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**Global System for Mobile communications (GSM);  
Mobile Stations (MS) equipment;  
Harmonised Standard covering the essential requirements  
of article 3.2 of Directive 2014/53/EU**

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# Contents

Intellectual Property Rights .....	6
Foreword.....	6
Modal verbs terminology.....	6
Introduction .....	6
1 Scope .....	7
2 References .....	8
2.1 Normative references .....	8
2.2 Informative references.....	8
3 Definitions and abbreviations.....	9
3.1 Definitions.....	9
3.2 Abbreviations .....	10
4 Technical requirements specifications .....	10
4.1 Environmental profile.....	10
4.2 Conformance requirements .....	10
4.2.0 Introduction.....	10
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 .....	13
4.2.4 Frequency error and phase error in GPRS multislot configuration.....	13
4.2.5 Transmitter output power and burst timing.....	13
4.2.6 Transmitter - Output RF spectrum .....	13
4.2.7 Transmitter output power and burst timing in HSCSD multislot configurations.....	13
4.2.8 Transmitter - Output RF spectrum in HSCSD multislot configuration.....	13
4.2.9 Transmitter - Output RF spectrum for MS supporting the R-GSM or ER-GSM frequency band .....	13
4.2.10 Transmitter output power in GPRS multislot configuration .....	13
4.2.11 Output RF spectrum in GPRS multislot configuration .....	13
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 .....	14
4.2.16 Radiated spurious emissions - MS allocated a channel .....	14
4.2.17 Radiated spurious emissions - MS in idle mode .....	14
4.2.18 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel.....	14
4.2.19 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode .....	14
4.2.20 Receiver Blocking and spurious response - speech channels .....	14
4.2.21 Receiver Blocking and spurious response - speech channels for MS supporting the R-GSM or ER-GSM frequency band.....	14
4.2.22 Improved Receiver Blocking and spurious response - speech channels for 8W MS supporting the R-GSM or ER-GSM frequency band.....	14
4.2.23 Improved Receiver Blocking and spurious response - speech channels for 2W MS supporting the R-GSM or ER-GSM frequency band.....	14
4.2.24 Improved Receiver Blocking and spurious response - control channels for 8W MS supporting the R-GSM or ER-GSM frequency band not supporting speech.....	14
4.2.25 Improved Receiver Blocking and spurious response - control channels for 2W MS supporting the R-GSM or ER-GSM frequency band not supporting speech.....	15
4.2.26 Frequency error and Modulation accuracy in EGPRS Configuration.....	15
4.2.27 Frequency error under multipath and interference conditions in EGPRS Configuration.....	15
4.2.28 EGPRS Transmitter output power .....	15
4.2.29 Output RF spectrum in EGPRS configuration .....	15
4.2.30 Blocking and spurious response in EGPRS configuration.....	15

