



# SLOVENSKI STANDARD SIST ETS 300 255 E1:2003

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**Satelitske zemeljske postaje in sistemi (SES) – Kopenske mobilne zemeljske postaje (LMES), ki delujejo v pasovih 11/12/14 GHz, ki zagotavljajo podatkovne komunikacije z nizko bitno hitrostjo (LBRDC)**

Satellite Earth Stations and Systems (SES); Land Mobile Earth Stations (LMESs) operating in the 11/12/14 GHz bands providing Low Bit Rate Data Communications (LBRDC)

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**Satellite Earth Stations and Systems (SES);  
Land Mobile Earth Stations (LMESs)  
operating in the 11/12/14 GHz bands  
providing Low Bit Rate Data Communications (LBRDCs)**

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## Foreword

This European Telecommunication Standard (ETS) has been produced by the Satellite Earth Stations and Systems (SES) Technical Committee of the European Telecommunications Standards Institute (ETSI).

Every ETS prepared by ETSI is a voluntary standard. This ETS contains text concerning type approval of the equipment to which it relates. This text does not make this ETS mandatory in its status as a standard. However, this ETS can be referenced, wholly or in part, for mandatory application by decisions of regulatory bodies.

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## 1 Scope

This European Telecommunication Standard (ETS) provides specifications for the standardisation of the characteristics of Land Mobile Earth Stations (LMESs) with both transmit and receive capabilities in order to ensure general safety and to limit interference to radio communications services.

The LMESs operate as a part of a geostationary satellite network providing Low Bit Rate Data Communications (LBRDC) for land mobile applications.

The frequency bands under which the LMESs operate should be within the following bands:

LMESs transmit	14,00 - 14,25 GHz
LMESs receive	10,70 - 11,70 GHz 12,50 - 12,75 GHz

These LMESs generally have the following characteristics:

- 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 operate in a 3° satellite spacing environment with linear polarisation;
- the antenna of the LMES may be omnidirectional or directional with a means of tracking the satellite.

Because the transmissions from the LMES to the satellite in the 14,00 - 14,25 GHz band fall under a secondary allocation, the transmissions should not cause harmful interference to primary services (e.g. Fixed Satellite Service (FSS)) and at the same time cannot claim protection from harmful interferences from those services.

The main specifications are contained in three categories related to:

- safety: to protect personnel, public and goods from unsafe operating conditions or equipment;
- unwanted emissions: to protect terrestrial and satellite radio services from harmful interference;
- LMES control and monitoring: to specify a minimum set of Control and Monitoring Functions (CMF) that shall be implemented on each LMES in order to minimise the probability that they originate unwanted transmissions that may give rise to harmful interference to other systems.

This ETS deals with two types of specification:

### a) Essential normative requirements (indicated in Clause 4)

Requirements are specified in order to protect other users of the frequency spectrum from unacceptable interference. In addition, requirements are specified for the purposes of general safety.

### b) Recommendations (indicated in Clause 5)

Recommendations are specified relating to matters of general safety, minimisation of interference to other users of the radio spectrum and for the provision of protection of the LMES against electromagnetic interference from other systems.

All tests related to the requirements shall be performed and the results entered in the data sheets of the test report. The ability to comply with the recommendations shall also be noted in the data sheets of the test report. All parameters and operational conditions declared by the manufacturer shall be entered in the test report.

## 2 Normative references

This ETS incorporates, by dated or undated references, provisions from other publications. These normative 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 ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] IEC 215 (1987): "Safety requirements for radio transmitting equipment".
- [2] CISPR Publication No. 22 (1985): "Limits and methods of measurement of radio interference characteristics of information technology equipment".
- [3] IEC 510-2-1 (1978): "Methods of measurement for radio equipment used in satellite earth stations, Part 2: Measurement for sub-systems".
- [4] ETS 300 282: "Satellite Earth Stations and Systems (SES); Network Control Facilities (NCFs) for Land Mobile Earth Stations (LMESs) operating in the 1,5/1,6 GHz and 11/12/14 GHz bands providing Low Bit Rate Data Communications (LBRDCs)".
- [5] IEC 801-3 (1984): "Electromagnetic compatibility for industrial-process measurement and control equipment, Part 3: Radiated electromagnetic field requirements".
- [6] CISPR Publication No. 16 (1987): "CISPR specification for radio interference measuring apparatus and measurement methods".

## 3 Definitions and abbreviations

### 3.1 Definitions

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

**Installable Equipment (IE), Internally Mounted Equipment (IME) and Externally Mounted Equipment (EME):** an 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 manufacturer should indicate which modules are intended to be Externally Mounted Equipment (EME); the remaining module(s) will then be defined as Internally Mounted Equipment (IME). Where different specifications apply to IME and EME, this is noted in the text of this ETS.

**Portable Equipment (PE):** a Portable Equipment (PE) is generally intended to be self-contained, free standing and portable. PE would normally consist of a single module, but may consist of several interconnected modules. In some cases different specifications will apply to PE and this is noted in the text of this ETS.

**Nominated bandwidth:** the bandwidth of the LMES radio frequency transmission is nominated by the manufacturer. The nominated bandwidth should encompass all close-in spectral elements of the transmission which have a level greater than the specified spurious levels. The nominated bandwidth should be wide enough to take account of the transmit carrier frequency stability. The nominated bandwidth should be within the Ka transmit frequency band within which the LMES operates. The value of the nominated bandwidth should be entered on the data sheet of the test report.

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

**Directional antenna:** a directional antenna is defined as one with a transmit gain of 10 dBi or greater.

### 3.2 Abbreviations

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

CMF	Control and Monitoring Function
EIRP	Equivalent Isotropically Radiated Power
EM	Electro-Magnetic
EME	Externally Mounted Equipment
EUT	Equipment Under Test
IE	Installable Equipment
IME	Internally Mounted Equipment
LBRDC	Low Bit Rate Data Communication
LMSS	Land Mobile Satellite Service
LMES	Land Mobile Earth Station
NCF	Network Control Facility
PE	Portable Equipment
RF	Radio Frequency
rms	root mean square
STE	Special Test Equipment

## 4 Requirements

### 4.1 Safety

#### 4.1.1 Mechanical construction

**Purpose:**

Protection of operating personnel, the public and goods from insecure or unsafe structures.

**Specification:**

For Installable Equipment (IE) and Portable Equipment (PE) the mechanical design, construction and finish of the equipment shall conform to IEC 215 [1], section 3, paragraph 9.1.

**Verification:**

Verification shall be demonstrated by documentary evidence and visual inspection.

#### 4.1.2 Electrical safety, power voltages

**Purpose:**

Protection of operating personnel and the public from electric shock.

**Specification:**

The electrical safety of the equipment shall be in accordance with paragraphs 13, 14, 15 and 16 and Appendix B of IEC 215 [1].

**Verification:**

Conformance shall be determined by documentary evidence and visual inspection.

#### 4.1.3 Radio frequency radiation protection

**Purpose:**

To indicate the distance from the LMES below which RF power densities in excess of 10 W/m<sup>2</sup>, when averaged over a 6 minute period, may be experienced.