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

GB/T 39928-2021

LED filament lamps - Performance requirements

LED灯丝灯 性能要求

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Foreword

SAC/TC 224 is in charge of this English translation. In case of any doubt about the contents of the English translation, the Chinese original shall be considered authoritative.

The standard is drafted in accordance with the rules given in GB/T 1.1-2009 Directives for standardization - Part 1: Structure and drafting of standards. It was proposed by China Light Industry Council and prepared by SAC/TC 224, the National Technical Standardization Committee on Lighting.

It was issued on 9 March 2021 by the State Administration for Market Regulation and the Standardization Administration, and has been in force since 1 April 2022. The /T in the designation marks it as a recommended rather than a compulsory national standard.

1 Scope

China's national performance standard for the LED filament lamp - the retrofit lamp that arranges strips of tiny LEDs, coated in phosphor, like the filaments of an incandescent bulb inside a clear glass envelope. The shape exists because the market wanted the look back: a transparent bulb with a visible glowing element, for chandeliers, pendants and exposed fittings where a frosted plastic LED bulb looks wrong. Because the driver has to be packed into a small cap and the LEDs sit in a sealed glass bulb with little room to shed heat, filament lamps vary between makers far more than their appearance suggests, and this is the document that fixes what a buyer may demand of them. It covers non-directional integrated filament lamps for domestic and similar general lighting, rated at not more than 60 W on AC 220 V 50 Hz, with screw or bayonet caps and pear-shaped A55, A60, PS60 and A75 envelopes. What it regulates is performance rather than safety: lamp power, displacement factor, initial luminous flux and efficacy, colour characteristics, life, electromagnetic compatibility, marking and packaging, each with the test method and the inspection rule that goes with it. Electrical safety for the same products sits in GB 24906 instead, and the two are normally applied together. Manufacturers use this standard to declare their figures, buyers and retailers to write purchase specifications, and testing laboratories to verify a claim. An informative annex adds a measurement method for the junction temperature of the LED filament.

The standard specifies the terms and definitions, classification and nomenclature, technical requirements, test methods and inspection rules of non-directional integrated LED filament lamps for general lighting.

It is applicable to the non-directional integrated LED filament lamp with integral means for stable operation components, intended for domestic and similar general lighting purposes. The application scope is limited to lamps whose rated power is not more than 60 W; whose rated voltage is AC 220 V at a frequency of 50 Hz; which adopt a screw type lamp cap

conforming to GB/T 1406.1 or a bayonet type lamp cap conforming to GB/T 1406.5; and whose bulb shapes are the pear shapes A55, A60, PS60 and A75.

A note records that, unless otherwise specified, the word lamp throughout the standard means the non-directional integrated LED filament lamp.

2 Normative references

The referenced documents listed in this clause are indispensable for the application of the standard. For dated references only the edition cited applies; for undated references the latest edition, including any amendments, applies.

Nineteen documents are cited: the lamp cap and gauge standards GB/T 1406.1, GB/T 1406.5, GB/T 1483.1 and GB/T 1483.5; the sampling standards GB/T 2828.1 and GB/T 2829; the terminology standards GB/T 2900.65-2004 and GB/T 24826-2016; the lamp performance standards GB/T 7249, GB/T 10681, GB/T 10682-2010, GB/T 24823-2017 and GB/T 24824; the electromagnetic compatibility standards GB 17625.1, GB/T 17743 and GB/T 18595; the safety specification GB 24906; the classification standard GB/T 31112; and GB/Z 39942-2021 on the assessment of blue light hazard. The full titles are listed among the normative references of this record.

3 Terms and definitions

For the purposes of the document, the terms and definitions given in GB/T 2900.65-2004, GB/T 24826-2016 and GB/T 31112 apply, together with the four defined below.

3.1 LED lamp

An LED light source with one or more lamp caps.

Five notes qualify the term. An LED lamp may be an integrated LED lamp (LEDi lamp), a semi integrated LED lamp (LEDsi lamp) or a non-integrated LED lamp (LEDni lamp); single capped and double capped lamps are both included; LED lamps are designed to be installed by ordinary people, as defined in IEC 60050-826, 826.18.03; and they consist of one or more LED modules together with other possible electronic, optical, mechanical and thermal components, interfaces and controllers. The definition is a rewrite of GB/T 24826-2016, definition 3.15.

3.2 Integrated LED lamp (LEDi lamp)

A lamp including the controlgear and any additional elements necessary for the light source to reach stable operation, which is designed to be directly connected to the power supply voltage. The definition is taken from GB/T 24826-2016, definition 3.15.1.

3.3 LED filament lamp

A lamp whose shape and structure are similar to those of the traditional incandescent lamp. The light-emitting part is an LED module which imitates the light-emitting state of the filament of the incandescent lamp and is sealed in the transparent bulb shell.

3.4 Initial values

The photometric, colorimetric and electrical characteristic values of the lamp measured after the parameters are stable. A note records that aging is not required for the measurement of initial values. The definition is a rewrite of GB/T 24823-2017, definition 3.3.