



SLOVENSKI STANDARD

SIST EN 302 574-2 V1.1.1:2010

01-november-2010

Satelitske zemeljske postaje in sistemi (SES) - Harmonizirani standard za satelitske zemeljske postaje za MSS, ki delujejo v frekvenčnih pasovih od 1980 MHz do 2010 MHz (zemlja-vesolje) in 2170 MHz do 2200 MHz (vesolje-zemlja) - 2. del: Uporabniška oprema za širokopasovne sisteme: Harmonizirani EN, ki zajema bistvene zahteve člena 3.2 direktive R&TTE

Satellite Earth Stations and Systems (SES) - Harmonized standard for satellite earth stations for MSS operating in the 1 980 MHz to 2 010 MHz (earth-to-space) and 2 170 MHz to 2 200 MHz (space-to-earth) frequency bands - Part 2: User Equipment (UE) for wideband systems: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive

[SIST EN 302 574-2 V1.1.1:2010](https://standards.iteh.ai/catalog/standards/sist/a26818dc-12d5-4b8f-a7e5-b7a7aace576c/sist-en-302-574-2-v1-1-1-2010)

<https://standards.iteh.ai/catalog/standards/sist/a26818dc-12d5-4b8f-a7e5-b7a7aace576c/sist-en-302-574-2-v1-1-1-2010>

Ta slovenski standard je istoveten z: EN 302 574-2 Version 1.1.1

ICS:

33.060.30 Radiorelejni in fiksni satelitski komunikacijski sistemi Radio relay and fixed satellite communications systems

SIST EN 302 574-2 V1.1.1:2010 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 302 574-2 V1.1.1:2010

<https://standards.iteh.ai/catalog/standards/sist/a26818dc-12d5-4b8f-a7e5-b7a7aace576c/sist-en-302-574-2-v1-1-1-2010>

ETSI EN 302 574-2 V1.1.1 (2010-08)

Harmonized European Standard (Telecommunications series)

**Satellite Earth Stations and Systems (SES);
Harmonized Standard for satellite earth stations for
MSS operating in the 1 980 MHz to
2 010 MHz (earth-to-space) and 2 170 MHz to
2 200 MHz (space-to-earth) frequency bands;
Part 2: User Equipment (UE) for wideband systems:
Harmonized EN covering the essential requirements
of article 3.2 of the R&TTE Directive**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 302 574-2 V1.1.1:2010](https://standards.iteh.ai/catalog/standards/sist/a26818dc-12d5-4b8f-a7e5-b7a7aace576c/sist-en-302-574-2-v1-1-1-2010)

<https://standards.iteh.ai/catalog/standards/sist/a26818dc-12d5-4b8f-a7e5-b7a7aace576c/sist-en-302-574-2-v1-1-1-2010>



Reference

DEN/SES-00283-2

Keywords

broadband, IMT-2000, mobile, satellite**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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 302 574-2 V1.1.1:2010<https://standards.iteh.ai/catalog/standards/sist/a26818dc-12d5-4b8f-a7e5-b7a7aace5742-302-574-2-v1-1-1-2010>**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/chaicor/ETSI_support.asp

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2010.
All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™**, **TIPHON™**, the TIPHON logo and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.

3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

LTE™ is a Trade Mark of ETSI currently being registered

for the benefit of its Members and of the 3GPP Organizational Partners.

GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	6
Foreword.....	6
Introduction	6
1 Scope	7
2 References	7
2.1 Normative references	7
2.2 Informative references.....	8
3 Definitions, symbols and abbreviations	8
3.1 Definitions	8
3.2 Symbols.....	9
3.3 Abbreviations	9
4 Technical requirements specifications	10
4.1 Environmental profile.....	10
4.2 Conformance requirements	10
4.2.1 Introduction.....	10
4.2.2 Control and monitoring functions	10
4.2.2.1 Definition	10
4.2.2.2 Limit.....	10
4.2.2.3 Conformance.....	11
4.2.3 Maximum output power.....	11
4.2.3.1 Definition	11
4.2.3.2 Limit.....	11
4.2.3.3 Conformance.....	11
4.2.4 Spectrum emissions mask.....	11
4.2.4.1 Definition	11
4.2.4.2 Limit.....	12
4.2.4.3 Conformance.....	12
4.2.5 Transmitter spurious emissions.....	12
4.2.5.1 Definition	12
4.2.5.2 Limits	12
4.2.5.3 Conformance.....	13
4.2.6 Minimum output power	13
4.2.6.1 Definition	13
4.2.6.2 Limits	13
4.2.6.3 Conformance.....	13
4.2.7 Adjacent Channel Leakage Power Ratio (ACLR)	13
4.2.7.1 Definition	13
4.2.7.2 Limits	13
4.2.8 Out of synchronization handling of output power	14
4.2.8.1 Definition	14
4.2.8.2 Limits	15
4.2.8.3 Conformance.....	15
4.2.9 Receiver Adjacent Channel Selectivity (ACS)	15
4.2.9.1 Definition	15
4.2.9.2 Limits	15
4.2.9.3 Conformance.....	15
4.2.10 Blocking characteristics	16
4.2.10.1 Definition	16
4.2.10.2 Limits	16
4.2.10.3 Conformance.....	16
4.2.11 Receiver spurious response.....	16
4.2.11.1 Definition	16
4.2.11.2 Limits	17

