LCD Module Inspection Specification

MODEL NO.: HLX1506664GGU00

Customer:

APPROVED BY

SIGNATURE _____ DATE _____

QC Approved By	Prepared By
Pretty	Andy
Issued Date	Revision
2023.6.20	0

■Prototype □Pre-prod. □Mass prod. Specification

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Engineering	Manufacturing	R&D Approved	Sales Approved	PM Approved
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2. RECORD OF REVISION

Rev	Date	Item	Page	Comment	Source
0	20/June/23”	3	7	New Release	NPDO-230420001

3. Inspection condition

3.1 Inspection conditions

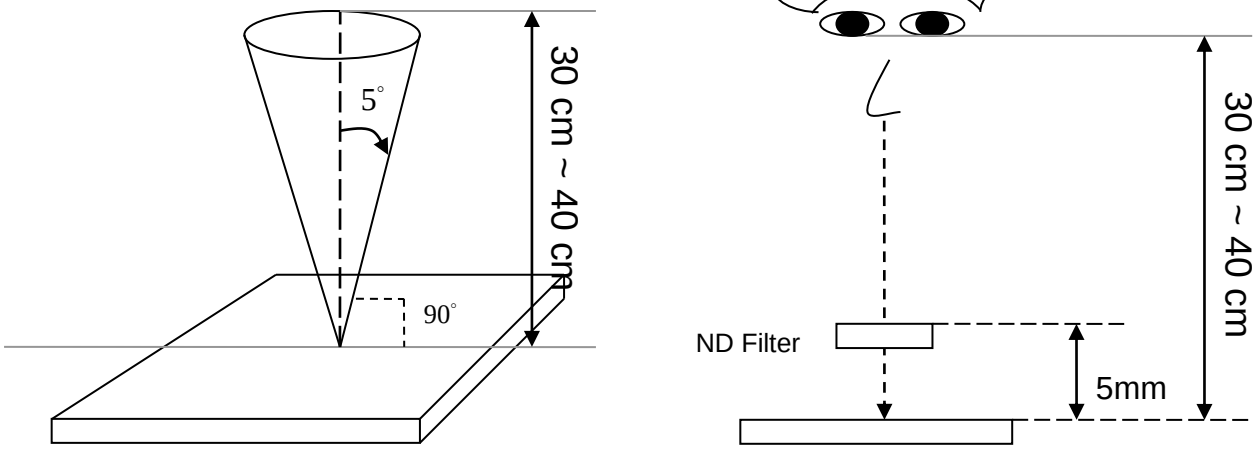
3.1.1 Inspection Distance: 35 ± 5 cm

3.1.2 View Angle:

（1） Inspection under operating condition : ±5°

（2） Inspection under non-operating condition : ± 45°

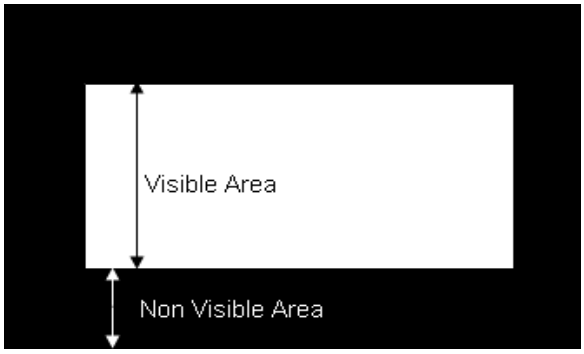
3.1.3 Appearance inspection time: ≦15 second



3.2 Environment conditions :

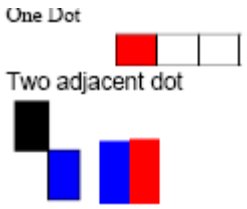
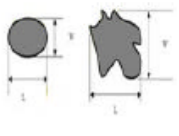
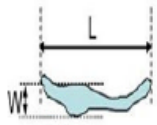
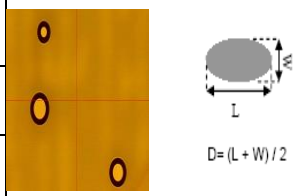
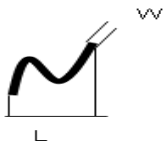
Ambient Temperature :	25±5℃
Ambient Humidity :	30~75%RH
Ambient Illumination	600 ~ 800lux

