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JJF

NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE

PEOPLE'S REPUBLIC OF CHINA

JJF 1931-2021

Calibration Specification for Signal Generators

信号发生器校准规范

(English Translation)

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7 Recalibration interval(9)

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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" was compiled.

This specification is a revision of JJG173-2003 "Signal Generator Verification Regulations", and JJG173-2003 in comparison, major revisions include.

---The writing format complies with the requirements of JJF 1071-2010 "Rules for Writing National Metrology Calibration Specifications";

---The verification procedure is changed to the calibration specification;

--- The frequency range is modified from 5kHz~40GHz to 5kHz~50GHz; the frequency range of the internal modulation generator Modified from 0.01Hz~100kHz to 10Hz~200kHz;

---Delete the item of internal crystal oscillator, delete the item of maximum output level;

--- Unify absolute level accuracy and relative level accuracy into power.

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

---JJG173-1986, JJG174-1985, JJG324-1983, JJG325-1983, JJG339-1983, JJG438-1986;

---JJG173-2003.

Signal Generator Calibration Specifications

1 Scope

This specification applies to the calibration of signal generators in the frequency range of 5 kHz to 50 GHz, and the calibration of signal generators in other frequency ranges.

Number generator can refer to the implementation.

2 Overview

Signal generators include high-frequency signal generators, radio frequency signal

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generators, microwave signal generators, and millimeter wave signals Generators, synthetic signal generators, etc., mainly composed of crystal oscillators, frequency synthesis units, level control units, modulation units, etc. Its basic function is to provide sine wave signal and its modulated wave signal, which is widely used in production, scientific research, Measurement and other departments.

3 Metrology characteristics

3.1 Frequency

Range. 5kHz~50GHz, maximum allowable error. ±(1x10-5~1x10-10).

3.2 Power

a) Range. -130dBm~30dBm (5kHz~18GHz), maximum allowable error. ±(0.5dB~ 2dB);

b) Range. -120dBm~30dBm (18GHz~26.5GHz), maximum allowable error. ±(0.5dB~ 2dB);

c) Range. -110dBm~30dBm (26.5GHz~50GHz), maximum allowable error. ±(0.5dB~ 2dB).

3.3 Spectral Purity Parameters

a) Residual amplitude modulation of the carrier;

b) Residual frequency modulation of the carrier;

c) harmonics;

d) non-harmonic;

e) SSB phase noise.

3.4 Analog modulation parameters

3.4.1 Amplitude Modulation Amplitude modulation depth. 5%~99%, maximum allowable error. ±(3%~20%).

3.4.2 Frequency Modulation Frequency offset. (0~500)kHz, maximum allowable error. ±(3%~20%).

3.4.3 Phase Modulation Phase deviation. (0~500)rad, maximum allowable error. ±(5%~20%).

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