

# Shenzhen Leadtek Electronics Co.,Ltd

## PRODUCT SPECIFICATION

### TFT-LCD MODULE

**Module No: LTK346HS4003B-G-V7**

Preliminary Specification

Approval Specification

Designed by	Checked by	Approved by
<i>jona</i>	<i>Jams</i>	<i>lan</i>

### Final Approval by Customer

Approved by	Comment

※The specification of "TBD" should refer to the measured value of sample . If there is difference between the design specification and measured value, we naturally shall negotiate and agree to solution with customer.

## 1.Document Revision History

Version	Contents	Date	Note
V1	DESCRIPTION	2021-10-20	
V2	LCM backlight adds iron frame	2021-12-10	
V3	Change LCD	2022-01-31	
V4	Modify the content and location of the code, and add a QR code attachment to remove the FPC double-sided tape	2023-08-16	
V5	The transparent hole on the back of the cover plate adds a protective film and upgrades the version model;	2023-10-20	
V6	Change the shape of the double-sided tape and the camera protective film	2025-04-15	
V7	Adjust the width of the foam adhesive from 3mm to 2mm;	2025-11-26	

## 2. General Description

NO	Item	Specification	Unit
1	LCD Size	TFT"3.51	
2	Panel Type	IPS	
3	Resolution	340xRGBx800	pixel
4	Display Mode	Normally Black	-
5	Number of Colors	16.7M	
6	Viewing Direction	ALL	-
7	CG+LCM Module Outline	44.21 (H) x194.20(V) x2.90(T)	mm
8	Panel Active Area	33.97 (H) x 81.00 (V)	mm
9	Pixel Pitch	0.099 x 0.1012	mm
10	LCM Driver IC	ST7701S	
11	Light Source	White LED	
12	LCM Interface	MIPI	bit

Note : Please refer to the mechanical drawing;

## 3. Mechanical Drawings



## 4.Module Interface

NO	SYMBOL	FUNCTION
1	NC	No Connection
2	VCC(3.3V)	Power Supply for analog, (3.3v)
3	IOVCC(1.8V)	Power Supply for analog, (1.8v)
4	GND	Power Ground
5	GND	Power Ground
6	GND	Power Ground
7	TE	Temperature sensor input terminal
8	RESET	Reset signal input terminal, active at 'L'.
9	LEDA	Power supply for backlight anode input terminal
10	LEDK	Power supply for backlight cathode input terminal
11	NC	No Connection
12	NC	No Connection
13	GND	Power Ground
14	D1P	MIPI-DSI Data differential signal input pins. (Data lane D1P)
15	D1N	MIPI-DSI Data differential signal input pins. (Data lane D1N)
16	GND	Power Ground
17	CKLP	MIPI-DSI Data differential signal input pins. (Clock lane CKLP)
18	CLKN	MIPI-DSI Data differential signal input pins. (Clock lane CLKN)
19	GND	Power Ground
20	D0P	MIPI-DSI Data differential signal input pins. (Data lane D0P)
21	D0N	MIPI-DSI Data differential signal input pins. (Data lane D0N)
22	GND	Power Ground
23	NC	No Connection
24	NC	No Connection

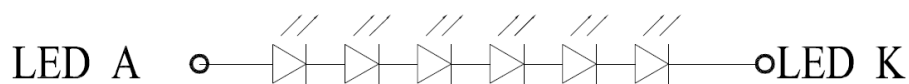
## 5. ABSOLUTE MAXIMUM RATING

Item	Symbol	Min.	Max.	Unit	Remark
Power Supply Voltage	VCC	-0.3	3.3	V	
	IOVCC	-0.3	1.8	V	
Storage Temperature	Tstg	-30	+80	°C	
Operating Temperature	Topr	-20	+70	°C	

## 6. Back-light Unit:

PARAMETER	Sym.	Min.	Typ.	Max.	Unit	Test Condition	Note
LED Current	IF	–	20	–	mA	–	–
LED Voltage	VF	–	19.2	–	V	–	–
CG+LCM_Brightness	Lv	–	300	–	Nits	@CA310	
Life Time		–	30000		Hr.	I ≤ 20mA	–
Color	White						

Note (1) Permanent damage may occur to the LCD module if beyond this specification. Functional operations should be restricted to the conditions described under normal operating conditions.



$$I_f = 20\text{mA}, \quad V_f = 19.2\text{V(TYP)}$$

## 7.AC Characteristics

Reset timing and interface timing:

Please refer to IC datasheet.

## 8.Command Table

Please refer to IC datasheet.

## 9.Recommended Setting and Initialization Flow for Reference

Please refer to attached file.

