3.1	F.6.3.2
7.5	Requirement for synchronization of a slave DM mobile	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	F.6.4.2	F.6.4.3
9.4.5	Mapping of logical channels	d, e	Incorrect mapping of logical channels into physical channels may cause interference with other users.	-	Implicit by MAC layer testing.

NOTE 1: The requirements are specified in ETS 300 396-2 [16] under the given subclause, except when otherwise stated.
NOTE 2: The test case limit values are specified in ETS 300 394-1 [8], under the given subclause.
NOTE 3: The test methods are specified in ETS 300 394-1 [8], under the given subclause.

In addition to the requirements specified in table 11, the following applies for the TETRA DMO civil access for the frequency bands and channel arrangements defined in subclause 6.2 of ETS 300 396-2 [16]:

The RF carrier frequencies shall be among the frequencies allocated to TETRA DMO for civil access within the ranges defined by ERC Decision ERC/DEC/(96)/4 [44], i.e. within one or more of the bands 410 MHz to 430 MHz, 870 MHz to 876 MHz, 915 MHz to 921 MHz, 450 MHz to 470 MHz, 385 MHz to 390 MHz and 395 MHz to 399,99 MHz.

The requirements for frequency bands are tested implicitly.

Table 12: Additional Radio layer requirements at the Ud air interface for operation with Repeater type 1

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference	Test method reference (note 2)
8.4	Usage of DM channel with DM-REP1	d, e	Incorrect use of frequency bands may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
8.4.1.1	DM channel arrangements	d, e	Incorrect channel arrangements may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
NOTE 1: The requirements are specified in EN 300 396-4 [18] under the given subclause. NOTE 2: The test methods are specified in EN 300 394-4-5 [31], under the given subclause.					

Table 13: Additional Radio layer requirements at the Ud air interface for operation with Repeater type 2

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference	Test method reference (note 2)
8.4	Usage of DM channel with DM-REP2	d, e	Incorrect use of frequency bands may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
8.4.1.1	DM channel arrangements	d, e	Incorrect channel arrangements may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
11.3.2	Frequency bands and channel arrangements	d, e	Incorrect use of frequency bands and channel arrangements may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
11.4.2	General requirements for synchronization of DM-MSs	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
11.4.6	Synchronization requirements for a master MS operating on channel B	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
NOTE 1: The requirements are specified in EN 300 396-7 [21] under the given subclause. NOTE 2: The test methods are specified in EN 300 394-4-13 [39], under the given subclause.					

Table 14: Additional Radio layer requirements at the Ud air interface for operation with Gateway

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference	Test method reference (note 2)
15.3.2	Frequency bands and channel arrangements	d, e	Incorrect use of frequency bands and channel arrangements may cause unnecessary interference in the radio spectrum.	-	Implicit by F.6.4.3
15.4.2	DM-MS synchronization requirement.	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
15.4.5	Requirement for synchronization of a slave DM mobile	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by F.6.4.3
NOTE 1: The requirements are specified in ETS 300 396-5 [19] under the given subclause. NOTE 2: The test methods are specified in ETS 300 394-1 [8], under the given subclause.					

4.3.1.2 Layer 2 requirements

This subclause contains the layer 2 requirements at the Ud air interface for Mobile Station operation.

Table 15: Lower MAC layer requirements at the Ud air interface for Mobile Station operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference	Test case reference (note 2)
8.3.1.1	Error control scheme for Synchronization Signalling CHannel (SCH/S).	d, e	Incorrect coding/decoding of SCH/S may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
8.3.1.2	Error control scheme for Half-slot Signalling CHannel (SCH/H) and Stealing CHannel (STCH).	d, e	Incorrect coding/decoding of SCH/H and STCH may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
8.3.1.3	Error control scheme for Full-slot Signalling Channel (SCH/F).	d, e	Incorrect coding/decoding of SCH/F may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
NOTE 1: The requirements are specified in ETS 300 396-2 [16] under the given subclause. NOTE 2: The test cases, as referenced, are specified in ETS 300 394-4-2 [28], annex A.2.					

Table 16: Managed DMO requirements at the Ud air interface for Mobile Station operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
4.2	Authorization to transmit	e	Transmission without authorization may cause interference to other users of the radio frequency spectrum.	M_DMO_MSMS_MAC_CA_01	M_DMO_MSMS_MAC_CA_01
4.4.3	Withdrawal of authorization	e	Transmission without authorization may cause interference to other users of the radio frequency spectrum.	M_DMO_MSMS_MAC_CA_01	M_DMO_MSMS_MAC_CA_01
5.1	Authorization of presence signal.	e	Transmission without authorization may cause interference to other users of the radio frequency spectrum.	M_DMO_MSMS_MAC_CA_01	M_DMO_MSMS_MAC_CA_01
NOTE 1: The requirements are specified in TS 100 396-10 [26], under the given subclause. NOTE 2: The test purposes, as referenced, are specified in annex C of the present document. NOTE 3: The test cases, as referenced, are specified in annex C of the present document.					

Table 17: Upper MAC layer requirements at the Ud air interface for Mobile station operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
8.4.5.1.7	Transmitting DM-OCCUPIED	e	Incorrectly implemented procedures for signalling of channel occupation may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSMS_MAC_BV_CU_02	DMO_MSMS_MAC_BV_CU_02
8.4.6.1	Transmitting DM-RESERVED	e	Incorrectly implemented procedures for signalling of channel reservation may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSMS_MAC_BV_CU_04	DMO_MSMS_MAC_BV_CU_04
8.5.6.1	Transmission of messages	e, f	Incorrectly implemented transmission of messages may cause unnecessary and disallowed transmission attempts.	DMO_MSMS_MAC_BV_CU_06	DMO_MSMS_MAC_BV_CU_06
8.5.7.2.1	Indicating frames available for requests	e	Incorrectly implemented procedures for indicating frames available for requests may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSMS_MAC_BV_SM_09, DMO_MSMS_MAC_BV_SM_10	DMO_MSMS_MAC_BV_SM_09, DMO_MSMS_MAC_BV_SM_10

NOTE 1: The requirements are specified in ETS 300 396-3 [17], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-1 [27], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-2 [28], annex A.

Table 18: Additional Upper MAC layer requirements at the Ud air interface for Mobile station operation with Repeater type 1

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
8.4.4.3	DM-channel monitoring during occupation	e	Incorrectly implemented procedures for monitoring of channel occupation may prevent other users from gaining access to the radio frequency spectrum.	Implicit by DMO_MSREP1_DMCC_CM_BV_TXO_03	Implicit by DMO_MSREP1_DMCC_CM_BV_TXO_03
8.4.4.4	DM-channel monitoring during reservation	e	Incorrectly implemented procedures for monitoring of channel reservation may prevent other users from gaining access to the radio frequency spectrum.	Implicit by DMO_MSREP1_DMCC_CM_BV_TR_02, DMO_MSREP1_DMCC_CM_BV_TR_04	Implicit by DMO_MSREP1_DMCC_CM_BV_TR_02, DMO_MSREP1_DMCC_CM_BV_TR_04
8.4.4.6	DM-channel monitoring during pre-emption signalling	e, f	Incorrectly implemented procedures for monitoring of channel during pre-emption may cause interference to other users of the radio frequency spectrum.	Implicit by DMO_MSREP1_MAC_BV_SM_02	Implicit by DMO_MSREP1_MAC_BV_SM_02
8.5.2.1.1	Indication of master/slave role in synchronization burst	e, f	Incorrectly implemented indication of master/slave role may cause interference to other users of the radio frequency spectrum.	DMO_MSREP1_MAC_BV_SM_01C	DMO_MSREP1_MAC_BV_SM_01C
8.5.7.2.1	Indicating frames available for requests	e	Incorrectly implemented procedures for indicating frames available for requests may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSREP1_MAC_BV_SM_09, DMO_MSREP1_MAC_BV_SM_10	DMO_MSREP1_MAC_BV_SM_09, DMO_MSREP1_MAC_BV_SM_10

NOTE 1: The requirements are specified in EN 300 396-4 [18], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in EN 300 394-4-3 [29], clause 6.
NOTE 3: The test cases, as referenced, are specified in EN 300 394-4-5 [31], annex A.

Table 19: Additional Upper MAC layer requirements at the Ud air interface for Mobile station operation with Repeater type 2

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
8.4.4.3	DM-channel monitoring during occupation	e	Incorrectly implemented procedures for monitoring of channel occupation may prevent other users from gaining access to the radio frequency spectrum.	Implicit by DMO_MSREP2_DMCC_CM_BV_TXO_03	Implicit by DMO_MSREP2_DMCC_CM_BV_TXO_03
8.4.4.4	DM-channel monitoring during reservation	e	Incorrectly implemented procedures for monitoring of channel reservation may prevent other users from gaining access to the radio frequency spectrum.	Implicit by DMO_MSREP2_DMCC_CM_BV_TR_02, DMO_MSREP2_DMCC_CM_BV_TR_04	Implicit by DMO_MSREP2_DMCC_CM_BV_TR_02, DMO_MSREP2_DMCC_CM_BV_TR_04
8.4.4.6	DM-channel monitoring during pre-emption signalling	e, f	Incorrectly implemented procedures for monitoring of channel during pre-emption may cause interference to other users of the radio frequency spectrum.	Implicit by DMO_MSREP2_MAC_BV_SM_02	Implicit by DMO_MSREP2_MAC_BV_SM_02
8.5.2.1.1	Indication of master/slave role in synchronization burst	e, f	Incorrectly implemented indication of master/slave role may cause interference to other users of the radio frequency spectrum.	DMO_MSREP2_MAC_BV_SM_01C	DMO_MSREP2_MAC_BV_SM_01C
8.5.7.2.1	Indicating frames available for requests	e	Incorrectly implemented procedures for indicating frames available for requests may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSREP2_MAC_BV_SM_09, DMO_MSREP2_MAC_BV_SM_10	DMO_MSREP2_MAC_BV_SM_09, DMO_MSREP2_MAC_BV_SM_10

NOTE 1: The requirements are specified in EN 300 396-7 [21], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in EN 300 394-4-11 [37], clause 6.
NOTE 3: The test cases, as referenced, are specified in EN 300 394-4-13 [39], annex A.

Table 20: Additional Upper MAC layer requirements at the Ud air interface for Mobile station operation with Gateway

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
8.4.5.1.7	Transmitting DM-OCCUPIED	e	Incorrectly implemented procedures for signalling of channel occupation may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSGW_MAC_BV_CU_02	DMO_MSGW_MAC_BV_CU_02
8.5.7.2.1	Indicating frames available for requests	e	Incorrectly implemented procedures for indicating frames available for requests may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSGW_DMCC_CM_BV_ID_04, DMO_MSGW_MAC_BV_SM_10	DMO_MSGW_NWK_DMCC_CM_BV_ID_04, DMO_MSGW_MAC_BV_SM_10
NOTE 1: The requirements are specified in ETS 300 396-5 [19], under the given subclause. NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-7 [33], clause 6. NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-9 [35], annex A.					

4.3.1.3 Layer 3 requirements

This subclause contains the layer 3 requirements at the Ud air interface for Mobile station operation.

Table 21: Circuit mode requirements at the Ud air interface for Mobile station operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
6.2.1.1	Outgoing call set-up on available channel without presence check	e, f	Incorrectly implemented outgoing call set-up may cause unnecessary and disallowed transmission attempts.	DMO_MSMS_DMCC_CM_CA_01, DMO_MSMS_DMCC_CM_CA_03	DMO_MSMS_DMCC_CM_CA_01, DMO_MSMS_DMCC_CM_CA_03
6.2.2.1	Outgoing call set-up on available channel with presence check	e, f	Incorrectly implemented outgoing call set-up may cause unnecessary and disallowed transmission attempts.	DMO_MSMS_DMCC_CM_CA_02, DMO_MSMS_DMCC_CM_BV_ID_04, DMO_MSMS_DMCC_CM_TI_01	DMO_MSMS_DMCC_CM_CA_02, DMO_MSMS_DMCC_CM_BV_ID_04, DMO_MSMS_DMCC_CM_TI_01
6.2.4.1	Receipt by master MS of request for pre-emption during occupation	e	Incorrectly implemented pre-emption procedures may prevent a higher priority user from gaining access to the radio frequency spectrum.	DMO_MSMS_DMCC_CM_BV_TXO_03, DMO_MSMS_DMCC_CM_BV_TXO_04	DMO_MSMS_DMCC_CM_BV_TXO_03, DMO_MSMS_DMCC_CM_BV_TXO_04
6.2.4.1	Release of radio ressource at the end of transmission	e	Incorrect release of the radio ressource at the end of transmission may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSMS_DMCC_CM_BV_TXO_02	DMO_MSMS_DMCC_CM_BV_TXO_02
6.2.4.1	Master release of ressource by user application	e	Incorrect release of the radio ressource by user application may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSMS_DMCC_CM_BV_TXO_01	DMO_MSMS_DMCC_CM_BV_TXO_01
6.2.4.1	Release of radio ressource at DT311 timeout	e	Incorrect release of the radio ressource at the end of transmission may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSMS_DMCC_CM_TI_02	DMO_MSMS_DMCC_CM_TI_02
6.2.4.2	Request for pre-emption during occupation	e	Incorrectly implemented procedure for request for pre-emption during occupation may lead to unallowed transmission attempts causing interference to other users.	DMO_MSMS_DMCC_CM_BV_RO_02, DMO_MSMS_DMCC_CM_BV_RO_03	DMO_MSMS_DMCC_CM_BV_RO_02, DMO_MSMS_DMCC_CM_BV_RO_03
6.2.5.1	Receipt by master MS of request for pre-emption during reservation	e	Incorrectly implemented pre-emption procedures may prevent a higher priority user from gaining access to the radio frequency spectrum.	DMO_MSMS_DMCC_CM_BV_TR_02, DMO_MSMS_DMCC_CM_BV_TR_03, DMO_MSMS_DMCC_CM_BV_TR_07	DMO_MSMS_DMCC_CM_BV_TR_02, DMO_MSMS_DMCC_CM_BV_TR_03, DMO_MSMS_DMCC_CM_BV_TR_07

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
6.2.5.1	Receipt by master MS of request for changeover during reservation	e	Incorrectly implemented changeover procedures may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSMS_DMCC_CM_BV_TR_04, DMO_MSMS_DMCC_CM_BV_TR_08	DMO_MSMS_DMCC_CM_BV_TR_04, DMO_MSMS_DMCC_CM_BV_TR_08
6.2.5.1	Release of radio ressource during reservation	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	DMO_MSMS_DMCC_CM_BV_TR_01	DMO_MSMS_DMCC_CM_BV_TR_01
6.2.5.2	Request for changeover during reservation	e	Incorrect procedure for request for changeover during reservation may lead to unallowed transmission attempts causing interference to other users.	DMO_MSMS_DMCC_CM_BV_RR_03, DMO_MSMS_DMCC_CM_BV_RR_04	DMO_MSMS_DMCC_CM_BV_RR_03, DMO_MSMS_DMCC_CM_BV_RR_04
NOTE 1: The requirements are specified in ETS 300 396-3 [17], under the given subclause. NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-1 [27], clause 6. NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-2 [28], annex A.					

Table 22: SDS requirements at the Ud air interface for MS-MS operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
6.3.1.1.1	Sending unacknowledged short data on an available channel	e, f	Incorrectly implemented procedure for sending unacknowledged short data may cause unnecessary and disallowed transmission attempts.	DMO_MSMS_DMCC_SDS_CA_01	DMO_MSMS_DMCC_SDS_CA_01
6.3.1.1.2	Sending acknowledged short data on an available channel	e, f	Incorrectly implemented procedure for sending acknowledged short data may cause unnecessary and disallowed transmission attempts.	DMO_MSMS_DMCC_SDS_BV_ID_01, DMO_MSMS_DMCC_SDS_BV_ID_02, DMO_MSMS_DMCC_SDS_TI_01	DMO_MSMS_DMCC_SDS_BV_ID_01, DMO_MSMS_DMCC_SDS_BV_ID_02, DMO_MSMS_DMCC_SDS_TI_01
6.3.2.2	Receiving acknowledged short data	e	Incorrectly implemented procedure for receiving acknowledged short data may cause unnecessary transmission attempts by transmitting MS.	DMO_MSMS_DMCC_SDS_BV_ID_03, DMO_MSMS_DMCC_SDS_BV_ID_04, -	DMO_MSMS_DMCC_SDS_BV_ID_03, DMO_MSMS_DMCC_SDS_BV_ID_04, Implicit by testing of Security functions
6.3.4	FCS checking in reception	e, f	Incorrect FCS checking in reception will cause unnecessary transmission attempts.	DMO_MSMS_DMCC_SDS_BV_ID_04	DMO_MSMS_DMCC_SDS_BV_ID_04
6.3.4	FCS calculation in transmission	e, f	Incorrect FCS calculation in transmission will cause unnecessary transmission attempts.	DMO_MSMS_DMCC_SDS_BV_ID_05	DMO_MSMS_DMCC_SDS_BV_ID_05

NOTE 1: The requirements are specified in ETS 300 396-3 [17], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-1 [27], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-2 [28], annex A.

Table 23: Additional Circuit mode requirements at the Ud air interface for Mobile Station operation with Gateway

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
6.2.1.1	Outgoing call set-up through a Gateway	e, f	Incorrectly implemented outgoing call set-up may cause unnecessary and disallowed transmission attempts.	DMO_MSGW_DMCC_CM_CA_01, DMO_MSGW_DMCC_CM_CA_02, DMO_MSGW_DMCC_CM_BV_ID_04, DMO_MSGW_DMCC_CM_BV_TI_01, DMO_MSGW_DMCC_CM_BV_TI_02	DMO_MSGW_NWK_DMCC_CM_CA_01, DMO_MSGW_NWK_DMCC_CM_CA_02, DMO_MSGW_NWK_DMCC_CM_BV_ID_04, DMO_MSGW_NWK_DMCC_CM_BV_TI_01, DMO_MSGW_NWK_DMCC_CM_BV_TI_02
6.2.4.1	Receipt by master MS of request for pre-emption generated by the Gateway during occupation	e	Incorrectly implemented pre-emption procedures may prevent a higher priority user from gaining access to the radio frequency spectrum.	DMO_MSGW_DMCC_CM_BV_TXO_04, DMO_MSGW_DMCC_CM_BV_TXO_06	DMO_MSGW_NWK_DMCC_CM_BV_TXO_04, DMO_MSGW_NWK_DMCC_CM_BV_TXO_06
6.2.4.2	Request for pre-emption during occupation	e	Incorrectly implemented procedure for request for pre-emption during occupation may lead to unallowed transmission attempts causing interference to other users.	DMO_MSGW_DMCC_CM_BV_RO_03, DMO_MSGW_DMCC_CM_BV_RO_05	DMO_MSGW_NWK_DMCC_CM_BV_RO_03, DMO_MSGW_NWK_DMCC_CM_BV_RO_05
6.2.5.2	Request for changeover during reservation	e	Incorrect procedure for request for changeover during reservation may lead to unallowed transmission attempts causing interference to other users.	DMO_MSGW_DMCC_CM_BV_RR_03, DMO_MSGW_DMCC_CM_BV_RR_04	DMO_MSGW_NWK_DMCC_CM_BV_RR_03, DMO_MSGW_NWK_DMCC_CM_BV_RR_04
6.4.1	Solicited registration	e	Incorrectly implemented registration may cause disallowed transmission attempts.	DMO_MSGW_DMMM_01	DMO_MSGW_NWK_DMMM_01
6.4.2	Unsolicited registration	e	Incorrectly implemented registration may cause disallowed transmission attempts.	DMO_MSGW_DMMM_02	DMO_MSGW_NWK_DMMM_02
6.4.3	Cancellation of registration by Gateway	e	Incorrectly implemented cancellation of registration may cause disallowed transmission attempts.	DMO_MSGW_DMMM_03	DMO_MSGW_NWK_DMMM_03

NOTE 1: The requirements are specified in ETS 300 396-5 [19], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-7 [33], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-9 [35], annex A.

4.3.1.4 Security requirements

This subclause contains the security requirements at the Ud air interface.

Table 24: Security requirements at the Ud air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
6.3	Air interface encryption mechanism.	e	Incorrectly implemented air interface encryption may cause misuse of traffic channels.	-	Implicit by DMCC testing (note 4).
7.5.1	Key transfer mechanism for transferring the key from key holder to key user.	e	Incorrect ciphering key transfer may cause misuse of traffic channels preventing effective use of radio frequency spectrum.	TP/Sec_DM/L3/OTAR/BV/01, TP/Sec_DM/L3/OTAR/BV/02	Sec_DM_L3_OTAR_BV_01, Sec_DM_L3_OTAR_BV_02
7.5.2	Key transfer mechanism for transferring the key from key holder acting as a relay for key sealer to key user.	e	Incorrect ciphering key transfer may cause misuse of traffic channels preventing effective use of radio frequency spectrum.	TP/Sec_DM/L3/OTAR/BV/01, TP/Sec_DM/L3/OTAR/BV/02, TP/Sec_DM/L3/OTAR/BV/03	Sec_DM_L3_OTAR_BV_01, Sec_DM_L3_OTAR_BV_02, Sec_DM_L3_OTAR_BV_03
7.5.3	Key transfer mechanism for distributing the SCK unsolicited.	e	Incorrect ciphering key transfer may cause misuse of traffic channels preventing effective use of radio frequency spectrum.	TP/Sec_DM/L3/OTAR/BV/04	Sec_DM_L3_OTAR_BV_04
8.7.3.1	Disabling of target.	e	Incorrect MS operation when temporarily or permanently disabled may cause disallowed use of radio frequency spectrum. Disabling of equipment provides mechanism to prevent defective MS loading the air interface whilst disabling the user prevents unauthorized use of the air interface.	TP/Sec_DM/L3/SED/BV/PD/TAR/02	Sec_DM_L3_SED_BV_PD_TAR_02
8.7.3.2	Enabling of target.	e	Incorrectly implemented enabling procedure may result in disallowed transmission attempts and unnecessary occupation of a radio channel.	TP/Sec_DM/L3/SED/BV/EN/TAR/01, TP/Sec_DM/L3/SED/BV/EN/TAR/02	Sec_DM_L3_SED_BV_EN_TAR_01, Sec_DM_L3_SED_BV_EN_TAR_02
8.7.3.3	TEI delivery.	e	TEI delivery is required to perform disabling of equipment, which provides a mechanism to prevent defective MS loading the air interface.	TP/Sec_DM/L3/SED/BV/TEI/01	Sec_DM_L3_SED_BV_TEI_01

NOTE 1: The requirements are specified in ETS 300 396-6 [20], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-5-2 [14], clause 7.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-5-3 [15], annex B.
NOTE 4: For the DMCC testing of the terminals supporting security, the security features shall be enabled.

4.3.2 Repeater type 1 air interface protocol

4.3.2.1 Physical layer requirements

This subclause contains the radio layer requirements for a Repeater type 1 at the Ud air interface.

Table 25: Repeater type 1 Radio layer requirements at the Ud air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
9.4.1	Usage of DM channel	d, e	Incorrect usage of DM channel may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
12.2	Modulation type.	d, e	Incorrect modulation will lead to disturbance of other TETRA users.	-	Implicit by 10.1.3.
12.3.2	Frequency bands and channel arrangements	d, e	Incorrect use of frequency bands and channel arrangements may cause unnecessary interference in the radio spectrum.	-	Implicit by F.6.4.3
12.3.4	Transmitter output power.	d, e	Maladjustment of the RF output power may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.1.1.2 a) and F.5, table F.2 and EN 300 396-4 [18], subclause 12.3.4	8.1, 8.1.1 a), b) b2), c) and d) and F.4, table F.1
12.3.4	Unwanted conducted emission over the useful part of the burst.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.3.2	8.3 and F.4, table F.1
12.3.4	Unwanted conducted emission during the switching transients.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.4.2	8.4
12.3.4	Unwanted conducted discrete spurious emission far from the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.5.2 and F.5 table F.2	8.5
12.3.4	Unwanted conducted wideband noise emission far from the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.5.2 and F.5, table F.2 and EN 300 396-4 [18], subclause 12.3.4	8.5
12.3.4	Unwanted conducted emission during LCH.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.7.2	8.7, and 8.7.1
12.3.4	Unwanted conducted emission in the non-transmit state.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.8.2	9.8
12.3.4	Unwanted radiated emissions.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.6.2	8.6
12.3.4	RF output power time mask.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	F.6.2.1	F.6.2.2
12.3.4	RF output power in non-active transmit state.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.2.2	8.2

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
12.3.4	Transmitter intermodulation attenuation.	d, e	An intermodulation attenuation below an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.8.2.1	8.8 and 8.8.1
12.3.5	Blocking characteristics.	e	Insufficient blocking characteristics of the receiver may lead to an unnecessarily high number of radio transmission attempts	7.2.5.2 and F.5, table F.2	9.5 and 9.5.1
12.3.5	Spurious response rejection.	d, e	Insufficient spurious response rejection may lead to an unnecessarily high number of radio transmission attempts.	7.2.6.2 and F.5, table F.2	9.6
12.3.5	Intermodulation response rejection.	d, e	Insufficient intermodulation response rejection may lead to an unnecessarily high number of radio transmission attempts	7.2.7.2 and F.5, table F.2	9.7 and 9.7.1
12.3.5	Unwanted conducted emission in reception.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.8.2	9.8
12.3.5	Unwanted radiated emission.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.9.2	9.9
12.3.6	Modulation accuracy.	e, f	Insufficient modulation accuracy may lead to the transmission of incorrect data.	7.3.1.2	10.1, 10.1.1 and 10.1.3
12.3.6	Nominal error rate.	e, f	An unacceptable nominal error rate may lead to the reception of incorrect data.	7.2.2.2 and F.5, table F.2	9.2 and 9.2.1
12.3.6	Dynamic reference sensitivity performance.	e, f	An unacceptable dynamic reference sensitivity performance may lead to the reception of incorrect data.	7.2.3.2 and F.5, table F.2	9.3, 9.3.1 and 9.3.3
12.3.6	Reference interference performance.	e, f	An unacceptable reference interference performance may lead to the reception of incorrect data.	7.2.4.2 and F.5, table F.2	9.4 and 9.4.1
12.3.6	Static reference sensitivity performance.	e, f	An unacceptable static reference sensitivity performance may lead to the reception of incorrect data.	Implicit by 7.2.5.2, 7.2.6.2, 7.2.7.2 and F.5, table F.2	Implicit by 9.5.1, 9.6 and 9.7.1.
12.3.6	Receiver performance for synchronization burst acquisition.	d, e	An insufficient synchronization burst acquisition may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
12.4.2	DM-REP1 synchronization requirement.	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
12.4.3	Relationship between counters	d, e	An incorrect relation between the counters may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
12.4.4	RF frequency accuracy	d, e	An insufficient RF frequency accuracy may cause unnecessary interference in the radio spectrum.	F.6.3.1	F.6.3.2
12.4.5	Requirement for synchronization of a DM-REP1	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	F.6.4.2	F.6.4.3
12.6	Channel multiplexing for a type 1 DM-REP	d, e	Incorrect channel multiplexing through DM-REP may cause interference with other users.	-	Implicit by MAC layer testing.

NOTE 1: The requirements are specified in EN 300 396-4 [18] under the given subclause, except when otherwise stated.
NOTE 2: The test case limit values are specified in ETS 300 394-1 [8], under the given subclause, except when otherwise stated.
NOTE 3: The test methods are specified in ETS 300 394-1 [8], under the given subclause.

In addition to the requirements specified in table 25, the following applies for the TETRA DMO civil access for the frequency bands and channel arrangements defined in subclauses 9.4.1 and 12.3.2 of EN 300 396-4 [18]:

The RF carrier frequencies shall be among the frequencies allocated to TETRA DMO for civil access within the ranges defined by ERC Decision ERC/DEC/(96)/4 [44], i.e. within one or more of the bands 410 MHz to 430 MHz, 870 MHz to 876 MHz, 915 MHz to 921 MHz, 450 MHz to 470 MHz, 385 MHz to 390 MHz and 395 MHz to 399.99 MHz.

The requirements for frequency bands are tested implicitly.

4.3.2.2 Layer 2 requirements

This subclause contains the layer 2 requirements at the Ud air interface for Repeater type 1 operation.

Table 26: Lower MAC layer requirements at the Ud air interface for Repeater type 1 operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference	Test case reference (note 2)
12.5	Error control scheme for Synchronization Signalling CHannel (SCH/S).	d, e	Incorrect coding/decoding of SCH/S may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
12.5	Error control scheme for Half-slot Signalling CHannel (SCH/H) and Stealing CHannel (STCH).	d, e	Incorrect coding/decoding of SCH/H and STCH may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
12.5	Error control scheme for Full-slot Signalling Channel (SCH/F).	d, e	Incorrect coding/decoding of SCH/F may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
NOTE 1: The requirements are specified in EN 300 396-4 [18], under the given subclause. NOTE 2: The test cases, as referenced, are specified in EN 300 394-4-6 [32], annex A.					

Table 27: Upper MAC layer requirements at the Ud air interface for Repeater type 1 operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
9.4.2.2.2	DM-REP channel surveillance at DM-MS call set-up	e, f	Incorrectly implemented procedures for channel surveillance at DM-MS call set-up may cause interference to other users of the radio frequency spectrum.	DMO_DMREP1_MAC_BI_01, Implicit by DMO_DMREP1_MAC_BV_05, DMO_DMREP1_MAC_BV_07	DMO_DMREP1_MAC_BI_01, Implicit by DMO_DMREP1_MAC_BV_05, DMO_DMREP1_MAC_BV_07
9.4.2.3	DM-REP channel surveillance during a call	e, f	Incorrectly implemented procedures for channel surveillance during a call may cause interference to other users of the radio frequency spectrum.	DMO_DMREP1_MAC_TI_01, DMO_DMREP1_MAC_TI_02	DMO_DMREP1_MAC_TI_01, DMO_DMREP1_MAC_TI_02
9.4.5.1	Signalling of channel state	e	Incorrectly implemented signalling of channel state may call may cause interference to other users of the radio frequency spectrum, or prevent other users from gaining access to the radio frequency spectrum.	DMO_DMREP1_MAC_CA_02	DMO_DMREP1_MAC_CA_02
9.5.1.1	Re-transmission of master DM-MS messages	e, f	Incorrectly implemented re-transmission of messages may cause interference to other users of the radio frequency spectrum.	DMO_DMREP1_MAC_BV_05	DMO_DMREP1_MAC_BV_05
9.5.1.1.1	Re-transmission of DM-SETUP or DM-SETUP PRES messages	e, f	Incorrectly implemented re-transmission of messages may cause interference to other users of the radio frequency spectrum.	DMO_DMREP1_MAC_BV_07	DMO_DMREP1_MAC_BV_07
9.5.1.1.2	Re-transmission of DM-SDS DATA or DM-SDS UDATA messages	e, f	Incorrectly implemented re-transmission of messages may cause interference to other users of the radio frequency spectrum.	DMO_DMREP1_MAC_BV_08	DMO_DMREP1_MAC_BV_08
9.5.2	Re-transmission of signalling messages received from a slave DM-MS	e, f	Incorrectly implemented re-transmission of messages may cause interference to other users of the radio frequency spectrum.	DMO_DMREP1_MAC_BI_02	DMO_DMREP1_MAC_BI_02
9.5.2.1	Re-transmission of response messages from a slave DM-MS	e, f	Incorrectly implemented re-transmission of messages may cause interference to other users of the radio frequency spectrum.	Implicit by DMO_DMREP1_MAC_BV_05	Implicit by DMO_DMREP1_MAC_BV_05

NOTE 1: The requirements are specified in EN 300 396-4 [18], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in EN 300 394-4-4 [30], clause 6.
NOTE 3: The test cases, as referenced, are specified in EN 300 394-4-6 [32], annex A.

4.3.3 Repeater type 2 air interface protocol

4.3.3.1 Physical layer requirements

This subclause contains the radio layer requirements for a Repeater type 2 at the Ud air interface.

Table 28: Repeater type 2 Radio layer requirements at the Ud air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
9.4.1.1	Channel structure	d, e	Incorrectly implemented channel structure may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
9.4.1.2	Channel synchronization	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
12.2	Modulation type.	d, e	Incorrect modulation will lead to disturbance of other TETRA users.	-	Implicit by 10.1.3.
12.3.2	Frequency bands and channel arrangements	d, e	Incorrect use of frequency bands and channel arrangements may cause unnecessary interference in the radio spectrum.	-	Implicit by F.6.4.3
12.3.4.2	Transmitter output power and power classes.	d, e	Maladjustment of the RF output power may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.1.1.2 a) and F.5, table F.2 and EN 300 396-7 [21], subclause 12.3.4.2	8.1, 8.1.1 a), b) b2), c) and d) and F.4, table F.1
12.3.4.3.2	Unwanted emission close to the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.3.2	8.3 and F.4, table F.1
12.3.4.3.2	Unwanted emission close to the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.4.2	8.4
12.3.4.3.3.1	Unwanted conducted discrete spurious emission far from the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.5.2 and F.5 table F.2 and EN 300 396-7 [21], subclause 12.3.4.3.3.1	8.5
12.3.4.3.3.2	Unwanted conducted wideband noise emission far from the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.5.2 and F.5, table F.2 and EN 300 396-7 [21], subclause 12.3.4.3.3.2	8.5
12.3.4.3.4	Unwanted conducted emission during LCH.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.7.2	8.7, and 8.7.1
12.3.4.3.5	Unwanted conducted emission in the non-transmit state.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.8.2	9.8

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
12.3.4.4	Unwanted radiated emissions.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.6.2	8.6
12.3.4.6	RF output power time mask.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	F.6.2.1	F.6.2.2
12.3.4.6	RF output power in non-active transmit state.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.2.2	8.2
12.3.4.7	Transmitter intermodulation attenuation.	d, e	An intermodulation attenuation below an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.8.2.1	8.8 and 8.8.1
12.3.5	Blocking characteristics.	e	Insufficient blocking characteristics of the receiver may lead to an unnecessarily high number of radio transmission attempts	7.2.5.2 and F.5, table F.2	9.5 and 9.5.1
12.3.5	Spurious response rejection.	d, e	Insufficient spurious response rejection may lead to an unnecessarily high number of radio transmission attempts.	7.2.6.2 and F.5, table F.2	9.6
12.3.5	Intermodulation response rejection.	d, e	Insufficient intermodulation response rejection may lead to an unnecessarily high number of radio transmission attempts	7.2.7.2 and F.5, table F.2	9.7 and 9.7.1
12.3.5	Unwanted conducted emission in reception.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.8.2	9.8
12.3.5	Unwanted radiated emission.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.9.2	9.9
12.3.6	Modulation accuracy.	e, f	Insufficient modulation accuracy may lead to the transmission of incorrect data.	7.3.1.2	10.1, 10.1.1 and 10.1.3
12.3.6	Nominal error rate.	e, f	An unacceptable nominal error rate may lead to the reception of incorrect data.	7.2.2.2 and F.5, table F.2	9.2 and 9.2.1
12.3.6	Dynamic reference sensitivity performance.	e, f	An unacceptable dynamic reference sensitivity performance may lead to the reception of incorrect data.	7.2.3.2 and F.5, table F.2	9.3, 9.3.1 and 9.3.3
12.3.6	Reference interference performance.	e, f	An unacceptable reference interference performance may lead to the reception of incorrect data.	7.2.4.2 and F.5, table F.2	9.4 and 9.4.1
12.3.6	Static reference sensitivity performance.	e, f	An unacceptable static reference sensitivity performance may lead to the reception of incorrect data.	Implicit by 7.2.5.2, 7.2.6.2, 7.2.7.2 and F.5, table F.2	Implicit by 9.5.1, 9.6 and 9.7.1.
12.3.6	Receiver performance for synchronization burst acquisition.	d, e	An insufficient synchronization burst acquisition may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
12.4.2	DM-REP2 synchronization requirement.	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing
12.4.3	Relationship between counters	d, e	An incorrect relation between the counters may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
12.4.4	RF frequency accuracy	d, e	An insufficient RF frequency accuracy may cause unnecessary interference in the radio spectrum.	F.6.3.1	F.6.3.2

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
12.4.5	Requirement for synchronization of a DM-REP2	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	F.6.4.2	F.6.4.3
12.6	Channel multiplexing for a type 2 DM-REP	d, e	Incorrect channel multiplexing through DM-REP may cause interference with other users.	-	Implicit by MAC layer testing.
NOTE 1: The requirements are specified in EN 300 396-7 [21] under the given subclause, except when otherwise stated. NOTE 2: The test case limit values are specified in ETS 300 394-1 [8], under the given subclause, except when otherwise stated. NOTE 3: The test methods are specified in ETS 300 394-1 [8], under the given subclause.					

In addition to the requirements specified in table 28, the following applies for the TETRA DMO civil access for the frequency bands and channel arrangements defined in subclauses 9.4.1 and 12.3.2 of EN 300 396-7 [21]:

The RF carrier frequencies shall be among the frequencies allocated to TETRA DMO for civil access within the ranges defined by ERC Decision ERC/DEC/(96)/4 [44], i.e. within one or more of the bands 410 MHz to 430 MHz, 870 MHz to 876 MHz, 915 MHz to 921 MHz, 450 MHz to 470 MHz, 385 MHz to 390 MHz and 395 MHz to 399.99 MHz.

The requirements for frequency bands are tested implicitly.

4.3.3.2 Layer 2 requirements

This subclause contains the layer 2 requirements at the Ud air interface for Repeater type 2 operation.

Table 29: Lower MAC layer requirements at the Ud air interface for Repeater type 2 operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference	Test case reference (note 2)
12.5	Error control scheme for Synchronization Signalling CHannel (SCH/S).	d, e	Incorrect coding/decoding of SCH/S may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
12.5	Error control scheme for Half-slot Signalling CHannel (SCH/H) and Stealing CHannel (STCH).	d, e	Incorrect coding/decoding of SCH/H and STCH may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
12.5	Error control scheme for Full-slot Signalling Channel (SCH/F).	d, e	Incorrect coding/decoding of SCH/F may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
NOTE 1: The requirements are specified in EN 300 396-7 [21], under the given subclause. NOTE 2: The test cases, as referenced, are specified in EN 300 394-4-14 [40], annex A.					

Table 30: Upper MAC layer requirements at the Ud air interface for Repeater type 2 operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference (note 2)	Test case reference (note 3)
9.4.2.2.3	DM-REP channel surveillance at DM-MS call set-up	e, f	Incorrectly implemented procedures for channel surveillance at DM-MS call set-up may cause interference to other users of the radio frequency spectrum.	DMO_DMREP2_MAC_BI_01, Implicit by DMO_DMREP2_MAC_BV_05, DMO_DMREP2_MAC_BV_07	DMO_DMREP2_MAC_BI_01, Implicit by DMO_DMREP2_MAC_BV_05, DMO_DMREP2_MAC_BV_07
9.4.2.3	DM-REP channel surveillance during a call	e, f	Incorrectly implemented procedures for channel surveillance during a call may cause interference to other users of the radio frequency spectrum.	DMO_DMREP2_MAC_TI_01, DMO_DMREP2_MAC_TI_02	DMO_DMREP2_MAC_TI_01, DMO_DMREP2_MAC_TI_02
9.4.4	DM-REP channel monitoring procedures	e, f	Incorrectly implemented procedures for channel monitoring during a call may cause interference to other users of the radio frequency spectrum.	DMO_DMREP2_MAC_BV_02b	DMO_DMREP2_MAC_BV_02b
9.4.5.1.1	Signalling of channel state	e	Incorrectly implemented signalling of channel state may call may cause interference to other users of the radio frequency spectrum, or prevent other users from gaining access to the radio frequency spectrum.	DMO_DMREP2_MAC_CA_02	DMO_DMREP2_MAC_CA_02
9.5.1.1.1	Re-transmission of master DM-MS messages	e, f	Incorrectly implemented re-transmission of messages may cause interference to other users of the radio frequency spectrum.	DMO_DMREP2_MAC_BV_05	DMO_DMREP2_MAC_BV_05
9.5.1.1.2	Re-transmission of DM-SETUP or DM-SETUP PRES messages	e, f	Incorrectly implemented re-transmission of messages may cause interference to other users of the radio frequency spectrum.	DMO_DMREP2_MAC_BV_07	DMO_DMREP2_MAC_BV_07
9.5.1.1.3	Re-transmission of DM-SDS DATA or DM-SDS UDATA messages	e, f	Incorrectly implemented re-transmission of messages may cause interference to other users of the radio frequency spectrum.	DMO_DMREP2_MAC_BV_08	DMO_DMREP2_MAC_BV_08
9.5.2.1	Re-transmission of signalling messages received from a slave DM-MS	e, f	Incorrectly implemented re-transmission of messages may cause interference to other users of the radio frequency spectrum.	DMO_DMREP2_MAC_BI_02	DMO_DMREP2_MAC_BI_02
9.5.2.2	Re-transmission of response messages from a slave DM-MS	e, f	Incorrectly implemented re-transmission of messages may cause interference to other users of the radio frequency spectrum.	Implicit by DMO_DMREP2_MAC_BV_05	Implicit by DMO_DMREP2_MAC_BV_05

NOTE 1: The requirements are specified in EN 300 396-7 [21], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in EN 300 394-4-12 [38], clause 6.
NOTE 3: The test cases, as referenced, are specified in EN 300 394-4-14 [40], annex A.

4.3.4 Gateway air interface protocol

4.3.4.1 Physical layer requirements

This subclause contains the radio layer requirements for a Gateway at the Ud air interface.