4.2.31	Blocking and spurious response in DLMC configuration.....	15
4.2.32	Intermodulation rejection - speech channels.....	15
4.2.33	Intermodulation rejection - control channels .....	15
4.2.34	Intermodulation rejection - EGPRS .....	15
4.2.35	AM suppression - speech channels.....	15
4.2.36	AM suppression - control channels.....	15
4.2.37	AM suppression - packet channels .....	15
4.2.38	Adjacent channel rejection - speech channels (TCH/FS).....	16
4.2.39	Adjacent channel rejection - control channels .....	16
4.2.40	Adjacent channel rejection - EGPRS .....	16
4.2.41	Adjacent channel rejection in DLMC configuration.....	16
4.2.42	Reference sensitivity - TCH/FS .....	16
4.2.43	Reference sensitivity - FACCH/F.....	16
4.2.44	Minimum Input level for Reference Performance - GPRS .....	16
4.2.45	Minimum Input level for Reference Performance - EGPRS.....	16
4.2.46	Reference sensitivity - TCH/FS for MS supporting the R-GSM or ER-GSM band .....	16
5	Testing for compliance with technical requirements.....	16
5.1	Environmental conditions for testing .....	16
5.2	Interpretation of the measurement results .....	17
5.3	Essential radio test suites.....	17
5.3.1	Transmitter - Frequency error and phase error .....	17
5.3.2	Transmitter - Frequency error under multipath and interference conditions .....	17
5.3.3	Transmitter - Frequency error and phase error in HSCSD multislot configuration .....	17
5.3.4	Frequency error and phase error in GPRS multislot configuration.....	17
5.3.5	Transmitter output power and burst timing.....	17
5.3.6	Transmitter - Output RF spectrum.....	17
5.3.7	Transmitter output power and burst timing in HSCSD multislot configurations.....	17
5.3.8	Transmitter - Output RF spectrum in HSCSD multislot configuration.....	17
5.3.9	Transmitter - Output RF spectrum for MS supporting the R-GSM or ER-GSM frequency band .....	18
5.3.10	Transmitter output power in GPRS multislot configuration .....	18
5.3.11	Output RF spectrum in GPRS multislot configuration .....	18
5.3.12	Conducted spurious emissions - MS allocated a channel .....	18
5.3.13	Conducted spurious emissions - MS in idle mode .....	18
5.3.14	Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel.....	18
5.3.15	Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode .....	18
5.3.16	Radiated spurious emissions - MS allocated a channel .....	18
5.3.17	Radiated spurious emissions - MS in idle mode .....	18
5.3.18	Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel.....	18
5.3.19	Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode .....	18
5.3.20	Receiver Blocking and spurious response - speech channels .....	18
5.3.21	Receiver Blocking and spurious response - speech channels for MS supporting the R-GSM or ER-GSM frequency band.....	19
5.3.22	Improved Receiver Blocking and spurious response - speech channels for 8W MS supporting the R-GSM or ER-GSM frequency band.....	19
5.3.23	Improved Receiver Blocking and spurious response - speech channels for 2W MS supporting the R-GSM or ER-GSM frequency band.....	19
5.3.24	Improved Receiver Blocking and spurious response - control channels for 8W MS supporting the R-GSM or ER-GSM frequency band not supporting speech.....	19
5.3.25	Improved Receiver Blocking and spurious response - control channels for 2W MS supporting the R-GSM or ER-GSM frequency band not supporting speech.....	19
5.3.26	Frequency error and Modulation accuracy in EGPRS Configuration.....	19
5.3.27	Frequency error under multipath and interference conditions in EGPRS Configuration.....	19
5.3.28	EGPRS Transmitter output power .....	19
5.3.29	Output RF spectrum in EGPRS configuration.....	19
5.3.30	Blocking and spurious response in EGPRS configuration.....	19
5.3.31	Blocking and spurious response in DLMC configuration.....	19
5.3.32	Intermodulation rejection - speech channels.....	20

5.3.33	Intermodulation rejection - speech channels.....	20
5.3.34	Intermodulation rejection - EGPRS .....	20
5.3.35	AM suppression - speech channels .....	20
5.3.36	AM suppression - control channels.....	20
5.3.37	AM suppression - packet channels .....	20
5.3.38	Adjacent channel rejection - speech channels (TCH/FS).....	20
5.3.39	Adjacent channel rejection - control channels .....	20
5.3.40	Adjacent channel rejection - EGPRS .....	20
5.3.41	Adjacent channel rejection in DLMC configuration.....	20
5.3.42	Reference sensitivity - TCH/FS .....	20
5.3.43	Reference sensitivity - FACCH/F.....	20
5.3.44	Minimum Input level for Reference Performance - GPRS .....	20
5.3.45	Minimum Input level for Reference Performance - EGPRS.....	20
5.3.46	Reference sensitivity - TCH/FS for MS supporting the R-GSM or ER-GSM band .....	21
<b>Annex A (informative):</b>	<b>Relationship between the present document and the essential requirements of Directive 2014/53/EU .....</b>	<b>22</b>
A.1	Requirement Table .....	22
<b>Annex B (informative):</b>	<b>Type of Mobile Stations.....</b>	<b>25</b>
<b>Annex C (informative):</b>	<b>Additional information.....</b>	<b>26</b>
<b>Annex D (informative):</b>	<b>Change history .....</b>	<b>27</b>
History .....		28

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## Foreword

This draft Harmonised European Standard (EN) has been produced by ETSI Technical Committee Mobile Standards Group (MSG), and is now submitted for the combined Public Enquiry and Vote phase of the ETSI standards EN Approval Procedure.

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.10] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [i.9].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in table A.1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

<b>Proposed national transposition dates</b>	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
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## 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).

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## Introduction

The present document is part of a set of standards developed by ETSI that are designed to fit in a modular structure to cover radio equipment within the scope of the Radio Equipment Directive [i.9]. The present document is produced following the guidance in ETSI EG 203 336 [i.12] as applicable.

