
**Elektroakustika – Avdiometrična oprema – 5. del: Instrumenti za merjenje
ušesne akustične impedance/admittance (IEC 60645-5:2004)**

Electroacoustics – Audiometric equipment – Part 5: Instruments for the
measurement of aural acoustic impedance/admittance (IEC 60645-5:2004)

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English version

**Electroacoustics –
Audiometric equipment
Part 5: Instruments for the measurement
of aural acoustic impedance/admittance
(IEC 60645-5:2004)**

Electroacoustique –
Appareillage audiométrique
Partie 5: Instruments pour la mesure
de l'impédance ou de l'admittance aurale
(impédancemètres ou admittancemètres)
(CEI 60645-5:2004)

Akustik –
Audiometer
Teil 5: Geräte zur Messung der
akustischen Impedanzen/Admittanzen
des Gehörs
(IEC 60645-5:2004)

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 29/563/FDIS, future edition 1 of IEC 60645-5, prepared by IEC TC 29, Electroacoustics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60645-5 on 2004-12-01.

This European Standard supersedes EN 61027:1993.

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) | 2005-09-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2007-12-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60645-5:2004 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:

- | | | |
|-----------|------|---|
| ISO 389-1 | NOTE | Harmonized as EN ISO 389-1:2000 (not modified). |
| ISO 389-2 | NOTE | Harmonized as EN ISO 389-2:1996 (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 Where 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 60126	- ¹⁾	IEC reference coupler for the measurement of hearing aids using earphones coupled to the ear by means of ear inserts	HD 305 S1	1977 ²⁾
IEC 60601-1	- ¹⁾	Medical electrical equipment Part 1: General requirements for safety	EN 60601-1	1990 ²⁾
IEC 60601-1-2	- ¹⁾	Medical electrical equipment Part 1-2: General requirements for safety - Collateral standard: Electromagnetic compatibility - Requirements and tests	EN 60601-1-2	2001 ²⁾
IEC 60601-1-4	- ¹⁾	Medical electrical equipment Part 1-4: General requirements for safety - Collateral standard: Programmable electrical medical systems	EN 60601-1-4	1996 ²⁾
IEC 60645-1	2001	Electroacoustics - Audiological equipment Part 1: Pure-tone audiometers	EN 60645-1	2001
BIPM/IEC/IFCC/ ISO/IUPAP/OIML	- ¹⁾	Guide to the expression of uncertainty in measurement (GUM)	-	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

60645-5

Première édition
First edition
2004-11

**Electroacoustique –
Appareillage audiométrique –**

**Partie 5:
Instruments pour la mesure de l'impédance
ou de l'admittance aurale (impédancemètres
ou admittancemètres)**

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**Electroacoustics –
Audiometric equipment –**

**Part 5:
Instruments for the measurement
of aural acoustic impedance/admittance**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTROACOUSTICS –
AUDIOMETRIC EQUIPMENT –****Part 5: Instruments for the measurement
of aural acoustic impedance/admittance**

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 60645-5 has been prepared by IEC technical committee 29: Electroacoustics.

This first edition of IEC 60645-5 cancels and replaces the first edition of IEC 61027, published in 1991, and constitutes a technical revision.

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

FDIS	Report on voting
29/563/FDIS	29/567/RVD

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.

IEC 60645 consists of the following parts:

Part 1: Pure tone audiometers

Part 2: Equipment for speech audiometry

Part 3: Auditory test signals of short duration for audiometric and neuro-otological purposes

Part 4: Equipment for extended high-frequency audiometry

Part 5: Instruments for the measurement of aural acoustic impedance/admittance¹

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

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¹ Future editions of all parts of this series will appear under the new general title *Electroacoustics – Audiometric equipment*.

INTRODUCTION

Developments in the field of diagnostic hearing measurement have resulted in a number of instruments designed to evaluate the acoustic impedance/admittance of the human ear by means of acoustic probe signals having different frequencies and temporal characteristics. The practical use of such instruments concerns to a large extent the measurement of changes in acoustic impedance/admittance caused either by varying the air pressure in the external acoustic meatus or by activating the middle ear muscle reflex.

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ELECTROACOUSTICS – AUDIOMETRIC EQUIPMENT –

Part 5: Instruments for the measurement of aural acoustic impedance/admittance

1 Scope

This part of IEC 60645 applies to instruments designed primarily for the measurement of acoustic impedance/admittance in the human external acoustic meatus using a stated probe tone. It is recognized that other probe signals may also be used. The standard defines the characteristics to be specified by the manufacturer, lays down performance specifications for three types of instruments and specifies the facilities to be provided on these types. This standard describes methods of test to be used for approval testing and guidance on methods for undertaking routine calibration.

The purpose of this standard is to ensure that measurements made under comparable test conditions with different instruments complying with the standard will be consistent. The standard is not intended to restrict development or incorporation of new features, nor to discourage innovative approaches.

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2 Normative references (standards.iteh.ai)

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 60126, *IEC reference coupler for the measurement of hearing aids using earphones coupled to the ear by means of ear inserts*²

IEC 60601-1, *Medical electrical equipment – Part 1: General requirements for safety*

IEC 60601-1-2, *Medical electrical equipment – Part 1-2: General requirements for safety – Collateral standard: Electromagnetic compatibility – Requirements and tests*

IEC 60601-1-4, *Medical electrical equipment – Part 1: General requirements for safety – Collateral standard: Programmable electrical medical systems*

IEC 60645-1:2001, *Electroacoustics – Audiological equipment – Part 1: Pure-tone audiometers*

BIPM/IEC/IFCC/ISO/IUPAC/IUPAP/OIML, *Guide to the expression of uncertainty in measurement (GUM)*

² To be revised as IEC 60318-5.