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**Tehnične lastnosti svetilk - 2-1. del: Posebne zahteve za LED-svetilke**

Luminaire performance - Part 2-1: Particular requirements for LED luminaires

Arbeitsweise von Leuchten - Teil 2-1: Besondere Anforderungen an LED-Leuchten

Performance des luminaires - Partie 2-1: Exigences particulières relatives aux luminaires à LED

**Ta slovenski standard je istoveten z: prEN IEC 62722-2-1:2022**

**ICS:**

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Svetila

Luminaires

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<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING <b>Attention IEC-CENELEC parallel voting</b> The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

Luminaire performance - Part 2-1: Particular requirements for LED luminaires

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Project leader: Franco Rusnati

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## LUMINAIRE PERFORMANCE –

## Part 2-1: Particular requirements for LED luminaires

## FOREWORD

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International Standard IEC 62722-2-1 has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lamps and related equipment.

This second edition of IEC 62722-2-1 cancels and replaces IEC 62722-2-1 first edition published in 2014. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition.

- 1) Alignment with IEC 62717:2014 + A1:2015 + A2:2019
- 2) Clarification of temperature requirement for the maintenance test, Clause 10.2 and Annex A
- 3) New annex C on methods for calculation and measurements of parameters for extension of electric and photometric data.

The text of this international standard is based on the following documents:

FDIS	Report on voting
34D/XXXX/FDIS	34D/XXXX/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

124 A list of all the parts in the IEC 62722 series, published under the general title *Luminaire performance*  
125 can be found on the IEC website.

126 The committee has decided that the contents of this publication will remain unchanged until the stability  
127 date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific  
128 publication. At this date, the publication will be

129 reconfirmed,  
130 withdrawn,  
131 replaced by a revised edition, or  
132 amended.  
133  
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## INTRODUCTION

This document acknowledges the need for relevant tests for luminaires using LED as an electrical light source. The publication is seen in close context with simultaneously developed and edited publication of performance standards for luminaires in general and for LED modules. This document does not consider luminaires designed for LED lamps, which are covered in IEC 62722-1. Changes in the LED luminaires standard will have impact on the LED module standards and vice versa, due to the behaviour of LED. Therefore, in the development of the present document, mutual consultancy of experts of both products has taken place.

The provisions in this document represent the technical knowledge of experts from the fields of the semiconductor (LED chip) industry and of those of the traditional electrical light sources and luminaires.

As this document has been simultaneously developed and edited with the standard for LED modules (IEC 62717), where appropriate the compliance of the LED modules to the provisions of IEC 62717 can be transferred to the whole luminaire.

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## LUMINAIRE PERFORMANCE –

### Part 2-1: Particular requirements for LED luminaires

#### 1 Scope

This part of IEC 62722 specifies the performance requirements for LED luminaires, together with the test methods and conditions. It applies to LED luminaires for general lighting purposes.

Semi-luminaires are not covered under the scope of this document.

For some types of luminaires (e.g. decorative/household) the provision of performance data under the scope of this document is not appropriate

The following types of LED luminaires are distinguished.

Type A – Luminaires using LED modules where evidence of compliance with IEC 62717 is given.

Type B – Luminaires using LED modules where no evidence of compliance with IEC 62717 is given.

Luminaires using a LED lamp are covered in IEC 62722-1 and not by this document.

The requirements of this document only relate to type testing.

This document covers LED luminaires using LED modules, based on inorganic LED technology that produces white light. It does not cover luminaires using light sources based on OLED technology (organic LED technology).

Life time of LED luminaires is in most cases much longer than the practical test times. Consequently, verification of manufacturer's life time claims is out of the scope of this document.

Instead of life time validation, this document has opted for lumen maintenance categories at a defined finite test time. Therefore, the category number does not imply a prediction of achievable life time. The categories are lumen-depreciation character categories showing behaviour in agreement with manufacturer's information which is provided before the test is started.

#### 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.

IEC 60598-1, *Luminaires – Part 1: General requirements and tests*

IEC 60598-2-3, *Luminaires – Part 2-3: Particular requirements – Luminaires for road and street lighting*

IEC 60598-2-5, *Luminaires – Part 2-5: Particular requirements – Floodlights*

IEC 62031:2018, *LED modules for general lighting – Safety specifications*

IEC 62442-3:202X<sup>1</sup>, *Energy performance of lamp controlgear - Part 3: Controlgear for tungsten-halogen lamps and LED light sources - Method of measurement to determine the efficiency of controlgear*

IEC 62717:2014, *LED modules for general lighting – Performance requirements*

IEC 62717:2014/AMD1:2015

IEC 62717:2014/AMD2:2019

IEC 62722-1, *Luminaire performance – Part 1: General requirements*

#### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62717:2014 + A1:2015 + A2:2019 and the following apply.

<sup>1</sup> Under preparation

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 3.1

#### LED luminaire

luminaire designed to incorporate at least one LED light source

Note 1 to entry: The LED light source(s) can be an integral part of an LED luminaire.