# 1 Scope

The present document specifies technical characteristics and methods of measurements for the following radio equipment type:

- 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
<b>P-GSM 900</b>	890 MHz to 915 MHz	935 MHz to 960 MHz
<b>GSM 1800</b>	1 710 MHz to 1 785 MHz	1 805 MHz to 1 880 MHz
<b>E-GSM 900</b>	880 MHz to 915 MHz	925 MHz to 960 MHz
<b>R-GSM 900</b>	876 MHz to 915 MHz	921 MHz to 960 MHz
<b>ER-GSM 900</b>	873 MHz to 915 MHz	918 MHz to 960 MHz

The present document covers the essential requirements of article 3.2 of Directive 2014/53/EU [i.9] under the conditions identified in annex A.

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 Radio Equipment Directive [i.9] 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.

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## 2 References

### 2.1 Normative references

References are specific, identified by date of publication and/or edition number or version number. Only the cited version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://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 (V12.8.0) (05-2016): "Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformance specification; Part 1: Conformance specification (3GPP TS 51.010-1 version 12.8.0 Release 12)".
- [3] Void.
- [4] ETSI TS 102 933-2 (V2.1.1) (06-2015): "Railway Telecommunications (RT); GSM-R improved Receiver parameters; Part 2: Radio conformance testing".

### 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 referenced 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] ETSI TS 102 933-1 (V2.1.1) (06-2015): "Railway Telecommunications (RT); GSM-R improved Receiver parameters; Part 1: Requirements for radio reception".
- [i.2] 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)".
- [i.3] 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)".
- [i.4] 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)".
- [i.5] 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)".
- [i.6] 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)".



- [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] Void.
- [i.9] Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.
- [i.10] Commission Implementing Decision C(2015) 5376 final of 4.8.2015 on a standardisation request to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council.
- [i.11] ETSI TR 100 028-2: "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics Part 2".
- [i.12] ETSI EG 203 336: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Guide for the selection of technical parameters for the production of Harmonised Standards covering article 3.1(b) and article 3.2 of Directive 2014/53/EU".
- [i.13] 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)".
- [i.14] 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)".
- [i.15] 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)".
- [i.16] ETSI TS 100 910 (V8.20.0) (11-2005): "Digital cellular telecommunications system (Phase 2+); Radio Transmission and Reception (3GPP TS 05.05 version 8.20.0 Release 1999)".
- [i.17] ETSI TS 145 005 (V12.5.0) (04-2015): "Digital cellular telecommunications system (Phase 2+); Radio transmission and reception (3GPP TS 45.005 version 12.5.0 Release 12)".
- [i.18] 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)".

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## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TR 121 905 [i.18] 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:** P-GSM, E-GSM and R-GSM band unless otherwise specified,

**GSM:** GSM 400, GSM 900, ER-GSM 900 and DCS 1800 band unless otherwise specified

**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:

AM	Amplitude Modulation
DLMC	Downlink Multi-Carrier
ECSD	Enhanced Circuit Switched Data
EGPRS	Enhanced GPRS
ER-GSM	Extended Railways GSM
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
HSCSD	High Speed Circuit Switched Data
MS	Mobile Station which includes a GSM radio part
RF	Radio Frequency
RX	Reception
TCH/FS	Traffic CHannel for Full rate Speech
TDMA	Time Division Multiple Access
TX	Transmission

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## 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 manufacturer. The equipment shall comply with all the technical requirements of the present document which are identified as applicable in annex A at all times when operating within the boundary limits of the required operational environmental profile.

### 4.2 Conformance requirements

#### 4.2.0 Introduction

The present document contains all requirements that are needed for terminals to meet the essential requirement as defined in the Directive 2014/53/EU [i.9], 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.

To meet the essential requirement under article 3.2 of Directive 2014/53/EU [i.9], a set of essential parameters have been identified. Table 2 provides a cross reference between these essential parameters and the corresponding technical requirements for equipment within the scope of the present document.

