

JJF

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

JJF 2132-2024

**Calibration Specification for Artificial Accelerated Weathering
Apparatus of Fluorescent UV Lamps: Irradiance
(English Translation)**

Issued on: June 14, 2024

Implemented on: December 14, 2024

Issued by: State Administration for Market Regulation

Table of Contents

Introduction (II)	
1 Scope(1)	
2 References(1)	
3 Overview(1)	
4 Metering characteristics (2)	
5 Calibration conditions(2)	
5.1 Environmental conditions(2)	
5.2 Measurement standards and other equipment (2)	
6 Calibration items and calibration methods (2)	
6.1 Pre-calibration check(2)	
6.2 Zero value error of irradiance (3)	
6.3 Relative error of irradiance indication (correction factor) (3)	
6.4 Irradiance non-uniformity (3)	
7 Expression of calibration results (4)	
8 Uncertainty assessment of calibration results (5)	
9 Recalibration interval (5)	
Appendix A Recommended format for original records (6)	
Appendix B Recommended format for the inner pages of a calibration certificate (7)	
Appendix C Relative spectral energy distribution of different types of fluorescent UV lamps (8)	
Appendix D Examples of Measurement Uncertainty Evaluation (10)	

9 Recalibration interval (5)

Appendix A Recommended format for original records (6)	
Appendix B Recommended format for the inner pages of a calibration certificate (7)	
Appendix C Relative spectral energy distribution of different types of fluorescent UV lamps (8)	
Appendix D Examples of Measurement Uncertainty Evaluation (10)	

Introduction

JJF 1001-2011 "General metrological terms and definitions", JJF 1032-2005 "Optical radiation metrology terminology" and Definitions", JJF 1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", JJF 1071-2010 "National Metrology the "Rules for Writing Calibration Specifications" together constitute the basic series of specifications for the formulation of this specification.

This specification is published for the first time.

Fluorescent UV lamp artificial weathering test device Calibration Specifications. Irradiance Parameters

1 Scope

This specification applies to the calibration of radiation illumination parameters of fluorescent ultraviolet lamp artificial climate aging test equipment.

2 References

This specification references the following documents.

JJF 1525 Calibration specification for radiant illumination parameters of xenon arc lamp artificial weathering test equipment GB/T 16422.1 Plastics laboratory light source exposure test method Part 1: General for any referenced document with a date, only the version with the date is applicable to this specification; for any referenced document without a date, the latest version (including all amendments) shall apply to this specification.

3 Overview

Fluorescent UV lamp artificial climate aging test device (abbreviated as aging test device) uses fluorescent UV lamp as light source.

The UV radiation in the sunlight or sunlight filtered by window glass is simulated to conduct accelerated weathering test on the material.

There are three types, type 1A (UVA-340), type 1B (UVA-351) and type 2 (UVB-313), with emission peak wavelengths of for the relative spectral energy distribution diagram of different types of fluorescent ultraviolet lamps at 340nm, 351nm and 313nm, please see Appendix C.

The aging test device is mainly composed of a fluorescent ultraviolet lamp, a sample rack, a temperature control device (including a temperature sensor, a comparator the box is divided into trapezoidal structure and rectangular structure according to the different box structures (see

Figure 1). The trapezoidal structure uses multiple sets of fluorescent UV lamps as light sources, evenly distributed on both sides of the device.

The irradiance detector is located in the middle of the sample rack, as shown in Figure 1a).

The rectangular structure has multiple fluorescent UV lamps installed on the top of the workspace, and the test samples are statically placed under the lamps.

on the sample rack, see Figure 1b).

The aging test device automatically adjusts the irradiation intensity by using a radiometer.

The composition of the radiometer is detailed in Chapter 4 of JJF 1525-2015 states that the radiometer detector commonly used in aging test equipment is a multi-channel detector with There are 310 channels and 340 channels, the spectral response range is (250~400)nm, and the 310 channel monitors type 2 fluorescent UV lamp the 340-channel monitors the irradiance of type 1A and type 1B fluorescent UV lamps.