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

GB/T 15175-2012

Replacing GB/T 15175-1994

Measurement methods for main parameter of solid state lasers

固体激光器主要参数测量方法

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Foreword

This standard rule according to GB/T 1.1-2009 given draft. This standard replaces GB/T 15175-1994 "solid-state lasers main parameters of the test method." This standard and GB/T 15175-1994 compared to the main changes are as follows:

- Quoted in Chapter 3 GB/T 15313, delete the original standard and GB/T 15313 the same content of terms and definitions;
- Chapter 4 adds provisions "arbitration measure atmospheric conditions";
- Delete the original standard "transverse mode mode" measuring method (see 1994 edition 5.3);
- In the "beam width or beam diameter" measurement method increases the

measurement "hollow probe method" (see 5.7);

--- Increase "beam quality" measurement methods (see 5.9);

--- States that the "degree of polarization" specific content measurement method, delete the original standard GB/T 7257 "helium-neon laser parameters tested party Law "reference (see 5.11);

--- Added Appendix A, Appendix B and Appendix C. The standard proposed by the Ministry of Industry and Information Technology of the People's Republic of China. The standard by the China Electronics Standardization Institute. This standard was drafted. China Electronics Standardization Institute. The main drafters. Zhang Peng, Chen Lan. This standard replaces the standards previously issued as follows:

--- GB/T 15175-1994. The main parameters of solid-state laser measurement method

1 Scope

GB/T 15175-2012 is the Chinese national standard on measurement methods for main parameter of solid state lasers, 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 December 2012 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 June 2013.

Classification: ICS 31.260, CCS L51. 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 method for measuring the main parameters of solid-state lasers. The main measurement standard applies to solid-state lasers (hereinafter referred to as "laser") parameters.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated edition applies to this article Member. For undated references, the latest edition (including any amendments) applies to this document. Safety - Part 1

GB 7247.1 laser products. Equipment classification, requirements GB/T 15313 Laser term

3 Terms, definitions and symbols

GB/T 15313 and established the following terms and definitions apply to this document.

3.1 Operating current operating currents When the laser is operating, the pump source operating current.

3.2 Working conditions operating conditions Laser operating conditions refer to its operating mode and the operating wavelength and other conditions.

3.3 Output instability

3.3.1 Output power instability output power instability SP Output power within a predetermined time interval fluctuate over time characteristics when the laser is operating properly.

3.3.2 Output energy instability output energy instability SQ Energy output within the specified time intervals fluctuate over time characteristics when the laser is operating properly.

3.4 The maximum beam offset beam maximum excursion $\Delta\theta_{\max}$ Within a certain time frame, the maximum angle of deviation from the center of the beam spot of the optical axis.

3.5 Repeat pulse average power output repetition pulse output average power Repeat pulse laser under specified operating conditions, over a period of time of the n-times the average output power measurement.