



SLOVENSKI STANDARD SIST EN 302 567 V2.2.1:2021

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Večgigabitna radijska oprema, ki deluje v pasu 60 GHz - Harmonizirani standard za dostop do radijskega spektra

Multiple-Gigabit/s radio equipment operating in the 60 GHz band - Harmonised Standard for access to radio spectrum

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**Multiple-Gigabit/s radio equipment
operating in the 60 GHz band;
Harmonised Standard for access to radio spectrum**

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Contents

Intellectual Property Rights	6
Foreword.....	6
Modal verbs terminology.....	7
Introduction	7
1 Scope	8
2 References	8
2.1 Normative references	8
2.2 Informative references.....	8
3 Definition of terms, symbols and abbreviations.....	9
3.1 Terms.....	9
3.2 Symbols.....	10
3.3 Abbreviations	10
4 Technical requirements specifications	11
4.1 Environmental profile.....	11
4.2 Conformance requirements	11
4.2.1 Spectral power density.....	11
4.2.1.0 Applicability.....	11
4.2.1.1 Definition	11
4.2.1.2 Limit.....	11
4.2.1.3 Conformance.....	11
4.2.2 RF output power	11
4.2.2.0 Applicability.....	11
4.2.2.1 Definition	11
4.2.2.2 Limit.....	11
4.2.2.3 Conformance.....	12
4.2.3 Transmitter unwanted emissions in the spurious domain	12
4.2.3.0 Applicability.....	12
4.2.3.1 Definition	12
4.2.3.2 Limit.....	12
4.2.3.3 Conformance.....	12
4.2.4 Receiver unwanted emissions	13
4.2.4.0 Applicability.....	13
4.2.4.1 Definition	13
4.2.4.2 Limit.....	13
4.2.4.3 Conformance.....	13
4.2.5 Adaptivity (medium access protocol)	13
4.2.5.1 Applicability.....	13
4.2.5.2 Definition	13
4.2.5.3 Requirement	13
4.2.5.4 Conformance.....	14
4.2.6 Short Control Signalling Transmissions	14
4.2.6.1 Applicability.....	14
4.2.6.2 Definition	14
4.2.6.3 Limits	14
4.2.6.4 Conformance.....	14
4.2.7 Receiver Adjacent Channel Rejection	14
4.2.7.1 Applicability.....	14
4.2.7.2 Definition	15
4.2.7.3 Performance Criteria	15
4.2.7.4 Limits	15
4.2.7.5 Conformance.....	15
4.2.8 Transmitter unwanted emissions in the out-of-band domain	15
4.2.8.0 Applicability.....	15
4.2.8.1 Definition	15

4.2.8.2	Limit.....	15
4.2.8.3	Conformance.....	16
4.2.9	Void.....	16
4.2.10	Occupied Channel Bandwidth.....	16
4.2.10.1	Applicability.....	16
4.2.10.2	Definition.....	16
4.2.10.3	Requirements.....	16
4.2.10.4	Conformance.....	16
4.2.11	Receiver Sensitivity level.....	17
4.2.11.1	Applicability.....	17
4.2.11.2	Definition.....	17
4.2.11.3	Limits.....	17
4.2.11.4	Conformance.....	17
5	Testing for compliance with technical requirements.....	17
5.1	Environmental conditions for testing.....	17
5.1.1	Introduction.....	17
5.1.2	Normal test conditions.....	17
5.1.2.1	Normal temperature and humidity.....	17
5.1.2.2	Normal power source.....	17
5.1.3	Extreme test conditions.....	18
5.2	Void.....	18
5.3	Test procedure for the essential radio test suites.....	18
5.3.0	General.....	18
5.3.1	Product Information.....	18
5.3.2	Test modulation, frequency and configuration.....	18
5.3.3	Spectral power density.....	19
5.3.3.1	Test conditions.....	19
5.3.3.2	Test method.....	19
5.3.4	RF output power.....	20
5.3.4.1	Test conditions.....	20
5.3.4.2	Test method.....	20
5.3.5	Transmitter unwanted emissions in the spurious domain.....	21
5.3.5.0	Test conditions.....	21
5.3.5.1	Pre-scan.....	21
5.3.5.2	Identified emissions.....	22
5.3.6	Receiver unwanted emissions.....	23
5.3.6.0	Test conditions.....	23
5.3.6.1	Pre-scan.....	23
5.3.6.2	Identified emissions.....	23
5.3.7	Receiver Adjacent Channel Rejection.....	24
5.3.7.1	Test conditions.....	24
5.3.7.2	Test Method.....	24
5.3.8	Adaptivity (medium access protocol).....	25
5.3.8.1	Test conditions.....	25
5.3.8.2	Test method.....	25
5.3.8.3	Generic test procedure for measuring channel/frequency usage.....	27
5.3.9	Transmitter unwanted emissions in the out-of-band domain.....	28
5.3.9.1	Test conditions.....	28
5.3.9.2	Test method.....	28
5.3.10	Occupied Channel Bandwidth.....	29
5.3.10.1	Test conditions.....	29
5.3.10.2	Test method.....	29
5.3.11	Receiver sensitivity level.....	29
5.3.11.1	Test conditions.....	29
5.3.11.2	Test method.....	29

