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**INDUSTRY STANDARD OF THE
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Replacing JJG 685-1990

**Calibration specification for relative spectral responsivity for
photoelectric detectors
(English Translation)**

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Table of Contents

1 Scope (1)
2 Citations (1)
3 Terms and definitions (1)
4 Overview (1)
5 Measurement characteristics (1)
6 Calibration conditions (2)
6.1 Environmental conditions (2)
6.2 Calibration Equipment (2)
7 Calibration items (2)
7.1 Visual inspection (2)
7.2 Relative spectral responsivity of photodetectors (2)
8 Calibration method (2)
8.1 Visual inspection (2)
8.2 Photodetector relative spectral responsivity calibration (2)
9 Calibration result expression (4)
10 Re-study interval (4)
Appendix A Analysis of Uncertainty in Measurement of Relative Spectral Responsivity of Photodetectors (5)
Appendix B Another Method for Calibration of Relative Spectral Responsivity of Photodetectors (8)
Appendix C Photodetector Relative Spectral Responsive Calibration Record Format (10)
Appendix D Calibration Certificate (Report) Content (11)

10 Re-study interval (4)

Appendix A Analysis of Uncertainty in Measurement of Relative Spectral Responsivity of Photodetectors (5)

Appendix B Another Method for Calibration of Relative Spectral Responsivity of Photodetectors (8)

Appendix C Photodetector Relative Spectral Responsive Calibration Record Format (10)

Appendix D Calibration Certificate (Report) Content (11)

Photodetector relative spectral responsivity calibration specification

1 Scope

This specification applies to light used in photodetectors, illuminometer probes, luminance meter probes, and other optical test instruments.

Calibration of the relative spectral responsivity of the electrical detector. The wavelength range is (300~2500) nm, and other wavelength ranges can be used.

Calibrate according to this specification.

2 Citations

GB/T 6495.8-2002 "Photovoltaic devices - Part 8. Measurement of spectral response of photovoltaic devices" JJF 1001-1998 General Terms and Definitions Use of this specification should be done with the current valid version of the above cited documents.

3 Terms and definitions the spectral responsivity $R(\lambda)$ of a photodetector is defined as the output of the photodetector as a function of wavelength λ $dY(\lambda)$ divided by the quotient of the photodetector monochromatic input $dX_e(\lambda)=X_e(\lambda)d\lambda$ in the wavelength interval $d\lambda$.

$R(\lambda)=$

$dY(\lambda)$

$dX_e(\lambda)$

The ratio of the spectral responsivity $R(\lambda)$ of the photodetector at wavelength λ to the given reference value S_m .

$R_r(\lambda)=$

$R(\lambda)$

$R_r(\lambda)$ is the relative spectral responsivity of the detector. S_m can be the average, maximum or arbitrary of $R(\lambda)$ Value.

4 Overview

Photodetector is a sensor that uses a material with photoelectric effect to convert an optical radiation signal into an electrical signal.

Device. The photoelectric effect is divided into an internal photoelectric effect and an external photoelectric effect. Photodetectors fabricated by external photoelectric effect have photocells and photomultiplier tubes. Photodetectors fabricated using internal photoelectric effects are photoconductive and photovoltaic. Photoconductive detector Lead sulfide, mercury cadmium telluride, photoresistor, etc. Photovoltaic photodetectors are silicon photodiodes, silicon photocells, selenium optoelectronics Pool and so on. In general, whether it is a photodetector made by internal photoelectric effect or external photoelectric effect, their ringing it should only be in a certain spectral region and have strong spectral

selectivity. That is, the spectral response of the photodetector Degrees are different at different wavelengths.

5 Measurement characteristics the relative spectral responsivity of the photodetector operating wavelength range and calibration uncertainty are.

Wavelength (300~400) nm. 2.6% (k=2.5);

Wavelength (400~1100) nm. 1.7% (k=2.5);