

Translated English of Chinese Standard: GB17510-2025

www.ChineseStandard.net → Buy True-PDF → Auto-delivery.

Sales@ChineseStandard.net

GB

NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 43.040.20

CCS T 38

GB 17510-2025

Replacing GB 17510-2008

Light-signaling devices for motorcycles and mopeds

摩托车和轻便摩托车光信号装置

Issued on: May 30, 2025

Implemented on: January 01, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the People's Republic of China.**

Table of Contents

Foreword	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Determination for the same type	6
5 Overall requirements	6
6 Light distribution requirements	9
7 Tests	11
8 Inspection rules	13
9 Implementation of the standard	15
Annex A (normative) Light distribution angle range	16
Annex B (normative) Luminous intensity distribution	18

Light-signaling devices for motorcycles and mopeds

1 Scope

This document specifies the same type determination, general requirements, lighting requirements, test and inspection rules for light-signaling devices for motorcycles and mopeds.

This document applies to the design, manufacture and acceptance of front position lamps, rear position lamps, brake lamps, turn signal lamps, reversing lamps and rear license plate lighting devices for L₁ to L₅ vehicles.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB 4785, *Prescription for installation of the external lighting and light-signaling devices for motor vehicles and their trailers*

GB 18100, *Provisions for the installation of lighting and light-signaling devices for motorcycles and mopeds*

UN R37, *Uniform provisions concerning the approval of filament lamps for use in approved lamp units of power-driven vehicles and of their trailers*

UN R128, *Uniform provisions concerning the approval of light emitting diode (LED) light sources for use in approved lamp units on power-driven vehicles and their trailers*

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB 4785 and GB 18100 as well as the followings apply.

3.1 light-signaling device

A unit or group of units used to emit light signals to other road users to indicate the presence of a vehicle or a change in its motion state, and to perform one or more functions.

NOTE: In this document, the term "device" refers to one or more of the following: front position lamps, rear position lamps, brake lamps, turn signal lamps, backup lamps and rear license plate lighting devices.

4 Determination for the same type

Light-signaling devices that do not differ in the following main features are considered to be of the same type:

- Manufacturer;
- Model of the device;
- Number, type, lighting principle, and module structure of replaceable or non-replaceable light sources used;
- Number and structure of major optical components (e.g., reflectors, light distribution lenses, light guides, variable light intensity controllers, etc.);
- Type of device.

5 Overall requirements

5.1 General requirements

5.1.1 The device should be designed and manufactured so that, under normal conditions of use, it can still meet the requirements of use and comply with the provisions of this document even if it is subjected to vibration.

5.1.2 Light-signaling devices with illuminated logos meet the following requirements.

- a) Luminous logos should be part of the light signal device and the light color must be consistent. Brake lights, turn signal lights and reverse lights should not have luminous logos. There should be no more than two luminous logos installed facing forward or rearward. The light-transmitting surface of the luminous logo itself may be asymmetrical.
- b) The illuminated logo should be the vehicle manufacturer's trademark or model logo.
- c) When the luminous logo is not illuminated, the light-signaling device shall also meet its corresponding photometric and chromaticity requirements.

5.2 Requirements for front position lights, rear position lights and brake lights

5.2.1 Front/rear position lamps that are mixed with other functions and use the same

light source may be designed to operate in conjunction with an additional system for regulating luminous intensity. In this case, for rear position lamps that share a light source with the brake lamp, multiple light sources should be connected in parallel, or the function should be equipped with a fault monitoring system.

5.2.2 If the front position lamp contains one or more infrared radiation generators, the photometric and chromaticity of the front position lamp shall meet the requirements regardless of whether the infrared radiation generator is operating or not.

5.3 Requirements for turn signal lights

5.3.1 Front turn signal lamps are classified into categories 11, 11a, 11b, and 11c based on their light distribution levels. Rear turn signal lamps are classified into category 12. The spacing between the front turn signal lamp and the adjacent low beam lamp or front fog lamp shall meet the following requirements:

- a) Category 11 front turn signal lights: not less than 75 mm;
- b) Category 11a front turn signal lights: not less than 40 mm;
- c) Category 11b front turn signal lights: not less than 20 mm;
- d) Category 11c front turn signal lights: no spacing requirement.

5.3.2 Sequential opening meets the following requirements.

- a) After each light source is activated, it should remain on until the lighting cycle ends. The sequential lighting change process should end within 200 ms after the lighting cycle begins.
- b) The changes in the sequential opening should be gradually lit from the inside to the outside of the light-transmitting surface at a uniform speed.
- c) A continuous light signal should be provided and the light-transmitting surface should not oscillate in the direction perpendicular to the horizontal plane (i.e. only one direction change is allowed in the vertical direction).
- d) In the direction perpendicular to the reference axis, the distance between two adjacent or tangential parts of the light-transmitting surface of the turn signal lamps that are turned on sequentially should not exceed 50 mm.
- e) If there are gaps between different light-transmitting surfaces, it should be ensured that the projections of the light-transmitting surfaces in the direction perpendicular to the reference axis and the overlapping parts in the vertical direction change synchronously in the horizontal direction.
- f) If there are gaps between different light-transmitting surfaces, the gaps shall not be used for any other lighting or light signaling functions.

- g) The ratio of the length of the horizontal side to the vertical side of the minimum circumscribed rectangle (with the long side parallel to the H plane) of the orthogonal projection of the apparent surface in the direction of the reference axis on the plane perpendicular to the reference axis should not be less than 1.7.

5.4 Requirements for rear license plate lighting

5.4.1 The rear license plate lighting device should make the entire license plate surface visible within the angle given in Figure A.2 in Annex A.

5.4.2 The rear registration plate lighting device shall not emit direct light rearwards, except for red light emitted in combination or composite with other functions.

5.5 Light source requirements

5.5.1 Replaceable light source

5.5.1.1 The light source should be able to be installed in the correct position of the device without the use of tools, even in darkness.

5.5.1.2 The type and performance of the replaceable light source used in the device shall comply with the provisions of UN R37 or UN R128.

5.5.2 Non-replaceable light source

5.5.2.1 The light source should be replaced as a whole along with the light-signaling device.

6 Light distribution requirements

6.1 Luminous intensity within the light distribution angle range

6.1.1 The lighting angle range of the device shall comply with the requirements of Annex A.

6.1.2 The luminous intensity of the device within the light distribution angle range shall comply with the requirements of Table 1 or Table 2.

6.1.3 The luminous intensity distribution requirements of the device shall comply with Annex B. The light emitted by the device shall be uniform within the range shown in Annex B. If a visual inspection reveals a significant change in luminous intensity, the luminous intensity measured between any two measurement directions shall not be less than 50% of the lower luminous intensity in those two measurement directions.

6.1.4 For rear position lamps combined with brake lamps, within the range enclosed by 5° above and below the H-H line and 10° to the left and right of the V-V line, the ratio

of the luminous intensity at the measurement point when both lamps are lit simultaneously to that when the rear position lamp is lit alone shall be at least 5:1. If one or both of the above-mentioned combined devices contain more than one light source and are single lamps, the measurement results shall take all light sources into account.

6.2 Light distribution requirements for rear license plate lighting devices

The luminance of the rear license plate lighting device at each measurement point (the test points specified in Figure B.3) should be no less than 2 cd/m² and meet the luminance uniformity requirements of formula (1):

$$| B_1 - B_2 | / L_{1-2} \leq 2 \times B_0 / \text{cm} \quad \dots\dots\dots (1)$$

Where,

B_1 and B_2 - Luminance at any two measurement points, in candelas per square meter (cd/m²);

B_0 - Minimum luminance among the measurement points shown in Figure B.3, in candelas per square meter (cd/m²);

L_{1-2} - Distance between B_1 and B_2 , in centimeters (cm).

6.3 Requirements for the inter-storage light system

6.3.1 When all devices in the system are lit, the light distribution performance requirements of a single lamp should be met.

6.3.2 For a rear position lamp inter-lamp system that is partially mounted on a fixed component and partially mounted on a movable component, the entire inter-lamp system shall meet the requirements of 6.1.2 in all normal use positions on the movable component. However, the minimum luminous intensity inside the light distribution angle range in Annex A may not meet the requirements of 6.1.2.

6.4 Requirements for light source failure

For a single lamp (except for the rear license plate lighting device) that contains more than one light source, when any one of the light sources fails, at least one of the following requirements shall be met:

- a) All test points meet the minimum luminous intensity limits specified in Table 1 or Table 2;
- b) Vehicles equipped with the device are equipped with an operating indicator capable of indicating device failure;

- c) If any light source fails, all light sources fail.

7 Tests

7.1 Requirements for test chamber, device and equipment

7.1.1 The test chamber should be free of light leakage, and its environmental conditions should not affect the transmission performance of the light beam and the accuracy of the instrument.

7.1.2 The ambient temperature of the test chamber should be $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$. The relative humidity should not exceed 80%.

7.1.3 The photometric test shall use a DC regulated power supply. The accuracy of the electrical instrument shall not be lower than Class 0.2.

7.1.4 The illuminometer should be a Class 1 illuminometer specified in the national verification regulations. The luminance meter should be a Class 1 luminance meter specified in the national verification regulations.

7.1.5 The measurement distance of photometric performance should comply with the inverse square law of distance in photometry.

7.1.6 When viewed from the reference center of the device, the angle of the optical receiver should be between $10' \sim 1^{\circ}$.

7.1.7 The angular deviation in each measuring direction should not exceed $15'$.

7.1.8 Luminance measurements of the rear license plate lighting system should be conducted on a white diffuse reflective surface with a known diffuse reflectance. The measured luminance values should be linearly corrected to a diffuse reflectance of 1.0. The white diffuse reflective surface should be the same size as the license plate or larger than the size of one measurement point, with its center located at the center of the measurement point. The white diffuse reflective surface should be positioned in the normal mounting position of the license plate and 2 mm in front of the mounting plate. Luminance measurements should be perpendicular to the white diffuse reflective surface, with deviations in all directions less than or equal to 5° . Each test point (see Figure B.3) is represented by a circular area with a diameter of 25 mm.

7.2 Voltage and test requirements for photometric and chromaticity testing

7.2.1 Test voltage requirements for non-replaceable light sources

7.2.1.1 For devices that directly use the vehicle voltage, the light source in the device should be used for testing at a test voltage of 13.5 V.

7.2.1.2 For devices equipped with electric light source controllers, the voltage at the

This is an excerpt of the PDF (Some pages are marked off intentionally)

Full-copy PDF can be purchased from 1 of 2 websites:

1. <https://www.ChineseStandard.us>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. <https://www.ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - <https://www.ChineseStandard.us>).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading...): <https://www.chinesestandard.net/AboutUs.aspx>

Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

----- The End -----