SOURCE (60050-845-30-056)

### 3.2

#### rated ambient performance temperature value

$t_q$

highest ambient temperature around the luminaire related to a rated performance of the luminaire under normal operating conditions, both as declared by the manufacturer or responsible vendor

Note 1 to entry: Rated ambient performance temperature value is expressed in °C.

Note 2 to entry: There can be more than one  $t_q$  temperature, depending on the lifetime claim, 3.3.

### 3.3

#### median useful life <of LED luminaires>

$L_x$

length of operating time during which a total of 50 % ( $B_{50}$ ) of a population of operating LED luminaire of the same type have flux degraded to the luminous flux maintenance factor  $x$

Note 1 to entry: The median useful life includes operating LED luminaires only.

Note 2 to entry: By convention, the expression "life of LED luminaires" without any modifiers is understood to mean the median useful life.

### 3.4

#### LED luminaire luminous efficacy

quotient of the luminous flux emitted by the power consumed by the LED luminaire

### 3.5

#### useful life <of LED luminaires>

$L_{xBy}$

length of time until at maximum a percentage  $y$  of a population of operating LED luminaires of the same type have degraded to the luminous flux maintenance factor  $x$

Note 1 to entry: The useful life includes operating LED luminaire only.

Note 2 to entry: This term does not account for the replaceability of the LED luminaire.

### 3.6

#### abrupt failure value

AFV

percentile of LED luminaire having failed at median useful life,  $L_x$

## 4 Product information

Information on the parameters shown in Table 1 shall be provided by the manufacturer or responsible vendor on the product datasheets, leaflets or website.

Compliance is checked by inspection.

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**Table 1 – Product information**

Ref	Parameter
a	Rated input power (in W)
b	Photometric code <sup>1)</sup>
c	Rated luminous flux (in lm)
d	Rated median useful life $L_x$ (h) and the related luminous flux maintenance $x^{5)}$
e	Rated abrupt failure value (rated AFV) (%)
f	Luminous flux maintenance code <sup>2)</sup>
g	Rated chromaticity co-ordinate values both initial and maintained <sup>3)</sup>
h	Rated correlated colour temperature (CCT in K)
i	Rated colour rendering index (CRI)
j	Rated ambient performance temperature value ( $t_q$ ) related to performance for a luminaire <sup>4)</sup> (°C)
k	Rated LED luminaire luminous efficacy (in lm/W)
l	Ageing time, if different from 0 h
NOTE Regional legal requirements may apply and overrule.	
<sup>1)</sup> See Annex D of IEC 62717:2014 + A1:2015 + A2:2019. <sup>2)</sup> See Table 6 of IEC 62717:2014 + A1:2015 + A2:2019. <sup>3)</sup> See Table 5 of IEC 62717:2014 + A1:2015 + A2:2019. <sup>4)</sup> See 6.2. <sup>5)</sup> The rated useful life $L_x B_y$ (in hours) and the associated luminous flux maintenance factor $x$ and percentage $y$ can optionally be on the product datasheets, leaflets or website.	

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## 5 General requirements

233 Performance requirements given in this document are additional to the requirements in IEC 62722-1,  
 234 except where in this document alternative methods of measurement or limits are specified.

235 Luminaires are considered within the same family if they have:

- 236 – LED modules with the same method of control and operation (semi-integrated, integrated);
- 237 – LED modules with the same classification according to the method of installation (reference is made  
 238 to IEC 62031:2018, Clause 4) and using LED module of same family as specified in 6.2 of  
 239 IEC 62717:2014 + A1:2015 + A2:2019 and the same class of protection against electrical shock;
- 240 – the same design characteristics distinguished by common features of materials, components, and/or  
 241 method of processing and heat management.

## 6 Test conditions

### 6.1 General test conditions

244 Test conditions for testing electrical and photometric characteristics, lumen maintenance and life are  
 245 given in Annex A. For a luminaire in a family of luminaires as described in clause 5, the electrical and  
 246 photometric data may be calculated. When calculations are used or when alternative colorimetric data  
 247 is derived, the methods and conditions given in annex C shall be used. Annex C is only valid in case of  
 248 luminaires where a single LED module is used or where all the LED modules are identical. The  
 249 applicability of Annex C to light source where the light colour is obtained by mixing different spectra  
 250 emitted by different light sources needs more considerations than those provided by this annex.

251 All tests are measured on “ $n$ ” LED luminaires of the same type. The number “ $n$ ” shall be a minimum of  
 252 products as given in Table 3. LED luminaires used in the endurance tests shall not be used in other  
 253 tests.

254 Each sample luminaire shall comply with all the relevant tests except for the tests of 10.3 where one  
 255 sample is required for each of the three separate tests mentioned in Table 2 and Table 3. In order to  
 256 reduce the time of testing, the manufacturer or responsible vendor may submit additional luminaires or  
 257 parts of luminaires provided that these are of the same materials and design as the original luminaire  
 258 and that the results of the test are the same as if carried out on an identical luminaire.