



IEC 62595-1-2

Edition 3.0 2024-12

INTERNATIONAL STANDARD



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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 31.120; 31.260

ISBN 978-2-8327-0094-5

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
3.1 General.....	5
3.2 Classification of terms.....	5
3.3 Fundamental terms	6
3.4 Terms related to passive optical components.....	10
3.5 Terms related to spatio-temporally modulated BLUs	14
3.6 Terms related to solid-state light sources.....	15
3.7 Terms related to light shaping guide in frontlight unit	18
3.8 Terms related to specifications	19
3.9 Terms related to backlight dimming.....	21
3.10 Terms related to photoluminescent materials	22
3.11 Terms related to DLU luminance	24
4 Letter symbols (quantity symbols/unit symbols)	24
Annex A (informative) Supplementary figures.....	26
Annex B (informative) Quantum dot film.....	32
Annex C (informative) Backlight unit and Light guide plate structures	34
Annex D (informative) Frontlight unit with a lightguide plate and a LED light source.....	36
Bibliography.....	37
Figure A.1 – Backlighting concept for transmissive and transreflective LCDs	26
Figure A.2 – Examples of edge-lit backlight units	26
Figure A.3 – Example of a direct-lit backlight unit with LED light bars	27
Figure A.4 – Visual definition of the terms related to passive optical components such as bezel and case for an LCD	27
Figure A.5 – Luminance uniformity on a backlight unit	28
Figure A.6 – Spherical coordinate system for evaluation of the angular or directional luminance distribution	28
Figure A.7 – Light cone on an edge-lit backlight unit.....	28
Figure A.8 – Examples of spectral power distribution of a display lighting unit	29
Figure A.9 – Incoherent light spread function for evaluation of optical characteristics of a block in a block-wise dynamic backlight unit	29
Figure A.10 – Light spread functions of three BLUs with different optical structures	30
Figure A.11 – Checkerboard pattern for evaluation of the luminance uniformity in a BLU	31
Figure B.1 – Schematic diagram of an LCD with QD film used edge-lit BLU	32
Figure B.2 – Schematic diagram of an LCD with QD-DP used direct-lit BLU.....	33
Figure C.1 – A hollow type side-lit BLU	34
Figure C.2 – A stack type edge-lit BLU	34
Figure C.3 – Tandem type edge-lit BLU	34
Figure C.4 – Cross section of a wedge shape light-guide plates.....	35
Figure D.1 – Cross section of a frontlight unit (FLU) on an electronic paper	36
Table 1 – Letter symbols (quantity symbols/unit symbols).....	25

INTERNATIONAL ELECTROTECHNICAL COMMISSION

DISPLAY LIGHTING UNIT –**Part 1-2: Terminology and letter symbols****FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62595-1-2 has been prepared by IEC technical committee 110: Electronic displays. It is an International Standard.

This third edition cancels and replaces the second edition published in 2016. This edition constitutes a technical revision.

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

- a) new terms are added considering recent advances in display lighting unit (DLU) technology;
- b) some of the terms and definitions are corrected and revised, particularly to be consistent with IEC 60050 policy;
- c) clause structure is updated for categorizing terms correctly;

- d) some of the figures in informative Annex A and their captions are revised for better understanding;
- e) an informative Annex B is added for pictorial definition of the backlight unit structure.
- f) an informative Annex C is added for pictorial definition of the backlight unit varieties and light-guide plate shapes.

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

Draft	Report on voting
110/1698/FDIS	110/1725/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 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

DISPLAY LIGHTING UNIT –

Part 1-2: Terminology and letter symbols

1 Scope

This part of IEC 62595 gives the preferred terms, their definitions and symbols, for display lighting units such as backlight units of transmissive and transflective displays, and frontlight units of reflective displays, with the objective of using standardized terminology when publications are prepared.

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 60050-845, *International Electrotechnical Vocabulary (IEV) – Part 845: Lighting* (available at www.electropedia.org)