

Translated English of Chinese Standard: GB/T39021-2020

[www.ChineseStandard.net](https://www.ChineseStandard.net) → Buy True-PDF → Auto-delivery.

[Sales@ChineseStandard.net](mailto:Sales@ChineseStandard.net)

**GB**

NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA

ICS 29.140.99

K 70

**GB/T 39021-2020**

---

## **Intelligent lighting systems - General requirements**

智能照明系统 通用要求

**Issued on: July 21, 2020**

**Implemented on: February 01, 2021**

---

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

## Table of Contents

Foreword.....	3
1 Scope.....	4
2 Normative references.....	4
3 Terms and definitions .....	5
4 Environmental conditions .....	6
5 Installation and maintenance .....	6
6 Safety requirements.....	6
7 Function and performance requirements .....	9
8 Instruction manual.....	10
References .....	12

# Intelligent lighting systems - General requirements

## 1 Scope

This Standard specifies the general requirements for intelligent lighting systems, including installation and maintenance, function and performance requirements, safety requirements, instruction manual.

This Standard applies to all types of intelligent lighting systems.

The specific technical requirements of each component that constitutes the intelligent lighting system adopt the provisions of the corresponding standard; however, if it is inconsistent or conflict with this Standard, the provisions of this Standard shall prevail.

**Note 1:** For example, LED light source, as a component of the intelligent lighting system, its specific technical requirements must meet the provisions of the LED light source standard.

**Note 2:** In addition to terms and definitions, the "system" that appears in this Standard represents an intelligent lighting system, unless otherwise specified.

## 2 Normative references

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

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

GB/T 39022-2020, Lighting system and related equipment - Terms and definitions

ISO/IEC 31010, Risk management - Risk assessment techniques

IEC 60050, International Electrotechnical Vocabulary (IEV)

IEC 63117, General requirements for lighting systems - Safety

**Note 1:** The protocol can stipulate: establish the connection conditions for transmission to the media, manage the access rules to the media, error protection procedures, functional and procedural methods of data exchange, transmission mechanism, communication control, data expression and application data exchange. The protocol stipulates, for example:

- Data units that are transmitted between system components;
- Meaning of the data unit (semantically);
- Format of the data unit (syntax);
- Logic timing of data exchange.

**Note 2:** The protocol which is used in the system can be organized according to, for example, the OSI/ISO seven-layer reference model.

**Note 3:** Rewrite IEC 60050-351:2013, definition 351-56-14.

### 3.5

#### **Adaptive characteristic**

A characteristic that responds to the environment or predefined conditions.

## **4 Environmental conditions**

The lighting system shall use products that are suitable for the applied environmental conditions, such as but not limited to temperature range, humidity range, altitude and vibration.

Check the eligibility according to the test procedures that are specified in the relevant product standards.

## **5 Installation and maintenance**

The lighting system shall be installed, debugged and maintained in accordance with the instruction manual that is provided by the manufacturer or seller of the lighting system (see Chapter 8).

## **6 Safety requirements**

### **6.1 Electrical safety**

## Figure 1 -- System safety compliance inspection process

The assessment can be carried out according to the risk assessment process in ISO/IEC 31010.

Without the explicit consent of the user, the lighting system shall not upload any collected information or data to any party. If the information and/or data upload is the default operation after the system configuration is installed or set up, the manufacturer or seller shall give a clear warning about the default operation in the manual. Whether to confirm the inquiry of the default operation shall be automatically pushed to the user during the system configuration installation or setup process.

## 7 Function and performance requirements

### 7.1 General requirements

The function and performance of the lighting system shall comply with the claims in the instruction manual.

### 7.2 Adaptive characteristic

The adaptive characteristic of the lighting system helps to enhance the lighting performance and/or other functions of the system, which improves the convenience of use, and may help improve the energy-saving effect. Different lighting systems may have different adaptive characteristics and levels; the lighting system shall meet the declared adaptive characteristics and levels, such as:

- Sensitivity to specific stimulation (such as natural light level, weather, traffic flow);
- Related responses (such as dimming, color adjustment, control over time and/or environment).

### 7.3 Communication protocol

Combined with specific application occasions, scenarios and usage requirements, the lighting system can use different communication protocols. This Standard does not limit the type of protocol that must be used.

### 7.4 Operation interface

The operation interface shall support the functions which are declared by the lighting system.

When applicable, the manufacturer or seller shall specify the following performance indicators of the lighting system. If a preset condition is required to reach the declared target, the preset condition shall be clearly stated in the manual. For example:

- Light output adjustment ability and range;
- Chromaticity adjustment ability and range.

**Note:** For different applications and scenarios, the specific performance indicators of the lighting system may be different.

In order to better meet the lighting performance application indicator requirements (such as the illuminance requirements for general lighting visual function), it is recommended that the manufacturer or seller provide lighting system configuration suggestions corresponding to typical occasions and scenarios (such as number of terminals, installation and configuration schemes of the lighting system).

#### **8.4.4 Communication protocol and interface information**

For lighting systems that can interoperate with other systems or external products, the manufacturer or seller shall specify the following information:

- Interoperable systems and products;
- Operating functions and capabilities;
- Operation interface/port and setting steps;
- Instructions.

In order to better use and maintain the lighting system, the manufacturer or seller shall provide information about the used protocol in the manual, including but not limited to the following:

- The used communication protocol, and its compatibility and interoperability with other systems and/or products;
- The capacity of the accessible terminal (maximum limit).

It is recommended that the manufacturer or seller give the update information of the protocol, so that the user can update the protocol to improve the system characteristic.

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

**Full-copy PDF can be purchased from 1 of 3 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).

3. <https://www.google.com/search?tbm=bks&q=ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Google Books -- Select your currency.
- Processed by Google (delivery, tax invoice etc.). Delivered in 9 seconds by Google.
- Tips: Download an unprotected **True-PDF** (text-editable) from Google-Books:
  1. <https://play.google.com/books> → 2. Sign in → Google account
  3. Find the **BOOK** you bought → 4. Click "3-dots" → Export
  5. Save as "\*.pdf" (Save True-PDF to your local computer for offline reading/printing)

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

Accountable person and shareholder: Wayne Zheng

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

Contact: Wayne Zheng, [Sales@ChineseStandard.net](mailto:Sales@ChineseStandard.net)

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

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