INNOLUX CORPORATION

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品保部
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發行
鈺華科技開發股份有限公司

TFT LCD Module

Incoming Inspection Specification

Model No.: G121XCE-L01

Customer：碩望
Approved by

Approved by


Address：No.160, Kesyue Rd., Jhunan Science Park, Miaoli County 35053, Taiwan (R.O.C.)
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Revision History

Version	Date	Page	Section	Description

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Inspection Standards for LCD Modules

1.Description

These inspection standards shall be applied to LCD Module supplied by Innolux Corporation.

This model is only used for Industry product. If there are any other product applications such as handwriting recognition, Medical use, Automobile, Aerospace use and so on, the specification should be negotiated separately.

2.The environmental condition of inspection

The environmental condition and visual inspection shall be conducted as below.

(1) Ambient temperature：15~25℃

(2) Humidity：25~75 %RH

(3) External appearance inspection shall be conducted by using a single 20W fluorescent lamp or equivalent illumination.

(4) Panel visual inspection on the operation condition for cosmetic shall be conducted at the distance 35cm or more between the LCD module and eyes of inspector.

Ambient Illumination：300 ~ 500 Lux for external appearance inspection

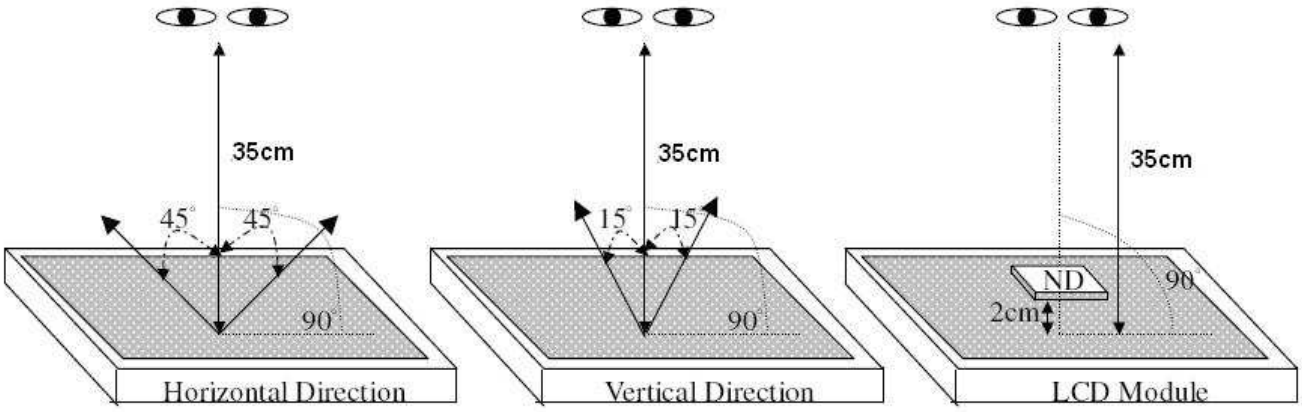
Ambient Illumination：100 ~ 200 Lux for light on inspection

(5) The viewing angle：

a) 15 degree to the front surface of display panel in vertical direction.

b) 45 degree to the front surface of display panel in horizontal direction.

(6) ND filter shall be conducted at the distance 2 cm to front surface of display panel and shall be conducted at the distance 35 cm between the LCD module and eyes of inspector by view angle 90 degree within 3 seconds.



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3.Classification of defects

Defects are classified two types, major defect and minor defect according to the defect. And, the definition of defects is classified as below.

(1) Major defect

Any defect may result in functional failure, or reduce the usability of product for its purpose. For example, electrical failure, deformation and etc..

(2) Minor defect

A defect that is not to reduce the usability of product for its intended purpose and un-uniformity, dot defect and etc..

The criteria on major or minor judgment will be according with the classification of defects, and any defects out of active area, are not considered as a defect or counted.

