Request information

PRODUCT SPECIFICATION

TFT-LCD UART MODULE

Module No: 1A0154-01

☑ Preliminary Specification

☐ Approval Specification

Designed by	Checked by	Approved by

Final Approval by Customer

Approved by	Comment

For more information, contact us:

WWW.DCLTEK.COM | 1-800-407-8917 | SALES@DCLTEK.COM

※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.

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1.Document Revision History

Version	Contents	Date	Note
V0	**NEW**	**2024.03.07**	

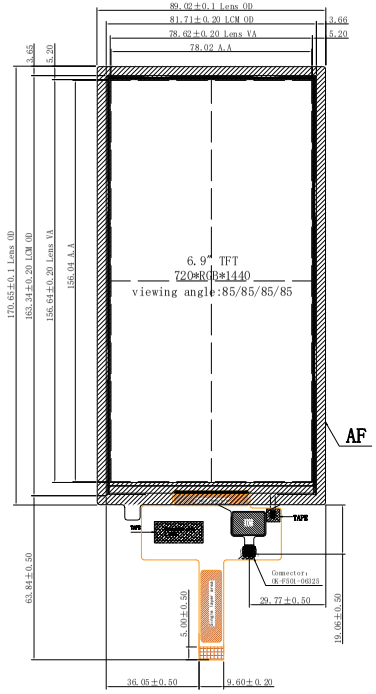
2. General Description

NO	Item	Specification	Unit
1	LCD Size	TFT"6.9	inch
2	Panel Type	IPS	mm
3	Resolution	720 x RGB x 1440	pixel
4	Display Mode	Normally Black	-
5	Number of Colors	16.7M	-
6	Viewing Direction	ALL	-
7	CTP+LCM Module size	89.02(W) x170.65(L) x4.38(T)	mm
8	Active Area	78.02 (W) x 156.04 (L)	mm
9	LCM Driver	-	
10	Light Source	White LED	
11	LCM Interface	MIPI	bit

3. LCM Mechanical Drawing

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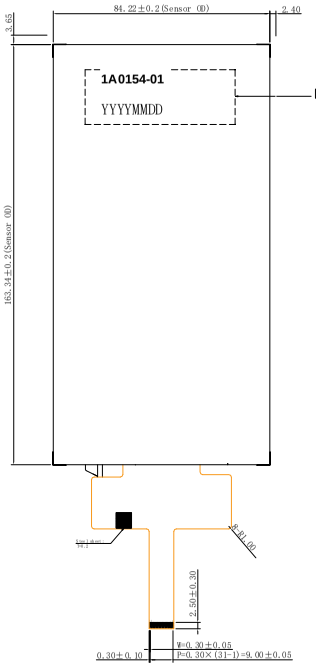
Front View



Side View



Back View

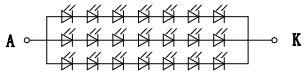


CTP Technical requirements:

1. Structure: G+G.
2. Transmittance: ⩾85% (550nm).
3. All unmarked tolerances: ±0.10mm.
4. IC: GT911, 5-point touch
5. Temperability: 110g steel ball, height 30cm drop without breaking, surface hardness
   Test: ⩾6H (pencil hardness test).
6. CG unmarked key holes and edge safety inverted ⩽ 0.10mm.

Notes:

1. Display : 6.9″, TFT
2. Resolution: 720xRGBx1440
3. LCD Viewing Direction: 85/85/85/85
4. Display Mode: Normally Black
5. LCM birghtness : 320cd/㎡(TYP);
   LCM+CTP birghtness : 270cd/㎡(TYP),Uniformity⩾80%
6. unmark Tolerance:±0.2
7. OPERATING TEMP: -20° C~ +70° C
8. STORAGE TEMP: -30° C~ +80° C
9. Requirements on Environmental Protection: ROHS



