



SLOVENSKI STANDARD
SIST EN 302 064 V2.2.1:2024

01-december-2024

Brezžične digitalne video povezave, ki delujejo v frekvenčnem pasu od 1,3 GHz do 50 GHz - Harmonizirani standard za dostop do radijskega spektra

Wireless Digital Video Links operating in the 1,3 GHz to 50 GHz frequency band -
Harmonised Standard for access to radio spectrum

iTeh Standards
(<https://standards.iteh.ai>)

Ta slovenski standard je istoveten z: ETSI EN 302 064 V2.2.1 (2024-10)

[SIST EN 302 064 V2.2.1:2024](https://standards.iteh.ai/catalog/standards/sist/62613ec4-7b70-4a61-964c-56efe5969924/sist-en-302-064-v2-2-1-2024)

<https://standards.iteh.ai/catalog/standards/sist/62613ec4-7b70-4a61-964c-56efe5969924/sist-en-302-064-v2-2-1-2024>

ICS:

33.160.40

Video sistemi

Video systems

SIST EN 302 064 V2.2.1:2024

en

ETSI EN 302 064 V2.2.1 (2024-10)



**Wireless Digital Video Links operating
in the 1,3 GHz to 50 GHz frequency band;
Harmonised Standard for access to radio spectrum**

Document Preview

[SIST EN 302 064 V2.2.1:2024](https://standards.iteh.ai/catalog/standards/sist/62613cc4-7b70-4a61-964c-56efe5969924/sist-en-302-064-v2-2-1-2024)

<https://standards.iteh.ai/catalog/standards/sist/62613cc4-7b70-4a61-964c-56efe5969924/sist-en-302-064-v2-2-1-2024>

Reference

REN/ERM-TG17-160

Keywords

digital, harmonised standard, radio, regulation,
video

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 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Important notice

The present document can be downloaded from the
[ETSI Search & Browse Standards](#) application.

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format on [ETSI deliver](#) repository.

Users should be aware that the present document may be revised or have its status changed,
this information is available in the [Milestones listing](#).

If you find errors in the present document, please send your comments to
the relevant service listed under [Committee Support Staff](#).

If you find a security vulnerability in the present document, please report it through our
[Coordinated Vulnerability Disclosure \(CVD\)](#) program.

Notice of disclaimer & limitation of liability

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.
In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2024.
All rights reserved.

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 for transmitters	11
4.2.1 Transmitter emission classification.....	11
4.2.2 Transmitter test signal configurations.....	12
4.2.3 Transmitter power accuracy.....	12
4.2.3.1 Definition	12
4.2.3.2 Limit.....	12
4.2.3.3 Conformance.....	12
4.2.4 Transmitter frequency stability.....	12
4.2.4.1 Definition	12
4.2.4.2 Limits	12
4.2.4.3 Conformance.....	13
4.2.5 Transmitter occupied bandwidth.....	13
4.2.5.1 Definitions.....	13
4.2.5.2 Limits	13
4.2.5.3 Conformance.....	13
4.2.6 Transmitter channel occupancy	13
4.2.6.1 Definitions.....	13
4.2.6.2 Limits	13
4.2.6.3 Conformance.....	14
4.2.7 Transmitter unwanted emissions in the spurious domain	14
4.2.7.1 Definition	14
4.2.7.2 Limits	14
4.2.7.3 Conformance.....	14
4.2.8 Transmitter unwanted emissions in the out of band domain.....	15
4.2.8.1 Definition	15
4.2.8.2 Limits	15
4.2.8.3 Conformance.....	15
4.3 Conformance requirements for receivers	15
4.3.1 Receiver test signal configurations	15
4.3.2 Minimum performance criterion.....	15
4.3.3 Receiver sensitivity.....	16
4.3.3.1 Definition	16
4.3.3.2 Limits	16
4.3.3.3 Conformance.....	19
4.3.4 Receiver adjacent channel selectivity	19
4.3.4.1 Definition	19
4.3.4.2 Limit.....	20
4.3.4.3 Conformance.....	20
4.3.5 Receiver blocking	20
4.3.5.1 Definition	20