Table 31: Gateway Radio layer requirements at the Ud air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
16.2	Modulation type.	d, e	Incorrect modulation will lead to disturbance of other TETRA users.	-	Implicit by testing at the Um air interface
16.3.2	Frequency bands and channel arrangements	d, e	Incorrect use of frequency bands and channel arrangements may cause unnecessary interference in the radio spectrum.	-	Implicit by testing at the Um air interface
16.3.4.2	Transmitter output power.	d, e	Maladjustment of the RF output power may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.1.1.2 a) and F.5, table F.2 and ETS 300 396-5 [19], subclause 16.3.4.2	8.1, 8.1.1 a), b) b2), c) and d)
16.3.4.3.2	Unwanted conducted emission over the useful part of the burst.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	-	Implicit by testing at the Um air interface
16.3.4.3.2	Unwanted conducted emission during the switching transients.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	-	Implicit by testing at the Um air interface
16.3.4.3.3.1	Unwanted conducted discrete spurious emission far from the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.5.2 and F.5, table F.2 and ETS 300 396-5 [19], subclause 16.3.4.3.3.1	8.5
16.3.4.3.3.2	Unwanted conducted wideband noise emission far from the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.5.2 and F.5, table F.2 and ETS 300 396-5 [19], subclause 16.3.4.3.3.2	8.5
16.3.4.3.4	Unwanted conducted emission during LCH.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	-	Implicit by testing at the Um air interface
16.3.4.3.5	Unwanted conducted emission in the non-transmit state.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	-	Implicit by testing at the Um air interface
16.3.4.4	Unwanted radiated emissions.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	-	Implicit by testing at the Um air interface
16.3.4.6	RF output power time mask.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	F.6.2.1	F.6.2.2

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
16.3.4.6	RF output power in non-active transmit state.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	-	Implicit by testing at the Um air interface
16.3.4.7	Intra-gateway transmitter intermodulation attenuation.	d, e	An intermodulation attenuation below an acceptable level may cause unnecessary interference in the radio spectrum.	-	Implicit by testing at the Um air interface
16.3.5	Blocking characteristics.	e	Insufficient blocking characteristics of the receiver may lead to an unnecessarily high number of radio transmission attempts	-	Implicit by testing at the Um air interface
16.3.5	Spurious response rejection.	d, e	Insufficient spurious response rejection may lead to an unnecessarily high number of radio transmission attempts.	-	Implicit by testing at the Um air interface
16.3.5	Intermodulation response rejection.	d, e	Insufficient intermodulation response rejection may lead to an unnecessarily high number of radio transmission attempts	-	Implicit by testing at the Um air interface
16.3.5	Unwanted conducted emission in reception.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	-	Implicit by testing at the Um air interface
16.3.5	Unwanted radiated emission.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	-	Implicit by testing at the Um air interface
16.3.6	Modulation accuracy.	e, f	Insufficient modulation accuracy may lead to the transmission of incorrect data.	-	Implicit by testing at the Um air interface
16.3.6	Nominal error rate.	e, f	An unacceptable nominal error rate may lead to the reception of incorrect data.	-	Implicit by testing at the Um air interface
16.3.6	Dynamic reference sensitivity performance.	e, f	An unacceptable dynamic reference sensitivity performance may lead to the reception of incorrect data.	-	Implicit by testing at the Um air interface
16.3.6	Reference interference performance.	e, f	An unacceptable reference interference performance may lead to the reception of incorrect data.	-	Implicit by testing at the Um air interface
16.3.6	Static reference sensitivity performance.	e, f	An unacceptable static reference sensitivity performance may lead to the reception of incorrect data.	-	Implicit by testing at the Um air interface
16.3.6	Receiver performance for synchronization burst acquisition.	d, e	An insufficient synchronization burst acquisition may cause unnecessary interference in the radio spectrum.	-	Implicit by layer 3 testing at the Um air interface.
16.4.2	Gateway synchronization requirement.	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by layer 3 testing at the Um air interface
16.4.3	DM timebase counters	d, e	An incorrect relation between the counters may cause unnecessary interference in the radio spectrum.	-	Implicit by layer 3 testing at the Um air interface.
16.4.4	RF frequency accuracy	d, e	An insufficient RF frequency accuracy may cause unnecessary interference in the radio spectrum.	F.6.3.1	F.6.3.2
16.4.5	Requirement for synchronization of a Gateway	d, e	An insufficient synchronization may cause unnecessary interference in the radio spectrum.	-	Implicit by layer 3 testing at the Um air interface

Requirement reference (note 1)	Description	Cat.	Justification	Test case limit value reference (note 2)	Test method reference (note 3)
16.6	Mapping of logical channels	d, e	Incorrect mapping of logical channels into physical channels may cause interference with other users.	-	Implicit by layer 3 testing at the Um air interface.
NOTE 1: The requirements are specified in ETS 300 396-5 [19] under the given subclause. NOTE 2: The test case limit values are specified in ETS 300 394-1 [8], under the given subclause, except when otherwise stated. NOTE 3: The test methods are specified in ETS 300 394-1 [8], under the given subclause.					

In addition to the requirements specified in table 31, the following applies for the TETRA DMO civil access for the frequency bands and channel arrangements defined in subclause 16.3.2 of ETS 300 396-5 [19]:

The RF carrier frequencies on the DM side shall be among the frequencies allocated to TETRA DMO for civil access within the ranges defined by ERC Decision ERC/DEC/(96)/4 [44], i.e. within one or more of the bands 410 MHz to 430 MHz, 870 MHz to 876 MHz, 915 MHz to 921 MHz, 450 MHz to 470 MHz, 385 MHz to 390 MHz and 395 MHz to 399.99 MHz.

The requirements for frequency bands are tested implicitly.

4.3.4.2 Layer 2 requirements

This subclause contains the layer 2 requirements at the Ud air interface for Gateway operation.

Table 32: Lower MAC layer requirements at the Ud air interface for Gateway operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference	Test case reference (note 2)
16.5	Error control scheme for Synchronization Signalling CHannel (SCH/S).	d, e	Incorrect coding/decoding of SCH/S may cause unnecessary transmissions.	-	Implicit by layer 3 testing at the Um air interface.
16.5	Error control scheme for Half-slot Signalling CHannel (SCH/H) and Stealing CHannel (STCH).	d, e	Incorrect coding/decoding of SCH/H and STCH may cause unnecessary transmissions.	-	Implicit by testing layer 3 at the Um air interface.
16.5	Error control scheme for Full-slot Signalling Channel (SCH/F).	d, e	Incorrect coding/decoding of SCH/F may cause unnecessary transmissions.	-	Implicit by testing layer 3 at the Um air interface.
NOTE 1: The requirements are specified in ETS 300 396-5 [19] under the given subclause. NOTE 2: The test cases, as referenced, are specified in ETS 300 394-4-10 [36], annex A.					

Table 33: Upper MAC layer requirements at the Ud air interface for Gateway operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference	Test case reference (note 2)
13.4.5.1.4	Transmitting DM-OCCUPIED	e	Incorrectly implemented procedures for signalling of channel occupation may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
13.4.6.1.1	Transmitting DM-RESERVED	e	Incorrectly implemented procedures for signalling of channel reservation may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
13.5.6.1	Transmission of messages	e, f	Incorrectly implemented transmission of messages may cause unnecessary and disallowed transmission attempts.	-	Implicit by testing layer 3 at the Um air interface.
13.5.7.2.1	Indicating frames available for requests	e	Incorrectly implemented procedures for indicating frames available for requests may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
NOTE 1: The requirements are specified in ETS 300 396-5 [19] under the given subclause. NOTE 2: The test cases, as referenced, are specified in ETS 300 394-4-10 [36], annex A.					

4.3.4.3 Layer 3 requirements

This subclause contains the layer 3 requirements at the Ud air interface for Gateway operation.

Table 34: Layer 3 requirements at the Ud air interface for Gateway operation

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference	Test case reference (note 2)
9.3.1.1	Outgoing individual call set-up to DM-MS	e, f	Incorrectly implemented outgoing call set-up may cause unnecessary and disallowed transmission attempts.	-	Implicit by testing layer 3 at the Um air interface.
9.3.1.2	Outgoing group call set-up to DM-MS	e, f	Incorrectly implemented outgoing call set-up may cause unnecessary and disallowed transmission attempts.	-	Implicit by testing layer 3 at the Um air interface.
9.3.3.1.1	Reception of DM-TX CEASED by end of DM-MS call	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
9.3.3.1.2	Transmitting DM-TX CEASED by end of V+D call	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
9.3.3.2	Transmitting DM-TX CEASED at receipt of interrupt from SwMI	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
9.3.3.3	Receipt of request to continue ongoing call from SwMI during DM channel reservation	e, f	Incorrect transfer of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
9.3.3.4.1	Response to request for change-over or pre-emption during DM-channel reservation	e, f	Incorrect transfer of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
9.3.3.5	Termination of DM call on receipt of transmission interrupt from SwMI	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
9.3.3.9.1	Receipt of DM-RELEASE from current master DM-MS	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
9.3.3.9.2	Release of DM channel on receipt of D-RELEASE from SwMI	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.

Requirement reference (note 1)	Description	Cat.	Justification	Test purpose reference	Test case reference (note 2)
9.3.3.9.3	Release of DM channel at expiry of call length timer	e	Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
9.3.4.1.3	New call preemption during DM channel reservation	e	Incorrect transfer of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
9.3.4.2.1	Preemption of DM channel on receipt of transmission interrupt from SwMI		Incorrect release of the radio ressource may prevent other users from gaining access to the radio frequency spectrum.	-	Implicit by testing layer 3 at the Um air interface.
NOTE 1: The requirements are specified in ETS 300 396-5 [19] under the given subclause. NOTE 2: The test cases, as referenced, are specified in ETS 300 394-4-10 [36], annex A.					

4.4 Other interfaces

There are no TETRA specific attachment requirements for:

- interface between TETRA network and the public network;
- interface between TETRA network and the Line Station (LS);
- interface between TETRA network and another TETRA network;
- Peripheral Equipment Interface (PEI);
- Subscriber Identity Module (SIM) card interface.

5 Test specification

5.1 Introduction

This clause provides the test references for the requirements of the present document used to determine the compliance of an IUT to the present document.

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

a) radio conformance testing specification, ETS 300 394-1 [8];
b) protocol conformance testing specifications:
   - Test Suite Structure (TSS) and Test Purposes (TPs) for V+D, ETS 300 394-2-1 [9];
   - Test Suite Structure (TSS) and Test Purposes (TPs) for DMO MS to MS, ETS 300 394-4-1 [27];
   - Test Suite Structure (TSS) and Test Purposes (TPs) for DMO MS to Repeater type 1, EN 300 394-4-3 [29];
   - Test Suite Structure (TSS) and Test Purposes (TPs) for DMO Repeater type 1, EN 300 394-4-4 [30];
   - Test Suite Structure (TSS) and Test Purposes (TPs) for DMO MS to Gateway, ETS 300 394-4-7 [33];
   - Test Suite Structure (TSS) and Test Purposes (TPs) for DMO Gateway, ETS 300 394-4-8 [34];
   - Test Suite Structure (TSS) and Test Purposes (TPs) for DMO MS to Repeater type 2, EN 300 394-4-11 [37];
   - Test Suite Structure (TSS) and Test Purposes (TPs) for DMO Repeater type 2, EN 300 394-4-12 [38];
   - Test Suite Structure (TSS) and Test Purposes (TPs) for Security, ETS 300 394-5-2 [14];
   - Test Suite Structure (TSS) and Test Purposes (TPs) for Managed DMO, annex C of the present document;
   - ATS for NWK layer, ETS 300 394-2-2 [10];
   - ATS for LLC layer, ETS 300 394-2-3 [11];
   - ATS for MAC layer, ETS 300 394-2-4 [12];
   - ATS for DMO MS to MS, ETS 300 394-4-2 [28];
   - ATS for DMO MS to Repeater type 1, EN 300 394-4-5 [31];
   - ATS for DMO Repeater type 1, EN 300 394-4-6 [32];
   - ATS for DMO MS to Gateway, ETS 300 394-4-9 [35];
   - ATS for DMO Gateway, ETS 300 394-4-10 [36];
   - ATS for DMO MS to Repeater type 2, EN 300 394-4-13 [39];
   - ATS for DMO Repeater type 2, EN 300 394-4-14 [40];
   - ATS for Security, ETS 300 394-5-3 [15];
   - ATS for Managed DMO, annex C of the present document.

NOTE: The ATSs for protocol testing are written in TTCN according to ISO/IEC 9646-3 [42].
For detailed information on conventions used for TPs refer to ETS 300 394-2-1 [9], clause 5 for V+D; ETS 300 394-4-1 [27], clause 5 for DMO MS to MS and Managed DMO; EN 300 394-4-3 [29], clause 5 for DMO MS to Repeater type 1; EN 300 394-4-4 [30], clause 5 for DMO Repeater type 1; ETS 300 394-4-7 [33], clause 5 for DMO MS to Gateway; ETS 300 394-4-8 [34], clause 5 for DMO Gateway; EN 300 394-4-11 [37], clause 5 for DMO MS to Repeater type 2; EN 300 394-4-12 [38], clause 5 for DMO Repeater type 2; and ETS 300 394-5-2 [14], clause 5 for Security.
For detailed information on ATS conventions refer to ETS 300 394-2-2 [10], clause 5 for NWK layer; ETS 300 394-2-3 [11], clause 5 for LLC layer; ETS 300 394-2-4 [12], clause 5 for upper MAC layer, EN 300 394-4-3 [29], clause 5 for DMO MS to Repeater type 1; EN 300 394-4-4 [30], clause 5 for DMO Repeater type 1; ETS 300 394-4-7 [33] clause 5 for DMO MS to Gateway; ETS 300 394-4-8 [34] clause 5 for DMO Gateway; EN 300 394-4-11 [37] clause 5 for DMO MS to Repeater type 2; EN 300 394-4-12 [38] clause 5 for DMO Repeater type 2; ETS 300 394-5-2 [14] clause 5 for Security, and annex C of the present document for Managed DMO.

Not all the tests defined for the conformance testing are relevant for type approval testing 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 are specified for the physical 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 [42].

5.2 Environmental conditions

Radio type approval testing shall be performed at normal and (where required) extreme test conditions as specified in ETS 300 394-1 [8].

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

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

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

5.3 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 for type approval testing. However, any test configuration and equipment used shall provide the test conditions specified in the tests to enable testing according to the present document.

Detailed test equipment accuracy, specification tolerance of the test devices, or test equipment conformity with the requirements set by the type approval tests are not subjects of the present document. Where such details are provided, they are considered as being an informative addition to the test specifications.

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 type approval 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.

5.4 Um air interface test specification

5.4.1 Physical layer test specification

5.4.1.1 Test case index for physical layer

Table 35: Test case index for physical layer

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.1.2 a)	8.1 and 8.1.1 a), b2) and d)	Mobile_Station	To test that the output power for the MS corresponds to the declared power class.
7.1.1.2 b)	8.1 and 8.1.1 a), b), c) and d)	Mobile_Station	To test the MS transmitter output power versus time.
7.1.1.2 a)	8.1 and 8.1.1 c)	Mobile_Station	To test the nominal MS power control levels.
7.1.1.2 a)	8.1 and 8.1.2 a), b2) and d)	Base_Station	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)	Base_Station_ Discontinous_Transmission	To test the BS transmitter output power versus time.

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.1.2 a) and b)	8.1 and 8.1.2 c) and d)	Base_Station_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	Discontinous_Transmission	To test the output power in the non-active transmit state.
7.1.3.2	8.3	Applicable_to_all_Um_IUTs	To test the unwanted conducted emission over the useful part of the burst.
7.1.4.2	8.4	Discontinous_Transmission	To test the unwanted conducted emission during switching transients.
7.1.5.2	8.5	Applicable_to_all_Um_IUTs	To test the unwanted conducted emission far from the carrier.
7.1.6.2	8.6	Applicable_to_all_Um_IUTs	To test the unwanted radiated emission in the active transmit state.
7.1.7.2	8.7 and 8.7.1	Mobile_Station	To test the MS unwanted conducted emission during CLCH.
7.1.7.2	8.7 and 8.7.2	Base_Station	To test the BS unwanted conducted emission during BLCH.
7.1.8.2.1	8.8 and 8.8.1	Mobile_Station	To test the MS transmitter intermodulation attenuation.
7.1.8.2.2	8.8 and 8.8.2	Base_Station_Several_Transmitters_Or_Collocated_With_Other_Radio_Equipment	To test the BS transmitter intermodulation: Minimum 70 dB attenuation.
7.1.8.2.2	8.8 and 8.8.2	Base_Station_Single_Transmitter_And_Not_Collocated_With_Other_Radio_Equipment	To test the BS transmitter intermodulation: Minimum 40 dB attenuation.
7.1.8.2.3	8.8 and 8.8.3	Base_Station_Several_Transmitters	To test the intra-BS transmitter intermodulation attenuation.
7.2.2.2	9.2 and 9.2.1	Mobile_Station_Class_A	To test the nominal error rate of a class A MS. ETS 300 394-1 [8], table A.1; nominal error: - TCH/7,2, TU50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.2.2	9.2 and 9.2.1	Mobile_Station_Class_B	To test the nominal error rate of a class B MS. ETS 300 394-1 [8], table A.2; nominal error: - TCH/7,2, TU50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.2.2	9.2 and 9.2.1	Mobile_Station_Class_E	To test the nominal error rate of a class E MS. ETS 300 394-1 [8], 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	Base_Station_Class_A	To test the nominal error rate of a class A BS. ETS 300 394-1 [8], table A.7; nominal error: - TCH/7,2, TU50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.2.2	9.2 and 9.2.2	Base_Station_Class_B	To test the nominal error rate of a class B BS. ETS 300 394-1 [8], table A.8; nominal error: - TCH/7,2, TU50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.3.2	9.3 and 9.3.1	Mobile_Station_Class_A	To test the dynamic reference sensitivity performance of a class A MS. ETS 300 394-1 [8], table A.1; sensitivity: - SCH/F, TU50, - 103 (- 97) dBm, - BSCH, HT200, - 103 dBm.
7.2.3.2	9.3 and 9.3.1	Mobile_Station_Class_A_Protected_Data	To test the dynamic reference sensitivity performance of a class A MS supporting protected circuit mode data. ETS 300 394-1 [8], table A.1; sensitivity: - TCH/2,4, N=1, HT200, - 103 dBm.
7.2.3.2	9.3 and 9.3.1	Mobile_Station_Class_B	To test the dynamic reference sensitivity performance of a class B MS. ETS 300 394-1 [8], table A.2; sensitivity: - SCH/F, TU50, - 103 (- 97) dBm, - BSCH, TU50, - 103 dBm.

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.2.3.2	9.3 and 9.3.1	Mobile_Station_Class_B_Protected_Data	To test the dynamic reference sensitivity performance of a class B MS supporting protected circuit mode data. ETS 300 394-1 [8], table A.2; sensitivity: - TCH/2,4, N=1, TU50, - 103 dBm.
7.2.3.2	9.3 and 9.3.1	Mobile_Station_Class_E	To test the dynamic reference sensitivity performance of a class E MS. ETS 300 394-1 [8], table A.3; sensitivity: - SCH/F, TU50, - 103 (- 97) dBm, - BSCH, EQ200, - 103 dBm.
7.2.3.2	9.3 and 9.3.1	Mobile_Station_Class_E_Protected_Data	To test the dynamic reference sensitivity performance of a class E MS supporting protected circuit mode data. ETS 300 394-1 [8], table A.3; sensitivity: - TCH/2,4, N=1, EQ200, - 103 dBm.
7.2.3.2	9.3 and 9.3.2	Base_Station_Class_A	To test the dynamic reference sensitivity performance of a class A BS. ETS 300 394-1 [8], table A.7; sensitivity: - SCH/F, TU50, - 106 (- 100) dBm.
7.2.3.2	9.3 and 9.3.2	Base_Station_Class_A_Protected_Data	To test the dynamic reference sensitivity performance of a class A BS supporting protected circuit mode data. ETS 300 394-1 [8], table A.7; sensitivity: - TCH/2,4, N=1, HT200, - 106 dBm.
7.2.3.2	9.3 and 9.3.2	Base_Station_Class_B	To test the dynamic reference sensitivity performance of a class B BS. ETS 300 394-1 [8], table A.8; sensitivity: - SCH/F, TU50, - 106 (- 100) dBm.
7.2.3.2	9.3 and 9.3.2	Base_Station_Class_B_Protected_Data	To test the dynamic reference sensitivity performance of a class B BS supporting protected circuit mode data. ETS 300 394-1 [8], table A.8; sensitivity: - TCH/2,4, N=1, TU50, - 106 dBm.
7.2.3.2	9.3 and 9.3.3	Mobile_Station	To test the dynamic reference sensitivity performance of an MS. ETS 300 394-1 [8], table A.11: - SCH/F, TU50, - 103 dBm, - AACH, TU50, - 103 dBm.
7.2.3.2	9.3 and 9.3.3	Base_Station	To test the dynamic reference sensitivity performance of a BS. ETS 300 394-1 [8], table A.11: - SCH/F, TU50, - 106 dBm.
7.2.4.2	9.4 and 9.4.1	Mobile_Station_Class_A	To test the reference interference performance of a class A MS. ETS 300 394-1 [8], table A.1: - co-channel interference, - adjacent channel interference.
7.2.4.2	9.4 and 9.4.1	Mobile_Station_Class_B	To test the reference interference performance of a class B MS. ETS 300 394-1 [8], table A.2: - co-channel interference, - adjacent channel interference.
7.2.4.2	9.4 and 9.4.1	Mobile_Station_Class_E	To test the reference interference performance of a class E MS. ETS 300 394-1 [8], table A.3: - co-channel interference, - adjacent channel interference.
7.2.4.2	9.4 and 9.4.2	Base_Station_Class_A	To test the reference interference performance of a class A BS. ETS 300 394-1 [8], table A.7: - co-channel interference, - adjacent channel interference.

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.2.4.2	9.4 and 9.4.2	Base_Station_Class_B	To test the reference interference performance of a class B BS. ETS 300 394-1 [8], table A.8: - co-channel interference, - adjacent channel interference.
7.2.5.2	9.5 and 9.5.1	Mobile_Station_Class_A	To test the blocking characteristics of a class A MS. ETS 300 394-1 [8], table A.1; blocking.
7.2.5.2	9.5 and 9.5.1	Mobile_Station_Class_B	To test the blocking characteristics of a class B MS. ETS 300 394-1 [8], table A.2; blocking.
7.2.5.2	9.5 and 9.5.1	Mobile_Station_Class_E	To test the blocking characteristics of a class E MS. ETS 300 394-1 [8], table A.3; blocking.
7.2.5.2	9.5 and 9.5.2	Base_Station_Class_A	To test the blocking characteristics of a class A BS. ETS 300 394-1 [8], table A.7; blocking.
7.2.5.2	9.5 and 9.5.2	Base_Station_Class_B	To test the blocking characteristics of a class B BS. ETS 300 394-1 [8], table A.8; blocking.
7.2.6.2	9.6	Mobile_Station_Class_A	To test the spurious response rejection of a class A MS. ETS 300 394-1 [8], table A.1; spurious response.
7.2.6.2	9.6	Mobile_Station_Class_B	To test the spurious response rejection of a class B MS. ETS 300 394-1 [8], table A.2; spurious response.
7.2.6.2	9.6	Mobile_Station_Class_E	To test the spurious response rejection of a class E MS. ETS 300 394-1 [8], table A.3; spurious response.
7.2.6.2	9.6	Base_Station_Class_A	To test the spurious response rejection of a class A BS. ETS 300 394-1 [8], table A.7; spurious response.
7.2.6.2	9.6	Base_Station_Class_B	To test the spurious response rejection of a class B BS. ETS 300 394-1 [8], table A.8; spurious response.
7.2.7.2	9.7 and 9.7.1	Mobile_Station_Class_A	To test the intermodulation response rejection of a class A MS. ETS 300 394-1 [8], table A.1; intermodulation.
7.2.7.2	9.7 and 9.7.1	Mobile_Station_Class_B	To test the intermodulation response rejection of a class B MS. ETS 300 394-1 [8], table A.2; intermodulation.
7.2.7.2	9.7 and 9.7.1	Mobile_Station_Class_E	To test the intermodulation response rejection of a class E MS. ETS 300 394-1 [8], table A.3; intermodulation.
7.2.7.2	9.7 and 9.7.2	Base_Station_Class_A	To test the intermodulation response rejection of a class A BS. ETS 300 394-1 [8], table A.7; intermodulation.
7.2.7.2	9.7 and 9.7.2	Base_Station_Class_B	To test the intermodulation response rejection of a class B BS. ETS 300 394-1 [8], table A.8; intermodulation.
7.2.8.2	9.8	Applicable_to_all_Um_IUTs	To test the unwanted conducted emission.
7.2.9.2	9.9	Applicable_to_all_Um_IUTs	To test the unwanted radiated emission.
7.3.1.2	10.1, 10.1.1 and 10.1.3	Mobile_Station	To test the modulation accuracy of an MS.
7.3.1.2	10.1, 10.1.2 and 10.1.3	Base_Station	To test the modulation accuracy of a BS.
7.3.2.2	10.2, 10.2.1	Mobile_Station	To test the carrier frequency error of an MS.
7.3.2.2	10.2, 10.2.2	Base_Station	To test the carrier frequency error of a BS.
7.3.4.2	10.4	Mobile_Station	To test the frame alignment performance of an MS.
7.3.5.2	10.5	Mobile_Station	To test the MS adaptive power control.

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

5.4.1.2 Test case selection expression definitions for physical layer

Table 36: Test case selection expression definitions for physical layer

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_Um_IUTs	A.1/1	TETRA V+D equipment.
Mobile_Station	A.2/2	MS equipment.
Base_Station	A.2/1	BS equipment.
Base_Station_Several_Power_Classes	A.2/1 AND A.6/1	BS equipment implementing more than one power class.
Base_Station_Several_Transmitters	A.2/1 AND NOT A.6/2	BS equipment with more than one transmitter.
Base_Station_Several_Transmitters_Or_Collocated_With_Other_Radio_Equipment	A.2/1 AND NOT (A.6/2 AND A.6/3)	BS equipment with more than one transmitter or to be collocated with other radio equipment operating in the same frequency band.
Base_Station_Single_Transmitter_And_Not_Collocated_With_Other_Radio_Equipment	A.2/1 AND A.6/2 AND A.6/3	BS equipment with single transmitter and not to be collocated with other radio equipment operating in the same frequency band.
Base_Station_Discontinous_Transmission	A.2/1 AND (A.4/2 OR A.4/3)	BS equipment operating in discontinuous mode.
Discontinous_Transmission	(A.2/1 AND (A.4/2 OR A.4/3)) OR A.2/2	BS equipment operating in discontinuous mode or MS equipment.
Mobile_Station_Class_A	A.2/2 AND A.6/4	MS equipment intended for class A environment.
Mobile_Station_Class_B	A.2/2 AND A.6/5	MS equipment intended for class B environment.
Mobile_Station_Class_E	A.2/2 AND A.6/6	MS equipment intended for class E environment.
Base_Station_Class_A	A.2/1 AND A.6/4	BS equipment intended for class A environment.
Base_Station_Class_B	A.2/1 AND A.6/5	BS equipment intended for class B environment.
Mobile_Station_Class_A_Protected_Data	A.2/2 AND A.2/3 AND A.6/4	MS equipment intended for class A environment supporting protected circuit mode data.
Mobile_Station_Class_B_Protected_Data	A.2/2 AND A.2/3 AND A.6/5	MS equipment intended for class B environment supporting protected circuit mode data.
Mobile_Station_Class_E_Protected_Data	A.2/2 AND A.2/3 AND A.6/6	MS equipment intended for class E environment supporting protected circuit mode data.
Base_Station_Class_A_Protected_Data	A.2/1 AND A.2/3 AND A.6/4	BS equipment intended for class A environment supporting protected circuit mode data.
Base_Station_Class_B_Protected_Data	A.2/1 AND A.2/3 AND A.6/5	BS equipment intended for class B environment supporting protected circuit mode data.
Detailed Comments The selection expressions given in the Selection Expression-column are Boolean expressions, referring to the declarations made in requirement tables in annex A in the present document.		

5.4.2 Layer 2 test specification

5.4.2.1 Test suite structure for MAC layer

Table 37: Test suite structure for MAC layer

Test Suite Structure		
Suite Name: MAC Standards Ref.: EN 300 392-2 [1] PICS Ref.: ETS 300 392-14 [6] PIXIT Ref.: ETS 300 394-2-4 [12], annex B Test Method(s): Embedded single party remote test method Comments:		
Test Group Reference	**Selection Ref.**	**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 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.

5.4.2.2 Test case index for MAC layer

Table 38: Test case index for MAC layer

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**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.

5.4.2.3 Test case selection expression definitions for MAC layer

Table 39: Test case selection expression definitions for MAC layer

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_IUTs	TBR_RT_UM_MS	IUT is TETRA V+D MS.
Minimum_mode_supported	PIC_MINIMUM_MODE	IUT is TETRA V+D MS supporting minimum mode.
Minimum_mode_not_supported_and_CC_supported	NOT (PIC_MINIMUM_MODE) AND (PIC_CALL_CONTROL)	IUT is TETRA V+D MS not supporting minimum mode, but supporting CC.

5.4.2.4 Test suite parameter definitions for MAC layer

Table 40: Test suite parameter definitions for MAC layer

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
TBR_RT_UM_MS	BOOLEAN	A.3.1, table A.2/2	TETRA V+D MS.
PIC_MINIMUM_MODE	BOOLEAN	A.3.3.2, table A.11/2	Indicate whether minimum mode procedures are supported.
PIC_CALL_CONTROL	BOOLEAN	A.3.4.1.1, table A.28/1	Indicate whether CMCE call control service is supported.
PIX_GSSI_1	GSSI_Type	B.2.2.1, table B.2/1	A group identifier.
PIX_GSSI_2	GSSI_Type	B.2.2.1, table B.2/2	A group identifier.
PIX_GSSI_3	GSSI_Type	B.2.2.1, table B.2/3	A group identifier.
PIX_SSI	SSI_Type	B.2.2.1, table B.2/4	The ITSI value of the MS.
PIX_HOME_LA	MM_LocationAreaType	B.2.2.1, table B.2/5	Home location area of the MS.
PIX_HOME_MCC	MM_MCC_Type	B.2.2.1, table B.2/6	Home mobile country code of the MS.
PIX_HOME_MNC	MM_MNC_Type	B.2.2.1, table B.2/7	Home mobile network code of the MS.
PIX_NEW_LOCATION_AREA_1	MM_LocationAreaType	B.2.2.1, table B.2/8	Unique registration area in the home MCC and MNC.
PIX_NEW_LOCATION_AREA_2	MM_LocationAreaType	B.2.2.1, table B.2/9	Unique registration area in the home MCC and MNC.
PIX_NEW_LOCATION_AREA_3	MM_LocationAreaType	B.2.2.1, table B.2/10	Unique registration area in the home MCC and MNC.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.4.2.5 Test suite structure for LLC layer

Table 41: Test suite structure for LLC layer

Test Suite Structure		
Suite Name: LLC Standards Ref.: EN 300 392-2 [1] PICS Ref.: ETS 300 392-14 [6] PIXIT Ref.: ETS 300 394-2-3 [11], annex B Test Method(s): The embedded version of the remote single party testing method Comments:		
Test Group Reference	**Selection Ref.**	**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/CA/BU/	Applicable_to_all_IUTs	To test the basic capabilities of the LLC entity of the IUT, when operating in basic link, unacknowledged 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/BI/BU/	BLU_data_reception_with_FCS_supported	To test the invalid behaviour of the LLC entity of the IUT, when using the basic link, unacknowledged 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.

5.4.2.6 Test case index for LLC layer

Table 42: Test case index for LLC layer

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**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/CA/BU/	LLC_CA_BU_03	Applicable_to_all_IUTs	IUT accepts a BL-UDATA PDU with no FCS.
LLC/CA/BU/	LLC_CA_BU_04	BLU_data_reception_with_FCS_supported	IUT accepts a BL-UDATA with a correct FCS.
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/BI/BU/	LLC_BI_BU_01	BLU_data_reception_with_FCS_supported	IUT does not accept a BL-UDATA with incorrect FCS.
LLC/TI/BA/	LLC_TI_BA_01	Applicable_to_all_IUTs	IUT implements timer T.251 correctly.

5.4.2.7 Test case selection expression definitions for LLC layer

Table 43: Test case selection expression definitions for LLC layer

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_IUTs	TBR_RT_UM_MS	The test case selected by this expression is applicable to all IUTs and should restrict to mandatory features to be tested.
BLA_with_FCS_in_transmission_supported	PIC_BLA_FCS_IN_TRANSMISSION	Acknowledged basic link data transmission implemented with optional FCS calculation.
BLA_with_FCS_in_reception_supported	PIC_BLA_FCS_IN_RECEPTION	Acknowledged basic link data reception implemented with optional FCS checking.
BLU_data_reception_with_FCS_supported	PIC_BLU_DATA_RECEPTION_WITH_FCS	Unacknowledged basic link data reception with FCS implemented.

5.4.2.8 Test suite parameter definitions for LLC layer

Table 44: Test suite parameter definitions for LLC layer

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
TBR_RT_UM_MS	BOOLEAN	**A.3.1**, table A.2/2	TETRA V+D MS
PIC_N_252_MIN	INTEGER	A.3.3.3, table A.26/1	The minimum value of LLC constant N.252 whether the stealing repeats are used or not.
PIC_T_251	INTEGER	A.3.3.3, table A.27/1	The value of LLC timer T.251.
PIC_BLA_FCS_IN_RECEPTION	BOOLEAN	A.3.3.3, table A.22/3	Acknowledged basic link data reception implemented with optional FCS checking.
PIC_BLA_FCS_IN_TRANSMISSION	BOOLEAN	A.3.3.3, table A.22/4	Acknowledged basic link data transmission implemented with optional FCS calculation.
PIC_BLU_DATA_RECEPTION_WITH_FCS	BOOLEAN	A.3.3.3, table A.23/2	Unacknowledged basic link data reception with FCS implemented.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.4.3 Layer 3 test specification

5.4.3.1 Test suite structure for layer 3

Table 45: Test suite structure for layer 3

Test Suite Structure		
Suite Name: NWK Standards Ref.: EN 300 392-2 [1] PICS Ref.: ETS 300 392-14 [6] PIXIT Ref.: ETS 300 394-2-2 [10], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**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.
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.

Test Suite Structure		
Suite Name: NWK Standards Ref.: EN 300 392-2 [1] PICS Ref.: ETS 300 392-14 [6] PIXIT Ref.: ETS 300 394-2-2 [10], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
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/	User_initiated_group_call_disconnection_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.
NWK/MM/	MM_supported	Check the dynamic behaviour requirements of the MM protocol.
NWK/MM/CA/	MM_supported	To test the basic capabilities of the MM module of the IUT.
NWK/MM/BV/	MM_supported	To test the valid behaviour of the MM module of the IUT.
NWK/MM/BV/RE/	MM_supported	To test the valid registration behaviour of the MM module of the IUT.
NWK/MM/BV/AT/	SwMI_or_IUT_initiated_group_ID_handling_supported	To test the valid attachment/detachment of group identities behaviour of the MM module of the IUT.
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.

Table 46: Test suite structure for layer 3 of a Gateway

Test Suite Structure		
Suite Name: DMO_GATE Standards Ref.: ETS 300 396-5 [19] PICS Ref.: ETS 300 396-8-3 [24] PIXIT Ref.: ETS 300 394-4-10 [36], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**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.
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.

5.4.3.2 Test case index for layer 3

Table 47: Test case index for layer 3

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
NWK/CMCE/IC/CA/SU/	NWK_CMCE_IC_CA_SU_01	Hook_signalling_supported	Incoming individual call to IUT, On-hook/Off-hook signalling, verify IUT sends U-ALERT.
NWK/CMCE/IC/CA/SU/	NWK_CMCE_IC_CA_SU_02	Hook_signalling_supported	Incoming individual call to IUT, Hook signalling, verify IUT sends U-ALERT and U-CONNECT.
NWK/CMCE/IC/CA/SU/	NWK_CMCE_IC_CA_SU_03	Direct_signalling_supported	Incoming individual call to IUT, Direct signalling, verify IUT sends U-CONNECT.
NWK/CMCE/IC/CA/SU/	NWK_CMCE_IC_CA_SU_04	Hook_signalling_supported	IUT sends outgoing call using U-SETUP, accepts D-ALERT in response.
NWK/CMCE/IC/CA/SU/	NWK_CMCE_IC_CA_SU_05	Direct_signalling_supported	IUT sends U-SETUP for Direct signalling, individual mode outgoing call, accepts D-CONNECT.
NWK/CMCE/IC/CA/CD/	NWK_CMCE_IC_CA_CD_01	User_initiated_individual_call_disconnection_supported	Incoming call from tester, IUT initiates clearing, sending U-DISCONNECT.
NWK/CMCE/IC/CA/CD/	NWK_CMCE_IC_CA_CD_02	Individual_call_supported	Incoming call from tester, call released by tester with D-RELEASE.
NWK/CMCE/IC/CA/CD/	NWK_CMCE_IC_CA_CD_03	Individual_call_supported	Incoming call from tester, tester initiates clearing sending D-DISCONNECT, expects U-RELEASE in response.
NWK/CMCE/IC/BV/OC/	NWK_CMCE_IC_BV_OC_01	Hook_signalling_supported	IUT establishes outgoing call with hook signalling, tester replies with D-CALL-PROCEEDING, D-ALERT and then D-CONNECT.
NWK/CMCE/IC/BV/OC/	NWK_CMCE_IC_BV_OC_02	Hook_signalling_supported	IUT establishes outgoing call with hook signalling, tester replies with D-CONNECT.
NWK/CMCE/IC/BV/OC/	NWK_CMCE_IC_BV_OC_03	Direct_signalling_supported	IUT establishes outgoing call with direct signalling, tester replies with D-CALL-PROCEEDING followed by D-CONNECT.
NWK/CMCE/IC/BV/CC/	NWK_CMCE_IC_BV_CC_01	Hook_signalling_supported	Call Collision between 2 calls using hook signalling - IUT keeps one and releases the other.
NWK/CMCE/IC/BV/CC/	NWK_CMCE_IC_BV_CC_02	Direct_signalling_supported	Call Collision between 2 calls using direct signalling - IUT keeps one and releases the other.
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_01	Direct_signalling_supported	Direct signalling call established, check IUT's u-plane is transmitting.
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_02	Call_setup_supported	Call established with TX permission for IUT, IUT sends U-TX-CEASED and stops transmitting.
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_03	Call_setup_supported	Call established with TX permission for IUT, IUT sends TX-CEASED, receives TX-GRANTED but granted to another user, check IUT doesn't transmit.
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_04	Call_setup_supported	Call established with no TX permission for IUT, IUT requests and is granted TX permission, check IUT does transmit.

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_05	Call_setup_supported	Call established to IUT, no TX permission granted, IUT requests TX permission, is refused, check IUT is still receiving.
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_06	Hook_signalling_supported	IUT sends outgoing call indicating Hook signalling, receives D-ALERT and D-CONNECT with TX permission granted to another user.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_01	Hook_signalling_supported	Test Duration of T301, IUT should clear call if it doesn't receive D-CONNECT-ACK before T301 expires, during incoming individual call, hook signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_02	Hook_signalling_supported	Test Duration of T310 for individual call, hook signalling. IUT should clear call if call doesn't end before T310 expires. T310 set by tester.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_03	Direct_signalling_supported	Test Duration of T301, IUT should clear call if it doesn't receive D-CONNECT-ACK before T301 expires, during incoming individual call, direct signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_04	Direct_signalling_supported	Test Duration of T310 for individual call, direct signalling. IUT should clear call if call doesn't end before T310 expires. T310 set by tester.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_05	Hook_signalling_supported	Test duration of T303, IUT should clear call if it doesn't receive a response to its U-SETUP before T303 expires, during outgoing individual call using hook signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_06	Hook_signalling_supported	Test duration of T302, IUT should clear call if it doesn't receive a D-CONNECT in response to its U-SETUP before T302 expires, during outgoing individual call using hook signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_07	Direct_signalling_supported	Test duration of T303, IUT should clear call if it doesn't receive a response to its U-SETUP before T303 expires, during outgoing individual call using direct signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_08	Direct_signalling_supported	Test duration of T302, IUT should clear call if it doesn't receive a D-CONNECT in response to its U-SETUP before T302 expires, during outgoing individual call using direct signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_10	Hook_signalling_supported	Receive outgoing hook signalling call, send a D-ALERT in response, but before continuing with a D-CONNECT, restart the call set-up timer T302 by sending a D-INFO.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_11	Call_setup_supported	Test call restoration timer T306.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_12	User_initiated_individual_call_disconnection_supported	Test call disconnect timer T308.

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
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 doesn't transmit.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_04	Group_call_supported	Check that IUT can make TX request and accepts TX Granted.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_05	Group_call_supported	Check that IUT behaves correctly having received TX Not Granted to its TX Grant request.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_06	Group_call_supported	Check IUT behaviour after D-TX INTERRUPT where TX is granted to another user.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_07	Group_call_supported	Check IUT behaviour after D-TX WAIT reception.
NWK/CMCE/GC/BV/MA/CR/	NWK_CMCE_GC_BV_MA_CR_01	Group_call_supported	Call restoration.
NWK/CMCE/GC/BV/CD/	NWK_CMCE_GC_BV_CD_01	Group_call_supported	Call released by tester with D-RELEASE.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_01	Group_call_supported	Test call length timer T310 by pressing the IUT tangent.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_02	Group_call_supported	Test call initiated timer T303.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_03	Group_call_supported	Test call set-up timer T302.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_04	Group_call_supported	Test call length timer T310 using outgoing call.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_05	Group_call_supported	Test call time-out timer T310 reset after D-INFO PDU.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_06	Group_call_supported	Test call restoration timer T307.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_07	Group_call_supported	Test call transmission timer T311.
NWK/MM/CA/	NWK_MM_CA_02	MM_supported	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	MM_supported	Registration to home network.

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
NWK/MM/BV/RE/	NWK_MM_BV_RE_02	MM_supported	Roaming registration.
NWK/MM/BV/RE/	NWK_MM_BV_RE_07	MM_supported	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.
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.
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.

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
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.
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.

5.4.3.3 Test case selection expression definitions for layer 3

Table 48: Test case selection expression definitions for layer 3

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_IUTs	TBR_RT_UM_MS	IUT is TETRA V+D MS.
CMCE_supported	PIC_CMCE_SUPPORTED	IUT supports CMCE for non-Gateway.
Individual_call_supported	PIC_INDIVIDUAL_CALL_SUPPORTED	IUT supports individual call.
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.
Call_setup_supported	PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED OR PIC_ON_OFF_HOOK_SIGNALLING_SUPPORTED	Used in MM and CMCE.
Direct_call_setup_supported	PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED	Used in MM.
User_initiated_individual_call_disconnection_supported	PIC_USER_INITIATED_INDIVIDUAL_CALL_DISCONNECTION_SUPPORTED	Used in CMCE.
MM_supported	PIC_CMCE_SUPPORTED	IUT supports MM for non-Gateway.
SwMI_initiated_group_ID_handling_with_report_request_supported	PIC_MM_SWMI_INITIATED_GID_REPORT_REQUEST_SUPPORTED	Used in MM.
IUT_initiated_group_ID_handling_supported	PIC_MM_IUT_INITIATED_GID_HANDLING_SUPPORTED	Used in 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	Used in MM.
Neighbour_cell_enquiry_supported	PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED	Used in MLE.
Individual_call_and_neighbour_cell_enquiry_supported	(PIC_INDIVIDUAL_CALL_SUPPORTED AND PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED)	Used in MLE.
Individual_or_group_call_supported	PIC_INDIVIDUAL_CALL_SUPPORTED OR PIC_GROUP_CALL_SUPPORTED	Used in 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	Used in MLE.
Applicable_to_Gateways	PIC_GATEWAY	IUT is a Gateway.
GWCC_supported	PIC_GWCC	GWCC supported.
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.

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
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.
GWMM_ILU	PIC_GWMM AND PIX_IMP_U_LOCATION_UPDATE_PDU	True if GW MM supported.

