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ETSI EN 301 511 V12.1.1 (2015-06)

Global System for Mobile communications (GSM);
Harmonised EN for mobile stations
in the GSM 900 and GSM 1800 bands
covering essential requirements under
article 3.2 of the R&TTE directive (1999/5/EC)

Reference
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Keywords
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Contents

Intellectual Property Rights 5
Foreword 5
Modal verbs terminology 5
Introduction 6
1 Scope 8
2 References 8
2.1 Normative references 8
2.2 Informative references 10
3 Definitions and abbreviations 11
3.1 Definitions 11
3.2 Abbreviations 11
4 Technical requirements specifications 11
4.1 Environmental profile 11
4.2 Conformance requirements 12
4.2.0 References 12
4.2.1 Transmitter - Frequency error and phase error 12
4.2.2 Transmitter - Frequency error under multipath and interference conditions 12
4.2.3 Transmitter - Frequency error and phase error in HSCSD multislot configuration 12
4.2.4 Frequency error and phase error in GPRS multislot configuration 12
4.2.5 Transmitter output power and burst timing 12
4.2.6 Transmitter - Output RF spectrum 12
4.2.7 Transmitter output power and burst timing in HSCSD multislot configurations 12
4.2.8 Transmitter - Output RF spectrum in HSCSD multislot configuration 12
4.2.9 Transmitter - Output RF spectrum for MS supporting the R-GSM or ER-GSM frequency band 12
4.2.10 Transmitter output power in GPRS multislot configuration 12
4.2.11 Output RF spectrum in GPRS multislot configuration 12
4.2.12 Conducted spurious emissions - MS allocated a channel 13
4.2.13 Conducted spurious emissions - MS in idle mode 13
4.2.14 Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel 13
4.2.15 Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode 13
4.2.16 Radiated spurious emissions - MS allocated a channel 13
4.2.17 Radiated spurious emissions - MS in idle mode 13
4.2.18 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel 13
4.2.19 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode 13
4.2.20 Receiver Blocking and spurious response - speech channels 13
4.2.21 Receiver Blocking and spurious response - speech channels for MS supporting the R-GSM or ER-GSM frequency band 13
4.2.22 Frequency error and Modulation accuracy in EGPRS Configuration 13
4.2.23 Frequency error under multipath and interference conditions in EGPRS Configuration 13
4.2.24 EGPRS Transmitter output power 13
4.2.25 Output RF spectrum in EGPRS configuration 14
4.2.26 Blocking and spurious response in EGPRS configuration 14
4.2.27 Blocking and spurious response in DLMC configuration 14
5 Testing for compliance with technical requirements 14
5.1 Environmental conditions for testing 14
5.2 Interpretation of the measurement results 14
5.3 Essential radio test suites 14
5.3.1 Transmitter - Frequency error and phase error 14
5.3.2 Transmitter - Frequency error under multipath and interference conditions 14
5.3.3 Transmitter - Frequency error and phase error in HSCSD multislot configuration 14

5.3.4 Frequency error and phase error in GPRS multislot configuration 15
5.3.5 Transmitter output power and burst timing 15
5.3.6 Transmitter - Output RF spectrum 15
5.3.7 Transmitter output power and burst timing in HSCSD multislot configurations 15
5.3.8 Transmitter - Output RF spectrum in HSCSD multislot configuration 15
5.3.9 Transmitter - Output RF spectrum for MS supporting the R-GSM or ER-GSM frequency band 15
5.3.10 Transmitter output power in GPRS multislot configuration 15
5.3.11 Output RF spectrum in GPRS multislot configuration 15
5.3.12 Conducted spurious emissions - MS allocated a channel 15
5.3.13 Conducted spurious emissions - MS in idle mode 15
5.3.14 Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel 15
5.3.15 Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode 15
5.3.16 Radiated spurious emissions - MS allocated a channel 15
5.3.17 Radiated spurious emissions - MS in idle mode 15
5.3.18 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel 16
5.3.19 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode 16
5.3.20 Receiver Blocking and spurious response - speech channels 16
5.3.21 Receiver Blocking and spurious response - speech channels for MS supporting the R-GSM or ER-GSM frequency band 16
5.3.22 Frequency error and Modulation accuracy in EGPRS Configuration 16
5.3.23 Frequency error under multipath and interference conditions in EGPRS Configuration 16
5.3.24 EGPRS Transmitter output power 16
5.3.25 Output RF spectrum in EGPRS configuration 16
5.3.26 Blocking and spurious response in EGPRS configuration 16
5.3.27 Blocking and spurious response in DLMC configuration 16

Annex A (normative): HS Requirements and conformance Test specifications Table (HS-RTT) 17

A.1 Test specification table 17

A.2 Type of Mobile Stations 20

A.3 Additional Information 21

Annex B (informative): Change history 22

History 23

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Foreword

This Harmonised European Standard (EN) has been produced by ETSI Technical Committee Mobile Standards Group (MSG).

The update to version 12.1.1 of the present document includes the following major changes:

- Inclusion of mobile equipment supporting operation in the ER-GSM 900 band.
- Inclusion of mobile equipment supporting operation in Downlink Multi-Carrier mode (DLMC).

The present document has been produced by ETSI in response to mandate M/284 issued from the European Commission under Council Directive 98/34/EC [i.4] as amended by Directive 98/48/EC [i.8].

