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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 24827-2026

Replacing GB/T 24827-2015

**Performance specifications for luminaires for road and street
lighting**

道路与街路照明灯具性能规范

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4 General test requirements

- 4.1 The light source used in the test shall meet the requirements of Appendix A.
- 4.2 The luminaires should be tested in the condition they were delivered.
- 4.3 Unless otherwise specified, the test shall be conducted at an ambient temperature of $25^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and a power supply of 220V and 50Hz. If the manufacturer specifies the voltage for the test, then the test shall be conducted according to the manufacturer's statement.
- 4.4 The test equipment shall have sufficient accuracy and shall meet the requirements of

Appendix B.

4.5 Generally, different models and specifications of luminaires should be tested separately. When a group of luminaires has the same characteristics specified in

e) below, they can be tested separately. The testing of this group of lamps should cover the main inspection model. The selected main inspection model should be representative and able to lead to the most unfavorable test results.

- a) According to Appendix S of GB/T 7000.1-2023, it belongs to the same series;
- b) The same luminaire optical system;
- c) Same light source model and specifications;
- d) The same control device for the lamps and the same nominal power factor value for the lamps;
- e) Same shell material.

5 Hz to

30 Hz along three mutually perpendicular axes (x, y, and z).

8.5.1.2 Vibration Test The luminaire is fastened to the vibration generator in its most unfavorable normal installation position, and vibrates on each plane according to the vibration acceleration and resonant frequency. It was subjected to 100,000 vibrations. Vibration tests on each plane can be performed using different spare samples to eliminate the effects of aging of the connecting parts. At the end of the test, the luminaire's casing should not be damaged, electrical clearances should not be reduced, and all components of the luminaire should not be loose. Any possibility of damage... Damage that poses a safety hazard is considered a test failure. Damage to a replaceable light source does not necessarily indicate a test failure.

8.5.2 Light fixture mounting bolt test The test shall be conducted in accordance with the provisions of

4.12.1 of GB/T 7000.1-2023.

8.5.3 Fixing of lamp mounting interfaces and covers Use a measuring tool with an error of no more than

0.1 mm to measure the diameter of the mounting interface hole of the lamp. The fixing and opening methods of the cover are determined by operation and visual inspection. Inspection method.

8.5.4 Fall Protection Fall protection testing includes static load testing and dynamic load testing.

---Static load test. The fall arrestor should be able to withstand a load of 4 times the weight of the lamp and should remain in operation for at least 1 hour without failure;

---Dynamic load test. Securely fix the end of the fall arrestor away from the luminaire, with the luminaire suspended only by the fall arrestor, and raise the luminaire vertically. The object is brought to the same height as the suspension point and allowed to fall freely from a height of at least 1 meter. This test is performed 5 times. See the drop diagram below. Figure 1.

8.5.5 Dustproof, protection against solid foreign objects, and waterproof The test shall be conducted in accordance with the provisions of Chapter 9 of GB/T 7000.1-2023.

8.5.6 Protection level of the enclosure against external mechanical impact The test shall be conducted in accordance with the provisions of GB/T 20138.

8.5.7 Adjustability Visual inspection was conducted.

8.5.8 Substitutability Visual inspection and testing in accordance with GB/T 34846 and GB/T 35269 are required.

8.5.9 Requirements for key components affecting the lifespan of luminaires The test shall be conducted in accordance with the provisions of

6 Product Categories

Lighting fixtures should be classified according to GB/T 7000.1-2023 and GB 7000.203.

Note. See Appendix C for an introduction to the light distribution types of road lighting fixtures. Road lighting fixtures should be classified into Grade A, Grade B, or Grade C according to their performance level.

7.1 Marking

7.1.1 Markings on lamps The following information (a) to (f) should be marked on the light fixture.

- a) Performance rating of the luminaire;
- b) The light output ratio (LOR) of the luminaire or the total luminous flux of the luminaire;
- c) The rated input power and efficiency of the luminaire; for luminaires with built-in batteries, the maximum input power should also be marked.
- d) For luminaires with adjustable light source positions, the adjustment position should be clearly marked near the lamp holder mounting location;
- e) For luminaires with adjustable tilt angles, the adjustment angle should be marked at the installation location;

f) Where applicable, an index (such as a QR code, webpage, etc.) of the electronic file of the luminous intensity data sheet for the luminaire.

7.1.2 Product Information The luminaires shall comply with the provisions of Chapter 9 of GB/T 31897.1-2025. LED luminaires shall also comply with GB/T 31897.201-2025. The provisions of Chapter 4 of the manual are as follows: The following information (a) to (e) shall be provided in the instruction manual provided with the luminaire (or, where appropriate, in electronic form).

a) The model and specifications of the light source and the control device of the lamp, and the corresponding manufacturer;

b) Electronic file of the luminous intensity data sheet for the luminaire;

c) For road lighting fixtures, the applicable fixture layout, applicable road category, road surface reflection type, road width, and lamp specifications should be clearly indicated. Installation location of the tool;

Note. The product manual may state its light distribution type; see Appendix C for a description of the light distribution type.

d) Environmental conditions suitable for the luminaire, such as ambient temperature range, maximum relative humidity, altitude, and distance of the luminaire's operating area from the coastline. Information such as distance;

e) Luminous flux maintenance life of the luminaire.

7.2 Electrical Parameters

7.2.1 Input Power The initial input power should not exceed 110% of the rated input power. The input power of luminaires with built-in batteries in the charging state should not exceed [a certain value]. It should exceed the maximum input power marked.

7.2.2 Standby power Luminaires with dimming and color temperature adjustment functions shall meet the requirements of

4.4 in GB 37478-2025 and shall not exceed the claimed values.

7.2.3 Power Factor The power factor of the luminaire should not be lower than 0.80, and the power factor of the LED luminaire should not be lower than 0.90.

7.3 Optical Performance

7.3.1 Luminaire performance and luminous flux maintenance life The efficiency of LED lighting fixtures should not be less than 90% of the rated value. The luminous flux maintenance life of LED luminaires shall comply with the provisions of GB/T 33721-2026.

7.3.2 Light Output Ratio The light output ratio of road lighting fixtures using replaceable light