SLOVENSKI STANDARD
SIST EN ISO/CIE 11664-4:2019

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Nadomešča:
SIST EN ISO 11664-4:2011

Kolorimetrija - 4. del: Barvni prostor CIE 1976 L*a*b* (ISO/CIE 11664-4:2019)

Colorimetry - Part 4: CIE 1976 L*a*b* colour space (ISO/CIE 11664-4:2019)

Farbmetrik - Teil 4: CIE 1976 L*a*b* Farbenraum (ISO/CIE 11664-4:2019)

Colorimétrie - Partie 4: Espace chromatique L*a*b* CIE 1976 (ISO 11664-4:2008)

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ICS:

17.180.20	Barve in merjenje svetlobe	Colours and measurement of light

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English Version

Colorimetry - Part 4: CIE 1976 L*a*b* colour space (ISO/CIE 11664-4:2019)

Colorimétrie - Partie 4: Espace chromatique L*a*b* CIE 1976 (ISO/CIE 11664-4:2019)

Farbmetrik - Teil 4: CIE 1976 L*a*b* Farbenraum (ISO/CIE 11664-4:2019)

This European Standard was approved by CEN on 8 June 2019.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN ISO/CIE 11664-4:2019) has been prepared by Technical Committee CEI "International Commission on Illumination" in collaboration with 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of an identical text or by endorsement, at the latest by January 2020, and conflicting national standards shall be withdrawn at the latest by January 2020.

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

This document supersedes EN ISO 11664-4:2011.

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Endorsement notice

The text of ISO/CIE 11664-4:2019 has been approved by CEN as EN ISO/CIE 11664-4:2019 without any modification.

INTERNATIONAL STANDARD

ISO/CIE 11664-4

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Colorimetry —

Part 4: CIE 1976 L*a*b* colour space

Colorimétrie —

*Partie 4: Espace chromatique L*a*b* CIE 1976*

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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).

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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 11664-4 cancels and replaces ISO 11664-4:2008 | CIE 11664-4:2007, of which it constitutes a minor revision. The document has been editorially revised as per current ISO rules and the references have been updated.

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.

Introduction

The three-dimensional colour space produced by plotting CIE tristimulus values (*X*, *Y*, *Z*) in rectangular coordinates is not visually uniform, nor is the (x,y,Y) space nor the two-dimensional CIE (x,y) chromaticity diagram. Equal distances in these spaces do not represent equally perceptible differences between colour stimuli. For this reason, in 1976, the CIE introduced and recommended two new spaces (known as CIELAB and CIELUV) whose coordinates are nonlinear functions of *X*, *Y* and *Z*. The recommendation was put forward in an attempt to unify the then very diverse practice in uniform colour spaces and associated colour-difference formulae[1][2]. Both these more-nearly uniform colour spaces have become well accepted and widely used. Numerical values representing approximately the magnitude of colour differences can be described by simple Euclidean distances in the spaces or by more sophisticated formulae that improve the correlation with the perceived size of differences.

The purpose of this document is to define procedures for calculating the coordinates of the CIE 1976 L*a*b* (CIELAB) colour space and the Euclidean colour difference values based on these coordinates. This document does not cover more sophisticated colour-difference formulae based on CIELAB, such as the CMC formula[3], the CIE94 formula[4], the DIN99 formula[5], and the CIEDE2000 formula[6][7], nor does it cover the alternative uniform colour space, CIELUV[8].