7 string 3 merge

Vf:18.9V-23.1V If:60mA

mipi interface

Display Pin interface

1	GND
2	TOUCH_3V3
3	GND
4	TOUCH_INT
5	TOUCH_RST
6	TOUCH_SDA
7	TOUCH_SCL
8	GND
9	LED-
10	LED+
11	ID
12	RSTN
13	NC
14	IOVCC_1.8
15	VCC_2.8
16	GND
17	D3P
18	D3N
19	GND
20	D2P
21	D2N
22	GND
23	CKP
24	CKN
25	GND
26	D1P
27	D1N
28	GND
29	D0P
30	D0N
31	GND

CTP-PIN

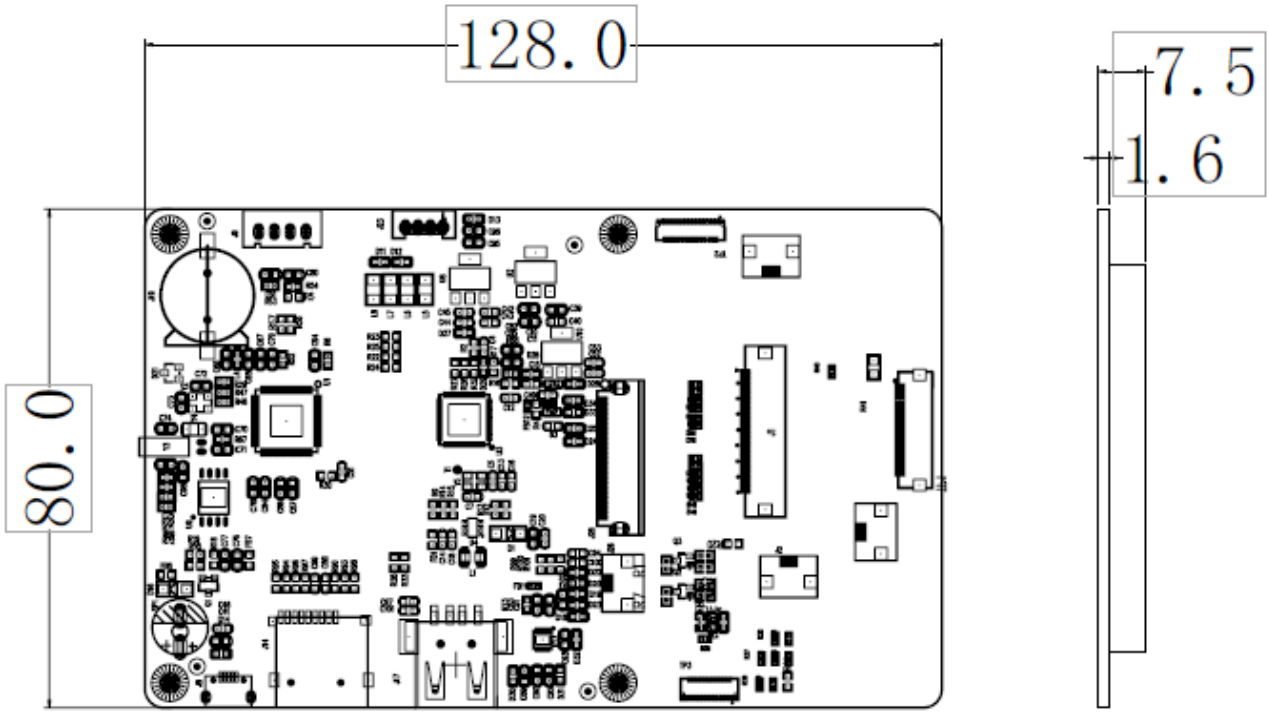
PIN	Name
1	VDD(3.3V)
2	GND
3	INT(3.3V)
4	RST(3.3V)
5	SDA(3.3V)
6	SCL 3.3V

REV	DESCRIPTION	DATE	NAME
3			
2			
1			
0	NEW	2023.08.19	

SCALE:1/1	UNIT:mm	PAGE:1/1	Approve	Check	Drawn
Part No:	1A0154-01	VER:V0			
Customer No:					

4．串行板框架: Serial board frame:（图纸仅供参考，实际以客户装配确认结果为准。）

Eleven. Mechanism Drawing: (Drawings are for reference only, the actual assembly confirmation results of the customer shall prevail.)



