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Laser displays –
Part 6-1: Visualization method of colour gamut intersection

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CONTENTS

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LASER DISPLAYS –

Part 6-1: Visualization method of colour gamut intersection

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The text of this International Standard is based on the following documents:

Draft	Report on voting
110/1751/FDIS	110/1768/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62906 series, published under the general title *Laser displays*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

The colour gamut of a display is the range of colour in a perceptually homogeneous 3D colour space from black at the bottom to white at the top, having protruded curves (or cusps) outward and enclosed by the 3D envelope of its most saturated colours. When evaluating the range of hue, it is difficult to inspect colour volumes and to compare chroma at different hue angles and lightness levels. Viewing the colour space along a single direction can often be misleading because parts of the gamut volume are almost always obscured from view. A solution to this problem is the new two-dimensional diagram called “gamut rings.” The gamut ring framework unwraps the display’s important volumetric information and lays it flat in a two-dimensional diagram that provides the information needed to describe the maximum colour capability.

The aim is to evaluate the colour gamuts of laser displays, more specifically of front-projection laser projectors. In order to measure the laser light sources, it is crucial to ensure that accuracy and precision are observed, and to properly specify the methods. To visualize the gamuts in a quantitative manner, the latest gamut ring framework is proposed.

LASER DISPLAYS –

Part 6-1: Visualization method of colour gamut intersection

1 Scope

This part of IEC 62906 specifies a two-dimensional visualization method of the colour gamuts of a device under test (DUT) and a reference (REF) in the CIE 1976 L*a*b* (CIELAB) colour space and the intersection between them. This document applies to front projection displays which use either lasers or laser hybrid, or both light sources. The hybrid light sources can use both lasers and spontaneous emission-based light sources. Both full-frame projection technologies and raster-scanning projection displays are included.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62906-5-1:2021, *Laser displays – Part 5-1: Measurement of optical performance for laser front projection*