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**Laser display devices-Part 5-1: Measurement of optical
performance for laser front projection**

激光显示器件 第5-1 部分：激光前投影显示光学性能测试方法

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is part 5-1 of GB/T 43590 "Laser display devices". GB/T 43590 has published the following parts.

- Part 1-2.Terms and text symbols;
- Part 5-1.Test methods for optical performance of laser front projection displays;
- Part 5-2.Optical measurement method for speckle contrast;
- Part 5-3.Laser projection display (screen) image quality test method;
- Part 5-4.Optical test method for colored speckle.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the 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 for Standardization of Electronic Display Devices (SAC/TC547).

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Introduction

The new display industry is a strategic, basic and leading industry for national economic and social development. Laser display devices are new display The core components of the technology. In order to meet the production, manufacturing, inspection and import and export trade needs of laser display device products in China, the laser display Device series standard. GB/T 43590 is intended to consist of the following parts.

- Part 1-2.Terminology and text symbols. The purpose is to establish the preferred terms, definitions and symbol.
- Part 5-1.Test method for optical performance of laser front projection display. The purpose is to establish the laser light source or containing laser light source Test method for optical performance of mixed light source front projector displays.

- Part 5-2.Optical measurement method for speckle contrast. The purpose is to establish the optical properties of laser light sources and mixed light containing laser light sources.

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

- Part 5-3.Laser projection display (screen) image quality test method. The purpose is to establish the laser projector and screen combination Test method for full-frame laser projection display (screen) image quality.

- Part 5-4.Optical test method for colored speckle. The purpose is to establish the optical measurement method for colored speckle of laser display devices. method.

- Part 5-6.Test methods for optical performance of projection screens. The purpose is to establish the laser projection display screen based on the photometric characteristics Test method for optical performance of screen.

- Part 5-7.Test method for image quality of laser scanning display under the influence of speckle. The purpose is to establish the image quality of laser scanning display under the influence of speckle noise.

A test method for the image quality of laser scanning displays on screens with no visible fluorescent light.

- Part 5-11.Optical test method for light source module. The purpose is to establish the optical performance test method for the light source module of laser display device method.

- Part 5-12.Opto-mechanical module test method. The purpose is to establish the performance test method of laser display opto-mechanical module.

- Part 5-16.Test methods for wavelength conversion components for laser display. The purpose is to establish the performance of wavelength conversion components for laser display. Can test methods.

- Part 5-18.Optical test method for fiber scanning laser display using grid type. The purpose is to establish the optical performance of fiber scanning devices using grid type.

An optical test method for laser beam scanning imaging during format scanning.

Laser display devices Part 5-1.

Test method for optical performance of laser front projection display

1 Scope

This document describes the test conditions and tests for the optical performance of laser front projection displays (referred to as "laser projection") of laser display devices. method.

This document applies to the measurement and evaluation of the optical performance of full-frame projection displays.

This document is not applicable to the measurement and evaluation of other projection display optical performance such as spot scanning.

Note. The light source of the laser projection is a laser or a mixed light source; the mixed light source is composed of a laser and other light sources (e.g., LED light source).

2 Normative references

GB/T 14857

GB/T 15313-2008

GB/T 20147-2006

GB/T 26270-2010

GB/T 30117.5-2019

GB/T 43590.102-2023

IEC 21118

IEC 61947

3.1 Terms and Definitions

The terms and definitions defined in GB/T 43590.102-2023 and GB/T 15313-2008 and the following apply to this document.