Table 2: Essential parameters and corresponding technical requirements and test suites

Essential parameters	Corresponding technical requirements	Corresponding test suites
Transmitter spectrum mask	4.2.6 Transmitter - Output RF spectrum	5.3.6
Transmitter unwanted emissions in the out of band domain	4.2.7 Transmitter output power and burst timing in HSCSD multislots configurations	5.3.7
	4.2.8 Transmitter - Output RF spectrum in HSCSD multislots configuration	5.3.8
	4.2.9 Transmitter - Output RF spectrum for MS supporting the R-GSM or ER-GSM frequency band	5.3.9
	4.2.11 Output RF spectrum in GPRS multislots configuration	5.3.11
	4.2.29 Output RF spectrum in EGPRS configuration	5.3.29
Transmitter unwanted emissions in the spurious domain	4.2.12 Conducted spurious emissions - MS allocated a channel	5.3.12
	4.2.13 Conducted spurious emissions - MS in idle mode	5.3.13 5.3.14
	4.2.14 Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel	5.3.15
	4.2.15 Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode	5.3.16
	4.2.16 Radiated spurious emissions - MS allocated a channel	5.3.17
	4.2.17 Radiated spurious emissions - MS in idle mode	5.3.18
	4.2.18 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS allocated a channel	5.3.19
	4.2.19 Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band - MS in idle mode	
Transmitter power limits	4.2.5 Transmitter output power and burst timing	5.3.5
	4.2.10 Transmitter output power in GPRS multislots configuration	5.3.10
Transmitter power accuracy	4.2.28 EGPRS Transmitter output power	5.3.28
Transmitter frequency stability	4.2.1 Transmitter - Frequency error and phase error	5.3.1
	4.2.2 Transmitter - Frequency error under multipath and interference conditions	5.3.2
	4.2.3 Transmitter - Frequency error and phase error in HSCSD multislots configuration	5.3.3
	4.2.4 Frequency error and phase error in GPRS multislots configuration	5.3.4
	4.2.26 Frequency error and Modulation accuracy in EGPRS Configuration	5.3.26
	4.2.27 Frequency error under multipath and interference conditions in EGPRS Configuration	5.3.27

Essential parameters	Corresponding technical requirements	Corresponding test suites
Receiver unwanted emissions in the spurious domain	4.2.20 Receiver Blocking and spurious response - speech channels	5.3.20
Receiver blocking	4.2.21 Receiver Blocking and spurious response - speech channels for MS supporting the R-GSM or ER-GSM frequency band	5.3.21
Receiver spurious response rejection	4.2.22 Improved Receiver Blocking and spurious response - speech channels for 8W MS supporting the R-GSM or ER-GSM frequency band	5.3.22
Desensitization	4.2.23 Improved Receiver Blocking and spurious response - speech channels for 2W MS supporting the R-GSM or ER-GSM frequency band	5.3.23
	4.2.24 Improved Receiver Blocking and spurious response - control channels for 8W MS supporting the R-GSM or ER-GSM frequency band not supporting speech	5.3.24
	4.2.25 Improved Receiver Blocking and spurious response - control channels for 2W MS supporting the R-GSM or ER-GSM frequency band not supporting speech	5.3.25
	4.2.30 Blocking and spurious response in EGPRS configuration	5.3.30
	4.2.31 Blocking and spurious response in DLCC configuration	5.3.31
Receiver intermodulation	4.2.32 Intermodulation rejection - speech channels	5.3.32
	4.2.33 Intermodulation rejection - speech channels	5.3.33
	4.2.34 Intermodulation rejection - EGPRS	5.3.34
	4.2.35 AM suppression - speech channels	5.3.35
	4.2.36 AM suppression - control channels	5.3.36
	4.2.37 AM suppression - packet channels	5.3.37
	Receiver adjacent channel signal selectivity	4.2.38 Adjacent channel rejection - speech channels (TCH/FS)
4.2.39 Adjacent channel rejection - control channels		5.3.39
4.2.40 Adjacent channel rejection - EGPRS		5.3.40
4.2.41 Adjacent channel rejection in DLCC configuration		5.3.41
Receiver sensitivity	4.2.42 Reference sensitivity - TCH/FS	5.3.42
Antenna	4.2.43 Reference sensitivity - FACCH/F	5.3.43
	4.2.44 Minimum Input level for Reference Performance - GPRS	5.3.44
	4.2.45 Minimum Input level for Reference Performance - EGPRS	5.3.45
	4.2.46 Reference sensitivity - TCH/FS for MS supporting the R-GSM or ER-GSM band	5.3.46

Unless otherwise stated, the transmitter and receiver characteristics are specified at the antenna connector(s) of the MS. For MS(s) with an integral antenna only, a reference antenna(s) with a gain of 0 dBi should be assumed for each antenna port(s). An MS with integral antenna(s) may be taken into account by converting these power levels into field strength requirements, assuming a 0 dBi gain antenna.

