



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

GB/T 2423.5-2019

**Environmental testing - Part 2: Test methods - Test Ea and
guidance: Shock**

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Foreword

GB/T 2423 "Environmental testing - Part 2", according to test methods, is divided into several parts.

This Part is Part 5 of GB/T 2423.

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

This Part replaces GB/T 2423.5-1995 "Environmental testing for electric and electronic products - Part 2. Test methods - Test Ea and guidance. Shock" and GB/T 2423.6-1995 "Environmental testing for electric and electronic products - Part 2. Test methods - Test Eb and guidance. Bump". This Part integrates the contents of GB/T 2423.5-1995 and GB/T 2423.6-1995. Compared with GB/T 2423.5-1995 and GB/T 2423.6-1995, the main technical changes are as follows.

- In 4.2 Measuring system, add the requirement for the cut-off frequency when using a low-pass filter;
- In Clause 5, add requirements for the number of shocks in each direction;
- The table in Figure 4 combines the tables of Figure 4 of the previous GB/T 2423.5-1995 and of Figure 2 of GB/T 2423.6-1995;
- INCREASE the severities in Table 1.

This Part, using translation method, is identical to IEC 60068-2-27.2008

"Environmental testing - Part 2-27.Tests - Test Ea and guidance. Shock".

China's documents which have a consistent correspondence with the international documents normatively referenced 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 2423.39-2018 Environmental testing - Part 2.Test methods - Test Ee and guidance. Loose cargo testing including bounce (IEC 60068-2-55.2013, IDT);
- GB/T 4798.1-2005 Environmental conditions existing in the application of electric and electronic products - Section 1.Storage (IEC 60721-3-1.1997, MOD);
- GB/T 4798.5-2007 Environmental conditions existing in the application of electric and electronic products - Section 5.Ground vehicle installations (IEC 60721-3-5.1997, MOD).

The following editorial changes have been made in this Part.

- Modify standard name.

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

Drafting organizations of this Part. The Fifth Electronics Research Institute of

the Ministry of Industry and Information Technology, China National Intelligent Equipment Research Institute, Shanghai Institute of Quality Inspection and Technical Research, Wuhu Ceprei Information Industry Technology Research Institute.

Main drafters of this Part. Cheng Debin, Lu Zhaoming, Xie He, Hou Weiguo.

This Part replaces GB/T 2423.5-1995 and GB/T 2423.6-1995.

The previous releases of GB/T 2423.5-1995 were.

- GB/T 2423.5-1981.

The previous releases of GB/T 2423.6-1995 were.

- GB/T 2423.6-1981;

- GB/T 2424.4-1981.

Environmental testing - Part 2. Test methods -

Test Ea and guidance. Shock

1 Scope

This Part of GB/T 2423 provides a standard procedure for determining the ability of a specimen to withstand specified severities of non-repetitive or repetitive shocks.

2 Normative references

The following documents are indispensable for the application of this document.

For the dated references, only the editions with the dates indicated are applicable to this document. For the undated references, the latest edition (including all the amendments) are applicable to this document.

3 Terms and definitions

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

Note. The terms used are, for the most part, defined in ISO 2041[1] or IEC 60068-1. The following additional terms and definitions are also applicable for the purposes of this Part.

4 Description of test apparatus

Three types of pulse, namely the half-sine pulse, the final-peak saw-tooth pulse and the trapezoidal pulse, are included in this Part. The choice of pulse shape depends on a number of factors. This Part gives the priority order of shape choice (see Clause A.3).

5 Severities

The relevant specification shall prescribe the pulse shape and the shock severity. Shocks shall be applied in all three axes and in both a positive and negative direction, as required by the relevant specification.

6 Preconditioning

The relevant specification may call for preconditioning.

7 Initial measurements and functional performance test

The specimen shall be submitted to visual, dimensional, functional and any other checks as prescribed by the relevant specification.

8 Testing

The number of shocks prescribed by the relevant specification shall be applied successively in each direction of three mutually perpendicular axes of the specimen. When testing a number of identical specimens, they may be oriented so that the shocks are applied simultaneously along these three axes (see Clause A.7).

9 Recovery

It is sometimes necessary to provide a period of time after testing and before final measurements to allow the specimen to attain the same conditions, for example of temperature, as existed for the initial measurements. The relevant specification shall then prescribe the conditions for recovery.