4.2.11.3	Conformance	17
4.2.12	Receiver intermodulation characteristics	17
4.2.12.1	Definition	17
4.2.12.2	Limits	17
4.2.13	Receiver spurious emissions	17
4.2.13.1	Definition	17
4.2.13.2	Limits	17
4.2.13.3	Conformance	18
5	Testing for compliance with technical requirements	18
5.1	Environmental conditions for testing	18
5.1.1	Specification of the environmental test conditions	18
5.1.2	Tests under extreme voltage conditions	19
5.2	Tests frequencies	19
5.3	Interpretation of the measurement results	19
5.4	Essential radio test suites	20
5.4.1	Control and monitoring functions	20
5.4.1.1	Test method	20
5.4.2	Maximum output power	21
5.4.2.1	Method of test	21
5.4.2.1.1	Initial conditions	21
5.4.2.1.2	Procedure	21
5.4.2.2	Test requirements	21
5.4.3	Spectrum emission mask	21
5.4.3.1	Method of test	21
5.4.3.1.1	Initial conditions	21
5.4.3.1.2	Procedure	22
5.4.3.2	Test requirements	22
5.4.4	Transmitter spurious emissions	22
5.4.4.1	Method of test	22
5.4.4.1.1	Initial conditions	22
5.4.4.1.2	Procedure	22
5.4.4.2	Test requirements	22
5.4.5	Minimum output power	23
5.4.5.1	Method of test	23
5.4.5.1.1	Initial conditions	23
5.4.5.1.2	Procedure	23
5.4.5.2	Test requirements	23
5.4.6	Adjacent Channel Leakage power Ratio (ACLR)	23
5.4.6.1	Method of test	23
5.4.6.1.1	Initial conditions	23
5.4.6.1.2	Procedure	23
5.4.6.2	Test requirements	23
5.4.7	Out of synchronisation handling of output power	24
5.4.7.1	Method of test	24
5.4.7.1.1	Initial conditions	24
5.4.7.1.2	Procedure	24
5.4.7.2	Test requirements	24
5.4.8	Adjacent Channel Selectivity (ACS)	24
5.4.8.1	Method of test	24
5.4.8.1.1	Initial conditions	24
5.4.8.1.2	Procedure	24
5.4.8.2	Test requirements	25
5.4.9	Blocking characteristics	25
5.4.9.1	Method of test	25
5.4.9.1.1	Initial requirements	25
5.4.9.1.2	Procedure	26
5.4.9.2	Test requirements	26
5.4.10	Receiver spurious response	26
5.4.10.1	Method of test	26
5.4.10.1.1	Initial conditions	26
5.4.10.1.2	Procedure	26

5.4.10.2	Test requirements	26
5.4.11	Receiver intermodulation characteristics	26
5.4.11.1	Method of test	26
5.4.11.1.1	Initial conditions	26
5.4.11.1.2	Procedure.....	27
5.4.11.2	Test requirements	27
5.4.12	Receiver spurious emissions	27
5.4.12.1	Method of test	27
5.4.12.1.1	Initial conditions	27
5.4.12.1.2	Procedure.....	27
5.4.12.2	Test requirements	27
Annex A (normative):	HS Requirements and conformance Test specifications Table (HS-RTT).....	28
Annex B (informative):	Environmental profile specification	30
B.1	Introduction	30
B.2	Temperature	30
B.3	Voltage	30
B.4	Test environment.....	31
Annex C (informative):	The EN title in the official languages	32
Annex D (informative):	Bibliography.....	33
History		34

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 302 574-2 V1.1.1:2010](https://standards.iteh.ai/catalog/standards/sist/a26818dc-12d5-4b8f-a7e5-b7a7aace576c/sist-en-302-574-2-v1-1-1-2010)

<https://standards.iteh.ai/catalog/standards/sist/a26818dc-12d5-4b8f-a7e5-b7a7aace576c/sist-en-302-574-2-v1-1-1-2010>

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://webapp.etsi.org/IPR/home.asp>).

