



SLOVENSKI STANDARD PSIST TBR 026:1999

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Satellite Earth Stations and Systems (SES); Low data rate Land Mobile satellite Earth Stations (LMES) operating in the 1,5/1,6 GHz frequency bands

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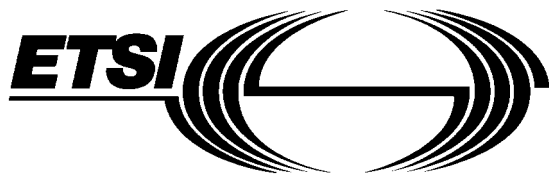
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Foreword

This Technical Basis for Regulation (TBR) has been produced by the Satellite Earth Stations and Systems (SES) Technical Committee of the European Telecommunications Standards Institute (ETSI).

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 83/189/EEC (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 93/97/EEC of 29 October 1993 supplementing Directive 91/263/EEC in respect of satellite earth station equipment ("the SES Directive").

A common technical regulation may be established by the European Commission in accordance with the Directive.

This TBR is based on ETS 300 254 which has been used for type approval purposes on a national basis for several years.

Due to a new requirement for the protection of the Aeronautical Radio Navigation Service based on the Global Navigation Satellite System (GNSS), scheduled to offer approach and landing operational services likely not before the year 2005, new limits for unwanted emissions will be necessary. These new limits may not be completely met by existing or presently marketed equipment that was developed on the basis of ETS 300 254. Consequently the following transitional arrangement is necessary.

This TBR incorporates two sets of limits. One set (table 2a) applicable up to 1 June 2002 and a more stringent set of limits (table 2b) applicable after this date for the protection of the Aeronautical Radio Navigation Service in the GNSS band.

This TBR is intended to be part of an Intermediate Common Technical Regulation (I-CTR), the applicability of which is expected to be limited to 1 June 2002. It is intended that the final CTR contains only table 2b as normative and table 2a as an informative historical annex.

A TBR is limited to being the basis for equipment type approval. This TBR therefore cannot contain regulations for the prevention of interference to GNSS operation after 2005 due to terminals type approved prior to 1 June 2002, on the basis of this TBR or on the basis of a past national regulation (e.g. based on ETS 300 254).

The protection of the GNSS band from the year 2005 onwards from harmful interference from LMESs approved before 1 June 2002 or already in service before the CTR enters into force may be obtained either by decisions of the national regulatory authorities to stop the operation of such equipment, or by operational restrictions agreed by the regulatory authority with satellite operators. It is recommended that such decisions should be harmonized at the European level. Such decisions are outside the scope of a TBR.

Introduction

The Council Directive in respect of satellite earth station equipment (93/97/EEC) [1] which supplements the Council Directive on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity (91/263/EEC) [2] concerns the harmonization of conditions for the placing on the market of such equipment.

Two classes of standards are applicable to satellite earth station equipment. European Telecommunication Standards (ETSS) give the full technical specifications for this equipment, whereas Technical Bases for Regulation (TBRs) give the essential requirements under the Satellite Earth Station Directive (93/97/EEC) [1] and the Telecommunications Terminal Equipment Directive (91/263/EEC) [2] for placing such equipment on the market. Receive-only equipment not intended for terrestrial connection to the public telecommunications network may be put into use. Nothing in this TBR is construed to prevent the use of Community internal production control procedures as set out in the annexes to the two Directives for such receive-only equipment. This TBR is based on ETS 300 254 (see annex B, Bibliography).

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1 Scope

This final draft Technical Basis for Regulation (TBR) specifies the technical requirements that apply to Land Mobile Earth Stations (LMESs) for compliance with Articles 4.1 and 4.3 of Council Directive 93/97/EEC [1].

These LMESs have the following characteristics:

- The LMESs are operating in one or more frequency ranges of the Land Mobile Satellite Service (LMSS):
 - 1 525,0 MHz to 1 544,0 MHz (Space - Earth);
 - 1 555,0 MHz to 1 559,0 MHz (Space - Earth);
 - 1 626,5 MHz to 1 645,5 MHz (Earth - Space);
 - 1 656,5 MHz to 1 660,5 MHz (Earth - Space);
- The LMESs could be either vehicle mounted or portable equipment;
- The LMESs could consist of a number of modules including a keyboard interface to the user;
- The LMESs are operating as part of a satellite network used for the distribution and/or exchange of information between users;
- The LMESs are controlled and monitored by a Network Control Facility (NCF). The NCF is outside the scope of this TBR.

This TBR applies to the LMES with its ancillary equipment and its various terrestrial ports, and operated under the conditions which are within the ranges of humidity, temperature and supply voltage declared by the manufacturer.

