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

GB/T 15153.1-2024

Replacing GB/T 15153.1-1998

**Telecontrol equipment and systems - Part 2: Operating
conditions - Section 1: Power supply and electromagnetic
compatibility**

远动设备及系统 第2部分：工作条件 第1篇：电源和电磁兼容性
(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is the first part of GB/T 15153 "Telecontrol equipment and systems Part 2: Working conditions". GB/T 15153 has been published.

The following parts.

--- Part 1: Power supply and electromagnetic compatibility;

--- Section 2: Environmental conditions (climatic, mechanical and other non-electrical factors).

This document replaces GB/T 15153.1-1998 "Telecontrol equipment and systems Part 2: Working conditions Part 1: Power supply and electromagnetic compatibility" Compared with GB/T 15153.1-1998, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The scope has been changed (see Chapter 1, Chapter 1 of the 1998 edition);
- b) 14 terms and definitions were deleted, and "telecontrol equipment", "telecontrol system", "harmonic content", "ripple voltage", and "test equipment" were added.
12 terms. "Port", "Casing Port", "Power Port", "Communication Port", "Input Port", "Output Port" and "Maximum Internal Frequency" Terms and definitions (see Chapter 3, Chapter 3 of the 1998 edition);
- c) The nominal AC voltage and nominal DC voltage values have been changed (see Table 1 and Table 5, Table 1 and Table 5 of the 1998 edition);
- d) Changed Chapter 5, classifying tests by port, and deleted the simulated disturbance phenomena and voltage/current waves in the original document list.
The chart lists the test specifications, units, method standards, test procedures, acceptance criteria and other information in detail, and changes the name of the test items.
(see Chapter 5, Chapter 5 of the 1998 edition);
- e) Added the requirements for radiated emission (1GHz~6GHz) (see Table 9);
- f) Added the requirements for conducted emissions of communication ports (see 5.1.4);
- g) Added the requirements for radio frequency electromagnetic field radiation immunity (1.4GHz~2.7GHz) (see Table 14);
- h) The test frequency of electrical fast transient burst immunity has been changed (see Table 16, Table 19, Table 20, Table 12 of the 1998 edition);
- i) The method standards and test levels for slow damped oscillatory waves have been changed (see Table 16, Table 19, Table 20, Table 12 of the 1998 edition);
- j) Added pulse magnetic field immunity test (see Table 15);
- k) Added the conducted disturbance immunity test induced by radio frequency field (see Table 16, Table 19, Table 20);
- l) The method standard for ring wave immunity has been changed (see Table 16, Table 20, Table 12 of the 1998 edition);
- m) Added test configuration and procedures (see 5.3);
- n) The acceptance criteria have been changed (see 5.4, Table 16 of the 1998 edition);
- o) Deleted the protection technology and installation guidelines (see 5.5 of the 1998 edition);
- p) Deleted insulation withstand voltage (see 5.4 of the 1998 edition);
- q) Added "Test Report" (see Chapter 6).

Introduction

Telecontrol equipment and systems are used to monitor and control geographically distributed production processes and transmit data.

To ensure the best working performance under various possible conditions, the equipment and system should be designed to work under different environmental conditions.

Requirements are necessary.

GB/T 15153 "Telecontrol equipment and systems Part 2: Working conditions" is intended to specify the power supply and electromagnetic compatibility of telecontrol equipment and systems.

The content of this paper is about sex, environmental conditions, etc., and is planned to be composed of the following parts.

--- Part 1: Power supply and electromagnetic compatibility. The purpose is to specify the power supply conditions and electromagnetic compatibility of telecontrol equipment and systems.

Require.

--- Part 2: Environmental conditions (climatic, mechanical and other non-electrical factors). The purpose is to specify the working environment of telecontrol equipment and systems.

The level of environmental conditions (climatic, mechanical and other non-electrical influencing factors).

Telecontrol equipment and systems Part 2: Working conditions Part 1: Power supply and electromagnetic compatibility

1 Scope

This document specifies the power supply and electromagnetic compatibility of telecontrol equipment and systems under working conditions, test report requirements, and describes the corresponding test method.

This document is applicable to the design, production, and manufacturing of telecontrol equipment and systems, protection and measurement equipment, and distribution automation terminal equipment.

And the reference adoption of the distribution carrier system that supports the distribution automation system.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 4365 Electrical terminology - Electromagnetic compatibility GB/T 9254.1
Electromagnetic compatibility of information technology equipment, multimedia equipment and receivers Part 1: Emission requirements GB 17625.1-2022 Electromagnetic compatibility limits Part 1: Harmonic current emission limits (equipment input current per phase $\leq 16A$) GB/T 17625.2-2007 Electromagnetic compatibility limit values for equipment with a rated current of $\leq 16A$ per phase and unconditional access in public low Limitation of voltage changes, voltage fluctuations and flicker in high-voltage power supply systems GB/T 17626.2 Electromagnetic compatibility test and measurement technology Electrostatic discharge immunity test GB/T 17626.3 Electromagnetic compatibility test and measurement technology Part 3: Radio frequency electromagnetic field radiation immunity test GB/T 17626.4 Electromagnetic compatibility test and measurement technology Electrical fast transient pulse group immunity test GB/T 17626.5 Electromagnetic compatibility test and measurement technology Surge (impact) immunity test GB/T 17626.6 Electromagnetic compatibility test and measurement technology - Immunity to conducted disturbances induced by radio frequency fields GB/T 17626.8 Electromagnetic compatibility test and measurement technology Power frequency magnetic field immunity test GB/T 17626.9 Electromagnetic compatibility test and measurement technology Pulse magnetic field immunity test GB/T 17626.10 Electromagnetic compatibility test and measurement technology Damped oscillating magnetic field immunity test GB/T 17626.11 Electromagnetic compatibility test and measurement technology Part 11: For each phase input current less than or equal to 16A Voltage dips, short interruptions and voltage variations immunity test for equipment GB/T 17626.12 Electromagnetic compatibility test and measurement technology Part 12: Ringing wave immunity test GB/T 17626.13-2006 Electromagnetic compatibility test and measurement technology AC power port harmonics, interharmonics and power grid signals Low frequency immunity test GB/T 17626.14 Electromagnetic compatibility test and measurement technology Voltage fluctuation immunity test GB/T 17626.18 Electromagnetic compatibility test and measurement technology Damped oscillation wave immunity test GB/T 17626.29 Electromagnetic compatibility test and measurement technology DC power input port voltage sag, short interruption and voltage variation Immunity test