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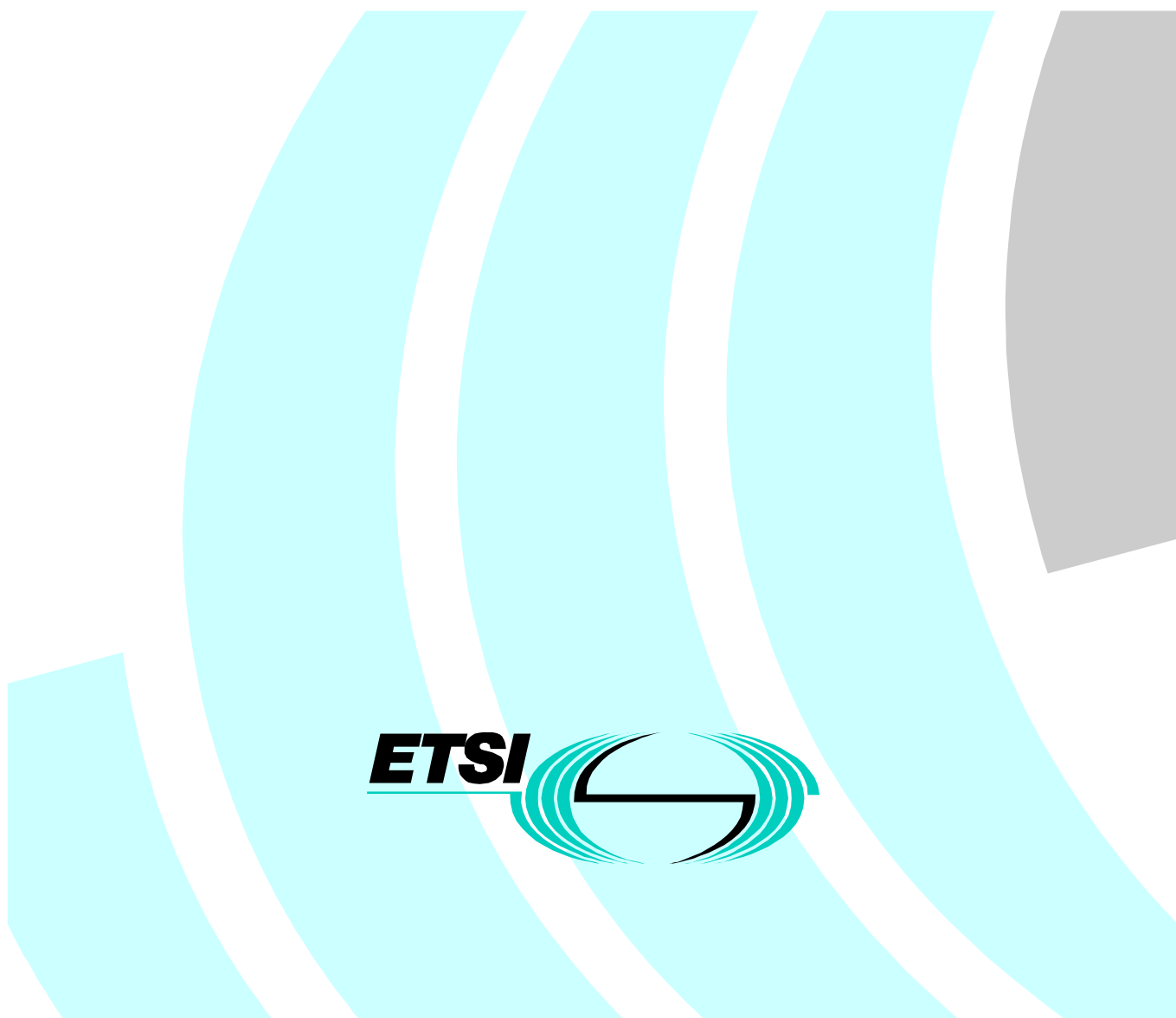
Candidate Harmonized European Standard (Telecommunications series)

Terrestial Trunked Radio (TETRA);
Harmonized EN for TETRA equipment covering essential
requirements under article 3.2 of the R&TTE directive;
Part 2: Direct Mode Operation (DMO)

ETSI

Reference
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Foreword

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

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

The present document is part 2 of a multi-part deliverable covering Harmonized EN for TETRA equipment covering essential requirements under article 3.2 of the R&TTE directive, as identified below:

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

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

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

Introduction

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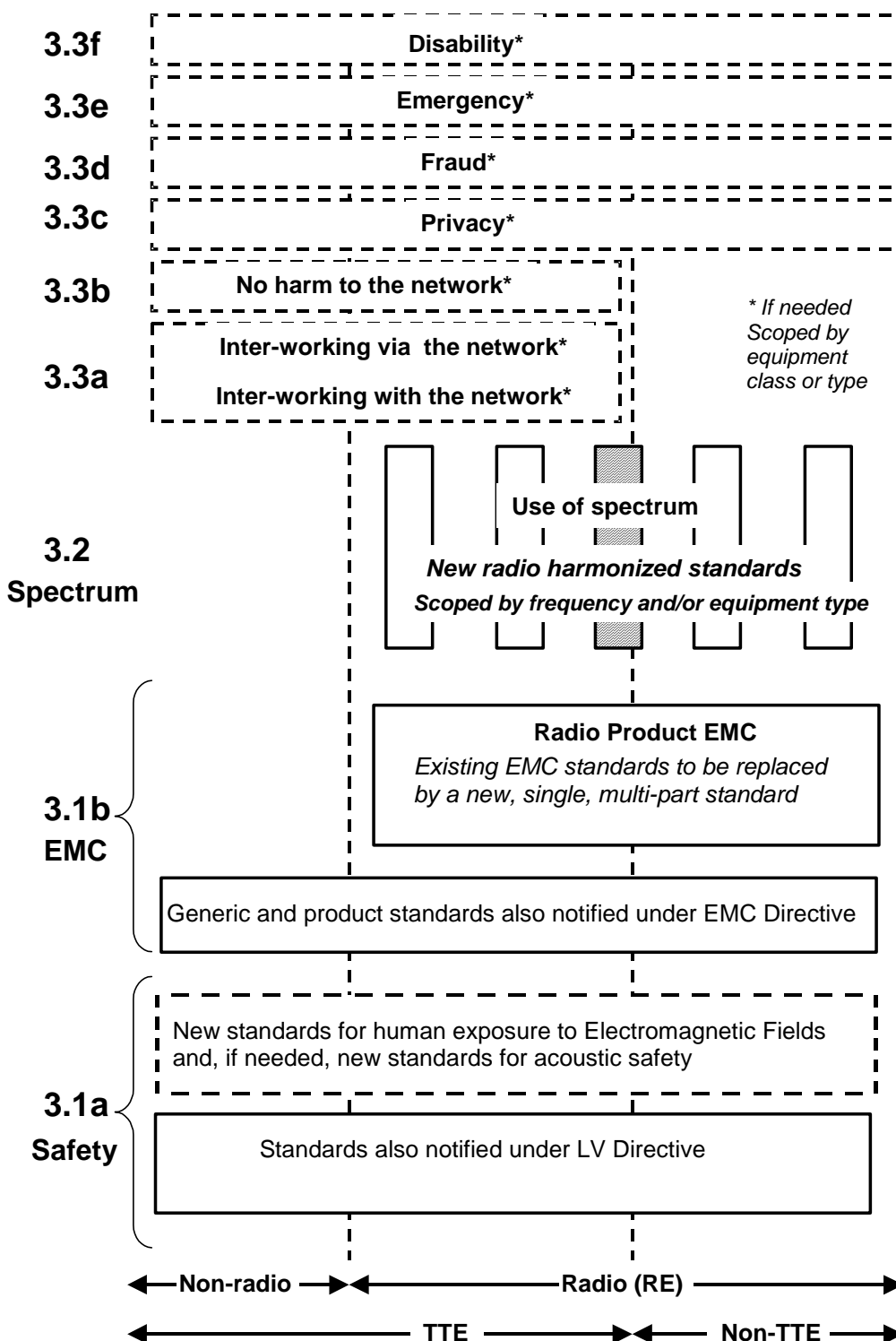
Figure 1: Modular structure for the various standards used under the R&TTE Directive

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

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

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

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

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

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

The modularity principle has been taken because:

- it minimizes the number of standards needed. Because equipment may, in fact, have multiple interfaces and functions it is not practicable to produce a single standard for each possible combination of functions that may occur in an equipment;

- it provides scope for standards to be added:

    - under article 3.2 when new frequency bands are agreed; or

    - under article 3.3 should the Commission take the necessary decisions;

    without requiring alteration of standards that are already published;

- it clarifies, simplifies and promotes the usage of Harmonized Standards as the relevant means of conformity assessment.

1   Scope

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

The present document applies at the TETRA Direct Mode Operation (DMO) Air interface of the following radio and telecommunications terminal equipment types:

1) TETRA Direct Mode Mobile Station (DM-MS);

2) TETRA Direct Mode Gateway (DM-GATE);

3) TETRA Direct Mode Repeater type 1 (DM-REP1);

4) TETRA Direct Mode Repeater type 2 (DM-REP2).

In addition to the basic technical characteristics of a DM-MS required for operation with another DM-MS (MS-MS), the technical characteristics for operation with DM-GATE (MS-GW), DM-REP1 (MS-REP1) and DM-REP2 (MS-REP2) are specified.

It applies to terminal equipment operating within the frequency ranges, allocated to TETRA by the ERC Decisions ERC/DEC/(96)01 [33] and ERC/DEC/(96)04 [34].

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

Table 1: Radiocommunications service frequency bands

Type of Service	Radiocommunications service frequency bands (MHz)
Emergency Access, ERC/DEC/(96)01 [33]	380 to 385
Emergency Access, ERC/DEC/(96)01 [33]	390 to 395
Civil Access, ERC/DEC/(96)04 [34]	410 to 430
Civil Access, ERC/DEC/(96)04 [34]	870 to 876
Civil Access, ERC/DEC/(96)04 [34]	915 to 921
Civil Access, ERC/DEC/(96)04 [34]	450 to 470
Civil Access, ERC/DEC/(96)04 [34]	385 to 390
Civil Access, ERC/DEC/(96)04 [34]	395 to 399,99

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

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

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

2   References

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

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

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

[3]   Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (LV Directive).

[4]   ETSI TS 100 394-1 (V2.3.1): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 1: Radio".

[5]   ETSI ETS 300 394-4-1 (Edition 1, 1999): "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)".

[6]   ETSI ETS 300 394-4-2 (Edition 1, 1999): "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)".

[7]   ETSI TS 100 394-4-3 (v1.1.1, 2000): "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".

[8]   ETSI TS 100 394-4-4 (v1.1.1, 2000): "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".

[9]   ETSI TS 100 394-4-5 (v1.1.1, 2000): "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".

[10]   ETSI TS 100 394-4-6 (v1.1.1, 2000): "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".

[11]   ETSI ETS 300 394-4-7 (Edition 1, 1999): "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)".

[12]   ETSI ETS 300 394-4-8 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 8: Test Suite Structure and Test Purposes (TSS&TP) for Direct Mode Gateway (DM-GATE)".

[13]   ETSI ETS 300 394-4-9 (Edition 1, 1999): "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".

[14]   ETSI ETS 300 394-4-10 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 10: Abstract Test Suite (ATS) for Direct Mode Gateway (DM-GATE)".

[15]   ETSI TS 100 394-4-11 (v1.1.1, 2000): "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".

[16]   ETSI TS 100 394-4-12 (v1.1.1, 2000): "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".

[17]   ETSI TS 100 394-4-13 (v1.1.1, 2000): "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".

[18]   ETSI TS 100 394-4-14 (v1.1.1, 2000): "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".

[19]   ETSI ETS 300 394-5-1 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security; Sub-part 1: Protocol Implementation Conformance Statement (PICS) proforma specification".

[20]   ETSI ETS 300 394-5-2 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security; Sub-part 2: Protocol testing specification for TETRA security".

[21]   ETSI ETS 300 394-5-3 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security; Sub-part 3: Abstract Test Suite (ATS)".

[22]   ETSI ETS 300 396-2 (Edition 1, 1998): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 2: Radio aspects".

[23]   ETSI ETS 300 396-3 (Edition 1, 1998): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 3: Mobile Station to Mobile Station (MS-MS) Air Interface (AI) protocol".

[24]   ETSI TS 100 396-4 (v1.2.1, 2000): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 4: Type 1 repeater air interface".

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

[26]   ETSI ETS 300 396-6 (Edition 1, 1998): "Terrestrial Trunked Radio (TETRA); Direct Mode Operation (DMO); Part 6: Security".

[27]   ETSI TS 100 396-7 (v1.2.1, 2000): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 7: Type 2 repeater air interface".

[28]   ETSI ETS 300 396-8-1 (Edition 1, 2001): "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)".

[29]   ETSI TS 100 396-8-2 (v1.2.1, 2000): "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)".

[30]   ETSI ETS 300 396-8-3 (Edition 1, 1999): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 8: Protocol Implementation Conformance Statement (PICS) proforma specification; Sub-part 3: Gateway Air Interface (AI)".

[31]   ETSI TS 100 396-8-4 (v1.1.1, 2000): "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)".

[32]   ETSI TS 100 396-10 (v1.1.1, 2000): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 10: Managed Direct Mode Operation (M-DMO)".

[33]   CEPT ERC/DEC/(96)01: "ERC Decision of 7 March 1996 on the Harmonized Frequency Band to be Designated for the Introduction of the Digital Land Mobile System for the Emergency Services".

[34]   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)".

[35]   ETSI ETR 028 (Edition 2, 1994): "Radio Equipment and Systems (RES); Uncertainties in the measurement of mobile radio equipment characteristics".

3   Definitions and abbreviations

3.1   Definitions

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

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

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

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

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

DM-REP type 1: DMO 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: DMO 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 [23]. (A DM-REP type 2 may also optionally offer type 1B calls using the protocol defined in ETSI TS 100 396-4 [24])

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

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

Linearization CHannel (LCH): channel, which may be used by the equipment to linearize its transmitter. The linearization burst contains no useful bits

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

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

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

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

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

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

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

surveillance: process of determining the current state of the DM RF carrier for DMO

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

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

useful part of the 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

3.2   Abbreviations

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

ATS	Abstract Test Suite
BI	Behaviour Invalid
BS	Base Station
BV	Behaviour Valid
CA	CApability test
CM	Circuit Mode
CT	Control of Transmission
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
EMC	Electro-Magnetic Compatibility
EN	European Norme
EN-RT	EN Requirement Table
ETS	European Telecommunication Standard

FCS	Frame Check Sequence
GW	GateWay
ID	IDle channel
IMP	IMPlicit
ITSI	Individual TETRA Subscriber Identity
IUT	Implementation Under Test
L3	Layer 3
LCH	Linearization CHannel
LV	Low Voltage
M-DMO	Managed DMO
MAC	Medium Access Control
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
NWK	NetWorK layer
PD	Permanent Disable
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
R&TTE	Radio and Telecommunications Terminal Equipment
RAND1	RANDom challenge 1
RE	Radio Equipment
RES2	RESponse 2
RF	Radio Frequency
RO	Receive Occupation
RR	Receive Reservation
RS	Random Seed
RT	Requirements Table
s	seconds
SCH	Signalling CHannel
SCH/F	Signalling CHannel, Full-slot
SCH/H	Signalling CHannel, Half-slot
SCH/S	Signalling CHannel, Synchronization
SDS	Short Data Services
SDU	Service Data Unit
Sec	Security
SED	Secure Enable/Disable
SM	Signalling Messages
SSI	Short Subscriber Identity
STCH	STealing CHannel
SwMI	Switching and Management Infrastructure
TAR	TARget
TCH	Traffic CHannel
TEI	TETRA Equipment Identity
TETRA	TErrestrial Trunked RAdio
TI	TImer
TSS	Test Suite Structure
TP	Test Purpose
TR	Transmit Reservation
TTCN	Tree and Tabular Combined Notation
TXO	Transmit Occupation
V+D	Voice and Data

4   Technical requirements specifications

4.1   Environmental profile

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

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

4.2   Conformance requirements

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

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

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

Requirement reference: Reference for the requirement within the present document.

Standard reference: Reference to clause(s) in the reference standard specification.

Description: A short description of the requirement.

Technical phenomena: Associated technical phenomena, as defined in annex A of EG 201 399 (see annex F).

Test case limit value: For radio layer tables; Reference to test case limit values to be applied for compliance verification.

Test method reference: For radio layer tables; Reference to relevant test method to perform compliance verification for the requirement.

Test purpose reference: For non-radio layer tables; Reference to test purpose to assess compliance with the requirement.

Test case reference: For non-radio layer tables; Reference to relevant test case to perform compliance verification for the requirement.

4.2.1   Requirements associated with frequency and channel allocation

Table 2: General requirements associated with frequency band allocation

Requirement reference	Standard reference	Description	Technical phenomena	Test case limit value	Test method reference
4.2.1/1	ERC/DEC/(96)01 [33]	Harmonized frequency band for the Digital Land Mobile System for the Emergency Services.	Frequency error/stability	-	Implicit by other radio layer testing
4.2.1/2	ERC/DEC/(96)04 [34]	Frequency bands for the Trans European Trunked Radio System (TETRA).	Frequency error/stability	-	Implicit by other radio layer testing

Table 3: Requirements associated with frequency and channel allocation for DM-MS

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.1/3	6.2	Frequency bands and channel arrangements.	Frequency error/stability	-	Implicit by F.6.4.3
4.2.1/4	7.2	DM-MS synchronization requirement.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/5	7.4	Requirements for the frequency source of DM mobiles.	Frequency error/stability	F.6.3.1	F.6.3.2
4.2.1/6	7.5	Requirement for synchronization of a slave DM mobile.	Frequency error/stability	F.6.4.2	F.6.4.3
4.2.1/7	8.4	Usage of DM channel .	Designation of channels	-	Implicit by MAC layer testing
4.2.1/8	8.4.1.1	DM channel arrangements.	Designation of channels	-	Implicit by MAC layer testing
4.2.1/9	9.4.5	Mapping of logical channels.	Designation of channels	-	Implicit by MAC layer testing
NOTE 1: The requirements are specified in ETS 300 396-2 [22] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 4: Additional requirements associated with frequency and channel allocation for MS-REP1

Requirement reference	Standard reference (note)	Description	Technical phenomena	Test case limit value	Test method reference
4.2.1/10	11.3.2	Frequency bands and channel arrangements.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/11	11.4.2	General requirements for synchronization of DM-MSs.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/12	11.4.5	Requirements for synchronization of a slave DM mobile.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/13	8.4	Usage of DM channel with DM-REP1.	Designation of channels	-	Implicit by MAC layer testing
4.2.1/14	8.4.1.1	DM channel arrangements.	Designation of channels	-	Implicit by MAC layer testing
NOTE: The requirements are specified in ETSI TS 100 396-4 [24] under the given clause.					

Table 5: Additional requirements associated with frequency and channel allocation for MS-REP2

Requirement reference	Standard reference (note)	Description	Technical phenomena	Test case limit value	Test method reference
4.2.1/15	11.3.2	Frequency bands and channel arrangements.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/16	11.4.2	General requirements for synchronization of DM-MSs.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/17	11.4.5	Requirements for synchronization of a slave DM mobile.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/18	11.4.6	Synchronization requirements for a master MS operating on channel B.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/19	8.4	Usage of DM channel with DM-REP2.	Designation of channels	-	Implicit by MAC layer testing
4.2.1/20	8.4.1.1	DM channel arrangements.	Designation of channels	-	Implicit by MAC layer testing
NOTE: The requirements are specified in ETSI TS 100 396-7 [27] under the given clause.					

Table 6: Additional requirements associated with frequency and channel allocation for MS-GW

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value	Test method reference (note 2)
4.2.1/21	15.3.2	Frequency bands and channel arrangements.	Frequency error/stability	-	Implicit by F.6.4.3
4.2.1/22	15.4.2	DM-MS synchronization requirement.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/23	15.4.5	Requirement for synchronization of a slave DM mobile.	Frequency error/stability	-	Implicit by F.6.4.3
NOTE 1: The requirements are specified in ETS 300 396-5 [25] under the given clause.					
NOTE 2: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 7: Requirements associated with frequency and channel allocation for DM-REP1

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.1/24	12.3.2	Frequency bands and channel arrangements.	Frequency error/stability	-	Implicit by F.6.4.3
4.2.1/25	12.4.2	General requirements for synchronization.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/26	12.4.4	Requirements of a frequency reference source of a DM-REP1.	Frequency error/stability	F.6.3.1	F.6.3.2
4.2.1/27	12.4.5	Requirement for synchronization of a DM-REP1.	Frequency error/stability	F.6.4.2	F.6.4.3
4.2.1/28	9.4.1.1	Channel structure.	Designation of channels	-	Implicit by MAC layer testing
4.2.1/29	9.4.1.2	Channel synchronization.	Designation of channels	-	Implicit by MAC layer testing
4.2.1/30	12.6	Channel multiplexing for a DM-REP1.	Designation of channels	-	Implicit by MAC layer testing
NOTE 1: The requirements are specified in ETSI TS 100 396-4 [24] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 8: Requirements associated with frequency and channel allocation for DM-REP2

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.1/31	12.3.2	Frequency bands and channel arrangements.	Frequency error/stability	-	Implicit by F.6.4.3
4.2.1/32	12.4.2	General requirements for synchronization.	Frequency error/stability	-	Implicit by MAC layer testing
4.2.1/33	12.4.4	Requirements of a frequency reference source of a DM-REP2.	Frequency error/stability	F.6.3.1	F.6.3.2
4.2.1/34	12.4.5	Requirement for synchronization of a DM-REP2.	Frequency error/stability	F.6.4.2	F.6.4.3
4.2.1/35	9.4.1.1	Channel structure.	Designation of channels	-	Implicit by MAC layer testing
4.2.1/36	9.4.1.2	Channel synchronization.	Designation of channels	-	Implicit by MAC layer testing
4.2.1/37	12.6	Channel multiplexing for a DM-REP2.	Designation of channels	-	Implicit by MAC layer testing
NOTE 1: The requirements are specified in ETSI TS 100 396-7 [27] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 9: Requirements associated with frequency and channel allocation for DM-GATE

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.1/38	16.3.2	Frequency bands and channel arrangements.	Frequency error/stability	-	Implicit by testing at the V+D air interface
4.2.1/39	16.4.2	Gateway synchronization requirement.	Frequency error/stability	-	Implicit by layer 3 testing at the V+D air interface
4.2.1/40	16.4.4	Requirements for the frequency source of a Gateway.	Frequency error/stability	F.6.3.1	F.6.3.2
4.2.1/41	16.4.5	Requirement for synchronization of a Gateway.	Frequency error/stability	-	Implicit by layer 3 testing at the V+D air interface
4.2.1/42	16.6	Mapping of logical channels.	Designation of channels	-	Implicit by layer 3 testing at the V+D air interface.
NOTE 1: The requirements are specified in ETS 300 396-5 [25] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

4.2.2   Requirements associated with transmitting functions

Table 10: Requirements associated with transmitting functions for DM-MS

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.2/1	6.4.2	Transmitter output power.	Transmitter power	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
4.2.2/2	6.4.3.2.1	Unwanted conducted emission during the useful part of the burst.	Adjacent channel power	7.1.3.2	8.3 and F.4, table F.1
4.2.2/3	6.4.3.2.2	Unwanted conducted emission during the switching transients.	Adjacent channel power	7.1.4.2	8.4
4.2.2/4	6.4.3.4	Unwanted conducted emission during LCH.	Adjacent channel power	7.1.7.2	8.7 and 8.7.1
4.2.2/5	6.4.3.3.1	Unwanted conducted discrete spurious emission far from the carrier.	Spurious emissions	7.1.5.2 and F.5, table F.2	8.5
4.2.2/6	6.4.3.3.2	Unwanted conducted wideband noise emission far from the carrier.	Spurious emissions	7.1.5.2 and F.5, table F.2	8.5
4.2.2/7	6.4.3.5	Unwanted conducted emission in the non-transmit state.	Spurious emissions	7.2.8.2	9.8
4.2.2/8	6.4.4	Unwanted radiated emissions.	Spurious emissions	7.1.6.2	8.6
4.2.2/9	6.4.7.2	Transmitter intermodulation attenuation.	Inter-modulation attenuation	7.1.8.2.1	8.8 and 8.8.1
4.2.2/10	6.4.6	RF output power time mask.	Transient behaviour of the transmitter	F.6.2.1	F.6.2.2
4.2.2/11	6.4.6	RF output power in non-active transmit state.	Transient behaviour of the transmitter	7.1.2.2	8.2
4.2.2/12	5.2	Modulation type	Modulation Accuracy	-	Implicit by 10.1.3
4.2.2/13	6.6.1.2	Modulation accuracy	Modulation Accuracy	7.3.1.2	10.1, 10.1.1and 10.1.3
NOTE 1: The requirements are specified in ETS 300 396-2 [22] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 11: Requirements associated with transmitting functions for DM-REP1

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.2/14	12.3.4.2	Transmitter output power and power class.	Transmitter power	7.1.1.2 a) and F.5, table F.2 and ETSI TS 100 396-4 [24], clause 12.3.4	8.1, 8.1.1 a), b) b2), c) and d) and F.4, table F.1
4.2.2/15	12.3.4.3.2	Unwanted conducted emission during the useful part of the burst.	Adjacent channel power	7.1.3.2	8.3 and F.4, table F.1
4.2.2/16	12.3.4.3.2	Unwanted conducted emission during the switching transients.	Adjacent channel power	7.1.4.2	8.4
4.2.2/17	12.3.4.3.4	Unwanted conducted emission during LCH.	Adjacent channel power	7.1.7.2	8.7, and 8.7.1
4.2.2/18	12.3.4.3.3.1	Unwanted conducted discrete spurious emission far from the carrier.	Spurious emissions	7.1.5.2 and F.5 table F.2 and ETSI TS 100 396-4 [24], clause 12.3.4.3.3.1	8.5
4.2.2/19	12.3.4.3.3.2	Unwanted conducted wideband noise emission far from the carrier.	Spurious emissions	7.1.5.2 and F.5, table F.2 and ETSI TS 100 396-4 [24], clause 12.3.4.3.3.2	8.5
4.2.2/20	12.3.4.3.5	Unwanted conducted emission in the non-transmit state.	Spurious emissions	7.2.8.2	9.8
4.2.2/21	12.3.4.4	Unwanted radiated emissions.	Spurious emissions	7.1.6.2	8.6
4.2.2/22	12.3.4.7	Transmitter intermodulation attenuation.	Inter-modulation attenuation	7.1.8.2.1	8.8 and 8.8.1
4.2.2/23	12.3.4.6	RF output power time mask.	Transient behaviour of the transmitter	F.6.2.1	F.6.2.2
4.2.2/24	12.3.4.6	RF output power in non-active transmit state.	Transient behaviour of the transmitter	7.1.2.2 and ETSI TS 100 396-4 [24], clause 12.3.4.6	8.2
4.2.2/25	12.2	Modulation type.	Modulation Accuracy	-	Implicit by 10.1.3
4.2.2/26	12.3.6	Modulation accuracy.	Modulation Accuracy	7.3.1.2	10.1, 10.1.1and 10.1.3
NOTE 1: The requirements are specified in ETSI TS 100 396-4 [24] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause, except when otherwise stated.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 12: Requirements associated with transmitting functions for DM-REP2