## 10.Optical Specifications

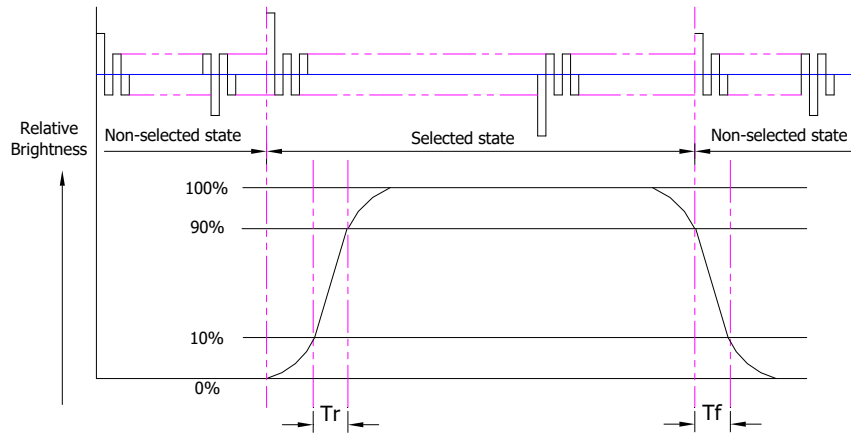
### 10.1 Optical Specifications

Ta=25°C, VDD=2.8V, TN LC+ Polarizer

	Item	Symbol	Condition	Specification			Unit		
				Min.	Typ.	Max.			
Backlight On (Transmissive Mode)	CG+LCM Luminance on surface( $I_f=20\text{mA}$ )	$L_V$	Normally viewing angle	-	300	-	cd/m <sup>2</sup>		
	Contrast ratio	$CR$	$\theta_x = \theta_y = 0^\circ$	-	600	-	-		
	Response time	$T_R$		-	10	20	ms		
			$T_F$	-	20	30			
	Chromaticity Transmissive	Red	$X_R$	-	0.602	0.632	0.662	-	
			$Y_R$		0.309	0.339	0.369	-	
		Green	$X_G$		0.297	0.327	0.357	-	
			$Y_G$		0.525	0.575	0.605	-	
		Blue	$X_B$		0.121	0.151	0.181	-	
			$Y_B$		0.060	0.090	0.120	-	
	White	$X_W$	0.258		0.288	0.318	-		
		$Y_W$	0.291		0.321	0.351	-		
	Viewing Angle	Horiz ontal	$\theta_{X+}$		Center $CR \geq 10$	-	80	-	Deg.
			$\theta_{X-}$			-	80	-	
		Vertic al	$\theta_{Y+}$			-	80	-	
$\theta_{Y-}$			-			80	-		
	NTSC Ratio(Gamut)	-	-	-	65	-	%		

## 11.0 Definition of Response Time

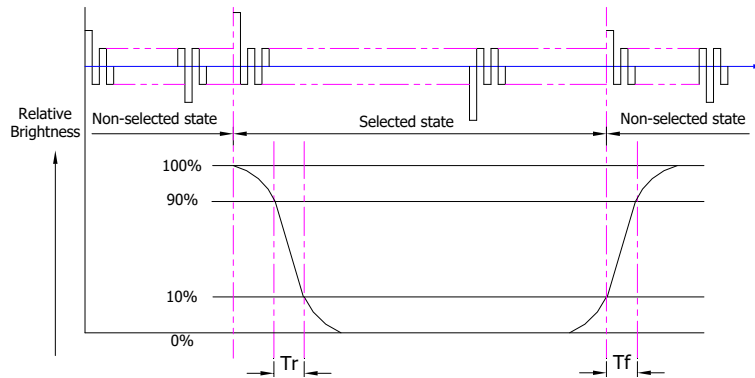
### 11.1.1 Normally Black Type (Negative)



Tr is the time it takes to change from non-selected state with relative luminance 10% to selected state with relative luminance 90%;

Tf is the time it takes to change from selected state with relative luminance 90% to non-selected state with relative luminance 10%.

### 11.1.2 Normally White Type (Positive)



Tr is the time it takes to change from non-selected state with relative luminance 90% to selected state with relative luminance 10%;

Tf is the time it takes to change from selected state with relative luminance 10% to non-selected state with relative luminance 90%;

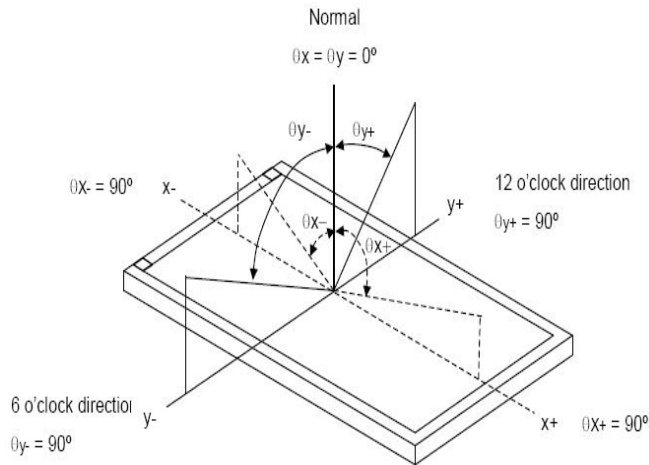
## 11.3 Definition of Contrast Ratio

Contrast is measured perpendicular to display surface in reflective and transmissive mode. The measurement condition is:

