

ICS 17.140
CCS A 59



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 4854.7-2008

**Acoustics -- Reference zero for the calibration of audiometric
equipment -- Part 7: Reference threshold of hearing under
free-field and diffuse-field listening conditions**

(English Translation)

Issued on: July 2, 2008

Implemented on: February 1, 2009

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine**

Table of Contents

Foreword...	3
Introduction...	5
1 Scope...	6
2 Normative References...	7
3 Terms and Definitions...	7
4 Specification...	8

Foreword

GB/T 4854 Acoustics - Reference Zero for the Calibration of Audiometric Equipment

includes eight parts:

---GB/T 4854.1 Acoustics - Reference Zero for the Calibration of Audiometric Equipment - Part 1: Reference Equivalent Threshold Sound Pressure Levels for Pure Tones and Supra-aural Earphones

---GB/T 16402 Acoustics - Reference Equivalent Threshold Sound Pressure Levels for Pure Tones and Insert Earphones

---GB/T 4854.3 Acoustics - Reference Zero for the Calibration of Audiometric Equipment - Part 3: Reference Equivalent Threshold Force Levels for Pure Tones and Bone Vibrators

---GB/T 4854.4 Acoustics - Reference Zero for the Calibration of Audiometric Equipment - Part 4: Reference Levels for Narrow-band Masking Noise

---GB/T 4854.5 Acoustics - Reference Zero for the Calibration of Audiometric Equipment - Part 5: Reference Equivalent Threshold Sound Pressure Levels for Pure Tones in the Frequency Range 8 kHz to 16 kHz

---GB/T 4854.6 Acoustics - Reference Zero for the Calibration of Audiometric Equipment - Part 6: Reference Hearing Threshold Levels for Test Signals of Short Duration

---GB/T 4854.7 Acoustics - Reference Zero for the Calibration of Audiometric

Equipment - Part 7: Reference Threshold of Hearing under Free-field and Diffuse-field Listening Conditions

---GB/T 4854.8 Acoustics - Reference Zero for the Calibration of Audiometric Equipment - Part 8: Reference Equivalent Threshold Sound Pressure Levels for Pure Tone and Circum-aural Earphones

NOTE: when the 2nd part in the series was formulated, the serial No. was GB/T 16402.

At that time, the series standards has not yet been established. This Part will be modified into GB/T 4854.2 in the subsequent revision.

This is Part 7 of GB/T 4854.

This Part equivalently adopts ISO 389-7:2005 Acoustics - Reference Zero for the Calibration of Audiometric Equipment - Part 7: Reference Threshold of Hearing under Free-field and Diffuse-field Listening Conditions. This Part serves as a replacement of GB/T 4854.7-1999. In comparison with the previous edition, this Part introduces the newly published research achievements since 1996. Therefore, the free-field and Acoustics - Reference Zero for the Calibration of Audiometric Equipment - Part 7: Reference Threshold of Hearing under Free-field and Diffuse-field Listening Conditions

1 Scope

This Part specifies a reference threshold of hearing for the calibration of audiometric equipment used under the following conditions.

- a) The sound field in the absence of the listener consists of either a free progressive plane wave (free field) or a diffuse sound field. In the case of a free field, the source of sound is directly in front of the listener (frontal incidence).
- b) The sound signals are pure (sinusoidal) tones in the case of free-field conditions and one-third octave bands of (white or pink) noise in the case of diffuse-field conditions.

c) The sound pressure level is measured in the absence of the listener at the position where the center of the listener's head would be.

d) Listening is binaural.

NOTE 1: correction values for the threshold of hearing under free-field listening conditions and selected angles of sound incidence (45° and 90°) deviating from frontal incidence are given in GB/T 16296 for information.

NOTE 2: other conditions are given in Bibliographic Reference [1].

The data are given in Table 1, in numerical form for the preferred frequencies in the one-third-octave series from 20 Hz to 16 kHz inclusive in accordance with GB/T 3240 and, in addition, for some intermediate audiometric frequencies up to 18 kHz.

It should be emphasized that the threshold data differ from the audiometric zero specified in GB/T 4854.1 and GB/T 16402, since the latter refer to monaural listening through earphones with sound pressure levels referred to specified couplers and ear simulators. Direct comparison between the data in this Part, and GB/T 4854.1 or GB/T

16402 is therefore not appropriate.

.....