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

JJG 211-2021

**Verification Regulation of Luminance Meters
(English Translation)**

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Introduction

JJF1002 "Rules for Writing National Metrology Verification Regulations", JJF1001 "General Metrology Terms and Definitions", JJF1059.1 "Evaluation and Expression of Measurement Uncertainty", JJF1032 "Terms and Definitions of Optical Radiation Metrology" Together they constitute the basic series of norms that support the revision of this regulation:

This regulation is based on ISO/CIE19476.2014 "Characterization Methods for Illuminance Meters and Luminance Meters":

JJG 211-2005 was revised: Compared with JJG 211-2005, the main technical changes except editorial modifications are as follows:

---Changed the reference file;

--- Deleted the term;

--- Simplified overview;

---In the verification project, referring to ISO/CIE19476.2014, the stability is deleted, and the feasibility is considered the variation of the color calibration coefficient is dropped, the non-uniformity response error for the image luminance meter is increased, and the metering performance is required:

The increase or decrease of the corresponding index was carried out in the request;

---In environmental conditions, the relative humidity is less than 85% and the relative humidity is less than 70%;

--- Increased the description of the verification equipment and verification methods of the brightness source method;

--- In the original standard lamp whiteboard method, the method of verifying the shading

cylinder luminance meter is changed from the original method using the standard transmission whiteboard the luminance value calculated by transmittance is changed to the comparative measurement method using a standard luminance meter, and the original standard lamp whiteboard method is removed:

Relevant content of standard reflective swatches and rising color temperature swatches:

---Refer to 5:2, 5:7, 5:9, 5:15, 5:16 in ISO/CIE19476.2014, modify the reference in 6:3

Description of verification methods for linearity error, shifting error, fatigue error, measurement distance characteristics, and visual matching error;

--- Added the recommended format of the original record of the luminance meter verification in Appendix A;

---Modified the recommended format of the inner pages of the luminance meter verification certificate and verification result notification in Appendix B;

---Modified Appendix C Measurement Uncertainty Evaluation Example;

---Deleted the CIE1931 standard chromaticity observer color matching function in the original appendix:

The previous releases of this regulation are as follows:

---JJG 211-2005;

---JJG 211-1989:

Luminance Meter Verification Regulations

1 Scope

This regulation applies to the initial verification, subsequent verification and in-use inspection of luminance meters (including color luminance meters):

2 References

This procedure references the following documents:

For dated references, only the dated version applies to this regulation; for undated references document, its latest version (including all amendments) applies to this regulation:

3 Overview

A luminance meter is an instrument for measuring luminance, and a color luminance meter also has the function of measuring the target chromaticity: Brightness meter Widely used in display screens, electric light sources, lighting engineering, transportation, aerospace, film and television and other fields: brightness According to the type of viewfinder light path, the meter can be divided into imaging luminance meter and shading cylinder luminance meter,

and the imaging luminance meter also includes aiming Point type and image type; according to the sampling method, it can be divided into spectral spectrophotometric luminance meter and filter photoelectric integral luminance meter; measurement Among the functions, a luminance meter with color measurement function is called a color luminance meter:

The working principle of the luminance meter is to obtain a specified field of view through a set of optical systems that determine the viewing angle of the instrument and measure the field of view the light signal of the target is measured by the photodetector combined with the photoelectric conversion circuit to measure the brightness of the target in the field of view:

value: If the chromaticity correction filter or spectroscopic element is integrated in the structure, the target chromaticity or spectrum of the field of view can also be achieved:

Measurement:

4 Metering performance requirements the luminance meter is divided into three levels: standard level, first level and second level: The measurement performance of the luminance meter at each level should meet the requirements in Table 1:

Require:

Table 1 Metering performance requirements

level

brightness

Indication error

Chroma(x,y)

Indication error

linear

error

shift gears

error

fatigue

error

Inhomogeneity

response error

Measuring distance