

**Electroacoustics - Simulators of human head and ear --
Part 1: Ear simulator for the calibration of supra-aural
and circumaural earphones**

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 60318-1:2010 sisaldab Euroopa standardi EN 60318-1:2009 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 28.02.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 23.12.2009.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 60318-1:2010 consists of the English text of the European standard EN 60318-1:2009.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 23.12.2009.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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English version

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

Electroacoustique -
Simulateurs de tête et d'oreille humaines -
Partie 1: Simulateur d'oreille
pour la mesure des écouteurs
supra-auraux et circumauraux
(CEI 60318-1:2009)

Akustik -
Simulatoren des menschlichen Kopfes
und Ohres -
Teil 1: Ohrsimulator zur Kalibrierung
von supra-auralen und circumauralen
Kopfhörern
(IEC 60318-1:2009)

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CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 29/683/FDIS, future edition 2 of IEC 60318-1, prepared by IEC TC 29, Electroacoustics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60318-1 on 2009-11-01.

This European Standard supersedes EN 60318-1:1998 and EN 60318-2:1998.

This European Standard includes the following significant technical changes with respect to EN 60318-1:1998:

- an extension of the frequency range to 16 kHz;
- a revised specification for the acoustical transfer impedance, including tolerances;
- a method for measuring the acoustical transfer impedance;
- expanded measurement uncertainties.

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) | 2010-08-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2012-11-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60318-1:2009 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:

IEC 61094-1	NOTE	Harmonized as EN 61094-1:2000 (not modified).
IEC 61094-2	NOTE	Harmonized as EN 61094-2:2009 (not modified).
IEC 61094-6	NOTE	Harmonized as EN 61094-6:2005 (not modified).
ISO 389-1	NOTE	Harmonized as EN ISO 389-1:2000 (not modified).
ISO 389-5	NOTE	Harmonized as EN ISO 389-5:2005 (not modified).
ISO 389-8	NOTE	Harmonized as EN ISO 389-8:2004 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

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 61094-4	- ¹⁾	Measurement microphones - Part 4: Specifications for working standard microphones	EN 61094-4	1995 ²⁾
ISO/IEC Guide 98-3	- ¹⁾	Uncertainty of measurement - Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)	-	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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ELECTROACOUSTICS – SIMULATORS OF HUMAN HEAD AND EAR –

Part 1: Ear simulator for the measurement of supra-aural and circumaural earphones

1 Scope

This part of IEC 60318 specifies an ear simulator for the measurement of supra-aural and circumaural earphones (used for example in audiometry and telephonometry) applied to the ear without acoustical leakage, in the frequency range from 20 Hz to 10 kHz. The same device can be used as an acoustic coupler at additional frequencies up to 16 kHz.

NOTE 1 This device has alternative configurations for supra-aural earphones and different types of circumaural earphones. In practice, the alternative configurations can be realised through the use of adapters where necessary.

NOTE 2 Repeatability for supra-aural and circumaural earphones may get significantly worse above 10 kHz.

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 61094-4, *Measurement microphones – Part 4: Specifications for working standard microphones*

ISO/IEC Guide 98-3, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM: 1995)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

ear simulator

device for measuring the acoustic output of sound sources where the sound pressure is measured by a calibrated microphone coupled to the source so that the overall acoustic impedance of the device approximates that of the normal human ear at a given location and in a given frequency band

3.2

acoustic coupler

device for measuring the acoustic output of sound sources where the sound pressure is measured by a calibrated microphone coupled to the source by a cavity of predetermined shape and volume which does not necessarily approximate the acoustical impedance of the normal human ear

3.3

supra-aural earphone

earphone applied externally to the outer ear and intended to rest on the pinna