The title and reference to the present document are intented to be included in the publication in the Official Journal of the European Union of titles and references of Harmonised Standard under Directive 1999/5/EC [i.6].

The requirements relevant to Directive 1999/5/EC [i.6] are summarized in Annex A.

National transposition dates	
Date of adoption of this EN:	10 June 2015
Date of latest announcement of this EN (doa):	30 September 2015
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 2016
Date of withdrawal of any conflicting National Standard (dow):	31 March 2017

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

The present document is part of a set of standards designed to fit in a modular structure to cover all radio and telecommunications terminal equipment under the R&TTE Directive [i.6]. Each standard is a module in the structure. The modular structure is shown in figure 1.

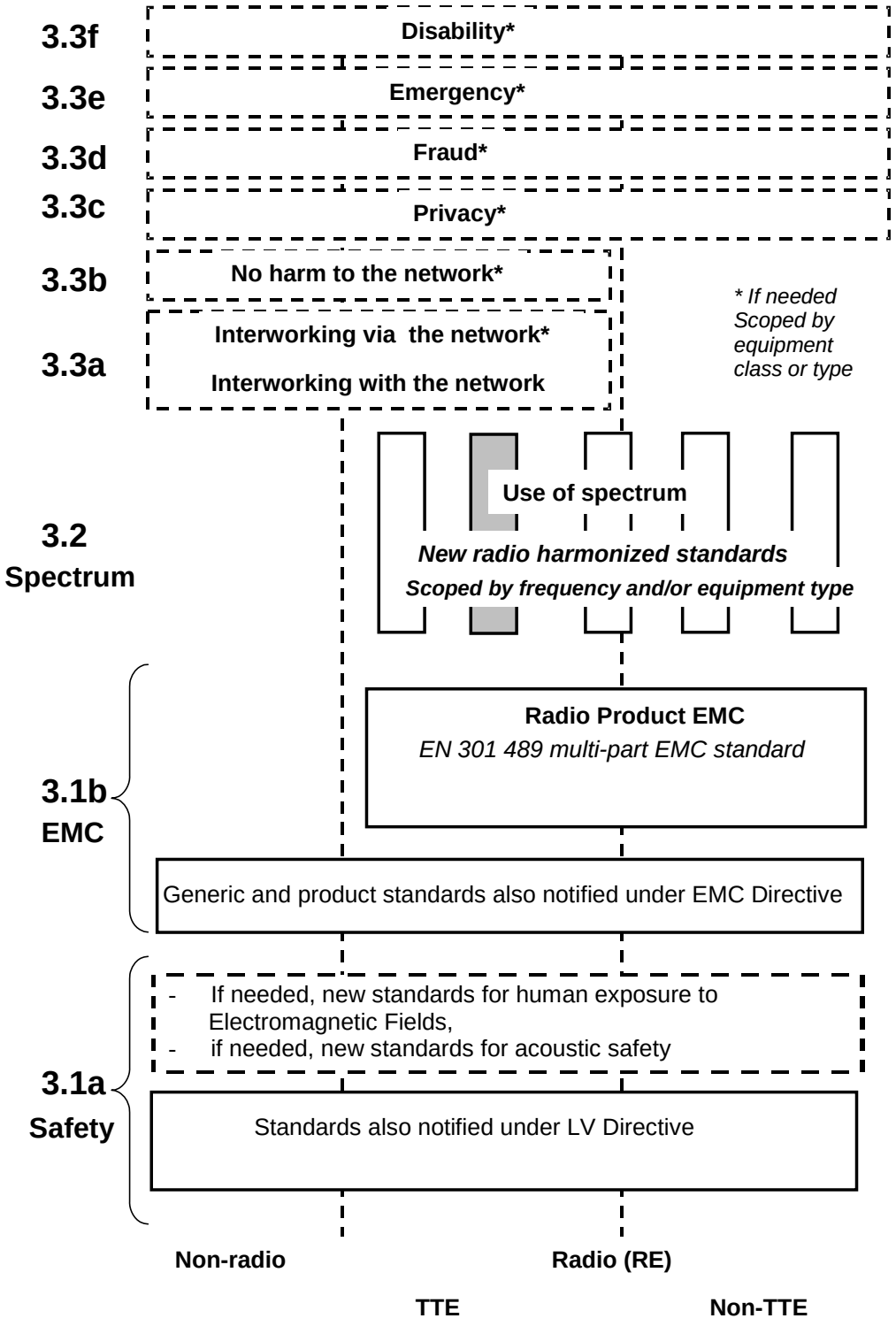

Figure 1: Modular structure for the various standards used under the R&TTE Directive [i.6]

The left hand edge of the figure 1 shows the different clauses of article 3 of the R&TTE Directive [i.6].

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

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

For article 3.1b the diagram shows ETSI EN 301 489 [i.3], the multi-part product EMC standard for radio used under the EMC Directive [i.1].

For article 3.1a the diagram shows the existing safety standards currently used under the LV Directive [i.2] and new standards covering human exposure to electromagnetic fields. New standards covering acoustic safety may also be required.

