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

GB/T 2423.58-2008

**Environmental testing for electric and electronic products - Part
2: Test methods - Test Fi: Vibration - Mixed mode**

电工电子产品环境试验 第2-80部分: 试验方法 试验Fi: 振动 混合模式

(English Translation)

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1 Scope

The test methods provided in this section are suitable for samples that need to undergo complex simulation and mixed excitation vibration tests.

The purpose of this section is to verify that the sample will not produce unacceptable functions and/or structure after being subjected to the specified mixed mode excitation.

The reduction. When the vibration measurement data of the actual environment has mixed modes, this method is particularly suitable for tailoring the vibration environment.

This section is also applicable to reveal the cumulative effect of random and sine and/or

random mixed vibration stress, and the resulting mechanical defects and the reduction of specified performance, this information combined with relevant specifications can assess the acceptability of the sample. In some cases, this test method is also applicable to verify the mechanical strength of the sample.

This section also applies to samples that may be subjected to random and/or random combined with certain characteristics of vibration during transportation or actual use.

Such as aircraft, spacecraft and transportation will be packed in the transport container, and the transport container will be part of the sample itself.

This section applies to electrical and electronic products, as well as other fields that require it.

2 Normative references

The clauses in the following documents have become clauses of this part after being quoted in this part of GB/T 2423. All dated quotations all subsequent amendments (not including errata content) or revisions do not apply to this section. However, it is encouraged to achieve the parties to the agreement study whether the latest versions of these documents can be used. For undated reference documents, the latest version is applicable to this section.

GB/T 2421-1999 General rules for environmental testing of electrical and electronic products (idt IEC 60068-1:1988) GB/T 2423.10-2008 Environmental testing of electrical and electronic products Part 2: Test method Test Fc. Vibration (sine) (IEC 60068-2-6.:1995, IDT) GB/T 2423.43-2008 Environmental testing of electrical and electronic products Part 2: Test methods Vibration, shock and similar dynamic tests Installation of test samples (IEC 60068-2-47.:1995, IDT) GB/T 2423.56-2006 Environmental testing of electrical and electronic products Part 2: Test method Test Fh. Broadband random vibration (Numerical Control) and Guidelines (IEC 60068-2-64.:1993, IDT) IEC 60050-300.:2001 International Electrotechnical Vocabulary Electrical and Electronic Measuring and Measuring Instruments IEC 60050-311 International Electrotechnical Vocabulary and General Terms Related to Measurement IEC 60050-312 International Electrotechnical Vocabulary General terms related to electrical measurement IEC 60050-313 International Electrotechnical Vocabulary Types of Electrical Measuring Instruments IEC 60050-314 International Electrotechnical Vocabulary. Special terms used according to the type of instrument IEC 60068-3-8.:2003 Environmental Test Part 3-8.Vibration Test Selection IEC 60068-5-2.:1990 Environmental Testing Part 5: Drafting Guidelines for Test Methods, Terms and Definitions ISO 2041.:1990 Vocabulary of vibration and shock

3 Terms and definitions

The terms used in this section defined below are generally in ISO 2041-1990, IEC 60050-300.:2001, GB/T 2421-1999, it has been defined in GB/T 2423.10-2008, GB/T 2423.56-2006 and IEC 60068-5-2:1990. For the convenience of the reader, this A certain definition from the above-mentioned standard is used here, and the source and differences are pointed out.

GB/T 2423.58-2008/IEC 60068-2-80.:2005 in addition, the terms and definitions added below are also applicable.

Movement in the non-excited direction is usually defined as two orthogonal axes.

The movement represented by the broadband signal returned from the reference point sensor.

The part where the sample is in contact with the fixture or the table surface of the vibrating table is usually the point where the sample is fixed in use.

Note: If it is used as a fixture as a part of the actual installation structure, the fixed point should be the point on the installation structure, not the point from the sample.

3.4 Control points

3.4.1

By using the signal from the reference point, the vibration of the point is maintained at a prescribed level of control.

3.4.2

The signal from each detection point is realized by continuous arithmetic average or comparison technology processing according to the requirements of relevant specifications for control method, see 3.9.

The standard acceleration value produced by the gravity of the earth, which varies with altitude and geographic latitude.

Some specific points of data collected in the experiment. There are 3 types, which are defined as follows.

3.6.1

The point located on the fixture, the vibrating table or the sample as close to the fixed point as possible. The test point must be rigid with the sample in any case connection.

Note 1: The number of test points should meet the requirements of the test.

Note 2: If there are 4 or less fixed points, each is used as a detection point. If there are more than 4

fixed points, the relevant regulations shall specify Four representative fixed points are used as detection points.

Note 3: In special cases, such as large or complex samples, if the test point is required to be elsewhere (not close to the fixed point), it should be included in the relevant specifications Regulations.

Note 4: When a large number of small samples are installed in a fixture, or when a small sample has many fixed points, in order to derive the control signal, a single test can be selected Point (ie reference point). The signal is related to the fixture and not to the fixed point of the sample. In this case, only after the fixture is loaded with samples and other loads Only when the lowest resonance frequency is sufficiently higher than the upper limit of the test frequency is feasible.

3.6.2

In order to meet the requirements of this part of the selected point from the detection point, the signal at this point is used for the control test.

3.6.3

A point derived from multiple detection points manually or automatically, and the result is used to control the test to meet the requirements of this section.

GB/T 2423.58-2008/IEC 60068-2-80.:2005 3.6.4 A specific point on the sample where data is collected for vibration response analysis.

Note: It is different from detection point and reference point.

The three axes perpendicular to each other are the most vulnerable in the sample.

The number of discrete values collected per second, used to digitally record or represent a time history.

The calculation method of reference control signal is adopted when multi-point control is adopted. The following frequency domain control strategies can be selected, see 3.4.2.

3.9.1

For the processing method of obtaining the control value from the arithmetic mean of the signal value of each frequency at more than one detection point, see 3.31.

3.9.2

For the processing method of the control value formed by the maximum or minimum value of the signal value on each frequency line at more than one detection point, see 3.31.

3.10

MAX/SUM

Define the random superimposed random severity level of the narrowband ASD value (see