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

GB/T 12085.23-2022

Replacing GB/T 12085.5-2010, GB/T 12085.18-2011, GB/T 12085.21-2011

**Optics and photonics - Environmental test methods - Part 23:
Low pressure combined with cold, ambient temperature and
dry or damp heat**

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is part 23 of GB/T 12085 "Environmental test methods for optics and photonics". GB/T 12085 has been released to the next part.

- Part 1. Terminology, test scope;
- Part 2. Low temperature, high temperature, damp heat;
- Part 3. Mechanical forces;
- Part 4. Salt spray;
- Part 6. Sand and dust;
- Part 7. Dripping water and rain;
- Part 8. High internal pressure, low internal pressure, immersion;
- Part 9. Solar radiation and weathering;
- Part 11. Mildew;
- Part 12. Pollution;
- Part 14. Dew, frost, ice;
- Part 17. Comprehensive test of pollution and solar radiation;
- Part 20. Moist air containing sulfur dioxide and hydrogen sulfide;

--- Part 22.Comprehensive test of low temperature, high temperature or temperature change and impact or random vibration;

--- Part 23.Comprehensive test of low pressure and low temperature, atmospheric temperature, high temperature or damp heat.

This document replaces GB/T 12085.5-2010 "Environmental test methods for optics and optical instruments - Part 5.Low temperature and low pressure comprehensive

"Comprehensive Test", GB/T 12085.18-2011 "Environmental Test Methods for Optical and Optical Instruments - Part 18.Damp heat, low internal pressure comprehensive test

Test" and GB/T 12085.21-2011 "Environmental Test Methods for Optical and Optical Instruments - Part 21.Comprehensive Analysis of Low Pressure and Atmospheric Temperature and High Temperature

Comparing with GB/T 12085.5-2010, GB/T 12085.18-2011 and GB/T 12085.21-2011, except for structural adjustment

In addition to editorial changes, the main technical changes are as follows.

--- Changed the content of the "Scope" chapter (see Chapter 1, GB/T 12085.5-2010, GB/T 12085.18-2011,

Chapter 1 of GB/T 12085.21-2011);

--- Changed the test conditions for the test chamber (chamber), sample and temperature control requirements (see Chapter 4, GB/T 12085.5-2010,

GB/T 12085.18-2011, Chapter 3 of GB/T 12085.21-2011);

--- Changed the names of conditional test methods 45~51 (see Chapter 5, GB/T 12085.5-2010, GB/T 12085.18-

2011, Chapter 4 of GB/T 12085.21-2011);

--- Added specific requirements for temperature, air pressure and condensation control (see 6.2 and 6.3);

--- Added the description of the equipment, light source and test process used in the initial inspection and final inspection (see 6.4~6.6);

--- Changed the test procedure of conditional test method 50 (see 6.7, Chapter 5 of GB/T 12085.5-2010);

--- Added the test steps of Condition Test Method 51 (see 6.8);

--- Changed the content of the environmental test mark (see Chapter 7, Chapter 6 of GB/T 12085.5-2010, GB/T 12085.18-2011

Chapter 7 of GB/T 12085.21-2011 Chapter 6).

This document is modified using ISO 9022-23.2016 "Optics and Photonics Environmental Test Methods - Part 23.Low Pressure and Low Temperature, Atmospheric

Temperature, High Temperature or Damp Heat Comprehensive Test".

Compared with ISO 9022-23.2016, this document has the following structural adjustments.

--- Added "Terms and Definitions" chapter.

The technical differences between this document and ISO 9022-23.2016 and their reasons are as follows.

--- Changed the content in the scope (see Chapter 1), and changed "optical instruments" in the full text to "optical and photonics instruments" to

Meet the requirements of the application field of the optical industry;

--- Added the normative reference GB/T 12085.2 (see Chapter 4) to adapt to my country's technical conditions and improve operability;

--- Replace ISO 9022-8 (see Chapter 4, 5.3, 5.4, 5.5), GB/T 12085.1 generation with the normative reference GB/T 12085.8

Replaced ISO 9022-1 (see 6.1, Chapter 7) to adapt to my country's technical conditions and improve operability;

--- Changed the relevant requirements for atmospheric temperature (see Chapter 4) to conform to my country's national conditions;

--- Changed the relevant requirements for temperature and climate values (see Table 1 to Table 6) to conform to my country's national conditions;

--- Changed the unit of the air pressure value, and made corresponding conversions for the corresponding parameters (see Chapter 5) to conform to my country's national conditions.

The following editorial changes have been made to this document.

--- Chapter 7 replaces ISO 9022 (all parts) with GB/T 12085 (all parts) cited for information;

--- Changed the content of paragraph 1 of A.5, in line with the performance of the test chamber (room) equipment in use in my country (see A.5).

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Optical and photonic instruments are widely used in various fields of national economy and international science and technology, due to the very complex environmental conditions of their use and transportation.

There are various environmental conditions, such as physical, chemical, biological, climatic and electrical, which will make optical and photonic instruments

The performance of the device has changed and it cannot function properly.

In view of the above reasons, in order to ensure the quality of optical and photonics instrument products, it is necessary to simulate a variety of complex changes in environmental conditions.

It is necessary to conduct tests on optical and photonics instrument products to assess their ability to withstand harsh environmental conditions, so GB/T 12085 includes test conditions,

Condition test, test procedure, environmental test marking, etc. At the same time, since there are many environmental conditions and they belong to different types, in order to facilitate the

For the implementation of the standard, GB/T 12085 is divided into 15 parts according to the type of environmental conditions.

--- Part 1.Terminology, test scope. The purpose is to unify the terms and definitions of environmental test methods, test procedures and environmental tests mark.

--- Part 2.Low temperature, high temperature, damp heat. The purpose is to study the optical, climatic, mechanical, chemical and electrical (including electrostatic) of the sample The degree to which properties such as these are affected by temperature and humidity.

--- Part 3.Mechanical forces. The purpose is to study the optical, climatic, mechanical, chemical and electrical (including electrostatic) properties of the sample.

The degree to which sex is affected by mechanical forces.

--- Part 4.Salt spray. The purpose is to evaluate the ability of the instrument surface and protective coating (plating) to resist salt spray.

--- Part 6.Sand and dust. The purpose is to study the optical, climatic, mechanical, chemical and electrical (including electrostatic) properties of the sample by The degree of variation in the effects of sand and dust.

--- Part 7.dripping, raining. The purpose is to study the optical, climatic, mechanical, chemical and electrical (including electrostatic) properties of the sample

The degree of change affected by dripping water and rain.

--- Part 8.High internal pressure, low internal pressure, immersion. The purpose is to study the optical, climatic, mechanical, chemical and electrical (including static