SVENSK STANDARD SS-EN 61747-6-2

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Teckenfönster med flytande kristaller – Del 6-2: Mätningar på moduler med flytande kristaller av reflektiv typ

Liquid crystal display devices –
Part 6-2: Measuring methods for liquid crystal display modules –
Reflective type

Som svensk standard gäller europastandarden EN 61747-6-2:2011. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61747-6-2:2011.

Nationellt förord

Europastandarden EN 61747-6-2:2011

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61747-6-2, First edition, 2011 - Liquid crystal display devices - Part 6-2: Measuring methods for liquid crystal display modules - Reflective type**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 31.120

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English version

Liquid crystal display devices - Part 6-2: Measuring methods for liquid crystal display modules - Reflective type

(IEC 61747-6-2:2011)

Dispositifs d'affichage à cristaux liquides - Partie 6-2: Méthodes de mesure pour les modules d'affichage à cristaux liquides - Type réflexible
(CEI 61747-6-2:2011)

Flüssigkristall-Anzeige-Bauelemente - Teil 6-2: Messverfahren für Flüssigkristall-Anzeigemodule - Reflektive Ausführung
(IEC 61747-6-2:2011)

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

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Foreword

The text of document 110/281/FDIS, future edition 1 of IEC 61747-6-2, prepared by IEC TC 110, Flat panel display devices, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61747-6-2 on 2011-07-15.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2012-04-15
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-07-15

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61747-6-2:2011 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

[19] IEC 61747-6	NOTE	Harmonized as EN 61747-6.
[20] ISO 9241-7	NOTE	Harmonized as EN ISO 9241-7.
[21] ISO 13406-2	NOTE	Harmonized as EN ISO 13406-2.
[23] IEC 61747-1	NOTE	Harmonized as EN 61747-1.
[24] IEC 61747-5	NOTE	Harmonized as EN 61747-5.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
ISO 11664-2	2007	Colorimetry - Part 2: CIE standard illuminants	EN ISO 11664-2	2011
CIE 15.2	-	CIE Recommendations on Colorimetry	-	-
CIE 17.4	-	International Lighting Vocabulary	-	-
CIE 38	-	Radiometric and photometric characteristics of materials and their measurement	-	-
CIE 1931	-	CIE XYZ colour space	-	-
CIE 1976	-	CIE LAB colour space	-	-

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INTRODUCTION

In order to achieve a useful and uniform description of the performance of these devices, specifications for commonly accepted relevant parameters are put forward. These fall into the following categories:

a) general type specification (e.g. pixel resolution, diagonal, pixel layout);

b) optical specification (e.g. contrast ratio, response time, viewing direction, crosstalk, etc.);

c) electrical specification (e.g. power consumption, EMC);

d) mechanical specification (e.g. module geometry, weight);

e) specification of passed environmental endurance test;

f) specification of reliability and hazard / safety.

In most of the above cases, the specification is self-explanatory. For some specification points however, notably in the area of optical and electrical performance, the specified value may depend on the measuring method.

It is assumed that all measurements are performed by personnel skilled in the general art of radiometric and electrical measurements as the purpose of this standard is not to give a detailed account of good practice in electrical and optical experimental physics. Furthermore, it must be assured that all equipment is suitably calibrated as is known to people skilled in the art and records of the calibration data and traceability are kept.

LIQUID CRYSTAL DISPLAY DEVICES –

Part 6-2: Measuring methods for liquid crystal display modules – Reflective type

1 Scope

This part of IEC 61747 gives details of the quality assessment procedures, the inspection requirements, screening sequences, sampling requirements, and test and measurement procedures required for the assessment of liquid crystal display modules.

This standard is restricted to reflective liquid crystal display-modules using either segment, passive or active matrix and a-chromatic or colour type LCDs (see Note). Furthermore, the reflective modes of transflective LCD modules with backlights OFF and reflective LCD modules of front light type without its front-light-unit, are comprised in this standard. A reflective LCD module with combination of a touch-key-panel or a front-light-unit is out of the scope of this standard, because its measurements are frequently inaccurate. Its touch-key-panel or front-light-unit should be removed before it can be included in this scope.

NOTE Several points of view with respect to the preferred terminology on "monochrome", "achromatic", "chromatic", "colour", "full-colour", etc. can be encountered in the field amongst spectroscopists, (general-) physicists, colour-perception scientists, physical engineers and electrical engineers. In general, all LCDs demonstrate some sort of chromaticity (e.g. as function of viewing angle, ambient temperature or externally addressable means). Pending detailed official description of the subject, the pre-fix pertaining to the "chromaticity" of the display will be used so as to describe the colour capability of the display that is externally (and electrically) addressable by the user. This leads us to the following definitions (see also [19])

a) a monochrome display has NO user-addressable chromaticity ("colours"). It may or may not be "black and white" or a-chromatic;

b) a colour display has at least two user-addressable chromaticities ("colours"). A 64-colour display has 64 addressable colours (often made using 2 bits per primary for 3 primaries), etc. A full-colour display has at least 6 bits per primary (≥ 260 thousand colours).

The purpose of this standard is to indicate and list the procedure-dependent parameters and to prescribe the specific methods and conditions that are to be used for their uniform numerical determination.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 11664-2:2007, *Colorimetry – Part 2: CIE standard illuminants*

CIE 15.2*, CIE Recommendations on Colorimetry*

CIE 17.4, *International Lighting Vocabulary*

CIE 38*, Radiometric and photometric characteristics of materials and their measurement*

CIE 1931, *CIE XYZ colour space*

CIE 1976, *CIE LAB colour space*