5.4.3.4 Test suite parameter definitions for layer 3

Table 49: Test suite parameter definitions for layer 3

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
TBR_RT_UM_MS	BOOLEAN	A.3.1, table A.2/2	TETRA V+D MS.
PIC_CMCE_SUPPORTED	BOOLEAN	A.3.1, table A.5/1	CMCE supported.
PIC_MM_SUPPORTED	BOOLEAN	A.3.1, table A.5/2	MM supported.
PIC_GWCC	BOOLEAN	A.3.1, table A.5/8	GWCC supported.
PIC_GWMM	BOOLEAN	A.3.1, table A.5/9	GWMM supported.
PIC_ON_OFF_HOOK_SIGNALLING_SUPPORTED	BOOLEAN	A.3.4.1.1, table A.29/1	Indicate whether on/off hook signalling is supported.
PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED	BOOLEAN	A.3.4.1.1, table A.29/2	Indicate if direct set-up signalling is supported.
PIC_INDIVIDUAL_CALL_SUPPORTED	BOOLEAN	A.3.4.1.1, table A.29/1	IUT supports individual call.
PIC_GROUP_CALL_SUPPORTED	BOOLEAN	A.3.4.1.1, table A.29/2	IUT supports group call.
PIC_USER_INITIATED_INDIVIDUAL_CALL_DISCONNECTION_SUPPORTED	BOOLEAN	A.3.4.1.1, table A.37/1	IUT supports user initiated individual call disconnection.
PIC_CIRCUIT_MODE_CALL	BOOLEAN	A.3.4.1.2, table A.41/1	IUT supports circuit mode call.
PIC_ACCEPT_INDIVIDUAL_CALL	BOOLEAN	A.3.4.1.2, table A.42/1	IUT accepts individual circuit mode calls.
PIC_ACCEPT_GROUP_CALL	BOOLEAN	A.3.4.1.2, table A.42/2	IUT accepts group circuit mode calls.
PIC_INCOMING_VD_CALL	BOOLEAN	A.3.4.1.2, table A.42/3	IUT accepts incoming calls from V+D.
PIC_INCOMING_DM_CALL	BOOLEAN	A.3.4.1.2, table A.42/4	IUT accepts incoming calls from DM-MS.
PIC_MM_SWMI_INITIATED_GID_REPORT_REQUEST_SUPPORTED	BOOLEAN	A.3.4.2.1, table A.50/3	SwMI initiated group ID attachment/detachment report request.
PIC_MM_IUT_INITIATED_GID_HANDLING_SUPPORTED	BOOLEAN	A.3.4.2.1, table A.50/2	IUT initiated group ID attachment/detachment.
PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED	BOOLEAN	A.3.4.3, table A.54/3	Neighbour cell enquiry supported.
PIC_GATEWAY	BOOLEAN	A.4.1, table A.69/4	IUT is a Gateway.
PIX_CHANNEL_1	MainCarrierNoType	B.2.3.3, table B.7/1	Define the channel that the MS initially tries to camp on to.
PIX_CHANNEL_2	MainCarrierNoType	B.2.3.3, table B.7/2	Another channel that the MS is capable of receiving.
PIX_COUNTRY_CODE	MCC_Type	B.2.3.2, table B.5/1; B.2.3.3, table B.7/3	Home country code of the MS.

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIX_NETWORK_CODE	MNC_Type	B.2.3.2, table B.5/2; B.2.3.3, table B.7/4	Home network code of the MS.
PIX_LOCATION_AREA	LocationAreaType	B.2.3.2, table B.5/3; B.2.3.3, table B.7/5	Home location area of the MS.
PIX_NEW_LOCATION_AREA	LocationAreaType	B.2.3.2, table B.5/4; B.2.3.3, table B.7/6	A location area outside the MS home location area.
PIX_MS_TEI	TEI_Type	B.2.3.2, table B.5/5	TEI of the IUT, 60 bits.
PIX_MS_ITSI	ITSI_Type	B.2.3.1, table B.3/4; B.2.3.1, table B.4/2 B.2.3.2, table B.5/6; B.2.3.2, table B.6/1 B.2.3.3, table B.7/7	ITSI of the IUT.
PIX_DM_MS_MNI	MNI_Type	B.2.3.1, table B.4/3	Value of the MNI of the DM-MS
PIX_DM_MS_SSI	SSI_Type	B.2.3.1, table B.4/4	Value of the SSI of the DM-MS
PIX_IMP_U_SETUP_PDU	BOOLEAN	B.2.3.1, table B.4/5	It is possible to cause the IUT to initiate an outgoing call.
PIX_IMP_U_TX_DEMAND_PDU	BOOLEAN	B.2.3.1, table B.4/6	It is possible to cause the IUT to send a U-TX DEMAND PDU.
PIX_IMP_U_TX_CEASED_PDU	BOOLEAN	B.2.3.1, table B.4/7	It is possible to cause the IUT to send a U-TX CEASED PDU.
PIX_IMP_U_LOCATION_UPDATE_PDU	BOOLEAN	B.2.3.2, table B.6/2	It is possible to cause the IUT to send a U-LOCATION UPDATE PDU
PIX_T303	INTEGER	B.2.3.1, table B.3/1 B.2.3.1, table B.4/1	Duration of the T303 in the IUT in seconds.
PIX_T308	INTEGER	B.2.3.1, table B.3/2	Duration of the T308 in the IUT in seconds.
PIX_T311	INTEGER	B.2.3.1, table B.3/3	Duration of the T311 in the IUT in seconds.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.4.4 Security test specification

5.4.4.1 Test suite structure for Um security

Table 50: Test suite structure for Um security

Test Suite Structure		
Suite Name: Security Standards Ref.: EN 300 392-7 [2] PICS Ref.: ETS 300 394-5-1 [13] PIXIT Ref.: ETS 300 394-5-3 [15], annex C Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
Sec_VD/	VD_Security_Supp	To test the behaviour of the Voice + Data security module of the IUT.
Sec_VD/AU/	VD_Auth_Supp	To test the V+D security module of the IUT, when operating the authentication at layer 3.
Sec_VD/AU/BV/	VD_Auth_Supp	To test the valid behaviour of the V+D security module of the IUT, when operating the authentication.
Sec_VD/AU/BV/II/	VD_Infrastructure_Auth_Supp	To test the valid behaviour of infrastructure initiated authentication procedures of the IUT for the V+D security protocols.
Sec_VD/AU/BV/TI/	VD_Terminal_Auth_Supp	To test the valid behaviour of terminal initiated authentication procedures of the V+D security protocols.
Sec_VD/AU/BV/REG/	VD_Auth_Supp	To test the valid behaviour of the authentication procedures of the V+D security protocols when authentication is initiated during registration.
Sec_VD/AU/BV/REG/TEI/	VD_Auth_Supp	To test the valid behaviour of the authentication procedures of the V+D security protocols when authentication is initiated during registration.
Sec_VD/OTAR/	VD_OTAR_Supp	To test the V+D security module of the IUT, when operating the OTAR procedures at layer 3.
Sec_VD/OTAR/BV/	VD_OTAR_Supp	To test the valid behaviour of OTAR scenarios of the V+D security protocols.
Sec_VD/OTAR/BV/CCK/	VD_OTAR_CCK_Supp	To test the valid behaviour of OTAR scenarios for CCK of the V+D security protocols.
Sec_VD/OTAR/BV/GCK/	VD_OTAR_GCK_Supp	To test the valid behaviour of OTAR scenarios for GCK of the V+D security protocol.
Sec_VD/OTAR/BV/SCK/	VD_OTAR_SCK_Supp	To test the valid behaviour of OTAR scenarios for SCK of the V+D security protocols.
Sec_VD/SED/	VD_SED_Supp	To test the V+D security module of the IUT, when operating the enable and disable procedures at layer 3.
Sec_VD/SED/BV/	VD_SED_Supp	To test the V+D security module of the IUT, when operating the valid behaviour of the enable and disable procedures.
Sec_VD/SED/PD/	VD_SED_Supp	To test the V+D security module of the IUT, when operating the permanent disabling procedures.
Sec_VD/SED/BV/EN/	VD_SED_Supp	To test the V+D security module of the IUT, when operating the enable procedures.

5.4.4.2 Test case index for Um security

Table 51: Test case index for Um security

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
Sec_VD/AU/BV/II/	Sec_VD_AU_BV_II_01	VD_Infrastructure_Auth_Supp	SwMI (testset) authenticates MS (IUT).
Sec_VD/AU/BV/II/	Sec_VD_AU_BV_II_02	VD_Infrastructure_Auth_Supp	Mutual authentication initiated by SwMI (testset).
Sec_VD/AU/BV/TI/	Sec_VD_AU_BV_TI_01	VD_Terminal_Auth_Supp	MS (IUT) authenticates SwMI (testset).
Sec_VD/AU/BV/TI/	Sec_VD_AU_BV_TI_02	VD_Terminal_Auth_Supp	Mutual authentication initiated by MS (IUT).
Sec_VD/AU/BV/REG/	Sec_VD_AU_BV_REG_01	VD_Infrastructure_Auth_Supp	SwMI (testset) authenticates MS (IUT) during registration.
Sec_VD/AU/BV/REG/	Sec_VD_AU_BV_REG_02	VD_Terminal_Auth_LU_IMP_Supp	MS (IUT) authenticates SwMI (testset) during registration.
Sec_VD/AU/BV/REG/TEI/	Sec_VD_AU_BV_REG_TEI_03	VD_Terminal_Auth_LU_IMP_Supp	Authentication initiated by MS (IUT) during registration including TEI exchange and made mutual by SwMI (test system).
Sec_VD/AU/BV/REG/TEI/	Sec_VD_AU_BV_REG_TEI_04	VD_Infrastructure_Auth_Supp	SwMI (test system) authentication initiated during registration and made mutual by the MS (IUT) with TEI exchange.
Sec_VD/OTAR/BV/CCK/	Sec_VD_OTAR_BV_CCK_01	VD_OTAR_CCK_IMP_Supp	SwMI (testset) initiated OTAR current CCK provision.
Sec_VD/OTAR/BV/CCK/	Sec_VD_OTAR_BV_CCK_03	VD_OTAR_CCK_request_IMP_Supp	MS (IUT) initiated OTAR current CCK provision.
Sec_VD/OTAR/BV/GCK/	Sec_VD_OTAR_BV_GCK_01	VD_OTAR_GCK_request_Supp	MS (IUT) requests provision for GCK.
Sec_VD/OTAR/BV/GCK/	Sec_VD_OTAR_BV_GCK_02	VD_OTAR_GCK_Supp	SwMI (testset) provides GCK to MS (IUT).
Sec_VD/OTAR/BV/SCK/	Sec_VD_OTAR_BV_SCK_01	VD_OTAR_SCK_Supp	SwMI (testset) provides SCK to MS (IUT).
Sec_VD/SED/PD/	Sec_VD_SED_BV_PD_02	VD_Infrastructure_Auth_Supp	Permanently disable terminal (ITSI) with authentication.
Sec_VD/SED/BV/EN/	Ses_VD_SED_BV_EN_01	VD_Infrastructure_Auth_Supp	Enable terminal (TEI) with authentication.
Sec_VD/SED/BV/EN/	Sec_VD_SED_BV_EN_05	VD_SED_Non_Auth_Enable_Supp	Enable equipment (ITSI) without authentication.

5.4.4.3 Test case selection expression definitions for Um security

Table 52: Test case selection expression definitions for Um security

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
VD_Security_Supp	PIC_VD_SEC_SUPP AND PIX_VD_L3	IUT supports V+D security.
VD_Auth_Supp	PIC_VD_AUTH_SUPP AND PIX_VD_L3	IUT supports authentication.
VD_Infrastructure_Auth_Supp	PIC_VD_IAUTH_SUPP AND PIX_IMP_LOCATION_UPDATE_Type AND PIX_VD_L3	Infrastructure initiated authentication supported.
VD_Terminal_Auth_Supp	PIC_VD_TAUTH_SUPP AND PIX_IMP_AUTHENTICATION_DEMAND AND PIX_IMP_LOCATION_UPDATE_Type AND PIX_VD_L3	Terminal initiated authentication supported.
VD_Terminal_Auth_LU_IMP_Supp	PIC_VD_TAUTH_SUPP AND PIX_IMP_LOCATION_UPDATE_DEMAND_AuthReq AND PIX_IMP_LOCATION_UPDATE_Type AND PIX_VD_L3	Terminal initiated authentication during registration supported.
VD_OTAR_Supp	PIC_VD_OTAR_SUPP AND PIX_VD_L3	IUT supports OTAR.
VD_OTAR_CCK_request_IMP_Supp	PIC_VD_OTAR_CCK_SUPP AND PIC_VD_OTAR_CCK_DEMAND_PDU_SUPP AND PIX_IMP_LOCATION_UPDATE_Type AND PIX_IMP_OTAR_CCK_DEMAND_Normal AND PIX_VD_L3	IUT request CCK supported.
VD_OTAR_CCK_IMP_Supp	PIC_VD_OTAR_CCK_SUPP AND PIX_IMP_LOCATION_UPDATE_Type AND PIX_VD_L3	CCK supported.
VD_OTAR_CCK_Supp	PIC_VD_OTAR_CCK_SUPP AND PIX_VD_L3	CCK supported.
VD_OTAR_GCK_request_Supp	PIC_VD_OTAR_GCK_SUPP AND PIC_VD_OTAR_GCK_DEMAND_PDU_SUPP AND PIX_IMP_LOCATION_UPDATE_Type AND PIX_IMP_OTAR_GCK_DEMAND_Normal AND PIX_VD_L3	IUT request GCK supported.
VD_OTAR_GCK_Supp	PIC_VD_OTAR_GCK_SUPP AND PIX_IMP_LOCATION_UPDATE_Type AND PIX_VD_L3	GCK supported.
VD_OTAR_SCK_Supp	PIC_VD_OTAR_SCK_SUPP AND PIX_IMP_LOCATION_UPDATE_Type AND PIX_VD_L3	SCK supported.
VD_SED_Supp	PIC_VD_SED_SUPP AND PIX_VD_L3 AND PIX_IMP_LOCATION_UPDATE_Type	Enable/Disable procedures supported.
VD_SED_Non_Auth_Enable_Supp	PIC_VD_SED_Enable_Non_Auth_SUPP AND PIX_VD_L3 AND PIX_IMP_LOCATION_UPDATE_Type	Enable without authentication procedure supported.

5.4.4.4 Test suite parameter definitions for Um security

Table 53: Test suite parameter definitions for Um security

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_VD_SEC_SUPP	BOOLEAN	A.3.1, table A.2 /7	V+D security supported.
PIC_VD_AUTH_SUPP	BOOLEAN	A.3.5, table A.59/1	Authentication supported.
PIC_VD_TAUTH_SUPP	BOOLEAN	A.3.5.1, table A.60/2	Terminal initiated authentication supported.
PIC_VD_IAUTH_SUPP	BOOLEAN	A.3.5.1, table A.60/1	Infrastructure initiated authentication supported.
PIC_VD_OTAR_SUPP	BOOLEAN	A.3.5, table A.59/2	OTAR supported.
PIC_VD_OTAR_CCK_SUPP	BOOLEAN	A.3.5.2, table A.63/1	CCK for OTAR.
PIC_VD_OTAR_GCK_SUPP	BOOLEAN	A.3.5.2, table A.63/2	GCK for OTAR.
PIC_VD_OTAR_SCK_SUPP	BOOLEAN	A.3.5.2, table A.63/3	SCK for OTAR.
PIC_VD_OTAR_CCK_DEMAND_PDU_SUPP	BOOLEAN	A.3.5.2, table A.64/6	True if the IUT supports the CCK DEMAND PDU.
PIC_VD_OTAR_GCK_DEMAND_PDU_SUPP	BOOLEAN	A.3.5.2, table A.64/8	True if the IUT supports the GCK DEMAND PDU.
PIC_VD_SED_SUPP	BOOLEAN	A.3.5, table A.59/3	Secure enable/disable supported.
PIC_VD_SED_Enable_Non_Auth_SUPP	BOOLEAN	A.3.5.3, table A.66/5	True if the IUT supports enabling without authentication.
PIX_IMP_AUTHENTICATION_DEMAND	BOOLEAN	B.2.4, table B.8/1	Sending of U-AUTHENTICATION DEMAND PDU implemented.
PIX_IMP_LOCATION_UPDATE_Type	BOOLEAN	B.2.4, table B.8/2	Sending of U-LOCATION UPDATE PDU implemented.
PIX_IMP_LOCATION_UPDATE_DEMAND_AuthReq	BOOLEAN	B.2.4, table B.8/3	Sending of U-LOCATION UPDATE PDU containing an authentication demand implemented.
PIX_IMP_OTAR_CCK_DEMAND_Normal	BOOLEAN	B.2.4, table B.8/4	Sending of U-OTAR CCK DEMAND PDU implemented.
PIX_IMP_OTAR_GCK_DEMAND_Normal	BOOLEAN	B.2.4, table B.8/5	Sending of U-OTAR GCK DEMAND PDU implemented.
PIX_IMP_OTAR_SCK_DEMAND_1	BOOLEAN	B.2.4, table B.8/6	Sending of U-OTAR SCK DEMAND PDU requesting the provision of 1 SCK implemented.
PIX_VD_L3	BOOLEAN	B.2.4, table B.9/1	Testing the layer 3 of the security Voice + Data protocol.

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIX_MS_ITSI	TSI_Type	B.2.4, table B.10/1	ITSI of the IUT.
PIX_TEI	TEI_Type	B.2.4, table B.10/2	TEI.
PIX_GSSI	GSSI_Type	B.2.4, table B.10/3	GSSI.
PIX_RAND1	RandomChallengeType	B.2.4, table B.11/1	Value of Random challenge (RAND1).
PIX_RS	RandomSeedType	B.2.4, table B.11/2	Value of the Random seed (RS).
PIX_RES2	ResponseValueType	B.2.4, table B.11/3	Value of the result RES2.
PIX_CURRENT_CCK	CCK_IdType	B.2.4, table B.12/1	Value of the CCK of the current LA.
PIX_OTHER_CCK	CCK_IdType	B.2.4, table B.12/2	Value of the CCK of another LA.
PIX_CURRENT_SCCK	SealedKeyType	B.2.4, table B.12/3	Value of the sealed SCCK of the current LA.
PIX_OTHER_SCCK	SealedKeyType	B.2.4, table B.12/4	Value of the sealed SCCK of another LA.
PIX_SCKN	SCK_NbrType	B.2.4, table B.12/5	SCK number.
PIX_SCK_VN	SCK_VersionNbrType	B.2.4, table B.12/6	SCK version number.
PIX_SSCK	SealedKeyType	B.2.4, table B.12/7	Sealed SCK.
PIX_GCK_VN	GCK_VersionNbrType	B.2.4, table B.12/8	GCK version number.
PIX_SGCK	SealedKeyType	B.2.4, table B.12/9	Sealed GCK.
PIX_CURRENT_LA	LocationAreaType	B.2.4, table B.12/10	Current location area.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5 Ud air interface test specification

5.5.1 DMO Mobile Station test specification

5.5.1.1 Physical layer test specification

5.5.1.1.1 Test case index for physical layer

Table 54: Test case index for physical layer

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.1.2 a) and F.5, table F.2	8.1, 8.1.1 a), b), b2) and d)	Dual_Ud_Um	To test that the output power corresponds to the declared single or highest power class.
7.1.1.2 a) and F.5, table F.2	8.1, 8.1.1 a), b), b2) and d), and F.4, table F.1	DO-MS	To test that the output power corresponds to the declared single or highest power class.
7.1.1.2 a) and F.5, table F.2	8.1 and 8.1.1 c)	Dual_Ud_Um_Multiple_Class	To test that the output power corresponds to the declared lower power class(es).
7.1.1.2 a) and F.5, table F.2	8.1, 8.1.1 c) and F.4, table F.1	DO-MS_Multiple Class	To test that the output power corresponds to the declared lower power class(es).
7.1.2.2	8.2	DO-MS	To test the output power in the non-active transmit state.
7.1.3.2	8.3 and F.4, table F.1	DO-MS	To test the unwanted conducted emission over the useful part of the burst.
7.1.4.2	8.4	DO-MS	To test the unwanted conducted emission during switching transients.
7.1.5.2 and F.5, table F.2	8.5	Applicable_to_all_Ud_MSs	To test the unwanted conducted discrete spurious and wideband noise emission far from the carrier.

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.6.2	8.6	DO-MS	To test the unwanted radiated emission in the active transmit state.
7.1.7.2	8.7 and 8.7.1	DO-MS	To test the unwanted conducted emission during LCH.
7.1.8.2.1	8.8 and 8.8.1	DO-MS	To test the MS transmitter intermodulation attenuation.
7.2.2.2 and F.5, table F.2	9.2 and 9.2.1	DO-MS	To test the nominal error rate. ETS 300 394-1 [8], table A.2; nominal error and F.5, table F.2: - TCH/7,2, DR50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.3.2 and F.5, table F.2	9.3 and 9.3.1	DO-MS	To test the dynamic reference sensitivity performance. ETS 300 394-1 [8], table A.2; sensitivity and F.5, table F.2: - SCH/F, DR50, - 103 (- 97) dBm, - SCH/S, DR50, - 103 dBm.
7.2.3.2 and F.5, table F.2	9.3 and 9.3.1	DO-MS_Protected_Data	To test the dynamic reference sensitivity performance of a DMO MS supporting protected circuit mode data. ETS 300 394-1 [8], table A.2; sensitivity and F.5, table F.2: - TCH/2,4, N=1, DR50, - 103 dBm.
7.2.3.2 and F.5, table F.2	9.3 and 9.3.3	DO-MS	To test the dynamic reference sensitivity performance of an MS. ETS 300 394-1 [8], table A.11 and F.5, table F.2: - SCH/F, DR50, - 103 dBm.
7.2.4.2 and F.5, table F.2	9.4 and 9.4.1	DO-MS	To test the reference interference performance ETS 300 394-1 [8], table A.2 and F.5, table F.2: - co-channel interference, - adjacent channel interference.
7.2.5.2 and F.5, table F.2	9.5 and 9.5.1	DO-MS	To test the blocking characteristics ETS 300 394-1 [8], table A.2; blocking and F.5, table F.2.
7.2.6.2 and F.5, table F.2	9.6	DO-MS	To test the spurious response rejection ETS 300 394-1 [8], table A.2; spurious response and F.5, table F.2.
7.2.7.2 and F.5, table F.2	9.7 and 9.7.1	DO-MS	To test the intermodulation response rejection ETS 300 394-1 [8], table A.2; intermodulation and F.5, table F.2.
7.2.8.2	9.8	DO-MS	To test the unwanted conducted emission.
7.2.9.2	9.9	DO-MS	To test the unwanted radiated emission.
7.3.1.2	10.1, 10.1.1 and 10.1.3	DO-MS	To test the modulation accuracy.
F.6.2.1	F.6.2.2	Applicable_to_all_Ud_MSs	To test the transmitter output power versus time within a burst.
F.6.3.1	F.6.3.2	Applicable_to_all_Ud_MSs	To test the RF frequency accuracy.
F.6.4.2	F.6.4.3	Applicable_to_all_Ud_MSs	To test the DM synchronization accuracy.
NOTE 1: The test case limit values, as referenced, are specified in ETS 300 394-1 [8], clause 7 and annex F. NOTE 2: The test methods, as referenced, are specified in ETS 300 394-1 [8], clauses 8 to 10 and annex F.			

5.5.1.1.2 Test case selection expression definitions for physical layer

Table 55: Test case selection expression definitions for physical layer

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_Ud_MSs	A.72/5	TETRA DMO MS equipment.
Dual_Ud_Um	A.72/5 AND A.1/1	DMO equipment also supporting trunked (V+D) mode
DO-MS	A.72/5 AND NOT A.1/1	DMO-only equipment not supporting trunked (V+D) mode
DO-MS_Protected_Data	A.72/5 AND NOT A.1/1 AND A.90/1	DMO-only equipment supporting protected circuit mode data.
Dual_Ud_Um_Multiple_Class	A.72/5 AND A.1/1 AND A.90/2	Dual mode DMO / V+D equipment supporting more than one power class
DO-MS_Multiple Class	A.72/5 AND NOT A.1/1 AND A.90/2	DMO-only equipment supporting more than one power class
Detailed Comments The selection expressions given in the Selection Expression-column are Boolean expressions, referring to the declarations made in requirement tables in annex A in the present document.		

5.5.1.2 Layer 2 test specification

5.5.1.2.1 Layer 2 test specification for Mobile Station

5.5.1.2.1.1 Test suite structure for layer 2

Table 56: Test suite structure for layer 2

Test Suite Structure		
Suite Name: DMO/MSMS/MAC Standards Ref.: ETS 300 396-3 [17] PICS Ref.: ETS 300 396-8-1 [22] PIXIT Ref.: ETS 300 394-4-2 [28], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
DMO_MSMS_MAC/	MAC_supported	Check the dynamic requirements of the MAC layer
DMO_MSMS_MAC/BV/	MAC_supported	Check the valid behaviour of the MAC layer.
DMO_MSMS_MAC/BV/CU/	Initiate_CM_or_SDS_Call	To test DM channel usage procedures of the DM-MAC entity.
DMO_MSMS_MAC/BV/SM/	Initiate_CM_Call	To test the signalling procedures of the DM-MAC entity.

5.5.1.2.1.2 Test case index for layer 2

Table 57: Test case index for layer 2

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
DMO_MSMS_MAC/BV/CU/	DMO_MSMS_MAC_BV_CU_02	Initiate_CM_Call	Transmission of the DM-OCCUPIED SDU when the channel is busy.
DMO_MSMS_MAC/BV/CU/	DMO_MSMS_MAC_BV_CU_04	Initiate_CM_Call	The sending of the DM-RESERVED SDU stopped when the reservation period expired.
DMO_MSMS_MAC/BV/CU/	DMO_MSMS_MAC_BV_CU_06	Initiate_CM_or_SDS_Call	Specified number of re-transmission is fulfilled with respect to the frame count down element.
DMO_MSMS_MAC/BV/SM/	DMO_MSMS_MAC_BV_SM_09	Initiate_CM_Call	Pre-emption flag in the DM-OCCUPIED SDU.
DMO_MSMS_MAC/BV/SM/	DMO_MSMS_MAC_BV_SM_10	Initiate_CM_Call	Pre-emption flag in the DM-RESERVED SDU.

5.5.1.2.1.3 Test case selection expression definitions for layer 2

Table 58: Test case selection expression definitions for layer 2

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MAC_supported	PIC_MAC_SUPPORTED	IUT supports MAC.
Initiate_CM_Call	(PIC_CALL_SETUP_NO_PRESENCE_CHECK AND PIX_IMP_SYNC_SETUP) OR (PIC_CALL_SETUP_PRESENCE_CHECK AND PIX_IMP_SYNC_SETUP_PRES)	IUT supports initiation of a CM call with or without presence check.
Initiate_CM_or_SDS_Call	(PIC_CALL_SETUP_NO_PRESENCE_CHECK AND PIX_IMP_SYNC_SETUP) OR (PIC_CALL_SETUP_PRESENCE_CHECK AND PIX_IMP_SYNC_SETUP_PRES) OR (PIC_SEND_U_SDS AND PIX_IMP_SYNC_SDS_UDATA) OR (PIC_SEND_A_SDS AND PIX_IMP_SYNC_SDS_DATA)	IUT supports initiation of a CM call with or without presence check or initiation of an SDS call with or without acknowledgement.

5.5.1.2.1.4 Test suite parameter definitions for layer 2

Table 59: Test suite parameter definitions for layer 2

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_MAC_SUPPORTED	BOOLEAN	A.4.2.1, table A.72/2	MAC supported.
PIC_SETUP_NewCall_FrameCountDown	INTEGER	A.4.2.3.2, table A.102/1	Value of the number of frame transmission for the DM-SETUP PDU for a new call. [2..4]
PIC_SETUP_PRES_NewCall_FrameCountDown	INTEGER	A.4.2.3.2, table A.102/2	Value of the number of frame transmission for the DM-SETUP PRES PDU for a new call. [2..4]
PIC_SDS_DATA_NewCall_FrameCountDown	INTEGER	A.4.2.3.2, table A.102/3	Value of the number of frame transmission for the DM-SDS DATA PDU for a new call. [2..4]
PIC_SDS_UDATA_NewCall_FrameCountDown	INTEGER	A.4.2.3.2, table A.102/4	Value of the number of frame transmission for the DM-SDS UDATA PDU for a new call. [2..4]
PIC_CALL_SETUP_NO_PRESENCE_CHECK	BOOLEAN	A.4.2.4.1, table A.113/1	IUT supports outgoing call setup without presence check.
PIC_CALL_SETUP_PRESENCE_CHECK	BOOLEAN	A.4.2.4.1, table A.113/2	IUT supports outgoing call setup with presence check.
PIC_SEND_U_SDS	BOOLEAN	A.4.2.4.1, table A.114/1	IUT supports sending of unacknowledge data service
PIC_SEND_A_SDS	BOOLEAN	A.4.2.4.1, table A.114/2	IUT supports sending of acknowledge data service
PIX_IMP_SYNC_SETUP	BOOLEAN	B.3.2.1, table B.14/1	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.
PIX_IMP_SYNC_SETUP_PRES	BOOLEAN	B.3.2.1, table B.14/2	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU.

PIX_IMP_SYNC_SDS_DATA	BOOLEAN	B.3.2.1, table B.14/3	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS DATA SDU.
PIX_IMP_SYNC_SDS_UDATA	BOOLEAN	B.3.2.1, table B.14/4	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS UDATA SDU.
PIX_MS_SSI	SSI_Type	B.3.2.1, table B.15/1	SSI of the IUT
PIX_TESTER_MNI	MNI_Type	B.3.2.1, table B.15/2	MNI of the tester
PIX_TESTER_SSI	SSI_Type	B.3.2.1, table B.15/3	SSI of the tester
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.1.2.2 Layer 2 test specification for operation with Repeater type 1

5.5.1.2.2.1 Test suite structure for layer 2 for operation with Repeater type 1

Table 60: Test suite structure for layer 2 for operation with Repeater type 1

Test Suite Structure		
Suite Name: DMO/MSREP1/MAC Standards Ref.: EN 300 396-4 [18] PICS Ref.: EN 300 396-8-2 [23] PIXIT Ref.: EN 300 394-4-5 [31], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
DMO_MSREP1_MAC/	MSREP1_MAC_supported	Check the dynamic requirements of the MAC layer for operation with Repeater type 1.
DMO_MSREP1_MAC/BV/	MSREP1_MAC_supported	Check the valid behaviour of the MAC layer for operation with Repeater type 1.
DMO_MSREP1_MAC/BV/SM/	MSREP1_Initiate_Call	To test the signalling procedures of the DM-MAC entity for operation with Repeater type 1.

5.5.1.2.2.2 Test case index for layer 2 for operation with Repeater type 1

Table 61: Test case index for layer 2 for operation with Repeater type 1

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
DMO_MSREP1_MAC/BV/SM/	DMO_REP1_MAC_SM_01C	MSREP1_Initiate_Call	Addressing in synchronization burst. Master/slave link flag.
DMO_MSREP1_MAC/BV/SM/	DMO_REP1_MAC_SM_02	MSREP1_Initiate_Call_Pre-emption	Synchronization burst for a random access message.
DMO_MSREP1_MAC/BV/SM/	DMO_REP1_MAC_SM_09	MSREP1_Initiate_CM_Call	Pre-emption flag in the DM-OCCUPIED SDU.
DMO_MSREP1_MAC/BV/SM/	DMO_REP1_MAC_SM_10	MSREP1_Initiate_CM_Call	Request and change over flags in the DM-RESERVED SDU.

5.5.1.2.2.3 Test case selection expression definitions for layer 2 for operation with Repeater type 1

Table 62: Test case selection expression definitions for layer 2 for operation with Repeater type 1

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MSREP1_MAC_supported	PIC_MSREP1_SUPPORTED	IUT supports operation with Repeater type 1.
MSREP1_Initiate_Call	PIC_MSREP1_SUPPORTED AND ((PIC_CALL_SETUP AND (PIX_IMP_SYNC_SETUP OR PIX_IMP_SYNC_SETUP_PRES)) OR (PIC_SEND_U_SDS AND PIX_IMP_SYNC_SDS_UDATA) OR (PIC_SEND_A_SDS AND PIX_IMP_SYNC_SDS_DATA))	IUT supports initiation of call via a Repeater type 1.
MSREP1_Initiate_Call_Pre-emption	PIC_INITIATE_CALL_PREEMPTION AND PIX_IMP_SYNC_PREEMPT_ONGOING	IUT supports initiation of pre-emption of an ongoing call.
MSREP1_Initiate_CM_Call	PIC_MSREP1_SUPPORTED AND PIC_CALL_SETUP AND (PIX_IMP_SYNC_SETUP OR PIX_IMP_SYNC_SETUP_PRES)	IUT supports initiation of circuit mode call via a Repeater type 1.

5.5.1.2.2.4 Test suite parameter definitions for layer 2 for operation with Repeater type 1

Table 63: Test suite parameter definitions for layer 2 for operation with Repeater type 1

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_MSREP1_SUPPORTED	BOOLEAN	A.4.2.1, table A.71/2	Operation with DMO Repeater type 1 supported.
PIC_CALL_SETUP	BOOLEAN	A.4.2.1.1, table A.81/3	IUT supports outgoing call setup.
PIC_INITIATE_CALL_PREEMPTION	BOOLEAN	A.4.2.1.1, table A.81/5	IUT supports the initiation of pre-emption in ongoing call.
PIC_SEND_U_SDS	BOOLEAN	A.4.2.1.1, table A.82/1	IUT supports sending of unacknowledged SDS.
PIC_SEND_A_SDS	BOOLEAN	A.4.2.1.1, table A.82/2	IUT supports sending of acknowledged SDS.
PIX_IMP_SYNC_PREEMPT_ONGOING	BOOLEAN	B.3.2.2, table B.18/1	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-PREEMPT SDU to preempt the ongoing call.
PIX_IMP_SYNC_SETUP	BOOLEAN	B.3.2.2, table B.18/2	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.
PIX_IMP_SYNC_SETUP_PRES	BOOLEAN	B.3.2.2, table B.18/3	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU.
PIX_IMP_SYNC_SDS_DATA	BOOLEAN	B.3.2.2, table B.18/4	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS DATA SDU.
PIX_IMP_SYNC_SDS_UDATA	BOOLEAN	B.3.2.2, table B.18/5	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS UDATA SDU.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.2.2, table B.19/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.2.2, table B.19/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.2.2, table B.19/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_MS_SSI	SSI_Type	B.3.2.2, table B.19/4	SSI of the IUT.
PIX_TESTER_MNI	MNI_Type	B.3.2.2, table B.19/5	MNI of the tester.
PIX_TESTER_SSI	SSI_Type	B.3.2.2, table B.19/6	SSI of the tester.
PIX_MS_SLAVE_MNI	MNI_Type	B.3.2.2, table B.19/7	MNI of a slave MS
PIX_MS_SLAVE_SSI	SSI_Type	B.3.2.2, table B.19/8	SSI of a slave MS
PIX_MS_MASTER_MNI	MNI_Type	B.3.2.2, table B.19/9	MNI of a master MS
PIX_MS_MASTER_SSI	SSI_Type	B.3.2.2, table B.19/10	SSI of a master MS
PIX_TESTER_REPEATER_ADDRESS	Repeater_Address_Type	B.3.2.2, table B.19/11	Repeater address of the tester.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.1.2.3 Layer 2 test specification for operation with Repeater type 2

5.5.1.2.3.1 Test suite structure for layer 2 for operation with Repeater type 2

Table 64: Test suite structure for layer 2 for operation with Repeater type 2

Test Suite Structure		
Suite Name: DMO/MSREP2/MAC Standards Ref.: EN 300 396-7 [21] PICS Ref.: ETS 300 396-8-4 [25] PIXIT Ref.: EN 300 394-4-13 [39], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
DMO_MSREP2_MAC/	MSREP2_MAC_supported	Check the dynamic requirements of the MAC layer for operation with Repeater type 2.
DMO_MSREP2_MAC/BV/	MSREP2_MAC_supported	Check the valid behaviour of the MAC layer for operation with Repeater type 2.
DMO_MSREP2_MAC/BV/SM/	MSREP2_Initiate_Call	To test the signalling procedures of the DM-MAC entity for operation with Repeater type 2.

5.5.1.2.3.2 Test case index for layer 2 for operation with Repeater type 2

Table 65: Test case index for layer 2 for operation with Repeater type 2

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
DMO_MSREP2_MAC/BV/SM/	DMO_REP2_MAC_SM_01C	MSREP2_Initiate_Call	Addressing in synchronization burst. Master/slave link flag.
DMO_MSREP2_MAC/BV/SM/	DMO_REP2_MAC_SM_02	MSREP2_Initiate_Call_Pre-emption	Synchronization burst for a random access message.
DMO_MSREP2_MAC/BV/SM/	DMO_REP2_MAC_SM_09	MSREP2_Initiate_CM_Call	Pre-emption flag in the DM-OCCUPIED SDU.
DMO_MSREP2_MAC/BV/SM/	DMO_REP2_MAC_SM_10	MSREP2_Initiate_CM_Call	Request and change over flags in the DM-RESERVED SDU.

5.5.1.2.3.3 Test case selection expression definitions for layer 2 for operation with Repeater type 2

Table 66: Test case selection expression definitions for layer 2 for operation with Repeater type 2

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MSREP2_MAC_supported	PIC_MSREP2_SUPPORTED	IUT supports operation with Repeater type 2.
MSREP2_Initiate_Call	PIC_MSREP2_SUPPORTED AND ((PIC_CALL_SETUP AND (PIX_IMP_SYNC_SETUP OR PIX_IMP_SYNC_SETUP_PRES)) OR (PIC_SEND_U_SDS AND PIX_IMP_SYNC_SDS_UDATA) OR (PIC_SEND_A_SDS AND PIX_IMP_SYNC_SDS_DATA))	IUT supports initiation of call via a Repeater type 2.
MSREP2_Initiate_Call_Pre-emption	PIC_INITIATE_CALL_PREEMPTION AND PIX_IMP_SYNC_PREEMPT_ONGOING	IUT supports initiation of pre-emption of an ongoing call.
MSREP2_Initiate_CM_Call	PIC_MSREP2_SUPPORTED AND PIC_CALL_SETUP AND (PIX_IMP_SYNC_SETUP OR PIX_IMP_SYNC_SETUP_PRES)	IUT supports initiation of circuit mode call via a Repeater type 2.

5.5.1.2.3.4 Test suite parameter definitions for layer 2 for operation with Repeater type 2

Table 67: Test suite parameter definitions for layer 2 for operation with Repeater type 2

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_MSREP2_SUPPORTED	BOOLEAN	A.4.2.1, table A.71/4	Operation with DMO Repeater type 2 supported.
PIC_CALL_SETUP	BOOLEAN	A.4.2.1.2, table A.85/3	IUT supports outgoing call setup.
PIC_INITIATE_CALL_PREEMPTION	BOOLEAN	A.4.2.1.2, table A.85/5	IUT supports the initiation of pre-emption in ongoing call.
PIC_SEND_U_SDS	BOOLEAN	A.4.2.1.2, table A.86/1	IUT supports sending of unacknowledged SDS.
PIC_SEND_A_SDS	BOOLEAN	A.4.2.1.2, table A.86/2	IUT supports sending of acknowledged SDS.
PIX_IMP_SYNC_PREEMPT_ONGOING	BOOLEAN	B.3.2.3, table B.18/1	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-PREEMPT SDU to preempt the ongoing call.
PIX_IMP_SYNC_SETUP	BOOLEAN	B.3.2.3, table B.18/2	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.
PIX_IMP_SYNC_SETUP_PRES	BOOLEAN	B.3.2.3, table B.18/3	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU.
PIX_IMP_SYNC_SDS_DATA	BOOLEAN	B.3.2.3, table B.18/4	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS DATA SDU.
PIX_IMP_SYNC_SDS_UDATA	BOOLEAN	B.3.2.3, table B.18/5	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS UDATA SDU.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.2.3, table B.19/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.2.3, table B.19/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.2.3, table B.19/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_MS_SSI	SSI_Type	B.3.2.3, table B.19/4	SSI of the IUT.
PIX_TESTER_MNI	MNI_Type	B.3.2.3, table B.19/5	MNI of the tester.
PIX_TESTER_SSI	SSI_Type	B.3.2.3, table B.19/6	SSI of the tester.
PIX_MS_SLAVE_MNI	MNI_Type	B.3.2.3, table B.19/7	MNI of a slave MS
PIX_MS_SLAVE_SSI	SSI_Type	B.3.2.3, table B.19/8	SSI of a slave MS
PIX_MS_MASTER_MNI	MNI_Type	B.3.2.3, table B.19/9	MNI of a master MS
PIX_MS_MASTER_SSI	SSI_Type	B.3.2.3, table B.19/10	SSI of a master MS
PIX_TESTER_REPEATER_ADDRESS	Repeater_Address_Type	B.3.2.3, table B.19/11	Repeater address of the tester.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.1.2.4 Layer 2 test specification for operation with Gateway

5.5.1.2.4.1 Test suite structure for layer 2 for operation with Gateway

Table 68: Test suite structure for layer 2 for operation with Gateway

Test Suite Structure		
Suite Name: DMO/MSGW/MAC Standards Ref.: ETS 300 396-5 [19] PICS Ref.: ETS 300 396-8-3 [24] PIXIT Ref.: ETS 300 394-4-9 [35], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
DMO_MSGW_MAC/	MSGW_MAC_supported	Check the dynamic requirements of the MAC layer for operation with Gateway.
DMO_MSGW_MAC/BV/	MSGW_MAC_supported	Check the valid behaviour of the MAC layer for operation with Gateway.
DMO_MSGW_MAC/BV/CU/	MSGW_Initiate_Call	To test DM channel usage procedures of the DM-MAC entity for operation with Gateway.
DMO_MSGW_MAC/BV/SM/	MSGW_Initiate_Call	To test the signalling procedures of the DM-MAC entity for operation with Gateway.

5.5.1.2.4.2 Test case index for layer 2 for operation with Gateway

Table 69: Test case index for layer 2 for operation with Gateway

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
DMO_MSGW_MAC/BV/CU/	DMO_MSGW_MAC_CU_02	MSGW_Initiate_Call	Transmission of the DM-OCCUPIED SDU when the channel is busy.
DMO_MSGW_MAC/BV/SM/	DMO_MSGW_MAC_SM_10	MSGW_Initiate_Call	Pre-emption flag in the DM-OCCUPIED SDU.

5.5.1.2.4.3 Test case selection expression definitions for layer 2 for operation with Gateway

Table 70: Test case selection expression definitions for layer 2 for operation with Gateway

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MSGW_MAC_supported	PIC_MSGW_SUPPORTED	IUT supports operation with Gateway.
MSGW_Initiate_Call	PIC_MSGW_SUPPORTED AND PIC_CALL_SETUP AND PIX_IMP_SYNC_GSETUP	IUT supports initiation of call to a Gateway.