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.2/27	12.3.4.2	Transmitter output power and power classes.	Transmitter power	7.1.1.2 a) and F.5, table F.2 and ETSI TS 100 396-7 [27], clause 12.3.4.2	8.1, 8.1.1 a), b) b2), c) and d) and F.4, table F.1
4.2.2/28	12.3.4.3.2	Unwanted conducted emission during the useful part of the burst.	Adjacent channel power	7.1.3.2	8.3 and F.4, table F.1
4.2.2/29	12.3.4.3.2	Unwanted conducted emission during the switching transients.	Adjacent channel power	7.1.4.2	8.4
4.2.2/30	12.3.4.3.4	Unwanted conducted emission during LCH.	Adjacent channel power	7.1.7.2	8.7, and 8.7.1
4.2.2/31	12.3.4.3.3.1	Unwanted conducted discrete spurious emission far from the carrier.	Spurious emissions	7.1.5.2 and F.5 table F.2 and ETSI TS 100 396-7 [27], clause 12.3.4.3.3.1	8.5
4.2.2/32	12.3.4.3.3.2	Unwanted conducted wideband noise emission far from the carrier.	Spurious emissions	7.1.5.2 and F.5, table F.2 and ETSI TS 100 396-7 [27], clause 12.3.4.3.3.2	8.5
4.2.2/33	12.3.4.3.5	Unwanted conducted emission in the non-transmit state.	Spurious emissions	7.2.8.2	9.8
4.2.2/34	12.3.4.4	Unwanted radiated emissions.	Spurious emissions	7.1.6.2	8.6
4.2.2/35	12.3.4.7	Transmitter intermodulation attenuation.	Inter-modulation attenuation	7.1.8.2.1	8.8 and 8.8.1
4.2.2/36	12.3.4.6	RF output power time mask.	Transient behaviour of the transmitter	F.6.2.1	F.6.2.2
4.2.2/37	12.3.4.6	RF output power in non-active transmit state.	Transient behaviour of the transmitter	7.1.2.2 and ETSI TS 100 396-7 [27], clause 12.3.4.6	8.2
4.2.2/38	12.2	Modulation type.	Modulation Accuracy	-	Implicit by 10.1.3
4.2.2/39	12.3.6	Modulation accuracy.	Modulation Accuracy	7.3.1.2	10.1, 10.1.1and 10.1.3
NOTE 1: The requirements are specified in ETSI TS 100 396-7 [27] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause, except when otherwise stated.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 13: Requirements associated with transmitting functions for DM-GATE

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.2/40	16.3.4.2	Transmitter output power and power class.	Transmitter power	7.1.1.2 a) and F.5, table F.2 and ETS 300 396-5 [25], clause 16.3.4.2	8.1, 8.1.1 a), b) b2), c) and d)
4.2.2/41	16.3.4.3.2	Unwanted conducted emission during the useful part of the burst.	Adjacent channel power	-	Implicit by testing at the V+D air interface
4.2.2/42	16.3.4.3.2	Unwanted conducted emission during the switching transients.	Adjacent channel power	-	Implicit by testing at the V+D air interface
4.2.2/43	16.3.4.3.4	Unwanted conducted emission during LCH.	Adjacent channel power	-	Implicit by testing at the V+D air interface
4.2.2/44	16.3.4.3.3.1	Unwanted conducted discrete spurious emission far from the carrier.	Spurious emissions	7.1.5.2 and F.5, table F.2 and ETS 300 396-5 [25], clause 16.3.4.3.3.1	8.5
4.2.2/45	16.3.4.3.3.2	Unwanted conducted wideband noise emission far from the carrier.	Spurious emissions	7.1.5.2 and F.5, table F.2 and ETS 300 396-5 [25], clause 16.3.4.3.3.2	8.5
4.2.2/46	16.3.4.3.5	Unwanted conducted emission in the non-transmit state.	Spurious emissions	-	Implicit by testing at the V+D air interface
4.2.2/47	16.3.4.4	Unwanted radiated emissions.	Spurious emissions	-	Implicit by testing at the V+D air interface
4.2.2/48	16.3.4.7	Intra-gateway transmitter intermodulation attenuation.	Inter-modulation attenuation	-	Implicit by testing at the V+D air interface
4.2.2/49	16.3.4.6	RF output power time mask.	Transient behaviour of the transmitter	F.6.2.1	F.6.2.2
4.2.2/50	16.3.4.6	RF output power in non-active transmit state.	Transient behaviour of the transmitter	7.1.2.2 and ETS 300 396-5 [25], clause 16.3.4.6	Implicit by testing at the V+D air interface
4.2.2/51	16.2	Modulation type.	Modulation Accuracy	-	Implicit by testing at the V+D air interface
4.2.2/52	16.3.6	Modulation accuracy.	Modulation Accuracy	-	Implicit by testing at the V+D air interface
NOTE 1: The requirements are specified in ETS 300 396-5 [25] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause, except when otherwise stated.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

4.2.3   Requirements associated with receiving functions

Table 14: Requirements associated with receiving functions for DM-MS

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.3/1	6.5.2.2	Spurious response rejection.	Spurious response rejection	7.2.6.2 and F.5, table F.2	9.6
4.2.3/2	6.5.3.2	Intermodulation response rejection.	Inter-modulation response rejection	7.2.7.2 and F.5, table F.2	9.7 and 9.7.1
4.2.3/3	6.5.1.2	Blocking characteristics.	Blocking or desensitization	7.2.5.2 and F.5 table F.2	9.5 and 9.5.1
4.2.3/4	6.5.4.2	Unwanted conducted emission in reception.	Spurious emissions	7.2.8.2	9.8
4.2.3/5	6.5.5	Unwanted radiated emission.	Spurious emissions	7.2.9.2	9.9
NOTE 1: The requirements are specified in ETS 300 396-2 [22] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 15: Requirements associated with receiving functions for DM-REP1

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.3/6	12.3.5	Spurious response rejection.	Spurious response rejection	7.2.6.2 and F.5, table F.2	9.6
4.2.3/7	12.3.5	Intermodulation response rejection.	Inter-modulation response rejection	7.2.7.2 and F.5, table F.2	9.7 and 9.7.1
4.2.3/8	12.3.5	Blocking characteristics.	Blocking or desensitization	7.2.5.2 and F.5 table F.2	9.5 and 9.5.1
4.2.3/9	12.3.5	Unwanted conducted emission in reception.	Spurious emissions	7.2.8.2	9.8
4.2.3/10	12.3.5	Unwanted radiated emission.	Spurious emissions	7.2.9.2	9.9
NOTE 1: The requirements are specified in ETSI TS 100 396-4 [24] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 16: Requirements associated with receiving functions for DM-REP2

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.3/11	12.3.5	Spurious response rejection.	Spurious response rejection	7.2.6.2 and F.5, table F.2	9.6
4.2.3/12	12.3.5	Intermodulation response rejection.	Inter-modulation response rejection	7.2.7.2 and F.5, table F.2	9.7 and 9.7.1
4.2.3/13	12.3.5	Blocking characteristics.	Blocking or desensitization	7.2.5.2 and F.5 table F.2	9.5 and 9.5.1
4.2.3/14	12.3.5	Unwanted conducted emission in reception.	Spurious emissions	7.2.8.2	9.8
4.2.3/15	12.3.5	Unwanted radiated emission.	Spurious emissions	7.2.9.2	9.9
NOTE 1: The requirements are specified in ETSI TS 100 396-7 [27] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 17: Requirements associated with receiving functions for DM-GATE

Requirement reference	Standard reference (note)	Description	Technical phenomena	Test case limit value	Test method reference
4.2.3/16	16.3.5	Spurious response rejection.	Spurious response rejection	-	Implicit by testing at the V+D air interface
4.2.3/17	16.3.5	Intermodulation response rejection.	Inter-modulation response rejection	-	Implicit by testing at the V+D air interface
4.2.3/18	16.3.5	Blocking characteristics.	Blocking or desensitization	-	Implicit by testing at the V+D air interface
4.2.3/19	16.3.5	Unwanted conducted emission in reception.	Spurious emissions	-	Implicit by testing at the V+D air interface
4.2.3/20	16.3.5	Unwanted radiated emission.	Spurious emissions	-	Implicit by testing at the V+D air interface
NOTE: The requirements are specified in ETS 300 396-5 [25] under the given clause.					

4.2.4 Requirements associated with control and monitoring functions

4.2.4.1 Requirements for the radio layer

Table 18: Requirements for the radio layer associated with control and monitoring function for DM-MS

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.4.1/1	6.6.2.1	Nominal error rate.	Network interface bit errors	7.2.2.2 and F.5, table F.2	9.2 and 9.2.1
4.2.4.1/2	6.6.2.2	Dynamic reference sensitivity performance.	Network interface bit errors	7.2.3.2 and F.5, table F.2	9.3, 9.3.1 and 9.3.3
4.2.4.1/3	6.6.2.3	Reference interference performance.	Network interface bit errors	7.2.4.2 and F.5, table F.2	9.4 and 9.4.1
4.2.4.1/4	6.6.2.4	Static reference sensitivity performance.	Network interface bit errors	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.
4.2.4.1/5	6.6.2.5	MS receiver performance for synchronization burst acquisition.	Network interface bit errors	-	Implicit by MAC layer testing.
NOTE 1: The requirements are specified in ETS 300 396-2 [22] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 19: Requirements for the radio layer associated with control and monitoring function for DM-REP1

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.4.1/6	12.3.6	Nominal error rate.	Network interface bit errors	7.2.2.2 and F.5, table F.2	9.2 and 9.2.1
4.2.4.1/7	12.3.6	Dynamic reference sensitivity performance.	Network interface bit errors	7.2.3.2 and F.5, table F.2	9.3, 9.3.1 and 9.3.3
4.2.4.1/8	12.3.6	Reference interference performance.	Network interface bit errors	7.2.4.2 and F.5, table F.2	9.4 and 9.4.1
4.2.4.1/9	12.3.6	Static reference sensitivity performance.	Network interface bit errors	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.
4.2.4.1/10	12.3.6	Receiver performance for synchronization burst acquisition.	Network interface bit errors	-	Implicit by MAC layer testing.
NOTE 1: The requirements are specified in ETSI TS 100 396-4 [24] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 20: Requirements for the radio layer associated with control and monitoring function for DM-REP2

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.4.1/11	12.3.6	Nominal error rate.	Network interface bit errors	7.2.2.2 and F.5, table F.2	9.2 and 9.2.1
4.2.4.1/12	12.3.6	Dynamic reference sensitivity performance.	Network interface bit errors	7.2.3.2 and F.5, table F.2	9.3, 9.3.1 and 9.3.3
4.2.4.1/13	12.3.6	Reference interference performance.	Network interface bit errors	7.2.4.2 and F.5, table F.2	9.4 and 9.4.1
4.2.4.1/14	12.3.6	Static reference sensitivity performance.	Network interface bit errors	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.
4.2.4.1/15	12.3.6	Receiver performance for synchronization burst acquisition.	Network interface bit errors	-	Implicit by MAC layer testing.
NOTE 1: The requirements are specified in ETSI TS 100 396-7 [27] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

Table 21: Requirements for the radio layer associated with control and monitoring function for DM-GATE

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test case limit value (note 2)	Test method reference (note 3)
4.2.4.1/16	16.3.6	Nominal error rate.	Network interface bit errors	-	Implicit by testing at the V+D air interface
4.2.4.1/17	16.3.6	Dynamic reference sensitivity performance.	Network interface bit errors	-	Implicit by testing at the V+D air interface
4.2.4.1/18	16.3.6	Reference interference performance.	Network interface bit errors	-	Implicit by testing at the V+D air interface
4.2.4.1/19	16.3.6	Static reference sensitivity performance.	Network interface bit errors	-	Implicit by testing at the V+D air interface
4.2.4.1/20	16.3.6	Receiver performance for synchronization burst acquisition.	Network interface bit errors	-	Implicit by layer 3 testing at the V+D air interface.
NOTE 1: The requirements are specified in ETS 300 396-5 [25] under the given clause.					
NOTE 2: The test case limit values are specified in ETSI TS 100 394-1 [4], under the given clause.					
NOTE 3: The test methods are specified in ETSI TS 100 394-1 [4], under the given clause.					

4.2.4.2   Requirements for the lower MAC layer

Table 22: Requirements for the lower MAC layer associated with control and monitoring function for DM-MS

Requirement reference	Standard reference (note)	Description	Technical phenomena	Test purpose reference	Test case reference
4.2.4.2/1	8.3.1.1	Error control scheme for Synchronization Signalling CHannel (SCH/S).	Error control by coding and decoding of logical channels	-	Implicit by Upper MAC layer testing.
4.2.4.2/2	8.3.1.2	Error control scheme for Half-slot Signalling CHannel (SCH/H) and Stealing CHannel (STCH).	Error control by coding and decoding of logical channels	-	Implicit by Upper MAC layer testing.
4.2.4.2/3	8.3.1.3	Error control scheme for Full-slot Signalling Channel (SCH/F).	Error control by coding and decoding of logical channels	-	Implicit by Upper MAC layer testing.
NOTE: The requirements are specified in ETS 300 396-2 [22] under the given clause.					

Table 23: Requirements for the lower MAC layer associated with control and monitoring function for DM-REP1

Requirement reference	Standard reference (note)	Description	Technical phenomena	Test purpose reference	Test case reference
4.2.4.2/4	12.5	Error control scheme for logical channels.	Error control by coding and decoding of logical channels	-	Implicit by Upper MAC layer testing.
NOTE: The requirements are specified in ETSI TS 100 396-4 [24] under the given clause.					

Table 24: Requirements for the lower MAC layer associated with control and monitoring function for DM-REP2

Requirement reference	Standard reference (note)	Description	Technical phenomena	Test purpose reference	Test case reference
4.2.4.2/5	12.5	Error control scheme for logical channels.	Error control by coding and decoding of logical channels	-	Implicit by Upper MAC layer testing.
NOTE: The requirements are specified in ETSI TS 100 396-7 [27] under the given clause.					

Table 25: Requirements for the lower MAC layer associated with control and monitoring function for DM-GATE

Requirement reference	Standard reference (note)	Description	Technical phenomena	Test purpose reference	Test case reference
4.2.4.2/6	16.5	Error control scheme for logical channels.	Error control by coding and decoding of logical channels	-	Implicit by Upper MAC layer testing.
NOTE: The requirements are specified in ETS 300 396-5 [25] under the given clause.					

4.2.4.3 Managed DMO requirements

Table 26: Managed DMO requirements associated with control and monitoring function for DM-MS

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.3/1	5.4.1	Transmit authorization for M-DM-MS.	Control of radio resource allocation	M_DMO_MSMS_MAC_CA_01	M_DMO_MSMS_MAC_CA_01
4.2.4.3/2	7.2	Withdrawal of authorization.	Control of radio resource allocation	M_DMO_MSMS_MAC_CA_01	M_DMO_MSMS_MAC_CA_01
4.2.4.3/3	8.1	M-DMO presence signal.	Control of radio resource allocation	M_DMO_MSMS_MAC_CA_01	M_DMO_MSMS_MAC_CA_01
NOTE 1: The requirements are specified in ETSI TS 100 396-10 [32], under the given clause.					
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.					

4.2.4.4 Requirements for the upper MAC layer

Table 27: Requirements for the upper MAC layer associated with control and monitoring function for DM-MS

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.4/1	8.4.4.2	DM-channel monitoring during occupation.	Control of communication in logical channels	Implicit by DMO_MSMS_DMCC_CM_BV_TXO_03	Implicit by DMO_MSMS_DMCC_CM_BV_TXO_03
4.2.4.4/2	8.4.4.3	DM-channel monitoring during reservation.	Control of communication in logical channels	Implicit by DMO_MSMS_DMCC_CM_BV_TR_02	Implicit by DMO_MSMS_DMCC_CM_BV_TR_02
4.2.4.4/3	8.4.4.5	DM-channel monitoring during pre-emption signalling.	Control of communication in logical channels	Implicit by DMO_MSMS_DMCC_CM_BV_RO_02	Implicit by DMO_MSMS_DMCC_CM_BV_RO_02
4.2.4.4/4	8.4.5.1.7	Transmitting DM-OCCUPIED.	Control of communication in logical channels	DMO_MSMS_MAC_BV_CU_02	DMO_MSMS_MAC_BV_CU_02
4.2.4.4/5	8.4.6.1	Transmitting DM-RESERVED.	Control of communication in logical channels	DMO_MSMS_MAC_BV_CU_04	DMO_MSMS_MAC_BV_CU_04
4.2.4.4/6	8.5.6.1	Transmission of messages.	Control of communication in logical channels	DMO_MSMS_MAC_BV_CU_06	DMO_MSMS_MAC_BV_CU_06
4.2.4.4/7	8.5.7.2.1	Indicating frames available for requests.	Control of communication in logical channels	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 [23], under the given clause.					
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-1 [5], clause 6.					
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-2 [6], annex A.					

Table 28: Additional requirements for the upper MAC layer associated with control and monitoring function for MS-REP1

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.4/8	8.4.4.3	DM-channel monitoring during occupation.	Control of communication in logical channels	Implicit by DMO_MSREP1_DMCC_CM_BV_TXO_03	Implicit by DMO_MSREP1_DMCC_CM_BV_TXO_03
4.2.4.4/9	8.4.4.4	DM-channel monitoring during reservation.	Control of communication in logical channels	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
4.2.4.4/10	8.4.4.6	DM-channel monitoring during pre-emption signalling.	Control of communication in logical channels	Implicit by DMO_MSREP1_MAC_BV_SM_02	Implicit by DMO_MSREP1_MAC_BV_SM_02
4.2.4.4/11	8.5.2.1.1	Indication of master/slave role in synchronization burst.	Control of communication in logical channels	DMO_MSREP1_MAC_BV_SM_01C	DMO_MSREP1_MAC_BV_SM_01C
4.2.4.4/12	8.5.7.2.1	Indicating frames available for requests.	Control of communication in logical channels	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 ETSI TS 100 396-4 [24], under the given clause. NOTE 2: The test purposes, as referenced, are specified in ETSI TS 100 394-4-3 [7], clause 6. NOTE 3: The test cases, as referenced, are specified in ETSI TS 100 394-4-5 [9], annex A.					

Table 29: Additional requirements for the upper MAC layer associated with control and monitoring function for MS-REP2

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.4/13	8.4.4.3	DM-channel monitoring during occupation.	Control of communication in logical channels	Implicit by DMO_MSREP2_DMCC_CM_BV_TXO_03	Implicit by DMO_MSREP2_DMCC_CM_BV_TXO_03
4.2.4.4/14	8.4.4.4	DM-channel monitoring during reservation.	Control of communication in logical channels	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
4.2.4.4/15	8.4.4.6	DM-channel monitoring during pre-emption signalling.	Control of communication in logical channels	Implicit by DMO_MSREP2_MAC_BV_SM_02	Implicit by DMO_MSREP2_MAC_BV_SM_02
4.2.4.4/16	8.5.2	Indication of master/slave role in synchronization burst.	Control of communication in logical channels	DMO_MSREP2_MAC_BV_SM_01C	DMO_MSREP2_MAC_BV_SM_01C
4.2.4.4/17	8.5.7.2.1	Indicating frames available for requests.	Control of communication in logical channels	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 ETSI TS 100 396-7 [27], under the given clause. NOTE 2: The test purposes, as referenced, are specified in ETSI TS 100 394-4-11 [15], clause 6. NOTE 3: The test cases, as referenced, are specified in ETSI TS 100 394-4-13 [17], annex A.					

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Table 30: Additional requirements for the upper MAC layer associated with control and monitoring function for MS-GW

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.4/18	8.4.4.3	DM-channel monitoring during occupation.	Control of communication in logical channels	Implicit by DMO_MSGW_DMCC_CM_BV_TXO_04	Implicit by DMO_MSGW_DMCC_CM_BV_TXO_04
4.2.4.4/19	8.4.4.6	DM-channel monitoring during pre-emption signalling.	Control of communication in logical channels	Implicit by DMO_MSGW_DMCC_CM_BV_RO_03	Implicit by DMO_MSGW_DMCC_CM_BV_RO_03
4.2.4.4/20	8.4.5.1.7	Transmitting DM-OCCUPIED.	Control of communication in logical channels	DMO_MSGW_MAC_BV_CU_02	DMO_MSGW_MAC_BV_CU_02
4.2.4.4/21	8.5.7.2.1	Indicating frames available for requests.	Control of communication in logical channels	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 [25], under the given clause.					
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-7 [11], clause 6.					
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-9 [13], annex A.					

Table 31: Requirements for the upper MAC layer associated with control and monitoring function for DM-REP1

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.4/22	9.4.2.2.3	DM-REP channel surveillance at DM-MS call set-up.	Control of communication in logical channels	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
4.2.4.4/23	9.4.2.3	DM-REP channel surveillance during a call.	Control of communication in logical channels	DMO_DMREP1_MAC_TI_01, DMO_DMREP1_MAC_TI_02	DMO_DMREP1_MAC_TI_01, DMO_DMREP1_MAC_TI_02
4.2.4.4/24	9.4.5.1	Signalling of channel state.	Control of communication in logical channels	DMO_DMREP1_MAC_CA_02	DMO_DMREP1_MAC_CA_02
4.2.4.4/25	9.5.1.1.1	Re-transmission of master DM-MS messages.	Control of communication in logical channels	DMO_DMREP1_MAC_BV_05	DMO_DMREP1_MAC_BV_05
4.2.4.4/26	9.5.1.1.2	Re-transmission of DM-SETUP or DM-SETUP PRES messages.	Control of communication in logical channels	DMO_DMREP1_MAC_BV_07	DMO_DMREP1_MAC_BV_07
4.2.4.4/27	9.5.1.1.3	Re-transmission of DM-SDS DATA or DM-SDS UDATA messages.	Control of communication in logical channels	DMO_DMREP1_MAC_BV_08	DMO_DMREP1_MAC_BV_08
4.2.4.4/28	9.5.2.1	Re-transmission of signalling messages received from a slave DM-MS.	Control of communication in logical channels	DMO_DMREP1_MAC_BI_02	DMO_DMREP1_MAC_BI_02
4.2.4.4/29	9.5.2.2	Re-transmission of response messages from a slave DM-MS.	Control of communication in logical channels	Implicit by DMO_DMREP1_MAC_BV_05	Implicit by DMO_DMREP1_MAC_BV_05
NOTE 1: The requirements are specified in ETSI TS 100 396-4 [24], under the given clause.					
NOTE 2: The test purposes, as referenced, are specified in ETSI TS 100 394-4-4 [8], clause 6.					
NOTE 3: The test cases, as referenced, are specified in ETSI TS 100 394-4-6 [10], annex A.					

Table 32: Requirements for the upper MAC layer associated with control and monitoring function for DM-REP2

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.4/30	9.4.2.2.3	DM-REP channel surveillance at DM-MS call set-up.	Control of communication in logical channels	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
4.2.4.4/31	9.4.2.3	DM-REP channel surveillance during a call.	Control of communication in logical channels	DMO_DMREP2_MAC_TI_01, DMO_DMREP2_MAC_TI_02	DMO_DMREP2_MAC_TI_01, DMO_DMREP2_MAC_TI_02
4.2.4.4/32	9.4.4	DM-REP channel monitoring procedures.	Control of communication in logical channels	DMO_DMREP2_MAC_BV_02b	DMO_DMREP2_MAC_BV_02b
4.2.4.4/33	9.4.5.1.1	Signalling of channel state.	Control of communication in logical channels	DMO_DMREP2_MAC_CA_02	DMO_DMREP2_MAC_CA_02
4.2.4.4/34	9.5.1.1.1	Re-transmission of master DM-MS messages.	Control of communication in logical channels	DMO_DMREP2_MAC_BV_05	DMO_DMREP2_MAC_BV_05
4.2.4.4/35	9.5.1.1.2	Re-transmission of DM-SETUP or DM-SETUP PRES messages.	Control of communication in logical channels	DMO_DMREP2_MAC_BV_07	DMO_DMREP2_MAC_BV_07
4.2.4.4/36	9.5.1.1.3	Re-transmission of DM-SDS DATA or DM-SDS UDATA messages.	Control of communication in logical channels	DMO_DMREP2_MAC_BV_08	DMO_DMREP2_MAC_BV_08
4.2.4.4/37	9.5.2.1	Re-transmission of signalling messages received from a slave DM-MS.	Control of communication in logical channels	DMO_DMREP2_MAC_BI_02	DMO_DMREP2_MAC_BI_02
4.2.4.4/38	9.5.2.2	Re-transmission of response messages from a slave DM-MS.	Control of communication in logical channels	Implicit by DMO_DMREP2_MAC_BV_05	Implicit by DMO_DMREP2_MAC_BV_05
NOTE 1: The requirements are specified in ETSI TS 100 396-7 [27], under the given clause. NOTE 2: The test purposes, as referenced, are specified in ETSI TS 100 394-4-12 [16], clause 6. NOTE 3: The test cases, as referenced, are specified in ETSI TS 100 394-4-14 [18], annex A.					

Table 33: Requirements for the upper MAC layer associated with control and monitoring function for DM-GATE

Requirement reference	Standard reference (note)	Description	Technical phenomena	Test purpose reference	Test case reference
4.2.4.4/39	13.4.2.2.3	DM-GW channel surveillance at DM-MS call set-up.	Control of communication in logical channels	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.4/40	13.4.2.3	DM-GW channel surveillance during a call.	Control of communication in logical channels	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.4/41	13.4.4.5	DM-GW channel monitoring during occupation.	Control of communication in logical channels	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.4/42	13.4.4.7	DM-GW channel monitoring during reservation.	Control of communication in logical channels	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.4/43	13.4.5.1.4	Transmitting DM-OCCUPIED.	Control of communication in logical channels	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.4/44	13.4.6.1.1	Transmitting DM-RESERVED.	Control of communication in logical channels	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.4/45	13.5.6.1	Transmission of messages.	Control of communication in logical channels	-	Implicit by testing layer 3 at the V+D air interface.
NOTE: The requirements are specified in ETS 300 396-5 [25] under the given clause.					