4.Inspection Criteria

(1) Definition of dot defect induced from the panel inside

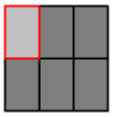
a) Bright dot：Dots appear bright and unchanged in size in which module is displaying under black pattern.

b) Dark dot：Dots appear dark and unchanged in size in which module is displaying under pure red, green, blue, white picture.

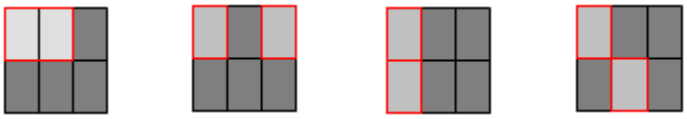
c) 2 Full dot adjacent = 1pair.

d) Picture：

(a) Full dot



(b) 2 Full dot adjacent



(c) Spot defect



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(2) Display Inspection standards when power on.

Items		Acceptable count
Full Bright dot	Random	N≦2
	2 dots adjacent	N≦1
	3 dots adjacent or more	N≦0
Full Dark dot	Random	N≦3
	2 dots adjacent	N≦1
	3 dots adjacent or more	N≦0
Total full bright and full dark dot		N≦5
Foreign Black/White/Bright Spot		D≦0.15mm, Ignore 0.15＜D≦0.5 mm, N≦4
Foreign Black/White/Bright Line		W≦0.05mm, Ignore 0.05＜W≦0.1 mm,0.3＜L≦2.0 mm,N≦4
Polarizer	Scratches	W≦0.05mm, Ignore 0.05＜W≦0.1 mm,0.3＜L≦2.0 mm,N≦4
	Dent /Bubble	Avg. 0.15<D≦0.5 mm, N≦4
Distance	Minimum Distance Between Full Bright dots	L≧10mm
	Minimum Distance Between Full Dark dots	L≧10mm
Display failure (V-line/H-line/Cross line etc.)		Not allowable
Mura	Not visible through 6% ND filter in 50% gray or judge by limit sample if necessary	

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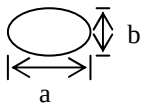
5.External Appearance Inspection Criteria(Power off)

Item	Contents	
Screw	Parts mounting, incomplete assembly, deformation, oxidized, crooked or rusty is not permitted.	
CCFL cable (For CCFL Model)	Cable not continuous、Break-off 、Connector Burn-off /Break-off	
Metal frame (Bezel)	Scratch	*Noticeable scratch and exfoliation coating are not permitted. *The oxidized metal is not permitted.
	Incomplete assembly is not permitted.	
Backlight	Scratch	The scratch which may causes a problem in practical use is not permitted.
	Break-off	Breaking off is not permitted.
	Crack	The crack is not permitted.
Polarizer	Scratches	W≦0.05mm, Ignore 0.05＜W≦0.1 mm, 0.3＜L≦10.0 mm, N≦4
	Dent/Bubble	Avg. 0.15<D≦0.5 mm, N≦4
	Stain	The stain on polarizer, which can’t be wiped off, is not permitted.
Tape/Label	Incorrect position, missed label is not permitted.	
Connector	Oxidized/rusty connector is not permitted.	
Outline size	Spec. out is not permitted.	

*Note: If any specific defect is not included in the above defect table, this defect should be judged by INX/ODM/Brand customer discussion.

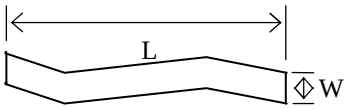
Note.1

D=(a+b)/2



Note.2

W: width, L：length



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6.Classification of defects

Inspection Item	Criteria and Description	Defect type
Vertical line	Signal input, vertical line off or irregular V-line appears	major
Horizontal line	Signal input, horizontal line off or irregular H-line appears	major
Cross line	Pattern signal input, a correct display is not obtained	major
No display	Signal input, display is dead	major
Irregular display	Pattern signal input, a correct display is not obtained	major
Dots defect	Exceed specified standards	minor
Scratch and Dent on polarizer	Exceed specified standards	minor
Foreign material	Exceed specified standards	minor
Mura	Non-uniformity is appeared in display	minor
Polarizer bubble	Exceed specified standards	minor

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