



SLOVENSKI STANDARD SIST EN ISO 14880-4:2025

01-januar-2025

Nadomešča:

SIST EN ISO 14880-4:2006

Optika in fotonska tehnologija - Vrste mikroleč - 4. del: Preskusne metode za geometrične lastnosti (ISO 14880-4:2024)

Optics and photonics - Microlens arrays - Part 4: Test methods for geometrical properties (ISO 14880-4:2024)

Optik und Photonik - Mikrolinsenarrays - Teil 4: Prüfverfahren für geometrische Eigenschaften (ISO 14880-4:2024)

Optique et photonique - Réseaux de microlentilles - Partie 4: Méthodes d'essai pour les propriétés géométriques (ISO 14880-4:2024)

Ta slovenski standard je istoveten z: EN ISO 14880-4:2024

<https://standards.itech.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025>

ICS:

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

SIST EN ISO 14880-4:2025

en,fr,de

EUROPEAN STANDARD

EN ISO 14880-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2024

ICS 31.260

Supersedes EN ISO 14880-4:2006

English Version

Optics and photonics - Microlens arrays - Part 4: Test methods for geometrical properties (ISO 14880-4:2024)

Optique et photonique - Réseaux de microlentilles -
Partie 4: Méthodes d'essai pour les propriétés
géométriques (ISO 14880-4:2024)

Optik und Photonik - Mikrolinsenarrays - Teil 4:
Prüfverfahren für geometrische Eigenschaften (ISO
14880-4:2024)

This European Standard was approved by CEN on 5 August 2023.

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, Türkiye and United Kingdom.

<https://standards.iteh.ai>
SIST EN ISO 14880-4:2025

<https://standards.iteh.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025>



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 Standards
(<https://standards.itih.ai>)
Document Preview

[SIST EN ISO 14880-4:2025](https://standards.itih.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025)

<https://standards.itih.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025>

European foreword

This document (EN ISO 14880-4:2024) 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 May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.

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 14880-4:2006.

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, Türkiye and the United Kingdom.

(<https://standards.iteh.ai>)

Endorsement notice

The text of ISO 14880-4:2024 has been approved by CEN as EN ISO 14880-4:2024 without any modification.

[SIST EN ISO 14880-4:2025](https://standards.iteh.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025)

<https://standards.iteh.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025>



**International
Standard**

ISO 14880-4

**Optics and photonics — Microlens
arrays —**

Part 4:

Test methods for geometrical

properties

Optique et photonique — Réseaux de microlentilles —

Partie 4: Méthodes d'essai pour les propriétés géométriques

**Second edition
2024-11**

[SIST EN ISO 14880-4:2025](https://standards.iteh.ai/)

<https://standards.iteh.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025>

ISO 14880-4:2024(en)

iTeh Standards (<https://standards.iteh.ai>) Document Preview

[SIST EN ISO 14880-4:2025](https://standards.iteh.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025)

<https://standards.iteh.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2024

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

ISO 14880-4:2024(en)**Contents**

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Coordinate system	3
5 Test methods	3
5.1 Pitch and surface modulation depth measurement.....	3
5.1.1 Use of stylus instrument.....	3
5.1.2 Use of confocal microscope.....	5
5.2 Physical thickness.....	8
5.2.1 Principle.....	8
5.2.2 Set-up and preparation.....	8
5.3 Radius of curvature.....	8
5.3.1 Principle.....	8
5.3.2 Measurement arrangement and test equipment.....	9
5.4 Surface preparation of microlens array for measurement.....	11
6 Procedure	11
6.1 Measurement of pitch and surface modulation depth (lens sag).....	11
6.1.1 Preliminary measurements.....	11
6.2 Making measurements and interpreting the results.....	11
6.3 Measurement of physical thickness.....	12
6.4 Measurement of radius of curvature.....	12
7 Results and uncertainties	12
8 Test report	13
Annex A (informative) Measurement with a Fizeau interferometer system	14
Annex B (informative) Uniformity of array spacing	17
Bibliography	20

ISO 14880-4:2024(en)

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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 second edition cancels and replaces the first edition (ISO 14880-4:2006), which has been technically revised.

The main changes are as follows:

- Introduction revised;
- Updated the references to terms defined in 14880-1;
- [Figure 8](#) replaced;
- References updated.

A list of all parts in the ISO 14880 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.

ISO 14880-4:2024(en)

Introduction

Examples of applications for microlens arrays include three-dimensional displays, coupling optics associated with arrayed light sources and photo-detectors, enhanced optics for liquid crystal displays, and optical parallel processor elements.

The market in microlens arrays has generated a need for agreement on basic terminology and test methods. Standard terminology and clear definitions are needed not only to promote applications but also to encourage scientists and engineers to exchange ideas and new concepts based on common understanding.

This document contributes to the purpose of the series of ISO 14880 standards, which is to improve the compatibility and interchangeability of lens arrays from different suppliers and to enhance development of the technology using microlens arrays.

Characteristic parameters are defined and examples of applications given in ISO 14880-1. It has been completed by a set of three other International Standards, i.e. ISO 14880-2, ISO 14880-3 and ISO 14880-4.

The measurement of physical characteristics of pitch and surface modulation depth can be made using a stylus instrument and non-contact optical probe system. Physical thickness can be measured with a micrometer. The measurement processes are described in the body of this document.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[SIST EN ISO 14880-4:2025](https://standards.iteh.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025)

<https://standards.iteh.ai/catalog/standards/sist/71acc0ca-314b-4b28-b75a-78cc9c8407f3/sist-en-iso-14880-4-2025>