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**Miscellaneous lampholders—
Part 1: General requirements and tests**

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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 8121-1: 2005 is replaced with this Standard.

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Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public, or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public, and utility model rights.

JIS C 8121 series consists of the following 3 parts under the general title “*Miscellaneous lampholders*”:

Part 1 : General requirements and tests

Part 2-1 : Particular requirements—Lampholders S14

Part 2-2 : Particular requirements—Connectors for printed circuit board based LED-modules

Miscellaneous lampholders—

Part 1: General requirements and tests

Introduction

This Japanese Industrial Standard has been prepared based on the 4.1 edition of IEC 60838-1 published in 2008 with some modifications of the technical contents.

Portions given dotted underlines are the matters in which contents of the original International Standard have been modified. A list of modifications with the explanations is given in Annex JA.

1 General

1.1 Scope

This Standard specifies the requirement for lampholders of miscellaneous types intended for building-in, to be used with general purpose light sources, projection lamps, floodlighting lamps and street-lighting lamps with caps as listed in Annex A (hereafter referred to as “lampholders”) and the methods of test to be used in determining the safe use of lamps in lampholders.

This Standard also covers lampholders which are integral with a luminaire. It covers the requirements for the lampholder only.

This Standard also covers lampholders integrated in an outer shell and dome similar to Edison screw lampholders.

Such lampholders are further tested in accordance with the following subclauses of JIS C 8280: 8.4, 8.5, 8.6, 9.3, 10.7, clause 11, 12.2, 12.5, 12.6, 12.7, clause 13, 15.3, 15.4, 15.5 and 15.9. Requirements for lampholders for tubular fluorescent lamps, Edison screw lampholders and bayonet lampholders are covered by separate standards.

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

IEC 60838-1: 2008 *Miscellaneous lampholders—Part 1: General requirements and tests* (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), NEQ (not equivalent) according to ISO/IEC Guide 21-1.

1.2 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 apply but the revisions (including amendments)

made thereafter shall not apply. The normative references without the indication of the year shall apply only to the most recent editions (including amendments).

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

NOTE : Corresponding International Standards : **IEC 60529:1989** *Degrees of protection provided by enclosures (IP Code)* and Amendment 1 : 1999 (IDT)

JIS C 2134 *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

NOTE : Corresponding International Standards : **IEC 60112:1979** *Method for the determination of the proof and the comparative tracking indices of solid insulating materials* (IDT)

JIS C 3662 (series) *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

NOTE : Corresponding International Standards : **IEC 60227** (all parts) *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V* (MOD)

JIS C 3663 (series) *Rubber insulated cables—Rated voltages up to and including 450/750 V*

NOTE : Corresponding International Standards : **IEC 60245** (all parts) *Rubber insulated cables—Rated voltages up to and including 450/750 V* (MOD)

JIS C 7709 (series) *Lamp caps and holders together with gauges for the control of interchangeability and safety*

NOTE : Corresponding International Standards : **IEC 60061** (all parts) *Lamp caps and holders together with gauges for the control of interchangeability and safety* (MOD)

JIS C 7709-1 *Lamp caps and holders together with gauges for the control of interchangeability and safety Part 1: Lamp caps*

NOTE : Corresponding International Standards : **IEC 60061-1** *Lamp caps and holders together with gauges for the control of interchangeability and safety. Part 1: Lamp caps* (MOD)

JIS C 7709-2 *Lamp caps and holders together with gauges for the control of interchangeability and safety Part 2: Lampholders*

NOTE : Corresponding International Standards : **IEC 60061-2** *Lamp caps and holders together with gauges for the control of interchangeability and safety. Part 2: Lampholders* (MOD)

JIS C 7709-3 *Lamp caps and holders together with gauges for the control of interchangeability and safety—Part 3: Gauges*

NOTE : Corresponding International Standards : **IEC 60061-3** *Lamp caps and holders together with gauges for the control of interchangeability and safety. Part 3: Gauges* (MOD)

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

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

JIS C 8280 : 2011 *Edison screw lampholders*

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

JIS C 60068-2-20 *Environmental testing—Part 2-20: Tests—Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

NOTE : Corresponding International Standards : IEC 60068-2-20:1979 *Environmental testing—Part 2: Tests—Test T: Soldering* (MOD)

