

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

YD/T 1051-2018

Replacing YD/T 1051-2010

**General requirements of power supply system for
telecommunication stations/sites**

通信局（站）电源系统总技术要求

(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces YD/T 1051-2010 "General Technical Requirements for Communication Bureau (Station) Power System".

Compared with YD/T 1051-2010, the main technical changes of this standard are as follows.

-Deleted $\pm 24\text{V}$ DC power supply system and its basic power supply, DC power supply mode selection, Appendix A main series and technology of power distribution equipment Requirements (see 2010 edition 5, 7, 9, Appendix A);

-Added 336V DC power supply system, lightning protection isolation transformer, DC remote power supply system commonly used in small stations, and active reactive power Compensation, 10kV AC basic power supply, 240V and 336V DC basic power supply, battery charging and discharging operation in peak shifting and valley filling operation mode Mode, dual-channel hybrid power supply mode, high-rate battery configuration principle, shared management equipment for battery packs, isolated floating ground lightning protection mode, Three monitoring system structures, appendix B -48V power supply mode to dual-channel hybrid power supply mode conversion, appendix C mains reliability index Statistics (see 5, 6, 7, 9, 10, 11, 12, 13, Appendix A, Appendix B, Appendix C).

Please note that certain contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents.

This standard was proposed and managed by the China Communications Standards Association.

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Company, Fiberhome Technology Group Co., Ltd., Wolong Electric Group Zhejiang Lighthouse Power Co., Ltd., Zhejiang Tianzheng Electric Co., Ltd., China Tower Co., Ltd., Purcell Communication Service Technology Co., Ltd.

1 Scope

This standard specifies the basic principles and requirements of communication power supply systems, including the structure and form of power supply systems of various communication bureaus (stations).

Power supply system, DC power supply system, lightning protection and grounding, technical performance requirements of main power equipment, power supply system monitoring, environmental conditions and other requirements.

This standard is applicable to all types of communication station power systems.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB 12348 Environmental Noise Emission Standard at the Boundary of Industrial Enterprises GB 50016 Code for fire protection of building design GB/T 50065 Grounding design code for AC electrical installations GB 50689 Communications Bureau (Station) Lightning Protection and Grounding Engineering Design Code GB 51194 Code for Design of Installation Engineering of Communication Power Supply Equipment YD/T 1058 High-frequency switching power supply system for communication YD/T 1363 Centralized Monitoring and Management System for Power Supply, Air Conditioning and Environment of Communication Bureau (Station) YD/T 1818 Telecom Data Center Power System YD/T 2378 240V DC power supply system for communication YD/T 3007 Lightning protection and grounding technical requirements for small wireless systems YD/T 3089 336V DC power supply system for communication YD 5059 Code for seismic design of telecommunication equipment installation.

3 General

3.1

Communication bureaus (stations) are divided into the following categories according to their importance and scale.

- One type of bureau station. has a computer room that carries international and inter-provincial network services, a computer room that provides services and support for the whole province, Office stations such as super large and large data center computer rooms.
- Two types of office stations. office stations that have a computer room that carries local network services, a computer room that provides services and support for the entire local network, and a medium-sized data center computer room.
- Three types of office stations. office stations with computer rooms and small data center computer rooms that carry regional services and support in the local network.
- Four types of office stations. with computer rooms, base stations, and indoor distribution stations that carry network terminal access services.

3.2

In the initial stage of construction, the first and second types of bureau stations should take the external city power, substation and distribution as the infrastructure. The introduction of external power the area reserved for power distribution, generator sets, and power battery rooms should consider long-term load requirements. The construction of power transformation, distribution and generator sets should be considered convenient for expansion.

3.3

The newly-built bureau (station) shall conduct an EMC environmental assessment in accordance with national environmental protection requirements.

3.4

Communication bureaus (stations) should give priority to using safe and energy-saving power supply methods and power equipment. The application of energy-saving equipment should not sacrifice communication equipment at the expense of the longevity of the equipment and reducing the safety of the system.

3.5

A monitoring and centralized maintenance and management system for the power supply system of the communication bureau (station) should be established, in line with the provisions of YD/T 1363, and gradually achieve fewer people or unattended.

3.6

The communication bureau (station) should have reliable overvoltage and lightning protection functions, and comply with the regulations of GB 50689. Reconstruction and expansion of the communications bureau (station), the grounding and lightning protection facilities should be improved according to the requirements of the specification to ensure the safety of communication.

3.7

The configuration of the power supply system should meet the requirements of reliability indicators.

4 Introduction of external electricity

4.1

The reliability and classification of the mains power shall be fully considered during the construction of the communication station. See the classification and unavailability index of the mains power supply mode in 11.1.

In principle, the introduction of the first category of city power should be considered for the first type of station; the second category of communication bureau should consider the