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Third edition
2023-04

Optics and photonics — Environmental test methods —

Part 23:

Low pressure combined with cold, ambient temperature and dry or damp heat

Optique et photonique — Méthodes d'essais d'environnement —

*Partie 23: Basse pression combinée à la température ambiante et
froide et à la chaleur sèche ou humide*



Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 172, *Optics and Photonics*, Subcommittee SC 1, *Fundamental standards*.

This third edition cancels and replaces the second edition (ISO 9022-23:2016), which has been technically revised.

The main changes are as follows:

- Introductory sentences of [5.3](#), [5.4](#) and [5.5](#) were clarified,
- [Clause 3](#) was included and the document renumbered.

A list of all parts in the ISO 9022 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Optical instruments are affected during their use by a number of different environmental parameters which they are required to resist without significant reduction in performance and to remain within defined specifications.

The type and severity of these parameters depend on the conditions of use of the instrument (for example, in the laboratory or workshop) and on its geographical location. The environmental effects on optical instrument performance in the tropics and subtropics are totally different from those found when they are used in arctic regions. Individual parameters cause a variety of different and overlapping effects on instrument performance.

The manufacturer attempts to ensure, and the user naturally expects, that instruments will resist the likely rigours of their environment throughout their life. This expectation can be assessed by exposure of the instrument to a range of simulated environmental parameters under controlled laboratory conditions. The severity of these conditions is often increased to obtain meaningful results in a relatively short period of time.

In order to allow assessment and comparison of the response of optical instruments to appropriate environmental conditions, the ISO 9022 series contains details of a number of laboratory tests which reliably simulate a variety of different environments. The tests are based largely on IEC standards, modified where necessary to take into account features special to optical instruments.

As a result of continuous progress in all fields, optical instruments are no longer only precision-engineered optical products, but, depending on their range of application, also contain additional assemblies from other fields. For this reason, the principal function of the instrument is to be assessed to determine which International Standard should be used for testing. If the optical function is of primary importance, then the ISO 9022 series is applicable, but if other functions take precedence, then the appropriate International Standard in the field concerned should be applied. Cases may arise where application of both the ISO 9022 series and other appropriate International Standards will be necessary.