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 (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 [i.2] (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").

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

The present document is part 2 of a multi-part deliverable covering the Harmonized Standard for satellite earth stations for MSS operating in the 1 980 MHz to 2 010 MHz (earth-to-space) and 2 170 MHz to 2 200 MHz (space-to-earth) frequency bands, as identified below: <http://standards.iteh.ai/catalog/standards/sist/2008/edc-12d5-4b81-a7c9-b7a7aace576c/sist-en-302-574-2-v1-1-1-2010>

- Part 1: "Complementary Ground Component (CGC) for wideband systems: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive";
- Part 2: "User Equipment (UE) for wideband systems: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive";**
- Part 3: "User Equipment (UE) for narrowband systems: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive".

National transposition dates	
Date of adoption of this EN:	2 August 2010
Date of latest announcement of this EN (doa):	30 November 2010
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 May 2011
Date of withdrawal of any conflicting National Standard (dow):	31 May 2012

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.3].

1 Scope

The present document applies to User Equipment (UE) radio equipment type which has the following characteristics:

- these UEs have both transmit and receive capabilities and operate in an hybrid Satellite/terrestrial network i.e. a satellite and/or Complementary Ground Component (CGC) network;
- the satellite component is based on GSO;
- these UEs operate with an assigned channel signal bandwidth (CBw) of 1 MHz or greater;
- these UEs may be handset, handheld, portable, vehicle-mounted, host connected, semi-fixed or fixed equipment, or may be an element in a multi-mode 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 UE is an element in a multi-mode terminal, unless otherwise stated in the present document, its requirements apply only to the UE element of the terminal operating in the Mobile Satellite Service (MSS) frequency bands given in Table 1.

This radio equipment type is capable of operating in all or any part of the frequency bands given in Table 1.

Table 1: Mobile Satellite Service UE frequency bands

Operating band	Direction of transmission	UE frequency bands
	Transmit	1 980 MHz to 2 010 MHz
	Receive	2 170 MHz to 2 200 MHz

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".

NOTE 1: In addition to the unwanted emission limits defined in clauses 4.2.4 and 4.2.5 of the present document, additional operational constraints may be required to prevent harmful interference into services operating in the neighbouring bands outside the operational band defined in Table 1.

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

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] ETSI TR 100 028 (V1.4.1) (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".
- [3] IEC 60068-2-1 (2007): "Environmental testing - Part 2-1: Tests - Test A: Cold".
- [4] IEC 60068-2-2 (2007): "Environmental testing - Part 2-2: Tests - Test B: Dry heat".

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 TS 125 101: "Universal Mobile Telecommunications System (UMTS); User Equipment (UE) radio transmission and reception (FDD)".
- [i.2] 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.
- [i.3] ETSI EG 201 399: "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of candidate Harmonized Standards for application under the R&TTE Directive".
- [i.4] ETSI EN 302 574-1: "Satellite Earth Stations and Systems (SES); Harmonized standard for satellite earth stations for MSS operating in the 1 980 MHz to 2 010 MHz (earth-to-space) and 2 170 MHz to 2 200 MHz (space-to-earth) frequency bands; Part 1: Complementary Ground Component (CGC) for wideband systems; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive".
- [i.5] ETSI EN 302 574-3: "Satellite Earth Stations and Systems (SES); Harmonized Standard for satellite earth stations for MSS operating in the 1 980 MHz to 2 010 MHz (earth-to-space) and 2 170 MHz to 2 200 MHz (space-to- earth) frequency bands; Part 3: User Equipment (UE) for narrowband systems; Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive".