#### 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 multislots 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 multislots 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 multislots 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 multislots 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 multislots 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 multislots 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 Improved Receiver Blocking and spurious response - speech channels for 8W MS supporting the R-GSM or ER-GSM frequency band

Clauses 4.2.1 and 4.3.1 of ETSI TS 102 933-2 [4] shall apply.

#### 4.2.23 Improved Receiver Blocking and spurious response - speech channels for 2W MS supporting the R-GSM or ER-GSM frequency band

Clauses 5.2.1 and 5.3.1 of ETSI TS 102 933-2 [4] shall apply.

#### 4.2.24 Improved Receiver Blocking and spurious response - control channels for 8W MS supporting the R-GSM or ER-GSM frequency band not supporting speech

Clauses 4.2.2 and 4.3.2 of ETSI TS 102 933-2 [4] shall apply.

#### 4.2.25 Improved Receiver Blocking and spurious response - control channels for 2W MS supporting the R-GSM or ER-GSM frequency band not supporting speech

Clauses 5.2.2 and 5.3.2 of ETSI TS 102 933-2 [4] shall apply.

#### 4.2.26 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.

#### 4.2.27 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.

#### 4.2.28 EGPRS Transmitter output power

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

#### 4.2.29 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.

#### 4.2.30 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.

#### 4.2.31 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.

#### 4.2.32 Intermodulation rejection - speech channels

Clause 14.6.1 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.33 Intermodulation rejection - control channels

Clause 14.6.2 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.34 Intermodulation rejection - EGPRS

Clause 14.18.4 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.35 AM suppression - speech channels

Clause 14.8.1 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.36 AM suppression - control channels

Clause 14.8.1 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.37 AM suppression - packet channels

Clause 14.8.3 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.38 Adjacent channel rejection - speech channels (TCH/FS)

Clause 14.5.1.1 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.39 Adjacent channel rejection - control channels

Clause 14.5.2 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.40 Adjacent channel rejection - EGPRS

Clause 14.18.3 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.41 Adjacent channel rejection in DLMC configuration

Clause 14.18.3d of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.42 Reference sensitivity - TCH/FS

Clause 14.2.1 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.43 Reference sensitivity - FACCH/F

Clause 14.2.3 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.44 Minimum Input level for Reference Performance - GPRS

Clause 14.16.1 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.45 Minimum Input level for Reference Performance - EGPRS

Clause 14.18.1 of ETSI TS 151 010-1 [2] shall apply.

#### 4.2.46 Reference sensitivity - TCH/FS for MS supporting the R-GSM or ER-GSM band

Clause 14.2.9 of ETSI TS 151 010-1 [2] shall apply.

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## 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 less 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)  $k = 1,96$  or  $k = 2$  (which provide confidence levels of respectively 95 % and 95,45 % 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 the ETSI TR 100 028-2 [i.11].

## 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 multislots 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 multislots 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 multislots 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 multislots 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 multislots 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 multislots 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 Improved Receiver Blocking and spurious response - speech channels for 8W MS supporting the R-GSM or ER-GSM frequency band

Requirements of ETSI TS 102 933-2 [4], clauses 4.2.1 and 4.3.1 shall be fulfilled.

### 5.3.23 Improved Receiver Blocking and spurious response - speech channels for 2W MS supporting the R-GSM or ER-GSM frequency band

Requirements of ETSI TS 102 933-2 [4], clauses 5.2.1 and 5.3.1 shall be fulfilled.

### 5.3.24 Improved Receiver Blocking and spurious response - control channels for 8W MS supporting the R-GSM or ER-GSM frequency band not supporting speech

Requirements of ETSI TS 102 933-2 [4], clauses 4.2.2 and 4.3.2 shall be fulfilled.

### 5.3.25 Improved Receiver Blocking and spurious response - control channels for 2W MS supporting the R-GSM or ER-GSM frequency band not supporting speech

Requirements of ETSI TS 102 933-2 [4], clauses 5.2.2 and 5.3.2 shall be fulfilled.

### 5.3.26 Frequency error and Modulation accuracy in EGPRS Configuration

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

### 5.3.27 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.

### 5.3.28 EGPRS Transmitter output power

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

### 5.3.29 Output RF spectrum in EGPRS configuration

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

### 5.3.30 Blocking and spurious response in EGPRS configuration

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

### 5.3.31 Blocking and spurious response in DLMC configuration

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

### 5.3.32 Intermodulation rejection - speech channels

Requirements of ETSI TS 151 010-1 [2], clause 14.6.1.5 shall be fulfilled.

