SLOVENSKI STANDARD

SIST EN ISO 11551:2004

01-februar-2004

Nadomeġļ a:

SIST EN ISO 11551:2000

Optika in optiļ ni instrumenti ï Laserji in laserska oprema ï Preskusna metoda za absorpcijo optiļ nih laserskih komponent (ISO 11551:2003)

Optics and optical instruments - Lasers and laser-related equipment - Test method for absorptance of optical laser components (ISO 11551:2003)

Optik und optische Instrumente - Laser und Laseranlagen - Prüfverfahren für den Absorptionsgrad von optischen Laserkomponenten (ISO 11551:2003)

Optique et instruments d'optique - Lasers et équipements associés aux lasers - Méthode d'essai du facteur d'absorption des composants optiques pour lasers (ISO 11551:2003)

Ta slovenski standard je istoveten z: **EN ISO 11551:2003**

ICS:

31.260	Optoelektronika, laserska oprema	Optoelectronics. Laser equipment

SIST EN ISO 11551:2004 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 11551

December 2003

ICS 31.260

Supersedes EN ISO 11551:1997

English version

Optics and optical instruments - Lasers and laser-related equipment - Test method for absorptance of optical laser components (ISO 11551:2003)

Optique et instruments d'optique - Lasers et équipements associés aux lasers - Méthode d'essai du facteur d'absorption des composants optiques pour lasers (ISO 11551:2003)

Optik und optische Instrumente - Laser und Laseranlagen - Prüfverfahren für den Absorptionsgrad von optischen Laserkomponenten (ISO 11551:2003)

This European Standard was approved by CEN on 1 December 2003.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (EN ISO 11551:2003) has been prepared by Technical Committee ISO/TC 172 "Optics and optical instruments" in collaboration with Technical Committee CEN/TC 123 "Lasers and laser-related equipment", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

This document supersedes EN ISO 11551:1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

NOTE FROM CMC The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZA for the references to international publications with their relevant European publications will be circulated with the German version.

Endorsement notice

The text of ISO 11551:2003 has been approved by CEN as EN ISO 11551:2003 without any modifications.

INTERNATIONAL STANDARD

ISO 11551

Second edition
2003-12-01

Optics and optical instruments — Lasers and laser-related equipment — Test method for absorptance of optical laser components

Optique et instruments d'optique — Lasers et équipements associés aux lasers — Méthode d'essai du facteur d'absorption des composants optiques pour lasers

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 11551 was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 9, *Electro-optical systems*.

This second edition cancels and replaces the first edition (ISO 11551:1997), which has been technically revised.

Introduction

To characterize an optical component, it is important to know its absorptance. When radiation impinges upon a component, a part of that radiation is absorbed, increasing the temperature of the component. In this International Standard only the part of the absorbed power/energy that is converted into heat is measured. If enough energy is absorbed, the optical properties of the component may be changed, and the component may even be destroyed. Absorptance is the ratio of the radiant flux absorbed to the radiant flux of the incident radiation.

In the procedures described in this International Standard, the absorptance is determined calorimetrically as the ratio of power or energy absorbed by the component to the total power or energy, respectively, impinging upon the component. The assumption is made that the absorptance of the test sample is constant within the temperature fluctuations experienced by the component during the measurement and is independent of both the position of the irradiating beam on the sample surface and the power density of the impinging radiation.

For several bulk materials like CdTe, the absorptance depends on the position of the irradiating beam on the sample surface. Several infrared materials exhibit a strong dependence of absorptance on temperature, especially at high temperatures.

Optics and optical instruments — Lasers and laser-related equipment — Test method for absorptance of optical laser components

1 Scope

This International Standard specifies procedures and techniques for obtaining comparable values for the absorptance of optical laser components.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 31-6:1992, *Quantities and units — Part 6: Light and related electromagnetic radiations*

ISO 11145:2001, *Optics and optical instruments — Lasers and laser-related equipment — Vocabulary and symbols*

ISO 14644-1:1999, *Cleanrooms and associated controlled environments — Part 1: Classification of air cleanliness*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 11145 and ISO 31-6 and the following apply.

3.1
absorptance
α
ratio of the radiant flux absorbed to the radiant flux of the incident radiation

NOTE The definition of absorptance used for this international Standard is limited to absorptance processes which convert the absorbed energy into heat. For certain types of optics and radiation, additional non-thermal processes may result in absorption losses which will not be detected by the test procedure described here (see Annex A).