5.5.1.2.4.4 Test suite parameter definitions for layer 2 for operation with Gateway

Table 71: Test suite parameter definitions for layer 2 for operation with Gateway

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_MSGW_SUPPORTED	BOOLEAN	A.4.2.1, table A.71/3	Operation with DMO Gateway supported.
PIC_DMMM	BOOLEAN	A.4.2.1.3, table A.87/2	IUT supports DMMM.
PIC_CALL_SETUP	BOOLEAN	A.4.2.1.3, table A.89/3	IUT supports outgoing call setup.
PIC_UNINVITED_REGISTRATION	BOOLEAN	A.4.2.4.2.1, table A.123/2	IUT supports unsolicited registration.
PIX_IMP_SYNC_GSETUP	BOOLEAN	B.3.2.4, table B.22/1	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-GSETUP SDU.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.2.4, table B.23/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.2.4, table B.23/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.2.4, table B.23/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_GATEWAY_ADDRESS	Gateway_Address_Type	B.3.2.4, table B.23/4	Value of the Gateway (tester) address.
PIX_TESTER_MNI	MNI_Type	B.3.2.4, table B.23/5	MNI of the tester
PIX_TESTER_SSI	SSI_Type	B.3.2.4, table B.23/6	SSI of the tester
PIX_REGISTRATION_LABEL	BITSTRING	B.3.2.4, table B.23/7	Value of the registration label
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.1.3 Layer 3 test specification

5.5.1.3.1 Layer 3 test specification for Mobile Station

5.5.1.3.1.1 Test suite structure for layer 3

Table 72: Test suite structure for layer 3

Test Suite Structure		
Suite Name: DMO/MSMS Standards Ref.: ETS 300 396-3 [17] PICS Ref.: ETS 300 396-8-1 [22] PIXIT Ref.: ETS 300 394-4-2 [28], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
DMO_MSMS_DMCC/	DMCC_supported	Check the dynamic requirements of the DMCC layer
DMO_MSMS_DMCC/CM/	Circuit_Mode	To test the CM behaviour of the DMCC entity of the IUT
DMO_MSMS_DMCC/CM/CA/	Initiate_Call	To test the basic CM capabilities of the DMCC entity of the IUT
DMO_MSMS_DMCC/CM/BV/	Circuit_Mode	To test the valid behaviour of the CM entity of the IUT
DMO_MSMS_DMCC/CM/BV/ID/	Initiate_Call_WithPresence	To test the protocol behaviour of the CM entity of the IUT, when the IUT is in idle state, and the DMO channel is free
DMO_MSMS_DMCC/CM/BV/TXO/	Initiate_Call	To test the protocol behaviour of the CM entity of the IUT, when the IUT is in TX occupation state
DMO_MSMS_DMCC/CM/BV/RO/	Initiate_Call_Preemption	To test the protocol behaviour of the CM entity of the IUT, when the IUT is in RX occupation state
DMO_MSMS_DMCC/CM/BV/TR/	Initiate_Call	To test the protocol behaviour of the CM entity of the IUT, when the IUT is in TX reservation state
DMO_MSMS_DMCC/CM/BV/RR/	Circuit_Mode_Changeover	To test the protocol behaviour of the CM entity of the IUT, when the IUT is in RX reservation state
DMO_MSMS_DMCC/CM/TI/	Initiate_Call	To test the protocol behaviour related to timers and constants of the CM entity of the IUT
DMO_MSMS_DMCC/SDS/	Short_Data_Service	To test the SDS behaviour of the DMCC entity of the IUT
DMO_MSMS_DMCC/SDS/CA/	Send_U_SDS	To test the basic SDS capabilities of the DMCC entity of the IUT
DMO_MSMS_DMCC/SDS/BV/	Short_Data_Service	To test the valid protocol behaviour of the SDS entity of the IUT
DMO_MSMS_DMCC/SDS/BV/ID/	Short_Data_Service	To test the valid protocol behaviour of the SDS entity of the IUT, when the IUT is in idle state, and the DMO channel is free
DMO_MSMS_DMCC/SDS/TI/	Send_A_SDS	To test the protocol behaviour related to timers and constants of the SDS entity of the IUT

5.5.1.3.1.2 Test case index for layer 3

Table 73: Test case index for layer 3

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
DMO_MSMS_DMCC/CM/CA/	DMO_MSMS_DMCC_CM_CA_01	Initiate_Group_Call	Setup and terminate a group call without presence check
DMO_MSMS_DMCC/CM/CA/	DMO_MSMS_DMCC_CM_CA_02	Initiate_Call_WithPresence	Setup and terminate an individual call with presence check
DMO_MSMS_DMCC/CM/CA/	DMO_MSMS_DMCC_CM_CA_03	Initiate_Call_WithoutPresence	Establish and terminate an individual call, when operating without presence check
DMO_MSMS_DMCC/CM/BV/ID/	DMO_MSMS_DMCC_CM_BV_ID_04	Initiate_Call_WithPresence	Release a call setup attempt when receiving a disconnect
DMO_MSMS_DMCC/CM/BV/TXO/	DMO_MSMS_DMCC_CM_BV_TXO_01	Initiate_Call_IRO	Initiate the release of a call during occupation
DMO_MSMS_DMCC/CM/BV/TXO/	DMO_MSMS_DMCC_CM_BV_TXO_02	Initiate_Call_ITO	Initiated end of transmission during occupation
DMO_MSMS_DMCC/CM/BV/TXO/	DMO_MSMS_DMCC_CM_BV_TXO_03	Initiate_Call	Receive pre-emption for an ongoing individual call
DMO_MSMS_DMCC/CM/BV/TXO/	DMO_MSMS_DMCC_CM_BV_TXO_04	Initiate_Call	Receive pre-emption for a new individual call
DMO_MSMS_DMCC/CM/BV/RO/	DMO_MSMS_DMCC_CM_BV_RO_02	Initiate_Call_Preemption	Initiate pre-emption to establish a call (either ongoing or new call)
DMO_MSMS_DMCC/CM/BV/RO/	DMO_MSMS_DMCC_CM_BV_RO_03	Initiate_Call_Preemption	Handle the reject of a pre-emption
DMO_MSMS_DMCC/CM/BV/TR/	DMO_MSMS_DMCC_CM_BV_TR_01	Initiate_Call_IRR	Initiate release of a call during reservation
DMO_MSMS_DMCC/CM/BV/TR/	DMO_MSMS_DMCC_CM_BV_TR_02	Initiate_Call	Receive and accept pre-emption for a new call during reservation
DMO_MSMS_DMCC/CM/BV/TR/	DMO_MSMS_DMCC_CM_BV_TR_03	Initiate_Call	Receive and accept pre-emption for continuation of ongoing call during reservation
DMO_MSMS_DMCC/CM/BV/TR/	DMO_MSMS_DMCC_CM_BV_TR_04	Initiate_Call	Receive and accept changeover during reservation
DMO_MSMS_DMCC/CM/BV/TR/	DMO_MSMS_DMCC_CM_BV_TR_07	Initiate_Call	Receive and reject pre-emption for a new call during reservation
DMO_MSMS_DMCC/CM/BV/TR/	DMO_MSMS_DMCC_CM_BV_TR_08	Initiate_Call	Receive and reject changeover during reservation
DMO_MSMS_DMCC/CM/BV/RR/	DMO_MSMS_DMCC_CM_BV_RR_03	Circuit_Mode_Changeover	Initiate changeover to establish ongoing CM call
DMO_MSMS_DMCC/CM/BV/RR/	DMO_MSMS_DMCC_CM_BV_RR_04	Circuit_Mode_Changeover	Handle the reject of a changeover request
DMO_MSMS_DMCC/CM/TI/	DMO_MSMS_DMCC_CM_TI_01	Initiate_Call_WithPresence	Time out DT303 for response to DM SET UP PRES.
DMO_MSMS_DMCC/CM/TI/	DMO_MSMS_DMCC_CM_TI_02	Initiate_Call	Initiate end of transmission after time out of DT311 call transaction timer
DMO_MSMS_DMCC/SDS/CA/	DMO_MSMS_DMCC_SDS_CA_01	Send_U_SDS	Establish a SDS with unacknowledged service
DMO_MSMS_DMCC/SDS/BV/ID/	DMO_MSMS_DMCC_SDS_BV_ID_01	Send_A_SDS	Establish an SDS with acknowledged service
DMO_MSMS_DMCC/SDS/BV/ID/	DMO_MSMS_DMCC_SDS_BV_ID_02	Send_A_SDS	Handle the reject of an SDS with acknowledged service
DMO_MSMS_DMCC/SDS/BV/ID/	DMO_MSMS_DMCC_SDS_BV_ID_03	Accept_A_SDS	Receive an incoming SDS with acknowledged service
DMO_MSMS_DMCC/SDS/BV/ID/	DMO_MSMS_DMCC_SDS_BV_ID_04	Accept_A_SDS	Receive an incoming SDS with acknowledged service and with FCS
DMO_MSMS_DMCC/SDS/BV/ID/	DMO_MSMS_DMCC_SDS_BV_ID_05	Send_A_SDS_FCS	Establish an SDS with acknowledged service using the FCS
DMO_MSMS_DMCC/SDS/TI/	DMO_MSMS_DMCC_SDS_TI_01	Send_A_SDS	Time out on DT316 timer and retry an SDS DATA with acknowledged service

5.5.1.3.1.3 Test case selection expression definitions for layer 3

Table 74: Test case selection expression definitions for layer 3

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
DMCC_supported	PIC_DMCC_SUPPORTED	IUT supports DMCC.
Circuit_Mode	PIC_CM	IUT supports circuit mode call.
Short_Data_Service	PIC_SDS	IUT supports short data service call.
Initiate_Group_Call	PIC_GROUP_CALL AND PIC_CALL_SETUP_NO_PRESENCE_CHECK AND PIX_IMP_DM_SETUP_Group	IUt supports the initiation of a group call.
Initiate_Call_WithPresence	PIC_CALL_SETUP_PRESENCE_CHECK AND PIX_IMP_DM_SETUP_PRES	IUT supports initiation of a call with presence check.
Initiate_Call_WithoutPresence	PIC_CALL_SETUP_NO_PRESENCE_CHECK AND PIX_IMP_DM_SETUP	IUT supports initiation of a call without presence check.
Initiate_Call_IRO	((PIC_CALL_SETUP_PRESENCE_CHECK AND PIX_IMP_DM_SETUP_PRES) OR (PIC_CALL_SETUP_NO_PRESENCE_CHECK AND PIX_IMP_DM_SETUP)) AND (PIC_CALL_RELEASE_OCCUPATION AND PIX_IMP_DM_RELEASE)	IUT supports initiation of a call with or without presence check and it is possible to cause the IUT to send the DM-RELEASE PDU.
Initiate_Call_ITO	((PIC_CALL_SETUP_PRESENCE_CHECK AND PIX_IMP_DM_SETUP_PRES) OR (PIC_CALL_SETUP_NO_PRESENCE_CHECK AND PIX_IMP_DM_SETUP)) AND (PIC_END_OF_TRANSMISSION AND PIX_IMP_DM_TX_CEASED)	IUT supports initiation of a call with or without presence check and it is possible to cause the IUT to send the DM-TX CEASED PDU.
Initiate_Call	(PIC_CALL_SETUP_PRESENCE_CHECK AND PIX_IMP_DM_SETUP_PRES) OR (PIC_CALL_SETUP_NO_PRESENCE_CHECK AND PIX_IMP_DM_SETUP)	IUT supports initiation of a call with or without presence check.
Initiate_Call_Preemption	PIC_INITIATE_CALL_PREEMPTION AND PIX_IMP_DM_PREEMPT	IUT supports the initiation of call pre-emption.
Initiate_Call_IRR	((PIC_CALL_SETUP_PRESENCE_CHECK AND PIX_IMP_DM_SETUP_PRES) OR (PIC_CALL_SETUP_NO_PRESENCE_CHECK AND PIX_IMP_DM_SETUP)) AND (PIC_CALL_RELEASE_RESERVATION AND PIX_IMP_DM_RELEASE)	IUT supports initiation of a call with or without presence check and it is possible to cause the IUT to send the DM-RELEASE PDU.
Circuit_Mode_Changeover	PIC_CALL_CHANGEOVER AND PIX_IMP_DM_TX_REQUEST	IUT supports call changeover and it is possible to cause the IUT to send the DM-TX REQUEST PDU.
Send_U_SDS	PIC_SEND_U_SDS AND PIX_IMP_DM_SDS_UDATA	IUT supports sending of unacknowledge data service on group or individual address.
Send_A_SDS	PIC_SEND_A_SDS AND PIX_IMP_DM_SDS_DATA	IUT supports sending of acknowledge data service with or without data in the acknowledgement
Send_A_SDS_FCS	PIC_SEND_SDS_FCS AND PIC_SEND_A_SDS AND PIX_IMP_DM_SDS_DATA	IUT supports sending of acknowledge data service with FCS and with or without data in the acknowledgement
Accept_A_SDS	PIC_RECEIPT_A_SDS	IUT supports receipt of acknowledge SDS with or without data in the acknowledgement

5.5.1.3.1.4 Test suite parameter definitions for layer 3

Table 75: Test suite parameter definitions for layer 3

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_DMCC_SUPPORTED	BOOLEAN	A.4.2.1, table A.72/1	DMCC supported.
PIC_CM	BOOLEAN	A.4.2.1, table A.73/1	IUT supports circuit mode call.
PIC_SDS	BOOLEAN	A.4.2.1, table A.73/2	IUT supports short data service call.
PIC_INDIVIDUAL_CALL	BOOLEAN	A.4.2.1, table A.75/1	IUT supports individual CM call.
PIC_GROUP_CALL	BOOLEAN	A.4.2.1, table A.75/2	IUT supports group CM call.
PIC_SEND_SDS_FCS	BOOLEAN	A.4.2.1, table A.76/8	IUT supports inclusion of FCS in transmission
PIC_SDS_DATA1	BOOLEAN	A.4.2.1, table A.78/1	True if the IUT supports the SDS User defined data 1 type
PIC_SDS_DATA2	BOOLEAN	A.4.2.1, table A.78/2	True if the IUT supports the SDS User defined data 2 type
PIC_SDS_DATA3	BOOLEAN	A.4.2.4.1, table A.78/3	True if the IUT supports the SDS User defined data 3 type
PIC_SDS_DATA4	BOOLEAN	A.4.2.4.1, table A.78/4	True if the IUT supports the SDS User defined data 4 type
PIC_CALL_SETUP_NO_PRESENCE_CHECK	BOOLEAN	A.4.2.4.1, table A.113/1	IUT supports outgoing call setup without presence check.
PIC_CALL_SETUP_PRESENCE_CHECK	BOOLEAN	A.4.2.4.1, table A.113/2	IUT supports outgoing call setup with presence check.
PIC_END_OF_TRANSMISSION	BOOLEAN	A.4.2.4.1, table A.113/4	IUT supports release of radio ressource during occupation
PIC_CALL_RELEASE_OCCUPATION	BOOLEAN	A.4.2.4.1, table A.113/5	IUT supports release of call during occupation
PIC_INITIATE_CALL_PREEMPTION	BOOLEAN	A.4.2.4.1, table A.113/7	IUT supports call pre-emption
PIC_CALL_RELEASE_RESERVATION	BOOLEAN	A.4.2.4.1, table A.113/10	IUT supports release of call during reservation
PIC_CALL_CHANGEOVER	BOOLEAN	A.4.2.4.1, table A.113/11	IUT supports call changeover
PIC_SEND_U_SDS	BOOLEAN	A.4.2.4.1, table A.114/1	IUT supports sending of unacknowledge data service
PIC_SEND_A_SDS	BOOLEAN	A.4.2.4.1, table A.114/2	IUT supports sending of acknowledge data service
PIC_RECEIPT_A_SDS	BOOLEAN	A.4.2.4.1, table A.114/3	IUT supports receipt of acknowledge data service
PIC_DN303	INTEGER	A.4.2.4.1, table A.117/1	DN303 value [from 0 to 3]. Number of attempts to send DM-SETUP PRES if no response received.
PIC_DN314	INTEGER	A.4.2.4.1, table A.117/2	DN314 value (1 to 6). Number of transmissions of DM-SDS UDATA.
PIC_DN316	INTEGER	A.4.2.4.1, table A.117/3	DN316 value (1 to 4). Number of attempts to send DM-SDS DATA if no response received.
PIC_T_303	INTEGER	A.4.2.4.1, table A.118/1	Value in msec of the timer DT303
PIC_T_311	INTEGER	A.4.2.4.1, table A.118/2	Value in seconds of the timer DT311
PIC_T_316	INTEGER	A.4.2.4.1, table A.118/3	Value in ms of the timer DT316
PIX_IMP_DM_SETUP	BOOLEAN	B.3.3.1, table B.26/1	It is possible to cause the IUT to send a DM-SETUP PDU
PIX_IMP_DM_SETUP_Group	BOOLEAN	B.3.3.1, table B.26/2	It is possible to cause the IUT to send a DM-SETUP PDU for a group call
PIX_IMP_DM_SETUP_PRES	BOOLEAN	B.3.3.1, table B.26/3	It is possible to cause the IUT to send a DM-SETUP PRES PDU
PIX_IMP_DM_TX_REQUEST	BOOLEAN	B.3.3.1, table B.26/4	It is possible to cause the IUT to send a DM-TX REQUEST PDU.
PIX_IMP_DM_PREEMPT	BOOLEAN	B.3.3.1, table B.26/5	It is possible to cause the IUT to send a DM-PREEMPT PDU.
PIX_IMP_DM_RELEASE	BOOLEAN	B.3.3.1, table B.26/6	It is possible to cause the IUT to send a DM-RELEASE PDU.
PIX_IMP_DM_TX_CEASED	BOOLEAN	B.3.3.1, table B.26/7	It is possible to cause the IUT to send a DM-TX CEASED PDU.
PIX_IMP_DM_SDS_DATA	BOOLEAN	B.3.3.1, table B.26/8	It is possible to cause the IUT to send

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
			a DM-SDS DATA PDU.
PIX_IMP_DM_SDS_UDATA	BOOLEAN	B.3.3.1, table B.26/9	It is possible to cause the IUT to send a DM-SDS UDATA PDU.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.3.1, table B.27/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_OTHER_TSI	TSI_Type	B.3.3.1, table B.27/2	The TSI not recognized by the IUT and the tester.
PIX_POWER_CLASS	Power_Class_Type	B.3.3.1, table B.27/3	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.3.1, table B.27/4	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	B.3.3.1, table B.27/5	Value of the reservation time remaining used by the master MS.
PIX_SDS_TIME_REMAINING	SDS_Time_Remaining_Type	B.3.3.1, table B.27/6	Value of the SDS time remaining element used to indicate the current estimate of the SDS channel occupation time.
PIX_SDS_DATA_1	User_Defined_Data_1_Type	B.3.3.1, table B.27/7	Value of SDS data type 1.
PIX_SDS_DATA_1_FCS	FCS_Type	B.3.3.1, table B.27/8	Value of the Frame Check Sequence for the SDS DATA 1 data.
PIX_SDS_DATA_2	User_Defined_Data_2_Type	B.3.3.1, table B.27/9	Value of SDS data type 2.
PIX_SDS_DATA_2_FCS	FCS_Type	B.3.3.1, table B.27/10	Value of the Frame Check Sequence for the SDS DATA 2 data.
PIX_SDS_DATA_3	User_Defined_Data_3_Type	B.3.3.1, table B.27/11	Value of SDS data type 3.
PIX_SDS_DATA_3_FCS	FCS_Type	B.3.3.1, table B.27/12	Value of the Frame Check Sequence for the SDS DATA 3 data.
PIX_SDS_DATA_4	User_Defined_Data_4_Type	B.3.3.1, table B.27/13	Value of SDS data type 4.
PIX_SDS_DATA_4_FCS	FCS_Type	B.3.3.1, table B.27/14	Value of the Frame Check Sequence for the SDS DATA 4 data.
PIX_SDS_DATA_4_LENGTH	Length_Indicator_Type	B.3.3.1, table B.27/15	Length of the value of the SDS data type 4.
PIX_SDS_CURRENTLY_TESTING	INTEGER	B.3.3.1, table B.27/16	The type (1 to 4) of SDS data currently testing.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.1.3.2 Layer 3 test specification for operation with Repeater type 1

5.5.1.3.2.1 Test suite structure for layer 3 for operation with Repeater type 1

Table 76: Test suite structure for layer 3 for operation with Repeater type 1

Test Suite Structure		
Suite Name: DMO/MSREP1/DMCC Standards Ref.: EN 300 396-4 [18] PICS Ref.: EN 300 396-8-2 [23] PIXIT Ref.: EN 300 394-4-5 [31], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
DMO_MSREP1_DMCC/	MSREP1_DMCC_supported	Check the dynamic requirements of the DMCC entity
DMO_MSREP1_DMCC/CM/	MSREP1_Circuit_Mode	To test the CM behaviour of the DMCC entity of the IUT
DMO_MSREP1_DMCC/CM/BV/	MSREP1_Circuit_Mode	To test the valid behaviour of the CM entity of the IUT
DMO_MSREP1_DMCC/CM/BV/TXO/	MSREP1_Initiate_Call	To test the CM capabilities in TX occupation state
DMO_MSREP1_DMCC/CM/BV/TR/	MSREP1_Initiate_Call	To test the CM capabilities in TX reservation state

5.5.1.3.2.2 Test case index for layer 3 for operation with Repeater type 1

Table 77: Test case index for layer 3 for operation with Repeater type 1

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
DMO_MSREP1_DMCC/CM/BV/TXO/	DMO_MSREP1_DMCC_CM_BV_TXO_03	MSREP1_Initiate_Call	Receive pre-emption for an ongoing individual call.
DMO_MSREP1_DMCC/CM/BV/TR/	DMO_MSREP1_DMCC_CM_BV_TR_02	MSREP1_Initiate_Call	Receive and accept pre-emption for a new call.
DMO_MSREP1_DMCC/CM/BV/TR/	DMO_MSREP1_DMCC_CM_BV_TR_04	MSREP1_Initiate_Call	Receive and accept pre-emption for continuation of ongoing call.

5.5.1.3.2.3 Test case selection expression definitions for layer 3 for operation with Repeater type 1

Table 78: Test case selection expression definitions for layer 3 for operation with Repeater type 1

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MSREP1_DMCC_supported	PIC_MSREP1_DMCC_SUPPORTED	IUT supports DMCC.
MSREP1_Circuit_Mode	PIC_MSREP1_CM	IUT supports Circuit mode call.
MSREP1_Initiate_Call	PIC_INITIATE_CALL AND (PIX_IMP_DM_SETUP OR PIX_IMP_DM_SETUP_PRES)	IUT supports initiation of call via a Repeater type 1.

5.5.1.3.2.4 Test suite parameter definitions for layer 3 for operation with Repeater type 1

Table 79: Test suite parameter definitions for layer 3 for operation with Repeater type 1

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_MSREP1_DMCC_SUPPORTED	BOOLEAN	A.4.2.1.1, table A.79/1	IUT supports DMCC for operation with DMO Repeater type 1.
PIC_MSREP1_CM	BOOLEAN	A.4.2.1.1, table A.80/1	IUT supports circuit mode call.
PIC_INITIATE_CALL	BOOLEAN	A.4.2.1.1, table A.81/3	IUT supports outgoing call setup.
PIX_IMP_DM_SETUP	BOOLEAN	B.3.3.2, table B.28/1	It is possible to cause the IUT to send a DM-SETUP PDU
PIX_IMP_DM_SETUP_PRES	BOOLEAN	B.3.3.2, table B.28/2	It is possible to cause the IUT to send a DM-SETUP PRES PDU
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.3.2, table B.29/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.3.2, table B.29/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.3.2, table B.29/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	B.3.3.2, table B.29/4	Value of the reservation time remaining used by the master MS.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.1.3.3 Layer 3 test specification for operation with Repeater type 2

5.5.1.3.3.1 Test suite structure for layer 3 for operation with Repeater type 2

Table 80: Test suite structure for layer 3 for operation with Repeater type 2

Test Suite Structure		
Suite Name: DMO/MSREP2/DMCC Standards Ref.: EN 300 396-7 [21] PICS Ref.: ETS 300 396-8-4 [25] PIXIT Ref.: EN 300 394-4-13 [39], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
DMO_MSREP2_DMCC/	MSREP2_DMCC_supported	Check the dynamic requirements of the DMCC entity
DMO_MSREP2_DMCC/CM/	MSREP2_Circuit_Mode	To test the CM behaviour of the DMCC entity of the IUT
DMO_MSREP2_DMCC/CM/BV/	MSREP2_Circuit_Mode	To test the valid behaviour of the CM entity of the IUT
DMO_MSREP2_DMCC/CM/BV/TXO/	MSREP2_Initiate_Call	To test the CM capabilities in TX occupation state
DMO_MSREP2_DMCC/CM/BV/TR/	MSREP2_Initiate_Call	To test the CM capabilities in TX reservation state

5.5.1.3.3.2 Test case index for layer 3 for operation with Repeater type 2

Table 81: Test case index for layer 3 for operation with Repeater type 2

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
DMO_MSREP2_DMCC/CM/BV/TXO/	DMO_MSREP2_DMCC_CM_BV_TXO_03	MSREP2_Initiate_Call	Receive pre-emption for an ongoing individual call.
DMO_MSREP2_DMCC/CM/BV/TR/	DMO_MSREP2_DMCC_CM_BV_TR_02	MSREP2_Initiate_Call	Receive and accept pre-emption for a new call.
DMO_MSREP2_DMCC/CM/BV/TR/	DMO_MSREP2_DMCC_CM_BV_TR_04	MSREP2_Initiate_Call	Receive and accept pre-emption for continuation of ongoing call.

5.5.1.3.3.3 Test case selection expression definitions for layer 3 for operation with Repeater type 2

Table 82: Test case selection expression definitions for layer 3 for operation with Repeater type 2

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MSREP2_DMCC_supported	PIC_MSREP2_DMCC_SUPPORTED	IUT supports DMCC.
MSREP2_Circuit_Mode	PIC_MSREP2_CM	IUT supports Circuit mode call.
MSREP2_Initiate_Call	PIC_INITIATE_CALL AND (PIX_IMP_DM_SETUP OR PIX_IMP_DM_SETUP_PRES)	IUT supports initiation of call via a Repeater type 2.

5.5.1.3.3.4 Test suite parameter definitions for layer 3 for operation with Repeater type 2

Table 83: Test suite parameter definitions for layer 3 for operation with Repeater type 2

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_MSREP2_DMCC_SUPPORTED	BOOLEAN	A.4.2.1.2, table A.83/1	IUT supports DMCC for operation with DMO Repeater type 2.
PIC_MSREP2_CM	BOOLEAN	A.4.2.1.2, table A.84/1	IUT supports circuit mode call.
PIC_INITIATE_CALL	BOOLEAN	A.4.2.1.2, table A.85/3	IUT supports outgoing call setup.
PIX_IMP_DM_SETUP	BOOLEAN	B.3.3.3, table B.30/1	It is possible to cause the IUT to send a DM-SETUP PDU
PIX_IMP_DM_SETUP_PRES	BOOLEAN	B.3.3.3, table B.30/2	It is possible to cause the IUT to send a DM-SETUP PRES PDU
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.3.3, table B.31/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.3.3, table B.31/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.3.3, table B.31/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	B.3.3.3, table B.31/4	Value of the reservation time remaining used by the master MS.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.1.3.4 Layer 3 test specification for operation with Gateway

5.5.1.3.4.1 Test suite structure for layer 3 for operation with Gateway

Table 84: Test suite structure for layer 3 for operation with Gateway

Test Suite Structure		
Suite Name: DMO/MSGW/NWK Standards Ref.: ETS 300 396-5 [19] PICS Ref.: ETS 300 396-8-3 [24] PIXIT Ref.: ETS 300 394-4-9 [35], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
DMO_MSGW_NWK/	MSGW_supported	Check the dynamic behaviour requirements of the network layer
DMO_MSGW_NWK/DMCC/	MSGW_DMCC_supported	Check the dynamic requirements of the DMCC entity
DMO_MSGW_NWK/DMCC/CM/	MSGW_Circuit_Mode	To test the CM behaviour of the DMCC entity of the IUT
DMO_MSGW_NWK/DMCC/CM/CA/	MSGW_Initiate_Call	To test the basic CM capabilities of the DMCC entity of the IUT
DMO_MSGW_NWK/DMCC/CM/BV/	MSGW_Circuit_Mode	To test the valid behaviour of the CM entity of the IUT
DMO_MSGW_NWK/DMCC/CM/BV/ID/	MSGW_Circuit_Mode	To test the CM capabilities from idle state
DMO_MSGW_NWK/DMCC/CM/BV/TXO/	MSGW_Initiate_Call	To test the CM capabilities in TX occupation state
DMO_MSGW_NWK/DMCC/CM/BV/RO/	MSGW_Circuit_Mode	To test the CM capabilities in RX occupation state
DMO_MSGW_NWK/DMCC/CM/BV/RR/	MSGW_Circuit_Mode	To test the CM capabilities in RX reservation state
DMO_MSGW_NWK/DMCC/CM/BV/TI/	MSGW_Circuit_Mode	To test the timer capabilities in Circuit mode
DMO_MSGW_NWK/DMMM/	MSGW_DMMM_Supported	Check the dynamic requirements of the DMMM entity

5.5.1.3.4.2 Test case index for layer 3 for operation with Gateway

Table 85: Test case index for layer 3 for operation with Gateway

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
DMO_MSGW_NWK/ DMCC/CM/CA/	DMO_MSGW_NWK_DM CC_CM_CA_01	MSGW_Initiate_Group _Call	Set-up a group call.
DMO_MSGW_NWK/ DMCC/CM/CA/	DMO_MSGW_NWK_DM CC_CM_CA_02	MSGW_Initiate_Individ ual_Call	Establish an individual call.
DMO_MSGW_NWK/ DMCC/CM/BV/ID/	DMO_MSGW_NWK_DM CC_CM_BV_ID_04	MSGW_Initiate_Call_a nd_Cease_TX	Pre-emption flags in DM-SETUP and DM-TX-CEASED PDU.
DMO_MSGW_NWK/ DMCC/CM/BV/TXO/	DMO_MSGW_NWK_DM CC_CM_BV_TXO_04	MSGW_Initiate_Call	Accept pre-emption for an ongoing individual call without a pre-emptive priority.
DMO_MSGW_NWK/ DMCC/CM/BV/TXO/	DMO_MSGW_NWK_DM CC_CM_BV_TXO_06	MSGW_Initiate_Call	Receive pre-emption for a new individual call without a pre-emptive priority.
DMO_MSGW_NWK/ DMCC/CM/BV/RO/	DMO_MSGW_NWK_DM CC_CM_BV_RO_03	MSGW_Preemption_ Ongoing_Call_IGP	Initiate pre-emption to establish ongoing call.
DMO_MSGW_NWK/ DMCC/CM/BV/RO/	DMO_MSGW_NWK_DM CC_CM_BV_RO_05	MSGW_Preemption_ Ongoing_Call_IGP	Handle the reject of a pre-emption.
DMO_MSGW_NWK/ DMCC/CM/BV/RR/	DMO_MSGW_NWK_DM CC_CM_BV_RR_03	MSGW_Call_Changeo ver_IGT	Initiate changeover to establish ongoing CM call.
DMO_MSGW_NWK/ DMCC/CM/BV/RR/	DMO_MSGW_NWK_DM CC_CM_BV_RR_04	MSGW_Call_Changeo ver_IGT	Handle the rejection of a changeover request.
DMO_MSGW_NWK/ DMCC/CM/BV/TI/	DMO_MSGW_NWK_DM CC_CM_BV_TI_01	MSGW_Initiate_Call	Time-out of DT301 for response to DM-GSETUP.
DMO_MSGW_NWK/ DMCC/CM/BV/TI/	DMO_MSGW_NWK_DM CC_CM_BV_TI_02	MSGW_Initiate_Call	Time out DT302 for response DM-GCONNECT after receiving DM-GACK.
DMO_MSGW_NWK/ DMMM/	DMO_MSGW_NWK_DM MM_01	MSGW_DMMM_Supp orted	Registration by invitation.
DMO_MSGW_NWK/ DMMM/	DMO_MSGW_NWK_DM MM_02	MSGW_Uninvited_Re gistration	Un-invited registration.
DMO_MSGW_NWK/ DMMM/	DMO_MSGW_NWK_DM MM_03	MSGW_DMMM_Supp orted	Registration cancellation.

5.5.1.3.4.3 Test case selection expression definitions for layer 3 for operation with Gateway

Table 86: Test case selection expression definitions for layer 3 for operation with Gateway

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MSGW_supported	PIC_MSGW_SUPPORTED	IUT supports operation with Gateway.
MSGW_DMCC_supported	PIC_DMCC	IUT supports DMCC.
MSGW_Circuit_Mode	PIC_MSGW_CM	IUT supports Circuit mode call.
MSGW_Initiate_Call	PIC_INITIATE_CALL AND PIX_IMP_GSETUP	IUT supports initiation of call to a Gateway.
MSGW_DMMM_Supported	PIC_DMMM	IUT supports DMMM.
MSGW_Initiate_Group_Call	PIC_GROUP_CALL AND PIC_INITIATE_CALL AND PIX_IMP_GSETUP	IUT supports the initiation of a group call.
MSGW_Initiate_Individual_Call	PIC_INDIVIDUAL_CALL AND PIC_INITIATE_CALL AND PIX_IMP_GSETUP	IUT supports the initiation of an individual call.
MSGW_Initiate_Call_and_Cease_TX	PIC_INITIATE_CALL AND PIX_IMP_GSETUP AND PIX_IMP_DM_TX_CEASED	IUT supports initiation of call and sending of TX-CEASED.
MSGW_Preemption_Ongoing_Call_IGP	PIC_PREEMPT_ONGOING AND PIX_IMP_GPREEMPT	IUT supports the initiation of call changeover.
MSGW_Call_Changeover_IGT	PIC_CALL_CHANGEOVER AND PIX_IMP_GTX_REQUEST	IUT supports the initiation of call pre-emption.
MSGW_Uninvited_Registration	PIC_UNINVITED_REGISTRATION	IUT supports unsolicited registration.

5.5.1.3.4.4 Test suite parameter definitions for layer 3 for operation with Gateway

Table 87: Test suite parameter definitions for layer 3 for operation with Gateway

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_MSGW_SUPPORTED	BOOLEAN	A.4.2.1, table A.71/3	Operation with DMO Gateway supported.
PIC_DMCC	BOOLEAN	A.4.2.1.3, table A.87/1	IUT supports DMCC.
PIC_DMMM	BOOLEAN	A.4.2.1.3, table A.87/2	IUT supports DMMM.
PIC_MSGW_CM	BOOLEAN	A.4.2.1.3, table A.88/1	IUT supports Circuit mode call through DMO Gateway
PIC_INDIVIDUAL_CALL	BOOLEAN	A.4.2.1.3, table A.89/1	IUT supports individual circuit mode call.
PIC_GROUP_CALL	BOOLEAN	A.4.2.1.3, table A.89/2	IUT supports group circuit mode call.
PIC_INITIATE_CALL	BOOLEAN	A.4.2.1.3, table A.89/3	IUT supports outgoing call setup.
PIC_PREEMPT_ONGOING	BOOLEAN	A.4.2.4.1.1, table A.119/3	IUT supports pre-emption of ongoing call.
PIC_CALL_CHANGEOVER	BOOLEAN	A.4.2.4.1.1, table A.119/4	IUT supports call change-over.
PIC_DN301	INTEGER	A.4.2.4.1.1, table A.121/1	DN301 value [from 0 to 3]. Number of attempts to send DM-GSETUP if no response received.
PIC_DN302	INTEGER	A.4.2.4.1.1, table A.121/2	DN302 value [from 0 to 3]. Number of attempts to send DM-GSETUP if no response received after DM-GACK.
PIC_T_301	INTEGER	A.4.2.4.1.1, table A.122/1	Value in msec of timer DT301.
PIC_T_302	INTEGER	A.4.2.4.1.1, table A.122/2	Value in msec of timer DT302.
PIC_UNINVITED_REGISTRATION	BOOLEAN	A.4.2.4.2.1, table A.123/2	IUT supports unsolicited registration.
PIX_IMP_GSETUP	BOOLEAN	B.3.3.4, table B.32/1	It is possible to cause the IUT to send a DM-GSETUP PDU.
PIX_IMP_GPREEMPT	BOOLEAN	B.3.3.4, table B.32/2	It is possible to cause the IUT to send a DM-GPREEMPT PDU.
PIX_IMP_GTX_REQUEST	BOOLEAN	B.3.3.4, table B.32/3	It is possible to cause the IUT to send a DM-GTX REQUEST PDU.
PIX_IMP_DM_TX_CEASED	BOOLEAN	B.3.3.4, table B.32/4	It is possible to cause the IUT to send a DM-TX CEASED PDU.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.3.4, table B.33/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.3.4, table B.33/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.3.4, table B.33/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_DMMS_WAITING_TIMER	DMMS_Waiting_Timer_Type	B.3.3.4, table B.33/4	Value of the DM-MS waiting timer (that the DM-MS should use for timer DT302, DT308 or DT309)
PIX_REGISTRATION_LABEL	Registration_Label_Type	B.3.3.4, table B.33/5	Value of the registration label
PIX_REGISTRATION_TIME_REMAINING	Registration_Transaction_Time_Remaining_Type	B.3.3.4, table B.33/6	Registration transaction time remaining
PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	B.3.3.4, table B.33/7	Value of the reservation time remaining used by the master MS.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.1.4 Security test specification

5.5.1.4.1 Test suite structure for Ud security

Table 88: Test suite structure for Ud security

Test Suite Structure		
Suite Name: Security Standards Ref.: ETS 300 396-6 [20] PICS Ref.: ETS 300 394-5-1 [13] PIXIT Ref.: ETS 300 394-5-3 [15], annex D Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	Selection Ref.	Test Group Objective
Sec_DM/	DML3_Security_Supp	To test the behaviour of the Direct Mode security module of the IUT.
Sec_DM/L3/	DML3_Security_Supp	To test the DM security module at layer 3.
Sec_DM/L3/OTAR/	DML3_OTAR_Supp	To test the DM security module of the IUT, when operating the OTAR procedures.
Sec_DM/L3/OTAR/BV/	DML3_OTAR_Supp	To test the valid behaviour of OTAR scenarios of the DM security protocols.
Sec_DM/L3/SED/	DML3_SED_Supp	To test the DM security module of the IUT, when operating the enable and disable procedures.
Sec_DM/L3/SED/BV/	DML3_SED_Supp	To test the DM security module of the IUT, when operating the valid behaviour of the enable and disable procedures.
Sec_DM/L3/SED/BV/PD/	DML3_SED_Supp	To test the DM security module of the IUT, when operating the permanent disabling procedures.
Sec_DM/L3/SED/BV/PD/TAR/	DML3_Target_Supp	To test the DM security module of the IUT, when operating the permanent disabling procedures and when IUT acts as a target.
Sec_DM/L3/SED/BV/EN/	DML3_Target_Supp	To test the DM security module of the IUT, when operating the enabling procedures.
Sec_DM/L3/SED/BV/EN/TAR/	DML3_Target_Supp	To test the DM security module of the IUT, when operating the enabling procedures and when IUT acts as a target.
Sec_DM/L3/SED/BV/TEI/	DML3_Target_Supp	To test the DM security module of the IUT, when operating the TEI exchange procedure.

5.5.1.4.2 Test case index for Ud security

Table 89: Test case index for Ud security

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
Sec_DM/L3/OTAR/BV/	Sec_DM_L3_OTAR_BV_01	DML3_KU_IMP_Supp	IUT requests SCK.
Sec_DM/L3/OTAR/BV/	Sec_DM_L3_OTAR_BV_02	DML3_KS_KH_Supp	Testset request key from IUT acting as a key sealer or as key holder (as a relay for key sealer).
Sec_DM/L3/OTAR/BV/	Sec_DM_L3_OTAR_BV_03	DML3_KH_IMP_Supp	IUT acts as a key holder, testset as a key sealer.
Sec_DM/L3/OTAR/BV/	Sec_DM_L3_OTAR_BV_04	DML3_KU_Supp	Testset initiates the provision of SCK.
Sec_DM/L3/SED/BV/PD/TAR/	Sec_DM_L3_SED_BV_PD_TAR_02	DML3_Target_Supp	Permanently disable equipment (IUT acts as a target).
Sec_DM/L3/SED/BV/EN/TAR/	Sec_DM_L3_SED_BV_EN_TAR_01	DML3_Target_Supp	Enable equipment (IUT acts as a target).
Sec_DM/L3/SED/BV/EN/TAR/	Sec_DM_L3_SED_BV_EN_TAR_02	DML3_Target_Supp	Enable subscriber (IUT acts as a target).
Sec_DM/L3/SED/BV/TEI/	Sec_DM_L3_SED_BV_TEI_01	DML3_Target_Supp	TEI delivery (IUT acts as a target)

5.5.1.4.3 Test case selection expression definitions for Ud security

Table 90: Test case selection expression definitions for Ud security

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
DML3_Security_Supp	PIC_DM_SEC_SUPP AND PIX_DM	IUT supports DM security.
DML3_OTAR_Supp	PIC_DM_OTAR_SUPP AND PIX_DM	IUT supports OTAR.
DML3_SED_Supp	PIC_DM_SED_SUPP AND PIX_DM	Enable/Disable procedures supported.
DML3_KS_KH_Supp	PIC_DM_KS_KH_SUPP AND PIX_DM	Key sealer or key holder role supported.
DML3_KH_IMP_Supp	PIC_DM_KH_SUPP AND PIX_IMP_SDS_DATA_SCK_Demand AND PIX_DM	Key holder role supported and the sending of the SDS DATA PDU containing the OTAR SCK demand implemented.
DML3_KU_IMP_Supp	PIC_DM_KU_SUPP AND PIX_IMP_SDS_DATA_SCK_Demand AND PIX_DM	Key user role supported and the sending of the SDS DATA PDU containing the OTAR SCK demand implemented.
DML3_KU_Supp	PIC_DM_KU_SUPP AND PIX_DM	Key user role supported.
DML3_Target_Supp	PIC_DM_TARGET_SUPP AND PIX_DM	Target role supported.

5.5.1.4.4 Test suite parameter definitions for Ud security

Table 91: Test suite parameter definitions for Ud security

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_DM_SEC_SUPP	BOOLEAN	A.4.2.1, table A.72/6	DM security supported.
PIC_DM_OTAR_SUPP	BOOLEAN	A.4.2.5, table A.125/2	OTAR supported.
PIC_DM_SED_SUPP	BOOLEAN	A.4.2.5, table A.125/3	Secure enable/disable supported.
PIC_DM_KS_SUPP	BOOLEAN	A.4.2.5.2, table A.127/1	Key sealer role supported.
PIC_DM_KU_SUPP	BOOLEAN	A.4.2.5.2, table A.127/2	Key user role supported.
PIC_DM_KH_SUPP	BOOLEAN	A.4.2.5.2, table A.127/3	Key holder role supported.
PIC_DM_TARGET_SUPP	BOOLEAN	A.4.2.5.3, table A.130/2	Target role in Enable/Disable procedures supported.
PIX_IMP_SDS_DATA_SCK_Demand	BOOLEAN	B.3.4, table B.34/1	Sending of the DM SDS DATA PDU containing an OTAR SCK demand implemented.
PIX_DM	BOOLEAN	B.3.4, table B.35/1	Testing the Direct Mode Security protocol
PIX_MS_ITSI	TSI_Type	B.3.4, table B.36/1	ITSI of the IUT.
PIX_TEI	TEI_Type	B.3.4, table B.36/2	TEI.
PIX_DM_SDS_TIME_REMAINING	DM_TimeRemainingType	B.3.4, table B.36/3	Value of the SDS time remaining element used to indicate the current estimate of the SDS channel occupation time.
PIX_RAND1	RandomChallengeType	B.3.4, table B.37/1	Value of Random challenge (RAND1).
PIX_RS	RandomSeedType	B.3.4, table B.37/2	Value of the Random seed (RS).
PIX_RES2	ResponseValueType	B.3.4, table B.37/3	Value of the result RES2.
PIX_SCKN	SCK_NbrType	B.3.4, table B.38/1	SCK number.
PIX_SCK_VN	SCK_VersionNbrType	B.3.4, table B.38/2	SCK version number.
PIX_SSCK	SealedKeyType	B.3.4, table B.38/3	Sealed SCK.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.1.5 Managed DMO test specification

5.5.1.5.1 Test suite structure Managed DMO

Table 92: Test suite structure for Managed DMO

Test Suite Structure		
Suite Name: M-DMO Standards Ref.: TS 100 396-10 [26] PICS Ref.: annex A of the present document PIXIT Ref.: annex B of the present document Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	Selection Ref.	Test Group Objective
M_DMO_MSMS_MAC/	Managed_DMO_MS	To test the managed DMO MS-MS.
M_DMO_MSMS_MAC/CA/	Initiate_CM_or_SDS_Call	To test the basic capabilities of the IUT.

5.5.1.5.2 Test case index for Managed DMO

Table 93: Test case index for Managed DMO

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
M_DMO_MSMS_MAC/CA/	M_DMO_MSMS_MAC_CA_01	Initiate_CM_or_SDS_Call	Check that the IUT does not transmit unless authorized.

