ICS 91.120.40
CCS K04

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 21431-2023

Technical specification for inspection of lightning protection systems of buildings

建筑物雷电防护装置检测技术规范

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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 replaces GB/T 21431-2015 "Technical Specifications for Detection of Lightning Protection Devices in Buildings": Compared with GB/T 21431-2015, except In addition to structural adjustments and editorial changes, the main technical changes are as follows:

a) Changed the scope (see Chapter 1, Chapter 1 of the:2015 edition);

b) Some terms and definitions have been changed (see 3:1, 3:2, 3:8, 3:9, 3:10, 3:12, 3:14, 3:15, 3:17, 3:18,:2015 version of 3:1, 3:23, 3:9, 3:25, 3:18, 3:15, 3:24, 3:22, 3:19, 3:20);

c) Some terms are deleted (see 3:2~3:7, 3:10~3:14, 3:16, 3:17, 3:21 of the:2015 version);

d) Added some terms (see 3:3~3:6, 3:11, 3:13, 3:16);

e) The testing categories and items have been changed (see Chapter 4, Chapter 4 of the:2015 edition);

f) Added the basic requirements of "testing requirements and methods" (see 5:1);

g) Operation requirements and equipment requirements have been changed (see 5:2, 5:3, 5:9 and 5:10 of the:2015 edition);

h) Added detection methods (see 5:4);

i) The name and number of sub-items of the test items have been added, and the requirements and methods of the test items have been changed (see 5:5,:2015 version 5:2~5:4, 5:6~5:8);

j) The testing process has been changed (see Chapter 7, Chapter 7 of the:2015 edition);

k) The test records, conclusions and reports have been changed (see Chapter 8, Chapter 8 of the:2015 edition);

l) Added Appendix A "Test items for acceptance testing and periodic testing" (see Appendix A);

m) Added Appendix D "Measurement of Transition Resistance" (see Appendix D);

1 Scope

GB/T 21431-2023 governs the inspection of lightning protection installations on buildings. A lightning protection system is unusual among safety systems in that it is never exercised in normal service, gives no indication when it has stopped working, and is largely buried or concealed. Its air terminations sit on the roof exposed to weather, its down conductors run inside the structure, and its earth electrodes corrode underground - and the property that matters, a low-impedance path from the strike point to earth, degrades invisibly through corrosion, mechanical damage and alterations made to the building by people who did not know what they were cutting. Periodic inspection is therefore the only thing standing between a system that was correct at handover and one that is not. This document specifies the classification and items of inspection, the inspection requirements and methods, the periodic inspection interval, the inspection workflow, and the records, conclusions and reports that result. It applies to the inspection of lightning protection devices on buildings. Under ICS 91.120.40 and CCS K04, it is written for the qualified inspection bodies that carry this work out, for building owners and facility managers responsible for commissioning it, and for the electrical designers whose installations will be assessed against it.

This document stipulates the testing classification and items, testing requirements and methods, regular testing cycle, and testing flow of building 1) lightning protection devices: process, test records, conclusions and reports: This document is applicable to the detection of lightning protection devices in buildings: This document does not apply to:

a) Railway system;

b) Vehicles, ships, aircraft and offshore devices;

c) Underground high-voltage pipelines; pipelines, power lines and communication lines that are not connected to the building:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this

document; for undated referenced documents, the latest version (including all amendments) applies to this document: GB/T 18802:

11 Low-voltage surge protector (SPD) Part 11: Performance requirements and performance requirements of surge protectors for low-voltage power supply systems experiment method

GB/T 32938-2016 Lightning protection device testing service specifications

GB 50057-2010 Design Code for Lightning Protection of Buildings

GB 50601-2010 Code for construction and quality acceptance of lightning protection projects in buildings

GB 50952-2013 Technical Specifications for Rural Residential Lightning Protection Engineering

GB 51017-2014 Technical specifications for lightning protection engineering of ancient buildings

GB 55024-2022 General specifications for building electrical and intelligence

3 Terms and definitions

The following terms and definitions apply to this document: 3:

1 Lightning protection device The entire system used to reduce personal injury and physical damage caused by lightning strikes to buildings:

Note: LPS consists of external and internal lightning protection devices: [Source: GB/T 21714:1-2015, 3:42, with modifications] 3:

2 Lightning protection device detection The entire process of inspection, measurement and comprehensive information analysis and processing to determine whether lightning protection devices meet standard requirements: 1) The buildings in this document generally refer to buildings (structures):