JIS C 60068-2-75:2004 *Environmental testing—Part 2-75: Tests—Test Eh: Hammer tests*

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

JIS C 60664-1 *Insulation coordination for equipment within low-voltage systems—Part 1: Principles, requirements and tests*

NOTE : Corresponding International Standards : IEC 60664-1:1992 *Insulation coordination for equipment within low-voltage systems—Part 1: Principles, requirements and tests*, Amendment 1 : 2000 and Amendment 2 : 2002 (MOD)

JIS C 60695-2-11 *Fire hazard testing—Glow-wire flammability test method for end-products*

NOTE : Corresponding International Standards : IEC 60695-2-11 *Fire hazard testing—Part 2-11: Glowing/hot-wire based test methods—Glow-wire flammability test method for end-products* (IDT)

JIS C 60695-11-5 *Fire hazard testing—Part 11-5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance*

NOTE : Corresponding International Standards : IEC 60695-11-5:2004 *Fire hazard testing—Part 11-5 : Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance* (IDT)

JIS H 8610 *Electroplated coatings of zinc on iron or steel*

NOTE : Corresponding International Standards : ISO 2081:1986 *Metallic coatings—Electroplated coatings of zinc on iron or steel* (MOD)

JIS H 8617 *Electroplated coatings of nickel and chromium*

NOTE : Corresponding International Standards : ISO 1456:2003 *Metallic coatings—Electrodeposited coatings of nickel plus chromium and of copper plus nickel plus chromium* (MOD)

JIS H 8619 *Electroplated coatings of tin*

NOTE : Corresponding International Standards : ISO 2093:1986 *Electroplated coatings of tin—Specification and test methods* (MOD)

JIS P 0001 *Paper, board and pulp—Vocabulary*

NOTE : Corresponding International Standards : ISO 4046-4:2002 *Paper, board, pulps and related terms—Vocabulary—Part 4: Paper and board grades and converted products* (MOD)

JIS Z 8113 *Lighting vocabulary*

IEC 60352-1 *Solderless connections—Part 1: Wrapped connections—General requirements, test methods and practical guidance*

IEC 60399 *Barrel thread for lampholders with shade holder ring*

2 Terms and definitions

For the purpose of this Standard, the terms and definitions given in JIS Z 8113 and the following apply.

2.1 rated voltage

the voltage declared by the manufacturer to indicate the highest working voltage for which the lampholder is intended

2.2 working voltage

the highest r.m.s. voltage that may occur across any insulation, transients being disregarded, both when the lamp is operating under normal conditions and when the lamp is removed

2.3 rated current

the current declared by the manufacturer to indicate the highest current for which the lampholder is intended

2.4 lampholder for building-in

a lampholder designed to be built into a luminaire, an additional enclosure or the like

2.4.1 unenclosed lampholder

a lampholder for building-in so designed that it requires additional means, for example enclosures, etc. to meet the requirements of this Standard with regard to protection against electric shock

2.4.2 enclosed lampholder

a lampholder for building-in so designed that it fulfils on its own the requirements of this Standard with regard to protection against electric shock

2.5 rated operating temperature

the highest temperature for which the lampholder is designed

2.6 rated pulse voltage

the highest peak value of pulse voltages the holder is able to withstand

2.7 lamp connectors

a set of contacts specially designed to provide for electrical contact but not supporting the lamp

2.8 type test

a test or series of tests made on a type test sample, for the purpose of checking compliance of the design of a given product with the requirements of the relevant standard

2.9 type test sample

a sample consisting of one or more similar specimens submitted by the manufacturer or responsible vendor for the purpose of a type test

2.10 live part

a conductive part which may cause an electric shock

2.11 impulse withstand category

a numeral defining a transient overvoltage condition

NOTE : Impulse withstand categories I, II, III and IV are specified in JIS C 60664-1.

- a) **Purpose of classification of impulse withstand categories** Impulse withstand categories are to distinguish different degrees of availability of equipment with regard to required expectations on continuity of service and on an acceptable risk of failure.

By selection of impulse withstand levels of equipment, insulation co-ordination can be achieved in the whole installation reducing the risk of failure to an acceptable level providing a basis for overvoltage control,

A higher characteristic numeral of an impulse withstand category indicates a higher specific impulse withstand of the equipment and offers a wider choice of methods for overvoltage control.

