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# NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE PEOPLE'S REPUBLIC OF CHINA

# JJF 1807-2020

## Calibration Specification for Total Spectral Radiant Flux Lamps

光谱总辐射通量灯校准规范

**(English Translation)**

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## Introduction

JJF 1001-2011 "General Metrology Terms", JJF 1032-2005 "Optical Radiation Metrology Terms and Definitions ", JJF 1059.1-2012 "Evaluation and Expression of Measurement Uncertainty" and JJF 1071-2010 "National Metrology School the "Rules for Compiling Quasi-Specifications" together constitute the basic technical documents for the formulation



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of this calibration specification.

This specification is released for the first time.

Spectral total radiant flux lamp calibration specification

1 Scope

This specification applies to calibrating total spectral radiation using the relative comparison method in an integrating sphere calibration device with a spectroradiometer Flux lamp, the total radiant flux calibration spectrum range is 350nm~1100nm.

2 Reference documents this specification refers to the following documents.

JJG247 total luminous flux standard incandescent lamp for dated reference documents, only the dated version applies to this specification; for undated reference documents, the latest version (including all amendments) is applicable to this specification.

3 Term

3.1 Spectral density of radiant flux at the wavelength lambda, the ratio of the radiant flux dphie to dlambda in the wavelength element dlambda containing lambda, the symbol of this quantity is phielambda(lambda), and the unit is W/nm.

3.2 Total spectral radiant flux is the spectral density of the radiant flux in the whole space, in W/nm.

3.3 Spectral total radiant flux standard lamp A specific light source used to maintain and transmit the total radiant flux value of the spectrum of a certain wavelength or wavelength range.

4 overview

The total spectral radiant flux lamp is used to transmit the total spectral radiant flux value of a certain wavelength or wavelength range, generally special Selected incandescent lamps, bromine tungsten lamps, LED lamps or other light sources. After aging according to the specified conditions, according to the specified ignition bar the total spectral radiant flux of the lamp has good repeatability and long-term stability.

Integrating sphere spectroradiometer is commonly used in the evaluation of light source characteristics to measure the total luminous flux and color parameters of the light source.

The total radiant flux lamp can realize the transfer of these two values at the same time, and is widely used in the field of optical radiation measurement.

5 Metrological characteristics the total radiant flux of the spectrum (the calibrated spectral range of the quantity is 350nm~1100nm).

6 Calibration conditions



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6.1 Environmental conditions the temperature of the laboratory should be in the range of (23±3)°C, and the temperature change during the measurement process should not exceed 3°C, Relative humidity <=80%. The environment should be clean, free of corrosive gas, and no dust, vibration and electromagnetic field interference that affect the normal operation of the instrument.



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