5.5.1.5.3 Test case selection expression definitions for Managed DMO

Table 94: Test case selection expression definitions for Managed DMO

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Managed_DMO_MS	PIC_M_DMO_MS	Managed DMO for Mobile Station
Initiate_CM_or_SDS_Call	(PIC_CALL_SETUP_NO_PRESENCE_CHECK AND IMP_SYNC_SETUP) OR (PIC_CALL_SETUP_PRESENCE_CHECK AND IMP_SYNC_SETUP_PRES) OR (PIC_SEND_U_SDS AND IMP_SYNC_SDS_UDATA) OR (PIC_SEND_A_SDS AND IMP_SYNC_SDS_DATA)	IUT supports initiation of a CM or SDS call.

5.5.1.5.4 Test suite parameter definitions for Managed DMO

Table 95: Test suite parameter definitions for Managed DMO

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_M_DMO_MS	BOOLEAN	A.4.1, table A.72/3	Managed DMO for Mobile Station
PIC_CALL_SETUP_NO_PRESENCE_CHECK	BOOLEAN	A.4.2.4.1, table A.113/1	IUT supports outgoing call setup without presence check.
PIC_CALL_SETUP_PRESENCE_CHECK	BOOLEAN	A.4.2.4.1, table A.113/2	IUT supports outgoing call setup with presence check.
PIC_SEND_U_SDS	BOOLEAN	A.4.2.4.1, table A.114/1	IUT supports sending of unacknowledge data service
PIC_SEND_A_SDS	BOOLEAN	A.4.2.4.1, table A.114/2	IUT supports sending of acknowledge data service
IMP_SYNC_SETUP	BOOLEAN	B.3.2.1, table B.16/1	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.
IMP_SYNC_SETUP_PRES	BOOLEAN	B.3.2.1, table B.16/2	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU.
IMP_SYNC_SDS_DATA	BOOLEAN	B.3.2.1, table B.16/3	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS DATA SDU.
IMP_SYNC_SDS_UDATA	BOOLEAN	B.3.2.1, table B.16/4	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS UDATA SDU.
PIX_MS_TSI	TSI_Type	B.3.2.1, table B.17/1	TSI of the IUT.
PIX_TESTER_SWMI_MNI	MNI_Type	B.3.2.1, table B.17/2	MNI of the controlling SwMI of the authorizing unit.
PIX_TESTER_DEVICE_ADDRESS	Device_Address_Type	B.3.2.1, table B.17/3	Address of authorizing unit.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.2 DMO Repeater type 1 test specification

5.5.2.1 Physical layer test specification

5.5.2.1.1 Test case index for physical layer

Table 96: Test case index for physical layer

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.1.2 a) and F.5, table F.2 and EN 300 396-4 [18], subclause 12.3.4	8.1, 8.1.1 a), b), b2) and d)	Dual_REP1	To test that the output power corresponds to the declared single or highest power class.
7.1.1.2 a) and F.5, table F.2 and EN 300 396-4 [18], subclause 12.3.4	8.1, 8.1.1 a), b), b2) and d), and F.4, table F.1	DO-REP1	To test that the output power corresponds to the declared single or highest power class.
7.1.1.2 a) and F.5, table F.2 and EN 300 396-4 [18], subclause 12.3.4	8.1 and 8.1.1 c)	Dual_REP1_Multiple_Class	To test that the output power corresponds to the declared lower power class(es).
7.1.1.2 a) and F.5, table F.2 and EN 300 396-4 [18], subclause 12.3.4	8.1, 8.1.1 c) and F.4, table F.1	DO-REP1_Multiple Class	To test that the output power corresponds to the declared lower power class(es).
7.1.2.2	8.2	DO-REP1	To test the output power in the non-active transmit state.
7.1.3.2	8.3 and F.4, table F.1	DO-REP1	To test the unwanted conducted emission over the useful part of the burst.
7.1.4.2	8.4	DO-REP1	To test the unwanted conducted emission during switching transients.
7.1.5.2 and F.5, table F.2 and EN 300 396-4 [18], subclause 12.3.4	8.5	Applicable_to_all_REP1	To test the unwanted conducted discrete spurious and wideband noise emission far from the carrier.
7.1.6.2	8.6	DO-REP1	To test the unwanted radiated emission in the active transmit state.
7.1.7.2	8.7 and 8.7.1	DO-REP1	To test the unwanted conducted emission during LCH.
7.1.8.2.1	8.8 and 8.8.1	DO-REP1	To test the DM-REP1 transmitter intermodulation attenuation.
7.2.2.2 and F.5, table F.2	9.2 and 9.2.1	DO-REP1	To test the nominal error rate. ETS 300 394-1 [8], table A.2; nominal error and F.5, table F.2: - TCH/7,2, DR50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.3.2 and F.5, table F.2	9.3 and 9.3.1	DO-REP1	To test the dynamic reference sensitivity performance. ETS 300 394-1 [8], table A.2; sensitivity and F.5, table F.2: - SCH/F, DR50, - 103 (- 97) dBm, - SCH/S, DR50, - 103 dBm.
7.2.3.2 and F.5, table F.2	9.3 and 9.3.1	DO-REP1_Protected_Data	To test the dynamic reference sensitivity performance of a DM-REP1 supporting protected circuit mode data. ETS 300 394-1 [8], table A.2; sensitivity and F.5, table F.2: - TCH/2,4, N=1, DR50, - 103 dBm.
7.2.3.2 and F.5, table F.2	9.3 and 9.3.3	DO-REP1	To test the dynamic reference sensitivity performance of a DM-REP1. ETS 300 394-1 [8], table A.11 and F.5, table F.2: - SCH/F, DR50, - 103 dBm.

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.2.4.2 and F.5, table F.2	9.4 and 9.4.1	DO-REP1	To test the reference interference performance ETS 300 394-1 [8], table A.2 and F.5, table F.2: - co-channel interference, - adjacent channel interference.
7.2.5.2 and F.5, table F.2	9.5 and 9.5.1	DO-REP1	To test the blocking characteristics ETS 300 394-1 [8], table A.2; blocking and F.5, table F.2.
7.2.6.2 and F.5, table F.2	9.6	DO-REP1	To test the spurious response rejection ETS 300 394-1 [8], table A.2; spurious response and F.5, table F.2.
7.2.7.2 and F.5, table F.2	9.7 and 9.7.1	DO-REP1	To test the intermodulation response rejection ETS 300 394-1 [8], table A.2; intermodulation and F.5, table F.2.
7.2.8.2	9.8	DO-REP1	To test the unwanted conducted emission.
7.2.9.2	9.9	DO-REP1	To test the unwanted radiated emission.
7.3.1.2	10.1, 10.1.1 and 10.1.3	DO-REP1	To test the modulation accuracy.
F.6.2.1	F.6.2.2	Applicable_to_all_REP1	To test the transmitter output power versus time within a burst.
F.6.3.1	F.6.3.2	Applicable_to_all_REP1	To test the RF frequency accuracy.
F.6.4.2	F.6.4.3	Applicable_to_all_REP1	To test the DM synchronization accuracy.
NOTE 1: The test case limit values, as referenced, are specified in ETS 300 394-1 [8], clause 7 and annex F, except when otherwise stated. NOTE 2: The test methods, as referenced, are specified in ETS 300 394-1 [8], clauses 8 to 10 and annex F.			

5.5.2.1.2 Test case selection expression definitions for physical layer

Table 97: Test case selection expression definitions for physical layer

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_REP1	A.133/3	TETRA DMO Repeater type 1.
Dual_REP1	A.133/3 AND A.1/1	DMO Repeater type 1 equipment also supporting trunked (V+D) mode
DO-REP1	A.133/3 AND NOT A.1/1	DMO-only Repeater type 1 equipment not supporting trunked (V+D) mode
DO-REP1_Protected_Data	A.133/3 AND NOT A.1/1 AND A.135/2	DMO-only Repeater type 1 equipment supporting protected circuit mode data.
Dual_REP1_Multiple_Class	A.133/3 AND A.1/1 AND A.135/1	DMO Repeater type 1 equipment also supporting trunked (V+D) mode and supporting more than one power class
DO-REP1_Multiple Class	A.133/3 AND NOT A.1/1 AND A.135/1	DMO-only Repeater type 1 equipment supporting more than one power class
Detailed Comments The selection expressions given in the Selection Expression-column are Boolean expressions, referring to the declarations made in requirement tables in annex A in the present document.		

5.5.2.2 Layer 2 test specification

5.5.2.2.1 Test suite structure for layer 2 for Repeater type 1

Table 98: Test suite structure for layer 2

Test Suite Structure		
Suite Name: DMO/DMREP1 Standards Ref.: EN 300 396-4 [18] PICS Ref.: EN 300 396-8-2 [23] PIXIT Ref.: EN 300 394-4-6 [32], annex B Test Method(s): The embedded variant of the remote multi party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
DMO_DMREP1_MAC/	DMREP1_MAC_supported	To test the DM-REP1 MAC protocol.
DMO_DMREP1_MAC/CA/	DMREP1_MAC_supported	To test the basic capabilities of the IUT.
DMO_DMREP1_MAC/BV/	DMREP1_MAC_supported	To test the capabilities of the IUT in a valid behaviour.
DMO_DMREP1_MAC/BI/	DMREP1_MAC_supported	To test invalid behaviour capabilities of the IUT.
DMO_DMREP1_MAC/TI/	DMREP1_MAC_supported	To test timer capabilities of the IUT.

5.5.2.2.2 Test case index for layer 2 for Repeater type 1

Table 99: Test case index for layer 2 for Repeater type 1

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
DMO_DMREP1_MAC/CA/	DMO_DMREP1_MAC_CA_02	Sending_DPRES_SYNC	Check sending of presence signal.
DMO_DMREP1_MAC/BV/	DMO_DMREP1_MAC_BV_05	Support_CM_Call	Circuit mode data retransmission when call setup with presence check is used.
DMO_DMREP1_MAC/BV/	DMO_DMREP1_MAC_BV_07	Support_CM_Call	Circuit mode callsetup without presence check
DMO_DMREP1_MAC/BV/	DMO_DMREP1_MAC_BV_08	Support_SDS_Call	Re-transmission procedure for DM_SDS DATA or DM_SDS UDATA call.
DMO_DMREP1_MAC/BI/	DMO_DMREP1_MAC_BI_01	DMREP1_MAC_supported	Check DM-REP1 behaviour when messages with wrong repeater address are sent.
DMO_DMREP1_MAC/BI/	DMO_DMREP1_MAC_BI_02	Support_CM_Call	Check DM-REP1 handling of wrongly addressed messages from slave MS.
DMO_DMREP1_MAC/TI/	DMO_DMREP1_MAC_TI_01	DMREP1_MAC_supported	Check DM-REP1 behaviour when master MS does not send channel occupied signals
DMO_DMREP1_MAC/TI/	DMO_DMREP1_MAC_TI_02	DMREP1_MAC_supported	Check DM-REP1 behaviour when master channel is reserved but reservation signalling is not sent.

5.5.2.2.3 Test case selection expression definitions for layer 2 for Repeater type 1

Table 100: Test case selection expression definitions for layer 2 for Repeater type 1

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
DMREP1_MAC_supported	PIC_DMREP1_MAC_SUPPORTED	IUT supports Repeater type 1 MAC.
Sending_DPRES_SYNC	PIC_SEND_DPRES_SYNC	IUT supports repeater functionality for a CM or SDS call.
Support_CM_Call	PIC_CIRCUIT_MODE_CALL	IUT supports repeater functionality for CM calls with and without presence check.
Support_SDS_Call	PIC_SHORT_DATA_SERVICE	IUT supports repeater functionality for unacknowledged and acknowledged SDS.

5.5.2.2.4 Test suite parameter definitions for layer 2 for Repeater type 1

Table 101: Test suite parameter definitions for layer 2 for Repeater type 1

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_DMREP1_MAC_SUPPORTED	BOOLEAN	A.4.3.1, table A.133/1	IUT supports Repeater type 1 MAC.
PIC_CIRCUIT_MODE_CALL	BOOLEAN	A.4.3.1, table A.134/1	IUT supports repeater functionality for CM calls with and without presence check.
PIC_SHORT_DATA_SERVICE	BOOLEAN	A.4.3.1, table A.134/2	IUT supports repeater functionality for unacknowledged and acknowledged SDS.
PIC_SEND_DPRES_SYNC	BOOLEAN	A.4.3.3.2, table A.140/3	IUT supports sending of DPRES SYNC PDU.
PIC_DN_232	INTEGER	A.4.3.3.2, table A.143/1	Number of frames to transmit DM-SETUP or DM-SETUP PRES PDUs on the slave link.
PIC_DN_233	INTEGER	A.4.3.3.2, table A.143/2	Number of frames to transmit DM-SDS UDATA or DM-SDS DATA PDUs on the slave link.
PIC_DT253	INTEGER	A.4.3.3.2, table A.144/1	Number of frames for timer DT253.
PIC_DT254	INTEGER	A.4.3.3.2, table A.144/2	Number of frames for timer DT254.
PIC_DT256	INTEGER	A.4.3.3.2, table A.144/3	Number of frames for timer DT256.
PIC_DT258	INTEGER	A.4.3.3.2, table A.144/4	Number of frames for timer DT258.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.2.5, table B.24/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.2.5, table B.24/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.2.5, table B.24/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_MNI	MNI_Type	B.3.2.5, table B.24/4	MNI of the network.
PIX_MS_MASTER_SSI	SSI_Type	B.3.2.5, table B.24/5	SSI of a master MS
PIX_MS_SLAVE_SSI	SSI_Type	B.3.2.5, table B.24/6	SSI of a slave MS
PIX_REPEATER_ADDRESS	Repeater_Address_Type	B.3.2.5, table B.24/7	Repeater address of the IUT.
PIX_NON_REPEATER_ADDRESS	Repeater_Address_Type	B.3.2.5, table B.24/8	An SSI not recognized as the repeater address of the IUT.
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.3 DMO Repeater type 2 test specification

5.5.3.1 Physical layer test specification

5.5.3.1.1 Test case index for physical layer

Table 102: Test case index for physical layer

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.1.2 a) and F.5, table F.2 and EN 300 396-7 [21], subclause 12.3.4.2	8.1, 8.1.1 a), b), b2) and d)	Dual_REP2	To test that the output power corresponds to the declared single or highest power class.
7.1.1.2 a) and F.5, table F.2 and EN 300 396-7 [21], subclause 12.3.4.2	8.1, 8.1.1 a), b), b2) and d), and F.4, table F.1	DO-REP2	To test that the output power corresponds to the declared single or highest power class.
7.1.1.2 a) and F.5, table F.2 and EN 300 396-7 [21], subclause 12.3.4.2	8.1 and 8.1.1 c)	Dual_REP2_Multiple_Class	To test that the output power corresponds to the declared lower power class(es).
7.1.1.2 a) and F.5, table F.2 and EN 300 396-7 [21], subclause 12.3.4.2	8.1, 8.1.1 c) and F.4, table F.1	DO-REP2_Multiple Class	To test that the output power corresponds to the declared lower power class(es).
7.1.2.2	8.2	DO-REP2	To test the output power in the non-active transmit state.
7.1.3.2	8.3 and F.4, table F.1	DO-REP2	To test the unwanted conducted emission over the useful part of the burst.
7.1.4.2	8.4	DO-REP2	To test the unwanted conducted emission during switching transients.
7.1.5.2 and F.5, table F.2 and EN 300 396-7 [21], subclauses 12.3.4.3.3.1 and 12.3.4.3.3.2	8.5	Applicable_to_all_REP2	To test the unwanted conducted discrete spurious and wideband noise emission far from the carrier.
7.1.6.2	8.6	DO-REP2	To test the unwanted radiated emission in the active transmit state.
7.1.7.2	8.7 and 8.7.1	DO-REP2	To test the unwanted conducted emission during LCH.
7.1.8.2.1	8.8 and 8.8.1	DO-REP2	To test the DM-REP2 transmitter intermodulation attenuation.
7.2.2.2 and F.5, table F.2	9.2 and 9.2.1	DO-REP2	To test the nominal error rate. ETS 300 394-1 [8], table A.2; nominal error and F.5, table F.2: - TCH/7,2, DR50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.3.2 and F.5, table F.2	9.3 and 9.3.1	DO-REP2	To test the dynamic reference sensitivity performance. ETS 300 394-1 [8], table A.2; sensitivity and F.5, table F.2: - SCH/F, DR50, - 103 (- 97) dBm, - SCH/S, DR50, - 103 dBm.
7.2.3.2 and F.5, table F.2	9.3 and 9.3.1	DO-REP2_Protected_Data	To test the dynamic reference sensitivity performance of a DM-REP2 supporting protected circuit mode data. ETS 300 394-1 [8], table A.2; sensitivity and F.5, table F.2: - TCH/2,4, N=1, DR50, - 103 dBm.

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.2.3.2 and F.5, table F.2	9.3 and 9.3.3	DO-REP2	To test the dynamic reference sensitivity performance of a DM-REP2. ETS 300 394-1 [8], table A.11 and F.5, table F.2: - SCH/F, DR50, - 103 dBm.
7.2.4.2 and F.5, table F.2	9.4 and 9.4.1	DO-REP2	To test the reference interference performance ETS 300 394-1 [8], table A.2 and F.5, table F.2: - co-channel interference, - adjacent channel interference.
7.2.5.2 and F.5, table F.2	9.5 and 9.5.1	DO-REP2	To test the blocking characteristics ETS 300 394-1 [8], table A.2; blocking and F.5, table F.2.
7.2.6.2 and F.5, table F.2	9.6	DO-REP2	To test the spurious response rejection ETS 300 394-1 [8], table A.2; spurious response and F.5, table F.2.
7.2.7.2 and F.5, table F.2	9.7 and 9.7.1	DO-REP2	To test the intermodulation response rejection ETS 300 394-1 [8], table A.2; intermodulation and F.5, table F.2.
7.2.8.2	9.8	DO-REP2	To test the unwanted conducted emission.
7.2.9.2	9.9	DO-REP2	To test the unwanted radiated emission.
7.3.1.2	10.1, 10.1.1 and 10.1.3	DO-REP2	To test the modulation accuracy.
F.6.2.1	F.6.2.2	Applicable_to_all_REP2	To test the transmitter output power versus time within a burst.
F.6.3.1	F.6.3.2	Applicable_to_all_REP2	To test the RF frequency accuracy.
F.6.4.2	F.6.4.3	Applicable_to_all_REP2	To test the DM synchronization accuracy.
NOTE 1: The test case limit values, as referenced, are specified in ETS 300 394-1 [8], clause 7 and annex F, except when otherwise stated. NOTE 2: The test methods, as referenced, are specified in ETS 300 394-1 [8], clauses 8 to 10 and annex F.			

5.5.3.1.2 Test case selection expression definitions for physical layer

Table 103: Test case selection expression definitions for physical layer

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_REP2	A.145/3	TETRA DMO Repeater type 2.
Dual_REP2	A.145/3 AND A.1/1	DMO Repeater type 2 equipment also supporting trunked (V+D) mode
DO-REP2	A.145/3 AND NOT A.1/1	DMO-only Repeater type 2 equipment not supporting trunked (V+D) mode
DO-REP2_Protected_Data	A.145/3 AND NOT A.1/1 AND A.147/2	DMO-only Repeater type 2 equipment supporting protected circuit mode data.
Dual_REP2_Multiple_Class	A.145/3 AND A.1/1 AND A.147/1	DMO Repeater type 2 equipment also supporting trunked (V+D) mode and supporting more than one power class
DO-REP2_Multiple Class	A.145/3 AND NOT A.1/1 AND A.147/1	DMO-only Repeater type 2 equipment supporting more than one power class
Detailed Comments The selection expressions given in the Selection Expression-column are Boolean expressions, referring to the declarations made in requirement tables in annex A in the present document.		

5.5.3.2 Layer 2 test specification

5.5.3.2.1 Test suite structure for layer 2 for Repeater type 2

Table 104: Test suite structure for layer 2

Test Suite Structure		
Suite Name: DMO/DMREP2 Standards Ref.: EN 300 396-7 [21] PICS Ref.: ETS 300 396-8-4 [25] PIXIT Ref.: EN 300 394-4-14 [40], annex B Test Method(s): The embedded variant of the remote multi party test method Comments:		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
DMO_DMREP2_MAC/	DMREP2_MAC_supported	To test the DM-REP2 MAC protocol.
DMO_DMREP2_MAC/CA/	DMREP2_MAC_supported	To test the basic capabilities of the IUT.
DMO_DMREP2_MAC/BV/	DMREP2_MAC_supported	To test the capabilities of the IUT in a valid behaviour.
DMO_DMREP2_MAC/BI/	DMREP2_MAC_supported	To test invalid behaviour capabilities of the IUT.
DMO_DMREP2_MAC/TI/	DMREP2_MAC_supported	To test timer capabilities of the IUT.

5.5.3.2.2 Test case index for layer 2 for Repeater type 2

Table 105: Test case index for layer 2 for Repeater type 2

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
DMO_DMREP2_MAC/CA/	DMO_DMREP2_MAC_CA_02	Sending_DPRES_SYNC	Check sending of presence signal.
DMO_DMREP2_MAC/BV/	DMO_DMREP2_MAC_BV_02b	Support_CM_Call	Check two simultaneous calls via the IUT.
DMO_DMREP2_MAC/BV/	DMO_DMREP2_MAC_BV_05	Support_CM_Call	Circuit mode data retransmission when call setup with presence check is used.
DMO_DMREP2_MAC/BV/	DMO_DMREP2_MAC_BV_07	Support_CM_Call	Circuit mode callsetup without presence check
DMO_DMREP2_MAC/BV/	DMO_DMREP2_MAC_BV_08	Support_SDS_Call	Re-transmission procedure for DM_SDS DATA or DM_SDS UDATA call.
DMO_DMREP2_MAC/BI/	DMO_DMREP2_MAC_BI_01	DMREP2_MAC_supported	Check DM-REP2 behaviour when messages with wrong repeater address are sent.
DMO_DMREP2_MAC/BI/	DMO_DMREP2_MAC_BI_02	Support_CM_Call	Check DM-REP2 handling of wrongly addressed messages from slave MS.
DMO_DMREP2_MAC/TI/	DMO_DMREP2_MAC_TI_01	DMREP2_MAC_supported	Check DM-REP2 behaviour when master MS does not send channel occupied signals
DMO_DMREP2_MAC/TI/	DMO_DMREP2_MAC_TI_02	DMREP2_MAC_supported	Check DM-REP2 behaviour when master channel is reserved but reservation signalling is not sent.

5.5.3.2.3 Test case selection expression definitions for layer 2 for Repeater type 2

Table 106: Test case selection expression definitions for layer 2 for Repeater type 2

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
DMREP2_MAC_supported	PIC_DMREP2_MAC_SUPPORTED	IUT supports Repeater type 2 MAC.
Sending_DPRES_SYNC	PIC_SEND_DPRES_SYNC	IUT supports repeater functionality for a CM or SDS call.
Support_CM_Call	PIC_CIRCUIT_MODE_CALL	IUT supports repeater functionality for CM calls with and without presence check.
Support_SDS_Call	PIC_SHORT_DATA_SERVICE	IUT supports repeater functionality for unacknowledged and acknowledged SDS.

5.5.3.2.4 Test suite parameter definitions for layer 2 for Repeater type 2

Table 107: Test suite parameter definitions for layer 2 for Repeater type 2

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_DMREP2_MAC_SUPPORTED	BOOLEAN	A.4.4.1, table A.145/1	IUT supports Repeater type 2 MAC.
PIC_CIRCUIT_MODE_CALL	BOOLEAN	A.4.4.1, table A.146/1	IUT supports repeater functionality for CM calls with and without presence check.
PIC_SHORT_DATA_SERVICE	BOOLEAN	A.4.4.1, table A.146/2	IUT supports repeater functionality for unacknowledged and acknowledged SDS.
PIC_SEND_DPRES_SYNC	BOOLEAN	A.4.4.3.2, table A.152/4	IUT supports sending of DPRES SYNC PDU.
PIC_DN_232	INTEGER	A.4.4.3.2, table A.155/1	Number of frames to transmit DM-SETUP or DM-SETUP PRES PDUs on the slave link.
PIC_DN_233	INTEGER	A.4.4.3.2, table A.155/2	Number of frames to transmit DM-SDS UDATA or DM-SDS DATA PDUs on the slave link.
PIC_DT253	INTEGER	A.4.4.3.2, table A.156/1	Number of frames for timer DT253.
PIC_DT254	INTEGER	A.4.4.3.2, table A.156/2	Number of frames for timer DT254.
PIC_DT256	INTEGER	A.4.4.3.2, table A.156/3	Number of frames for timer DT256.
PIC_DT258	INTEGER	A.4.4.3.2, table A.156/4	Number of frames for timer DT258.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.2.6, table B.25/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.2.6, table B.25/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.2.6, table B.25/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_MNI	MNI_Type	B.3.2.6, table B.25/4	MNI of the network.
PIX_MS_MASTER_SSI	SSI_Type	B.3.2.6, table B.25/5	SSI of a master MS
PIX_MS_SLAVE_SSI	SSI_Type	B.3.2.6, table B.25/6	SSI of a slave MS
PIX_REPEATER_ADDRESS	Repeater_Address_Type	B.3.2.6, table B.25/7	Repeater address of the IUT.
PIX_NON_REPEATER_ADDRESS	Repeater_Address_Type	B.3.2.6, table B.25/8	An SSI not recognized as the repeater address of the IUT.

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
Detailed Comments The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.5.4 DMO Gateway test specification

5.5.4.1 Physical layer test specification

5.5.4.1.1 Test case index for physical layer

Table 108: Test case index for physical layer

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.1.2 a) and F.5, table F.2 and ETS 300 396-5 [19], subclause 16.3.4.2	8.1, 8.1.1 a), b), b2) and d)	Applicable_to_all_DM-GATEs	To test that the output power corresponds to the declared single or highest power class.
7.1.1.2 a) and F.5, table F.2 and ETS 300 396-5 [19], subclause 16.3.4.2	8.1 and 8.1.1 c)	Ud_DM-GATE_Multiple_Class	To test that the output power corresponds to the declared lower power class(es).
7.1.5.2 and F.5, table F.2 and ETS 300 396-5 [19], subclauses 16.3.4.3.3.1 and 16.3.4.3.3.2	8.5	Applicable_to_all_DM-GATEs	To test the unwanted conducted discrete spurious and wideband noise emission far from the carrier.
F.6.2.1	F.6.2.2	Applicable_to_all_DM-GATEs	To test the transmitter output power versus time within a burst.
F.6.3.1	F.6.3.2	Applicable_to_all_DM-GATEs	To test the RF frequency accuracy.
NOTE 1: The test case limit values, as referenced, are specified in ETS 300 394-1 [8], clause 7 and annex F, except when otherwise stated. NOTE 2: The test methods, as referenced, are specified in ETS 300 394-1 [8], clauses 8 to 10 and annex F.			

5.5.4.1.2 Test case selection expression definitions for physical layer

Table 109: Test case selection expression definitions for physical layer

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_DM-GATEs	A.157/4	TETRA DMO Gateway equipment.
Ud_DM-GATE_Multiple_Class	A.157/4 AND A.158/1	DMO Gateway equipment supporting more than one power class
Detailed Comments The selection expressions given in the Selection Expression-column are Boolean expressions, referring to the declarations made in requirement tables in annex A in the present document.		

Annex A (normative): Requirements Tables (RT)

A.1 Introduction

The RT indicates the status of the features tested according to the requirements in the present document, i.e. which features and procedures are mandatory, optional or conditional.

The test case selection in clause 5 is based on the values declared by the manufacturer in the "Support" column in this RT.

The following table headers are applicable to this RT:

Item is an entry number in the table to be used for references. Multiple numbering levels may be used to express major functions, and their supporting components.

Reference references to specifications where the requirements and tests are declared.

Status contains the status required for implementation conforming to the present document.

Support is the column for the manufacturer's statement of whether the particular item is supported by the implementation.

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.

The interpretation of status columns in all tables is as follows:

m mandatory - the capability is required to be supported.

o optional - the capability may be supported or not.

o.i qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies an unique group of related optional items and the logic of their selection which is defined immediately following the table.

ci conditional - the requirement on the capability ("m", "o", "x", "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.

x prohibited (excluded) - there is a requirement not to use this capability in the given context.

If a procedure, message, frame, information element, timer, or constant is not explicitly listed in any of the following tables these shall be considered as "n".

A.2 Type of air interface

The supplier of the implementation shall state the support of the implementation for each type of air interface presented in table A.1.

Table A.1: Type of air interface

Item	Type of air interface	Reference	Status	Support
1	Voice plus Data (V+D), Um	ETS 300 392	o.1	
2	Direct Mode Operation (DMO), Ud	ETS 300 396	o.1	

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

A.3 Requirements tables for Um air interface

The requirements in this clause apply to TETRA systems implementing the Um interface.

A.3.1 General

The supplier of the implementation shall state the support of the implementation for each of the general capabilities, features, modes of operation and general protocol capabilities presented in tables A.2 to A.5.

Table A.2: General capabilities and features

Prerequisite: A.1/1 -- Um				
Item	**Capability or feature name**	**Reference**	**Status**	**Support**
1	Base Station (BS)	EN 300 392-2 [1]	o.2	
2	Mobile Station (MS) (note)	EN 300 392-2 [1]	o.2	
3	Protected circuit mode data	EN 300 392-2 [1]	o	
NOTE: For the description of requirements at the Um air interface, the requirements for Mobile Station (MS) includes also the requirements at the Um air interface of a Gateway, unless otherwise stated.				

o.2 It is mandatory to support one of these items.

Table A.3: Environmental profile

Prerequisite: A.1/1 -- Um				
Item	**Requirement**	**Reference (note)**	**Status**	**Supported value**
1	Lowest intended operational temperature	**Error! Reference source not found.**	m	
2	Highest intended operational temperature	**Error! Reference source not found.**	m	
NOTE: The requirements are specified in the present document under the given subclause.				

Table A.4: Modes of operation

Prerequisite: A.1/1 -- Um				
Item	**Capability or feature name**	**Reference (note)**	**Status**	**Support**
1	Downlink Continuous Transmission (D-CT)	4.11.1.1	c401	
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	c402	
3	Downlink Main Control Channel Timesharing Transmission (D-MCCTT)	4.11.1.3, 19.3.4, 19.3.5.2, 23.3.2.2	c402	
4	Multiple Slot Transmission (U-MST)	4.11.1.4, 23.3.1.4	o	
5	Normal Control Mode (NCM)	4.11.2.1, 19.3.1	m	
6	Minimum Control Mode (MCM)	4.11.2.2, 19.3.3, 23.3.3	o	
NOTE: The capabilities or features are specified in EN 300 392-2 [1] under the given subclause(s).				

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

c401: IF A.2/1 -- BS
THEN o.3
ELSE m

c402: IF A.2/1 -- BS
THEN o.3
ELSE n

Table A.5: General protocol capabilities

Prerequisite: A.2/2 -- MS				
Item	**Capability name**	**Reference (note)**	**Status**	**Support**
1	Circuit Mode Control Entity (CMCE) for non-Gateway	11, 12, 13, 14	c501	
2	Mobility Management (MM) for non-Gateway	15, 16	c502	
3	Mobile Link Entity (MLE)	17, 18	m	
4	Logical Link Control (LLC)	21, 22	m	
5	Upper Medium Access Control (Upper MAC)	21, 23	m	
6	Lower Medium Access Control (Lower MAC)	8	m	
7	Security	EN 300 392-7 [2]	m	
8	Circuit Mode Control Entity (CMCE) for Gateway	14, ETS 300 396-5 [19]	c503	
9	Mobility Management (MM) for Gateway	16, ETS 300 396-5 [19]	c503	
NOTE: The capabilities are specified in EN 300 392-2 [1] under the given clause(s), unless otherwise stated.				

c501: IF NOT A.69/4 -- Not a Gateway
THEN o
ELSE n/a

c502: IF NOT A.69/4 -- Not a Gateway
THEN m
ELSE n/a

c503: IF A.69/4 -- Gateway
THEN m
ELSE n/a

A.3.2 Physical layer

The supplier of the implementation shall state the support of the implementation for each of the physical layer capabilities, features, requirements and parameters presented in tables A.6 to A.9.

Table A.6: Physical layer capabilities and features

Prerequisite: A.1/1 -- Um				
Item	**Capability or feature name**	**Reference (note)**	**Status**	**Support**
1	BS equipment implementing more than one power class	6.4.1.1	c601	
2	BS equipment with only one transmitter	6.4.6.2	c601	
3	BS equipment not intended to be collocated with other radio equipment operating in the same frequency band	6.4.6.2	c601	
4	Class A equipment	6.6.2	o.4	
5	Class B equipment	6.6.2	o.4	
6	Class E equipment	6.6.2	c602	
NOTE: The capabilities or features are specified in EN 300 392-2 [1] under the given subclause.				

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

c601: IF A.2/1 -- BS
THEN o
ELSE n/a

c602: IF A.2/2 -- MS
THEN o.4
ELSE n/a

Table A.7: Physical layer requirements

Prerequisite: A.1/1 -- Um				
Item	**Requirement**	**Reference (note)**	**Status**	**Support**
1	Modulation type	5.2	m	
2	Frequency bands and channel allocation	6.2	m	
3	MS power control level	6.4.1.2	c702	
4	Unwanted conducted emission over the useful part of the burst	6.4.2.2.1	m	
5	Unwanted conducted emission during the switching transients	6.4.2.2.2	c703	
6	Unwanted conducted emission far from the carrier	6.4.2.3	m	
7	Unwanted conducted emission during CLCH and BLCH	6.4.2.4	m	
8	Unwanted conducted emission in the non-transmit state	6.4.2.5	c704	
9	Unwanted radiated emissions	6.4.3	m	
10	BS output power time mask	6.4.5	c705	
11	MS output power time mask	6.4.5	c702	
12	BS output power in non-active transmit state	6.4.5.1	c705	
13	MS output power in non-active transmit state	6.4.5.2	c702	
14	BS transmitter intermodulation attenuation	6.4.6.2	c701	
15	MS transmitter intermodulation attenuation	6.4.6.3	c702	
16	Intra-BS transmitter intermodulation attenuation	6.4.7	c706	
17	Blocking characteristics	6.5.1.2	m	
18	Spurious response rejection	6.5.2.2	m	
19	Intermodulation response rejection	6.5.3.2	m	
20	Unwanted conducted emission in reception	6.5.4.2	c704	
21	Unwanted radiated emission	6.5.5	c704	
22	Modulation accuracy	6.6.1.2	m	
23	Nominal error rate	6.6.2.1	m	
24	Dynamic reference sensitivity performance	6.6.2.2	m	
25	BS dynamic reference sensitivity performance	6.6.2.2.1	c701	
26	MS dynamic reference sensitivity performance	6.6.2.2.2	c702	
27	Reference interference performance	6.6.2.3	m	
28	BS reference interference performance	6.6.2.3.1	c701	
29	MS reference interference performance	6.6.2.3.2	c702	
30	Static reference sensitivity performance	6.6.2.4	m	
31	BS static reference sensitivity performance	6.6.2.4.1	c701	
32	MS static reference sensitivity performance	6.6.2.4.2	c702	
33	MS receiver performance for synchronization burst acquisition	6.6.2.5	c702	
34	Timing of transmitted signal	7.4	c702	
35	BS requirement for synchronization	7.5	c701	
36	MS requirement for synchronization	7.6	c702	
37	Mapping of BCCH and CLCH	9.5.2	c702	
38	Mapping of SCH	9.5.3	c702	
39	Mapping of TCH and STCH	9.5.4	c702	
40	Mapping of AACH	9.5.5	c702	
41	RF power control	10.2	c707	
42	Received signal strength	10.3.1	c702	
43	MS open loop power control	23.4.4.2	c702	
44	TETRA frequency bands	TS 100 392-15 [7] clause 5	m	
45	Duplex spacing	TS 100 392-15 [7] clause 6	m	
NOTE: The requirements are specified in EN 300 392-2 [1] under the given subclause, unless otherwise stated.				

c701: IF A.2/1 -- BS
THEN m
ELSE n/a

c702: IF A.2/2 -- MS
THEN m
ELSE n/a

c703: IF (A.2/1 AND (A.4/2 OR A.4/3)) OR A.2/2
THEN m -- BS operating discontinuous mode or MS
ELSE n/a

c704: IF (A.2/1 AND NOT A.4/1) OR A.2/2
THEN m -- BS not operating continuous mode or MS
ELSE n/a

c705: IF A.2/1 AND (A.4/2 OR A.4/3)
THEN m -- BS operating discontinuous mode
ELSE n/a

c706 IF A.2/1 AND NOT A.6/2
THEN m -- BS with more than one transmitter
ELSE n/a

c707: IF A.2/2 -- MS
THEN m
ELSE x

Table A.8: Output power and power class requirements and parameters

Prerequisite: A.1/1 -- Um						
Item	**Requirement and parameter**	**Reference (note)**	**Status**	**Support**	**Allowed values**	**Supported values**
1	BS output power and power class	6.4.1.1	c801		[1..10]	
2	MS output power and power class	6.4.1.2	c802		[1..4, 1L..4L]	
NOTE: The parameters are specified in EN 300 392-2 [1] under the given subclause.						

c801: IF A.2/1 -- BS
THEN m
ELSE n/a

c802: IF A.2/2 -- MS
THEN m
ELSE n/a

Table A.9: RF carrier frequency bands and duplex spacing

Prerequisite: A.1/1 -- Um									
Item	Minimum frequency range		Duplex spacing (MHz)	Reference (note)	Status	Support	Supported values (MHz)		
	Uplink (MHz)	Downlink (MHz)					Frequency range, Uplink	Frequency range, Downlink	Duplex spacing
1	410 to 420	420 to 430	10	6.2, TS 100 392-15 [7] clauses 5 and 6, and ERC/DEC/(96)04 [44]	o.5				
2	870 to 876	915 to 921	45	6.2, TS 100 392-15 [7] clauses 5 and 6, and ERC/DEC/(96)04 [44]	o.5				
3	450 to 460	460 to 470	10	6.2, TS 100 392-15 [7] clauses 5 and 6, and ERC/DEC/(96)04 [44]	o.5				
4	385 to 390	395 to 399.99	10	6.2, TS 100 392-15 [7] clauses 5 and 6, and ERC/DEC/(96)04 [44]	o.5				
NOTE: The parameters are specified EN 300 392-2 [1] under the given subclauses, unless otherwise stated.									

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

A.3.3 Layer 2

A.3.3.1 Lower MAC layer

The supplier of the implementation shall state the support of the implementation for each of the error control schemes presented in table A.10.

Table A.10: Error control schemes of Lower MAC

Prerequisite: A.5/6 -- Lower MAC				
Item	**Error control scheme**	**Reference (note)**	**Status**	**Support**
1	Error control scheme for Access Assignment CHannel (AACH)	8.3.1	m	
2	Error control scheme for Broadcast Synchronization CHannel (BSCH)	8.3.2	m	
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	Error control scheme for Signalling CHannel for mapping onto Half-bursts on the Uplink (SCH/HU)	8.3.4.2	m	
5	Error control scheme for Signalling CHannel for mapping onto Full-bursts (SCH/F)	8.3.4.3	m	
NOTE: The error control schemes are specified in EN 300 392-2 [1] under the given subclause.				

A.3.3.2 Upper MAC layer

The supplier of the implementation shall state the support of the implementation for each of the Upper MAC features, procedures, requirements, and PDUs presented in tables A.11 to A.20.

Table A.11: Upper MAC features

Prerequisite: A.5/5 -- Upper MAC				
Item	**Upper MAC feature**	**Reference (note)**	**Status**	**Support**
1	Control channel usage procedures	23.3	m	
2	Minimum mode operation	23.3.3	o	
3	General MAC procedures	23.4	m	
4	PDU transfer for signalling messages procedures	23.5	m	
5	PDU transfer for broadcast messages procedures	23.6	m	
6	Layer management communication procedures	23.7	m	
7	PDU transfer for traffic procedures	23.8	c1101	
NOTE: The requirements are specified in EN 300 392-2 [1] under the given subclause.				

c1101: IF A.28/1 -- CC supported
THEN m
ELSE n/a

Table A.12: Upper MAC control channel usage procedures

Prerequisite: A.11/1 -- Control channel usage procedures				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Receiving and decoding of messages on the downlink MCCH	23.3.1.1	m	
2	Receiving messages on the ACCH	23.3.1.3	c1201	
3	Beginning of minimum mode	23.3.3.1	m	
4	MS operation during frames 1-17 in minimum mode	23.3.3.2	c1202	
5	MS operation during frame 18 in minimum mode	23.3.3.3	c1202	
6	End of minimum mode	23.3.3.5	c1202	
NOTE: The requirements are specified in EN 300 392-2 [1] under the given subclause.				

c1201: IF A.28/1 -- CC supported
THEN m
ELSE n/a

c1202: IF A.11/2 -- Minimum mode supported
THEN m
ELSE n/a

Table A.13: General MAC procedures

Prerequisite: A.11/3 -- General MAC procedures				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Recognition of destination address in downlink messages	23.4.1.2.1	m	
2	Source address in uplink messages	23.4.1.2.2	m	
3	Transmission of TM-SDU not requiring fragmentation	23.4.2.1.2	m	
4	Fragmentation of uplink TM-SDU, when a transmission starts in a full slot granted by the BS	23.4.2.1.2	m	
5	Fragmentation of uplink TM-SDU, using random access to start the process	23.4.2.1.2	m	
6	Fill bit addition	23.4.2.2	m	
7	Reception of unfragmented TM-SDU	23.4.3.1.1	m	
8	Reception of fragmented TM-SDU	23.4.3.1.1	m	
9	Fill bit deletion	23.4.3.2	m	
10	PDU dissociation	23.4.3.3	m	
NOTE: The requirements are specified in EN 300 392-2 [1] under the given subclause.				

Table A.14: Upper MAC PDU transfer for signalling messages procedures

Prerequisite: A.11/4 -- PDU transfer for signalling messages procedures				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Reception of ACCESS-DEFINE PDU	23.5.1.4.1	m	
2	Reception of ACCESS-ASSIGN PDU	23.5.1.4.2	m	
3	Initiating a random access	23.5.1.4.3	m	
4	Checking for appropriate access code	23.5.1.4.4	m	
5	First try procedure	23.5.1.4.5	m	
6	Re-try procedure	23.5.1.4.8	m	
7	Abandoning random access attempt	23.5.1.4.9	m	
8	Reservation requirement	23.5.2.1	m	
9	Slot granting	23.5.2.2	m	
10	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	Quit current MCCH and go to specified channel	23.5.4.2.2	o	
13	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	Replace current assigned channel with specified channel	23.5.4.2.3	m	
16	Additional assigned channel allocation procedure	23.5.4.2.3	n	n/a
17	Quit current assigned channel and go to specified channel	23.5.4.2.3	m	
18	Replace assigned current channel with specified channel, plus MCCH/SCCH or CSS	23.5.4.2.3	m	
NOTE: The requirements are specified in EN 300 392-2 [1] under the given subclause.				

Table A.15: Upper MAC PDU transfer for broadcast messages procedures

Prerequisite: A.11/5 -- PDU transfer for broadcast messages procedures				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Reception and decoding of BNCH and BSCH	23.6.1	m	
2	Acquiring cell synchronization	23.6.2	m	
3	Acquiring network information	23.6.3	m	
NOTE: The requirements are specified in EN 300 392-2 [1] under the given subclause.				