Measuring Equipment	BM-7 or EQUI
Measuring Point Diameter	3mm//1mm
Measuring Point Location	Active Area centre point
Test pattern	A: All Pixels white
	B: All Pixel black
Contrast setting	Maximum

Definitions: CR (Contrast) = Luminance of White Pixel / Luminance of Black Pixel

### 11.4 Definition of Viewing Angles



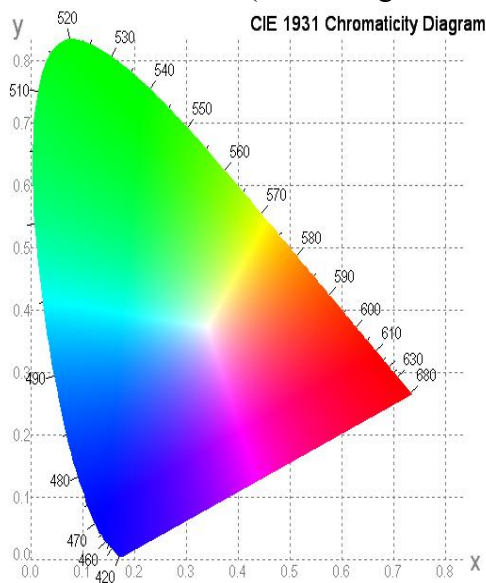
Measuring machine: LCD-5100 or EQUI

### 11.5 Definition of Color Appearance

R,G,B and W are defined by (x, y) on the IE chromaticity diagram

NTSC=area of RGB triangle/area of NTSC triangleX100%

Measuring picture: Red, Green, Blue and White (Measuring machine: BM-7)



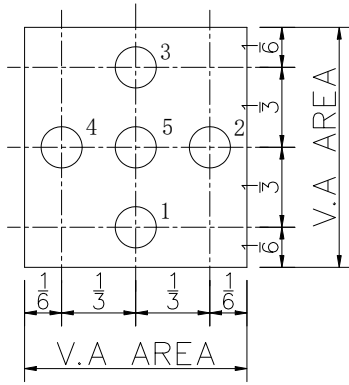
### 11.6 Definition of Surface Luminance, Uniformity and Transmittance

Using the transmissive mode measurement approach, measure the white screen luminance of the display panel and backlight.

11.6.1 Surface Luminance:  $LV = \text{average (LP1:LP5)}$

11.6.2 Uniformity =  $\text{Minimal (LP1:LP5) / Maximal (LP1:LP5) * 100\%}$

11.6.3 Transmittance =  $LV \text{ on LCD} / LV \text{ on Backlight} * 100\%$   
 Note :Measuring machine:CA310



## 12. Quality Assurance

### 12.1 Purpose

This standard for Quality Assurance assures the quality of LCD module products supplied to customer by leadtek-DISPLAY display.

### 12.2 Agreement Items

leadtek-DISPLAY and customer shall negotiate if the following situation occurs:

12.2.1 Discrepancies between leadtek-DISPLAY’s QA standards and customer’s QA standards. 12.2.2 Additional requirement to be added in product specification.

12.2.3 Any other special problem.

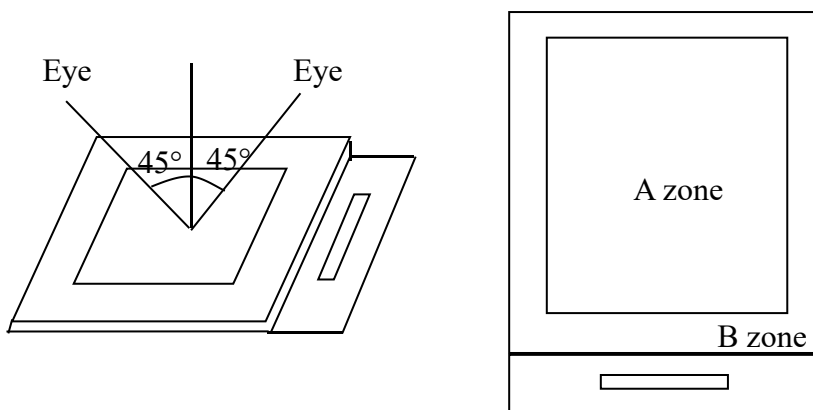
### 12.3 Standard of the Product Visual Inspection

12.3.1 Appearance inspection:

12.3.1.1 The inspection must be under illumination about 1000 – 1500 lx, and the distance of view must be at 30cm ± 2cm.

12.3.1.2 The viewing angle should be 45° from the vertical line without reflection light or follows customer's viewing angle specifications.

