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Foreword

This final draft Technical Basis for Regulation (TBR) has been produced by the ETSI Project Terrestrial Trunked Radio (TETRA) of the European Telecommunications Standards Institute (ETSI).

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1 Scope

This TBR specifies the technical characteristics to be provided by Trans-European Trunked Radio (TETRA) terminal equipment which is capable of connecting and inter-working with a public telecommunications network and which uses the TETRA technology. It applies only to terminal equipment intended for police and emergency services operating within European harmonised frequency bands in the range 380 MHz to 383 MHz and 390 MHz to 393 MHz.

NOTE 1: These frequency bands may be extended by an additional 2 MHz at a later time.

The objective of this TBR is to ensure that no disturbance occurs to the public telecommunications network, to ensure inter-working between public telecommunications networks and TETRA terminals and TETRA terminal to TETRA terminal so that communication can be routed successfully through the applicable network(s).

The requirements in this TBR apply together with the attachment requirements for the appropriate public telecommunications network and the requirements of any other applicable TBR. It does not add to, or reduce, the attachment requirements unless there is a particular effect on the network which is unique to TETRA.

NOTE 2: Appropriate public telecommunications network refers to the TBR for basic rate Integrated Services Digital Network (ISDN), the TBR for primary rate ISDN or the national regulations (implementing ETS 300 001) for Public Switched Telecommunications Network.

TETRA terminal equipment consists of several elements. This TBR is structured to allow testing and approval of the individual elements as separate items. Due to the need for effective use of the radio spectrum, the essential air interface characteristics have to be tested. For each essential requirement a test is given including measurement methods.

Requirements apply to the public network interface and the Radio Frequency (RF) interface of the equipment, which may be stimulated to perform the tests by additional equipment.

In this TBR there are no additional Electromagnetic Compatibility (EMC) requirements in terms of the Terminal Directive 91/263/EEC [13], article 4c.

NOTE 3: Technical requirements for EMC performance and testing of the equipment are covered by the relevant standards applicable to the EMC Directive 89/336/EEC.

Terminal equipment may be subject to additional requirements in other applicable Common Technical Requirements (CTRs), or European Directives depending on the functionality (i.e. primary functions).

2 Normative references

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

[1] ETS 300 392-2 (March 1996): "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air interface".

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

[3] ETS 300 392-11: "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA); Voice plus Data (V+D); Part 11: Supplementary Services (SS) stage 2".

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

[5] ETS 300 392-14: "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA); Voice plus Data (V+D); Part 14: Protocol Implementation Conformance Statement (PICS) proforma specification".

[6] ETS 300 394-1 (March 1996): "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA); Conformance testing specification; Part 1: Radio".

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

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

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

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

[11] ETS 300 395-2 (December 1996): "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA); Speech codec for full-rate traffic channel; Part 2: TETRA codec".

[12] ETS 300 395-4 (February 1997): "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA); Speech codec for full-rate traffic channel; Part 4: Codec conformance testing".

[13] Council Directive 91/263/EEC of 29 April 1991 on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity.

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

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

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of this TBR, the definitions given in ETS 300 392-2 [1] apply.

3.2 Symbols

For the purposes of this TBR, the following symbols apply:

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

3.3 Abbreviations

For the purposes of this TBR, the following abbreviations apply:

AACH	Access Assignment Channel
ATS	Abstract Test Suite
BNCH	Broadcast Network Channel
BS	Base Station
BSCH	Broadcast Synchronization Channel
Cat.	Category
CC	Call Control
CMCE	Circuit Mode Control Entity
CONP	Connection Oriented Network Protocol
CRC	Cyclic Redundancy Check
CTR	Common Technical Requirement
ETS	European Telecommunication Standard
FCS	Frame Check Sequence
ITSI	Individual TETRA Subscriber Identity
IUT	Implementation Under Test
LLC	Logical Link Control
LS	Line Station
MAC	Medium Access Control
MCCH	Main Control Channel
MCM	Minimum Control Mode
MM	Mobility Management
MS	Mobile Station
NCM	Normal Control Mode
PC	Protocol Control
PDU	Protocol Data Unit
PEI	Peripheral Equipment Interface
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PUEM	Probability of Undetected Erroneous Message
RCPC	Rate-Compatible Punctured Convolutional
RT	Requirements Table
SCCH	Secondary Control Channel
SCH	Signalling Channel
SCLNP	Specific Connectionless Network Protocol
SDS	Short Data Services
SDU	Service Data Unit
SIM	Subscriber Identity Module
SS	Supplementary Service
STCH	Stealing Channel
SwMI	Switching and Management Infrastructure
TBR	Technical Basis for Regulation
TSS	Test Suite Structure
TP	Test Purpose
TTCN	Tree and Tabular Combined Notation
V+D	Voice and Data

4 Requirements

This clause references the requirements from the standards specifying TETRA. It also contains the justifications for inclusion of the requirements, and a reference to the relevant test to verify compliance with the requirement.

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

4.1 Introduction

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

Requirement reference: Reference to a (sub)clause(s) in the reference specification.

Description: A short description of the requirement.

Category (Cat.): The category in which the relative item falls under the article 4 in the Council Directive 91/263/EEC [13].

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

d falls under item (d) from Article 4 of Council Directive 91/263/EEC [13], "protection of the network from harm";

e falls under item (e) from Article 4 of Council Directive 91/263/EEC [13], "effective use of radio frequency spectrum";

f falls under item (f) from Article 4 of Council Directive 91/263/EEC [13], "interworking with the network";

g falls under item (g) from Article 4 of Council Directive 91/263/EEC [13], "interworking via the network, in justified cases".

NOTE: There are no EMC technical requirements in this TBR, which are specific to the equipment in terms of item (c) from Article 4 of Council Directive 91/263/EEC [23]. Other technical aspects of EMC performance and testing of the equipment are covered by the relevant requirements of the EMC Directive, 89/336/EEC [14].

TBR justification: The justification for the requirement against the indicated category.

Test method reference: For physical layer and codec tables, a test method is referenced for each requirement.

Test case limit value: For physical layer and codec tables, the limit values are indicated for a requirement when applicable.

Test purpose reference: For protocol layer tables, at least one test purpose is referenced for each requirement.

Test case reference: For protocol layer tables, at least one test case is referenced for each requirement.

4.2 Requirements at the Um air interface

4.2.1 Physical layer requirements

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

Table 1: Radio layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test case limit value reference (note 2)	Test method reference (note 3)
4.7	Modulation.	d, e	Incorrect modulation will lead to disturbance of other TETRA users.	-	Implicit by 10.1.3.
6.4.1.1	BS transmitter output power.	d, e	Maladjustment of the RF output power may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.1.1.2	8.1.2
6.4.1.2	MS transmitter output power.	d, e	Maladjustment of the RF output power may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.1.1.2	8.1.1
6.4.1.2	MS transmitter output power control levels.	d, e	Maladjustment of the RF output power may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.3.5.2	10.5
6.4.2.2.1	Unwanted conducted emission over the useful part of the burst.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.3.2	8.3
6.4.2.2.2	Unwanted conducted emission during the switching transients.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.4.2	8.4
6.4.2.3	Unwanted conducted emission far from the carrier.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.5.2	8.5
6.4.2.4	Unwanted conducted emission during CLCH and BLCH.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.7.2	8.7
6.4.2.5	Unwanted conducted emission in the non-transmit state.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.8.2	9.8
6.4.3	Unwanted radiated emissions.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.6.2	8.6
6.4.5	BS output power time mask.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.1.2	8.1.2

(continued)

Table 1 (continued): Radio layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test case limit value reference (note 2)	Test method reference (note 3)
6.4.5	MS output power time mask.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.1.2	8.1.1 and 10.5
6.4.5.1	BS output power in non-active transmit state.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.2.2	8.2
6.4.5.2	MS output power in non-active transmit state.	e	A violation of the given RF power time mask may lead to unnecessary interference in the radio spectrum.	7.1.2.2	8.2
6.4.6.2	BS intermodulation attenuation.	d, e	An intermodulation attenuation below an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.8.2.2	8.8 and 8.8.2
6.4.6.3	MS intermodulation attenuation.	d, e	An intermodulation attenuation below an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.8.2.1	8.8 and 8.8.1
6.4.7	Intra-BS intermodulation attenuation.	d, e	An Intra-BS intermodulation attenuation below an acceptable level may cause unnecessary interference in the radio spectrum.	7.1.8.2.3	8.8 and 8.8.3
6.5.1.2	Blocking characteristics.	e	Insufficient blocking characteristics of the receiver may lead to an unnecessarily high number of radio transmission attempts	7.2.5.2	9.5.1 and 9.5.2
6.5.2.2	Spurious response rejection.	d, e	Insufficient spurious response rejection may lead to an unnecessarily high number of radio transmission attempts.	7.2.6.2	9.6
6.5.3.2	Intermodulation response rejection.	d, e	Insufficient intermodulation response rejection may lead to an unnecessarily high number of radio transmission attempts	7.2.7.2	9.7.1 and 9.7.2
6.5.4.2	Unwanted conducted emission in reception.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.8.2	9.8
6.5.5	Unwanted radiated emission.	d, e	Unwanted emissions above an acceptable level may cause unnecessary interference in the radio spectrum.	7.2.9.2	9.8
6.6.1.2	Modulation accuracy.	e, f	Insufficient modulation accuracy may lead to the transmission of incorrect data.	7.3.1.2	10.1.1, 10.1.2 and 10.1.3
6.6.2.1	Nominal error rate.	e, f	An unacceptable nominal error rate may lead to the reception of incorrect data.	7.2.2.2	9.2.1 and 9.2.2
6.6.2.2	Dynamic reference sensitivity performance.	e, f	An unacceptable dynamic reference sensitivity performance may lead to the reception of incorrect data.	7.2.3.2	9.3.1, 9.3.2 and 9.3.3

(continued)

Table 1 (continued): Radio layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test case limit value reference (note 2)	Test method reference (note 3)
6.6.2.2.1	BS dynamic reference sensitivity performance.	e, f	An unacceptable dynamic reference sensitivity performance may lead to the reception of incorrect data.	7.2.3.2	9.3.2
6.6.2.2.2	MS dynamic reference sensitivity performance.	e, f	An unacceptable dynamic reference sensitivity performance may lead to the reception of incorrect data.	7.2.3.2	9.3.1
6.6.2.3	Reference interference performance.	e, f	An unacceptable reference interference performance may lead to the reception of incorrect data.	7.2.4.2	9.4.1 and 9.4.2
6.6.2.3.1	BS reference interference performance.	e, f	An unacceptable reference interference performance may lead to the reception of incorrect data.	7.2.4.2	9.4.2
6.6.2.3.2	MS reference interference performance.	e, f	An unacceptable reference interference performance may lead to the reception of incorrect data.	7.2.4.2	9.4.1
6.6.2.4	Static reference sensitivity performance.	e, f	An unacceptable static reference sensitivity performance may lead to the reception of incorrect data.	Implicit by 7.2.5.2, 7.2.6.2 and 7.2.7.2	Implicit by 9.5.1, 9.5.2, 9.6, 9.7.1 and 9.7.2.
6.6.2.4.1	BS static reference sensitivity performance.	e, f	An unacceptable static reference sensitivity performance may lead to the reception of incorrect data.	Implicit by 7.2.5.2, 7.2.6.2 and 7.2.7.2	Implicit by 9.5.2, 9.6, and 9.7.2.
6.6.2.4.2	MS static reference sensitivity performance.	e, f	An unacceptable static reference sensitivity performance may lead to the reception of incorrect data.	Implicit by 7.2.5.2, 7.2.6.2 and 7.2.7.2	Implicit by 9.5.1, 9.6 and 9.7.1.
6.6.2.5	MS receiver performance for synchronisation burst acquisition.	d, e	An insufficient synchronisation burst acquisition may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
7.4	Timing of transmitted signal.	d, e	An insufficient synchronisation may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
7.5	BS requirement for synchronisation.	d, e	An insufficient synchronisation may cause unnecessary interference in the radio spectrum.	7.3.2.2	10.2.2
7.6	MS requirement for synchronisation.	d, e	An insufficient synchronisation may cause unnecessary interference in the radio spectrum.	7.3.2.2 and 7.3.4.2	10.2.1 and 10.4
9.5.2	Mapping of BCCH and CLCH.	d, e	Incorrect mapping of BCCH and CLCH may cause interference with other users.	-	Implicit by MAC layer testing.
9.5.3	Mapping of SCH.	d, e	Incorrect mapping of SCH may cause interference with other users.	-	Implicit by MAC layer testing.
9.5.4	Mapping of TCH and STCH.	d, e	Incorrect mapping of TCH and STCH may cause interference with other users.	-	Implicit by CMCE layer testing.

(continued)

Table 1 (concluded): Radio layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test case limit value reference (note 2)	Test method reference (note 3)
9.5.5	Mapping of AACH.	d, e	Incorrect mapping of AACH may cause interference with other users.	-	Implicit by MAC layer testing.
10.2	RF power control.	d, e, f	An insufficient RF power control may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.3.5.2	10.5
10.3.1	Received signal strength.	d, e, f	If the received signal strength is not measured sufficiently accurate this may lead to a maladjustment of the RF output power and thus either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.3.5.2	10.5
23.4.4.2	MS open loop power control.	d, e, f	An insufficient RF power control may either cause unnecessary interference in the radio spectrum or decrease the probability of successful radio connections.	7.3.5.2	10.5
ETS 300 394-1 [6], subclause 6.2.2	Extreme ambient temperatures.	d, e, f	Equipment, which is not supposed to operate in a controlled environment, may cause unnecessary interference in the radio spectrum, if the requirements to output power, adjacent channel power and reference sensitivity are not fulfilled at extreme temperatures.	-	Implicit by test of output power, adjacent channel power and reference sensitivity.
NOTE 1: The requirements are specified in ETS 300 392-2 [1] under the given subclause, except when otherwise stated. NOTE 2: The test case limit values are specified in ETS 300 394-1 [6], clause 7. NOTE 3: The test methods are specified in ETS 300 394-1 [6], clauses 8 to 10.					

In addition to the requirements specified in table 1, the following applies for the TETRA emergency access for the frequency bands and channel arrangements defined in clause 6.2 of ETS 300 392-2 [1]:

- the uplink RF carrier frequencies shall be within the band 380 MHz to 383 MHz (380 MHz to 385 MHz at a later time);

- the downlink RF carrier frequencies shall be within the band 390 MHz to 393 MHz (390 MHz to 395 MHz at a later time).

The duplex spacing, D shall be 10 MHz.

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

4.2.2 Codec requirements

This subclause contains the codec requirements at the Um air interface.

