



SLOVENSKI STANDARD

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Satellite Earth Stations and Systems (SES); Harmonized EN for Mobile Earth Stations (MES) providing Low Bit Rate Data Communications (LBRDC) using Low Earth Orbiting (LEO) satellites operating below 1 GHz covering essential requirements under article 3.2 of the R&TTE directive (standards.iteh.ai)

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Candidate Harmonized European Standard (Telecommunications series)

**Satellite Earth Stations and Systems (SES);
Harmonized EN for Mobile Earth Stations (MES)
providing Low Bit Rate Data Communications (LBRDC)
using Low Earth Orbiting (LEO) satellites
operating below 1 GHz covering essential requirements
under article 3.2 of the R&TTE directive**

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Foreword

This Candidate Harmonized European Standard (Telecommunications series) has been produced by ETSI Technical Committee Satellite Earth Stations and Systems (SES).

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC [5] (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 Directive 1999/5/EC [1] 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").

Technical specifications relevant to Directive 1999/5/EC are given in annex A.

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National transposition dates

Date of adoption of this EN:	22 June 2001
Date of latest announcement of this EN (doa):	30 September 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 2002
Date of withdrawal of any conflicting National Standard (dow):	31 March 2002

Introduction

ETSI has designed a modular structure for the standards. Each standard is a module in the structure. The modular structure is shown in figure 1.