5. 工作环境和可靠性参数 Working environment and Reliability Test

参数 Item	测试条件 Conditions	最小值 Min	典型值 Type	最大值 Max	单位 Unit
工作温度 Working Temperature	12V 电压下，湿度 60% 60%RH at 12V voltage	-30	25	80	℃
储存温度 Storage Temperature	-	-30	25	80	℃
工作湿度 Working Humidity	25℃	10%	60%	90%	RH
三防处理 Protective Paint	-	-	有 Yes	-	-
出厂前老化时间 Aging Test	-	-	72	-	H

6. 接口性能参数 nterface performance parameter

参数 Item	测试条件 Conditions	最小值 Min	典型值 Type	最大值 Max	单位 Unit
串口波特率 Baudrate	用户自定义(硬件配置文件设置) User set	7841	115200	921600	bps
串口输出电平（TXD） Output Voltage（TXD）	输出 1，Iout = 1mA Output 1, Iout = 1mA	3.0	3.3	-	V
	输出 0，Iout = -1mA Output 0, Iout = -1mA	-	0	0.3	V
串口输入电平（RXD） Input Voltage（RXD）	输入 1，Iin = 1mA Input 1, Iin = 1mA	2.4	3.3	5.0	V
	输入 0，Iin = -1mA Input 0, Iin = -1mA	0	-	0.5	V
串口模式 Interface	串口电平选择跳线选择：ON＝8N1 3.3V TTL*2；OFF＝8N1，RS232*2 兼容接口 Mode is determined by jumper: ON＝8N1 3.3V TTL*2; OFF＝8N1, RS232*2				
用户接口方式 Socket	8Pin_2.0mm 插座带锁扣 8Pin_2.0mm socket with buckles				
串口数据格式 UART Data format	1 bit 起始位-8bit 数据-1bit 结束位 1 start bit - 8 data bits- 1 stop bit				
USB 接口	无 No				
SD 卡接口 Slot	有 Yes				

7.存储器特性 Memory peculiarity

存储器类别 Item	典型值 Typical value	功能 Features	说明 Description
FLASH 存储器	1Mbytes	字库存储空间 Space of Font	储存字库、图标库及其他二进制文件。 Store font, icon libraries, and other binary files
		图片存储空间 Picture Storage	图片存储（存储数量和图片大小有关单个图片文件的大小不要超过 262Kbytes） Store picture(Picture quantity relate to picture size, size of a single image file should not exceed 262Kbytes)
RAM 存储器	256Kbytes	程序变量存储空间 Program Variable Storage Space	掉电不保存 Data is not saved when power down

8.UI 和外设支持 UI & Peripheral

UI 和外设支持 UI & Peripheral	
UI 版本 UI Version	客户定制UI Customer customized UI
支持外设 Peripheral	支持电阻式触摸屏、蜂鸣器（可选）、RTC（可选） Resistive touch screen, buzzer (optional), RTC (optional)

9.包装和物理尺寸 Packing Capacity & Dimension

尺寸 Dimension	
外形尺寸 Dimension	128.00(W)×80.00(H)×7.5(T)mm
净重量 Net Weight	TBD

10.串口通信接口定义 UART Pin Description

TTL /CMOS			
序号 Pin number	名称 Name	类型 Type	描述 Description
1	GND	POWER	电源负极Negative
2	PGMCK	升级/时钟Upgrade/Clock	串口输出 UART OUT
3	PGMIO	OUT	升级数据接口Upgrade data interface
4	TX	输出OUT	串口输出UART OUT
5	RX	输入IN	串口输入 UART IN
6	+5V	POWER	电源正极 Positive

备注：1.软件默认采用串口 2（TX2，RX2）进行通信，如果客户需要使用 TX4，RX4 做为串口屏通信需要修改软件。

2.不影响性能参数和使用的产品设计变更，恕不另行通知。

info: the new design changes of the product will be added as time gose by, do not affect performance parameters or use without prior notice.