Table 2: Codec requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test case limit value reference (note 2)	Test method reference (note 3)
5.5.1	CRC codes.	g	Bit exact channel encoding is necessary to ensure end-to-end interworking of the telephony teleservice.	7.3.2, 7.4.2	7.3.3, 7.4.3
5.5.2	RCPC codes.	g	Bit exact channel encoding is necessary to ensure end-to-end interworking of the telephony teleservice.	7.3.2, 7.4.2	7.3.3, 7.4.3
5.5.3	Matrix interleaving.	g	Bit exact channel encoding is necessary to ensure end-to-end interworking of the telephony teleservice.	7.3.2, 7.4.2	7.3.3, 7.4.3
6.2	Error control structure.	g	Bit exact channel decoding is necessary to ensure end-to-end interworking of the telephony teleservice.	7.3.2, 7.4.2	7.3.3, 7.4.3
8	Bit exact description of the TETRA codec (note 4)	g	Bit exact channel encoding and decoding is necessary to ensure end-to-end interworking of the telephony teleservice.	7.3.2, 7.4.2	7.3.3, 7.4.3

NOTE 1: The requirements are specified in ETS 300 395-2 [11], under the given subclause.
NOTE 2: The test case limit values are specified in ETS 300 395-4 [12], under the given subclause.
NOTE 3: The test methods are specified in ETS 300 395-4 [12], under the given subclause.
NOTE 4: The bit exact description of the TETRA codec in clause 8 is a C code representation of the requirements in subclause 4.2, and its subclauses, which may be used for the implementation, as long as the essential requirement for bit exact operation is fulfilled.

4.2.3 Layer 2 requirements

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

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

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference	Test case reference (note 2)
8.3.1	Error control scheme for Access Assignment CHannel (AACH).	d, e	Incorrect decoding of AACH may cause interference with other users.	-	Implicit by Upper MAC layer testing.
8.3.2	Error control scheme for Broadcast Synchronisation CHannel (BSCH).	d, e	Incorrect decoding of BSCH may cause interference with other users.	-	Implicit by Upper MAC layer testing.
8.3.4.1	Error control scheme for mapping onto H-bursts on the Downlink (SCH/HD), Broadcast Network CHannel (BNCH) and STealing Channel (STCH).	d, e	Incorrect decoding of BNCH may cause interference with other users. Incorrect coding/decoding of SCH/HD and STCH may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
8.3.4.2	Error control scheme for Signalling CHannel for mapping onto Half-bursts on the Uplink (SCH/HU).	e	Incorrect coding of SCH/HU may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
8.3.4.3	Error control scheme for Signalling CHannel for mapping onto Full-bursts (SCH/F).	d, e	Incorrect coding/decoding of SCH/F may cause unnecessary transmissions.	-	Implicit by Upper MAC layer testing.
NOTE 1: The requirements are specified in ETS 300 392-2 [1], under the given subclause. NOTE 2: The test cases, as referenced, are specified in ETS 300 394-2-4 [10], annex A.					

Table 4: Upper MAC layer requirements at the Um air interface

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

(continued)

Table 4 (continued): Upper MAC layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
23.4.2.1.2	Fragmentation of uplink TM-SDU, using random access to start the process.	e, f	Incorrect fragmentation may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BV/RE-03	MAC_BV_RE_03
23.4.2.2	Fill bit addition.	e, f	Incorrect addition of fill bits may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.4.3.1.1	Reception of unfragmented TM-SDU.	e, f	Incorrect reception of unfragmented TM-SDU may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/CA-01	MAC_CA_01
23.4.3.1.1	Reception of fragmented TM-SDU.	e, f	Incorrect reception of fragmented TM-SDU may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BV/RA-01	MAC_BV_RA_01
23.4.3.2	Fill bit deletion.	e, f	Incorrect deletion of fill bits may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.4.3.3	PDU disassociation.	e, f	Incorrect PDU disassociation may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.5.1.4.2	Reception of ACCESS-ASSIGN PDU.	d, e, f	Incorrect reception of the ACCESS-ASSIGN PDU may cause interference with other users and unwanted transmission attempts.	-	Implicit by MAC layer testing.
23.5.1.4.3	Initiating a random access.	e, f	Incorrect random access transmission may cause unwanted transmission attempts or prevent transfer of upper layer messages.	-	Implicit by MAC layer testing.
23.5.1.4.4	Checking for appropriate access code.	e, f	Incorrect checking for access code may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BI/RA-01	MAC_BI_RA_01
23.5.1.4.5	First try procedure.	e, f	Incorrect first try procedure may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BI/RA-02, TP/MAC/TI-02	MAC_BI_RA_02, MAC_TI_02

(continued)

Table 4 (continued): Upper MAC layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
23.5.1.4.8	Re-try procedure.	e, f	Incorrect re-try procedure may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BI/RA-02, TP/MAC/TI-02	MAC_BI_RA_02, MAC_TI_02
23.5.1.4.9	Abandoning random access attempt.	e	Incorrect abandoning of random access may cause unwanted transmission attempts.	TP/MAC/BI/RA-02	MAC_BI_RA_02
23.5.2.1	Reservation requirement.	e, f	Incorrect reservation of transmission capacity may cause unwanted transmission attempts or prevent transfer of upper layer messages.	TP/MAC/BV/RE-01, TP/MAC/BV/RE-03	MAC_BV_RE_01, MAC_BV_RE_03
23.5.2.2	Slot granting.	d, e, f	Incorrect recognition of granted slots may cause interference with other users, loss of radio spectrum capacity or prevent transfer of upper layer messages.	TP/MAC/BV/RE-01, TP/MAC/BV/RE-02, TP/MAC/BV/RE-03	MAC_BV_RE_01, MAC_BV_RE_02, MAC_BV_RE_03
23.5.4.2	Replace current channel with specified channel.	d, e, f	Incorrect reception of channel allocation commands may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by MLE layer testing.
23.5.4.2	Quit current channel and go to specified channel.	d, e, f	Incorrect reception of channel allocation commands may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by MLE layer testing.
23.5.4.2	Replace current channel with specified channel, plus MCCH/SCCH or CSS.	d, e, f	Incorrect reception of channel allocation commands may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by MLE layer testing.
23.6.1	Reception and decoding of BNCH and BSCH.	d, e, f	Incorrect reception and decoding of BNCH and BSCH may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
23.6.2	Acquiring cell synchronisation.	d, e, f	Incorrect cell synchronisation may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
23.6.3	Acquiring network information.	d, e, f	Incorrect decoding of network information may cause unnecessary interference in the radio spectrum.	-	Implicit by MAC layer testing.
23.7.1.1	Path loss parameter C1 calculation.	e, f	Incorrect path loss calculation may prevent attachment or cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.

(continued)

Table 4 (concluded): Upper MAC layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
23.7.1.2	Path loss parameter C2 calculation.	e, f	Incorrect path loss calculation may cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.7.3.1	Downlink measurements.	e, f	Incorrect downlink measurements may prevent attachment or cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.7.4.2	Monitoring measurements.	e, f	Incorrect monitoring measurements may cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.7.4.3	Signal strength measurements.	e, f	Incorrect signal strength measurements may prevent attachment or cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.7.5.2	Scanning measurements.	e, f	Incorrect scanning measurements may cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	-	Implicit by MLE layer testing.
23.8.2.2	Timing of change of mode.	e, f	Incorrect timing of change of mode may cause interference with other users or prevent transfer of upper layer messages.	-	Implicit by CMCE layer testing.
23.8.4.1.1	Transmission of uplink stealing.	e, f	Incorrect implementation of stealing may cause unnecessary transmission attempts or prevent transfer of upper layer traffic.	-	Implicit by CMCE layer testing.
23.8.4.2.2	Reception of downlink stealing.	e, f	Incorrect implementation of stealing may cause unnecessary transmission attempts or prevent transfer of upper layer traffic.	-	Implicit by CMCE layer testing.

NOTE 1: The requirements are specified in ETS 300 392-2 [1], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [7], clause 8.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-4 [10], annex A.

Table 5: LLC layer requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
22.3.2.1	Initial basic link data transmission.	e, f	Incorrect SDU-number usage in initial transmission may cause unnecessary transmission attempts over the air interface and may prevent registration.	TP/LLC/CA/BA-01	LLC_CA_BA_01
22.3.2.3	Acknowledged basic link data transmission.	e, f	Incorrect PDU-type in transmission may cause unwanted transmission attempts or prevent data transfer of upper layer messages.	TP/LLC/CA/BA-02	LLC_CA_BA_02
22.3.2.3	FCS calculation in transmission in acknowledged basic link.	e	Incorrect FCS calculation will cause unnecessary transmission attempts.	TP/LLC/CA/BA-06	LLC_CA_BA_06
22.3.2.3	SDU numbering in transmission in acknowledged basic link.	e	Incorrect SDU-number incrementation may cause unnecessary transmission attempts.	TP/LLC/BV/BA-01	LLC_BV_BA_01
22.3.2.3	Acknowledgement transmission in acknowledged basic link.	e	Failing acknowledgement transmission will cause unnecessary transmission attempts.	TP/LLC/CA/BA-07, TP/LLC/CA/BA-08, TP/LLC/CA/BA-09	LLC_CA_BA_07, LLC_CA_BA_08, LLC_CA_BA_09
22.3.2.3	Retransmission counts based on parameter N.252 in acknowledged basic link.	e	Incorrect implementation of parameter N.252 may cause unnecessary transmission attempts.	TP/LLC/BV/BA-02	LLC_BV_BA_02
22.3.2.3	Retransmission in acknowledged basic link based on timer T.251.	e	Incorrect implementation of timer T.251 may cause unnecessary transmission attempts.	TP/LLC/TI/BA-01	LLC_TI_BA_01
22.3.2.3	Acknowledgement reception in acknowledged basic link.	e	Failing acknowledgement reception will cause unnecessary transmission attempts.	TP/LLC/CA/BA-03, TP/LLC/CA/BA-04, TP/LLC/CA/BA-05	LLC_CA_BA_03, LLC_CA_BA_04, LLC_CA_BA_05
22.3.2.3	SDU numbering in reception in acknowledged basic link.	e	Incorrect interpretation of SDU-numbers in reception will cause unnecessary transmission attempts.	TP/LLC/BV/BA-03	LLC_BV_BA_03
22.3.2.3	FCS checking in reception in acknowledged basic link.	e	Incorrect FCS checking in reception will cause unnecessary transmission attempts.	TP/LLC/BI/BA-01	LLC_BI_BA_01
22.3.2.4.2	Basic link unacknowledged data reception.	e, f	To guarantee basic reliable data transfer for upper layers as basis for group addressing and thereby efficient usage of radio frequency spectrum.	TP/LLC/CA/BU-03	LLC_CA_BU_03
22.3.2.4.2	FCS checking in reception in unacknowledged basic link.	e	Incorrect FCS checking in reception may cause unnecessary transmission attempts on the upper layers.	TP/LLC/BI/BU-01, TP/LLC/CA/BU-04	LLC_BI_BU_01, LLC_CA_BU_04

NOTE 1: The requirements are specified in ETS 300 392-2 [1], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [7], clause 7.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-3 [8], annex A.

4.2.4 Layer 3 requirements

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

Table 6: MLE protocol requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
18.3.4.6	Initial cell selection.	e, f	Incorrectly implemented initial cell selection may cause unnecessary transmission attempts and prevent attachment.	TP/NWK/MLE/CA/CR-01	NWK_MLE_CA_CR_01
18.3.4.7.2	Undeclared cell re-selection.	e, f	Incorrectly implemented initial cell selection may cause unnecessary registration attempts and prevent attachment.	TP/NWK/MLE/CA/CR-02	NWK_MLE_CA_CR_02
18.3.4.7.3	Unannounced cell re-selection.	e, f	Incorrectly implemented unannounced cell re-selection may prevent attachment or cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	TP/NWK/MLE/CA/CR-03, TP/NWK/MLE/BV/CR-01, TP/NWK/MLE/BV/CR-02, TP/NWK/MLE/BV/RE-01, TP/NWK/MLE/BV/RE-03	NWK_MLE_CA_CR_03, NWK_MLE_BV_CR_01, NWK_MLE_BV_CR_02, NWK_MLE_BV_RE_01, NWK_MLE_BV_RE_03
18.3.4.7.4	Announced type 3 cell re-selection.	e, f	Incorrectly implemented announced type 3 cell re-selection may prevent attachment or cause defective call restoration resulting in unnecessary transmission attempts or unwanted traffic channel allocation.	TP/NWK/MLE/CA/CR-04, TP/NWK/MLE/BV/CR-03, TP/NWK/MLE/TI-01, TP/NWK/MLE/TI-02	NWK_MLE_CA_CR_04, NWK_MLE_BV_CR_03, NWK_MLE_TI_01, NWK_MLE_TI_02
18.3.6.5	Usage of neighbour cell enquiry.	e	Incorrect BS service details element interpretation in reception may cause disallowed transmission attempts.	TP/NWK/MLE/BV/NB-02	NWK_MLE_BV_NB_02

NOTE 1: The requirements are specified in ETS 300 392-2 [1], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [7], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [8], annex A.

Table 7: MM protocol requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
16.4.1.1	MLE initiated normal registration.	e, f	Incorrectly implemented MLE initiated normal registration may prevent attachment, cause unnecessary registration attempts, and cause disallowed L3 transmission attempts. Additional requirements for attachment/detachment of group identities apply when this operation is performed within registration.	TP/NWK/MM/BV/RE-02	NWK_MM_BV_RE _02
16.4.2	User application initiated registration.	e, f	Incorrect implementation of user application initiated registration may cause unnecessary registration attempts or prevent attachment to a network, and cause disallowed L3 transmission attempts. Additional requirements for attachment/detachment of group identities apply when this operation is performed within registration.	TP/NWK/MM/CA-02, TP/NWK/MM/CA-03, TP/NWK/MM/BV/RE-01	NWK_MM_CA_02, NWK_MM_CA_03, NWK_MM_BV_RE_01
16.4.3	Infrastructure initiated registration.	e, f	Incorrectly implemented infrastructure initiated registration may cause unnecessary traffic channel allocation, and disallowed L3 transmission attempts. Additional requirements for attachment/detachment of group identities apply when this operation is performed within registration. Additional requirements for disabled mobile apply.	TP/NWK/MM/BV/RE-07, TP/NWK/MM/BV/EN-03	NWK_MM_BV_RE_07, NWK_MM_BV_EN_03
16.5	Disabling procedures.	e	Incorrect MS operation when temporarily or permanently disabled may cause disallowed transmission attempts.	TP/NWK/MM/BV/EN-01, TP/NWK/MM/BV/EN-04, TP/NWK/MM/BV/EN-06, TP/NWK/MM/BV/EN-07, TP/NWK/MM/BI-01	NWK_MM_BV_EN_01, NWK_MM_BV_EN_04, NWK_MM_BV_EN_06, NWK_MM_BV_EN_07, NWK_MM_BI_01
16.5	Enabling procedure.	e	Incorrectly implemented enabling procedure may result in disallowed transmission attempts and unnecessary traffic channel allocation.	TP/NWK/MM/BV/EN-02, TP/NWK/MM/BV/EN-05, TP/NWK/MM/BI-02	NWK_MM_BV_EN_02, NWK_MM_BV_EN_05, NWK_MM_BI_02

(continued)

Table 7 (concluded): MM protocol requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
16.8.1	Infrastructure initiated attachment of group identities.	e, f	Incorrect group identity attachment may cause unnecessary traffic channel allocation and partially prevent interworking.	TP/NWK/MM/BV/AT-01	NWK_MM_BV_AT_01
16.8.1	Infrastructure initiated detachment of group identities.	e, f	Incorrectly implemented group identity detachment may cause unwanted L3 transmission attempts and partially prevent interworking.	TP/NWK/MM/BV/AT-02	NWK_MM_BV_AT_02
16.8.2	MS initiated attachment of group identities.	e, f	Incorrect group identity attachment may cause unnecessary traffic channel allocation and partially prevent interworking.	TP/NWK/MM/BV/AT-03	NWK_MM_BV_AT_03
16.8.2	MS initiated detachment of group identities.	e, f	Incorrectly implemented group identity detachment may cause unwanted L3 transmission attempts and partially prevent interworking.	TP/NWK/MM/BV/AT-04	NWK_MM_BV_AT_04

NOTE 1: The requirements are specified in ETS 300 392-2 [1], under the given subclause.
NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [7], clause 6.
NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [8], annex A.