4.2.4.5   Requirements for the DMMM layer

Table 34: Requirements for the DMMM layer associated with control and monitoring function for MS-GW

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.5/1	6.4.1	Solicited registration.	Control functions for usage of cells	DMO_MSGW_DMMM_01	DMO_MSGW_NWK_DMMM_01
4.2.4.5/2	6.4.2	Unsolicited registration.	Control functions for usage of cells	DMO_MSGW_DMMM_02	DMO_MSGW_NWK_DMMM_02
4.2.4.5/3	6.4.3	Cancellation of registration by Gateway.	Control functions for usage of cells	DMO_MSGW_DMMM_03	DMO_MSGW_NWK_DMMM_03
NOTE 1: The requirements are specified in ETS 300 396-5 [25], under the given clause.					
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-7 [11], clause 6.					
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-9 [13], annex A.					

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4.2.4.6 Requirements for the DMCC layer

Table 35: Requirements associated with control and monitoring function for Circuit mode operation on the DMCC layer for DM-MS

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.6/1	6.2.1.1	Outgoing call set-up on available channel without presence check.	TX call set up control	DMO_MSMS_DMCC_CM_CA_01, DMO_MSMS_DMCC_CM_CA_03	DMO_MSMS_DMCC_CM_CA_01, DMO_MSMS_DMCC_CM_CA_03
4.2.4.6/2	6.2.2.1	Outgoing call set-up on available channel with presence check.	TX call set up control	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
4.2.4.6/3	6.2.4.2	Request for pre-emption during occupation.	TX call set up control	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
4.2.4.6/4	6.2.5.2	Request for changeover during reservation.	TX call set up control	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
4.2.4.6/5	6.2.4.1	Receipt by master MS of request for pre-emption during occupation.	TX enable/disable control	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
4.2.4.6/6	6.2.5.1	Receipt by master MS of request for pre-emption during reservation.	TX enable/disable control	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
4.2.4.6/7	6.2.4.1	Release of radio resource at the end of transmission.	Control of call disconnect	DMO_MSMS_DMCC_CM_BV_TXO_02	DMO_MSMS_DMCC_CM_BV_TXO_02
4.2.4.6/8	6.2.4.1	Master release of resource by user application.	Control of call disconnect	DMO_MSMS_DMCC_CM_BV_TXO_01	DMO_MSMS_DMCC_CM_BV_TXO_01
4.2.4.6/9	6.2.4.1	Release of radio resource at DT311 timeout.	Control of call disconnect	DMO_MSMS_DMCC_CM_TI_02	DMO_MSMS_DMCC_CM_TI_02
4.2.4.6/10	6.2.5.1	Receipt by master MS of request for changeover during reservation.	Control of call disconnect	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
4.2.4.6/11	6.2.5.1	Release of radio resource during reservation.	Control of call disconnect	DMO_MSMS_DMCC_CM_BV_TR_01	DMO_MSMS_DMCC_CM_BV_TR_01
NOTE 1: The requirements are specified in ETS 300 396-3 [23], under the given clause. NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-1 [5], clause 6. NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-2 [6], annex A.					

Table 36: Requirements associated with control and monitoring function for Short Data operation on the DMCC layer for DM-MS

Requirement reference	Standard reference (note 1)	Description	Technical phenomena (note 2)	Test purpose reference (note 3)	Test case reference (note 4)
4.2.4.6/12	6.3.2.2	Receiving acknowledged short data.	TX enable/disable control	-	Implicit by testing of Security functions
4.2.4.6/13	6.3.4	FCS checking in reception.	TX enable/disable control	-	Implicit by testing of Security functions
4.2.4.6/14	6.3.4	FCS calculation in transmission.	TX enable/disable control	-	Implicit by testing of Security functions
NOTE 1: The requirements are specified in ETS 300 396-3 [23], under the given clause.					
NOTE 2: Implementation of SDS is a prerequisite for Enable/Disable.					
NOTE 3: The test purposes, as referenced, are specified in ETS 300 394-4-1 [5], clause 6.					
NOTE 4: The test cases, as referenced, are specified in ETS 300 394-4-2 [6], annex A.					

Table 37: Additional requirements associated with control and monitoring function for Circuit mode operation on the DMCC layer for MS-GW

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.6/15	6.2.1.1	Outgoing call set-up through a Gateway.	TX call set up control	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
4.2.4.6/16	6.2.4.2	Request for pre-emption during occupation.	TX call set up control	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
4.2.4.6/17	6.2.5.2	Request for changeover during reservation.	TX call set up control	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
4.2.4.6/18	6.2.4.1	Receipt by master MS of request for pre-emption from the Gateway during occupation.	TX enable/-disable control	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
NOTE 1: The requirements are specified in ETS 300 396-5 [25], under the given clause.					
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-4-7 [11], clause 6.					
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-4-9 [13], annex A.					

Table 38: Requirements associated with control and monitoring function on the DMCC layer for DM-GATE

Requirement reference	Standard reference (note)	Description	Technical phenomena	Test purpose reference	Test case reference
4.2.4.6/19	9.3.1.1	Outgoing individual call set-up to DM-MS.	TX call set up control	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/20	9.3.1.2	Outgoing group call set-up to DM-MS.	TX call set up control	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/21	9.3.3.3	Receipt of request to continue ongoing call from SwMI during DM channel reservation.	TX call set up control	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/22	9.3.3.4.1	Response to request for change-over or pre-emption during DM-channel reservation.	TX call set up control	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/23	9.3.4.1.3	New call preemption during DM channel reservation.	TX call set up control	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/24	9.3.3.1.1	Reception of DM-TX CEASED by end of DM-MS call.	Control of call disconnect	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/25	9.3.3.1.2	Transmitting DM-TX CEASED by end of V+D call.	Control of call disconnect	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/26	9.3.3.2	Transmitting DM-TX CEASED at receipt of interrupt from SwMI.	Control of call disconnect	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/27	9.3.3.5	Termination of DM call on receipt of transmission interrupt from SwMI.	Control of call disconnect	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/28	9.3.3.9.1	Receipt of DM-RELEASE from current master DM-MS.	Control of call disconnect	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/29	9.3.3.9.2	Release of DM channel on receipt of D-RELEASE from SwMI.	Control of call disconnect	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/30	9.3.3.9.3	Release of DM channel at expiry of call length timer.	Control of call disconnect	-	Implicit by testing layer 3 at the V+D air interface.
4.2.4.6/31	9.3.4.2.1	Preemption of DM channel on receipt of transmission interrupt from SwMI.	Control of call disconnect	-	Implicit by testing layer 3 at the V+D air interface.
NOTE: The requirements are specified in ETS 300 396-5 [25], under the given clause.					

4.2.4.7   Requirements for the security functions

Table 39: Requirements for the security functions associated with control and monitoring function for DM-MS

Requirement reference	Standard reference (note 1)	Description	Technical phenomena	Test purpose reference (note 2)	Test case reference (note 3)
4.2.4.7/1	8.7.3.1	Disabling of target.	TX enable/disable control	TP/Sec_DM/L3/SED/BV/PD/TAR/02	Sec_DM_L3_SED_BV_PD_TAR_02
4.2.4.7/2	8.7.3.3	TEI delivery.	TX enable/disable control	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 [26], under the given clause.					
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-5-2 [20], clause 7.					
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-5-3 [21], annex B.					

5   Testing for compliance with technical requirements

5.1   Environmental conditions for testing

Radio testing shall be performed at normal and extreme test conditions as specified in ETSI TS 100 394-1 [4].

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

- the lower temperature shall be the lowest intended operational temperature;

- the upper temperature shall be the highest intended operational temperature.

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

5.2   Interpretation of the measurement results

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

- the measured value related to the corresponding limit will be used to decide whether an equipment meets the requirements of the present document;

- the value of the measurement uncertainty for the measurement of each parameter shall be included in the test report;

- the recorded value of the measurement uncertainty shall be, for each measurement, equal to or lower than the figures in table 40.

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with ETR 028 [35] and shall correspond to an expansion factor (coverage factor) k = 1,96 (which provide confidence levels of 95 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table 40 is based on such expansion factors.

Table 40: Maximum measurement uncertainty

Parameter	Uncertainty
Mean transmitted RF carrier power	±0,75 dB
Transmitted RF carrier power versus time:	
RF power relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power relative to 0 dB reference (< -45 dBc to -73 dBc)	±1,5 dB
Unwanted output power in non-active transmit state:	
RF power relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power relative to 0 dB reference (< -45 dBc to -73 dBc)	±1,5 dB
Adjacent channel power:	
RF power (0 dB reference)	±1,0 dB
RF power relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power relative to 0 dB reference (< -45 dBc to -73 dBc)	±1,5 dB
RF power (absolute limit values)	±1,0 dB
Unwanted emissions far from the carrier; discrete spurious:	
RF power (offsets within f_{rb})	±1,5 dB
RF power (offsets > f_{rb}, not TETRA filtered); f ≤ 1 GHz	±1,5 dB
RF power (offsets > f_{rb}, not TETRA filtered); 1 GHz < f ≤ 2 GHz	±2,0 dB
RF power (offsets > f_{rb}, not TETRA filtered); 2 GHz < f ≤ 4 GHz	±3,0 dB
RF power (offsets > f_{rb}, not TETRA filtered); 4 GHz < f ≤ 12,75 GHz	±4,0 dB
Unwanted emissions far from the carrier; wideband noise:	
RF power relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power relative to 0 dB reference (< -45 dBc to -105 dBc)	±1,5 dB

Parameter	Uncertainty
Unwanted radiated emissions:	
RF power (not TETRA filtered)	±4,0 dB
Unwanted emissions during the LCH (linearization):	
RF power (0 dB reference)	±1,0 dB
RF power relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power relative to 0 dB reference (< -45 dBc to -73 dBc)	±1,5 dB
Unwanted conducted emissions:	
RF power (not TETRA filtered); $f \leq 1\text{GHz}$	±1,5 dB
RF power (not TETRA filtered); $1\text{ GHz} < f \leq 2\text{ GHz}$	±2,0 dB
RF power (not TETRA filtered); $2\text{ GHz} < f \leq 4\text{ GHz}$	±3,0 dB
RF power (not TETRA filtered); $4\text{ GHz} < f \leq 12{,}75\text{ GHz}$	±4,0 dB
Tx intermodulation attenuation	
RF power (0 dB reference)	±1,0 dB
RF power (not TETRA filtered) relative to 0 dB reference (0 dBc to -45 dBc)	±1,0 dB
RF power (not TETRA filtered) relative to 0 dB reference (< -45 dBc to -73 dBc)	±1,5 dB
Modulation accuracy:	
RMS vector error	±1,0 %
Peak vector error	±3,0 %
Residual carrier magnitude	±1,0 %
Carrier frequency accuracy:	
Frequency $300\text{ MHz} \leq f \leq 520\text{ MHz}$	±0,02 ppm
Frequency $520\text{ MHz} < f \leq 1\text{ GHz}$	±0,01 ppm
Timing uncertainty	±1/16 symbol

5.3   Essential radio test suites

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

5.3.1   Reference test specifications

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

a) radio conformance testing specification, ETSI TS 100 394-1 [4];

b) protocol conformance testing specifications:

  -Test Suite Structure (TSS) and Test Purposes (TPs) for DMO MS to MS, ETS 300 394-4-1 [5];

  -Test Suite Structure (TSS) and Test Purposes (TPs) for DMO MS to Repeater type 1, ETSI TS 100 394-4-3 [7];

  -Test Suite Structure (TSS) and Test Purposes (TPs) for DMO Repeater type 1, ETSI TS 100 394-4-4 [8];

  -Test Suite Structure (TSS) and Test Purposes (TPs) for DMO MS to Gateway, ETS 300 394-4-7 [11];

  -Test Suite Structure (TSS) and Test Purposes (TPs) for DMO Gateway, ETS 300 394-4-8 [12];

  -Test Suite Structure (TSS) and Test Purposes (TPs) for DMO MS to Repeater type 2, ETSI TS 100 394-4-11 [15];

  -Test Suite Structure (TSS) and Test Purposes (TPs) for DMO Repeater type 2, ETSI TS 100 394-4-12 [16];

  -Test Suite Structure (TSS) and Test Purposes (TPs) for Security, ETS 300 394-5-2 [20];

  -Test Suite Structure (TSS) and Test Purposes (TPs) for Managed DMO, annex C of the present document;

  -ATS for DMO MS to MS, ETS 300 394-4-2 [6];

  -ATS for DMO MS to Repeater type 1, ETSI TS 100 394-4-5 [9];

  -ATS for DMO Repeater type 1, ETSI TS 100 394-4-6 [10];

-ATS for DMO MS to Gateway, ETS 300 394-4-9 [13];

-ATS for DMO Gateway, ETS 300 394-4-10 [14];

-ATS for DMO MS to Repeater type 2, ETSI TS 100 394-4-13 [17];

-ATS for DMO Repeater type 2, ETSI TS 100 394-4-14 [18];

-ATS for Security, ETS 300 394-5-3 [21] ;

-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 (see annex F).

For detailed information on conventions used for TPs refer to: ETS 300 394-4-1 [5], clause 5 for DMO MS to MS and Managed DMO; ETSI TS 100 394-4-3 [7], clause 5 for DMO MS to Repeater type 1; ETSI TS 100 394-4-4 [8], clause 5 for DMO Repeater type 1; ETS 300 394-4-7 [11], clause 5 for DMO MS to Gateway; ETS 300 394-4-8 [12], clause 5 for DMO Gateway; ETSI TS 100 394-4-11 [15], clause 5 for DMO MS to Repeater type 2; ETSI TS 100 394-4-12 [16], clause 5 for DMO Repeater type 2; and ETS 300 394-5-2 [20], clause 5 for Security.

For detailed information on ATS conventions refer to: ETSI TS 100 394-4-3 [7], clause 5 for DMO MS to Repeater type 1; ETSI TS 100 394-4-4 [8], clause 5 for DMO Repeater type 1; ETS 300 394-4-7 [11] clause 5 for DMO MS to Gateway; ETS 300 394-4-8 [12] clause 5 for DMO Gateway; ETSI TS 100 394-4-11 [15] clause 5 for DMO MS to Repeater type 2; ETSI TS 100 394-4-12 [16] clause 5 for DMO Repeater type 2; ETS 300 394-5-2 [20] 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 to assess compliance with the justified requirements and the tests referenced in this clause are the ones corresponding to the justified requirements in clause 4 in the present document.

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

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

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

5.3.2   Test configuration

The test configurations given or referenced in the present document do not imply a specific realization of test equipment or arrangement or use of specific test devices to assess compliance with the requirements. However, any test configuration and equipment used shall provide the test conditions specified in the tests to enable testing according to the present document, including support of the test modes and the means to provide a decoded data output, as described in ETSI TS 100 394-1 [4], clause 4.1.1.

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

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

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

5.3.3   Test specification for DM-MS

5.3.3.1   Radio layer test specification for DM-MS

5.3.3.1.1   Test case index for radio layer for DM-MS

Table 41: Test case index for radio layer for DM-MS

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_Mode_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, 8.1.1 a), b), b2) and d), and F.4, table F.1	DM_Only_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_Mode_Multiple _Class_MS	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	DM_Only_Multiple_ Class_MS	To test that the output power corresponds to the declared lower power class(es).
7.1.2.2	8.2	DM_Only_MS	To test the output power in the non-active transmit state.
7.1.3.2	8.3 and F.4, table F.1	DM_Only_MS	To test the unwanted conducted emission over the useful part of the burst.
7.1.4.2	8.4	DM_Only_MS	To test the unwanted conducted emission during switching transients.
7.1.5.2 and F.5, table F.2	8.5	All_DM_MS	To test the unwanted conducted discrete spurious and wideband noise emission far from the carrier.
7.1.6.2	8.6	DM_Only_MS	To test the unwanted radiated emission in the active transmit state.
7.1.7.2	8.7 and 8.7.1	DM_Only_MS	To test the unwanted conducted emission during LCH.
7.1.8.2.1	8.8 and 8.8.1	DM_Only_MS	To test the MS transmitter intermodulation attenuation.
7.2.2.2 and F.5, table F.2	9.2 and 9.2.1	DM_Only_MS	To test the nominal error rate. ETSI TS 100 394-1 [4], 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	DM_Only_MS	To test the dynamic reference sensitivity performance. ETSI TS 100 394-1 [4], 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	DM_Only_Protected _Data_MS	To test the dynamic reference sensitivity performance of a DMO MS supporting protected circuit mode data. ETSI TS 100 394-1 [4], 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	DM_Only_MS	To test the dynamic reference sensitivity performance of an MS. ETSI TS 100 394-1 [4], 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	DM_Only_MS	To test the reference interference performance ETSI TS 100 394-1 [4], 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	DM_Only_MS	To test the blocking characteristics ETSI TS 100 394-1 [4], table A.2; blocking and F.5, table F.2.
7.2.6.2 and F.5, table F.2	9.6	DM_Only_MS	To test the spurious response rejection ETSI TS 100 394-1 [4], 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	DM_Only_MS	To test the intermodulation response rejection ETSI TS 100 394-1 [4], table A.2; intermodulation and F.5, table F.2.
7.2.8.2	9.8	DM_Only_MS	To test the unwanted conducted emission.
7.2.9.2	9.9	DM_Only_MS	To test the unwanted radiated emission.
7.3.1.2	10.1, 10.1.1 and 10.1.3	DM_Only_MS	To test the modulation accuracy.

Test Case Index			
Test case limit value reference (note 1)	Test method reference (note 2)	Selection reference	Description
F.6.2.1	F.6.2.2	All_DM_MS	To test the transmitter output power versus time within a burst.
F.6.3.1	F.6.3.2	All_DM_MS	To test the RF frequency accuracy.
F.6.4.2	F.6.4.3	All_DM_MS	To test the DM synchronization accuracy.
NOTE 1: The test case limit values, as referenced, are specified in ETSI TS 100 394-1 [4], clause 7 and annex F.			
NOTE 2: The test methods, as referenced, are specified in ETSI TS 100 394-1 [4], clauses 8 to 10 and annex F.			

5.3.3.1.2   Test case selection expression definitions for radio layer for DM-MS

Table 42: Test case selection expression definitions for radio layer for DM-MS

Test Case Selection Expression Definitions		
Expression Name	Selection Expression	Comments
All_DM_MS	EN_RT_DM_MS_RADIO_LAYER	Radio layer for DM-MS supported.
Dual_Mode_MS	EN_RT_DM_MS_RADIO_LAYER AND PIX_DUAL_MODE	DM-MS with radio layer also used for V+D mode.
DM_Only_MS	EN_RT_DM_MS_RADIO_LAYER AND NOT PIX_DUAL_MODE	DM-MS with radio layer not supporting V+D mode.
Dual_Mode_Multiple_Class_MS	EN_RT_DM_MS_RADIO_LAYER AND PIX_DUAL_MODE AND PIX_SWITCHABLE_POWER	DM-MS with switchable DMO power classes and with radio layer also used for V+D mode.
DM_Only_Multiple_Class_MS	EN_RT_DM_MS_RADIO_LAYER AND NOT PIX_DUAL_MODE AND PIX_SWITCHABLE_POWER	DM-MS with switchable DMO power classes and with radio layer not supporting V+D mode.
DM_Only_Protected_Data_MS	EN_RT_DM_MS_RADIO_LAYER AND NOT PIX_DUAL_MODE AND PIX_PROTECTED_DATA	DM-MS supporting protected mode data and with radio layer not supporting V+D mode.

5.3.3.1.3   Test suite parameter definitions for radio layer for DM-MS

Table 43: Test suite parameter definitions for radio layer for DM-MS

Test Suite Parameter Declarations			
Parameter Name	Type	PICS/PIXIT Reference	Comments
EN_RT_DM_MS_RADIO_LAYER	BOOLEAN	A.1.3, table A.3/1	DM-MS radio layer supported.
PIX_DUAL_MODE	BOOLEAN	B.1, table B.2/1	Radio layer also used for V+D mode.
PIX_SWITCHABLE_POWER	BOOLEAN	B.1, table B.3/1	Switchable DMO power classes.
PIX_PROTECTED_DATA	BOOLEAN	B.1, table B.4/1	Protected circuit mode data.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.2   Managed DMO test specification for DM-MS

5.3.3.2.1   Test suite structure Managed DMO

Table 44: Test suite structure for Managed DMO

Test Suite Structure		
Suite Name:	M-DMO	
Standards Reference:	ETSI TS 100 396-10 [32]	
PICS Reference:	Annex A of the present document	
PIXIT Reference:	Annex B of the present document	
Test Method(s):	The embedded variant of the remote single party test method	
Comments:		
Test Group Reference	Selection Reference	Test Group Objective.
M_DMO_MSMS_MAC/	Managed_DMO_DM_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.

5.3.3.2.2   Test case index for Managed DMO

Table 45: Test case index for Managed DMO

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

5.3.3.2.3   Test case selection expression definitions for Managed DMO

Table 46: Test case selection expression definitions for Managed DMO

Test Case Selection Expression Definitions		
Expression Name	Selection Expression	Comments
Managed_DMO_DM_MS	EN_RT_DM_MS_M_DMO	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.

5.3.3.2.4   Test suite parameter definitions for Managed DMO

Table 47: Test suite parameter definitions for Managed DMO

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_DM_MS_M_DMO	BOOLEAN	A.1.3, table A.3/3	Managed DMO for DM-MS.
PIC_SEND_U_SDS	BOOLEAN	A.1.4.1, table A.10/3	IUT supports sending of unacknowledged data service.
PIC_SEND_A_SDS	BOOLEAN	A.1.4.1, table A.10/4	IUT supports sending of acknowledged data service.
PIC_CALL_SETUP_NO_PRESENCE_CHECK	BOOLEAN	A.5.1, table A.53/1	IUT supports outgoing call setup without presence check.
PIC_CALL_SETUP_PRESENCE_CHECK	BOOLEAN	A.5.1, table A.53/3	IUT supports outgoing call setup with presence check.
IMP_SYNC_SETUP	BOOLEAN	B.2, table B.6/1	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.
IMP_SYNC_SETUP_PRES	BOOLEAN	B.2, table B.6/2	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.2, table B.6/3	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.2, table B.6/4	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.2, table B.7/1	TSI of the IUT.
PIX_TESTER_SWMI_MNI	MNI_Type	B.2, table B.7/2	MNI of the controlling SwMI of the authorizing unit.
PIX_TESTER_DEVICE_ADDRESS	Device_Address_Type	B.2, table B.7/3	Address of authorizing unit.
Detailed Comments The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.3   Upper MAC layer test specification for DM-MS

5.3.3.3.1   Upper MAC layer test specification for DM-MS for operation MS to MS

5.3.3.3.1.1   Test suite structure for Upper MAC layer for DM-MS for operation MS to MS

Table 48: Test suite structure for Upper MAC layer for DM-MS for operation MS to MS

Test Suite Structure		
Suite Name: DMO/MSMS/MAC Standards Reference: ETS 300 396-3 [23] PICS Reference: ETS 300 396-8-1 [28] PIXIT Reference: ETS 300 394-4-2 [6], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Reference**	**Test Group Objective**
DMO_MSMS_MAC/	DM_MS_MAC_supported	Check the dynamic requirements of the MAC layer.
DMO_MSMS_MAC/BV/	DM_MS_MAC_supported	Check the valid behaviour of the MAC layer.
DMO_MSMS_MAC/BV/ CU/	Initiate_CM_Call	To test DM channel usage procedures of the MAC entity.
DMO_MSMS_MAC/BV/ SM/	Initiate_CM_Call	To test the signalling procedures of the MAC entity.

5.3.3.3.1.2   Test case index for Upper MAC layer for DM-MS for operation MS to MS

Table 49: Test case index for Upper MAC layer for DM-MS for operation MS to MS

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

5.3.3.3.1.3   Test case selection expression definitions for Upper MAC layer for DM-MS for MS-MS operation

**Table 50: Test case selection expression definitions for Upper MAC layer
for DM-MS operation MS to MS**

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
DM_MS_MAC_supported	EN_RT_DM_MS_MAC_SUPPORTED	IUT supports Upper 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.

5.3.3.3.1.4   Test suite parameter definitions for Upper MAC layer for DM-MS for operation MS to MS

**Table 51: Test suite parameter definitions for Upper MAC layer for DM-MS
for operation MS to MS**

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_DM_MS_MAC_SUPPORTED	BOOLEAN	A.1.3, table A.3/4	Upper MAC for DM-MS supported.
PIC_SETUP_NewCall_FrameCountDown	INTEGER	A.3.3.1, table A.40/1	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.3.3.1, table A.40/2	Value of the number of frame transmission for the DM-SETUP PRES PDU for a new call. [2..4]
PIC_CALL_SETUP_NO_PRESENCE_CHECK	BOOLEAN	A.5.1, table A.53/1	IUT supports outgoing call setup without presence check.
PIC_CALL_SETUP_PRESENCE_CHECK	BOOLEAN	A.5.1, table A.53/3	IUT supports outgoing call setup with presence check.
PIX_IMP_SYNC_SETUP	BOOLEAN	B.3.1.1, table B.8/1	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
PIX_IMP_SYNC_SETUP_P RES	BOOLEAN	B.3.1.1, table B.8/2	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU.
PIX_MS_SSI	SSI_Type	B.3.1.1, table B.9/1	SSI of the IUT.
PIX_TESTER_MNI	MNI_Type	B.3.1.1, table B.9/2	MNI of the tester.
PIX_TESTER_SSI	SSI_Type	B.3.1.1, table B.9/3	SSI of the tester.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.3.2   Upper MAC layer test specification for DM-MS for operation with DMO Repeater type 1

5.3.3.3.2.1   Test suite structure for Upper MAC layer for DM-MS for operation with DMO Repeater type 1

**Table 52: Test suite structure for Upper MAC layer for DM-MS
for operation with DMO Repeater type 1**

Test Suite Structure		
Suite Name: DMO/MSREP1/MAC Standards Reference: ETSI TS 100 396-4 [24] PICS Reference: ETSI TS 100 396-8-2 [29] PIXIT Reference: ETSI TS 100 394-4-5 [9], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Reference**	**Test Group Objective**
DMO_MSREP1_MAC/	MSREP1_MAC_supported	Check the dynamic requirements of the MAC layer for DM-MS operation with DMO Repeater type 1.
DMO_MSREP1_MAC/BV/	MSREP1_MAC_supported	Check the valid behaviour of the MAC layer for DM-MS operation with DMO Repeater type 1.
DMO_MSREP1_MAC/BV/SM/	MSREP1_Initiate_CM_Call	To test the signalling procedures of the MAC entity for DM-MS operation with DMO Repeater type 1.