12.3.1.3 Definition of area: A Zone: Active Area, B Zone: Viewing Area.



## 13. Reliability Specification

Item	Condition	Cycle Time	Quantity	Remark
Constant Temp. and Constant Humidity Operation Test	+20 ± 3°C, 90 ± 3%RH	96hrs	--	*1
High Temp. Operation Test	+70 ± 3°C	96hrs	--	
Low Temp. Operation Test	-20 ± 3°C	96hrs	--	
Thermal Shock Test	-20 ± 3°C (30min) +70 ± 3°C (30min)	10cycles	--	
ESD Test(end product)	150pF, 330Ω, ±2KV, Contact	10times	--	*2, *3
	150pF, 330Ω, ±6KV, Air			
Vibration Test (for packaging)	Frequency: 10Hz to 55Hz to10Hz, Swing: 1.5mm, time: X, Y, Z each 2H.	6hrs	One inner carton	*4

Note 1. For humidity test, DI water should be used.

Inspection Standard: Inspect after 1-2hrs storage at room temperature, the sample shall be free from the following defects:

- Air bubble in the LCD
- Seal Leakage
- Non-display
- Missing Segment
- Glass Crack
- IDD is greater than twice initial value.
- Others as per QA Inspection Criteria

Note 2. No defect is allowed after testing

The End Product ESD value is only indicative and depends on customer ESD protection design for the whole system.

Note 3. ESD should be applied to LCD glass panel, not other areas (such as on IC and so on) IDD should be within twice initial value.

In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judged as a good part.

Note 4. Only upon request.

## 14. Precautions and Warranty

### 14.1 Safety

14.1.1 The liquid crystal in the LCD is poisonous. Do not put it in your mouth. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water.

14.1.2 Since the liquid crystal cells are made of glass, do not apply strong impact on them. Handle with care.

## 14.2 Handling

14.2.1 Reverse and use within ratings in order to keep performance and prevent damage.

14.2.2 Do not wipe the polarizer with dry cloth, as it might cause scratch. If the surface of the LCD needs to be cleaned, wipe it swiftly with cotton or other soft cloth soaked with petroleum IPA, do not use other chemicals.

## 14.3 Operation

14.3.1 Do not drive LCD with DC voltage

14.3.2 Response time will increase below lower temperature

14.3.3 Display may change color with different temperature

14.3.4 Mechanical disturbance during operation, such as pressing on the display area, may cause the segments to appear “fractured”.

## 14.4 Static Electricity

14.4.1 CMOS LSIs are equipped in this unit, so care must be taken to avoid the electro-static charge, by ground human body, etc.

14.4.2 The normal static prevention measures should be observed for work clothes and benches.

14.4.3 The module should be kept into anti-static bags or other containers resistant to static for storage.

## 14.5 Limited Warranty

14.5.1 Unless otherwise agreed between leadtek-DISPLAY and customer, leadtek-DISPLAY will replace or repair any of its LCD and LCM which leadtek-DISPLAY found to be defective electrically and visually when inspected in accordance with leadtek-DISPLAY Quality Standards, for a period of one year from date of shipment.

14.5.2 The warranty liability of leadtek-DISPLAY is limited to repair and/or replacement. leadtek-DISPLAY will not be responsible for any consequential loss.

14.5.3 If possible, we suggest you use up all modules in six months. If the module storage time over twelve months, we suggest that recheck it before the module be used.

## 15.Packaging

TBD

## 16.Prior Consult Matter

1. For leadtek-DISPLAY standard products, we keep the right to change material, process for improving the product property without prior notice to our customer.

2. For OEM products, if any changes are needed which may affect the product property, we will consult with our customer in advance.

3. If you have special requirement about reliability condition, please let us know before you start the test on our samples.



# 深圳市丽台电子有限公司

Shenzhen Leadtek Electronics Co.,Ltd

# Incoming Inspection Standard

## 品质允收标准

Model N0. /产品型号: Applicable to Leadtek Touch Display Screen

Updated Date /生效日期: 2025.04.01

Version / 版本号: V0

Record of Revision /修订履历.

Version /版本号	Revision Record /修订内容	Reviser /修订人	Revision Date /修订日期
V0	首发 / Initial release	Green	2025.04.01



## 1、Scope of application /适用范围.

适用于丽台电子触摸显示屏/ Applicable to Leadtek Touch Display Screen.

## 2、Inspection conditions and environment / 检验条件与环境.

### 2.1、Inspection Conditions / 检验条件:

2.1.1、Inspection Distance / 检测距离: 35cm ±5cm.

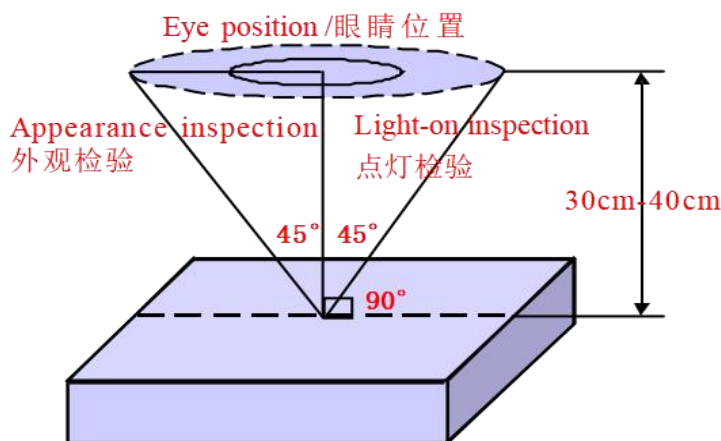
2.1.2、Inspection time /检验时间: Displays performance test /功能测试: 2~3S /Image, Appearance Inspection / 外观检验: 8~10S.