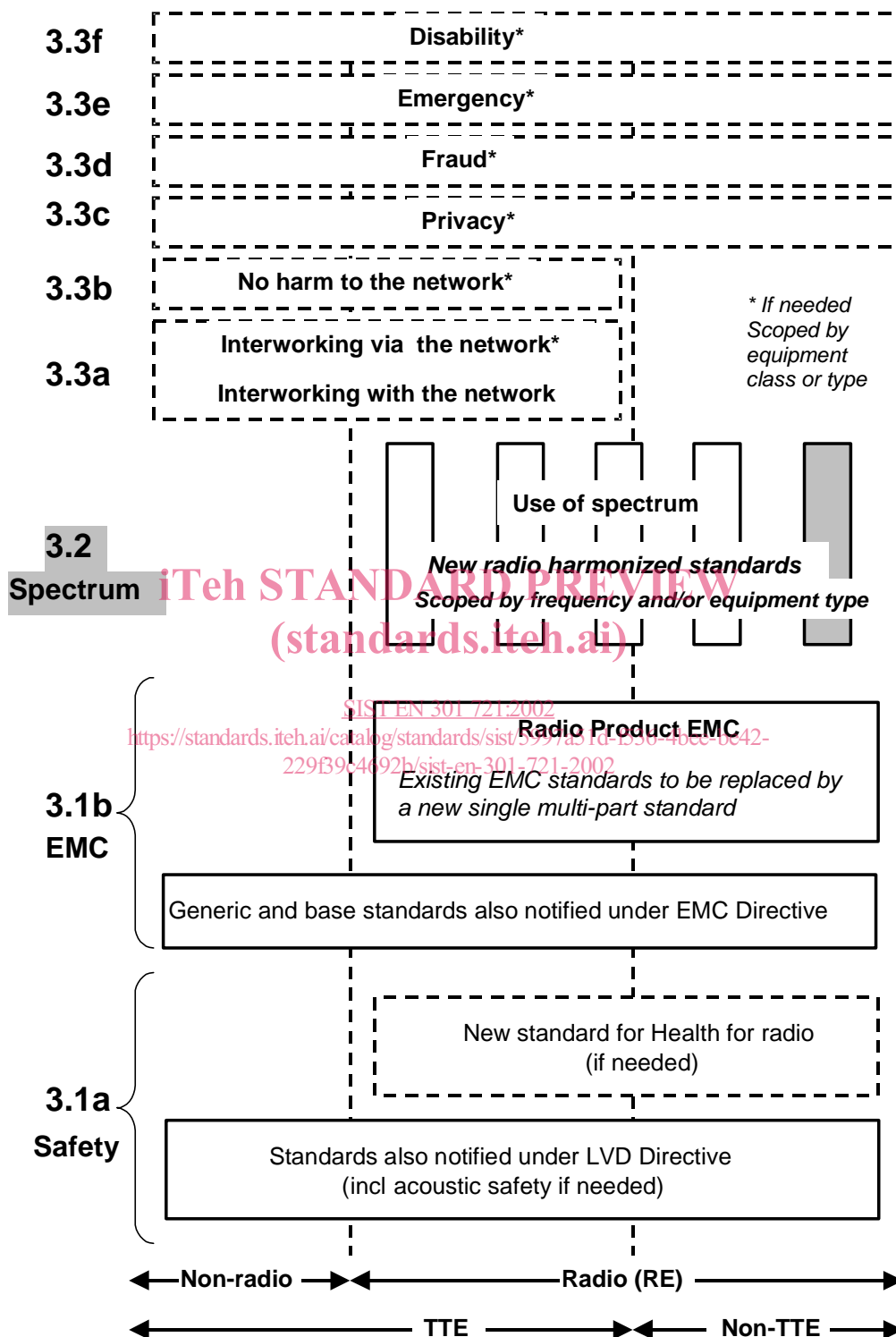


Figure 1: Modular structure for the various standards used under the R&TTE Directive

The left hand edge of the figure shows the different clauses of Article 3 of the Directive.

For article 3.3 various horizontal boxes are shown. Their dotted lines indicate that no essential requirements in these areas have yet been adopted by the Commission. If such essential requirements are adopted, they will be elaborated in individual standards whose scope is likely to be specified by function or interface type.

The vertical boxes show the standards under article 3.2 for the use of the radio spectrum. The scopes of these standards are specified either by frequency (normally in the case where frequency bands are harmonized) or by radio equipment type.

For article 3.1(b), the diagram shows the new single multi-part product EMC standard for radio, and the existing collection of generic and base standards currently used under the EMC Directive. The parts of this new standard will become available in the second half of 2000, and the existing separate EMC standards will be used until it is available.

For article 3.1(a) the diagram shows the existing safety standards currently used under the LVD Directive and the possibility of a new standard on health relating to radio emissions

The bottom of the figure shows the relationship of the standards to radio equipment and telecommunications terminal equipment. A particular equipment may be radio equipment, telecommunications terminal equipment or both.

The modular approach has been taken because:

- it minimizes the number of standards needed. Because equipment may have multiple interfaces and functions it is not practicable to produce a single standard for each possible combination of functions that may occur in an equipment;
- it provides scope for standards to be added:
 - under article 3.2 when new frequency bands are agreed; or
 - under article 3.3 should the Commission take the necessary decisions;
 without requiring alteration of standards that are already published.

The present document is based on EN 300 721 [6].
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The requirements of the present document have been selected to ensure an adequate level of compatibility with other radio services.

The present document does not contain any requirement, recommendation, or information about the installation of the MESSs.

The determination of the parameters of the user earth stations using a given satellite constellation for the protection of the spectrum allocated to that satellite constellation, is considered to be under the responsibility of the satellite operator or the satellite network operators.

1 Scope

The present document applies to Mobile Earth Stations (MES) providing Low Bit Rate Data Communications (LBRDC) using Low Earth Orbiting (LEO) satellites and which have the following characteristics:

- the MES could be a Based MES (BMES), a Vehicle mounted MES (VMES), or a Portable MES (PMES);
- the MESs operate through satellites in Low Earth Orbit (LEO) as part of a network providing Low Bit Rate Data Communications (LBRDC);
- these radio equipment types are capable of operating in all or any part of the frequency bands given in table 1.

Table 1: Frequency Ranges

MES Transmit frequencies and Service allocations (MHz)		MES Receive frequencies and Service allocations (MHz)	
148 to 149,9	MSS	137 to 137,025	MSS
149,9 to 150,05	LMSS	137,025 to 137,175	MSS
235 to 322	MSS	137,175 to 137,825	MSS
335,4 to 399,9	MSS	137,825 to 138	MSS
399,9 to 400,05	LMSS	235 to 322	MSS
		335,4 to 399,9	MSS
		400,15 to 401	MSS

The present document is intended to cover the provisions of Article 3.2 of Directive 1999/5/EC [1] (R&TTE Directive), which states that "... radio equipment shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communications and orbital resources so as to avoid harmful interference".

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 R&TTE Directive [1] may apply to equipment within the scope of the present document.

NOTE 1: A list of such ENs is included on the ETSI web site.

NOTE 2: The MESs are controlled and monitored by a Network Control Facility (NCF). The NCF is outside the scope of 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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] 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.
- [2] IEC Publication 60068-2-1 (1990): "Environmental testing - Part 2: Tests. Tests A: Cold".
- [3] IEC Publication 60068-2-2 (1974): "Environmental testing - Part 2: Tests. Tests B: Dry heat".
- [4] IEC Publication 60068-2-64 (1993): "Environmental testing - Part 2: Test methods - Test Fh: Vibration, broad-band random (digital control) and guidance".