DCLTEK

深圳市丽台电子有限公司

Quality Inspection Standards

品质允收标准

Model No. / 产品型号: **Applies 5.5~10.0 Inch Touch Display Screen**
Updated Date /生效日期: **2022-05-20**
Version / 版 本: **A0**
Customer confirmation : _____

Record of Revision /修订履历

Version /版本	Revision Record /修订内容	Reviser /修订人	Revision Date /修订日期
V0	首发 / Starting		2022.05.20

1.Scope of application /适用范围.

This document shall be applied to 5.5~10.0 inch touch display screen.

本文件适用于5.5~10.0 寸触摸显示屏.

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

2. 1 Inspection Conditions /检验条件:

(1) Inspection Distance /检测距离: 35cm ±5cm.

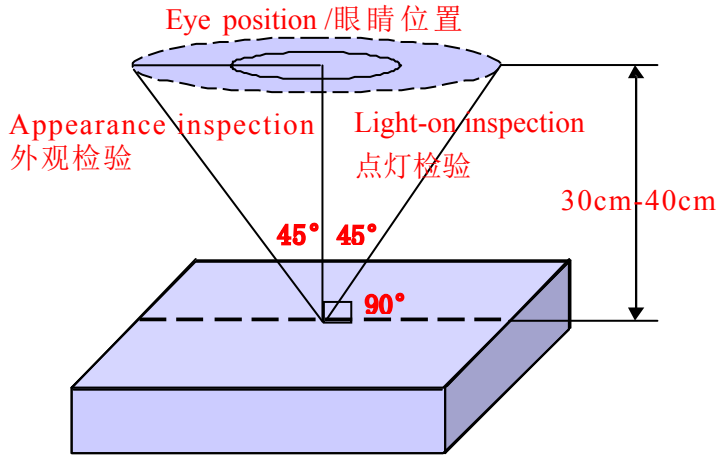
(2) Check time /检验时间：

Displays performance test /功能测试：2~3S /Image，Cosmetic Inspection /外观检验:10~12S.

(3) Check the viewing angle /检验视角:

Light-on Inspection Angle /点灯检验角度： ±45°.

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



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

2.2 Inspection environment /检验环境:

Ambient Temperature 温度		25℃±5℃
Ambient Humidity 湿度		55±5%RH
Ambient Illumination 亮度	Cosmetic Inspection 外观检验	800-1000 Lux
	Functional Inspection 点灯检验	200~300Lux

2.3 Sampling Conditions /抽样条件:

（1）Quantity to be inspected /批量：Quantity of shipment lot per model /单次运送单一型号数量.

（2）Sampling method /抽样方法：

Sampling Plan /抽样计划		GB/T 2828.1- 2003
		Normal Inspection ， Single Sampling 正常检验、单次抽样
		General inspection level： Ⅱ 一般检验水平：二级
AQL	Major Defect /主要缺陷	0.65
	Minor Defect /次要缺陷	1.0

（3）The classification of Major(MA) and Minor(MI) defects is shown as “3.1 Classification of defects”.

主缺(MA)及次缺(MI)定义于”3.1缺陷分类”.

3.Terms And Definitions /术语和定义

3.1 Classification of defects / 缺陷分类 :

（1）Major defects /主要缺陷:

A major defect is a defect that is likely to result in failure, or to reduce materially the usability of the product for its intended purpose .

可导致产品功能失效或减少产品可用性的缺陷.

（2）Minor defects /次要缺陷:

It will not cause the product to fail and reduce the defects in the effective use and operation of the product.

不会导致产品功能失效和减少产品的有效使用与操作的缺陷.

3.2 Point defects /点状缺陷：

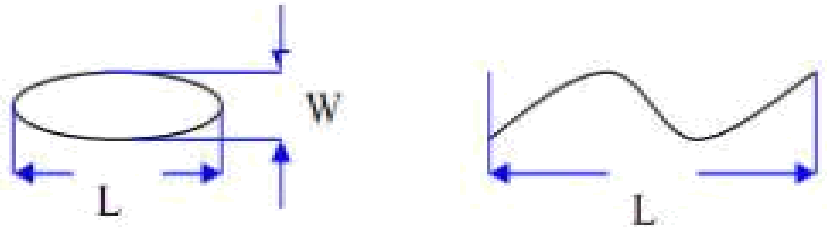
The size of the point defect is defined by the diameter D, and the average diameter of the defect is D=1/2（W+L）.

