



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

GB/T 2424.5-2021

**Environmental testing - Part 3: Supporting documentation and
guidance - Confirmation of the performance of temperature
chambers**

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Table of Contents

Foreword...	3
Introduction...	5
1 Scope...	6
2 Normative References...	6
3 Terms and Definitions...	6
4 Measuring Chamber Performances...	9
5 Information to be Given in the Performance Test Report...	16
Annex NA (Informative) Components of GB/T 2424...	17
Bibliography...	18

Foreword

This Document was drafted as per the rules specified in GB/T 1.1-2020 Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents.

This Document is Part 5 of GB/T 2424. See Annex NA for the components of GB/T 2424.

This Document replaced GB/T 2424.5-2006 Environmental Tests for Electric and Electronic Products - Confirmation of the Performance of Temperature Chambers. Compared with GB/T

2424.5-2006, the major technical changes of this Document are as follows besides the structural

adjustment and editorial modifications:

- a) Delete the term and definition "extreme temperature value" (see 3.10 of 2006 Edition);
- b) Simplify the content of "environment of the measurement site" (see 4.1 of this Edition;

4.1 of 2006 Edition);

- c) Delete "temperature performance measurement" (see 4.5 of 2006 Edition);
- d) Add "measurement method" (see 4.5 of this Edition);
- e) Adjust the content of Clause 5 of the 2006 edition to 4.6 of this Edition.

This Document used the translation method to equivalently adopt IEC 60068-3-5:2018 Environmental Testing - Part 3-5: Supporting Documentation and Guidance - Confirmation

of

the Performance of Temperature Chambers.

The Chinese documents that have consistent correspondence with the international documents

cited in this document are as follows:

- GB/T 2424.7-2006 Environmental tests for electric and electronic products - Measurements in temperature chambers for tests A and tests B (with load) (IEC 60068-3-7:2001, IDT);
- GB/T 2424.27-2013 Environmental testing - Supporting documentation and guidance - Calculation of uncertainty of conditions in climatic test chambers (IEC 60068-3-11:2007, IDT).

This Document made the following editorial modifications:

- Change the standard name into Environmental Testing - Part 3: Supporting Documentation and Guidance - Confirmation of the Performance of Temperature Chambers.
- Add the Annex "The components of GB/T 2424" (see Annex NA).

Environmental Testing - Part 3: Supporting Documentation
and Guidance - Confirmation of the Performance of
Temperature Chambers

1 Scope

This Document provides a uniform and reproducible method of confirming that temperature test chambers, without specimens, conform to the requirements specified in climatic test procedures of IEC 60068-2 (all parts) and other standards. This document is intended for users

when conducting regular chamber performance monitoring.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the

dates

indicated are applicable to this Document; for the undated documents, only the latest version

(including all the amendments) is applicable to this Document.

IEC 60068-2 (all parts) Environmental Testing - Part 2: Tests

IEC 60068-3-7 Environmental Testing - Part 3-7: Supporting Documentation and Guidance - Measurements in Temperature Chambers for Tests A (Cold) and B (Dry Heat) (with Load)

IEC 60068-3-11 Environmental Testing - Part 3-11: Supporting Documentation and Guidance - Calculation of Uncertainty of Conditions in Climatic Test Chambers

3 Terms and Definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4.1 Test area environment

The environment around a temperature test chamber may influence the conditions inside the test chamber.

The confirmation of performance of temperature chambers should be carried out under standard atmospheric conditions specified in IEC 60068-1.

4.2 Temperature measurement system

The uncertainty of measurement of the output of the measurement system should be determined

by calibration of the system, traceable to international standards (see ISO 10012).

The temperature sensors may be either calibrated platinum resistors or a thermocouple. The

thermal response time of the sensors shall be within a minimum of 10s and a maximum of 40s

for 50 % of response. It is preferred that the thermal response time of the entire measurement

system to be less than 40s. The use of sensors that are compliant to IEC 60584-1 tolerance class

4.3 Temperature chamber test specimens

All measurements described in 4.5 are performed with an empty working space. For measuring

with test specimens (with or without heat dissipation), see IEC 60068-3-7.

4.4 Specified location of temperature sensors in working space

Temperature measuring sensors are located in each corner and in the center of the working space (see Figure 3, minimum 9 sensors). For temperature chambers over 2 000 l, additional

sensors should be located in front of the center of each wall (see Figure 4, minimum 15 sensors).

The measuring system is to be arranged in such a way that the temperature distribution of the

empty test chamber will not be affected.

For a large capacity chamber, there may be a significant difference between the temperature

control sensor(s) and the temperature at the center of the working space. It may be necessary to

adjust the temperature setting to achieve the necessary tolerance.

For confirmation monitoring, data should be recorded at least once a minute. The device used

for recording data from the chamber monitoring sensors should be independent of the chamber

control system.

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