

# JAPANESE INDUSTRIAL STANDARD

Translated and Published by Japanese Standards Association

JIS C 8105-5: 2021

(JLMA/JSA)

**Luminaires** — Part 5: Gonio-photometric methods

**ICS** 29.140.40

Reference number: JIS C 8105-5: 2021 (E)

C 8105-5: 2021

Date of Establishment: 2011-12-20

Date of Revision: 2021-01-20

Date of Public Notice in Official Gazette: 2021-01-20

Investigated by: Japanese Industrial Standards Committee

Standards Board for IEC area

Technical Committee on Electricity

JIS C 8105-5: 2021, First English edition published in 2022-07

Translated and published by: Japanese Standards Association Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

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

© JSA 2022

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan KK/HN

## Contents

	P	age
1	Scope ····	1
2	Normative references ······	1
3	Terms and definitions ·····	1
4 4.1	Calibration of goniophotometer  General	5
4.2	Measurement standard · · · · · · · · · · · · · · · · · · ·	
5 5.1	Requirements for goniophotometers  General  Description	5
5.2 5.3 5.4	Rotation mechanism  Photo detector  Mount holder for luminaire	6
5.5 5.6 5.7	Power supply and controlgear  Electric instruments and electric circuits  Other components	7 8
6 6.1 6.2 6.3 6.4 6.5	Measurement parameters	.0 .0 .0 .0
6.6	Measurement angular range and measurement angular interval ·······1	
7 7.1 7.2 7.3	Measurement method	4
8 8.1 8.2 8.3	Distribution curve of luminous intensity 1 General 1 Graphic representation by distribution curve of luminous intensity 1 Graphic representation by iso-intensity curve 2	.9 20
9	Measurement uncertainty2	1
10	Report of measurement results ······2	2
10.1 10.2 10.3 10.4	General	22 22

## C 8105-5: 2021

Annex A (informative)	Example of measurement method of luminous intensity conversion factor24
Annex B (normative)	Coordinate systems used for goniophotometry · · · · · · · · 27
Annex C (informative)	Example of calculation of colour correction factor31
Annex D (normative)	Electronic file format ····································
Annex E (normative)	Calculation of zonal factor · · · · · · · 40
Bibliography	45

### **Foreword**

This Japanese Industrial Standard has been 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 Lighting Manufacturers Association (JLMA)/Japanese Standards Association (JSA) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act. This edition replaces the previous edition (JIS C 8105-5:2014), which has been technically revised.

This **JIS** document is protected by the Copyright Act.

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

JIS C 8105 series consists of the following 23 parts under the general title *Luminaires*—:

- Part 1: General requirements for safety
- $Part \ 2\text{-}1: Particular\ requirements\ for\ safety -- Fixed\ general\ purpose\ luminaires$
- Part 2-2: Particular requirements for safety Recessed luminaires
- Part 2-3: Particular requirements for safety Luminaires for road and street lighting
- Part 2-4: Particular requirements for safety Portable general purpose luminaires
- Part 2-5: Particular requirements for safety Floodlights
- Part 2-6: Particular requirements for safety Luminaires with built-in transformers or converters for filament lamps
- $Part\ 2\text{-}7: Particular\ requirements\ for\ safety -- Portable\ luminaires\ for\ garden\ use$
- Part 2-8: Particular requirements for safety Handlamps
- Part 2-9: Particular requirements Photo and film luminaires (non-professional)
- Part 2-11: Particular requirements Aquarium luminaires
- $Part\ 2\text{-}12: Particular\ requirements} \textit{Mains\ socket-outlet\ mounted\ night-lights}$
- Part 2-13: Particular requirements for safety Ground recessed luminaires
- Part 2-14: Particular requirements Luminaires for cold cathode tubular discharge lamps (neon tubes) and similar equipment
- Part 2-17: Particular requirements for safety Luminaires for stage lighting, television, film and photographic studios (outdoor and indoor)
- Part 2-19: Particular requirements for safety Air-handling luminaires
- Part 2-20: Particular requirements for safety Lighting chains
- Part 2-21: Particular requirements for safety Rope lights
- Part 2-22: Particular requirements Luminaires for emergency lighting
- Part 2-23: Particular requirements Extra low voltage lighting systems for filament lamps
- Part 2-24: Particular requirements Luminaires with limited surface temperatures
- Part 3: General requirements for performance
- Part 5: Gonio-photometric methods

Blank

# Luminaires — Part 5: Gonio-photometric methods

JIS C 8105-5: 2021

### 1 Scope

This Japanese Industrial Standard specifies the methods for measuring the luminous intensity distributions and luminous flux of general purpose luminaires incorporating electric light sources (incandescent lamps, fluorescent lamps, other discharge lamps and electroluminescent devices such as an LED).

If a specific luminaire product standard specifies other measurement methods than given in this Standard, those methods shall apply.

The "general purpose luminaires" for the purpose of this scope do not include the following. However, this Standard may be applied to luminaires or light sources other than general purpose luminaires where applicability is recognized.

- a) Luminaires used underwater
- b) Luminaires for emergency exit sign in accordance with the Fire Service Act
- c) Luminaires for takeoff and landing of airplanes and obstacle light luminaires

### 2 Normative references

Part or all of the provisions of the following standards, 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 1102-2 Direct acting indicating analogue electrical measuring instruments and their accessories Part 2: Special requirements for ammeters and voltmeters
- JIS C 1102-3 Direct acting indicating analogue electrical measuring instruments and their accessories Part 3: Special requirements for wattmeters and varmeters
- ${
  m JIS~C~1609\text{-}1}$  Illuminance meters Part 1 : General measuring instruments
- JIS C 7801 Measuring methods of lamps for general lighting
- JIS C 8105-3 Luminaires Part 3: General requirements for performance
- JIS Z 8113 Lighting vocabulary

### 3 Terms and definitions

For the purpose of this Standard, the following terms and definitions, and those given in **JIS Z 8113**, **JIS C 8105-3** and **JIS C 7801** apply.

3.1

rated input voltage