### 2.1.3、Inspection the viewing angle /检验视角:

Display Inspection Angle /显示检验角度: ±45°.

Appearance Inspection Angle /外观检验角度: ±45°.

Eye position /眼睛位置:



(Perpendicular to LCD panel surface /垂直于LCD表面)

### 2.2、Inspection environment /检验环境:

Temperature / 温度		25±5°C
Humidity / 湿度		55±5%RH
Brightness 亮度	Appearance Inspection / 外观检验	800~1000 Lux
	Display Inspection / 功能检验	200~300 Lux

### 2.3、Sampling conditions / 抽样方式.

Sampling Plan / 抽样计划		GB/T 2828.1- 2003
		Batch single sampling/批量单次抽样
		General inspection level: II/一般检验水平: 二级
AQL	Major Defect / 主要缺陷	0.25
	Minor Defect / 次要缺陷	0.65

### 3、Terms and definitions / 术语和定义.

#### 3.1、Defect classification / 缺陷分类:

3.1.1、Major defects / 主要缺陷: Defects that cause the product to fail or reduce the usability of the product / 引起产品功能失效和减少产品的有效使用与操作的缺陷.

3.1.2、Minor defects / 次要缺陷: Defects that do not affect the functionality and effective use and operation of the product / 不影响产品功能和有效使用与操作的缺陷.

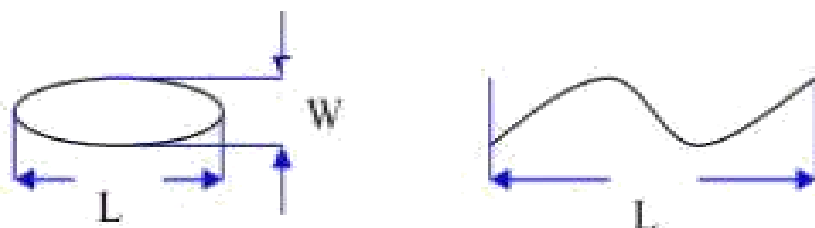
#### 3.2、Point defects / 点状缺陷:

The size of a punctate defect is defined by the diameter D, and the average diameter of the defect is  $D=1/2(W+L)$  / 点状缺陷由直径 D 定义大小, 缺陷的平均直径  $D=1/2(W+L)$ .

#### 3.3、line defects / 线状缺陷:

When defect size  $L \geq 2W$ , the defect count as liner type defect. Size of linear defect is defined by length (L) and the maximum width (W)

当缺陷尺寸  $L \geq 2W$  时, 被视为线状缺陷, 线状缺陷是由长度 (L) 和最大宽度 (W) 定义的.



### 3.4、LCD sub-pixels / LCD 子像素点:

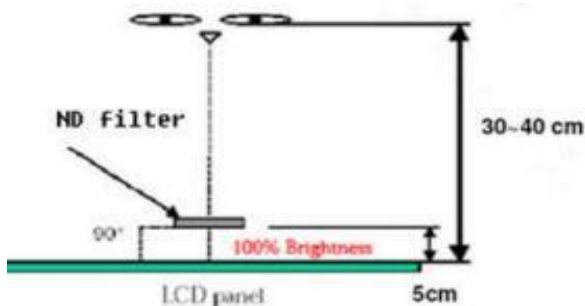
The sub-pixel defect area is greater than 50% of the LCD sub-pixel area, and is visible through ND5% masking

子像素点缺陷面积大于 50% LCD 子像素面积, 且透过 ND5%遮盖是可见的.

### 3.5、ND card test method / ND 卡检验方法:

Hold the ND card about 5cm above the display area, with your eyes 30-40cm away from the panel, and observe for 2~3 seconds

在显示区域上方大约 5cm 处握住 ND 卡, 眼睛距离面板 30-40cm, 观察 2~3 秒.



3.6、Surface substances that can be cleaned are not considered defects (e.g. finger prints on the protective film, dust particles)

可以被清洁干净的表面物质不视为缺陷 (如保护膜上的手指印, 尘粒) .

3.7、Defects that can be covered by the material and are not visible to the eye, and do not affect the function and use are not considered defects

能被物料覆盖目视不可见, 且不影响功能与使用的缺陷不视为缺陷.

3.8、AA shows that damage to the glass outside the area does not affect the effective line and does not expand the loss is acceptable

AA 显示区域以外的玻璃损伤, 不影响有效线路和不会在扩大损失的是可以接受的.

3.9、Issues not specified or defined in this document shall be dealt with through friendly negotiation between the parties / 本文件中未规定或定义的问题, 双方友好协商处理.

