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

GB 16796-2022

**Security alarm equipment - Safety requirements and test
methods**

安全防范报警设备 安全要求和试验方法

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1 Scope

GB 16796-2022 is the Chinese national standard on security alarm equipment - safety requirements and test methods, in the field of environment and health protection, safety. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 29 December 2022 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 January 2024. Classification: ICS 13.310, CCS A 91. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document establishes the safety protection design principles for security alarm equipment, stipulates the requirements for protection from electric shock, requirements for protection from mechanical injury, requirements for thermal burn protection, requirements for fire prevention, requirements for radiation protection, indicative requirements for safety protection, requirements for markings and instructions, and describes the test methods for each corresponding requirement. This document applies to the design, manufacture, inspection and application of various types of equipment in security systems.

Note: Various types of equipment include but are not limited to equipment in systems such as intrusion and emergency alarm, video surveillance, entrance and exit control, parking lot

(warehouse) security management, explosion-proof safety inspection, electronic inspection, building intercom, physical protection and human biometric identification.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

GB 4943.1-2022, Audio/video, information and communication technology equipment - Part 1: Safety requirements

GB/T 5465.1-2009, Graphical symbols for use on electrical equipment - Part 1: Overview and classification

GB 7247.1-2012, Safety of laser products - Part 1: Equipment classification and requirements

GB 15208.1-2018, Micro-dose X-ray security inspection system - Part 1: General technical requirements

GB/T 37958-2019, Requirements of optical radiation safety for active lighting units of video surveillance systems

Note 3: Abnormal operating conditions may cause the failure of components, devices or safety protection. [Source: GB 4943.1-2022, 3.3.7.1]

3.27 single fault condition Under normal operation conditions of the equipment, a single safety protection (rather than an enhanced safety protection) or a single component or device fails.

GB 4943.1-2022 specifies single fault conditions. [Source: GB 4943.1-2022, 3.3.7.9]

4 Safety protection design principles

The safety protection design principles are as follows:

a) Prevent and reduce equipment safety risks under normal operation conditions, abnormal operating conditions and single fault conditions.

b) Prevent and reduce safety risks of equipment in special use environments (such as strong electromagnetic interference, extreme climate, explosion-proof places), special working conditions (such as continuous long-term work) and specific installation conditions (such as hoisting, wall hanging). For outdoor equipment used in extremely cold and hot areas, when metal materials are used as the enclosure, appropriate protective measures should be taken in the design.

- c) Prevent and reduce safety risks caused by equipment components and parts, such as implosion or explosion, ultrasonic or infrasonic damage.
- d) Design or select a suitable protective enclosure that is provided with functions such as protection from electric shock, protection from mechanical injury and ignition prevention.
- e) Select materials that meet the relevant requirements for pollution control of electronic information products and are compatible with the requirements for flame retardant grade, aging performance and mechanical strength of the equipment.

5.1.1 Steady-state voltage or steady-state touch current limits

5.5 Lightning protection Equipment intended to use coaxial cables to transmit data between different buildings or between outdoor antennas and buildings shall be able to meet the electrical strength requirements of

5.2.2 after undergoing the pulse test (without damp and hot pretreatment); the above-mentioned equipment with antenna terminals shall also undergo a voltage impact test, after which it shall be able to meet the electrical strength requirements of 5.2.2 (without damp and hot pretreatment).

5.6 Battery For equipment equipped with batteries, the batteries shall comply with the requirements of

7.6 in GB 4943.1-2022.

6 Requirements for protection from mechanical injury

6.1 Protection of sharp edges/acute angles When there are accessible sharp edges and/or acute angles on the equipment, protective measures shall be taken to prevent harm to the human body. Special equipment whose basic functions are achieved by using accessible sharp edges/acute angles shall be provided with safety protection instructions.

6.2 Protection of moving parts When there are accessible moving parts on the equipment, protective measures shall be taken to prevent harm to the human body. Special equipment whose basic functions are achieved by using moving parts shall be provided with safety protection instructions.

6.3 Mechanical stability Non-fixed floor-standing equipment with a mass greater than or equal to 25 kg shall not tip over after the test specified in 12.3.3.

6.4 Mechanical strength After the enclosure strength test in Table 4 and the drop test in Table 5, the equipment shall meet the following requirements:

- a) The enclosure shall not have cracks that may cause danger;
- b) The insulation of internal wires shall not be damaged;