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Hi-fi-lydudstyr og -lydsystemer til hjemmebrug – Målemetoder for og specifikation af ydeevne – Del 5: Højtalere

Household high-fidelity audio equipment and
systems – Methods of measuring and specifying
the performance – Part 5: Loudspeakers

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DANSK STANDARD
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EUROPEAN STANDARD

EN 61305-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2003

ICS 33.160.50

English version

**Household high-fidelity audio equipment and systems –
Methods of measuring and specifying the performance
Part 5: Loudspeakers
(IEC 61305-5:2003)**

Equipements et systèmes audio
grand public haute fidélité –
Méthodes pour mesurer
et spécifier les performances
Partie 5: Haut-parleurs
(CEI 61305-5:2003)

Hi-Fi-Geräte und -Anlagen für den
Heimgebrauch –
Verfahren zur Messung und Angabe
der Leistungskennwerte
Teil 5: Lautsprecher
(IEC 61305-5:2003)

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CENELEC

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

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Ref. No. EN 61305-5:2003 E

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60268-5	- 1)	Sound system equipment Part 5: Loudspeakers	EN 60268-5	2003 2)
IEC 61305-1	- 1)	Household high-fidelity audio equipment and systems - Methods of measuring and specifying the performance Part 1: General	EN 61305-1	1995 2)

1) Undated reference.

2) Valid edition at date of issue.

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INTERNATIONAL STANDARD

IEC
61305-5

First edition
2003-05

Household high-fidelity audio equipment and systems – Methods of measuring and specifying the performance –

Part 5: Loudspeakers



Reference number
IEC 61305-5:2003(E)

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD HIGH-FIDELITY AUDIO EQUIPMENT AND SYSTEMS –
METHODS OF MEASURING AND SPECIFYING THE PERFORMANCE –**

Part 5: Loudspeakers

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 61305-5 has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment.

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

FDIS	Report on voting
100/651/FDIS	100/678/RVD

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.

IEC 61305 consists of the following parts under the general title *Household high-fidelity audio equipment and systems – Methods of measuring and specifying the performance*:

- Part 1: General
- Part 2: FM radio tuners
- Part 3: Amplifiers
- Part 5: Loudspeakers

This standard is Part 5 of IEC 61305 and specifies methods of measuring and specifying the performance of loudspeakers.

Part 1 specifies general assumptions to be used to determine the characteristics of the equipment or system for specification purposes.

Part 2 applies to household high-fidelity radio tuners.

Part 3 applies to household high-fidelity amplifiers.

The committee has decided that the contents of this publication will remain unchanged until 2010. At this date, the publication will be

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

A bilingual version of this standard may be issued at a later date.

HOUSEHOLD HIGH-FIDELITY AUDIO EQUIPMENT AND SYSTEMS – METHODS OF MEASURING AND SPECIFYING THE PERFORMANCE –

Part 5: Loudspeakers

1 Scope

This part of IEC 61305 specifies methods of measuring and specifying the performance of loudspeakers. It applies to sound-system loudspeakers for household high-fidelity audio equipment.

2 Normative references

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

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

IEC 61305-1, *Household high-fidelity audio equipment and systems — Methods of measuring and specifying the performance – Part 1: General*

3 General requirement

Characteristics not otherwise specified more explicitly in this standard shall be in accordance with IEC 60268-5.

4 Conditions for measurement

The electrical conditions shall be those specified in IEC 60268-5.

The climatic conditions shall be those specified in IEC 61305-1.

5 Test signals and acoustical environment

The test signals and the acoustical environment shall be those specified in IEC 60268-5.

6 Methods of measurement

The characteristics to be specified and the methods of measurement shall be as given in Table 1.

¹ To be published.

6 Contents of specifications

6.1 Loudspeaker data to be specified in a document available to the user

The specifications shall contain at least information on the characteristics given in Table 1, item numbers 1, 2, and 4 to 9.

6.2 Loudspeaker data to be labelled on the loudspeaker

The specifications shall contain at least information on the characteristics given in Table 1, item numbers 2, 7, 8 and 9.

Table 1 – Contents of specifications

Characteristics to be specified	Definitions	Methods of measurement
1. Frequency response under free-field conditions	Sound pressure level as a function of frequency, measured under free-field conditions	In accordance with IEC 60268-5:2003, 21.1.2, paragraph 3
2. Effective frequency range	Frequency range as the range over which the response does not vary by more than 10 dB	The effective frequency range can be obtained from the frequency response defined in IEC 60268-5:2003, 21.2.1
3. Frequency response of acoustic power	Sound power level in 1/3-octave bands as a function of frequency	In accordance with IEC 60268-5:2003, 22.1.2
4. Difference of frequency responses	Difference of sound pressure level of loudspeakers, which will be used in pair mode	In accordance with IEC 60268-5:2003, 21.1.2, paragraph 3. The differences in sound pressure level are measured in the effective frequency range defined in IEC 60268-5:2003, 21.2.1
5. Characteristic sensitivity level	Characteristic sensitivity level measured in the effective frequency range In accordance with Table 1, number 2.	In accordance with IEC 60268-5:2003, 20.4.
6. Maximum sound pressure level limited by distortion	Sound pressure level $p(f_1)$ measured at the point where the maximum value of either d_1 or d_2 or d_3 is equal to 10 % where d_1 is the total harmonic distortion; d_2 is the intermodulation distortion of the 2nd harmonic; and d_3 is the intermodulation distortion of the 3rd harmonic	Harmonic distortion d_1 is measured according to IEC 60268-5:2003, 24.2, referred to f_1 Intermodulation distortion d_2 and d_3 are measured in accordance with IEC 60268-5:2003, 24.5 The frequency f_1 shall be equal to the lower limit of the effective frequency range defined in item 2 of Table 1. The frequency f_2 is given by $f_2 = 8,5 f_1$
7. Rated impedance	Value of a pure resistance substituting the loudspeaker	In accordance with IEC 60268-5:2003, 16.1 and 16.2.2
8. Rated noise power	Electrical power, calculated by U_n^2/R . U_n is the rated noise voltage, R is the rated impedance	In accordance with IEC 60268-5:2003, 18.1
9. Rated sinusoidal power	Electrical power, calculated by U_s^2/R . U_s is the rated sinusoidal voltage, R is the rated impedance	In accordance with IEC 60268-5:2003, 18.4