



SLOVENSKI STANDARD
SIST EN 300 422-3 V2.1.1:2017
01-april-2017

Brezžični mikrofoni - Avdio PMSE na frekvencah do 3 GHz - 3. del: Sprejemniki razreda C - Harmonizirani standard, ki zajema bistvene zahteve člena 3.2 direktive 2014/53/EU

Wireless Microphones - Audio PMSE up to 3 GHz - Part 3: Class C Receivers - Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 300 422-3 V2.1.1:2017
https://standards.iteh.ai/catalog/standards/sist/6e92bd6d-559c-4690-8215-6819b757203f/sist-en-300-422-3-v2-1-1-2017](https://standards.iteh.ai/catalog/standards/sist/6e92bd6d-559c-4690-8215-6819b757203f/sist-en-300-422-3-v2-1-1-2017)

Ta slovenski standard je istoveten z: ETSI EN 300 422-3 V2.1.1 (2017-02)

ICS:

33.160.50 Pribor Accessories

SIST EN 300 422-3 V2.1.1:2017 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 300 422-3 V2.1.1:2017

<https://standards.iteh.ai/catalog/standards/sist/6e92bd6d-559c-4690-8215-6819b757203f/sist-en-300-422-3-v2-1-1-2017>

ETSI EN 300 422-3 V2.1.1 (2017-02)



**Wireless Microphones;
Audio PMSE up to 3 GHz;
Part 3: Class C Receivers;
Harmonised Standard covering the essential requirements
of article 3.2 of Directive 2014/53/EU**

iTech STANDARD PREVIEW
(subject to change)

SIST EN 300 422-3 V2.1.1:2017
http://www.etsi.org/standards-store/info/6819b757203f/sist-en-300-422-3-v2-1-1-2017

Reference

DEN/ERM-TG17-23

Keywords

harmonised standard, PMSE, radio MIC**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 300 422-3 V2.1.1:2017

<https://standards.iteh.ai/catalog/standards/sist/6e92bd6d-559c-4690-8215-6819b7572077/etsi-en-300-422-3-v2-1-1-2017>
Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

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 only prevailing document is the print of the Portable Document Format (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

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

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.

© European Telecommunications Standards Institute 2017.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are Trade Marks of ETSI 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	7
Foreword.....	7
Modal verbs terminology.....	7
Executive summary	8
Introduction	8
1 Scope	9
2 References	10
2.1 Normative references	10
2.2 Informative references.....	10
3 Definitions, symbols and abbreviations	11
3.1 Definitions.....	11
3.2 Symbols.....	14
3.3 Abbreviations	14
4 Technical requirements specifications	15
4.1 Radio microphone	15
4.2 In ear monitoring.....	15
4.3 Tour Guide Systems	15
4.4 Wireless Multichannel Audio Systems.....	15
4.5 Environmental profile.....	16
5 Testing for compliance with technical requirements.....	16
5.1 Presentation of equipment for testing purposes.....	16
5.1.1 Introduction.....	16
5.1.2 Choice of model for testing	17
5.1.3 Definitions of alignment and switching ranges.....	17
5.1.4 Choice of frequencies	17
5.1.5 Testing of single channel equipment	17
5.1.6 Testing of two channel equipment.....	18
5.1.7 Testing of multi-channel equipment (more than two channels).....	18
5.1.8 Testing of equipment without a permanent external RF port.....	18
5.1.8.1 General	18
5.1.8.2 Equipment with a permanent internal RF port	18
5.1.8.3 Equipment with a temporary RF port.....	18
5.2 Mechanical and electrical design.....	18
5.2.1 General.....	18
5.2.2 Physical Controls	18
5.2.3 Performance testing with integral antenna.....	18
6 Test conditions, power sources and ambient conditions	19
6.1 Normal and extreme test conditions	19
6.2 Test power source.....	19
6.3 Normal test conditions.....	19
6.3.1 Normal temperature and humidity	19
6.3.2 Normal test power source voltage.....	19
6.3.2.1 Mains voltage.....	19
6.3.2.2 Other power sources.....	20
6.4 Extreme test conditions	20
6.4.1 Extreme temperatures	20
6.4.1.1 General	20
6.4.1.2 Procedures for tests at extreme temperatures	20
6.4.2 Extreme test power source voltages.....	20
6.4.2.1 Mains voltage	20
6.4.2.2 Other power sources.....	20

