

# INTERNATIONAL STANDARD



**LED light source characteristics –  
Part 2: Design parameters and values**

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IEC Secretariat  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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## LED LIGHT SOURCE CHARACTERISTICS –

## Part 2: Design parameters and values

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IEC 63356-2 has been prepared by subcommittee 34A: Electric light sources, of IEC technical committee 34: Lighting. It is an International Standard.

This second edition cancels and replaces the first edition published in 2022. This edition constitutes a technical revision.

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

- a) a new Clause 6 for circular LED modules with a circular light emitting surface for spot lighting has been added;
- b) a new Clause 7 for LEDni modules with a rectangular shape and a circular light emitting surface has been added.

The text of this International Standard is based on the following documents:

Draft	Report on voting
34A/2405/FDIS	34A/2412/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

A list of all parts in the IEC 63356 series, published under the general title *LED light source characteristics*, can be found on the IEC website. <https://standards.iteh.ai/catalog/standards/iec/8b03987e-0742-4645-a614-dae795caa4c8/iec-63356-2-2024>

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- reconfirmed,
- withdrawn, or
- revised.

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## INTRODUCTION

The IEC 63356 series (LED light source characteristics) is split into two parts:

- Part 1: Data sheets

The scope of Part 1 covers data sheets that are comprehensive specifications for unique LED light sources (LED lamp or LED module). These are full specifications for products including, where necessary, information on interchangeability aspects, for example mechanical, electrical, optical.

Each data sheet in Part 1 relates to an individual type of LED lamp or LED module.

- Part 2: Design parameters and values

The scope of Part 2 covers design parameters and values that are used in the design of an LED light source (LED lamp or LED module) or a related component. Part 2 does not provide full product specifications but includes important interface aspects (e.g. mechanical, electrical, optical) that should be taken account of in the design of LED light sources and related components.

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# LED LIGHT SOURCE CHARACTERISTICS –

## Part 2: Design parameters and values

### 1 Scope

This part of IEC 63356 specifies design parameters and design values of an LED light source or related interface characteristics.

NOTE 1 Interface characteristics can cover interfaces between the LED light source and the luminaire or the controlgear, or the LED light source and additional attachments.

NOTE 2 Interfaces can be related to for example electrical, mechanical, or optical aspects.

This document does not cover interchangeability between products from different LED light source manufacturers.

NOTE 3 Interchangeability is covered by IEC 63356-1.

Lamp caps and lampholders specified in the IEC 60061 series are not within the scope of this document.

Compliance criteria relating to parameters in this document are covered by ~~IEC 63220<sup>1</sup> for safety, or IEC 63221<sup>2</sup> for performance.~~

- IEC 62031:<sup>3</sup> LED modules – Safety requirements, or;
- IEC 63554:<sup>4</sup> LED lamps – Safety requirements, or;
- IEC 63555:<sup>5</sup> LED light sources – Performance requirements.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions 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>

<sup>1</sup> ~~Under consideration.~~

<sup>2</sup> ~~Under consideration.~~

<sup>3</sup> Third edition under preparation. Stage at the time of publication IEC CCDV 62031:2024.

<sup>4</sup> First edition under preparation. Stage at the time of publication IEC CCDV 63554:2024.

<sup>5</sup> First edition under preparation. Stage at the time of publication IEC CCDV 63555:2024.

### 3.1 thermal interface material TIM

material with specified thermal conductivity assembled between an LED module and a luminaire to enable improved heat dissipation

## 4 Overview and common information

### 4.1 General

Dimensions are specified at a temperature of  $(25 \pm 5)^\circ\text{C}$ , unless otherwise specified; ~~mechanical dimensions refer to a temperature of  $(25 \pm 5)^\circ\text{C}$ .~~

All values of dimensions that omit an explicit unit indication are in millimetres.

### 4.2 Numbering system

Products that have comparable interfaces are grouped in separate clauses.

## 5 Rectangular LED modules with undefined light emitting surface

NOTE Clause 5, including LED module demarcations specified in 5.3.2 through 5.3.19, is taken from Zhaga Book 7 Edition 1.7.

