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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 41869.1-2022

Optics and photonics - Microlens array - Part 1: Vocabulary

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1.Structure and Drafting Rules for Standardization Documents"

drafting.

This document is Part 1 of GB/T 41869 "Optics and Photonics Microlens Arrays". GB/T 41869 has issued the following

part.

--- Part 1.Terminology;

--- Part 2.Test methods for wavefront aberrations.

This document is modified to adopt ISO 14880-1.2019 "Optics and Photonics Microlens Arrays Part 1.Terminology". This document is related to

Compared with ISO 14880-1.2019, the following structural adjustments have been made.

---3.1.1~3.1.2 corresponds to 3.2.1~3.2.2 in ISO 14880-1.2019;

---3.2 corresponds to 3.3 in ISO 14880-1.2019;

---3.2.5~3.2.6 corresponds to 3.3.5.1~3.3.5.2 in ISO 14880-1.2019;

---3.2.7~3.2.12 corresponds to 3.3.6.1~3.3.6.6 in ISO 14880-1.2019;

--- Figure 1 of 3.2.9 corresponds to Figure 2 in ISO 14880-1.2019;

---3.2.13~3.2.20 corresponds to 3.3.7~3.3.14 in ISO 14880-1.2019;

---3.3 corresponds to 3.4 in ISO 14880-1.2019;

---3.3.1 corresponds to 3.4.1 in ISO 14880-1.2019;

---3.3.1.1~3.3.1.11 corresponds to 3.4.1.1~3.4.1.11 in ISO 14880-1.2019;

--- Figure 2 and Figure 3 of 3.3.1.1 correspond to Figure 3 and Figure 4 in ISO 14880-1.2019;

---3.3.2 corresponds to 3.4.2 in ISO 14880-1.2019;

---3.3.2.1~3.3.2.6 corresponds to 3.4.2.1~3.4.2.6 in ISO 14880-1.2019;

---3.4.1 corresponds to Figure 1 in ISO 14880-1.2019;

---Appendix B to Appendix G correspond to Appendix A to Appendix F in ISO 14880-1.2019.

The technical differences between this document and ISO 14480-1.2019 and their reasons are as follows.

--- Deleted Table 1 and n(x,y,z), n0, theta in Table 1 (see Table 1 of ISO 14880-1.2019), because it is not mentioned in the text of the national standard

and the above terms and symbols;

---Deleted Note 2 of effective back focal length (see Note 2 of 3.3.2 of ISO 14880-1.2019), in order to clearly distinguish between effective front focal length and effective

For the description of the back focus, the explanation in Note 2 in the original text is incorporated into the expression of this term;

--- Delete the note on color difference (see 3.3.5.1 Note 1 and Note 2 of ISO 14880-1.2019), according to the requirements of GB/T 1.1-2020,

The formula should be expressed in the term entry, so the effective Abbe number algorithm is placed in the definition of the term;

--- Deleted the reference document of imaging quality (see 3.3.8 of ISO 14880-1.2019),

since MTF is used as a professional term, in the country

The modulus of the optical transfer function is defined in internal textbooks and existing national standards, and there is no need for special annotations;

--- Changed the second half of the definition of "pitch" (3.3.1.5, see 3.4.1.5 of ISO 14880-1.2019), due to the

The distance between spaces has clarified the concept of spacing. Horizontal changes and different directions are natural attributes, and increasing them will cause ambiguity;

--- Added the term "microlens array Cartesian coordinate system" (see 3.4.1), for the convenience of readers to understand the microlens array and Cartesian coordinates

The contrast relationship of the department;

--- Deleted Chapter 4 of ISO 14880-1.2019, and put the content of this chapter into 3.4 and 3.3.1.1 respectively to adapt to domestic reading

to understand;

--- Put Chapter 5 of ISO 14880-1.2019 into Appendix A, because the content of this chapter is a classification of microlens arrays, not a technical

interpreted in English and is therefore an informative appendix.

The following editorial changes have been made to this document.

--- Deleted the note of the microcylindrical mirror array (see 3.3.10 of ISO 14880-1.2019);

--- Added index;

--- Removed references.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Microlens array is an important type of optical element in array optics, in the form of a single lens, two or more lens arrays, wide

Widely used in three-dimensional display, coupled optics associated with arrayed optical radiation sources and photodetectors, enhanced liquid crystal displays, and optical parallel processor components.

With the continuous advancement of science and technology, it is necessary to formulate a set of national standards whose technical content is in line with international standards, which will not only help promote the development of microlens arrays in my country

A series of industry norms and orderly development can better promote trade, exchanges

and technical cooperation in related fields. GB/T 41869 "Optics and Photonics

"Microlens Array" was drafted under this background. The microlens array standard is to be composed of the following parts.

--- Part 1.Terminology. The purpose is to facilitate the application of microlens array products by defining the basic terms of microlenses and their arrays.

It is useful for scientific research and industry practitioners to exchange concepts based on a common understanding.

--- Part 2.Test methods for wavefront aberrations. The purpose is to clarify the basic characteristics of microlenses by standardizing the test method of wavefront aberration.

performance characteristics.

--- Part 3.Optical properties test methods. The purpose is to provide suppliers with a test method for determining important indicators of optical characteristics.

Provide basis for product delivery.

--- Part 4.Geometric properties test methods. The purpose is to provide the supplier with a test method to determine the important indicators of geometric characteristics.

Provide basis for product delivery.

Optics and Photonics Microlens Arrays

Part 1.Terminology

1 Scope

This document defines terms and definitions for microlens arrays.

This document applies to microlens arrays and their systems within or on the same substrate.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

ISO and IEC maintain standardized terminology databases at the following addresses.

3.1 Basic definition of microlens and microlens array

3.1.1