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JJG

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

JJG 2009-2016

Replacing JJG 2009-1987

**RF and Microwave Power Measuring Instruments
(English Translation)**

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Introduction

The test system table is based on JJF1001-2011 "General measurement terms and definitions" and JJF1104-2003 "country JQG2009-1987 is based on the preparation of the rules for the preparation of the system.

And JJG 2009-1987 "radio frequency and microwave power measurement instrument test system table" compared to the main content is like Under change.

--- According to the existing national radio frequency and microwave power reference value transmission capacity, will test system table work the upper limit of the frequency is extended to 75GHz, and the power range of the measurement standard and the working metering device is extended to 500W.

--- the original three sets of power reference band narrow, complex operation, not easy program control, is no longer used. Original system

Table 3cm power base using calorimeter technology, the new four sets of power benchmarks are used microcalorimeter technology, after

Than the former has the advantages of simple operation, low uncertainty. In view of the

current international comparison, the domestic value of the most in the transmission High power level of 10mW, and the measurement standard in the 10mW power level with a stable value, measurement of high signal to noise ratio , The upper limit of the power level of the four sets of new power references is set to 10 mW. For more than 10mW Power level, the measurement department at all levels can be based on the situation, the use of range expansion method, to solve their own.

--- refer to the China Institute of Metrology published National Calibration and Measurement Capability (CMC) table to adjust the part Frequency band technical indicators.

In the measurement standard transfer method, the complicated method of power equation method and reflectometer method is deleted.

The test system table of the previous release.

--- JJG 2009-1987.

Radio frequency and microwave power measuring instrument verification system table

1 Scope

The test system table applies to radio frequency and microwave power transfer, including radio frequency and microwave power from the radio frequency and Microwave power measurement basis through the measurement standard to the work of measuring instruments of the transfer relationship, the value of the transfer method and the value of transmission when the measurement capacity. In carrying out the calibration, but also as a basis for the value of traceability.

2 reference file

Standard Terminology and Definitions for JJF1001 JQF1188 Terminology and definitions of radio metrology nouns Evaluation and Representation of Measurement Uncertainty in JJF1059.1 where the date of the reference file, only the date of the version applies to the system table, all do not note the date of the reference text , The latest version (including all modifications) applies to this system.

3 measurement basis

3.1 name and value

Radio frequency and microwave power (hereinafter referred to as power) measurement benchmark (hereinafter referred to as benchmark), including coaxial power reference group and the waveguide power reference group. The magnitude of the power reference reproduction is the effective efficiency of the RF and microwave thermistor mounts.

3.2 Power Benchmark Uncertainty

3.2.1 Coaxial power reference group N-type coaxial power reference, frequency. 0.01GHz ~ 18GHz, power. 1mW ~ 10mW, uncertain 0.1% (k = 2).

3.2.2 Waveguide power reference group WR-28 waveguide power reference, frequency. 26.5GHz ~ 40GHz, power. 1mW ~ 10mW, Fixed 0.1% ($k = 2$);

WR-22 waveguide power reference, frequency. 33GHz ~ 50GHz, power. 1mW ~ 10mW, uncertain 0.1% ($k = 2$);

WR-15 waveguide power reference, frequency. 50GHz ~ 75GHz, power. 1mW ~ 10mW, uncertain 0.1% ($k = 2$).

3.3 delivery method

Power reference using DC replacement technology, calorimetric technology for various forms of RF and microwave thermistor power (Hereinafter referred to as thermistor block) the effective efficiency of the assignment, to the lower level of measurement for the value of transmission.

4 measurement standards

4.1 Name

4.1.1 Type N Thermistor Block