7	General conditions.....	20
7.1	Normal test modulation.....	20
7.1.1	Analogue systems.....	20
7.1.2	Digital systems.....	22
7.1.3	WMAS.....	22
7.2	Artificial antenna.....	22
7.2.1	General.....	22
7.3	Test fixture.....	22
7.3.1	General.....	22
7.4	Test site and general arrangements for radiated measurements.....	23
7.4.1	Introduction.....	23
7.5	Modes of operation of the transmitter.....	23
7.5.1	General.....	23
7.6	Arrangement for test signals at the input of the transmitter.....	23
7.6.1	General.....	23
8	Methods of measurement and limits for transmitter parameters.....	23
8.1	Frequency stability.....	23
8.1.1	Method of measurement (analogue).....	23
8.1.2	Method of measurement (digital).....	23
8.1.3	Limit.....	24
8.2	Rated output power.....	24
8.2.1	Method of measurement for equipment without integral antenna.....	24
8.2.2	Method of measurement for equipment with integral antenna.....	24
8.2.2.1	Method of measurement under normal test conditions.....	24
8.2.3	Limit.....	24
8.3	Necessary bandwidth.....	25
8.3.1	General.....	25
8.3.2	Necessary Bandwidth (BN) for Analogue Systems.....	25
8.3.2.1	Method of Measurement.....	25
8.3.2.2	Limits.....	26
8.3.3	Necessary Bandwidth (BN) for Digital Systems.....	26
8.3.3.1	Method of Measurement.....	26
8.3.3.2	Limits.....	28
8.3.4	Necessary Bandwidth (BN) for WMAS.....	29
8.3.4.1	Applicability.....	29
8.3.4.2	Method of measurement.....	29
8.3.4.3	Limits.....	30
8.3.5	Bandwidth measurement procedure for PMSE operation in 2,4 GHz to 2,4835 GHz.....	31
8.3.5.1	Applicability.....	31
8.3.5.2	Definition.....	31
8.3.5.3	Limits.....	31
8.3.5.4	Conformance.....	31
8.3.5.4.1	Test conditions.....	31
8.3.5.4.2	Test method.....	31
8.3.6	Transmitter Unwanted Emissions in the Out-of-band Domain Alternative Measurement Procedure.....	32
8.3.6.1	Applicability.....	32
8.3.6.2	Definition.....	32
8.3.6.3	Limit.....	32
8.3.6.4	Conformance.....	33
8.3.6.4.1	Test conditions.....	33
8.3.6.4.2	Test method.....	33
8.4	Spurious emissions.....	35
8.4.1	Definition.....	35
8.4.2	Method of measurement.....	35
8.4.3	Limits.....	35
8.4.4	Measuring receiver.....	35
8.5	Transmitter intermodulation distortion.....	36
8.5.1	Definition.....	36
8.5.2	Method of measurement.....	36
8.5.3	Limits.....	37

9	Receiver.....	37
9.1	Spurious emissions.....	37
9.1.1	Definitions.....	37
9.1.2	Method of measuring the power level in a specified load.....	38
9.1.3	Method of measuring the effective radiated power of the enclosure.....	38
9.1.4	Method of measuring the effective radiated power.....	38
9.1.5	Limits.....	39
9.2	Receiver sensitivity.....	39
9.2.1	Definition.....	39
9.2.2	Method of measurement.....	39
9.2.3	Limits.....	40
9.3	Receiver adjacent channel selectivity.....	40
9.3.1	Definition.....	40
9.3.2	Method of measurement.....	40
9.3.3	Limits.....	41
9.4	Receiver blocking.....	41
9.4.1	Definition.....	41
9.4.2	Method of measurement.....	41
9.4.3	Limits.....	41
10	Measurement uncertainty.....	41
Annex A (informative): Relationship between the present document and the essential requirements of Directive 2014/53/EU.....43		
Annex B (normative): Measurement of Necessary Bandwidth (B) for analogue systems.....44		
B.1	Test configuration for measurement of the Necessary Bandwidth (B) for analogue systems.....	44
Annex C (normative): Radiated measurement.....45		
C.1	Test sites and general arrangements for measurements involving the use of radiated fields.....	45
C.1.1	General.....	45
C.1.2	Anechoic chamber.....	45
C.1.3	Anechoic chamber with a conductive ground plane.....	46
C.1.4	Open Area Test Site (OATS).....	47
C.1.5	Test antenna.....	48
C.1.6	Substitution antenna.....	48
C.1.7	Measuring antenna.....	49
C.1.8	Stripline arrangement.....	49
C.1.8.1	General.....	49
C.1.8.2	Description.....	49
C.1.8.3	Calibration.....	49
C.1.8.4	Mode of use.....	49
C.2	Guidance on the use of radiation test sites.....	49
C.2.1	General.....	49
C.2.2	Verification of the test site.....	49
C.2.3	Preparation of the DUT.....	50
C.2.4	Power supplies to the DUT.....	50
C.2.5	Volume control setting for analogue speech tests.....	50
C.2.6	Range length.....	50
C.2.7	Site preparation.....	51
C.3	Coupling of signals.....	51
C.3.1	General.....	51
C.3.2	Data signals.....	51
C.3.3	Speech and analogue signals.....	52
C.3.3.0	General.....	52
C.3.3.1	Acoustic coupler description.....	52
C.3.3.2	Calibration.....	52
C.4	Standard test position.....	52

