

# INTERNATIONAL STANDARD

**IEC**  
**60598-2-3**

Third edition  
2002-12

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**Luminaires –**

**Part 2-3:**

**Particular requirements –**

**Luminaires for road and street lighting**

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Fax: +41 22 919 03 00

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International Electrotechnical Commission, 3, rue de Varembe, PO Box 131, CH-1211 Geneva 20, Switzerland  
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: [inmail@iec.ch](mailto:inmail@iec.ch) Web: [www.iec.ch](http://www.iec.ch)



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## LUMINAIRES –

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

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This International Standard IEC 60598-2-3 has been prepared by subcommittee 34D: 2002 Luminaires, of IEC technical committee 34: Lamps and related equipment.

This third edition cancels and replaces the second edition, published in 1993, and its amendments 1 (1997) and 2 (2000) as well as interpretation sheets IS 01 and IS 02 (2001). It constitutes a technical revision.

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

FDIS	Report on voting
34D/762/FDIS	34D/772/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.

This standard is to be read in conjunction with IEC 60598-1.

The changes to the text introduced by this new edition introduce requirements for column-integrated luminaires.

The text introduced by interpretation sheets IS 01 and IS 02 is contained in subclause 3.6.5 Note 1 and subclause 3.12.1, second paragraph, respectively.

The committee has decided that the contents of this publication will remain unchanged until July 2006. At this date, the publication will be

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

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## LUMINAIRES –

### Part 2-3: Particular requirements – Luminaires for road and street lighting

#### 3.1 Scope

This part of IEC 60598 specifies requirements for

- luminaires for road, street lighting and other public outdoor lighting applications;
- tunnel lighting;
- column-integrated luminaires with a minimum total height above normal ground level of 2,5 m;

and for use with electrical lighting sources on supply voltages not exceeding 1 000 V.

NOTE Column integrated luminaires with a total height below 2,5 m are under consideration.

#### 3.1.1 Normative references

The normative references listed in Section 0 of IEC 60598-1 apply to this part as well as the following reference:

IEC 60364-7-714, 1996, *Electrical installations of buildings – Part 7: Requirements for special installations or locations – Section 714: External lighting installations*

IEC 60068-3-76:1997, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

#### 3.2 General test requirements

The provisions of Section 0 of IEC 60598-1 apply.

The tests described in each appropriate section of Part 1 shall be carried out in the order listed in this section of Part 2.

In order to facilitate testing, and due to the dimensions of the sample, it is allowed to make use of the appropriate parts of the luminaire only (this is mainly applicable to column-integrated luminaires).

#### 3.3 Definitions

For the purposes of this section, the definitions of Section 1 of IEC 60598-1 apply together with the following definitions.

##### 3.3.1

##### **span wire**

wire between main supports which carries the weight of the complete installation.

NOTE This may include several luminaires, supply cables and a stay wire.

##### 3.3.2

##### **suspension wire**

wire attached to the span wire and carrying the weight of the luminaire

**3.3.3****stay wire**

tensioned wire between main supports to limit lateral and rotary movement of the suspended luminaires

**3.3.4****column-integrated luminaires**

lighting systems formed with a luminaire integrated in a lighting column fixed in the ground

**3.3.5****reflective or decorative external part of a column-integrated luminaire**

device reflecting the light in a fixed direction or with a decorative purpose, mounted outside the lamp compartment generally at the top of the column-integrated luminaire

NOTE Such devices are referred to in this standard as "external parts".

**3.3.6****lighting column**

support intended to hold one or more luminaires, consisting of one or more parts: a post, possibly an extension piece, and if necessary a bracket. It does not include columns for catenary lighting

**3.3.7****nominal height of a column-integrated luminaire**

distance between the centre line of the point of entry of the external part and the intended ground level, for column-integrated luminaires planted in the ground, or the bottom of the flange plate, for column-integrated luminaires with a flange plate

**3.3.8****door opening of a column-integrated luminaire**

opening in the column of a column-integrated luminaire for access to electrical equipment

**3.3.9****cable entry slot of a column integrated luminaire**

opening in the part of a column-integrated luminaire below ground for the cable entry

**3.3.10****connection box of a column integrated luminaire**

box containing terminal blocks: protecting devices allowing the connection of a column-integrated luminaire to the mains and the looping of electricity supply cables

**3.3.11****tunnel luminaires**

luminaires for lighting tunnels which are mounted direct or on frames to the wall or ceiling of the tunnel



### 3.4 Classification of luminaires

Luminaires shall be classified in accordance with the provisions of Section 2 of IEC 60598-1.

