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INTERNATIONAL STANDARD

NORME INTERNATIONALE

LCD backlight unit –
Part 2: Electro-optical measurement methods of LED backlight unit

Écran LCD à rétro-éclairage –
Partie 2: Méthodes de mesures électro-optiques d'un écran à rétro-éclairage à DEL

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colour inside

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LCD BACKLIGHT UNIT –

Part 2: Electro-optical measurement methods of LED backlight unit

FOREWORD

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

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

FDIS	Report on voting
110/384/FDIS	110/406/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 *LCD backlight unit*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site 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- withdrawn,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.

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LCD BACKLIGHT UNIT –

Part 2: Electro-optical measurement methods of LED backlight unit

1 Scope

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

NOTE Other backlights (Cold Cathode Fluorescent Lamps (CCFLs), External Electrode Fluorescent Lamps (EEFLs), Hot Cathode Fluorescent Lamps (HCFLs), Carbon Nano Tube (CNT), etc.) are excluded from this standard.

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 60050 (all parts), *International Electrotechnical Vocabulary* (available at http://www.electropedia.org)

IEC 61747-6, *Liquid crystal and solid-state display devices – Part 6: Measuring methods for liquid crystal modules – Transmissive type*

IEC 62595-1-2, *LCD Backlight unit – Part 1-2: Terminology and letter symbols*

CIE publication 15:2004, *Colorimetry*

3 Terms and definitions

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

4 General measurement conditions

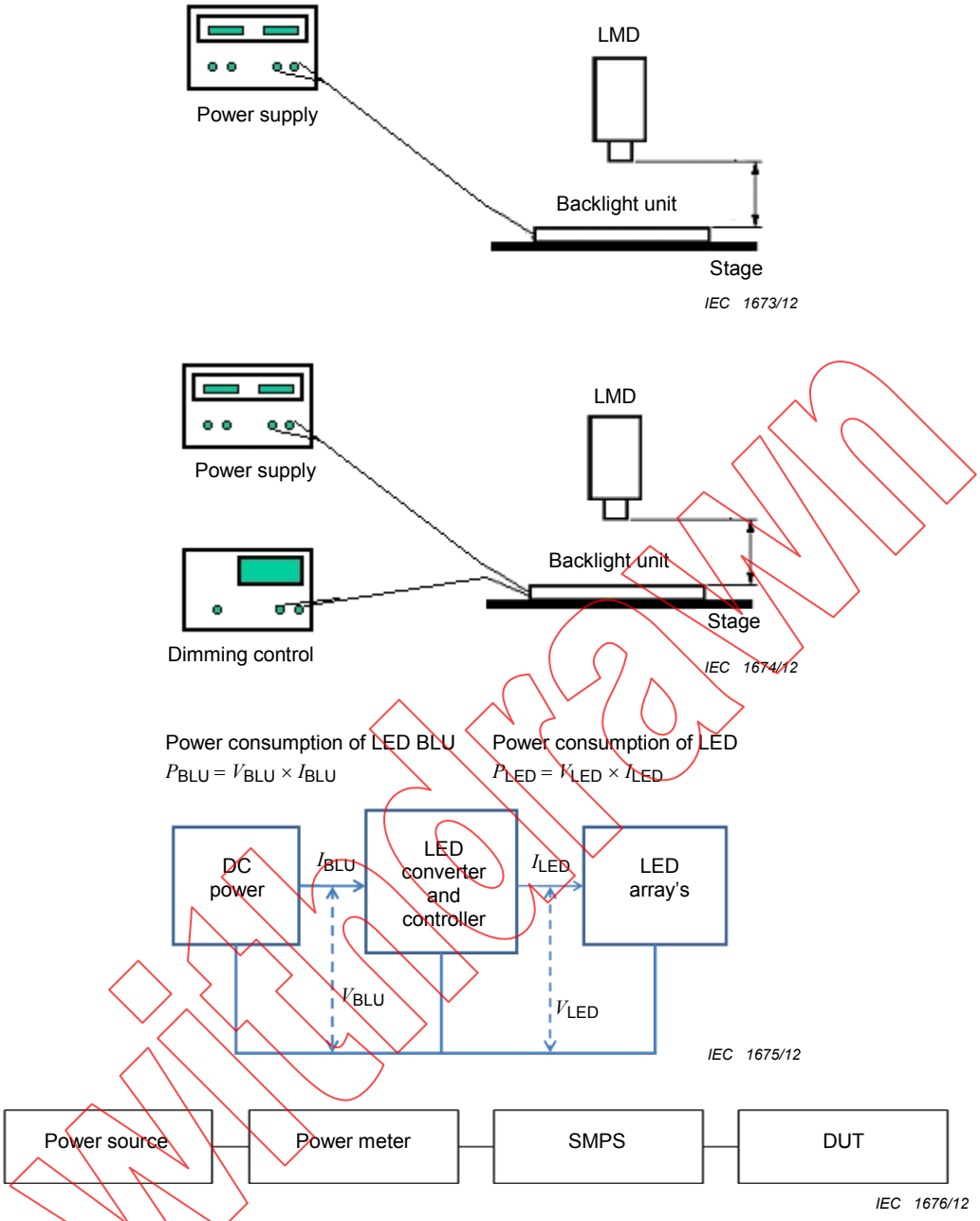
4.1 Standard atmospheric conditions for LED BLU

Unless otherwise specified, all tests and measurements for LED backlight unit shall be carried out after sufficient warm-up time for illumination sources and devices under test (see 4.3), under the standard environmental conditions, at a temperature of 25 °C ± 3 °C, at a relative humidity of 25 % to 85 %, and at 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 61747-6).

4.2 Measuring setup

DUT, LMD, power source, driving and control devices for LED, and electrical measuring devices should be arranged appropriately for electro-optical measurements for LED BLU.

An example of measuring setup is shown in Figure 1.



Key

LMD light measuring device

SMPS switching-mode power supply

DUT device under test

Figure 1 – Example of measuring setup for LED BLU

4.3 Warm-up time

Transient measurement shall be carried out and recorded until the fluctuations of luminance measured at the centre point of the BLU become less than the range specified in IEC 61747-6. As in Figure 2, luminance of LED backlights is affected by transient temperature behaviour of LED output. It takes a certain time for LEDs until their junction temperature reach the steady state. All measuring conditions shall be kept constant over the time range of recording. Transient measurement of chromaticity should be carried out in the same manner as in the above.