SLOVENSKI STANDARD
SIST EN 300 831:2000

01-april-2000

Elektromagnetna združljivost (EMC) in zadeve v zvezi z radijskim spektrom (ERM) - Elektromagnetna združljivost (EMC) za mobilne zemeljske postaje (MES), uporabljene v satelitskih omrežjih osebnih komunikacij, ki delujejo v frekvenčnih pasovih 1,6/2,4 GHz in 2 GHz

Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) for Mobile Earth Stations (MES) used within Satellite Personal Communications Networks (S-PCN) operating in the 1,5/1,6/2,4 GHz and 2 GHz frequency bands

Ta slovenski standard je istoveten z: **EN 300 831 Version 1.2.1**

ICS:

33.060.30	Radiorelejni in fiksni satelitski komunikacijski sistemi	Radio relay and fixed satellite communications systems
33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general

SIST EN 300 831:2000 **en**

ETSI EN 300 831 V1.2.1 (1999-10)

Candidate Harmonized European Standard (Telecommunications series)

Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) for Mobile Earth Stations (MES) used within Satellite Personal Communications Networks (S-PCN) operating in the 1,5/1,6/2,4 GHz and 2 GHz frequency bands

Reference

REN/ERM-EMC-025 (7p000ioo.PDF)

Keywords

EMC, radio, S-PCN, testing

ETSI

Postal address

F-06921 Sophia Antipolis Cedex - FRANCE

Office address

650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Internet

secretariat@etsi.fr
Individual copies of this ETSI deliverable
can be downloaded from
http://www.etsi.org
If you find errors in the present document, send your
comment to: editor@etsi.fr

Important notice

This ETSI deliverable may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference should be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Contents

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://www.etsi.org/ipr).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

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 is based upon the Generic Standards EN 50081-1 [3] and EN 50082-1 [4].

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

The present document is intended to become a Harmonized 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 [1] as amended).

Technical specifications relevant to the EMC Directive are given in annex A.

For equipment which can be connected to the AC mains supply, EN 61000-3-2 [15] and EN 61000-3-3 [16] also apply where appropriate from 2001-01-01.

National transposition dates	
Date of adoption of this EN:	24 September 1999
Date of latest announcement of this EN (doa):	31 December 1999
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2000
Date of withdrawal of any conflicting National Standard (dow):	31 December 2002

1 Scope

The present document covers the assessment of Mobile Earth Stations (MES) used within Satellite Personal Communications Networks (S-PCN), and ancillary equipment in respect of ElectroMagnetic Compatibility (EMC).

Technical specifications related to the antenna port and emissions from the enclosure port of the equipment are not included in the present document. Such specific technical specifications are found in the relevant product EN.

The present document specifies the applicable EMC tests, the test methods, the limits, and the minimum performance criteria for digital radio equipment as defined in annex B and for the associated ancillary equipment.

The environment classification used in the present document refers to the environment classification used in the Generic Standards EN 50081-1 [3] and EN 50082-1 [4], except the vehicular environment class which refers to ISO 7637-1 [13].

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

The present document may not cover those cases where a potential source of interference, which is producing individually repeated transient phenomena, or a continuous phenomenon, 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.

For a multimode radio station, the present document only applies to the radio station when operated in the S-PCN mode.

Compliance of S-PCN Mobile Earth Stations (MES) radio equipment to the requirements of the present document does not signify compliance to any requirements related to the use of the equipment (i.e. licensing requirements).

Compliance to the present document does not signify compliance to any safety requirements. However, it is the responsibility of the assessor of the equipment that any observations regarding apparatus becoming dangerous or unsafe as a result of the application of the tests of the present document, should be recorded in the test report.

The present document is based on the considerations and guidance given in ETR 238 [12].

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, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] 89/336/EEC: "Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility".

[2] CISPR 16-1: "Specification for radio disturbance and immunity measuring apparatus and methods; Part 1: Radio disturbance and immunity measuring apparatus".

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

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

[5] EN 55022 (1998): "Limits and methods of measurement of radio disturbance characteristics of information technology equipment".

[6] EN 61000-4-2: "Electromagnetic compatibility (EMC); Part 4: Testing and measurement techniques; Section 2: Electrostatic discharge immunity test".

[7] EN 61000-4-3 (modified): "Electromagnetic compatibility (EMC); Part 4: Testing and measurement techniques; Section 3: Radiated, radio-frequency, electromagnetic field immunity test".

[8] EN 61000-4-4: "Electromagnetic compatibility (EMC); Part 4: Testing and measurement techniques; Section 4: Electrical fast transient/burst immunity test".

[9] EN 61000-4-5: "Electromagnetic compatibility (EMC); Part 4: Testing and measurement techniques; Section 5: Surge immunity test".

[10] EN 61000-4-6: "Electromagnetic compatibility (EMC); Part 4: Testing and measurement techniques; Section 6: Immunity to conducted disturbances, induced by radio-frequency fields".

[11] EN 61000-4-11: "Electromagnetic compatibility (EMC); Part 4: Testing and measurement techniques; Section 11: Voltage dips, short interruptions and voltage variations immunity tests".

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

[13] ISO 7637-1 (1990): "Road vehicles; Electrical disturbance by conduction and coupling; Part 1: Passenger cars and light commercial vehicles with nominal 12 V supply voltage; Electrical transient conduction along supply lines only".