3.3 Definition of applicable Zones



3.4 Inspection Parameters

3.4.1 Appearance & Display inspection （D: diameter, L: length; W: width, n：number）

Items		Acceptable count	
Bright dot	1 dot	N≦ 2	
	2 dots adjacent	N≦ 1	
	3 dots adjacent	N≦ 0	
Dark dot	1 dot	N≦ 3	
	2 dots adjacent	N≦ 1	
	3 dots adjacent	N≦ 0	
Adjacent dots with a bright dot and a dark dot		N≤2	
Total bright and dark dot		N≦ 5	
Note：The ratio of module with any bright dots shall not exceed 10% per shipment.			
Distance	Minimum Distance Between dark and bright dot	5mm	
Display failure (V-line/H-line/Cross line etc.)		Not allowable	
Mura/ Waving /Hot spot	It is acceptable that the defect cannot be seen with 2% ND filter.		
Item	**SPEC (unit: mm)**	**Acceptable count**	**Description**
Foreign Black/White/Bright Spot (Display & Appearance)	D≤0.15	Ignore	
	0.15 < D≤0.5， distance≥5mm	N≤5	
	D > 0.5	N≤0	
Foreign Black/White/Bright Line (Display & Appearance)	W≤0.05	Ignore	
	0.05<W≦ 0.1 and 0.3< L≦12， distance≥5mm	N≦ 6	
	W>0.1 or L>12	N≦ 0	
Polarizer Dent/Air Bubble	D≤0.15	Ignore	
	0.15 < D≤0.5， distance≥5mm	N≤4	
	D > 0.5	N≤0	
Polarizer Scratches	W≤0.05	Ignore	
	0.05<W≦ 0.1 and 0.3< L≦10， distance≥5mm	N≦ 5	
	W>0.1 or L>10	N≦ 0	

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.
Metal frame (Bezel)	Scratch	*Noticeable scratch and exfoliation coating are not permitted. *The oxidized metal is not permitted.
	Incomplete assembly is not permitted	
FPC cable		Cable not continuous、Break-off 、Connector Burn-off /Break-off
Stain on Polarizer		The stain, which can t be wiped off, is not permitted.
Tape/Label		Incorrect position, missed label is not permitted.
Connector		Assembly NG or Function fail caused by deformation is not permitted
Protective film defective		Will not make an effect on assembly production-----OK
Outline size		Spec. out is not permitted.

3.4.2 Inspection Specification for Cover & bonded parts:（D: diameter, L: length; W: width, n：number X:width,Y: length，Z: height, T:glass thickness）

Item	SPEC (unit: mm)	Acceptable count
Foreign material of dot type defect (including printing impurity)	D≦ 0.3	Ignore
	0.3 < D≦ 0.5, distance≥3.18mm	N≦ 5
	D > 0.5	N≦ 0
Foreign material of line type defect	W≦ 0.05 and L≦ 5	Ignore
	0.05<W≦ 0.1 and L≦ 10.16， distance≥25mm	N≦ 4
	W>0.1 or L>10.16	N≦ 0
Scratch	W≦ 0.05 and L≦ 30	Ignore
	0.05<W≦ 0.2 and L≦ 30， distance≥5mm	N≦ 4
	W>0.2 or L>30	N≦ 0
Pin hole light-leaked	D≦ 0.2	Ignore
	D > 0.2	N≦ 0
Saw tooth	D≦ 0.3	Ignore
	D > 0.3	N≦ 0
Corner broken	X≦ 1,Y≦ 1,Z < T	Ignore

Crack	Not allowable
Color aberration	As for color aberration, please refer to limit sample
Dirt	It is not allowed if the dirt cannot be wiped off.
OB bubble	Not allowable
RTV overflowed	W≤1mm Not count (not consider)

3.4.3 Shell validation IIS
TBD

Note:1. The above does not involve the project, refer to the Limit Sample to determine.

Note:2. Defect which is on the Black Matrix (outside of Active Area) are not considered as a defect, non-visible appearance defect after assembly is not considered as a defect.

Note:3. 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 dot adjacent = 1pair

Note:4. The external inspection should be conducted at the distance 35± 5cm between the eyes of inspector and the panel

Note:5. Luminance measurement for contrast ratio is at the distance 50± 5cm between the detective head and the panel with ambient illuminance less than 1 lux. Contrast ratio is obtained at optimum view angle.

3.5 Sampling Condition
Unless otherwise agree in written, the sampling inspection shall be applied to the incoming inspection of customer.
Lot size: Quantity of shipment lot per model.
Sampling type: normal inspection, single sampling
Sampling table: ISO 2859
Inspection level: Level II

Class of defects	**Definition**		
	Major	AQL 0.65	It is a defect that is likely to result in failure or to reduce materially the usability of the product for the intended function.
	Minor	AQL 1.5	It is a defect that will not result in functioning problem with deviation classified.