

INTERNATIONAL STANDARD



Display lighting unit – **STANDARD PREVIEW**
Part 2-2: Measuring methods of LED light bars used in LCD BLUs
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DISPLAY LIGHTING UNIT –

Part 2-2: Measuring methods of LED light bars used in LCD BLUs

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International Standard IEC 62595-2-2 has been prepared by IEC technical committee 110: Electronic display devices.

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

CDV	Report on voting
110/890/CDV	110/932A/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62595 series, published under the general title *Display lighting unit*, 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 "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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DISPLAY LIGHTING UNIT –

Part 2-2: Measuring methods of LED light bars used in LCD BLUs

1 Scope

This document specifies the standard measurement conditions and measuring methods for determining electrical and optical performances of LED light bars with white LEDs used in LCD backlight units.

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 62595-1-2, *Display lighting unit – Part 1-2: Terminology and letter symbols*

IEC 62595-2-1:2016, *Display lighting unit – Part 2-1: Electro-optical measuring methods of LED backlight unit*

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ISO 11664-3, *Colorimetry – Part 3: CIE tristimulus values*

IEC 62595-2-2:2018

ISO/CIE 11664-5, *Colorimetry – Part 5: CIE 1976 L*u*v* colour space and u', v' uniform chromaticity scale diagram*

standards.iteh.ai/catalog/standards/cie-1976-luv-colour-space-and-u-v-uniform-chromaticity-scale-diagram/iec-62595-2-2-2018

3 Terms, definitions, abbreviated terms and letter symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62595-1-2 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.2 Abbreviated terms

BLU	Backlight unit
CCT	Correlated colour temperature
DUT	Device under test
FOV	Field of view
FWHM	Full width at half maximum
LCD	Liquid crystal display
LED	Light emitting diode
LMD	Light measuring device
MCPCB	Metal core printed circuit board

3.3 Letter symbols (quantity symbols/unit symbols)

The letter symbols for this document are shown in Table 1.

Table 1 – Letter symbols (quantity symbols/unit symbols)

Distance between the LMD and the diffuser plate (see Figure 1)	D_1	(mm)
Distance between the diffuser plate and the LED light bar (see Figure 1)	D_2	(mm)
Mechanical origin of LED light bar	(x_0, y_0)	
Luminance profile of the effective area along the x -axis	$L_v(x, 0)$	(cd/m ²)
Luminance profile along the y -axis aligning the designed optical centre of the i^{th} LED	$L_v(x_{di}, y)$	(cd/m ²)
Average luminance of $L_v(x, 0)$	L_{va}	(cd/m ²)
Maximum luminance of $L_v(x, 0)$	L_{vM}	(cd/m ²)
Minimum luminance of $L_v(x, 0)$	L_{vm}	(cd/m ²)
Luminance non-uniformity of $L_v(x, 0)$	NU	(%)
CIE 1931 chromaticity coordinate of the i^{th} LED	$(x_{c,i}, y_{c,i})$	
CIE 1931 chromaticity coordinate of the LED light bar	(x_{ca}, y_{ca})	
CIE 1976 UCS chromaticity coordinate of the i^{th} LED	(u_i, v_i)	
CIE 1976 UCS chromaticity coordinate of the LED light bar	(u_a, v_a)	
Chromaticity difference for the i^{th} LED	$\Delta u_i, v_i$	
Colour uniformity (maximum chromaticity difference)	U_c	
NOTE 1 An effective illuminating area is an illuminating area with acceptable uniformity for both supplier and vendor.		
NOTE 2 The effective area of a LED light bar is determined between the supplier and the vendor.		

4 Measuring configuration

4.1 General

The system configurations and the measuring equipment shall comply with 4.2 and 4.3. An example of the measuring system arrangement is shown in Figure 1.