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

GB/T 21714.1-2026

Replacing GB/T 21714.1-2015

Protection against lightning - Part 1: General principles

雷电防护 第1部分：总则

(English Translation)

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And standard deviation (sigmalog) (excerpt from CIGRE report)

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 1 of GB/T 21714 "Lightning Protection". GB/T 21714 has the following parts published.

---Part 1: General Provisions;

---Part 2: Risk Management;

---Part 3: Physical Damage to Buildings and Life Hazards;

---Part 4: Electrical and Electronic Systems within Buildings.

This document replaces GB/T 21714.1-2015 "Lightning Protection Part 1: General Principles". Compared with GB/T 21714.1-2015, except for...

Aside from structural adjustments and editorial changes, the main technical changes are as follows.

- b) Some terms and definitions have been changed (see Chapter 3, Chapter 3 of the 2015 edition);
- c) Two types of typical structures, open-pit mines and underground mines, have been added (see Table 1);
- d) Change the "Type of Damage" for the building to "Cause of Damage" and the type of cause of damage (see 5.1.3, 5.1.2 in the 2015 version);
- e) The loss type has been changed (see 5.2, 2015 version 5.2);
- f) The necessity of lightning protection has been changed (see Chapter 6, Chapter 6 in the 2015 edition);
- g) The general rules in the protective measures have been changed (see 7.1, 2015 version of 7.1).

This document is equivalent to IEC 62305-1:2024 "Lightning protection - Part 1: General".

The following minimal editorial changes have been made to this document.

---Note 3 has been added to the "Scope" chapter, Note 2 has been added to sections 3.11 and 3.12, and Note has been added to sections 3.51 and 3.63, to facilitate document review.

understand;

---Added corresponding English terms (see 3.1, 3.60);

---Change the informative content in the definition to the example (see 3.33, 3.55);

---Added permitted terms (see 3.20);

---Examples added (see 3.24, 3.25);

---Table 2 has been supplemented with loss type L3 corresponding to cause D3, correcting the editorial errors in Table 2 of IEC 62305-1:2024.

mistake.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Technical Committee on Lightning Protection Standardization (SAC/TC258).

Introduction

To date, there is no equipment or method capable of altering natural weather phenomena to completely prevent lightning from occurring. Lightning strikes buildings or structures.

A strike near an object (or a line connected to the building) poses a danger to the building itself, its internal objects, equipment, wiring, and personnel.

Lightning protection measures are required. The protective measures considered in GB/T 21714 (all parts) have been proven effective in reducing the risk.

These protective measures together constitute comprehensive lightning protection.

GB/T 21714 "Lightning Protection" aims to propose lightning protection (LP) measures to effectively reduce lightning risks, and is proposed to consist of four parts.

in principle.

---Part 2: Risk Management. The purpose is to define the process for managing lightning risk in buildings, including calculating the building's lightning strike risk.

Value. After selecting the upper limit of risk tolerance, this process allows for the selection of appropriate protective measures to reduce the risk to the tolerance limit or above.

The following also includes assessing the frequency of damage to internal systems caused by lightning surges. After selecting an upper limit for the allowable frequency of damage, this process is followed.

Choose appropriate protective measures to reduce the frequency of damage to or below the permissible limit.

---Part 3: Physical Damage to Buildings and Life Hazards. The purpose is to specify lightning protection measures for physical damage to buildings.

Requirements for protection systems (LPS) and requirements for preventing personal injury from contact voltage and step voltage near the LPS.

---Part 4: Electrical and Electronic Systems within Buildings. The purpose is to specify surge protection measures for electrical and electronic systems within buildings.

The design, installation, inspection, maintenance, and testing requirements for (SPM) are designed to reduce permanent failures caused by lightning electromagnetic pulses (LEMP). risk.

The relationship between GB/T 21714 (all parts) is shown in Figure 1.

Note: Using a thunderstorm warning system that conforms to IEC 62793 in building protection measures can help reduce physical damage, life-threatening situations, and electrical and electronic system failures.

Figure 1 Relationship between GB/T 21714 (all parts)

Lightning Protection Part 1: General Provisions

1 Scope

This document outlines the general principles for lightning protection of buildings and their facilities, internal objects, and personnel.

The following situations are not within the scope of this document.

---Railway system;

---Vehicles, ships, aircraft, offshore facilities;

---Pipes, power lines, and communication lines that are not directly connected to the building;

---Nuclear power plant.

GB/T 21714 (all parts) specifies the minimum requirements for lightning protection of buildings.

Unless updated data is available from the International Conference on Large Electric Systems (CIGRE), the lightning current parameters provided in this document can also be used for offshore facilities.

Note 1: In the above cases, the professional standards formulated by the relevant competent authorities generally apply to the buildings. If the attached buildings or other buildings do not fall under the aforementioned professional standards, then the relevant standards will apply.

For the purposes of this application, GB/T 21714 (all parts) still applies.

Note 2: IEC 61400-24 also applies to lightning protection for wind turbine generators.

Note 3: In this document, "buildings" refers to any structure or building.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 21714.3-2026 Lightning Protection - Part 3: Physical Damage to Buildings and Hazards to Life (IEC 62305-3) 2024, IDT) GB/T 21714.4-2026 Lightning protection - Part 4: Electrical and electronic systems in buildings (IEC 62305-4:2024, IDT)