The bottom of the figure shows the relationship of the standards to radio equipment and telecommunications terminal equipment. A particular equipment may be radio equipment, telecommunications terminal equipment or both. A radio spectrum standard will apply if it is radio equipment. An article 3.3 standard will apply as well only if the relevant essential requirement under the R&TTE Directive [i.6] is adopted by the Commission and if the equipment in question is covered by the scope of the corresponding standard. Thus, depending on the nature of the equipment, the essential requirements under the R&TTE Directive [i.6] may be covered in a set of standards.

The modularity principle has been taken because:

- it minimizes the number of standards needed. Because equipment may, in fact, have multiple interfaces and functions it is not practicable to produce a single standard for each possible combination of functions that may occur in an equipment;
- it provides scope for standards to be added:
  - under article 3.2 when new frequency bands are agreed; or
  - under article 3.3 should the Commission take the necessary decisions without requiring alteration of standards that are already published;
- it clarifies, simplifies and promotes the usage of Harmonised Standards as the relevant means of conformity assessment.

1 Scope

The present document applies to the following radio telecommunications terminal equipment types:

- GSM mobile station.

This radio equipment type is for operation within the Digital cellular telecommunications system in the GSM 900 and/or GSM 1800 frequency bands as shown in table 1, with a channel separation of 200 kHz, utilizing constant envelope modulation and carrying traffic channels according to the Time Division Multiple Access (TDMA) principle.

Table 1: Frequency bands for GSM 900 and GSM 1800 Mobile Station system

Type	TX	RX
P-GSM 900	890 MHz to 915 MHz	935 MHz to 960 MHz
GSM 1800	1 710 MHz to 1 785 MHz	1 805 MHz to 1 880 MHz
E-GSM 900	880 MHz to 915 MHz	925 MHz to 960 MHz
R-GSM 900	876 MHz to 915 MHz	921 MHz to 960 MHz
ER-GSM 900	873 MHz to 915 MHz	918 MHz to 960 MHz

The present document is intended to cover the provisions of Directive 1999/5/EC (R&TTE Directive) [i.6] article 3.2, which states that "….. radio equipment shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communications and orbital resources so as to avoid harmful interference".

The present document covers the general access requirements for terminal equipment up to and including 3GPP Rel-12. The general access requirements, applied to the terminal equipment, are for one release only. The present document does not cover the GPRS Class A mobiles and the ECSD mobiles.

For each test purpose and its corresponding conformance requirement, a reference is given to the test method in ETSI TS 151 010-1 [2]. The requirements apply at the air interface, which may be stimulated to perform the tests by additional equipment if necessary.

The measurement uncertainty is described in ETSI TS 151 010-1 [2], Annex 5.

In addition to the present document, other ENs that specify technical requirements in respect of essential requirements under other parts of article 3 of the R&TTE Directive [i.6] will apply to equipment within the scope of the present document.

NOTE 1: A list of such ENs is included on the web site http://www.newapproach.org.

ETSI TS 151 010-1 [2] constitutes the conformance test suite for GSM. The verification of the conformance requirements in the present document is based on the tests described in this reference. The set of requirements in ETSI TS 151 010-1 [2] and the set of requirements in the present document need not be identical.

Some requirements only apply to specific types of mobile station (e.g. data tests only apply to mobile stations with a data facility, tests that only apply to GSM 900 or only to GSM 1800 or to both). The present document indicates the specific test which should be carried out for each mobile station type.

An active accessory is covered by the present document if it modifies the terminal performance in an aspect which affects conformance to essential requirements.

NOTE 2: Only active devices are subject to the present document. Accessories may be tested with specific terminals, and either approved for use with those terminals only, or may possibly be approved for use with a wider range of terminals, depending on the nature and effect of the accessory.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] Void.

[2] ETSI TS 151 010-1 (V12.2.0) (11-2014): "Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformance specification; Part 1: Conformance specification (3GPP TS 51.010-1 version 12.2.0 Release 12)".

[3] Void.

[4] Void.

[5] ETSI ETS 300 905 (V5.3.2) (01-1998): "Digital cellular telecommunications system (Phase 2+) (GSM); Teleservices supported by a GSM Public Land Mobile Network (PLMN) (GSM 02.03 version 5.3.2)".

[6] ETSI TS 100 905 (V6.0.0) (01-1999): "Digital cellular telecommunications system (Phase 2+) (GSM); Teleservices supported by a GSM Public Land Mobile Network (PLMN) (GSM 02.03 version 6.0.0 Release 1997)".

[7] ETSI TS 100 905 (V7.0.0) (08-1999): "Digital cellular telecommunications system (Phase 2+) (GSM); Teleservices supported by a GSM Public Land Mobile Network (PLMN) (GSM 02.03 version 7.0.0 Release 1998)".

[8] ETSI TS 122 003 (V3.3.0) (07-2001): "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Circuit Teleservices supported by a Public Land Mobile Network (PLMN) (3GPP TS 22.003 version 3.3.0 Release 1999)".

[9] ETSI TS 122 003 (V4.3.0) (03-2002): "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Circuit Teleservices supported by a Public Land Mobile Network (PLMN) (3GPP TS 22.003 version 4.3.0 Release 4)".

[10] Void.

[11] Void.

[12] ETSI TS 122 060 (V3.5.0) (10-2000): "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); General Packet Radio Service (GPRS); Service description; Stage 1 (3GPP TS 22.060 version 3.5.0 Release 1999)".

