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CCS L90



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

GB/T 11297.1-2017

Replacing GB/T 11297.1-2002

Test method for wavefront distortion of laser rods

激光棒波前畸变的测量方法

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Table of Contents

- 1 Scope
- 2 Normative reference documents
- 3 Terms and definitions
- 4 Requirements

Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009. This standard replaces GB/T 11297.1-2002 "Measurement method of laser beam wavefront distortion". Compared with GB/T 11297.1-2002, In addition to editorial changes to the main technical content changes are as follows:

--- modified test conditions (see 4.1,.2002 version 4.1);

--- modified the side of the measured laser rod parallelism requirements (see 4.2,.2002 version of 4.4); - modified test equipment and requirements (see Chapter 6,

4.3 of.2002); - Increased measurement accuracy requirements (see Chapter 8). This standard is proposed by the Ministry of Industry and Information Technology. This standard is owned by the Ministry of Industry and Information Technology (electronic) of the People's Republic of China. The drafting unit of this standard. China Electronics Technology Group Corporation

11 Institute. The main drafters of this standard. Zhu Jianhui, Qiu Ying. This standard replaced the previous version of the standard release.

--- GB/T 11297.1-1989, GB/T 11297.1-2002. Measurement of wavefront distortion of laser rods

1 Scope

GB/T 11297.1-2017 is the Chinese national standard on test method for wavefront distortion of laser rods, in the field of electronics. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 31 May 2017 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 December 2017. Classification: ICS 31.030, CCS L90. This page is published from the official record of the standard held by the

Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the measurement conditions and test procedures for calculating the wavefront distortion of the material itself using the phase shift interferometry. This standard applies to the wavelength of 633nm light wave can pass through the laser crystal, also applies to glass, ceramics or other similar materials.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document. Terminology for solid - state lasers

3 Terms and definitions

GB/T 11293-1989 Definitions and the following terms and definitions apply to this document.

3.1 Wavefront wavefront The same phase of the light wave vibrates the phase.

3.2 Wavefront distortion wavefrontdistortion When the ideal light (plane wave or spherical wave) is transmitted or reflected, the wavefront changes occur as wavefront distortion, usually with the largest distortion (PV) as its digital indicator.

4 Requirements

4.1 Test conditions Unless otherwise specified, the test shall be carried out under the following conditions.

- a) Temperature. $22^{\circ}\text{C} \pm 5^{\circ}\text{C}$;
- b) Temperature fluctuation during test. $\leq 1^{\circ}\text{C}$;
- c) relative humidity. $\leq 85\%$;
- d) should be in the absence of vibration, air, dust environment.

4.2 measured laser bar requirements In addition to special requirements, the laser rod should meet the following requirements.

- a) Both sides of the parallelism (plane/plane) should be better than or equal to $30''$;
- b) the vertical distance of the end face to the shaft should be better than or equal to $5''$;
- c) the diameter of the face pits $\phi 0.004\text{mm} \sim \phi 0.1\text{mm}$, the total number of less than

0.8D0, scratches width 0.004mm ~ 0.1mm, total length Degrees less than 2D0 [D0 for the diameter of the laser rod, in millimeters (mm)];

d) The end face should be clean, without affecting the measured dust and light stains.

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