Table 8: CMCE protocol requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
14.5.1.1.1	Incoming individual call set-up.	e, f	To avoid unnecessary traffic channel allocation and to ensure correct interworking with and through the network.	TP/NWK/CMCE/IC/CA/SU-01, TP/NWK/CMCE/IC/CA/SU-02, TP/NWK/CMCE/IC/CA/SU-03	NWK_CMCE_IC_CA_SU_01, NWK_CMCE_IC_CA_SU_02, NWK_CMCE_IC_CA_SU_03

(continued)

Table 8 (continued): CMCE protocol requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
14.5.1.1.2	Outgoing individual call set-up.	e, f	Incorrectly implemented outgoing call set-up may cause unnecessary call set-up attempts and prevent interworking.	TP/NWK/CMCE/IC/CA/SU-04, TP/NWK/CMCE/IC/BV/OC-01, TP/NWK/CMCE/IC/BV/OC-02, TP/NWK/CMCE/IC/CA/SU-05, TP/NWK/CMCE/IC/BV/OC-03	NWK_CMCE_IC_CA_SU_04, NWK_CMCE_IC_BV_OC_01, NWK_CMCE_IC_BV_OC_02, NWK_CMCE_IC_CA_SU_05, NWK_CMCE_IC_BV_OC_03
14.5.1.1.3	Colliding individual call set-up.	e, f	Incorrect implementation of colliding call set-up procedure may cause unnecessary traffic channel allocation in the network and prevent interworking.	TP/NWK/CMCE/IC/BV/CC-01, TP/NWK/CMCE/IC/BV/CC-02	NWK_CMCE_IC_BV_CC_01, NWK_CMCE_IC_BV_CC_02
14.5.1.2.1	Transmission control in individual call.	e, f	Incorrect implementation of transmission control may lead into radio interference, interference with other users, and unnecessary and disallowed transmission attempts. Incorrect information of the transmission status may prevent interworking.	TP/NWK/CMCE/IC/BV/MA/TC-01, TP/NWK/CMCE/IC/BV/MA/TC-02, TP/NWK/CMCE/IC/BV/MA/TC-03, TP/NWK/CMCE/IC/BV/MA/TC-04, TP/NWK/CMCE/IC/BV/MA/TC-05, TP/NWK/CMCE/IC/BV/MA/TC-06	NWK_CMCE_IC_BV_MA_TC_01, NWK_CMCE_IC_BV_MA_TC_02, NWK_CMCE_IC_BV_MA_TC_03, NWK_CMCE_IC_BV_MA_TC_04, NWK_CMCE_IC_BV_MA_TC_05, NWK_CMCE_IC_BV_MA_TC_06
14.5.1.2.4	Individual call restoration.	e	Incorrectly implemented call restoration may lead into unnecessary traffic channel allocation in the network and cause unnecessary transmission attempts.	-	Implicit by MLE protocol testing.
14.5.1.3.1	Individual call disconnection.	e, f	To ensure, that MS disconnects the call enabling the network to deallocate the traffic channel used and to ensure interworking.	TP/NWK/CMCE/IC/CA/CD-01	NWK_CMCE_IC_CA_CD_01
14.5.1.3.3	Reception of disconnection request in individual call.	e, f	To ensure, that MS disconnects the call enabling the network to deallocate the traffic channel used and to ensure interworking.	TP/NWK/CMCE/IC/CA/CD-02, TP/NWK/CMCE/IC/CA/CD-03	NWK_CMCE_IC_CA_CD_02, NWK_CMCE_IC_CA_CD_03

(continued)

Table 8 (continued): CMCE protocol requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
14.5.1.3.4	Expiry of call related timers resulting in disconnection in individual calls.	e, f	To ensure, that MS disconnects the call enabling the network to deallocate the traffic channel used and to ensure interworking.	TP/NWK/CMCE/IC/TI-01, TP/NWK/CMCE/IC/TI-02, TP/NWK/CMCE/IC/TI-03, TP/NWK/CMCE/IC/TI-04, TP/NWK/CMCE/IC/TI-05, TP/NWK/CMCE/IC/TI-06, TP/NWK/CMCE/IC/TI-07, TP/NWK/CMCE/IC/TI-08, TP/NWK/CMCE/IC/TI-10, TP/NWK/CMCE/IC/TI-13	NWK_CMCE_IC_TI_01, NWK_CMCE_IC_TI_02, NWK_CMCE_IC_TI_03, NWK_CMCE_IC_TI_04, NWK_CMCE_IC_TI_05, NWK_CMCE_IC_TI_06, NWK_CMCE_IC_TI_07, NWK_CMCE_IC_TI_08, NWK_CMCE_IC_TI_10, NWK_CMCE_IC_TI_13
14.5.1.3.4	Expiry of call related timers resulting in call release in individual calls.	e	Incorrect implementation of call release procedures may lead in disallowed transmission requests.	TP/NWK/CMCE/IC/TI-11, TP/NWK/CMCE/IC/TI-12	NWK_CMCE_IC_TI_11, NWK_CMCE_IC_TI_12
14.5.1.4	U-plane switching in individual call.	e	Incorrectly implemented U-plane switching may cause radio interference and interference with other users.	TP/NWK/CMCE/IC/BV/MA/TC-06	NWK_CMCE_IC_BV_MA_TC_06
14.5.2.1.2	Outgoing group call set-up.	e, f	Incorrectly implemented outgoing call set-up may cause unnecessary call set-up attempts and prevent interworking.	TP/NWK/CMCE/GC/CA/SU-01, TP/NWK/CMCE/GC/BV/OC-01	NWK_CMCE_GC_CA_SU_01, NWK_CMCE_GC_BV_OC_01
14.5.2.1.3	Colliding group call set-up.	e, f	Incorrect implementation of colliding call set-up procedure may cause unnecessary traffic channel allocation in the network and prevent interworking.	TP/NWK/CMCE/GC/BV/CC-01	NWK_CMCE_GC_BV_CC_01

(continued)

Table 8 (continued): CMCE protocol requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
14.5.2.2.1	Transmission control in group call.	e, f	Incorrect implementation of transmission control may lead into radio interference, interference with other users, and unnecessary and disallowed transmission attempts. Incorrect information of the transmission status may prevent interworking.	TP/NWK/CMCE/GC/BV/MA/TC-01, TP/NWK/CMCE/GC/BV/MA/TC-02, TP/NWK/CMCE/GC/BV/MA/TC-03, TP/NWK/CMCE/GC/BV/MA/TC-04, TP/NWK/CMCE/GC/BV/MA/TC-05, TP/NWK/CMCE/GC/BV/MA/TC-06, TP/NWK/CMCE/GC/BV/MA/TC-07	NWK_CMCE_GC_BV_MA_TC_01, NWK_CMCE_GC_BV_MA_TC_02, NWK_CMCE_GC_BV_MA_TC_03, NWK_CMCE_GC_BV_MA_TC_04, NWK_CMCE_GC_BV_MA_TC_05, NWK_CMCE_GC_BV_MA_TC_06, NWK_CMCE_GC_BV_MA_TC_07
14.5.2.2.4	Group call restoration.	e	Incorrectly implemented call restoration may lead into unnecessary traffic channel allocation in the network and cause unnecessary transmission attempts.	TP/NWK/CMCE/GC/BV/MA/CR-01	NWK_CMCE_GC_BV_MA_CR_01
14.5.2.3.3	Network initiated group call disconnection.	e, f	To ensure, that MS disconnects the call enabling the network to deallocate the traffic channel used and to ensure interworking.	TP/NWK/CMCE/GC/CA/CD-01 TP/NWK/CMCE/GC/BV/CD-01	NWK_CMCE_GC_CA_CD_01 NWK_CMCE_GC_BV_CD_01
14.5.2.3.5	Expiry of call related timers resulting in disconnection in group calls.	e, f	To ensure, that MS disconnects the call enabling the network to deallocate the traffic channel used and to ensure interworking.	TP/NWK/CMCE/GC/TI-02 TP/NWK/CMCE/GC/TI-03	NWK_CMCE_GC_TI_02 NWK_CMCE_GC_TI_03
14.5.2.3.5	Expiry of call related timers resulting in call release in group calls.	e	Incorrect implementation of call release procedures may lead in disallowed transmission requests.	TP/NWK/CMCE/GC/TI-01 TP/NWK/CMCE/GC/TI-04 TP/NWK/CMCE/GC/TI-05 TP/NWK/CMCE/GC/TI-06 TP/NWK/CMCE/GC/TI-07	NWK_CMCE_GC_TI_01 NWK_CMCE_GC_TI_04 NWK_CMCE_GC_TI_05 NWK_CMCE_GC_TI_06 NWK_CMCE_GC_TI_07

(continued)

Table 8 (concluded): CMCE protocol requirements at the Um air interface

Requirement reference (note 1)	Description	Cat.	TBR justification	Test purpose reference (note 2)	Test case reference (note 3)
14.5.2.4	U-plane switching in group call.	e	Incorrectly implemented U-plane switching may cause radio interference and interference with other users.	TP/NWK/CMCE/GC/BV/MA/TC-06, TP/NWK/CMCE/GC/TI-07	NWK_CMCE_GC_BV_MA_TC-06, NWK_CMCE_GC_TI_07
14.5.2.5	Acceptance of group-addressed channel allocation	e	Incorrect implementation of the channel allocation reception may cause radio interference and interference with other users.	-	Implicit by group call set-up and maintenance function testing.
NOTE 1: The requirements are specified in ETS 300 392-2 [1], under the given subclause. NOTE 2: The test purposes, as referenced, are specified in ETS 300 394-2-1 [7], clause 6. NOTE 3: The test cases, as referenced, are specified in ETS 300 394-2-2 [8], annex A.					

4.2.5 Security requirements

Security requirements at Um air interface for MSs will be included in edition 2 of this TBR.

4.2.6 Other entities at the Um air interface

There are no essential requirements for:

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

4.3 Requirements at the Ud air interface

Essential requirements at the Ud air interface will be included in edition 2 of this TBR.

4.4 Other interfaces

There are no TETRA specific attachment requirements for:

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

5 TBR test specification

5.1 Introduction

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

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

a) radio conformance testing specification, ETS 300 394-1 [6];
b) codec conformance testing specification, ETS 300 395-4 [12];
c) protocol conformance testing specifications;
   - Test Suite Structure (TSS) and Test Purposes (TPs), ETS 300 394-2-1 [7];
   - ATS for NWK layer, ETS 300 394-2-2 [8];
   - ATS for LLC layer, ETS 300 394-2-3 [9];
   - ATS for MAC layer, ETS 300 394-2-4 [10].

   NOTE: The ATSs for protocol testing are written in TTCN according to ISO/IEC 9646-3 [15]. For detailed information on conventions used for TPs refer to ETS 300 394-2-1, clause 5. For detailed information on ATS conventions refer to ETS 300 394-2-2 [8], clause 5 for NWK layer; ETS 300 394-2-3 [9], clause 5 for LLC layer; and ETS 300 394-2-4 [10], clause 5 for upper MAC layer.

Not all the tests defined for the conformance testing are relevant for type approval testing and the tests referenced in this clause are the ones corresponding to the justified requirements in clause 4 in this TBR.

To allow test case selection for the purposes of this TBR, the test case index and test case selection expression definitions are specified for the physical layer and codec.

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 this TBR to allow one to one mapping with the test cases in the conformance test suites and the redefined structural parts in this TBR.

All the tables for testing in this clause follow the TTCN format in ISO/IEC 9646-3 [15].

5.2 Environmental conditions

Testing shall be performed at a relative humidity within the common range fulfilling both of the following requirements:

- intended operational humidity range of the IUT;
- the range of 5 % to 75 %.

When a normal test condition has been specified in ETS 300 394-1 [6], the radio type approval testing shall be perfomed at temperature range +15 °C to +35 °C.

When an extreme test condition is specified in ETS 300 394-1 [6], the radio type approval testing for a BS shall be performed at the upper and lower limit of the common temperature range fulfilling both of the following requirements:

- intended operational temperature range of the IUT;
- the range -20 °C to +55 °C.

When an extreme test condition is specified in ETS 300 394-1 [6], the radio type approval testing for equipment other than BS shall be performed at -20 °C and at +55 °C.

The supply voltage for the IUT during testing shall be as specified in ETS 300 394-1 [6] during radio type approval testing at normal and extreme test conditions.

Protocol and codec type approval testing shall be performed within the intended operational temperature range of the IUT.

5.3 Test configuration

The test configurations given or referenced in this TBR do not imply a specific realisation of test equipment or arrangement or use of specific test devices for type approval testing. However, any test configuration and equipment used shall provide the test conditions specified in the tests to enable testing according to this TBR.

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

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

The manufacturer of the IUT shall provide an interface for connecting the IUT to the test system for type approval testing according to this TBR. 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 this TBR.

The IUT may need parametrization or special initialisation for testing. Those actions shall be performed according to any specific instructions provided by the manufacturer and are outside the scope of this TBR.

5.4 Um air interface test specification

5.4.1 Physical layer test specification

5.4.1.1 Test case index for physical layer

Table 9: Test case index for physical layer

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.1.2 a)	8.1.1 a), b2) and d)	Mobile_Station	To test that the output power for the MS corresponds to the declared power class.
7.1.1.2 b)	8.1.1 a), b), c) and d)	Mobile_Station	To test the MS transmitter output power versus time within a burst.
7.3.5.2	8.1.1 c)	Mobile_Station	To test the MS minimum power level.
7.1.1.2 a)	8.1.2 a) and b2)	Base_Station	To test that the output power for the BS corresponds to the declared power class.
7.1.1.2 b)	8.1.2 a) and b)	Base_Station_ Discontinous_Transmission	To test the BS transmitter output power versus time within a burst.
7.1.1.2 a) and b)	8.1.2 c)	Base_Station_Several_Power_Classes	To test that the output power for the BS corresponds to the declared power class and transmitter output power versus time within a burst.
7.1.1.2 a) and b)	8.1.2 d)	Base_Station_Several_Transmitters	To test that the output power for the BS corresponds to the declared power class, and the transmitter output power versus time within a burst.
7.1.2.2	8.2	Discontinous_Transmission	To test the output power in the non-active transmit state.