[13] ETSI TS 122 060 (V4.4.0) (06-2002): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); General Packet Radio Service (GPRS); Service description; Stage 1 (3GPP TS 22.060 version 4.4.0 Release 4)".

[14] Void.

[15] Void.

[16] ETSI TS 101 349 (V8.16.0) (09-2002): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/ Medium Access Control (RLC/MAC) protocol (3GPP TS 04.60 version 8.16.0 Release 1999)".

[17] ETSI TS 144 060 (V12.3.0) (01-2015): "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control / Medium Access Control (RLC/MAC) protocol (3GPP TS 44.060 version 12.3.0 Release 12)".

[18] Void.

[19] ETSI TS 100 908 (V5.10.0) (10-2001): "Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path (3GPP TS 05.02 version 5.10.0 Release 1996)".

[20] ETSI TS 100 908 (V6.10.0) (10-2001): "Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path (3GPP TS 05.02 version 6.10.0 Release 1997)".

[21] ETSI TS 100 908 (V7.7.0) (10-2001): "Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path (3GPP TS 05.02 version 7.7.0 Release 1998)".

[22] ETSI TS 100 908 (V8.10.0) (10-2001): "Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path (3GPP TS 05.02 version 8.10.0 Release 1999)".

[23] ETSI TS 145 002 (V4.5.0) (11-2001): "Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path (3GPP TS 45.002 version 4.5.0 Release 4)".

[24] Void.

[25] ETSI TS 100 910 (V5.13.0) (09-2000): "Digital cellular telecommunications system (Phase 2+) (GSM); Radio transmission and reception (3GPP TS 05.05 version 5.13.0 Release 1996)".

[26] ETSI TS 100 910 (V6.8.0) (08-2002): "Digital cellular telecommunications system (Phase 2+); Radio Transmission and Reception (3GPP TS 05.05 version 6.8.0 Release 1997)".

[27] ETSI TS 100 910 (V7.9.0) (09-2002): "Digital cellular telecommunications system (Phase 2+); Radio Transmission and Reception (3GPP TS 05.05 version 7.9.0 Release 1998)".

[28] ETSI TS 100 910 (V8.14.0) (09-2002): "Digital cellular telecommunications system (Phase 2+); Radio Transmission and Reception (3GPP TS 05.05 version 8.14.0 Release 1999)".

[29] ETSI TS 145 005 (V12.4.0) (01-2015): "Digital cellular telecommunications system (Phase 2+); Radio transmission and reception (3GPP TS 45.005 version 12.4.0 Release 12)".

[30] ETSI TR 121 905 (V12.0.0) (10-2014): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Vocabulary for 3GPP Specifications (3GPP TR 21.905 version 12.0.0 Release 12)".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive).

[i.2] Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (LV Directive).

[i.3] ETSI EN 301 489 (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services".

[i.4] Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations.

[i.5] Void.

[i.6] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).

[i.7] ETSI TR 100 028 (all parts) (V1.4.1) (12-2001): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".

[i.8] Directive 98/48/EC of the European Parliament and of the Council of 20 July 1998 amending Directive 98/34/EC laying down a procedure for the provision of information in the field of technical standards and regulations.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TR 121 905 [30] and the following apply:

EGPRS: any subset of the packet traffic channels PDTCH/MCS-1 to MCS-9 and related control channels

E-GSM: extended GSM 900 band (includes P-GSM band)

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

ER-GSM 900: extended Railway GSM 900 band (includes R-GSM band)

GPRS: any subset of the packet traffic channels PDTCH/CS-1 to CS-4 and related control channels

GSM 900: unless otherwise specified, references to GSM 900 include P-GSM, E-GSM and R-GSM band

GSM: unless otherwise specified, references to GSM include GSM 400, GSM 900, ER-GSM 900 and DCS 1800

P-GSM: primary GSM 900 band

R-GSM: Railways GSM 900 band (includes P-GSM band and E-GSM band)

3.2 Abbreviations

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

DLMC	Downlink Multi-Carrier
ECSD	Enhanced Circuit Switched Data
EGPRS	Enhanced GPRS
GPRS	General Packet Radio Service
HSCSD	High Speed Circuit Switched Data
MS	Mobile Station which includes a GSM radio part
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
TDMA	Time Division Multiple Access

4 Technical requirements specifications

4.1 Environmental profile

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be declared by the supplier. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the required operational environmental profile.

4.2 Conformance requirements

4.2.0 References

The present document contains all requirements that are needed for terminals to meet the essential requirement as defined in the Directive 1999/5/EC [i.6], article 3.2.

- The present document gives normative reference to a clause of ETSI TS 151 010-1 [2] containing the conformance requirement text and references to the base standard.

