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NATIONAL STANDARD OF THE
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GB/T 2421-2020 / IEC 60068-1:2013

Replacing GB/T 2421.1-2008

Environmental testing - General and guidance

环境试验 概述和指南

(IEC 60068-1:2013, Environmental testing - Part 1: General and
guidance, IDT)

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Foreword

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

This Standard replaces GB/T 2421.1-2008 "Environmental testing for electric and electronic products - General and guidance". Compared with GB/T 2421.1-2008, the main technical changes of this Standard are as follows:

- Modify the "Introductory remark" of the previous standard and adjust it to the "Introduction". The following clause numbers are changed accordingly (see the Introduction; Clause 1 of the 2008 edition);
- ADD the terms "environmental test tailoring", "quality" and "useful life" (see 3.20~3.22);
- ADD an annex "Environmental test tailoring" (see Annex C).

This Standard, using translation method, is identical to IEC 60068-1:2013 "Environmental testing - Part 1: General and guidance".

China's documents which have a consistent correspondence with the international documents normatively referenced in this Standard are as follows:

- GB/T 2423 (all parts) Environmental testing - Test methods [IEC 60068-2 (all parts)]

This Standard has made the following editorial changes:

- CHANGE the standard name to "Environmental testing - General and guidance";
- In the Introduction, change "Test Xa: Immersion in cleaning solvents" to "Test XA: Immersion in cleaning solvents"; change "Z/am: Combined cold and low air pressure tests" to "Z/AM: Combined cold and low air pressure tests";
- In Clause 3 "Terms and definitions", perfect the terms "non-heat-dissipating specimens" and "heat-dissipating specimens" as "non-heat-dissipating specimens ambient temperature" and "heat-dissipating specimens ambient temperature" (see 3.9.1 and 3.9.2);
- ADD informative Annex NA "Related national standard series".

This Standard 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 Standard: China National Electric Apparatus Research Institute Co., Ltd., Shenzhen Academy of Metrology & Quality Inspection, China Aerospace Science & Industry Defense Technology Academy, Jiangsu Tomilo Environmental Testing Equipment Co., Ltd., 704th Research Institute of China State Shipbuilding Corp., Ltd., Guangzhou Power Supply Bureau Co., Ltd. Electric Power Test and Research Institute, Guangzhou Soteria Technology Co., Ltd., Fujian Xinneng Offshore Wind Power R&D Center Co., Ltd., Mingyang Smart Energy Group Co., Ltd., Shenzhen ORT Technical Service Co., Ltd., Ningbo Ouzhi Electrical Technology Co., Ltd., State Grid Heilongjiang Electric Power Co., Ltd. Electric Power Research Institute.

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The previous editions of the standard replaced by this Standard were released as follows:

- GB/T 2421-1981, GB/T 2421-1989, GB/T 2421-1999;
- GB/T 2421.1-2008.

Environmental testing - General and guidance

1 Scope

The IEC 60068 series includes a series of methods for environmental testing along with their appropriate severities, and prescribes various atmospheric conditions for measurements and tests designed to assess the ability of specimens to perform under expected conditions of transportation, storage and all aspects of operational use.

Although primarily intended for electric and electronic products, this Standard is not restricted to them and may be used in other fields where desired.

Other methods of environmental testing, specific to the individual types of specimen, may be included in the relevant specifications.

The framework of environmental test tailoring process is given in order to assist the production of test specifications with appropriate tests and test severities.

The IEC 60068 series provides a series of uniform and reproducible environmental, climatic, dynamic and combined tests, performed and measured under standard atmospheric conditions, for those preparing specifications and those engaged in the testing of products.

These test methods are based upon available international engineering experience and judgement and are primarily designed to provide information on the following properties of specimens:

- a) the ability to operate within specified limits of temperature, pressure, humidity, mechanical stress or other environmental conditions and combinations of these conditions;
- b) the ability to withstand conditions of transportation, storage and installation.

Note 1: The IEC 60721 series provides a system for classification of environmental conditions and gives relevant definitions.

The tests in this Standard permit the comparison of the performance of sample products. To assess the quality or useful life of a given production lot, the test methods should be applied in accordance with a suitable sampling plan and may be supplemented by appropriate additional tests, if necessary.

Note 2: ISO defines “quality” as the degree to which a set of inherent characteristics fulfils

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