

This document is a preview generated by EVS

Light and lighting - Measurement and presentation of photometric data of lamps and luminaires - Part 2: Presentation of data for indoor and outdoor work places

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13032-2:2017 sisaldab Euroopa standardi EN 13032-2:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 13032-2:2017 consists of the English text of the European standard EN 13032-2:2017.
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 22.11.2017.	Date of Availability of the European standard is 22.11.2017.
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.

ICS 17.180.20, 29.140.01

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD

EN 13032-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2017

ICS 17.180.20; 29.140.01

Supersedes EN 13032-2:2004

English Version

**Light and lighting - Measurement and presentation of
photometric data of lamps and luminaires - Part 2:
Presentation of data for indoor and outdoor work places**

Lumière et éclairage - Mesure et présentation des
données photométriques des lampes et luminaires -
Partie 2: Présentation des données utilisés dans les
lieux de travail intérieurs et extérieurs

Licht und Beleuchtung - Messung und Darstellung
photometrischer Daten von Lampen und Leuchten -
Teil 2: Darstellung der Daten für Arbeitsstätten in
Innenräumen und im Freien

This European Standard was approved by CEN on 18 September 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword.....	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	6
4 Luminaire data.....	7
4.1 General.....	7
4.2 Essential luminaire data.....	7
4.2.1 General.....	7
4.2.2 Luminaire code	7
4.2.3 Dimensions of the luminous parts of the luminaire.....	7
4.2.4 Luminaire luminous flux	7
4.2.5 Luminous intensity table.....	8
4.2.6 Luminance table	9
4.2.7 Unified Glare Rating.....	9
4.2.8 Ballast lumen factor	9
4.2.9 Shielding angle	9
4.2.10 Rated luminaire power (P_i).....	9
4.2.11 Luminaire lumen maintenance factor.....	9
4.2.12 Luminaire survival factor.....	9
4.2.13 General colour rendering index (R_a).....	10
4.2.14 Correlated colour temperature (T_{CP})	10
4.3 Useful luminaire data	10
4.3.1 General.....	10
4.3.2 Physical dimensions of the luminaire	10
4.3.3 Intensity diagram.....	10
4.3.4 Maximum and nominal spacing to height ratio.....	10
4.3.5 Light output ratios	10
4.3.6 Upward flux fraction (of a luminaire).....	10
4.3.7 Downward flux fraction (of a luminaire)	10
4.3.8 Luminaire luminous efficacy.....	10
4.3.9 Luminaire maintenance factor (F_{LM}).....	10
4.3.10 Utilization factor tables	11
4.3.11 Service Conversion factors	11
4.3.12 Individual special colour rendering indices (R_i)	11
5 Lamp data.....	11
5.1 General.....	11
5.2 Essential lamp data.....	11
5.2.1 General.....	11
5.2.2 Lamp code	11
5.2.3 Lamp dimensions	11
5.2.4 Rated Luminous flux	11
5.2.5 Lamp lumen maintenance factor (F_{LLM})	11

5.2.6	Lamp survival factor (F_{LS}).....	11
5.2.7	General colour rendering index (R_a).....	12
5.2.8	Correlated colour temperature (T_{CP}).....	12
5.3	Useful lamp data.....	12
5.3.1	General.....	12
5.3.2	Lamp energy efficiency class.....	12
5.3.3	Nominal lamp wattage (P_{lamp}).....	12
5.3.4	Individual special colour rendering indices (R_i).....	12
Annex A (normative) Calculation of UF tables.....		13
A.1	General.....	13
A.2	The step-by-step calculation procedure.....	13
A.3	CEN Flux Code.....	15
Bibliography.....		22

European foreword

This document (EN 13032-2:2017) has been prepared by Technical Committee CEN/TC 169 "Light and lighting", 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 May 2018, and conflicting national standards shall be withdrawn at the latest by May 2018.

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 13032-2:2004.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

There are many lighting solutions that can satisfy the lighting criteria specified in EN 12464-1 and EN 12464-2. To design these solutions, photometric data of the equipment are required. The equipment may include the commonly used general purpose luminaires as well as uplighters, wall washers, adjustable directional lights, floodlights, desk lights, etc. This document specifies the required data.

This document is a preview generated by EVS

1 Scope

This European Standard specifies the required data for lamps and luminaires for the verification of conformity to the requirements of EN 12464-1 and EN 12464-2. It also specifies data that are commonly used for lighting of indoor and outdoor work places. When these data are provided, they should conform to this document.

An increasing number of luminaires mainly those with LED are luminaires with non-replaceable light sources. Therefore data should always be given for luminaires. For luminaires with replaceable lamps, lamp data should also be provided.

NOTE Product, safety and performance data can be found in CENELEC documents (see Bibliography).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12464-1, *Light and lighting — Lighting of work places — Part 1: Indoor work places*

EN 12464-2:2014, *Light and lighting — Lighting of work places — Part 2: Outdoor work places*

EN 12665, *Light and lighting — Basic terms and criteria for specifying lighting requirements*

EN 13201-3, *Road lighting — Part 3: Calculation of performance*

CIE 117, *Discomfort glare in interior lighting*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12665 and the following apply.

3.1

lamp energy efficiency class

energy efficiency class assigned to the lamp in accordance with the energy efficiency index defined in Reg. 874/2012

3.2

luminaire lumen maintenance factor

F_{LuLM}

ratio of luminous flux of a luminaire at a given time in the life to the initial luminous flux

Note 1 to entry: The luminaire lumen maintenance factor is applied like the lamp lumen maintenance factor but only to luminaires having non replaceable lamps.