

# PRODUCT SPECIFICATION

## 产品规格书

Product Name/品名: Touch Display

IVT PN /IVT 机种名: 080P03-2A2

Customer/客户名称: Avnet (S+)

Customer P/N/客户料号: IVA-080O1-NC9509-G020

SAP: YIVIVA080O1NC950!B

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Approved by /承认	Checked by /审核	Designed by /设计

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## History of Version 变更记录

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2023-08-18	1.0	For the first time to issue/首次发行	All	Sophia
2023-10-08	1.1	1. Item 5.1 ,update TFT Interface definition alignment	P6	Sophia

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## 1. FEATURES 基本信息

080P03-2A2 is an air bonded Touch/Display Stack with cover glass and TFT TCXD080IBLON-61 (Xinli Optronics Co.,Ltd). The display is air bonded to the cover glass laminated with SP-ITO Technology PCAP. Follow RoHS (2002/95/EC).

The cover glass is chemical strength cover glass with organic black silk-print.

## 2. General Specification 基本参数

Item 项目		Contents 内容	Remark
Glass	Glass Outline Dimension 玻璃外形尺寸	207.64mm*130.6 mm	
	Glass View Area 可视区	173.22mm*108.64mm	
	Glass type 玻璃材质	Chinese clear glass	
	Glass Thickness 玻璃厚度	2.0mm	
Touch	Touch panel Interface Type 触控接口	IIC and USB	
	Touch panel Structure type 结构类型	GFF (SP-ITO Film)	
	TP Driver IC 触控驱动芯片	SIS 9509	
	TP size (inch) 尺寸 (英寸)	8 inch	
Display	LCD Active Area	107.64 (H) *172.224(V)mm	
	Dot Number	800(RGB)x1280	
	LCD Type	TFT Transmissive, Normally black	
	Viewing direction	ALL	
	Surface Luminance	600 Cd/m <sup>2</sup>	
	Contrast ratio	1000:1 (Typ.)	
	Display color	16.7 M	
	TFT interface type	MIPI Interface	
	Drive IC	JD9365DH-H3	
Touch Display	Weight	TBD	
	Operating temperature 工作 温度	-20 °C ~ 70 °C	Note 2
	Storage temperature 储存温 度	-30 °C ~ 80 °C	Note 2

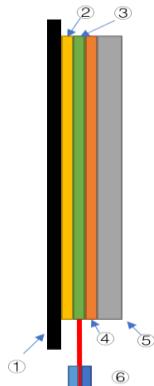
Note1: Regarding display technical features, please take Display Datasheet for your reference TCXD080IBLON-61.

液晶屏的更多技术参数, 请参考液晶屏规格书 TCXD080IBLON-61.

Note 2: Measured at LCD panel surface (including self-heat).

### 3. Structure drawing 产品结构

The Touch Display Module consists of following parts: 触控模组包括以下零部件



- ① China clear glass with organic black silk-print 国产清波上常规黑色丝印
- ② OCA 透明光学胶
- ③ SP-ITO膜导电SP-ITO 膜
- ④ Air bonding tape 框贴胶材
- ⑤ LCD Panel 液晶显示模组
- ⑥ Controller(with Chip) 控制板 (含有芯片的FPC)

### 4. Touch Panel Electrical Characteristics (Ta = 25°C) 电气参数

Item 项目	Specification 规格	Remark 备注
Touch points 触摸点数	10 点触摸	
Linearity/线性度	<2%	
Operation voltage 工作电压	DC5V	
Response Time 反应时间	<10ms	