### 5.3.33 Intermodulation rejection - speech channels

Requirements of ETSI TS 151 010-1 [2], clause 14.6.1.5 shall be fulfilled.

### 5.3.34 Intermodulation rejection - EGPRS

Requirements of ETSI TS 151 010-1 [2], clause 14.18.4.5 shall be fulfilled.

### 5.3.35 AM suppression - speech channels

Requirements of ETSI TS 151 010-1 [2], clause 14.8.1.5 shall be fulfilled.

### 5.3.36 AM suppression - control channels

Requirements of ETSI TS 151 010-1 [2], clause 14.8.2.5 shall be fulfilled.

### 5.3.37 AM suppression - packet channels

Requirements of ETSI TS 151 010-1 [2], clause 14.8.3.5 shall be fulfilled.

### 5.3.38 Adjacent channel rejection - speech channels (TCH/FS)

Requirements of ETSI TS 151 010-1 [2], clause 14.5.1.1.5 shall be fulfilled.

### 5.3.39 Adjacent channel rejection - control channels

Requirements of ETSI TS 151 010-1 [2], clause 14.5.2.5 shall be fulfilled.

### 5.3.40 Adjacent channel rejection - EGPRS

Requirements of ETSI TS 151 010-1 [2], clause 14.18.3.5 shall be fulfilled.

### 5.3.41 Adjacent channel rejection in DLMC configuration

Requirements of ETSI TS 151 010-1 [2], clause 14.18.3d.5 shall be fulfilled.

### 5.3.42 Reference sensitivity - TCH/FS

Requirements of ETSI TS 151 010-1 [2], clause 14.2.1.5 shall be fulfilled.

### 5.3.43 Reference sensitivity - FACCH/F

Requirements of ETSI TS 151 010-1 [2], clause 14.2.3.5 shall be fulfilled.

### 5.3.44 Minimum Input level for Reference Performance - GPRS

Requirements of ETSI TS 151 010-1 [2], clause 14.16.1.5 shall be fulfilled.

### 5.3.45 Minimum Input level for Reference Performance - EGPRS

Requirements of ETSI TS 151 010-1 [2], clause 14.18.1.5 shall be fulfilled.

### 5.3.46 Reference sensitivity - TCH/FS for MS supporting the R-GSM or ER-GSM band

Requirements of ETSI TS 151 010-1 [2], clause 14.2.9.5 shall be fulfilled.

# Annex A (informative): Relationship between the present document and the essential requirements of Directive 2014/53/EU

## A.1 Requirement Table

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.10] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [i.9].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in table A.1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

**Table A.1: Relationship between the present document and the essential requirements of Directive 2014/53/EU**

Harmonised Standard ETSI EN 301 511				
Requirement			Requirement Conditionality	
No	Description	Reference: Clause No	U/C	Condition
1	Transmitter - Frequency error and phase error	4.2.1	U	
2	Transmitter - Frequency error under multipath and interference conditions	4.2.2	U	
3	Transmitter - Frequency error and phase error in HSCSD multislot configuration	4.2.3	C	For all HSCSD multislot MS (as defined in table B.1)
4	Frequency error and phase error in GPRS multislot configuration	4.2.4	C	For all GPRS multislot MS (as defined in table B.1)
5	Transmitter output power and burst timing	4.2.5	U	
6	Transmitter - Output RF spectrum	4.2.6	C	For all MS except R-GSM or ER-GSM MS (as defined in table B.1)
7	Transmitter output power and burst timing in HSCSD multislot configurations	4.2.7	C	For all HSCSD multislot MS (as defined in table B.1)
8	Transmitter - Output RF spectrum in HSCSD multislot configuration	4.2.8	C	For all HSCSD multislot MS (as defined in table B.1)
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 B.1)
10	Transmitter output power in GPRS multislot configuration	4.2.10	C	For all GPRS multislot MS (as defined in table B.1)
11	Output RF spectrum in GPRS multislot configuration	4.2.11	C	For all GPRS multislot MS (as defined in table B.1)
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 B.1 and C.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 B.1 and C.1)
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 B.1 and C.1)

