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

GB/T 18268.21-2025

Replacing GB/T 18268.21-2010

**Electrical equipment for measurement, control and laboratory use-EMC
requirements-Part 21: Particular requirements-Test configurations, operational
conditions and performance criteria for sensitive test and measurement equipment for
EMC unprotected applications**

(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 Part 21 of GB/T 18268 "Electromagnetic compatibility requirements for electrical equipment for measurement, control, and laboratory use".

GB/T 18268 has published the following parts.

- Part 1: General requirements;
- Part 21: Special requirements for test configuration and working conditions of sensitivity test and measurement equipment for applications without electromagnetic compatibility protection and performance criteria;
- Part 22: Particular requirements Test configuration, operating conditions and requirements for portable test, measuring and monitoring equipment for low-voltage distribution systems Performance criteria;
- Part 23: Special requirements for test configurations, operating conditions and performance criteria for transmitters with integrated or remote signal conditioning;
- Part 24: Particular requirements for insulation monitoring devices in accordance with IEC 61557-8 and insulation fault determination devices in accordance with IEC 61557-9 Test configuration, operating conditions and performance criteria of the equipment;
- Part 25: Special requirements for test configuration, operating conditions and performance of field devices with interfaces conforming to IEC 61784-1, CP3/2 Ability to judge;
- Part 26: Particular requirements for in vitro diagnostic (IVD) medical devices;
- Part 31: Immunity requirements for safety-related systems and equipment intended to perform safety-related functions (functional safety) General industry application;
- Part 32: Immunity requirements for safety-related systems and equipment intended to perform safety-related functions (functional safety) Specific electromagnetic Industrial applications of the environment.

This document replaces GB/T 18268.21-2010 "Electromagnetic compatibility requirements for electrical equipment for measurement, control and laboratory use Part 21 Part 3: Special requirements for test configuration, working conditions and performance criteria of sensitivity test and measurement equipment for occasions without electromagnetic compatibility protection.

Compared with GB/T 18268.21-2010, the main technical changes are as follows.

- Added immunity test requirements for portable test and measuring equipment powered by batteries or circuits under test (see Appendix A);
- Added electromagnetic compatibility analysis and evaluation guide (see Appendix B).

This document is equivalent to IEC 61326-2-1:2020 "Electromagnetic compatibility requirements for electrical equipment for measurement, control, and laboratory use Part 2-1 Part 1: Special requirements for test configuration, working conditions and performance criteria of sensitivity test and measurement equipment for situations without electromagnetic compatibility protection.

The following minimal editorial changes have been made to this document.

--- In order to coordinate with the existing standards, the name of the standard was changed to "Electromagnetic compatibility requirements for electrical equipment for measurement, control and laboratory use" Part 21: Special requirements - Test configuration and working conditions of sensitivity test and measurement equipment for applications without electromagnetic compatibility protection and performance criteria".

Introduction

The proposed standard GB/T 18268 "Electromagnetic compatibility requirements for electrical equipment for measurement, control and laboratory use" consists of 9 parts.

--- Part 1: General requirements. The purpose is to specify the electromagnetic requirements of electrical equipment for professional, industrial process, industrial manufacturing and educational use Compatibility immunity and emission requirements, these electrical devices are powered by less than AC 1000V or DC 1500V power supply or battery, or powered by the line under test, including equipment and computing devices used in industrial and non-industrial locations.

--- Part 21: Special requirements for test configuration and working conditions of sensitivity test and measurement equipment for applications without electromagnetic compatibility protection the purpose is to specify in more detail the equipment with test and measurement circuits (internal and (or) external circuits of the equipment) the test configuration, working conditions and performance criteria of these devices are specified by the manufacturer for operational and/or functional reasons.

No EMC protection.

--- Part 22: Particular requirements Test configuration, operating conditions and performance of portable test, measuring and monitoring equipment for low-voltage distribution systems the purpose is to specify in more detail the test, measurement or monitoring equipment of low voltage distribution system protection facilities, which consists of batteries and (or) Test configuration, operating conditions and performance criteria for equipment powered by the tested circuit and portable equipment. This document is consistent with GB/T 18268.1 Use in conjunction.

--- Part 23: Special requirements for test configurations, operating conditions and performance criteria for transmitters with integrated or remote signal conditioning.

The purpose is to define in more detail the conversion function, which is characterized by the conversion of non-electrical quantities into process-related quantities with the help of auxiliary energy.

The test configuration and working principle of the transmitter for measuring electrochemical quantity and biomass are provided.

Conditions and performance criteria.

--- Part 24: Particular requirements for insulation monitoring devices in accordance with IEC 61557-8 and insulation fault determination devices in accordance with IEC 61557-9 the purpose is to provide more detailed provisions for the test configuration, operating conditions and performance criteria of the equipment in accordance with IEC 61557-8.

Test configuration, operating conditions and performance criteria for monitoring devices and insulation fault location equipment according to IEC 61557-9.

--- Part 25: Special requirements for test configuration, operating conditions and performance of field devices with interfaces conforming to IEC 61784-1, CP3/2 the purpose is to discuss the special requirements of electromagnetic compatibility testing of field devices for interfaces that meet IEC 61784-1, CP3/2.

--- Part 26: Particular requirements for in vitro diagnostic (IVD) medical devices. The purpose is to Electromagnetic environment, specifies the basic requirements for its electromagnetic compatibility, immunity and emission. This document is coordinated with GB/T 18268.1 use.

--- Part 31: Immunity requirements for safety-related systems and equipment intended to perform safety-related functions (functional safety) General industry Application. The purpose is to specify the expected performance of SIL1 to SIL3 in IEC 61508 in the electromagnetic environment of indoor and outdoor industrial sites.

Immunity requirements for industrial systems and equipment for safety functions.

--- Part 32: Immunity requirements for safety-related systems and equipment intended to perform safety-related functions (functional safety) Specific electromagnetic the purpose is to specify the specific electromagnetic environment obtained by applying mitigation measures in indoor and outdoor industrial locations.

Under the IEC 61508 SIL1 to SIL3, the systems and equipment used in industrial applications that are intended to perform safety functions are immune to disturbances.

Degree requirements.

This document is used in conjunction with GB/T 18268.1.

Electromagnetic compatibility of electrical equipment for measurement, control and laboratory use Capacitive requirements Part 21: Special requirements for electromagnetic Compatible with sensitive testing and measuring equipment for protective applications Test configuration, working conditions and performance criteria