SLOVENSKI STANDARD
SIST EN 301 430:2001

01-september-2001

Satelitske zemeljske postaje in sistemi (SES) - Harmonizirani EN za prenosljive zemeljske postaje (TES) za satelitsko novinarstvo (SNG), ki delujejo v frekvenļ nih pasovih 11-12/13-14 GHz, ki zajema bistvene zahteve ļ lena 3.2 direktive R&TTE

Satellite Earth Stations and Systems (SES); Harmonized EN for Satellite News Gathering Transportable Earth Stations (SNG TES) operating in the 11-12/13-14 GHz frequency bands covering essential requirements under article 3.2 of the R&TTE directive

Ta slovenski standard je istoveten z: **EN 301 430 Version 1.1.1**

ICS:

33.070.40	Satelit	Satellite

SIST EN 301 430:2001 **en**

ETSI EN 301 430 V1.1.1 (2000-05)

Candidate Harmonized European Standard (Telecommunications series)

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Reference
DEN/SES-000-TBR30

Keywords
satellite, earth station, SNG, regulation

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Sous-Préfecture de Grasse (06) N° 7803/88

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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 [4] (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").

National transposition dates	
Date of adoption of this EN:	28 April 2000
Date of latest announcement of this EN (doa):	31 July 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 January 2001
Date of withdrawal of any conflicting National Standard (dow):	31 January 2001

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.

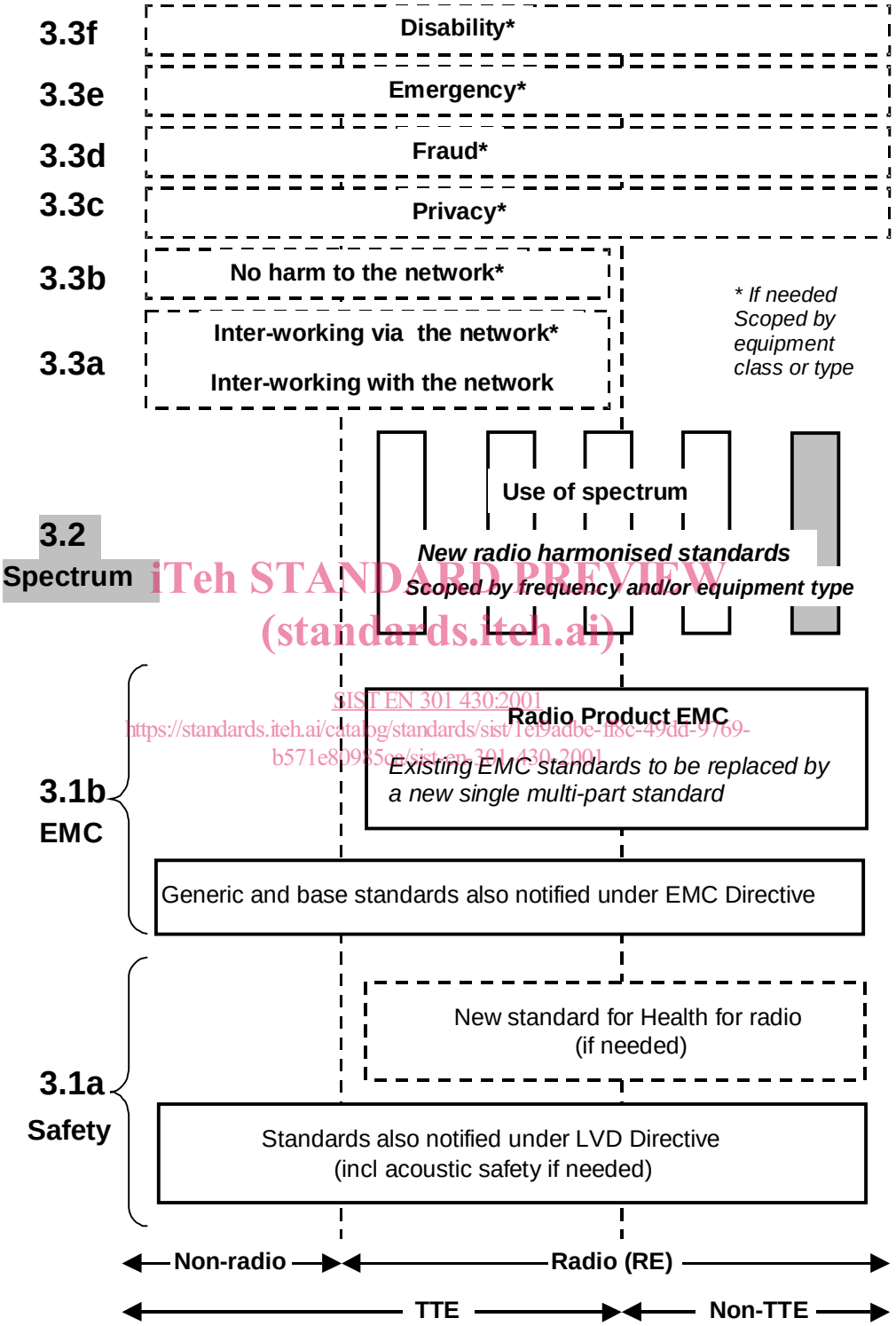

Figure 1: Modular structure for the various standards used under the R&TTE Directive

The left hand edge of the figure shows the different subclauses 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 TBR 030 [5].

The determination of the parameters of the user earth stations using a given geo-stationary satellite for the protection of the spectrum allocated to that satellite, is considered to be under the responsibility of the satellite operator or the satellite network operators. For this reason the requirement on the cross polarization discrimination which was in TBR 30 [5] has not been copied in the present document and intermodulation limits inside the transmit frequency band(s) are to be determined by system design and are subject to satellite operator specifications.

