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GB 30255-2019

Replacing GB 30255-2013

Minimum allowable values of energy efficiency and energy efficiency grades of LED products for indoor lighting

室内照明用 LED 产品能效限定值及能效等级

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Standardization Administration of the PRC.

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Foreword

This Standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard integrates the relevant content of non-directional self-ballast LED lamp; replaces GB 30255-2013 “Minimum allowable values of energy efficiency and energy efficiency grades of non-directional self-ballasted LED-lamps for general lighting services”. Compared with GB 30255-2013, the main technical changes are as follows:

- In the Scope, specify that “This Standard does not apply to indoor lighting LED products with energy-consuming non-lighting additional functions or dimming/toning functions”;

- Modify the luminous efficacy index values of each grade of non-directional self-ballast LED lamps (see 4.1.4);

- Modify the technical requirements for lumen maintenance (see 4.4);

- ADD test methods for correlated color temperature, color rendering index, and lumen maintenance (see 5.3).

This Standard was proposed by and shall be under the jurisdiction of Standardization Administration of the PRC.

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Minimum allowable values of energy efficiency and energy efficiency grades of LED products for indoor lighting

1 Scope

This Standard specifies the energy efficiency grades, minimum allowable values of energy efficiency, color rendering index, lumen maintenance, and test methods for LED downlights, directional integrated LED lamps, and non-directional self-ballast LED lamps for indoor lighting.

This Standard applies to LED downlights with LED as the light source, power supply voltage not exceeding AC 250 V, frequency 50 Hz, rated power 2 W and above, beam angle >60°, excluding LED downlights using integrated LED lamps.

This Standard applies to directional integrated LED lamps of PAR16, PAR20, PAR30, PAR38 series with the rated power supply voltage of AC 220 V, frequency 50 Hz, the lamp holder meeting the requirements of GU10, B22, E14, or E27.

This Standard applies to non-directional self-ballast LED lamps with rated supply voltage of AC 220 V, frequency of 50 Hz, rated power greater than or equal to 2 W, less than or equal to 60 W, excluding non-directional self-ballast LED lamps with additional optical lens design.

This Standard does not apply to indoor lighting LED products with energy-consuming non-lighting additional functions or dimming/toning functions.

2 Normative references

The following documents are indispensable for the application of this document. For the dated references, only the editions with the dates indicated are applicable to this document. For the undated references, the latest edition (including all the amendments) are applicable to this document.

GB/T 24824 Measurement methods of LED modules for general lighting

GB/T 24826 General lighting - Light emitting diode (LED) products and related equipment - Terms and definitions

integrated LED lamps is Grade 3 in Table 2.

4.2.3 The minimum allowable value of energy efficiency for non-directional self-ballast LED lamps is Grade 3 in Table 3.

4.3 Color rendering index

The initial general color rendering index R_a of LED downlights, directional integrated LED lamps, and non-directional self-ballast LED lamps shall not be lower than 80. R_9 shall be greater than 0. The decrease in the measured value of the color rendering index relative to the rated value shall not be greater than 3.

4.4 Lumen maintenance

The lumen maintenance of LED downlights, directional integrated LED lamps, and non-directional self-ballast LED lamps at 3000 h shall not be lower than the required lumen maintenance associated with the rated life. According to the claimed rated life, the required value of lumen maintenance shall be calculated according to formula (1).

$$LM = (70\%)^{\frac{3\,000}{t_0}} \qquad \cdots\cdots(1)$$

Where:

LM - Lumen maintenance;

t_0 - Rated life, in hours (h).

5 Test methods

5.1 LED downlight

The luminous efficacy, correlated color temperature, and color rendering index of LED downlights shall be tested in accordance with the test methods specified in GB/T 29293.

Based on whether the LED downlight uses an LED package with the LM-80 test report, determine the applicable lumen maintenance test method:

When the LED downlight uses an LED package with the LM-80 test report, after the parameters corresponding to the report are tested, calculated, and verified compliant, the 3000 h lumen maintenance of the LED package in the test report can be used as the 3000 h lumen maintenance of the LED downlight. If verified non-compliant or the LED downlight does not use an LED package with the LM-

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