(continued)

Table 9 (continued): Test case index for physical layer

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.1.3.2	8.3	Applicable_to_all_Um_IUTs	To test the unwanted conducted emission over the useful part of the burst.
7.1.4.2	8.4	Discontinous_Transmission	To test the unwanted conducted emission during switching transients.
7.1.5.2	8.5	Applicable_to_all_Um_IUTs	To test the unwanted conducted emission far from the carrier.
7.1.6.2	8.6	Applicable_to_all_Um_IUTs	To test the unwanted radiated emission in the active transmit state.
7.1.7.2	8.7	Applicable_to_all_Um_IUTs	To test the unwanted conducted emission during CLCH and BLCH.
7.1.8.2.1	8.8 and 8.8.1	Mobile_Station	To test the MS intermodulation attenuation.
7.1.8.2.2	8.8 and 8.8.2	Base_Station	To test the BS intermodulation attenuation.
7.1.8.2.3	8.8 and 8.8.3	Base_Station_Several_Transmitters	To test the intra-BS intermodulation attenuation.
7.2.2.2	9.2.1	Mobile_Station_Class_A	To test the nominal error rate of a class A MS. ETS 300 394-1 [6], table A.1; nominal error: - TCH/7,2, TU50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.2.2	9.2.1	Mobile_Station_Class_B	To test the nominal error rate of a class B MS. ETS 300 394-1 [6], table A.2; nominal error: - TCH/7,2, TU50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.2.2	9.2.1	Mobile_Station_Class_E	To test the nominal error rate of a class E MS. ETS 300 394-1 [6], table A.3; nominal error: - TCH/7,2, TU50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.2.2	9.2.2	Base_Station_Class_A	To test the nominal error rate of a class A BS. ETS 300 394-1 [6], table A.7; nominal error: - TCH/7,2, TU50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.2.2	9.2.2	Base_Station_Class_B	To test the nominal error rate of a class B BS. ETS 300 394-1 [6], table A.8; nominal error: - TCH/7,2, TU50, - 85 dBm, - TCH/7,2, STAT, - 20 dBm.
7.2.3.2	9.3.1	Mobile_Station_Class_A	To test the dynamic reference sensitivity performance of a class A MS. ETS 300 394-1 [6], table A.1; sensitivity: - SCH/F, TU50, - 103 (- 97) dBm, - BSCH, HT200, - 103 dBm, - TCH/2,4, N=1, HT200, - 103 dBm.
7.2.3.2	9.3.1	Mobile_Station_Class_B	To test the dynamic reference sensitivity performance of a class B MS. ETS 300 394-1 [6], table A.2; sensitivity: - SCH/F, TU50, - 103 (- 97) dBm, - BSCH, TU50, - 103 dBm, - TCH/2,4, N=1, TU50, - 103 dBm.
7.2.3.2	9.3.1	Mobile_Station_Class_E	To test the dynamic reference sensitivity performance of a class E MS. ETS 300 394-1 [6], table A.3; sensitivity: - SCH/F, TU50, - 103 (- 97) dBm, - BSCH, EQ200, - 103 dBm, - TCH/2,4, N=1, EQ200, - 103 dBm.

(continued)

Table 9 (continued): Test case index for physical layer

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.2.3.2	9.3.2	Base_Station_Class_A	To test the dynamic reference sensitivity performance of a class A BS. ETS 300 394-1 [6], table A.7; sensitivity: - SCH/F, TU50, - 106 (- 100) dBm, - TCH/2,4, N=1, HT200, - 106 dBm.
7.2.3.2	9.3.2	Base_Station_Class_B	To test the dynamic reference sensitivity performance of a class B BS. ETS 300 394-1 [6], table A.8; sensitivity: - SCH/F, TU50, - 106 (- 100) dBm, - TCH/2,4, N=1, TU50, - 106 dBm.
7.2.3.2	9.3.3	Mobile_Station	To test the dynamic reference sensitivity performance of an MS. ETS 300 394-1 [6], table A.11: - SCH/F, TU50, - 103 dBm, - AACH, TU50, - 103 dBm.
7.2.3.2	9.3.3	Base_Station	To test the dynamic reference sensitivity performance of a BS. ETS 300 394-1 [6], table A.11: - SCH/F, TU50, - 106 dBm.
7.2.4.2	9.4.1	Mobile_Station_Class_A	To test the reference interference performance of a class A MS. ETS 300 394-1 [6], table A.1: - co-channel interference, - adjacent channel interference.
7.2.4.2	9.4.1	Mobile_Station_Class_B	To test the reference interference performance of a class B MS. ETS 300 394-1 [6], table A.2: - co-channel interference, - adjacent channel interference.
7.2.4.2	9.4.1	Mobile_Station_Class_E	To test the reference interference performance of a class E MS. ETS 300 394-1 [6], table A.3: - co-channel interference, - adjacent channel interference.
7.2.4.2	9.4.2	Base_Station_Class_A	To test the reference interference performance of a class A BS. ETS 300 394-1 [6], table A.7: - co-channel interference, - adjacent channel interference.
7.2.4.2	9.4.2	Base_Station_Class_B	To test the reference interference performance of a class B BS. ETS 300 394-1 [6], table A.8: - co-channel interference, - adjacent channel interference.
7.2.5.2	9.5.1	Mobile_Station_Class_A	To test the blocking characteristics of a class A MS. ETS 300 394-1 [6], table A.1; blocking.
7.2.5.2	9.5.1	Mobile_Station_Class_B	To test the blocking characteristics of a class B MS. ETS 300 394-1 [6], table A.2; blocking.
7.2.5.2	9.5.1	Mobile_Station_Class_E	To test the blocking characteristics of a class E MS. ETS 300 394-1 [6], table A.3; blocking.

(continued)

Table 9 (concluded): Test case index for physical layer

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
7.2.5.2	9.5.2	Base_Station_Class_A	To test the blocking characteristics of a class A BS. ETS 300 394-1 [6], table A.7; blocking.
7.2.5.2	9.5.2	Base_Station_Class_B	To test the blocking characteristics of a class B BS. ETS 300 394-1 [6], table A.8; blocking.
7.2.6.2	9.6	Mobile_Station_Class_A	To test the spurious response rejection of a class A MS. ETS 300 394-1 [6], table A.1; spurious response.
7.2.6.2	9.6	Mobile_Station_Class_B	To test the spurious response rejection of a class B MS. ETS 300 394-1 [6], table A.2; spurious response.
7.2.6.2	9.6	Mobile_Station_Class_E	To test the spurious response rejection of a class E MS. ETS 300 394-1 [6], table A.1; spurious response.
7.2.6.2	9.6	Base_Station_Class_A	To test the spurious response rejection of a class A BS. ETS 300 394-1 [6], table A.7; spurious response.
7.2.6.2	9.6	Base_Station_Class_B	To test the spurious response rejection of a class B BS. ETS 300 394-1 [6], table A.8; spurious response.
7.2.7.2	9.7.1	Mobile_Station_Class_A	To test the intermodulation response rejection of a class A MS. ETS 300 394-1 [6], table A.1; intermodulation.
7.2.7.2	9.7.1	Mobile_Station_Class_B	To test the intermodulation response rejection of a class B MS. ETS 300 394-1 [6], table A.2; intermodulation.
7.2.7.2	9.7.1	Mobile_Station_Class_E	To test the intermodulation response rejection of a class E MS. ETS 300 394-1 [6], table A.3; intermodulation.
7.2.7.2	9.7.2	Base_Station_Class_A	To test the intermodulation response rejection of a class A BS. ETS 300 394-1 [6], table A.7; intermodulation.
7.2.7.2	9.7.2	Base_Station_Class_B	To test the intermodulation response rejection of a class B BS. ETS 300 394-1 [6], table A.8; intermodulation.
7.2.8.2	9.8	Not_Continous_Transmission	To test the unwanted conducted emission.
7.2.9.2	9.8	Not_Continous_Transmission	To test the unwanted radiated emission.
7.3.1.2	10.1.1 and 10.1.3	Mobile_Station	To test the modulation accuracy of an MS.
7.3.1.2	10.1.2 and 10.1.3	Base_Station	To test the modulation accuracy of a BS.
7.3.2.2	10.2.1	Mobile_Station	To test the carrier frequency error of an MS.
7.3.2.2	10.2.2	Base_Station	To test the carrier frequency error of a BS.
7.3.4.2	10.4	Mobile_Station	To test the frame alignment performance of an MS.
7.3.5.2	10.5 a), b2) and c)	Mobile_Station	To test the MS adaptive power control.
Detailed Comments	NOTE 1: The test case limit values, as referenced, are specified in ETS 300 394-1 [6], clause 7. NOTE 2: The test methods, as referenced, are specified in ETS 300 394-1 [6], clauses 8 to 10.		

5.4.1.2 Test case selection expression definitions for physical layer

Table 10: Test case selection expression definitions for physical layer

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_Um_IUTs	TRUE	TETRA V+D equipment.
Mobile_Station	A.1/2	MS equipment.
Base_Station	A.1/1	BS equipment.
Base_Station_Several_Power_Classes	A.1/1 AND A.4/1	BS equipment implementing more than one power class.
Base_Station_Several_Transmitters	A.1/1 AND NOT A.4/2	BS equipment with more than one transmitter.
Base_Station_Discontinous_Transmission	(A.1/1 AND (A.2/2 OR A.2/3))	BS equipment operating in discontinuous mode.
Discontinous_Transmission	(A.1/1 AND (A.2/2 OR A.2/3)) OR A.1/2	BS equipment operating in discontinuous mode or MS equipment.
Not_Continous_Transmission	(A.1/1 AND NOT A.2/1) OR A.1/2	BS equipment not operating in continuous mode or MS equipment.
Mobile_Station_Class_A	A.1/2 AND A.4/3	MS equipment intended for class A environment.
Mobile_Station_Class_B	A.1/2 AND A.4/4	MS equipment intended for class B environment.
Mobile_Station_Class_E	A.1/2 AND A.4/5	MS equipment intended for class E environment.
Base_Station_Class_A	A.1/1 AND A.4/3	BS equipment intended for class A environment.
Base_Station_Class_B	A.1/1 AND A.4/4	BS equipment intended for class B environment.
Detailed Comments	The selection expressions given in the Selection Expression-column are boolean expressions, referring to the declarations made in requirement tables in annex A in this TBR.	

5.4.2 Codec test specification

5.4.2.1 Test case index for codec

Table 11: Test case index for codec

Test Case Index			
Test case limit value reference (note 1)	**Test method reference (note 2)**	**Selection reference**	**Description**
6.3.2	6.3.3	Mobile_Station_Class_A_Speech	To test the static reference sensitivity performance of an MS supporting speech. ETS 300 395-4 [12], table A.1.
6.3.2	6.3.3	Mobile_Station_Class_B_Speech	To test the static reference sensitivity performance of an MS supporting speech. ETS 300 395-4 [12], table A.2.
6.3.2	6.3.3	Mobile_Station_Class_E_Speech	To test the static reference sensitivity performance of an MS supporting speech. ETS 300 395-4 [12], table A.3.
6.3.2	6.3.3	Base_Station_Class_A_Speech	To test the static reference sensitivity performance of a BS supporting speech. ETS 300 395-4 [12], table A.4.
6.3.2	6.3.3	Base_Station_Class_B_Speech	To test the static reference sensitivity performance of a BS supporting speech. ETS 300 395-4 [12], table A.5.
6.3.2	6.3.3	Mobile_Station_Speech	To test the PUEM performance of an MS supporting speech. ETS 300 395-4 [12], table A.6.
6.3.2	6.3.3	Base_Station_Speech	To test the PUEM performance of a BS supporting speech. ETS 300 395-4 [12], table A.6.
7.3.2	7.3.3	Air_Interface_Configuration_IUTs	To test the codec of an IUT supporting speech.
7.4.2	7.4.3	Base_Band_Configuration_IUTs	To test the codec of an IUT supporting speech.
Detailed Comments	NOTE 1:	The test case limit values are specified in ETS 300 395-4 [12], under the given subclause.	
	NOTE 2:	The test methods are specified in ETS 300 395-4 [12], under the given subclause.	

5.4.2.2 Test case selection expression definitions for codec

Table 12: Test case selection expression definitions for codec

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_Um_Speech_IUTs	A.1/3	TETRA V+D equipment supporting speech telephony.
Mobile_Station_Class_A_Speech	A.1/3 AND A.1/2 AND A.4/3	MS equipment supporting speech telephony and intended for class A environment.
Mobile_Station_Class_B_Speech	A.1/3 AND A.1/2 AND A.4/4	MS equipment supporting speech telephony and intended for class B environment.
Mobile_Station_Class_E_Speech	A.1/3 AND A.1/2 AND A.4/5	MS equipment supporting speech telephony and intended for class E environment.
Base_Station_Class_A_Speech	A.1/3 AND A.1/1 AND A.4/3	BS equipment supporting speech telephony and intended for class A environment.
Base_Station_Class_B_Speech	A.1/3 AND A.1/1 AND A.4/4	BS equipment supporting speech telephony and intended for class B environment.
Mobile_Station_Speech	A.1/3 AND A.1/2	MS equipment supporting speech telephony.
Base_Station_Speech	A.1/3 AND A.1/1	BS equipment supporting speech telephony.
Air_Interface_Configuration_IUTs	A.8/1	TETRA V+D equipment supporting speech telephony with air interface test configuration.
Base_Band_Configuration_IUTs	A.8/2	TETRA V+D equipment supporting speech telephony with base band test configuration.
Detailed Comments	The selection expressions given in the Selection Expression-column are boolean expressions, referring to the declarations made in requirement tables in annex A in this TBR.	

5.4.3 Layer 2 test specification

5.4.3.1 Test suite structure for MAC layer

Table 13: Test suite structure for MAC layer

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

5.4.3.2 Test case index for MAC layer

Table 14: Test case index for MAC layer

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

5.4.3.3 Test case selection expression definitions for MAC layer

Table 15: Test case selection expression definitions for MAC layer

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

5.4.3.4 Test suite parameter definitions for MAC layer

Table 16: Test suite parameter definitions for MAC layer

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
TBR_RT_UM_MS	BOOLEAN	A.2.1, table A.1/2	TETRA V+D MS.
PIC_MINIMUM_MODE	BOOLEAN	A.2.4.2, table A.11/2	Indicate whether minimum mode procedures are supported.
PIC_CALL_CONTROL	BOOLEAN	A.2.5.1, table A.28/1	Indicate whether CMCE call control service is supported.
PIX_GSSI_1	GSSI_Type	B.2.1.1, table B.1/1	A group identifier.
PIX_GSSI_2	GSSI_Type	B.2.1.1, table B.1/2	A group identifier.
PIX_GSSI_3	GSSI_Type	B.2.1.1, table B.1/3	A group identifier.
PIX_SSI	SSI_Type	B.2.1.1, table B.1/4	The ITSI value of the MS.
PIX_HOME_LA	MM_LocationAreaType	B.2.1.1, table B.1/5	Home location area of the MS.
PIX_HOME_MCC	MM_MCC_Type	B.2.1.1, table B.1/6	Home mobile country code of the MS.
PIX_HOME_MNC	MM_MNC_Type	B.2.1.1, table B.1/7	Home mobile network code of the MS.
PIX_NEW_LOCATION_AREA_1	MM_LocationAreaType	B.2.1.1, table B.1/8	Unique registration area in the home MCC and MNC.
PIX_NEW_LOCATION_AREA_2	MM_LocationAreaType	B.2.1.1, table B.1/9	Unique registration area in the home MCC and MNC.
PIX_NEW_LOCATION_AREA_3	MM_LocationAreaType	B.2.1.1, table B.1/10	Unique registration area in the home MCC and MNC.
Detailed Comments	The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in this TBR.		