点状缺陷的大小是由直径 D 定义的，缺陷的平均直径 D=1/2(W+L).

3.3 Linear defects /线状缺陷：

When defect size L≥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≥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-pixel dot /LCD子像素点

（1）Definition /定义： The point defect area is greater than 50% of the LCD sub-pixel area, and is visible through ND5% filter 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.

（2）The drawing of 1/2 area sub-pixel definition / 1/2 面积的子像素定义绘图:

The 1/2 area sub-pixel can be defined as below one or more of specific shapes

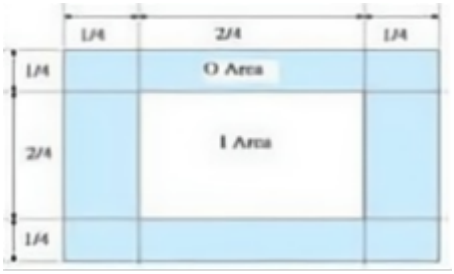
1/2 面积的子像素可以定义为如下一个或多个特定形状图：



3.5 Small bright dot /细碎亮点：

Point defects smaller than "LCD sub-pixels" /小于“LCD子像素点”的点缺陷.

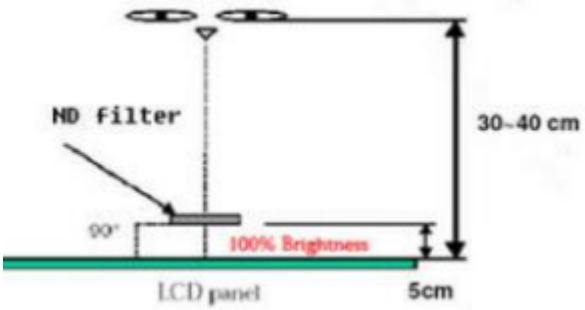
（Ratio of Zone I to Zone O /I 区与 O 区比例：1：2：1）



3.6 ND filter inspection method /ND卡的检验方法：

Hold the ND filter 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.



3.7 Any FPC surface problems that do not leak copper on the surface and do not cause functional failure are acceptable.
任何 FPC 表面问题，表面未露铜和不造成功能失效是可以接受.

3.8 Extraneous substances that can be wiped out， like Finger point,Particles are not considered as a defect .
可以被擦拭干净的表面物质不视为缺陷 (如手指印，尘粒) .

3.9 Defects that can be covered by the material and are not visible in appearance are not considered defects.

能被物料覆盖，外观不可见的缺陷不视为缺陷.

3.10 Panel damage /面板损伤：

Glass damage outside the AA display area that does not affect the effective wiring is acceptable.

AA 显示区域以外的玻璃损伤，不影响有效线路是可以接受的.

3.11 Issues not specified or defined in this acceptance standard shall be handled through friendly negotiation between the two parties.

本允收标准中未规定或定义的问题，双方友好协商处理.

4. Inspection standards /检验标准

4.1 Structural Dimensions /结构尺寸规格

Serial Number 序号	Measurement items /测量项目		Specification /规格	Remark /备注
	名称 /Name	Unit /单位	Tolerance /公差	
1	Outside dimension：Length 尺寸：长	mm /毫米	0.15mm~0.30mm	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
2	Outside dimension：Width 尺寸：宽	mm /毫米	0.15mm~0.30mm	
3	Outside dimension：Thickness 尺寸：高	mm /毫米	0.20mm~0.50mm	