Table A.16: Upper MAC layer management communication procedures

Prerequisite: A.11/6 -- Layer management communication procedures				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Path loss parameter C1 calculation	23.7.1.1	m	
2	Path loss parameter C2 calculation	23.7.1.2	m	
3	Downlink measurements	23.7.3.1	m	
4	Monitoring measurements	23.7.4.2	m	
5	Signal strength measurements	23.7.4.3	m	
6	Scanning measurements	23.7.5.2	m	
NOTE: The requirements are specified in EN 300 392-2 [1] under the given subclause.				

Table A.17: Upper MAC PDU transfer for traffic procedures

Prerequisite: A.11/7 -- PDU transfer for traffic procedures				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Timing of change of mode	23.8.2.2	m	
2	Transmission of uplink stealing	23.8.4.1.1	m	
3	Reception of downlink stealing	23.8.4.2.2	m	
NOTE: The requirements are specified in EN 300 392-2 [1] under the given subclause.				

Table A.18: MAC PDUs for uplink and downlink

Prerequisite: A.5/5 -- Upper MAC							
Item	**PDU**	**Reception**					
		Reference (note)	**Status**	**Support**	**Reference (note)**	**Status**	**Support**
1	MAC-ACCESS	-	n/a	n/a	21.4.2.1	m	
2	MAC-END-HU	-	n/a	n/a	21.4.2.2	m	
3	MAC-DATA	-	n/a	n/a	21.4.2.3	m	
4	MAC-FRAG	21.4.3.2	m		21.4.2.4	m	
5	MAC-END	21.4.3.3	m		21.4.2.5	m	
6	MAC-RESOURCE	21.4.3.1	m		-	n/a	n/a
NOTE: The PDUs are specified in EN 300 392-2 [1] under the given subclause.							

Table A.19: MAC PDUs for broadcast

Prerequisite: A.5/5 -- Upper MAC							
Item	**PDU**	**Reception**					
		Reference (note)	**Status**	**Support**	**Reference (note)**	**Status**	**Support**
1	SYSINFO	21.4.4.1	m		-	n/a	n/a
2	SYNC	21.4.4.2	m		-	n/a	n/a
3	ACCESS-DEFINE	21.4.4.3	m		-	n/a	n/a
4	ACCESS-ASSIGN	21.4.7	m		-	n/a	n/a
NOTE: The PDUs are specified in EN 300 392-2 [1] under the given subclause.							

Table A.20: MAC PDUs for the U-plane

Prerequisite: A.5/5 -- Upper MAC							
Item	**PDU**	**Reception**					
		Reference (note)	**Status**	**Support**	**Reference (note)**	**Status**	**Support**
1	MAC-TRAFFIC	21.4.6	c2001		21.4.6	c2001	
NOTE: The PDUs are specified in EN 300 392-2 [1] under the given subclause.							

c2001: IF A.28/1 -- CC supported
THEN m
ELSE n/a

A.3.3.3 LLC layer

The supplier of the implementation shall state the support of the implementation for each of the LLC features, procedures, PDUs, constants and timers presented in tables A.21 to A.27.

Table A.21: LLC features

Prerequisite: A.5/4 -- LLC				
Item	**LLC feature**	**Reference (note)**	**Status**	**Support**
1	Basic link acknowledged service	22.2.1, 22.3.2	m	
2	Basic link unacknowledged service	22.2.1, 22.3.2	m	
NOTE: The features are specified in EN 300 392-2 [1] under the given subclause(s).				

Table A.22: LLC basic link procedures for acknowledged service

Prerequisite: A.21/1 -- Acknowledged basic link				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Data reception	22.3.2.3	m	
2	Data transmission	22.3.2.1, 22.3.2.3	m	
3	FCS checking in reception	22.3.1.5, 22.3.2.3	o	
4	FCS calculation in transmission	22.3.1.5, 22.3.2.3	o	
NOTE: The procedures are specified in EN 300 392-2 [1] under the given subclause.				

Table A.23: LLC basic link procedures for unacknowledged service

Prerequisite: A.21/2 -- Unacknowledged basic link				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Data reception	22.3.2.4.2	m	
2	FCS checking in reception	22.3.1.5, 22.3.2.4.2	o	
NOTE: The procedures are specified in EN 300 392-2 [1] under the given subclause.				

Table A.24: LLC basic link PDUs for acknowledged service

Prerequisite: A.21/1 -- Acknowledged basic link							
Item	**PDU**	**Reception**			**Transmission**		
		Reference (note 1)	**Status**	**Support**	**Reference (note 1)**	**Status**	**Support**
1	BL-ACK without FCS	21.2.2.1	m		21.2.2.1	m	
2	BL-ADATA without FCS	21.2.2.2	m		21.2.2.2	m	
3	BL-DATA without FCS	21.2.2.3	m		21.2.2.3	m	
4	BL-ACK with FCS	21.2.2.1	m (note 2)		21.2.2.1	c2401	
5	BL-ADATA with FCS	21.2.2.2	m (note 2)		21.2.2.2	c2401	
6	BL-DATA with FCS	21.2.2.3	m (note 2)		21.2.2.3	c2401	
NOTE 1: The PDUs are specified in EN 300 392-2 [1] under the given subclause. 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.							

c2401: IF A.22/4 -- FCS calculation in transmission in acknowledged basic link
THEN m
ELSE n/a

Table A.25: LLC basic link PDUs for unacknowledged service

Prerequisite: A.21/2 -- Unacknowledged basic link							
Item	**PDU**	**Reception**			**Transmission**		
		Reference (note 1)	**Status**	**Support**	**Reference (note 1)**	**Status**	**Support**
1	BL-UDATA without FCS	21.2.2.4	m		21.2.2.4	n	n/a
2	BL-UDATA with FCS	21.2.2.4	m (note 2)		21.2.2.4	n	n/a
NOTE 1: The PDUs are specified in EN 300 392-2 [1] under the given subclause. 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.							

Table A.26: LLC constants for basic link

Prerequisite: A.21/1 -- Acknowledged basic link						
Item	**Constant**	**Reference (note 1)**	**Status**	**Support**	**Values**	
					Allowed	**Supported**
1	N.252	A.2	m		1.. 5, 3.. 5 (note 2)	
NOTE 1: The constant is specified in EN 300 392-2 [1] under the given subclause. NOTE 2: 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.27: LLC basic link timers

Prerequisite: A.21/1 -- Acknowledged basic link						
Item	**Timer**	**Reference (note)**	**Status**	**Support**	**Values**	
					Default	**Supported**
1	T.251	A.1	m		4 signalling frames	
NOTE: The timer value is specified in EN 300 392-2 [1] under the given subclause.						

A.3.4 Layer 3

A.3.4.1 CMCE requirements

A.3.4.1.1 CMCE requirements for a non-Gateway

The supplier of the implementation shall state the support of the implementation for each of the CMCE services, features, functions, PDUs and timers presented in tables A.28 to A.40.

Table A.28: CMCE services

Prerequisite: A.5/1 -- CMCE, non-Gateway				
Item	**CMCE service**	**Reference (note)**	**Status**	**Support**
1	Call Control (CC)	11.2	o	
NOTE: The services are specified in EN 300 392-2 [1] under the given subclause.				

Table A.29: CC features

Prerequisite: A.28/1 -- CC				
Item	**CC feature**	**Reference (note)**	**Status**	**Support**
1	Individual call	14.5.1	m	
2	Group call	14.5.2	m	
NOTE: The services are specified in EN 300 392-2 [1] under the given subclause.				

Table A.30: CC Individual call signalling functions

Prerequisite: A.29/1 -- Individual call				
Item	**Signalling function**	**Reference (note)**	**Status**	**Support**
1	On/off hook signalling	14.5.1.1	o.6	
2	Direct set-up signalling	14.5.1.1	o.6	
NOTE: The features are specified in EN 300 392-2 [1] under the given subclause(s).				

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

Table A.31: CC individual call set-up functions

Prerequisite: A.29/1 -- Individual call				
Item	**Individual call set-up functions**	**Reference (note)**	**Status**	**Support**
1	Incoming call	14.5.1.1.1	m	
2	Outgoing call	14.5.1.1.2	m	
3	Colliding calls	14.5.1.1.3	m	
4	U-plane switching, End of call set-up	14.5.1.4.1	m	
NOTE: The functions are specified in EN 300 392-2 [1] under the given subclause(s).				

Table A.32: CC group call set-up functions

Prerequisite: A.29/2 -- Group call				
Item	**Group call set-up functions**	**Reference (note)**	**Status**	**Support**
1	Outgoing call	14.5.2.1.2	m	
2	Colliding calls	14.5.2.1.3	m	
3	U-plane switching, End of call set-up	14.5.2.4.1	m	
NOTE: The functions are specified in EN 300 392-2 [1] under the given subclause(s).				

Table A.33: CC individual call maintenance functions

Prerequisite: A.29/1 -- Individual call				
Item	**Individual call maintenance functions**	**Reference (note)**	**Status**	**Support**
1	Call restoration	14.5.1.2.4	m	
NOTE: The functions are specified in EN 300 392-2 [1] under the given subclause(s).				

Table A.34: CC group call maintenance functions

Prerequisite: A.29/2 -- Group call				
Item	**Group call maintenance functions**	**Reference (note)**	**Status**	**Support**
1	Call restoration	14.5.2.2.4	m	
2	Acceptance of group-addressed channel allocation	14.5.2.5	m	
NOTE: The functions are specified in EN 300 392-2 [1] under the given subclause(s).				

Table A.35: CC individual call transmission requests/grants/information functions

Prerequisite: A.29/1 -- Individual call				
Item	**Individual call transmission requests/grants/information functions**	**Reference (note)**	**Status**	**Support**
1	Request to transmit	14.5.1.2.1	m	
2	Transmission granted	14.5.1.2.1	m	
3	Transmission not granted	14.5.1.2.1	m	
4	Transmission request queued	14.5.1.2.1	m	
5	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	End of transmission	14.5.1.2.1	m	
8	Stop-transmission order	14.5.1.2.1	m	
9	U-plane switching, during call maintenance	14.5.1.4.2	m	
NOTE: The functions are specified in EN 300 392-2 [1] under the given subclause(s).				

Table A.36: CC group call transmission requests/grants/information functions

Prerequisite: A.29/2 -- Group call				
Item	**Group Call transmission requests/grants/information functions**	**Reference (note)**	**Status**	**Support**
1	Request to transmit	14.5.2.2.1	m	
2	Transmission granted	14.5.2.2.1	m	
3	Transmission not granted	14.5.2.2.1	m	
4	Transmission request queued	14.5.2.2.1	m	
5	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	End of transmission	14.5.2.2.1	m	
8	Stop-transmission order	14.5.2.2.1	m	
9	U-plane switching, during call maintenance	14.5.2.4.2	m	
NOTE: The functions are specified in EN 300 392-2 [1] under the given subclause(s).				

Table A.37: CC individual call clearance functions

Prerequisite: A.29/1 -- Individual call				
Item	**Individual call clearance functions**	**Reference (note)**	**Status**	**Support**
1	User initiated disconnection	14.5.1.3.1	o	
2	Reception of release request	14.5.1.3.3	m	
3	Reception of disconnection request	14.5.1.3.3	m	
4	Expiry of timers	14.5.1.3.4	m	
5	U-plane switching	14.5.1.4	m	
NOTE: The functions are specified in EN 300 392-2 [1] under the given subclause(s).				

Table A.38: CC group call clearance functions

Prerequisite: A.29/2 -- Group call				
Item	**Group call clearance functions**	**Reference (note)**	**Status**	**Support**
1	User initiated disconnection	14.5.2.3.1	n	n/a
2	Reception of disconnection request	14.5.2.3.3	m	
3	Expiry of timers	14.5.2.3.5	m	
4	U-plane switching	14.5.2.4	m	
NOTE: The functions are specified in EN 300 392-2 [1] under the given subclause(s).				

Table A.39: CC PDUs

Prerequisite: A.28/1 -- CC				
Item	**PDU (note 2)**	**Reference (note 1)**	**Status**	**Support**
1	D-ALERT	14.7.1.1	c3901	
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	c3901	
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 PDUs are specified in EN 300 392-2 [1] under the given subclause. NOTE 2: The D-PDUs are received, and the U-PDUs are transmitted by the MS.				

c3901: IF A.29/1 -- On/off hook signalling
THEN m
ELSE n/a

Table A.40: CC timers

Prerequisite: A.28/1 -- CC						
Item	**Timer**	**Reference (note)**	**Status**	**Support**	**Allowed range**	**Supported values**
1	T301	14.6	m		0..30 s	
2	T302	14.6	m		0..60 s	
3	T303	14.6	m		0..60 s	
4	T306	14.6	m		4..6 s	
5	T307	14.6	m		6..8 s	
6	T308	14.6	m		0..10 s	
7	T310	14.6	m		≥ 5 s	
8	T311	14.6	m		0..300 s	
NOTE: The timers are specified in EN 300 392-2 [1] under the given subclause(s).						

A.3.4.1.2 CMCE requirements for a Gateway

The supplier of the implementation shall state the support of the implementation for each of the CMCE services, features, functions, PDUs and timers presented in tables A.41 to A.45.

Table A.41: CMCE services for a Gateway

Prerequisite: A.5/8 -- CMCE, Gateway				
Item	**CMCE service**	**Reference (note)**	**Status**	**Support**
1	Circuit Mode Call Control	9.3	o	
2	Short Data Services	9.4	n	n/a
NOTE: The services are specified in ETS 300 396-5 [19] under the given subclause.				

Table A.42: Circuit Mode Call Control features for a Gateway

Prerequisite: A.41/1 -- Circuit Mode Call Control				
Item	**CC feature**	**Reference (note)**	**Status**	**Support**
1	Individual circuit mode call	9	o.7	
2	Group circuit mode call	9	o.7	
3	Accept incoming call from V+D	9.3.1	o.8	
4	Accept incoming call from DM-MS	9.3.2	o.8	
NOTE: The services are specified in ETS 300 396-5 [19] under the given subclause.				

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

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

Table A.43: Gateway circuit mode call control procedures

Prerequisite: A.41/1 -- Circuit mode call control for a Gateway				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Outgoing call to V+D	9.3.2.1	c4301	
2	Colliding call set-up at the V+D	9.3.2.2	c4302	
3	Transmitting U-TX CEASED by end of DM-MS call	9.3.3.1.1	c4301	
4	Reception of D-TX CEASED by end of V+D call	9.3.3.1.2	c4303	
5	Reception of D-TX INTERRUPT from V+D	9.3.3.2	c4303	
6	Permission to transmit granted to another party	9.3.3.3	m	
7	Transmitting U-TX DEMAND at request for transmission from DM-MS	9.3.3.4.1	m	
8	V+D permission to transmit withdrawn during a call	9.3.3.5	m	
9	Transmission of U-DISCONNECT on receipt of DM-RELEASE from current master	9.3.3.9.1	c4301	
10	Receipt of D-RELEASE from SwMI	9.3.3.9.2	m	
11	Transmission of U-DISCONNECT at expiry of call length timer	9.3.3.9.3	m	
12	Termination of call on receipt of preemption request from DM-MS	9.3.4.1.3	m	
13	Reception of D-TX INTERRUPT from V+D	9.3.4.2.1	c4301	
NOTE: The procedures are specified in ETS 300 396-5 [19] under the given subclause.				

c4301: IF A.42/4 -- Accept incoming call from DM-MS
THEN m
ELSE n/a

c4302: IF A.42/3 AND A.42/4 -- Accept incoming call from V+D and accept incoming call from DM-MS
THEN m
ELSE n/a

c4303: IF A.42/3 -- Accept incoming call from V+D
THEN m
ELSE n/a

Table A.44: CC PDUs for a Gateway

Prerequisite: A.41/1 -- Circuit mode call control for a Gateway				
Item	**PDU (note 2)**	**Reference (note 1)**	**Status**	**Support**
1	D-CALL-PROCEEDING	14.7.1.2	c4401	
2	D-CONNECT	14.7.1.4	c4401	
3	D-CONNECT ACKNOWLEDGE	14.7.1.5	c4402	
4	D-RELEASE	14.7.1.9	m	
5	D-SETUP	14.7.1.12	c4402	
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	c4402	
10	U-DISCONNECT	14.7.2.4	m	
11	U-SETUP	14.7.2.10	c4401	
12	U-TX-CEASED	14.7.2.11	m	
13	U-TX-DEMAND	14.7.2.12	m	
NOTE 1: The PDUs are specified in EN 300 392-2 [1] under the given subclause. NOTE 2: The D-PDUs are received, and the U-PDUs are transmitted by the Gateway.				

c4401: IF A.42/4 -- Accept incoming call from DM-MS
THEN m
ELSE n/a

c4402: IF A.42/3 -- Accept incoming call from V+D
THEN m
ELSE n/a

Table A.45: CC timers for a Gateway

Prerequisite: A.41/1 -- Circuit mode call control for a Gateway						
Item	**Timer**	**Reference (note)**	**Status**	**Support**	**Allowed range**	**Supported values**
1	T302	9.3.2.1	c4501		0..60 s	
2	T303	9.3.2.1	c4501		0..60 s	
3	T310	9.3.3.9.3	m		≥ 5 s	
NOTE: The timers are specified in ETS 300 396-5 [19] under the given subclause(s).						

c4501: IF A.42/4 -- Accept incoming call from DM-MS
THEN m
ELSE n/a

A.3.4.2 MM requirements

A.3.4.2.1 MM requirements for a non-Gateway

The supplier of the implementation shall state the support of the implementation for each of the MM features, procedures, and PDUs presented in tables A.46 to A.51.

Table A.46: MM features

Prerequisite: A.5/2 -- MM, non-Gateway				
Item	**MM feature**	**Reference (note)**	**Status**	**Support**
1	Registration procedures	16.4	m	
2	Attachment/detachment of group identities procedures	16.8	o	
NOTE: The features are specified in EN 300 392-2 [1] under the given subclause(s).				

Table A.47: MM registration procedures

Prerequisite: A.46/1				
Item	**Registration procedures**	**Reference (note)**	**Status**	**Support**
1	MLE initiated registration	16.4.1	m	
2	User application initiated registration	16.4.2	o	
3	User application initiated registration procedure at power up	16.4.2	m	
4	Infrastructure initiated registration	16.4.3	m	
NOTE: The procedures are specified in EN 300 392-2 [1] under the given subclause.				

Table A.48: MLE initiated registration procedures

Prerequisite: A.47/1 -- MLE initiated registration				
Item	**MLE initiated registration procedure**	**Reference (note)**	**Status**	**Support**
1	Normal roaming registration	16.4.1.1	m	
2	Normal migration registration	16.4.1.1	n	n/a
NOTE: The procedures are specified in EN 300 392-2 [1] under the given subclause.				

Table A.49: User application initiated registration procedures

Prerequisite: A.47/2 -- User application initiated registration				
Item	**User application initiated registration procedure**	**Reference (note)**	**Status**	**Support**
1	No new ITSI registration	16.4.2	o	
2	New ITSI registration	16.4.2	m	
3	New unexchanged ITSI registration	16.4.2	n	
NOTE: The procedures are specified in EN 300 392-2 [1] under the given subclause.				

Table A.50: MM attachment/detachment of group identities procedures

Prerequisite: A.46/2 -- Attachment/detachment of group identities procedures				
Item	**Attachment/detachment of group identities procedures**	**Reference (note)**	**Status**	**Support**
1	Infrastructure initiated attachment/detachment of group identities procedure	16.8.1	o	
2	MS initiated attachment/detachment of group identities procedure	16.8.2	o	
3	Infrastructure initiated group identity report request	16.8.3	c5001	
NOTE: The procedures are specified in EN 300 392-2 [1] under the given subclause.				

c5001: IF A.50/1 -- Infrastructure initiated attachment/detachment
THEN m
ELSE n/a

Table A.51: MM PDUs

Prerequisite: A.5/2 -- MM, non-Gateway				
Item	**PDU (note 2)**	**Reference (note 1)**	**Status**	**Support**
1	D-ATTACH/DETACH GROUP IDENTITY	16.9.2.1	c5101	
2	D-ATTACH/DETACH GROUP IDENTITY ACKNOWLEDGEMENT	16.9.2.2	c5104	
3	D-MM STATUS	16.9.2.5	n	
4	D-LOCATION UPDATE ACCEPT	16.9.2.7	m	
5	D-LOCATION UPDATE COMMAND	16.9.2.8	m	
6	D-LOCATION UPDATE REJECT	16.9.2.9	m	
7	D-LOCATION UPDATE PROCEEDING	16.9.2.10	n	
8	U-ATTACH/DETACH GROUP IDENTITY	16.9.3.1	c5104	
9	U-ATTACH/DETACH GROUP IDENTITY ACKNOWLEDGEMENT	16.9.3.2	c5101	
10	U-LOCATION UPDATE DEMAND	16.9.3.4	m	
NOTE 1: The PDUs are specified in EN 300 392-2 [1] under the given subclause. NOTE 2: The D-PDUs are received, and the U-PDUs are transmitted by the MS.				

c5101: IF A.50/1 -- Infrastructure initiated attachment/detachment of group identities
THEN m
ELSE n/a

c5104: IF A.50/2 -- Mobile initiated attachment/detachment of group identities
THEN m
ELSE n/a

A.3.4.2.2 MM requirements for a Gateway

The supplier of the implementation shall state the support of the implementation for each of the MM features, procedures, and PDUs presented in tables A.52 and A.53.

Table A.52: MM registration procedures for a Gateway

Prerequisite: A.5/9 -- MM, Gateway					
Item	**Registration procedures**	**Reference EN 300 392-2 [1]**	**Reference ETS 300 396-5 [19]**	**Status**	**Support**
1	Normal roaming registration	16.4.1.1	10.3.1	m	

Table A.53: MM PDUs for a Gateway

Prerequisite: A.5/9 -- MM, Gateway				
Item	**PDU (note 2)**	**Reference (note 1)**	**Status**	**Support**
1	D-MM STATUS	16.9.2.5	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	o	
NOTE 1: The PDUs are specified in EN 300 392-2 [1] under the given subclause. NOTE 2: The D-PDUs are received, and the U-PDUs are transmitted by the Gateway.				

A.3.4.3 MLE requirements

The supplier of the implementation shall state the support of the implementation for each of the MLE features, procedures, and timers presented in tables A.54 to A.57.

Table A.54: MLE features

Prerequisite: A.5/3 -- MLE				
Item	**MLE Feature**	**Reference (note)**	**Status**	**Support**
1	Initial cell selection	18.3.4.6	m	
2	Cell re-selection	18.3.4.7	m	
3	Neighbour cell enquiry	18.3.6.5	o	
NOTE: The features are specified in EN 300 392-2 [1] under the given subclause.				

Table A.55: MLE cell re-selection procedures

Prerequisite: A.54/2 -- Cell re-selection				
Item	**MLE procedure**	**Reference (note)**	**Status**	**Support**
1	Undeclared cell re-selection	18.3.4.7.2	m	
2	Unannounced cell re-selection	18.3.4.7.3	m	
3	Announced type 3 cell re-selection	18.3.4.7.4	m	
NOTE: The procedures are specified in EN 300 392-2 [1] under the given subclause.				

Table A.56: MLE PDUs

Prerequisite: A.5/3 -- MLE							
Item	**PDU**	**Reception**			**Transmission**		
		Reference (note)	**Status**	**Support**	**Reference (note)**	**Status**	**Support**
1	MLE service user PDU	18.4.1.3	m		18.4.1.3	m	
2	D-NWRK-BROADCAST	18.4.1.4.1	m		n/a	n/a	n/a
3	D-NEW-CELL	18.4.1.4.2	m		n/a	n/a	n/a
4	D-PREPARE-FAIL	18.4.1.4.3	c5601		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 [1] under the given subclause.							

c5601: IF (A.54/3) -- Neighbour cell enquiry
THEN m
ELSE n/a

Table A.57: MLE timers

Prerequisite: A.5/3 -- MLE						
Item	**Timer**	**Reference (note)**	**Status**	**Support**	**Values**	
					Allowed	**Supported**
1	T.370	18.6.2	m		5 s	
NOTE: The timer value is specified in EN 300 392-2 [1] under the given subclause.						

A.3.5 Security

The supplier of the implementation shall state the support of the implementation for each of the security features presented in tables A..58 to A.59.

Table A.58: V+D Security class supported

Prerequisite: A.5/7 -- Security				
Item	**Security class**	**Reference (note)**	**Status**	**Support**
1	Class 1	6.1.1	o.9	
2	Class 2	6.1.1	o.9	
3	Class 3	6.1.1	o.9	
NOTE: The features are specified in EN 300 392-7 [2] under the given subclause.				

o.9 It is mandatory to support at least one of these items

Table A.59: Security features

Prerequisite: A.5/7 -- Security				
Item	**Security feature**	**Reference (note)**	**Status**	**Support**
1	Authentication	4.1, 4.4.1, 4.4.2	c5901	
2	OTAR protocol functions	4.2, 4.4.3, 4.4.4, 4.4.5	c5901	
3	Secure enable/disable	5	m	
4	Air interface encryption	6	c5902	
5	Encrypted Short Identity	4.2.5	c5902	
NOTE: The features are specified in EN 300 392-7 [2] under the given subclause.				

c5901: IF A..58/3 -- Security class 3
THEN m
ELSE o

c5902: IF (A..58/2 or A..58/3) -- Security class 2 or Security class 3
THEN m
ELSE n/a

A.3.5.1 Authentication

The supplier of the implementation shall state the support of the implementation for each of the authentication types, procedures and PDUs presented in tables A.60 to A.62.

Table A.60: Authentication types

Prerequisite: A.59/1 -- Authentication				
Item	**Authentication procedures**	**Reference (note)**	**Status**	**Support**
1	Infrastructure initiated authentication	4.1.2	c6001	
2	Terminal initiated authentication	4.1.3	c6002	
3	Infrastructure initiated authentication made mutual by terminal	4.1.4	c6003	
4	Terminal initiated authentication made mutual by infrastructure	4.1.4	c6004	
NOTE: The procedures are specified in EN 300 392-7 [2] under the given subclause.				

o.10 It is mandatory to support at least one of these items

c6001: IF A..58/3 -- Security class 3
THEN m
ELSE o.10

c6002: IF A..58/3 -- Security class 3
THEN o
ELSE o.10

c6003: IF A.60/1 -- Infrastructure initiated authentication
THEN m
ELSE n/a

c6004: IF A.60/2 -- Terminal initiated authentication
THEN m
ELSE n/a

Table A.61: Authentication procedures

Prerequisite: A.59/1 -- Authentication				
Item	**Authentication procedures**	**Reference (note)**	**Status**	**Support**
1	Infrastructure initiated authentication	4.4.2.1	c6101	
2	Terminal initiated authentication	4.4.2.2	c6102	
3	Infrastructure initiated authentication made mutual by terminal	4.4.2.3	c6101	
4	Terminal initiated authentication made mutual by infrastructure	4.4.2.4	c6102	
5	Infrastructure initiated authentication during registration	4.4.2.5	c6101	
6	Terminal initiated authentication during registration	4.4.2.6	c6102	
7	Authentication initiated by terminal during registration and made mutual by the infrastructure	4.4.2.7	c6102	
8	Authentication initiated by infrastructure during registration and made mutual by the terminal	4.4.2.8	c6101	
NOTE: The procedures are specified in EN 300 392-7 [2] under the given subclause.				

c6101: IF A.60/1 -- Infrastructure initiated authentication
THEN m
ELSE n/a

c6102: IF A.60/2 -- Terminal initiated authentication
THEN m
ELSE n/a

Table A.62: PDUs for authentication

Prerequisite: A.59/1 -- Authentication				
Item	**PDU**	**Reference (note)**	**Status**	**Support**
1	D-AUTHENTICATION DEMAND	4.4.7.1	c6201	
2	D-AUTHENTICATION REJECT	4.4.7.2	c6202	
3	D-AUTHENTICATION RESPONSE	4.4.7.3	c6202	
4	D-AUTHENTICATION RESULT	4.4.7.4	m	
5	U-AUTHENTICATION DEMAND	4.4.7.9	c6202	
6	U-AUTHENTICATION REJECT	4.4.7.10	c6201	
7	U-AUTHENTICATION RESPONSE	4.4.7.11	c6201	
8	U-AUTHENTICATION RESULT	4.4.7.12	m	
9	U-TEI PROVIDE PDU	4.4.7.20	m	
NOTE: The PDUs are specified in EN 300 392-7 [2] under the given subclause.				

c6201: IF A.60/1 -- Infrastructure initiated authentication
THEN m
ELSE n/a

c6202: IF A.60/2 -- Terminal initiated authentication
THEN m
ELSE n/a

A.3.5.2 OTAR protocol functions

The supplier of the implementation shall state the support of the implementation for each of the OTAR procedures and PDUs presented in tables A.63 and A.64.

Table A.63: OTAR procedures

Prerequisite: A.59/2 -- OTAR				
Item	**OTAR procedure**	**Reference (note)**	**Status**	**Support**
1	CCK delivery	4.4.3, 4.4.3.1, 4.4.3.2	c6301	
2	OTAR GCK	4.4.5, 4.4.5.1, 4.4.5.2	c6302	
3	OTAR SCK	4.4.4, 4.4.4.1, 4.4.4.2	c6303	
4	Key change protocol	4.4.6	m	
NOTE: The procedures are specified in EN 300 392-7 [2] under the given subclause.				

c6301: IF A..58/3 -- Security Class 3
THEN m
ELSE n/a

c6302: IF A..58/3 -- Security Class 3
THEN o
ELSE n/a

c6303: IF A..58/2 -- Security Class 2
THEN o
ELSE n/a

Table A.64: OTAR PDUs

Prerequisite: A.59/2 -- OTAR				
Item	**OTAR PDU**	**Reference (note)**	**Status**	**Support**
1	D-CK-CHANGE DEMAND	4.4.7.5	m	
2	D-OTAR CCK Provide	4.4.7.6	c6401	
3	D-OTAR GCK Provide	4.4.7.7	c6402	
4	D-OTAR SCK Provide	4.4.7.8	c6403	
5	U-CK CHANGE RESULT	4.4.7.13	m	
6	U-OTAR CCK Demand	4.4.7.14	c6401	
7	U-OTAR CCK Result	4.4.7.15	c6401	
8	U-OTAR GCK Demand	4.4.7.16	c6402	
9	U-OTAR GCK Result	4.4.7.17	c6402	
10	U-OTAR SCK Demand	4.4.7.18	c6403	
11	U-OTAR SCK Result	4.4.7.19	c6403	
NOTE: The PDUs are specified in EN 300 392-7 [2] under the given subclause.				

c6401: IF A.63/1 -- CCK delivery
THEN m
ELSE n/a

c6402: IF A.63/2 -- OTAR GCK
THEN m
ELSE n/a

c6403: IF A.63/3 -- OTAR SCK
THEN m
ELSE n/a

A.3.5.3 Secure enable/disable

The supplier of the implementation shall state the support of the implementation for each of the secure enable/disable procedures and PDUs presented in tables A.66 and A.67.

Table A.65: Secure enable/disable types

Prerequisite: A.59/3 -- Secure enable/disable				
Item	**Secure enable/disable procedure**	**Reference (note)**	**Status**	**Support**
1	Disable ITSI temporarily	5.3.2	m	
2	Disable ITSI permanently	5.3.2	c6501	
3	Enable ITSI	5.3.5	m	
4	Disable TEI temporarily	5.3.1	m	
5	Disable TEI permanently	5.3.1	c6501	
6	Enable TEI	5.3.4	m	
NOTE: The procedures are specified in EN 300 392-7 [2] under the given subclause.				

c6501: IF A.60/1 -- Infrastructure initiated authentication
THEN m
ELSE o

Table A.66: Secure enable/disable procedures

Prerequisite: A.59/3 -- Secure enable/disable				
Item	**Secure enable/disable procedure**	**Reference (note)**	**Status**	**Support**
1	Permanent disabling of an MS using authentication.	5.4.3.1	c6601	
2	Temporary disabling of an MS using authentication.	5.4.3.1	c6601	
3	Temporary disabling of an MS without authentication.	5.4.5	c6602	
4	Enabling an MS using authentication.	5.4.3.2	c6601	
5	Enabling an MS without authentication.	5.4.4	c6602	
NOTE: The procedures are specified in EN 300 392-7 [2] under the given subclause.				

c6601: IF A.60/1 -- Infrastructure initiated authentication
THEN m
ELSE n/a

c6602: IF A.60/1 -- Infrastructure initiated authentication
THEN o
ELSE m

Table A.67: Secure enable/disable PDUs

Prerequisite: A.59/3 -- Secure enable/disable				
Item	**PDU**	**Reference (note)**	**Status**	**Support**
1	D-DISABLE	5.4.8.1	m	
2	D-ENABLE	5.4.8.2	m	
3	U-DISABLE STATUS	5.4.8.3	m	
NOTE: The PDUs are specified in EN 300 392-7 [2] under the given subclause.				

A.3.5.4 AI encryption procedures

The supplier of the implementation shall state the support of the implementation for each of the AI encryption procedures presented in table A.68.

Table A.68: AI encryption procedures

Prerequisite: A.59/4 -- AI encryption				
Item	**AI encryption procedure**	**Reference (note)**	**Status**	**Support**
1	DCK AI encryption	6.4	c6801	
2	SCK AI encryption	6.4	c6802	
3	CCK AI encryption	6.4	c6801	
4	MGCK AI encryption	6.4	c6803	
NOTE: The procedures are specified in EN 300 392-7 [2] under the given subclause.				

c6801: IF A..58/3 -- Security class 3
THEN m
ELSE n/a

c6802: IF A..58/2 -- Security class 2
THEN o
ELSE n/a

c6803: IF A..58/3 -- Security class 3
THEN o
ELSE n/a

A.4 Requirements tables for Ud air interface

The requirements in this clause apply to TETRA systems implementing the Ud interface.

A.4.1 General for DMO equipment

The supplier of the implementation shall state the support of the implementation for each of the types of equipment presented in tables A.69 and A.70.

Table A.69: DMO type of equipment

Prerequisite: A.1/2 -- Ud				
Item	**Type of equipment**	**Reference**	**Status**	**Support**
1	DMO capable Mobile Station (DM-MS)	ETS 300 396-3 [17]	o.11	
2	Direct Mode REPeater (DM-REP) Type 1	EN 300 396-4 [18]	o.11	
3	Direct Mode REPeater (DM-REP) Type 2	EN 300 396-7 [21]	o.11	
4	Direct Mode GATEway (DM-GATE)	ETS 300 396-5 [19]	o.11	

o.11 It is mandatory to support at least one of these items

Table A.70: Environmental profile

Prerequisite: A.1/2 -- Ud				
Item	**Requirement**	**Reference (note)**	**Status**	**Supported value**
1	Lowest intended operational temperature	4.1	m	
2	Highest intended operational temperature	4.1	m	
NOTE: The requirements are specified in the present document under the given subclause.				

A.4.2 DMO capable Mobile Station (DM-MS)

A.4.2.1 General for DMO capable Mobile Station

The supplier of the implementation shall state the support of the implementation for each of the DMO Mobile Station modes of operation, capabilities, services, priorities, and data types presented in tables A.71 to A.78.

Table A.71: DMO Mobile Station mode of operation

Prerequisite: A.69/1 -- DMO capable Mobile Station (DM-MS)				
Item	**Mode of operation**	**Reference**	**Status**	**Support**
1	DMO Mobile Station to Mobile Station (MS-MS) operation	ETS 300 396-3 [17]	m	
2	Operation with DMO Type 1 Repeater (MS-REP1)	EN 300 396-4 [18]	o	
3	Operation with DMO Gateway (MS-GW)	ETS 300 396-5 [19]	o	
4	Operation with DMO Type 2 Repeater (MS-REP2)	EN 300 396-7 [21]	o	

Table A.72: General MS to MS protocol capabilities

Prerequisite: A.71/1 -- MS to MS operation				
Item	**Capability name**	**Reference (note)**	**Status**	**Support**
1	Direct Mode Call Control (DMCC)	6	m	
2	Upper Medium Access Control (Upper MAC)	8	m	
3	Managed DMO (M-DMO)	TS 100 396-10 [26]	m	
4	Lower Medium Access Control (Lower MAC)	8	m	
5	Radio Layer	ETS 300 396-2 [16]	m	
6	Security	ETS 300 396-6 [20]	m	
NOTE: The capabilities are specified in ETS 300 396-3 [17] under the given clause(s), unless otherwise stated.				

Table A.73: DMO MS to MS services

Prerequisite: A.71/1 -- MS to MS operation				
Item	**DMCC service**	**Reference (note)**	**Status**	**Support**
1	Circuit mode call	6.2	o.12	
2	Short Data Service (SDS)	6.3	c7301	
NOTE: The services are specified in ETS 300 396-3 [17] under the given subclause.				

o.12 It is mandatory to support at least one of these items

c7301: IF A.125/2 OR A.125/3 -- OTAR or Secure Enable/Disable feature
THEN m
ELSE o.12

Table A.74: Call priorities

Prerequisite: A.71/1 -- MS to MS operation				
Item	**Call priority**	**Reference (note)**	**Status**	**Support**
1	Normal priority call	5.4	m	
2	High priority call	5.4	o	
3	Pre-emptive priority call	5.4	o	
4	Emergency pre-emptive priority call	5.4	o	
5	Recent user priority service	5.4	o	
NOTE: The call priorities are specified in ETS 300 396-3 [17] under the given subclause.				

Table A.75: Circuit mode services

Prerequisite: A.73/1 -- Circuit mode call				
Item	**Circuit mode service**	**Reference (note)**	**Status**	**Support**
1	Individual circuit mode call	6.2	o.13	
2	Group circuit mode call	6.2	o.13	
3	Outgoing call set-up	6.2	o.14	
4	Incoming call set-up	6.2	o.14	
5	Call set-up with presence check	6.2	c7501	
6	Call set-up without presence check	6.2	c7502	
NOTE: The services are specified in ETS 300 396-3 [17] under the given subclause.				

o.13 It is mandatory to support at least one of these items

o.14 It is mandatory to support at least one of these items

o.15 It is mandatory to support at least one of these items

c7501: IF A.75/1 -- Individual circuit mode call capability
THEN o.15
ELSE n/a

c7502: IF A.75/2 -- Group circuit mode call capability
THEN m
ELSE o.15

Table A.76: DMCC short data service call capabilities

Prerequisite: A.73/2 -- Short data service				
Item	**Call capability**	**Reference (note)**	**Status**	**Support**
1	Group address SDS capability	6.3	o.16	
2	Individual address SDS capability	6.3	c7601	
3	Sending short data	6.3.1	c7602	
4	Receiving short data	6.3.2	c7602	
5	Unacknowledged short data service	6.3	c7603	
6	Acknowledged short data service not including data in Acknowledgement	6.3	c7604	
7	Acknowledged short data service including data in Acknowledgement	6.3	c7605	
8	Include FCS in transmission	6.3	c7606	
NOTE: The capabilities are specified in ETS 300 396-3 [17] under the given subclause.				

o.16 It is mandatory to support at least one of these items

o.17 It is mandatory to support at least one of these items

o.18 It is mandatory to support at least one of these items

c7601: IF A.125/2 OR A.125/3 -- OTAR or Secure Enable/Disable feature
THEN m
ELSE o.16

c7602: IF A.125/2 OR A.125/3 -- OTAR or Secure Enable/Disable feature
THEN m
ELSE o.17

c7603: IF A.76/1 -- Group address SDS capability
THEN m
ELSE o

c7604: IF A.125/2 -- OTAR feature
THEN m
ELSE o.18

c7605: IF A.125/2 OR A.125/3 -- OTAR or Secure Enable/Disable feature
THEN m
ELSE o.18

c7606: IF A.76/3 -- Sending short data
THEN o
ELSE n/a

Table A.77: Short data message types

Prerequisite: A.73/2 -- Short Data Service (SDS)				
Item	**Message types**	**Reference (note)**	**Status**	**Support**
1	Pre-defined short data messages	6.3	o	
2	User-defined short data messages	6.3	o	
3	Over The Air Re-keying (OTAR)	6.3	c7701	
4	Enable/disable	6.3	c7702	
NOTE: The data message types are specified in ETS 300 396-3 [17] under the given subclause.				

c7701: IF A.125/2 -- OTAR feature
THEN m
ELSE n/a

c7702: A.125/3 -- Secure Enable/Disable feature
THEN m
ELSE n/a

Table A.78: SDS user defined data

Prerequisite: A.77/2 -- User defined short data				
Item	**SDS user defined data types**	**Reference (note)**	**Status**	**Support**
1	User defined data 1 (16 bits)	5.4	o.19	
2	User defined data 2 (32 bits)	5.4	o.19	
3	User defined data 3 (64 bits)	5.4	o.19	
4	User defined data 4 (up to 2047 bits)	5.4	o.19	
NOTE: The user defined data types are specified in ETS 300 396-3 [17] under the given subclause.				

o.19 It is mandatory to support at least one of these items

A.4.2.1.1 General for Mobile Station operation with DMO Type 1 Repeater (MS-REP1)

The supplier of the implementation shall state the support of the implementation for each of the DMO Mobile Station capabilities and services presented in tables A.79 to A.82.

Table A.79: Protocol capabilities for operation with DMO Type 1 Repeater (MS-REP1)

Prerequisite: A.71/2 -- Operation with DMO Type 1 Repeater (MS-REP1)				
Item	**Capability name**	**Reference (note)**	**Status**	**Support**
1	Direct Mode Call Control (DMCC)	6.1	m	
2	Upper Medium Access Control (Upper MAC)	8	m	
NOTE: The capabilities are specified in EN 300 396-4 [18] under the given subclause.				

Table A.80: DMO MS to REP1 services

Prerequisite: A.71/2 -- Operation with DMO Type 1 Repeater (MS-REP1)				
Item	**DMCC service**	**Reference (note)**	**Status**	**Support**
1	Circuit mode call	6.2	o.20	
2	Short Data Service (SDS)	6.3	o.20	
NOTE: The services are specified in EN 300 396-4 [18] under the given subclause.				

o.20 It is mandatory to support at least one of these items

Table A.81: DMO MS to REP1 Circuit call capabilities

Prerequisite: A.80/1 -- Circuit mode call				
Item	**Circuit mode call capabilities**	**Reference (note)**	**Status**	**Support**
1	Individual circuit mode call	6.2	o.21	
2	Group circuit mode call	6.2	o.21	
3	Outgoing call set-up through Repeater type 1	6.2	o.22	
4	Incoming call set-up from Repeater type 1	6.2	o.22	
5	Call pre-emption capability	6.2.4.1	c8101	
NOTE: The services are specified in EN 300 396-4 [18] under the given subclause.				

o.21 It is mandatory to support at least one of these items

o.22 It is mandatory to support at least one of these items

c8101: IF A.81/3 AND A.81/4 AND (A.74/3 OR A.74/4) THEN o
ELSE n/a -- Outgoing call set-up capability and incoming call set-up capability and pre-emptive or emergency pre-emptive call capability

Table A.82: DMCC short data service capabilities

Prerequisite: A.80/2 -- Short Data Service (SDS)				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Sending unacknowledged short data	6.3.1.1.1	o	
2	Sending acknowledged short data	6.3.1.1.2	o	
NOTE: The procedures are specified in EN 300 396-4 [18] under the given subclause.				

A.4.2.1.2 General for Mobile Station operation with DMO Type 2 Repeater (MS-REP2)

The supplier of the implementation shall state the support of the implementation for each of the DMO Mobile Station capabilities and services presented in tables A.83 to A.86.