C.5	Test fixture	53
C.5.1	General	53
C.5.2	Description	53
C.5.3	Calibration	54
C.5.4	Mode of use	54
Annex D (informative):	Additional receiver parameters identified under article 3.2 of Directive 2014/53/EU	55
Annex E (informative):	Application form for wireless microphone testing	56
E.1	Introduction	56
E.1.1	Description	56
E.1.2	Notice	56
E.2	Transmitter intermodulation distortion	56
E.2.1	General	56
E.2.2	Definition	56
E.2.3	Method of measurement	56
E.2.4	Limits	56
E.2.5	Settings and results	56
E.3	Receiver Sensitivity	57
E.3.1	General	57
E.3.2	Definition	57
E.3.3	Method of measurement	57
E.3.4	Limits	57
E.3.5	Settings and results	57
E.4	Receiver Adjacent Channel Power Selectivity	58
E.4.1	General	58
E.4.2	Definition	58
E.4.3	Method of measurement	58
E.4.4	Limits	58
E.4.5	Settings and results	58
E.5	Receiver blocking	59
E.5.1	General	59
E.5.2	Definition	59
E.5.3	Method of measurement	59
E.5.4	Limits	59
E.5.5	Settings and results	59
Annex F (informative):	Bibliography	60
Annex G (informative):	Change History	61
History		62

ITeH STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 300 422-3 V2.1.1:2017

<https://standards.iteh.ai/catalog/standards/sist/6e92bd6d-559c-4690-8215-681967572031/sist-en-300-422-3-v2-1-1-2017>

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 (<https://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 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.16] 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.12].

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 is part 3 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.17].

SIST EN 300 422-3 V2.1.1:2017

<https://standards.iteh.ai/standards/etsi/592b161-559c-4690-8215-6819b757203f/sist-en-300-422-3-v2-1-1-2017>
National transition dates

Date of adoption of this EN:	13 February 2017
Date of latest announcement of this EN (doa):	31 May 2017
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 November 2017
Date of withdrawal of any conflicting National Standard (dow):	30 November 2018

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.

Executive summary

With the introduction of Directive 2014/53/EU [i.12], this multi-part deliverable has been reformatted into multiple parts to accommodate the different types of equipment represented, i.e. different receivers for audio Programme Making and Special Events (PMSE) and Assistive Listening Devices (ALD). The present document covers Class C receivers.

The present document seeks to improve spectrum efficiency and has introduced new technology to assist in maximizing the use of available spectrum.

The present document seeks to provide a platform for Wideband Multichannel Audio Systems (WMAS).

Although the present document covers spectrum up to 3 GHz, it should be emphasized that multi-channel audio PMSE systems used in professional productions are best suited to spectrum under 2 GHz for reasons of propagation and body interaction. Further information on audio PMSE is available in ECC Report 204 [i.13].

Introduction

With the introduction of Directive 2014/53/EU [i.12], receiver parameters are now included and the removal of the 9 kHz lower limit has brought inductive loop systems and receivers into this multi-part deliverable. Inductive loop transmitters are covered within ETSI EN 303 340 [i.18] along with test receivers; hearing aids containing inductive loop receivers (often referred to as T coil) are now covered in ETSI EN 300 422-4 [i.20]. The frequency range of the present document has been reduced to accommodate inductive loop receivers.

