

STN	Bezšnúrové mikrófony Zvukové PMSE až do 3 GHz Časť 4: Asistenčné naslúchacie zariadenia vrátane osobných zvukových zosilňovačov a indukčných systémov až do 3 GHz Harmonizovaná norma pokrývajúca základné požiadavky článku 3.2 Smernice 2014/53/EU	STN EN 300 422-4 V2.1.1 87 0422
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**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**

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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.18] 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.14].

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 4 of a multi-part deliverable covering Wireless Microphones, Audio PMSE up to 3 GHz, as identified below:

- Part 1: "Class A Receivers; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU";
- Part 2: "Class B Receivers; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU";
- Part 3: "Class C Receivers; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU";
- 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".**

National transposition dates	
Date of adoption of this EN:	25 April 2017
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Date of withdrawal of any conflicting National Standard (dow):	31 January 2019

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.14], the present 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 (ALDs). Part 4 covers Assistive Listening Devices including personal sound amplifiers and inductive systems with digital and analogue (FM) receivers. It is also applicable to accessories associated with ALDs. In addition, it covers ALDs with inductive receivers (T-coils).

Introduction

With the introduction of Directive 2014/53/EU [i.14], receiver parameters are now included and the removal of the 9 kHz lower limit has brought inductive loop systems and receivers into the present document. Inductive loop transmitters are covered within ETSI EN 303 348 [i.19] along with test receivers; hearing aids containing inductive loop receivers (often referred to as T coil) are now covered in clause 9.2 of the present document. 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.

ETSI EN 300 422 [i.2] 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 ETSI EN 300 422 family [i.2] covers audio PMSE as Parts 1 [i.20], 2 [i.21], and 3 [i.22]; and ALDs as Part 4 (the present document).

Systems including assistive listening devices (Aids for the handicapped) with 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.

Ear worn hearing assistance devices 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.

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 technical characteristics and methods of measurements for Assistive Listening Devices (ALDs) comprising personal hearing aid systems including inductive systems, personal sound amplifiers, and associated accessories for ALDs, e.g. remote controls and audio streaming devices.

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 present document covers the essential requirements of article 3.2 of Directive 2014/53/EU [i.14] under the conditions identified in annex A.

NOTE 1: The frequency bands for this equipment may differ from country to country as specified in their national regulations.

Table 1: Radiocommunications service frequency bands

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

NOTE 2: Power limits for different frequency bands can be found in ECC/DEC/(05)02 [i.11]; the EC SRD Decisions [i.9] and [i.16]; EC Decision 2014/641/EU [i.13]; or CEPT/ERC/REC 70-03 [i.7], annex 10 (or European or national regulations).

NOTE 3: Electromagnetic Compatibility (EMC) requirements are covered by ETSI EN 301 489-9 [i.4].

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 EN 300 422: "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Technical characteristics and test methods for wireless microphones in the 25 MHz to 3 GHz frequency range".
- [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 (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; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU".
- [i.5] 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.6] ANSI C63.5 (all parts): "American National Standard for Calibration of Antennas Used for Radiated Emission Measurements in Electro Magnetic Interference".
- [i.7] CEPT/ERC/REC 70-03: "Relating to the use of Short Range Devices (SRD)".
- [i.8] CEPT Report 04: "Report from CEPT to the European Commission in response to the Mandate to: Review the Frequency Band 169,4 - 169,8 MHz".
- [i.9] Commission Decision 2006/771/EC of 9 November 2006 on harmonisation of the radio spectrum for use by short-range devices.
- [i.10] ECC Report 230: "Harmonisation Possibilities for Assistive Listening Devices in the Band 174-216 MHz".
- [i.11] ECC/DEC/(05)02: "ECC Decision of 18 March 2005 on the use of the Frequency Band 169,4-169,8125 MHz".
- [i.12] CEPT Report 43: "To undertake technical studies on the efficient use of the harmonised 169.4-169.8125 MHz frequency band".
- [i.13] Commission Implementing Decision 2014/641/EU of 01/09/2014 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).
- [i.14] 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.15] CEPT Report 44: "Annual update of the technical annex of the Commission Decision on the technical harmonisation of radio spectrum for use by SRD".
- [i.16] EC Decision 2013/752/EU: Commission Implementing Decision 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.
- [i.17] 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.18] 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.19] ETSI EN 303 348: "Induction loop systems intended to assist the hearing impaired in the frequency range 10 Hz to 9 kHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU".
- [i.20] 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.21] ETSI EN 300 422-2: "Wireless Microphones; Audio PMSE up to 3 GHz; Part 2: Class B Receivers; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU".
- [i.22] ETSI EN 300 422-3: "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".
- [i.23] CENELEC EN 62209-1: "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)".
- [i.24] CENELEC EN 62209-2: "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)".
- [i.25] ETSI TR 100 028 (all parts) (V1.4.1) (12-2001): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".

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