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**Code for design of lightning protection and earthing
engineering for telecommunication bureaus (stations)**

通信局（站）防雷与接地工程设计规范

(English Translation)

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1 General

1.0.1

This specification is formulated in order to prevent and reduce the damage caused by lightning strikes in communication bureaus (stations), and ensure the safety and normal operation of personnel and communication equipment.

1.0.2

This specification is applicable to the design of lightning protection and grounding works of newly built, rebuilt and expanded communication bureaus (stations).

1.0.3

The lightning protection and grounding project of the communication bureau (station) should be based on joint grounding, voltage equalization and equipotential protection, and partition protection, and should be based on the principle of electromagnetic compatibility and the division of lightning protection areas. Make reasonable plans.

1.0.4

The lightning strike risk assessment for the lightning protection and grounding engineering design of communication bureaus (stations) should be based on site survey data, geographical environment of the site, annual distribution of thunderstorm days and types of

communication bureaus (stations).

1.0.5

The lightning arrester selected for the lightning overvoltage protection project of the communication bureau (station) shall meet the technical requirements of the Ministry of Industry and Information Technology for communication lightning protection products.

1.0.6

For the lightning overvoltage protection project of the communication bureau (station), the lightning arrester that has passed the test of the third-party testing department recognized by the state must be selected.

1.0.7

The annual thunderstorm day should be determined according to the data provided by the meteorological department in the area where the communication bureau (station) is located, or it can also be determined according to the provisions of appendix A and appendix B of this specification.

1.0.8

The design of lightning protection and grounding works of communication bureaus (stations) shall not only comply with this specification, but also comply with the relevant current national standards.

2.0.1 Lightning protection zones (LPZ)

An area that is prone to lightning strikes is divided into protected areas according to the different environments of the communication bureau (station) building, communication room, and protected equipment. The protected area is called a lightning protection area.

2.0.2 Thunderstorm day

A day in which more than one thunderstorm is heard is called a thunderstorm day.

2.0.3 Low keraunic zones

A less-mined area refers to an area where the annual average number of thunderstorm days does not exceed 25.

2.0.4 Middle keraunic zones

The middle minefield refers to the area where the annual average number of thunderstorm days is within 26-40.

2.0.5 High keraunic zones

A minefield is an area with an average number of thunderstorm days within 41 to 90 a year.

2.0.6 Strong keraunic zones

A strong minefield is an area with an average number of thunderstorm days exceeding 90 a year.

2.0.7 Keraunic zones

According to the number of annual average thunderstorm days, it is divided into few minefields, medium minefields, many minefields and strong minefields.

2.0.8 Evaluation of lightning strike risk

According to various factors of lightning strikes, it is a method to comprehensively evaluate the degree of damage to the station (station) caused by lightning strikes to determine the protection level and category.

2.0.9 Direct lightning flash

Lightning that strikes directly on a building or lightning protection device.

2.0.10 Direct stroke protection

Measures to prevent lightning from directly striking buildings, structures, electrical networks or electrical installations.

2.0.11 Air-terminal system

Lightning rods, lightning belts (wires), and lightning nets that directly accept lightning strikes.

2.0.12 Rolling sphere method

A simplified analysis method for the application of electrical geometry theory in the lightning protection analysis of buildings.

2.0.13 Down-conductor system

The metal conductor connecting the air-termination device to the grounding device.

2.0.14 Lightning electromagnetic pulse (LEMP)

Electromagnetic radiation associated with lightning discharges. The resulting electric and magnetic fields can couple into electrical or electronic systems, creating damaging surge currents or voltage surges.

2.0.15 External lightning protection system

It is composed of lightning receptors, down conductors and grounding devices, and is mainly used as a protective device against direct lightning strikes.

2.0.16 Soil resistivity earth resistivity

A parameter that characterizes the electrical conductivity of the soil. Its value is equal to the resistance measured between the opposite sides of the soil per unit cube, and the unit is ohm·m.

2.0.17 Power frequency ground resistance power frequency ground resistance

When the power frequency current flows through the grounding device, the resistance between the grounding body and the remote earth. Its value is equal to the ratio of the voltage of the grounding device relative to the remote earth to the current flowing into the ground through the grounding body.

2.0.18 Common earthing

Different grounding methods of various communication equipment in communication bureaus (stations), including working grounding, protective grounding, shielding grounding, anti-static grounding, information equipment logic grounding, etc. The protective grounding of the lightning arrester is connected together, and the grounding method of the basic grounding body of the building and the peripheral grounding system is used together with the lightning protection grounding of the building.

2.0.19 Earth electrode

A conductor or a group of conductors that are in close contact with the soil (earth) and provide an electrical connection to the soil (earth) for the purpose of connection to the earth.

2.0.20 Earthing lead-in wire earth connection

The connecting line between the grounding body and the general grounding busbar is called the grounding lead-in line.