SLOVENSKI STANDARD
SIST EN 301 681 V1.4.1:2012

01-januar-2012

Satelitske zemeljske postaje in sistemi (SES) - Harmonizirani evropski standard (EN) za mobilne zemeljske postaje (MES) geostacionarnih mobilnih satelitskih sistemov, vključno z ročnimi zemeljskimi postajami, za satelitska osebna komunikacijska omrežja (S-PCN), ki delujejo v frekvenčnih pasovih 1,5/1,6 GHz pri mobilni satelitski storitvi (MSS), ki zajema bistvene zahteve člena 3.2 direktive o radijski in telekomunikacijski terminalski opremi (R&TTE)

Satellite Earth Stations and Systems (SES) - Harmonized EN for Mobile Earth Stations (MESs) of Geostationary mobile satellite systems, including handheld earth stations, for Satellite Personal Communications Networks (S-PCN) in the 1,5/1,6 GHz bands under the Mobile Satellite Service (MSS) covering the essential requirements of article 3.2 of the R&TTE Directive

Ta slovenski standard je istoveten z: **EN 301 681 Version 1.4.1**

ICS:

33.070.40 Satelit Satellite

SIST EN 301 681 V1.4.1:2012 **en**

ETSI EN 301 681 V1.4.1 (2011-11)

Satellite Earth Stations and Systems (SES); Harmonized EN for Mobile Earth Stations (MESs) of Geostationary mobile satellite systems, including handheld earth stations, for Satellite Personal Communications Networks (S-PCN) in the 1,5/1,6 GHz bands under the Mobile Satellite Service (MSS) covering the essential requirements of article 3.2 of the R&TTE Directive

Reference
REN/SES-00320

Keywords
earth station, MES, mobile, MSS, radio, satellite, S-PCN

ETSI

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

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

Important notice

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at
http://portal.etsi.org/tb/status/status.asp

If you find errors in the present document, please send your comment to one of the following services:
http://portal.etsi.org/chaircor/ETSI_support.asp

Copyright Notification

Contents

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://ipr.etsi.org).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Harmonized European Standard (EN) 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 Directive 98/34/EC [7] as amended by Directive 98/48/EC [8].

The title and reference to the present document are intended to be included in the publication in the Official Journal of the European Union of titles and references of Harmonized Standard under the Directive 1999/5/EC [1].

See article 5.1 of Directive 1999/5/EC [1] for information on presumption of conformity and Harmonised Standards or parts thereof the references of which have been published in the Official Journal of the European Union.

The requirements relevant to Directive 1999/5/EC [1] are summarised in annex A.

National transposition dates	
Date of adoption of this EN:	18 November 2011
Date of latest announcement of this EN (doa):	29 February 2012
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2012
Date of withdrawal of any conflicting National Standard (dow):	31 August 2013

Introduction

The present document is part of a set of standards developed by ETSI and is designed to fit in a modular structure to cover all radio and telecommunications terminal equipment within the scope of the R&TTE Directive [1]. The modular structure is shown in EG 201 399 [i.1]. The determination of the parameters of the user earth stations using a given 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.

The present document specifies new emission requirements for MESs that are capable of transmitting in the frequency band from 1 668,0 MHz to 1 675,0 MHz. Following the WRC-03 decision to allocate to MSS the bands 1 518 MHz to 1 525 MHz (space to Earth) and 1 668 MHz to 1 675 MHz (Earth to space) and the conclusions of WRC-07, the present document specifies the necessary requirements to harmonise the use of these extended frequency bands by MESs.

The present document treats the two parts of the L-band frequency allocation (as extended) as two sub-bands which may be used separately or in any combination. The original L-band allocation is referenced in the present document as "sub-band 1" and the extended L-band is referenced as "sub-band 2".

A new table (table 3a) is added to the present document for MESs that are capable of transmitting in any combination of either or both of these sub-bands. The new table 3a is recommended for all new MESs, including MESs that can only operate in sub-band 1.

The applicant may choose between table 3 and table 3a for new MESs that are capable of transmitting in only the sub-band 1: the applicant has to declare which alternative is used.

The technical requirements in the present document are applied under article 3.2 of the R&TTE Directive [1], concerning the effective uses of the spectrum allocated to terrestrial/space radio communication and orbital resources so as to avoid harmful interference. These requirements are in two major categories:

- **emissions limits:** to protect other radio services from harmful interference generated by the MES in normal use;
- **MES Control and Monitoring Functions (CMF):** to protect other radio services from unwanted transmissions from the MES. The CMF in each MES is capable of answering to commands from the Network Control Facilities (NCF) for its S-PCN.

NOTE: The requirements for Network Control Facilities (NCF) for S-PCN are contained in EN 301 682 [i.2].

The determination of the parameters of the user earth stations using a given 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.

Figure 1: Void

1 Scope

The present document applies to S-PCN MES for Geostationary mobile satellite systems with an EIRP less than or equal to 15 dBW.

The present document sets out the minimum performance requirements and technical characteristics of Mobile Earth Stations (MES) with both transmit and receive capabilities for operation in a Satellite Personal Communication Network (S-PCN) in any combination of all or any part of the Mobile Satellite Service (MSS) frequency bands sub-band 1 and sub-band 2 defined in table 1.

