



SLOVENSKI STANDARD SIST EN ISO 12005:2022

01-september-2022

Nadomešča:

SIST EN ISO 12005:2003

Laserji in laserska oprema - Preskusne metode za parametre laserskega žarka - Polarizacija (ISO 12005:2022)

Lasers and laser-related equipment - Test methods for laser beam parameters - Polarization (ISO 12005:2022)

Laser und Laseranlagen - Prüfverfahren für Laserstrahlparameter - Polarisation (ISO 12005:2022)

Lasers et équipements associés aux lasers - Méthodes d'essai des paramètres du faisceau laser - Polarisation (ISO 12005:2022)

Ta slovenski standard je istoveten z: EN ISO 12005:2022

ICS:

31.260	Optoelektronika, laserska oprema	Optoelectronics. Laser equipment
--------	----------------------------------	----------------------------------

SIST EN ISO 12005:2022

en,fr,de

EUROPEAN STANDARD

EN ISO 12005

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2022

ICS 31.260

Supersedes EN ISO 12005:2003

English Version

Lasers and laser-related equipment - Test methods for laser beam parameters - Polarization (ISO 12005:2022)

Lasers et équipements associés aux lasers - Méthodes d'essai des paramètres du faisceau laser - Polarisation (ISO 12005:2022)

Laser und Laseranlagen - Prüfverfahren für Laserstrahlparameter - Polarisation (ISO 12005:2022)

This European Standard was approved by CEN on 21 May 2022.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/c8c7b1d5-c98f-4426-8f50-fd0080397ed4/sist-en-iso-12005-2022>



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	3

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 12005:2022

<https://standards.iteh.ai/catalog/standards/sist/c8c7b1d5-c98f-4426-8f50-fd0080397ed4/sist-en-iso-12005-2022>

European foreword

This document (EN ISO 12005:2022) has been prepared by Technical Committee ISO/TC 172 "Optics and photonics" in collaboration with Technical Committee CEN/TC 123 "Lasers and photonics" 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 December 2022, and conflicting national standards shall be withdrawn at the latest by December 2022.

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

This document supersedes EN ISO 12005:2003.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

(standards.iteh.ai)

Endorsement notice

SIST EN ISO 12005:2022

The text of ISO 12005:2022 has been approved by CEN as EN ISO 12005:2022 without any modification.

INTERNATIONAL
STANDARD

ISO
12005

Third edition
2022-05

**Lasers and laser-related equipment —
Test methods for laser beam
parameters — Polarization**

*Lasers et équipements associés aux lasers — Méthodes d'essai des
paramètres du faisceau laser — Polarisation*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 12005:2022](https://standards.iteh.ai/catalog/standards/sist/c8c7b1d5-c98f-4426-8f50-fd0080397ed4/sist-en-iso-12005-2022)

<https://standards.iteh.ai/catalog/standards/sist/c8c7b1d5-c98f-4426-8f50-fd0080397ed4/sist-en-iso-12005-2022>



Reference number
ISO 12005:2022(E)

© ISO 2022

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 12005:2022

<https://standards.iteh.ai/catalog/standards/sist/c8c7b1d5-c98f-4426-8f50-fd0080397ed4/sist-en-iso-12005-2022>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Test method for state of polarization	3
4.1 Principle of measurement.....	3
4.2 Equipment arrangement.....	4
4.2.1 General.....	4
4.2.2 Special arrangement for the testing of beams with large divergence angles.....	4
4.2.3 Special arrangement for the testing of beams with large apertures.....	5
4.3 Components.....	5
4.3.1 Radiation detector.....	5
4.3.2 Linear polarizer.....	6
4.3.3 Quarter-wave plate.....	6
4.3.4 Optical attenuator.....	6
4.4 Test procedure.....	6
4.4.1 General.....	6
4.4.2 Measurement 1.....	6
4.4.3 Measurement 2.....	7
4.5 Analysis of the results.....	7
5 Test report	9
Annex A (informative) Complete description of the polarization status of a monochromatic laser beam	12
Bibliography	15

ISO 12005:2022(E)

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 9, *Laser and electro-optical systems*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 123, *Lasers and photonics*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 12005:2003), which has been technically revised.

The main changes are as follows:

- Description errors in [4.5](#) (Analysis of the results) were corrected.
- Definitions of the “degree of polarization” and the “degree of linear polarization” were made clear.
- Definition of extinction ratio was changed.
- Previous [3.3](#) (direction of polarization), [3.4](#) (plane of polarization), and [3.5](#) (ellipticity) were deleted, because these terms are confusing due to the different definitions, and they are not necessarily required for this document. Previous 3.11 (Stokes parameters) was deleted and moved to [Annex A](#), because they are not used in the measurement and analysis.

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.

Introduction

This document deals with a method for determining the polarization state of a laser beam.

This document is applicable for well-polarized laser beams, including those emitted by lasers with a high divergence angle. However, if more completeness in the determination of the polarization status is required, the use of a more sophisticated analysing device is necessary. Although not within the scope of this document, the principle of operation of such devices is given in [Annex A](#), together with a description of the Stokes parameters which are needed in that case.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 12005:2022

<https://standards.iteh.ai/catalog/standards/sist/c8c7b1d5-c98f-4426-8f50-fd0080397ed4/sist-en-iso-12005-2022>