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(JLA/JSA)

**Luminaires — Part 2-20: Particular
requirements for safety — Lighting chains**

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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 Luminares 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 8105-2-20: 2005** is replaced with this Standard.

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

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*

Luminaires — Part 2-20 : Particular requirements for safety — Lighting chains

Introduction

This Japanese Industrial Standard has been prepared based on the third edition of IEC 60598-2-20 published in 2010 with some modifications of the technical contents.

The portions given 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.

This Standard is to be read in conjunction with JIS C 8105-1.

20.1 Scope

This Standard specifies requirements for lighting chains fitted with series- or parallel- or a combination of series/parallel-connected incandescent lamps for use either indoors or outdoors on supply voltages not exceeding 250 V.

NOTE 1 A Christmas tree chain is an example of a lighting chain fitted with series or series/parallel connected lamps.

A chain for illuminating ski-tracks or promenades is an example of a lighting chain fitted with parallel connected lamps.

NOTE 2 For lighting chains fitted with lampholders of the push-in type, the appropriate requirements of this Standard apply.

NOTE 3 In some countries, the term “strings” is used instead of “chains”.

NOTE 4 For lighting chains with non-standardised lamps (e.g. lamps of the push-in type) the lamps are regarded as a part of the lighting chain and consequently included in the testing (and thereby in the certificate, if any).

NOTE 5 The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

IEC 60598-2-20 : 2010 *Luminaires — Part 2-20 : Particular requirements — Lighting chains* (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.

20.2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. For standards with the year indication, only the editions of the indicated year shall be applied and the revisions (including amend-

ments) made thereafter shall not be applied. For those without the indication of the year, the most recent edition (including amendments) shall be applied.

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

NOTE : Corresponding International Standard : IEC 60529 *Degrees of protection provided by enclosures (IP Code)* (IDT)

JIS C 3660-3-1 *Common test methods for insulating and sheathing materials of electric and optical cables — Part 3-1 : Methods specific to PVC compounds — Pressure test at high temperature — Test for resistance to cracking*

NOTE : Corresponding International Standard : IEC 60811-3-1 : 1985 *Common test methods for insulating and sheathing materials of electric cables — Part 3 : Methods specific to PVC compounds — Section One : Pressure test at high temperature — Tests for resistance to cracking*, Amendment 1 : 1994 and Amendment 2 : 2001 (IDT)

JIS C 3662-5 : 2003 *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V — Part 5 : Flexible cables (cords)*

NOTE : Corresponding International Standard : IEC 60227-5 : 1997 *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V — Part 5 : Flexible cables (cords)* and Amendment 1 : 1997 (MOD)

JIS C 3663-4 *Rubber insulated cables — Rated voltages up to and including 450/750 V — Part 4 : Cords and flexible cables*

NOTE : Corresponding International Standard : IEC 60245-4 *Rubber insulated cables — Rated voltages up to and including 450/750 V — Part 4 : Cords and flexible cables* (MOD)

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 8122 *Bayonet lampholders*

NOTE : Corresponding International Standard : IEC 61184 : 1997 *Bayonet lampholders* and Amendment 1 : 2000 (MOD)

JIS C 8147-2-11 *Lamp controlgear — Part 2-11 : Particular requirements for miscellaneous electronic circuits used with luminaires*

NOTE : Corresponding International Standard : IEC 61347-2-11 *Lamp controlgear — Part 2-11 : Particular requirements for miscellaneous electronic circuits used with luminaires* (MOD)

JIS C 8280 *Edison screw lampholders*

NOTE : Corresponding International Standard : IEC 60238 : 2004 *Edison screw lampholders* and Amendment 1 : 2008 (MOD)

JIS C 8282-1 *Plugs and socket-outlets for household and similar purposes — Part 1 : General requirements*

JIS C 8302 Edison screw lampholders

JIS C 8303 Plugs and receptacles for domestic and similar general use

20.3 General test requirements

The provisions of Section 0 of JIS C 8105-1 apply. The tests described in each appropriate section of JIS C 8105-1 shall be carried out in the order listed in this Standard.