### 5.1 General

Rectangular LED modules with undefined light emitting surface (LES) are intended to be mounted in a luminaire. Figure 1 illustrates an example of an LED module-luminaire combination. In this example the luminaire holds two LED modules. In practice, a luminaire can hold any number of LED modules.

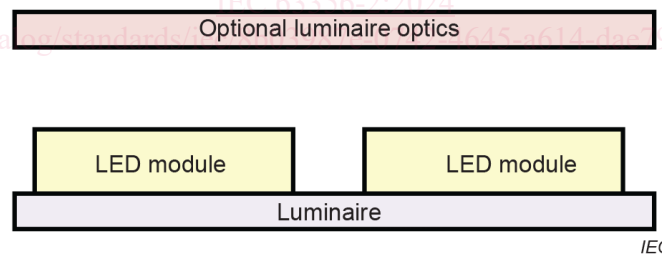
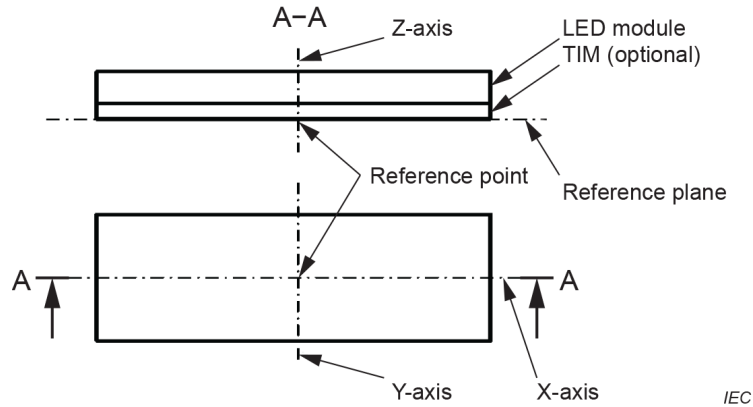


Figure 1 – Example of a luminaire with two LED modules

The luminaire typically features luminaire-optics which shape the light output of the LED module(s).

### 5.2 Mechanical references

The reference plane and the reference point of an LED module, including (optional) TIM are defined in Figure 2. Dimensions are specified relative to either the reference point or the reference plane unless indicated otherwise. Moreover, dimensions are specified to include the thickness of the TIM (if present).



**Figure 2 – Positions of the reference point and the reference plane of the LED module**

### 5.3 LED module categories

#### 5.3.1 General

Subclause 5.3 specifies a number of LED module categories that are identified by a designation. The LED module demarcations of these LED module categories are specified in 5.3.2 to 5.3.19.

The intention of the demarcation model is to visualize restricted areas or volumes that no part of a luminaire should cross. The hashed area indicates limits for the inclusion zone for LED module design and the exclusion zone for luminaire design.

Unless stated otherwise, all holes are available and for each hole at least 25 % of the circumference of the hole is present in the LED module. The demarcation model specifies the minimum diameter of the mounting holes at a specified position.

NOTE In typical designs the diameter of these holes can be larger allowing for a tolerance on the position of the holes.

If the LED module is applied in combination with a TIM, this material is defined to be part of the LED module. Thus, the total height of the module and TIM should not exceed the maximum height  $H$  (see 5.3.2 to 5.3.19).

