

STN	Družicové pozemské stanice a systémy (SES) Pevné pozemské stanice komunikujúce s negeostacionárnymi družicovými systémami v pásmach FSS 20 GHz a 30 GHz Harmonizovaná norma pre prístup k rádiovému spektru	STN EN 303 699 V1.1.1 87 3699
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Satellite Earth Stations and Systems (SES); Fixed earth stations communicating with non-geostationary satellite systems in the 20 GHz and 30 GHz FSS bands; Harmonised Standard for access to radio spectrum

Táto norma obsahuje anglickú verziu európskej normy.
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**Satellite Earth Stations and Systems (SES);
Fixed earth stations communicating with non-geostationary
satellite systems in the 20 GHz and 30 GHz FSS bands;
Harmonised Standard for access to radio spectrum**

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Foreword

This Harmonised European Standard (EN) has been produced by ETSI Technical Committee Satellite Earth Stations and Systems (SES).

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.1] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [i.2].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in table A.1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

National transposition dates	
Date of adoption of this EN:	7 January 2021
Date of latest announcement of this EN (doa):	30 April 2021
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 October 2021
Date of withdrawal of any conflicting National Standard (dow):	31 October 2022

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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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 equipment within the scope of the Directive 2014/53/EU [i.1]. The modular structure is shown in ETSI EG 201 399 [i.3].

The present document is largely based on ETSI EN 303 979 [i.4], for ESOMPs operating with NGSO satellites.

The present document may also be applicable to the frequency bands 30,0 GHz to 31,0 GHz (Earth-to-space) and 20,2 GHz to 21,2 GHz (space-to-Earth) subject to national regulation:

- Annex A (normative) provides HS Requirements specifications.
- Annex B (informative) provides information on Linear Polarization Alignment Error Calculation.
- Annex C (normative) provides specifications concerning radiated measurements.
- Annex D (normative) provides specifications concerning conducted measurements.
- Annex E (informative) provides general information concerning RF cables.
- Annex F (informative) provides information concerning RF waveguides.
- Annex G (informative) covers other supplementary information.
- Annex H (informative) provides information on measurement uncertainty.

The present document is intended to cover the provisions of Directive 2014/53/EU [i.1] (RE Directive) article 3.2 which states that "...radio equipment shall be so constructed that it both effectively uses and supports the efficient use of radio spectrum in order to avoid harmful interference".

Recital 10 of Directive 2014/53/EU [i.1] states that "*in order to ensure that radio equipment uses the radio spectrum effectively and supports the efficient use of radio spectrum, radio equipment should be constructed so that: in the case of a transmitter, when the transmitter is properly installed, maintained and used for its intended purpose it generates radio waves emissions that do not create harmful interference, while unwanted radio waves emissions generated by the transmitter (e.g. in adjacent channels) with a potential negative impact on the goals of radio spectrum policy should be limited to such a level that, according to the state of the art, harmful interference is avoided; and, in the case of a receiver, it has a level of performance that allows it to operate as intended and protects it against the risk of harmful interference, in particular from shared or adjacent channels, and, in so doing, supports improvements in the efficient use of shared or adjacent channels*".

Recital 11 of Directive 2014/53/EU [i.1] states that "*although receivers do not themselves cause harmful interference, reception capabilities are an increasingly important factor in ensuring the efficient use of radio spectrum by way of an increased resilience of receivers against harmful interference and unwanted signals on the basis of the relevant essential requirements of Union harmonisation legislation*".

As a consequence, the present document includes both transmitting and receiving parameters aiming to maximize the efficient use of radio spectrum.

1 Scope

The present document covers requirements to demonstrate that radio equipment both effectively uses and supports the efficient use of radio spectrum in order to avoid harmful interference. The present document applies to satellite communications Earth Stations (ES) with the following characteristics:

- The ES is designed for stationary operation.
- The ES is operating as part of a satellite network (e.g. star, mesh or point to point) used for the distribution and/or exchange of information.
- The transmit and receive frequencies are shown in table 1.

