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Microlens arrays - Part 4: Test methods for geometrical properties (ISO/DIS 14880-4:2005)

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EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

DRAFT prEN ISO 14880-4

January 2005

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English version

Microlens arrays - Part 4: Test methods for geometrical properties (ISO/DIS 14880-4:2005)

Réseau de microlentilles - Partie 4: Méthodes d'essai pour les propriétés géométriques (ISO/DIS 14880-4:2005) Mikrolinsenarrays - Teil 4: Prüfverfahren für geometrische Eigenschaften (ISO/DIS 14880-4:2005)

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

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Ref. No. prEN ISO 14880-4:2005: E

Foreword

This document (prEN ISO 14880-4:2005) 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 document is currently submitted to the parallel Enquiry.

Endorsement notice

The text of ISO 14880-4:2005 has been approved by CEN as prEN ISO 14880-4:2005 without any modifications.

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DRAFT INTERNATIONAL STANDARD ISO/DIS 14880-4



ISO/TC 172/SC 9

Secretariat: DIN

Voting begins on: 2005-01-13

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Microlens arrays —

Part 4: **Test methods for geometrical properties**

Réseau de microlentilles —

Partie 4: Méthodes d'essai pour les propriétés géométriques

ICS 31.260

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The CEN Secretary-General has advised the ISO Secretary-General that this ISO/DIS covers a subject of interest to European standardization. In accordance with the ISO-lead mode of collaboration as defined in the Vienna Agreement, consultation on this ISO/DIS has the same effect for CEN members as would a CEN enquiry on a draft European Standard. Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month FDIS vote in ISO and formal vote in CEN.

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Foreword

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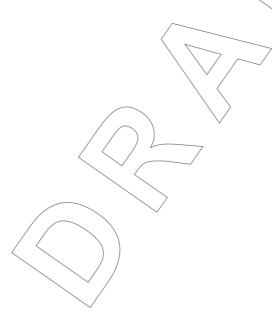
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ISO 14880-4 was prepared by Technical Committee ISO/TC 172, Optics and photonics, Subcommittee SC 9, *Electro-optical systems*.

ISO 14880 consists of the following parts, under the general title Microlens arrays:

- Part 1: Vocabulary
- Part 2: Test methods for wavefront aberrations
- Part 3: Test methods for optical properties other than wavefront aberrations
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Introduction

This standard specifies methods for testing geometrical properties of microlens arrays. 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.

Part 4 contributes to the purpose of ISO 14880, which is to improve the compatibility and interchangeability of lens arrays from different suppliers and to enhance development of the technology using microlens arrays.

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 main body.

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Microlens arrays — Part 4: Test methods for geometrical properties

1 Scope

This standard specifies methods for testing geometrical properties of microlenses in microlens arrays. It applies to microlens arrays with very small lenses formed on one or more surfaces of a common substrate and to graded index microlenses.

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 14880–1, Microlens array – Vocabulary

ISO 14880–2, Microlens arrays – Part 2: Test methods for wavefront aberrations

ISO 3274, Geometrical Product Specifications(GPS) — Surface texture: Profile method — Nominal characteristics of contact (stylus) instruments

ISO 4287, Geometrical Product Specifications(GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters

ISO 4288, Geometrical Product Specifications(GPS) — Surface texture: Profile method — Rules and procedures for the assessment of surface texture

ISO 5436-1, Geometrical Product Specifications (GPS) — Surface texture: Profile method; Measurement standards — Part 1: Material measures

ISO/TR 14999-1*), Optics and photonics — Interferometric measurement of optical elements and optical systems — Part 1: Definitions and fundamental relationships

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14880-1 and the following apply.

Table 1 lists the terms, symbols, units and definitions of the geometrical properties, which are used in this standard. The symbols adopted for this standard are chosen for clarity in this application to microlens arrays but some may not be those commonly used for surface texture measurement.

*) to be published