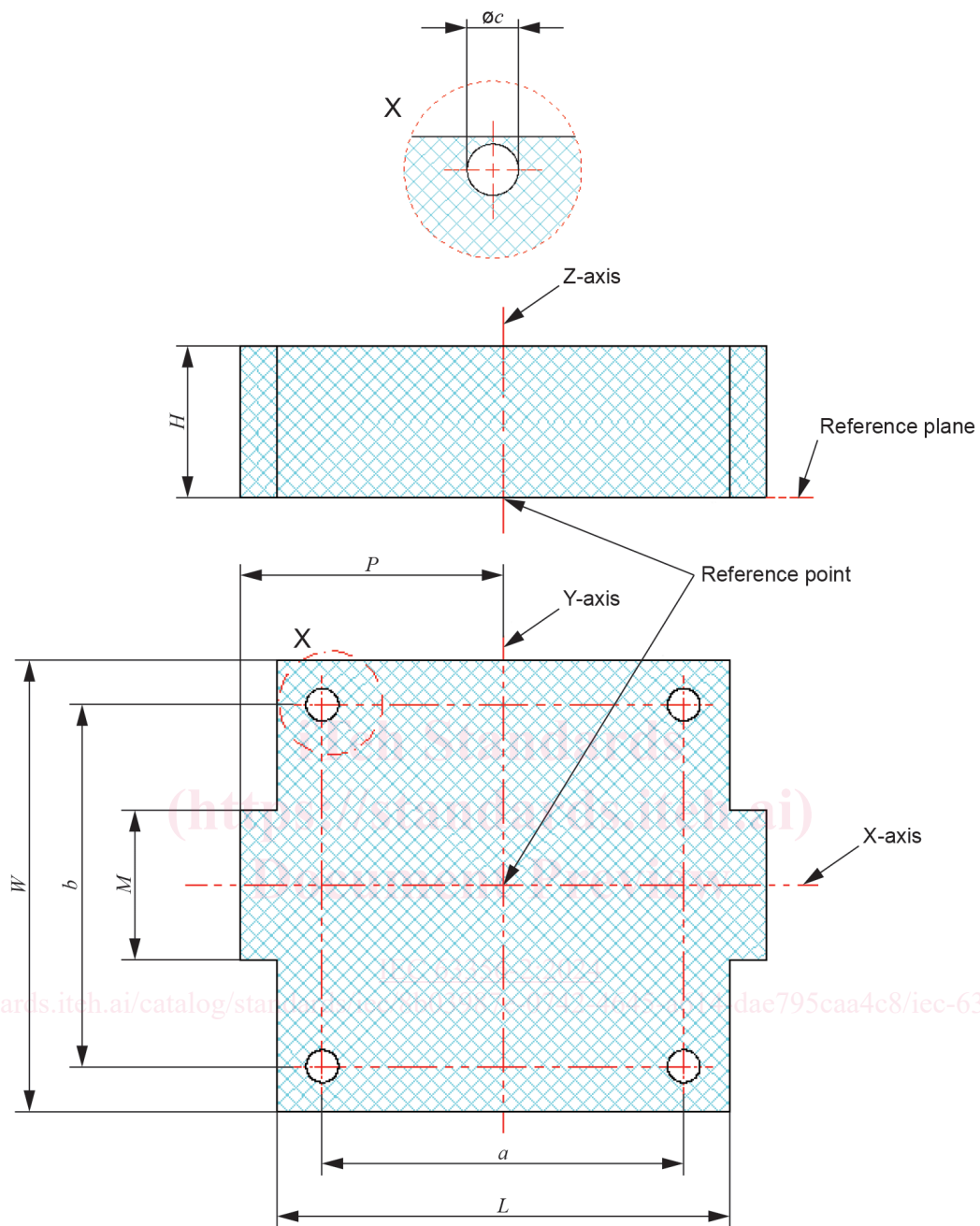
#### 5.3.2 L6W6

The designation for this category is 'L6W6'.

The LED module demarcation of the L6W6 category is defined in Table 1 and Figure 3.

**Table 1 – LED module demarcation of the L6W6 category**

Dimension	Value
$L$	60
$W$	60
$H$	20
$a$	48
$b$	48
$M$	20
$P$	35
$\varnothing_c$	4,3



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NOTE The top drawing shows the detail X.

**Figure 3 – LED module demarcation of the L6W6 category**

The X-axis and Y-axis are the symmetry axes for the outline and the mounting holes.

