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

GB/T 43590.511-2026

**Laser display devices - Part 5-11: Optical measuring methods of
laser source module**

激光显示器件 第5-11部分：激光光源模组光学测试方法
(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 5-11 of GB/T 43590 "Laser Display Devices". GB/T 43590 has already published the following parts.

- Part 1-2.Terminology and Symbols;
- Part 5-1.Test methods for the optical performance of laser front projection displays;
- Part 5-2.Optical methods for measuring speckle contrast;
- Part 5-3.Test methods for image quality of laser projection displays (screens);
- Part 5-4.Optical testing methods for colored speckle;
- Parts 5-6.Test methods for the optical performance of projection screens;
- Parts 5-7.Methods for testing image quality of laser scanning displays under speckle effects;
- Parts 5-11.Optical testing methods for laser source modules.

This document is modified to adopt IEC 62595-2-4:2020 "Display light source assemblies - Part 2-4.Photoelectric measurement methods for laser modules".

The technical differences between this document and IEC 62595-2-4:2020, and the reasons therefor, are as follows.

- The scope has been revised to reflect the current state of technology in China;
- In version 3.1.1, a spatial light output device has been added to adapt to the current technological situation in China;
- Notes in sections 3.1.3 and 3.1.5 of the original IEC document have been deleted, due to the removal of Annex B;
- The order of laser device terminology in section 3.1.5 of this document has been adjusted to be more logical;
- The phrase "or third harmonic (THG)" and related abbreviations have been removed from section 3.1.5.These abbreviations are not present in the standard content.
- Terms in IEC original documents 3.1.6, 3.1.7, and 3.1.10 that were not included in the standard have been removed;
- Added terminology for output optical power in section 3.1.6 of this document, and

provided explanations for the test parameters in section 5.2;

---The definition of far-field graphics in IEC document 3.1.11 has been modified to adapt to the current technological situation in China;

---The definition of chromaticity far-field graphics in IEC document 3.1.12 has been modified to adapt to the current state of technology in China;

---The description of safety requirements in IEC document 4.3 has been revised to adapt to the current state of technology in China;

---The description of the standard DUT conditions in the original IEC document 4.4 has been modified to conform to Chinese expression conventions;

---The LMD requirements in the original IEC document 4.5 have been modified, removing wavelength meters and laser multimeters, as these devices were not included in the standard content.

This is reflected in;

---The examples regarding retinal projection, etc., in the original IEC document 5.1 have been removed, and the descriptions have been modified to suit the current state of technology in China;

---The example of chromaticity far-field graphic testing in Cartesian coordinates in IEC document 5.4.3 has been removed. This graphic was not included in the standard content.

This is reflected in;

---The sections on monochrome and color speckle in IEC document 5.5 have been moved to Appendix D of this document for reference only;

---The general rule on temperature dependence (5.6) and sections on high-power RGB LD modules and low-power RGB LD modules in the original IEC document have been removed.

Some sections have been revised to include a measurement procedure for the temperature dependence of optical power, in order to adapt to the current state of technology in China.

---The measurement procedure for high-speed pulse modulation characteristics in section 5.6.2 of this document has been modified to better conform to the test logic;

---Appendices A, B, D, E, G, H, and J of the original file have been deleted. Appendix C of the original file has become Appendix A, and Appendix F has become...

Appendix B and Appendix I have been changed to Appendix C to adapt to the current state of technology in China.

The following editorial changes have been made to this document.

---The standard name has been changed to "Laser Display Devices Part 5-11.Optical Test Methods for Laser Source Modules".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

This document is under the jurisdiction of the National Technical Committee on Standardization of Electronic Display Devices (SAC/TC547).

Introduction

The new display industry is a strategic, fundamental, and pioneering industry for national economic and social development. Laser display devices are a type of new display technology.

The core component of the technology. This technology was developed to meet the needs of my country's production, manufacturing, inspection, and import/export trade of laser display devices.

Device series standards.

GB/T 43590 is proposed to consist of the following parts.

---Part 1-2.Terminology and Symbols. The purpose is to establish preferred terms, definitions, and symbols for laser display devices and related components.
symbol.

---Part 5-1.Test Methods for the Optical Performance of Laser Front Projection Displays. The purpose is to establish the laser source or components containing a laser source.

A test method for the optical performance of a front projector display with a hybrid light source.

---Part 5-2.Optical Measurement Methods for Speckle Contrast. The aim is to establish the laser source and the mixed light containing the laser source.

A method for measuring the monochromatic speckle contrast of laser display devices.

---Part 5-3.Test Methods for Image Quality of Laser Projection Displays (Screens). The purpose is to establish the testing methods for laser projector and screen combinations.

Test method for image quality of full-frame laser projection display (screen).

---Part 5-4.Optical Measurement Methods for Colored Speckle. The aim is to establish optical measurement methods for colored speckle in laser display devices.