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**Lighting busways—Particular safety
requirements for luminaires use**

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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 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 8472:2000** is replaced with this Standard.

This revision has been made based on **IEC 60570:2003** *Electrical supply track systems for luminaires* to prepare Japanese Industrial Standard conforming with International Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

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the original JIS is to be the final authority.

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Lighting busways— Particular safety requirements for luminaires use

Introduction This Japanese Industrial Standard has been prepared based on the fourth edition of **IEC 60570** *Electrical supply track systems for luminaires* published in 2003 with some modifications and additions of the technical contents.

This Standard is the standard on safety of lighting busways in consideration of attachment of luminaries, and the main product standard on lighting busways is **JIS C 8366**.

The portions given sidelines or dotted underlines are the matters in which the contents of the original International Standard have been modified or which are not stated in the original International Standard. A list of modifications with the explanations is given in Annex 1 (informative).

1 Scope This Standard applies to the following track systems with two or more poles for the connection of luminaires to the electrical supply consisting of, either

- a system with a rated voltage not exceeding 440 V between poles (live conductors) with provision for earthing (Class I) and a rated current not exceeding 20 A per conductor, or
- a SELV system with a rated voltage not exceeding 25 V without provision for earthing (Class III) and a rated current not exceeding 25 A per conductor, or
- a combination of the two systems mentioned above (mixed supply system) for the connection of both mains voltage luminaires (Class I or II) and SELV supplied luminaires (Class III) simultaneously, but in different sector openings (mains or SELV).

The track systems may also provide for the mechanical support of the luminaires.

It applies to track systems designed for ordinary interior use for mounting on, or flush with, or suspended from walls and ceilings. These track systems are not intended for locations where special conditions prevail as in ships, vehicles and the like and in hazardous locations, for example, where explosions are liable to occur.

Remarks : The International Standard corresponding to this Standard is as follows.

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**.

IEC 60570:2003 *Electrical supply track systems for luminaires*
(MOD)

2 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 0364-7-715 *Electrical installation of buildings—Part 7-715: Requirements for special installations or locations—Extra-low-voltage lighting installations*

NOTE : **IEC 60364-7-715**:1999 *Electrical installations of buildings—Part 7-715: Requirements for special installations or locations—Extra-low-voltage lighting installations* is equivalent to the said standard.

JIS C 0922:2002 *Protection of persons and equipment by enclosures for electrical apparatus—Probes for verification*

NOTE : **IEC 61032**:1997 *Protection of persons and equipment by enclosures—Probes for verification* is identical with the said standard.

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

NOTE : **IEC 60598-1**:1996 *Luminaires—Part 1: General requirements and tests* is equivalent to the said standard.

JIS C 8306 *Testing methods for wiring devices*

IEC 60417 *Graphical symbols for use on equipment*

3 Terms and definitions For the purposes of this Standard, the definitions given in section 1 of **JIS C 8105-1** and the following definitions apply.

NOTE : The use of the term luminaire (see **JIS C 8105-1**) hereinafter also includes components of the luminaire track system.

3.1 luminaire track system system, including a track with conductors, for the connection of luminaires to an electrical supply in a range of different positions determined only by the length and location of the track and comprising some or all of the components defined in **3.2** to **3.14** (see also figure 1)

3.2 track generally linear assembly of conductors within a housing providing the electrical connection and in most instances mechanical support of luminaires

NOTE : Luminaires can be positioned or repositioned along the length of track in a simple manner (that is, without the use of tools).

3.3 track* coupler component enabling electrical or mechanical connection to be made between tracks, but electrically only on the same sector opening (mains voltage or SELV)

3.4 track supply connector component used for the electrical connection of a supply to the track system, but always operating on one sector opening only

NOTES 1 The function of a coupler and a track supply connector may be combined.

2 For the SELV sector, the track supply connector may incorporate a SELV convertor or safety isolating transformer supplied directly from the mains voltage sector.

3.5 luminaire supply connector component for the electrical connection of a luminaire to the track

A connector does not provide mechanical connection of a luminaire to the track. The electrical connection shall operate on one sector only (mains voltage or SELV).

