

**Acoustics - Reference zero for the calibration of audiometric equipment - Part 8: Reference equivalent threshold sound pressure levels for pure tones and circumaural earphones**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 389-8:2004 sisaldab Euroopa standardi EN ISO 389-8:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.09.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 389-8:2004 consists of the English text of the European standard EN ISO 389-8:2004.</p> <p>This document is endorsed on 23.09.2004 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b> This part of ISO 389 specifies reference equivalent threshold sound pressure levels (RETSPLs) for pure tones in the frequency range from 125 Hz to 8 kHz, applicable to the calibration of air conduction audiometers equipped with a particular model of circumaural earphones (SENNHEISER HDA 200).</p>	<p><b>Scope:</b> This part of ISO 389 specifies reference equivalent threshold sound pressure levels (RETSPLs) for pure tones in the frequency range from 125 Hz to 8 kHz, applicable to the calibration of air conduction audiometers equipped with a particular model of circumaural earphones (SENNHEISER HDA 200).</p>
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ICS 13.140

Võtmesõnad:

ICS 13.140

English version

Acoustics

Reference zero for the calibration of audiometric  
equipment

Part 8: Reference equivalent threshold sound pressure levels for pure  
tones and circumaural earphones  
(ISO 389-8 : 2004)

Acoustique – Zéro de référence pour  
l'étalonnage d'équipements audio-  
métriques – Partie 8: Niveaux de  
référence équivalents de pression  
acoustique liminaire pour les écou-  
teurs à sons purs circumauraux  
(ISO 389-8 : 2004)

Akustik – Standard-Bezugspegel für  
die Kalibrierung audiometrischer  
Geräte – Teil 8: Äquivalente Bezugs-  
Schwellenschalldruckpegel für reine  
Töne und circumaurale Kopfhörer  
(ISO 389-8 : 2004)

This European Standard was approved by CEN on 2004-04-16.

CEN 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 Management Centre or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

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

Management Centre: rue de Stassart 36, B-1050 Brussels

## Foreword

International Standard

ISO 389-8 : 2004 Acoustics – Reference zero for the calibration of audiometric equipment – Part 8: Reference equivalent threshold sound pressure levels for pure tones and circumaural earphones, which was prepared by ISO/TC 43 'Acoustics' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 211 'Acoustics', the Secretariat of which is held by DS, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by November 2004 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

## Endorsement notice

The text of the International Standard ISO 389-8 : 2004 was approved by CEN as a European Standard without any modification.

## Introduction

This part of ISO 389 has been established in order to be able to use the same earphone for pure tone audiometry in the frequency range 125 Hz to 16 000 Hz. It specifies reference values from 125 Hz to 8 000 Hz. ISO/TR 389-5 specifies values from 8 000 Hz to 16 000 Hz.

The reference values are based on information provided by laboratories in different countries, representing the most reliable data available at this time.

At present, reference values for only one type of circumaural earphone, SENNHEISER HDA 200, are available. This earphone provides a good attenuation of background noise and its frequency response is without pronounced resonances on a human ear as well as on an ear simulator.

## 1 Scope

This part of ISO 389 specifies reference equivalent threshold sound pressure levels (RETSPLs) for pure tones in the frequency range from 125 Hz to 8 kHz, applicable to the calibration of air conduction audiometers equipped with a particular model of circumaural earphones (SENNHEISER HDA 200).

**NOTE** Some notes and references on the derivation and the test conditions used to determine the recommended reference levels are given in Annex A and the Bibliography.

The sound attenuation of the earphone is given in Annex B. For speech audiometers of types A-E and B-E (see IEC 60645-2), the correction figures of the earphone for a free-field equivalent output are given in Annex C.

## 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.

ISO 389-1, *Acoustics — Reference zero for the calibration of audiometric equipment — Part 1: Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones*

ISO 4869-1, *Acoustics — Hearing protectors — Part 1: Subjective method for the measurement of sound attenuation*

IEC 60318-1, *Electroacoustics — Simulators of human head and ear — Part 1: Ear simulator for the calibration of supra-aural earphones*

IEC 60318-2:1998, *Electroacoustics — Simulators of human head and ear — Part 2: An interim acoustic coupler for the calibration of audiometric earphones in the extended high-frequency range*

IEC 60645-2, *Audiometers — Part 2: Equipment for speech audiometry*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 389-1, ISO 4869-1, IEC 60318-1 and IEC 60645-2 apply.