SLOVENSKI STANDARD
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Radijska oprema in sistemi (RES) - Elektromagnetna združljivost (EMC) evropskih digitalnih celiļnih telekomunikacijskih sistemov (GSM 900 MHz in DCS 1 800 MHz) - 2. del: Radijska in pomoģna oprema bazne postaje

Radio Equipment and Systems (RES); ElectroMagnetic Compatibility (EMC) for European digital cellular telecommunications system (GSM 900 MHz and DCS 1 800 MHz); Part 2: Base station radio and ancillary equipment

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Radio Equipment and Systems (RES); Electro-Magnetic Compatibility (EMC) for European digital cellular telecommunications system (GSM 900 MHz and DCS 1 800 MHz) Part 2: Base station radio and ancillary equipment

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Foreword

This European Telecommunication Standard (ETS) has been prepared by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS is based upon the Generic Standards EN 50081-1 [1] and EN 50082-1 [2], ETS 300 339 [3], and other standards where appropriate, to meet the protection requirements of the Council Directive 89/336/EEC [4].

Every ETS prepared by ETSI is a voluntary standard. This ETS contains text which may be used for regulatory purposes. This text does not make this ETS mandatory in its status as a standard. However, the ETS can be referenced, wholly or in part, for mandatory application by decisions of regulatory bodies.

This ETS is produced in two (2) parts to reflect those requirements for Terminal Equipment and non-Terminal Equipment as follows:

Part 1: Mobile and portable radio and ancillary equipment;

Part 2: Base station radio and ancillary equipment.

Proposed transposition dates	
Date of latest announcement of this ETS (doa):	28 February 1995
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 August 1995
Date of withdrawal of any conflicting National Standard (dow):	31 August 1995

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1 Scope

This European Telecommunication Standard (ETS) covers the assessment of radio communication and ancillary equipment in respect of Electro-Magnetic Compatibility (EMC).

This ETS specifies the applicable EMC tests, the methods of measurements, the limits and the minimum performance criteria for GSM 900 MHz and DCS 1 800 MHz digital public cellular base station radio equipment, transmitting and receiving speech and/or data, and the associated ancillary equipment.

The environment classification used in this ETS refers to the environment classification used in the Generic Standards EN 50081-1 [1] and EN 50082-1 [2].

For the purposes of this ETS, Base Transceiver Stations (BTSs), and single cabinet Base Station Systems (BSSs), are considered to be radio communications equipment.

For the purposes of this ETS the manufacturer may declare that Base Station Controllers (BSCs) and Transcoders (XC) are to be considered as ancillary equipment (see clause 3 for the definition of ancillary equipment).

Mobile services Switching Centres (MSCs) and Echo Cancellers (ECs) are not covered by this ETS.

The EMC requirements have been selected to ensure an adequate level of compatibility for apparatus at residential, commercial, and light industrial environments. The levels however, do not cover extreme cases which may occur in any location but with low probability of occurrence.

This ETS may not cover those cases where a potential source of interference which is producing individually repeated transient phenomena, or a continuous phenomena, is permanently present, e.g. a radar or broadcast site in the near vicinity. In such a case it may be necessary to use special protection applied to either the source of interference, or the interfered part, or both.

Compliance of radio equipment to the requirements of this ETS does not signify compliance to any requirement related to the use of the equipment (i.e. licensing requirements).

Compliance to this ETS does not signify compliance to any safety requirement. However, it is the responsibility of the assessor of the equipment that any observation regarding the equipment becoming dangerous or unsafe as a result of the application of the tests of this ETS, should be recorded in the test report.

2 Normative references

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

[1] EN 50081-1 (1992): "Electromagnetic compatibility - Generic emission standard. Part 1: Residential, commercial and light industry".

[2] EN 50082-1 (1992): "Electromagnetic compatibility - Generic immunity standard. Part 1: Residential, commercial and light industry".

[3] Draft prETS 300 339: "Radio Equipment and Systems (RES) - General Electro-Magnetic Compatibility (EMC) for radio equipment".

[4] 89/336/EEC (1989): "Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility".

[5] GSM 01.04: "European digital cellular telecommunications system - Vocabulary in a GSM PLMN".

[6] GSM 05.08/GSM 05.08-DCS-1800: "European digital cellular telecommunications system - Radio Subsystem Link Control".