Annex A (informative): Relationship between the present document and the essential requirements of Directive 2014/53/EU.....31

Annex B (informative): Maximum Measurement Uncertainty.....33

Annex C (normative):	Test sites and arrangements for radiated measurements.....	34
C.1	Test sites	34
C.1.1	Open air test sites	34
C.1.2	Anechoic chamber	35
C.1.2.1	General.....	35
C.1.2.2	Description.....	35
C.1.2.3	Influence of parasitic reflections.....	35
C.1.2.4	Calibration and mode of use	35
C.2	Test antenna.....	37
C.3	Substitution antenna	37
Annex D (normative):	General description of measurement	38
D.1	Radiated measurements.....	38
D.2	Substitution measurement	39
Annex E (informative):	Bibliography.....	40
Annex F (informative):	Change History	41
History		42

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Foreword

This Harmonised European Standard (EN) has been produced by ETSI Technical Committee Broadband Radio Access Networks (BRAN).
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The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.2] 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.6].

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:	5 July 2021
Date of latest announcement of this EN (doa):	31 October 2021
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 April 2022
Date of withdrawal of any conflicting National Standard (dow):	30 April 2023

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

60 GHz radio equipment are capable of operating at data rates of multiple-gigabit per second.

The spectrum usage conditions for this equipment are set in Commission Decision 2013/752/EU [i.4] and Commission Decision 2019/1345/EU [i.7] amending Commission Decision 2006/771/EC of 9 November 2006 [i.5] and ERC Recommendation 70-03 [i.3], annex 3.

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1 Scope

The present document specifies technical characteristics and methods of measurements for radio equipment with integral antennas operating indoor or outdoor at data rates of multiple-gigabit per second in the 60 GHz frequency range.

These radio equipment operate with very wideband communications using a variety of directional medium and high gain antennas to enable a high degree of spectrum reuse, and may use a flexible bandwidth scheme under which they normally operate in a wideband mode, and periodically reduce their bandwidth (e.g. for antenna training and other activities).

The technical characteristics of applications using these radio equipment are further described in ETSI TR 102 555 [i.1].

Equipment in this frequency range intended for outdoor Fixed Local Area Network Extension (FLANE) or Fixed Point-to-Point applications are not in the scope of the present document.

These radio equipment types are capable of operating in all or any part of the frequency bands given in table 1.

Table 1: Radiocommunications service frequency band

	Radiocommunications service frequency band
Transmit	57 GHz to 71 GHz
Receive	57 GHz to 71 GHz

NOTE: The relationship between the present document and essential requirements of article 3.2 of Directive 2014/53/EU [i.6] is given in annex A.

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2 References

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2.1 Normative references

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Not applicable.

2.2 Informative references

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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 TR 102 555: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics of multiple gigabit wireless systems in the 60 GHz range System Reference Document".
- [i.2] 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.3] ERC Recommendation 70-03 (Tromsø 1997 and subsequent amendments): "Related to the Use of Short Range Devices (SRD)".
- [i.4] Commission Implementing Decision 2013/752/EU of 11 December 2013 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices and repealing Decision 2005/928/EC (notified under document C(2013) 8776) Text with EEA relevance.
- [i.5] Commission Decision 2006/771/EC of 9 November 2006 on harmonisation of the radio spectrum for use by short-range devices.
- [i.6] 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.
- [i.7] Commission Implementing Decision (EU) 2019/1345 of 2 August 2019 amending Decision 2006/771/EC updating harmonised technical conditions in the area of radio spectrum use for short-range devices (notified under document C(2019) 5660) Text with EEA relevance.
- [i.8] IEEE 802.11-2020™: "Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".
- [i.9] ITU-R Radio Regulations. <https://standards.iteh.ai/catalog/standards/sist/1550ba2c-18f2-435d-a83d-1a0b6713228a/itu-t-r-1997-02-01>
- [i.10] ERC Recommendation 74-01 (1998 and subsequent amendments): "Unwanted emissions in the spurious domain".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in Directive 2014/53/EU [i.6] and the following apply:

