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

GB/T 7582-2025

Replacing GB/T 7582-2004

**Acoustics - Statistical distribution of hearing thresholds related
to age and gender**

声学 听阈与年龄和性别关系的统计分布

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 7582-2004 "Statistical distribution of acoustic hearing thresholds in relation to age" and is consistent with GB/T 7582-2004.

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

---Changed the estimated precision and statistical distribution of the median hearing threshold expectation for the age range, audiometric frequencies at and below 2000 Hz the age range has been extended to 80 years (see Chapter 1 of the 2004 edition);

--- Changed the calculation formula to improve the accuracy of the estimation and statistical distribution of the expected median hearing threshold (see 4.2, 4.3 and 4.4, 2004 edition, 3.2, 3.3, and 3.4).

This document is equivalent to ISO 7029:2017 "Statistical distribution of acoustic hearing thresholds in relation to age and gender".

The following minimal editorial changes have been made to this document.

--- This document incorporates the contents of the amendment to ISO 7029:2017/Amd1.2024. The outer margins of the clauses involved are marked with Vertical double lines (||) are marked.

Introduction

It is well known that people's hearing sensitivity decreases with age, and hearing damage to high-frequency sounds develops faster than that to low-frequency sounds.

Furthermore, the extent of this effect varies widely among individuals.

When audiometry is performed on individuals significantly older than 18 years, the observed hearing loss may be partially age-related.

When it comes to hearing loss, special attention should be paid to the impact of age.

It should be pointed out that hearing loss is not necessarily caused by aging itself. There are many specific details in a person's life that are still unclear.

Clearly aware of the harmful factors.

This document is based on a comprehensive review of the literature data on differences between age groups of normal otological subjects as defined in this document.

The data were obtained by using pure sound test with headphones.

There is no evidence that data measured with band noise are unusable.

The expected median and statistical distribution of hearing thresholds in this document were re-estimated using audiometric data published after the 2004 edition of this document.

Therefore, this document describes the hearing sensitivity profile of the population in recent years.

The high-frequency hearing thresholds given in this document are generally lower than in previous editions. The drop at 4000 Hz for males has become negligible.

The source data may not have been rigorously screened for hearing abnormalities. Instrument problems may also affect the measurement data.

This document provides the expected median hearing thresholds in the frequency range of 9000Hz to 12500Hz for reference.

The device is designed to perform audiometry on these frequencies.

Statistical distribution of the relationship between acoustic hearing threshold and age and

gender

1 Scope

This document specifies the descriptive statistical information of the hearing threshold deviation values of normal otologists of various age groups under monaural headphone audiometry conditions.

The document stipulates the following for people aged 18 to 80 years old, within the audiometry frequency range of 125Hz to 8000Hz.

- a) the expected median hearing threshold relative to the median hearing threshold of 18-year-olds;
- b) The expected statistical distribution above and below the median.

For people over 70 years old, the median and statistical distribution of frequencies between 3000Hz and 8000Hz are for reference only.

This document also provides reference for the expected median of the 22 to 80 age range and the 9000Hz to 12500Hz audiometric frequency range.

Test information.

The data in this document are suitable for estimating the extent of hearing loss in a population due to a specific factor.

This comparison is valid for people with normal hearing who are affected by this specific factor. Noise exposure is an example of a specific factor.

Some data from this document have been selected to form Database A of ISO.1999 for the application of noise exposure in audiometry.

Note 1: GB/T 14366-2017 is equivalent to ISO.1999.2013, and Database A is based on the previous version of ISO 7029.

The data in this document are also suitable for use in assessing an individual's hearing ability by comparing it with the normal distribution of hearing thresholds for the same age group.

Accurately assess which of an individual's hearing loss is due to the cumulative adverse effects on hearing that occur with aging, and which is caused by other factors such as noise.

caused by.

The hearing threshold deviations defined in this document are consistent with those in other standards (ISO 389-1, ISO 389-2, ISO 389-5, ISO 389-8, ISO 8253-1. The hearing threshold level defined in ISO 8253-2 and IEC 60645-1) represents the hearing threshold of

an individual or an individual ear relative to the following data.

Relationship.

--- the expected median hearing threshold of an 18-year-old normal population of the same sex; or

--- Reference zero grade specified in various parts of ISO 389.

If the baseline level zero represents the median of 18-year-olds, then these two values are the same.

Note 2: For some reasons, these two values are not always the same. One reason is that the reference zero level is determined based on the hearing threshold level of people over 18 years old.

The average hearing sensitivity of the general population, including those over 25 years old and even over 30 years old, is slightly worse.

Note 3: ISO 28961 specifies the expected statistical distribution of hearing thresholds for normal otological subjects aged 18 to 25 years under binaural free-field listening conditions, expressed in decibels.

It can be calculated not only at conventional audiometric frequencies, but also at other 1/3 octave frequencies within the 20Hz~16000Hz frequency range.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

The URLs for terminology databases used for standardization maintained by ISO and IEC are as follows.