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

GB/T 37412-2019

**Lasers and laser-related equipment - Cavity ring-down method
for high reflectance measurement**

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3.1 Terms and definitions

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1 cm/s light speed in the measurement environment

2 c0 m/s speed of light in vacuum

3 h(t) impulse response function of ring-down cavity

4 h0(t) Instrument response function

5 L0, L m length of initial chamber and test chamber

6 deltaL0, deltaL m Measurement error of initial cavity and test cavity length

7 n Determination of the refractive index of air in the environment

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the redrafting method to modify the use of ISO 13142.2015 "electron optical system cavity cavity ringing high reflectivity measurement technology."

Compared with ISO 13142.2015, this standard changes in structure as follows.

--- Chapter 4 of the original ISO standard is the symbol and unit of measurement, changed to 3.2 of this standard;

--- 6.6 test environment in the original ISO standard advanced to this standard 5.1;

--- 6.2~6.5 in the original ISO standard becomes 5.3.1~5.3.4 of this standard;

--- Removed references.

The technical differences between this standard and ISO 13142.2015 and their reasons are as follows.

---About the normative reference documents, this standard has made technical adjustments to adapt to China's technical conditions, specific adjustments

as follows.

- * Replaced ISO 11145 with GB/T 15313-2008 modified to adopt international standards;
- * Replace ISO 14644-1 with GB/T 25915.1-2010 equivalent to the international standard.

This standard has made the following editorial changes.

---Modified the "technique" in the English name to "method";

--- Modify the standard name as "the laser and laser-related equipment cavity cavity ringing high reflectivity measurement method".

1 Scope

This standard specifies the measurement method for the reflectivity of laser optical components.

This standard applies to the accurate measurement of the reflectivity of laser optics higher than 99%.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 15313-2008 Laser terminology (ISO 11145.2006, MOD)

GB/T 25915.1-2010 Clean rooms and related controlled environments - Part 1. Air cleanliness (ISO 14644-1..1999,

IDT)

3.1 Terms and definitions

The following terms and definitions as defined in GB/T 15313-2008 apply to this document.

3.1.1

Reflectivity

The ratio of the reflected radiant flux or luminous flux to the incident flux for a given condition (incident light wavelength, polarization state, angle of incidence, etc.).

3.2 Using symbols and units of measure

The symbols and units of measurement used in this standard are shown in Table 1.

Table 1 Symbols and units of measure

Serial number unit name

7 n Determination of the refractive index of air in the environment

The average reflectance of the 8 R concave cavity mirror is equal to the square root of $R_1 \times R_2$

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