The requirements have been selected to ensure an adequate level of compatibility with other radio services. The levels, however, do not cover extreme cases which may occur in any location but with a low probability of occurrence.

This TBR may not cover those cases where a potential source of interference which is producing individually repeated transient phenomena or a continuous phenomenon is 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.

This TBR does not contain any requirement, recommendation or information about the installation of the LMESs.

Compliance of a LMES to the requirements of this TBR does not imply compliance to any requirement related to the use of the LMES (e.g. licensing requirements).

2 Normative references

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

- [1] Council Directive 93/97/EEC (1993) supplementing Directive 91/263/EEC in respect of satellite earth station equipment.
- [2] Council Directive 91/263/EEC (1991) on the approximation of the laws of Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity.

- [3] ETS 300 339 (1997): "Radio Equipment and Systems (RES); General electromagnetic compatibility (EMC) for radio communications equipment".
- [4] Council Directive 89/336/EEC (1989) on the approximation of the laws of Member States relating to electromagnetic compatibility.
- [5] CISPR N°16-1 (1993): "Specification for radio interference measuring apparatus and measurements methods; Part 1: Radio disturbance and immunity measuring apparatus; Annex G: Validation procedure of open area test site for the frequency range of 30 MHz to 1 000 MHz".

NOTE: This TBR also contains a number of informative references which have been included to indicate the sources from which various material has been derived, hence they do not have an associated normative reference number. Details of these publications are given in annex B (Bibliography).

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this TBR the following definitions apply:

carrier-off state: A LMES is in this state when either it is authorized by the Network Control Facility (NCF) to transmit but when it does not transmit any signal, or when it is not authorized by the NCF to transmit.

carrier-on state: An LMES is in this state when it is authorized by the NCF to transmit and when it transmits a signal.

Control Channel: A channel or channels by which LMESs receive control information from the NCF of their network.

Externally Mounted Equipment (EME): The EME consists of those of the modules of the IE which are intended to be mounted externally to the vehicle as stated by the manufacturer.

Installable Equipment (IE): An equipment which is intended to be fitted to a vehicle. An IE may consist of one or several interconnected modules.

Internally Mounted Equipment (IME): Those of the modules of the IE which are not declared by the manufacturer as EME are defined as Internally Mounted Equipment (IME).

manufacturer: The legal entity responsible under the terms of the Council Directive 93/97/EEC [1], for placing the product on the market in a member state.

nominated bandwidth: The bandwidth of the LMES radio frequency transmission is nominated by the manufacturer. 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 transmit frequency band within which the LMES operates.

Portable Equipment (PE): A portable equipment is 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.

unwanted emissions: Unwanted emissions are those falling outside the nominated bandwidth.

3.2 Abbreviations

For the purposes of this TBR the following abbreviations apply:

CC	Control Channel
CMF	Control and Monitoring Functions
EIRP	Equivalent Isotropically Radiated Power
EMC	ElectroMagnetic Compatibility
EME	Externally Mounted Equipment
ETS	European Telecommunication Standard
EUT	Equipment Under Test
IE	Installable Equipment
IME	Internally Mounted Equipment
LMES	Land Mobile Earth Station
LMSS	Land Mobile Satellite Service
NCF	Network Control Facility
PE	Portable Equipment
STE	Special Test Equipment
TBR	Technical Basis for Regulation

4 Requirements

4.1 Unwanted emissions outside the bands

4.1.1 Justification

Protection of terrestrial and satellite services from emissions caused by LMESs outside the bands 1 626,5 MHz to 1 645,5 MHz and 1 656,5 MHz to 1 660,5 MHz.

4.1.2 Specification

The unwanted emissions in the measurement bandwidth and in all directions from the Land Mobile Earth Station (LMES) outside the bands 1 626,5 MHz to 1 645,5 MHz and 1 656,5 MHz to 1 660,5 MHz, within which the LMES is designed to operate, shall be below the following limits.

- 1) The unwanted emissions over the frequency range 30 MHz to 1 000 MHz shall not exceed the limits in table 1.

Table 1: Limits of unwanted emissions up to 1 000 MHz at a measuring distance of 10 m

Frequency (MHz)	Quasi-peak limits (dB(μ V/m))
30 to 230	30
230 to 1 000	37

The lower limit shall apply at the transition frequency.

- 2) The unwanted emissions Equivalent Isotropically Radiated Power (EIRP) above 1 000 MHz, in the measurement bandwidth and in all directions shall not exceed:
 - before 1 June 2002 the limits of table 2a;
 - from 1 June 2002 the limits of table 2b.