5.4.3.5 Test suite structure for LLC layer

Table 17: Test suite structure for LLC layer

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

5.4.3.6 Test case index for LLC layer

Table 18: Test case index for LLC layer

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
LLC/CA/BA/	LLC_CA_BA_01	Applicable_to_all_IUTs	IUT transmits a BL-DATA or BL-DATA PDU with SDU number 0 at the first time after power up.
LLC/CA/BA/	LLC_CA_BA_02	Applicable_to_all_IUTs	IUT transmits BL-DATA correctly when no data is to be acknowledged.
LLC/CA/BA/	LLC_CA_BA_03	Applicable_to_all_IUTs	IUT accepts a BL-ACK without data as an acknowledgement to BL-DATA.
LLC/CA/BA/	LLC_CA_BA_04	Applicable_to_all_IUTs	IUT accepts a BL-ACK with data as an acknowledgement to BL-DATA.
LLC/CA/BA/	LLC_CA_BA_05	Applicable_to_all_IUTs	IUT accepts a BL-ADATA as an acknowledgement to BL-DATA.
LLC/CA/BA/	LLC_CA_BA_06	BLA_with_FCS_in_transmission_supported	IUT calculates the FCS correctly with basic link acknowledged data transfer PDUs.
LLC/CA/BA/	LLC_CA_BA_07	Applicable_to_all_IUTs	IUT sends an acknowledgement to BL-DATA with no FCS.
LLC/CA/BA/	LLC_CA_BA_08	Applicable_to_all_IUTs	IUT sends an acknowledgement to BL-DATA with correct FCS.
LLC/CA/BA/	LLC_CA_BA_09	Applicable_to_all_IUTs	IUT sends an acknowledgement to BL-ADATA.
LLC/CA/BU/	LLC_CA_BU_03	Applicable_to_all_IUTs	IUT accepts a BL-UDATA PDU with no FCS.
LLC/CA/BU/	LLC_CA_BU_04	BLU_data_reception_with_FCS_supported	IUT accepts a BL-UDATA with a correct FCS.
LLC/BV/BA/	LLC_BV_BA_01	Applicable_to_all_IUTs	IUT increments the SDU numbers correctly in basic link acknowledged data transfer.
LLC/BV/BA/	LLC_BV_BA_02	Applicable_to_all_IUTs	IUT repeats an unacknowledged BL-DATA PDU up to the minimum value of N.252 times.
LLC/BV/BA/	LLC_BV_BA_03	Applicable_to_all_IUTs	IUT sends the acknowledgements with correct SDU numbers in acknowledged basic link.
LLC/BI/BA/	LLC_BI_BA_01	BLA_with_FCS_in_reception_supported	IUT does not accept a BL-DATA with incorrect FCS.
LLC/BI/BU/	LLC_BI_BU_01	BLU_data_reception_with_FCS_supported	IUT does not accept a BL-UDATA with incorrect FCS.
LLC/TI/BA/	LLC_TI_BA_01	Applicable_to_all_IUTs	IUT implements timer T.251 correctly.
Detailed Comments			

5.4.3.7 Test case selection expression definitions for LLC layer

Table 19: Test case selection expression definitions for LLC layer

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

5.4.3.8 Test suite parameter definitions for LLC layer

Table 20: Test suite parameter definitions for LLC layer

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
TBR_RT_UM_MS	BOOLEAN	A.2.1, table A.1/2	TETRA V+D MS
PIC_N_252_MIN	INTEGER	A.2.4.3, table A.26/1	The minimum value of LLC constant N.252 whether the stealing repeats are used or not.
PIC_T_251	INTEGER	A.2.4.3, table A.27/1	The value of LLC timer T.251.
PIC_BLA_FCS_IN_RECEPTION	BOOLEAN	A.2.4.3, table A.22/3	Acknowledged basic link data reception implemented with optional FCS checking.
PIC_BLA_FCS_IN_TRANSMISSION	BOOLEAN	A.2.4.3, table A.22/4	Acknowledged basic link data transmission implemented with optional FCS calculation.
PIC_BLU_DATA_RECEPTION_WITH_FCS	BOOLEAN	A.2.4.3, table A.23/3	Unacknowledged basic link data reception with FCS implemented.
Detailed Comments	The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in this TBR.		

5.4.4 Layer 3 test specification

5.4.4.1 Test suite structure for layer 3

Table 21: Test suite structure for layer 3

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

(continued)

Table 21 (concluded): Test suite structure for layer 3

Test Suite Structure		
Suite Name : NWK Standards Ref. : ETS 300 392-2 PICS Ref. : ETS 300 392-14 PIXIT Ref. : ETS 300 394-2-2, Annex B Test Method(s) : The embedded variant of the remote single party test method Comments :		
Test Group Reference	**Selection Ref.**	**Test Group Objective**
NWK/CMCE/GC/BV/CC/	User_initiated_group_call_disconnection_supported	To test the valid behaviour of the CMCE module of the IUT during colliding calls, when operating in group call mode.
NWK/CMCE/GC/BV/MA/	Group_call_supported	To test the valid behaviour of the CMCE module of the IUT during call maintenance, when operating in group call mode.
NWK/CMCE/GC/BV/MA/TC/	Group_call_supported	To test the valid behaviour of the CMCE module of the IUT during transmission control, when operating in group call mode.
NWK/CMCE/GC/BV/MA/CR/	Group_call_supported	To test the valid behaviour of the CMCE module of the IUT during call restoration, when operating in group call mode.
NWK/CMCE/GC/BV/CD/	Group_call_supported	To test the valid behaviour of the CMCE module of the IUT during call disconnection, when operating in group call mode.
NWK/CMCE/GC/TI/	Group_call_supported	To test the timers of the CMCE module of the IUT, when operating in group call mode.
NWK/MM/	Applicable_to_all_IUTs	Check the dynamic behaviour requirements of the MM protocol.
NWK/MM/CA/	Applicable_to_all_IUTs	To test the basic capabilities of the MM module of the IUT.
NWK/MM/BV/	Applicable_to_all_IUTs	To test the valid behaviour of the MM module of the IUT.
NWK/MM/BV/RE/	Applicable_to_all_IUTs	To test the valid registration behaviour of the MM module of the IUT.
NWK/MM/BV/EN/	Enable_disable_supported	To test the valid enable/disable behaviour of the MM module of the IUT.
NWK/MM/BV/AT/	SwMI_or_IUT_initiated_group_ID_handling_supported	To test the valid attachment/detachment of group identities behaviour of the MM module of the IUT.
NWK/MM/BI/	Applicable_to_all_IUTs	To test the behaviour of the MM module of the IUT in response to invalid behaviour of tester.
NWK/MLE/	Applicable_to_all_IUTs	Check the dynamic behaviour requirements of the MLE protocol.
NWK/MLE/CA/	Applicable_to_all_IUTs	Check basic MLE protocol capabilities.
NWK/MLE/CA/CR/	Applicable_to_all_IUTs	Check cell re-selection basic features.
NWK/MLE/BV/	Individual_or_group_call_or_neighbour_cell_enquiry_supported	Check MLE valid behaviour.
NWK/MLE/BV/CR/	Individual_or_group_call_supported	Check cell re-selection procedures.
NWK/MLE/BV/NB/	Neighbour_cell_enquiry_supported	Check neighbour cell enquiry procedure.
NWK/MLE/BV/RE/	Individual_or_group_call_supported	Check CMCE call restoration after cell re-selection.
NWK/MLE/TI/	Individual_call_supported	Check timers during cell re-selection.
Detailed Comments		

5.4.4.2 Test case index for layer 3

Table 22: Test case index for layer 3

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
NWK/CMCE/IC/CA/SU/	NWK_CMCE_IC_CA_SU_01	Hook_signalling_supported	Incoming individual call to IUT, On-hook/Off-hook signalling, verify IUT sends U-ALERT.
NWK/CMCE/IC/CA/SU/	NWK_CMCE_IC_CA_SU_02	Hook_signalling_supported	Incoming individual call to IUT, Hook signalling, verify IUT sends U-ALERT and U-CONNECT.
NWK/CMCE/IC/CA/SU/	NWK_CMCE_IC_CA_SU_03	Direct_signalling_supported	Incoming individual call to IUT, Direct signalling, verify IUT sends U-CONNECT.
NWK/CMCE/IC/CA/SU/	NWK_CMCE_IC_CA_SU_04	Hook_signalling_supported	IUT sends outgoing call using U-SETUP, accepts D-ALERT in response.
NWK/CMCE/IC/CA/SU/	NWK_CMCE_IC_CA_SU_05	Direct_signalling_supported	IUT sends U-SETUP for Direct signalling, individual mode outgoing call, accepts D-CONNECT.
NWK/CMCE/IC/CA/CD/	NWK_CMCE_IC_CA_CD_01	User_initiated_individual_call_disconnection_supported	Incoming call from tester, IUT initiates clearing, sending U-DISCONNECT.
NWK/CMCE/IC/CA/CD/	NWK_CMCE_IC_CA_CD_02	Individual_call_supported	Incoming call from tester, call released by tester with D-RELEASE.
NWK/CMCE/IC/CA/CD/	NWK_CMCE_IC_CA_CD_03	Individual_call_supported	Incoming call from tester, tester initiates clearing sending D-DISCONNECT, expects U-RELEASE in response.
NWK/CMCE/IC/BV/OC/	NWK_CMCE_IC_BV_OC_01	Hook_signalling_supported	IUT establishes outgoing call with hook signalling, tester replies with D-CALL-PROCEEDING, D-ALERT and then D-CONNECT.
NWK/CMCE/IC/BV/OC/	NWK_CMCE_IC_BV_OC_02	Hook_signalling_supported	IUT establishes outgoing call with hook signalling, tester replies with D-CONNECT.
NWK/CMCE/IC/BV/OC/	NWK_CMCE_IC_BV_OC_03	Direct_signalling_supported	IUT establishes outgoing call with direct signalling, tester replies with D-CALL-PROCEEDING followed by D-CONNECT.
NWK/CMCE/IC/BV/CC/	NWK_CMCE_IC_BV_CC_01	Hook_signalling_supported	Call Collision between 2 calls using hook signalling - IUT keeps one and releases the other.
NWK/CMCE/IC/BV/CC/	NWK_CMCE_IC_BV_CC_02	Direct_signalling_supported	Call Collision between 2 calls using direct signalling - IUT keeps one and releases the other.
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_01	Direct_signalling_supported	Direct signalling call established, check IUT's u-plane is transmitting.
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_02	Call_setup_supported	Call established with TX permission for IUT, IUT sends U-TX-CEASED and stops transmitting.
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_03	Call_setup_supported	Call established with TX permission for IUT, IUT sends TX-CEASED, receives TX-GRANTED but granted to another user, check IUT doesn't transmit.
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_04	Call_setup_supported	Call established with no TX permission for IUT, IUT requests and is granted TX permission, check IUT does transmit.
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_05	Call_setup_supported	Call established to IUT, no TX permission granted, IUT requests TX permission, is refused, check IUT is still receiving.

(continued)

Table 22 (continued): Test case index for layer 3

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
NWK/CMCE/IC/BV/MA/TC/	NWK_CMCE_IC_BV_MA_TC_06	Hook_signalling_supported	IUT sends outgoing call indicating Hook signalling, receives D-ALERT and D-CONNECT with TX permission granted to another user.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_01	Hook_signalling_supported	Test Duration of T301, IUT should clear call if it doesn't receive D-CONNECT-ACK before T301 expires, during incoming individual call, hook signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_02	Hook_signalling_supported	Test Duration of T310 for individual call, hook signalling. IUT should clear call if call doesn't end before T310 expires. T310 set by tester.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_03	Direct_signalling_supported	Test Duration of T301, IUT should clear call if it doesn't receive D-CONNECT-ACK before T301 expires, during incoming individual call, direct signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_04	Direct_signalling_supported	Test Duration of T310 for individual call, direct signalling. IUT should clear call if call doesn't end before T310 expires. T310 set by tester.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_05	Hook_signalling_supported	Test duration of T303, IUT should clear call if it doesn't receive a response to its U-SETUP before T303 expires, during outgoing individual call using hook signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_06	Hook_signalling_supported	Test duration of T302, IUT should clear call if it doesn't receive a D-CONNECT in response to its U-SETUP before T302 expires, during outgoing individual call using hook signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_07	Direct_signalling_supported	Test duration of T303, IUT should clear call if it doesn't receive a response to its U-SETUP before T303 expires, during outgoing individual call using direct signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_08	Direct_signalling_supported	Test duration of T302, IUT should clear call if it doesn't receive a D-CONNECT in response to its U-SETUP before T302 expires, during outgoing individual call using direct signalling.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_10	Hook_signalling_supported	Receive outgoing hook signalling call, send a D-ALERT in response, but before continuing with a D-CONNECT, restart the call set-up timer T302 by sending a D-INFO.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_11	Call_setup_supported	Test call restoration timer T306.
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_12	User_initiated_individual_call_disconnection_supported	Test call disconnect timer T308.

