



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

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**Acceptance code for lightning protection and earthing
engineering of telecommunication bureaus (stations)**

通信局（站）防雷与接地工程验收规范

(English Translation)

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Table of Contents

1	General
2	Terms
3	Basic Regulations
4	Grounding device
4.1	Grounding body and grounding grid
4.2	Ground lead-in
6	Equipotential bonding
6.1	Ground bar and ground pooling line
6.2	Grounding of installations
6.3	Ground wire
7	Grounding and Protection of Cables
8	SPD

1 General

1.0.1

In order to strengthen the quality supervision and management of lightning protection and grounding projects of communication bureaus (stations), unify the requirements for project construction quality and acceptance, and ensure the project quality and safe operation of lightning protection and grounding devices, this specification is formulated.

1.0.2

This specification is applicable to the acceptance of lightning protection and grounding works of new construction, expansion and reconstruction of communication bureaus (stations).

1.0.3

The acceptance 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 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 are used together with the lightning protection grounding of the building.

2.0.2 Air-termination system

A device used to receive direct lightning discharges to protect the protected object from lightning strikes. Including lightning rods, lightning belts (wires), lightning nets, and metal roofs and metal components used for lightning.

2.0.3 Down-conductor system

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

2.0.4 Direct stroke protection system

The sum of air receptors and down conductors.

2.0.5 Earthing 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.

2.0.6 Earth grid

A group of grounding bodies consisting of interconnected bare conductors buried in the ground to provide a common ground for electrical equipment or metallic structures.

2.0.7 Earth connection

The conductor connected between the ground grid and the general ground busbar.

2.0.8 Earth-termination system

The sum of the ground lead-in and the ground grid.

2.0.9 Equipotential bonding equipotential bonding

Connect separate devices or multiple conductive objects with conductors or lightning arresters to reduce the potential difference between them caused by lightning current.

2.0.10 Earth conductor

The grounding wire is the cable used in the equipotential connection, which refers to the equipment of the communication bureau (station), the elevator track, the crane, the metal

floor, the metal door frame, the metal pipe, the metal cable tray, the railing on the outer wall, etc. The conductive object is reliably connected to the grounding bus bar or the cable between the grounding pooling lines.

2.0.11 Earth terminal

A collection of conductors for various grounding wires.

2.0.12 Grounding collection line mail earth conductor

The grounding collection line refers to the strip-shaped copper bar or flat steel as the grounding conductor. It is usually used as the main line of the grounding system in the communication bureau (station). According to the laying method, it can be classified into horizontal grounding collection line, vertical grounding collection line, ring Grounding pooling wire or strip grounding pooling wire.

2.0.13 Earthing system earthing system

All electrical connections and devices included in the grounding of systems, devices and equipment, including grounding bodies buried in the ground, grounding wires, cable shields connected to grounding bodies, and equipment shells or exposed metal parts connected to grounding bodies, Complex systems including building reinforcement and frames.

2.0.14 Rolling sphere method

A simplified analysis method for the application of electrical geometry theory in lightning protection analysis of buildings. The rolling ball method involves rolling an imaginary ball with a specified radius along the surface of the protected object. The ball is supported by lightning rods, lightning conductors, fences and other grounded metal objects, and rolls up and down for calculating the lightning protection range. A piece of equipment is protected if it is under the protective surface formed by the rolling of the ball, and equipment that touches the ball or penetrates its surface is not protected.

2.0.15 Soil resistivity earth resistivity

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

2.0.16 Power frequency earth 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.

2.0.17 Surge protective device, SPD

Devices for protecting communication systems under lightning overvoltage, operating overvoltage, etc. A device for protecting equipment by suppressing transient overvoltages and bypassing surge currents, which contains at least one non-linear element.

3 Basic Regulations

3.0.1

The grounding system of the communication bureau (station) must adopt the joint grounding method.

3.0.2

The power supply mode of the communication bureau (station) shall comply with the relevant provisions of the current national standard GB 50689 "Code for Design of Lightning Protection and Grounding Engineering of Communication Bureau (Station)".

3.0.3

The main equipment and materials used in the lightning protection and grounding works of communication bureaus (stations) shall meet the following requirements.

1. The type and specification of equipment and materials shall meet the engineering design requirements. When alternative materials need to be used, they shall be approved by the construction unit and the design unit, and shall be used after going through the modification procedures;
- 2 The equipment and materials should be inspected when they enter the site, and should be used after passing the inspection;
- 3 Outdoor steel materials and fasteners should be hot-dip galvanized products or stainless steel products;
- 4 The galvanized layer of galvanized products should be completely covered and free from rust spots on the surface.

3.0.4

When bolt connection is used in the lightning protection and grounding system, the contact surface shall be ground and anti-loosening parts shall be installed.

3.0.5

When the lightning protection and grounding system is connected or fixed by welding, paint, paint, enamel and other non-conductive coatings should be removed, the welding should be firm, the weld seam should be full and smooth, and the welded part should be free of solder joints and pores.