4.3.5.2	Limit.....	20
4.3.5.3	Conformance.....	21
4.3.6	Receiver spurious emissions	21
4.3.6.1	Definition	21
4.3.6.2	Limits	21
4.3.6.3	Conformance.....	21
5	Testing for compliance with technical requirements.....	22
5.1	Environmental conditions for testing	22
5.2	Method of measurement for transmitters.....	22
5.2.1	Generic measurement setup for transmitters.....	22
5.2.2	Transmitter power accuracy.....	22
5.2.2.1	Test conditions	22
5.2.2.2	Test method.....	22
5.2.3	Transmitter Frequency Stability	23
5.2.3.1	Test conditions	23
5.2.3.2	Test method.....	23
5.2.4	Transmitter Occupied Bandwidth.....	23
5.2.4.1	Test conditions	23
5.2.4.2	Test method.....	23
5.2.5	Transmitter Channel Occupancy.....	23
5.2.5.1	Test conditions	23
5.2.5.2	Test method.....	23
5.2.6	Transmitter unwanted emissions in the spurious domain	24
5.2.6.1	Test conditions	24
5.2.6.2	Test method for measurement of conducted spurious emissions	24
5.2.6.3	Test method for measurement of cabinet spurious emissions	24
5.2.7	Transmitter unwanted emissions in the out of band domain.....	25
5.2.7.1	Test conditions	25
5.2.7.2	Test method.....	25
5.3	Method of measurement for receivers	25
5.3.1	Generic measurement setup for receivers	25
5.3.1.1	Test arrangement.....	25
5.3.1.2	Choice of measurement device and QEF methods.....	26
5.3.2	Receiver sensitivity.....	27
5.3.2.1	Test conditions	27
5.3.2.2	Test method.....	27
5.3.3	Receiver adjacent channel selectivity	27
5.3.3.1	Test conditions	27
5.3.3.2	Test method.....	27
5.3.4	Receiver blocking	27
5.3.4.1	Test conditions	27
5.3.4.2	Test method.....	27
5.3.5	Receiver spurious emissions	28
5.3.5.1	Test conditions	28
5.3.5.2	Test method for measurement of conducted spurious emissions	28
5.3.5.3	Test method for measurement of cabinet spurious emissions	28
Annex A (informative):	Relationship between the present document and the essential requirements of Directive 2014/53/EU	30
Annex B (informative):	Additional information to assist measurements.....	32
Annex C (informative):	Maximum Measurement Uncertainty.....	34
Annex D (normative):	Radiated measurement.....	35
D.1	Test sites and general arrangements for measurements involving the use of radiated fields.....	35
D.1.1	General	35
D.1.2	Anechoic chamber	35
D.1.3	Anechoic chamber with a conductive ground plane	36
D.1.4	Open Area Test Site (OATS)	37
D.1.5	Test antenna.....	38

D.1.6	Substitution antenna	38
D.2	Guidance on the use of radiation test sites	39
D.2.1	General	39
D.2.2	Verification of the test site	39
D.2.3	Preparation of the EUT.....	39
D.2.4	Power supplies to the EUT	39
D.2.5	Range length.....	39
D.2.6	Site preparation	40
D.3	Coupling of signals.....	40
D.3.1	General	40
D.3.2	Data signals	41
D.4	Standard test position	41
Annex E (informative):	Coverage of parameters recommended by ETSI EG 203 336 and justification for omissions	42
Annex F (informative):	Change history	45
History		46

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[SIST EN 302 064 V2.2.1:2024](https://standards.iteh.ai/catalog/standards/sist/62613ec4-7b70-4a61-964c-56efe5969924/sist-en-302-064-v2-2-1-2024)

<https://standards.iteh.ai/catalog/standards/sist/62613ec4-7b70-4a61-964c-56efe5969924/sist-en-302-064-v2-2-1-2024>

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are 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 IPR online database](#).

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, 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.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™**, **LTE™** and **5G logo** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

Foreword

This Harmonised European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.11] 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.1].

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.

The present document covers Wireless Video Links operating between 1,3 GHz to 50 GHz.

National transposition dates	
Date of adoption of this EN:	24 October 2024
Date of latest announcement of this EN (doa):	31 January 2025
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 July 2025
Date of withdrawal of any conflicting National Standard (dow):	31 July 2026

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).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

The present document is intended to specify the minimum performance characteristics and the methods of measurement for Wireless Video Links operating in the 1,3 GHz to 50 GHz frequency band.

The present document provides the necessary parameters for equipment to obtain common approval throughout Europe.

The present document covers the minimum characteristics considered necessary in order to make the best use of the available frequencies. It does not necessarily include all the characteristics that may be required by a user, nor does it necessarily represent the optimum performance achievable.

The present document is a testing standard based on spectrum utilization parameters and does not include performance characteristics that may be required by the user or requirements for interfacing equipment.

In preparing the present document, much attention has been given to assure a low interference probability, while at the same time allowing maximum flexibility and service to the end-user.

It does not preclude any digital modulation technique, provided that the modulated signal lies within the prescribed limits.

Electromagnetic Compatibility (EMC) requirements are covered by ETSI EN 301 489-28 [i.3].

The present document contains instructions for the presentation of equipment for testing purposes.

Transmitter Power limits are defined in the terms and conditions of the users operating licence.

The present document is intended to cover the provisions of Directive 2014/53/EU [i.1], 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*".

1 Scope

The present document applies to terrestrial wireless digital video link equipment operating in the frequency band 1,3 GHz to 50 GHz. The present document does not apply to transmitter equipment where the output power exceeds 10 W. Equipment with an integral antenna is also excluded.

