

ICS 17.140
CCS A 59

JJG

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

JJG 992-2004

**Verification Regulation of the Measurement Instruments of
Sound Intensity
(English Translation)**

Issued on: September 21, 2004

Implemented on: December 21, 2004

**Issued by: The General Administration of Quality Supervision, Inspection
and Quarantine issued, This regulation was approved by the General
Administration of Quality Supervision, Inspection and Quarantine on
September 21, 2004, and**

Table of Contents

1	Scope (1)
2	Citations (1)
3	Terms and units of measurement (1)
3.1	Sound pressure level (1)
3.2	Instantaneous sound intensity (1)
3.3	Sound intensity (1)
3.4	Sound intensity level (2)
3.5	Sound Intensity Probe (2)
3.6	Reference point of the probe (2)
3.7	Probe Shaft (2)
3.8	Reference direction (2)
3.9	Nominal spacing of probe microphones (2)
3.10	Residual sound intensity (2)
3.11	Sound pressure - residual sound intensity index (2)
3.12	Dynamic Capability Index (3)
3.13	Scope of work (3)
3.14	Working in real time (3)
4	Overview (3)
5	Metrological performance requirements (3)
5.1	Frequency range (3)
5.2	Filtering (3)
5.3	A-weighting (4)
5.4	Time average (4)
5.5	Crest Factor Processing (5)
5.6	Sound pressure frequency response and sound intensity frequency response (5)
5.7	Sound pressure - residual sound intensity index (6)
6	General technical requirements (6)
6.1	Marking, nameplate and instruction manual (6)
6.2	Mark (7)
7	Measuring instrument control (7)
7.1	Verification conditions (7)
7.2	Verification project (8)

7.3 Verification method (8)

7.4 In-use inspection (10)

7.5 Processing of verification results (10)

7.6 Verification cycle (10)

Appendix A Example of Uncertainty in Measurement Results (11)

Appendix B Format of verification certificate and verification result page (16)

5.2 Filtering (3)

5.3 A-weighting (4)

7.3 Verification method (8)

7.4 In-use inspection (10)

7.6 Verification cycle (10)

Appendix A Example of Uncertainty in Measurement Results (11)

Appendix B Format of verification certificate and verification result page (16)

Sound intensity measuring instrument verification procedure

1 Scope

This procedure is applicable to the first verification and follow-up of sound intensity microphones for Class 1, 2 and 2X sound intensity measuring instruments.

Verification and in-use inspection.

2 Citations

This procedure refers to the following documents.

GB/T 3102.7-1993 "Amount and unit of acoustics" GB/T 3241-1998 "octave and fractional octave filter" GB/T 16404-1996 - Determination of sound power levels of noise sources - Part 1 the amount" GB/T 16404.2-1999 "Acoustic power intensity method - Determination of sound power level of noise sources - Part 2. Scanning measurement" GB/T 17561-1998 "Sound pressure microphone with sound intensity measuring instrument for measurement" GB/T 6882-1986 "Determination of sound power levels of acoustic noise sources - anechoic chamber and semi-anechoic chamber precision method" JJG 176-1995 "Acoustic Calibrator Calibration Procedure" JJG 188-2002 "Sound Level Meter Verification Regulations" JJG 449-2001 "Vertical and 1/3 octave filter verification procedures" when using this procedure, care should be taken to use the current valid version of the above cited documents.

3 terms and units of measure this procedure uses and references the definitions of terms in GB/T 16404 and GB/T 17561.

This procedure uses the quantities and units specified in GB/T 3102.7.

3.1 Sound pressure level (sound pressure level) the ratio of the sound pressure to the reference sound pressure is 20 times the base 10 logarithm, the reference sound pressure is 20 μPa , and the sound pressure level is used.

Bay indicates that the symbol is dB.

3.2 Instantaneous sound intensity (instantaneous sound intensity) at a certain point in the sound field, the unit time passes through the sound energy per unit area perpendicular to the direction of the particle velocity.

The instantaneous sound intensity at a point in the sound field is a vector equal to the product of the instantaneous sound pressure at that point and the instantaneous particle velocity.

$$I(t) = p(t) \cdot u(t) \quad (1)$$

Where. $I(t)$ ---instantaneous sound intensity, W/m^2 ;

$p(t)$ ---instantaneous sound pressure, Pa ;

$u(t)$ --- Instantaneous particle velocity, m/s .

3.3 Sound intensity (sound intensity) the average value of the instantaneous sound intensity in a steady state sound field over a certain time T .