5.3.3.3.2.2   Test case index for Upper MAC layer for DM-MS for operation with DMO Repeater type 1

**Table 53: Test case index for Upper MAC layer for DM-MS
for operation with DMO Repeater type 1**

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Reference**	**Description**
DMO_MSREP1_MAC /BV/SM/	DMO_MSREP1_MAC _BV_SM_01C	MSREP1_Initiate_CM _Call	Addressing in synchronization burst. Master/slave link flag.
DMO_MSREP1_MAC /BV/SM/	DMO_MSREP1_MAC _BV_SM_02	MSREP1_Initiate_Call _Pre-emption	Synchronisation burst for a random access message.
DMO_MSREP1_MAC /BV/SM/	DMO_MSREP1_MAC _BV_SM_09	MSREP1_Initiate_CM _Call	Pre-emption flag in the DM-OCCUPIED SDU.
DMO_MSREP1_MAC /BV/SM/	DMO_MSREP1_MAC _BV_SM_10	MSREP1_Initiate_CM _Call	Request and change over flags in the DM-RESERVED SDU.

5.3.3.3.2.3   Test case selection expression definitions for Upper MAC layer for DM-MS for operation with DMO Repeater type 1

Table 54: Test case selection expression definitions for Upper MAC layer for DM-MS for operation with DMO Repeater type 1

Test Case Selection Expression Definitions		
Expression Name	Selection Expression	Comments
MSREP1_MAC_supported	EN_RT_MS_REP1_MAC_SUPPORTED	IUT supports operation with DMO Repeater type 1.
MSREP1_Initiate_CM_Call	EN_RT_MS_REP1_MAC_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 DMO 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.

5.3.3.3.2.4   Test suite parameter definitions for Upper MAC layer for DM-MS for operation with DMO Repeater type 1

Table 55: Test suite parameter definitions for Upper MAC layer for DM-MS for operation with DMO Repeater type 1

Test Suite Parameter Declarations			
Parameter Name	Type	PICS/PIXIT Reference	Comments
EN_RT_MS_REP1_MAC_SUPPORTED	BOOLEAN	A.1.3, table A.3/5	Upper MAC for DM-MS operation with DMO Repeater type 1 supported.
PIC_CALL_SETUP	BOOLEAN	A.1.4.1, table A.9/7	IUT supports outgoing call setup.
PIC_INITIATE_CALL_PREEMPTION	BOOLEAN	A.1.4.1, table A.9/15	IUT supports the initiation of pre-emption in ongoing call.
PIX_IMP_SYNC_PREEMPT_ONGOING	BOOLEAN	B.3.1.2, table B.10/1	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.3.1.2, table B.10/2	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.3.1.2, table B.10/3	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.1.2, table B.11/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.1.2, table B.11/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.1.2, table B.11/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_MS_SSI	SSI_Type	B.3.1.2, table B.11/4	SSI of the IUT.
PIX_TESTER_MNI	MNI_Type	B.3.1.2, table B.11/5	MNI of the tester.
PIX_TESTER_SSI	SSI_Type	B.3.1.2, table B.11/6	SSI of the tester.
PIX_MS_SLAVE_MNI	MNI_Type	B.3.1.2, table B.11/7	MNI of a slave MS.
PIX_MS_SLAVE_SSI	SSI_Type	B.3.1.2, table B.11/8	SSI of a slave MS.
PIX_MS_MASTER_MNI	MNI_Type	B.3.1.2, table B.11/9	MNI of a master MS.
PIX_MS_MASTER_SSI	SSI_Type	B.3.1.2, table B.11/10	SSI of a master MS.
PIX_TESTER_REPEATER_ADDRESS	Repeater_Address_Type	B.3.1.2, table B.11/11	Repeater address of the tester.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.3.3   Upper MAC layer test specification for DM-MS for operation with DMO Repeater type 2

5.3.3.3.3.1   Test suite structure for Upper MAC layer for DM-MS for operation with DMO Repeater type 2

**Table 56: Test suite structure for Upper MAC layer for DM-MS
for operation with DMO Repeater type 2**

Test Suite Structure		
Suite Name: DMO/MSREP2/MAC Standards Reference: ETSI TS 100 396-7 [27] PICS Reference: ETSI TS 100 396-8-4 [31] PIXIT Reference: ETSI TS 100 394-4-13 [17], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Reference**	**Test Group Objective**
DMO_MSREP2_MAC/	MSREP2_MAC_supported	Check the dynamic requirements of the MAC layer for DM-MS operation with DMO Repeater type 2.
DMO_MSREP2_MAC/BV/	MSREP2_MAC_supported	Check the valid behaviour of the MAC layer for DM-MS operation with DMO Repeater type 2.
DMO_MSREP2_MAC/BV/SM/	MSREP2_Initiate_CM_Call	To test the signalling procedures of the DM-MAC entity for DM-MS operation with DMO Repeater type 2.

5.3.3.3.3.2   Test case index for Upper MAC layer for DM-MS for operation with DMO Repeater type 2

**Table 57: Test case index for Upper MAC layer for DM-MS
for operation with DMO Repeater type 2**

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Reference**	**Description**
DMO_MSREP2_MAC /BV/SM/	DMO_MSREP2_MAC _BV_SM_01C	MSREP2_Initiate_CM _Call	Addressing in synchronization burst. Master/slave link flag.
DMO_MSREP2_MAC /BV/SM/	DMO_MSREP2_MAC _BV_SM_02	MSREP2_Initiate_Call _Pre-emption	Synchronization burst for a random access message.
DMO_MSREP2_MAC /BV/SM/	DMO_MSREP2_MAC _BV_SM_09	MSREP2_Initiate_CM _Call	Pre-emption flag in the DM-OCCUPIED SDU.
DMO_MSREP2_MAC /BV/SM/	DMO_MSREP2_MAC _BV_SM_10	MSREP2_Initiate_CM _Call	Request and change over flags in the DM-RESERVED SDU.

5.3.3.3.3.3   Test case selection expression definitions for Upper MAC layer for DM-MS for operation with DMO Repeater type 2

**Table 58: Test case selection expression definitions for Upper MAC layer for DM-MS
for operation with DMO Repeater type 2**

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MSREP2_MAC_supported	EN_RT_MS_REP2_MAC_SUPPORTED	IUT supports operation with DMO Repeater type 2.
MSREP2_Initiate_CM_Call	EN_RT_MS_REP2_MAC_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 DMO 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.

5.3.3.3.3.4   Test suite parameter definitions for Upper MAC layer for DM-MS for operation with
                     DMO Repeater type 2

**Table 59: Test suite parameter definitions for Upper MAC layer for DM-MS
for operation with DMO Repeater type 2**

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_MS_REP2_MAC_S UPPORTED	BOOLEAN	A.1.3, table A.3/6	Upper MAC for DM-MS operation with DMO Repeater type 2 supported.
PIC_CALL_SETUP	BOOLEAN	A.1.4.1, table A.9/9	IUT supports outgoing call setup.
PIC_INITIATE_CALL_PREE MPTION	BOOLEAN	A.1.4.1, table A.9/16	IUT supports the initiation of pre-emption in ongoing call.
PIX_IMP_SYNC_PREEMPT _ONGOING	BOOLEAN	B.3.1.3, table B.12/1	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.3.1.3, table B.12/2	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU.
PIX_IMP_SYNC_SETUP_P RES	BOOLEAN	B.3.1.3, table B.12/3	It is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type _Type	B.3.1.3, table B.13/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.1.3, table B.13/2	The power class of the IUT.
PIX_POWER_CONTROL_F LAG	Power_Control_Fla g_Type	B.3.1.3, table B.13/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_MS_SSI	SSI_Type	B.3.1.3, table B.13/4	SSI of the IUT.
PIX_TESTER_MNI	MNI_Type	B.3.1.3, table B.13/5	MNI of the tester.
PIX_TESTER_SSI	SSI_Type	B.3.1.3, table B.13/6	SSI of the tester.
PIX_MS_SLAVE_MNI	MNI_Type	B.3.1.3, table B.13/7	MNI of a slave MS.
PIX_MS_SLAVE_SSI	SSI_Type	B.3.1.3, table B.13/8	SSI of a slave MS.
PIX_MS_MASTER_MNI	MNI_Type	B.3.1.3, table B.13/9	MNI of a master MS.
PIX_MS_MASTER_SSI	SSI_Type	B.3.1.3, table B.13/10	SSI of a master MS.
PIX_TESTER_REPEATER_ ADDRESS	Repeater_Address_ Type	B.3.1.3, table B.13/11	Repeater address of the tester.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.3.4   Upper MAC layer test specification for DM-MS for operation with DMO Gateway

5.3.3.3.4.1   Test suite structure for Upper MAC layer for DM-MS for operation with DMO Gateway

Table 60: Test suite structure for Upper MAC layer for DM-MS for operation with DMO Gateway

Test Suite Structure		
Suite Name: DMO/MSGW/MAC Standards Reference: ETS 300 396-5 [25] PICS Reference: ETS 300 396-8-3 [30] PIXIT Reference: ETS 300 394-4-9 [13], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Reference**	**Test Group Objective**
DMO_MSGW_MAC/	MSGW_MAC_supported	Check the dynamic requirements of the MAC layer for DM-MS operation with DMO Gateway.
DMO_MSGW_MAC/BV/	MSGW_MAC_supported	Check the valid behaviour of the MAC layer for DM-MS operation with DMO Gateway.
DMO_MSGW_MAC/BV/CU/	MSGW_Initiate_Call	To test DM channel usage procedures of the DM-MAC entity for DM-MS operation with DMO Gateway.
DMO_MSGW_MAC/BV/SM/	MSGW_Initiate_Call	To test the signalling procedures of the DM-MAC entity for DM-MS operation with DMO Gateway.

5.3.3.3.4.2   Test case index for Upper MAC layer for DM-MS for operation with DMO Gateway

Table 61: Test case index for Upper MAC layer for DM-MS for operation with DMO Gateway

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Reference**	**Description**
DMO_MSGW_MAC/BV/CU/	DMO_MSGW_MAC_BV_CU_02	MSGW_Initiate_Call	Transmission of the DM-OCCUPIED SDU when the channel is busy.
DMO_MSGW_MAC/BV/SM/	DMO_MSGW_MAC_BV_SM_10	MSGW_Initiate_Call	Pre-emption flag in the DM-OCCUPIED SDU.

5.3.3.3.4.3   Test case selection expression definitions for Upper MAC layer for DM-MS for operation with DMO Gateway

Table 62: Test case selection expression definitions for Upper MAC layer for DM-MS for operation with DMO Gateway

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

5.3.3.3.4.4   Test suite parameter definitions for Upper MAC layer for DM-MS for operation with DMO Gateway

**Table 63: Test suite parameter definitions for Upper MAC layer for DM-MS
for operation with DMO Gateway**

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_MS_GW_MAC_SUPPORTED	BOOLEAN	A.1.3, table A.3/7	Operation with DMO Gateway supported.
PIC_DMMM	BOOLEAN	A.1.3, table A.3/8	IUT supports DMMM.
PIC_CALL_SETUP	BOOLEAN	A.1.4.1, table A.9/11	IUT supports outgoing call setup.
PIC_UNINVITED_REGISTRATION	BOOLEAN	A.4, table A.51/2	IUT supports unsolicited registration.
PIX_IMP_SYNC_GSETUP	BOOLEAN	B.3.1.4, table B.14/1	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.3.1.4, table B.15/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.1.4, table B.15/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.1.4, table B.15/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_GATEWAY_ADDRESS	Gateway_Address_Type	B.3.1.4, table B.15/4	Value of the Gateway (tester) address.
PIX_TESTER_MNI	MNI_Type	B.3.1.4, table B.15/5	MNI of the tester.
PIX_TESTER_SSI	SSI_Type	B.3.1.4, table B.15/6	SSI of the tester.
PIX_REGISTRATION_LABEL	BITSTRING	B.3.1.4, table B.15/7	Value of the registration label.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.4   Direct Mode Mobility Management (DMMM) test specification for DM-MS for operation with DMO Gateway

5.3.3.4.1   Test suite structure for DMMM for MS-GW

Table 64: Test suite structure for DMMM for DM-MS

Test Suite Structure		
Suite Name: DMO/MSGW/NWK Standards Reference: ETS 300 396-5 [25] PICS Reference: ETS 300 396-8-3 [30] PIXIT Reference: ETS 300 394-4-9 [13], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Reference**	**Test Group Objective**
DMO_MSGW_NWK/	MSGW_supported	Check the dynamic behaviour requirements of the network layer.
DMO_MSGW_NWK/DMMM/	MSGW_DMMM_Supported	Check the dynamic requirements of the DMMM entity.

5.3.3.4.2   Test case index for DMMM for DM-MS

Table 65: Test case index for DMMM for DM-MS

Test Case Index			
Test Group Reference	Test Case Id	Selection Reference	Description
DMO_MSGW_NWK/ DMMM/	DMO_MSGW_NWK_DMM M_01	MSGW_DMMM_Supported	Registration by invitation.
DMO_MSGW_NWK/ DMMM/	DMO_MSGW_NWK_DMM M_02	MSGW_Uninvited_Registration	Unsolicited registration.
DMO_MSGW_NWK/ DMMM/	DMO_MSGW_NWK_DMM M_03	MSGW_DMMM_Supported	Registration cancellation.

5.3.3.4.3   Test case selection expression definitions DMMM for DM-MS

Table 66: Test case selection expression definitions for DMMM for DM-MS

Test Case Selection Expression Definitions		
Expression Name	Selection Expression	Comments
MSGW_supported	EN_RT_MS_GW	IUT supports operation with Gateway.
MSGW_DMMM_Supported	EN_RT_MS_GW_DMMM_SUPPORTED	IUT supports DMMM.
MSGW_Uninvited_Registration	PIC_UNINVITED_REGISTRATION	IUT supports unsolicited registration.

5.3.3.4.4   Test suite parameter definitions for DMMM for DM-MS

Table 67: Test suite parameter definitions for DMMM for DM-MS

Test Suite Parameter Declarations			
Parameter Name	Type	PICS/PIXIT Reference	Comments
EN_RT_MS_GW	BOOLEAN	A.1.2, table A.2/4	Operation with DMO Gateway supported.
EN_RT_MS_GW_DMMM_SU PPORTED	BOOLEAN	A.1.3, table A.3/8	IUT supports DMMM.
PIC_UNINVITED_REGISTRA TION	BOOLEAN	A.4, table A.51/2	IUT supports unsolicited registration.
PIX_REGISTRATION_LABEL	Registration_Label_Type	B.4, table B.18/1	Value of the registration label.
PIX_REGISTRATION_TIME_ REMAINING	Registration_Transaction_ Time_Remaining_Type	B.4, table B.18/2	Registration transaction time remaining.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.5 Direct Mode Call Control (DMCC) test specification for DM-MS

5.3.3.5.1 DMCC test specification for DM-MS for operation MS to MS

5.3.3.5.1.1 Test suite structure for DMCC for DM-MS for operation MS to MS

Table 68: Test suite structure for DMCC for DM-MS for operation MS to MS for operation MS to MS

Test Suite Structure		
Suite Name: DMO/MSMS Standards Reference: ETS 300 396-3 [23] PICS Reference: ETS 300 396-8-1 [28] PIXIT Reference: ETS 300 394-4-2 [6] , annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Reference**	**Test Group Objective**
DMO_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.

5.3.3.5.1.2 Test case index for DMCC for DM-MS for operation MS to MS

Table 69: Test case index for DMCC for DM-MS for operation MS to MS

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

Test Case Index			
Test Group Reference	Test Case Id	Selection Reference	Description
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_Change over	Initiate changeover to establish ongoing CM call.
DMO_MSMS_DMCC/ CM/BV/RR/	DMO_MSMS_DMCC _CM_BV_RR_04	Circuit_Mode_Change over	Handle the reject of a changeover request.
DMO_MSMS_DMCC/ CM/TI/	DMO_MSMS_DMCC _CM_TI_01	Initiate_Call_WithPres ence	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.

5.3.3.5.1.3   Test case selection expression definitions for DMCC for DM-MS for operation MS to MS

Table 70: Test case selection expression definitions for DMCC for DM-MS for operation MS to MS

Test Case Selection Expression Definitions		
Expression Name	Selection Expression	Comments
DMCC_supported	EN_RT_DM_MS_DMCC_SUPPORTED	IUT supports DMCC.
Circuit_Mode	PIC_CM	IUT supports circuit mode call.
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_WithPresence	PIC_CALL_SETUP_PRESENCE_CHECK AND PIX_IMP_DM_SETUP_PRES	IUT supports initiation of a call with presence check.
Initiate_Call_Preemption	PIC_INITIATE_CALL_PREEMPTION AND PIX_IMP_DM_PREEMPT	IUT supports the initiation of call pre-emption.
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.
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_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.

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
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.

5.3.3.5.1.4   Test suite parameter definitions for DMCC for DM-MS for operation MS to MS

Table 71: Test suite parameter definitions for DMCC for DM-MS for operation MS to MS

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_DM_MS_DMCC_SUPPORTED	BOOLEAN	A.1.3, table A.3/9	DMCC supported.
PIC_CM	BOOLEAN	A.1.4.1, table A.7/1	IUT supports circuit mode call.
PIC_INDIVIDUAL_CALL	BOOLEAN	A.1.4.1, table A.9/1	IUT supports individual CM call.
PIC_GROUP_CALL	BOOLEAN	A.1.4.1, table A.9/2	IUT supports group CM call.
PIC_CALL_SETUP_NO_PRESENCE_CHECK	BOOLEAN	A.5.1, table A.53/1	IUT supports outgoing call setup without presence check.
PIC_CALL_SETUP_PRESENCE_CHECK	BOOLEAN	A.5.1, table A.53/3	IUT supports outgoing call setup with presence check.
PIC_END_OF_TRANSMISSION	BOOLEAN	A.5.1, table A.53/6	IUT supports release of radio resource during occupation.
PIC_CALL_RELEASE_OCCUPATION	BOOLEAN	A.5.1, table A.53/7	IUT supports release of call during occupation.
PIC_INITIATE_CALL_PREEMPTION	BOOLEAN	A.5.1, table A.53/9	IUT supports call pre-emption.
PIC_CALL_RELEASE_RESERVATION	BOOLEAN	A.5.1, table A.53/13	IUT supports release of call during reservation.
PIC_CALL_CHANGEOVER	BOOLEAN	A.5.1, table A.53/14	IUT supports call changeover.
PIC_DN303	INTEGER	A.5.1, table A.56/3	DN303 value [from 0 to 3]. Number of attempts to send DM-SETUP PRES if no response received.
PIC_T_303	INTEGER	A.5.1, table A.57/3	Value in milliseconds of the timer DT303.
PIC_T_311	INTEGER	A.5.1, table A.57/4	Value in seconds of the timer DT311.
PIX_IMP_DM_SETUP	BOOLEAN	B.5.1, table B.19/1	It is possible to cause the IUT to send a DM-SETUP PDU.
PIX_IMP_DM_SETUP_Group	BOOLEAN	B.5.1, table B.19/2	It is possible to cause the IUT to send a DM-SETUP PDU for a group call.
PIX_IMP_DM_SETUP_PRES	BOOLEAN	B.5.1, table B.19/3	It is possible to cause the IUT to send a DM-SETUP PRES PDU.
PIX_IMP_DM_TX_REQUEST	BOOLEAN	B.5.1, table B.19/4	It is possible to cause the IUT to send a DM-TX REQUEST PDU.
PIX_IMP_DM_PREEMPT	BOOLEAN	B.5.1, table B.19/5	It is possible to cause the IUT to send a DM-PREEMPT PDU.
PIX_IMP_DM_RELEASE	BOOLEAN	B.5.1, table B.19/6	It is possible to cause the IUT to send a DM-RELEASE PDU.
PIX_IMP_DM_TX_CEASED	BOOLEAN	B.5.1, table B.19/7	It is possible to cause the IUT to send a DM-TX CEASED PDU.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.5.1, table B.20/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_OTHER_TSI	TSI_Type	B.5.1, table B.20/2	The TSI not recognized by the IUT and the tester.

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
PIX_POWER_CLASS	Power_Class_Type	B.5.1, table B.20/3	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.5.1, table B.20/4	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	B.5.1, table B.20/5	Value of the reservation time remaining used by the master MS.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.5.2   DMCC test specification for DM-MS for operation with DMO Repeater type 1

5.3.3.5.2.1   Test suite structure for DMCC for DM-MS for operation with DMO Repeater type 1

**Table 72: Test suite structure for DMCC for DM-MS for operation MS to MS
for operation with DMO Repeater type 1**

Test Suite Structure		
Suite Name: DMO/MSREP1/DMCC		
Standards Reference: ETSI TS 100 396-4 [24]		
PICS Reference: ETSI TS 100 396-8-2 [29]		
PIXIT Reference: ETSI TS 100 394-4-5 [9], annex B		
Test Method(s): The embedded variant of the remote single party test method		
Comments:		
Test Group Reference	**Selection Reference**	**Test Group Objective**
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.

5.3.3.5.2.2   Test case index for DMCC for DM-MS for operation with DMO Repeater type 1

Table 73: Test case index for DMCC for DM-MS for operation with DMO Repeater type 1

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

5.3.3.5.2.3   Test case selection expression definitions for DMCC for DM-MS for operation with
                     DMO Repeater type 1

Table 74: Test case selection expression definitions for DMCC for DM-MS
for operation with DMO Repeater type 1

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MSREP1_DMCC_supported	EN_RT_MS_REP1_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.

5.3.3.5.2.4   Test suite parameter definitions for DMCC for DM-MS for operation with DMO
                     Repeater type 1

Table 75: Test suite parameter definitions for DMCC for DM-MS
for operation with DMO Repeater type 1

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_MS_REP1_DMCC_SUPPORTED	BOOLEAN	A.1.3, table A.3/10	IUT supports DMCC for operation with DMO Repeater type 1.
PIC_MSREP1_CM	BOOLEAN	A.1.4.1, table A.7/3	IUT supports circuit mode call.
PIC_INITIATE_CALL	BOOLEAN	A.1.4.1, table A.9/7	IUT supports outgoing call setup.
PIX_IMP_DM_SETUP	BOOLEAN	B.5.2, table B.21/1	It is possible to cause the IUT to send a DM-SETUP PDU
PIX_IMP_DM_SETUP_PRES	BOOLEAN	B.5.2, table B.21/2	It is possible to cause the IUT to send a DM-SETUP PRES PDU
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.5.2, table B.22/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.5.2, table B.22/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.5.2, table B.22/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	B.5.2, table B.22/4	Value of the reservation time remaining used by the master MS.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.5.3   DMCC test specification for DM-MS for operation with DMO Repeater type 2

5.3.3.5.3.1   Test suite structure for DMCC for DM-MS for operation with DMO Repeater type 2

**Table 76: Test suite structure for DMCC for DM-MS for operation MS to MS
for operation with DMO Repeater type 2**

Test Suite Structure		
Suite Name: DMO/MSREP2/DMCC Standards Reference: ETSI TS 100 396-7 [27] PICS Reference: ETSI TS 100 396-8-4 [31] PIXIT Reference: ETSI TS 100 394-4-13 [17], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	**Selection Reference**	**Test Group Objective**
DMO_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.

5.3.3.5.3.2   Test case index for DMCC for DM-MS for operation with DMO Repeater type 2

Table 77: Test case index for DMCC for DM-MS for operation with DMO Repeater type 2

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

5.3.3.5.3.3   Test case selection expression definitions for DMCC for DM-MS for operation with
                DMO Repeater type 2

**Table 78: Test case selection expression definitions for DMCC for DM-MS
for operation with DMO Repeater type 2**

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MSREP2_DMCC_supported	EN_RT_MS_REP2_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.

5.3.3.5.3.4   Test suite parameter definitions for DMCC for DM-MS for operation with DMO
                     Repeater type 2

**Table 79: Test suite parameter definitions for DMCC for DM-MS
for operation with DMO Repeater type 2**

Test Suite Parameter Declarations			
Parameter Name	Type	PICS/PIXIT Reference	Comments
EN_RT_MS_REP2_DMCC_SUPPORTED	BOOLEAN	A.1.3, table A.3/11	IUT supports DMCC for operation with DMO Repeater type 2.
PIC_MSREP2_CM	BOOLEAN	A.1.4.1, table A.7/4	IUT supports circuit mode call.
PIC_INITIATE_CALL	BOOLEAN	A.1.4.1, table A.9/9	IUT supports outgoing call setup.
PIX_IMP_DM_SETUP	BOOLEAN	B.5.3, table B.23/1	It is possible to cause the IUT to send a DM-SETUP PDU.
PIX_IMP_DM_SETUP_PRES	BOOLEAN	B.5.3, table B.23/2	It is possible to cause the IUT to send a DM-SETUP PRES PDU.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.5.3, table B.24/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.5.3, table B.24/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.5.3, table B.24/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	B.5.3, table B.24/4	Value of the reservation time remaining used by the master MS.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.5.4   DMCC test specification for DM-MS for operation with DMO Gateway

5.3.3.5.4.1   Test suite structure for DMCC for DM-MS for operation with DMO Gateway

**Table 80: Test suite structure for DMCC for DM-MS for operation MS to MS
for operation with DMO Gateway**

Test Suite Structure		
Suite Name: DMO/MSGW/NWK Standards Reference: ETS 300 396-5 [25] PICS Reference: ETS 300 396-8-3 [30] PIXIT Reference: ETS 300 394-4-9 [13], annex B Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	Selection Reference	Test Group Objective
DMO_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.

5.3.3.5.4.2   Test case index for DMCC for DM-MS for operation with DMO Gateway

Table 81: Test case index for DMCC for DM-MS for operation with DMO Gateway

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

5.3.3.5.4.3   Test case selection expression definitions for DMCC for DM-MS for operation with DMO Gateway

Table 82: Test case selection expression definitions for DMCC for DM-MS for operation with DMO Gateway

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
MSGW_supported	EN_RT_MS_GW	IUT supports operation with Gateway.
MSGW_DMCC_supported	EN_RT_MS_GW_DMCC_SUPPORT ED	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_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_IG P	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.

