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

GB/T 14199-2010

Replacing GB/T 14199-1993

Electroacoustics - General specification for hearing aid

电声学 助听器通用规范

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1 Scope

GB/T 14199-2010 is the Chinese national standard on electroacoustics - general specification for hearing aid, in the field of metrology and measurement. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 2 September 2010 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 April 2011. Classification: ICS 17.140.50, CCS M72. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the technical requirements, measuring methods, inspection rules, marking, packaging, transportation and storage for hearing aids. This Standard applies to air- and bone-conduct hearing aids.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 2421.1, Environmental testing for electric and electronic products - General and guidance

GB/T 2422, Environmental testing for electric and electronic products - Terms and definitions

GB/T 2423.1, Environmental testing - Part

3 Terms and definitions

For the purposes of this document, the following terms and definitions AND those established in GB/T 25102.100, GB/T 25102.1 and GB/T 2422, apply.

3.1 hearing aid an electronic device which is used to amplify sound and compensate for hearing loss, which normally consists of microphone, amplifier and earphone and which is

powered a low-voltage battery

3.2 air-conduct hearing aid A hearing aid with which the sound, amplified using the air-conduct method, is conducted to the internal ear through the air in the auditory meatus.

3.3 bone-conduct hearing aid A hearing aid with which the sound amplified is conducted to the internal ear using method of mechanical vibration of mastoid process or skull.

3.4 box hearing aid body-worn hearing aid A hearing aid which is worn on the body of the hearer (not on the head).

3.5 behind-the-ear hearing aid; BTE A hearing aid which is worn on the back of the auricle which is connected by an ear hook.

3.6 in-the-ear hearing aid; ITE A hearing aid which is customized in accordance with the shape of the cavity of concha auriculae and worn in the concha auriculae of concha auriculae.

4.2 Technical parameter requirements of electroacoustic performance

4.2.1 Sound pressure level when the input sound pressure level is 90 dB (OSPL90)

4.2.3 Equivalent input noise level The nominal value is specified in the product standard or technical instructions of the manufacturer; its maximum actually measured test value shall not exceed 32 dB and shall not be + 3 dB greater than the nominal value.

4.2.4 Total harmonic distortion The nominal value is specified in the product standards or technical instructions of the manufacturer; the maximum actually measured test value shall not exceed 10% and shall not be greater than + 3%.

4.2.5 Frequency response range The nominal range shall be as specified in the product standards or technical instructions of the manufacturer.

4.3 Requirements for electroacoustic performance technical parameters after environmental testing

4.3.1 The output sound pressure level when the input sound pressure level is 90 dB (OSPL90).

4.3.2 Full-scale gain The difference between the test values before and after environmental testing is not greater than ± 4 dB.

4.3.3 The test value of equivalent input noise sound level is not greater than 35 dB.

4.3.4 The test value of total harmonic distortion is not greater than 12%.

4.3.5 The test value of frequency response range shall be as specified in 4.2.5.

4.3.6 The test value of rated supply current consumption shall be as specified in 4.2.6.

4.3.7 The test value of the sensitivity of inductive pickup coils shall be as specified in 4.2.7.

4.4 Environmental durability

4.5 Electromagnetic compatibility The test results shall be as specified in GB/T 25102.13-2010.

5.1 Measuring conditions

5.1.1 Air-conduct hearing aids shall be as specified in Clause 5 of GB/T 25102.100- 2010; bone-conduct hearing aids shall be as specified in Clause 6 of SJ/Z 9143.2- 1987.

5.2 Appearance, structural requirements, etc. Use the visual inspection and hand feeling methods for inspection.

5.3 Electroacoustic performance measuring method

5.3.1 When the input sound pressure level is 90 dB, the output sound pressure level (OSPL90) is measured as specified in

7.2 of GB/T 25102.100-2010.

5.3.2 The full-scale gain is measured as specified in

7.3 of GB/T 25102.100-2010.

5.3.5 Frequency response range.

5.3.7 The sensitivity of inductive pickup coils is measured as specified in

4.5 of GB/T 25102.100-2010; the recommended measuring frequency is 1,600 Hz or the high- frequency average.

5.3.8 Bone-conduct hearing aids are measured as specified in SJ/Z 9143.2, Hearing aids - Part

9.Methods of measurement of characteristics of hearing aids with bone vibrator output.

5.4 Environmental testing

5.4.1 Items and sequence of environmental testing Environmental testing is carried out in the following sequence.

5.4.6 High-temperature load and storage test

5.4.6.1 Place test sample at room temperature into the test chamber, which is not packaged, not powered on and is in the normal working position. Then the temperature of the test chamber is room temperature.

5.4.6.2 When the temperature of the test chamber increases to $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at the average