NOTE Luminaires for road and street lighting are normally suitable for one or more of the following modes of installation:

- a) on a pipe (bracket) or the like;
- b) on a mast (column) arm;
- c) on a post top;
- d) on span or suspension wires;
- e) on a wall.

### 3.5 Marking

The provisions of Section 3 of IEC 60598-1 apply. In addition, the following information shall be provided in the instruction leaflet supplied with the luminaire:

- a) design attitude (normal operating position);
- b) weight including control gear if any;
- c) overall dimensions;
- d) if intended for mounting more than 8 m above ground level, the maximum projected area subjected to wind force (see 3.6.3.1);
- e) the range of cross-sectional areas of suspension wires suitable for the luminaire, if applicable;
- f) suitability for use indoors provided the 10 °C, allowed for the effects of natural air movement, has not been deducted from measured temperature (see 3.12.1);
- g) dimensions of the compartment in which the connection box is placed;
- h) the torque setting in newton metres to be applied to any bolts or screws which fix the luminaire to its support.

### 3.6 Construction

The provisions of Section 4 of IEC 60598-1 apply together with the requirements of 3.6.1 to 3.6.5.

**3.6.1** All luminaires shall have protection against ingress of moisture of at least IPX3, except for tunnel-lighting luminaires and glazing of column-integrated luminaires with an open-sided external part, for which IPX5 is required.

For column-integrated luminaires, door opening included, the IP classification shall be as follows:

- 1) parts below 2,5 m: IP3X (see IEC 60364-7-714)
- 2) parts above 2,5 m: IP2X (when the external part is open-sided, the IP classification of the glazing shall be 5X)

**3.6.2** Luminaires for suspension on span wires shall be fitted with clamping devices for this purpose and the range of span-wire sizes for which the clamping devices are suitable shall be stated in the instruction leaflet supplied with the luminaire. The device shall clamp the span wire to prevent movement of the luminaire with respect to the span wire.

The suspension devices shall not damage the span wire during installation and during normal use of the luminaire.

Compliance is checked by inspection after fitting the luminaire to the smallest and largest span wires in the range stated by the luminaire manufacturer.

NOTE Care should be taken to avoid electrolytic corrosion between the clamping device and the span wire.

**3.6.3** The means for attaching the luminaire or external part to its support shall be appropriate to the weight of the luminaire or external part. The connection shall be designed to withstand wind speeds of 150 km/h on the projected surface of the assembly without undue deflection.

Fixings which carry the weight of the luminaire or external part and internal accessories shall be provided with means to prevent the dislodgement of any part of the luminaire or external part by vibration, either in service or during maintenance.

Parts of luminaires or external parts which are fixed other than with at least two devices, for example, screws or equivalent means of sufficient strength, shall have such extra protection as to prevent those parts falling and endangering persons, animals and surroundings, should a fixing device fail under normal conditions.

Compliance is checked by inspection and, for mast-arm or post-top mounted luminaires or external parts, by the test of 3.6.3.1.

The wind-force test is not required to be performed on tunnel luminaires.

NOTE In considering the possible effects of vibration, the luminaire should be studied in conjunction with the lamp and the column with which it may be used.

#### **3.6.3.1** Static load test for mast-arm or post-top mounted luminaires or external parts

The luminaire or external part is mounted in such a way that the most critical surface is loaded.

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<https://standards.iteh.ai/> The most critical surface is determined by calculating the highest value of  $Cd \times S$  -60598-2-3-2002

where

$Cd$  is the drag coefficient;

$S$  is the area of the surface to be loaded ( $m^2$ ).

The drag coefficient depends on the shape of the surface. For luminaires or external parts for which the  $Cd$  is not measured, the value of 1,2 shall be taken.

NOTE 1 See Annex A for measurement of  $Cd$ .

The means of attachment shall be secured in accordance with the manufacturer's instructions.

A constant evenly distributed load is applied for 10 min on the most critical surface.

NOTE 2 See Figure 1 for methods of equal distribution of the load. In cases where bags are used, these can be filled with sand, lead shot or small balls.