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

GB/T 12085.18-2011

**Optics and optical instruments -- Environmental test methods --
Part 18: Combined damp heat and low internal pressure**

光学和光学仪器 环境试验方法 第18部分：湿热、低内压综合试验

(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 9022-18.:1994 "Optical and optical instrument environmental test method Part 18. hot and humid, low internal pressure Test ".

The main differences between this part and ISO 9022-18.:1994 are.

- the preamble and prerequisites for the deletion of international standards;
- the standard scope was rewritten in accordance with ISO 9022-18, Chapter 1 and our standard language;
- "International Standard Part" is replaced by the words "this part";
- the normative references in Chapter 2 are replaced by current national standards;
- Suspension section of condition test.

Appendix A to this section is an informative appendix.

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 18. hot and humid, low internal pressure comprehensive test

1 Scope

This part specifies the test conditions, conditional tests, test procedures and environmental test marks for the comprehensive test of hot and humid, low internal pressure.

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 12085.8 Environmental and optical instruments - Environmental test methods - Part 8. High pressure, low pressure, immersion (GB/T 12085.8-2010, ISO 9022-8.:1994, MOD)

3 Test conditions

Testing of exposed specimens under combined operating conditions is more severe than any single environmental condition test.

There are three different methods for the combination of anti-damp heat and low pressure in optical instruments.

4.1 General

The various parts of the sample were tested with a temperature difference between the test chamber (chamber) within 3K. The sample is allowed to show condensation. Each test the steps should be performed in the order they are. The test process is not allowed to interrupt.

4.2 Conditions test method 47. hot and humid and low pressure, low pressure

Condition test method 47 wet heat and low pressure, low pressure difference according to Table 1 and Figure 1.

The conditional test method 47 is suitable for use in optical instruments where the sealing manufacturing requirements are low (low compressive resistance). For example. meet GB/T 12085.8 Test method 81 in the harsh rating of 01,02,07 and 08 of the instrument.

Table 1

Severe Level 01 02 03 04 05 06 Test conditions 1 step 1 Test chamber (room)
temperature/°C 55 ± 2 63 ± 2 70 ± 2 Relative humidity /%