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 nor requirements for interfacing equipment.

This multi-part deliverable was originated in 1991 when Assistive Listening Devices (ALD) were a very small part of the Radio Microphone Industry; in recent years major advances in both the volume and functionality of ALDs has caused a rethink in how to best present the testing regime in a clear and concise manner. After a number of discussions the present document covers audio PMSE as Parts 1, 2, and 3 and ALDs as Part 4.

Systems including assistive listening devices (Aids for the handicapped) with analogue or digital modulations and operating in the range 863 MHz to 865 MHz may be tested to either the present document or to ETSI EN 301 357 [i.1] with due consideration of power and operating frequency.

ALDs may in some cases require stereo transmission to present both left and right audio information to the wearer. For that reason, devices that transmit information to the hearing impaired may require two channel operation. It is expected that two or more channel devices will be tested separately when determining bandwidth and associated measurements. Channels may involve the use of two separate frequencies or wider bandwidth.

Since the initial adoption of ETSI I-ETS 300 422 [i.2] there has been the introduction of further types of equipment into the market - cordless headphones/loudspeakers, Low power Band II and consumer in-ear monitoring. These are low power wideband systems that have some characteristics in common with radio microphones but are not compatible with multichannel radio microphones. This equipment is covered by ETSI EN 301 357 [i.1] and annex 10 of CEPT/ERC/REC 70-03 [i.6].

Additional standards or specifications may be required for equipment:

- 1) intended to interface to Public Networks, e.g. PSTN. This facility may be subjected to regulatory conditions;
or
- 2) other relevant radio standards.

1 Scope

The present document specifies the technical characteristics and methods of measurement for the following types of equipment:

- 1) Assistive Listening Devices;
- 2) Radio Microphones;
- 3) In-ear Monitoring Systems;
- 4) WMAS (Wireless Multichannel Audio Systems);
- 5) Tour Guide Systems;

with Class C receivers which have significantly reduced performance requirements with respect to sensitivity, adjacent channel selectivity, and receiver blocking compared to those with Class A receivers. It does not necessarily include all the characteristics that may be required by a user, nor does it necessarily represent the optimum performance achievable. Equipment with Class C receivers will support the operation of fewer wireless audio channels in a given amount of spectrum than Class A or Class B receivers.

The present document applies to equipment operating on radio frequencies up to 3 GHz (as shown in table 1) using analogue, digital and hybrid (using both analogue and digital) modulation.

The maximum power recommended for equipment covered by this multi-part deliverable is 250 mW for radio microphones and 10 mW for ALDs.

An exception to this are the Public Hearing Aids defined in the CEPT Report 004 [i.7] and subsequent EC Decision 2005/928/EC [i.9] and EC Decision 2006/771/EC [i.8] on the ex ERMES band (169,4 MHz to 169,8125 MHz) where 500 mW is defined.

The present document covers the essential requirements of article 3.2 of Directive 2014/53/EU under the conditions identified in annex A. The present document also covers radio microphones used in the 863 MHz to 865 MHz band, with a maximum power of 10 mW.

Electromagnetic Compatibility (EMC) requirements are covered by ETSI EN 301 489-9 [i.4].

National regulations on:

- 1) maximum power output;
- 2) licensing status;

will take precedence or those detailed in the latest version of:

- EC Decision 2005/928/EC [i.9];
- ECC/DEC/(05)02 [i.10];
- the EC SRD Decision [i.8]; or
- CEPT/ERC/REC 70-03 [i.6], annex 10 (see <http://www.erodocdb.dk/>);
- EC Decision 2014/641/EU [i.11].

Unless otherwise stated in the EC SRD Decision, ECC Decision or National Interfaces, Radio Microphones can be subject to individual licence.

Table 1: Radiocommunications service frequency bands

Radiocommunications service frequency bands	
Transmit	up to 3 000 MHz
Receive	up to 3 000 MHz

2 References

2.1 Normative references

References are specific, identified by date of publication and/or edition number or version number. Only the cited version 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] IEC 60244-13:1991: "Methods of measurement for radio transmitters - Part 13: Performance characteristics for FM sound broadcasting".