5.3.3.5.4.4   Test suite parameter definitions for DMCC for DM-MS for operation with DMO
                     Gateway

**Table 83: Test suite parameter definitions for DMCC for DM-MS
for operation with DMO Gateway**

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_MS_GW	BOOLEAN	A.1.2, table A.2/4	Operation with DMO Gateway supported.
PIC_DMMM	BOOLEAN	A.1.3, table A.3/8	IUT supports DMMM.
EN_RT_MS_GW_DMCC_SUPPORTED	BOOLEAN	A.1.3, table A.3/12	IUT supports DMCC.
PIC_MSGW_CM	BOOLEAN	A.1.4.1, table A.7/5	IUT supports Circuit mode call through DMO Gateway.
PIC_INDIVIDUAL_CALL	BOOLEAN	A.1.4.1, table A.9/3	IUT supports individual circuit mode call.
PIC_GROUP_CALL	BOOLEAN	A.1.4.1, table A.9/4	IUT supports group circuit mode call.
PIC_INITIATE_CALL	BOOLEAN	A.1.4.1, table A.9/11	IUT supports outgoing call setup.
PIC_UNINVITED_REGISTRATION	BOOLEAN	A.4, table A.51/2	IUT supports unsolicited registration.
PIC_PREEMPT_ONGOING	BOOLEAN	A.5.1, table A.53/10	IUT supports pre-emption of ongoing call.
PIC_CALL_CHANGEOVER	BOOLEAN	A.5.1, table A.53/15	IUT supports call change-over.
PIC_DN301	INTEGER	A.5.1, table A.56/1	DN301 value [from 0 to 3]. Number of attempts to send DM-GSETUP if no response received.
PIC_DN302	INTEGER	A.5.1, table A.56/2	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.5.1, table A.57/1	Value in milliseconds of timer DT301.
PIC_T_302	INTEGER	A.5.1, table A.57/2	Value in milliseconds of timer DT302.
PIX_IMP_GSETUP	BOOLEAN	B.5.4, table B.25/1	It is possible to cause the IUT to send a DM-GSETUP PDU.
PIX_IMP_GPREEMPT	BOOLEAN	B.5.4, table B.25/2	It is possible to cause the IUT to send a DM-GPREEMPT PDU.
PIX_IMP_GTX_REQUEST	BOOLEAN	B.5.4, table B.25/3	It is possible to cause the IUT to send a DM-GTX REQUEST PDU.
PIX_IMP_DM_TX_CEASED	BOOLEAN	B.5.4, table B.25/4	It is possible to cause the IUT to send a DM-TX CEASED PDU.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.5.4, table B.26/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.5.4, table B.26/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.5.4, table B.26/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_DMMS_WAITING_TIMER	DMMS_Waiting_Timer_Type	B.5.4, table B.26/4	Value of the DM-MS waiting timer (that the DM-MS should use for timer DT302, DT308 or DT309)
PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	B.5.4, table B.26/5	Value of the reservation time remaining used by the master MS.
PIX_REGISTRATION_LABEL	Registration_Label_Type	B.5.4, table B.26/6	Value of the registration label.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.3.6   Security test specification

5.3.3.6.1   Test suite structure for DMO security for DM-MS

Table 84: Test suite structure for DMO security for DM-MS

Test Suite Structure		
Suite Name: Security Standards Reference: ETS 300 396-6 [26] PICS Reference: ETS 300 394-5-1 [19] PIXIT Reference: ETS 300 394-5-3 [21], annex D Test Method(s): The embedded variant of the remote single party test method Comments:		
Test Group Reference	Selection Reference	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/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/TEI/	DML3_Target_Supp	To test the DM security module of the IUT, when operating the TEI exchange procedure.

5.3.3.6.2   Test case index for DMO security for DM-MS

Table 85: Test case index for DMO security for DM-MS

Test Case Index			
Test Group Reference	Test Case Id	Selection Reference	Description
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/ TEI/	Sec_DM_L3_SED_ BV_TEI_01	DML3_Target_Supp	TEI delivery (IUT acts as a target).

5.3.3.6.3   Test case selection expression definitions for DMO security for DM-MS

Table 86: Test case selection expression definitions for DMO security for DM-MS

Test Case Selection Expression Definitions		
Expression Name	Selection Expression	Comments
DML3_Security_Supp	EN_RT_DM_MS_SEC_SUPP AND PIX_DM	IUT supports DM security.
DML3_SED_Supp	PIC_DM_SED_SUPP AND PIX_DM	Enable/Disable procedures supported.
DML3_Target_Supp	PIC_DM_TARGET_SUPP AND PIX_DM	Target role supported.

5.3.3.6.4   Test suite parameter definitions for DMO security for DM-MS

Table 87: Test suite parameter definitions for DMO security for DM-MS

Test Suite Parameter Declarations			
Parameter Name	Type	PICS/PIXIT Reference	Comments
EN_RT_DM_MS_SEC_SUPP	BOOLEAN	A.1.3, table A.3/13	DM security supported.
PIC_DM_SED_SUPP	BOOLEAN	A., table A.62/1	Secure enable/disable supported.
PIC_DM_TARGET_SUPP	BOOLEAN	A.6.1, table A.63/2	Target role in Enable/Disable procedures supported.
PIX_DM	BOOLEAN	B.6, table B.27/1	Testing the Direct Mode Security protocol
PIX_MS_ITSI	TSI_Type	B.6, table B.28/1	ITSI of the IUT.
PIX_TEI	TEI_Type	B.6, table B.28/2	TEI.
PIX_DM_SDS_TIME_REMAI NING	DM_TimeRemainingType	B.6, table B.28/3	Value of the SDS time remaining element used to indicate the current estimate of the SDS channel occupation time.
PIX_RAND1	RandomChallengeType	B.6, table B.29/1	Value of Random challenge (RAND1).
PIX_RS	RandomSeedType	B.6, table B.29/2	Value of the Random seed (RS).
PIX_RES2	ResponseValueType	B.6, table B.29/3	Value of the result RES2.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.4   Test specification for DM-REP1

5.3.4.1   Radio layer test specification for DM-REP1

5.3.4.1.1   Test case index for radio layer for DM-REP1

Table 88: Test case index for radio layer for DM-REP1

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 ETSI TS 100 396-4 [24], clause 12.3.4.2	8.1, 8.1.1 a), b), b2) and d)	Dual_Mode_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 ETSI TS 100 396-4 [24], clause 12.3.4.2	8.1, 8.1.1 a), b), b2) and d), and F.4, table F.1	DM_Only_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 ETSI TS 100 396-4 [24], clause 12.3.4.2	8.1 and 8.1.1 c)	Dual_Mode_Multiple _Class_REP1	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 ETSI TS 100 396-4 [24], clause 12.3.4.2	8.1 and 8.1.1 c) and F.4, table F.1	DM_Only_Multiple_ Class_REP1	To test that the output power corresponds to the declared lower power class(es).
7.1.2.2 and ETSI TS 100 396-4 [24], clause 12.3.4.6	8.2	DM_Only_REP1	To test the output power in the non-active transmit state.
7.1.3.2	8.3 and F.4, table F.1	DM_Only_REP1	To test the unwanted conducted emission over the useful part of the burst.
7.1.4.2	8.4	DM_Only_REP1	To test the unwanted conducted emission during switching transients.

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.5.2 and F.5, table F.2 and ETSI TS 100 396-4 [24], clauses 12.3.4.3.3.1 and 12.3.4.3.3.2	8.5	All_DM_REP1	To test the unwanted conducted discrete spurious and wideband noise emission far from the carrier.
7.1.6.2	8.6	DM_Only_REP1	To test the unwanted radiated emission in the active transmit state.
7.1.7.2	8.7 and 8.7.1	DM_Only_REP1	To test the unwanted conducted emission during LCH.
7.1.8.2.1	8.8 and 8.8.1	DM_Only_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	DM_Only_REP1	To test the nominal error rate. ETSI TS 100 394-1 [4], 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	DM_Only_REP1	To test the dynamic reference sensitivity performance. ETSI TS 100 394-1 [4], 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	DM_Only_Protected _Data_REP1	To test the dynamic reference sensitivity performance of a DM-REP1 supporting protected circuit mode data. ETSI TS 100 394-1 [4], 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	DM_Only_REP1	To test the dynamic reference sensitivity performance of a DM-REP1. ETSI TS 100 394-1 [4], 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	DM_Only_REP1	To test the reference interference performance ETSI TS 100 394-1 [4], 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	DM_Only_REP1	To test the blocking characteristics ETSI TS 100 394-1 [4], table A.2; blocking and F.5, table F.2.
7.2.6.2 and F.5, table F.2	9.6	DM_Only_REP1	To test the spurious response rejection ETSI TS 100 394-1 [4], 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	DM_Only_REP1	To test the intermodulation response rejection ETSI TS 100 394-1 [4], table A.2; intermodulation and F.5, table F.2.
7.2.8.2	9.8	DM_Only_REP1	To test the unwanted conducted emission.
7.2.9.2	9.9	DM_Only_REP1	To test the unwanted radiated emission.
7.3.1.2	10.1, 10.1.1 and 10.1.3	DM_Only_REP1	To test the modulation accuracy.
F.6.2.1	F.6.2.2	All_DM_REP1	To test the transmitter output power versus time within a burst.
F.6.3.1	F.6.3.2	All_DM_REP1	To test the RF frequency accuracy.
F.6.4.2	F.6.4.3	All_DM_REP1	To test the DM synchronization accuracy.
NOTE 1: The test case limit values, as referenced, are specified in ETSI TS 100 394-1 [4], clause 7 and annex F, except when otherwise stated. NOTE 2: The test methods, as referenced, are specified in ETSI TS 100 394-1 [4], clauses 8 to 10 and annex F.			

5.3.4.1.2   Test case selection expression definitions for radio layer for DM-REP1

Table 89: Test case selection expression definitions for radio layer for DM-REP1

Test Case Selection Expression Definitions		
Expression Name	Selection Expression	Comments
All_DM_REP1	EN_RT_DM_REP1_RADIO_LAYER	Radio layer for DM-REP1 supported.
Dual_Mode_REP1	EN_RT_DM_REP1_RADIO_LAYER AND PIX_DUAL_MODE	DM-REP1 with radio layer also used for V+D mode.
DM_Only_REP1	EN_RT_DM_REP1_RADIO_LAYER AND NOT PIX_DUAL_MODE	DM-REP1 with radio layer not supporting V+D mode.
Dual_Mode_Multiple_Class_REP1	EN_RT_DM_REP1_RADIO_LAYER AND PIX_DUAL_MODE AND PIX_SWITCHABLE_POWER	DM-REP1 with switchable DMO power classes and with radio layer also used for V+D mode.
DM_Only_Multiple_Class_REP1	EN_RT_DM_REP1_RADIO_LAYER AND NOT PIX_DUAL_MODE AND PIX_SWITCHABLE_POWER	DM-REP1 with switchable DMO power classes and with radio layer not supporting V+D mode.
DM_Only_Protected_Data_REP1	EN_RT_DM_REP1_RADIO_LAYER AND NOT PIX_DUAL_MODE AND PIX_PROTECTED_DATA	DM-REP1 supporting protected mode data and with radio layer not supporting V+D mode.

5.3.4.1.3   Test suite parameter definitions for radio layer for DM-REP1

Table 90: Test suite parameter definitions for radio layer for DM-REP1

Test Suite Parameter Declarations			
Parameter Name	Type	PICS/PIXIT Reference	Comments
EN_RT_DM_REP1_RADIO_LAYER	BOOLEAN	A.1.3, table A.4/1	DM-REP1 radio layer supported.
PIX_DUAL_MODE	BOOLEAN	B.1, table B.2/1	Radio layer also used for V+D mode.
PIX_SWITCHABLE_POWER	BOOLEAN	B.1, table B.3/1	Switchable DMO power classes.
PIX_PROTECTED_DATA	BOOLEAN	B.1, table B.4/1	Protected circuit mode data.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.4.2   Upper MAC layer test specification for DM-REP1

5.3.4.2.1   Test suite structure for Upper MAC layer for DM-REP1

Table 91: Test suite structure for Upper MAC layer for DM-REP1

Test Suite Structure		
Suite Name: DMO/DMREP1		
Standards Reference: ETSI TS 100 396-4 [24]		
PICS Reference: ETSI TS 100 396-8-2 [29]		
PIXIT Reference: ETSI TS 100 394-4-6 [10], annex B		
Test Method(s): The embedded variant of the remote multi party test method		
Comments:		
Test Group Reference	Selection Reference	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.

5.3.4.2.2   Test case index for Upper MAC layer for DM-REP1

Table 92: Test case index for Upper MAC layer for DM-REP1

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Reference**	**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 call setup 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.

5.3.4.2.3   Test case selection expression definitions for Upper MAC layer for DM-REP1

Table 93: Test case selection expression definitions for Upper MAC layer for DM-REP1

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
DMREP1_MAC_supported	EN_RT_DM_REP1_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.

5.3.4.2.4   Test suite parameter definitions for Upper MAC layer for DM-REP1

Table 94: Test suite parameter definitions for Upper MAC layer for DM-REP1

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_DM_REP1_MAC_SUPPORTED	BOOLEAN	A.1.3, table A.4/3	IUT supports Repeater type 1 MAC.
PIC_CIRCUIT_MODE_CALL	BOOLEAN	A.1.4.2, table A.12/1	IUT supports repeater functionality for CM calls.
PIC_SHORT_DATA_SERVICE	BOOLEAN	A.1.4.2, table A.12/2	IUT supports repeater functionality for SDS.
PIC_SEND_DPRES_SYNC	BOOLEAN	A.3.3.2, table A.41/3	IUT supports sending of DPRES SYNC PDU.
PIC_DN_232	INTEGER	A.3.3.2, table A.43/1	Number of frames to transmit DM-SETUP or DM-SETUP PRES PDUs on the slave link.
PIC_DN_233	INTEGER	A.3.3.2, table A.43/2	Number of frames to transmit DM-SDS UDATA or DM-SDS DATA PDUs on the slave link.
PIC_DT253	INTEGER	A.3.3.2, table A.44/1	Number of frames for timer DT253.
PIC_DT256	INTEGER	A.3.3.2, table A.44/2	Number of frames for timer DT256.
PIC_DT258	INTEGER	A.3.3.2, table A.44/3	Number of frames for timer DT258.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.2, table B.16/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.2, table B.16/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.2, table B.16/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_MNI	MNI_Type	B.3.2, table B.16/4	MNI of the network.
PIX_MS_MASTER_SSI	SSI_Type	B.3.2, table B.16/5	SSI of a master MS.
PIX_MS_SLAVE_SSI	SSI_Type	B.3.2, table B.16/6	SSI of a slave MS.
PIX_REPEATER_ADDRESS	Repeater_Address_Type	B.3.2, table B.16/7	Repeater address of the IUT.
PIX_NON_REPEATER_ADDRESS	Repeater_Address_Type	B.3.2, table B.16/8	An SSI not recognized as the repeater address of the IUT.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.5   Test specification for DM-REP2

5.3.5.1   Radio layer test specification for DM-REP2

5.3.5.1.1   Test case index for radio layer for DM-REP2

Table 95: Test case index for radio layer for DM-REP2

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 ETSI TS 100 396-7 [27], clause 12.3.4.2	8.1, 8.1.1 a), b), b2) and d)	Dual_Mode_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 ETSI TS 100 396-7 [27], clause 12.3.4.2	8.1, 8.1.1 a), b), b2) and d), and F.4, table F.1	DM_Only_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 ETSI TS 100 396-7 [27], clause 12.3.4.2	8.1 and 8.1.1 c)	Dual_Mode_Multiple_Class_REP2	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 ETSI TS 100 396-7 [27], clause 12.3.4.2	8.1, 8.1.1 c) and F.4, table F.1	DM_Only_Multiple_Class_REP2	To test that the output power corresponds to the declared lower power class(es).
7.1.2.2 and ETSI TS 100 396-7 [27], clause 12.3.4.6	8.2	DM_Only_REP2	To test the output power in the non-active transmit state.
7.1.3.2	8.3 and F.4, table F.1	DM_Only_REP2	To test the unwanted conducted emission over the useful part of the burst.
7.1.4.2	8.4	DM_Only_REP2	To test the unwanted conducted emission during switching transients.
7.1.5.2 and F.5, table F.2 and ETSI TS 100 396-7 [27], clauses 12.3.4.3.3.1 and 12.3.4.3.3.2	8.5	All_DM_REP2	To test the unwanted conducted discrete spurious and wideband noise emission far from the carrier.
7.1.6.2	8.6	DM_Only_REP2	To test the unwanted radiated emission in the active transmit state.
7.1.7.2	8.7 and 8.7.1	DM_Only_REP2	To test the unwanted conducted emission during LCH.
7.1.8.2.1	8.8 and 8.8.1	DM_Only_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	DM_Only_REP2	To test the nominal error rate. ETSI TS 100 394-1 [4], 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	DM_Only_REP2	To test the dynamic reference sensitivity performance. ETSI TS 100 394-1 [4], 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	DM_Only_Protected_Data_REP2	To test the dynamic reference sensitivity performance of a DM-REP2 supporting protected circuit mode data. ETSI TS 100 394-1 [4], 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	DM_Only_REP2	To test the dynamic reference sensitivity performance of a DM-REP2. ETSI TS 100 394-1 [4], 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	DM_Only_REP2	To test the reference interference performance ETSI TS 100 394-1 [4], 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	DM_Only_REP2	To test the blocking characteristics ETSI TS 100 394-1 [4], table A.2; blocking and F.5, table F.2.
7.2.6.2 and F.5, table F.2	9.6	DM_Only_REP2	To test the spurious response rejection ETSI TS 100 394-1 [4], 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	DM_Only_REP2	To test the intermodulation response rejection ETSI TS 100 394-1 [4], table A.2; intermodulation and F.5, table F.2.
7.2.8.2	9.8	DM_Only_REP2	To test the unwanted conducted emission.
7.2.9.2	9.9	DM_Only_REP2	To test the unwanted radiated emission.
7.3.1.2	10.1, 10.1.1 and 10.1.3	DM_Only_REP2	To test the modulation accuracy.
F.6.2.1	F.6.2.2	All_DM_REP2	To test the transmitter output power versus time within a burst.
F.6.3.1	F.6.3.2	All_DM_REP2	To test the RF frequency accuracy.
F.6.4.2	F.6.4.3	All_DM_REP2	To test the DM synchronization accuracy.
NOTE 1: The test case limit values, as referenced, are specified in ETSI TS 100 394-1 [4], clause 7 and annex F, except when otherwise stated.			
NOTE 2: The test methods, as referenced, are specified in ETSI TS 100 394-1 [4], clauses 8 to 10 and annex F.			

5.3.5.1.2   Test case selection expression definitions for radio layer for DM-REP2

Table 96: Test case selection expression definitions for radio layer for DM-REP2

Test Case Selection Expression Definitions		
Expression Name	Selection Expression	Comments
All_DM_REP2	EN_RT_DM_REP2_RADIO_LAYER	Radio layer for DM-REP2 supported.
Dual_Mode_REP2	EN_RT_DM_REP2_RADIO_LAYER AND PIX_DUAL_MODE	DM-REP2 with radio layer also used for V+D mode.
DM_Only_REP2	EN_RT_DM_REP2_RADIO_LAYER AND NOT PIX_DUAL_MODE	DM-REP2 with radio layer not supporting V+D mode.
Dual_Mode_Multiple_Class_REP2	EN_RT_DM_REP2_RADIO_LAYER AND PIX_DUAL_MODE AND PIX_SWITCHABLE_POWER	DM-REP2 with switchable DMO power classes and with radio layer also used for V+D mode.
DM_Only_Multiple_Class_REP2	EN_RT_DM_REP2_RADIO_LAYER AND NOT PIX_DUAL_MODE AND PIX_SWITCHABLE_POWER	DM-REP2 with switchable DMO power classes and with radio layer not supporting V+D mode.
DM_Only_Protected_Data_REP2	EN_RT_DM_REP2_RADIO_LAYER AND NOT PIX_DUAL_MODE AND PIX_PROTECTED_DATA	DM-REP2 supporting protected mode data and with radio layer not supporting V+D mode.

5.3.5.1.3   Test suite parameter definitions for radio layer for DM-REP2

Table 97: Test suite parameter definitions for radio layer for DM-REP2

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_DM_REP2_RADIO_LAYER	BOOLEAN	A.1.3, table A.5/1	DM-REP2 radio layer supported.
PIX_DUAL_MODE	BOOLEAN	B.1, table B.2/1	Radio layer also used for V+D mode.
PIX_SWITCHABLE_POWER	BOOLEAN	B.1, table B.3/1	Switchable DMO power classes.
PIX_PROTECTED_DATA	BOOLEAN	B.1, table B.4/1	Protected circuit mode data.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.5.2   Upper MAC layer test specification for DM-REP2

5.3.5.2.1   Test suite structure for Upper MAC layer for DM-REP2

Table 98: Test suite structure for Upper MAC layer for DM-REP2

Test Suite Structure		
Suite Name: DMO/DMREP2		
Standards Reference: ETSI TS 100 396-7 [27]		
PICS Reference: ETSI TS 100 396-8-4 [31]		
PIXIT Reference: ETSI TS 100 394-4-14 [18], annex B		
Test Method(s): The embedded variant of the remote multi party test method		
Comments:		
Test Group Reference	**Selection Reference**	**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.

5.3.5.2.2   Test case index for Upper MAC layer for DM-REP2

Table 99: Test case index for Upper MAC layer for DM-REP2

Test Case Index			
Test Group Reference	Test Case Id	Selection Reference	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 call setup 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.

5.3.5.2.3   Test case selection expression definitions for Upper MAC layer for DM-REP2

Table 100: Test case selection expression definitions for Upper MAC layer for DM-REP2

Test Case Selection Expression Definitions		
Expression Name	Selection Expression	Comments
DMREP2_MAC_supported	EN_RT_DM_REP2_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.

5.3.5.2.4   Test suite parameter definitions for Upper MAC layer for DM-REP2

Table 101: Test suite parameter definitions for Upper MAC layer for DM-REP2

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_DM_REP2_MAC_SUPPORTED	BOOLEAN	A.1.3, table A.5/3	IUT supports Repeater type 2 MAC.
PIC_CIRCUIT_MODE_CALL	BOOLEAN	A.1.4.3, table A.13/1	IUT supports repeater functionality for CM calls with and without presence check.
PIC_SHORT_DATA_SERVICE	BOOLEAN	A.1.4.3, table A.13/2	IUT supports repeater functionality for unacknowledged and acknowledged SDS.
PIC_SEND_DPRES_SYNC	BOOLEAN	A.3.3.3, table A.45/4	IUT supports sending of DPRES SYNC PDU.
PIC_DN_232	INTEGER	A.3.3.3, table A.47/1	Number of frames to transmit DM-SETUP or DM-SETUP PRES PDUs on the slave link.
PIC_DN_233	INTEGER	A.3.3.3, table A.47/2	Number of frames to transmit DM-SDS UDATA or DM-SDS DATA PDUs on the slave link.
PIC_DT253	INTEGER	A.3.3.3, table A.48/1	Number of frames for timer DT253.
PIC_DT256	INTEGER	A.3.3.3, table A.48/2	Number of frames for timer DT256.
PIC_DT258	INTEGER	A.3.3.3, table A.48/3	Number of frames for timer DT258.
PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	B.3.3, table B.17/1	Traffic channel type and interleaving depth supported by the IUT.
PIX_POWER_CLASS	Power_Class_Type	B.3.3, table B.17/2	The power class of the IUT.
PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	B.3.3, table B.17/3	Power control flag, which indicate whether or not power control by slave is permitted.
PIX_MNI	MNI_Type	B.3.3, table B.17/4	MNI of the network.
PIX_MS_MASTER_SSI	SSI_Type	B.3.3, table B.17/5	SSI of a master MS.
PIX_MS_SLAVE_SSI	SSI_Type	B.3.3, table B.17/6	SSI of a slave MS.
PIX_REPEATER_ADDRESS	Repeater_Address_Type	B.3.3, table B.17/7	Repeater address of the IUT.
PIX_NON_REPEATER_ADDRESS	Repeater_Address_Type	B.3.3, table B.17/8	An SSI not recognized as the repeater address of the IUT.
Detailed Comments			
The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

5.3.6   Test specification for DM-GATE

5.3.6.1   Radio layer test specification for DM-GATE

5.3.6.1.1   Test case index for radio layer for DM-GATE

Table 102: Test case index for radio layer for DM-GATE

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.1.2 a) and F.5, table F.2 and ETS 300 396-5 [25], clause 16.3.4.2	8.1, 8.1.1 a), b), b2) and d)	All_DM_GATE	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 [25], clause 16.3.4.2	8.1 and 8.1.1 c)	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 [25], clauses 16.3.4.3.3.1 and 16.3.4.3.3.2	8.5	All_DM_GATE	To test the unwanted conducted discrete spurious and wideband noise emission far from the carrier.
F.6.2.1	F.6.2.2	All_DM_GATE	To test the transmitter output power versus time within a burst.
F.6.3.1	F.6.3.2	All_DM_GATE	To test the RF frequency accuracy.
NOTE 1: The test case limit values, as referenced, are specified in ETSI TS 100 394-1 [4], clause 7 and annex F, except when otherwise stated.			
NOTE 2: The test methods, as referenced, are specified in ETSI TS 100 394-1 [4], clauses 8 to 10 and annex F.			

5.3.6.1.2   Test case selection expression definitions for radio layer for DM-GATE

Table 103: Test case selection expression definitions for radio layer for DM-GATE

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
All_DM_GATE	EN_RT_DM_GATE_RADIO_LAYER	Radio layer for DM-GATE supported.
DM_GATE_Multiple_Class	EN_RT_DM_GATE_RADIO_LAYER AND PIX_SWITCHABLE_POWER	DM-GATE with switchable DMO power classes.

5.3.6.1.3   Test suite parameter definitions for radio layer for DM-GATE

Table 104: Test suite parameter definitions for radio layer for DM-GATE

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Reference**	**Comments**
EN_RT_DM_GATE_RADIO_LAYER	BOOLEAN	A.1.3, table A.6/1	DM-GATE radio layer supported.
PIX_SWITCHABLE_POWER	BOOLEAN	B.1, table B.3/1	Switchable DMO power classes.
Detailed Comments The references given in the PICS/PIXIT Reference -column refer to the requirement tables in annex A and declarations in annex B in the present document.			

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

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

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

- it provides a tabular summary of all the requirements;

- it shows the status of each EN-R, whether it is essential to implement in all circumstances (Mandatory), or whether the requirement is dependent on the supplier having chosen to support a particular optional service or functionality (Optional). In particular it enables the EN-Rs associated with a particular optional service or functionality to be grouped and identified;

- when completed in respect of a particular equipment it provides a means to undertake the static assessment of conformity with the EN.

Key to columns:

No.   Table entry number;

EN Reference   Reference number of conformance requirement within the present document;

EN-R   Title of conformance requirement within the present document;

Standard reference References to standard where the requirements are specified;

Status   Status of the entry as follows:

> m   Mandatory, shall be implemented under all circumstances;
> o   Optional, may be provided, but if provided shall be implemented in accordance with the requirements;
> o.n   This status is used for mutually exclusive or selectable options among a set.
>   The integer "n" shall refer to a unique group of options within the EN-RT.
>   The requirement for each numbered group is defined immediately following the table;
> ci   Conditional - the requirement on the capability ("m", "o", "n" or "n/a") depends on the support of other optional or conditional items.
>   "i" is an integer identifying a unique conditional status expression, which is defined immediately following the table;
> n   Not a requirement. The entry is outside the scope of the present document and it is not a requirement that the feature is supported;
> n/a   Not applicable - in the given context, it is impossible to use the capability.

Support   This is the column for the manufacturer's declaration of whether the particular item is supported by the implementation. For the purposes of the static assessment of conformity with the EN, the column shall be completed in respect of a particular equipment as follows:

> y   Yes, the item is implemented;
> n   No, the item is not implemented;
> n/a   Not applicable - in the given context, it is impossible to use the capability.