Table 1: Mobile Satellite Service (MSS) frequency band

Sub-band	Transmission path	MSS frequency band
1	MESs transmit 1	1 626,5 MHz to 1 660,5 MHz
	MESs receive 1	1 525 MHz to 1 559 MHz
2	MESs transmit 2	1 668,0 MHz to 1 675,0 MHz
	MESs receive 2	1 518,0 MHz to 1 525,0 MHz

An S-PCN MES may be handheld, portable, vehicle-mounted, host connected, semi-fixed or fixed equipment, or may be an element in a multimode terminal; it may consist of a number of modules with associated connections and user interface, or may be a self contained single unit.

If the MES is an element in a multimode terminal, unless otherwise stated in the present document, its requirements apply only to the S-PCN MES element of the terminal operating in the MSS frequency band given in table 1.

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 1: A list of such ENs is included on the web site http://www.newapproach.org.

NOTE 2: These MESs are controlled and monitored by a Network Control Facility (NCF). The NCF is outside the scope of the present document.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are necessary for the application of the present document.

[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 (R&TTE Directive).

[2] Void.

[3] Void.

[4] ITU-T Recommendation O.153 (1992): "Basic parameters for the measurement of error performance at bit rates below the primary rate".

[5] CISPR 16-1-4 (2010): "Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus- Antennas and test sites for radiated disturbance measurements".

[6] Void.

[7] 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.

[8] Directive 98/48/EC of the European Parliament and of the Council of 20 July 1998 amending Directive 98/34/EC laying down a procedure for the provision of information in the field of technical standards and regulations.

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI EG 201 399: "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of Harmonized Standards for application under the R&TTE Directive".

[i.2] ETSI EN 301 682: "Satellite Personal Communications Networks (S-PCN); Network Control Facilities (NCF) for Mobile Earth Stations (MESs), including handheld earth stations, for S-PCN in the 1,5/1,6 GHz bands, providing voice and/or data communications under the Mobile Satellite Service (MSS)".

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:

3dB Bandwidth (B3dB): total width of the signal spectrum 3 dB below the maximum in-band density

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

carrier-off state: MES 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: MES is in this state when it is authorized by the NCF to transmit and when it transmits a signal

carrier-on time (initial bursts): period when an MES is transmitting a signal

NOTE: For MESs that transmit in a non-continuous mode, the carrier-on time only includes the times when the MES is transmitting a signal.

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 the antenna gain in the direction considered, relative to an isotropic source radiating uniformly in all directions

fellow radio station: one of the (other) modes of a multimode MES

handheld: indicates an MES which is self-contained and is small enough and light enough to be carried and used during a call with one hand

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

host equipment: 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): equipment which is intended to be installed in a vehicle

NOTE: 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 modules(s) as Internally Mounted Equipment (IME).

Laboratory Test Equipment (LTE): logical grouping that contains the standard test equipment provided by a test laboratory

MSS band: continuous range of frequencies allocated by the ITU to the MSS

multimode: indicates equipment that accommodates radio stations of different radio networks

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

NOTE: For test purposes NCF control messages may originate from Special Test Equipment (STE).

network control channel: channel by which an MES receives general control information from the NCF of its S-PCN

nominated bandwidth (Bn): bandwidth of the MES radio frequency transmission that is nominated by the applicant and that is wide enough to encompass all spectral elements of the transmission necessary for communication and which have a level greater than the specified unwanted emissions limits; also the nominated bandwidth is centred on the transmit frequency and does not exceed 180 % of the 3 dB bandwidth of the signal and is within the assigned part of the MSS transmit frequency band within which the MES operates

NOTE: The nominated bandwidth is wide enough to take account of the transmit carrier frequency stability.

operational frequency range(s): sub-portion(s) of the band 1 626,5 MHz to 1 660,5 MHz and 1 668,0 MHz to 1 675,0 MHz in the earth-to-space direction to the MSS network, for which the equipment has been designed as declared by the applicant

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

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

radiated measurement: measurement of an actual radiated field

Special Test Equipment (STE): equipment which allows a test laboratory to control the MES so that the tests required by the present document can be performed

sub-band: contiguous portion of the operating band

NOTE: Two sub-bands are defined (see table 1).

test laboratory: laboratory which performs the conformance testing of the MES against the present document

NOTE: The test laboratory may be the applicant's laboratory.

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

transmission format: physical characteristics of the signal that is transmitted by an MES

NOTE: An MES may use more than one transmission format within a single S-PCN.

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

3.2 Abbreviations

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

B_{3dB}	3dB Bandwidth
B_n	Nominated Bandwidth
CDMA	Code Division Multiple Access
CMF	Control and Monitoring Functions
dBW	deciBels relative to 1 Watt
EIRP	Equivalent Isotropically Radiated Power
EMC	Electro-Magnetic Compatibility
EME	Externally Mounted Equipment
IE	Installable Equipment
IEC	International Electrotechnical Commission/Committee
IME	Internally Mounted Equipment
ITU	International Telecommunications Union
LTE	Laboratory Test Equipment
MES	Mobile Earth Station
MIC	MES Identification Code
MSS	Mobile Satellite Service
NCF	Network Control Facility
PE	Portable Equipment
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
S-PCN	Satellite Personal Communications Network
STE	Special Test Equipment
TDMA	Time Division Multiple Access

4 Technical requirement specifications

4.1 Environment profile

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be declared by the applicant. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the declared operational environmental profile.

The environmental profile for operation of the equipment shall include the ranges of humidity, temperature and supply voltage.

Table 2: Void