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Standards

Irish Standard  
I.S. EN ISO 389-9:2009

**Acoustics - Reference zero for the calibration of audiometric equipment - Part 9: Preferred test conditions for the determination of reference hearing threshold levels (ISO 389-9:2009)**

## I.S. EN ISO 389-9:2009

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Acoustique - Zéro de référence pour l'étalonnage d'équipements audiométriques - Partie 9: Conditions d'essai préconisées pour la détermination des niveaux liminaires d'audition de référence (ISO 389-9:2009)

Akustik - Standard-Bezugspegel für die Kalibrierung audiometrischer Geräte - Teil 9: Vorzugs-Messbedingungen zur Bestimmung von Bezugs-Hörschwellenpegeln (ISO 389-9:2009)

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## **Foreword**

This document (EN ISO 389-9:2009) has been prepared by Technical Committee ISO/TC 43 "Acoustics" in collaboration with Technical Committee CEN/TC 211 "Acoustics", the secretariat of which is held by DS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2009, and conflicting national standards shall be withdrawn at the latest by November 2009.

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### **Endorsement notice**

The text of ISO 389-9:2009 has been approved by CEN as a EN ISO 389-9:2009 without any modification.

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**Acoustics — Reference zero for the  
calibration of audiometric equipment —**

Part 9:

**Preferred test conditions for the  
determination of reference hearing  
threshold levels**

*Acoustique — Zéro de référence pour l'étalonnage d'équipements  
audiométriques —*

*Partie 9: Conditions d'essai préconisées pour la détermination des  
niveaux liminaires d'audition de référence*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 389-9 was prepared by Technical Committee ISO/TC 43, *Acoustics*.

ISO 389 consists of the following parts, under the general title *Acoustics — Reference zero for the calibration of audiometric equipment*:

- *Part 1: Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones*
- *Part 2: Reference equivalent threshold sound pressure levels for pure tones and insert earphones*
- *Part 3: Reference equivalent threshold force levels for pure tones and bone vibrators*
- *Part 4: Reference levels for narrow-band masking noise*
- *Part 5: Reference equivalent threshold sound pressure levels for pure tones in the frequency range 8 kHz to 16 kHz*
- *Part 6: Reference threshold of hearing for test signals of short duration*
- *Part 7: Reference threshold of hearing under free-field and diffuse-field listening conditions*
- *Part 8: Reference equivalent threshold sound pressure levels for pure tones and circumaural earphones*
- *Part 9: Preferred test conditions for the determination of reference hearing threshold levels*

## **Introduction**

ISO/TC 43, *Acoustics*, is responsible for the production of International Standards specifying human hearing thresholds for use in the calibration of audiometric equipment. The Committee bases its work on data from independent laboratories throughout the world. Unfortunately, problems have existed in the past in trying to relate the data from experiments carried out by different laboratories in different parts of the world, all of which have had the same objective, but which lacked a common set of criteria for subject selection, methods of test and reporting of data, etc.

ISO/TC 43 has developed this part of ISO 389 in order to collate the data that is being, or will be, produced in the future, and to encourage other laboratories to participate in these activities. The test conditions are aimed at providing guidance to researchers to ensure that the collation of future work is made easier, which in turn ought to lead to a more rapid production of relevant standards.

# Acoustics — Reference zero for the calibration of audiometric equipment —

## Part 9: Preferred test conditions for the determination of reference hearing threshold levels

### 1 Scope

This part of ISO 389 specifies test conditions for determining the hearing thresholds of subjects for the purpose of establishing standardized values for reference hearing threshold levels.

### 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 amendments) applies.

ISO 389-1:1998, *Acoustics — Reference zero for the calibration of audiometric equipment — Part 1: Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones*<sup>1)</sup>

ISO 389-2, *Acoustics — Reference zero for the calibration of audiometric equipment — Part 2: Reference equivalent threshold sound pressure levels for pure tones and insert earphones*<sup>1)</sup>

ISO 389-3, *Acoustics — Reference zero for the calibration of audiometric equipment — Part 3: Reference equivalent threshold force levels for pure tones and bone vibrators*

ISO 389-6, *Acoustics — Reference zero for the calibration of audiometric equipment — Part 6: Reference threshold of hearing for test signals of short duration*

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*

ISO 389-8, *Acoustics — Reference zero for the calibration of audiometric equipment — Part 8: Reference equivalent threshold sound pressure levels for pure tones and circumaural earphones*

ISO 8253-1:—<sup>2)</sup>, *Acoustics — Audiometric test methods — Part 1: Basic pure-tone air and bone conduction threshold audiometry*

ISO 8253-2:—<sup>3)</sup>, *Acoustics — Audiometric test methods — Part 2: Sound field audiometry with pure tone and narrow-band test signals*

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1) Under revision.

2) To be published. (Revision of ISO 8253-1:1989)

3) To be published. (Revision of ISO 8253-2:1992)

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