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

GB/T 15173-2010

**Electroacoustics - Sound calibrators
(English Translation)**

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Foreword

This Standard is a revision of GB/T 15173-1994 "Sound calibrators".

This Standard is equivalent to IEC 60942.2003 " Electroacoustics -- Sound calibrators" (the third English edition).

For ease of use, this Standard has made the following editorial changes.

- a) The decimal point "." is used instead of the comma "," as a decimal point;
- b) The Foreword of IEC 60942.2003 is deleted;
- c) The introductory words in the chapter of normative references are modified according to the provisions of GB/T 1.1-2000.

This Standard replaces GB/T 15173-1994 "Sound calibrators".

Compared with GB/T 15173-1994, the main changes of this Standard are as follows.

- a) Introduction is added;
- b) The definitions of three terms such as nominal value, equivalent free field sound pressure level and equivalent diffuse field sound pressure level are deleted (3.2~3.3 of GB/T 15173-1994), and 12 terms such as specified sound pressure level are added (3.2~3.13 of this Standard);
- c) The class identification is changed from 0, 1 and 2 to LS, 1 and 2; the mark "L"

for restricted environmental conditions is deleted (4.3.4 of GB/T 15173-1994), and the mark "C" for environmental impact correction is added (5.1.4 of this Standard);

d) Reference environmental conditions are added (Chapter 4 of this Standard);

e) The range of working environment conditions is consistent with the provisions of sound level meter (GB/T 3785.1-2010 (IEC61672-1.2002));

f) The tolerance includes the maximum permissible measurement uncertainty;

g) The requirements for sound pressure level within the power supply voltage range are added (5.2.4 of this Standard);

h) The requirements for frequency stability are deleted (4.2.3 of GB/T 15173-1994);

i) The specifications for burst sound capability are deleted (4.5 of GB/T 15173-1994);

j) The specifications for microphone types used for level determination are added (5.7.1 of this Standard);

Electroacoustics -- Sound calibrators

1 Scope

This Standard specifies the performance requirements for three classes of sound calibrator. laboratory standard (class LS), class 1 and class 2. Tolerance limits are smallest for class LS and greatest for class 2 instruments. Class LS sound calibrators are normally used only in the laboratory; class 1 and class 2 are considered as sound calibrators for field use. A class 1 sound calibrator is primarily intended for use with a class 1 sound level meter and a class 2 sound calibrator primarily with a class 2 sound level meter, as specified in IEC 61672.1.

The tolerance limits for class LS sound calibrators are based on the use of a laboratory standard microphone, as specified in IEC 61094-1, for demonstrations of conformance to the requirements of this Standard. The tolerance limits for class 1 and class 2 sound calibrators are based on the use of a working standard microphone, as specified in GB/T 20441.4, for demonstrations of conformance to the requirements of this Standard.

A multi-level and multi-frequency sound calibrator has the same class designation for

all sound pressure level and frequency combinations for which the instruction manual states that the instrument conforms to the requirements of this Standard.

This Standard does not include requirements for equivalent free-field or random-incidence sound pressure levels, such as may be used in the overall sensitivity adjustment of a sound level meter.

A sound calibrator may provide other functions, for example, tone bursts. Requirements for these other functions are not included in this Standard.

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.

GB/T 3785.1-2010, Electroacoustics -- Sound level meters -- Part 1.Specifications (IEC 61672-1.2002, IDT)

GB/T 3240-1982, Preferred frequencies for the acoustical measurement (idt ISO 266.1975)

GB 9254-2008, Information technology equipment -- Radio disturbance characteristics - Limits and methods of measurement (CISPR 22.2006, IDT)

GB/T 17626.2-2006, Electromagnetic compatibility (EMC) -- Testing and measurement techniques -- Electrostatic discharge immunity test (IEC 61000-4-2.2001, IDT)

GB/T 17799.1-1999, Electromagnetic compatibility -- Generic standards - Immunity for residential, commercial and light-industrial environments (idt IEC 61000-6-1.1997)

GB/T 17799.3-2001, Electromagnetic compatibility -- Generic standards Emission standard for residential, commercial and light-industrial environments (idt CISPR/IEC 61000-6-3.1996)

GB/T 20441.4-2006, Measurement microphones -- Part 4.Specifications for working standard microphones (IEC 61094-4.1995, IDT)

ISO/IEC Guide.1995, Guide to the expression of uncertainty in measurement

ISO Publication.1993, ISBN 92-67-01075-1, International vocabulary of basic and general terms in metrology

IEC 61094-1.2000, Measurement microphones -- Part 1.Specifications for laboratory standard microphones

IEC 61094-2.1992, Measurement microphones -- Part 2.Primary method for pressure calibration of laboratory standard microphones by the reciprocity technique

IEC 61094-5.2001, Measurement microphones -- Part 5.Specifications for working standard microphones

IEC 60050 (801).1994, International Electrotechnical Vocabulary (IEV) - Chapter

801 Acoustics and electroacoustics

IEC 61000-4-3.2002, Electromagnetic compatibility (EMC) -- Part 4-3.Testing and measurement techniques -- Radiated, radio-frequency, electromagnetic field immunity test. Basic EMC Publication

OIML International Recommendation R 97.1990, Barometers

3 Terms and definitions

For the purposes of this Standard, the definitions contained in IEC 60050 (801).1994 and the ISO Publication International vocabulary of basic and general terms in metrology, as well as the following definitions, apply.

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