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Elektromagnetna združljivost (EMC) in zadeve v zvezi z radijskim spektrom (ERM) - Standard elektromagnetne združljivosti (EMC) za radijsko opremo in storitve - 8. del: Posebni pogoji za bazne postaje GSM

ElectroMagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 8: Specific conditions for GSM base stations

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Foreword

This Candidate Harmonized European Standard (Telecommunications series) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document has been produced by ETSI in response to a mandate from the European Commission issued under the Council Directive 98/34/EC [11] (as amended) laying down a procedure for the provision of information in the field of technical standards and regulation.

The present document together, with EN 301 489-1 [1], is intended to become a Harmonized EMC Standard, the reference of which will be published in the Official Journal of the European Communities referencing the Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility (the "EMC Directive" 89/336/EEC [3] as amended), and the Council Directive on the approximation of the laws of the Member States relating to radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (the "R&TTE Directive" 1999/5/EC [2]).

The present document is part 8 of a multi-part EN covering the ElectroMagnetic Compatibility (EMC) standard for radio equipment and services, as identified below:

Part 1: "Common technical requirements";

Part 2: "Specific conditions for radio paging equipment";

Part 3: "Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz";

Part 4: "Specific conditions for fixed radio links and ancillary equipment and services";

Part 5: "Specific conditions for Private land Mobile Radio (PMR) and ancillary equipment (speech and non-speech)";

Part 6: "Specific conditions for Digital Enhanced Cordless Telecommunications (DECT) equipment";

Part 7: "Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)";

Part 8: "Specific conditions for GSM base stations";

Part 9: "Specific conditions for wireless microphones and similar Radio Frequency (RF) audio link equipment";

Part 10: "Specific conditions for First (CT1 and CT1+) and Second Generation Cordless Telephone (CT2) equipment";

Part 11: "Specific conditions for FM broadcasting transmitters";

Part 12: "Specific conditions for Earth Stations operated in the frequency ranges between 4 GHz and 30 GHz in the Fixed Satellite Service (FSS)";

Part 13: "Specific conditions for Citizens' Band (CB) radio and ancillary equipment (speech and non-speech)";

Part 15: "Specific conditions for commercially available amateur radio equipment";

Part 16: "Specific conditions for analogue cellular radio communications equipment, mobile and portable";

Part 17: "Specific conditions for Wideband data and HIPERLAN equipment";

Part 18: "Specific conditions for Terrestrial Trunked Radio (TETRA) equipment";

Part 19: "Specific conditions for Receive Only Mobile Earth Stations (ROMES) operating in the 1,5 GHz band providing data communications";

Part 20: "Specific conditions for Mobile Earth Stations (MES) used in the Mobile Satellite Services (MSS)";

Part 22: "Specific conditions for ground based VHF aeronautical mobile and fixed radio equipment".

National transposition dates	
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1 Scope

The present document, together with EN 301 489-1 [1], covers the assessment of equipment meeting Phase 2, and Phase 2+ requirements of the GSM and DCS digital cellular radio telecommunications systems and ancillary equipment in respect of ElectroMagnetic Compatibility (EMC).

Technical specifications related to the antenna port and emissions from the enclosure port of radio equipment (base station (BTS), ancillary RF amplifiers and GSM repeaters) are not included in the present document. Such technical specifications are found in the relevant product standards for the effective use of the radio spectrum.

The present document specifies the applicable test conditions, performance assessment and performance criteria for GSM and DCS digital cellular radio equipment forming part of the Base Station System (BSS), ancillary RF amplifiers, for transmission and/or reception, GSM repeaters and associated ancillary equipment.

Examples of Base station radio, ancillary RF amplifiers and repeaters covered by the present document are given in annex A.

The present document is not applicable to equipment, which forms part of the GSM Network Subsystem (NSS), including Mobile services Switching Centres (MSC), Echo Cancellers (EC) and Operations and Maintenance Centres (OMC).

In case of differences (for instance concerning special conditions, definitions, abbreviations) between the present document and EN 301 489-1 [1], the provisions of the present document take precedence.

The environment classification and the emission and immunity requirements used in the present document are as stated in EN 301 489-1 [1], except for any special conditions included in the present document.

2 References

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

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

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

[2] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications equipment and the mutual recognition of their conformity.

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

[4] ETSI ETR 350: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms (GSM 01.04 version 5.0.1)".

[5] ETSI ETS 300 578: "Digital cellular telecommunications system (Phase 2); Radio subsystem link control (GSM 05.08 version 4.22.0)".

[6] ETSI EN 300 607-1 (V6.1.1): "Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformance specification; Part 1: Conformance specification (GSM 11.10-1 version 6.1.1 Release 1997)".

[7] ETSI I-ETS 300 020-1: "European digital cellular telecommunications system (Phase 1); Mobile station conformance test system Part 1: Mobile station conformity specification".