- [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.
- [6] ETSI EN 300 721 (V1.1.1): "Satellite Earth Stations and Systems (SES); Mobile Earth Stations (MES) providing Low Bit Rate Data Communications (LBRDC) using Low Earth Orbiting (LEO) satellites operating below 1 GHz".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in the R&TTE Directive [1], and the following apply.

applicant: manufacturer or his authorized representative within the European Community or the person responsible for placing the apparatus on the market

BMES: MES intended to be installed in a fixed location, and which is powered either by DC or AC supply

carrier-off state: MES is in this state when it is not transmitting a signal, i.e. not in the carrier-on state

carrier-on state: MES is in this state when it is transmitting a signal in a continuous or non-continuous mode

control channel: control channel may be either a command to a particular MES or a signal from the satellite containing control information to appropriately enable or disable transmissions from a MES

conducted measurement: measurement of emissions from an antenna port of the MES made by direct wired connection to the port

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

Equivalent Isotropically Radiated Power (EIRP): product of transmitter power and antenna gain, equivalent to an isotropic source radiating uniformly in all directions

host-connected: indicates an MES for which connection to or integration with host equipment is necessary to offer functionality

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

The IE is composed of modules intended to be externally mounted as declared by the applicant, and defined as Externally Mounted Equipment (EME) and the remaining module(s) as Internally Mounted Equipment (IME).

Laboratory Test Equipment (LTE): logical grouping that contains the standard test equipment

Low bit rate data communications: in the present document, low bit rate defines bit rates up to 15 kbps

MSS band: continuous range of frequencies allocated by the ITU to the MSS (Mobile Satellite Service)

narrow-band system: narrow-band system is one in which the nominal carrier frequency spacing for MESs in the Earth-to-space direction is less than 300 kHz

network control channel: channel by which an MES receives general control information from the NCF

NCF control message: message, normally originating from a network, to a specified terminal or set of terminals of the network which indicates to the terminal or set of terminals that it/they should carry out some specific action or should enter or maintain some specific state. For test purposes NCF control messages may originate from Special Test Equipment (STE)

nominated bandwidth: bandwidth of the MES radio frequency transmission is nominated by the applicant. The nominated bandwidth is wide enough to encompass all spectral elements of the transmission which have a level greater than the specified unwanted emissions limits. The nominated bandwidth is wide enough to take account of the transmit carrier frequency stability. The nominated bandwidth is within the MSS transmit frequency band within which the MES operates.

NOTE: For FDMA/DCAA systems with a bit rate up to 2,4 kbps the Nominated Bandwidth does not exceed 25 kHz. For FDMA/DCAA systems with a bit rate up above 2,4 kbps the Nominated Bandwidth does not exceed 50 kHz.

PMES: MES intended to be portable, and which is powered by a stand alone battery, and generally intended to be self-contained and free standing. A PMES would normally consist of a single module, but may consist of several interconnected modules. In some cases different specifications apply to PMES and this is noted in the relevant text

radiated measurement: measurement of an actual radiated field

Special Test Equipment (STE): equipment which permits control of the MES so that the tests required by the present document can be performed

test load: test load is a substantially non-reactive, non-radiating power attenuator which is capable of safely dissipating the power from the transmitter(s)

unwanted emissions: unwanted emissions are those falling outside the nominated bandwidth in the carrier-on state, and those generated in the carrier-off state

VMES: MES intended to be installed on a vehicle

wideband system: wideband system is one in which the nominal carrier frequency spacing for MESs in the Earth-to-space direction is equal to or greater than 300 kHz

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3.2 Abbreviations

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

AC	Alternating Current
ASD	Acceleration Spectral Density
BMES	Base MES
CMF	Control and Monitoring Function
DC	Direct Current
DCAA	Dynamic Channel Activity Assignment
DS-SSMA	Direct Sequence Spread Spectrum Multiple Access
EIRP	Equivalent Isotropically Radiated Power
EMC	Electro-Magnetic Compatibility
EME	Externally Mounted Equipment
FDMA	Frequency Division Multiple Access
IE	Installable Equipment
IEC	International Electrotechnical Commission/Committee
IME	Internally Mounted Equipment
kbps	kilobits per second
LBRDC	Low Bit Rate Data Communications
LMSS	Land Mobile Satellite Service
LTE	Laboratory Test Equipment
MES	Mobile Earth Station
MIC	MES Identification Code
MSS	Mobile Satellite Service
NCF	Network Control Facility
PMES	Portable MES
ppm	parts per million