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JJF

NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE

PEOPLE'S REPUBLIC OF CHINA

JJF 1925-2021

Calibration Specification for Low-frequency Volt-meters

低频电压表校准规范

(English Translation)

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Introduction

This specification is based on JJF 1071-2010 "Rules for Compilation of National Metrology Calibration Specifications" and JJF 1059.1-2012 "Measurement Uncertainty Evaluation and Representation" written. Take JJG782-1992 "Low-frequency Electronic Voltmeter Verification Regulations" as the basis is revised.

Compared with JJG782-1992 "Low-frequency Electronic Voltmeter Verification Regulations", the main technical changes except editorial revisions.

is as follows.

---The name of the procedure is changed from "Verification Regulations for Low-Frequency Electronic Voltmeters" to the normative name "Regulations for Calibration of Low-Frequency Voltmeters";

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--- The lower limit of the frequency range is extended from 2Hz to 1Hz, and the upper limit of the frequency range is extended from 1MHz to 30MHz (see Section Chapter 1);

--- Added "Overview" section (see Chapter 2);

---The voltage measurement range is expanded from 100μV~300V to. 100μV~1000V; (see 3.1);

--- Improve the measurement performance of the basic error and frequency additional error (see 3.1.2 and 3.1.3);

--- Added the technical requirements for isolation between the two channels of a dual-channel low-frequency voltmeter (see 3.2);

--- Increased the measurement content of the digital low-frequency voltmeter (see 5.2.2);

--- Increased the measurement method of the isolation between the two channels of the dual-channel low-frequency voltmeter (see 5.2.4).

The previous versions of this specification have been released as follows.

---JJG782-1992 "Low Frequency Electronic Voltmeter Verification Regulations".

Low Frequency Voltmeter Calibration Specification

1 Scope

This specification applies to the calibration of low-frequency voltmeters with a frequency range of 1Hz to 30MHz.

2 Overview

The low-frequency voltmeter is composed of a voltage divider, an amplifier, a detector and an indicating circuit. The composition principle is shown in Figure 1.low frequency electricity Pressure gauges are mainly used for calibration, testing and maintenance of electronic circuits and electronic equipment.

Figure 1 Schematic diagram of low frequency voltmeter

3 Metrology characteristics

3.1 Voltage

3.1.1 Voltage measurement range. 10mV~10V (1Hz~10Hz), 100μV~200V (10Hz~1MHz),.200V~1000V (15Hz~30kHz), 1mV~3.5V (1MHz~30MHz).

3.1.2 Basic error. ± (0.05~3)%.

3.1.3 Frequency additional error. ± (0.05~10)%.

3.2 Isolation between two channels. >=80dB.

Note: The above technical indicators are not used for qualification judgment, but only for reference.

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4 Calibration Conditions

4.1 Environmental conditions

4.1.1 Ambient temperature. (23±5)°C.

4.1.2 Relative humidity. <=80%.

4.1.3 Power requirements. power supply voltage (220±11)V, power supply frequency (50±1)Hz.

4.1.4 There is no electromagnetic interference and mechanical vibration that affect the normal operation of the instrument.

4.2 Equipment for calibration

4.2.1 Standard source method Low frequency voltage standard source.

1) Frequency range. 1Hz~30MHz;

2) Voltage range. 10mV~10V (1Hz~10Hz), 100μV~200V (10Hz~ 1MHz),.200V~1000V(15Hz~30kHz), 1mV~3.5V (1MHz~30MHz);

3) Maximum allowable error of output voltage. ± (0.015~1)%;

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