

STN	Elektromagnetická kompatibilita a záležitosti rádiového spektra (ERM). Bezdrôtové mikrofóny vo frekvenčnom rozsahu od 25 MHz do 3 GHz. Časť 1: Technické charakteristiky a meracie metódy.	STN EN 300 422-1 V1.5.1 87 0422
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Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 1: Technical characteristics and methods of measurement

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EUROPEAN STANDARD

**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
Wireless microphones
in the 25 MHz to 3 GHz frequency range;
Part 1: Technical characteristics and
methods of measurement**

Reference

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Foreword

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

The present document has been updated in line with the advances in radio microphone technology in the digital field and the increased use of wireless applications for Assistive listening Devices, also with changes generated within CEPT and the EC in the former ERMES band for aids for the handicapped.

The present document is part 1 of a multi-part deliverable covering the Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range, as identified below:

Part 1: "Technical characteristics and methods of measurement";

Part 2: "Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive".

National transposition dates	
Date of adoption of this EN:	19 May 2015
Date of latest announcement of this EN (doa):	31 August 2015
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	29 February 2016
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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

ETSI EN 300 422 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 Radio Microphone and ALDs.

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.

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 (< 600 kHz maximum occupied bandwidth) or to ETSI EN 301 357-1 [i.1] (< 300 kHz maximum occupied bandwidth) 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 channels will be tested separately when determining bandwidth and associated measurements. Channels may be 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 301 357-1 [i.1] and Annex 13 of CEPT/ERC/REC 70-03 [i.8].

Additional standards or specifications may be required for equipment intended to interface to the Public Switched Telephone Network (PSTN). This facility may be subjected to regulatory conditions.

1 Scope

The present document covers the minimum characteristics considered necessary in order to make the best use of the available frequency spectrum for wireless microphones and Aids for the hearing impaired.

The present document specifies the minimum performance requirements and the methods of measurement of Assistive Listening Devices, radio microphones and in-ear monitoring systems. 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 applies to equipment operating on radio frequencies between 25 MHz and 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 the present document 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.9] and subsequent ECC [i.11] and EC Decisions [i.10] on the ex ERMES band (169,4 MHz to 169,8125 MHz) where 500 mW is defined.

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 apply or those detailed in the latest version of:

- EC Decision 2005/928/EC [i.11];
- ECC/DEC/(05)02 [i.12];
- the EC SRD Decision [i.10]; or
- CEPT/ERC/REC 70-03 [i.8], annex 10 (see <http://www.erodocdb.dk/>).

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

The types of equipment covered by the present document are as follows:

- in ear monitoring systems;
- consumer radio microphones;
- tour guide systems; and
- Assistive Listening Devices (Aids for the handicapped) comprising personal and public hearing aid systems.

Table 1: Radiocommunications service frequency bands

Radiocommunications service frequency bands	
Transmit	25 MHz to 3 000 MHz
Receive	25 MHz to 3 000 MHz

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 reference document (including any amendments) applies.

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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] Recommendation ITU-R BS.559-2: "Objective measurement of radio-frequency protection ratios in LF, MF and HF broadcasting".
- [2] IEC 60244-13: "Methods of measurement for radio transmitters; Part 13: Performance characteristics for FM sound broadcasting".
- [3] ETSI TR 100 028 (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".

2.2 Informative references

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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 301 357-1: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Cordless audio devices in the range 25 MHz to 2 000 MHz; Part 1: Technical characteristics and test methods".
- [i.2] ETSI I-ETS 300 422: "Radio Equipment and Systems (RES); Technical characteristics and test methods for wireless microphones in the 25 MHz to 3 GHz frequency range".
- [i.3] Void.
- [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] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).
- [i.6] 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.7] ANSI C63.5: "American National Standard for Calibration of Antennas Used for Radiated Emission Measurements in Electro Magnetic Interference".
- [i.8] CEPT/ERC/REC 70-03: "Relating to the use of Short Range Devices (SRD)".

- [i.9] 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.10] Commission Decision 2006/771/EC of 9 November 2006 on harmonisation of the radio spectrum for use by short-range devices.
- [i.11] 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.12] ECC/DEC/(05)02: "ECC Decision of 18 March 2005 on the use of the Frequency Band 169.4-169.8125 MHz".
- [i.13] Void.
- [i.14] 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.15] 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)".

koniec náhľadu – text ďalej pokračuje v platenej verzii STN