20.4 Terms and definitions

The terms and definitions of Section 1 of JIS C 8105-1 apply, together with 20.4.1 and 20.4.2 in the following.

20.4.1 lighting chain

luminaire comprising an assembly of series-connected lampholders, parallel-connected lampholders or series/parallel-connected lampholders and interconnecting insulated conductors

NOTE 1 For lighting chains with non-standardised lamps (e.g. lamps of the push-in type) the lamps are regarded as part of the chain.

NOTE 2 For lighting chains with non-removable lamps, the lamps are regarded as part of the chain.

NOTE 3 A lighting chain may incorporate control devices (e.g. flasher units, see 20. 7.16)

20.4.2 sealed chain

a lighting chain enclosed in a rigid or flexible insulating translucent pipe or tube, sealed at the ends and having no joints

NOTE 1 The translucent pipe or tube includes a translucent colour pipe or colour tube.

NOTE 2 The pipe or tube includes a cylindrical object of insulating material itself in which a lamp is sealed being filled with it.

20.5 Classification of luminaires

Lighting chains shall be classified in accordance with the provisions of Section 2 of JIS C 8105-1, together with the requirements of 20.5.1 and 20.5.2.

NOTE : As lighting chains are mandatorily required to be suitable for mounting on normally flammable surfaces, they do not require specification of symbols indicating unsuitability of direct mounting on flammable surfaces.

20.5.1 According to the type of protection against electric shock, lighting chains shall be classified as Class II or Class III. However, those for use in indoor dry places with rated voltage not exceeding 150 V may be classified as Class 0, Class 0I, or Class I.

20.5.2 According to the degree of protection (IP classification) against dust and moisture, lighting chains for outdoor use shall be classified as "of rain-proof, splash-proof,

jet-proof or watertight construction”.

NOTE : Codes of IP classification for respective classes are as follows.

Rain-proof (IPX3), splash-proof (IPX4), jet-proof (IPX5) and watertight construction (IPX7).

20.6 Marking

The provisions of Section 3 of JIS C 8105-1 apply together with the requirements of 20.6.1 to 20.6.3.

20.6.1 The following information shall be marked on the lighting chains.

- a) Lighting chains shall be marked with the type reference or the electrical data of the lamps and with the rated voltage of the complete chain. Where it is impractical to mark this information on the lighting chain, the information shall be marked on a durable non-removable sleeve or label fitted to the cable.

NOTE : Electrical data of the lamp is comprised of rated voltage and rated wattage of the lamp.

- b) Lighting chains shall be accompanied by the substance of the following warnings :
 - 1) do not remove or insert lamps while the chain is connected to the supply;
 - 2) for series-connected lamps, replace failed lamps immediately by lamps of the same rated voltage and wattage to prevent overheating; this requirement does not apply to sealed chains;
 - 3) do not connect the chain to the supply while it is in the packing unless the packing has been adapted for display purposes;
 - 4) for series-connected lamps where fused lamps are used to ensure compliance with 20.13.3 hereafter, do not replace a fused lamp with a non-fused lamp [see item e)];
 - 5) ensure all lampholders are fitted with a lamp.
- c) Ordinary lighting chains shall additionally be accompanied by the substance of the following information :

“FOR INDOOR USE ONLY”

Lighting chains which rely on gaskets to provide the specified degree of protection (IP classification) against dust and moisture shall additionally be accompanied by the substance of the following information :

“WARNING — THIS LIGHTING CHAIN MUST NOT BE USED WITHOUT ALL GASKETS BEING IN PLACE”

- d) Lighting chains not intended for interconnection shall in addition be accompanied by the substance of the following warning :

“DO NOT CONNECT THIS CHAIN ELECTRICALLY TO ANOTHER CHAIN”

- e) Lighting chains fitted with fused lamps to ensure compliance with 20.13.3 shall be accompanied by information indicating the means for identification of fused lamps