60 GHz range or 60 GHz band: one of the variously permitted frequencies of operation, between 57 GHz to 71 GHz

activity factor: percentage over any one minute time period when equipment is operating under a given set of conditions

adjacent channel: channels on either side of the nominal channel separated by the nominal channel bandwidth

channel separation: minimum separation (in MHz) between the centre frequencies of two adjacent channels in the channel plan of the radio equipment

integral antenna: antenna which is declared to be part of the radio equipment by the manufacturer

NOTE 1: In some cases, it may not be possible to remove an integral antenna or expose an antenna connector without changing the output characteristics of the radio equipment.

NOTE 2: Even with an integral antenna, it might still be possible to separate the antenna from the equipment using a special tool.

mean power: average power (transmitted or received) during the On Time of the signal

nominal channel bandwidth: bandwidth assigned to a single channel

NOTE: The nominal channel bandwidth is declared by the manufacturer as outlined in clause 5.3.1.

occupied bandwidth: bandwidth of the signal containing 99 % of the transmitted mean power

NOTE: Both below the lower and above the upper frequency limits, the mean power emitted is equal to 0,5 % of the total mean power of the emission.

operating channel: channel on which the RLAN equipment has started the Adaptivity mechanism to start transmissions

smart antenna system: equipment that combines multiple transmit and/or receive antenna elements with a signal processing function to increase its radiation and/or reception capabilities

NOTE: This includes techniques such as spatial multiplexing, beam forming, cyclic delay diversity, etc.

3.2 Symbols

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

dBc	decibel relative to the maximum spectral power density of the transmitted signal
dBm	decibel relative to one milliwatt
dBr	decibel relative to a given maximum power level
f	frequency
GHz	thousand millions of cycles per second
kHz	thousands of cycles per second
μs	millionths of second
W	watt power unit

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3.3 Abbreviations

[SIST EN 302 567 V2.2.1:2021](https://standards.iteh.ai/catalog/standards/sist/1550ba2c-18f2-435d-a83d-1d106c1b417c/sist-en-302-567-v2-2-1-2021)

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

BW	BandWidth
CCA	Clear Channel Assessment
CW	Continuous Wave
EFTA	European Free Trade Association
EIRP	Equivalent Isotropically Radiated Power
ERP	Effective Radiated Power
FER	Frame Error Rate
FLANE	Fixed Local Area Network Extension
LBT	Listen Before Talk
MCS	Modulation and Coding Scheme
PD	Power Density
PDL	spectral Power Density Limit
RBW	Resolution BandWidth
RF	Radio Frequency
RMS	Root Mean Square
STA	Station
TXOP	Transmit Opportunity
UUT	Unit Under Test
VBW	Video BandWidth

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 in accordance with its intended use. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the operational environmental profile defined by its intended use.

4.2 Conformance requirements

4.2.1 Spectral power density

4.2.1.0 Applicability

The present requirement applies to all equipment within the scope of the present document.

4.2.1.1 Definition

The spectral power density is the mean Equivalent Isotropically Radiated Power (EIRP) density during a transmission burst.

4.2.1.2 Limit

The maximum spectral power density is applicable to the system as a whole when operated at the highest power spectral density level (EIRP). The maximum spectral power density shall be as indicated in table 2.

Table 2: Spectral Power Density Limit (PDL)
<https://standards.iteh.ai/SIST/EN/302-567-V2-2-1-2021/1d106c1b417c/sist-en-302-567-v2-2-1-2021>

Maximum spectral power density (EIRP)
23 dBm/MHz

4.2.1.3 Conformance

Conformance tests as defined in clause 5.3.3 shall be carried out and result compared to the limit.

4.2.2 RF output power

4.2.2.0 Applicability

The present requirement applies to all equipment within the scope of the present document.

4.2.2.1 Definition

The RF output power is the mean Equivalent Isotropically Radiated Power (EIRP) for the equipment during a transmission burst.

4.2.2.2 Limit

The maximum RF output power is applicable to the system as a whole when operated at the highest stated power level. For a smart antenna system, the limit applies to the configuration that results in the highest EIRP. In case of multiple (adjacent or non-adjacent) channels the total RF output power of all channels shall be less than or equal to the limits in table 3.