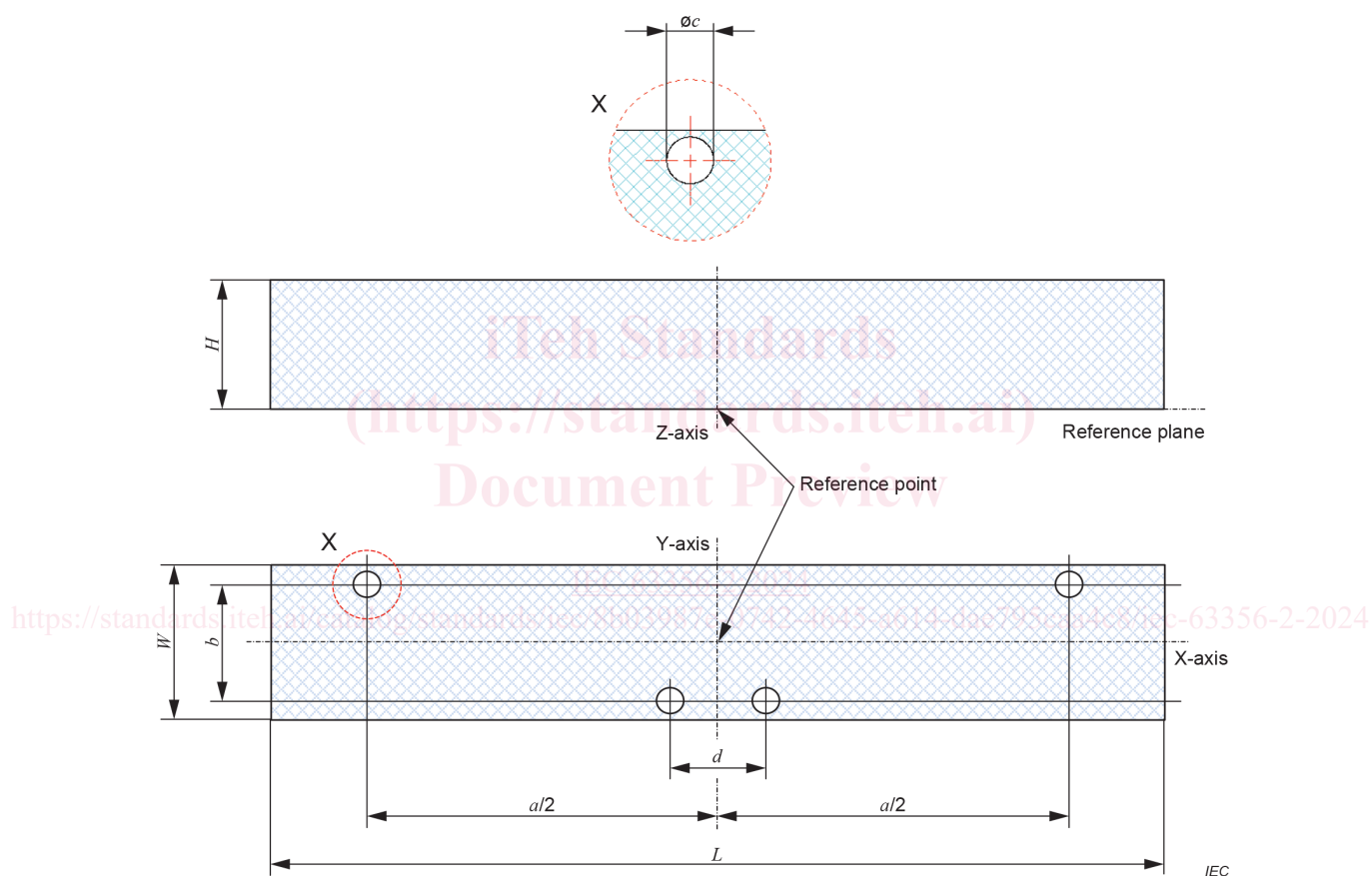
### 5.3.3 L14W2

The designation for this category is 'L14W2'.

The LED module demarcation of the L14W2 category is defined in Table 2 and Figure 4.

**Table 2 – LED module demarcation of the L14W2 category**

Dimension	Value
$L$	140
$W$	24
$H$	20
$a$	110
$b$	18,4
$d$	15
$\varnothing_c$	4,3



NOTE The top drawing shows the detail X.

**Figure 4 – LED module demarcation of the L14W2 category**

The X-axis and Y-axis are the symmetry axes for the outline and the crosshair lines of the mounting holes.

### 5.3.4 L28W2

The designation for this category is 'L28W2'.

The LED module demarcation of the L28W2 category is defined in Table 3 and Figure 5. The two mounting holes at the bottom of the diagram of Figure 5 are optional.