Table A.83: Protocol capabilities for operation with DMO Type 2 Repeater (MS-REP2)

Prerequisite: A.71/4 -- Operation with DMO Type 2 Repeater (MS-REP2)				
Item	**Capability name**	**Reference (note)**	**Status**	**Support**
1	Direct Mode Call Control (DMCC)	6.1	m	
2	Upper Medium Access Control (Upper MAC)	8	m	
NOTE: The capabilities are specified in EN 300 396-7 [21] under the given subclause.				

Table A.84: DMO MS to REP2 services

Prerequisite: A.71/4 -- Operation with DMO Type 2 Repeater (MS-REP2)				
Item	**DMCC service**	**Reference (note)**	**Status**	**Support**
1	Circuit mode call	6.2	o.23	
2	Short Data Service (SDS)	6.3	o.23	
NOTE: The services are specified in EN 300 396-7 [21] under the given subclause.				

o.23 It is mandatory to support at least one of these items

Table A.85: DMO MS to REP2 Circuit call capabilities

Prerequisite: A. 84/1 -- Circuit mode call				
Item	**Circuit mode call capabilities**	**Reference (note)**	**Status**	**Support**
1	Individual circuit mode call	6.2	o.24	
2	Group circuit mode call	6.2	o.24	
3	Outgoing call set-up through Repeater type 2	6.2	o.25	
4	Incoming call set-up from Repeater type 2	6.2	o.25	
5	Call pre-emption capability	6.2.4.1	c8501	
NOTE: The services are specified in EN 300 396-7 [21] under the given subclause.				

o.24 It is mandatory to support at least one of these items

o.25 It is mandatory to support at least one of these items

c8501: IF A.85/3 AND A.85/4 AND (A.74/3 OR A.74/4) THEN o ELSE n/a -- Outgoing call set-up capability and incoming call set-up capability and pre-emptive or emergency pre-emptive call capability

Table A.86: DMCC short data service capabilities

Prerequisite: A.84/2 -- Short Data Service (SDS)				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Sending unacknowledged short data	6.3.1.1.1	o	
2	Sending acknowledged short data	6.3.1.1.2	o	
NOTE: The procedures are specified in EN 300 396-7 [21] under the given subclause.				

A.4.2.1.3 General for Mobile Station operation with DMO Gateway (MS-GW)

The supplier of the implementation shall state the support of the implementation for each of the DMO Mobile Station capabilities and services presented in tables A.87 to A.89.

Table A.87: Protocol capabilities for operation with DMO Gateway (MS-GW)

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)				
Item	**Capability name**	**Reference (note)**	**Status**	**Support**
1	Direct Mode Call Control (DMCC)	6.1	m	
2	Direct Mode Mobility Management (DMMM)	6.1	c8701	
3	Upper Medium Access Control (Upper MAC)	8	m	
NOTE: The capabilities are specified in ETS 300 396-5 [19] under the given subclause.				

c8701: IF A.89/3 THEN m ELSE n/a -- Outgoing call set-up through Gateway

Table A.88: DMO MS to GW services

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)				
Item	**DMCC service**	**Reference (note)**	**Status**	**Support**
1	Circuit mode call	6.2	o	
2	Short Data Service (SDS)	6.3	n	n/a
NOTE: The services are specified in ETS 300 396-5 [19] under the given subclause.				

Table A.89: DMO MS to GW Circuit call capabilities

Prerequisite: A.88/1 -- Circuit mode call				
Item	**Circuit mode call capabilities**	**Reference (note)**	**Status**	**Support**
1	Individual circuit mode call	6.2	o.26	
2	Group circuit mode call	6.2	o.26	
3	Outgoing call set-up through Gateway	6.2	o.27	
4	Incoming call set-up from Gateway	6.2	o.27	
NOTE: The services are specified in ETS 300 396-5 [19] under the given subclause.				

o.26: It is mandatory to support at least one of these items

o.27: It is mandatory to support at least one of these items

A.4.2.2 Physical layer

The supplier of the implementation shall state the support of the implementation for each of the physical layer capabilities, requirements and parameters presented in tables A.90 to A.93.

Table A.90: General Layer 1 capabilities

Prerequisite: A.72/5 -- DMO MS Radio layer				
Item	**Capability or feature name**	**Reference**	**Status**	**Support**
1	Protected circuit mode data	6.6.2	o	
2	Switchable DMO power classes	6.4.1	o	
NOTE: The requirements are specified in ETS 300 396-2 [16] under the given subclause.				

Table A.91: Physical layer requirements

Prerequisite: A.72/5 -- DMO MS Radio layer				
Item	**Requirement**	**Reference (note)**	**Status**	**Support**
1	Modulation type	5.2	m	
2	Frequency bands and channel allocation	6.2	m	
3	Unwanted conducted emission over the useful part of the burst	6.4.3.2.1	m	
4	Unwanted conducted emission during the switching transients	6.4.3.2.2	m	
5	Unwanted conducted discrete spurious emission far from the carrier	6.4.3.3.1	m	
6	Unwanted conducted wideband noise emission far from the carrier	6.4.3.3.2	m	
7	Unwanted conducted emission during LCH	6.4.3.4	m	
8	Unwanted conducted emission in the non-transmit state	6.4.3.5	m	
9	Unwanted radiated emissions	6.4.4	m	
10	RF output power time mask	6.4.6	m	
11	RF output power in non-active transmit state	6.4.6	m	
12	Transmitter intermodulation attenuation	6.4.7.2	m	
13	Blocking characteristics	6.5.1.2	m	
14	Spurious response rejection	6.5.2.2	m	
15	Intermodulation response rejection	6.5.3.2	m	
16	Unwanted conducted emission in reception	6.5.4.2	m	
17	Unwanted radiated emission	6.5.5	m	
18	Modulation accuracy	6.6.1.2	m	
19	Nominal error rate	6.6.2.1	m	
20	Dynamic reference sensitivity performance	6.6.2.2	m	
21	Reference interference performance	6.6.2.3	m	
22	Static reference sensitivity performance	6.6.2.4	m	
23	MS receiver performance for synchronization burst acquisition	6.6.2.5	m	
24	DM-MS synchronization requirement	7.2	m	
25	Relationship between counters	7.3.2	m	
26	RF frequency accuracy	7.4	m	
27	Requirement for synchronization of a slave MS	7.5	m	
28	Mapping of logical channels	9.4.5	m	
NOTE: The requirements are specified in ETS 300 396-2 [16] under the given subclause.				

Table A.92: Output power and power class requirements and parameters

Prerequisite: A.72/5 -- DMO MS Radio layer						
Item	**Requirement and parameter**	**Reference (note)**	**Status**	**Support**	**Allowed values**	**Supported values**
1	Output power and power class	6.4.2	m		[2..5, 2L..5L]	
NOTE: The parameters are specified in ETS 300 396-2 [16] under the given subclause.						

Table A.93: RF carrier frequency bands

Prerequisite: A.72/5 -- DMO MS Radio layer					
Item	**Allowed frequency range (MHz)**	**Reference**	**Status**	**Support**	**Supported frequency range (MHz)**
1	410 to 430	ERC/DEC/(96)04 [44]	o.28		
2	870 to 876	ERC/DEC/(96)04 [44]	o.28		
3	915 to 921	ERC/DEC/(96)04 [44]	o.28		
4	450 to 470	ERC/DEC/(96)04 [44]	o.28		
5	385 to 390	ERC/DEC/(96)04 [44]	o.28		
6	395 to 399.99	ERC/DEC/(96)04 [44]	o.28		

o.28 The supported frequency range(s) shall be within one or more of the specified frequency bands.

A.4.2.2.1 Layer 1 for operation with DMO Type 1 Repeater (MS-REP1)

Table A.94: Physical layer requirements for operation with DMO Type 1 Repeater (MS-REP1)

Prerequisite: A.71/2 -- Operation with DMO Type 1 Repeater (MS-REP1)				
Item	**Requirement**	**Reference (note)**	**Status**	**Support**
1	Usage of DM channel with DM-REP1	8.4	m	
2	DM channel arrangements	8.4.1.1	m	
NOTE: The requirements are specified in EN 300 396-4 [18] under the given subclause.				

A.4.2.2.2 Layer 1 for operation with DMO Type 2 Repeater (MS-REP2)

Table A.95: Physical layer requirements for operation with DMO Type 2 Repeater (MS-REP2)

Prerequisite: A.71/4 -- Operation with DMO Type 2 Repeater (MS-REP2)				
Item	**Requirement**	**Reference (note)**	**Status**	**Support**
1	Usage of DM channel with DM-REP2	8.4	m	
2	DM channel arrangements	8.4.1.1	m	
3	Frequency bands and channel arrangements	11.3.2	m	
4	General requirements for synchronization of DM-MSs	11.4.2	m	
5	Synchronization requirements for a master MS operating on channel B	11.4.6	m	
NOTE: The requirements are specified in EN 300 396-7 [21] under the given subclause.				

A.4.2.2.3 Layer 1 for operation with DMO Gateway (MS-GW)

Table A.96: Physical layer requirements for operation with DMO Gateway (MS-GW)

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)				
Item	**Requirement**	**Reference (note)**	**Status**	**Support**
1	Frequency bands and channel arrangements	15.3.2	m	
2	DM-MS synchronization requirement.	15.4.2	m	
3	Requirement for synchronization of a slave DM mobile	15.4.5	m	
NOTE: The requirements are specified in ETS 300 396-5 [19] under the given subclause.				

A.4.2.3 Layer 2

A.4.2.3.1 Lower MAC layer

The supplier of the implementation shall state the support of the implementation for each of the error control schemes presented in table A.97.

Table A.97: Error control schemes of Lower DM-MAC

Prerequisite: A.72/4 -- Lower DM-MAC				
Item	**Error control scheme**	**Reference (note)**	**Status**	**Support**
1	Error control scheme for Synchronization Signalling CHannel (SCH/S).	8.3.1.1	m	
2	Error control scheme for Half-slot Signalling CHannel (SCH/H) and Stealing CHannel (STCH).	8.3.1.2	m	
3	Error control scheme for Full-slot Signalling Channel (SCH/F).	8.3.1.3	m	
NOTE: The error control schemes are specified in ETS 300 396-2 [16] under the given subclause.				

A.4.2.3.2 Upper MAC layer

The supplier of the implementation shall state the support of the implementation for each of the Upper MAC layer procedures, PDUs and number of frames presented in tables A.98 to A.102.

Table A.98: Managed DMO procedures

Prerequisite: A.72/3 -- Managed DMO for Mobile Station				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Authorization to transmit	4.2	c9801	
2	Withdrawal of authorization	4.4.3	c9801	
3	Authorization presence signal.	5.1	c9801	
NOTE: The procedures are specified in TS 100 396-10 [26] under the given subclause.				

c9801: IF A.75/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

Table A.99: DM channel usage procedures

Prerequisite: A.72/2 -- Upper DM-MAC for MS to MS operation				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Transmitting DM-OCCUPIED	8.4.5.1.7	c9901	
2	Transmitting DM-RESERVED	8.4.6.1	c9901	
NOTE: The procedures are specified in ETS 300 396-3 [17] under the given subclause.				

c9901: IF A.75/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

Table A.100: DM-MAC signalling procedures

Prerequisite: A.72/2 -- Upper DM-MAC for MS to MS operation				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Transmission of messages	8.5.6.1	c10001	
2	Indicating frames available for requests	8.5.7.2.1	c10002	
NOTE: The procedures are specified in ETS 300 396-3 [17] under the given subclause.				

c10001: IF A.75/3 OR A.76/3 -- Outgoing call set-up capability or sending short data
THEN m
ELSE n/a

c10002: IF A.75/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

Table A.101: DM-MAC PDUs

Prerequisite: A.72/2 -- Upper DM-MAC for MS to MS operation						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DMAC-SYNC	9.1.1	m		c10101	
2	DMAC-DATA	9.2.1	m		c10102	
3	DM-RESERVED	9.4.1	c10103		c10104	
4	DPRES-SYNC	TS 100 396-10 [26], subclause 5.3.1	m		n/a	n/a
NOTE: The PDUs are specified in ETS 300 396-3 [17] under the given subclause, unless otherwise stated.						

c10101: IF A.75/3 OR A.76/3 -- Outgoing call set-up capability or sending short data
THEN m
ELSE
IF (A.75/4 AND A.75/5) -- Incoming call set-up with presence check capability
OR A.114/3 or receiving acknowledged short data
THEN o
ELSE n/a

c10102: IF A.75/3 OR A.76/3 -- Outgoing call set-up capability or sending short data
THEN o
ELSE n/a

c10103: IF A.75/3 OR A.76/3 -- Outgoing call set-up capability or sending short data
THEN m
ELSE o

c10104: IF A.75/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

Table A.102: Number of frames transmitted by DM-MAC

Prerequisite: A.72/2 -- Upper DM-MAC for MS to MS operation						
Item	**Message type**	**Reference (note)**	**Status**	**Support**	**Values**	
					Allowed	**Supported**
1	DM-SETUP (new call setup)	A.5	c10201		2...4	
2	DM-SETUP PRES (new call setup)	A.5	c10202		2...4	
3	DM-SDS DATA (new call set-up)	A.5	c10203		2...4	
4	DM-SDS UDATA (new call set-up)	A.5	c10204		2...4	
NOTE: The constant is specified in ETS 300 396-3 [17] under the given subclause.						

c10201: IF A.113/1 -- Outgoing call set-up without presence check capability
THEN m
ELSE n/a

c10202: IF A.113/2 -- Outgoing call set-up with presence check capability
THEN m
ELSE n/a

c10203: IF A.114/1 -- Sending acknowledged short data
THEN m
ELSE n/a

c10204: IF A.114/2 -- Sending unacknowledged short data
THEN m
ELSE n/a

A.4.2.3.2.1 Upper MAC layer for operation with DMO Type 1 Repeater (MS-REP1)

The supplier of the implementation shall state the support of the implementation for each of the Upper MAC layer procedures and PDUs presented in tables A.103 to A.105.

Table A.103: MS-REP1 channel monitoring procedures

Prerequisite: A.71/2 -- Operation with DMO Type 1 Repeater (MS-REP1)				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	DM-channel monitoring during occupation	8.4.4.3	c10301	
2	DM-channel monitoring during reservation	8.4.4.4	c10301	
3	DM-channel monitoring during pre-emption signalling	8.4.4.6	c10302	
NOTE: The procedures are specified in EN 300 396-4 [18] under the given subclause.				

c10301: IF A.81/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

c10302: IF A.81/5 -- Pre-emptive call capability
THEN m
ELSE n/a

Table A.104: MS-REP1 signalling procedures

Prerequisite: A.71/2 -- Operation with DMO Type 1 Repeater (MS-REP1)				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Indication of master/slave role in synchronization burst	8.5.2.1.1	m	
2	Indicating frames available for requests	8.5.7.2.1	c10401	
NOTE: The procedures are specified in EN 300 396-4 [18] under the given subclause.				

c10401: IF A.81/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

Table A.105: MS-REP1 PDUs

Prerequisite: A.71/2 -- Operation with DMO Type 1 Repeater (MS-REP1)						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DPRES-SYNC	10.1.2	m		n/a	n/a
NOTE: The PDUs are specified in EN 300 396-4 [18] under the given subclause.						

A.4.2.3.2.2 Upper MAC layer for operation with DMO Type 2 Repeater (MS-REP2)

The supplier of the implementation shall state the support of the implementation for each of the Upper MAC layer procedures and PDUs presented in tables A.106 to A.108.

Table A.106: MS-REP2 channel monitoring procedures

Prerequisite: A.71/4 -- Operation with DMO Type 2 Repeater (MS-REP2)				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	DM-channel monitoring during occupation	8.4.4.3	c10601	
2	DM-channel monitoring during reservation	8.4.4.4	c10601	
3	DM-channel monitoring during pre-emption signalling	8.4.4.6	c10602	
NOTE: The procedures are specified in EN 300 396-7 [21] under the given subclause.				

c10601: IF A.85/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

c10602: IF A.85/5 -- Pre-emptive call capability
THEN m
ELSE n/a

Table A.107: MS-REP2 signalling procedures

Prerequisite: A.71/4 -- Operation with DMO Type 2 Repeater (MS-REP2)				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Indication of master/slave role in synchronization burst	8.5.2.1.1	m	
2	Indicating frames available for requests	8.5.7.2.1	c10701	
NOTE: The procedures are specified in EN 300 396-7 [21] under the given subclause.				

c10701: IF A.85/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

Table A.108: MS-REP2 PDUs

Prerequisite: A.71/4 -- Operation with DMO Type 2 Repeater (MS-REP2)						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DPRES-SYNC	10.1.2	m		n/a	n/a
NOTE: The PDUs are specified in EN 300 396-7 [21] under the given subclause.						

A.4.2.3.2.3 Upper MAC layer for operation with DMO Gateway (MS-GW)

The supplier of the implementation shall state the support of the implementation for each of the Upper MAC layer procedures, PDUs and number of frames presented in tables A.109 to A.112.

Table A.109: MS-GW channel usage procedures

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Transmitting DM-OCCUPIED	8.4.5.1.7	c10901	
NOTE: The procedures are specified in ETS 300 396-5 [19] under the given subclause.				

c10901: IF A.89/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

Table A.110: MS-GW signalling procedures

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Indicating frames available for requests	8.5.7.2.1	c11001	
NOTE: The procedures are specified in ETS 300 396-5 [19] under the given subclause.				

c11001: IF A.89/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

Table A.111: MS-GW PDUs

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DPRES-SYNC	14.1.2	m		n/a	n/a
NOTE: The PDUs are specified in ETS 300 396-5 [19] under the given subclause.						

Table A.112: Number of frames transmitted for MS-GW

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)						
Item	**Message type**	**Reference (note)**	**Status**	**Support**	**Values**	
					Allowed	**Supported**
1	DM-GSETUP	A.5	c11201		2...4	
2	DM-GTX REQUEST	A.5	c11201		2...4	
3	DM-GREGISTER REQUEST	A.5	c11202		2...4	
4	DM-GCANCEL ACK	A.5	c11202		1...3	
NOTE: The constant is specified in ETS 300 396-5 [19] under the given subclause.						

c11201: IF A.89/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

c11202: IF A.87/2 -- Mobility management supported
THEN m
ELSE n/a

A.4.2.4 Layer 3

A.4.2.4.1 DMCC

The supplier of the implementation shall state the support of the implementation for each of the DMCC procedures, functions, PDUs, timers and constants presented in tables A.73 to A.118.

Table A.113: Circuit mode procedures

Prerequisite: A.73/1 -- Circuit mode call				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Outgoing call set-up without presence check	6.2.1.1	c11301	
2	Outgoing call set-up with presence check	6.2.2.1	c11302	
3	Accept call pre-emption during occupation	6.2.4.1	c11303	
4	Release of radio ressource at the end of transmission	6.2.4.1	c11304	
5	Master release of ressource by user application	6.2.4.1	c11304	
6	Release of radio ressource at DT311 timeout	6.2.4.1	c11303	
7	Request for pre-emption during occupation	6.2.4.2	c11305	
8	Accept call pre-emption during reservation	6.2.5.1	c11303	
9	Accept call change-over during reservation	6.2.5.1	c11303	
10	Release of radio ressource during reservation	6.2.5.1	c11304	
11	Request for change-over during reservation	6.2.5.2	c11306	
NOTE: The procedures are specified in ETS 300 396-3 [17] under the given subclause.				

c11301: IF A.75/3 AND A.75/6 -- Outgoing call set-up without presence check capability
THEN m
ELSE n/a

c11302: IF A.75/3 AND A.75/5 -- Outgoing call set-up with presence check capability
THEN m
ELSE n/a

c11303: IF A.75/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

c11304: IF A.75/3 -- Outgoing call set-up capability
THEN o
ELSE n/a

c11305: IF A.75/3 AND A.75/4 -- Outgoing call set-up capability and incoming call set-up capability
AND (A.74/3 OR A.74/4) and pre-emptive or emergency pre-emptive call capability
THEN o
ELSE n/a

c11306: IF A.75/3 AND A.75/4 -- Outgoing call set-up capability and incoming call set-up capability
THEN o
ELSE n/a

Table A.114: DMCC short data service procedures

Prerequisite: A.73/2 -- Short Data Service (SDS)				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Sending unacknowledged short data on an available channel	6.3.1.1.1	c11401	
2	Sending acknowledged short data on an available channel	6.3.1.1.2	c11402	
3	Receiving acknowledged short data	6.3.2.2	c11403	
NOTE: The procedures are specified in ETS 300 396-3 [17] under the given subclause.				

c11401: IF A.76/3 AND A.76/5 -- Sending short data and Unacknowledged short data service
THEN o
ELSE n/a

c11402: IF A.76/3 AND -- Sending short data and
(A.76/6 OR A.76/7) -- Acknowledged short data service
THEN m
ELSE n/a

c11403: IF A.76/4 AND -- Receiving short data and
(A.76/6 OR A.76/7) -- Acknowledged short data service
THEN m
ELSE n/a

Table A.115: Short data service error protection function

Prerequisite: A.73/2 -- Short Data Service (SDS)				
Item	**Function**	**Reference (note)**	**Status**	**Support**
1	FCS checking in reception	6.3.4	c11501	
2	FCS calculation in transmission	6.3.4	c11502	
NOTE: The features are specified in ETS 300 396-3 [17] under the given subclause.				

c11501: IF A.76/4 -- Receiving short data
THEN m
ELSE n/a

c11502: IF A.76/8 -- FCS Included in transmission
THEN m
ELSE n/a

Table A.116: DMCC PDUs

Prerequisite: A.72/1 -- DMCC for MS to MS operation						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DM-SETUP	9.5.1	n	n/a	c11601	
2	DM-SETUP PRES	9.5.2	n	n/a	c11602	
3	DM-CONNECT	9.5.3	c11602		n	n/a
4	DM-DISCONNECT	9.5.4	c11602		n	n/a
5	DM-CONNECT ACK	9.5.5	n	n/a	c11602	
6	DM-OCCUPIED	9.5.6	c11604		c11603	
7	DM-RELEASE	9.5.7	n	n/a	c11603	
8	DM-TX CEASED	9.5.8	c11604		c11603	
9	DM-TX REQUEST	9.5.9	c11603		c11605	
10	DM-TX ACCEPT	9.5.10	c11605		c11603	
11	DM-PREEMPT	9.5.11	c11604		c11606	
12	DM-PRE ACCEPT	9.5.12	c11606		c11604	
13	DM-REJECT	9.5.13	c11607		c11608	
14	DM-SDS UDATA	9.5.15	n	n/a	c11609	
15	DM-SDS DATA	9.5.16	c11610		c11611	
16	DM-SDS ACK	9.5.17	c11611		c11610	
NOTE: The PDUs are specified in ETS 300 396-3 [17] under the given subclause.						

c11601: IF A.113/1 -- Outgoing call set-up without presence check capability
THEN m
ELSE n/a

c11602: IF A.113/2 -- Outgoing call set-up with presence check capability
THEN m
ELSE n/a

c11603: IF A.75/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

c11604: IF A.75/3 OR A.76/3 -- Outgoing call set-up capability or sending short data
THEN m
ELSE n/a

c11605: IF A.113/7 -- Request for pre-emption during occupation
THEN m
ELSE n/a

c11606: IF A.113/11 -- Request for change-over during reservation
THEN m
ELSE n/a

c11607: IF A.113/7 OR A.113/11 -- Request for pre-emption or request for change-over
OR A.114/2 -- or sending acknowledge short data
THEN m
ELSE n/a

c11608: IF A.75/3 OR A.114/2 -- Outgoing call set-up capability or sending acknowledge short data
THEN o
ELSE n/a

c11609: IF A.114/1 -- Sending unacknowledged short data
THEN m
ELSE n/a

c11610: IF A.114/3 -- Receiving acknowledge short data
THEN m
ELSE n/a

c11611: IF A.114/2 -- Sending acknowledge short data
THEN m
ELSE n/a

Table A.117: DMCC constants

Prerequisite: A.72/1 -- DMCC for MS to MS operation						
Item	**Constant**	**Reference (note)**	**Status**	**Support**	**Values**	
					Allowed	**Supported**
1	DN303	A.2	c11701		1...3	
2	DN314	A.2	c11702		1...6	
3	DN316	A.2	c11703		1...4	
NOTE: The constants are specified in ETS 300 396-3 [17] under the given subclause.						

c11701: IF A.113/2 -- Outgoing call set-up with presence check capability
THEN m
ELSE n/a

c11702: IF A.114/1 -- Sending unacknowledged short data
THEN m
ELSE n/a

c11703: IF A.114/2 -- Sending acknowledge short data
THEN m
ELSE n/a

Table A.118: DMCC timers

Prerequisite: A.72/1 -- DMCC for MS to MS operation						
Item	**Timer**	**Reference (note)**	**Status**	**Support**	**Values**	
					Default	**Supported**
1	DT303	A.1	c11801		250 ms	
2	DT311	A.1	c11802		300 s	
3	DT316	A.1	c11803		400 ms	
NOTE: The timer values are specified in ETS 300 396-3 [17] under the given subclause.						

c11801: IF A.113/2 -- Outgoing call set-up with presence check capability
THEN m
ELSE n/a

c11802: IF A.75/3 -- Outgoing call set-up capability
THEN m
ELSE n/a

c11803: IF A.114/2 -- Sending acknowledge short data
THEN m
ELSE n/a

A.4.2.4.1.1 DMCC for operation with DMO Gateway (MS-GW)

The supplier of the implementation shall state the support of the implementation for each of the procedures, PDUs, timers and constants presented in tables A.119 to A.122.

Table A.119: Circuit mode procedures

Prerequisite: A.88/1 -- Circuit mode call				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Outgoing call set-up through a Gateway	6.2.1.1	c11901	
2	Receipt by master MS of request for pre-emption generated by the Gateway during occupation	6.2.4.1	c11901	
3	Request for pre-emption during occupation	6.2.4.2	c11902	
4	Request for change-over during reservation	6.2.5.2	c11902	
NOTE: The procedures are specified in ETS 300 396-5 [19] under the given subclause.				

c11901: IF A.89/3 -- Outgoing call set-up through Gateway capability
THEN m
ELSE n/a

c11902: IF A.89/3 AND A.89/4 -- Outgoing call set-up through Gateway capability and incoming call set-up from Gateway capability
THEN o
ELSE n/a

Table A.120: DMCC PDUs

Prerequisite: A.88/1 -- Circuit mode call						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DM-GSETUP	14.5.1	n/a	n/a	c12001	
2	DM-GCONNECT	14.5.2	c12001		n/a	n/a
3	DM-GACK	14.5.3	c12001		n/a	n/a
4	DM-GRELEASE	14.5.4	c12001		n/a	n/a
5	DM-GTX REQUEST	14.5.5	n/a		c12002	
6	DM-GTX ACCEPT	14.5.6	c12002		n/a	n/a
7	DM-GPREEMPT	14.5.7	n/a		c12003	
8	DM-GPRE ACCEPT	14.5.8	c12003		n/a	n/a
9	DM-GREJECT	14.5.9	c12004		n/a	n/a
NOTE: The PDUs are specified in ETS 300 396-5 [19] under the given subclause.						

c12001: IF A.89/3 -- Outgoing call set-up through Gateway capability
THEN m
ELSE n/a

c12002: IF A.119/4 -- Request for change-over during reservation
THEN m
ELSE n/a

c12003: IF A.119/3 -- Request for pre-emption during occupation
THEN m
ELSE n/a

c12004: IF A.119/3 OR A.119/4 -- Request for pre-emption or request for change-over
THEN m
ELSE n/a

Table A.121: DMCC constants

Prerequisite: A.87/1 -- DMCC for MS to GW operation						
Item	**Constant**	**Reference (note)**	**Status**	**Support**	**Values**	
					Allowed	**Supported**
1	DN301	A.2	c12101		1...3	
2	DN302	A.2	c12101		1...3	
NOTE: The constants are specified in ETS 300 396-5 [19] under the given subclause.						

c12101: IF A.89/3 -- Outgoing call set-up through Gateway capability
THEN m
ELSE n/a

Table A.122: DMCC timers

Prerequisite: A.87/1 -- DMCC for MS to GW operation						
Item	**Timer**	**Reference (note)**	**Status**	**Support**	**Values**	
					Default	**Supported**
1	DT301	A.1	c12201		1 s	
2	DT302	A.1	c12201		30 s	
NOTE: The timer values are specified in ETS 300 396-5 [19] under the given subclause.						

c12201: IF A.89/3 -- Outgoing call set-up through Gateway capability
THEN m
ELSE n/a

A.4.2.4.2 DMMM

A.4.2.4.2.1 DMMM for operation with DMO Gateway (MS-GW)

The supplier of the implementation shall state the support of the implementation for each of the procedures and PDUs presented in tables A.123 and A.124.

Table A.123: Mobility management procedures

Prerequisite: A.87/2 -- Direct Mode Mobility Management (DMMM)				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Solicited registration	6.4.1	c12301	
2	Unsolicited registration	6.4.2	c12302	
3	Cancellation of registration by Gateway	6.4.3	c12301	
NOTE: The procedures are specified in ETS 300 396-5 [19] under the given subclause.				

c12301: IF A.89/3 -- Outgoing call set-up through Gateway capability
THEN m
ELSE n/a

c12302: IF A.89/3 -- Outgoing call set-up through Gateway capability
THEN o
ELSE n/a

Table A.124: DMMM PDUs

Prerequisite: A.87/2 -- Direct Mode Mobility Management (DMMM)						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DM-GREGISTER REQUEST	14.5.10	n/a	n/a	m	
2	DM-GREGISTER ACCEPT	14.5.11	m		n/a	n/a
3	DM-GREGISTER REJECT	14.5.12	m		n/a	n/a
4	DM-GREGISTER CANCEL	14.5.13	m		n/a	n/a
5	DM-GCANCEL ACK	14.5.14	n/a	n/a	m	
NOTE: The PDUs are specified in ETS 300 396-5 [19] under the given subclause.						

A.4.2.5 Security

The supplier of the implementation shall state the support of the implementation for each of the security features presented in table A.125.

Table A.125: Security features

Prerequisite: A.72/6 -- Ud security				
Item	**Security feature**	**Reference (note)**	**Status**	**Support**
1	Air interface encryption, including implicit authentication	5, 6	o	
2	Air interface key management (OTAR)	7	o	
3	Secure enable/disable	8	m	
NOTE: The features are specified in ETS 300 396-6 [20] under the given subclause.				

A.4.2.5.1 Air interface encryption

The supplier of the implementation shall state the support of the implementation for each of the procedures presented in tables A.126.

Table A.126: Air interface encryption procedures

Prerequisite: A.125/1 -- Ud Air interface encryption				
Item	**Procedures**	**Reference (note)**	**Status**	**Support**
1	Air interface encryption mechanism	6.3	c12601	
NOTE: The procedures are specified in ETS 300 396-6 [20] under the given subclause.				

c12601: IF A.125/2 -- Ud AI key management
THEN m
ELSE o

A.4.2.5.2 OTAR in DMO

The supplier of the implementation shall state the support of the implementation for each of the DMO OTAR roles and PDUs presented in tables A.127 to A.129.

Table A.127: DMO OTAR roles

Prerequisite: A.125/2 -- Ud AI key management				
Item	**DMO OTAR role**	**Reference (note)**	**Status**	**Support**
1	Key sealer	7.4	o.29	
2	Key user	7.4	o.29	
3	Key holder	7.4	o.29	
NOTE: The features are specified in ETS 300 396-6 [20] under the given subclause.				

o.29 It is mandatory to support at least one of these items

Table A.128: DMO OTAR procedures

Prerequisite: A.125/2 -- Ud AI key management				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Key transfer mechanism for transferring the key from key holder to key user	7.5.1	c12801	
2	Key transfer mechanism for transferring the key from key holder acting as a relay for key sealer to key user	7.5.2	c12802	
3	Key transfer mechanism for distributing the SCK unsolicited	7.5.3	c12803	
NOTE: The procedures are specified in ETS 300 396-6 [20] under the given subclause.				

c12801: IF A.127/3 -- Key holder
THEN m
ELSE IF A.127/2 -- Key user
THEN o
ELSE n/a

c12802: IF A.127/1 OR A.127/3 -- Key sealer or key holder
THEN m
ELSE o

c12803: IF A.127/2 -- Key user
THEN m
ELSE n

Table A.129: DMO OTAR PDUs

Prerequisite: A.125/2 -- Ud AI key management						
Item	**PDU**	**Reference**	**Reception**		**Transmission**	
		(note)	**Status**	**Support**	**Status**	**Support**
1	OTAR SCK Provide	7.6.1	c12901		c12902	
2	OTAR SCK Demand	7.6.2	c12902		c12901	
3	OTAR SCK Result	7.6.3	c12902		c12901	
NOTE: The features are specified in ETS 300 396-6 [20] under the given subclause.						

c12901: IF A.127/2 OR A.127/3 -- Key user or key holder
THEN m
ELSE o

c12902: IF A.127/1 OR A.127/3 -- Key sealer or key holder
THEN m
ELSE o

A.4.2.5.3 Secure enable/disable in DMO

The supplier of the implementation shall state the support of the implementation for each of the DMO secure enable/disable roles and PDUs presented in tables A.130 to A.132.

Table A.130: DMO secure enable/disable roles

Prerequisite: A.125/3 -- Ud enable/disable				
Item	**DMO secure enable/disable role (note 2)**	**Reference (note 1)**	**Status**	**Support**
1	Manager	8.5	n	n/a
2	Target	8.5	m	
NOTE 1: The features are specified in ETS 300 396-6 [20] under the given subclause. NOTE 2: An implementation may support more than one role.				

Table A.131: DMO secure enable/disable procedures

Prerequisite: A.130/2 -- Ud secure enable/disable target role				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Disabling of target	8.7.3.1	m	
2	Enabling of target	8.7.3.2	m	
3	TEI delivery	8.7.3.3	m	
NOTE: The procedures are specified in ETS 300 396-6 [20] under the given subclause.				

Table A.132: DMO secure enable/disable PDUs

Prerequisite: A.130/2 -- Ud secure enable/disable target role						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	ENDIS COMMAND	8.7.4.1	m		n	n/a
2	ENDIS AUTHENTICATE	8.7.4.2	n	n/a	m	
3	ENDIS COMMAND CONFIRM	8.7.4.3	m		n	n/a
4	ENDIS RESULT	8.7.4.4	n	n/a	m	
5	ENDIS TEI PROVIDE	8.7.4.5	n	n/a	m	
NOTE: The features are specified in ETS 300 396-6 [20] under the given subclause.						

A.4.3 DMO Repeater Type 1 (DM-REP1)

A.4.3.1 General for DMO Repeater Type 1 (DM-REP1)

The supplier of the implementation shall state the support of the implementation for each of the DMO Repeater Type 1 capabilities and services presented in tables A.133 and A.134.

Table A.133: General DMO Repeater Type 1 protocol capabilities

Prerequisite: A.69/2 -- DMO Repeater Type 1				
Item	**Capability name**	**Reference (note)**	**Status**	**Support**
1	Upper Medium Access Control (Upper MAC)	9.1.2	m	
2	Lower Medium Access Control (Lower MAC)	9.1.1	m	
3	Radio Layer	9.4, 12	m	
NOTE: The capabilities are specified in EN 300 396-4 [18] under the given clause(s).				

Table A.134: DMO Repeater Type 1 services

Prerequisite: A.69/2 -- DMO Repeater Type 1				
Item	**DMCC service**	**Reference (note)**	**Status**	**Support**
1	Circuit mode call	6.2	o.30	
2	Short Data Service (SDS)	6.3	o.30	
NOTE: The services are specified in EN 300 396-4 [18] under the given subclause.				

o.30 It is mandatory to support at least one of these items

A.4.3.2 Physical layer for DMO Repeater Type 1 (DM-REP1)

The supplier of the implementation shall state the support of the implementation for each of the physical layer capabilities, requirements and parameters presented in tables A.135 to A.138.

Table A.135: General Layer 1 capabilities

Prerequisite: A.133/3 -- DM-REP1 Radio layer				
Item	**Capability or feature name**	**Reference**	**Status**	**Support**
1	Switchable DMO power classes	12.3.4	o	
2	Protected circuit mode data	12.3.6	o	
NOTE: The capabilities are specified in EN 300 396-4 [18] under the given subclause.				

Table A.136: Physical layer requirements

Prerequisite: A.133/3 -- DM-REP1 Radio layer				
Item	**Requirement**	**Reference (note)**	**Status**	**Support**
1	Usage of DM channel	9.4.1	m	
2	Modulation type.	12.2	m	
3	Frequency bands and channel arrangements	12.3.2	m	
4	Unwanted conducted emission over the useful part of the burst.	12.3.4	m	
5	Unwanted conducted emission during the switching transients.	12.3.4	m	
6	Unwanted conducted discrete spurious emission far from the carrier.	12.3.4	m	
7	Unwanted conducted wideband noise emission far from the carrier.	12.3.4	m	
8	Unwanted conducted emission during LCH.	12.3.4	m	
9	Unwanted conducted emission in the non-transmit state.	12.3.4	m	
10	Unwanted radiated emissions.	12.3.4	m	
11	RF output power time mask.	12.3.4	m	
12	RF output power in non-active transmit state.	12.3.4	m	
13	Transmitter intermodulation attenuation.	12.3.4	m	
14	Blocking characteristics.	12.3.5	m	
15	Spurious response rejection.	12.3.5	m	
16	Intermodulation response rejection.	12.3.5	m	
17	Unwanted conducted emission in reception.	12.3.5	m	
18	Unwanted radiated emission.	12.3.5	m	
19	Modulation accuracy.	12.3.6	m	
20	Nominal error rate.	12.3.6	m	
21	Dynamic reference sensitivity performance.	12.3.6	m	
22	Reference interference performance.	12.3.6	m	
23	Static reference sensitivity performance.	12.3.6	m	
24	Receiver performance for synchronization burst acquisition.	12.3.6	m	
25	DM-REP1 synchronization requirement.	12.4.2	m	
26	Relationship between counters	12.4.3	m	
27	RF frequency accuracy	12.4.4	m	
28	Requirement for synchronization of a DM-REP1	12.4.5	m	
29	Channel multiplexing through DM-REP	12.6	m	
NOTE: The requirements are specified in EN 300 396-4 [18] under the given subclause.				

Table A.137: Output power and power class requirements and parameters

Prerequisite: A.133/3 -- DM-REP1 Radio layer						
Item	**Requirement and parameter**	**Reference (note)**	**Status**	**Support**	**Allowed values**	**Supported values**
1	Output power and power class	12.3.4	m		[1..4]	
NOTE: The parameters are specified in EN 300 396-4 [18] under the given subclause.						

Table A.138: RF carrier frequency bands

Prerequisite: A.133/3 -- DM-REP1 Radio layer					
Item	**Allowed frequency range (MHz)**	**Reference**	**Status**	**Support**	**Supported frequency range (MHz)**
1	410 to 430	ERC/DEC/(96)04 [44]	o.31		
2	870 to 876	ERC/DEC/(96)04 [44]	o.31		
3	915 to 921	ERC/DEC/(96)04 [44]	o.31		
4	450 to 470	ERC/DEC/(96)04 [44]	o.31		
5	385 to 390	ERC/DEC/(96)04 [44]	o.31		
6	395 to 399.99	ERC/DEC/(96)04 [44]	o.31		

o.31 The supported frequency range(s) shall be within one or more of the specified frequency bands.

A.4.3.3 Layer 2 for DMO Repeater Type 1 (DM-REP1)

A.4.3.3.1 Lower MAC layer for DMO Repeater Type 1 (DM-REP1)

The supplier of the implementation shall state the support of the implementation for each of the error control schemes presented in table A.139.

Table A.139: Error control schemes of Lower DM-MAC

Prerequisite: A.133/2 -- DM-REP1 Lower MAC layer				
Item	**Error control scheme**	**Reference (note)**	**Status**	**Support**
1	Error control scheme for Synchronization Signalling CHannel (SCH/S).	12.5	m	
2	Error control scheme for Half-slot Signalling CHannel (SCH/H) and Stealing CHannel (STCH).	12.5	m	
3	Error control scheme for Full-slot Signalling Channel (SCH/F).	12.5	m	
NOTE: The error control schemes are specified in EN 300 396-4 [18] under the given subclause.				

A.4.3.3.2 Upper MAC layer for DMO Repeater Type 1 (DM-REP1)

The supplier of the implementation shall state the support of the implementation for each of the Upper MAC layer procedures, PDUs, constants and timers presented in tables A.140 to A.144.

Table A.140: DM channel usage procedures

Prerequisite: A.133/1 -- DM-REP1 Upper MAC layer				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	DM-REP channel surveillance at DM-MS call set-up	9.4.2.2.2	m	
2	DM-REP channel surveillance during a call	9.4.2.3	m	
3	Signalling of channel state	9.4.5.1	o	
NOTE: The procedures are specified in EN 300 396-4 [18] under the given subclause.				

Table A.141: DM-MAC signalling procedures

Prerequisite: A.133/1 -- DM-REP1 Upper MAC layer				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Re-transmission of master DM-MS messages	9.5.1.1	m	
2	Re-transmission of DM-SETUP or DM-SETUP PRES messages	9.5.1.1.1	c14101	
3	Re-transmission of DM-SDS DATA or DM-SDS UDATA messages	9.5.1.1.2	c14102	
4	Re-transmission of signalling messages received from a slave DM-MS	9.5.2	m	
5	Re-transmission of response messages from a slave DM-MS	9.5.2.1	m	
NOTE: The procedures are specified in EN 300 396-4 [18] under the given subclause.				

c14101: IF A.134/1 -- Circuit mode service capability
THEN m
ELSE n/a

c14102: IF A.134/2 -- SDS capability
THEN m
ELSE n/a

Table A.142: DM-REP1 MAC PDUs

Prerequisite: A.133/1 -- DM-REP1 Upper MAC layer						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DMAC-SYNC	10.1.1	m		m	
2	DPRES-SYNC	10.1.2	n/a	n/a	o	
3	DMAC-DATA	10.2	m		m	
4	DM-RESERVED	10.4	m		c14201	
5	DM-SDS OCCUPIED	10.4	m		c14202	
NOTE: The PDUs are specified in EN 300 396-4 [18] under the given subclause.						

c14201: IF A.134/1 -- Circuit mode service capability
THEN m
ELSE n/a

c14202: IF A.134/2 -- SDS capability
THEN m
ELSE n/a

Table A.143: DM-REP1 MAC constants

Prerequisite: A.133/1-- DM-REP1 Upper MAC layer						
Item	**Constant**	**Reference (note)**	**Status**	**Support**	**Values**	
					Default	**Supported**
1	DN232	A.7	c14301		2	
2	DN233	A.7	c14302		2	
NOTE: The constants are specified in EN 300 396-4 [18] under the given subclause.						

c14301: IF A.134/1 -- Circuit mode service capability
THEN m
ELSE n/a

c14302: IF A.134/2 -- SDS capability
THEN m
ELSE n/a

Table A.144: DM-REP1 MAC timers

Prerequisite: A.133/1-- DM-REP1 Upper MAC layer						
Item	**Timer**	**Reference (note)**	**Status**	**Support**	**Values**	
					Default	**Supported**
1	DT253	A.6	n			
2	DT254	A.6	n			
3	DT256	A.6	c14401		180 frame durations	
4	DT258	A.6	c14402		180 frame durations	
NOTE: The timer values are specified in EN 300 396-4 [18] under the given subclause.						

c14401: IF A.134/1 -- Circuit mode service capability
THEN m
ELSE n/a

c14402: IF A.134/2 -- SDS capability
THEN m
ELSE n/a

A.4.4 DMO Repeater Type 2 (DM-REP2)

A.4.4.1 General for DMO Repeater Type 2 (DM-REP2)

The supplier of the implementation shall state the support of the implementation for each of the DMO Repeater Type 2 capabilities and services presented in tables A.133 to A.146.

