SLOVENSKI STANDARD
SIST EN 60318-2:2002

01-september-2002

Electroacoustics - Simulator of human head and ear - Part 2: An interim acoustic coupler for the calibration of audiometric earphones in the extended high-frequency range (IEC 60318-2:1998)

Electroacoustics - Simulators of human head and ear -- Part 2: An interim acoustic coupler for the calibration of audiometric earphones in the extended high-frequency range

Elektroakustik - Simulatoren des menschlichen Kopfes und Ohres -- Teil 2: Ein vorläufiger akustischer Kuppler zur Kalibrierung von Audiometrie-Kopfhörern im erweiterten Hochtonbereich

Electroacoustique - Simulateurs de tête et d'oreille humaines -- Partie 2: Coupleur acoustique de remplacement pour l'étalonnage des écouteurs audiométriques dans le domaine des fréquences élevées

Ta slovenski standard je istoveten z: **EN 60318-2:1998**

ICS:

13.140	Vpliv hrupa na ljudi	Noise with respect to human beings
17.140.50	Elektroakustika	Electroacoustics

SIST EN 60318-2:2002 **en**

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English version

Electroacoustics — Simulators of human head and ear Part 2: An interim acoustic coupler for the calibration of audiometric earphones in the extended high-frequency range

(IEC 60318-2:1998)

Electroacoustique — Simulateurs de tête et d'oreille humaines
Partie 2: Coupleur acoustique de remplacement pour l'étalonnage des écouteurs audiométriques dans le domaine des fréquences élevées
(CEI 60318-2:1998)

Elektroakustik — Simulatoren des menschlichen Kopfes und Ohres
Teil 2: Ein vorläufiger akustischer Kuppler zur Kalibrierung von Audiometrie-Kopfhörern im erweiterten Hochtonbereich
(IEC 60318-2:1998)

This European Standard was approved by CENELEC on 1998-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

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

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Foreword

The text of document 29/404/FDIS, future edition 1 of IEC 60318-2, prepared by IEC TC 29, Electroacoustics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60318-2 on 1998-10-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1999-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2001-07-01

Annexes designated "normative" are part of the body of the standard.

In this standard, Annex ZA is normative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60318-2:1998 was approved by CENELEC as a European Standard without any modification.

Contents

Introduction

Currently no standardized ear simulator is available for this high-frequency range, but there is an urgent need for standardization in order to calibrate these earphones. This International Standard therefore describes the use of the IEC 60318-1 ear simulator and the adaptors described below, to enable it to be used as an interim acoustic coupler in the extended high-frequency range from 8 kHz up to 16 kHz. It is applicable for use with specific earphones which have high acoustic damping such as those being considered by ISO/TC 43 for standardizing audiometric zero (ISO/TR 389-5).

1 Scope

This part of IEC 60318 specifies two different adapters and the removable conical ring to be used with the IEC 60318-1 ear simulator to provide an interim acoustic coupler for the calibration of certain audiometric earphones designed for use in the extended high-frequency range from 8 kHz up to 16 kHz. Environmental conditions for the calibration and use of the coupler are given in IEC 60318-1.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60318. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 60318 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standard.

IEC 60318-1, — *Electroacoustics — Simulators of human head and ear — Part 1: Ear simulator for the calibration of supra-aural earphones*[1)].

IEC 60645-4:1994, *Audiometers — Part 4: Equipment for extended high-frequency audiometry.*

IEC 61094-1:1992, *Measurement microphones — Part 1: Specifications for laboratory standard microphones.*

IEC 61094-4:1995, *Measurement microphones — Part 4: Specifications for working standard microphones.*

ISO/TR 389-5:1998, *Acoustics — Reference zero for the calibration of audiometric equipment — Part 5: Reference equivalent threshold sound pressure levels for pure tones in the frequency range 8 kHz to 16 kHz.*

3 Microphone

The microphone in the IEC 60318-1 ear simulator shall conform to the dimensions of a Type LS2aP microphone given in IEC 61094-1 Figure 1. For example, conformance may be achieved by replacing the protective grid of a Type WS2P (IEC 61094-4) microphone with an adapter ring so that this microphone with adapter ring conforms to the dimensions specified for Type LS2aP.

NOTE If a grid is used, correction values should be stated for the difference between measurements with and without the grid.

4 Adapters for extended high-frequency measurements on an IEC 60318-1 ear simulator

Figure 1 shows the design of the Type 1 adapter and Figure 2 the Type 2 adapter.

The dimensions and angles specified in Figure 1 and Figure 2 shall be met within tolerances of ± 0,2 mm and ± 2°, respectively.

The adapters shall be constructed of non-magnetic material.