## 4.0、Inspection standards /检验标准:

### 4.1、Structural size standards / 结构尺寸标准:

Measurement items /测量项目		Specification /规格	Remark /备注
Name/名称	Unit /单位	Tolerance /公差	
Outside dimension: Length 尺寸: 长	mm /毫米	0.10mm~0.3mm	Please refer to the product specification for detailed dimensions and tolerances 详细的尺寸规格和公差请参考产品规格书
Outside dimension: Width 尺寸: 宽	mm /毫米	0.10mm~0.3mm	
Outside dimension: Thickness 尺寸: 厚	mm /毫米	0.20mm~0.50mm	

### 4.2、Appearance Inspection standards:

( D : diameter, W : width, L : length, N : quantity, DS : spacing )

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
LCD	ITO	Full size 全尺寸	ITO can't open circuit, short circuit, ITO notch cannot exceed 70% of width. ITO 不能有开路 and 短路, ITO 缺口不能超过宽度的70%.	MA	
	Corners broken 崩边/崩角	Full size 全尺寸	1、 It cannot affect the appearance of valid routes and functions; 不能影响有效线路和功能外观.	MA	
			2、 There must be no extensible rips 不能有可延伸性裂纹.	MA	
Silicone 硅胶	Silicone coating 硅胶涂布	Full size 全尺寸	1、 The height cannot exceed the LCD CF surface / 高度不能超过 LCD CF 面.		MI
			2、 No overflow and lack of glue / 不能溢胶和缺胶.		MI
			3、 Silicone cannot cover POL and FPC/ 硅胶不能覆盖到 POL 和 FPC.		MI

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
PCBA FPC Connector 连接器	Appearance 表面外观	Full size 全尺寸	1.FPC is not allowed to have drape/bubble/fold / 不允许有披锋/气泡/褶皱.		MI
			2.Surface scratches do not allow copper leakage / 表面划伤不允许出现漏铜.	MA	
			3.Cracking is not allowed / 不允许破裂.	MA	
			4.Gold finger oxidation is not allowed 不允许金手指氧化.	MA	
			5.Chromatic aberration is not allowed 不允许出现色差.	MA	
	Components 元器件	Full size 全尺寸	1. Damage, missing parts, and incorrect models are not allowed 不允许损伤、缺件、型号错误.	MA	
			2.Components need to be insulated with high temperature adhesive (unless not required by the drawings) / 元器件需要有高温胶绝缘保护 (除非图纸无要求) .		MI
			3.The pads need to be glued with high temperature (unless not required by the drawings) / 焊盘需贴高温胶 (除非图纸无要求) .		MI
	Weld 焊接	Full size 全尺寸	1. False soldering, virtual soldering, and tinning are not allowed 不允许假焊、虚焊、连锡.	MA	
			2. No solder bead residue is allowed 不允许有锡珠残留.		MI
3.The pads need to be glued with high temperature (unless not required by the drawings) / 焊盘需贴高温胶 (除非图纸无要求) .				MI	
POL 偏光片	Scratches 划伤	Under 6 inches 6寸以下	1.W≤0.05mm; L≤5mm, Ignore (忽略) . 2.0.05mm < W≤0.10mm ; L≤5mm ; N≤2; DS≥10mm. 3.0.10mm < W; 5mm < L, Not allowable (不允许) .		MI
		6~10.0 inches 6寸~10.0寸	1.W≤0.07mm; L≤5mm, Ignore (忽略) . 2.0.07mm < W≤0.12mm ; L≤10mm ; N≤3 ; DS≥10mm. 3.0.12mm < W; 10mm < L, Not allowable (不允许) .		MI
		More than 10 inches 10寸以上	1.W≤0.10mm; L≤5mm, Ignore (忽略) . 2.0.10mm < W≤0.15mm ; L≤10mm ; N≤4 ; DS≥10mm. 3.0.15mm < W; 10mm < L, Not allowable (不允许) .		MI

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
POL 偏光片	Bubbles	Under 6 inches 6寸以下	1.D≤0.15mm, Ignore (忽略) . 2.0.15mm < D≤0.30mm; N≤2; DS≥10mm. 3.D > 0.30mm, Not allowable (不允许) .		MI
		More than 6 inches 6寸以上	1.D≤0.20mm, Ignore (忽略) . 2.0.20mm < D≤0.40mm; N≤3; DS≥10mm. 3.D > 0.40mm, Not allowable (不允许) .		MI
	Bubbles around the edges 边缘气泡	Full size 全尺寸	1.Within 1/2BM of the display area, it is not allowed 显示区往外 1/2BM 区域内, 不允许. 2.The display area is 1/2 outside the BM area, and it is not controlled 显示区往外 1/2BM 区域以外, 不管控.		MI
	Point defects Embossing	Under 6 inches 6寸以下	1.D≤0.15mm, Ignore (忽略) . 2.0.15mm < D≤0.30mm; N≤2; DS≥10mm. 3.D > 0.30mm, Not allowable (不允许) .		MI
		6~10.0 inches 6寸~10.0寸	1.D≤0.20mm, Ignore (忽略) . 2.0.20mm < D≤0.40mm; N≤3; DS≥10mm. 3.D > 0.40mm, Not allowable (不允许) .		MI
		More than 10 inches 10寸以上	1.D≤0.25mm, Ignore (忽略) . 2.0.25mm < D≤0.50mm; N≤4; DS≥10mm. 3.D > 0.50mm, Not allowable (不允许) .		MI
	Dirty 脏污	Full size 全尺寸	Dirt, finger prints, etc. are not allowed 不允许有脏污、手指印等.		MI
	Warping 起翘	Full size 全尺寸	Not allowed 不允许.		MI
	Paste offset 贴附偏位	Full size 全尺寸	It is not allowed to exceed the patch tolerance required by the drawing; After TP lamination, it is not allowed to leak the edges of the polarizer 不允许超出图纸要求的贴片公差; 在 TP 贴合后不允许漏偏光片边缘.		MI
	Angle mistake 角度错误	Full size 全尺寸	Not allowed 不允许.		MA
Mixture 混料	Full size 全尺寸	Not allowed 不允许.		MA	