Harmonised Standard ETSI EN 301 511				
Requirement			Requirement Conditionality	
No	Description	Reference: Clause No	U/C	Condition
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 B.1 and C.1)
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 B.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 B.1)
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 B.1)
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 B.1)
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 or Improved Receiver R-GSM MS/ER-GSM MS (as defined in tables B.1 and C.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 except Improved Receiver R-GSM MS/ER-GSM MS (as defined in tables B.1 and C.1)
22	Improved Receiver Blocking and spurious response - speech channels for 8W MS supporting the R-GSM or ER-GSM frequency band	4.2.22	C	For 8W Improved Receiver R-GSM MS/ER-GSM MS with a Permanent Antenna Connector supporting Telephony Service (as defined in tables B.1 and C.1)
23	Improved Receiver Blocking and spurious response - speech channels for 2W MS supporting the R-GSM or ER-GSM frequency band	4.2.23	C	For 2W Improved Receiver R-GSM MS/ER-GSM MS Handheld stations with Integrated Antenna supporting Telephony Service (as defined in tables B.1 and C.1)
24	Improved Receiver Blocking and spurious response - control channels for 8W MS supporting the R-GSM or ER-GSM frequency band not supporting speech	4.2.24	C	For 8W Improved Receiver R-GSM MS/ER-GSM MS with a Permanent Antenna Connector not supporting Telephony Service (as defined in tables B.1 and C.1)
25	Improved Receiver Blocking and spurious response - control channels for 2W MS supporting the R-GSM or ER-GSM frequency band not supporting speech	4.2.25	C	For 2W Improved Receiver R-GSM MS/ER-GSM MS Handheld stations with Integrated Antenna not supporting Telephony Service (as defined in tables B.1 and C.1)
26	Frequency error and Modulation accuracy in EGPRS Configuration	4.2.26	C	For all EGPRS 8PSK Uplink capable MS (as defined in table B.1)
27	Frequency error under multipath and interference conditions in EGPRS Configuration	4.2.27	C	For all EGPRS MS (as defined in table B.1)
28	EGPRS Transmitter output power	4.2.28	C	For all EGPRS 8PSK Uplink capable MS (as defined in table B.1)
29	Output RF spectrum in EGPRS configuration	4.2.29	C	For all EGPRS 8PSK Uplink capable MS (as defined in table B.1)
30	Blocking and spurious response in EGPRS configuration	4.2.30	C	For all EGPRS MS (as defined in table B.1)
31	Blocking and spurious response in DLMC configuration	4.2.31	C	For all DLMC MS (as defined in table B.1)
32	Intermodulation rejection - speech channels	4.2.32	C	For all MS supporting Telephony Service (as defined in table C.1)
33	Intermodulation rejection - control channels	4.2.33	C	For all MS not supporting Telephony Service (as defined in table C.1)
34	Intermodulation rejection - EGPRS	4.2.34	C	For all EGPRS MS (as defined in table B.1)
35	AM suppression - speech channels	4.2.35	C	For all MS supporting Telephony Service (as defined in table C.1)
36	AM suppression - control channels	4.2.36	C	For all MS not supporting Telephony Service (as defined in table C.1)

Harmonised Standard ETSI EN 301 511				
Requirement			Requirement Conditionality	
No	Description	Reference: Clause No	U/C	Condition
37	AM suppression - packet channels	4.2.37	C	For all EGPRS not supporting Telephony Service (as defined in tables B.1 and C.1)
38	Adjacent channel rejection - speech channels (TCH/FS)	4.2.38	C	For all MS supporting Telephony Service (as defined in table C.1)
39	Adjacent channel rejection - control channels	4.2.39	C	For all MS not supporting Telephony Service (as defined in table C.1)
40	Adjacent channel rejection - EGPRS	4.2.40	C	For all EGPRS MS (as defined in table B.1)
41	Adjacent channel rejection in DLCC configuration	4.2.41	C	For all DLCC MS (as defined in table B.1)
42	Reference sensitivity - TCH/FS	4.2.42	C	For all MS supporting Telephony Service except R-GSM or ER-GSM MS (as defined in tables B.1 and C.1)
43	Reference sensitivity - FACCH/F	4.2.43	C	For all MS supporting Telephony Service except R-GSM or ER-GSM MS (as defined in tables B.1 and C.1)
44	Minimum Input level for Reference Performance - GPRS	4.2.44	C	For all GPRS MS (as defined in table B.1)
45	Minimum Input level for Reference Performance - EGPRS	4.2.45	C	For all EGPRS MS (as defined in table B.1)
46	Reference sensitivity - TCH/FS for MS supporting the R-GSM or ER-GSM band	4.2.46	C	For all R-GSM or ER-GSM MS supporting Telephony Service (as defined in tables B.1 and C.1)

#### Key to columns:

##### Requirement:

- No** A unique identifier for one row of the table which may be used to identify a requirement.
- 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 unconditionally applicable (U) or is conditional upon the manufacturer's claimed functionality of the equipment (C).
- Condition** Explains the conditions when the requirement is or is not applicable for a requirement which is classified "conditional".