NOTE: 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] [CEPT/ERC/REC 74-01E \(May 2019\)](https://standards.iteh.ai/Cept/ERC/REC-74-01E-May-2019/): "Unwanted emissions in the spurious domain".

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] [Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014](https://eur-lex.europa.eu/eli/directive/2014/53/oj/2014/53/eng/20140416-1) 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] Void.
- [i.3] ETSI EN 301 489-28: "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 28: Specific conditions for wireless digital video links; Harmonised Standard for ElectroMagnetic Compatibility".
- [i.4] Void.
- [i.5] ANSI C63.5: "American National Standard for Calibration of Antennas Used for Radiated Emission Measurements in Electromagnetic Interference (EMI) Control-Calibration of Antennas (9 kHz to 40 GHz)".
- [i.6] ETSI TR 102 273 (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement on Radiated Methods of Measurement (using test site) and evaluation of the corresponding measurement uncertainties".

- [i.7] ETSI EG 203 336: "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.8] Void.
- [i.9] Void.
- [i.10] Void.
- [i.11] [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.12] Void.
- [i.13] [Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014](#) amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.

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.1] and the following apply:

antenna port: port, where a radio frequency antenna is connected to equipment

channel bandwidth: minimum bandwidth within which the transmitter's necessary bandwidth can be contained

channel occupancy: ratio between the occupied bandwidth and the channel bandwidth, ($r = B_o / B_c$)

conducted measurements: measurements that are made using a direct connection to the EUT

frequency range: range of operating frequencies over which the equipment can be adjusted

mean power: average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation envelope taken under normal operating conditions

necessary bandwidth: for a given class of emission, width of the frequency band which is just enough to ensure the transmission of the information at the rate and with the quality required under specified conditions

occupied bandwidth: bandwidth containing 99 % of the total modulated signal power

operating frequency: nominal frequency at which the equipment can be operated

NOTE: This is also referred to as the operating centre frequency.

Out Of Band (OOB) emissions: unwanted emissions which fall at frequencies separated from the centre frequency of the wanted emission by less than or equal to 250 % of the channel bandwidth

port: any connection point on or within the Equipment Under Test (EUT) intended for the connection of cables to or from that equipment

quasi-error-free: transmission error rate less than one uncorrected event per hour

radiated measurements: measurements that are made using a test antenna to receive signals radiated from the EUT

spurious domain emissions: unwanted emissions at frequencies separated by more than 250 % of the channel bandwidth from the centre of the occupied spectrum

substitution antenna: antenna connected to a test signal generator for radiated tests

test antenna: antenna connected to a measurement receiver for measuring radiated signals from the EUT

unwanted emissions: spurious emissions and out of band emissions

3.2 Symbols

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

λ	wavelength in metres
β	bandwidth scale factor for spectrum analyser measurements
B_c	channel bandwidth
B_o	occupied bandwidth
d_1	largest dimension of the EUT/dipole after substitution (m)
d_2	largest dimension of the test antenna (m)
dB	decibel; logarithmic unit to express ratio between two quantities
dBd	logarithmic ratio of antenna gain relative to a dipole
dBm	power quantity relative to 1 mW
Δf	deviation from nominal carrier frequency
Δp	transmitter power accuracy
F_{block}	blocking interferer frequency offset
F_{min}	centre frequency of the lowest channel of operation
F_{med}	centre frequency of the channel closest to $(F_{max} + F_{min}) / 2$
F_{max}	centre frequency of the highest channel of operation
f	RF frequency
f_c	nominal carrier frequency
f_{TX}	measured carrier frequency for the transmitter under test
GHz	gigahertz
kHz	kilohertz
L_{XY}	loss of measurement signal path between points X and Y
MHz	megahertz
mW	milliwatt
N	integer multiplier
P_{mean}	nominal RF output power rating provided by the manufacturer
ppm	parts per million
P_{TX}	RF output power measured for the transmitter under test measured at the antenna port
P_{sens}	maximum limit of receiver sensitivity
r	channel occupancy
T	total symbol duration

3.3 Abbreviations

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

ACE	Active Constellation Extension
ACP	Adjacent Channel Power
ACPR	Adjacent Channel Power Ratio
ACS	Adjacent Channel Selectivity
BER	Bit Error Rate
C/N	Carrier to Noise ratio
COFDM	Coded Orthogonal Frequency Division Multiplexing
CW	Carrier Wave
DC	Direct Current
DVB-S2	Digital Video Broadcast - Satellite (second generation)
DVB-T	Digital Video Broadcast - Terrestrial
DVB-T2	Digital Video Broadcast - Terrestrial (second generation)
EC	European Commission
EFTA	European Free Trade Association
EMC	Electro-Magnetic Compatibility
ERC	former European Radio Committee in CEPT
EUT	Equipment Under Test