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.

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 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.

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

1 Scope

The present document applies to Satellite News Gathering (SNG) Transportable Earth Stations (TESs) which have the following characteristics:

- the SNG TESs are designed for Satellite News Gathering (SNG) which can be either an unforeseen or pre-planned activity;
- SNG TES is capable of transmitting television signals and associated audio or programme audio only towards a satellite positioned on the geostationary orbit. The modulation method may be either analogue or digital. Such transmissions are point-to-point or point-to-multipoint but not for general broadcast reception;
- the SNG TESs are designed for relocation at any time to a different fixed operating location but are not intended to operate during the relocation period. The SNG TESs can be either vehicle mounted or packed for transportation. The SNG TESs considered in the present document are those designed to operate whilst stationary;
- the SNG TESs are operating in the following bands allocated to the Fixed Satellite Services (FSS):
  - 10,70 GHz to 11,70 GHz (space-to-earth, shared);
  - 12,50 GHz to 12,75 GHz (space-to-earth, exclusive);
  - 12,75 GHz to 13,25 GHz (earth-to-space, shared);
  - 13,75 GHz to 14,25 GHz (earth-to-space, exclusive);
  - 14,25 GHz to 14,50 GHz (earth-to-space, shared).

- frequencies could be selected from through the entire frequency range or be restricted to a range completely enclosed within those bands. These bands are partly shared between FSS and Fixed Service (FS);

- at present the ITU Radio Regulations [3] restrict the use of the 13,75 GHz to 14,00 GHz band to earth stations having an antenna diameter of 4,5 m or greater and having a transmitting EIRP between 68 dBW and 85 dBW;
- the SNG TESs use linear polarization;
- the SNG TESs operate through a geostationary satellite at least 3° away from any other geostationary satellite operating in the same frequency band and covering the same area;
- the SNG TES antenna diameter does not exceed 5 m, or equivalent corresponding aperture;
- the SNG TESs are designed for attended operation.

The present document applies to the SNG TES with its ancillary equipment and its various terrestrial ports, and when operated within the boundary limits of the operational environmental profile declared by the applicant.

The present document is intended to cover the provisions of Directive 1999/5/EC [1] (R&TTE Directive) Article 3.2, 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: A list of such ENs is included on the ETSI web site.

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] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications equipment and the mutual recognition of their conformity.

[2] CISPR 16-1: "Specification for radio disturbance and immunity measuring apparatus and methods - Part 1: Radio disturbance and immunity measuring apparatus" (annex G: Validation of the open area test site for the frequency range of 30 MHz to 1 000 MHz).

[3] ITU Radio Regulations.

[4] 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.

[5] TBR 030: "Satellite Earth Stations and Systems (SES); Satellite News Gathering (SNG) Transportable Earth Stations (TES) operating in the 11-12/13-14 GHz frequency bands".

3 Definitions and abbreviations

3.1 Definitions

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

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

carrier-off state: that state where the SNG TES is electrically powered and is not transmitting a signal.

NOTE 1: A SNG TES is considered to be in the carrier-off state when one of the following conditions is satisfied:

- the High Power Amplifier (HPA) is in standby mode;
- the transmit subsystem is not switched to the antenna.

carrier-on state: that state where the SNG TES is transmitting a signal.

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.

exclusion band: exclusion band is centred on the transmit frequency and is equal to 5 times the occupied bandwidth.

occupied Bandwidth (B_0): for a digital modulation scheme the width of the signal spectrum 10 dB below the maximum inband density. For an analogue modulation scheme the occupied bandwidth (B_o) is defined as follows:

$$B_o = \Delta F_{pp} + 2f_m$$

where:

ΔF_{pp} = peak-to-peak frequency deviation of the TV-carrier for a 1 V peak-to-peak test tone at the pre-emphasis network cross-over frequency in Hz; and

fm = top video baseband frequency (e.g. 5 MHz).

Satellite News Gathering Transportable Earth Station (SNG TES): equipment capable of transmitting television signals and associated audio or programme audio only towards a satellite positioned on the geostationary orbit. The modulation method may be either analogue or digital. Such transmissions are point-to-point or point-to-multipoint but not for general broadcast reception.

The SNG TES usually comprises the main parts, as defined below, and all power, interconnecting and other cables required for proper operation of the equipment as follows:

a) the antenna subsystem, which converts the incident electromagnetic wave into a guided wave and vice versa and which includes any mounting that may be required;

b) the transmit subsystem, which is composed of the frequency translation equipment and the high power amplifier;

c) the receive subsystem, which consists of the low noise amplifier and the frequency translation equipment;

d) the ground communications subsystem, which consists of modulation and demodulation equipment, either analogue or digital, and associated baseband equipment;

e) the monitoring and control subsystem which consists of test equipment together with a transmitter identification system if implemented;

f) the communications subsystem which consists of and a facility for two way communication if implemented;

g) the power subsystem, which consists of any power generation equipment that may be required;

h) the transportation subsystem, which consists of either a vehicle for vehicle mounted SNG TES or flight cases for "flyaway" SNG TES.

spurious radiation: any radiation outside the exclusion band.

transmit frequency band: one of the following frequency bands, or a part of them, within which the SNG TES is able to transmit its carrier:

- 12,75 GHz to 13,25 GHz;
- 13,75 GHz to 14,50 GHz.

The transmit frequency bands of the SNG TES are declared by the applicant.

NOTE 2: An SNG TES may be designed for several transmit frequency bands.

3.2 Abbreviations

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

EIRP	Equivalent Isotropically Radiated Power
EUT	Equipment Under Test
HPA	High Power Amplifier
LNA	Low Noise Amplifier
LNB	Low Noise Block
modem	MODulator/DEModulator
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
SNG TES	Satellite News Gathering Transportable Earth Station