## 5. TFT Electrical characteristics 液晶模组电性参数

### 5.1 Interface Pin Connection

#### LCM Interface Pin

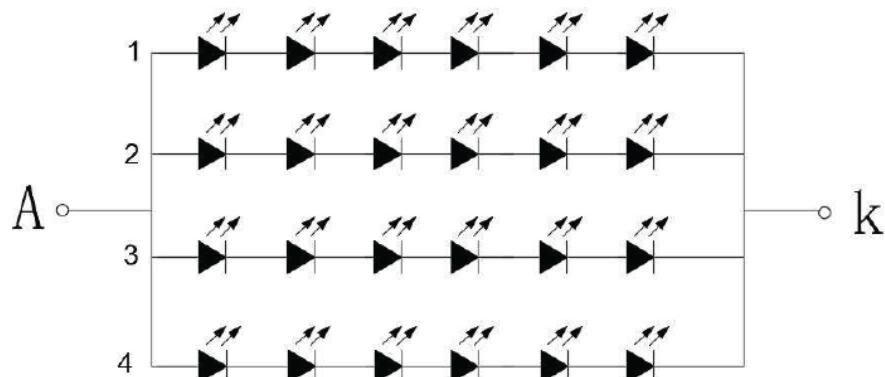
NO	Symbol	Level	Description
1	GND	P	GROUND
2	NC	-	No connection
3	VCCD(3.3V)	P	Power supply for interface system except MIPI interface pin, VCC=3.3V
4	GND	P	GROUND
5	VCCD(3.3V)	P	Power supply for interface system except MIPI interface pin, VCC=3.3V
6	IOVCC(1.8V)	P	I/O voltage
7	GND	P	GROUND
8	NC	-	No connection
9	MIPI_D0P	I/O	MIPI Positive data signal (+)
10	GND	P	GROUND
11	MIPI_D0N	I/O	MIPI Negative data signal (-)
12	CABC(PWM OUT)	I/O	PWM control signal for LED driver(CABC)
13	GND	P	GROUND
14	GND	P	GROUND
15	MIPI_D1P	I/O	MIPI Positive clock signal (+)
16	NC	-	No connection
17	MIPI_D1N	I/O	MIPI Negative data signal (-)
18	GND	P	GROUND
19	GND	P	GROUND
20	NC	-	No connection
21	MIPI_CLKP	I/O	MIPI positive clock signal(+)
22	NC	-	No connection
23	MIPI_CLKN	I/O	MIPI positive clock signal(-)
24	GND	P	GROUND
25	GND	P	GROUND
26	NC	-	No connection
27	MIPI_D2P	I/O	MIPI Positive data signal (+)
28	GND	P	GROUND
29	MIPI_D2N	I/O	MIPI Positive data signal (-)
30	GND	P	GROUND
31	GND	P	GROUND
32	GND	P	GROUND
33	MIPI_D3P	I/O	MIPI Positive data signal (+)
34	GND	P	GROUND
35	MIPI_D3N	I/O	MIPI Positive data signal (-)
36	VLED(5V)	P	Power Supply for LED Driver
37	GND	P	GROUND
38	VLED(5V)	P	Power Supply for LED Driver
39	RESX(1.8V)	I/O	LCD reset signal
40	VLED(5V)	P	Power Supply for LED Driver

## 5.2 Electrical Characteristics

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Power Voltage	VDDIN	2.5V	3.3V	3.6V	Power voltage	VDDIN
Input Logic High voltage	VIH	0	-	VDDIN	Input Logic	VIH
Input Logic Low voltage	VIL	0	-	0.3VDDIN	Input Logic	VIL

## 5.3 Backlight Characteristics

Item	Syb	Min.	Typ.	Max.	Unit	Condition
Voltage (VLED)	-	-	5	-	V	
Luminance(module)	Lv	500	600	-	cd/m <sup>2</sup>	
Number of LED	-	24			PCS	
Power Consumption	PWF	4128	4392	5184	mW	
LED life-span	-	-	-50000	-	Hrs	



## 6. Reliability 信赖性

Item 项目	Specifications 规格	Judgment 判定
High Temperature Operation 高温工作	70°C, 240hrs, Placed in room temperature 24h, the sample was tested. Display data is black	
Low Temperature operation 低温工作	-20°C, 240hrs, Placed in room temperature 24h, the sample was tested. Display data is black	
Low Temperature Storage 低温存储	-30°C, 240hrs, Placed in room temperature 24h, the sample was tested. Display data is black	
High Temperature Storage 高温存储	80°C, 240hrs, Placed in room temperature 24h, the sample was tested. Display data is black	
High Temperature and humidity (Operation) 高温高湿测试 (工作状态)	60°C/90% RH, 240hrs, normalized for 2 hrs Display data is black	
Thermal Shock (Non Operation) 冷热冲击	-30 ~ 80°C, 30 min/cycle, Total 100 Cycles, Start with cold temperature and end with high temperature	
		Note (1) A

sample can only have one test. Outward appearance, image quality and optical data can only be checked at normal conditions according to the XINLI document before reliable test. Only check the function of the open-cell after reliability test.