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别		
TP	Scratches 划伤	Under 6 inches 6寸以下	1.W≤0.05mm; L≤5mm, Ignore (忽略) . 2.0.05mm < W≤0.10mm ; L≤5mm ; N≤2 ; DS≥10mm. 3.0.10mm < W; 5mm < L, Not allowable (不允许) . 4.There is a feeling scratch, Not allowable 有感划伤, 不允许.		MI	
		6~10.0 inches 6寸~10.0寸	1.W≤0.07mm; L≤5mm, Ignore (忽略) . 2.0.07mm < W≤0.12mm ; L≤10mm ; N≤3 ; DS≥10mm. 3.0.12mm < W; 10mm < L, Not allowable (不允许) . 4.There is a feeling scratch, Not allowable 有感划伤, 不允许.		MI	
		More than 10 inches 10寸以上	1.W≤0.10mm; L≤5mm, Ignore (忽略) . 2.0.10mm < W≤0.15mm ; L≤10mm ; N≤4 ; DS≥10mm. 3.0.15mm < W; 10mm < L, Not allowable (不允许) . 4.There is a feeling scratch, Not allowable 有感划伤, 不允许.		MI	
	Black dots white dots 黑点/白点	Under 6 inches 6寸以下	1.D≤0.15mm, Ignore (忽略) . 2.0.15mm < D≤0.30mm; N≤2; DS≥10mm. 3.D > 0.30mm, Not allowable (不允许) .			MI
		6~10.0 inches 6寸~10.0寸	1.D≤0.20mm, Ignore (忽略) . 2.0.20mm < D≤0.40mm; N≤3; DS≥10mm. 3.D > 0.40mm, Not allowable (不允许) .			MI
		More than 10 inches 10寸以上	1.D≤0.25mm, Ignore (忽略) . 2.0.25mm < D≤0.50mm; N≤4; DS≥10mm. 3.D > 0.50mm, Not allowable (不允许) .			MI
	OCA Bubbles 气泡	Full size 全尺寸	Not allowed 不允许.			MI
	Corners broken 崩边/崩角	Full size 全尺寸	1.Product front /产品正面: Edge and corner chipping is not allowed / 崩角、崩边不允许 2.Product back /产品背面: X≤0.5, Y≤0.5, Z≤1/2T; N≤4; DS≥10mm.		MA	
	Silk screen 丝印	Full size 全尺寸	The silk screen is clear, complete and correct 丝印清晰、完整、内容正确.			MI

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别
TP	Dirty 脏污	Full size 全尺寸	Uncleanable dirt, Not allowable. 不可擦拭的脏污, 不允许.	MI
	Broken 破损	Full size 全尺寸	Not allowable. 不允许.	MI
	Ink color aberration 油墨色差	Full size 全尺寸	$\Delta E > 1$ , Not allowable (不允许).	MI
	Cover pinholes 针孔	Full size 全尺寸	1.D $\leq$ 0.20mm, N $\leq$ 2, DS $\geq$ 10mm, allowable 2.D > 0.20mm, intensive pinholes (密集型针孔), Not allowable (不允许).	MI
	Paint off 掉漆	Full size 全尺寸	Touch-up on the back of the cover is allowed, and the touch-up area cannot exceed 2.0mm in diameter / 允许在盖板背面补漆, 补漆面积不 能超过直径 2.0mm.	MI
BL 背光	Backlight separation 背光分离	Full size 全尺寸	Not allowable 不允许.	MI
	Deformed 变形	Full size 全尺寸	Measured using a plug gauge, If the deformation exceeds 0.3mm, NG is judged 使用塞规测量, 形变超过 0.3mm, 判定 NG.	MI
	Iron frame Oxidation /abscission 铁框氧化/脱落	Full size 全尺寸	Not allowable 不允许.	MI
	Dirt/adhesive residue/solder beads 脏污/残胶/锡珠	Full size 全尺寸	Not allowable 不允许.	MI
	Inkjet/barcode/ QR code 喷码/条码/二维 码	Full size 全尺寸	The inkjet code is clear and complete, the barcode and QR code can be scanned normally, and the content and format meet the requirement / 喷码清晰完整、条码和二维码 可正常扫描, 内容和格式与要求相符.	MI
	Auxiliary materials 辅料	Full size 全尺寸	Accessories (vinyl, double-sided tape, insulating glue, etc.) are not allowed to be missed, misguided, defective, etc 辅料(黑胶、双面胶、绝缘胶等)不允许有漏贴、 贴偏、残缺等.	MI

