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Acoustics - Audiometric test methods - Part 2: Sound field audiometry with pure- tone and narrow-band test signals (ISO 8253-2:2009)

I.S. EN ISO 8253-2:2009

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English Version

**Acoustics - Audiometric test methods - Part 2: Sound field
audiometry with pure-tone and narrow-band test signals (ISO
8253-2:2009)**

Acoustique - Méthodes d'essais audiométriques - Partie 2:
Audiométrie en champ acoustique avec des sons purs et
des bruits à bande étroite comme signaux d'essai (ISO
8253-2:2009)

Akustik - Audiometrische Prüfverfahren - Teil 2: Schallfeld-
Audiometrie mit reinen Tönen und schmalbandigen
Prüfsignalen (ISO 8253-2:2009)

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Foreword

This document (EN ISO 8253-2:2009) has been prepared by Technical Committee ISO/TC 43 "Acoustics" in collaboration with the 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of an identical text or by endorsement, at the latest by June 2010, and conflicting national standards shall be withdrawn at the latest by June 2010.

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I.S. EN ISO 8253-2:2009
**INTERNATIONAL
STANDARD**

**ISO
8253-2**

Second edition
2009-12-15

Acoustics — Audiometric test methods —

Part 2:

**Sound field audiometry with pure-tone
and narrow-band test signals**

Acoustique — Méthodes d'essais audiométriques —

*Partie 2: Audiométrie en champ acoustique avec des sons purs et des
bruits à bande étroite comme signaux d'essai*



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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.

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ISO 8253-2 was prepared by Technical Committee ISO/TC 43, *Acoustics*.

This second edition cancels and replaces the first edition (ISO 8253-2:1992), of which it constitutes a minor revision.

ISO 8253 consists of the following parts, under the general title *Acoustics — Audiometric test methods*:

- *Part 1: Basic pure-tone air and bone conduction threshold audiometry*
- *Part 2: Sound field audiometry with pure-tone and narrow-band test signals*
- *Part 3: Speech audiometry*

Introduction

ISO 8253-1 covers procedures for the determination of thresholds of hearing using pure tones presented to the subject by means of earphone or bone vibrator.

This part of ISO 8253 covers procedures for the determination of thresholds of hearing in a sound field. In general, sound field testing implies binaural listening to a test signal, presented by means of one or more loudspeakers in a test room. The test signal may be a pure tone, a frequency-modulated tone or a narrow band of noise. The acoustical characteristics of the sound field are determined by the choice of test signal, by the number and acoustical properties of the loudspeakers used, as well as by the acoustical characteristics of the test room.

Sound field audiometry may be used for various purposes, e.g. the evaluation of hearing acuity in young children and the determination of the functional gain of a hearing aid when worn by a particular listener.

Acoustics — Audiometric test methods —

Part 2: Sound field audiometry with pure-tone and narrow-band test signals

1 Scope

This part of ISO 8253 specifies relevant test signal characteristics, requirements for free, diffuse, and quasi-free sound fields, and procedures for sound field audiometry using pure tones, frequency-modulated tones or other narrow-band test signals presented by means of one or more loudspeakers. The primary purpose is the determination of hearing threshold levels in the frequency range 125 Hz to 8 000 Hz, but this range can be extended to 20 Hz to 16 000 Hz.

This part of ISO 8253 does not include specifications for the use of hand-held loudspeakers. Speech as a test signal is not covered.

The purpose of this part of ISO 8253 is to ensure that tests of hearing, using sound field audiometry, give as high a degree of accuracy and reproducibility as possible.

Examples of graphical representations of the results are given in Annex A.

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 226, *Acoustics — Normal equal-loudness-level contours*

ISO 266, *Acoustics — Preferred frequencies*

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 8253-1:—¹⁾, *Acoustics — Audiometric test methods — Part 1: Basic pure-tone air and bone conduction threshold audiometry*

IEC 60581-7:1986, *High fidelity audio equipment and systems — Minimum performance requirements — Part 7: Loudspeakers*

IEC 60645-1, *Electroacoustics — Audiometric equipment — Part 1: Pure-tone audiometers*

IEC 61672-1, *Electroacoustics — Sound level meters — Part 1: Specifications*

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

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