Colorimetry - Part 3: CIE tristimulus values (ISO 11664-3:2012)

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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 11664-3:2013 sisaldab Euroopa standardi EN ISO 11664-3:2013 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 11664-3:2013 consists of the English text of the European standard EN ISO 11664-3:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.05.2013.	Date of Availability of the European standard is 22.05.2013.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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English Version

Colorimetry - Part 3: CIE tristimulus values (ISO 11664-3:2012)

Colorimétrie - Partie 3: Composantes trichromatiques CIE (ISO 11664-3:2012)

Farbmetrik - Teil 3: CIE-Farbwerte (ISO 11664-3:2012)

This European Standard was approved by CEN on 16 May 2013.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

The text of ISO 11664-3:2012 has been prepared by "CIE International Commission on Illumination" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 11664-3:2013 by Technical Committee CEN/TC 139 "Paints and varnishes" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2013, and conflicting national standards shall be withdrawn at the latest by November 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 11664-3:2012 has been approved by CEN as EN ISO 11664-3:2013 without any modification.

CONTENTS

Colorimetry - Part 3: CIE Tristimulus Values

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 Standard is based on long-standing CIE recommendations (CIE, 2004) for the calculation of tristimulus values.

1 Scope

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

The Standard 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.

The Standard may be used in conjunction with the CIE 1931 standard colorimetric observer or the CIE 1964 standard colorimetric observer.

2 Normative References

The following referenced documents are indispensable for the application 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.

CIE DS 017.2/E:2009. *ILV: International Lighting Vocabulary*.

ISO 11664-1:2007(E)/CIE S 014-1/E:2006. Joint ISO/CIE Standard: *Colorimetry Part 1. CIE Standard Colorimetric Observers*.

ISO 11664-2:2007(E)/CIE S 014-2/E:2006. Joint ISO/CIE Standard: *Colorimetry Part 2. CIE Standard Illuminants.*

ISO 23539:2005(E)/CIE S 010/E:2004. Joint ISO/CIE Standard: *Photometry - The CIE System of Physical Photometry.*

3 Definitions, Symbols and Abbreviations

For the purposes of this International Standard, the terms and definitions given in CIE DS 017.2/E:2009 (International Lighting Vocabulary), and the following symbols and abbreviations apply.

k, k_{10}	normalizing constants
K_m	maximum spectral luminous efficacy of radiation in the CIE standard system of physical photometry