### 4.3、Functional inspection standards:

( D : diameter, W : width, L : length, N : quantity, DS : spacing )

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
Display Screen 模组	Light leakage / Mura 漏光/ Mura	Full size 全尺寸	1.Use ND5% filter masking, visual invisibility is OK 使用 ND5%遮盖, 目视不可见即为 OK. 2.If necessary, sign off on the sample 必要时, 签限定样.		MI
	Brightness uniformity 亮度均匀性	Full size 全尺寸	Brightness uniformity < 85.0%, Not allowable 亮度均匀性 < 85.0%, 不允许.	MA	
	LCD bright spots/dark spots 玻璃亮点/暗点	Under 6 inches 6寸以下	1.D≤0.10mm, Ignore (忽略) . 2.0.10mm < D≤0.20mm; N≤2; DS≥10mm. 3.D > 0.20mm, Not allowable (不允许) .		MI
		6~10.0 inches 6寸~10.0寸	1.D≤0.15mm, Ignore (忽略) . 2.0.15mm < D≤0.30mm; N≤3; DS≥10mm. 3.D > 0.30mm, Not allowable (不允许) .		MI
		More than 10 inches 10寸以上	1.D≤0.20mm, Ignore (忽略) . 2.0.20mm < D≤0.40mm; N≤4; DS≥10mm. 3.D > 0.40mm, Not allowable (不允许) .		MI
	Backlight black dots/white dots 背光黑点/白点	Under 6 inches 6寸以下	1.D≤0.15mm, Ignore (忽略) . 2.0.15mm < D≤0.30mm; N≤2; DS≥10mm. 3.D > 0.30mm, Not allowable (不允许) .		MI
		6~10.0 inches 6寸~10.0寸	1.D≤0.20mm, Ignore (忽略) . 2.0.20mm < D≤0.40mm; N≤3; DS≥10mm. 3.D > 0.40mm, Not allowable (不允许) .		MI
		More than 10 inches 10寸以上	1.D≤0.25mm, Ignore (忽略) . 2.0.25mm < D≤0.50mm; N≤4; DS≥10mm. 3.D > 0.50mm, Not allowable (不允许) .		MI
	Linear foreign bodies 线状异物	Under 6 inches 6寸以下	1.W≤0.05mm; L≤5mm, Ignore (忽略) . 2.0.05mm < W≤0.10mm ; L≤5mm ; N≤2; DS≥10mm. 3.0.10mm < W; 5mm < L, Not allowable (不允许) .		MI
		6~10.0 inches 6寸~10.0寸	1.W≤0.07mm; L≤5mm, Ignore (忽略) . 2.0.07mm < W≤0.12mm ; L≤10mm ; N≤3 ; DS≥10mm. 3.0.12mm < W; 10mm < L, Not allowable (不允许) .		MI
		More than 10 inches 10寸以上	1.W≤0.10mm; L≤5mm, Ignore (忽略) . 2.0.10mm < W≤0.15mm ; L≤10mm ; N≤4 ; DS≥10mm. 3.0.15mm < W; 10mm < L, Not allowable (不允许) .		MI

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
Display Screen 模组	White/Black print 白印/黑印	Full size 全尺寸	Use ND5% filter masking, visual invisibility is OK 使用 ND5%遮盖, 目视不可见即为 OK.		MI
	Interference pattern/Newtonian pattern 干涉纹/牛顿纹	Full size 全尺寸	Not allowable 不允许.		MI
	Membranes displacement 膜材移位	Full size 全尺寸	Not allowable 不允许.		MI
	Color blocks 色斑	Full size 全尺寸	Use ND5% filter masking, visual invisibility is OK /使用 ND5%遮盖, 目视不可见即为 OK.		MI
	Display abnormal 画异	Full size 全尺寸	Not allowable 不允许.	MA	
	No display 无显示	Full size 全尺寸	Not allowable 不允许.	MA	
	Line/Missing Drawing 线条/缺画	Full size 全尺寸	Not allowable 不允许.	MA	
	Splash screen 闪屏	Full size 全尺寸	Not allowable 不允许.	MA	
	LCD grid LCD 网格	Full size 全尺寸	Not allowable 不允许.	MA	
	Afterimage 残影	Full size 全尺寸	Not allowable 不允许.	MA	
	Wrong viewing angle 可视角错误	Full size 全尺寸	Not allowable 不允许.	MA	
TP	No touch 无触摸	Full size 全尺寸	Not allowable 不允许.	MA	
	Touch the jump point 触摸跳点	Full size 全尺寸	Not allowable 不允许.	MA	
	Touch not sensitive 触摸不灵敏	Full size 全尺寸	Not allowable 不允许.	MA	