Table 1: Frequency bands

	Frequency Bands/frequencies
Transmit (Earth-to-space) 1	27,5 GHz to 29,1 GHz
Transmit (Earth-to-space) 2	29,5 GHz to 30,0 GHz
Receive (space-to-Earth)	17,30 GHz to 20,20 GHz

- The ES transmits within the frequency range from 27,5 GHz to 29,1 GHz and 29,5 GHz to 30,0 GHz, which is a band allocated to the Fixed Satellite Services (FSS) (Earth-to-space) among other services. National regulations will specify the bands available for the operation of the ES. Such regulations may designate some parts of the frequency range 27,5 GHz to 29,1 GHz to terrestrial services such as the Fixed Service. However, the operation of the ES may be permitted under national regulations in the 29,50 GHz to 30,00 GHz band since this band is allocated on a primary basis to the Fixed Satellite Service.
- The ES receives in one or more frequencies within the range from 17,30 GHz to 20,20 GHz (FSS).
- The ES uses linear or circular polarization.
- The ES operates through non-geostationary satellites.
- The ES is designed for unattended operation.
- The ES is controlled and monitored by a Network Control Facility (NCF). This function may be performed centrally (e.g. for a network of ESs with a central hub) or it could be performed within the ES for autonomous control. The NCF is outside the scope of the present document.
- The ES operating in the 27,5 GHz to 28,6 GHz and 29,5 GHz to 30 GHz bands: epfd limits given in article 22 of the ITU Radio Regulations [i.5] apply for the ESs operating with the NGSO system for the protection of the GSO networks (see No. 22.5D of the ITU RR [i.5]).
- ES operating in the 28,6 GHz to 29,1 GHz band: No. 9.11A of the ITU RR [i.5] applies to the NGSO network of the ES, meaning that the NGSO will be required to coordinate with earlier filed GSO networks or NGSO systems (See No. 5.523A of the ITU RR [i.5]).
- The ES has one or more directive antennas that track satellites.

The present document applies to the ES with its ancillary equipment and its various telecommunication ports, and when operated within the boundary limits of the operational environmental profile as declared by the manufacturer and when installed as required by the manufacturer's declaration or in the user documentation.

NOTE 1: Operational requirements are defined by national administrations and by relevant ECC Decisions.

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 Directive 2014/53/EU [i.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>.

NOTE 3: The relationship between the present document and essential requirements of article 3.2 of Directive 2014/53/EU [i.1] is given in annex A.

2 References

2.1 Normative 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 referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://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.

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

- [1] ANSI C63.5 (2006): "American National Standard for Electromagnetic Compatibility - Radiated Emission Measurements in Electromagnetic Interference (EMI) Control - Calibration of Antennas (9 kHz to 40 GHz)".
- [2] CISPR 16-1-1-2019: "Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus".
- [3] CISPR 16-1-4-2019: "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".
- [4] ETSI ETS 300 457 (Edition 1) (11-1995): "Satellite Earth Stations and Systems (SES); Test methods for Television Receive Only (TVRO) operating in the 11/12 GHz frequency bands".

2.2 Informative 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 referenced document (including any amendments) applies.

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

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] Commission Implementing Decision C(2015) 5376 final of 4.8.2015 on a standardisation request to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council.
- [i.2] Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC (RE Directive).
- [i.3] ETSI EG 201 399: "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of Harmonized Standards for application under the Radio & Telecommunication Terminal Equipment Directive 1999/5/EC (R&TTE) and a first guide on the impact of the Radio Equipment Directive 2014/53/EU (RED) on Harmonized Standards".
- [i.4] ETSI EN 303 979 (V2.1.2): "Satellite Earth Stations and Systems (SES); Harmonised Standard for Earth Stations on Mobile Platforms (ESOMP) transmitting towards satellites in non-geostationary orbit, operating in the 27,5 GHz to 29,1 GHz and 29,5 GHz to 30,0 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU".
- [i.5] ITU Radio Regulations (2016).

- [i.6] ETSI TS 103 052: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Radiated measurement methods and general arrangements for test sites up to 100 GHz".
- [i.7] IEC 60153 (all parts): "Hollow metallic waveguides".
- [i.8] ETSI TR 100 028 (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".
- [i.9] ETSI TR 100 028-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2".
- [i.10] ETSI EG 203 336 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Guide for the selection of technical parameters for the production of Harmonised Standards covering article 3.1(b) and article 3.2 of Directive 2014/53/EU".
- [i.11] ETSI TR 102 273 (all parts) (V1.2.1) (12-2001): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement on Radiated Methods of Measurement (using test site) and evaluation of the corresponding measurement uncertainties".

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