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NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE

PEOPLE'S REPUBLIC OF CHINA

JJF 1895-2021

Calibration Specification for Semiconductor Devices DC and Low Frequency Parameters Test Equipment

半导体器件直流和低频参数测试设备校准规范

(English Translation)

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Introduction

This specification is based on JJF 1071-2010 "Rules for the Compilation of National Metrology and Calibration Specifications" and JJF 1059.1-2012 "Evaluation and Expression of Measurement Uncertainty" was compiled.

This specification is revised on the basis of JJG725-1991 "Transistor DC and Low Frequency Parameter Tester". versus Compared with JJG725-1991, in addition to editorial changes, the main technical changes are as follows.

---Revised calibration items such as current output and current indication;

---Added examples of uncertainty evaluation of calibration results for main items (see Appendix C).

The release status of previous versions of this specification.

---JJG725-1991.

Semiconductor device DC and low frequency parameters Test equipment calibration specification

1 Scope

This specification applies to the calibration of semiconductor device DC and low-frequency parameter test equipment.

2 overview

The semiconductor device DC and low-frequency parameter test equipment (hereinafter referred to as the calibrated equipment) consists of a bias voltage source and a bias voltage source.

It consists of current source, voltage measurement unit, current measurement unit, low-frequency signal source, etc., which are mainly used for direct current of various semiconductor devices.

Flow parameter, low frequency parameter test.

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3 Metrological characteristics

3.1 DC resistance

Range. 0.005ohm~20Gohm, maximum allowable error. ± (0.1%~1%).

3.2 Voltage output

a) DC voltage. ± (0.01V~10kV), maximum allowable error. ± (0.1%~3%);

b) AC voltage. ± (0.1V~5000V), maximum allowable error. ± (1%~5%), frequency.

50Hz.

3.3 Voltage indication

a) DC voltage. ± (0.01V~10kV), maximum allowable error. ± (0.1%~3%);

b) AC voltage. ± (0.1V~5000V), maximum allowable error. ± (1%~5%), frequency.

50Hz.

3.4 Current output

a) DC current. ± (1nA~10A), maximum allowable error. ± (0.1%~1%);

b) Pulse current. ± (1A~1200A), maximum allowable error. ± (0.5%~3%), single pulse, Pulse width. 250μs~10ms.

3.5 Current indication

a) DC current. ± (1nA~10A), maximum allowable error. ± (0.1%~1%);

b) Pulse current. ± (1A~1200A), maximum allowable error. ± (0.5%~3%), single pulse, Pulse width. 250μs~10ms.

3.6 Low frequency signal source

a) Signal source output amplitude. 0.5V~1V, maximum allowable error. ± (1%~3%);

b) Frequency. 1kHz, maximum allowable error. ±1%.

3.7 Low frequency h parameter

a) hie, hib. 10ohm~10kohm, maximum allowable error. ±5%;

b)hoe, hob. 0.1μS~200μS, maximum allowable error. ±5%;

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