

ICS 31.260
CCS L 50



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

GB/T 43594-2023

General specification for uniform light source

均匀光源通用规范

Issued on: December 28, 2023

Implemented on: July 1, 2024

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

Preface	III
1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 Technical requirements	2
4:1 Spectral range	2
4:2 Correlated color temperature	3
4:3 Radiation brightness deviation	3
4:4 Irradiance deviation	3
4:5 Spectral matching	3
4:6 Surface non-uniformity	3
4:7 Angular non-uniformity	3
4:8 Radiant brightness dynamic range	4
4:9 Dynamic range of irradiance	4
4:10 Instability	4
4:11 Effective radiation surface (effective irradiation surface)	4
4:12 Collimation angle	4
4:13 Power supply and control unit	4
4:14 Appearance	4
5 Test conditions	4
5:1 Environmental conditions	4
5:2 Test preparation	5
5:3 Instruments and Equipment	5
6 test items	5
7 Test Method	6
7:1 Measurement principles	6
7:2 Spectral range	7
7:3 Correlated color temperature	7
7:4 Radiant brightness deviation	7
7:5 Irradiance deviation	8
7:6 Spectral Match	8
7:7 Surface non-uniformity	9

7:8 Angular non-uniformity11	13
7:9 Radiant brightness dynamic range11	13
7:10 Dynamic range of irradiance12	13
7:11 Instability12	13
7:12 Effective radiation surface (effective irradiation surface)	13
7:13 Alignment angle	13
7:14 Power supply and control unit	13
7:15 Appearance	13
8 flags	13
9 Accompanying documents	13
10 Packaging, transportation and storage13	15
10:1 Packaging13	15
10:2 Transport and storage14 Reference	15

Foreword

This document complies with the provisions of GB/T 1:1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

This document is proposed by the Chinese Academy of Sciences:

This document is under the jurisdiction of the National Optoelectronic Measurement Standardization Technical Committee (SAC/TC487):

This document was drafted by: Xi'an Institute of Optics and Precision Machinery, Chinese Academy of Sciences, China Institute of Metrology, Hangzhou Yuanfang Optoelectronics Information Co., Ltd., Changchun University of Science and Technology, China Jiliang University, Institute of Aerospace Information Innovation, Chinese Academy of Sciences, Shenzhen China Metrology Research Institute of Technology Innovation, Mulan Optical (Shanghai) Co., Ltd., and Guangdong Christi Optical Technology Co., Ltd:

The main drafters of this document: Zhou Yan, Chang Ming, Zhao Jianke, Xu Yingying, Yang Xiong, Xu Xiping, Zhang Shuqin, Jiao Lulu, Wang Pu, Li Jing, Wang Pengfei, Qi Yulin, Fan Xiaolan, Wang Hua:

General specifications for uniform light sources

1 Scope

This document specifies the technical requirements for uniform light sources, packaging and transportation requirements, and describes test methods:

This document is applicable to structures with spherical, flat and collimated structures and optical radiation wavelengths or bands ranging from 220nm to 2500nm:

(Inclusive), Light sources with uniform radiation characteristics used for photoelectric measurement and calibration or illumination, for their classification, design and testing:

2 Normative reference documents

GB/T 19510

JJG963-2022

3 Terms and definitions

The following terms and definitions apply to this document:

3:1 It is composed of a light source, a power supply unit, a spherical uniform light device and a control unit: It has the characteristics of uniform radiance in a certain direction or angle:

3:2 It is composed of a light source, a power supply unit, a flat-panel light uniformity device and a control unit: It has uniform radiance characteristics in a certain direction:

3:3 It is composed of light source, power supply unit, optical integrator, collimating mirror and control unit: It has high irradiation with collimation characteristics in a specific direction:

3:4 Spectral match factor Matching of the emission spectrum of a uniform light source to the target spectrum:

Note: The target spectrum includes monochromatic spectrum, complex color spectrum, solar spectrum and specific spectrum, etc:

3:5 spatial non-uniformity The relative deviation of the (spectral) radiance at different locations within the radiation surface of a uniform light source:

3:6 angular non-uniformity The relative deviation of the radiant brightness at different angles (spectrum) in the normal direction of the center of the radiating surface of a uniform light source: