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GB/T 43081-2023/IEC 60809:2021
Replaces GB/T 15766.1-2008

**Lamps and Light Sources for Road Vehicles—
Dimensional, Electrical and Luminous Requirements**
道路车辆灯泡和光源 尺寸、光电性能要求

(IEC 60809:2021, IDT)

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FOREWORD

This document is drafted in accordance with the rules given in GB/T 1.1-2020 “*Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents*”.

This document replaces GB/T 15766.1-2008 “*Lamps for road vehicles - Dimensional, electrical and luminous requirements*”. In addition to structural adjustments and editorial modifications, the following technical deviations have been made with respect to GB/T 15766.1-2008:

- Added the terms and definitions of “luminous flux maintenance factor”, “non-replaceable light source” and “rated value” (See 3.8, 3.12, 3.13);
- Modified the content of “Color endurance” (See 4.4.2 vs. 2.4.2 of GB/T 15766.1-2008);
- Modified the method of expressing the domain defining the “color” range emitted by the filament lamps, and modified the method of expressing the approach line into boundaries and crossings (See 4.4 vs. 2.4 of GB/T 15766.1-2008);
- Added the requirements for chromaticity of “Finished filament lamps emitting selective-yellow light” in the “color” emitted by the filament lamp (See 4.8);
- Deleted the “requirements for standard headlamp” (See 2.8.4 of GB/T 15766.1-2008);
- Added the requirements concerning “non-replaceable filament lamps” (See 4.11);
- Modified the requirements of “Run-up characteristics” for gas discharge lamps (See 5.6.2 vs. 3.6.2 of GB/T 15766.1-2008);
- Modified the method of expressing the domain defining the “color” range emitted by the gas discharge lamps, and modified the method of expressing the approach line into boundaries and crossings (See 5.8 vs. 3.8 of GB/T 15766.1-2008);
- Added the “Requirements and test conditions for led light sources” (See Clause 6);
- Modified the list of lamp categories, distinguishing the lamp categories referred from R.E.5 from those listed in this document (See Table 3 vs. Table 3 of GB/T 15766.1-2008);
- Deleted the replicated lamp category data sheets in UN R.E.5 from the “sheets” (See Clause 5 of GB/T 15766.1-2008);
- Added nine categories of filament lamps and their data sheets, i.e., H6, HB1, S4, H5, H2, HS3, B1.13W, B0.6W and B2.4W (See 8.3);
- Added the information on “In case of dual filament lamps, the high wattage (main or driving beam) filament only shall be operated” in the “Measurement method of the color of filament lamps” (See B.1);
- Added the information on “when the line of sight between the receiver and the filament is blocked by opaque parts of the light source, such as lead wires or a second filament” in the “Measuring directions” of “Measurement method of the color of filament lamps” (See B.3.1);
- Added the “LED light sources” in the test conditions for photoelectric characteristics (See C.2);
- Added the “Measurement method of internal elements of HB1 lamps” (See Annex F);
- Added the information concerning “Calibration of test chamber” in the “Test conditions for color endurance measurements” (See J.2);
- Modified Figure J.4 (See Annex J vs. Annex J of GB/T 15766.1-2008);
- Added the information on “and shall no longer be used for signaling devices but to be considered end of life for that purpose” in the “Closure” of “Test conditions for color endurance measurements” (See J.7);
- Added “Switching modes of filament lamps for intermittent and continuous operation during one operating cycle” (See Figure J.8).

This document is identical to IEC 60809:2021 “*Lamps and light sources for road vehicles - Dimensional, electrical and luminous requirements*”.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The organizations issuing this document shall not be held responsible for identifying any or all such patent rights.

This document was proposed by China National Light Industry Council.

This document was prepared by SAC/TC 224 (National Technical Committee on Lighting Electrical Appliances of Standardization Administration of China).

This document was drafted by Foshan Electric Lighting Co., Ltd., Liangrui (Shanghai) Management Co., Ltd., Beijing Electric Light Source Research Institute Co., Ltd., Shanghai Jianzhi Lighting Technology Co., Ltd., Shenzhen Feiyetai Electronics Co., Ltd., Shenzhen Huahao Weiye Optoelectronics Co., Ltd., and Zhejiang Beiguang Technology Co., Ltd.

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This document was first issued in 1995 as GB/T 15766.1-1995, first revised in 2000, and second revised in 2008; this edition is the third revision.

Lamps and Light Sources for Road Vehicles —Dimensional, Electrical and Luminous Requirements

1 SCOPE

This document is applicable to electric light sources (see Note 1) for use in road illumination devices and/or light signaling devices for road vehicles.

It is especially applicable to light sources listed in UN Resolution R.E.5 and light sources subject to other legislations.

This document specifies the technical requirements for interchangeability, including dimensional, photoelectric characteristics, and corresponding measurement methods.

For the light sources listed in this document, the data sheets are contained either in this document or are included by reference to UN Resolution R.E.5.

IEC 60810 specifies the performance requirements such as life, torsion strength, resistance to vibration and shock of the light source.

IEC 60983 specifies the requirements for miniature road vehicle lamps for supplementary purposes and not subject to legislation.

Note 1: The terms "lamp" and "light source" are used in this document to mean the same product, so the two terms are interchangeable throughout this document.

Note 2: In various vocabularies and standards, different terms are used for "incandescent lamp" (GB/T 2900.65-2004, 845-07-04), "discharge lamp" (GB/T 2900.65-2004, 845-07-17) and "LED lamp". In this document, "filament lamp", "discharge lamp" and "LED light source" are used, however, where only "lamp" or "light source" is written, it means the lamp using one of the three technologies, unless the context clearly shows that it applies to one kind of technology only. In the UN Regulations, the word "light source" is used for the products specified in this document.

Note 3: The term "device" used in this document refers to the equipment which is used as a luminaire, e.g., the equipment served as a headlight or signal light.

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

IEC 60050-845 International Electrotechnical Vocabulary - Part 845: Lighting

Note: GB/T 2900.65-2023, Electrotechnical terminology—Lighting (IEC 60050-845:2020, IDT)

IEC 60061-1 Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 1: Lamp caps

Note: GB/T 1406 (all parts), Types and dimensions of lamp caps (IEC 60061-1)

IEC 60061-2 Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 2: Lamp holders

Note: GB/T 19148, Types and dimensions of lamp holders (IEC 60061-2)

IEC 60810:2017 Lamps, light sources and LED packages for road vehicles - Performance requirements

Note: GB/T 15766.2-2016, Lamps for road vehicles-Performance requirements (IEC 60810:2013, MOD)

CIE 015:2018 Colorimetry

UN R48 Uniform provisions concerning the approval of vehicles with regard to the installation of lighting and light-signaling devices

R.E.5 United Nations Consolidated Resolution on the common specification of light source categories (R.E.5)

3 TERMS AND DEFINITIONS

For the purposes of this document, the terms and definitions given in IEC 60050-845, IEC 60810, R.E.5 and UN R48 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 ageing period

preconditioning period of the light source before initial values are taken

[Source: IEC 60050-845:2020, 845-27-108, modified - "period" has been added to the term and the note to entry has been deleted]

3.2 category

basic design of standardized light sources

Note: Each specific designation, for example P21/5W, H4, D2R forms a category. Most of these designations are taken from the R.E.5.

3.3 conformity of production

compliance of the series production of a given type with the requirements of the relevant specification

Note: Local regulations may require checking the conformity of production by a government agency.

3.4 dipped beam; passing beam; low beam

headlight designed to illuminate the road ahead of the vehicle without causing undue glare to people in front of the vehicle, particularly to the drivers of oncoming vehicles

Note: The term used in the UN regulations is "passing-beam".

3.5 initial luminous flux

luminous flux measured at the end of the ageing period

3.6 life B10

time during which 10% of the tested light sources of the same type have reached the end of their individual lives

Note: In general, the Weibull distribution method is used.

3.7 limiting value

lowest and/or highest value for a characteristic with which the light source has to comply when operated under specified conditions

3.8 luminous flux maintenance factor

ratio of the luminous flux of a light source at a given time in its operational life to its initial luminous flux, the light source being operated under specified conditions

Example: 70% after 500h.

Note 1: In IEC 60810, "luminous flux maintenance" is used with the same meaning

[Source: IEC 60050-845:2020. 845-27-114, modified - "electric light source" has been replaced with "light source" and the 3 notes to entry have been replaced with a new note to entry and example.]

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