4.2.1 Transmitter - Frequency error and phase error

Clauses 13.1.1 and 13.1.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.2 Transmitter - Frequency error under multipath and interference conditions

Clauses 13.2.1 and 13.2.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.3 Transmitter - Frequency error and phase error in HSCSD multislot configuration

Clauses 13.6.1 and 13.6.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.4 Frequency error and phase error in GPRS multislot configuration

Clauses 13.16.1.1 and 13.16.1.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.5 Transmitter output power and burst timing

Clauses 13.3.1 and 13.3.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.6 Transmitter - Output RF spectrum

Clauses 13.4.1 and 13.4.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.7 Transmitter output power and burst timing in HSCSD multislot configurations

Clauses 13.7.1 and 13.7.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.8 Transmitter - Output RF spectrum in HSCSD multislot configuration

Clauses 13.8.1 and 13.8.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.9 Transmitter - Output RF spectrum for MS supporting the R-GSM or ER-GSM frequency band

Clauses 13.9.1 and 13.9.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.10 Transmitter output power in GPRS multislot configuration

Clauses 13.16.2.1 and 13.16.2.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.11 Output RF spectrum in GPRS multislot configuration

Clauses 13.16.3.1 and 13.16.3.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.12 Conducted spurious emissions - MS allocated a channel

Clauses 12.1.1.1 and 12.1.1.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.13 Conducted spurious emissions - MS in idle mode

Clauses 12.1.2.1 and 12.1.2.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.14 Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel

Clauses 12.3.1.1 and 12.3.1.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.15 Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode

Clauses 12.3.2.1 and 12.3.2.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.16 Radiated spurious emissions - MS allocated a channel

Clauses 12.2.1.1 and 12.2.1.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.17 Radiated spurious emissions - MS in idle mode

Clauses 12.2.2.1 and 12.2.2.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.18 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel

Clauses 12.4.1.1 and 12.4.1.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.19 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode

Clauses 12.4.2.1 and 12.4.2.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.20 Receiver Blocking and spurious response - speech channels

Clauses 14.7.1.1 and 14.7.1.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.21 Receiver Blocking and spurious response - speech channels for MS supporting the R-GSM or ER-GSM frequency band

Clauses 14.7.3.1 and 14.7.3.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.22 Frequency error and Modulation accuracy in EGPRS Configuration

Clauses 13.17.1.1 and 13.17.1.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.23 Frequency error under multipath and interference conditions in EGPRS Configuration

Clauses 13.17.2.1 and 13.17.2.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.24 EGPRS Transmitter output power

Clauses 13.17.3.1 and 13.17.3.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.25 Output RF spectrum in EGPRS configuration

Clauses 13.17.4.1 and 13.17.4.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.26 Blocking and spurious response in EGPRS configuration

Clauses 14.18.5.1 and 14.18.5.2 of ETSI TS 151 010-1 [2] shall apply.

4.2.27 Blocking and spurious response in DLMC configuration

Clauses 14.18.5b.1 and 14.18.5b.2 of ETSI TS 151 010-1 [2] shall apply.

5 Testing for compliance with technical requirements

5.1 Environmental conditions for testing

Tests defined in the present document shall be carried out at representative points within the boundary limits of the declared operational environmental profile.

Where technical performance varies subject to environmental conditions, tests shall be carried out under a sufficient variety of environmental conditions (within the boundary limits of the declared operational environmental profile) to give confidence of compliance for the affected technical requirements.

5.2 Interpretation of the measurement results

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

- the measured value related to the corresponding limit will be used to decide whether an equipment meets the requirements of the present document;
- the value of the measurement uncertainty for the measurement of each parameter shall be included in the test report;
- the recorded value of the measurement uncertainty shall be, for each measurement, equal to or lower than the one specified in Annex 5 of ETSI TS 151 010-1 [2].

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated and shall correspond to an expansion factor (coverage factor) k = 1,96 (which provides confidence levels of 95 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)). Principles for the calculation of measurement uncertainty are contained in ETSI TR 100 028 [i.7], in particular in Annex D of ETSI TR 100 028-2 [i.7].

5.3 Essential radio test suites

5.3.1 Transmitter - Frequency error and phase error

Requirements of ETSI TS 151 010-1 [2], clause 13.1.5 shall be fulfilled.

5.3.2 Transmitter - Frequency error under multipath and interference conditions

Requirements of ETSI TS 151 010-1 [2], clause 13.2.5 shall be fulfilled.

5.3.3 Transmitter - Frequency error and phase error in HSCSD multislot configuration

Requirements of ETSI TS 151 010-1 [2], clause 13.6.5 shall be fulfilled.

5.3.4 Frequency error and phase error in GPRS multislot configuration

Requirements of ETSI TS 151 010-1 [2], clause 13.16.1.5 shall be fulfilled.

5.3.5 Transmitter output power and burst timing

Requirements of ETSI TS 151 010-1 [2], clause 13.3.5 shall be fulfilled.

5.3.6 Transmitter - Output RF spectrum

Requirements of ETSI TS 151 010-1 [2], clause 13.4.5 shall be fulfilled.

5.3.7 Transmitter output power and burst timing in HSCSD multislot configurations

Requirements of ETSI TS 151 010-1 [2], clause 13.7.5 shall be fulfilled.

5.3.8 Transmitter - Output RF spectrum in HSCSD multislot configuration

Requirements of ETSI TS 151 010-1 [2], clause 13.8.5 shall be fulfilled.

5.3.9 Transmitter - Output RF spectrum for MS supporting the R-GSM or ER-GSM frequency band

Requirements of ETSI TS 151 010-1 [2], clause 13.9.5 shall be fulfilled.

5.3.10 Transmitter output power in GPRS multislot configuration

Requirements of ETSI TS 151 010-1 [2], clause 13.16.2.5 shall be fulfilled.

5.3.11 Output RF spectrum in GPRS multislot configuration

Requirements of ETSI TS 151 010-1 [2], clause 13.16.3.5 shall be fulfilled.

