SLOVENSKI STANDARD
SIST EN 60268-7:2011/oprA1:2020

01-januar-2020

Oprema zvokovnega sistema - 7. del: Naglavne in ušesne slušalke

Sound system equipment - Part 7: Headphones and earphones

Elektroakustische Geräte - Teil 7: Kopfhörer und Ohrhörer

Equipements pour systèmes électroacoustiques - Partie 7: Ecouteurs et oreillettes

Ta slovenski standard je istoveten z: **EN 60268-7:2011/prA1:2019**

ICS:

33.160.50 Pribor Accessories

SIST EN 60268-7:2011/oprA1:2020 **en,fr,de**

100/3316/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:	
IEC 60268-7/AMD1 ED3	
DATE OF CIRCULATION: **2019-11-22**	CLOSING DATE FOR VOTING: **2020-02-14**
SUPERSEDES DOCUMENTS: **100/3231/CD,100/3274/CC**	

IEC TA 20 : ANALOGUE AND DIGITAL AUDIO	
SECRETARIAT: Japan	SECRETARY: Mr Gen Ichimura
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING
Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Sound system equipment - Part 7: Headphones and earphones

PROPOSED STABILITY DATE: 2022

NOTE FROM TC/SC OFFICERS:

FOREWORD

This amendment has been prepared by technical area 20: Analogue and digital audio, of IEC technical committee 100: Audio, video and multimedia systems and equipment

The text of this International Standard is based on the following documents:

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

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

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

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

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

The National Committees are requested to note that for this document the stability date is 20XX..

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.

INTRODUCTION to Amendment 1

This amendment 1 contains the following significant technical changes with respect to the edition 3 of IEC 60268-7:

- Free-Field Compensated Frequency Response is added.
- Diffuse-Field Compensated Frequency Response is added.
- Bibliography is updated.
- Some Normative references are updated.
- The definition of HATS is added.

1. Scope

Replace "IEC 60065" with "IEC 62368-1".

(IEC 60065 will soon be integrated into IEC 62368-1.)

2. Normative references

Update some existing references with new publication dates as follows;

IEC 60038:2009, *IEC standard voltages*

IEC 60068-1:2013, *Environmental testing. - Part 1: General and guidance*

IEC 60086-1:2015 RLV, *Primary batteries. – Part 1: General*

IEC 61672-1:2013, *Electroacoustics – Sound level meters – Part 1: Specifications*

ISO 3741:2010, *Acoustics – Determination of sound power levels sound energy levels of noise sources using sound pressure – Precision methods for reverberation test rooms*

ISO 4869-1:2018, *Acoustics – Hearing protectors – Part 1: Subjective method for the measurement of sound attenuation*

Delete the three existing references as follows;

IEC 60711, *Occluded-ear simulator for the measurement of earphones coupled to the ear by ear inserts*

IEC TR 60959, *Provisional head and torso simulator for acoustic measurements on air conduction hearing aids*

ISO 7619-1, *Rubber, vulcanized or thermoplastic – Determination of indentation hardness – Part 1: Durometer method (Shore hardness)*

Add the new three references as follows;

IEC 60318-4:2010, *Electroacoustics – Simulators of human head and ear – Part 4: Occluded-ear simulator for the measurement of earphones coupled to the ear by means of ear inserts*

IEC TS 60318-7:2017, *Electroacoustics – Simulators of human head and ear – Part 7: Head and torso simulator for the measurement of air-conduction hearing aids*

ISO 48-4:2018, *Rubber, vulcanized or thermoplastic – Determination of indentation hardness – Part 4: Indentation hardness by Durometer method (Shore hardness)*

3. Terms and Definitions

Add, after the existing subclause 3.16, the following new term.

3.17
HATS
head and torso simulator
Simulator of a median adult human head and part of the torso extending in total from the top of the head to the waist and designed to simulate the sound pick-up characteristics and acoustic diffraction.

Note 1 to entry: The head simulator includes two pinna simulators, and at least one occluded-ear simulator. [SOURCE: IEC TS 60318-7:2017]

Add, after the existing clause 8.6.6, the following new clauses 8.6.7 and 8.6.8, before clause 8.7.

8.6.7. Free-field compensated frequency response

8.6.7.1. Characteristics to be specified

The frequency response measured at the ear simulator of the HATS is compensated either during the measurement by inverse filtering with the 0° free-field response of the HATS or by subtracting (in dB) the 0° free-field frequency response of the HATS from the uncompensated measured headphone response at the ear simulator of the HATS as a post-process operation.

8.6.7.2. Method of measurement

- The headphone is brought under standard conditions for measurement, and a test signal at the rated source voltage, is applied in series with the rated source impedance.
- The frequency is then varied over at least the rated frequency range of the headphone (see.8.6.6), and the sound pressure (level) at each frequency is noted for the right and the left ear.

  NOTE Ideally the values for both ears should be equal. Reasons for differences in practice may e.g. be non-symmetrical positioning of the headphone or wider tolerances of the headphone transducers.
- The output of the ear simulator of the HATS with or without compensation shall be at least 10dB above the noise floor of the measurement system at all measured frequencies.

Measurements are repeated five times. The nominal frequency response in obtained from a power average of the five measurements and finally graphically presented in decibels referred to the value at the standard reference frequency. Headphone shall be removed and remounted to HATS before each measurement.

8.6.7.3. HATS

HATS used for measurement shall comply with IEC TS 60318-7, however with the pinna simulator specified in Annex A. Otherwise, the type of pinna simulator shall be stated with measurement results.