5 Removable conical ring for the IEC 60318-1 ear simulator

The conical ring shall conform to the dimensions in Figure 3 and should be made from a hard, non-magnetic material.

The dimensions and angles specified in Figure 3 shall be met within tolerances of ± 0,2 mm and ± 2°, respectively.

6 Coupler configurations for the calibration of audiometric earphones in the extended high-frequency range

6.1 Coupler configuration using Type 1 adapter

For earphones designed to be calibrated by means of the Type 1 adapter, the IEC 60318-1 ear simulator shall be changed in the following manner:

— the conical ring of the ear simulator shall be removed and the Type 1 adapter placed on the ear simulator;

— the conical ring shall then be placed, non inverted, on top of the adapter as shown in Figure 4.

1) To be published.

The earphone shall be placed symmetrically on the coupler using a stated application force. Where an earphone has an asymmetrical cushion, the manner of placement on the coupler shall be stated by the manufacturer of the earphone.

6.2 Coupler configuration using a Type 2 adapter

For earphones designed to be calibrated by the Type 2 adapter, the IEC 60318-1 ear simulator shall be changed in the following manner:

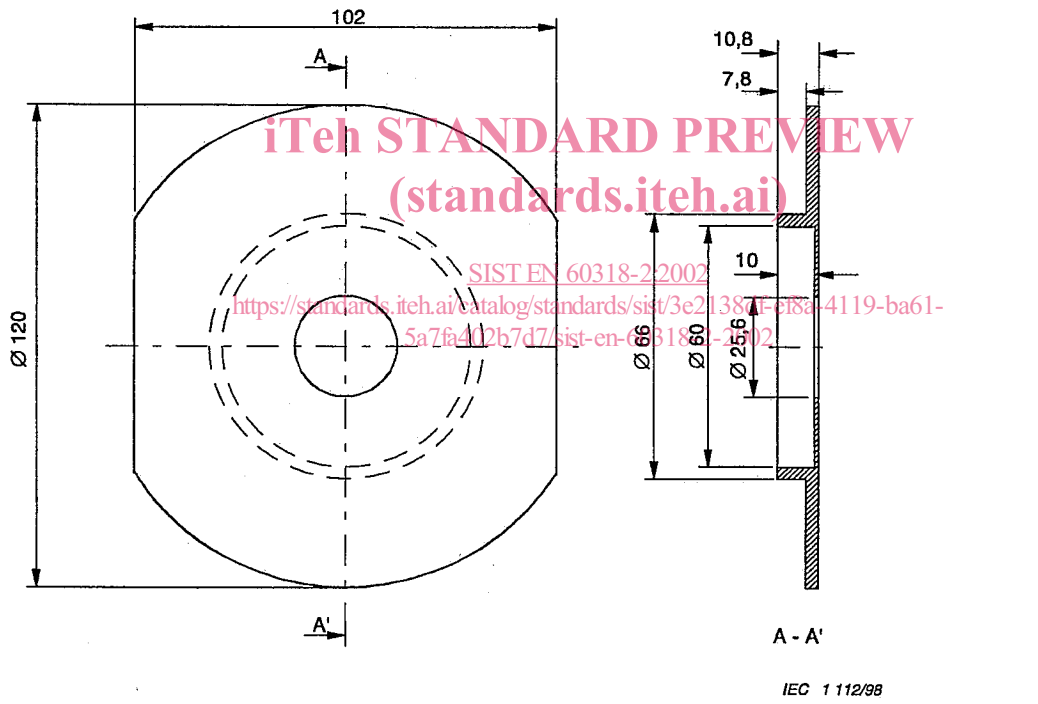
— the conical ring of the ear simulator shall be removed and the Type 2 adapter placed on the ear simulator as shown in Figure 5.

The earphone shall be placed on the coupler in such a way that it rests symmetrically on the distance clamps, as shown in Figure 5, using a stated application force.

7 Environmental conditions

Earphones shall be calibrated on the coupler configurations in the extended high-frequency range only when the environmental conditions specified in clause **6** of IEC 60318-1 are met.

