JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS C 8159-1 : 2013

(JLMA/JSA)

Non-integrated linear LED lamps with GX16t-5 cap for general lighting services—Part 1: Safety specifications

ICS 29.140.01;31.260

Reference number : JIS C 8159-1 : 2013 (E)

Date of Establishment: 2013-04-22
Date of Public Notice in Official Gazette: 2013-04-22
Investigated by: Japanese Industrial Standards Committee
Standards Board
Technical Committee on Electricity Technology

JIS C 8159-1:2013, First English edition published in 2013-11

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

Printed in Japan

KK/AT

Contents

Page

Introduction 1

1 Scope 1

2 Normative references 1

3 Terms and definitions 2

4 General requirements 3

5 Marking 4
5.1 Marking on body 4
5.2 Marking on package, etc. 4

6 Structure, mass and dimensions 4
6.1 Structure of cap of linear LED lamp 4
6.2 Structure of linear LED lamp 5
6.3 Mass of linear LED lamp 5
6.4 Dimensions of linear LED lamp 5

7 Protection against electric shock 6

8 Insulation resistance and withstand voltage 6
8.1 General 6
8.2 Insulation resistance 7
8.3 Withstand voltage 7

9 Cap surface temperature rise 7

10 Heat resistance 7
10.1 General 7
10.2 Heat resistance of insulator 7
10.3 Heat resistance of cap 7

11 Burning resistance 8

12 Ingress of dust, solid objects and moisture 8

13 Creepage distance and clearance 8

14 Safety under fault conditions 8

15 Safety under abnormal conditions 9

16 Safety in long-term usage 9

17 Photobiological safety 9

18 Surface temperature of linear LED lamp 9

19 Measurement method 9
19.1 General 9
19.2 Test of marking 10
19.3 Test concerning structure, mass and dimensions 10
19.4 Test of protection against electric shock (test finger test) 11
19.5 Insulation resistance test and withstand voltage test 11
19.6 Temperature rise test of cap surface 12
19.7 Heat resistance test 12
19.8 Burning test (glow wire test) 13
19.9 Test for ingress of dust, solid objects and moisture 14
19.10 Creepage distance and clearance test 14
19.11 Safety test under fault conditions 14
19.12 Safety test under abnormal conditions 14
19.13 Safety test in long-term usage 15
19.14 Photobiological safety test 15
19.15 Surface temperature test of linear LED lamp 15

20 Inspection 15

Annex A (normative) Temperature rise test of cap surface 16

Annex B (normative) Marking of safety-related precautions to be given on package or in operation manual 18

Annex C (normative) Other markings on linear LED lamps 20

Annex D (normative) Inspection 22

Annex E (informative) Information for design of linear LED lamp control gear 25

Annex F (informative) Information for design of linear LED lamp socket 28

Annex G (informative) Information for designing linear LED lamp luminaires 34

Annex H (informative) Outline of system consisting of LED modules and control gears 35

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal for establishment of Japanese Industrial Standard submitted by Japan Electric Lamp Manufacturers Association (JLMA)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

Being in conformance with this Standard may come under the use of the patent rights held by the following:

Panasonic Corporation (hereafter abbreviated as P) Oaza Kadoma 1048, Kadoma-shi, Osaka-hu

Toshiba Lighting and Technology Corporation (hereafter abbreviated as T) Hunakoshi-cho 1-201-1, Yokosuka-shi, Kanagawa-ken

- Power supply device for lighting, and luminaire 2011-07-29 Patent number 4788400: P
- Straight tube LED lamp and lamp socket used for it, and lighting fixture for straight tube LED lamp using them 2011-11-11 Patent number 4862102: P, T
- Straight tube LED lamp and lamp socket used for it, as well as lighting fixture for straight tube LED lamp using them 2011-11-11 Patent number 4862103: P, T
- LED lamp and lighting fixture 2011-11-18 Patent number: 4866975: P, T
- Straight tube lamp, socket, and lighting system 2012-02-03 Patent number 4915603: P, T
- Illumination apparatus 2012-07-27 Patent number 5046067: T
- Illumination apparatus 2012-07-27 Patent number 5046068: T
- LED driving device, lighting system, and luminaire (patent being applied for) Unexamined patent application publication number 2010-055824: P
- LED lamp and lighting fixture (patent being applied for) Unexamined patent application publication number 2012-009379: P, T
- LED lighting device (patent being applied for) Unexamined patent application publication number 2012-009391: P, T
- Straight tube LED lamp and lamp socket used for it (patent being applied for) Unexamined patent application publication number 2012-009392: P, T
- Lighting system (patent being applied for) Unexamined patent application publication number 2012-009397: P, T
- Straight tube type lamp, socket, and lighting system (patent being applied for) Unexamined patent application publication number 2012-009399: P, T
- LED lamp system (patent being applied for) Unexamined patent application publication number 2012-009400: P, T
- Power supply unit for LED lamp and LED lamp system (patent being applied for) Unexamined patent application publication number 2012-028222: P, T

The relevant holders of the above-mentioned patent rights have indicated to the Japanese Industrial Standards Committee an intention of granting license to anyone under the nondiscriminatory and reasonable conditions, except to the other holders of the industrial property rights related to this Standard who will not grant their licenses under the same conditions.

It should be noted that following this Standard does not always refer to granting a free license.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights other than mentioned above. The Minister of Economy, Trade and Industry and Japanese Industrial Standards Committee are not responsible for identifying such patent rights.

The “patent rights” as mentioned here include patent rights, applications for a patent after opening to the public or utility model rights.

Non-integrated linear LED lamps with GX16t-5 cap for general lighting services— Part 1: Safety specifications

Introduction

This Japanese Industrial Standard has been established in order to ensure safety of non-integrated linear light emitting diode (LED) lamps with GX16t-5 cap for general lighting services incorporating a linear LED module part without cap and control gear.

1 Scope

This Standard specifies the safety requirements of non-integrated linear LED lamps with GX16t-5 cap for general lighting services (hereafter referred to as "linear LED lamp").

This Standard is applicable to the following linear LED lamps:

— Rated wattage: 60 W or less

— Lamp voltage: 120 V ripple free d.c. or less

— Cap: GX16t-5

This Standard is not applicable to linear LED lamps that use the conventional caps for a fluorescent lamp and integrate a control gear. The linear LED lamps covered by this Standard are applicable to Class I luminaire and Class II luminaire which are the insulating classes of luminaire defined in **JIS C 8105-1**.

NOTE 1 The information for the design of control gear of linear LED lamp targeted in this Standard is given in Annex E, the information for the design of a lamp socket in Annex F, and the information for the design of a lamp luminaire in Annex G. Furthermore, the relation between the positioning of a linear LED lamp and that of other LED modules, LED lamps, etc. is described in Annex H.

NOTE 2 "120 V ripple free d.c." means a DC system of 120 V DC of maximum peak voltage 140 V or less based on the definition of the sine wave ripple component of not more than 10 % (effective value).

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 B 7516 *Metal rules*

JIS B 7601 *Trip balances*

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

JIS C 1302 *Insulation resistance testers*