Presumption of conformity stays valid only as long as a reference to the present document is maintained in the list published in the Official Journal of the European Union. Users of the present document should consult frequently the latest list published in the Official Journal of the European Union.

Other Union legislation may be applicable to the product(s) falling within the scope of the present document.



## Annex B (informative): Type of Mobile Stations

Table B.1 lists the different types of mobile stations.

**Table B.1: Type of Mobile Station**

Item	Type of Mobile Station	Ref.	Mnemonic
1	HSCSD Multislot MS	ETSI TS 100 908 [i.13], clause B.1; ETSI TS 145 002 [i.14], clause B.1	Type_HSCSD_Multislot
2	R-GSM MS	ETSI TS 100 910 [i.16], clause 2; ETSI TS 145 005 [i.17], clause 2	Type_R-GSM
3	Support of GPRS Multislot class on the uplink	ETSI TS 100 908 [i.13], clause B.1; ETSI TS 145 002 [i.14], clause B.1	Type_GPRS_Multislot_uplink
4	EGPRS	ETSI TS 122 060 [i.3]	Type_EGPRS
5	EGPRS capable of 8PSK in Uplink, of all Multislot classes	ETSI TS 101 349 [i.6], clause 11.2.5a; ETSI TS 144 060 [i.15], clause 11.2.5a	Type_EGPRS_8PSK_uplink
6	ER-GSM MS	ETSI TS 145 005 [i.17], clause 2	Type_ER-GSM
7	DLMC MS	ETSI TS 144 060 [i.15], clause 5	Type_DLMC
8	8W Improved Receiver R-GSM MS/ER-GSM MS	ETSI TS 102 933-1 [i.1], clauses 4 and 5	Type_8W_Improved_Receiver
9	2W Improved Receiver R-GSM MS/ER-GSM MS	ETSI TS 102 933-1 [i.1], clauses 4 and 6	Type_2W_Improved_Receiver

## Annex C (informative): Additional information

Additional information related to device configuration is available in table C.1.

**Table C.1: Additional information**

<b>Item</b>	<b>Additional Information</b>	<b>Ref.</b>	<b>Mnemonic</b>
1	Telephony	ETSI ETS 300 905 [i.2], clause A.1.1; ETSI TS 100 905 [i.4], clause A.1.1; ETSI TS 122 003 [i.5], clause A.1.1	TSPC_Serv_TS11
2	Permanent Antenna Connector	ETSI TS 151 010-1 [2], clauses 12.1.1 and 12.1.2 and ETSI TS 102 933-2 [4] clause 4.0	TSPC_AddInfo_PermAntenna
3	Handheld stations with Integrated Antenna	ETSI TS 102 933-2 [4] clause 5.0	TSPC_AddInfo_HHIntegAntenna

## Annex D (informative): Change history

Version	Information about changes
1.0.0	Presented at SMG #28 for information
1.0.1	Changes approved at SMG7 #22
1.1.0	Adapted to R&TTE Steering Committee HS proforma
1.1.1	Selection of test cases for Phase 2. Addition of sections for Phase 2+. Phase 2+ test cases are for further study
1.1.5	Editorial reorganization to comply with proforma and with latest proforma sentences by STF 149
1.1.6	References update and editorial modifications
1.1.7	Edited during SMG7#25
1.1.8	Electronically approved by SMG7
2.0.0	Presented for approval at SMG #32
7.0.0	Approved at SMG #32
7.0.1	Update to Version 7.0.1 for Publication
9.0.0	Update to Version 9.0.0 for MSG Approval. All requirements up to and including Rel-4 requirements are included
9.0.2	Approval at MSG #5
12.1.1_9.1.0	Early draft presented at MSG#40 adding ER-GSM
12.1.1_9.1.2	New draft based on latest HS skeleton presented at MSG#41
12.1.1_9.1.3	New draft based on EditHelp inputs
12.5.1_12.1.5	Draft for HS transposition to RED, including of Improved receiver requirements

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# History

<b>Document history</b>		
V7.0.1	December 2000	Publication
V9.0.2	March 2003	Publication
V12.1.1	June 2015	Publication
V12.1.10	December 2016	EN Approval Procedure AP 20170312: 2016-12-12 to 2017-03-13