4.2 Appearance Inspection Specification /外观检验规格

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

Inspection area 检验区域	Inspection items 检验项目	Inspection specifications 检验规格	Defect category 缺陷类别	
Glass 玻璃	Wire(on Array) 线路	Can't be damaged 不能损伤	MA	
	Chipping/corner breaking 崩边/破角	Can't affect the effective lines and functions 不能影响有效线路和功能	MA	
	Edge 边缘	There must be no extensional cracks 不可有延伸性裂纹	MA	
Silicone 硅胶	Silicone coating 硅胶涂布	The height must not exceed the LCD CF surface 高度不能超过LCD CF面		MI
	Glue overflow 溢胶	Can't cover FPC, POL, etc 不能覆盖到FPC、POL等		MI

Inspection area 检验区域	Inspection items 检验项目	Inspection specifications 检验规格	Defect category 缺陷类别	
PCBA FPC Connector 连接器	Appearance 外观	Scratches or injuries are not allowed to cause copper exposure 划伤或损伤不允许表面出现露铜		MI
	Component 元器件	Can't be damaged and lack 不能损伤和缺少	MA	
	Goldfinger oxidation 金手指氧化	Not allowed 不允许		MI
	Connection status 连接状况	The connection must be accurate and stable 必须准确稳定连接	MA	
	Break 破裂	Not allowed 不允许	MA	
	Soldering,: false soldering/tinning/tin beads 假焊/连锡/锡珠	Not allowed 不允许	MA	
POL 偏光片	Scratches 划伤	1. W≤0.07mm；L≤5mm，Ignore（忽略） 2. 0.07mm＜W≤0.12mm ; L≤5mm ; N≤4 ; DS≥10mm 3. 0.12mm＜W；5mm＜ L， Not allowable（不允许）		MI
	Dent 凹凸印	1. D≤0.20mm，Ignore（忽略） 2. 0.20mm＜D≤0.40mm；N≤4；DS≥10mm 3. 0.40mm＜D，Not allowable（不允许）		MI
	Bubbles 气泡	1. D≤0.20mm，Ignore（忽略） 2. 0.20mm＜D≤0.40mm；N≤4；DS≥10mm 3. 0.40mm＜D，Not allowable（不允许）		MI
	Point defects 点状不良	1. D≤0.20mm，Ignore（忽略） 2. 0.20mm＜D≤0.40mm；N≤4；DS≥10mm 3. 0.40mm＜D，Not allowable（不允许）		MI
	Edge bubbles 边缘气泡	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
	Dirty/watermarked 脏污/水印	No dirt/water lines/finger marks are allowed, and must be wiped clean 不允许有脏污/水纹/手指印，须擦拭干净方可		MI
	Warping 起翘	Not allowed 不允许		MI
	Attaching offset 贴偏	It is necessary to completely cover the display area outward, within the 1/2BM area, or without leaking POL edges after TP is attached 需完整覆盖显示区往外、1/2BM区以内或贴合TP后不会出现漏偏光片边缘		MI
	Mixture 混料	Mixing different types of POL or not using POL as required by the BOM，not allowed 不允许混贴不同型号的POL或未按BOM要求使用POL	MA	