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

A.1 General capabilities of equipment

A.1.1 Type of equipment

Table A.1: Type of equipment

Item	Type of equipment	Reference	Status	Support
1	DMO capable Mobile Station (DM-MS)	ETS 300 396-3	o.1	
2	Direct Mode REPeater type 1 (DM-REP1)	ETSI TS 100 396-4	o.1	
3	Direct Mode REPeater type 2 (DM-REP2)	ETSI TS 100 396-7	o.1	
4	Direct Mode GATEway (DM-GATE)	ETS 300 396-5	o.1	

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

A.1.2 Modes of operation for DM-MS

Table A.2: Modes of operation for DM-MS

Prerequisite: A.1/1 -- 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	m	
2	Operation with DMO Repeater type 1 (MS-REP1)	ETSI TS 100 396-4	o	
3	Operation with DMO Repeater type 2 (MS-REP2)	ETSI TS 100 396-7	o	
4	Operation with DMO Gateway (MS-GW)	ETS 300 396-5	o	

A.1.3　Protocol layers

Table A.3: Protocol layers for DM-MS

No.	Protocol layer	Standard reference	Status	Support
Prerequisite: A.1/1　--　DM-MS				
1	Radio Layer for DM-MS	ETS 300 396-2	m	
2	Lower Medium Access Control (Lower MAC)	ETS 300 396-3, clause 8	m	
3	Managed DMO (M-DMO)	ETSI TS 100 396-10	c301	
4	Upper Medium Access Control (Upper MAC)	ETS 300 396-3, clause 8	m	
5	Upper Medium Access Control (Upper MAC) for MS-REP1	ETSI TS 100 396-4, clause 8	c302	
6	Upper Medium Access Control (Upper MAC) for MS-REP2	ETSI TS 100 396-7, clause 8	c303	
7	Upper Medium Access Control (Upper MAC) for MS-GW	ETS 300 396-5, clause 8	c304	
8	Direct Mode Mobility Management (DMMM) for MS-GW	ETS 300 396-5, clause 6	c305	
9	Direct Mode Call Control (DMCC)	ETS 300 396-3, clause 6	m	
10	Direct Mode Call Control (DMCC) for MS-REP1	ETSI TS 100 396-4, clause 6	c302	
11	Direct Mode Call Control (DMCC) for MS-REP2	ETSI TS 100 396-7, clause 6	c303	
12	Direct Mode Call Control (DMCC) for MS-GW	ETS 300 396-5, clause 6	c304	
13	Security	ETS 300 396-6	m	

c301:　IF A.17/3　　--　Operation in frequency band(s) for Civil TETRA
　　　　OR A.17/4 OR A.17/5
　　　　OR A.17/6
　　　　OR A.17/7 OR A.17/8
　　　　THEN m
　　　　ELSE o

c302:　IF A.2/2 --　Operation with DMO Repeater type 1
　　　　THEN m
　　　　ELSE n

c303:　IF A.2/3 --　Operation with DMO Repeater type 2
　　　　THEN m
　　　　ELSE n

c304:　IF A.2/4 --　Operation with DMO Gateway
　　　　THEN m
　　　　ELSE n

c305:　IF A.9/11　--　Outgoing call set-up through DMO Gateway
　　　　THEN m
　　　　ELSE n

Table A.4: Protocol layers for DM-REP1

No.	Protocol layer	Standard reference (note)	Status	Support
Prerequisite: A.1/2　--　DM-REP1				
1	Radio Layer	9.4, 12	m	
2	Lower Medium Access Control (Lower MAC)	9.1.1, 12.5	m	
3	Upper Medium Access Control (Upper MAC)	9	m	
NOTE:　　The capabilities are specified in ETSI TS 100 396-4 under the given clause(s).				

Table A.5: Protocol layers for DM-REP2

No.	Protocol layer	Standard reference (note)	Status	Support
Prerequisite: A.1/3 -- DM-REP2				
1	Radio Layer	9.4, 12	m	
2	Lower Medium Access Control (Lower MAC)	9.1.1, 12.5	m	
3	Upper Medium Access Control (Upper MAC)	9	m	
NOTE: The capabilities are specified in ETSI TS 100 396-7 under the given clause(s).				

Table A.6: Protocol layers for DM-GATE

No.	Protocol layer	Standard reference (note)	Status	Support
Prerequisite: A.1/4 -- DM-GATE				
1	Radio Layer	16	m	
2	Lower Medium Access Control (Lower MAC)	13.1.1, 16.5	m	
3	Upper Medium Access Control (Upper MAC)	13	m	
4	Direct Mode Call Control (DMCC)	9.3	m	
NOTE: The capabilities are specified in ETS 300 396-5 under the given clause.				

A.1.4   Services and capabilities

A.1.4.1   Services and capabilities for DM-MS

Table A.7: Services for DM-MS

No.	Service	Reference	Status	Support
Prerequisite: A.1/1 -- DM-MS				
1	Circuit mode call	ETS 300 396-3, clause 6.2	c701	
2	Short Data Service (SDS)	ETS 300 396-3, clause 6.3	c702	
3	Circuit mode call through DMO Repeater type 1	ETSI TS 100 396-4, clause 6.2	c703	
4	Circuit mode call through DMO Repeater type 2	ETSI TS 100 396-7, clause 6	c704	
5	Circuit mode call through DMO Gateway	ETS 300 396-5, clause 6.2	c705	

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

c701:   IF A.7/3 OR A.7/4 --   Circuit mode call capability through DMO Repeater type 1 or type 2,
OR A.7/5 or through DMO Gateway
      THEN m
      ELSE o.2

c702:   IF A.62/1   --   Secure Enable/Disable feature
      THEN m
      ELSE o.2

c703:   IF A.2/2 --   Operation with DMO Repeater type 1
      THEN o
      ELSE n/a

c704:   IF A.2/3 --   Operation with DMO Repeater type 2
      THEN o
      ELSE n/a

c705:   IF A.2/4 --   Operation with DMO Gateway
      THEN o
      ELSE n/a

Table A.8: Call priorities for DM-MS

No.	Call priority	Reference	Status	Support
	Prerequisite: A.1/1 -- DM-MS			
1	Normal priority call	ETS 300 396-3, clause 5.4	m	
2	High priority call	ETS 300 396-3, clause 5.4	o	
3	Pre-emptive priority call	ETS 300 396-3, clause 5.4	o	
4	Emergency pre-emptive priority call	ETS 300 396-3, clause 5.4	o	

Table A.9: Circuit mode call capabilities for DM-MS

No.	Circuit mode call capability	Reference	Status	Support
	Prerequisite: A.7/1 -- DM-MS Circuit mode call capability			
1	Individual circuit mode call	ETS 300 396-3, clause 6.2	o.3	
2	Group circuit mode call	ETS 300 396-3, clause 6.2	o.3	
3	Individual circuit mode call through DMO Gateway	ETS 300 396-5, clause 6.2	c901	
4	Group circuit mode call through DMO Gateway	ETS 300 396-5, clause 6.2	c901	
5	Outgoing call set-up	ETS 300 396-3, clause 6.2	o.5	
6	Incoming call set-up	ETS 300 396-3, clause 6.2	o.5	
7	Outgoing call set-up through DMO Repeater type 1	ETSI TS 100 396-4, clause 6.2	c902	
8	Incoming call set-up from DMO Repeater type 1	ETSI TS 100 396-4, clause 6.2	c902	
9	Outgoing call set-up through DMO Repeater type 2	ETSI TS 100 396-7, clause 6	c903	
10	Incoming call set-up from DMO Repeater type 2	ETSI TS 100 396-7, clause 6	c903	
11	Outgoing call set-up through DMO Gateway	ETS 300 396-5, clause 6.2	c904	
12	Incoming call set-up from DMO Gateway	ETS 300 396-5, clause 6.2	c904	
13	Call set-up with presence check	ETS 300 396-3, clause 6.2	c905	
14	Call set-up without presence check	ETS 300 396-3, clause 6.2	c906	
15	Call pre-emption capability through DMO Repeater type 1	ETSI TS 100 396-4, clause 8.5.7.1	c907	
16	Call pre-emption capability through DMO Repeater type 2	ETSI TS 100 396-7, clause 8.5.7.1	c908	

o.3   It is mandatory to support at least one of these items
o.4   It is mandatory to support at least one of these items
o.5   It is mandatory to support at least one of these items
o.6:   It is mandatory to support at least one of these items
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
o.9   It is mandatory to support at least one of these items

c901:   IF A.7/5 --   Circuit mode call through DMO Gateway capability
        THEN o.4
        ELSE n/a

c902:   IF A.7/3 --   Circuit mode call through DMO Repeater type 1 capability
        THEN o.6
        ELSE n/a

c903:   IF A.7/4 --   Circuit mode call through DMO Repeater type 2 capability
        THEN o.7
        ELSE n/a

c904:   IF A.7/5 --   Circuit mode call through DMO Gateway capability
        THEN o.8
        ELSE n/a

c905: IF A.9/1 -- Individual circuit mode call capability
      THEN o.9
      ELSE n/a

c906: IF A.9/2 -- Group circuit mode call capability
      THEN m
      ELSE o.9

c907: IF A.9/7 AND A.9/8   -- Outgoing and incoming call set-up through DMO Repeater type 1 capability
AND (A.8/3 OR A.8/4)   and pre-emptive or emergency pre-emptive call capability
      THEN o
      ELSE n/a

c908: IF A.9/9 AND A.9/10 -- Outgoing and incoming call set-up through DMO Repeater type 2 capability
AND (A.8/3 OR A.8/4)   and pre-emptive or emergency pre-emptive call capability
      THEN o
      ELSE n/a

Table A.10: Short Data Service call capabilities for DM-MS

No.	SDS call capability	Reference	Status	Support
Prerequisite: A.7/2 -- DM-MS Short Data Service capability				
1	Acknowledged short data service including data in Acknowledgement	ETS 300 396-3, clause 6.3	c1001	
2	Include FCS in transmission	ETS 300 396-3, clause 6.3	o	
3	Sending unacknowledged short data	ETS 300 396-3, clause 6.3	o	
4	Sending acknowledged short data	ETS 300 396-3, clause 6.3	o	
5	Receiving short data	ETS 300 396-3, clause 6.3	c1001	

c1001: IF A.62/1 -- Secure Enable/Disable feature
      THEN m
      ELSE n

Table A.11: Short data message types for DM-MS

No.	Message type	Reference	Status	Support
Prerequisite: A.7/2 -- DM-MS Short Data Service capability				
1	Enable/disable	ETS 300 396-3, clause 5.4	c1101	

c1101: A.62/1 -- Secure Enable/Disable feature
      THEN m
      ELSE n/a

A.1.4.2 Services and capabilities for DM-REP1

Table A.12: Services for DM-REP1

No.	Service	Reference	Status	Support
Prerequisite: A.1/2 -- DMO Repeater type 1				
1	Circuit mode call	ETSI TS 100 396-4, clause 6.2	o.10	
2	Short Data Service (SDS)	ETSI TS 100 396-4, clause 6.3	o.10	

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

A.1.4.3   Services and capabilities for DM-REP2

Table A.13: Services for DM-REP2

Prerequisite: A.1/3 -- DMO Repeater type 2				
No.	**Service**	**Reference**	**Status**	**Support**
1	Circuit mode call	ETSI TS 100 396-7, clause 6	o.11	
2	Short Data Service (SDS)	ETSI TS 100 396-7, clause 6	o.11	

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

A.1.4.4   Services and capabilities for DM-GATE

Table A.14: Services for DM-GATE

Prerequisite: A.1/4 -- DMO Gateway				
No.	**Service**	**Reference**	**Status**	**Support**
1	Circuit Mode Call Control	ETS 300 396-5, clause 9.3	o	

Table A.15: Circuit Mode call capabilities for a Gateway

Prerequisite: A.14/1 -- Circuit mode call control for DMO Gateway				
No.	**Capability**	**Reference**	**Status**	**Support**
1	Individual circuit mode call	ETS 300 396-5, clause 9.3	o.12	
2	Group circuit mode call	ETS 300 396-5, clause 9.3	o.12	
3	Accept incoming call from V+D	ETS 300 396-5, clause 9.3.1	o.13	
4	Accept incoming call from DM-MS	ETS 300 396-5, clause 9.3.2	o.13	

o.12   It is mandatory to support at least one of these items
o.13   It is mandatory to support at least one of these items

A.1.5   Environmental profile

Table A.16: Environmental profile

No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.1	Compliance with all requirements within the boundary limits of the declared operational environmental profile	4.1	m	
NOTE 1: This EN-R is justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in the present document under the given clause.					

A.2   Radio layer requirements

A.2.1   Radio layer requirements associated with frequency and channel allocation

Table A.17: RF carrier frequency bands

No.	EN Reference	EN-R (note) Allowed frequency range (MHz)	Standard reference	Status	Support	Supported frequency range (MHz)
1	4.2.1/1	380 to 385	ERC/DEC/(96)01	o.14		
2	4.2.1/1	390 to 395	ERC/DEC/(96)01	o.14		
3	4.2.1/2	410 to 430	ERC/DEC/(96)04	o.14		
4	4.2.1/2	870 to 876	ERC/DEC/(96)04	o.14		
5	4.2.1/2	915 to 921	ERC/DEC/(96)04	o.14		
6	4.2.1/2	450 to 470	ERC/DEC/(96)04	o.14		
7	4.2.1/2	385 to 390	ERC/DEC/(96)04	o.14		
8	4.2.1/2	395 to 399,99	ERC/DEC/(96)04	o.14		
NOTE:	These EN-Rs are justified under article 3.2 of the R&TTE Directive.					

o.14   The supported frequency range(s) shall be within one or more of the specified frequency bands.

Table A.18: Frequency and channel allocation for DM-MS

Prerequisite: A.3/1		Radio Layer for DM-MS			
No.	EN Reference	EN-R (note)	Standard reference	Status	Support
1	4.2.1/3	Frequency bands and channel arrangements.	ETS 300 396-2, clause 6.2	m	
2	4.2.1/4	DM-MS synchronization requirement.	ETS 300 396-2, clause 7.2	m	
3	4.2.1/5	Requirements for the frequency source of DM mobiles	ETS 300 396-2, clause 7.4	m	
4	4.2.1/6	Requirement for synchronization of a slave DM mobile	ETS 300 396-2, clause 7.5	m	
5	4.2.1/7	Usage of DM channel with DM-REP1	ETS 300 396-2, clause 8.4	m	
6	4.2.1/8	DM channel arrangements	ETS 300 396-2, clause 8.4.1.1	m	
7	4.2.1/9	Mapping of logical channels	ETS 300 396-2, clause 9.4.5	m	
8	4.2.1/10	Frequency bands and channel arrangements	ETSI TS 100 396-4, clause 11.3.2	c1801	
9	4.2.1/11	General requirements for synchronization of DM-MSs	ETSI TS 100 396-4, clause 11.4.2	c1801	
10	4.2.1/12	Requirements for synchronization of a slave DM mobile	ETSI TS 100 396-4, clause 11.4.5	c1801	
11	4.2.1/13	Usage of DM channel with DM-REP1	ETSI TS 100 396-4, clause 8.4	c1801	
12	4.2.1/14	DM channel arrangements	ETSI TS 100 396-4, clause 8.4.1.1	c1801	
13	4.2.1/15	Frequency bands and channel arrangements	ETSI TS 100 396-7, clause 11.3.2	c1802	
14	4.2.1/16	General requirements for synchronization of DM-MSs	ETSI TS 100 396-7, clause 11.4.2	c1802	
15	4.2.1/17	Requirements for synchronization of a slave DM mobile	ETSI TS 100 396-7, clause 11.4.5	c1802	
16	4.2.1/18	Synchronization requirements for a master MS operating on channel B	ETSI TS 100 396-7, clause 11.4.6	c1802	
17	4.2.1/19	Usage of DM channel with DM-REP2	ETSI TS 100 396-7, clause 8.4	c1802	
18	4.2.1/20	DM channel arrangements	ETSI TS 100 396-7, clause 8.4.1.1	c1802	
19	4.2.1/21	Frequency bands and channel arrangements	ETS 300 396-5, clause 15.3.2	c1803	
20	4.2.1/22	General requirements for synchronization of DM-MSs.	ETS 300 396-5, clause 15.4.2	c1803	
21	4.2.1/23	Requirement for synchronization of a slave DM mobile	ETS 300 396-5, clause 15.4.5	c1803	
NOTE:	These EN-Rs are justified under article 3.2 of the R&TTE Directive.				

c1801: IF A.2/2 -- Operation with DMO Repeater type 1
        THEN m
        ELSE n

c1802: IF A.2/3 -- Operation with DMO Repeater type 2
        THEN m
        ELSE n

c1803: IF A.2/4 -- Operation with DMO Gateway
        THEN m
        ELSE n

Table A.19: Frequency and channel allocation for DM-REP1

Prerequisite: A.4/1		Radio Layer for DM-REP1			
No.	**EN Reference**	**EN-R (note)**	**Standard reference**	**Status**	**Support**
1	4.2.1/24	Frequency bands and channel arrangements.	ETSI TS 100 396-4, clause 12.3.2	m	
2	4.2.1/25	General requirements for synchronization.	ETSI TS 100 396-4, clause 12.4.2	m	
3	4.2.1/26	Requirements of a frequency reference source of a DM-REP1.	ETSI TS 100 396-4, clause 12.4.4	m	
4	4.2.1/27	Requirement for synchronization of a DM-REP1.	ETSI TS 100 396-4, clause 12.4.5	m	
5	4.2.1/35	Channel structure.	ETSI TS 100 396-4, clause 9.4.1.1	m	
6	4.2.1/36	Channel synchronization.	ETSI TS 100 396-4, clause 9.4.1.2	m	
7	4.2.1/30	Channel multiplexing for DM-REP1.	ETSI TS 100 396-4, clause 12.6	m	
NOTE: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					

Table A.20: Frequency and channel allocation for DM-REP2

Prerequisite: A.5/1		Radio Layer for DM-REP2			
No.	**EN Reference**	**EN-R (note)**	**Standard reference**	**Status**	**Support**
1	4.2.1/31	Frequency bands and channel arrangements.	ETSI TS 100 396-7, clause 12.3.2	m	
2	4.2.1/32	General requirements for synchronization.	ETSI TS 100 396-7, clause 12.4.2	m	
3	4.2.1/33	Requirements of a frequency reference source of a DM-REP2.	ETSI TS 100 396-7, clause 12.4.4	m	
4	4.2.1/34	Requirement for synchronization of a DM-REP2.	ETSI TS 100 396-7, clause 12.4.5	m	
5	4.2.1/35	Channel structure.	ETSI TS 100 396-7, clause 9.4.1.1	m	
6	4.2.1/36	Channel synchronization.	ETSI TS 100 396-7, clause 9.4.1.2	m	
7	4.2.1/37	Channel multiplexing for a DM-REP2.	ETSI TS 100 396-7, clause 12.6	m	
NOTE: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					

Table A.21: Frequency and channel allocation for DM-GATE

Prerequisite: A.6/1		Radio Layer for DM-GATE			
No.	**EN Reference**	**EN-R (note)**	**Standard reference**	**Status**	**Support**
1	4.2.1/38	Frequency bands and channel arrangements.	ETS 300 396-5, clause 16.3.2	m	
2	4.2.1/39	Gateway synchronization requirement.	ETS 300 396-5, clause 16.4.2	m	
3	4.2.1/40	Requirements for the frequency source of a Gateway.	ETS 300 396-5, clause 16.4.4	m	
4	4.2.1/41	Requirement for synchronization of a Gateway.	ETS 300 396-5, clause 16.4.5	m	
5	4.2.1/42	Mapping of logical channels.	ETS 300 396-5, clause 16.6	m	
NOTE: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					

A.2.2   Radio layer requirements associated with transmitting functions

Table A.22: Output power and power classes

No.	EN Reference	EN-R (note)	Standard reference	Status	Support	Allowed power classes	Supported power classes
1	4.2.2/1	DM-MS output power and power class.	ETS 300 396-2, clause 6.4.2	c2201		[2..5, 2L..5L]	
2	4.2.2/14	DM-REP1 output power and power class.	ETSI TS 100 396-4, clause 12.3.4.2	c2202		[1..4]	
3	4.2.2/27	DM-REP2 output power and power class..	ETSI TS 100 396-7, clause 12.3.4.2	c2203		[1..4]	
4	4.2.2/40	DM-GATE output power and power class.	ETS 300 396-5, clause 16.3.4.2	c2204		[1..4]	
NOTE:	These EN-Rs are justified under article 3.2 of the R&TTE Directive.						

c2201: IF A.3/1 -- DM-MS radio layer
        THEN m
        ELSE n/a

c2202: IF A.4/1 -- DM-REP1 radio layer
        THEN m
        ELSE n/a

c2203: IF A.5/1 -- DM-REP2 radio layer
        THEN m
        ELSE n/a

c2204: IF A.6/1 -- DM-GATE radio layer
        THEN m
        ELSE n/a

Table A.23: Other transmitter requirements for DM-MS

Prerequisite: A.3/1		Radio Layer for DM-MS			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.2/2	Unwanted conducted emission during the useful part of the burst.	6.4.3.2.1	m	
2	4.2.2/3	Unwanted conducted emission during the switching transients.	6.4.3.2.2	m	
3	4.2.2/4	Unwanted conducted emission during LCH.	6.4.3.4	m	
4	4.2.2/5	Unwanted conducted discrete spurious emission far from the carrier.	6.4.3.3.1	m	
5	4.2.2/6	Unwanted conducted wideband noise emission far from the carrier.	6.4.3.3.2	m	
6	4.2.2/7	Unwanted conducted emission in the non-transmit state.	6.4.3.5	m	
7	4.2.2/8	Unwanted radiated emissions.	6.4.4	m	
8	4.2.2/9	Transmitter intermodulation attenuation.	6.4.7.2	m	
9	4.2.2/10	RF output power time mask.	6.4.6	m	
10	4.2.2/11	RF output power in non-active transmit state.	6.4.6	m	
11	4.2.2/12	Modulation type.	5.2	m	
12	4.2.2/13	Modulation accuracy.	6.6.1.2	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive. NOTE 2: The requirement is specified in ETS 300 396-2 under the given clause.					

Table A.24: Other transmitter requirements for DM-REP1

Prerequisite: A.4/1		Radio Layer for DM-REP1			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.2/15	Unwanted conducted emission during the useful part of the burst.	12.3.4.3.2	m	
2	4.2.2/16	Unwanted conducted emission during the switching transients.	12.3.4.3.2	m	
3	4.2.2/17	Unwanted conducted emission during LCH.	12.3.4.3.4	m	
4	4.2.2/18	Unwanted conducted discrete spurious emission far from the carrier.	12.3.4.3.3.1	m	
5	4.2.2/19	Unwanted conducted wideband noise emission far from the carrier.	12.3.4.3.3.2	m	
6	4.2.2/20	Unwanted conducted emission in the non-transmit state.	12.3.4.3.5	m	
7	4.2.2/21	Unwanted radiated emissions.	12.3.4.4	m	
8	4.2.2/22	Transmitter intermodulation attenuation.	12.3.4.7	m	
9	4.2.2/23	RF output power time mask.	12.3.4.6	m	
10	4.2.2/24	RF output power in non-active transmit state.	12.3.4.6	m	
11	4.2.2/25	Modulation type.	12.2	m	
12	4.2.2/26	Modulation accuracy.	12.3.6	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive. NOTE 2: The requirement is specified in ETSI TS 100 396-4 under the given clause.					

Table A.25: Other transmitter requirements for DM-REP2

Prerequisite: A.5/1	Radio Layer for DM-REP2				
No.	**EN Reference**	**EN-R (note 1)**	**Standard reference (note 2)**	**Status**	**Support**
1	4.2.2/28	Unwanted conducted emission during the useful part of the burst.	12.3.4.3.2	m	
2	4.2.2/29	Unwanted conducted emission during the switching transients.	12.3.4.3.2	m	
3	4.2.2/30	Unwanted conducted emission during LCH.	12.3.4.3.4	m	
4	4.2.2/31	Unwanted conducted discrete spurious emission far from the carrier.	12.3.4.3.3.1	m	
5	4.2.2/32	Unwanted conducted wideband noise emission far from the carrier.	12.3.4.3.3.2	m	
6	4.2.2/33	Unwanted conducted emission in the non-transmit state.	12.3.4.3.5	m	
7	4.2.2/34	Unwanted radiated emissions.	12.3.4.4	m	
8	4.2.2/35	Transmitter intermodulation attenuation.	12.3.4.7	m	
9	4.2.2/36	RF output power time mask.	12.3.4.6	m	
10	4.2.2/37	RF output power in non-active transmit state.	12.3.4.6	m	
11	4.2.2/38	Modulation type.	12.2	m	
12	4.2.2/39	Modulation accuracy.	12.3.6	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETSI TS 100 396-7 under the given clause.					

Table A.26: Other transmitter requirements for DM-GATE

Prerequisite: A.6/1	Radio Layer for DM-GATE				
No.	**EN Reference**	**EN-R (note 1)**	**Standard reference (note 2)**	**Status**	**Support**
1	4.2.2/41	Unwanted conducted emission during the useful part of the burst.	16.3.4.3.2	m	
2	4.2.2/42	Unwanted conducted emission during the switching transients.	16.3.4.3.2	m	
3	4.2.2/43	Unwanted conducted emission during LCH.	16.3.4.3.4	m	
4	4.2.2/44	Unwanted conducted discrete spurious emission far from the carrier.	16.3.4.3.3.1	m	
5	4.2.2/45	Unwanted conducted wideband noise emission far from the carrier.	16.3.4.3.3.2	m	
6	4.2.2/46	Unwanted conducted emission in the non-transmit state.	16.3.4.3.5	m	
7	4.2.2/47	Unwanted radiated emissions.	16.3.4.4	m	
8	4.2.2/48	Intra-gateway transmitter intermodulation attenuation.	16.3.4.7	m	
9	4.2.2/49	RF output power time mask.	16.3.4.6	m	
10	4.2.2/50	RF output power in non-active transmit state.	16.3.4.6	m	
11	4.2.2/51	Modulation type.	16.2	m	
12	4.2.2/52	Modulation accuracy.	16.3.6	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETS 300 396-5 under the given clause.					

A.2.3   Radio layer requirements associated with receiving functions

Table A.27: Receiver requirements for DM-MS

Prerequisite: A.3/1		Radio Layer for DM-MS			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.3/1	Spurious response rejection	6.5.2.2	m	
2	4.2.3/2	Intermodulation response rejection	6.5.3.2	m	
3	4.2.3/3	Blocking characteristics	6.5.1.2	m	
4	4.2.3/4	Unwanted conducted emission in reception	6.5.4.2	m	
5	4.2.3/5	Unwanted radiated emission	6.5.5	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETS 300 396-2 under the given clause.					

