

ICS 37.020

CCS N 30



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

GB/T 12085.3-2022

Replacing GB/T 12085.3-2010

**Optics and photonics - Environmental test methods - Part 3:
Mechanical stress**

Issued on: October 14, 2022

Implemented on: May 1, 2023

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

foreword

Introduction

1 Scope

2 Normative references

3 Terms and Definitions

4 Test conditions

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 3 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 12085.3-2010 "Environmental Test Methods for Optical and Optical Instruments - Part 3.Mechanical Forces".

Compared with GB/T 12085.3-2010, except for structural adjustment and editorial changes, the main technical changes are as follows.

- Change "optical instruments" in the full text to "optical and photonics instruments";
- Changed the content of the scope (see Chapter 1, Chapter 1 of the.2010 edition);
- Changed the content of conditional test method 34 (see 5.5, 4.5 of the.2010 edition);
- Changed the content of the environmental test mark (see Chapter 7, Chapter 6 of the.2010 edition).

This document is modified using ISO 9022-3.2015 "Environmental test methods for optics and photonics - Part 3.Mechanical forces".

Compared with ISO 9022-3.2015, this document has the following structural adjustments.

- This document adds the chapter "Terms and Definitions".

The technical differences between this document and ISO 9022-3.2015 and their reasons are as follows.

- Change "optical instrument" in the full text to "optical and photonics instrument" to meet the requirements of the application field of the optical industry;
- Changed the content of the scope of Chapter 1 to meet the requirements of the application field of the optical industry;
- Replaced IEC 60068-2-27 (see Chapter 4, 5.7.1, Chapter 6) with the normative reference GB/T 2423.5, with the normative reference

Replaced IEC 60068-2-31 (see Chapter 4) with GB/T 2423.7 and replaced GB/T 2423.15 with normative references

IEC 60068-2-7 (see clause 4), replaces IEC 60068-2-55 (see clause 4) with the normatively cited GB/T 2423.39

Chapter), replace IEC 60068-2-47 (see Chapter 4) with the normative reference GB/T 2423.43, use the normative reference

GB/T 2423.56 replaces IEC 60068-2-64 (see Chapter 4) and GB/T 12085.1 for normative references

ISO 9022-1 (see Chapter 4, Chapter 6, Chapter 7) to adapt to our country's technical conditions and improve operability;

---According to the geographical latitude of our country, deleted "gn is an acceleration of the change of its own height with the geographical latitude due to the gravity of the earth.

Spend. ", and replace "gn" with "g" to meet the requirements of the application field of the optical industry.

The following editorial changes have been made to this document.

--- Incorporated the amendments to ISO 9022-3.2015/Amd.1.2020, and the outer margins of the clauses involved use vertical

A straight double line (|) is marked;

--- In Chapter 7, ISO 9022 is replaced by GB/T 12085 (all parts) cited for information.

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,

Conditional tests, test procedures, environmental test markings, 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 to be 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

The degree to which properties such as electricity are affected by high pressure, low pressure, or immersion in the ambient gas.

--- Part 9.Solar radiation and weathering. 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 solar radiation or wind energy (solar exposure, damp heat).

--- Part 11.Mildew. The purpose is to study the optical, climatic, mechanical, chemical and electrical (including electrostatic) properties of the sample by

The degree of influence of mold growth, and evaluation of mold metabolites (such as enzymes or acids) cause corrosion of parts or cause

Severity of circuit board short circuit, etc.

--- Part 12.Pollution. The purpose is to study instruments, especially instrument surfaces, coatings or composite materials exposed to short-term exposure to

Resistance in reagents.

--- Part 14.Dew, frost, ice. The purpose is to study the optical, climatic, mechanical,