

Nederlandse praktijkrichtlijn

NPR-IEC/PAS 61747-5-3

(en)

Liquid crystal display devices - Part 5-3: Liquid crystal display devices - Glass strength and reliability measurement method (IEC/PAS 61747-5-3:2007, IDT)

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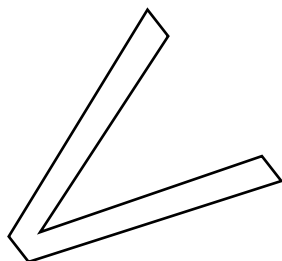
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Pre-Standard

First edition
2007-05



**Liquid crystal display devices –
Part 5-3:
Liquid crystal display devices –
Glass strength and reliability
measurement method**

Preview



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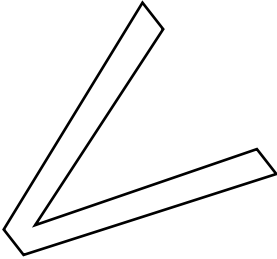
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Commission Electrotechnique Internationale
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LIQUID CRYSTAL DISPLAY DEVICES –

Part 5-3: Liquid crystal display devices – Glass strength
and reliability measurement method

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IEC-PAS 61747-5-3 has been processed by IEC technical committee 110: Flat panel display devices.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document:

Draft PAS	Report on voting
110/85/NP	110/103/RVN

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned will transform it into an International Standard.

This PAS shall remain valid for an initial maximum period of three years starting from 2007-05. The validity may be extended for a single three-year period, following which it shall be revised to become another type of normative document or shall be withdrawn.

INTRODUCTION

This PAS is devoted to the mechanical reliability of liquid crystal display (LCD) devices. This PAS is restricted to transmissive or reflective LCD modules using either segment, passive or active matrix and achromatic or colour-type LCDs that are equipped with their own integrated source of illumination or without their own source of illumination. Analysis and testing are performed on LCD module component glass as well as finished on LCD modules. Statistics of the mechanical strength of the modules are determined, allowing a prediction of module failure probability at a given stress level, or, for a given probability of failure, the maximum recommended safe loading stress for the module.

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LIQUID CRYSTAL DISPLAY DEVICES –

Part 5-3: Liquid crystal display devices – Glass strength and reliability measurement method

1 Scope and object

This PAS applies to commercially available liquid crystal displays (LCDs). This PAS applies to all LCD types, including transmissive, reflective or transflective LCD modules using either segment, passive or active matrix and achromatic or colour-type LCDs that are equipped with their own integrated source of illumination or without their own source of illumination.

The object of this PAS is to establish uniform requirements for accurate and reliable measurements of the following LCD parameters, as defined herein:

- a) quasistatic strength;
- b) quasistatic fatigue.

The methods described in this PAS apply to all sizes, small and large, of LCDs.

Methods for measuring the fatigue constant are described in this PAS and are taken from the referenced literature [13-20]. The primary results are formulae for estimated allowable stress for the specified lifetime or estimated failure rate for the specified stress level. By way of an example, limited data for strength and fatigue behaviour of LCD glass are included in an informative annex to this PAS. Similarly, limited data for the static strength of LCD modules is also included and compared with that of parent glass.

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.

IEC 61747-5, *Liquid crystal display devices – Part 5: Environmental, endurance and mechanical test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

strength

stress at which a sample fails for a given loading condition

3.2

LCD surface strength

biaxial strength wherein surface flaws with different orientations are subjected to uniform tension during measurement [1-4]

3.3

LCD edge strength

uniaxial strength wherein edge flaws are subjected to tension during measurement [5-8]

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