Table A.28: Receiver requirements for DM-REP1

Prerequisite: A.4/1		Radio Layer for DM-REP1			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.3/6	Spurious response rejection	12.3.5	m	
2	4.2.3/7	Intermodulation response rejection	12.3.5	m	
3	4.2.3/8	Blocking characteristics	12.3.5	m	
4	4.2.3/9	Unwanted conducted emission in reception	12.3.5	m	
5	4.2.3/10	Unwanted radiated emission	12.3.5	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETSI TS 100 396-4 under the given clause.					

Table A.29: Receiver requirements for DM-REP2

Prerequisite: A.5/1		Radio Layer for DM-REP2			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.3/11	Spurious response rejection	12.3.5	m	
2	4.2.3/12	Intermodulation response rejection	12.3.5	m	
3	4.2.3/13	Blocking characteristics	12.3.5	m	
4	4.2.3/14	Unwanted conducted emission in reception	12.3.5	m	
5	4.2.3/15	Unwanted radiated emission	12.3.5	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETSI TS 100 396-7 under the given clause.					

Table A.30: Receiver requirements for DM-GATE

Prerequisite: A.6/1		Radio Layer for DM-GATE			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.3/16	Spurious response rejection	16.3.5	m	
2	4.2.3/17	Intermodulation response rejection	16.3.5	m	
3	4.2.3/18	Blocking characteristics	16.3.5	m	
4	4.2.3/19	Unwanted conducted emission in reception	16.3.5	m	
5	4.2.3/20	Unwanted radiated emission	16.3.5	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETS 300 396-5 under the given clause.					

A.2.4 Radio layer requirements associated with control and monitoring functions

Table A.31: Network interface bit error requirements for DM-MS

Prerequisite: A.3/1		Radio Layer for DM-MS			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.4.1/1	Nominal error rate.	6.6.2.1	m	
2	4.2.4.1/2	Dynamic reference sensitivity performance.	6.6.2.2	m	
3	4.2.4.1/3	Reference interference performance.	6.6.2.3	m	
4	4.2.4.1/4	Static reference sensitivity performance.	6.6.2.4	m	
5	4.2.4.1/5	MS receiver performance for synchronization burst acquisition.	6.6.2.5	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETS 300 396-2 under the given clause.					

Table A.32: Network interface bit error requirements for DM-REP1

Prerequisite: A.4/1		Radio Layer for DM-REP1			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.4.1/6	Nominal error rate.	12.3.6	m	
2	4.2.4.1/7	Dynamic reference sensitivity performance.	12.3.6	m	
3	4.2.4.1/8	Reference interference performance.	12.3.6	m	
4	4.2.4.1/9	Static reference sensitivity performance.	12.3.6	m	
5	4.2.4.1/10	Receiver performance for synchronization burst acquisition.	12.3.6	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETSI TS 100 396-4 under the given clause.					

Table A.33: Network interface bit error requirements for DM-REP2

Prerequisite: A.5/1		Radio Layer for DM-REP2			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.4.1/11	Nominal error rate.	12.3.6	m	
2	4.2.4.1/12	Dynamic reference sensitivity performance.	12.3.6	m	
3	4.2.4.1/13	Reference interference performance.	12.3.6	m	
4	4.2.4.1/14	Static reference sensitivity performance.	12.3.6	m	
5	4.2.4.1/15	Receiver performance for synchronization burst acquisition.	12.3.6	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETSI TS 100 396-7 under the given clause.					

Table A.34: Network interface bit error requirements for DM-GATE

Prerequisite: A.6/1		Radio Layer for DM-GATE			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.4.1/16	Nominal error rate.	16.3.6	m	
2	4.2.4.1/17	Dynamic reference sensitivity performance.	16.3.6	m	
3	4.2.4.1/18	Reference interference performance.	16.3.6	m	
4	4.2.4.1/19	Static reference sensitivity performance.	16.3.6	m	
5	4.2.4.1/20	Receiver performance for synchronization burst acquisition.	16.3.6	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETS 300 396-5 under the given clause.					

A.3   Medium Access Control (MAC) layer requirements

A.3.1   Lower MAC

Table A.35: Error control schemes of Lower MAC

No.	EN Reference	EN-R (note)	Standard reference	Status	Support
1	4.2.4.2/1	Error control scheme for Synchronization Signalling CHannel (SCH/S).	ETS 300 396-2, clause 8.3.1.1	c3501	
2	4.2.4.2/2	Error control scheme for Half-slot Signalling CHannel (SCH/H) and Stealing CHannel (STCH).	ETS 300 396-2, clause 8.3.1.2	c3501	
3	4.2.4.2/3	Error control scheme for Full-slot Signalling Channel (SCH/F).	ETS 300 396-2, clause 8.3.1.3	c3501	
4	4.2.4.2/4	Error control scheme for logical channels.	ETSI TS 100 396-4, clause 12.5	c3502	
5	4.2.4.2/5	Error control scheme for logical channels.	ETSI TS 100 396-7, clause 12.5	c3503	
6	4.2.4.2/6	Error control scheme for logical channels.	ETS 300 396-5, clause 16.5	c3504	
NOTE:	These EN-Rs are justified under article 3.2 of the R&TTE Directive.				

c3501:   IF A.3/2 --   DM-MS lower MAC layer
         THEN m
         ELSE n/a

c3502:   IF A.4/2 --   DM-REP1 lower MAC layer
         THEN m
         ELSE n/a

c3503:   IF A.5/2 --   DM-REP2 lower MAC layer
         THEN m
         ELSE n/a

c3504:   IF A.6/2 --   DM-GATE lower MAC layer
         THEN m
         ELSE n/a

A.3.2   Managed DMO

Table A.36: Managed DMO procedures

Prerequisite: A.3/3	--	Managed DMO			
No.	EN Reference	EN-R (note 1)	Standard reference (note 2)	Status	Support
1	4.2.4.3/1	Transmit authorization for M-DM-MS	5.4.1	c3601	
2	4.2.4.3/2	Withdrawal of authorization	7.2	c3601	
3	4.2.4.3/3	M-DMO presence signal	8.1	c3601	
NOTE 1:	These EN-Rs are justified under article 3.2 of the R&TTE Directive.				
NOTE 2:	The requirement is specified in ETSI TS 100 396-10 under the given clause.				

c3601:   A.9/5 OR   -- Outgoing call set-up capability, or
         A.10/3 OR A.10/4 -- Sending Short Data capability
         THEN m (note)
         ELSE n/a

NOTE: An alternative method whereby a Dual Mode or Dual Watch DM-MS may receive its authorization via
            the V+D air interface is under specification. When this method is fully specified, it may be applied as an
            alternative to the use of the M-DMO presence signal, for the DM-MS to receive an authorization to
            transmit.

Table A.37: Managed DMO PDUs

Prerequisite: A.3/3	--	Managed DMO					
No.	**PDU**	**Reference**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DPRES-SYNC	ETSI TS 100 396-10, clause 8.3	m		n/a	n/a

A.3.3   Upper MAC

A.3.3.1   Upper MAC for DM-MS

Table A.38: MAC procedures for DM-MS

Prerequisite: A.3/4	--	Upper MAC for DM-MS			
No.	**EN Reference**	**EN-R (note)**	**Standard reference**	**Status**	**Support**
1	4.2.4.4/1	DM-channel monitoring during occupation	ETS 300 396-3 , clause 8.4.4.2	c3801	
2	4.2.4.4/2	DM-channel monitoring during reservation	ETS 300 396-3, clause 8.4.4.3	c3801	
3	4.2.4.4/3	DM-channel monitoring during pre-emption signalling	ETS 300 396-3, clause 8.4.4.5	c3802	
4	4.2.4.4/4	Transmitting DM-OCCUPIED	ETS 300 396-3, clause 8.4.5.1.7	c3801	
5	4.2.4.4/5	Transmitting DM-RESERVED	ETS 300 396-3, clause 8.4.6.1	c3801	
6	4.2.4.4/6	Transmission of messages	ETS 300 396-3, clause 8.5.6.1	c3803	
7	4.2.4.4/7	Indicating frames available for requests	ETS 300 396-3, clause 8.5.7.2.1	c3801	
8	4.2.4.4/8	DM-channel monitoring during occupation for operation with DMO Repeater type 1	ETSI TS 100 396-4, clause 8.4.4.3	c3804	
9	4.2.4.4/9	DM-channel monitoring during reservation for operation with DMO Repeater type 1	ETSI TS 100 396-4, clause 8.4.4.4	c3804	
10	4.2.4.4/10	DM-channel monitoring during pre-emption signalling for operation with DMO Repeater type 1	ETSI TS 100 396-4, clause 8.4.4.6	c3805	
11	4.2.4.4/11	Indication of master/slave role in synchronization burst for operation with DMO Repeater type 1	ETSI TS 100 396-4, clause 8.5.2.1.1	c3806	
12	4.2.4.4/12	Indicating frames available for requests for operation with DMO Repeater type 1	ETSI TS 100 396-4, clause 8.5.7.2.1	c3804	
13	4.2.4.4/13	DM-channel monitoring during occupation for operation with DMO Repeater type 2	ETSI TS 100 396-7, clause 8.4.4.3	c3807	
14	4.2.4.4/14	DM-channel monitoring during reservation for operation with DMO Repeater type 2	ETSI TS 100 396-7, clause 8.4.4.4	c3807	
15	4.2.4.4/15	DM-channel monitoring during pre-emption signalling for operation with DMO Repeater type 2	ETSI TS 100 396-7, clause 8.4.4.6	c3808	
16	4.2.4.4/16	Indication of master/slave role in synchronization burst for operation with DMO Repeater type 2	ETSI TS 100 396-7, clause 8.5.2	c3809	
17	4.2.4.4/17	Indicating frames available for requests for operation with DMO Repeater type 2	ETSI TS 100 396-7, clause 8.5.7.2.1	c3807	
18	4.2.4.4/18	DM-channel monitoring during occupation	ETS 300 396-5, clause 8.4.4.3	c3810	
19	4.2.4.4/19	DM-channel monitoring during pre-emption signalling	ETS 300 396-5, clause 8.4.4.6	c3811	
20	4.2.4.4/20	Transmitting DM-OCCUPIED for operation with DMO Gateway	ETS 300 396-5, clause 8.4.5.1.7	c3810	

Prerequisite: A.3/4		-- Upper MAC for DM-MS			
No.	**EN Reference**	**EN-R (note)**	**Standard reference**	**Status**	**Support**
21	4.2.4.4/21	Indicating frames available for requests for operation with DMO Gateway	ETS 300 396-5, clause 8.5.7.2.1	c3810	
NOTE:	These EN-Rs are justified under article 3.2 of the R&TTE Directive.				

c3801: A.9/5   --   Outgoing call set-up capability
       THEN m
       ELSE n/a

c3802: A.53/9   --   Pre-emptive call capability during receive occupation
       THEN m
       ELSE n/a

c3803: A.9/5   --   Outgoing call set-up capability
       THEN m
       ELSE n

c3804: A.9/7   --   Outgoing call set-up capability through DMO Repeater type 1
       THEN m
       ELSE n/a

c3805: A.9/15   --   Pre-emptive call capability through DMO Repeater type 1
       THEN m
       ELSE n/a

c3806: IF A.3/5 --   DM-MS upper MAC layer for operation with DMO Repeater type 1
       THEN m
       ELSE n/a

c3807: A.9/9   --   Outgoing call set-up capability through DMO Repeater type 2
       THEN m
       ELSE n/a

c3808: A.9/16   --   Pre-emptive call capability through DMO Repeater type 2
       THEN m
       ELSE n/a

c3809: IF A.3/6 --   DM-MS upper MAC layer for operation with DMO Repeater type 2
       THEN m
       ELSE n/a

c3810: A.9/11   --   Outgoing call set-up capability through DMO Gateway
       THEN m
       ELSE n/a

c3811: A.53/15 --   Pre-emptive call capability through DMO Gateway
       THEN m
       ELSE n/a

Table A.39: Upper MAC PDUs for DM-MS

No.	PDU	Reference	Reception		Transmission	
Prerequisite: A.3/4 -- Upper MAC for DM-MS						
			Status	**Support**	**Status**	**Support**
1	DMAC-SYNC	ETS 300 396-3, clause 9.1.1	m		c3901	
2	DMAC-DATA	ETS 300 396-3, clause 9.2.1	m		c3902	
3	DM-RESERVED	ETS 300 396-3, clause 9.4.1	c3903		c3904	
4	DPRES-SYNC	ETSI TS 100 396-4, clause 10.1.2	c3905		n/a	n/a
5	DPRES-SYNC	ETSI TS 100 396-7, clause 10	c3906		n/a	n/a
6	DPRES-SYNC	ETS 300 396-5, clause 14.1.2	c3907		n/a	n/a

c3901: IF A.9/5 --   Outgoing call set-up capability
        THEN m
        ELSE

IF (A.9/6 AND A.9/13) --   Incoming call set-up with presence check capability
OR A.54/1   or receiving acknowledged short data
        THEN o
        ELSE n

c3902: IF A.9/5 --   Outgoing call set-up capability
        THEN o
        ELSE n/a

c3903: IF A.9/5 --   Outgoing call set-up capability
        THEN m
        ELSE o

c3904: IF A.9/5 --   Outgoing call set-up capability
        THEN m
        ELSE n/a

c3905: IF A.3/5 --   DM-MS upper MAC layer for operation with DMO Repeater type 1
        THEN m
        ELSE n

c3906: IF A.3/6 --   DM-MS upper MAC layer for operation with DMO Repeater type 2
        THEN m
        ELSE n

c3907: IF A.3/7 --   DM-MS upper MAC layer for operation with DMO Gateway
        THEN m
        ELSE n

Table A.40: Number of frames transmitted by MAC for DM-MS

No.	EN Reference	EN-R (note)	Standard reference (note 2)	Status	Support	Allowed range	Supported values
Prerequisite: A.3/4 -- Upper MAC for DM-MS							
1	4.2.4.4/6	DM-SETUP (new call setup)	A.5	c4001		2...4	
2	4.2.4.4/6	DM-SETUP PRES (new call setup)	A.5	c4002		2...4	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.							
NOTE 2: The requirement is specified in ETS 300 396-3 under the given clause.							

c4001: IF A.53/1 --   Outgoing call set-up without presence check capability
        THEN m
        ELSE n/a

c4002:   IF A.53/3   --   Outgoing call set-up with presence check capability
         THEN m
         ELSE n/a

A.3.3.2   Upper MAC for DM-REP1

Table A.41: MAC procedures for DM-REP1

No.	EN Reference	EN-R (note 1)	Standard reference (note 2)	Status	Support
Prerequisite: A.4/3 -- Upper MAC for DM-REP1					
1	4.2.4.4/22	DM-REP channel surveillance at DM-MS call set-up	9.4.2.2.3	m	
2	4.2.4.4/23	DM-REP channel surveillance during a call	9.4.2.3	m	
3	4.2.4.4/24	Signalling of channel state	9.4.5.1	o	
4	4.2.4.4/25	Re-transmission of master DM-MS messages	9.5.1.1.1	m	
5	4.2.4.4/26	Re-transmission of DM-SETUP or DM-SETUP PRES messages	9.5.1.1.2	c4101	
6	4.2.4.4/27	Re-transmission of DM-SDS DATA or DM-SDS UDATA messages	9.5.1.1.3	c4102	
7	4.2.4.4/28	Re-transmission of signalling messages received from a slave DM-MS	9.5.2.1	m	
8	4.2.4.4/29	Re-transmission of response messages from a slave DM-MS	9.5.2.2	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive. NOTE 2: The requirement is specified in ETSI TS 100 396-4 under the given clause.					

c4101:   IF A.12/1   --   Circuit mode service capability
         THEN m
         ELSE n/a

c4102:   IF A.12/2   --   Short Data Service capability
         THEN m
         ELSE n/a

Table A.42: Upper MAC PDUs for DM-REP1

No.	PDU	Reference (note)	Reception		Transmission	
			Status	Support	Status	Support
Prerequisite: A.4/3 -- Upper MAC for DM-REP1						
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		c4201	
5	DM-SDS OCCUPIED	10.4	m		c4202	
NOTE: The PDUs are specified in ETSI TS 100 396-4 under the given clause.						

c4201:   IF A.12/1   --   Circuit mode service capability
         THEN m
         ELSE n/a

c4202:   IF A.12/2   --   Short Data Service capability
         THEN m
         ELSE n/a

Table A.43: Upper MAC constants for DM-REP1

No.	EN Reference	EN-R (note 1)	Standard reference (note 2)	Status	Support	Allowed range	Supported values
1	4.2.4.4/26	DN232	A.7	c4301		2..4	
2	4.2.4.4/27	DN233	A.7	c4302		2..4	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive [1].							
NOTE 2: The requirement is specified in ETSI TS 100 396-4 under the given clause.							

Prerequisite: A.4/3   --   Upper MAC for DM-REP1

c4301: IF A.12/1   --   Circuit mode service capability
        THEN m
        ELSE n/a

c4302: IF A.12/2   --   Short Data Service capability
        THEN m
        ELSE n/a

Table A.44: Upper MAC timers for DM-REP1

No.	EN Reference	EN-R (note 1)	Standard reference (note 2)	Status	Support	Default value	Supported values
1	4.2.4.4/24	DT253	A.6	n		-	
2	4.2.4.4/23	DT256	A.6	c4401		120 frame durations	
3	4.2.4.4/23	DT258	A.6	c4402		120 frame durations	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.							
NOTE 2: The requirement is specified in ETSI TS 100 396-4 under the given clause.							

Prerequisite: A.4/3   --   Upper MAC for DM-REP1

c4401: IF A.12/1   --   Circuit mode service capability
        THEN m
        ELSE n/a

c4402: IF A.12/2   --   Short Data Service capability
        THEN m
        ELSE n/a

A.3.3.3   Upper MAC for DM-REP2

Table A.45: MAC procedures for DM-REP2

No.	EN Reference	EN-R (note 1)	Standard reference (note 2)	Status	Support
1	4.2.4.4/30	DM-REP channel surveillance at DM-MS call set-up	9.4.2.2.3	m	
2	4.2.4.4/31	DM-REP channel surveillance during a call	9.4.2.3	m	
3	4.2.4.4/32	DM-REP channel monitoring	9.4.4	m	
4	4.2.4.4/33	Signalling of channel state	9.4.5.1.1	o	
5	4.2.4.4/34	Re-transmission of master DM-MS messages	9.5.1.1.1	m	
6	4.2.4.4/35	Re-transmission of DM-SETUP or DM-SETUP PRES messages	9.5.1.1.2	c4501	
7	4.2.4.4/36	Re-transmission of DM-SDS DATA or DM-SDS UDATA messages	9.5.1.1.3	c4502	
8	4.2.4.4/37	Re-transmission of signalling messages received from a slave DM-MS	9.5.2.1	m	
9	4.2.4.4/38	Re-transmission of response messages from a slave DM-MS	9.5.2.2	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETSI TS 100 396-7 under the given clause.					

Prerequisite: A.5/3   --   Upper MAC for DM-REP2

c4501: IF A.13/1   -- Circuit mode service capability
        THEN m
        ELSE n/a

c4502: IF A.13/2   -- Short Data Service capability
        THEN m
        ELSE n/a

Table A.46: Upper MAC PDUs for DM-REP2

Prerequisite: A.5/3 -- Upper MAC for DM-REP2						
No.	**PDU**	**Reference (note)**	**Reception**		**Transmission**	
			Status	**Support**	**Status**	**Support**
1	DMAC-SYNC	10	m		m	
2	DPRES-SYNC	10	n/a	n/a	o	
3	DMAC-DATA	10	m		m	
4	DM-RESERVED	10	m		c4601	
5	DM-SDS OCCUPIED	10	m		c4602	
NOTE: The PDUs are specified in ETSI TS 100 396-7 under the given clause.						

c4601: IF A.13/1   -- Circuit mode service capability
        THEN m
        ELSE n/a

c4602: IF A.13/2   -- Short Data Service capability
        THEN m
        ELSE n/a

Table A.47: Upper MAC constants for DM-REP2

Prerequisite: A.5/3 -- Upper MAC for DM-REP2							
No.	**EN Reference**	**EN-R (note 1)**	**Standard reference (note 2)**	**Status**	**Support**	**Allowed range**	**Supported values**
1	4.2.4.4/35	DN232	Annex A	c4701		2 to4	
2	4.2.4.4/36	DN233	Annex A	c4702		2.to.4	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.							
NOTE 2: The requirement is specified in ETSI TS 100 396-7 under the given clause.							

c4701: IF A.13/1   -- Circuit mode service capability
        THEN m
        ELSE n/a

c4702: IF A.13/2   -- Short Data Service capability
        THEN m
        ELSE n/a

Table A.48: Upper MAC timers for DM-REP2

Prerequisite: A.5/3 -- Upper MAC for DM-REP2						
No.	**EN Reference**	**EN-R (note 1)**	**Standard reference (note 2)**	**Status**	**Support**	**Default value**	**Supported values**
1	4.2.4.4/33	DT253	Annex A	n		-	
2	4.2.4.4/31	DT256	Annex A	c4801		120 frame durations	
3	4.2.4.4/31	DT258	Annex A	c4802		120 frame durations	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.						
NOTE 2: The requirement is specified in ETSI TS 100 396-7 under the given clause.						

c4801:   IF A.13/1   --   Circuit mode service capability
         THEN m
         ELSE n/a

c4802:   IF A.13/2   --   Short Data Service capability
         THEN m
         ELSE n/a

A.3.3.4   Upper MAC for DM-GATE

Table A.49: MAC procedures for DM-GATE

Prerequisite: A.6/3	--	Upper MAC for DM-GATE			
No.	**EN Reference**	**EN-R** **(note 1)**	**Standard reference** **(note 2)**	**Status**	**Support**
1	4.2.4.4/39	DM-GW channel surveillance at DM-MS call set-up	13.4.2.2.3	c4901	
2	4.2.4.4/40	DM-GW channel surveillance during a call	13.4.2.3	c4901	
3	4.2.4.4/41	DM-GW channel monitoring during occupation	13.4.4.5	c4901	
4	4.2.4.4/42	DM-GW channel monitoring during reservation	13.4.4.7	c4901	
5	4.2.4.4/43	Transmitting DM-OCCUPIED	13.4.5.1.4	m	
6	4.2.4.4/44	Transmitting DM-RESERVED	13.4.6.1.1	c4901	
7	4.2.4.4/45	Transmission of messages	13.5.6.1	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETS 300 396-5 under the given clause.					

c4901:   IF A.14/1   --   Circuit mode call control for DMO Gateway
         THEN m
         ELSE n/a

Table A.50: Upper MAC PDUs for DM-GATE

Prerequisite: A.6/3	--	Upper MAC for DM-GATE				
No.	**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	m		m	
4	DM-RESERVED	14.4	n/a	n/a	c5001	
NOTE: The PDUs are specified in ETS 300 396-5 under the given clause.						

c5001:   IF A.14/1   --   Circuit mode call control for DMO Gateway
         THEN m
         ELSE n/a

A.4   Direct Mode Mobility Management (DMMM) requirements

Table A.51: Direct Mode Mobility Management procedures

Prerequisite: A.3/8		-- Direct Mode Mobility Management (DMMM)			
No.	**EN Reference**	**EN-R (note 1)**	**Standard reference (note 2)**	**Status**	**Support**
1	4.2.4.5/1	Solicited registration	6.4.1	c5101	
2	4.2.4.5/2	Unsolicited registration	6.4.2	c5102	
3	4.2.4.5/3	Cancellation of registration by Gateway	6.4.3	c5101	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The requirement is specified in ETS 300 396-5 under the given clause.					

c5101:   IF A.9/11   -- Outgoing call set-up through DMO Gateway capability
         THEN m
         ELSE n/a

c5102:   IF A.9/11   -- Outgoing call set-up through DMO Gateway capability
         THEN o
         ELSE n/a

Table A.52: DMMM PDUs

Prerequisite: A.3/8		-- Direct Mode Mobility Management (DMMM)				
No.	**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 under the given clause.						