5.3.12 Conducted spurious emissions - MS allocated a channel

Requirements of ETSI TS 151 010-1 [2], clause 12.1.1.5 shall be fulfilled.

5.3.13 Conducted spurious emissions - MS in idle mode

Requirements of ETSI TS 151 010-1 [2], clause 12.1.2.5 shall be fulfilled.

5.3.14 Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel

Requirements of ETSI TS 151 010-1 [2], clause 12.3.1.5 shall be fulfilled.

5.3.15 Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode

Requirements of ETSI TS 151 010-1 [2], clause 12.3.2.5 shall be fulfilled.

5.3.16 Radiated spurious emissions - MS allocated a channel

Requirements of ETSI TS 151 010-1 [2], clause 12.2.1.5 shall be fulfilled.

5.3.17 Radiated spurious emissions - MS in idle mode

Requirements of ETSI TS 151 010-1 [2], clause 12.2.2.5 shall be fulfilled.

5.3.18 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel

Requirements of ETSI TS 151 010-1 [2], clause 12.4.1.5 shall be fulfilled.

5.3.19 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode

Requirements of ETSI TS 151 010-1 [2], clause 12.4.2.5 shall be fulfilled.

5.3.20 Receiver Blocking and spurious response - speech channels

Requirements of ETSI TS 151 010-1 [2], clause 14.7.1.5 shall be fulfilled.

5.3.21 Receiver Blocking and spurious response - speech channels for MS supporting the R-GSM or ER-GSM frequency band

Requirements of ETSI TS 151 010-1 [2], clause 14.7.3.5 shall be fulfilled.

5.3.22 Frequency error and Modulation accuracy in EGPRS Configuration

Requirements of ETSI TS 151 010-1 [2], clause 13.17.1.5 shall be fulfilled.

5.3.23 Frequency error under multipath and interference conditions in EGPRS Configuration

Requirements of ETSI TS 151 010-1 [2], clause 13.17.2.5 shall be fulfilled.

5.3.24 EGPRS Transmitter output power

Requirements of ETSI TS 151 010-1 [2], clause 13.17.3.5 shall be fulfilled.

5.3.25 Output RF spectrum in EGPRS configuration

Requirements of ETSI TS 151 010-1 [2], clause 13.17.4.5 shall be fulfilled.

5.3.26 Blocking and spurious response in EGPRS configuration

Requirements of ETSI TS 151 010-1 [2], clause 14.18.5.5 shall be fulfilled.

5.3.27 Blocking and spurious response in DLMC configuration

Requirements of ETSI TS 151 010-1 [2], clause 14.18.5b.5 shall be fulfilled.

Annex A (normative): HS Requirements and conformance Test specifications Table (HS-RTT)

A.1 Test specification table

The HS Requirements and conformance Test specifications Table (HS-RTT) in table A.1 serves a number of purposes, as follows:

- it provides a statement of all the requirements in words and by cross reference to (a) specific clause(s) in the present document or to (a) specific clause(s) in (a) specific referenced document(s);
- it provides a statement of all the test procedures corresponding to those requirements by cross reference to (a) specific clause(s) in the present document or to (a) specific clause(s) in (a) specific referenced document(s);
- it qualifies each requirement to be either:
  - Unconditional: meaning that the requirement applies in all circumstances; or
  - Conditional: meaning that the requirement is dependent on the manufacturer having chosen to support optional functionality defined within the schedule.
- in the case of Conditional requirements, it associates the requirement with the particular optional service or functionality;
- it qualifies each test procedure to be either:
  - Essential: meaning that it is included with the Essential Radio Test Suite and therefore the requirement shall be demonstrated to be met in accordance with the referenced procedures;
  - Other: meaning that the test procedure is illustrative but other means of demonstrating compliance with the requirement are permitted.

Table A.1: HS Requirements and conformance Test specifications Table (HS-RTT)

Harmonised Standard EN 301 511 The following requirements and test specifications are relevant to the presumption of conformity under the article 3.2 of the R&TTE Directive [i.6]						
Requirement			**Requirement Conditionality**		**Test Specification**	
No	**Description**	**Reference: Clause No**	**U/C**	**Condition**	**E/O**	**Reference: Clause No**
1	Transmitter - Frequency error and phase error	4.2.1	U		E	13.1
2	Transmitter - Frequency error under multipath and interference conditions	4.2.2	U		E	13.2
3	Transmitter - Frequency error and phase error in HSCSD multislot configuration	4.2.3	C	For all HSCSD multislot MS (as defined in table A.2)	E	13.6
4	Frequency error and phase error in GPRS multislot configuration	4.2.4	C	For all GPRS multislot MS (as defined in table A.2)	E	13.16.1
5	Transmitter output power and burst timing	4.2.5	U		E	13.3