Dimensions in millimetres

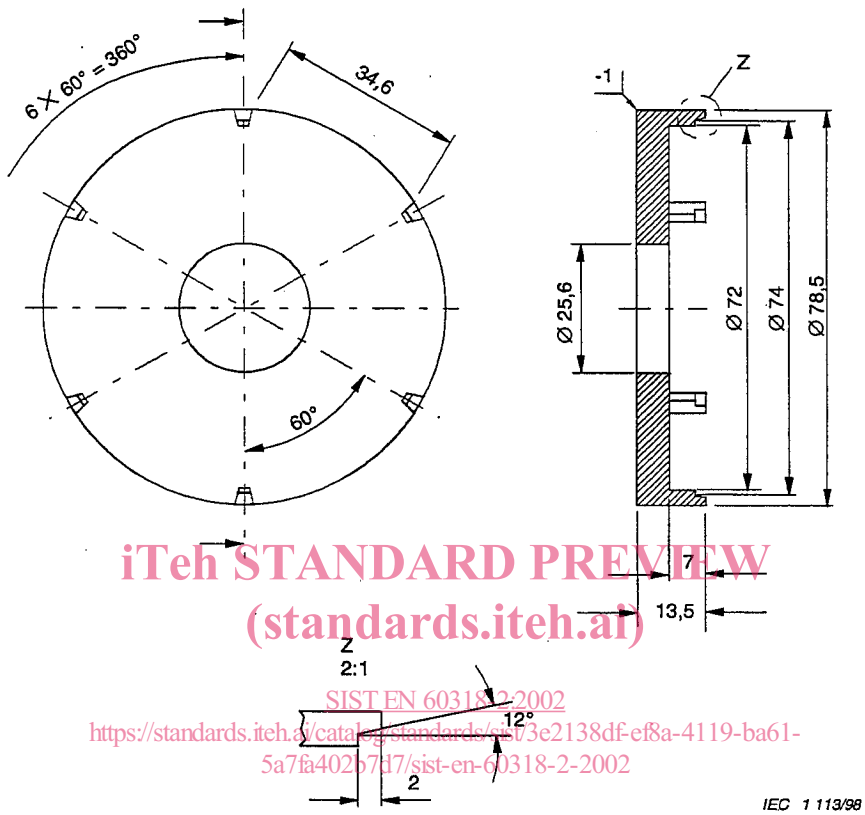


Tolerances on dimensions: ±0,2 mm

Tolerances on angles: ±2°

Figure 1 — Type 1 adapter for use with IEC 60318-1 ear simulator

Dimensions in millimetres

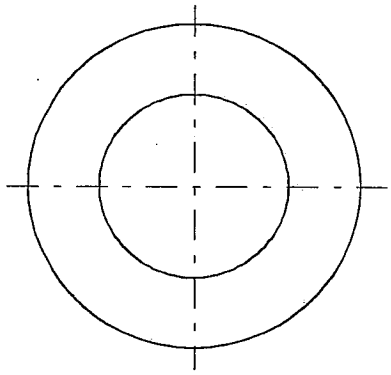


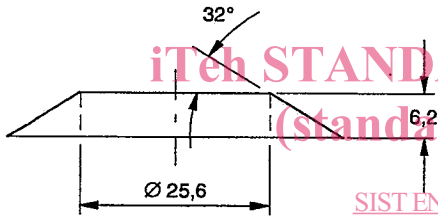
Tolerances on dimensions: ±0,2 mm

Tolerances on angles: ±2°

Figure 2 — Type 2 adapter for use with IEC 60318-1 ear simulator

Dimensions in millimetres

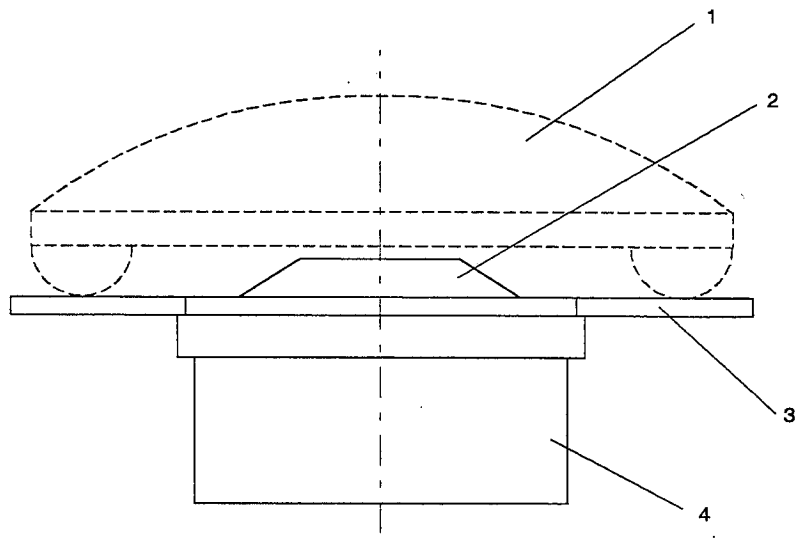




Tolerances on dimensions: ±0,2 mm

Tolerances on angles: ±2°

Figure 3 — Conical ring for IEC 60318-1 ear simulator



Key

1 Example of an earphone
2 Conical ring
3 Type 1 adapter
4 IEC 60318-1 ear simulator

Figure 4 — Position of Type 1 adapter on the IEC 60318-1 ear simulator