



# SLOVENSKI STANDARD

## SIST EN 60645-4:1999

01-julij-1999

---

**Avdiometri - 4. del: Oprema za razširjeno visokofrekvenčno avdiometrijo (IEC 60645-4:1994)**

Audiometers - Part 4: Equipment for extended high-frequency audiometry

Audiometer - Teil 4: Geräte für die Audiometrie in einem erweiterten Hochtonbereich

Audiomètres - Partie 4: Equipement pour l'audiométrie étendue au domaine des fréquences élevées

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

**Ta slovenski standard je istoveten z: EN 60645-4:1995**

SIST EN 60645-4:1999  
<https://standards.iteh.ai/catalog/standards/sist/9121450-6755-401c-88c2-30d7a0acc0cd/sist-en-60645-4-1999>

---

**ICS:**

17.140.50      Elektroakustika                      Electroacoustics

**SIST EN 60645-4:1999**                      **en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 60645-4:1999

<https://standards.iteh.ai/catalog/standards/sist/9ff21450-6735-401c-88c2-30d7a0aec0cd/sist-en-60645-4-1999>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60645-4**

January 1995

ICS 17.140.50

Descriptors: Acoustics, audiometry, acoustic measuring instruments, audiometers, high frequencies, auditory threshold, signal level, adjustment, marking

English version

**Audiometers**  
**Part 4: Equipment for extended high-frequency audiometry**  
**(IEC 645-4:1994)**

Audiomètres  
Partie 4: Equipement pour l'audiométrie  
étendue au domaine des fréquences  
élevées  
(CEI 645-4:1994)

Audiometer  
Teil 4: Geräte für die Audiometrie in  
einem erweiterten Hochtonbereich  
(IEC 645-4:1994)

This European Standard was approved by CENELEC on 1994-12-06. 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

[SIST EN 60645-4:1999](https://standards.iteh.ai/catalog/standards/sist/9ff21450-6735-401c-88c2-30d7a0aec0cd/sist-en-60645-4-1999)

<https://standards.iteh.ai/catalog/standards/sist/9ff21450-6735-401c-88c2-30d7a0aec0cd/sist-en-60645-4-1999>

**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(CO)215, future edition 1 of IEC 645-4, prepared by IEC TC 29, Electroacoustics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60645-4 on 1994-12-06.

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) 1995-12-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 1995-12-01

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 645-4:1994 was approved by CENELEC as a European Standard without any modification.

---

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 60645-4:1999

<https://standards.iteh.ai/catalog/standards/sist/9ff21450-6735-401c-88c2-30d7a0aec0cd/sist-en-60645-4-1999>

## ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD  
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

NOTE : When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
-----	----	-----	-----	----
645-1	1992	Audiometers - Part 1: Pure-tone audiometers (corrigendum February 1993)	EN 60645-1	1994

## Other publications:

- 
- ISO 389-7 - Acoustics - Reference zero for the calibration of audiometric equipment - Part 7: Reference threshold of hearing under free-field and diffuse-field listening conditions (Revision of ISO 226:1987)\*
  - ISO 8253-1:1991 - Acoustics - Audiometric test methods - Part 1: Basic pure tone air and bone conduction threshold audiometry
  - ISO 266:1975 - Acoustics - Preferred frequencies for measurements
  - ISO 8253-2:1992 - Acoustics - Audiometric test methods - Part 2: Sound field audiometry with pure tone and narrow-band test signals

----- iTeh STANDARD PREVIEW

\* At present at the stage of draft  
(standards.iteh.ai)

SIST EN 60645-4:1999

<https://standards.iteh.ai/catalog/standards/sist/9ff21450-6735-401c-88c2-30d7a0acc0cd/sist-en-60645-4-1999>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 60645-4:1999

<https://standards.iteh.ai/catalog/standards/sist/9ff21450-6735-401c-88c2-30d7a0aec0cd/sist-en-60645-4-1999>

**NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD**

**CEI  
IEC**

**60645-4**

Première édition  
First edition  
1994-09

**Audiomètres**

**Partie 4:**

**Équipement pour l'audiométrie étendue au  
domaine des fréquences élevées**

**iTeh STANDARD PREVIEW**

**Audiometers**

**Part 4:**

**Equipment for extended high-frequency  
audiometry**

<https://standards.iteh.ai/catalog/standards/sist/9ff21450-6735-401c-88c2-20240101/iec-60645-4-1994>

© IEC 1994 Droits de reproduction réservés — Copyright - all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission  
Telefax: +41 22 919 0300

3, rue de Varembé Geneva, Switzerland  
e-mail: [inmail@iec.ch](mailto:inmail@iec.ch) IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

**K**

*For prix, voir catalogue en vigueur  
For price, see current catalogue*

## CONTENTS

	Page
FOREWORD .....	5
INTRODUCTION .....	7
Clause	
1 Scope .....	9
2 Normative references .....	9
3 Explanation of terms .....	9
4 Facilities on extended high-frequency audiometers .....	11
5 General requirements .....	11
6 Test signals .....	13
6.1 Test signal frequencies .....	13
6.2 Frequency accuracy .....	13
6.3 Test signal level range for earphones .....	13
6.4 Masking sounds .....	13
7 Signal level control .....	15
7.1 Marking .....	15
7.2 Accuracy .....	15
7.3 Tone switching .....	17
7.4 Masking level .....	17
8 Unwanted sound .....	17
9 Transducers .....	17
9.1 Earphones .....	17
9.2 Loudspeaker .....	17
9.3 Bone vibrator .....	19
10 Audiogram format .....	19
10.1 Extended high-frequency audiogram .....	19
10.2 Combined audiogram .....	19



## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## AUDIOMETERS

## Part 4: Equipment for extended high-frequency audiometry

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

This part of International Standard IEC 645 has been prepared by IEC technical committee 29: Electroacoustics.

It forms the first edition of IEC 645-4.

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

DIS	Report on voting
29(CO)215	29(CO)220

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