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(JLA/JSA)

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

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by the Japan Luminaires Association (JLA) /Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently, **JIS C 8105-2-3: 2005** is replaced with this Standard.

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JIS C 8105 series consists of the following parts under the general title “*Luminaires*”

- JIS C 8105-1 *Part 1 : General requirements for safety*
- JIS C 8105-2-1 *Part 2 : Particular requirements for safety — Section 1 : Fixed general purpose luminaires*
- JIS C 8105-2-2 *Part 2 : Particular requirements for safety — Section 2 : Recessed luminaires*
- JIS C 8105-2-3 *Part 2-3 : Particular requirements for safety — Luminaires for road and street lighting*
- JIS C 8105-2-4 *Part 2 : Particular requirements for safety — Section 4 : Portable general purpose luminaires*
- JIS C 8105-2-5 *Part 2 : Particular requirements for safety — Section 5 : Floodlights*
- JIS C 8105-2-6 *Part 2 : Particular requirements for safety — Section 6 : Luminaires with built-in transformers or converters for filament lamps*
- JIS C 8105-2-7 *Part 2 : Particular requirements for safety — Section 7 : Portable luminaires for garden use*
- JIS C 8105-2-8 *Part 2 : Particular requirements for safety — Section 8 : Handlamps*
- JIS C 8105-2-9 *Part 2 : Particular requirements for safety — Section 9: Photo and film luminaires (non-professional)*
- JIS C 8105-2-12 *Part 2-12 : Particular requirements — Mains socket-outlet mounted nightlights*
- JIS C 8105-2-13 *Part 2-13 : Particular requirements — Ground recessed luminaires*
- JIS C 8105-2-17 *Part 2 : Particular requirements for safety Section 17 : Luminaires for stage lighting, television, film, and photographic (outdoor and indoor)*
- JIS C 8105-2-19 *Part 2 : Particular requirements for safety — Section 19 : Air-handling luminaires*
- JIS C 8105-2-20 *Part 2-20 : Particular requirements — Lighting chains*
- JIS C 8105-2-22 *Part 2 : Particular requirements for safety Section 22 : Luminaires for emergency lighting*
- JIS C 8105-2-23 *Part 2-23 : Particular requirements — Extra low voltage lighting systems for filament lamps*
- JIS C 8105-3 *Part 3 : General requirements for performance*
- JIS C 8105-5 *Part 5 : Gonio-photometric methods*

Luminaires — Part 2-3 : Particular requirements for safety — Luminaires for road and street lighting

Introduction

This Japanese Industrial Standard has been prepared based on the third edition of IEC 60598-2-3 published in 2002 and Amendment 1 (2011) for the corresponding parts, with some modifications made such as setting a wind speed value different from the IEC standard for the wind-force test of connection of luminaires to the support so as to be more suitable for testing in Japan, and adding matters not given in the IEC standard.

The portions given continuous sidelines or dotted underlines are the matters in which the contents of the corresponding International Standard have been modified. A list of modifications with the explanations is given in Annex JA.

3.1 Scope

This Standard 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 (column-integrated luminaires with a total height 2.5 m or under are under consideration);

and for use with electrical lighting sources (an incandescent lamp, a fluorescent lamp, other discharge lamps and electroluminescent devices such as an LED) on supply voltages not exceeding 1 000 V.

NOTE : The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

IEC 60598-2-3 : 2002 *Luminaires — Part 2-3 : Particular requirements — Luminaires for road and street lighting* and Amendment 1 : 2011 (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and JIS are IDT (identical), MOD (modified), and NEQ (not equivalent) according to ISO/IEC Guide 21-1.