Harmonised Standard EN 301 511 The following requirements and test specifications are relevant to the presumption of conformity under the article 3.2 of the R&TTE Directive [i.6]						
Requirement			**Requirement Conditionality**		**Test Specification**	
No	**Description**	**Reference: Clause No**	**U/C**	**Condition**	**E/O**	**Reference: Clause No**
6	Transmitter - Output RF spectrum	4.2.6	C	For all MS except R-GSM or ER-GSM MS (as defined in table A.2)	E	13.4
7	Transmitter output power and burst timing in HSCSD multislot configurations	4.2.7	C	For all HSCSD multislot MS (as defined in table A.2)	E	13.7
8	Transmitter - Output RF spectrum in HSCSD multislot configuration	4.2.8	C	For all HSCSD multislot MS (as defined in table A.2)	E	13.8
9	Transmitter - Output RF spectrum for MS supporting the R-GSM or ER-GSM frequency band	4.2.9	C	For all R-GSM or ER-GSM MS (as defined in table A.2)	E	13.9
10	Transmitter output power in GPRS multislot configuration	4.2.10	C	For all GPRS multislot MS (as defined in table A.2)	E	13.16.2
11	Output RF spectrum in GPRS multislot configuration	4.2.11	C	For all GPRS multislot MS (as defined in table A.2)	E	13.16.3
12	Conducted spurious emissions - MS allocated a channel	4.2.12	C	For all MS with a Permanent Antenna Connector except R-GSM or ER-GSM MS (as defined in tables A.2 and A.3)	E	12.1.1
13	Conducted spurious emissions - MS in idle mode	4.2.13	C	For all MS with a Permanent Antenna Connector except R-GSM or ER-GSM MS (as defined in tables A.2 and A.3)	E	12.1.2
14	Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel	4.2.14	C	For all R-GSM or ER-GSM MS with a Permanent Antenna Connector (as defined in tables A.2 and A.3)	E	12.3.1
15	Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode	4.2.15	C	For all R-GSM or ER-GSM MS - with a Permanent Antenna Connector (as defined in tables A.2 and A.3)	E	12.3.2
16	Radiated spurious emissions - MS allocated a channel	4.2.16	C	For all MS except R-GSM or ER-GSM MS (as defined in table A.2)	E	12.2.1
17	Radiated spurious emissions - MS in idle mode	4.2.17	C	For all MS except R-GSM or ER-GSM MS (as defined in table A.2)	E	12.2.2
18	Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel	4.2.18	C	For all R-GSM or ER-GSM MS (as defined in table A.2)	E	12.4.1

Harmonised Standard EN 301 511 The following requirements and test specifications are relevant to the presumption of conformity under the article 3.2 of the R&TTE Directive [i.6]						
Requirement			**Requirement Conditionality**		**Test Specification**	
No	**Description**	**Reference: Clause No**	**U/C**	**Condition**	**E/O**	**Reference: Clause No**
19	Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode	4.2.19	C	For all R-GSM or ER-GSM MS (as defined in table A.2)	E	12.4.2
20	Receiver Blocking and spurious response - speech channels	4.2.20	C	For all MS supporting Telephony Service except R-GSM or ER-GSM MS (as defined in tables A.2 and A.3)	E	14.7.1
21	Receiver Blocking and spurious response - speech channels for MS supporting the R-GSM or ER-GSM frequency band	4.2.21	C	For all R-GSM or ER-GSM MS supporting Telephony Service (as defined in tables A.2 and A.3)	E	14.7.3
22	Frequency error and Modulation accuracy in EGPRS Configuration	4.2.22	C	For all EGPRS 8PSK Uplink capable MS (as defined in table A.2)	E	13.17.1
23	Frequency error under multipath and interference conditions in EGPRS Configuration	4.2.23	C	For all EGPRS MS (as defined in table A.2)	E	13.17.2
24	EGPRS Transmitter output power	4.2.24	C	For all EGPRS 8PSK Uplink capable MS (as defined in table A.2)	E	13.17.3
25	Output RF spectrum in EGPRS configuration	4.2.25	C	For all EGPRS 8PSK Uplink capable MS (as defined in table A.2)	E	13.17.4
26	Blocking and spurious response in EGPRS configuration	4.2.26	C	For all EGPRS MS (as defined in table A.2)	E	14.18.5
27	Blocking and spurious response in DLMC configuration	4.2.27	C	For all DLMC MS (as defined in table A.2)	E	14.18.5b

Key to columns:

Requirement:

No A unique identifier for one row of the table which may be used to identify a requirement or its test specification.

Description A textual reference to the requirement.

Clause Number Identification of clause(s) defining the requirement in the present document unless another document is referenced explicitly.

Requirement Conditionality:

U/C Indicates whether the requirement is to be *unconditionally* applicable (U) or is *conditional* upon the manufacturers claimed functionality of the equipment (C).

Condition Explains the conditions when the requirement shall or shall not be applicable for a requirement which is classified "conditional".

Test Specification:

E/O Indicates whether the test specification forms part of the Essential Radio Test Suite (E) or whether it is one of the Other Test Suite (O).

NOTE: All tests whether "E" or "O" are relevant to the requirements. Rows designated "E" collectively make up the Essential Radio Test Suite; those designated "O" make up the Other Test Suite; for those designated "X" there is no test specified corresponding to the requirement. The completion of all tests classified "E" as specified with satisfactory outcomes is a necessary condition for a presumption of conformity. Compliance with requirements associated with tests classified "O" or "X" is a necessary condition for presumption of conformity, although conformance with the requirement may be claimed by an equivalent test or by manufacturer's assertion supported by appropriate entries in the technical construction file.

Clause Number Identification of clause(s) defining the test specification in the present document unless another document is referenced explicitly. Where no test is specified (that is, where the previous field is "X") this field remains blank.

