

INTERNATIONAL STANDARD



**Luminaire performance –
Part 2-1: Particular requirements – LED luminaires**



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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LUMINAIRE PERFORMANCE –

Part 2-1: Particular requirements – LED luminaires

FOREWORD

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This commented version (CMV) of the official standard IEC 62722-2-1:2023 edition 2.0 allows the user to identify the changes made to the previous IEC 62722-2-1:2014 edition 1.0. Furthermore, comments from IEC SC 34D experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC 62722-2-1 has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lighting. It is an International Standard.

This second edition cancels and replaces the 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:

- a) alignment with IEC 62717:2014, IEC 62717:2014/AMD1:2015 and IEC 62717:2014/AMD2:2019;
- b) clarification of temperature requirements for the maintenance test, in 10.2 and Annex A;
- c) introduction of a 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:

Draft	Report on voting
34D/1680/FDIS	34D/1687/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

~~This standard is the conversion of IEC PAS 62722-2-1 into a full IEC performance standard for LED luminaires for general lighting applications.~~ This document acknowledges the need for relevant tests for luminaires using ~~this new source of~~ LED as an electrical light source 1. This document is seen in close context with the publication of simultaneously developed 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 LED luminaire standards have an impact on LED module standards and vice versa, due to the behaviour of LED. Therefore, for the development of this document, the 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 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 with the provisions of IEC 62717 can be transferred to the whole luminaire.

LUMINAIRE PERFORMANCE –

Part 2-1: Particular requirements – LED luminaires

1 Scope

This part of IEC 62722 specifies the performance requirements for LED luminaires, together with the test methods and conditions, ~~required to show compliance with this standard~~. 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 or household) the provision of performance data under the scope of this document is not appropriate. **2**

In this document, the following types of LED luminaires are distinguished.

- Type A – Luminaires using LED modules where compliance with IEC 62717⁴ ~~has been proven~~ is given.
- Type B – Luminaires using LED modules where compliance with IEC 62717⁴ ~~has not been proven~~ is not given.
- ~~— Type C — Luminaires using a LED lamp and covered in IEC 62722-1.~~

Luminaires using an LED lamp are covered in IEC 62722-1 and are not within the scope of this document. **3**

The requirements of this document ~~only~~ relate to type testing.

~~This standard does not cover Type C luminaires.~~

~~This standard does not cover LED luminaires that intentionally produce coloured light, neither does it cover luminaires using OLEDs (organic LEDs).~~

~~These performance requirements are additional to the requirements in IEC 62722-1, Clauses 1 to 9, except where in this Part 2-1 alternative methods of measurement or limits are specified.~~ **4**

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

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). **5**

The lifetime of LED luminaires is in most cases much longer than the practical test times. Consequently, the verification of manufacturer's lifetime claims ~~cannot be made in a sufficiently confident way. For that reason the acceptance or rejection of a manufacturer's life time claim, past 25 % of rated life (with a maximum of 6 000 h),~~ **6** is out of the scope of this document.

⁴~~To be published.~~

Instead of lifetime 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 lifetime. The categories are lumen-depreciation character categories showing behaviour in agreement with the manufacturer's information which is provided before the test is started.

~~In order to validate a life time claim, an extrapolation of test data is needed. A general method of projecting measurement data beyond limited test time is under consideration.~~

~~For explanation of recommended life time metrics see IEC 62717, Annex C.~~

~~It may be expected that LED luminaires which comply with this standard will start and operate satisfactorily at voltages between 92 % and 106 % of rated supply voltage and at an ambient air temperature within the declared range of the manufacturer.~~

~~Evaluation of LOR (light output ratio) for LED luminaire is under consideration.~~

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.

IEC 60598-1:2020, *Luminaires – Part 1: General requirements and tests*

IEC 60598-2-3:2002, *Luminaires – Part 2-3: Particular requirements – Luminaires for road and street lighting*

IEC 60598-2-5:2015, *Luminaires – Part 2-5: Particular requirements – Floodlights*

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

~~IEC 62504, *General lighting – LEDs and LED modules – Terms and definitions*~~

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 and ~~IEC 62504, as well as~~ the following apply.

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

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