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Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Symbols and abbreviations ... **2**
5 Standard method ... **3**
5.1 General ... 3
5.2 Calculation of tristimulus values ... 3
5.3 Normalizing constant for self-luminous light sources ... 4
5.4 Normalizing constant for reflecting or transmitting objects ... 4
5.5 CIE 1964 standard colorimetric system ... 5
6 Abridged methods ... **5**
6.1 General ... 5
6.2 Abridged method for data at 5 nm intervals or less ... 5
6.3 Abridged method for 10 nm or 20 nm data for reflecting or transmitting objects ... 5
6.4 Abridged method for 10 nm or 20 nm data for self-luminous light sources ... 6
7 Supplementary treatment of input data ... **6**
7.1 General ... 6
7.2 Extrapolation ... 7
7.3 Interpolation ... 7
7.4 Bandwidth ... 7
8 Chromaticity coordinates ... **8**
9 Numerical procedures ... **8**
10 Presentation of results ... **8**
Bibliography ... **9**

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by the International Commission on Illumination (CIE) in cooperation with Technical Committee ISO/TC 274, *Light and lighting*.

This first edition of ISO/CIE 11664-3 cancels and replaces ISO 11664-3:2012 | CIE S 014-3:2011, of which it constitutes a minor revision, incorporating minor editorial updates.

A list of all parts in the ISO 11664 and ISO/CIE 11664 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Colour stimuli with different spectral distributions can look alike. An important function of colorimetry is to determine which stimuli look alike to a given observer with a given set of colour-matching functions. This is done by calculating a set of three tristimulus values for each stimulus. Equality of tristimulus values indicates equality of colour appearance under equal irradiation and viewing conditions. This document is based on long-standing CIE recommendations (see CIE 15[1]) for the calculation of tristimulus values.

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Colorimetry —

Part 3:
CIE tristimulus values

1 Scope

This document specifies methods of calculating the tristimulus values of colour stimuli for which the spectral distributions are provided. These colour stimuli can be produced by self-luminous light sources or by reflecting or transmitting objects.

This document requires that the colour stimulus function be tabulated at measurement intervals of 5 nm or less in a wavelength range of at least 380 nm to 780 nm. Extrapolation methods are suggested for cases where the measured wavelength range is less than 380 nm to 780 nm.

The standard method is defined as summation at 1 nm intervals over the wavelength range from 360 nm to 830 nm. Alternative abridged methods are defined for larger intervals (up to 5 nm) and shorter ranges (down to 380 nm to 780 nm). The alternative methods are to be used only when appropriate and when the user has reviewed the impact on the final results.

This document can be used in conjunction with the CIE 1931 standard colorimetric observer or the CIE 1964 standard colorimetric observer.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/CIE 11664-1, *Colorimetry — Part 1: CIE standard colorimetric observers*

ISO 23539, *Photometry — The CIE system of physical photometry*

CIE S 017, *ILV: International Lighting Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CIE S 017 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

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