(continued)

Table 22 (continued): Test case index for layer 3

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
NWK/CMCE/IC/TI/	NWK_CMCE_IC_TI_13	Call_setup_supported	Establish incoming call, receive a U-CONNECT in response, respond with a D-CONNECT-ACK, restart the call time-out T310 by sending a D-INFO, and check that T310 is reset.
NWK/CMCE/GC/CA/SU/	NWK_CMCE_GC_CA_SU_01	Group_call_supported	IUT establishes outgoing point to multipoint call with direct signalling, tester replies with D-CALL-PROCEEDING followed by D-CONNECT.
NWK/CMCE/GC/CA/CD/	NWK_CMCE_GC_CA_CD_01	Group_call_supported	Call disconnection capability test.
NWK/CMCE/GC/BV/OC/	NWK_CMCE_GC_BV_OC_01	Group_call_supported	Outgoing call, normal case.
NWK/CMCE/GC/BV/CC/	NWK_CMCE_GC_BV_CC_01	User_initiated_group_call_disconnection_supported	Colliding calls.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_01	Group_call_supported	Test behaviour after giving TX Granted permission in D-CONNECT.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_02	Group_call_supported	Call established with TX permission for IUT, IUT sends U-TX-CEASED and stops transmitting.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_03	Group_call_supported	Call established with TX permission for IUT, IUT sends TX-CEASED, receives TX-GRANTED but granted to another user, check IUT doesn't transmit.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_04	Group_call_supported	Check that IUT can make TX request and accepts TX Granted.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_05	Group_call_supported	Check that IUT behaves correctly having received TX Not Granted to its TX Grant request.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_06	Group_call_supported	Check IUT behaviour after D-TX INTERRUPT where TX is granted to another user.
NWK/CMCE/GC/BV/MA/TC/	NWK_CMCE_GC_BV_MA_TC_07	Group_call_supported	Check IUT behaviour after D-TX WAIT reception.
NWK/CMCE/GC/BV/MA/CR/	NWK_CMCE_GC_BV_MA_CR_01	Group_call_supported	Call restoration.
NWK/CMCE/GC/BV/CD/	NWK_CMCE_GC_BV_CD_01	Group_call_supported	Call released by tester with D-RELEASE.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_01	Group_call_supported	Test call length timer T310 by pressing the IUT tangent.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_02	Group_call_supported	Test call initiated timer T303.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_03	Group_call_supported	Test call set-up timer T302.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_04	Group_call_supported	Test call length timer T310 using outgoing call.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_05	Group_call_supported	Test call time-out timer T310 reset after D-INFO PDU.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_06	Group_call_supported	Test call restoration timer T307.
NWK/CMCE/GC/TI/	NWK_CMCE_GC_TI_07	Group_call_supported	Test call transmission timer T311.

(continued)

Table 22 (continued): Test case index for layer 3

Test Case Index			
Test Group Reference	**Test Case Id**	**Selection Ref.**	**Description**
NWK/MM/CA/	NWK_MM_CA_02	Applicable_to_all_IUTs	Power on with registration capability.
NWK/MM/CA/	NWK_MM_CA_03	Direct_call_setup_supported	User initiated registration capability.
NWK/MM/BV/RE/	NWK_MM_BV_RE_01	Applicable_to_all_IUTs	Registration to home network.
NWK/MM/BV/RE/	NWK_MM_BV_RE_02	Applicable_to_all_IUTs	Roaming registration.
NWK/MM/BV/RE/	NWK_MM_BV_RE_07	Applicable_to_all_IUTs	SwMI initiated registration.
NWK/MM/BV/EN/	NWK_MM_BV_EN_01	Call_setup_and_temporary_disable_supported	Check temporary disabling.
NWK/MM/BV/EN/	NWK_MM_BV_EN_02	Call_setup_and_temporary_disable_supported	Check enabling after temporarily disabled.
NWK/MM/BV/EN/	NWK_MM_BV_EN_03	Temporary_disable_supported	Check that IUT is temporarily disabled after power down/up sequence.
NWK/MM/BV/EN/	NWK_MM_BV_EN_04	Call_setup_and_temporary_disable_supported	Check that IUT is temporarily disabled after power down/up in cell where no registration is requested.
NWK/MM/BV/EN/	NWK_MM_BV_EN_05	Temporary_disable_supported	Check enabling after power down/up sequence.
NWK/MM/BV/EN/	NWK_MM_BV_EN_06	Permanent_disable_supported	Check permanent disabling. NOTE: must be second last test case to run because IUT can not be enabled after permanently disabled.
NWK/MM/BV/EN/	NWK_MM_BV_EN_07	Permanent_disable_supported	Check permanent disabling after power down/up sequence. NOTE: must be last test case to run because IUT can not be enabled after permanently disabled.
NWK/MM/BV/AT/	NWK_MM_BV_AT_01	SwMI_initiated_group_ID_handling_with_report_request_supported	Check SwMI initiated attachment of group IDs.
NWK/MM/BV/AT/	NWK_MM_BV_AT_02	SwMI_initiated_group_ID_handling_with_report_request_supported	Check SwMI initiated detachment of group IDs.
NWK/MM/BV/AT/	NWK_MM_BV_AT_03	IUT_initiated_group_ID_handling_supported	Check IUT initiated attachment of group IDs.
NWK/MM/BV/AT/	NWK_MM_BV_AT_04	IUT_initiated_group_ID_handling_supported	Check IUT initiated detachment of group IDs.
NWK/MM/BI/	NWK_MM_BI_01	Temporary_disable_supported	Check invalid disabling of IUT.
NWK/MM/BI/	NWK_MM_BI_02	Temporary_disable_supported	Check invalid enabling of IUT.

(continued)

Table 22 (concluded): Test case index for layer 3

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

5.4.4.3 Test case selection expression definitions for layer 3

Table 23: Test case selection expression definitions for layer 3

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Applicable_to_all_IUTs	TBR_RT_UM_MS	IUT is TETRA V+D MS.
CMCE_supported	PIC_CMCE_SUPPORTED	IUT supports CMCE.
Individual_call_supported	PIC_INDIVIDUAL_CALL_SUPPORTED	IUT supports individual call.
Group_call_supported	PIC_GROUP_CALL_SUPPORTED	IUT supports group call.
Hook_signalling_supported	PIC_ON_OFF_HOOK_SIGNALLING_SUPPORTED	IUT supports on/off hook signalling.
Direct_signalling_supported	PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED	IUT supports direct setup signalling.
Call_setup_supported	PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED OR PIC_ON_OFF_HOOK_SIGNALLING_SUPPORTED	Used in MM and CMCE.
Call_setup_and_temporary_disable_supported	(PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED OR PIC_ON_OFF_HOOK_SIGNALLING_SUPPORTED) AND PIC_MM_TEMPORARY_DISABLE_SUPPORTED	Used in MM.
Direct_call_setup_supported	PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED	Used in MM.
User_initiated_group_call_disconnection_supported	PIC_USER_INITIATED_GROUP_CALL_DISCONNECTION_SUPPORTED	Used in CMCE.
User_initiated_individual_call_disconnection_supported	PIC_USER_INITIATED_INDIVIDUAL_CALL_DISCONNECTION_SUPPORTED	Used in CMCE.
Enable_disable_supported	PIC_MM_ENABLE_DISABLE_SUPPORTED	Used in MM.
Temporary_disable_supported	PIC_MM_TEMPORARY_DISABLE_SUPPORTED	Used in MM.
Permanent_disable_supported	PIC_MM_PERMANENT_DISABLE_SUPPORTED	Used in MM.
SwMI_initiated_group_ID_handling_supported	PIC_MM_SWMI_INITIATED_GID_HANDLING_SUPPORTED	Used in MM.
SwMI_initiated_group_ID_handling_with_report_request_supported	PIC_MM_SWMI_INITIATED_GID_REPORT_REQUEST_SUPPORTED	Used in MM.
IUT_initiated_group_ID_handling_supported	PIC_MM_IUT_INITIATED_GID_HANDLING_SUPPORTED	Used in MM.
SwMI_or_IUT_initiated_group_ID_handling_supported	PIC_MM_SWMI_INITIATED_GID_HANDLING_SUPPORTED OR PIC_MM_IUT_INITIATED_GID_HANDLING_SUPPORTED	Used in MM.
Neighbour_cell_enquiry_supported	PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED	Used in MLE.
Individual_call_and_neighbour_cell_enquiry_supported	(PIC_INDIVIDUAL_CALL_SUPPORTED AND PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED)	Used in MLE.

(continued)

Table 23 (concluded): Test case selection expression definitions for layer 3

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Individual_or_group_call_supported	PIC_INDIVIDUAL_CALL_SUPPORTED OR PIC_GROUP_CALL_SUPPORTED	Used in MLE.
Individual_or_group_call_or_neighbour_cell_enquiry_supported	PIC_INDIVIDUAL_CALL_SUPPORTED OR PIC_GROUP_CALL_SUPPORTED OR PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED	Used in MLE.
Detailed Comments		

5.4.4.4 Test suite parameter definitions for layer 3

Table 24: Test suite parameter definitions for layer 3

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
TBR_RT_UM_MS	BOOLEAN	A.2.1, table A.1/2	TETRA V+D MS.
PIC_CMCE_SUPPORTED	BOOLEAN	A.2.1, table A.3/1	CMCE supported.
PIC_ON_OFF_HOOK_SIGNALLING_SUPPORTED	BOOLEAN	A.2.5.1, table A.29/3	Indicate whether on/off hook signalling is supported.
PIC_DIRECT_SETUP_SIGNALLING_SUPPORTED	BOOLEAN	A.2.5.1, table A.29/4	Indicate if direct set-up signalling is supported.

(continued)

Table 24 (concluded): Test suite parameter definitions for layer 3

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref.**	**Comments**
PIC_INDIVIDUAL_CALL_SUPPORTED	BOOLEAN	A.2.5.1, table A.29/1	IUT supports individual call.
PIC_GROUP_CALL_SUPPORTED	BOOLEAN	A.2.5.1, table A.29/2	IUT supports group call.
PIC_USER_INITIATED_INDIVIDUAL_CALL_DISCONNECTION_SUPPORTED	BOOLEAN	A.2.5.1, table A.36/1	IUT supports user initiated individual call disconnection.
PIC_USER_INITIATED_GROUP_CALL_DISCONNECTION_SUPPORTED	BOOLEAN	A.2.5.1, table A.37/1	IUT supports user initiated group call disconnection.
PIC_MM_SWMI_INITIATED_GID_HANDLING_SUPPORTED	BOOLEAN	A.2.5.2, table A.44/1	SwMI initiated group ID attachment/detachment.
PIC_MM_SWMI_INITIATED_GID_REPORT_REQUEST_SUPPORTED	BOOLEAN	A.2.5.2, table A.44/2	SwMI initiated group ID attachment/detachment report request.
PIC_MM_IUT_INITIATED_GID_HANDLING_SUPPORTED	BOOLEAN	A.2.5.2, table A.44/3	IUT initiated group ID attachment/detachment.
PIC_MM_ENABLE_DISABLE_SUPPORTED	BOOLEAN	A.2.5.2, table A.40/5	Enable/disable procedures supported.
PIC_MM_TEMPORARY_DISABLE_SUPPORTED	BOOLEAN	A.2.5.2, table A.45/1	Temporary disabling supported.
PIC_MM_PERMANENT_DISABLE_SUPPORTED	BOOLEAN	A.2.5.2, table A.45/2	Permanent disabling supported.
PIC_NEIGHBOUR_CELL_ENQUIRY_SUPPORTED	BOOLEAN	A.2.5.3, table A.47/3	Neighbour cell enquiry supported.
PIX_CHANNEL_1	MainCarrierNoType	B.2.2.3, table B.4/1	Define the channel that the MS initially tries to camp on to.
PIX_CHANNEL_2	MainCarrierNoType	B.2.2.3, table B.4/2	Another channel that the MS is capable of receiving.
PIX_COUNTRY_CODE	MCC_Type	B.2.2.2, table B.3/1; B.2.2.3, table B.4/3	Home country code of the MS.
PIX_NETWORK_CODE	MNC_Type	B.2.2.2, table B.3/2; B.2.2.3, table B.4/4	Home network code of the MS.
PIX_LOCATION_AREA	LocationAreaType	B.2.2.2, table B.3/3; B.2.2.3, table B.4/5	Home location area of the MS.
PIX_NEW_LOCATION_AREA	LocationAreaType	B.2.2.2, table B.3/4; B.2.2.3, table B.4/6	A location area outside the MS home location area.
PIX_MS_TEI	TEI_Type	B.2.2.2, table B.3/5	TEI of the IUT, 60 bits.
PIX_MS_ITSI	ITSI_Type	B.2.2.1, table B.2/4; B.2.2.2, table B.3/6; B.2.2.3, table B.4/7	ITSI of the IUT.
PIX_T303	INTEGER	B.2.2.1, table B.2/1	Duration of the T303 in the IUT in seconds.
PIX_T308	INTEGER	B.2.2.1, table B.2/2	Duration of the T308 in the IUT in seconds.
PIX_T311	INTEGER	B.2.2.1, table B.2/3	Duration of the T311 in the IUT in seconds.
Detailed Comments	The references given in the PICS/PIXIT Ref. -column refer to the requirement tables in annex A and declarations in annex B in this TBR.		

Annex A (normative): TBR Requirements Tables (TBR-RT)

A.1 Introduction

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

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

The following table headers are applicable to this TBR-RT:

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

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

Status contains the status required for implementation conforming to this TBR.

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

Allowed values specifies the allowed (range of) values for a parameter (only used when a declaration of supported values is required for the purposes of testing).

Supported values is the column for the manufacturer's statement of the implemented (range of) values for a parameter (only to be filled in when allowed values are specified).

Transmission specifies whether the support of sending a message, frame or information element is required;

Reception specifies whether the support of receiving a message, frame or information element is required.

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

m mandatory - the capability is required to be supported.

o optional - the capability may be supported or not.

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

ci conditional - the requirement on the capability ("m", "o", "x", “n” or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression which is defined immediately following the table.

n Not a requirement. The entry is outside the scope of this TBR and it is not a requirement that the feature is supported.

n/a not applicable - in the given context, it is impossible to use the capability.

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

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

A.2 Requirements tables for Um air interface

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

A.2.1 General

The supplier of the implementation shall state the support of the implementation for each of the general capabilities, features, modes of operation and general protocol capabilities presented in tables A.1 to A.3.

Table A.1: General capabilities and features

Item	Capability or feature name	Reference	Status	Support
1	Base Station (BS)	ETS 300 392-2 [1]	o.1	
2	Mobile Station (MS)	ETS 300 392-2 [1]	o.1	
3	TETRA encoded speech services	ETS 300 395-2 [11]	o	

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

Table A.2: Modes of operation

Item	Capability or feature name	Reference (note)	Status	Support
1	Downlink Continuous Transmission (D-CT)	4.11.1.1	c201	
2	Downlink Carrier Timesharing Transmission (D-CTT)	4.11.1.2, 19.3.5.1, 23.3.2.1, 23.3.2.3	c202	
3	Downlink Main Control Channel Timesharing Transmission (D-MCCTT)	4.11.1.3, 19.3.5.2, 23.3.2.2	c202	
4	Multiple Slot Transmission (U-MST)	4.11.1.4, 23.3.1.4	o	
5	Normal Control Mode (NCM)	4.11.2.1, 19.3.1	m	
6	Minimum Control Mode (MCM)	4.11.2.2, 19.3.3, 23.3.3	o	
NOTE: The capabilities or features are specified in ETS 300 392-2 [1] under the given subclause(s).				

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

c201: IF A.1/1 -- BS
THEN o.2
ELSE m

c202: IF A.1/1 -- BS
THEN o.2
ELSE o

Table A.3: General protocol capabilities

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

A.2.2 Physical layer

The supplier of the implementation shall state the support of the implementation for each of the physical layer capabilities, features, requirements and parameters presented in tables A.4 to A.6.

Table A.4: Physical layer capabilities and features

Item	**Capability or feature name**	**Reference (note)**	**Status**	**Support**
1	BS equipment implementing more than one power class	6.4.1.2	c401	
2	BS equipment with only one transmitter	6.4.6.2	c401	
3	Class A equipment	6.6.2	o.3	
4	Class B equipment	6.6.2	o.3	
5	Class E equipment	6.6.2	c402	
NOTE: The capabilities or features are specified in ETS 300 392-2 [1] under the given subclause.				