3.6 track* adaptor component used for the electrical and mechanical connection of a luminaire to the track, but electrically and mechanically only on the same sector opening (mains voltage or SELV)

NOTES 1 An adaptor may incorporate a switch or a fuse.

2 An adaptor is not intended for retail sales.

Note * The word 'track' is occasionally not repeated in the text of the standard where these definitions are used.

3.7 track* suspension device component used for the mechanical connection of the track system to the supporting surface

3.8 luminaire suspension device component used for the mechanical connection of a luminaire to the track

3.9 end cover component intended to be fixed at the end of a track, providing electrical and mechanical protection of the ends of the conductors

3.10 Class I track generally linear assembly of conductors and housing designed to be operated from a mains voltage supply providing the electrical connection and in most instances mechanical support of Class 0, Class I and Class II luminaires only

3.11 Class III track generally linear assembly of conductors and housing designed to be operated from a SELV supply providing the electrical connection and in most instances mechanical support of Class III luminaires only

NOTE : A Class III SELV supplied system or a SELV sector opening need not have insulation to protect against contact with current-carrying parts, due to its inherently safe nature.

3.12 mixed supply rack system—Classes I and III combination of tracks according to 3.10 and 3.11

3.13 rated current current assigned to the track or the component by the manufacturer

3.14 track sector opening opening in the track enabling the electrical connection of the adaptor or the luminaire supply connector to the track conductors

4 Classification Luminaire track systems shall be either Class I, Class III or a mixed supply track system with Class I and Class III sectors in accordance with the provisions of section 2 of JIS C 8105-1. Track systems shall only be classified as ordinary.

NOTES 1 "Ordinary" is specified in 1.2.3 of JIS C 8105-1.

2 Luminaire/adaptor assemblies that are inseparable can be Class II in accordance with the provisions of section 2 of JIS C 8105-1 provided they contain no earthing facilities.

- 3 Separate adaptors shall not be classified as Class II, but may be used with Class II luminaires.

5 General test requirements

5.1 The requirements and tests of this Standard shall not be applied to equipment already subject to its own separate **IEC Standard** or **JIS**.

5.2 Tests according to this Standard are type tests.

One test sample as described in **5.3** shall be subjected to all relevant tests.

In order to reduce the time of testing and to allow for any tests which may be destructive, the manufacturer may submit additional samples or parts of samples provided that these are of the same materials as the original sample and that the results of the test are the same as if carried out on a single sample.

5.3 Unless otherwise specified, the sample is tested as delivered and under the most unfavourable conditions of use taking into account the manufacturer's instructions, at an ambient temperature of between 10 °C and 30 °C.

The minimum test sample of a Class I or a Class III track shall include the following items. For a mixed supply system the minimum sample quantities stated are required for both Class I and Class III sectors;

- a) where a track system provides for interconnection between track lengths, at least 3 sections of track comprising a total length when assembled together of not less than 2.4 m and including 1 section of maximum length as indicated in the manufacturer's literature. Where interconnection is not provided for, only 1 track section of maximum length is required;
- b) 1 track supply connector;
- c) 1 end cover (if required);
- d) 1 coupler per length of track supplied (if applicable) (minimum of 3);
- e) 1 adaptor per length of track supplied (minimum of 3);
- f) 1 luminaire supply connector per length of track supplied (if applicable) (minimum of 3);
- g) the necessary suspension devices and any other components as specified by the manufacturer in his installation instructions;
- h) a typical luminaire representing the most unfavourable combination from a testing point of view for the purpose of the test of clause **12**;
- i) additionally with a Class III test sample, one selection of track of each type of Class I track made by the same manufacturer.

NOTE : Item i) is required for the tests of **8.1.1** when testing a Class III track.

5.4 Unless otherwise specified, the tests are carried out in the order of the clauses.

6 Marking The provisions of section 3 of **JIS C 8105-1** apply together with the requirements in 6.1 to 6.7.

6.1 The track shall be marked with rated current (A), rated voltage (V) and the graphical symbol **IEC 60417-5180** for Class III equipment if appropriate. A mixed supply system shall be marked with rated current (A), rated voltage (V) on the mains voltage sector and on the SELV sector respectively. The SELF sector shall also be marked with the symbol for Class III.

