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

**GB/T 43817-2024**

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**Radiometric measurement methods of ultraviolet radiation  
sources**

紫外辐射源的辐射测量方法

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## Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by China Light Industry Federation. This document is under the jurisdiction of the National Technical Committee for Standardization of Lighting Appliances (SAC/TC224). This document was drafted by: Hangzhou Yuanfang Optoelectronic Information Co., Ltd., Guangdong Guangyan Standardization Technology Co., Ltd., National Electric Light Source Quality Supervision and Inspection Center (Beijing), China National Institute of Metrology, Foshan Nationstar Optoelectronics Co., Ltd., Fudan University, Zhongshan, Guangdong Province Municipal Quality and Metrology Supervision and Inspection Institute, Cairong Electric Light Source Technology (Shanghai) Co., Ltd., Dongguan Ruishi Optoelectronics Technology Co., Ltd., Ningbo Daxie Development Ou Youwei Optoelectronics Co., Ltd., Signify (China) Investment Co., Ltd., and Guangzhou CESI Standard Testing Institute Co., Ltd. The main drafters of this document are: Li Qian, Zhang Junbin, Zhang Wei, Liu Hui, Mai Jiaer, Shen Haiping, Peng Zhenjian, Cheng Xing, Wang Hua, Wu Qiong, Ni Wei, Huang Shenghua, Wang Yanfei and Pan Jiagen. Radiation measurement method for ultraviolet radiation sources

## 1 Scope

GB/T 43817-2024 gives the radiometric measurement methods for ultraviolet radiation

sources. UV sources multiplied in China after 2020 - germicidal lamps, UV-C LEDs, curing systems, phototherapy and insect traps - and the quantity that matters, the irradiance in a defined waveband at a defined distance, is easy to state and hard to measure: the detector's spectral response never matches the band it claims, stray visible light swamps a weak UV signal, and the answer changes with the distance, angle and warm-up state at which it was taken. The standard sets the measurement conditions, the measuring equipment and its calibration, the measurement procedure itself, the expression of the measurement results with their uncertainty, and the protection requirements for the people carrying out the measurement, ultraviolet at these levels being hazardous to eyes and skin. It took effect on 1 October 2024.

This document describes the spectral distribution, (effective) radiant flux, (effective) radiation of ultraviolet radiation sources in the 200nm~400nm band Measurement methods for radiation metrics such as dose, (effective) radiation intensity and (effective) irradiance and their spatial distribution. This document is applicable to the measurement of UV radiation sources under laboratory conditions. And it is used as a reference for measuring the radiation amount of optical radiation sources in the 400nm~450nm band. This document is not applicable to measurements of coherent radiation sources (such as ultraviolet lasers) and natural radiation sources (such as sunlight), nor to measurements intended to generate Measurement of ultraviolet radiation sources that radiate vacuum ultraviolet radiation below 200nm to produce ozone.

## 2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 2900.65-2023 Electrical terminology lighting

GB/T 39394-2020 Test methods for LED lamps, LED luminaires and LED modules

GB/T 42219-2022 Optical measurement of high-power LEDs

## 3 Terms and definitions

The terms and definitions defined in GB/T 2900.65-2023 and the following apply to this document.

3.1 UV radiation; UVR Light radiation having a wavelength shorter than that of visible radiation. Note

1. Ultraviolet radiation with a wavelength range of 100nm~400nm is usually subdivided into.

---UV-A. 315nm~400nm;

---UV-B. 280nm~315nm;

---UV-C. 100nm~280nm. Note

2.Ultraviolet radiation below.200nm is also called vacuum ultraviolet. [Source: GB/T 2900.65-2023,845-21-008, modified]

### **3.2 A source that produces ultraviolet radiation (3.1). Note**

1.Ultraviolet radiation sources include devices, modules, lamps and lamps and similar products or devices that emit ultraviolet radiation. Note

2.The radiation emitted by an ultraviolet radiation source may include radiation other than the ultraviolet band.