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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 27.010

CCS F 01

GB 37478-2025

Replacing GB 37478-2019

**Minimum Allowable Values of Energy Efficiency and Energy
Efficiency Grades of LED Luminaires for Road and Tunnel
Lighting**

道路和隧道照明用 LED 灯具能效限定值及能效等级

Issued on: May 30, 2025

Implemented on: June 1, 2026

Issued by: State Administration for Market Regulation;

Standardization Administration of the People's Republic of China.

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Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020 *Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This document serves as a replacement for GB 37478-2019 *Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades of LED Luminaires for Road and Tunnel Lighting*. In comparison with GB 37478-2019, apart from structural adjustments and editorial modifications, the main technical changes are as follows:

- a) The rated power supply voltage range for applicable products is modified (see Chapter 1; Chapter 1 of Version 2019);
- b) The term and definition of “standby power” are added (see 3.4);
- c) The provisions on the energy efficiency grades of LED luminaires for road and tunnel lighting are modified (see 4.1.2 and 4.1.3; 4.1 and 4.2 of Version 2019);
- d) The requirements for lumen maintenance are deleted (see 4.3 of Version 2019);
- e) The requirements for the color temperature deviation of the rated correlated color temperature cutoff points of LED luminaires for road and tunnel lighting are added (see 4.1.4);
- f) The requirements for the standby power of LED luminaires for road and tunnel lighting are added (see 4.4);
- g) The test methods are modified; the test voltage and test requirements for dimming products and color temperature adjustable products are added; the test method for the standby power of LED luminaires for road and tunnel lighting is added; the test method for lumen maintenance is deleted (see 5.1 and 5.2; 5.2 of Version 2019).

Please be noted that certain content of this document may involve patents. The institution issuing this document does not undertake the responsibility of identifying these patents.

This document was proposed by and shall be under the jurisdiction of National Standardization Administration.

The issuing of the previous versions:

---First issued in 2019 as GB 37478-2019. This is the first revision.

Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades of LED Luminaires for Road and Tunnel Lighting

1 Scope

This document specifies the energy efficiency grades, minimum allowable value of energy efficiency and test methods for LED luminaires for road and tunnel lighting.

This document applies to LED luminaires for road and tunnel lighting with a rated power supply voltage not exceeding 1,000 V (including LED light sources and their control gear but excluding interconnected control components that can be independently installed or other accessories with non-lighting related functions).

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 24826 General Lighting - Light Emitting Diode (LED) Products and Related Equipment - Terms and Definitions

GB/T 39018 Intelligent Lighting Equipment - Non-active Mode Power Measurement

GB/T 39394 Test Method for LED Lamps, LED Luminaires and LED Modules

3 Terms and Definitions

The terms and definitions defined in GB/T 24826 and the following are applicable to this document.

3.1 LED luminaire

A luminaire containing one or more LED light sources.

[source: GB/T 24826-2016, 3.17]

3.2 luminous efficacy of LED luminaire

Under the test conditions specified in the standard, the ratio of the initial luminous flux emitted

by an LED luminaire to the input power.

3.3 minimum allowable value of energy efficiency of LED luminaire

Under the test conditions specified in the standard, the minimum allowable value of the luminous efficacy of an LED luminaire.

3.4 standby power

In standby mode, the average power consumption of an LED luminaire.

NOTE 1: standby mode is a mode of the control gear in which the control gear is connected to the power supply voltage and the lighting function is turned off, but can be turned on by an external trigger signal rather than a network trigger signal.

NOTE 2: an external trigger signal can be a sensor or timer.

4 Technical Requirements

4.1 Energy Efficiency Grades

4.1.1 The energy efficiency of LED luminaires for road and tunnel lighting is divided into 3 grades, with Grade 1 being the highest efficiency.

4.1.2 The luminous efficacy of each grade of LED luminaires for road lighting shall not be lower than those specified in Table 1.

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