Inspection area 检验区域	Inspection items 检验项目	Inspection specifications 检验规格	Defect category 缺陷类别	
TP&CG	Point defects 点状不良	1. D≤0.20mm，Ignore（忽略） 2. 0.20mm＜D≤0.40mm；N≤4；DS≥10mm 3. 0.40mm＜D，Not allowable（不允许）		MI
	Scratches 划伤	1. W≤0.07mm；L≤5mm，Ignore（忽略） 2. 0.07mm＜W≤0.12mm ; L≤5mm ; N≤4 ; DS≥10mm 3. 0.12mm＜W；5mm＜ L， Not allowable（不允许） 4. There is a feeling scratch，Not allowable 有感划伤，不允许		MI
	Edges and corners cracked 崩角/崩边	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		MI
	Silk screen 丝印	The silk screen is clear, complete and correct 丝印清晰、完整、内容正确		MI
	Dirty 脏污	Non-wipeable dirt, not allowed 不可擦拭的脏污，不允许		MI
	Broken 破损	Not allowable 不允许	MA	
	Ink color aberration 油墨色差	ΔE>1，Not allowable（不允许）		MI
	Cover pinholes 针孔	1. D≤0.15mm , N≤4 , DS≥10mm，allowable 2. D＞0.15mm，intensive pinholes（密集型针孔），Not allowable（不允许）		MI
	IR holes IR孔	Dirt, deviation, color difference, etc. are not allowed 不允许脏污、偏位、色差等		MI
BL 背光	Backlight separation 背光分离	Not allowable 不允许		MI
	Deformation of rubber iron and rubber frame 胶铁、胶框变形	Use the plug gauge 0.3mm on the flat surface and can snap in and judge NG 在平面上使用塞规0.3mm卡翘曲位置，能卡进判定NG		MI
	The iron frame is oxidized and not tightened 铁框氧化、卡不紧	Not allowable 不允许		MI
	Backlight sticky solder beads, glue, etc 背面粘锡珠、残胶等	Not allowable 不允许		MI
	Lnkjet coding，Barcode，QR code 喷码/条码/二维码	The lnkjet coding is clear and complete, the barcode and QR code can be scanned normally, and the content and format match 喷码清晰完整、条码和二维码可正常扫描，内容和格式相符		MI
	Accessories(protective film, double-sided tape, insulating adhesive, etc.) 辅料（保护膜、双面胶、绝缘胶等）	Defects such as missing pastes, sticking deviations, defects, and fractures are not allowed 不允许有漏贴、贴偏、残缺、断裂等缺陷		MI

4.3 Electrical test specifications /电性检查规格

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

Inspection items 检验项目	Inspection specifications 检验规格	Defect category 缺陷类别	
Glass bright spots/dark spots 玻璃亮点/暗点	1. D≤0.20mm，Ignore（忽略） 2. 0.20mm＜D≤0.40mm；N≤4；DS≥10mm 3. 0.40mm＜D，Not allowable（不允许）		MI
Mura	Use ND5% filter masking, visual invisibility is OK, 200~300Lux 使用ND5%遮盖，目视不可见即为OK，200~300Lux		MI
Small bright dot 细碎亮点	Use ND5% filter masking, visual invisibility is OK 使用ND5%遮盖，目视不可见即为OK		MI
Light leakage 漏光	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
Backlight black/white dots 背光黑点/白点	1. D≤0.20mm，Ignore（忽略） 2. 0.20mm＜D≤0.40mm；N≤4；DS≥10mm 3. 0.40mm＜D，Not allowable（不允许）		MI
Linear foreign bodies 线状异物（异物毛丝等）	1. W≤0.07mm；L≤5mm，Ignore（忽略） 2. 0.07mm＜W≤0.12mm ; L≤5mm ; N≤4 ; DS≥10mm 3. 0.12mm＜W；5mm＜ L，Not allowable（不允许）		MI
Black/White Print 黑印/白印	Use ND5% filter masking, visual invisibility is OK 使用ND5%遮盖，目视不可见即为OK		MI
The display is uneven 显示不均匀	Use ND5% filter masking, visual invisibility is OK 使用ND5%遮盖，目视不可见即为OK		MI
The brightness is uneven 亮度不均匀	Brightness uniformity＜85.0%，Not allowable 亮度均匀性＜85.0%，不允许		MI
Displacement of the membrane 膜材移位	Not allowable 不允许		MI
Interference pattern/Newtonian pattern 干涉纹/牛顿纹	Not allowable 不允许		MI
Display abnormal 显示异常	Not allowable 不允许	MA	
No display 无显示	Not allowable 不允许	MA	
Line/Missing Drawing 线条/缺画	Not allowable 不允许	MA	
Splash screen 闪屏	Not allowable 不允许	MA	
LCD grid LCD网格	Not allowable 不允许	MA	
Afterimage 残影	Not allowable 不允许	MA	
Wrong viewing angle 视角错误	Not allowable 不允许	MA	
No touch 无触摸	Not allowable 不允许	MA	
Touch the jump point 触摸跳点	Not allowable 不允许	MA	
Not sensitive 触摸不灵敏	Not allowable 不允许	MA	