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**Luminaires—Part 3: General
requirements for performance**

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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 8105-3:2006** is replaced with this Standard.

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JIS B 8105 series consists of the following 19 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 2-6: Particular requirements for safety—Luminaires with built-in transformers or converters for filament lamps*

JIS C 8105-2-7 *Part 2-7: Particular requirements for safety—Portable luminaires for garden use*

JIS C 8105-2-8 *Part 2-8: Particular requirements for safety—Handlamps*

JIS C 8105-2-9 *Part 2-9: Particular requirements for safety—Photo and film luminaires (non-professional)*

JIS C 8105-2-12 *Part 2-12: Particular requirements—Mains socket-outlet mounted night-lights*

JIS C 8105-2-13 *Part 2-13: Particular requirements—Ground recessed luminaires*

JIS C 8105-2-17 *Part 2-17: Particular requirements for safety—Luminaires for stage lighting, television, film, and photographic studios (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 for safety—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 3: General requirements for performance

Introduction

This Japanese Industrial Standard specifies the general rules concerning the performance requirements and the acceptance inspection for luminaires. This Standard was established in 1999, and has gone through one revision up to the present. The revision at this time has been made to correspond to the advances in the technology seen since the last revision, which was made in 2006.

The relevant IEC standards are safety-related standard series, **IEC 60598-1** (*Luminaires—Part 1: General requirements and tests*) and **IEC 60598-2** (*Luminaires—Part 2: Particular requirements*). No IEC standard specifying performance requirements of luminaires has been established at this point.

1 Scope

This Standard specifies the general rules concerning the performance requirements and the acceptance inspection for general purpose luminaires (hereafter referred to as “luminaires”) for electric light sources (incandescent lamps, fluorescent lamps, other discharge lamps, electroluminescent devices such as LED, hereafter referred to as “light sources”) with supply voltage of not exceeding 1 000 V.

The performance requirements, test methods and inspection of LED luminaires shall be as specified in Annex A and Annex B.

For items of which the requirement is also found in the particular product standards of luminaire, the requirement in the particular standards shall apply.

NOTE : The general purpose luminaires as referred to in the above scope do not include the following.

- a) Those which are always used in sites where ambient temperatures are especially high or low
- b) Those which are used in sites where dust particles are in plenty
- c) Those which are used in sites where corrosive gases, etc. are generated
- d) Those which are used in sites where inflammable gases, etc. are generated
- e) Those which are used in sites where oscillation is intense
- f) Those which are used by being sunk under the water
- g) Luminaires and signal lamps for vehicles
- h) Emergency luminaires stipulated by Construction Standard Law and luminaires for emergency exit sign by Fire Service Law
- i) Luminaires for takeoff and landing of aircrafts and aircraft warning light fixtures
- j) Luminaires for medical use

- k) Luminaires made for the purpose of incorporating into a machine, furniture, etc.
- l) Luminaires for photography

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 1302 *Insulation resistance testers*
- JIS C 4908 *Capacitors for electrical apparatus*
- JIS C 7601 *Fluorescent lamps for general lighting service*
- JIS C 7603 *Glow-starters for fluorescent lamps*
- JIS C 7621 *High-pressure sodium vapour lamps—Performance specification*
- JIS C 7623 *Metal halide lamps—Performance specification*
- JIS C 8105-1 *Luminaires—Part 1: General requirements for safety*
- JIS C 8105-5 *Luminaires—Part 5: Gonio-photometric methods*
- JIS C 8108 *Ballasts for fluorescent lamps*
- JIS C 8110 *Ballasts for discharge lamps (excluding tubular fluorescent lamps)*
- JIS C 8117 *AC supplied electronic ballasts for fluorescent lamps*
- JIS C 8118 *Ballasts for tubular fluorescent lamps—Performance requirements*
- JIS C 8119 *Ballasts for discharge lamps (excluding tubular fluorescent lamps)—Performance requirements*
- JIS C 8121-1 *Miscellaneous lampholders—Part 1: General requirements and tests*
- JIS C 8280 *Edison screw lampholders*
- JIS C 8303 *Plugs and receptacles for domestic and similar general use*
- JIS C 8310 *Ceiling rosettes*
- JIS C 8324 *Lampholders and starterholders for fluorescent lamps*
- JIS C 8358 *Appliance couplers for domestic and similar use*
- JIS Z 8113 *Lighting vocabulary*

3 Terms and definitions

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

3.1 fluorescent lamp type luminaire

a luminaire which uses a fluorescent lamp (including self-ballasted fluorescent lamp) as the main light source

3.2 high output lighting type luminaire (fluorescent lamp type luminaire)

fluorescent lamp type luminaire with a lighting circuit that makes luminous flux increase compared with the standard value of a light source by the combination of a fluorescent lamp (for general lighting) and a fluorescent lamp electronic ballast

NOTE : This category includes fluorescent lamp type luminaires that perform high output lighting, when the data sheet of their applicable fluorescent lamp has classification of rated lighting and high output lighting, and the light output ratio becomes 120 % or greater.

