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Elektroakustične naprave - 4. del: Mikrofoni (IEC 60268-4:2014)

Sound system equipment - Part 4: Microphones (IEC 60268-4:2014)

Elektroakustische Geräte - Teil 4: Mikrofone (IEC 60268-4:2014)

Equipements pour systèmes électroacoustiques - Partie 4: Microphones (CEI 60268-4:2014)

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EUROPEAN STANDARD

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**Sound system equipment - Part 4: Microphones
(IEC 60268-4:2014)**

Equipements pour systèmes électroacoustiques - Partie 4:
Microphones
(CEI 60268-4:2014)

Elektroakustische Geräte - Teil 4: Mikrofone
(IEC 60268-4:2014)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 100/2116/CDV, future edition 5 of IEC 60268-4, prepared by IEC/TC 100 "Audio, video and multimedia systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60268-4:2014.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-04-24
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-07-24

This document supersedes EN 60268-4:2010.

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Endorsement notice

The text of the International Standard IEC 60268-4:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

CISPR 22	NOTE	Harmonized as EN 55022.
IEC 60065:2001	NOTE	Harmonized as EN 60065:2002.
IEC 60065/A1:2005	NOTE	Harmonized as EN 60065/A1:2006.
IEC 60065/A2:2010	NOTE	Harmonized as EN 60065/A2:2010.
IEC 60958-4	NOTE	Harmonized as EN 60958-4.
IEC 61000-3-2	NOTE	Harmonized as EN 61000-3-2.
IEC 61000-3-3	NOTE	Harmonized as EN 61000-3-3.
IEC 61606 (Series)	NOTE	Harmonized as EN 61606 (Series).
IEC 61672-1	NOTE	Harmonized as EN 61672-1.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60268-1	1985	Sound system equipment -- Part 1: General	HD 483.1 S2	1989
+A1	1988		-	-
+A2	1988		-	-
IEC 60268-2	1987	Sound system equipment -- Part 2: Explanation of general terms and calculation methods	HD 483.2 S2	1993
+A1	1991		-	-
IEC 60268-3	2013	Sound system equipment -- Part 3: Amplifiers (GMT)	EN 60268-3	2013
IEC 60268-5	2003	Sound system equipment -- Part 5: Loudspeakers	EN 60268-5	2003
+A1	2007		+A1	2009
IEC 60268-11	1987	Sound system equipment -- Part 11: Application of connectors for the interconnection of sound system components	HD 483.11 S3	1993
+A1	1989		-	-
+A2	1991		-	-
IEC 60268-12	1987	Sound system equipment -- Part 12: Application of connectors for broadcast and similar use	EN 60268-12	1995
+A1	1991		-	-
+A2	1994		+A2	1995
IEC 61000-4-2	2008	Electromagnetic compatibility (EMC) -- Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) -- Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
IEC 61000-4-4	2012	Electromagnetic compatibility (EMC) -- Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2012
IEC 61000-4-6	2008	Electromagnetic compatibility (EMC) -- Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2009
IEC 61000-4-8	2009	Electromagnetic compatibility (EMC) -- Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8	2010

IEC 61000-4-16	-	Electromagnetic compatibility (EMC) - Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz	-	-
IEC 61000-4-17	1999	Electromagnetic compatibility (EMC) - Part 4-17: Testing and measurement techniques - Ripple on d.c. input power port immunity test	-	-
+A1	2001		+A1	2004
+A2	2008		+A2	2009
IEC 61260-1	2014	Electroacoustics - Octave-band and fractional-octave-band filters -- Part 1: Specifications	EN 61260-1	2014
IEC 61938	2013	Multimedia systems - Guide to the recommended characteristics of analogue interfaces to achieve interoperability	EN 61938	2013
CISPR 35	-	Electromagnetic compatibility of multimedia equipment - Immunity requirements	-	-
ITU-T Recommendation P.51	1996	Artificial mouth	-	-
EN 55103-2	2009	Electromagnetic compatibility – Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use – Part 2: Immunity	-	-
EN 300 422-2 V1.3.12011		Electromagnetic compatibility and radio spectrum matters (ERM) – Wireless microphones in the 25 MHz to 3 GHz frequency range – Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive	-	-

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Sound system equipment –
Part 4: Microphones

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Partie 4: Microphones

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SOUND SYSTEM EQUIPMENT –**Part 4: Microphones****FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60268-4 has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment.

