



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

GB/T 2423.48-2018

**Environmental testing - Part 2: Test methods - Test Ff: Vibration
- Time-history and sine-beat method**

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Foreword

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

This Part is Part 48 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 2423.48-2008 "Environmental testing for electric and electronic products - Part 2. Test methods - Test Ff. Vibration- Time-history method" and GB/T 2423.49-1997 "Environmental testing for electric and electronic products Part 2. Test methods Test Fe. Vibration-sine-beat method". Compared with GB/T 2423.48-2008 and GB/T 2423.49-1997, in addition to editorial modifications, the main technical changes are as follows.

- combined the contents of GB/T 2423.48-2008 and GB/T 2423.49-1997; rearranged the structure of this Part;
- deleted GB/T 2423.5-1995, ISO 266.1997 and ISO 2041.1990, GB/T 2298-1991 as references;
- noted the sources of the terms and definitions; modified some definitions and explained the modification;
- modified the definition for "damping"; added the terms "viscous damping", "high

stress cycles", "natural time history"; added the note of the term "signal tolerance"; deleted the terms "response peak", "random motion sample", "sampling frequency", "distortion", and "strong part of the specified response spectrum";

- modified the content of "general requirements";
- modified the content of "test frequency range";
- added the requirements for test tolerance;
- deleted "parasitic movement"; separated the concepts of "lateral motion" and "rotational motion";
- modified "signal tolerance" and "vibration amplitude tolerance";
- deleted "calculation of test response spectrum";
- modified "number of response high peaks", "vibration response check" and "time history test";
- deleted Annex B "Test frequency range" of GB/T 2423.48-2008;
- modified Annex A "Guidelines" of GB/T 2423.49-1997;
- added Clause 13 "Information to be given in the test report".

This Part uses translation method to identically adopt IEC 60068-2-57.2013

"Environmental testing - Part 2-57.Tests - Test Ff. Vibration - Time-history and sine-beat method".

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 60068-1.1998, IDT);
- GB/T 2423.10-2008, Environmental testing for electric and electronic products - Part 2.Tests methods - Test Fc. Vibration (sinusoidal) (IEC 60068-2-6.1995, IDT);
- GB/T 2424.26-2008, Environmental testing - Supporting documentation and guidance - Selecting amongst vibration tests (IEC 60068-3-8.2003, IDT);
- GB/T 2423.56-2018, Environmental testing - Part 2.Test methods - Test Fh.

Vibration, broadband random and guidance (IEC 60068-2-64.2008, IDT).

For ease of use, this Part made the following editorial changes.

- the name of this Part is modified to "Environmental testing - Part 2. Test methods
- Test Ff. Vibration - Time-history and sine-beat method".

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

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Versions of standard substituted by this Standard are.

- GB/T 2423.48-1997, GB/T 2423.48-2008;
- GB/T 2423.49-1997.

1 Scope

This Part of GB/T 2423 provides a standard procedure for determining, by the time-history and sine-beat methods, the ability of a specimen to withstand specified severities of transient vibration.

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.

GB/T 2424.25-2000, Environmental testing for electric and electronic products Part

3 Terms and definitions

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

NOTE. Some of the following terms can be found in ISO 2041 [4], IEC 60068-1 or in IEC 60068-

2-6. Where, for the convenience of the reader, a definition from one of those sources is included

here, it is indicated.

4 Test requirements and associated parameters

The requirements for a vibration response investigation are given in 4.3, those for time-history testing in 4.4, those for sine-beat testing in 4.5 while 4.6 deals with mounting for testing.

5 Severities

The test frequencies and the test frequency range are obtained as shown in 5.3.

The test frequency range shall be given in the relevant specification by selecting a lower frequency from 0.1 Hz, 1 Hz, 5 Hz, 10 Hz, 55 Hz, 100 Hz and an upper frequency from

10 Hz, 20 Hz, 35 Hz, 55 Hz, 100 Hz, 150 Hz, 300 Hz, 500 Hz, 2 000 Hz.
The

recommended ranges are shown in Table 2.

6 Preconditioning

The relevant specification may call for preconditioning as, for example, conditioning the specimen with defined temperature and/or humidity.

7 Initial measurements

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

8 Testing

For sine-beat testing, values for the severity are given by the relevant specification according to Clause 5. Between consecutive sine beats a pause shall be included such that no significant superposition of response motion of the specimen occurs.