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

GB/T 20441.3-2010

Replacing GB/T 6511-1986

**Electroacoustics -- Measurement microphone -- Part 3: Primary
method for free-field calibration of laboratory standard
microphones by the reciprocity technique**

电声学 测量传声器 第3部分：采用互易技术对实验室标准传声器的自由场校准的
原级方法

(English Translation)

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Foreword

GB/T 20441 "electric acoustic measurement microphone" is divided into seven sections.

--- Part 1. Laboratory standard microphones;

--- Part 2. Method using the original grade reciprocity technique of laboratory standard microphones sound pressure calibration;

--- Part 3. Method using the original grade reciprocity technique of laboratory standard microphones free-field calibration;

--- Part 4. Specifications for working standard microphones;

--- Part 5. working standard microphones calibration by comparison method;

--- Part 6. Determination of the frequency response of the electrostatic actuator;

--- Part 7. difference between laboratory standard microphones free-field sensitivity and sound pressure sensitivity between.

This section GB/T 20441 Part 3.

This section identical with IEC 61094-3:1995 "Electroacoustics Measurement microphones - Part 3. reciprocity technique laboratory standard the method of the original level of free-field microphone calibration "(in English).

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

a) instead of as a decimal by decimal comma " , " , " ;

b) Remove the IEC 61094-3:1995 Foreword;

c) increasing the mathematical meaning explanation letter underlined in Note 5.2.

This Part replaces GB/T 6511-1986 "adopted reciprocity technique $\phi 23.77\text{mm}$ standard condenser microphone for free - field calibration of precision Encryption method. " this part of GB/T 6511-1986 The main differences are as follows.

In addition to the basic principles and techniques have a greater change in the content, structure, narrative and choreography;

a) increasing the foreword and directory;

b) the standard applies only to $\phi 23.77\text{mm}$ of standard condenser microphones, the original scale method specified in this part apply to GB/T 20441 Laboratory standard microphones in Section 1 (including $\phi 23.77\text{mm}$ standard microphone). Thus, in the text content in addition to the increased $\phi 23.77\text{mm}$ microphone, the other part of laboratory standard microphones;

c) the content of the text by the 4 to 7. Increase the scope, normative references, reference conditions, the impact of free-field sensitivity Degree of uncertainty factors and calibration, replace the original standard calibration method and apparatus for calibration of absolute accuracy, etc.

content;

d) increase environmental impact Appendix C microphone sensitivity.

This part of the Annex A, Annex B, Annex C is informative appendix.

This part is proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

This part of the National Standardization Technical Committee electro-acoustics (SAC/TC23) centralized.

This section is drafted. Nanjing University, Jiangsu Electronic Information Products Quality Supervision and Inspection Institute, China Testing Technology Research Institute.

1 Scope

This section GB/T 20441 specifies the primary method for determining the free-field sensitivity level in order to establish in a free field conditions and reproducible Accurate measurement of sound pressure basis.

This section applies for laboratory standard microphones GB/T 20441.1 requirements. Principle calibration method applicable to other types of microphone. In particular, when fitted with the provisions of the adapter, in line with GB/T 20441.1 requirements microphone adapter can be removed, in accordance with this section calibration.

This section applies to laboratory technicians with high experience and special requirements.

2 Normative references

The following documents contain provisions which, through reference GB/T 20441 in this section constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 17247.1-2000 acoustic attenuation of sound during propagation outdoors - Part 1. Calculation (eqv ISO 9613-1 atmospheric sound absorption.

1993)

GB/T 20441.1-2010 Electric Acoustic Measurement microphones - Part 1. Laboratory standard microphones (IEC 61094-1.

2000, IDT)

SJ/T 10444-1993 electroacoustic term (eqv IEC 60050 (801).

1984AcousticsandElectro-acoustics) Letter symbols used in Section 21972 of electronic technology.. IEC 60027-2 telecommunications and electronics IEC 61094-2:1992

Measurement microphones - Part 2. reciprocity technology laboratory calibration

microphone sound pressure level of the original method ISO/IEC Guide.1995 Guide to the Expression of Uncertainty in Measurement (GUM)

3 Terms and Definitions

GB/T 20441.1-2010 and as defined in the following terms and definitions apply to this section.

Reciprocity microphone reciprocal microphone Linear passive microphone, its open forward and reverse transfer impedance (see IEC 60027-2. 1972 206) in magnitude relative and the like.

Free-field microphone sensitivity of the phase angle

phase angle of free-field sensitivity of a microphone for the sine plane traveling wave a given frequency, the sound incident direction and under given environmental conditions, the open circuit voltage of a predetermined sound pressure the phase angle between the microphone when not in the position of its center about the sound.

Note: in degrees or radians (° or rad).

Microphone acoustic center acoustic centre of a microphone for transmitting the microphone, to a predetermined fixed frequency sinusoidal signal and the direction and distance of a point, the point about the concept of a small scale