3.1.1 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS C 0364-7-714 *Electrical installations of buildings Part 7 : Requirements for*

special installations or locations Section 714 : External lighting installations

NOTE : Corresponding International Standard : IEC 60364-7-714 : 1996 *Electrical installations of buildings — Part 7 : Requirements for special installations or locations — Section 714 : External lighting installations* (IDT)

JIS C 0920 Degrees of protection provided by enclosures (IP Code)

JIS C 8105-1 *Luminaires — Part 1 : General requirements for safety*

NOTE : Corresponding International Standard : IEC 60598-1 : 2008 *Luminaires — Part 1 : General requirements and tests* (MOD)

JIS C 60068-2-75 *Environmental testing — Part 2-75 : Tests — Test Eh : Hammer tests*

NOTE : Corresponding International Standard : IEC 60068-2-75 : 1997 *Environmental testing — Part 2-75 : Tests — Test Eh : Hammer tests* (IDT)

IEC 62262 Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)

3.2 General test requirements

The provisions of 0.4 of JIS C 8105-1 apply.

- a) The type tests shall be carried out under the conditions specified in 0.4.2 of JIS C 8105-1 using the test lamps which correspond to the applicable lamp marked on the luminaire.
- b) Tests shall be carried out in the order listed in this Standard.
- c) 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 Terms and definitions

For the purpose of this Standard, the terms and definitions given in Section 1 of JIS C 8105-1 and the following apply.

3.3.1 span wire

wire between main supports which carries the weight of the complete installation including several luminaires, supply cables, a stay wire and a suspension wire

NOTE : (Deleted).

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

3.3.3 A mast-arm mounted luminaires

luminaires mounted on the curve type post for lighting or luminaires mounted on the straight line type post for lighting by arms

3.3.3B post-top mounted luminaires

luminaires mounted on the post top of the straight line type post for lighting

3.3.3C suspended luminaires

luminaires mounted on the post for lighting, etc. by suspending them with pipes, etc.

3.3.3D area subjected to wind force

area of luminaires subjected to wind force

The value is taken as the orthogonal projected area in the wind direction.

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

Such devices are referred to in this Standard as “external parts”.

NOTE : (Deleted).

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

(Deleted).

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

It may contain a protection device.

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 JIS C 8105-1.

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 mass (column) arm;
- c) on a post top;
- d) on span or suspension wires;
- e) on a wall.

3.5 Marking

The provisions of 3.2 and 3.3 of JIS C 8105-1 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 6 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) indication of “outdoor use type”, “indoor use type” or “indoor and outdoor dual-purpose type” (applicable use environment). In the case of “indoor use type” and “indoor and outdoor dual-purpose type”, the 10 °C, allowed for the effects of natural air movement, shall not be 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;
- i) maximum mounting height relevant to the design wind speed and the selected method for protection against the falling of glass particles (see 3.6.3 and 3.6.5).

3.6 Construction

The provisions of Section 4 of JIS C 8105-1 apply together with the requirements of 3.6.1 to 3.6.9.

3.6.1 Protection against ingress of solids and moisture

Protection against ingress of solids and moisture shall be as follows.

- a) All luminaires shall have protection against ingress of moisture of rainproof type (IPX3) or better, 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 not higher than 2.5 m : IP3X (see JIS C 0364-7-714);
 - 2) parts above 2.5 m : IP2X (when the external part is open-sided, the IP classification of the glazing shall be 5X).
- b) Compliance is checked in accordance with 9.2 of JIS C 8105-1.

3.6.2 Installation of luminaires

Installation of luminaires shall be as follows.

- a) 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.

- b) Compliance is checked by visual 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 Attachment of luminaire and external part to its support

Attachment of luminaire and external part to its support shall be as follows.

- a) The means for attaching the luminaires to the support shall be appropriate to the weight of the luminaire or external part. The means for attachment shall be as follows.
- 1) The connection shall be designed to withstand wind speeds of 60 m/s on the projected surface of the assembly without undue deflection (tilting).

When the luminaire is mounted at a height of 6 m or less, the connection shall be designed to withstand a wind speed of 50 m/s, and when it is installed on the rooftop of a building, ridge, elevated road, bridge or coast, the connection shall be designed to withstand a wind speed of 60 m/s. If, for the installation position at a height of 6 m or less, it is so permitted by the Article 87 of Chapter 3 Structural Strength (wind force) of Order for Enforcement of the Building Standards Act, the wind speed withstand value may be 40 m/s. However, this does not apply to luminaires installed on the road, in which case the connection shall withstand the wind speed of 50 m/s.