

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Electroacoustics – Simulators of human head and ear –
Part 3: Acoustic coupler for the calibration of supra-aural earphones used
in audiometry**

**Électroacoustique – Simulateurs de tête et d'oreille humaines –
Partie 3: Coupleur acoustique pour l'étalonnage des écouteurs supra-auraux
utilisés en audiométrie**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTROACOUSTICS –
SIMULATORS OF HUMAN HEAD AND EAR –****Part 3: Acoustic coupler for the calibration
of supra-aural earphones used in audiometry**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. 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 60318-3 has been prepared by IEC technical committee 29: Electroacoustics.

This second edition cancels and replaces the first edition published in 1998 and constitutes a technical revision.

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

- a) adjustment of terms and wording to the other parts of IEC 60318,
- b) introduction of maximum permitted uncertainties,
- c) revised requirements for static pressure equalization.

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

CDV	Report on voting
29/796/CDV	29/811A/RVC

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.

A list of all the parts in the IEC 60318 series, published under the general title *Electroacoustics – Simulators of human head and ear* can be found on the IEC website.

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

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- withdrawn,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

ELECTROACOUSTICS – SIMULATORS OF HUMAN HEAD AND EAR –

Part 3: Acoustic coupler for the calibration of supra-aural earphones used in audiometry

1 Scope

This part of IEC 60318 specifies an acoustic coupler for the measurement of supra-aural audiometric earphones in the frequency range from 125 Hz to 8 000 Hz.

The sound pressure developed by an earphone is not, in general, the same in the coupler as in a person's ear. However, the acoustic coupler can be used as an objective and reproducible means of measuring the output of supra-aural earphones. It can be used for specifying reference equivalent threshold sound pressure levels (RETSPL) for the calibration of audiometers.

2 Normative references

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

IEC 61094-1, *Measurement microphones – Part 1: Specifications for laboratory 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 purpose of this document, the following definition applies:

3.1

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

4 Construction

4.1 General

The coupler consists essentially of a cylindrical cavity whose acoustic transfer impedance is determined by the volume of air in the cavity and its dimensions (see 4.2). A microphone with a diaphragm having high acoustic impedance is located in the base of the cylindrical cavity.

The coupler shall be made of a material that has no negative influences on its performance. For example it should be acoustically hard and dimensionally stable. The general construction