The concept of impulse withstand categories is used for equipment energized directly from the mains.

- b) **Description of impulse withstand categories** Equipment of impulse withstand category I is equipment which is intended to be connected to the fixed electrical installations of buildings. Protective means are taken outside the equipment (either in the fixed installation or between the fixed installation and the equipment) to limit transient overvoltages to the specific level.

Equipment of impulse withstand category II is equipment to be connected to the fixed electrical installations of buildings.

Equipment of impulse withstand category III is equipment which is part of the fixed electrical installations and other equipment where a higher degree of availability is expected.

Equipment of impulse withstand category IV is for use at or in the proximity of the origin of the electrical installations of buildings upstream of the main distribution board.

2.12 primary circuit

a circuit which is directly connected to the AC mains supply

It includes, for example, the means for connection to the AC mains supply, the primary windings of transformers, motors and other loading devices

2.13 secondary circuit

a circuit which has no direct connection to a primary circuit and derives its power from a transformer, converter or equivalent isolation device, or from a battery

Although autotransformers have direct connection to a primary circuit, the tapped part of them is also deemed to be a secondary circuit in the above sense.

NOTE : Mains transients in such a circuit are attenuated by the corresponding primary windings. Also inductive ballasts reduce the mains transient voltage height. Therefore, components located after a primary circuit or after an inductive ballast can be suited for an impulse withstand category of one step lower, i.e. for impulse withstand category II.

3 General requirement

Lampholders shall be so designed and constructed that in normal use they function reliably and cause no danger to persons or surroundings.

In general, compliance is checked by carrying out all the tests specified.

4 General conditions for tests

4.1 Tests according to this Standard are type tests.

NOTE : The requirements and tolerances permitted by the Standard are related to testing of type test sample submitted for that purpose. Compliance of type test sample does not ensure compliance of the whole production of a manufacturer with this safety standard. Conformity of production is the responsibility of the manufacturer and should include routine tests and quality assurance in addition to type testing.

For further information see JIS C 7709-0 (inclusion of guidance on conformity testing during manufacture is in preparation).

4.2 Unless otherwise specified, the tests are made at an ambient temperature of 20 °C ± 5 °C and with the holder in the most unfavourable position for normal use.

If a lampholder is declared to accept different lamp fits by the manufacturer, it shall comply with the requirements of each of the fits mentioned.

Compliance is checked with separate sets of specimens according to 4.3.

If the use of different lamp fits in turn is permitted by the manufacturer, only one set of specimens is used to check compliance with all requirements.

For all tests the most critical of the relevant fits and gauges shall be used and in the most onerous sequence.

4.3 The tests and inspections are carried out in the order of the clauses, on a total of

- 10 pairs of matching holders intended for linear double-capped lamps;

NOTE 1 If a pair of holders consists of identical holders, it is sufficient that one holder instead of one pair is subjected to all the tests, except for the tests of clause 7, 10.2, 10.3, clause 12, clause 15 and 16.6 where pairs are needed.

- 10 specimens intended for single-capped lamps;

In the order of the clauses, as follows:

- three pairs or three specimens: clauses 3 up to and including 14 (except for 8.2);

NOTE 2 The tests of 8.2 are carried out on the number of separate specimens as required by the relevant standards,

- three pairs or three specimens: clause 15 and 16.6;
- one pair or one specimen: 16.1;
- one pair or one specimen: 16.3;
- one pair or one specimen: 16.4;
- one pair or one specimen: 16.5 and clause 17.

Together with these units, the manufacturers mounting instructions (see 6.3) shall be supplied.

In such cases, where according to the mounting instructions the rated pulse voltage of the holder can only be achieved with a cap inserted, suitable caps shall be supplied together with the type test sample. The relevant tests are then carried out with a cap inserted.

4.4 Lampholders are deemed to comply with this Standard if no specimen fails in the complete series of tests specified in 4.3.

If one specimen fails in one test, that test and the preceding ones which may have influenced the result of that test are repeated on another set of specimens for the number required by 4.3, all of which shall then comply with the repeated tests and with the subsequent tests. Lampholders are deemed not to comply with this Standard if there are more failures than one.