3 Definitions, symbols 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:

ancillary equipment: equipment (apparatus), used in connection with User Equipment (UE) is considered as ancillary equipment (apparatus) if:

- the equipment is intended for use in conjunction with a user equipment UE to provide additional operational and/or control features to the radio equipment, (e.g. to extend control to another position or location); and
- the equipment cannot be used on a stand alone basis to provide user functions independently of a UE; and
- the UE to which it is connected is capable of providing some intended operation, such as transmitting and/or receiving without the ancillary equipment (i.e. it is not a sub-unit of the main equipment essential to the main equipment basic functions).

channel raster: grade for a Centre Frequency: the centre frequency must be an integer multiple of the channel raster

3.2 Symbols

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

α	roll-off factor of the transmitter filter
Car_Bw	Sub-Carrier spacing for multi carrier signals
CBw	Channel signal bandwidth (channel spacing)
CBw _{assigned}	Assigned channel signal bandwidth (channel spacing)
CBw _{adjacent}	Adjacent channel signal bandwidth (channel spacing)
C _{raster}	Channel raster
F _{uw}	Frequency of unwanted signal

NOTE: This is specified in bracket in terms of an absolute frequency(s) or a frequency offset from the assigned channel frequency.

NBw Noise bandwidth

NOTE: In case of single carrier signal, it is equivalent to the Symbol Rate. NBw (MHz) = Symbol_rate.

In case of Multicarrier signal (for example OFDM), NBw (MHz) = (N+1) × Car_Bw (MHz), where N is the number of used sub-carriers.

<REFSENS> Reference sensitivity level

NOTE: Corresponding to the minimum mean power received at the UE antenna port at which the Bit Error Ratio (BER) does not exceed a specific value (see [i.1]).

ITih STANDARD PREVIEW
(standards.iteh.ai)

3.3 Abbreviations

SIST EN 302 574-2 V1.1.1:2010

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

ACLR	Adjacent Channel Leakage power Ratio
ACS	Adjacent Channel Selectivity
BER	Bit Error Ratio
CDMA	Code Division Multiple Access
CGC	Complementary Ground Component
CW	Continuous Wave

NOTE: Unmodulated signal.

EUT	Equipment Under Test
FDD	Frequency Division Duplexing
F _{uw}	Frequency of unwanted signal
GSM	Global System for Mobile communications
MSS	Mobile Satellite Services
OFDM	Orthogonal Frequency Division Multiplexing
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
SNR	Signal to Noise Ratio
SS	System Simulator
TDMA	Time Division Multiple Access
TH	Temperature High
TL	Temperature Low
ToL	Tolerance
TTE	Telecommunications Terminal Equipment
UE	User Equipment
VH	Voltage High
VL	Voltage Low

4 Technical requirements specifications

4.1 Environmental profile

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be declared by the supplier. 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.

For guidance on how a supplier can declare the environmental profile, see annex B.

4.2 Conformance requirements

The requirements in the present document are based on the assumption that the operating band is shared between systems of the IMT-2000 satellite family or systems having compatible characteristics.

4.2.1 Introduction

To meet the essential requirements under article 3.2 of the R&TTE Directive [1] for IMT-2000 User Equipment (UE) eight essential parameters have been identified. Table 2 provides a cross reference between these eight essential parameters and the corresponding twelve technical requirements for equipment within the scope of the present document.

Table 2: Cross references

Essential parameter	Corresponding technical requirements
Spectrum emissions mask	4.2.4 Spectrum emission mask
	4.2.7 Adjacent Channel Leakage Power Ratio (ACLR)
Conducted spurious emissions from the transmitter antenna connector	4.2.5 Transmitter spurious emissions
Accuracy of maximum output power	4.2.3 Maximum output power
Prevention of harmful interference through control of power	4.2.6 Minimum Output Power
Conducted spurious emissions from the receiver antenna connector	4.2.13 Receiver spurious emissions
Impact of interference on receiver performance	4.2.10 Blocking characteristics
	4.2.11 Receiver spurious response
	4.2.12 Receiver inter-modulation characteristics
Receiver adjacent channel selectivity	4.2.9 Receiver Adjacent Channel Selectivity (ACS)
Control and monitoring functions	4.2.2 Control and monitoring functions
	4.2.8 Out of synchronisation handling of output power

4.2.2 Control and monitoring functions

4.2.2.1 Definition

This requirement, together with other control and monitoring technical requirements identified in the table of cross references in the applicable part, verifies that the control and monitoring functions of the UE prevent it from transmitting in the absence of a valid network.

This test is applicable to radio communications equipment and ancillary equipment.

This test shall be performed on the radio communications equipment and/or a representative configuration of the ancillary equipment.

4.2.2.2 Limit

The maximum measured power during the duration of the test shall not exceed -30 dBm.