NOTE For use of HATS outside the scope of IEC TS 60318-7 that scope recommends that a statistical analysis of the measurement data is carried out to determine the level of repeatability that can be achieved. This is especially necessary for measurements at frequencies higher than 16 kHz. Detailed requirements for these are under consideration.

8.6.7.4. Characteristic results to be stated

Measured free-field compensated frequency response should be stated together with at least one of the following characteristics.

- Free-field response of HATS used in measurement.
- Frequency response of the headphone measured with HATS without free-field compensation.

Example of a measurement set up of free-field compensated frequency response is shown in Figure 4.

8.6.8. Diffuse-field compensated frequency response

8.6.8.1. Characteristics to be specified

The frequency response measured at the ear simulator of the HATS is compensated either during the measurement by inverse filtering with the diffuse-field response of the HATS or by subtracting (in dB) the diffuse-field frequency response of the HATS from the uncompensated measured headphone response at the ear simulator of the HATS as a post-process operation.

8.6.8.2. Method of measurement

- The headphone is brought under standard conditions for measurement, and a test signal at the rated source voltage, is applied in series with the rated source impedance.
- The frequency is then varied over at least the rated frequency range of the headphone (see.8.6.6), and the sound pressure (level) at each frequency is noted for the right and the left ear.

  NOTE Ideally the values for both ears should be equal. Reasons for differences in practice may e.g. be non-symmetrical positioning of the headphone or wider tolerances of the headphone transducers.

- The output of the ear simulator of the HATS with or without compensation shall be at least 10dB above the noise floor of the measurement system at all measured frequencies.

Measurements are repeated five times. The nominal frequency response in obtained from a power average of the five measurements and finally graphically presented in decibels referred to the value at the standard reference frequency. Headphone shall be removed and remounted to HATS before each measurement.

8.6.8.3. HATS

HATS used for measurement shall comply with IEC TS 60318-7, however with the pinna simulator specified in Annex A. Otherwise, the type of pinna simulator shall be stated with measurement results.

NOTE For use of HATS outside the scope of IEC TS 60318-7 that scope recommends that a statistical analysis of the measurement data is carried out to determine the level of repeatability that can be achieved.

139 **8.6.8.4. Characteristic results to be stated**

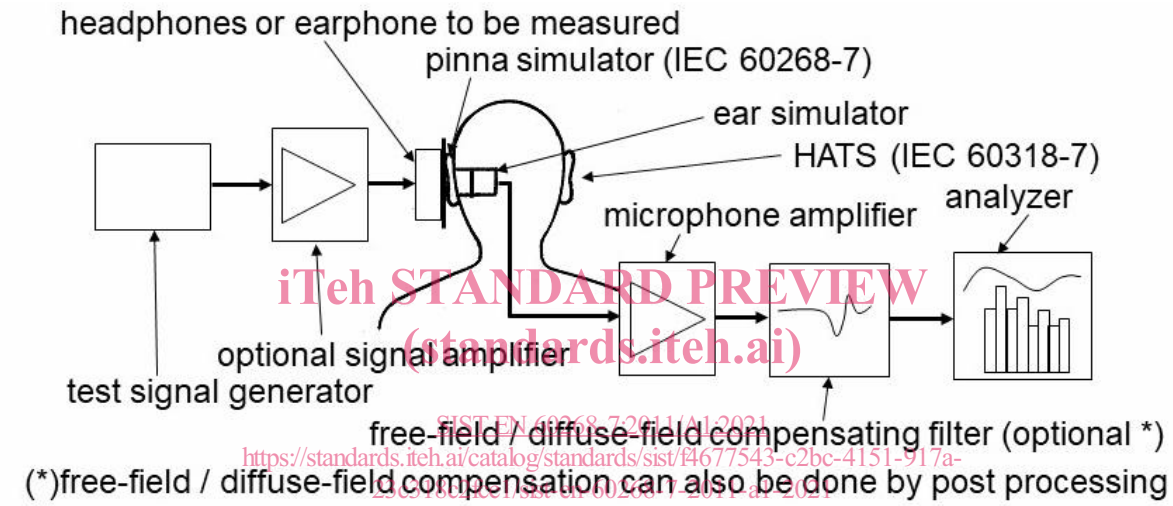
140 Measured diffuse-field compensated frequency response should be stated together with at least
141 one of the following characteristics.

142 ● Diffuse-field response of HATS used in measurement.

143 ● Frequency response of the headphone measured with HATS without diffuse-field
144 compensation.

145 Example of a measurement set up of diffuse-field compensated frequency response is shown
146 in Figure 4.

147



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149 **Figure 4 – Example for a measurement set up of free-field/ diffuse-field compensated**
150 **frequency response**

151

152 *Replace the existing entire bibliographical references with the following:*

153

154 **Bibliography**

155 IEC 62368-1:2018, *Audio/Video, information and communication technology equipment*
156 *– Part 1: Safety requirements*

157 IEC 60118-0:2015, *Hearing aids – Part 0: Measurement of the performance characteristics of*
158 *hearing aids*

159 IEC 60268-3:2018 RLV, *Sound system equipment – Part 3: Amplifiers*

160 IEC 60268-4:2018, *Sound system equipment – Part 4: Microphones*

161 IEC 60268-5:2003, *Sound system equipment – Part 5: Loudspeakers*

162 IEC 60318-1:2009, *Electroacoustics – Simulators of human head and ear – Part 1: Ear simulator*
163 *for the measurement of supra-aural and circumaural earphones*