3.3 Hf fluorescent lamp type luminaire

a luminaire for fluorescent lamp which uses a high frequency fluorescent lamp (Hf lamp) and a high frequency fluorescent lamp electronic ballast

3.4 starter type (fluorescent lamp type luminaire)

a luminaire with the circuit which preheats the cathode of a light source by the starter operated automatically and starts the operation of the light source

3.5 rapid-start type (fluorescent lamp type luminaire)

a luminaire with the circuit which preheats the cathode of a light source by the cathode heating mechanism prepared at part of a ballast and rapidly starts the operation of the light source without use of a starter and without applying a high voltage

3.6 normal position

a use position of a luminaire designated by the manufacturer for the user in an operation manual, etc. in order to guarantee the performance of the luminaire

3.7 standard ballast

a practical ballast with the value near the central value of characteristics of a light source and a ballast when the light source is lighted

NOTE : This standard ballast shall be used for selecting the test light source of a light source not specified in **JIS**.

3.8 type test

a test or a series of tests performed using the product under test in order to confirm that the product design is in conformance with the requirements of the related standard

3.9 acceptance inspection

an inspection performed on products whose design and manufacture are identical to those having already passed the type inspection, to judge, upon delivery, their conformance to the requirements for the characteristics that are considered necessary

3.10 stabilization time

time required for the thermal condition of a luminaire to be stabilized

4 Classification

Classification of luminaires shall be as specified in Section 2 of **JIS C 8105-1** and as given in table 1.

Table 1 Classification of luminaires

Category	Classification
Fixing type	Surface-mounted type, suspended type, recessed type
Light source	Incandescent lamps (including tungsten halogen lamps), fluorescent lamps (including self-ballasted fluorescent lamps), HID lamps, low pressure sodium lamps, other discharge lamps, electroluminescent devices such as LED.

5 Test conditions

5.1 Test state

The test shall be performed at an ambient temperature of 10 °C to 30 °C, unless otherwise specified, by installing an as-shipped luminaire, not tailored in any way, in a normal service condition paying attention to the operation manual of the manufacturer. In the acceptance inspection, the luminaire shall be installed in a normal service condition only when required. The light source shall not be a test subject unless so required for the test of a luminaire. For fluorescent lamp type luminaires of which the applicable light source is specified in **JIS C 7601**, the test shall be performed on all classifications of fluorescent lamps marked on the luminaire.

5.2 Reference light source

For the reference light source, one of the following which is the applicable light source of the tested luminaire shall be used.

In the acceptance inspection, the mass-produced product of a light source may be used as the reference light source.

- In the case where the applicable light source is the fluorescent lamp specified in **JIS C 7601**, the reference light source shall be as specified in Annex D of **JIS C 8118** or Annex B of **JIS C 8117**.
- In the case where the applicable light source is the fluorescent lamp not specified in **JIS C 7601**, a lamp of which the lamp current and lamp power are within the range of $\pm 2.5 \%$ of the rated value when it is lighted by using the standard ballast shall be used as the reference light source.
- In the case where the applicable light source is a self-ballasted fluorescent lamp, the lamp of which the lamp current and lamp input power are within the range of $\pm 2.5 \%$ of the rated value shall be used as the reference light source.
- In the case where the applicable light source is a high pressure mercury lamp and a low pressure sodium lamp, the reference light source specified in Annex B of **JIS C 8110** shall be used.

- e) In the case where the applicable light source is a high pressure sodium lamp specified in **JIS C 7621** or a metal halide lamp specified in **JIS C 7623**, the reference light source shall be as specified in Annex B of **JIS C 8119**. In the case where the applicable light sources are other HID lamps, when it is lighted by using the standard ballast, a lamp of which the lamp current and lamp power are within the range of ± 2.5 % of the rated value shall be used as the reference light source.
- f) In the case where the applicable light source is an incandescent lamp and a tungsten halogen lamp, the suitable lamp marked on the luminaire with the maximum rated power consumption shall be used as the reference light source.
- g) The reference light source used for measurement of optical characteristics shall have total luminous flux that is near the rated value announced by the light source manufacturer, and shall have been aged for at least 100 h. In the case of the luminaire that uses two or more light sources of the same type, their total luminous flux should be the same wherever possible. In the case of the luminaire that uses two or more light sources of which the total luminous flux differs, the mutual ratio of the total luminous flux of those light sources should be as close as possible to the mutual ratio of the value of total luminous flux given by the manufacturer.

6 Structure and parts

6.1 Structure

The structure shall be as specified in Section 4 of **JIS C 8105-1** and free from defects detrimental to appearance and function.

6.2 Parts

Parts to be used shall conform to **IEC** standard, **JIS** or related laws and regulations if they have an applicable standard or applicable laws and regulations, and shall be as follows.

- a) The ballast shall conform to **JIS C 8108**, **JIS C 8110** or **JIS C 8117**.
- b) The Hf fluorescent lamp type luminaire shall use a high frequency fluorescent lamp electronic ballast and a high frequency fluorescent lamp (Hf lamp).
- c) The fluorescent lamp socket and starter socket shall conform to **JIS C 8324**. Furthermore, the screw lamp socket shall conform to **JIS C 8280**. Other lamp sockets shall conform to **JIS C 8121-1**.
- d) The capacitor (except for those of small type for noise suppression, etc.) shall conform to **JIS C 4908**. The capacitor with a safety mechanism or the capacitor with a built-in safety device specified in **JIS C 4908** should be used.
- e) The glow starter for fluorescent lamps that are used for the fluorescent lamp type luminaire of starter type shall conform to **JIS C 7603**.
- f) The plug-in connector shall conform to **JIS C 8303** or **JIS C 8358**.
- g) When the plug socket is incorporated into the luminaire other than the portable luminaire, the wiring to the plug socket shall use a conductor of the thickness corresponding to the capacity of the plug socket.