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JJG

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

JJG 2037-2015

Replacing JJG 2037-2004

**Verification Scheme of Measuring Instruments for Air-borne
Sound Pressure
(English Translation)**

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Introduction

The Verification System based JJF1104-2003 "National Metrological Verification System write rules" in preparation.

The verification system in place JJG 2037-2004 "sound of air pressure measuring instruments." And JJG 2037-2004 phase Ratio, the main technical changes are as follows.

--- Coupled cavity reciprocity method reference sound pressure by the lower limit of the

frequency range of 20Hz extended to 2Hz;

--- Upper frequency limit range free-field sound pressure from baseline extended to 20kHz 50kHz;

--- The original electro-acoustic refinement of standard equipment for the working standard microphone calibration device, acoustic calibrator verification device, Sound level meter verification device, standard sound source verification device, infrasound sensor calibration devices, including infrasound sensor calibration device the previous version of the verification system for the release of the case.

--- JJG 2037-1989;

--- JJG 2037-2004.

Air sound pressure measuring instruments Verification System

1 Scope

The verification system applicable to money transfer sound of air pressure measuring instruments. It provides air sound pressure metering group Associate sound through the air pressure measurement standards to working measuring instruments of value transfer procedure between the value transfer method and measurement are not Degree of certainty. In carrying out the calibration can also be used as a basis for traceability.

2 air reference sound pressure measurement

2.1 Overview

Air pressure measurement reference for sound reproduction and preservation of sound pressure values of air units, and measurement standards through the work of Measuring instruments of value transfer. The unit of sound pressure values Pa, SPL value in units of dB, reference sound pressure 20 μ Pa.

Air reference sound pressure measurement means coupled cavity reciprocity method of sound pressure reference means, coupled cavity reciprocity law Deputy reference sound pressure mounted Set and free-field reciprocity method of sound pressure reference means.

The tables use the microphone sensitivity (sensitivity and free-field sound pressure sensitivity) multiplex sound pressure values Now and delivery. Open-circuit voltage and the uniform application of the microphone output sound pressure sensitivity of the microphone in the microphone diaphragm surface Than the sound pressure on the microphone sensitivity of the free-field microphone output open circuit voltage and the sound of this microphone is not free Field, the sound pressure ratio at the center of the microphone sound. The sensitivity of the unit is V/Pa, generally expressed sensitivity level, Units of dB (with 1V/Pa as a reference).

Air sound pressure measuring standard reference sound pressure sensitivity of the microphone or the free-field sensitivity by reciprocity method to achieve the sound pressure Magnitude reproduction, and save it to reproduce the sound pressure values indirectly traceable to a current base unit ampere (A) and the length of the basic in meters (m).

2.2 coupling cavity reciprocity law means the reference sound pressure Coupled cavity reciprocity law means by the reference sound pressure reference microphones, coupled cavity reciprocity calibration systems and related ancillary set Preparation, whose sound pressure values are reproduced by coupling cavity reciprocity method to accurately measure the reference microphone to achieve. Datum LS1 and LS2 into the microphone type type, must be long-term stability assessment.

LS1 type reference microphone reciprocity calibration measurement frequency range of 2Hz ~ 10kHz, the measurement uncertainty.

2Hz ~ 10Hz, 0.20dB ($k = 2$);

> 10Hz ~ 6.3kHz, 0.05dB ($k = 2$);

> 6.3kHz ~ 10kHz, 0.10dB ($k = 2$).

LS2 type reference microphone reciprocity calibration measurement frequency range of 10Hz ~ 25kHz, the measurement uncertainty.

10Hz ~ 31.5Hz, 0.10dB ($k = 2$);

> 31.5Hz ~ 6.3kHz, 0.05dB ($k = 2$);

> 6.3kHz ~ 25kHz, 0.12dB ($k = 2$).

Transfer sound pressure values using coupled cavity reciprocity law by reference microphones and measurement standards laboratory standard microphone is composed of a group (of three), in coupled-cavity reciprocal reciprocity calibration measurements carried out on the reference means of acoustic pressure to give the experiment