[8] ETSI ETS 300 607-1 (1999): "Digital cellular telecommunications system (Phase 2); Mobile Station (MS) conformance specification; Part 1: Conformance specification; (GSM 11.10-1 version 4.26.1)".

[9] ETSI ETS 300 609-4 (1998): "Digital cellular telecommunications system (Phase 2 and Phase 2+); Base Station System (BSS) equipment specification; Part 4: Repeaters (GSM 11.26 version 5.2.1)".

[10] ETSI EN 301 087: "Digital cellular telecommunications system (Phase 2 & Phase 2+); Base Station System (BSS) equipment specification; Radio aspects (GSM 11.21 version 8.1.1 Release 1999)".

[11] 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.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the definitions of EN 301 489-1 [1], clause 3 apply as appropriate. In addition, the definitions of EN 301 087 [10] and the following definitions apply as appropriate or take precedence.

The following product related definitions apply additionally:

A interface: logical interface between a BSC and an MSC.

Abis interface: logical interface between a BTS and a BSC.

ancillary equipment: equipment (apparatus), used in connection with a base station, ancillary RF amplifier or repeater, is considered as an ancillary equipment if:

- the equipment is intended for use in conjunction with a base station, ancillary RF amplifier or repeater to provide additional operational and/or control features (e.g. to extend control to another position or location); and
- the equipment cannot be used on a stand alone basis to provide user functions independently of a base station, ancillary RF amplifier or repeater; and
- the base station, ancillary RF amplifier or repeater to which it is connected, is capable of providing some intended operation in accordance with GSM specifications without the ancillary equipment (i.e. it is not a sub-unit of the main equipment essential to the main equipment basic functions); and
- there is a physical connection between the base station, ancillary RF amplifier or repeater and the ancillary equipment (i.e. a repeater is not considered to be an ancillary equipment to a base station); and
- the primary function of the equipment is not to provide amplification between the transmit and/or receive antenna connector of a base station and an antenna.

ancillary RF amplifier: equipment (apparatus), used in connection with a base station, is considered as an ancillary RF amplifier if:

- the primary function of the equipment is to provide amplification between the transmit and/or receive antenna connector of a base station and an antenna; and
- the RF connection between the equipment and the base station uses co-axial cable; and
- the equipment is capable of meeting its specified performance without requiring any control signal which defines the characteristics of the signal being amplified (eg. the timing of the GSM timeslots or the commanded transmit power); and

- if the equipment is dedicated to operate only with certain specified types of base station, these base stations are capable of meeting GSM specifications separately from the ancillary RF amplifier.

NOTE: If an ancillary RF amplifier is dedicated to operate only with certain specified types of base station, and these base stations are only capable of meeting GSM specifications in conjunction with the ancillary RF amplifier, the ancillary RF amplifier is considered to be part of the base station.

base station: equipment under test which includes at least one BTS, integrated BSS, or BSC.

maintenance port: external interface used for maintenance, testing or configuration, but not connected during normal operation.

repeater: device with two RF ports, both of which are intended to be connected to antennas, which is capable of receiving, amplifying and transmitting simultaneously in one direction a signal in a BSS transmit band and in the other direction a signal in the corresponding BSS receive band.

RXQUAL: measure of the received signal quality, which is generated by the base station for use as a criterion in the RF power control and handover processes. The characteristics and requirements are specified in ETS 300 578 [5], clause 8.2.

signal and control port: port which carries information or control signals, excluding antenna ports.

3.2 Abbreviations

For the purposes of the present document, the abbreviations of ETR 350 [4] apply, in addition to the following:

ARFCN	Absolute Radio Frequency Channel Number
BER	Bit Error Ratio
BSC	Base Station Controller
BSS	Base Station System
BSSTE	Base Station System Test Equipment
BTS	Base Transceiver Station
CRptr	performance criteria for Continuous phenomena applied to Repeaters and ancillary RF amplifiers
CRx	performance criteria for Continuous phenomena applied to Receivers
CT	performance criteria for Continuous phenomena applied to Transmitters
DCS	Digital Cellular System
EC	Echo Canceller
EUT	Equipment Under Test
GSM	Global System for Mobile communication
MSC	Mobile services Switching Centre
NSS	Network Sub System
RXQUAL	Received Signal Quality
TRptr	performance criteria for Transient phenomena applied to Repeaters and Ancillary RF Amplifiers
TRx	performance criteria for Transient phenomena applied to Receivers
TT	performance criteria for Transient phenomena applied to Transmitters

4 Test conditions

4.1 General

For the purposes of the present document, the test conditions of EN 301 489-1 [1], clause 4, shall apply as appropriate. Further product related test conditions for radio equipment are specified in the present document.

For emission and immunity tests the test modulation, test arrangements, etc., as specified in the present document, subclauses 4.1 to 4.5 shall apply.

For an EUT which contains more than one BTS, it is sufficient to perform tests relating to connectors of each representative type of the BTS forming part of the EUT.