

**SLOVENSKI STANDARD**  
**SIST EN 301 489-20 V1.2.1:2003**  
**01-marec-2003**

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**Elektromagnetna združljivost (EMC) in zadeve v zvezi z radijskim spektrom (ERM) - Standard elektromagnetne združljivosti (EMC) za radijsko opremo in storitve - 20. del: Posebni pogoji za mobilne zemeljske postaje (MES) v okviru mobilnih satelitskih storitev (MSS)**

Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 20: Specific conditions for Mobile Earth Stations (MES) used in the Mobile Satellite Services (MSS)

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# ETSI EN 301 489-20 V1.2.1 (2002-11)

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*Candidate Harmonized European Standard (Telecommunications series)*

**Electromagnetic compatibility  
and Radio spectrum Matters (ERM);  
ElectroMagnetic Compatibility (EMC) standard  
for radio equipment and services;  
Part 20: Specific conditions for Mobile Earth Stations (MES)  
used in the Mobile Satellite Services (MSS)**

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## Reference

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**ETSI**

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

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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  
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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 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 [3] as amended) and Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity ("the R&TTE Directive" [2]).

The present document is part 20 of a multi-part deliverable. Full details of the entire series can be found in part 1 [1].

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### National transition dates

Date of adoption of this EN:	8 November 2002
Date of latest announcement of this EN (doa):	28 February 2003
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2003
Date of withdrawal of any conflicting National Standard (dow):	28 February 2006

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## 1 Scope

The present document, together with EN 301 489-1 [1], covers the assessment of Mobile Earth Stations (MES) as defined in annex A used within Satellite radio services, 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 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 MESs and for the associated ancillary equipment.

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 environmental 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. The applicable environment(s) referred to in EN 301 489-1 [1] where the MES may be used, shall be declared by the manufacturer.

For a multimode radio station, the present document only applies to the radio station when operated in the Mobile Satellite Service mode.

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## 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 and/or edition number or version number) or non-specific. <https://standards.iteh.ai/catalog/standards/sist/b74d7af9-44b4-47cc-927d-4a93f9181684/sist-en-301-489-20-v1-2-1-2003>
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [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 terminal equipment and the mutual recognition of their conformity (R&TTE Directive).
- [3] Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive).
- [4] ITU-R Radio Regulations (1998).
- [5] 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 and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 489-1 [1], clause 3, and the following apply:

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

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

**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 manufacturer as Externally Mounted Equipment (EME). The remaining module(s) are defined as Internally Mounted Equipment (IME)

**multimode MES:** equipment that accommodates radio stations of different radio systems

**occupied bandwidth:** See ITU-R Radio Regulations [4], part A, chapter 1, Terminology RR 147.

**Portable Equipment (PE):** is generally intended to be self-contained, free standing and portable

NOTE 1: A PE would normally consist of a single module, but may consist of several interconnected modules.

NOTE 2: More than one of the equipment classifications can apply to certain equipment, as described in clause 5.4, dependent upon the manufacturer's declaration of normal intended use.

**transmission disabled state:** state of an MES when it is not authorized to transmit by the Network Control Facilities (NCF)

### 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
LBRDC	Low Bit Rate Data Communication
LEO	Low Earth Orbit
MES	Mobile Earth Station
MSS	Mobile Satellite Service
NCF	Network Control Facilities
PE	Portable Equipment
PEP	Peak Envelope Power
P-MES	Portable MES
QTMA	Quality of Transmission Measurement Apparatus
RF	Radio Frequency
S-PCN	Satellite Personal Communications Network
STE	Special Test Equipment



TP	performance criteria for Transient Phenomena
V-MES	Vehicle mounted MES

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## 4 Test conditions

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 MES are specified in the present document.

### 4.1 General

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 EUT operational frequencies used during the test, 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 clause 5.2.

### 4.2 Arrangements for test signals

The provisions of EN 301 489-1 [1], clause 4.2 shall apply.

In order to measure the system emission and electromagnetic immunity under operational conditions, proper arrangements shall be provided (by the manufacturer), e.g.:

- a) a Special Test Equipment (STE) to put the MES terminal in its normal operating mode, and providing the MES with a receive signal to emulate the operational conditions of reception. This equipment shall control the EUT, when it is capable of transmission, so that it switches between the transmission disabled, carrier-on and carrier-off states. This Special Test Equipment may also be used to achieve loop back mode operation;
- b) a specific Quality of Transmission Measurement Apparatus (QTMA).

EXAMPLE: The quality of transmission can concern:

- the audio signal;
- the BER;
- the message throughput;
- the continuity of the communication link; or
- a combination of them.

For the immunity tests of the EUT, a communications link shall be established between the EUT and the testing system. The EUT shall be placed in the operating mode.

For EUT for which connection to a host equipment is necessary to offer functionality the manufacturer shall select which of the alternative performance assessment configurations shall be used.