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] ETSI EN 301 357: "Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Technical characteristics and test methods for analogue cordless wideband audio devices using integral antennas operating in the CEPT recommended 863 MHz to 865 MHz frequency range".
- [i.2] ETSI I-ETS 300 422: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless Audio PMSE up to 3 GHz".
- [i.3] Recommendation ITU-R BS.559-2: "Objective measurement of radio-frequency protection ratios in LF, MF, and HF broadcasting".
- [i.4] ETSI EN 301 489-9: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 9: Specific conditions for wireless microphones, similar Radio Frequency (RF) audio link equipment, cordless audio and in-ear monitoring devices".
- [i.5] ETSI TR 102 273: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement on Radiated Methods of Measurement (using test site) and evaluation of the corresponding measurement uncertainties".
- [i.6] CEPT/ERC/REC 70-03: "Relating to the use of Short Range Devices (SRD)".
- [i.7] CEPT Report 004: "Report from CEPT to the European Commission in response to the Mandate to review the frequency band 169,4 - 169,8 MHz".
- [i.8] Commission Decision 2006/771/EC of 9 November 2006 on harmonisation of the radio spectrum for use by short-range devices.
- [i.9] EC Decision 2005/928/EC: "Commission Decision of 20 December 2005 on the harmonisation of the 169,4-169,8125 MHz frequency band in the Community", OJ L 344, 27.12.2005, p. 47-51.
- [i.10] ECC/DEC/(05)02: "ECC Decision of 18 March 2005 on the use of the Frequency Band 169,4-169,8125 MHz".

- [i.11] Commission Implementing Decision of 1 September 2014 on harmonised technical conditions of radio spectrum use by wireless audio programme making and special events equipment in the Union (notified under document C(2014) 6011) (Text with EEA relevance) (2014/641/EU).
- [i.12] 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.13] ECC Report 204: "Spectrum Use and future requirements for PMSE".
- [i.14] Recommendation ITU-R SM.2152 (09-2009): "Definitions of Software Defined Radio (SDR) and Cognitive Radio System (CRS)".
- [i.15] ETSI EG 203 336: "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.16] 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.17] ETSI EN 300 422-1: "Wireless Microphones; Audio PMSE up to 3 GHz; Part 1: Class A Receivers; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU".
- [i.18] ETSI EN 303 340: "Digital Terrestrial TV Broadcast Receivers; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU".
- [i.19] Void.
- [i.20] ETSI EN 300 422-4: "Wireless Microphones; Audio PMSE up to 3 GHz; Part 4: Assistive Listening Devices including personal sound amplifiers and inductive systems up to 3 GHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU".
<https://standards.iteh.ai/catalog/standards/sist/6e92bd6d-559c-4690-8215-657691703000/en-300-422-3-v2-1-1-2017>
- [i.21] ANSI C63.5: "American National Standard for Electromagnetic Compatibility - Radiated Emission Measurements in Electromagnetic Interference (EMI) Control - Calibration of Antennas (9 kHz to 40 GHz)".
- [i.22] ETSI TR 100 028 (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

alignment range: frequency range over which the receiver and the transmitter can be programmed and/or re-aligned to operate without any physical change of components other than programmable read only memories supplied by the manufacturer or the manufacturer's nominee, crystals, and frequency setting elements

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

audio limiting threshold: audio input or output level at which the transmitter audio limiter action may be said to commence

NOTE: It is specified with any accessible variable gain controls set according to the manufacturer's instructions, with a sinusoidal input signal of 500 Hz.

audio PMSE: inclusive description consisting of radio microphones, in ear monitoring systems, audio links

base station equipment: radio and/or ancillary equipment intended for operation at a fixed location and powered directly or indirectly

body worn transmitter: radio microphone that can be attached to the human body

NOTE: The microphone is attached to the transmitter via cable; the antenna radiation characteristics are affected by the human body.

class of emission: set of characteristics of an emission, designated by standard symbols, e.g. type of modulation of the main carrier, modulating signal, type of information to be transmitted, and also, if appropriate, any additional signal characteristics

conducted measurements: measurements that are made using a direct connection to the device under test (DUT)

confidence level: probability of the accumulated error of a measurement being within the stated range of uncertainty of measurement

C-PMSE: cognitive PMSE is built of a Cognitive Radio System (CRS) based on Recommendation ITU-R SM.2152 [1.14] and designed for the purpose and the specific requirements of PSME applications