Note (2) The setting of electrical parameters should follow the typical value before reliability test.

Note (3) During the test, it is unacceptable to have condensate water remains. Besides, protect the open-cell from static electricity.

Note (4) The sample must be released for 24 hours under normal conditions before judging. Furthermore, all the judgment must be made under normal conditions. Normal conditions are defined as follow: Temperature: 25°C, Humidity: 55±10%RH. Ta= Ambient Temperature, Tgs= Glass Surface Temperature.

Note (5) It could be regarded as pass, when the open-cell recovers from function fault caused by ESD after resetting.

## 7. Durability 机械性能

Item 项目	Specification 规格
Hitting life 触击寿命	Use R0.8 written 150 g, 2 times/s, tapping 200 million times back and forth (calculate) 用R0.8笔头施加150g力, 2次/s, 触击2亿次 (来回算两次)
Hardness 表面硬度	≥7H
Ball Drop Test 落球测试	Steel ball 500g, 5 Drop Points at glass center and four corners, Height 70cm 钢球500 g, 中心及四角5个落点, 高度 70cm
Package drop 包装跌落测试	Drops on one corner, three edges, and six sides; Drop height: 0.5m, without damage 一角三棱六面包装, 从50cm高度跌落无损伤

## 8. ESD TEST 静电测试

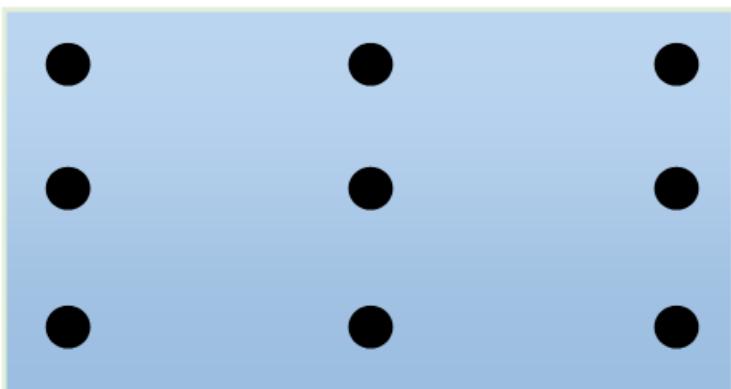
Condition: Temperature: 22°±3°, humidity: 55%RH±10%

There are 9 test points as showed below. For each point the user test it 3 times with 5 second gap between one test and the next one. Discharge capacitance value is 330pf and discharge resistance 330phm

条件: 温度: 22°±3°, 湿度: 55%RH±10%

如下图, 产品上共有9个测试点, 每个测试点测试3次, 每次间隔5秒。测试时放电电容容值330PF, 放电阻值为330 欧姆。

Discharge position 放电位置	Discharge way 放电方式	Discharge voltage 放电电压 (KV)	Test requirements 试验要求
Touch Panel glass top side surface 触控面板玻璃盖板表面	接触放电 Contact charge	±8KV, Times	Mentioned below ESD SEPC
	空气放电 Air charge	±15KV, Times	



Test Points

## ESD SPEC: 静电测试判定标准

Item 项目	Issue 问题点	SPEC 判定
During ESD test 静电测试过程中	Broken line, Jitter 断线, 抖动	Allowed 允许
	Ghost touches 跳点	Not allowed 不允许
After ESD test 静电测试过程后	Broken line, Jitter 断线, 抖动	Not allowed 不允许
	Ghost touches 跳点	Not allowed 不允许