[7] GSM 11.20/GSM 11.20 DCS: "European digital cellular telecommunications system - Base Station Specification".

[8] EN 55022 (1987): "Limits and methods of measurement of radio interference characteristics of information technology equipment".

[9] CISPR Publication No. 16-1: "Specification for radio disturbance and immunity measuring apparatus and methods".

[10] ENV 50140: "Basic immunity standard - Radiated, radio frequency, electromagnetic fields".

[11] IEC 801-2 (second edition 1991) Part 2: "Electrostatic discharge requirements".

[12] IEC 801-4 (1988) Part 4: "Electrical fast transients / burst requirements".

[13] ENV 50141: "Basic immunity standard - Conducted disturbances induced by radio frequency fields".

[14] IEC 1000-4-11: "Voltage dips, short interruptions and voltage variations. Immunity tests".

[15] IEC 1000-4-5: "Surge immunity requirements".

3 Definitions

For the purposes of this ETS, the following definitions apply:

ancillary equipment: Equipment (apparatus), used in connection with a receiver, transmitter or transceiver, is considered as an ancillary equipment (apparatus) if:

- the equipment is intended for use in conjunction with a receiver, transmitter or transceiver to provide additional operational and/or control features to the radio equipment (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 receiver, transmitter or transceiver; and

- the receiver, transmitter or transceiver to which it is connected, is capable of providing some intended operation such as transmitting and/or receiving without the ancillary equipment (i.e. it is not a sub-unit of the main equipment essential to the main equipment basic functions).

base station: A base station is a BTS or BSS as defined in GSM 01.04 [5].

integral antenna equipment: Equipment fitted with an antenna designed to be connected to the equipment without the use of an external connector and considered to be part of the equipment. An integral antenna may be fitted internally or externally to the equipment.

manufacturer: The legal entity responsible under the terms of the Council Directive, 89/336/EEC [4], for placing the product on the market.

port: A particular interface of the specified equipment (apparatus) with the electromagnetic environment.

radio communications equipment: An apparatus which includes one or more transmitters and/or receivers and/or parts thereof. This type of equipment (apparatus) can be used in a fixed, mobile or a portable application.

RXQUAL: A 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. For more information see GSM 05.08 [6], subclause 8.2.

4 General test conditions

4.1 Test conditions

The equipment shall be tested under normal test conditions contained in the relevant product and basic standards or in the information accompanying the equipment, which are within the manufacturers declared range of humidity, temperature, and supply voltage.

The test conditions shall be recorded in the test report.

The test configuration shall be as close to normal intended use as possible and shall be recorded in the test report.

The test set ups for transmitters and receivers are described separately for the sake of clarity. However, it is not necessarily excluded that the test of the transmitter section and receiver section of the EUT can be carried out simultaneously to reduce test time.

4.2 Test conditions for immunity tests

For the immunity tests of transmitters, the transmitter shall be operated at its maximum rated output power, up to and not exceeding a maximum of 20 W, modulated with normal test modulation (see subclauses 4.3 and 4.4). A communication link shall be established (see subclause 4.5).

For the immunity tests of receivers, the wanted input signal, coupled to the receiver, shall be modulated with normal test modulation (see subclauses 4.3 and 4.6). A communication link shall be established (see subclause 4.7).

For the immunity tests of duplex transceivers, the wanted input signal, coupled to the receiver, shall be modulated with normal test modulation (see subclauses 4.3 and 4.6). The transmitter shall be operated at its maximum rated output power, up to and not exceeding a maximum of 20 W. A communication link shall be established (see subclause 4.5).

4.3 Normal test modulation for base station equipment

A communication link shall be set up with a suitable mobile or mobile simulator (hereafter called "the test system").

The wanted RF input signal nominal frequency shall be selected by setting the Absolute Radio Frequency Channel Number (AFRCN) to an appropriate number, e.g. in the case of GSM 900 MHz this will be 60 to 65.

The following conditions shall be met:

- the EUT shall be commanded to operate at maximum transmit power, up to, and not exceeding, a maximum of 20 W;

- the uplink and downlink RXQUAL shall be monitored.

4.4 Arrangements for test signals at the input of the transmitter

A communication link shall be set up between the EUT and the test system.