Table A.145: General DMO Repeater Type 2 protocol capabilities

Prerequisite: A.69/3 -- DMO Repeater Type 2				
Item	**Capability name**	**Reference (note)**	**Status**	**Support**
1	Upper Medium Access Control (Upper MAC)	9.1.2	m	
2	Lower Medium Access Control (Lower MAC)	9.1.1	m	
3	Radio Layer	9.4, 12	m	
NOTE: The capabilities are specified in EN 300 396-7 [21] under the given clause(s).				

Table A.146: DMO Repeater Type 2 services

Prerequisite: A.69/3 -- DMO Repeater Type 2				
Item	**DMCC service**	**Reference (note)**	**Status**	**Support**
1	Circuit mode call	6.2	o.32	
2	Short Data Service (SDS)	6.3	o.32	
NOTE: The services are specified in EN 300 396-7 [21] under the given subclause.				

o.32 It is mandatory to support at least one of these items

A.4.4.2 Physical layer for DMO Repeater Type 2 (DM-REP2)

The supplier of the implementation shall state the support of the implementation for each of the physical layer capabilities, requirements and parameters presented in tables A.147 to A.150.

Table A.147: General Layer 1 capabilities

Prerequisite: A.145/3 -- DM-REP2 Radio layer				
Item	**Capability or feature name**	**Reference**	**Status**	**Support**
1	Switchable DMO power classes	12.3.4.1	o	
2	Protected circuit mode data	12.3.6	o	
NOTE: The capabilities are specified in EN 300 396-7 [21] under the given subclause.				

Table A.148: Physical layer requirements

Prerequisite: A.145/3 -- DM-REP2 Radio layer				
Item	**Requirement**	**Reference (note)**	**Status**	**Support**
1	Channel structure	9.4.1.1	m	
2	Channel synchronization	9.4.1.2	m	
3	Modulation type.	12.2	m	
4	Frequency bands and channel arrangements	12.3.2	m	
5	Unwanted emission close to the carrier.	12.3.4.3.2	m	
6	Unwanted emission close to the carrier.	12.3.4.3.2	m	
7	Unwanted conducted discrete spurious emission far from the carrier.	12.3.4.3.3.1	m	
8	Unwanted conducted wideband noise emission far from the carrier.	12.3.4.3.3.2	m	
9	Unwanted conducted emission during LCH.	12.3.4.3.4	m	
10	Unwanted conducted emission in the non-transmit state.	12.3.4.3.5	m	
11	Unwanted radiated emissions.	12.3.4.4	m	
12	RF output power time mask.	12.3.4.6	m	
13	RF output power in non-active transmit state.	12.3.4.6	m	
14	Transmitter intermodulation attenuation.	12.3.4.7	m	
15	Blocking characteristics.	12.3.5	m	
16	Spurious response rejection.	12.3.5	m	
17	Intermodulation response rejection.	12.3.5	m	
18	Unwanted conducted emission in reception.	12.3.5	m	
19	Unwanted radiated emission.	12.3.5	m	
20	Modulation accuracy.	12.3.6	m	
21	Nominal error rate.	12.3.6	m	
22	Dynamic reference sensitivity performance.	12.3.6	m	
23	Reference interference performance.	12.3.6	m	
24	Static reference sensitivity performance.	12.3.6	m	
25	Receiver performance for synchronization burst acquisition.	12.3.6	m	
26	DM-REP2 synchronization requirement.	12.4.2	m	
27	Relationship between counters	12.4.3	m	
28	RF frequency accuracy	12.4.4	m	
29	Requirement for synchronization of a DM-REP2	12.4.5	m	
30	Channel multiplexing for a type 2 DM-REP	12.6	m	
NOTE: The requirements are specified in EN 300 396-7 [21] under the given subclause.				

Table A.149: Output power and power class requirements and parameters

Prerequisite: A.145/3 -- DM-REP2 Radio layer						
Item	**Requirement and parameter**	**Reference (note)**	**Status**	**Support**	**Allowed values**	**Supported values**
1	Output power and power class	12.3.4.2	m		[1..4]	
NOTE: The parameters are specified in EN 300 396-7 [21] under the given subclause.						

Table A.150: RF carrier frequency bands

Prerequisite: A.145/3 -- DM-REP2 Radio layer					
Item	**Allowed frequency range (MHz)**	**Reference**	**Status**	**Support**	**Supported frequency range (MHz)**
1	410 to 430	ERC/DEC/(96)04 [44]	o.33		
2	870 to 876	ERC/DEC/(96)04 [44]	o.33		
3	915 to 921	ERC/DEC/(96)04 [44]	o.33		
4	450 to 470	ERC/DEC/(96)04 [44]	o.33		
5	385 to 390	ERC/DEC/(96)04 [44]	o.33		
6	395 to 399.99	ERC/DEC/(96)04 [44]	o.33		

o.33 The supported frequency range(s) shall be within one or more of the specified frequency bands.

A.4.4.3 Layer 2 for DMO Repeater Type 2 (DM-REP2)

A.4.4.3.1 Lower MAC layer for DMO Repeater Type 2 (DM-REP2)

The supplier of the implementation shall state the support of the implementation for each of the error control schemes presented in table A.151.

Table A.151: Error control schemes of Lower DM-MAC

Prerequisite: A.145/2 -- DM-REP2 Lower MAC layer				
Item	**Error control scheme**	**Reference (note)**	**Status**	**Support**
1	Error control scheme for Synchronization Signalling CHannel (SCH/S).	12.5	m	
2	Error control scheme for Half-slot Signalling CHannel (SCH/H) and Stealing CHannel (STCH).	12.5	m	
3	Error control scheme for Full-slot Signalling Channel (SCH/F).	12.5	m	
NOTE: The error control schemes are specified in EN 300 396-7 [21] under the given subclause.				

A.4.4.3.2 Upper MAC layer for DMO Repeater Type 2 (DM-REP2)

The supplier of the implementation shall state the support of the implementation for each of the Upper MAC layer procedures, PDUs, constants and timers presented in tables A.152 to A.156.

Table A.152: DM channel usage procedures

Prerequisite: A.145/1 -- DM-REP2 Upper MAC layer				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	DM-REP channel surveillance at DM-MS call set-up	9.4.2.2.3	m	
2	DM-REP channel surveillance during a call	9.4.2.3	m	
3	DM-REP channel monitoring	9.4.4	m	
4	Signalling of channel state	9.4.5.1.1	o	
NOTE: The procedures are specified in EN 300 396-7 [21] under the given subclause.				

Table A.153: DM-MAC signalling procedures

Prerequisite: A.145/1 -- DM-REP2 Upper MAC layer				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Re-transmission of master DM-MS messages	9.5.1.1.1	m	
2	Re-transmission of DM-SETUP or DM-SETUP PRES messages	9.5.1.1.2	c15301	
3	Re-transmission of DM-SDS DATA or DM-SDS UDATA messages	9.5.1.1.3	c15302	
4	Re-transmission of signalling messages received from a slave DM-MS	9.5.2.1	m	
5	Re-transmission of response messages from a slave DM-MS	9.5.2.2	m	
NOTE: The procedures are specified in EN 300 396-7 [21] under the given subclause.				

c15301: IF A.146/1 -- Circuit mode service capability
THEN m
ELSE n/a

c15302: IF A.146/2 -- SDS capability
THEN m
ELSE n/a

Table A.154: DM-REP2 MAC PDUs

Prerequisite: A.145/1 -- DM-REP2 Upper MAC layer						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DMAC-SYNC	10.1.1	m		m	
2	DPRES-SYNC	10.1.2	n/a	n/a	o	
3	DMAC-DATA	10.2	m		m	
4	DM-RESERVED	10.4	m		c15401	
5	DM-SDS OCCUPIED	10.4	m		c15402	
NOTE: The PDUs are specified in EN 300 396-7 [21] under the given subclause.						

c15401: IF A.146/1 -- Circuit mode service capability
THEN m
ELSE n/a

c15402: IF A.146/2 -- SDS capability
THEN m
ELSE n/a

Table A.155: DM-REP2 MAC constants

Prerequisite: A.145/1-- DM-REP2 Upper MAC layer						
Item	**Constant**	**Reference (note)**	**Status**	**Support**	**Values**	
					Default	**Supported**
1	DN232	A	c15501		2	
2	DN233	A	c15502		2	
NOTE: The constants are specified in EN 300 396-7 [21] under the given subclause.						

c15501: IF A.146/1 -- Circuit mode service capability
THEN m
ELSE n/a

c15502: IF A.146/2 -- SDS capability
THEN m
ELSE n/a

Table A.156: DM-REP2 MAC timers

Prerequisite: A.145/1-- DM-REP2 Upper MAC layer						
Item	**Timer**	**Reference (note)**	**Status**	**Support**	**Values**	
					Default	**Supported**
1	DT253	A	n			
2	DT254	A	n			
3	DT256	A	c15601		180 frame durations	
4	DT258	A	c15602		180 frame durations	
NOTE: The timer values are specified in EN 300 396-7 [21] under the given subclause.						

c15601: IF A.146/1 -- Circuit mode service capability
THEN m
ELSE n/a

c15602: IF A.146/2 -- SDS capability
THEN m
ELSE n/a

A.4.5 DMO Gateway (DM-GATE)

A.4.5.1 General for DMO Gateway (DM-GATE)

The supplier of the implementation shall state the support of the implementation for each of the DMO Gateway capabilities presented in table A.157.

Table A.157: General Gateway protocol capabilities

Prerequisite: A.69/4 -- Gateway				
Item	**Capability name**	**Reference (note)**	**Status**	**Support**
1	Direct Mode Call Control (DMCC)	9.3	m	
2	Upper Medium Access Control (Upper MAC)	13	m	
3	Lower Medium Access Control (Lower MAC)	16.5	m	
4	Radio Layer	16	m	
NOTE: The capabilities are specified in ETS 300 396-5 [19] under the given (sub)clause.				

A.4.5.2 Physical layer for DMO Gateway (DM-GATE)

The supplier of the implementation shall state the support of the implementation for each of the physical layer capabilities, requirements and parameters presented in tables A.158 to A.161.

Table A.158: General Layer 1 capabilities

Prerequisite: A.157/4 -- DM-GATE Radio layer				
Item	**Capability or feature name**	**Reference**	**Status**	**Support**
1	Switchable DMO power classes	16.3.4.1	o	
NOTE: The capabilities are specified in ETS 300 396-5 [19] under the given subclause.				

Table A.159: Physical layer requirements

Prerequisite: A.157/4 -- DM-GATE Radio layer				
Item	**Requirement**	**Reference (note)**	**Status**	**Support**
1	Modulation type	16.2	m	
2	Frequency bands and channel allocation	16.3.2	m	
3	Unwanted conducted emission over the useful part of the burst	16.3.4.3.2	m	
4	Unwanted conducted emission during the switching transients	16.3.4.3.2	m	
5	Unwanted conducted discrete spurious emission far from the carrier	16.3.4.3.3.1	m	
6	Unwanted conducted wideband noise emission far from the carrier	16.3.4.3.3.2	m	
7	Unwanted conducted emission during LCH	16.3.4.3.4	m	
8	Unwanted conducted emission in the non-transmit state	16.3.4.3.5	m	
9	Unwanted radiated emissions	16.3.4.4	m	
10	RF output power time mask	16.3.4.6	m	
11	RF output power in non-active transmit state	16.3.4.6	m	
12	Intra-gateway transmitter intermodulation attenuation	16.3.4.7	m	
13	Blocking characteristics	16.3.5	m	
14	Spurious response rejection	16.3.5	m	
15	Intermodulation response rejection	16.3.5	m	
16	Unwanted conducted emission in reception	16.3.5	m	
17	Unwanted radiated emission	16.3.5	m	
18	Modulation accuracy	16.3.6	m	
19	Nominal error rate	16.3.6	m	
20	Dynamic reference sensitivity performance	16.3.6	m	
21	Reference interference performance	16.3.6	m	
22	Static reference sensitivity performance	16.3.6	m	
23	Receiver performance for synchronization burst acquisition.	16.3.6	m	
24	Gateway synchronization requirement.	16.4.2	m	
25	DM timebase counters	16.4.3	m	
26	RF frequency accuracy	16.4.4	m	
27	Requirement for synchronization of a Gateway	16.4.5	m	
28	Mapping of logical channels	16.6	m	
NOTE: The requirements are specified in ETS 300 396-5 [19] under the given subclause.				

Table A.160: Output power and power class requirements and parameters

Prerequisite: A.157/4 -- DM-GATE Radio layer						
Item	**Requirement and parameter**	**Reference (note)**	**Status**	**Support**	**Allowed values**	**Supported values**
1	Output power and power class	16.3.4.2	m		[1..4]	
NOTE: The parameters are specified in ETS 300 396-5 [19] under the given subclause.						

Table A.161: RF carrier frequency bands

Prerequisite: A.157/4 -- DM-GATE Radio layer					
Item	**Allowed frequency range (MHz)**	**Reference**	**Status**	**Support**	**Supported frequency range (MHz)**
1	410 to 430	ERC/DEC/(96)04 [44]	o.34		
2	870 to 876	ERC/DEC/(96)04 [44]	o.34		
3	915 to 921	ERC/DEC/(96)04 [44]	o.34		
4	450 to 470	ERC/DEC/(96)04 [44]	o.34		
5	385 to 390	ERC/DEC/(96)04 [44]	o.34		
6	395 to 399.99	ERC/DEC/(96)04 [44]	o.34		

o.34 The supported frequency range(s) shall be within one or more of the specified frequency bands.

A.4.5.3 Layer 2 for DMO Gateway (DM-GATE)

A.4.5.3.1 Lower MAC layer for DMO Gateway (DM-GATE)

The supplier of the implementation shall state the support of the implementation for each of the error control schemes presented in table A.162.

Table A.162: Error control schemes of Lower DM-MAC

Prerequisite: A.157/3 -- DM-GATE Lower MAC layer				
Item	**Error control scheme**	**Reference (note)**	**Status**	**Support**
1	Error control scheme for Synchronization Signalling CHannel (SCH/S).	16.5	m	
2	Error control scheme for Half-slot Signalling CHannel (SCH/H) and Stealing CHannel (STCH).	16.5	m	
3	Error control scheme for Full-slot Signalling Channel (SCH/F).	16.5	m	
NOTE: The error control schemes are specified in ETS 300 396-5 [19] under the given subclause.				

A.4.5.3.2 Upper MAC layer for DMO Gateway (DM-GATE)

The supplier of the implementation shall state the support of the implementation for each of the Upper MAC layer procedures and PDUs presented in tables A.163 to A.165.

Table A.163: DM-GATE channel usage procedures

Prerequisite: A.157/2 -- DM-GATE Upper MAC layer				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Transmitting DM-OCCUPIED	13.4.5.1.4	m	
2	Transmitting DM-RESERVED	13.4.6.1.1	c16301	
NOTE: The procedures are specified in ETS 300 396-5 [19] under the given subclause.				

c16301: IF A.41/1 -- Circuit mode call control for a Gateway
THEN m
ELSE n/a

Table A.164: DM-GATE MAC signalling procedures

Prerequisite: A.157/2 -- DM-GATE Upper MAC layer				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Transmission of messages	13.5.6.1	m	
2	Indicating frames available for requests	13.5.7.2.1	m	
NOTE: The procedures are specified in ETS 300 396-5 [19] under the given subclause.				

Table A.165: DM-GATE MAC PDUs

Prerequisite: A.157/2 -- DM-GATE Upper MAC layer						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DMAC-SYNC	14.1.1	m		m	
2	DPRES-SYNC	14.1.2	n/a	n/a	m	
3	DMAC-DATA	14.2.1	m		m	
4	DM-RESERVED	14.4	n/a	n/a	c16501	
NOTE: The PDUs are specified in ETS 300 396-5 [19] under the given subclause.						

c16501: IF A.41/1 -- Circuit mode call control for a Gateway
THEN m
ELSE n/a

A.4.5.4 Layer 3 for DMO Gateway (DM-GATE)

The supplier of the implementation shall state the support of the implementation for each of the layer 3 procedures and PDUs presented in tables A.166 and A.167.

Table A.166: Gateway circuit mode call control procedures

Prerequisite: A.41/1 -- Circuit mode call control for a Gateway				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Outgoing individual call set-up to DM-MS	9.3.1.1	c16601	
2	Outgoing group call set-up to DM-MS	9.3.1.2	c16602	
3	Reception of DM-TX CEASED by end of DM-MS call	9.3.3.1.1	c16603	
4	Transmitting DM-TX CEASED by end of V+D call	9.3.3.1.2	c16604	
5	Transmitting DM-TX CEASED at receipt of interrupt from SwMI	9.3.3.2	c16604	
6	Receipt of request to continue ongoing call from SwMI during DM channel reservation	9.3.3.3	m	
7	Response to request for change-over or pre-emption during DM-channel reservation	9.3.3.4.1	m	
8	Termination of DM call on receipt of transmission interrupt from SwMI	9.3.3.5	m	
9	Receipt of DM-RELEASE from current master DM-MS	9.3.3.9.1	c16603	
10	Release of DM channel on receipt of D-RELEASE from SwMI	9.3.3.9.2	m	
11	Release of DM channel at expiry of call length timer	9.3.3.9.3	m	
12	New call preemption during DM channel reservation	9.3.4.1.3	m	
13	Preemption of DM channel on receipt of transmission interrupt from SwMI	9.3.4.2.1	c16603	
NOTE: The procedures are specified in ETS 300 396-5 [19] under the given subclause.				

c16601: IF A.42/1 AND A.42/3 -- Individual circuit mode call and accept incoming call from V+D
THEN m
ELSE n/a

c16602: IF A.42/2 AND A.42/3 -- Group circuit mode call and accept incoming call from V+D
THEN m
ELSE n/a

c16603: IF A.42/4 -- Accept incoming call from DM-MS
THEN m
ELSE n/a

c16604: IF A.42/3 -- Accept incoming call from V+D
THEN m
ELSE n/a

Table A.167: Gateway circuit mode call PDUs

Prerequisite: A.41/1 -- Circuit mode call control for a Gateway						
Item	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DM-SETUP	14.5	c16701		c16702	
2	DM-SETUP PRES	14.5	n/a	n/a	c16703	
3	DM-CONNECT	14.5	c16703		n/a	n/a
4	DM-DISCONNECT	14.5	c16703		n/a	n/a
5	DM-CONNECT ACK	14.5	n/a	n/a	c16703	
6	DM-OCCUPIED	14.5	c16701		c16704	
7	DM-RELEASE	14.5	c16701		m	
8	DM-TX CEASED	14.5	c16701		m	
9	DM-TX REQUEST	14.5	m		n/a	n/a
10	DM-TX ACCEPT	14.5	n/a	n/a	m	
11	DM-PREEMPT	14.5	m		m	
12	DM-PRE ACCEPT	14.5	m		m	
13	DM-REJECT	14.5	m		m	
14	DM-GSETUP	14.5.1	c16701		n/a	n/a
15	DM-GCONNECT	14.5.2	n/a	n/a	c16701	
16	DM-GACK	14.5.3	n/a	n/a	c16701	
17	DM-GRELEASE	14.5.4	m		m	
18	DM-GTX REQUEST	14.5.5	m		n/a	n/a
19	DM-GTX ACCEPT	14.5.6	n/a	n/a	m	
20	DM-GPREEMPT	14.5.7	m		n/a	n/a
21	DM-GPRE ACCEPT	14.5.8	n/a	n/a	m	
22	DM-GREJECT	14.5.9	n/a	n/a	m	
NOTE: The PDUs are specified in ETS 300 396-5 [19] under the given subclause.						

o.35 It is mandatory to support at least one of these items

c16701: IF A.42/4 -- Accept incoming call from DM-MS
THEN m
ELSE n/a

c16702: IF A.42/2 AND A.42/3 -- Group circuit mode call and accept incoming call from V+D
THEN m
ELSE
IF A.42/1 AND A.42/3 -- Individual circuit mode call and accept incoming call from V+D
THEN o.35
ELSE n/a

c16703: IF A.42/1 AND A.42/3 -- Individual circuit mode call and accept incoming call from V+D
THEN o.35
ELSE n/a

c16704: IF A.42/3 -- Accept incoming call from V+D
THEN m
ELSE n/a

Annex B (normative): Declarations on parameters supported

B.1 Introduction

The following tables contain extracts from the PICS document ETS 300 392-14 [6]. These tables supplement the RT giving the required information to parameterize the test suites referred to in the present document.

For the notation used in the tables in this clause, refer to annex A, clause A.1.

B.2 Declarations for Um air interface

The supplier of the implementation shall state the values for the implementation for each of the parameters presented in tables B.1 to B.12 according to the IUT capabilities.

B.2.1 Layer 1

Table B.1: Test mode frequency bands

Prerequisite: A.1/1 -- Um					
Item	**Frequency band** (note)	**Minimum range (MHz)** Uplink	Downlink	**Supported range (MHz)** Uplink	Downlink
1	410-430 MHz	410 to 420	420 to 430		
2	870-876/915-921 MHz	870 to 876	915 to 921		
3	450-470 MHz	450 to 460	460 to 470		
4	385-390/395-399.99 MHz	385 to 390	395 to 399.99		
NOTE: One or more complete frequency bands shall be supported.					

B.2.2 Layer 2

B.2.2.1 MAC layer

Table B.2: MAC parameters

Prerequisite: A.5/5 -- Upper MAC				
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.2.3 Layer 3

B.2.3.1 CMCE

Table B.3: CC parameters for a non-Gateway

Prerequisite: A.28/1 -- 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.4: CC parameters and implicit send events for a Gateways

Prerequisite: A.41/1 -- Circuit Mode Call Control				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_T303	INTEGER	Duration of the T303 in the IUT in seconds.	
2	PIX_MS_ITSI	ITSI_type	ITSI of the IUT.	
3	PIX_DM_MS_MNI	MNI_Type	Value of the MNI of the DM-MS	
4	PIX_DM_MS_SSI	SSI_Type	Value of the SSI of the DM-MS	
5	PIX_IMP_U_SETUP_PDU	BOOLEAN	It is possible to cause the IUT to initiate an outgoing call.	
6	PIX_IMP_U_TX_DEMAND_PDU	BOOLEAN	It is possible to cause the IUT to send a U-TX DEMAND PDU.	
7	PIX_IMP_U_TX_CEASED_PDU	BOOLEAN	It is possible to cause the IUT to send a U-TX CEASED PDU.	

B.2.3.2 MM

Table B.5: MM parameters for a non-Gateway

Prerequisite: A.5/2 -- MM, non-Gateway				
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.6: MM parameters and implicit send events for a Gateway

Prerequisite: A.5/9 -- MM, Gateway				
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.2.3.3 MLE

Table B.7: MLE parameters

Prerequisite: A.5/3 -- MLE				
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.2.4 Security

Table B.8: Implicit send events

Prerequisite: A.5/7 -- Security				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_IMP_AUTHENTICATION_DEMAND	BOOLEAN	It is possible to cause IUT to send U-AUTHENTICATION DEMAND PDU.	
2	PIX_IMP_LOCATION_UPDATE_Type	BOOLEAN	It is possible to cause IUT to send U-LOCATION UPDATE DEMAND PDU having given location update type and ITSI.	
3	PIX_IMP_LOCATION_UPDATE_DEMAND_AuthReq	BOOLEAN	It is possible to cause IUT to send U-LOCATION UPDATE DEMAND PDU having given location update type and ITSI and containing an authentication demand.	
4	PIX_IMP_OTAR_CCK_DEMAND_Normal	BOOLEAN	It is possible to cause IUT to send U-OTAR CCK DEMAND PDU.	
5	PIX_IMP_OTAR_GCK_DEMAND_Normal	BOOLEAN	It is possible to cause IUT to send U-OTAR SCK DEMAND PDU.	
6	PIX_IMP_OTAR_SCK_DEMAND_1	BOOLEAN	It is possible to cause IUT to send U-OTAR SCK DEMAND PDU containing a request for 1 SCK.	

Table B.9: Configuration parameter values

Prerequisite: A.5/7 -- Security				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_VD_L3	BOOLEAN	Configuration set to test the Voice+Data layer 3 security protocol	

Table B.10: General parameter values

Prerequisite: A.5/7 -- Security				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_MS_ITSI	ITSI_Type	ITSI of the IUT	
2	PIX_TEI	TEI_Type	TEI	
3	PIX_GSSI	GSSI_Type	GSSI	

Table B.11: Authentication parameter values

Prerequisite: A.5/7 -- Security				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_RAND1	RandomChallengeType	Value of Random challenge (RAND1)	
2	PIX_RS	RandomSeedType	Value of the Random seed (RS)	
3	PIX_RES2	ResponseValueType	Value of the result RES2	

Table B.12: OTAR parameter values

Prerequisite: A.5/7 -- Security				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_CURRENT_CCK	CCK_IdType	Value of the CCK of the current Location area	
2	PIX_OTHER_CCK	CCK_IdType	Value of the CCK of another location area	
3	PIX_CURRENT_SCCK	SealedKeyType	Value of the sealed CCK of the current location area	
4	PIX_OTHER_SCCK	SealedKeyType	Value of the sealed CCK of another location area	
5	PIX_SCKN	SCK_NbrType	SCK number	
6	PIX_SCK_VN	SCK_VersionNbrType	SCK version number	
7	PIX_SSCK	SealedKeyType	Sealed SCK	
8	PIX_GCK_VN	GCK_VersionNbrType	GCK version number	
9	PIX_SGCK	SealedKeyType	Sealed GCK	
10	PIX_CURRENT_LA	LocationAreaType	Value of the current location area	

B.3 Declarations for Ud air interface

The supplier of the implementation shall state the values for the implementation for each of the parameters presented in tables B.13 to B.38 according to the IUT capabilities.

B.3.1 Layer 1

Table B.13: Test mode frequency bands

Prerequisite: A.1/2 -- Ud			
Item	**Frequency band (note)**	**Supported range or specific RF carrier frequencies (MHz)**	
		For transmission	**For receiving**
1	410 to 430 MHz		
2	870 to 876 MHz		
3	915 to 921 MHz		
4	450 to 470 MHz		
5	385 to 390 MHz		
6	395 to 399.99 MHz		
NOTE: The frequency range to be available in test mode shall as a minimum cover frequencies within one or more of the specified frequency bands.			

B.3.2 Layer 2

B.3.2.1 Mobile Station operation

Table B.14: DM-MAC Implicit send events

Prerequisite: A.72/2 -- DM-MAC for MS to MS operation				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_IMP_SYNC_SETUP	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.	
2	PIX_IMP_SYNC_SETUP_PRES	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU.	
3	PIX_IMP_SYNC_SDS_DATA	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS DATA SDU.	
4	PIX_IMP_SYNC_SDS_UDATA	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS UDATA SDU.	

Table B.15: DM-MAC parameter values

Prerequisite: A.72/2 -- DM-MAC for MS to MS operation				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_MS_SSI	SSI_Type	SSI of the IUT	
2	PIX_TESTER_MNI	MNI_Type	MNI of the tester	
3	PIX_TESTER_SSI	SSI_Type	SSI of the tester	

Table B.16: M-DMO Implicit send events

Prerequisite: A.72//3 -- Managed DMO for Mobile Station				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	IMP_SYNC_SETUP	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.	
2	IMP_SYNC_SETUP_PRES	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP-PRES SDU.	
3	IMP_SYNC_SDS_DATA	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS DATA SDU.	
4	IMP_SYNC_SDS_UDATA	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS UDATA SDU.	

Table B.17: M-DMO parameter values

Prerequisite: A.72//3 -- Managed DMO for Mobile Station				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_MS_TSI	TSI_Type	TSI of the IUT.	
2	PIX_TESTER_SWMI_MNI	MNI_Type	MNI of the controlling SwMI of the authorising unit.	
3	PIX_TESTER_DEVICE_ADDRESS	Device_Address_Type	Address of authorising unit.	

B.3.2.2 Mobile Station operation with Repeater type 1

Table B.18: MS-REP1 Implicit send events

Prerequisite: A.71/2 -- Operation with DMO Type 1 Repeater (MS-REP1)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_IMP_SYNC_PREEMPT_ONGOING	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-PREEMPT SDU to preempt the ongoing call.	
2	PIX_IMP_SYNC_SETUP	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.	
3	PIX_IMP_SYNC_SETUP_PRES	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU.	
4	PIX_IMP_SYNC_SDS_DATA	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS DATA SDU.	
5	PIX_IMP_SYNC_SDS_UDATA	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS UDATA SDU.	

Table B.19: MS-REP1 parameter values

Prerequisite: A.71/2 -- Operation with DMO Type 1 Repeater (MS-REP1)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
3	PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag, which indicate whether or not power control by slave is permitted.	
4	PIX_MS_SSI	SSI_Type	SSI of the IUT.	
5	PIX_TESTER_MNI	MNI_Type	MNI of the tester.	
6	PIX_TESTER_SSI	SSI_Type	SSI of the tester.	
7	PIX_MS_SLAVE_MNI	MNI_Type	MNI of a slave MS	
8	PIX_MS_SLAVE_SSI	SSI_Type	SSI of a slave MS	
9	PIX_MS_MASTER_MNI	MNI_Type	MNI of a master MS	
10	PIX_MS_MASTER_SSI	SSI_Type	SSI of a master MS	
11	PIX_TESTER_REPEATER_ADDRESS	Repeater_Address_Type	Repeater address of the tester.	

B.3.2.3 Mobile Station operation with Repeater type 2

Table B.20: MS-REP2 Implicit send events

Prerequisite: A.71/4 -- Operation with DMO Type 2 Repeater (MS-REP2)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_IMP_SYNC_PREEMPT_ONGOING	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-PREEMPT SDU to preempt the ongoing call.	
2	PIX_IMP_SYNC_SETUP	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.	
3	PIX_IMP_SYNC_SETUP_PRES	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU.	
4	PIX_IMP_SYNC_SDS_DATA	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS DATA SDU.	
5	PIX_IMP_SYNC_SDS_UDATA	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS UDATA SDU.	

Table B.21: MS-REP2 parameter values

Prerequisite: A.71/4 -- Operation with DMO Type 2 Repeater (MS-REP2)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
3	PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag, which indicate whether or not power control by slave is permitted.	
4	PIX_MS_SSI	SSI_Type	SSI of the IUT.	
5	PIX_TESTER_MNI	MNI_Type	MNI of the tester.	
6	PIX_TESTER_SSI	SSI_Type	SSI of the tester.	
7	PIX_MS_SLAVE_MNI	MNI_Type	MNI of a slave MS	
8	PIX_MS_SLAVE_SSI	SSI_Type	SSI of a slave MS	
9	PIX_MS_MASTER_MNI	MNI_Type	MNI of a master MS	
10	PIX_MS_MASTER_SSI	SSI_Type	SSI of a master MS	
11	PIX_TESTER_REPEATER_ADDRESS	Repeater_Address_Type	Repeater address of the tester.	

B.3.2.4 Mobile Station operation with Gateway

Table B.22: MS-GW Implicit send events

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_IMP_SYNC_GSETUP	BOOLEAN	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-GSETUP SDU.	

Table B.23: MS-GW parameter values

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type _Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
3	PIX_POWER_CONTROL_FLAG	Power_Control_Flag _Type	Power control flag, which indicate whether or not power control by slave is permitted.	
4	PIX_GATEWAY_ADDRESS	Gateway_Address_ Type	Value of the Gateway (tester) address.	
5	PIX_TESTER_MNI	MNI_Type	MNI of the tester	
6	PIX_TESTER_SSI	SSI_Type	SSI of the tester	
7	PIX_REGISTRATION_LABEL	BITSTRING	Value of the registration label	

B.3.2.5 Repeater type 1

Table B.24: DM-REP1 parameter values

Prerequisite: A.133/1 -- DM-REP1 Upper MAC layer				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type _Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
3	PIX_POWER_CONTROL_FLAG	Power_Control_Flag _Type	Power control flag, which indicate whether or not power control by slave is permitted.	
4	PIX_MNI	MNI_Type	MNI of the network.	
5	PIX_MS_MASTER_SSI	SSI_Type	SSI of a master MS	
6	PIX_MS_SLAVE_SSI	SSI_Type	SSI of a slave MS	
7	PIX_REPEATER_ADDRESS	Repeater_Address_ Type	Repeater address of the IUT.	
8	PIX_NON_REPEATER_ADDRESS	Repeater_Address_ Type	An SSI not recognized as the repeater address of the IUT.	

B.3.2.6 Repeater type 2

Table B.25: DM-REP2 parameter values

Prerequisite: A.145/1 -- DM-REP2 Upper MAC layer				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
3	PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag, which indicate whether or not power control by slave is permitted.	
4	PIX_MNI	MNI_Type	MNI of the network.	
5	PIX_MS_MASTER_SSI	SSI_Type	SSI of a master MS	
6	PIX_MS_SLAVE_SSI	SSI_Type	SSI of a slave MS	
7	PIX_REPEATER_ADDRESS	Repeater_Address_Type	Repeater address of the IUT.	
8	PIX_NON_REPEATER_ADDRESS	Repeater_Address_Type	An SSI not recognized as the repeater address of the IUT.	

B.3.3 Layer 3

B.3.3.1 Mobile Station operation

Table B.26: DMCC Implicit send events

Prerequisite: A.72/1 -- DMCC for MS to MS operation				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_IMP_DM_SETUP	BOOLEAN	True if it is possible to cause the IUT to send a DM-SETUP PDU	
2	PIX_IMP_DM_SETUP_Group	BOOLEAN	True if it is possible to cause the IUT to send a DM-SETUP PDU for a group call	
3	PIX_IMP_DM_SETUP_PRES	BOOLEAN	True if it is possible to cause the IUT to send a DM-SETUP PRES PDU	
4	PIX_IMP_DM_TX_REQUEST	BOOLEAN	True if it is possible to cause the IUT to send a DM-TX REQUEST PDU.	
5	PIX_IMP_DM_PREEMPT	BOOLEAN	True if it is possible to cause the IUT to send a DM-PREEMPT PDU.	
6	PIX_IMP_DM_RELEASE	BOOLEAN	True if it is possible to cause the IUT to send a DM-RELEASE PDU.	
7	PIX_IMP_DM_TX_CEASED	BOOLEAN	True if it is possible to cause the IUT to send a DM-TX CEASED PDU.	
8	PIX_IMP_DM_SDS_DATA	BOOLEAN	True if it is possible to cause the IUT to send a DM-SDS DATA PDU.	
9	PIX_IMP_DM_SDS_UDATA	BOOLEAN	True if it is possible to cause the IUT to send a DM-SDS UDATA PDU.	

Table B.27: DMCC parameter values

Prerequisite: A.72/1 -- DMCC for MS to MS operation				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_OTHER_TSI	TSI_Type	The TSI not recognized by the IUT and the tester.	
3	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
4	PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag, which indicate whether or not power control by slave is permitted.	
5	PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	Value of the reservation time remaining used by the master MS.	
6	PIX_SDS_TIME_REMAINING	SDS_Time_Remaining_Type	Value of the SDS time remaining element used to indicate the current estimate of the SDS channel occupation time.	
7	PIX_SDS_DATA_1	User_Defined_Data_1_Type	Value of SDS data type 1.	
8	PIX_SDS_DATA_1_FCS	FCS_Type	Value of the Frame Check Sequence for the SDS DATA 1 data.	
9	PIX_SDS_DATA_2	User_Defined_Data_2_Type	Value of SDS data type 2.	
10	PIX_SDS_DATA_2_FCS	FCS_Type	Value of the Frame Check Sequence for the SDS DATA 2 data.	
11	PIX_SDS_DATA_3	User_Defined_Data_3_Type	Value of SDS data type 3.	
12	PIX_SDS_DATA_3_FCS	FCS_Type	Value of the Frame Check Sequence for the SDS DATA 3 data.	
13	PIX_SDS_DATA_4	User_Defined_Data_4_Type	Value of SDS data type 4.	
14	PIX_SDS_DATA_4_FCS	FCS_Type	Value of the Frame Check Sequence for the SDS DATA 4 data.	
15	PIX_SDS_DATA_4_LENGTH	Length_Indicator_Type	Length of the value of the SDS data type 4.	
16	PIX_SDS_CURRENTLY_TESTING	INTEGER	The type (1 to 4) of SDS data currently testing.	

B.3.3.2 Mobile Station operation with Repeater type 1

Table B.28: MS-REP1 Implicit send events

Prerequisite: A.71/2 -- Operation with DMO Type 1 Repeater (MS-REP1)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_IMP_DM_SETUP	BOOLEAN	True if it is possible to cause the IUT to send a DM-SETUP PDU	
2	PIX_IMP_DM_SETUP_PRES	BOOLEAN	True if it is possible to cause the IUT to send a DM-SETUP PRES PDU	

Table B.29: MS-REP1 layer 3 parameter values

Prerequisite: A.71/2 -- Operation with DMO Type 1 Repeater (MS-REP1)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
3	PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag, which indicate whether or not power control by slave is permitted.	
4	PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	Value of the reservation time remaining used by the master MS.	

B.3.3.3 Mobile Station operation with Repeater type 2

Table B.30: MS-REP2 Implicit send events

Prerequisite: A.71/4 -- Operation with DMO Type 2 Repeater (MS-REP2)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_IMP_DM_SETUP	BOOLEAN	True if it is possible to cause the IUT to send a DM-SETUP PDU	
2	PIX_IMP_DM_SETUP_PRES	BOOLEAN	True if it is possible to cause the IUT to send a DM-SETUP PRES PDU	

Table B.31: MS-REP2 layer 3 parameter values

Prerequisite: A.71/4 -- Operation with DMO Type 2 Repeater (MS-REP2)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
3	PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag, which indicate whether or not power control by slave is permitted.	
4	PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	Value of the reservation time remaining used by the master MS.	

B.3.3.4 Mobile Station operation with Gateway

Table B.32: MS-GW Implicit send events

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_IMP_GSETUP	BOOLEAN	True if it is possible to cause the IUT to send a DM-GSETUP PDU.	
2	PIX_IMP_GPREEMPT	BOOLEAN	True if it is possible to cause the IUT to send a DM-GPREEMPT PDU.	
3	PIX_IMP_GTX_REQUEST	BOOLEAN	True if it is possible to cause the IUT to send a DM-GTX REQUEST PDU.	
4	PIX_IMP_DM_TX_CEASED	BOOLEAN	True if it is possible to cause the IUT to send a DM-TX CEASED PDU	

Table B.33: MS-GW layer 3 parameter values

Prerequisite: A.71/3 -- Operation with DMO Gateway (MS-GW)				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
3	PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag, which indicate whether or not power control by slave is permitted.	
4	PIX_DMMS_WAITING_TIMER	DMMS_Waiting_Timer_Type	Value of the DM-MS waiting timer (that the DM-MS should use for timer DT302, DT308 or DT309)	
5	PIX_REGISTRATION_LABEL	Registration_Label_Type	Value of the registration label	
6	PIX_REGISTRATION_TIME_REMAINING	Registration_Transaction_Time_Remaining_Type	Registration transaction time remaining	
7	PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	Value of the reservation time remaining used by the master MS.	

B.3.4 Security

Table B.34: Implicit send events

Prerequisite: A.72/6 -- Security				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_IMP_SDS_DATA_SCK_Demand	BOOLEAN	Sending of the DM SDS DATA PDU containing an OTAR SCK demand implemented.	

Table B.35: Configuration parameter values

Prerequisite: A.72/6 -- Security				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_DM	BOOLEAN	Configuration set to test the Direct Mode security protocol.	

Table B.36: General parameter values

Prerequisite: A.72/6 -- Security				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_MS_ITSI	ITSI_Type	ITSI of the IUT.	
2	PIX_TEI	TEI_Type	TEI.	
3	PIX_DM_SDS_TIME_REMAINING	DM_TimeRemainingType	Value of the SDS time remaining element used to indicate the current estimate of the SDS channel occupation time.	

Table B.37: Authentication parameter values

Prerequisite: A.72/6 -- Security				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_RAND1	RandomChallengeType	Value of Random challenge (RAND1).	
2	PIX_RS	RandomSeedType	Value of the Random seed (RS).	
3	PIX_RES2	ResponseValueType	Value of the result RES2.	

Table B.38: OTAR parameter values

Prerequisite: A.72/6 -- Security				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_SCKN	SCK_NbrType	SCK number.	
2	PIX_SCK_VN	SCK_VersionNbrType	SCK version number.	
3	PIX_SSCK	SealedKeyType	Sealed SCK.	

Annex C (normative): Test Specification for Managed DMO

C.1 Introduction

As no explicit Test Suite Structure and Test Purposes (TSS&TP) and Abstract Test Suite (ATS) documents are planned for the TETRA Managed Direct Mode base standard, TS 100 396-10 [26], this annex contains the information required for the present document that would normally be placed in such documents.

C.2 Test suite structure and Test Purposes (TSS&TP)

C.2.1 Test Suite Structure (TSS)

The following list defines the Managed DMO test group names and identifiers used for those:

- Managed DMO Mobile Station to Mobile Station MAC (M_DMO_MSMS_MAC):
  - Capability tests (CA).

C.2.2 Test purposes

C.2.2.1 M-DMO MS to MS MAC (M_DMO_MSMS_MAC) tests

Test group objective: To test the managed DMO MS-MS.

Condition: IUT implements the DMO MS-MS.

C.2.2.1.1 M-DMO MS-MS capability tests

To test the basic capabilities of the IUT.

M_DMO_MSMS_MAC_CA_01	**Requirement ref:** TS 100 396-10 [26], 5.1
Purpose:	Check managed DMO IUT transmission by authorization.
Selection cond:	IUT supports CM or SDS call initiation
Preamble:	
Test description	The tester issues authorization signals (DPRES-SYNC) to the IUT and the IUT is activated to initiate transmission. When the tester receives a message from the IUT or the timer T_IUT_Resp expires, the permission to transmit is withdrawn.
Pass criteria	Verify that the IUT does not transmit when the DPRES-SYNC is sent indicating no permission to transmit on the channel.
Postamble:	

C.3 Abstract Test Suite (ATS)

C.3.1 Abstract Test Method (ATM) for M-DMO MS-MS

The test method for testing the M-DMO is the single party remote test method.

C.3.2 ATS for TETRA M-DMO MS-MS

The ATSs are written in TTCN according to ISO/IEC 9646-3 [42].

One ATS itself contains a test suite overview part which provides additional information and references.

C.3.2.1 The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (mdmo.PDF contained in archive en_301435v010204v0.ZIP) which accompanies the present document.

C.3.2.2 The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (mdmo.MP contained in archive en_301435v010204v0.ZIP) which accompanies the present document.

NOTE: Where an ETSI Abstract Test Suite (in TTCN) is published in both .GR and .MP format these two forms shall be considered equivalent. In the event that there appears to be syntactical or semantic differences between the two then the problem shall be resolved and the erroneous format (whichever it is) shall be corrected.

Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

- TRAC: "Guidelines on the Application of CTRs, NETs and National Standards to Products for Approval under Directive 91/263/EEC".
- Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits.
- ETSI ETR 238: "ETSI/CENELEC standardization programme for the development of Harmonized Standards related to Electro-Magnetic Compatibility (EMC) in the field of telecommunications".
- ETSI ETS 300 392-1 (1996): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 1: General network design".
- ETSI ETS 300 396-1: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 1: General network design".

History

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