The applicant may submit, together with the first set of specimens, the additional set which may be needed in case of failure of one specimen. The testing station shall then, without further request, test the additional specimens and will reject only if a further failure occurs.

If the additional set of specimens is not submitted at the same time, a failure of one specimen will entail the rejection.

5 Classification

Lampholders are classified as follows.

5.1 According to their installation conditions:

- unenclosed lampholders;
- enclosed lampholders.

5.2 According to their resistance to heat:

- for rated operating temperatures up to and including 80 °C (hereafter referred to as “non T-marked lampholders”);
- for rated operating temperatures over 80 °C (hereafter referred to as “T-marked lampholders”).

The measuring point for the operating temperature is that area of the lampholder which makes electrical contact with the lamp cap/base. If the heat resistance of insulating parts, terminals and leads of the lampholder deviates from this operating temperature, these different values shall be stated in the manufacturer's catalogue and are checked after appropriate installation in a luminaire or other additional enclosure, when that equipment is tested according to its own standard.

6 Marking**6.1 Lampholders shall be marked with the following mandatory markings:**

- a) name of the manufacturer (this may take the form of a trade mark, manufacturer's identification mark or the name of the responsible vendor);
- b) either a unique catalogue number or an identifying reference.

NOTE : An identifying reference may include numbers, letters, colour, etc., to identify the lampholder by reference to the manufacturer's catalogue or similar literature. If a combination of lampholder components determines the lampholder designation, for example an assembly of a lamp connector and a retaining spring, the combination should be clearly identifiable.

Compliance is checked by inspection.

6.2 In addition to the mandatory markings mentioned in 6.1, the following information shall be given either on the lampholder or be made available in the manufacturer's catalogue or the like:

- a) the rated voltage in volts and rated pulse voltage in kilovolts (kV), if applicable;

NOTE 1 Some lampholders still show rated voltages higher than 500 V. This is an earlier way of expressing the permissible pulse voltage via a rated voltage. For such lampholders, the creepage distances and clearances can be found in JIS C 8105-1.

- b) the rated current in amperes (A);
- c) the rated operating temperature “T”, if greater than 80 °C, in steps of 10 °C;
- d) the conductor sizes for which the terminal is designed.

If symbols are used, these shall be as follows.

For electrical rating:

- volt: V;
- ampere: A;
- watt: W;
- pulse voltage: kV.

NOTE 2 Alternatively, for volt and ampere ratings, figures may be used alone, the figure for the rated current being marked before or above that for the rated voltage and separated from the latter by an oblique stroke or line. Therefore the marking of current and voltage may be as follows:

$$2\text{A} \quad 250\text{V}, \quad 2/250 \quad \text{or} \quad \frac{2}{250}$$

For the rated pulse voltage, the symbol shall be preceded by its value (e.g. 5 kV).

For rated operating temperature: the symbol T shall be followed by its value in °C (e.g. T 300).

For cross-section of conductors: the relevant value or values in the case of a range, in square millimetres (mm²) shall be followed by a small square (e.g. 0.5[□]). In the case of the solid conductor, the diameter of the conductor is indicated in millimetres, or may be expressed as ϕ X (X means a diameter).

Compliance is checked by inspection.

For lampholders according to this Standard, the distances for impulse withstand category II are usually applicable. For holders in equipment where a higher degree of availability is expected, distances for impulse withstand category III may be applicable. This information has to be indicated in the manufacturer's catalogue or the like.

Lampholders complying with the electrical strength test for double or reinforced insulation and having creepage distances and clearances equivalent to double or reinforced insulation offer an adequate level of protection for the use in luminaires where they are accessible in normal use. Such lampholders are addressed as lampholders for use in class II applications. This information shall be indicated in the manufacturer's catalogue or the like.

NOTE 3 Values for creepage distances and clearances as well as test voltages for the electrical strength test for double or reinforced insulation are given in JIS C 8105-1.

To achieve sufficient creepage distances and clearances to outer accessible surfaces, additional attachments could be used. In some cases, these dimensions might be achieved only after mounting the lampholder in the luminaire. Relevant information should be provided in the manufacturer's catalogue or the like.

6.3 The instructions supplied by the holder manufacturer or responsible vendor shall contain all the information required to ensure correct mounting and operation of the connectors or holders.