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Optics and photonics - Spectral bands

光学和光子学 光谱波段

(English Translation)

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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:

This document is equivalent to ISO 20473:2007 "Optics and photonics spectral bands":

This document adds two chapters: "Normative References" and "Terms and Definitions":

Introduction

With the continuous development of science and technology at home and abroad, optical and photonic instruments have been widely used in various fields of national economy and international science and technology:

The standardized division and naming of the spectral bands of optical radiation in the field of optics and photonics is an important step in the development of the optical and photonics instrument industry:

It provides a basis for the manufacture of various types of optical and photonic instruments and plays an important role in the development of optical and photonic instrument products:

significance:

In view of the above reasons, it is necessary to standardize and normalize the spectral band division of optical radiation in the fields of optics and photonics:

Optics and Photonics Spectral Bands

1 Scope

This document specifies the division of the spectral bands of optical radiation in the fields of optics and photonics:

This document is not applicable to lighting and telecommunication applications, nor to protection against optical radiation hazards in occupational areas:

2 Normative references

This document has no normative references:

3 Terms and definitions

There are no terms or definitions that require definition in this document:

4: Spectral band regulations the division of spectral bands in optical radiation is shown in Table 1:

Spectral bands are divided by given wavelength limits, which are contained in two adjacent bands: Frequency, wave number and photon energy the strict correspondence between the quantity and the wavelength is only applicable to vacuum environments: If it is applied to non-vacuum environments, the refractive index of the propagation medium should be included:

consider:

As shown in Table 1, the use of the word "light" is limited to "visible radiation", that is, light radiation with a wavelength range of 380nm to 780nm:

It is not suitable for light radiation outside the visible range:

Table 1 Spectral bands in optics and photonics

Radiation Name

Spectral band a

Abbreviations

wavelength

frequency

THz

Wave number

cm-1

Photon Energy

QUR

Extreme Ultraviolet

Vacuum Ultraviolet

Deep UV

Mid-UV

Near UV

- EUV

UV-C

VUV

DUV

UV-B

UV-A_b

1~100 3x10⁵~3000 107~105 1240~12:4 100~190 3000~1580 105~53000 12:4~6:5
190~280 1580~1070 53000~36000 6:5~4:4 280~315 1070~950 36000~32000 4:4~3:9
315~380 950~790 32000~26000 3:9~3:3 Visible radiation, light VIS 380~780 790~385
26000~13000 3:3~1:6