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

c401: IF A.1/1 -- BS
THEN o
ELSE n/a

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

Table A.5: Physical layer requirements

Item	Requirement	Reference (note)	Status	Support
1	Modulation	4.7	m	
2	MS power control level	6.4.1.2	c502	
3	Unwanted conducted emission over the useful part of the burst	6.4.2.2.1	m	
4	Unwanted conducted emission during the switching transients	6.4.2.2.2	c503	
5	Unwanted conducted emission far from the carrier	6.4.2.3	m	
6	Unwanted conducted emission during CLCH and BLCH	6.4.2.4	m	
7	Unwanted conducted emission in the non-transmit state	6.4.2.5	c504	
8	Unwanted radiated emissions	6.4.3	m	
9	BS output power time mask	6.4.5	c505	
10	MS output power time mask	6.4.5	c502	
11	BS output power in non-active transmit state	6.4.5.1	c505	
12	MS output power in non-active transmit state	6.4.5.2	c502	
13	BS intermodulation attenuation	6.4.6.2	c501	
14	MS intermodulation attenuation	6.4.6.3	c502	
15	Intra-BS intermodulation attenuation	6.4.7	c506	
16	Blocking characteristics	6.5.1.2	m	
17	Spurious response rejection	6.5.2.2	m	
18	Intermodulation response rejection	6.5.3.2	m	
19	Unwanted conducted emission in reception	6.5.4.2	c504	
20	Unwanted radiated emission	6.5.5	c504	
21	Modulation accuracy	6.6.1.2	m	
22	Nominal error rate	6.6.2.1	m	
23	Dynamic reference sensitivity performance	6.6.2.2	m	
24	BS dynamic reference sensitivity performance	6.6.2.2.1	c501	
25	MS dynamic reference sensitivity performance	6.6.2.2.2	c502	
26	Reference interference performance	6.6.2.3	m	
27	BS reference interference performance	6.6.2.3.1	c501	
28	MS reference interference performance	6.6.2.3.2	c502	
29	Static reference sensitivity performance	6.6.2.4	m	
30	BS static reference sensitivity performance	6.6.2.4.1	c501	
31	MS static reference sensitivity performance	6.6.2.4.2	c502	
32	MS receiver performance for synchronisation burst acquisition	6.6.2.5	c502	
33	Timing of transmitted signal	7.4	c502	
34	BS requirement for synchronisation	7.5	c501	
35	MS requirement for synchronisation	7.6	c502	
36	Mapping of BCCH and CLCH	9.5.2	c502	
37	Mapping of SCH	9.5.3	c502	
38	Mapping of TCH and STCH	9.5.4	c502	
39	Mapping of AACH	9.5.5	c502	
40	Handling of monitoring pattern	9.6	n	n/a
41	RF power control	10.2	c507	
42	Received signal strength	10.3.1	c502	
43	MS open loop power control	23.4.4.2	c502	
44	MS closed loop power control	23.4.4.3	n	n/a
NOTE: The requirements are specified in ETS 300 392-2 [1] under the given subclause.				

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

c502: IF A.1/2 -- MS
THEN m
ELSE n/a

c503: IF (A.1/1 AND (A.2/2 OR A.2/3)) OR A.1/2
THEN m -- BS operating discontinuous mode or MS
ELSE n/a

c504: IF (A.1/1 AND NOT A.2/1) OR A.1/2
THEN m -- BS not operating continuos mode or MS
ELSE n/a

c505: IF A.1/1 AND (A.2/2 OR A.2/3)
THEN m -- BS operating discontinuous mode
ELSE n/a

c506 IF A.1/1 AND NOT A.4/2
THEN m -- BS with more than one transmitter
ELSE n/a

c507: IF A.1/2 -- MS
THEN m
ELSE x

Table A.6: Output power and power class requirements and parameters

Item	Requirement and parameter	Reference (note)	Status	Support	Allowed values	Supported values
1	BS output power and power class	6.4.1.1	c601		[1..10]	
2	MS output power and power class	6.4.1.2	c602		[1..4]	
NOTE: The parameters are specified in ETS 300 392-2 [1] under the given subclause.						

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

c602: IF A.1/2 -- MS
THEN m
ELSE n/a

Table A.7: Extreme ambient temperature requirements

Item	Requirement	Reference (note)	Status	Support
1	Extreme temperatures	6.2.2	c701	
NOTE: The requirements are specified in ETS 300 394-1 [6] under the given subclause.				

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

A.2.3 Codec

The supplier of the implementation shall state the support of the implementation test configuration and for each of the requirements presented in tables A.8 and A.9.

Table A.8: Codec test configuration

Prerequisite: A.1/3 -- TETRA encoded speech services				
Item	**Test configuration**	**Reference (note)**	**Status**	**Support**
1	Air interface configuration	7.2	o.4	
2	Base band configuration	7.2	o.4	
NOTE: The codec test configurations are specified in ETS 300 395-4 [12] under the given subclause.				

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

Table A.9: Speech source and channel encoder and decoder requirements

Prerequisite: A.1/3 -- TETRA encoded speech services				
Item	**Requirement**	**Reference (note 1)**	**Status**	**Support**
1	CRC codes	5.5.1	m	
2	RCPC codes	5.5.2	m	
3	Matrix interleaving	5.5.3	m	
4	Error control structure	6.2	m	
5	Bit exact description of the TETRA codec (note 2)	8	m	
NOTE 1: The speech source and channel encoder and decoder are specified in ETS 300 395-2 [11] under the given subclause. NOTE 2: The bit exact description of the TETRA codec in clause 8 is a C code representation of the requirements in subclause 4.2 and its subclauses, which may instead be used for the implementation, as long as the essential requirement for bit exact operation is fulfilled.				

A.2.4 Layer 2

A.2.4.1 Lower MAC layer

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

Table A.10: Error control schemes of Lower MAC

Prerequisite: A.3/6 -- Lower MAC				
Item	**Error control scheme**	**Reference (note)**	**Status**	**Support**
1	Error control scheme for Access Assignment CHannel (AACH)	8.3.1	m	
2	Error control scheme for Broadcast Synchronisation CHannel (BSCH)	8.3.2	m	
3	Error control scheme for mapping onto H-bursts on the Downlink (SCH/HD), Broadcast Network CHannel (BNCH) and STealing Channel (STCH)	8.3.4.1	m	
4	Error control scheme for Signalling CHannel for mapping onto Half-bursts on the Uplink (SCH/HU)	8.3.4.2	m	
5	Error control scheme for Signalling CHannel for mapping onto Full-bursts (SCH/F)	8.3.4.3	m	
NOTE: The error control schemes are specified in ETS 300 392-2 [1] under the given subclause.				

A.2.4.2 Upper MAC layer

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

Table A.11: Upper MAC features

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

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

Table A.12: Upper MAC control channel usage procedures

Prerequisite: A.11/1 -- Control channel usage procedures				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Receiving and decoding of messages on the downlink MCCH	23.3.1.1	m	
2	Receiving messages on the SCCH	23.3.1.2	n	n/a
3	Receiving messages on the ACCH	23.3.1.3	c1201	
4	Discontinuous transmission procedures	23.3.2	n	n/a
5	Beginning of minimum mode	23.3.3.1	m	
6	MS operation during frames 1-17 in minimum mode	23.3.3.2	c1202	
7	MS operation during frame 18 in minimum mode	23.3.3.3	c1202	
8	End of minimum mode	23.3.3.5	c1202	
NOTE: The requirements are specified in ETS 300 392-2 [1] under the given subclause.				

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

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

Table A.13: General MAC procedures

Prerequisite: A.11/3 -- General MAC procedures				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Recognition of destination address in downlink messages	23.4.1.2.1	m	
2	Source address in uplink messages	23.4.1.2.2	m	
3	Handle event label recognition procedures	23.4.1.2.3	n	n/a
4	Expiry of event label timer	23.4.1.2.3	n	n/a
5	Handle event label transmission procedures	23.4.1.2.3	n	n/a
6	Usage of SMI procedures	23.4.1.2.4	n	n/a
7	Usage of USSI procedures	23.4.1.2.5	n	n/a
8	Transmission of TM-SDU not requiring fragmentation	23.4.2.1.2	m	
9	Fragmentation of uplink TM-SDU, when a transmission starts in a full slot granted by the BS	23.4.2.1.2	m	
10	Fragmentation of uplink TM-SDU, using random access to start the process	23.4.2.1.2	m	
11	Fill bit addition	23.4.2.2	m	
12	Reception of unfragmented TM-SDU	23.4.3.1.1	m	
13	Reception of fragmented TM-SDU	23.4.3.1.1	m	
14	Fill bit deletion	23.4.3.2	m	
15	PDU disassociation	23.4.3.3	m	
16	PDU error detection procedure	23.4.3.4	n	n/a
NOTE: The requirements are specified in ETS 300 392-2 [1] under the given subclause.				

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

Prerequisite: A.11/4 -- PDU transfer for signalling messages procedures				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Reception of ACCESS-DEFINE PDU	23.5.1.4.1	n	n/a
2	Reception of ACCESS-ASSIGN PDU	23.5.1.4.2	m	
3	Initiating a random access	23.5.1.4.3	m	
4	Checking for appropriate access code	23.5.1.4.4	m	
5	First try procedure	23.5.1.4.5	m	
6	Re-try procedure	23.5.1.4.8	m	
7	Abandoning random access attempt	23.5.1.4.9	m	
8	Reservation requirement	23.5.2.1	m	
9	Slot granting	23.5.2.2	m	
10	Replace current channel with specified channel	23.5.4.2	m	
11	Additional channel allocation procedure	23.5.4.2	n	n/a
12	Quit current channel and go to specified channel	23.5.4.2	m	
13	Replace current channel with specified channel, plus MCCH/SCCH or CSS	23.5.4.2	m	
NOTE: The requirements are specified in ETS 300 392-2 [1] under the given subclause.				

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

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

Table A.16: Upper MAC layer management communication procedures

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

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

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

Table A.18: MAC PDUs for uplink and downlink

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

Table A.19: MAC PDUs for broadcast

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

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

Prerequisite: A. 3/5 -- Upper MAC							
Item	**PDU**	**Reception**			**Transmission**		
		Reference (note)	**Status**	**Support**	**Reference (note)**	**Status**	**Support**
1	MAC-U-SIGNAL	21.4.5	n	n/a	21.4.5	n	n/a
2	MAC-TRAFFIC	21.4.6	c2001		21.4.6	c2001	
NOTE: The PDUs are specified in ETS 300 392-2 [1] under the given subclause.							

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

A.2.4.3 LLC layer

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

Table A.21: LLC features

Prerequisite: A.3/4 -- LLC				
Item	**LLC feature**	**Reference (note)**	**Status**	**Support**
1	Basic link acknowledged service	22.2.1, 22.3.2	m	
2	Basic link unacknowledged service	22.2.1, 22.3.2	m	
3	Advanced link acknowledged service	22.2.2, 22.3.3	n	n/a
4	Advanced link unacknowledged service	22.2.2, 22.3.4	n	n/a
NOTE: The features are specified in ETS 300 392-2 [1] under the given subclause(s).				

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

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

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

Prerequisite: A.21/2 -- Unacknowledged basic link				
Item	**Procedure**	**Reference (note)**	**Status**	**Support**
1	Data reception	22.3.2.4.2	m	
2	Data transmission	22.3.2.4.1	n	n/a
3	FCS checking in reception	22.3.1.5, 22.3.2.4.2	o	
4	FCS calculation in transmission	22.3.1.5, 22.3.2.4.1	n	n/a
NOTE: The procedures are specified in ETS 300 392-2 [1] under the given subclause.				

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

Prerequisite: A.21/1 -- Acknowledged basic link							
Item	**PDU**	**Reception**			**Transmission**		
		Reference (note 1)	**Status**	**Support**	**Reference (note 1)**	**Status**	**Support**
1	BL-ACK without FCS	21.2.2.1	m		21.2.2.1	m	
2	BL-ADATA without FCS	21.2.2.2	m		21.2.2.2	m	
3	BL-DATA without FCS	21.2.2.3	m		21.2.2.3	m	
4	BL-ACK with FCS	21.2.2.1	m (note 2)		21.2.2.1	c2401	
5	BL-ADATA with FCS	21.2.2.2	m (note 2)		21.2.2.2	c2401	
6	BL-DATA with FCS	21.2.2.3	m (note 2)		21.2.2.3	c2401	
NOTE 1: The PDUs are specified in ETS 300 392-2 [1] under the given subclause. NOTE 2: It is not mandatory for an implementation to check the FCS of a received PDU, but it shall be capable of receiving and decoding PDUs containing an FCS field.							

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

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

Prerequisite: A.21/2 -- Unacknowledged basic link							
Item	**PDU**	**Reception**			**Transmission**		
		Reference (note 1)	**Status**	**Support**	**Reference (note 1)**	**Status**	**Support**
1	BL-UDATA without FCS	21.2.2.4	m		21.2.2.4	n	n/a
2	BL-UDATA with FCS	21.2.2.4	m (note 2)		21.2.2.4	n	n/a
NOTE 1: The PDUs are specified in ETS 300 392-2 [1] under the given subclause. NOTE 2: It is not mandatory for an implementation to check the FCS of a received PDU, but it shall be capable of receiving and decoding PDUs containing an FCS field.							

Table A.26: LLC constants for basic link

Prerequisite: A.21/1 -- Acknowledged basic link						
Item	**Constant**	**Reference (note 1)**	**Status**	**Support**	**Values**	
					Allowed	**Supported**
1	N.252	A.2	m		1 .. 5, 3 .. 5 (note 2)	
NOTE 1: The constant is specified in ETS 300 392-2 [1] under the given subclause. NOTE 2: The first range applies, when stealing repeats are used for the PDU being transmitted. The second range applies when not.						

Table A.27: LLC basic link timers

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

A.2.5 Layer 3

A.2.5.1 CMCE requirements

The supplier of the implementation shall state the support of the implementation for each of the CMCE services, features, functions, PDUs and timers presented in tables A.28 and A.39.

Table A.28: CMCE services

Prerequisite: A.3/1 -- CMCE				
Item	**CMCE service**	**Reference (note)**	**Status**	**Support**
1	Call Control (CC)	11.2	o	
2	Short Data Services (SDS)	13.2	n	
3	Supplementary Services (SS)	12.2	n	
NOTE: The services are specified in ETS 300 392-2 [1] under the given subclause.				

Table A.29: CC features

Prerequisite: A.28/1 -- CC				
Item	**CC feature**	**Reference (note)**	**Status**	**Support**
1	Individual call	14.5.1	m	
2	Group call	14.5.2	m	
3	On/off hook signalling	14.5.1	o.5	
4	Direct set-up signalling	14.5.1	o.5	
5	Protocol Control (PC) protocol error procedures	14.5.6.5	m	
NOTE: The features are specified in ETS 300 392-2 [1] under the given subclause(s).				

