



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

GB/T 2423.39-2018

**Environmental testing - Part 2: Test methods - Test Ee and
guidance: Loose cargo testing including bounce**

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Foreword

GB/T 2423 "Environmental testing - Part 2. Test methods - Test Ee and guidance. Loose cargo testing including bounce" is divided into several parts

according to the test methods.

This Part is Part 39 of GB/T 2423.

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

This Part replaces GB/T 2423.39-2008 "Environmental testing for electric and electronic products - Part 2.Tests - Test Ee. Bounce". Compared with GB/T 2423.39-2008, the main technical changes in this Part are as follows.

- change the standard's name;
- allow bulk cargo testing in a more general sense; no longer correspond to special testing machines; allow the use of any suitable equipment; sine and random vibration can be used; rotating table movement test is listed in Annex A as a historical method;
- add Clause 9 "Recovery" and Clause 12 "Information to be given in the test report";
- delete Figure 3; adjust Figure 1 and Figure 2 to Annex A; add typical reference point position icon in Figure A.1;
- Annex A is modified from "informative" to "normative";
- Annex B is changed in the form of tables; delete the comparison with Test Eb and Test Ed Method 1 and Method 2.

This Part uses translation method to identically adopt IEC 60068-2-55.2013 "Environmental testing - Part 2-55.Tests - Test Ee and guidance - Loose cargo testing including bounce".

The Chinese documents which have consistency with the international normative references in this Part are as follows.

- GB/T 2421.1-2008, Environmental testing for electric and electronic products - General and guidance (IEC 60068-1.1988, IDT);
- GB/T 2423.10-2008, Environmental testing - Part 2.Test methods - Test Fc. Vibration (sinusoidal) (IEC 60068-2-6.1995, IDT);
- GB/T 2423.56-2006, Environmental testing for electric and electronic

products - Part 2. Test methods - Test Fh. Vibration, broad-band random (digital control) and guidance (IEC 60068-2-64.1993, IDT);

- GB/T 2423.58-2008, Environmental testing for electric and electronic products - Part 2. Test methods - Test Fi. Vibration - Mixed mode (IEC 60068-2-80.2005, IDT).

This Part made the following editorial modifications.

- change the standard's name to "Environmental testing - Part 2. Test methods - Test Ee and guidance. Loose cargo testing including bounce";
- change the min-1, which represents the speed per minute in IEC 60068-2-55.2013, to the domestically accepted r/min;
- correct the corresponding clause number of item i) in Clause 11 from "Clause 9" to "Clause 10".

This Part was proposed by and shall be under the jurisdiction of National Technical Committee on Environmental Conditions and Environmental Tests for Electrical and Electronic Products of Standardization Administration of China (SAC/TC 8).

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Versions of standard substituted by this Part are.

- GB/T 2423.39-1990, GB/T 2423.39-2008.

Environmental testing - Part 2. Test methods - Test Ee and guidance. Loose cargo testing including bounce

1 Scope

This Part of GB/T 2423 provides a standard procedure for determining the ability of a specimen to withstand specified severities of bounce, e. g. when transported as loose cargo on wheeled vehicles.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-1, Environmental testing - Part 1. General and guidance 1

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

standard acceleration due to the earth's gravity, which itself varies with altitude and geographical latitude

4 Requirements for the test apparatus

The testing machine shall consist of a horizontal platform coupled to a shaker or a similar drive mechanism. If prescribed by the relevant specification, special bounce testing machines may be used (see Clause A.3).

The testing machine shall be installed so that at its lowest point (bottom dead centre of the motion), the platform is horizontal within the following tolerance.

- $\pm 0.5^\circ$ in the longitudinal and lateral axes (respectively pitching and rolling angles).

5 Severities

NOTE. Severity is described by the motion of the platform and the testing duration.

If random vibration is required, the relevant specification should refer to IEC 60068-2-64 and prescribe the ASD spectrum of the motion together with the