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

GB/T 43590.502-2024

**Laser display devices - Part 5-2: Optical measuring methods of
speckle contrast
(English Translation)**

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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 5-2 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.

This document is equivalent to IEC 62906-5-2:2016 "Laser display devices Part 5-2.Optical measurement method for speckle contrast".

The following minimal editorial changes were made to this document.

- Added Note 3 in 4.6.2.

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 my country, the laser display Device series standard. GB/T 43590 is proposed 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 an optical test 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 test methods for wavelength conversion components for laser display.

Performance testing 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 5-2. Optical measurement method for speckle contrast

1 Scope

This document specifies the standard measurement conditions and methods for the monochromatic speckle contrast of laser display devices.

This document applies to all laser light sources and to laser light sources (one or more) and spontaneous radiation light sources (such as light emitting diodes).

Laser display device with a hybrid light source.

Note: Monochromatic speckle contrast measurement does not include image quality.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version

(including all amendments) applies to this document.

GB/T 43590.102-2023 Laser display devices Part 1-2.Terminology and text symbols (IEC 62906-1-2:2015, IDT) Note. GB 7247.1-2012 Safety of laser products Part 1: Equipment classification, requirements (IEC 60825-1:2007, IDT)

3.1 Terms and Definitions

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

3.1.1

Speckle when the speckle contrast is equal to 1 ($CS=1$).

[Source. Goodman..2006[5]]

3.2 Abbreviations

The following abbreviations apply to this document.

DN. Digital Number

DUT. Device Under Test LD. Laser Diode LDD. Laser Display Device NA. Numerical Aperture