ICS 17.180.01
CCS N 30

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 47243-2026

Optics and photonics - Optical components - Test method for the geometric parameters of complex curved surfaces

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Issued on: February 27, 2026 **Implemented on: June 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

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Suzhou Liuyangguang Electronics Technology Co., Ltd., Institute of Optoelectronics Technology, Chinese Academy of Sciences, Beijing Institute of Space Electromechanical Engineering, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences Research Institute, Shanghai Institute of Technical Physics, Chinese Academy of Sciences, Tianjin University, Dongguan Yutong Optical Technology Co., Ltd., Guangzhou Anter Laser Technology Co., Ltd. Technology Co., Ltd., Guangdong Hongbosheng Optoelectronic Technology Co., Ltd., Zhejiang Crystal Optoelectronic Technology Co., Ltd., Shenzhen Eurasia Laser Intelligent Technology Co., Ltd. Technology Co., Ltd., Henan Micro-Optics Technology Co., Ltd., Ningbo Mingxing Technology Development Co., Ltd., SuperFeng Micro-Nano Technology (Ningbo) Co., Ltd. Beijing Chuangsi Industry & Trade Co., Ltd., Outofi Technology (Zhuhai) Co., Ltd., Fujian Fulan Optics Co., Ltd., and Yipu Optoelectronics (Tianjin) Co., Ltd. Limited Liability Company, Guangliang Information Technology (Ningbo) Co., Ltd., China Ordnance Industry Standardization Research Institute, Shenyang Instrument Science Research Institute Co., Ltd. The main drafters of this document are. Wang Xiaokun, Zhang Xuejun, Cheng Qiang, Xue Donglin, Zhang Ge, Li Longxiang, Li Lingzhong, Cai Mengxue, Ding Yue, and Wang Yukun. Hu Haixiang, Lu Yan, Wang Jincheng, Zhang Shuangshuang, Song Junwei, Yan Lisong, Zhang Jinwei, Wang Xu, Shen Hua, Cao Yuxing, Wang Shanxiansong, Shi Feng, Yin Xiaolin Zhang Qiang, Zhang Le, Han Linchu, Li Bei, Yang Yang, Wang Jian, Guo Chengli, Cao Yun, Xie Gongxing, Sun Guoyan, Yang Xiaofei, Fan Bin, Wang Yonggang, Wei Chaoyang Yu Qinghua, Zhang Xiaodong, Li Zexiao, Liu Lihua, Li Lingjiang, Jing Xubing, Tu Kexu, Yang Changchun, Zhen Xihe, Wang Yujie, Lin Liping, Hong Chao Ruan Benshuai, Wu Rui, Zhang Chenxing, Zhang Quan, Chen Guo, Tu Junchao, Meng Yinxia, Gao Peng. Optical and photonic optical components Test methods for geometric parameters of complex curved surface optical elements

1 Scope

GB/T 47243-2026 is the Chinese national standard covering measuring an aspheric or freeform optical surface - a shape with no axis of symmetry to reference, which is why the fixturing, the sampling of the surface and the fitting of the measured points to the design are the whole of the method. First edition, in force since 1 June 2026. It was issued on 27 February 2026 and has been in force since 1 June 2026, as a first edition. The document is under the responsibility of the China Machinery Industry Federation. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes the testing methods for the geometric parameters of complex curved surface optical elements. This document applies to the preparation of composite optical materials such as various optical glass materials, optical crystal materials, silicon carbide ceramic materials, and metallic materials. Measurement of geometric parameters

such as profile dimensions, effective aperture, vertex radius of curvature, off-axis amount, eccentricity, and roll angle of complex surface optical elements.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 6380-2019 Statistical processing and interpretation of data - Identification and handling of outliers in Type I extreme value distribution samples

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Complex curved surface Optical surfaces characterized by aspherical equations or freeform surface equations.

3.2 Profile dimensions The shape and size of complex curved surface optical elements.

3.3 Effective aperture The maximum actual aperture of a complex curved surface optical element, given by the system optical design results.

0 The radius of curvature of a complex curved optical element at the vertex of the mirror surface.

3.5 off-axis displacement The distance by which the center of the mirror of a complex curved optical element deviates from the rotationally symmetric optical axis.

3.6 off-center displacement The distance by which the mirror of a complex curved optical element deviates from the rotationally symmetric optical axis in a direction perpendicular to the off-axis.