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

GB/T 13742-2009

Replacing GB/T 13742-1992

Accuracy of optical transfer function (OTF) measurement

光学传递函数测量准确度

(English Translation)

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Foreword

This standard is identical with ISO 11421:1997 "Optics and optical instruments - Optical transfer function measurement accuracy." this standard is equivalent to translate ISO 11421:1997.

For ease of use, this standard also made the following editorial changes.

- "This International Standard" be replaced by "this standard";
- Delete foreword international standards;
- International Standard Appendix D to this standard "reference." this standard replaces GB/T 13742-1992 "optical transfer function measurement accuracy." this standard and GB/T 13742-1992 main differences are as follows.
- To increase the content of Chapter 3. Terms and definitions, symbols;
- Chapter 4 has increased the impact "coherent light" and "baseline error" for MTF measurement;
- Chapter 4 adds MTF measurement error on a mathematical expression or formula;
- Chapter 7 increased preferences nominal value calculation accuracy table;
- Added Appendix A, Appendix B, Appendix C.

Appendix A of this standard is a normative appendix, Appendix B, Appendix C is informative appendix.

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 sources of error and error of the optical transfer function (OTF) measurement device for evaluating the estimated General Guidelines, and mention an optical transfer function measurement device for measuring the accuracy of assessment guidelines and evaluation methods.

This standard applies to all kinds of optical transfer function measurement device.

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 4315.1 OTF Part 1. terminology, symbols (GB/T 4315.1-2009, ISO 9334:2007, Opti-caltransferfunction-Definitionsandmathematicalrelations, MOD) GB/T 4315.2 OTF - Part 2. Measurement Guidelines (GB/T 4315.2-2009, ISO 9335:1995, Opti-caltransferfunction-Principlesandproceduresofmeasurement, IDT)

3.1 Terms and Definitions

GB/T 4315.1 and established the following terms and definitions apply to this standard.

3.1.1

By a plane containing a single or a plurality of lenses. Standard lens measurements shall be strictly in accordance with the specified measurement conditions, the MTF Deviation measured value and the theoretical value of the MTF calculated is not more than 0.05.

NOTE: In order to meet the accuracy requirements, the standard lens is usually a simple structure, properties subject to strict regulations. For example, using a 50mm focal length is generally flat Convex standard lens. These lenses and several other standard lens (including afocal system and work in the infrared lens) is not difficult to obtain.

3.1.2

By one or more structurally stable lenses. Check the lens MTF values can not design data

(usually a synthetic lens Results) calculated, but by official agencies (conditions permitting preferred national standards laboratory), carried out under the test conditions specified measurement to obtain the amount of its recognized value.

3.2 Symbol

Table 1 symbols apply to this standard.

Table 1 Symbol

Symbol Parameter Unit GB/T 13742-2009/ISO 11421:1997