C-PMSE system: constituted out of information acquisition and C-PMSE

digital modulation: any modulation scheme with discrete constellation points (e.g. FSK, PSK)

enclosure port: physical boundary of the apparatus through which electromagnetic fields may radiate or impinge

NOTE: In the case of integral antenna equipment, this port is inseparable from the antenna port.

frequency stability: spontaneous and/or environmentally caused frequency change within a given time interval

hand held microphone: radio microphone which can be held and operated in the human hand

NOTE: The microphone is directly attached to the transmitter; the antenna radiation characteristics are less affected by the human body than body worn equipment.

hybrid systems: combination of analogue and digital processing and modulation techniques

in ear monitor (IEM): body worn miniature receiver with earpieces for personal monitoring of single- or dual-channel sound

integral antenna: antenna, with or without a connector, designed as, and declared as by the manufacturer, an indispensable part of the equipment

integral microphone: microphone, designed as, and declared as by the manufacturer, an indispensable fixed part of the equipment

mean power (of a radio transmitter): 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 taken under normal operating conditions

mobile equipment: receiver, transmitter or transmitter/receiver (transceiver) intended for installation and use in a vehicle, and powered by the main battery of the vehicle

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

out-of-band emission: emission on a frequency or frequencies immediately outside the necessary bandwidth which results from the modulation process, but excluding spurious emissions

personal hearing aid system: radio communication system comprising of a transmitter, which can be handheld, on a table or around the neck of a hearing impaired person and one or more receivers, where each receiver can have wired or inductive connection to a hearing aid

port: any connection point on or within the device under test (DUT) intended for the connection of cables to or from that equipment

portable equipment: radio and/or ancillary equipment intended for portable (e.g. handheld) operation, powered by its own integral battery

public hearing aid system: broadcast radio communication system comprising one transmitter (up to 500 mW in the band 169,4 MHz to 169,8125 MHz), which is installed at a fixed location in a large auditorium

EXAMPLE: In a church or theatre and one or more receivers, where each receiver can have wired or inductive connection to a hearing aid.

NOTE: May be subject to an individual licence.

radiated measurements: measurements that involve the absolute measurement of a radiated electromagnetic field

Radio Frequency (RF) port: any connection point on or within the DUT intended for the connection of RF cables

NOTE: RF ports are treated as 50 Ω connection points unless otherwise specified by the manufacturer.

radio receiver: item of electronic equipment designed to receive electromagnetic radio frequency emissions

rated output power: mean power which the transmitter delivers at its antenna port under the manufacturer's specified conditions of operation

NOTE: For the purposes of the present document this is quoted as erp below 1 GHz and eirp above 1 GHz.

receiver adjacent channel selectivity: measure of the capability of the receiver to operate satisfactorily in the presence of an unwanted signal, which differs in frequency from the wanted signal by an amount equal to the channel separation declared by the manufacturer

receiver blocking: measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies other than those of the spurious responses or the adjacent channels or bands

receiver co-channel rejection: measure of the capability of a receiver to receive a wanted signal, without exceeding a given degradation, due to the presence of an unwanted signal, both signals being at the nominal frequency of the receiver

<https://standards.iteh.ai/catalog/standards/sist/6e92bd6d-559c-4690-8215-6819b757203f/sist-en-300-422-3-v2-1-1-2017>

receiver sensitivity: ability to receive a wanted signal at low input power level while providing a pre-determined level of performance.

spurious emissions: emission on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information

EXAMPLE: Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products but exclude out of band emissions.

switching range: maximum frequency range over which the receiver or the transmitter can be operated without hardware or software modifications

transmitter intermodulation distortion (IMD): non-linear operation which occurs when at least two signals on different frequencies are injected into a transmitter resulting in at least third order intermodulation product

transmitter intermodulation performance: measure of the capability of the transmitter to inhibit the generation of signals in its nonlinear elements caused by presence of the wanted signal and an interfering signal reaching the transmitter via the antenna

transmitter intermodulation ratio: ratio of the power of the intermodulation product to the wanted signal, when an interference signal is injected into the antenna connector at a specific power level lower than that of the mean power of the wanted signal

Wireless Multichannel Audio Systems (WMAS): wireless audio transmission systems using broadband transmission technique for microphone and in-ear monitor systems, and other multichannel audio PMSE use