[14] ISO 7637-2 (1990): "Road vehicles; Electrical disturbance by conduction and coupling; Part 2: Commercial vehicles with nominal 24 V supply voltage; Electrical transient conduction along supply lines only".

[15] EN 61000-3-2 (1995): "Electromagnetic compatibility (EMC) - Part 3: Limits - Section 2: Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)".

[16] EN 61000-3-3 (1995): "Electromagnetic compatibility (EMC) - Part 3: Limits - Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to and including 16 A".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

ancillary equipment: equipment (apparatus), where used in connection with a MES is considered as an ancillary equipment (apparatus) if:

- the equipment is intended for use in conjunction with a MES to provide additional operational and/or control features to the MES (e.g. to extend control to another position or location); and
- the equipment cannot be used on a stand alone basis to provide MES user functions independently of a MES; and
- the absence of the ancillary equipment does not inhibit the operation of the MES.

applicant: party seeking an approval, or to place an S-PCN MES on the European market, i.e. the manufacturer of the equipment, or his authorized representative, or an equipment supplier to the European market.

carrier-on state (allocated a channel): MES is in this state when it is transmitting a signal in a continuous or a non-continuous mode.

carrier-off state (idle mode): MES is in this state when it is powered-on but not transmitting a signal, i.e. not in a carrier-on state.

enclosure port: physical boundary of the apparatus through which an electromagnetic field may radiate or impinge (see figure 1).

host equipment: any equipment which has complete user functionality when not connected to the MES, and to which connection is necessary for the MES to offer additional functionality.

Installable Equipment (IE), Internally Mounted Equipment (IME) and Externally Mounted Equipment (EME): Installable Equipment (IE) is an equipment which is intended to be installed in a vehicle. An IE may consist of one or several modules. The IE is composed of modules intended to be externally mounted and declared by the applicant as Externally Mounted Equipment (EME). The remaining module(s) are defined as Internally Mounted Equipment (IME).

integral antenna: antenna which may not be removed during the tests, according to the applicant statement.

multimode radio station: indicates equipment that accommodates radio stations of different radio systems.

port: particular interface of the specified equipment (apparatus) with the electromagnetic environment (see figure 1).

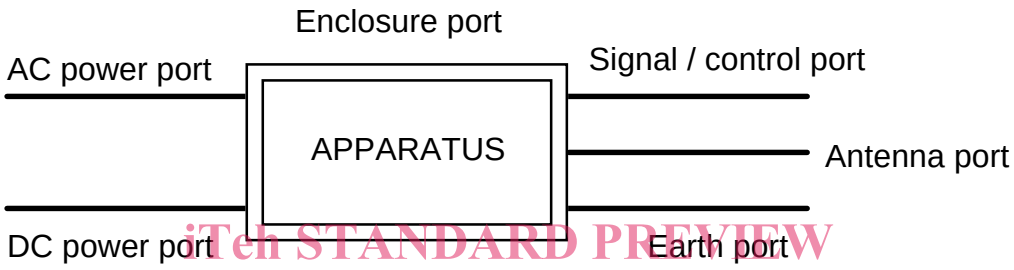

Figure 1: Examples of ports

Portable Equipment: generally intended to be self-contained, free standing and portable. A PE would normally consist of a single module, but may consist of several interconnected modules.

NOTE: More than one of the equipment classifications can apply to certain equipment, as described in subclause 5.2, dependent upon the applicant's declaration of normal intended use.

Removable antenna: antenna which may be removed for the test according to the applicant statement.

transmission disabled state: MES is in this state when it is not authorized to transmit by the Network Control Facilities (NCF).

12V DC power input port: power input port on a V-MES designed for connection to a nominal 12V main vehicle battery.

24V DC power input port: power input port on a V-MES designed for connection to a nominal 24V main vehicle battery.

3.2 Abbreviations

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

BER	Bit Error Ratio
CP	performance criteria for Continuous Phenomena
EMC	ElectroMagnetic Compatibility
EME	Externally Mounted Equipment
EUT	Equipment Under Test
F-MES	Fixed MES
IE	Installable Equipment
IME	Internally Mounted Equipment
LISN	Line Impedance Stabilizing Network
MES	Mobile Earth Station
NCF	Network Control Facilities
PE	Portable Equipment
PEP	Peak Envelope Power
P-MES	Portable MES
QTMA	Quality of Transmission Measurement Apparatus
RF	Radio Frequency
rms	root mean square
S-PCN	Satellite Personal Communications Network
STE	Special Test Equipment
TP	performance criteria for Transient Phenomena
V-MES	Vehicle mounted MES

4 General test conditions

4.1 Test conditions

For MESs with ancillary equipment and/or various ports, the number of test configurations shall be determined. The assessment shall include sufficient representative configurations of the MES to adequately exercise the equipment. These configurations shall be recorded in the test report.

In the following clauses, the Equipment Under Test (EUT) is the MES with the selected configuration of ancillary equipment.

The equipment shall be tested under conditions which are within the applicant's declared range of humidity, temperature, and supply voltage.

The EUT operational frequencies used during the test, shall be recorded in the test report.

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.

For testing and if physically separated from the MES, any voltage converter shall form part of the EUT.

Whenever the Equipment Under Test (EUT) is provided with an integral antenna, the EUT shall be tested with the antenna fitted in a manner typical of normal intended use.

For MES for which connection to a host equipment is necessary to offer additional functionality, the test configuration shall be as defined in subclause 5.4.