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

GB/T 18663.5-2022

**Mechanical structures for electronic equipment - Tests for
metric and inch system - Part 5: Seismic tests for chassis,
subracks and plug-in units**

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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 of Standardization Documents"

drafted.

This document is part 5 of GB/T 18663 "Mechanical Structure of Electronic Equipment Metric Series and Imperial Series Tests". GB/T 18663

The following sections have been published.

--- Part 1. Climatic, mechanical test and safety requirements for cabinets, racks, sub-boxes and enclosures;

--- Part 2. Seismic tests of cabinets and racks;

--- Part 3. Electromagnetic shielding performance test of cabinets and sub-boxes;

--- Part 4. Combination of performance levels for modular cabinets;

--- Part 5. Seismic tests of enclosures, sub-boxes and plug-ins.

This document is equivalent to IEC 61587-5:2013 "Tests Part 5 of IEC 60917 and IEC 60297 for Mechanical Structure of Electronic Equipment"

Sub-section. Seismic Testing of Chassis, Sub-chassis and Plug-Ins".

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

--- In order to harmonize with the existing standards, the standard name is changed to "Mechanical Structure of Electronic Equipment Metric Series and Imperial Series Test No.

Part 5. Seismic testing of enclosures, sub-boxes and plug-ins".

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

The mechanical structure of electronic equipment (cabinet, rack, sub-box, chassis and plug-in) is an important part of electronic equipment. For the imperial system

The mechanical structure of electronic equipment for column and metric series modular series and harmonized dimensional standards requires the establishment of a set of climatic, mechanical environment and safety requirements.

The required test specifications and requirements to meet the functional and reliability requirements of electronic equipment. The main problems it solves are.

---Specify the general climate, mechanical environment and safety test specifications and requirements for the mechanical structure of electronic equipment;

---Provide the combination of performance level and protection level of the mechanical structure of electronic equipment;

---Specify the seismic test and requirements for the mechanical structure of electronic equipment;

---Specify the electromagnetic shielding performance test specifications and requirements for cabinets and sub-boxes.

GB/T 18663 "Mechanical structure of electronic equipment metric series and inch series test" is for the mechanical structure of electronic equipment (machine

A series of environmental test standards formulated by cabinets, racks, sub-boxes, chassis and plug-ins), and it is proposed to be composed of five parts.

--- Part 1.Climatic, mechanical testing and safety requirements for cabinets, racks, sub-boxes and chassis. Designed to specify mechanical junctions of electronic equipment

Climatic, mechanical environment, and safety requirements common to organizations (cabinets, racks, sub-boxes, and enclosures).

--- Part 2.Seismic tests of cabinets and racks. Designed to specify seismic test conditions and criteria for cabinets and racks to evaluate cabinets

Or the ability of a rack mechanical structure to withstand a specific seismic intensity.

--- Part 3.Electromagnetic shielding performance test of cabinets and sub-boxes. Designed to regulate empty cabinets and sub-boxes at 30MHz~3000MHz

Electromagnetic shielding performance tests and class requirements in the frequency range.

--- Part 4.Combination of performance levels for modular cabinets. Designed for modular cabinets in IP codes, climate classes, static and dynamic loads

Testing, electromagnetic shielding and seismic requirements provide a combination of different protection levels for ease of selection and procurement.

--- Part 5. Seismic tests of enclosures, sub-boxes and plug-ins. To specify seismic test conditions and standards for enclosures, sub-boxes and plug-ins,

To assess the ability of chassis, sub-box and plug-in mechanical structures to withstand specific seismic intensities.

This document specifies the configuration, conditions, sequence, performance requirements and acceptance criteria for seismic testing of electronic equipment enclosures, sub-boxes and plug-in structures

Evaluate the mechanical structure strength of electronic equipment chassis, sub-box or plug-in, so that it has certain use and maintenance during and after the earthquake

function to help determine an economical seismic solution for the intended use of electronic equipment.

Mechanical structure of electronic equipment

Metric series and imperial series tests

Part 5. Seismic testing of enclosures, subracks and plug-ins

1 Scope

This document specifies the seismic test requirements for enclosures, sub-racks and their plug-ins as defined in the IEC 60297 and IEC 60917 series. according to

IEC 60297 and IEC 60917 series, which only apply in whole or in part to the mechanical structure of enclosures, sub-boxes and their plug-ins for electronic equipment, not

Suitable for electronic components, equipment or systems within mechanical structures.

NOTE. A subrack can be an integral part of a chassis (often referred to in the industry as a subrack or chassis).

The purpose of this document is to ensure the physical integrity of enclosures, sub-racks and plug-ins as defined by IEC 60297 and IEC 60917 so that their

Maintain certain use and maintenance functions during and after the earthquake. It is designed to provide users with sufficient

confidence.

Due to the various sizes, weights and mechanical complexities of the IEC 60297 and IEC 60917 series of enclosures, sub-racks and inserts

The quality category specifies a minimum seismic test requirement. Therefore, overall

quality categories are specified in this document. However, inside the chassis and slot Mass distribution is considered "specific application" and is defined here as "intended use". Uniaxial acceleration or triaxial acceleration for seismic testing is optional.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

Note. GB/T 2423.10-2019 Environmental Testing Part 2.Test Method Test Fc. Vibration (Sinusoidal) (IEC 60068-2-6.2007, IDT)

IEC 60068-2-47 Environmental testing Part 2-47.Installation of test specimens for testing vibration, shock and similar dynamics (Env-tests)

Note. GB/T 2423.43-2008 Environmental Testing of Electrical and Electronic Products Part 2.Test Methods for Vibration, Shock and Similar Dynamics Test Sample Safety

Installation (IEC 60068-2-47.2005, IDT)

IEC 60068-2-57 Environmental testing Part 2-57.Test test Ff. Vibration time history and sinusoidal beat frequency method (Env-

Note. GB/T 2423.48-2018 Environmental testing Part 2.Test method Test Ff. Vibration time history and sinusoidal beat frequency method (IEC 60068-2-57.2013, IDT)

IEC 60068-3-3 Environmental Testing Part 3-3.Supporting Documents and Guidelines for Seismic Test Methods for Equipment (Environmental

Note. GB/T 2424.25-2000 Environmental Testing of Electrical and Electronic Products Part 3.Test Guidelines Seismic Test Methods (IEC 60068-3-3.1991, IDT)

IEC 60297 (all parts) Mechanical structure of electronic equipment 482.6mm (19in) series mechanical structure dimensions [Mechanical