6.2 Adaptors need only be marked with their rated current, rated voltage, manufacturer's name or trade mark and type reference and the graphical symbol **IEC 60417-5180** for Class III equipment if appropriate.

Adaptors and luminaire supply connectors incorporated in luminaires do not require marking additional to the items defined in 3.3 of **JIS C 8105-1**.

If the adaptor has a fuse incorporated, the rated current and type of fuse shall be marked on the body of the adaptor.

6.3 Couplers and connectors need only be marked with the manufacturer's name or trade mark and type reference and the graphical symbol **IEC 60417-5180** for Class III equipment if appropriate.

Luminaire supply connectors not incorporated in the luminaire shall, in addition, be marked with rated current and rated voltage.

6.4 Marking of the rated current and the rated voltage of the track system shall be easily discernible during and after installation of the track system.

6.5 In addition to the above markings the following details, if they are necessary to ensure proper use and maintenance, shall be given either on the luminaire track system or in the manufacturer's instructions supplied with it:

- a) details of the maximum mechanical loading for which each section of the track system and luminaire suspension devices are suitable, inclusive of the weight of luminaires and accessories. In addition, a warning that the mechanical loading shall be intended as the complete loading of the whole system.
- b) a warning if the components are unsuitable for the connection of inductive loads, or derating for inductive loads if appropriate;
- c) the maximum permissible track temperature under normal operating conditions if different from 70 °C;
- d) a warning that it is the user's responsibility to ensure electrical, mechanical and thermal compatibility between the track system and luminaires attached to it.
- e) for Class I tracks with dimensions shown in figure J1, a warning that the attachment of devices other than adaptor and luminaire suspension devices shall not be permitted since devices other than adaptors may cause electric shock when they are attached.

Mounting instructions supplied with the adaptor shall state the track system on which it may be used and warnings shall be given that the use is limited to the track system specified.

6.6 In addition to the above markings and information, the following details shall be given in the manufacturer's instructions supplied with Class III and mixed supply track systems;

- a) a warning that the Class III system or sector opening should only be connected to a SELV supply designed for operating Class III equipment;
- b) where there is an associated safety isolating transformer, adequate instruction regarding the correct method of connection of the transformer terminals to avoid misinterpretation of the primary and secondary terminals;
- c) a warning that Class III luminaire track systems/sectors openings and components are not compatible with Class I track systems and that Class III luminaire connectors/adaptors should not be used on other manufacturer's track systems;
- d) instructions concerning suitable means for overload and short-circuit protection of the SELV circuit;

NOTE : The means of protection should meet the requirements of **JIS C 0364-7-715**.

- e) the minimum cross-sectional area and maximum length of the supply cable between transformer and track supply connector.

6.7 The instruction leaflet for Class III track systems/sector openings shall contain the following warning:

**CAUTION: TO REDUCE THE RISK OF OVERHEATING AND FIRE
DO NOT BRIDGE CONDUCTORS**

7 General requirements and ratings Track systems shall be so designed and constructed that in normal use they function safely and minimize the risk of danger to persons and surroundings. In general, compliance is checked by carrying out all tests specified.

The rated voltage between poles for a Class I track system shall not exceed 440 V and for a Class III system the rated voltage shall not exceed 25 V. The current rating for a Class I track system shall be maximum 16 A and for a Class III system it shall be maximum 20 A. For a combined system the rated current of each sector opening shall not exceed the values given for a Class I or a Class III system respectively.

Compliance is checked by inspection.

8 Construction The provisions of section 4 of **JIS C 8105-1** apply together with the requirements in **8.1** to **8.12**.

8.1 Components for Class I tracks shall be so designed that there is no risk of accidental contact between the earthing contact of the component and the current-carrying parts of the track during insertion and removal by the user.

This requirement does not apply during installation of the track system.