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

GB/T 12085.21-2011

**Optics and optical instruments -- Environmental test methods --
Part 21: Combined low pressure and ambient temperature or
dry heat**

光学和光学仪器 环境试验方法 第21部分：低压与大气温度、高温综合试验
(English Translation)

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Foreword

GB/T 12085 "Optical and optical instrument environmental test method" is divided into the following 21 parts.

- Part 1. Terminology, scope of test;
- Part 2. low temperature, high temperature, hot and humid;
- Part 3. Mechanical force;
- Part 4. Salt mist;
- Part 5. Low temperature, low pressure comprehensive test;
- Part 6. Sand and dust;
- Part 7. dripping,;
- Part 8. High pressure, low pressure, immersion;
- Part 9. Solar radiation;
- Part 10. Vibration (sinusoidal) and high temperature, low temperature comprehensive test;
- Part 11. mildew;
- Part 12. Pollution;
- Part 13. impact, collision or free fall and high temperature, low temperature comprehensive test;
- Part 14. dew, frost, ice;
- Part 15. Broadband random vibration (digital control) and high temperature, low temperature comprehensive test;
- Part 16. Bounce or constant acceleration with high temperature, low temperature

comprehensive test;

- Part 17. Pollution, solar radiation comprehensive test;
- Part 18. Comprehensive test of hot and humid, low internal pressure;
- Part 19. Temperature cycle and sinusoidal vibration, random vibration test;
- Part 20. Wet air containing sulfur dioxide, hydrogen sulphide;
- Part 21. Low pressure and atmospheric temperature, high temperature comprehensive test.

This part of the revision using ISO 9022-21.:1998 "Optical and optical instruments Environmental test method Part 21. Low pressure and atmospheric temperature Degree, high temperature comprehensive test".

The main differences between this section and ISO 9022-21.:1998 are.

- the preamble and prerequisites for the deletion of international standards;
- the standard scope was rewritten in accordance with ISO 9022-21, Chapter 1 and our standard language;
- "International Standard Part" is replaced by the words "this part";
- Normative references in Chapter 2 are replaced by current national standards.

This part is made by the China Machinery Industry Federation.

This part is headed by the National Committee for the Standardization of Optics and Photonics (SAC/TC103).

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Environmental and optical instruments - Environmental test methods Part 21. low pressure and atmospheric temperature, high temperature Comprehensive test

1 Scope

This part of the provisions of the low pressure and atmospheric temperature, high temperature comprehensive test conditions,, test procedures and environmental test mark.

This section applies to optical instruments, optical instruments and optical components.

2 Normative reference documents

The terms of this document are the terms of this part by reference to this part of GB/T 12085. Any reference to the date of the text , All subsequent amendments (excluding corrigenda) or revisions do not apply to this part, however, encouragement under this section the parties to the agreement study whether the latest version of these documents can be used. For undated references, the latest edition of this document applies section.

GB/T 12085.1 Environmental and optical instruments - Environmental test methods - Part 1. Terminology, test range (GB/T 12085.1 -2010, ISO 9022-1.:1994, MOD) GB/T 12085.2 Environmental and optical instruments - Environmental test methods - Part 2. Low temperature, high temperature, hot and humid (GB/T 12085.2 -2010, ISO 9022-2.:1994, MOD) General test conditions the atmospheric temperature specified in this section is $(23 \pm 3) ^\circ \text{C}$.

The temperature values specified in Table 2 are selected from the test methods in GB/T 12085.2.

Test conditions using air circulation of the low pressure box (room). The low pressure tank itself can be used as a warm box, or it can be installed in a warm box.

The size of the chamber (chamber) and the layout of the selected specimen shall be such that all specimens are at a uniform temperature.

For preheating, start heating before the buck to reach the chamber temperature. Try to set the pressure at the latest, but also to reach Test chamber temperature.

Boost, the sample is not allowed to condensation. This can be achieved with high purity nitrogen or dry air for the test chamber ventilation method.

Temperature changes should be slow to avoid damage to the specimen. In changing the pressure inside the box, you should avoid the rapid changes in air pressure, because of this Kind does not meet the natural conditions.

All the parts of the sample are adjusted to the test chamber (room) temperature difference within 3K and reached the specified pressure value, the test conditions cycle open beginning. The heated sample shall be placed at the test temperature until the temperature of the test specimen (chamber) is not more than 1 K/h during the temperature stabilization, then Began to buck. During the depressurization process, the test specimen itself is allowed

to generate heat until the test pressure reaches the specified value. whole After completion of the test conditions, the test chamber (chamber) began to cool. Both the test chamber and the temperature on the specimen should be measured. In the sample on the temperature the position of the measurement should be specified in the relevant standard.

According to the condition test method 45, if there is no special requirement, after the test air pressure reaches the specified value, the hot effective sample starts to test. The sample should be set at the test temperature, until the sample temperature does not increase more than 1K/h (temperature stability).

4.1 Conditions Test method 45. Low pressure and atmospheric temperature comprehensive test

Condition test method 45 low pressure and atmospheric temperature comprehensive test according to Table 1.