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

Table A.30: CC individual call set-up functions

Prerequisite: A.29/1 -- Individual call				
Item	**Individual call set-up functions**	**Reference (note)**	**Status**	**Support**
1	Incoming call	14.5.1.1.1	m	
2	Outgoing call	14.5.1.1.2	m	
3	Colliding calls	14.5.1.1.3	m	
4	Unsuccessful call set up	14.5.1.1.4	n	n/a
5	U-plane switching	14.5.1.4.1	m	
6	Call status information	14.5.1.2.2	n	n/a
NOTE: The functions are specified in ETS 300 392-2 [1] under the given subclause(s).				

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

Prerequisite: A.29/2 -- Group call				
Item	**Group call set-up functions**	**Reference (note)**	**Status**	**Support**
1	Incoming call	14.5.2.1.1	n	n/a
2	Outgoing call	14.5.2.1.2	m	
3	Colliding calls	14.5.2.1.3	m	
4	Unsuccessful call set up	14.5.2.1.4	n	n/a
5	U-plane switching	14.5.2.4.1	m	
6	Call status information	14.5.2.2.2	n	n/a
NOTE: The functions are specified in ETS 300 392-2 [1] under the given subclause(s).				

Table A.32: CC individual call maintenance functions

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

Table A.33: CC group call maintenance functions

Prerequisite: A.29/2 -- Group call				
Item	**Group call maintenance functions**	**Reference (note)**	**Status**	**Support**
1	Call restoration	14.5.2.2.4	m	
2	Temporary address handling	14.5.2.2.6	n	n/a
3	Acceptance of group-addressed channel allocation	14.5.2.5	m	
NOTE: The functions are specified in ETS 300 392-2 [1] under the given subclause(s).				

Table A.34: CC individual call transmission requests/grants/information functions

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

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

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

Table A.36: CC individual call clearance functions

Prerequisite: A.29/1 -- Individual call				
Item	**Individual call clearance functions**	**Reference (note)**	**Status**	**Support**
1	User initiated disconnection	14.5.1.3.1	o	
2	Reception of release request	14.5.1.3.3	m	
3	Reception of disconnection request	14.5.1.3.3	m	
4	Expiry of timers	14.5.1.3.4	m	
5	Colliding disconnections	14.5.1.3.5	n	n/a
6	U-plane switching	14.5.1.4	m	
NOTE: The functions are specified in ETS 300 392-2 [1] under the given subclause(s).				

Table A.37: CC group call clearance functions

Prerequisite: A.29/2 -- Group call				
Item	**Group call clearance functions**	**Reference (note)**	**Status**	**Support**
1	User initiated disconnection	14.5.2.3.1	n	n/a
2	Reception of disconnection request	14.5.2.3.3	m	
3	Colliding disconnections	14.5.2.3.4	n	n/a
4	Expiry of timers	14.5.2.3.5	m	
5	U-plane switching	14.5.2.4	m	
NOTE: The functions are specified in ETS 300 392-2 [1] under the given subclause(s).				

Table A.38: CC PDUs

Prerequisite: A.28/1 -- CC				
Item	**PDU (note 2)**	**Reference (note 1)**	**Status**	**Support**
1	D-ALERT	14.7.1.1	c3801	
2	D-CALL-PROCEEDING	14.7.1.2	m	
3	D-CALL-RESTORE	14.7.1.3	m	
4	D-CONNECT	14.7.1.4	m	
5	D-CONNECT ACKNOWLEDGE	14.7.1.5	m	
6	D-DISCONNECT	14.7.1.6	m	
7	D-INFO	14.7.1.8	m	
8	D-RELEASE	14.7.1.9	m	
9	D-SETUP	14.7.1.12	m	
10	D-TX-CEASED	14.7.1.13	m	
11	D-TX-CONTINUE	14.7.1.14	n	n/a
12	D-TX-GRANTED	14.7.1.15	m	
13	D-TX-INTERRUPT	14.7.1.16	m	
14	D-TX-WAIT	14.7.1.17	m	
15	U-ALERT	14.7.2.1	c3801	
16	U-CALL-RESTORE	14.7.2.2	m	
17	U-CONNECT	14.7.2.3	m	
18	U-DISCONNECT	14.7.2.4	m	
19	U-INFO	14.7.2.6	n	n/a
20	U-RELEASE	14.7.2.9	m	
21	U-SETUP	14.7.2.10	m	
22	U-TX-CEASED	14.7.2.11	m	
23	U-TX-DEMAND	14.7.2.12	m	
NOTE 1: The PDUs are specified in ETS 300 392-2 [1] under the given subclause. NOTE 2: The D-PDUs are received, and the U-PDUs are transmitted by the MS.				

c3801: IF A.29/3 -- On/off hook signalling
THEN m
ELSE n/a

Table A.39: CC timers

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

A.2.5.2 MM requirements

The supplier of the implementation shall state the support of the implementation for each of the MM features, procedures, and PDUs presented in tables A.40 to A.46.

Table A.40: MM features

Prerequisite: A.3/2 -- MM				
Item	**MM feature**	**Reference (note)**	**Status**	**Support**
1	Registration procedures	16.4.1.1	m	
2	Deregistration procedure	15.2,16.6	n	n/a
3	Change of energy economy mode procedures	15.2	n	n/a
4	Attachment/detachment of group identities procedures	15.2	o	
5	Enable/disable procedures	16.5	o	
6	PDU encoding	16.9.1	m	
7	PDU decoding	16.9.1	m	
NOTE: The features are specified in ETS 300 392-2 [1] under the given subclause(s).				

Table A.41: MM registration procedures

Prerequisite: A.40/1				
Item	**Registration procedures**	**Reference (note)**	**Status**	**Support**
1	MLE initiated registration	16.4.1	m	
2	User application initiated registration	16.4.2	o	
3	User application initiated registration procedure at power up	16.4.2	m	
4	Infrastructure initiated registration	16.4.3	m	
5	Colliding registrations	16.4.4	n	n/a
6	Expiry of timer T351	16.4.5	n	n/a
NOTE: The procedures are specified in ETS 300 392-2 [1] under the given subclause.				

Table A.42: MLE initiated registration procedures

Prerequisite: A.41/1 -- MLE initiated registration				
Item	**MLE initiated registration procedure**	**Reference (note)**	**Status**	**Support**
1	Normal roaming registration	16.4.1.1	m	
2	Normal migration registration	16.4.1.1	n	n/a
3	Forward roaming registration	16.4.1.2	n	n/a
4	Forward migration registration	16.4.1.2	n	n/a
NOTE: The procedures are specified in ETS 300 392-2 [1] under the given subclause.				

Table A.43: User application initiated registration procedures

Prerequisite: A.41/2 -- User application initiated registration				
Item	**User application initiated registration procedure**	**Reference (note)**	**Status**	**Support**
1	No new ITSI registration	16.4.2	o	
2	New ITSI registration	16.4.2	m	
3	New unexchanged ITSI registration	16.4.2	n	
NOTE: The procedures are specified in ETS 300 392-2 [1] under the given subclause.				

Table A.44: MM attachment/detachment of group identities procedures

Prerequisite: A.40/4 -- Attachment/detachment of group identities procedures				
Item	**Attachment/detachment of group identities procedures**	**Reference (note)**	**Status**	**Support**
1	Infrastructure initiated attachment/detachment of group identities procedure	16.8.1	o	
2	Infrastructure initiated group identity report request	16.8.1	c4401	
3	MS initiated attachment/detachment of group identities procedure	16.8.2	o	
4	MS initiated group identity report request	16.8.2	n	n/a
NOTE: The procedures are specified in ETS 300 392-2 [1] under the given subclause.				

c4401: IF A.44/1 -- Infrastructure initiated attachment/detachment
THEN o
ELSE n/a

Table A.45: MM enable/disable procedures

Prerequisite: A.40/5 -- Enable/disable procedures				
Item	**Enable/disable procedure**	**Reference (note)**	**Status**	**Support**
1	Temporary disable of MS	16.5	o.6	
2	Permanent disable of MS	16.5	o.6	
3	Enable of MS	16.5	c4501	
NOTE: The procedures are specified in ETS 300 392-2 [1] under the given subclause.				

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

c4501: IF A.45/1 -- Temporary disable of MS
THEN m
ELSE n/a

Table A.46: MM PDUs

Prerequisite: A.3/2 -- MM				
Item	**PDU (note 2)**	**Reference (note 1)**	**Status**	**Support**
1	D-ATTACH/DETACH GROUP IDENTITY	16.9.2.1	c4601	
2	D-ATTACH/DETACH GROUP IDENTITY ACKNOWLEDGEMENT	16.9.2.2	c4604	
3	D-DISABLE	16.9.2.3	c4602	
4	D-ENABLE	16.9.2.4	c4603	
5	D-ENERGY SAVING	16.9.2.5	n	
6	D-STATUS	16.9.2.6	o	
7	D-LOCATION UPDATE ACCEPT	16.9.2.7	m	
8	D-LOCATION UPDATE COMMAND	16.9.2.8	m	
9	D-LOCATION UPDATE REJECT	16.9.2.9	m	
10	D-LOCATION UPDATE PROCEEDING	16.9.2.10	n	
11	U-ATTACH/DETACH GROUP IDENTITY	16.9.3.1	c4604	
12	U-ATTACH/DETACH GROUP IDENTITY ACKNOWLEDGEMENT	16.9.3.2	c4601	
13	U-ITSI DETACH	16.9.3.3	n	
14	U-LOCATION UPDATE DEMAND	16.9.3.4	m	
15	U-STATUS	16.9.3.5	n	
NOTE 1: The PDUs are specified in ETS 300 392-2 [1] under the given subclause. NOTE 2: The D-PDUs are received, and the U-PDUs are transmitted by the MS.				

c4601: IF A.44/1 -- Infrastructure initiated attachment/detachment of group identities
THEN m
ELSE n/a

c4602: IF (A.45/1 OR A.45/2) -- Temporary or permanent disable of MS
THEN m
ELSE n/a

c4603: IF A.45/1 -- Temporary disable of MS
THEN m
ELSE n/a

c4604: IF A.44/3 -- Mobile initiated attachment/detachment of group identities
THEN m
ELSE n/a

A.2.5.3 MLE requirements

The supplier of the implementation shall state the support of the implementation for each of the MLE features, procedures, and timers presented in tables A.47 to A.50.

Table A.47: MLE features

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

Table A.48: MLE cell re-selection procedures

Prerequisite: A.47/2 -- Cell re-selection				
Item	**MLE procedure**	**Reference (note)**	**Status**	**Support**
1	Undeclared cell re-selection	18.3.4.7.2	m	
2	Unannounced cell re-selection	18.3.4.7.3	m	
3	Announced type 3 cell re-selection	18.3.4.7.4	m	
4	Announced type 2 cell re-selection	18.3.4.7.5	n	n/a
5	Announced type 1 cell re-selection	18.3.4.7.6	n	n/a
NOTE: The procedures are specified in ETS 300 392-2 [1] under the given subclause.				

Table A.49: MLE PDUs

Prerequisite: A.3/3 -- MLE							
Item	**PDU**	**Reception**			**Transmission**		
		Reference (note)	**Status**	**Support**	**Reference (note)**	**Status**	**Support**
1	MLE service user PDU	18.4.1.3	m		18.4.1.3	m	
2	D-NWRK-BROADCAST	18.4.1.4.1	m		n/a	n/a	n/a
3	D-NEW-CELL	18.4.1.4.2	m		n/a	n/a	n/a
4	D-PREPARE-FAIL	18.4.1.4.3	c4901		n/a	n/a	n/a
5	D-RESTORE-ACK	18.4.1.4.4	m		n/a	n/a	n/a
6	D-RESTORE-FAIL	18.4.1.4.5	m		n/a	n/a	n/a
7	U-PREPARE	n/a	n/a	n/a	18.4.1.4.6	m	
8	U-RESTORE	n/a	n/a	n/a	18.4.1.4.7	m	
9	D-MLE-SYNC	18.4.2.1	m		n/a	n/a	n/a
10	D-MLE-SYSINFO	18.4.2.2	m		n/a	n/a	n/a
NOTE: The PDUs are specified in ETS 300 392-2 [1] under the given subclause.							

c4901: IF (A.47/3) -- Neighbour cell enquiry
THEN m
ELSE n/a

Table A.50: MLE timers

Prerequisite: A.3/3 -- MLE						
Item	**Timer**	**Reference (note)**	**Status**	**Support**	**Values**	
					Allowed	**Supported**
1	T.370	18.6.1	m		5 -- Sec	
NOTE: The timer value is specified in ETS 300 392-2 [1] under the given subclause.						

Annex B (normative): Declarations on parameters supported

B.1 Introduction

The following tables contain extracts from the PICS document ETS 300 392-14 [5]. These tables supplement the TBR-RT giving the required information to parameterize the test suites referred to in this TBR.

For the notation used in the tables in this clause, refer to annex A, clause A.1.

B.2 Declarations for Um air interface

The supplier of the implementation shall state the values for the implementation for each of the parameters presented in tables B.1 to B.3.

B.2.1 Layer 2

B.2.1.1 MAC layer

Table B.1: MAC parameters

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

B.2.2 Layer 3

B.2.2.1 CMCE

Table B.2: CC parameters

Prerequisite: A.28/1 -- CC				
Item	**Parameter**	**Parameter type**	**Explanation**	**Value or reference**
1	PIX_T303	INTEGER	Duration of the T303 in the IUT in seconds.	
2	PIX_T308	INTEGER	Duration of the T308 in the IUT in seconds.	
3	PIX_T311	INTEGER	Duration of the T311 in the IUT in seconds.	
4	PIX_MS_ITSI	ITSI_type	ITSI of the IUT.	

B.2.2.2 MM

Table B.3: MM parameters

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

B.2.2.3 MLE

Table B.4: MLE parameters

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

Annex C (informative): Bibliography

TCR-TR 17 (1993): "Methods for Testing and Specification (MTS); Technical Basis for Regulation (TBR) specification methodology".

TRAC: "Guidelines on the Application of CTRs, NETs and National Standards to Products for Approval under Directive 91/263/EEC".

Council Directive 73/23/EEC of 19 February 1973 on the harmonisation of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits.

ETR 238: "ETSI/CENELEC standardization programme for the development of Harmonized Standards related to Electro-Magnetic Compatibility (EMC) in the field of telecommunications".

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

ETS 300 392-7 (1996): "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA); Voice plus Data (V+D); Part 7: Security".

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

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

ETS 300 396-3: "Terrestrial Trunked Radio (TETRA); Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 3: Mobile Station to Mobile Station (MS-MS) Air Interface (AI) protocol".

ETS 300 396-4: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 4: Repeater type 1".

ETS 300 396-5: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 5: Gateways".

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

prETS 300 396-7: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 7: Repeater type 2".

prETS 300 396-8: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO);Part 8: Protocol Implementation Conformance Statement (PICS) proforma specification".

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Document history			
September 1997	Public Enquiry	PE 9803:	1997-09-19 to 1998-01-16
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