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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 2831-2009

Replacing GB/T 2831-1981

Surface form deviation of optical elements

光学零件的面形偏差

(English Translation)

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Foreword

This corresponds to standard ISO 10110-5:2007 "Optics and photonics optical components and optical system design - Part 5. surface shape tolerance" and ISO 10110-5:2007 is not equivalent degree of consistency.

This standard and ISO 10110-5:2007 The main differences.

- Remove the preamble and introduction of international standards;
- Increasing the terms and definitions;
- Increased iris recognition test methods;
- Increasing the surface deviations without individual tolerance requirements;
- Increased irregular interference fringes fringe interpretation and related digital content parsing.

This standard replaces GB/T 2831-1981 "Test method for optical components surface shape deviations (Iris Recognition)", and this standard the main difference between GB/T 2831-1981 are.

- Modify the standard name;

- Increasing the terms and definitions, and a clear definition of the value of the rms value PV;
- Increasing the surface shape deviation tolerances specified units;
- Increase the drawing surface shape deviations represented, and modify the representation of surface deviations and indicates the position;
- Increased without individual tolerance labeling provisions;
- Increasing the measurement problem digitized PV value and the rms value;
- The conversion formula, iris recognition method put in Appendices A and B;
- Increased irregular interference fringes fringe interpretation and digital resolution, and its contents into the Appendix C.

Appendix A of this standard is a normative appendix, Appendix B, Appendix C and Appendix D are informative appendices.

The standard proposed by China Machinery Industry Federation.

This standard by the National Standardization Technical Committee photon science and optics (SAC/TC103) centralized.

1 Scope

This standard specifies the terms and definitions, tolerances and methods of optical components surface deviations.

This standard applies to the use of an optical model of equal thickness interference method and the method of testing interferometers surface deviations of the optical components.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 13323 Optical Mapping (GB/T 13323-2009, ISO 10110-1:2006,
Opticsandphotonics-Prepara-tionofdrawingsforopticalelementsandsystems-Part 1. General, NEQ)

3 Terms and Definitions

The following terms and definitions apply to this standard.

Measured relative to a reference surface of the optical surface of the optical deviation.

NOTE: In the test range with a circular template detection surface deviations are observed through the vertical position of the interference fringes (known as the iris) of the number, shape, and change and color to determine.

The maximum distance minus the minimum distance between the two sides, referred to as PV.

Surface deviations of a fringe spacing equal to $1/2$ wavelength.

The actual difference between the surface and the theoretical surface of a desired specified surface theory.

The total surface deviations mean square error minimum spherical.

PV value between approximately spherical and flat.

The total surface deviations and the spherical aberration of the state under the theory approximation surface.