This fifth edition cancels and replaces the fourth edition published in 2010, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- clarification of Table 5 of classification of characteristics;
- clarification of graphical representation;
- clarification of environmental influences;
- rewritten clause for EMC;
- tolerances and more specific values for noise measurements;

- inclusion of near-field response for sound source-to-microphone distances of the order of 30 cm.

The text of this standard is based on the following documents:

CDV	Report on voting
100/2116/CDV	100/2186/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60268 series, under the general title *Sound system equipment*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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SOUND SYSTEM EQUIPMENT –

Part 4: Microphones

1 Scope

This part of IEC 60268 specifies methods of measurement for the electrical impedance, sensitivity, directional response pattern, dynamic range and external influences of sound system microphones, and also details the characteristics to be specified by the manufacturer.

It applies to sound system microphones for all applications for speech and music. It does not apply to measurement microphones, but it does apply to each audio channel of microphones having more than one channel, for example for stereo or similar use. It is also applicable to flush-mounted microphones and to the analogue characteristics of microphones with digital audio output.

For the purposes of this International Standard, a microphone includes all such devices as transformers, pre-amplifiers, or other elements that form an integral part of the microphone, up to the output terminals specified by the manufacturer.

The major characteristics of a microphone are considered in Clauses 6 to 21. Additional characteristics are considered in Annex A, Annex C and Annex D.

NOTE The characteristics specified in this standard do not completely describe the subjective response of the microphone. Further work is necessary to find new definitions and measurement procedures for a later replacement by objective characteristics of at least some of the subjective descriptions used to describe microphone performance.

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2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CISPR 35:–, *Electromagnetic compatibility of multimedia equipment – Immunity requirements*¹

IEC 60268-1:1985, *Sound system equipment – Part 1: General*
Amendment 1:1988
Amendment 2:1988

IEC 60268-2:1987, *Sound system equipment – Part 2: Explanation of general terms and calculation methods*
Amendment 1:1991

IEC 60268-3:2013, *Sound system equipment – Part 3: Amplifiers*

IEC 60268-5:2003, *Sound system equipment – Part 5: Loudspeakers*
Amendment 1:2007
Amendment 1:2007

¹ To be published.

IEC 60268-11:1987, *Sound system equipment – Part 11: Application of connectors for the interconnection of sound system components*

Amendment 1:1989

Amendment 2:1991

IEC 60268-12:1987, *Sound system equipment – Part 12: Application of connectors for broadcast and similar use*

Amendment 1:1991

Amendment 2:1994

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test*

Amendment 1:2007

Amendment 2:2010

IEC 61000-4-4:2012, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-6:2008, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

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IEC 61000-4-8:2009, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-16, *Electromagnetic compatibility (EMC) – Part 4-16: Testing and measurement techniques – Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz*

IEC 61000-4-17:1999, *Electromagnetic compatibility (EMC) – Part 4-17: Testing and measurement techniques - Ripple on d.c. input power port immunity test*

Amendment 1:2001

Amendment 2:2008

IEC 61260-1:2014, *Electroacoustics – Octave-band and fractional-octave-band filters – Part 1: Specifications*

IEC 61938:2013, *Multimedia systems – Guide to the recommended characteristics of analogue interfaces to achieve interoperability*

ITU-T Recommendation P.51:1996, *Artificial mouth*

EN 55103-2:2009, *Electromagnetic compatibility – Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use – Part 2: Immunity*

EN 300 422-2 V1.3.1:2011, *Electromagnetic compatibility and radio spectrum matters (ERM) – Wireless microphones in the 25 MHz to 3 GHz frequency range – Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60268-1 and the following apply.