A.2 Type of Mobile Stations

Table A.2: Type of Mobile Station

Item	Type of Mobile Station	Ref.	Status	Support	Mnemonic
1	HSCSD Multislot MS	ETSI TS 100 908 [19] to [22], clause B.1; ETSI TS 145 002 [23], clause B.1	O		Type_HSCSD_Multislot
2	R-GSM MS	ETSI TS 100 910 [25] to [28], clause 2; ETSI TS 145 005 [29], clause 2	O		Type_R-GSM
3	Support of GPRS Multislot class on the uplink	ETSI TS 100 908 [20] to [22], clause B.1; ETSI TS 145 002 [23], clause B.1	O		Type_GPRS_Multislot_uplink
4	EGPRS	ETSI TS 122 060 [12] and [13]	O		Type_EGPRS
5	EGPRS capable of 8PSK in Uplink, of all Multislot classes	ETSI TS 101 349 [16], clause 11.2.5a; ETSI TS 144 060 [17], clause 11.2.5a	O		Type_EGPRS_8PSK_uplink
6	ER-GSM MS	ETSI TS 145 005 [29], clause 2	O		Type_ER-GSM
7	DLMC MS	ETSI TS 144 060 [17], clause 5	O		Type_DLMC

Key to columns:

No A unique identifier for one row of the table which may be used to identify a requirement or its test specification.

Type of Mobile station A textual definition of the Mobile station.

Status Status of the entry as follows:

M Mandatory, shall be implemented under all circumstances;

O Optional, may be provided, but if provided shall be implemented in accordance with the requirements;

O.<n> this status is used for mutually exclusive or selectable options among a set. The integer "n" shall refer to a unique group of options within the EN-RT. A footnote to the EN-RT shall explicitly state what the requirement is for each numbered group. For example, "It is mandatory to support at least one of these options", or, "It is mandatory to support exactly one of these options".

C<n> Conditional number <n>. Reference is made to a Boolean expression under the table with predicates of support answers, which will resolve to either "M", "X", "N", or "O.<n>" for a specific implementation. In all cases "ELSE Not Applicable" is implied, if an ELSE expression is omitted. Expressions such a A.x/y refer to item "y" in table A.x.

N/A Not applicable.

X Excluded or Prohibited.

Mnemonic Mnemonic identifiers for each item.

A.3 Additional Information

Table A.3: Additional information

Item	Additional Information	Ref.	Status	Support	Mnemonic
1	Telephony.	ETSI ETS 300 905 [5], clause A.1.1; ETSI TS 100 905 [6] and [7], clause A.1.1; ETSI TS 122 003 [8] and [9], clause A.1.1	O		TSPC_Serv_TS11
2	Permanent Antenna Connector.	ETSI TS 151 010-1 [2], clauses 12.1.1 and 12.1.2	O		TSPC_AddInfo_PermAntenna

Key to columns:

No A unique identifier for one row of the table which may be used to identify a requirement or its test specification.

Additional Information A textual definition of the Mobile station.

Status Status of the entry as follows:

M Mandatory, shall be implemented under all circumstances;

O Optional, may be provided, but if provided shall be implemented in accordance with the requirements;

O.<n> this status is used for mutually exclusive or selectable options among a set. The integer "n" shall refer to a unique group of options within the EN-RT. A footnote to the EN-RT shall explicitly state what the requirement is for each numbered group. For example, "It is mandatory to support at least one of these options", or, "It is mandatory to support exactly one of these options";

C<n> Conditional number <n>. Reference is made to a Boolean expression under the table with predicates of support answers, which will resolve to either "M", "X", "N", or "O.<n>" for a specific implementation. In all cases "ELSE Not Applicable" is implied, if an ELSE expression is omitted. Expressions such a A.x/y refer to item "y" in table A.x;

N/A Not applicable;

X Excluded or Prohibited.

Mnemonic Mnemonic identifiers for each item.

Annex B (informative): Change history

Date	Version	Comments
February 99	1.0.0	Presented at SMG #28 for information
August 99	1.0.1	Changes approved at SMG7 #22
September 99	1.1.0	Adapted to R&TTE Steering Committee HS proforma
January 00	1.1.1	Selection of test cases for Phase 2. Addition of sections for Phase 2+. Phase 2+ test cases are for further study
February 00	1.1.5	Editorial reorganization to comply with proforma and with latest proforma sentences by STF 149
April 00	1.1.6	References update and editorial modifications
May 00	1.1.7	Edited during SMG7#25
June 00	1.1.8	Electronically approved by SMG7
June 00	2.0.0	Presented for approval at SMG #32
June 00	7.0.0	Approved at SMG #32
December 00	7.0.1	Update to Version 7.0.1 for Publication
September 02	9.0.0	Update to Version 9.0.0 for MSG Approval. All requirements up to and including Rel-4 requirements are included
October 02	9.0.2	Approval at MSG #5
June 14	12.1.1_9.1.0	Early draft presented at MSG#40 adding ER-GSM
October 14	12.1.1_9.1.2	New draft based on latest HS skeleton presented at MSG#41
December 14	12.1.1_9.1.3	New draft based on EditHelp inputs

History

Document history		
V7.0.1	December 2000	Publication
V9.0.2	March 2003	Publication
V12.0.0	February 2015	EN Approval Procedure AP 20150610: 2015-02-10 to 2015-06-10
V12.1.1	June 2015	Publication