A.5   Direct Mode Call Control (DMCC) requirements

A.5.1   DMCC for DM-MS

Table A.53: DMCC Circuit mode procedures for DM-MS

No.	EN Reference	EN-R (note)	Standard reference	Status	Support
Prerequisite: A.7/1 -- DM-MS Circuit mode call capability					
1	4.2.4.6/1	Outgoing call set-up without presence check	ETS 300 396-3, clause 6.2.1.1	c5301	
2	4.2.4.6/15	Outgoing call set-up through a DMO Gateway	ETS 300 396-5, clause 6.2.1.1	c5302	
3	4.2.4.6/2	Outgoing call set-up with presence check	ETS 300 396-3, clause 6.2.2.1	c5303	
4	4.2.4.6/5	Accept call pre-emption during occupation	ETS 300 396-3, clause 6.2.4.1	c5304	
5	4.2.4.6/16	Receipt by master MS of request for pre-emption from the DMO Gateway during occupation	ETS 300 396-5, clause 6.2.4.1	c5302	
6	4.2.4.6/7	Release of radio resource at the end of transmission	ETS 300 396-3, clause 6.2.4.1	c5305	
7	4.2.4.6/8	Master release of resource by user application	ETS 300 396-3, clause 6.2.4.1	c5305	
8	4.2.4.6/9	Release of radio resource at DT311 timeout	ETS 300 396-3, clause 6.2.4.1	c5304	
9	4.2.4.6/3	Request for pre-emption during occupation	ETS 300 396-3, clause 6.2.4.2	c5306	
10	4.2.4.6/17	Request for pre-emption during occupation through the DMO Gateway	ETS 300 396-5, clause 6.2.4.2	c5307	
11	4.2.4.6/6	Accept call pre-emption during reservation	ETS 300 396-3, clause 6.2.5.1	c5304	
12	4.2.4.6/10	Accept call change-over during reservation	ETS 300 396-3], clause 6.2.5.1	c5304	
13	4.2.4.6/11	Release of radio resource during reservation	ETS 300 396-3, clause 6.2.5.1	c5305	
14	4.2.4.6/4	Request for change-over during reservation	ETS 300 396-3, clause 6.2.5.2	c5308	
15	4.2.4.6/18	Request for change-over during reservation through the DMO Gateway	ETS 300 396-5, clause 6.2.5.2	c5307	
NOTE: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					

c5301: IF A.9/5 AND A.9/14 --   Outgoing call set-up without presence check capability
    THEN m
    ELSE n/a

c5302: IF A.9/11   --   Outgoing call set-up capability through DMO Gateway
    THEN m
    ELSE n/a

c5303: IF A.9/5 AND A.9/13 --   Outgoing call set-up with presence check capability
    THEN m
    ELSE n/a

c5304: IF A.9/5 --   Outgoing call set-up capability
    THEN m
    ELSE n/a

c5305: IF A.9/5 --   Outgoing call set-up capability
    THEN o
    ELSE n/a

c5306: IF A.9/5 AND A.9/6   --   Outgoing call set-up capability and incoming call set-up capability
AND (A.8/3 OR A.8/4)   and pre-emptive or emergency pre-emptive call capability
        THEN o
        ELSE n/a

c5307: IF A.9/11 AND A.9/12   --   Outgoing and incoming call set-up through DMO Gateway capability
        THEN o
        ELSE n/a

c5308: IF A.9/5 AND A.9/6   --   Outgoing call set-up capability and incoming call set-up capability
        THEN o
        ELSE n/a

Table A.54: DMCC short data service procedures for DM-MS

Prerequisite: A.7/2		-- DM-MS Short Data Service capability			
No.	EN Reference	EN-R (note 1)	Standard reference (note 2)	Status	Support
1	4.2.4.6/12	Receiving acknowledged short data	6.3.2.2	c5401	
2	4.2.4.6/13	FCS checking in reception	6.3.4	c5402	
3	4.2.4.6/14	FCS calculation in transmission	6.3.4	c5403	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directiv.					
NOTE 2: The functions are specified in ETS 300 396-3 under the given clause.					

c5401: IF A.10/5 AND -- Receiving short data and
A.10/1 -- Acknowledged short data service including data in acknowledgement
        THEN m
        ELSE n

c5402: IF A.10/5   --   Receiving short data
        THEN m
        ELSE n

c5403: A.10/2   --   FCS Included in transmission
        THEN m
        ELSE n/a

Table A.55: DMCC PDUs for DM-MS

No.	PDU	Reference	Reception		Transmission	
Prerequisite: A.3/9 -- Direct Mode Call Control (DMCC) for DM-MS						
			Status	**Support**	**Status**	**Support**
1	DM-SETUP	ETS 300 396-3, clause 9.5.1	n	n/a	c5501	
2	DM-SETUP PRES	ETS 300 396-3, clause 9.5.2	n	n/a	c5502	
3	DM-CONNECT	ETS 300 396-3, clause 9.5.3	c5502		n	n/a
4	DM-DISCONNECT	ETS 300 396-3], clause 9.5.4	c5502		n	n/a
5	DM-CONNECT ACK	ETS 300 396-3, clause 9.5.5	n	n/a	c5502	
6	DM-OCCUPIED	ETS 300 396-3, clause 9.5.6	c5504		c5503	
7	DM-RELEASE	ETS 300 396-3, clause 9.5.7	n	n/a	c5503	
8	DM-TX CEASED	ETS 300 396-3, clause 9.5.8	c5504		c5503	
9	DM-TX REQUEST	ETS 300 396-3, clause 9.5.9	c5503		c5505	
10	DM-TX ACCEPT	ETS 300 396-3, clause 9.5.10	c5505		c5503	
11	DM-PREEMPT	ETS 300 396-3, clause 9.5.11	c5504		c5506	
12	DM-PRE ACCEPT	ETS 300 396-3, clause 9.5.12	c5506		c5504	
13	DM-REJECT	ETS 300 396-3, clause 9.5.13	c5507		n	n/a
14	DM-SDS DATA	ETS 300 396-3, clause 9.5.16	c5508		n	n/a
15	DM-SDS ACK	ETS 300 396-3, clause 9.5.17	n	n/a	c5508	
16	DM-GSETUP	ETS 300 396-5, clause 14.5.1	n/a	n/a	c5509	
17	DM-GCONNECT	ETS 300 396-5, clause 14.5.2	c5509		n/a	n/a
18	DM-GACK	ETS 300 396-5, clause 14.5.3	c5509		n/a	n/a
19	DM-GRELEASE	ETS 300 396-5, clause 14.5.4	c5509		n/a	n/a
20	DM-GTX REQUEST	ETS 300 396-5, clause 14.5.5	n/a		c5510	
21	DM-GTX ACCEPT	ETS 300 396-5, clause 14.5.6	c5510		n/a	n/a
22	DM-GPREEMPT	ETS 300 396-5, clause 14.5.7	n/a		c5511	
23	DM-GPRE ACCEPT	ETS 300 396-5, clause 14.5.8	c5511		n/a	n/a
24	DM-GREJECT	ETS 300 396-5, clause 14.5.9	c5512		n/a	n/a

c5501: IF A.53/1   -- Outgoing call set-up without presence check capability
THEN m
ELSE n/a

c5502: IF A.53/3   -- Outgoing call set-up with presence check capability
THEN m
ELSE n/a

c5503: IF A.9/5 --   Outgoing call set-up capability
THEN m
ELSE n/a

c5504: IF A.9/5 --   Outgoing call set-up capability
THEN m
ELSE n

c5505: IF A.53/9   -- Request for pre-emption during occupation
THEN m
ELSE n/a

c5506: IF A.53/14   -- Request for change-over during reservation
THEN m
ELSE n/a

c5507: IF A.53/9 OR A.53/14 --   Request for pre-emption or request for change-over
THEN m
ELSE n

c5508: IF A.54/1   -- Receiving acknowledged short data
THEN m
ELSE n/a

c5509: IF A.9/11   --   Outgoing call set-up through Gateway capability
        THEN m
        ELSE n/a

c5510: IF A.53/15   --   Request for change-over during reservation through DMO Gateway
        THEN m
        ELSE n/a

c5511: IF A.53/10   --   Request for pre-emption during occupation through DMO Gateway
        THEN m
        ELSE n/a

c5512: IF A.53/10 OR A.53/15   --   Request for pre-emption or change-over during reservation through
        THEN m   DMO Gateway
        ELSE n/a

Table A.56: DMCC constants for DM-MS

Prerequisite: A.3/9 -- Direct Mode Call Control (DMCC) for DM-MS							
No.	EN Reference	EN-R (note)	Standard reference	Status	Support	Allowed range	Supported values
1	4.2.4.6/15	DN301	ETS 300 396-5, clause A.2	c5601		1...3	
2	4.2.4.6/15	DN302	ETS 300 396-5, clause A.2	c5601		1...3	
3	4.2.4.6/2	DN303	ETS 300 396-3, clause A.2	c5602		1...3	
NOTE: These EN-Rs are justified under article 3.2 of the R&TTE Directive.							

c5601: IF A.9/11   --   Outgoing call set-up through Gateway capability
        THEN m
        ELSE n/a

c5602: IF A.53/3   --   Outgoing call set-up with presence check capability
        THEN m
        ELSE n/a

Table A.57: DMCC timers for DM-MS

Prerequisite: A.3/9 -- Direct Mode Call Control (DMCC) for DM-MS							
No.	EN Reference	EN-R (note 1)	Standard reference (note 2)	Status	Support	Default value	Supported values
1	4.2.4.6/15	DT301	ETS 300 396-5, clause A.1	c5701		1 s	
2	4.2.4.6/15	DT302	ETS 300 396-5, clause A.1	c5701		30 s	
3	4.2.4.6/2	DT303	ETS 300 396-3, clause A.1	c5702		250 ms	
4	4.2.4.6/1, 4.2.4.6/2	DT311	ETS 300 396-3, clause A.1	c5703		300 s	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.							
NOTE 2: The functions are specified in ETS 300 396-3 under the given clause(s).							

c5701: IF A.9/11   --   Outgoing call set-up through Gateway capability
        THEN m
        ELSE n/a

c5702: IF A.53/3   --   Outgoing call set-up with presence check capability
        THEN m
        ELSE n/a

c5703: IF A.9/5 --   Outgoing call set-up capability
        THEN m
        ELSE n/a

A.5.2 DMCC for DM-GATE

Table A.58: DMCC procedures for DM-GATE

No.	EN Reference	EN-R (note 1)	Standard reference (note 2)	Status	Support
1	4.2.4.6/19	Outgoing individual call set-up to DM-MS	9.3.1.1	c5801	
2	4.2.4.6/20	Outgoing group call set-up to DM-MS	9.3.1.2	c5802	
3	4.2.4.6/24	Reception of DM-TX CEASED by end of DM-MS call	9.3.3.1.1	c5803	
4	4.2.4.6/25	Transmitting DM-TX CEASED by end of V+D call	9.3.3.1.2	c5804	
5	4.2.4.6/26	Transmitting DM-TX CEASED at receipt of interrupt from SwMI	9.3.3.2	c5804	
6	4.2.4.6/21	Receipt of request to continue ongoing call from SwMI during DM channel reservation	9.3.3.3	m	
7	4.2.4.6/22	Response to request for change-over or pre-emption during DM-channel reservation	9.3.3.4.1	m	
8	4.2.4.6/27	Termination of DM call on receipt of transmission interrupt from SwMI	9.3.3.5	m	
9	4.2.4.6/28	Receipt of DM-RELEASE from current master DM-MS	9.3.3.9.1	c5803	
10	4.2.4.6/29	Release of DM channel on receipt of D-RELEASE from SwMI	9.3.3.9.2	m	
11	4.2.4.6/30	Release of DM channel at expiry of call length timer	9.3.3.9.3	m	
12	4.2.4.6/23	New call preemption during DM channel reservation	9.3.4.1.3	m	
13	4.2.4.6/31	Preemption of DM channel on receipt of transmission interrupt from SwMI	9.3.4.2.1	c5803	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The functions are specified in ETS 300 396-5 under the given clause.					

c5801: IF A.15/1 AND A.15/3   --   Individual circuit mode call and accept incoming call from V+D
       THEN m
       ELSE n/a

c5802: IF A.15/2 AND A.15/3   --   Group circuit mode call and accept incoming call from V+D
       THEN m
       ELSE n/a

c5803: IF A.15/4   --   Accept incoming call from DM-MS
       THEN m
       ELSE n/a

c5804: IF A.15/3   --   Accept incoming call from V+D
       THEN m
       ELSE n/a

Table A.59: DMCC PDUs for DM-GATE

No.	PDU	Reference (note)	Reception		Transmission	
			Status	Support	Status	Support
1	DM-SETUP	14.5	c5901		c5902	
2	DM-SETUP PRES	14.5	n/a	n/a	c5903	
3	DM-CONNECT	14.5	c5903		n/a	n/a
4	DM-DISCONNECT	14.5	c5903		n/a	n/a
5	DM-CONNECT ACK	14.5	n/a	n/a	c5903	
6	DM-OCCUPIED	14.5	c5901		c5904	
7	DM-RELEASE	14.5	c5901		m	
8	DM-TX CEASED	14.5	c5901		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	c5901		n/a	n/a
15	DM-GCONNECT	14.5.2	n/a	n/a	c5901	
16	DM-GACK	14.5.3	n/a	n/a	c5901	
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	

Prerequisite: A.6/4   --   Direct Mode Call Control (DMCC) for DM-GATE

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

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

c5901:   IF A.15/4   --   Accept incoming call from DM-MS
         THEN m
         ELSE n/a

c5902:   IF A.15/2 AND A.15/3   --   Group circuit mode call and accept incoming call from V+D
         THEN m
         ELSE
         IF A.15/1 AND A.15/3   --   Individual circuit mode call and accept incoming call from V+D
         THEN o.15
         ELSE n/a

c5903:   IF A.15/1 AND A.15/3   --   Individual circuit mode call and accept incoming call from V+D
         THEN o.15
         ELSE n/a

c5904:   IF A.15/3   --   Accept incoming call from V+D
         THEN m
         ELSE n/a

Table A.60: DMCC constants for DM-GATE

No.	EN Reference	EN-R (note)	Standard reference	Status	Support	Allowed range	Supported values
1	4.2.4.6/19	DN361	ETS 300 396-5, clause A.7	c6001		1...6	

Prerequisite: A.6/4   --   Direct Mode Call Control (DMCC) for DM-GATE

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

c6001:   IF A.15/1 AND A.15/3   --   Individual circuit mode call and accept incoming call from V+D
         THEN m
         ELSE n/a

Table A.61: DMCC timers for DM-GATE

No.	EN Reference	EN-R (note 1)	Standard reference (note 2)	Status	Support	Default value	Supported values
1	4.2.4.6/19	DT361	ETS 300 396-5, clause A.6	c6101		250 ms	
2	4.2.4.6/22	DT367	ETS 300 396-5, clause A.6	m		700 ms	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.							
NOTE 2: The functions are specified in ETS 300 396-3 under the given clause(s).							

c6101: IF A.15/1 AND A.15/3   -- Individual circuit mode call and accept incoming call from V+D
   THEN m
   ELSE n/a

A.6   Security

Table A.62: Security features

No.	Security feature	Standard reference (note))	Status	Support
1	Secure enable/disable	8	m	
NOTE: The features are specified in ETS 300 396-6 under the given clause.				

Prerequisite: A.3/13   -- Security for DM-MS

A.6.1   Secure enable/disable

Table A.63: DMO secure enable/disable roles

No.	DMO secure enable/disable role	Standard reference (note)	Status	Support
1	Manager	8.5	n	n/a
2	Target	8.5	m	
NOTE: The roles are specified in ETS 300 396-6 under the given clause.				

Prerequisite: A.62/1   -- Secure enable/disable

Table A.64: DMO secure enable/disable procedures

No.	EN Reference	EN-R (note 1)	Standard reference (note 2)	Status	Support
1	4.2.4.7/1	Disabling of target	8.7.3.1	m	
2	4.2.4.7/2	TEI delivery	8.7.3.3	m	
NOTE 1: These EN-Rs are justified under article 3.2 of the R&TTE Directive.					
NOTE 2: The procedures are specified in ETS 300 396-6 under the given clause.					

Prerequisite: A.63/2   -- Ud secure enable/disable target role

Table A.65: DMO secure enable/disable PDUs

No.	PDU	Standard reference (note)	Reception		Transmission	
			Status	Support	Status	Support
	Prerequisite: A.63/2 -- Ud secure enable/disable target role					
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 under the given clause.					

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

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

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

B.1   Radio layer

Table B.1: Test mode frequency bands

Item	Frequency band (note)	Supported range or specific RF carrier frequencies (MHz)	
		For transmission	For receiving
1	380 MHz to 385 MHz		
2	390 MHz to 395 MHz		
3	410 MHz to 430 MHz		
4	870 MHz to 876 MHz		
5	915 MHz to 921 MHz		
6	450 MHz to 470 MHz		
7	385 MHz to 390 MHz		
8	395 MHz 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.		

Table B.2: Dual mode capability

Item	Dual mode capability	Support
1	Radio layer also used for V+D mode (Trunked Mode Operation)	

Table B.3: Switchable power class capability

Item	Data type	Support
1	Switchable DMO power classes	

Table B.4: Traffic channel data types

Item	Traffic channel data type	Support
1	Protected circuit mode data	

Table B.5: Environmental profile

Item	Operational temperature	Reference	Support
1	Lowest intended operational temperature	clause 4.1	
2	Highest intended operational temperature	clause 4.1	

B.2   Managed Direct Mode Operation (M-DMO)

Table B.6: M-DMO Implicit send events

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/3 -- Managed DMO for DM-MS				
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.7: M-DMO parameter values

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/3 -- Managed DMO for DM-MS				
1	PIX_MS_TSI	TSI_Type	TSI of the IUT.	
2	PIX_TESTER_SWMI_MNI	MNI_Type	MNI of the controlling SwMI of the authorizing unit.	
3	PIX_TESTER_DEVICE_ADDRESS	Device_Address_Type	Address of authorizing unit.	

B.3   Medium Access Control (MAC)

B.3.1   Upper MAC for DM-MS

B.3.1.1   Upper MAC for DM-MS for operation MS to MS

Table B.8: Upper MAC implicit send event for DM-MS

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/4 -- Upper MAC for DM-MS				
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.	

Table B.9: Upper MAC parameter values for DM-MS

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/4 -- Upper MAC for DM-MS				
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	

B.3.1.2   Upper MAC for DM-MS for operation with DMO Repeater type 1

Table B.10: Upper MAC implicit send events for MS-REP1

Prerequisite: A.3/5 -- Upper MAC for 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.	

Table B.11: Upper MAC parameter values for MS-REP1

Prerequisite: A.3/5 -- Upper MAC for 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.3.1.3   Upper MAC for DM-MS for operation with DMO Repeater type 2

Table B.12: Upper MAC implicit send events for MS-REP2

Prerequisite: A.3/6 -- Upper MAC for 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.	

Table B.13: Upper MAC parameter values for MS-REP2

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/6 -- Upper MAC for MS-REP2					
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.3.1.4   Upper MAC for DM-MS for operation with DMO Gateway

Table B.14: Upper MAC implicit send events for MS-GW

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/7 -- Upper MAC for MS-GW					
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.15: Upper MAC parameter values for MS-GW

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/7 -- Upper MAC for MS-GW					
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   Upper MAC for DMO Repeater type 1

Table B.16: Upper MAC parameter values for DM-REP1

Prerequisite: A.4/3 -- Upper MAC for DM-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_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   Upper MAC for DMO Repeater type 2

Table B.17: Upper MAC parameter values for DM-REP2

Prerequisite: A.5/3 -- Upper MAC for DM-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_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.4   Direct Mode Mobility Management (DMMM)

Table B.18: DMMM parameter values for MS-GW

Prerequisite: A.3/8 -- Upper DMMM for MS-GW				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_REGISTRATION_LABEL	Registration_Label_Type	Value of the registration label	
2	PIX_REGISTRATION_TIME_REMAINING	Registration_Transaction_Time_Remaining_Type	Registration transaction time remaining	

B.5   Direct Mode Call Control (DMCC)

B.5.1   DMCC for DM-MS for operation MS to MS

Table B.19: DMCC Implicit send events for DM-MS

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/9 -- Direct Mode Call Control (DMCC) for DM-MS				
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.	

Table B.20: DMCC parameter values for DM-MS

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/9 -- Direct Mode Call Control (DMCC) for DM-MS				
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.	

B.5.2   DMCC for DM-MS for operation with DMO Repeater type 1

Table B.21: DMCC Implicit send events for MS-REP1

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/10 -- Direct Mode Call Control (DMCC) for DM-MS operation with DMO Repeater type 1				
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.22: DMCC parameter values for MS-REP1

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/10   --   Direct Mode Call Control (DMCC) for DM-MS operation with DMO Repeater type 1
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.5.3   DMCC for DM-MS for operation with DMO Repeater type 2

Table B.23: DMCC Implicit send events for MS-REP2

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/11   --   Direct Mode Call Control (DMCC) for DM-MS operation with DMO Repeater type 2
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.24: DMCC parameter values for MS-REP2

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/11   --   Direct Mode Call Control (DMCC) for DM-MS operation with DMO Repeater type 2
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.5.4   DMCC for DM-MS for operation with DMO Gateway

Table B.25: DMCC Implicit send events for MS-GW

Item	Parameter	Parameter type	Explanation	Value or reference
Prerequisite: A.3/12   --   Direct Mode Call Control (DMCC) for DM-MS operation with DMO Gateway
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.26: DMCC parameter values for MS-GW

Prerequisite: A.3/12 -- Direct Mode Call Control (DMCC) for DM-MS operation with DMO Gateway				
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_RESERVATION_TIME	Reservation_Time_Remaining_Type	Value of the reservation time remaining used by the master MS.	
6	PIX_REGISTRATION_LABEL	Registration_Label_Type	Value of the registration label.	

B.6   Security

Table B.27: Configuration parameter values

Prerequisite: A.3/13 -- Security for DM-MS				
Item	Parameter	Parameter type	Explanation	**Value or reference**
1	PIX_DM	BOOLEAN	Configuration set to test the Direct Mode security protocol.	

Table B.28: General parameter values

Prerequisite: A.3/13 -- Security for DM-MS				
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_TimeRemaining Type	Value of the SDS time remaining element used to indicate the current estimate of the SDS channel occupation time.	

Table B.29: Authentication parameter values

Prerequisite: A.3/13 -- Security for DM-MS				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_RAND1	RandomChallenge Type	Value of Random challenge (RAND1).	
2	PIX_RS	RandomSeedType	Value of the Random seed (RS).	
3	PIX_RES2	ResponseValueType	Value of the result RES2.	

Annex C (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, ETSI TS 100 396-10 [32], 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 MAC (M_DMO_MSMS_MAC) tests

Test group objective: to test the Managed DMO function of the M-DMO-MS.

Condition: IUT implements the DMO MS-MS.

C.2.2.1.1   M-DMO-MS MAC capability tests

To test the basic capabilities of the IUT.

M_DMO_MSMS_MAC_CA_01	Requirement ref: ETSI TS 100 396-10 [32], clause 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 Specification for Managed DMO

C.3.1   Abstract Test Method (ATM) for Managed DMO

The test method for testing the M-DMO-MS is the single party remote test method.

C.3.2   Abstract Test Suite (ATS) for Managed DMO

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 (see annex F).

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the table of contents. The 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_30303502v010101o0.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_30303502v010101o0.ZIP), which accompanies the present document.

   NOTE: According to ISO/IEC 9646-3 (see annex F), in case of a conflict in interpretation of the operational
            semantics of TTCN.GR and TTCN.MP, the operational semantics of the TTCN.GR representation takes
            precedence.

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

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

Language	EN title
Danish	Harmoniseret EN for TETRA udstyr, som dækker de væsentlige krav i R&TTE direktivets artikel 3.2; Del 2: Direkte forbindelser (DMO)
Dutch	Geharmoniseerde EN voor TETRA apparatuur, omvattend de essentiele eisen onder artikel 3.2. van de R&TTE richtlijn; Deel 2: Directe Mode Operatie (DMO)
English	Harmonized EN for TETRA equipment covering essential requirements under article 3.2 of the R&TTE directive; Part 2: Direct Mode Operation (DMO)
Finnish	Harmonisoitu EN TETRA laitteille sisältäen keskeiset, R&TTE direktiivin artiklan 3.2 mukaiset vaatimukset; Osa 2: Suorakanavatoiminne (DMO)
French	Norme Harmonisée pour équipements TETRA couvrant les exigences essentielles de l'article 3.2 de la Directive R&TTE; Partie 2: Opération en Mode Direct (DMO)
German	Harmonisierte EN für TETRA-Endgeräte und -Infrastruktur entsprechend den wesentlichen Anforderungen unter Artikel 3.2 der R&TTE Direktive; Part 2: Direct Mode Operation (DMO)
Greek	Εναρμονισμένο EN για εξοπλισμό TETRA για την κάλυψη των ουσιωδών απαιτήσεων του αρθρου 3.2 της Οδηγίας R&TTE – Μέρος 2: Αμεσότροπη Λειτουργία (DMO)
Icelandic	
Italian	EN Norma Europea Armonizzata per apparati TETRA relativa ai requisiti essenziali contemplati dall' articolo 3.2 della Direttiva R&TTE; Parte2: Modo Operativo Diretto (DMO)
Portuguese	Harmonização da norma europeia para equipamentos TETRA, cobrindo os requesitos essenciais incluidos no articulo 3.2 da directiva R&TTE; Parte 2: Operação em Modo Directo (DMO)
Spanish	Estandar Europeo (EN) armonizado para equipamiento TETRA, relativo a los requisitos esenciales del articulo 3.2 de la directiva R&TTE; Parte 2: Modo Directo de Operacion (DMO)
Swedish	Harmoniserad EN för TETRA-utrustning omfattande väsentliga krav enligt artikel 3.2 i R&TTE-direktivet; Del 2: Direct Mode Operation (DMO)

Annex E (informative):
Justifications for requirements

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

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

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

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

Function	Technical Phenomena	Justification
Frequency and channel allocation	Frequency error/stability	Incorrect use of frequency bands or insufficient synchronization causes interference with other users.
	Designation of channels	Incorrect designation of channels causes interference with other users.
Transmitting	Transmitter power	Maladjustment of the RF output power cause interference with other users.
	Adjacent channel power	Adjacent channel power above an acceptable level cause interference with other users.
	Spurious emissions	Spurious emissions above an acceptable level cause interference with other users.
	Inter-modulation attenuation	A transmitter intermodulation attenuation below an acceptable level cause interference with other users.
	Transient behaviour of the transmitter	Violation of the given RF power time mask or insufficient timing of transmitted signal cause interference with other users.
	Modulation Accuracy	Incorrect modulation or insufficient modulation accuracy lead to the transmission of incorrect data and lead to an unnecessarily high number of radio transmission attempts and therefore interference to other users.
Receiving	Spurious response rejection	Insufficient spurious response rejection lead to an unnecessarily high number of radio transmission attempts and therefore interference to other users.
	Inter-modulation response rejection	Insufficient inter-modulation response rejection lead to an unnecessarily high number of radio transmission attempts and therefore interference to other users.
	Blocking or desensitization	Insufficient blocking characteristics of the receiver lead to an unnecessarily high number of radio transmission attempts and therefore interference to other users.
	Spurious emissions	Spurious emissions above an acceptable level cause interference with other users.
Control and Monitoring	Network interface bit errors	An unacceptable nominal error rate or reference sensitivity performance, or an insufficient synchronization burst acquisition lead to the reception of incorrect data and incorrect setting of the transmitter thus causing interference with other users.
	Error control by coding and decoding of logical channels	Incorrect coding/decoding of logical channels cause unnecessary transmissions and thus cause interference with other users.
	Control of communication in logical channels	Incorrect control of communication in logical channels cause unwanted transmission attempts and thus harmful interference to other users.
	Control of radio resource allocation	Incorrect control of radio resource allocation cause unwanted transmission attempts and thus harmful interference to other users.
	Control functions for usage of cells	Incorrectly implemented cell selection and registration cause unnecessary transmission attempts and thus harmful interference to other users.
	TX call set up control	Incorrectly implemented TX call set-up cause unnecessary call set-up attempts and thus harmful interference to other users.
	TX enable/disable control	Incorrectly implemented enable/disable control result in disallowed transmission attempts and unnecessary traffic channel allocation and thus harmful interference to other users.
	Control of call disconnect	Incorrect implementation of call disconnect procedures prevent the network in deallocating the traffic channel and lead to disallowed transmission requests and thus harmful interference to other users.

Annex F (informative):
Bibliography

- ETSI EG 201 399 (2000-01): "A guide to the production of Harmonized standards for application under the R&TTE Directive".

- ISO/IEC 9646-3 (1998): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The tree and tabular combined notation". (See also ITU-T Recommendation X.292 (1992)).

- ETSI ETS 300 392-1 (1996): "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA) system; Voice plus Data (V+D); Part 1: General network design".

- ETSI ETS 300 396-1 (1998): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 1: General network design".

- ETSI TBR 35 (1998): "Terrestrial Trunked Radio (TETRA); Emergency access".

- ETSI EN 301 435-1 "Terrestrial Trunked Radio (TETRA) Attachment requirements for TETRA terminal equipment; Part 1: Civil access".

- ETSI EN 301 435-2: "Terrestrial Trunked Radio (TETRA); Attachment requirements for TETRA terminal equipment; Part 2: Emergency access".

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

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

History

Document history			
V1.1.1	February 2001	One-step Approval Procedure	OAP 20010622: 2001-02-21 to 2001-06-22