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

GB/T 2423.4-2008

**Environmental testing for electric and electronic products - Part
2: Test method - Test Db: Damp heat, cyclic (12 h + 12 h cycle)
(English Translation)**

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Foreword

This Part is Part 4 of GB/T 2423.

This Part equivalently adopts IEC 60068-2-30:2005 "Environmental Testing - Part 2-30: Tests - Test Db. Damp Heat, Cyclic (12H+12H Cycle)" (English edition). The following editorial changes have been made.

- Foreword and introduction of the international standard are deleted.
- Foreword has been added in this Part;
- National standards that adopt international standards are quoted.

This Part replaces GB/T 2423.4-1993. Compared with GB/T 2423.4-1993, the major differences are as follows.

- Figure 2 is changed into Figure 2a) and Figure 2b);
- In the temperature drop stage, Variant 2 allows the relative humidity and temperature's fall rate to have larger allowances.
- The restoring condition of relative humidity is changed from "(75±3)%" to be "(75±2)"; the temperature is changed from "laboratory temperature ±2K" to be

"laboratory temperature $\pm 1\text{K}$ ";

- Appendix A is added.

Annex A of this Part is informative.

This Part was proposed by and shall be under the jurisdiction of the National Electric & Electronic Product Environmental Conditions and Environment Test Technical Committee for Standardization.

Drafting organizations of this Part. China National Electric Apparatus Research Institute, and Shanghai Institute of Process Automation Instrumentation.

Chief drafting staffs of this Part. Yan Jinglian, and Wang Jie.

The historical editions replaced by this Part are. GB/T 2423.4-1981 and GB/T 2423.4-1993.

Environmental Testing for Electric and Electronic Products

- Part 2. Test Method - Test Db. Damp Heat, Cyclic

1 Scope

This Part determines the suitability of components, equipment or other articles for use, transportation and storage under conditions of high humidity, combined with cyclic temperature changes and, in general, producing condensation on the surface of the specimen. If the test is being used to verify the performance of a specimen whilst it is being transported or stored in packaging, then the packaging will normally be fitted when the test conditions are being applied.

2 Normative References

The following standards contain provisions which, through reference in this Part of GB/T 2423, constitute provisions of this Part. For dated reference, subsequent modification or revisions of these publications do not apply. However, all parties who enter into an agreement according to this Part are encouraged to study whether the latest edition of these documents is applicable. For undated references, the latest edition of the normative document is applicable to this Part.

GB/T 2421-1999 Environmental Testing for Electric and Electronic Products -

Part 1.General and Guidance (idt IEC 60068-1.1988)

3 General Descriptions

This test comprises one or more temperature cycles in which the relative humidity is maintained at a high level.

4 Testing Chamber - Construction Requirements

The total temperature tolerance of $\pm 3\text{K}$ is intended to take account of absolute errors in the measurement, slow changes of temperature, and temperature variations of the working space.

5 Severities

- a) Upper temperature. 40°C , number of cycles. 2, 6, 12, 21, and 56;
- b) Upper temperature. 55°C , number of cycles. 1, 2, and 6.

6 Initial Measurements

The specimens shall be visually inspected, and functionally tested, as required by the relevant specification.

7 Conditioning

The total temperature tolerance of $\pm 2\text{K}$ or $\pm 3\text{K}$ is intended to take account of absolute errors in the measurement, slow changes of temperature, and temperature variations of the working space. However, in order to maintain the relative humidity within the required tolerances, it is necessary to keep the temperature difference between any two points in the working space at any moment within narrower limits.

The temperature shall be lowered to $25^{\circ}\text{C} \pm 3\text{K}$ within 3h to 6h, but without the additional requirement for the first hour and one half as in variant 1. The relative humidity shall be not less than 80%.

8 Intermediate Measurements

The relevant specification may require functional tests during the conditioning programme.

9 Recovery

The relevant specification shall prescribe whether recovery shall be made at standard atmospheric conditions for testing (see 5.3 of GB/T 2421-1999), or at controlled recovery conditions (see 5.4.1 of GB/T 2421-1999).

In the latter case, the relative humidity shall be reduced to $75\% \pm 2\%$ in not more than 1h.

Specimens having a large thermal time constant may be submitted to recovery for a period sufficient to attain temperature stability (see Chapter 4 of GB/T 2421-1999).

The relevant specification shall state whether any special precautions shall be taken regarding the removal of surface moisture.

10 Final Measurements

The specimens shall be visually inspected, and functionally tested as required by the relevant specification.

11 Information to be Given in the Relevant Specification

When this test is included in the relevant specification, the following details shall be given as far as they are applicable.

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