



SLOVENSKI STANDARD
SIST EN ISO 12005:2000
01-januar-2000

Laserji in laserska oprema – Preskusne metode za parametre laserskega žarka – Polarizacija (ISO 12005:1999)

Lasers and laser-related equipment - Test methods for laser beam parameters - Polarization (ISO 12005:1999)

Laser und Laseranlagen - Prüfverfahren für Laserstrahlparameter - Polarisation (ISO 12005:1999)

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Lasers et équipements associés aux lasers - Méthodes d'essai des paramètres des faisceaux laser - Polarisation (ISO 12005:1999)

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Ta slovenski standard je istoveten z: EN ISO 12005:1999

ICS:

31.260	Optoelektronika, laserska oprema	Optoelectronics. Laser equipment
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SIST EN ISO 12005:2000

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 12005

July 1999

ICS 31.260; 37.020

English version

**Lasers and laser-related equipment - Test methods for laser
beam parameters - Polarization (ISO 12005:1999)**

Lasers et équipements associés aux lasers - Méthodes
d'essai des paramètres des faisceaux laser - Polarisation
(ISO 12005:1999)

Laser und Laseranlagen - Prüfverfahren für
Laserstrahlparameter - Polarisation (ISO 12005:1999)

This European Standard was approved by CEN on 25 June 1999.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

The text of the International Standard ISO 12005:1999 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 January 2000, and conflicting national standards shall be withdrawn at the latest by January 2000.

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 12005:1999 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

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Annex ZA (normative)**Normative references to international publications
with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 11145	1994	Optics and optical instruments - Lasers and laser related equipment - Vocabulary and symbols	EN ISO 11145	1994

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INTERNATIONAL
STANDARD

ISO
12005

First edition
1999-07-15

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

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

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Reference number
ISO 12005:1999(E)

ISO 12005:1999(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

International Standard ISO 12005 was prepared by Technical Committee ISO/TC 172, *Optics and optical instruments*, Subcommittee SC 9, *Electro-optical systems*.

Annex A of this International Standard is for information only.

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Introduction

This International Standard defines a relatively quick and simple method, requiring minimum equipment, for determining the state of polarization of a laser beam.

This method is suitable for most of the current needs with well-polarized laser beams. However, if more completeness in the determination of the polarization status is needed, the use of a more sophisticated analysing device is necessary. Although not in the scope of this International Standard, 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.

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

1 Scope

This International Standard defines a method for determining the polarization status and, whenever possible, the degree of polarization of the beam from a cw laser. It can also be applied to repetitively pulsed lasers, if their electric field vector orientation does not change from pulse to pulse.

This International Standard also defines the method for determining the direction of the plane of vibration in the case of linearly polarized (totally or partially) laser beams. Unless otherwise stated, it is assumed that the laser radiation is quasi-monochromatic and sufficiently stable for the purpose of the measurement.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 11145:1994, *Optics and optical instrument — Lasers and laser-related equipment — Vocabulary and symbols*.

IEC 61040:1990, *Power and energy measuring detectors — Instruments and equipment for laser radiation*.

CIE 59:1984, *Definitions and Nomenclature, Instrument Polarization*.

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 11145, IEC 61040 and CIE 59 and the following apply.

3.1

polarization

restriction of electromagnetic wave motion to certain directions

NOTE This is a fundamental phenomenon which can be explained by the concept that electromagnetic radiation is a transverse wave motion, i.e. the vibrations are at right angles to the direction of propagation. It is customary to consider these vibrations as being those of the electric field vector.

3.2

state of polarization

classification of polarization as linear, random, circular, elliptical or unpolarized

3.3

direction of vibration

direction of the electric field vector of an electromagnetic wave