IEC 62595-2-1

Edition 1.0 2016-04

INTERNATIONAL STANDARD

colour inside

Display lighting unit –
Part 2-1: Electro-optical measuring methods of LED backlight unit



IEC 62595-2-1:2016-04(en)



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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 31.120; 31.260

ISBN 978-2-8322-3299-6

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DISPLAY LIGHTING UNIT –

Part 2-1: Electro-optical measuring methods of LED backlight unit

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International Standard IEC 62595-2-1 has been prepared by IEC Technical Committee 110: Electronic display devices.

This first edition cancels and replaces the first edition of IEC 62595-2 published in 2012. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) changed the series title in order to cover frontlight unit;
b) added the detailed measurement procedures particularly for block-wise BLU;
c) deleted Annex A;
d) revised Figure 1 and Figure 2 and some editorial errors.

The text of this standard is based on the following documents:

FDIS	Report on voting
110/731A/FDIS	110/743A/RVD

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

This publication 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.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication 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- withdrawn,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 2-1: Electro-optical measuring methods of LED backlight unit

1 Scope

This part of IEC 62595 specifies the standard measurement conditions and measuring methods for determining the electrical and optical parameters of LED backlight units for liquid crystal displays.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61747-30-1, *Liquid crystal display devices – Part 30-1: Measuring methods for liquid crystal display modules – Transmissive type*

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

3 Terms, definitions and abbreviations

3.1 Terms and definitions

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

3.2 Abbreviations

BLU backlight unit

FOV field of view

LMD light measuring device

LSF light spread function

4 General measurement conditions

4.1 Standard atmospheric conditions for LED BLU

Unless otherwise specified, all tests and measurements for LED BLU shall be carried out after sufficient warm-up time (see 4.3), under the standard environmental conditions, at a temperature of 25 °C ± 3 °C, a relative humidity of 25 % to 85 %, and an atmospheric pressure of 86 kPa to 106 kPa. When different environmental conditions are used, they shall be noted in the detail specification (see IEC 61747-30-1).

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[1] To be published.

4.2 Measuring setup

Figure 1 shows a typical setup of a BLU, luminance meter, power source, block controller, voltmeters and current meters for electro-optical measurements for LED BLU.

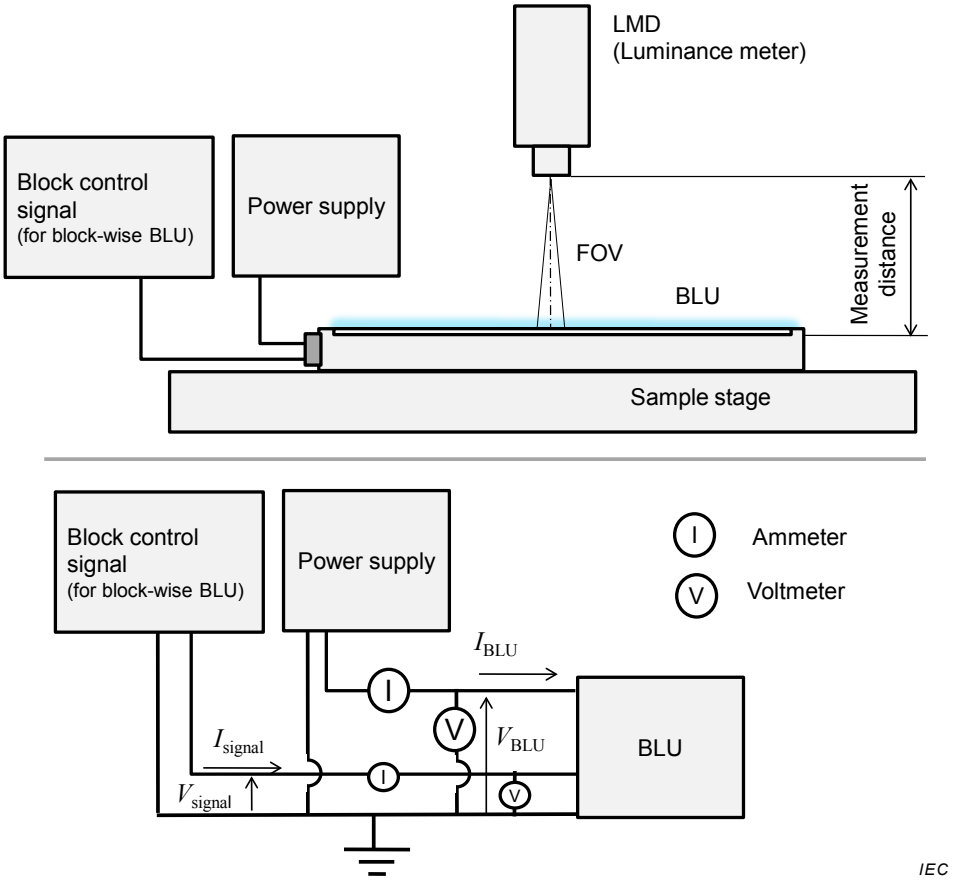


Figure 1 – Example of measuring setup for LED BLU

4.3 Warm-up time

The luminance of LED backlights is affected by the transient temperature behaviour of LED output as in Figure 2. It takes a certain time for LEDs until their junction temperature reaches the steady state. Luminance measurement shall be carried out and recorded until the fluctuations of luminance measured at an appropriate point (usually at the centre point) of the BLU become less than the range specified in IEC 61747-30-1 unless otherwise specified. The luminance measurement shall be carried out as in 5.2.2. All measuring conditions shall be kept constant during the measurements.

Chromaticity measurement shall be carried out in the same manner as in the above, unless otherwise specified. The chromaticity measurement shall be carried out as in 5.2.5.

The above measurements can be customized between the customer and the supplier, depending on various BLU sizes, applications, and so on.