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GB/T 2423.60-2008 / IEC 60068-2-21:2006

**Environmental testing for electric and electronic products -
Part 2: Test methods - Test U: Robustness of terminations
and integral mounting devices**

电工电子产品环境试验 第2部分：试验方法 试验U：引出端及整
体安装件强度

(IEC 60068-2-21:2006, Environmental testing - Part 2-21: Tests - Test U:
Robustness of terminations and integral mounting devices, IDT)

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Foreword

See Annex NA for the parts of GB/T 2423 “Environmental testing for electric and electronic products - Part 2: Test methods”.

This Part is Part 60 of GB/T 2423.

This Part identically adopts IEC 60068-2-21:2006 “Environmental testing - Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices” (English version). It only made the following editorial modifications:

- modified “this Part of IEC 60068” to “this Part of GB/T 2423” or “this Part”;
- used decimal point "." to replace comma "," that is used as decimal point;
- deleted the foreword of the international standard;
- added the informative Annex NA.

Annex A, Annex NA of this Part are informative.

This Standard 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).

Main drafting organizations of this Standard: Guangzhou University, Fifth Electronics Research Institute of the Ministry of Information Industry, Shanghai Institute of Quality Inspection Technology, Suzhou General Test Instrument Factory.

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Environmental testing for electric and electronic products -

Part 2: Test methods - Test U: Robustness of terminations

and integral mounting devices

1 Scope

This Part of GB/T 2423 is applicable to all electrical and electronic components whose terminations or integral mounting devices are liable to be submitted to stresses during normal assembly or handling operations.

Table 1 provides details of the applicable tests.

2 Normative references

The provisions in following documents become the provisions of this Part of GB/T 2423 through reference in this Part. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Part, however, parties who reach an agreement based on this Part are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 2421.1, *Environmental Testing for Electric and Electronic products - General and Guidance* (GB/T 2424.1-2008, IEC 60068-1:1988, IDT)

GB/T 2423.28-2005, *Basic environmental testing procedures for electric and electronic products - Part2: Test methods - Test T: Soldering* (IEC 60068-2-20:1979, IDT)

GB/T 2423.45, *Environmental testing - Part 2: Test methods - Test Z/ABDM:*

Climatic sequence (GB/T 2423.45-1997, idt IEC 60068-2-61:1991)

GB/T 19247.2, *Printed board assemblies - Part 2: Sectional specification - Requirements for surface mount soldered assemblies* (GB/T 19247.2-2003, IEC 61191-2:1998, IDT)

IEC 60068-2-58:2004, *Environmental testing - Part 2-58: Tests - Test Td - Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*

IEC 61249-2-7:2002, *Materials for printed boards and other interconnecting structures - Part 2-7: Reinforced base materials clad and unclad - Epoxide woven E-glass laminated sheet of defined flammability (vertical burning test), copper-clad*

IEC 61188-5 (all parts), *Printed boards and printed board assemblies - Design and use*

IEC 61190-1-2:2002, *Attachment materials for electronic assembly - Part 1-2: Requirements for soldering pastes for high quality interconnections in electronics assembly*

ISO 272, *Fasteners - Hexagon products - Widths across flats*

ISO 9453, *Soft solder alloys - Chemical compositions and forms*

3 Test Ua1: tensile

This test is applicable to all types of terminations.

3.1 Object

The purpose of this test is to verify that the terminations and attachment of the terminations to the body of the component will withstand such axial stresses as are likely to be applied during normal assembly or handling operations.

3.2 General description

With the termination in its normal position and the component held by its body, a force is applied to the termination in the direction of its axis and acting in a direction away from the body of the component. The force shall be applied progressively (without any shock) and then maintained for a period of $10\text{ s} \pm 1\text{ s}$.

3.3 Preconditioning

The method of preconditioning shall be as prescribed in the relevant specification.

3.4 Initial measurements

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