

ELEKTROAKUSTIKA. KUULDEAPARAADID. OSA 0:  
KUULDEAPARAATIDE TOIMIVUSNÄITAJATE  
MÕÕTMINE

Electroacoustics - Hearing aids - Part 0: Measurement  
of the performance characteristics of hearing aids

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>See Eesti standard EVS-EN IEC 60118-0:2024 sisaldab Euroopa standardi EN IEC 60118-0:2024 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 10.05.2024.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN IEC 60118-0:2024 consists of the English text of the European standard EN IEC 60118-0:2024.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 10.05.2024.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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English Version

Electroacoustics - Hearing aids - Part 0: Measurement of the  
performance characteristics of hearing aids  
(IEC 60118-0:2022)

Électroacoustique - Appareils de correction auditive - Partie  
0: Mesure des caractéristiques fonctionnelles des appareils  
de correction auditive  
(IEC 60118-0:2022)

Akustik - Hörgeräte - Teil 0: Messung der  
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The text of document 29/1126/FDIS, future edition 4 of IEC 60118-0, prepared by IEC/TC 29 "Electroacoustics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60118-0:2024.

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# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Electroacoustics – Hearing aids –  
Part 0: Measurement of the performance characteristics of hearing aids**

**Électroacoustique – Appareils de correction auditive –  
Partie 0: Mesure des caractéristiques fonctionnelles des appareils de correction  
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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Électroacoustique – Appareils de correction auditive –  
Partie 0: Mesure des caractéristiques fonctionnelles des appareils de correction  
auditive**

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HEARING AIDS –****Part 0: Measurement of the performance characteristics of hearing aids****FOREWORD**

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This fourth edition merges and updates the methods previously described in IEC 60118-0:2015 and IEC 60118-7:2005. It cancels and replaces the third edition of IEC 60118-0 published in 2015. This edition constitutes a technical revision.

Measurements for quality control as described in IEC 60118-7:2005 can be found in Clause 10 of this document.

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

- a) the default use of an acoustic coupler according to IEC 60318-5,
- b) addition of the optional use of an occluded ear simulator according to IEC 60318-4,

- c) addition of the optional use of an acoustic coupler according to IEC 60318-8 (new standard based on IEC TS 62886) when information about the response above 8 kHz is needed, or the optional use of the acoustic coupler according to IEC 60318-8 for deep insert hearing aids,
- d) the addition of measurements of the performance of hearing aids for production, supply and delivery quality assurance purposes,
- e) corrected and updated measurement configuration and methods, adding the use of a sequential measurement as preferred configuration,
- f) updated and expanded measurement procedures for the non-acoustic inputs of the hearing aid.

NOTE The substitution method described in Annex B has no relation to the substitution method described in IEC 60118-0:2015.

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

Draft	Report on voting
29/1126/FDIS	29/1129/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

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# ELECTROACOUSTICS – HEARING AIDS –

## Part 0: Measurement of the performance characteristics of hearing aids

### 1 Scope

This part of IEC 60118 gives recommendations for the measurement of the performance characteristics of air conduction hearing aids measured with an acoustic coupler or occluded ear simulator.

This document is applicable to the measurement and evaluation of the electroacoustical characteristics of hearing aids, for example for type testing and manufacturer data sheets.

This document is also applicable for the measurement of the performance characteristics of hearing aids for production, supply and delivery quality-assurance purposes.

The measurement results obtained by the methods specified in this document will express the performance under conditions of the measurement and can deviate substantially from the performance of the hearing aid under actual conditions of use.

This document primarily uses an acoustic coupler according to IEC 60318-5 which is only intended for loading a hearing aid with specified acoustic impedance and is not intended to reproduce the sound pressure in a person's ear. For measurements reflecting the output level in the normal human ear the occluded ear simulator according to IEC 60318-4 can be used. For extended high-frequency measurements and for deep insert hearing aids, the acoustic coupler according to IEC 60318-8 can be used.

This document also covers measurement of hearing aids with non-acoustic inputs, such as wireless, inductive or electrical input.

This document does not cover the measurement of hearing aids for simulated in situ working conditions, for which IEC 60118-8 can be applied.

This document does not cover the measurement of hearing aids under typical user settings and using a speech-like signal, for which IEC 60118-15 can be applied.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60118-12, *Hearing aids – Part 12: Dimensions of electrical connector systems*

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 60318-5, *Electroacoustics – Simulators of human head and ear – Part 5: 2 cm<sup>3</sup> coupler for the measurement of hearing aids and earphones coupled to the ear by means of ear inserts*

IEC 60318-8, *Electroacoustics – Simulators of human head and ear – Part 8: Acoustic coupler for high-frequency measurements of hearing aids and earphones coupled to the ear by means of ear inserts*

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

IEC 60263, *Scales and sizes for plotting frequency characteristics and polar diagrams*

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

ISO 3, *Preferred numbers – Series of preferred numbers*

### 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1

##### **SPL**

##### **sound pressure level**

ten times the logarithm to the base 10 of the ratio of the square of the sound pressure,  $p$ , to the square of a reference value,  $p_0$ , expressed in decibels, where the reference value,  $p_0$ , is 20  $\mu\text{Pa}$

[SOURCE: ISO/TR 25417:2007, 2.2, modified – The abbreviated term has been added and the formula and notes to entry have been omitted.]

#### 3.2

##### **hearing aid**

wearable instrument intended to aid a person with impaired hearing

Note 1 to entry: A hearing aid usually consists of a microphone, amplifier, signal processor and earphone, powered by a battery and possibly also containing alternative means of signal pickup such as induction coil, wireless input or electrical input. It is fitted using audiometric and prescriptive methods.

Note 2 to entry: A hearing aid can be placed on the body (BW), behind the ear (BTE), in the ear (ITE, also named full concha), in the canal (ITC), receiver in canal (RIC) or completely in the canal (CIC).

#### 3.3

##### **directional hearing aid**

hearing aid for which the acoustic gain is dependent on the direction of sound incidence when measured under free-field conditions

Note 1 to entry: Generally, a hearing aid with a single sound inlet port is non-directional and an aid with multiple sound inlet ports is directional.

#### 3.4

##### **non-directional hearing aid**

hearing aid for which the acoustic gain is independent of the direction of sound incidence when measured under free-field conditions

Note 1 to entry: Generally, a hearing aid with a single sound inlet port is non-directional and an aid with multiple sound inlet ports is directional.