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JJG

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

JJG 2054-2015

Replacing JJG 2054-1990 (Partial)

**Verification scheme of measuring instruments for vibration
(English Translation)**

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Introduction

The verification system in substitution JJG 2054-1990 "vibration measuring instruments verification system." Compared with JJG 2054-1990, this verification system is a major technological change.

1) extended reference vibration frequency range extended from (0.1 ~ 50000) Hz to (~ 0.005

50000) Hz, displacement, velocity, acceleration corresponding extended range;

2) Remove the baseline measurement appliance for a description of the alignment;

3) Remove the measurement standard presentation standard vibration measuring instrument and standard vibration sensor;

- 4) the measurement standards, increasing the representation of shaking table test device;
- 5) working measuring instruments, increasing the laser vibrometer statements;
- 6) the expanded uncertainty by the coverage factor $k = 3$, to $k = 2$.

Vibration measuring instruments Verification System

1 Scope

The verification system applicable to the magnitude of the transmission of vibration measuring instruments, the provisions of the national baseline vibration composition and use Way, passed by the national benchmarks to measure vibration measuring instruments work by standards of measurement procedures and the corresponding Uncertainty and basic test methods and other extensions. In carrying out calibration of the verification system can also be used as the traceability in accordance with.

The Verification System to vibration frequency f (Hz), vibration acceleration a (m/s^2), velocity v (m/s), displacement d (m) of the amplitude and phase ϕ ($^\circ$) as described in vibrating motion main physical quantities.

2 baseline measurement Vibration measurement benchmarks include national benchmarks and national secondary standard vibration.

2.1 Vibration national benchmarks/Vice reference means

2.1.1 Vibration national benchmarks include ultra-low frequency vibration reference means, reference means low frequency vibration, frequency vibration reference means Means and dither reference means (hereinafter referred to as the base unit).

2.1.2 The device consists of a reference vibration generating system (including source, power amplifier, vibration table, etc.), laser altimetry Vibration System composition (including laser interferometer, data acquisition systems, etc.) and the necessary basis for isolation and so on.

2.1.3 reference means reproducible acceleration by sine law of motion, velocity, displacement amplitude and phase. its Laser measurement of absolute value, directly traceable to the International System of Units fundamental unit of length (m) and a single time Bit (s).

2.2 Vibration national secondary standard

2.2.1 Vibration national secondary standard reference means comprises a low-frequency vibration deputy, Vice reference means intermediate frequency vibration (hereinafter referred to as Deputy reference means).

2.2.2 secondary standard device consists of vibration generating system (including source, power amplifier, vibration table, etc.), laser Composition vibration system (including laser interferometer, data acquisition systems, etc.) and the necessary basis for isolation and so

on.

2.2.3 Deputy reference means the magnitude of the reproduction method and reference means the same, the values should be regularly via standard laser vibrometer Instrument (including standard vibration measuring instrument) with a reference value means comparison. Vibration standard gauge by the vibration sensor standard , A suitable transfer instrument and display components.

2.2.4 Vibration measurement range and national benchmarks/secondary standard uncertainty are shown in Table 1.