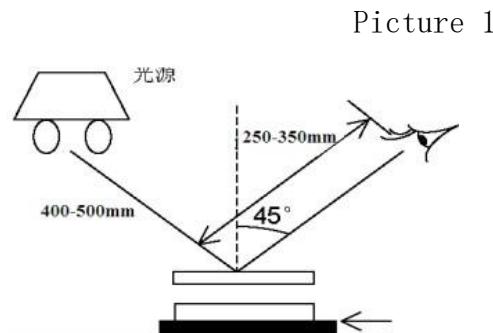
## 9. Finally product Inspection 成品检验

Finally product=Glass+ Touch sensor +LCD as one bundle

成品=玻璃盖板+触控膜+液晶模组

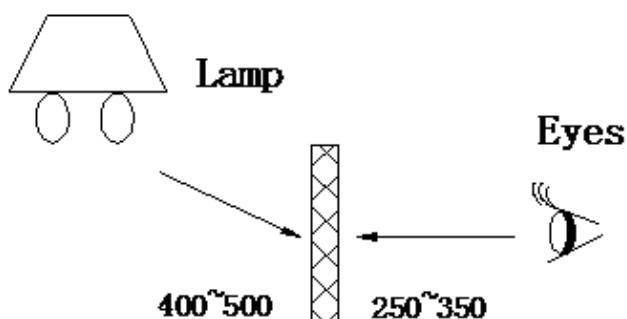
## 9.1 Inspection method definition 检验方法定义

## 9.1.1 Inspection method : A



检查方法A / Inspection Method A:  
 检验条件 / Conditions  
 检验环境亮度: 800~1200 Lux  
 Light Condition: 800~1200 Lux  
 人眼距离产品(表面): 30cm±5cm  
 Distance between eyes and the test object (front of touch screen): 30cm±5cm  
 检验时间: 25s±5s  
 Inspection time: 25s±5s  
 Touch display switch off 液晶模组不点亮

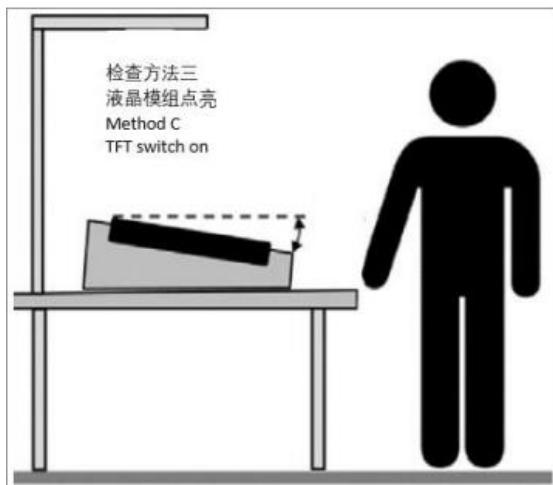
## 9.1.2 Inspection method : B



检查方法B / Inspection Method B:  
 检验条件 / Conditions  
 检验环境亮度: 800~1200 Lux  
 Light Condition: 800~1200 Lux  
 人眼距离产品(表面): 30cm±5cm  
 Distance between eyes and the test object (front of touch screen): 30cm±5cm  
 检验时间: 10s±5s  
 Inspection time: 10s±5s  
 Touch display switch off 液晶模组不点亮

Picture 2

## 9.1.3 Inspection method : C



检查方法C / Inspection Method C:  
 检验条件 / Conditions  
 检验环境亮度: 300~700lux  
 Inspection brightness: 300~700lux  
 人眼距离产品(表面): 35cm±5cm  
 Distance between eyes and the test object (front of touch screen): 35cm±5cm  
 检验时间: 20s±5s  
 Inspection time: 20s±5s  
 Touch display switch on and switch off  
 液晶模组点亮和关闭状态

## 9.2 Optical inspection view and inspection time 外观检验角度和时间

## 9.2.1 Inspection view/检验视角:

Vertical rotating 45 degrees from top to bottom, from left to right horizontally rotating 45

Degrees

垂直旋转±45° (由上到下), 水平旋转±45° (由左到右)

## 9.2.2 Inspection time/检验时间:

Top side will be inspected for 25 s, then change to bottom side. Bottom side will be inspected for 25 s.

Then change to side view inspected for 5s~10 s;

检验时间: 先检查正面, 正面检查时间 25 秒, 在检查背面, 背面检查时间 25 秒。最后检查四周边, 检查时间 5~10 秒;

## 9.2.3 Inspection frequency: 100% 检查频率: 100%

### 9.3 Display Inspection 液晶显示检验

9.3.1 Temperature/温度:  $22 \pm 3^\circ\text{C}$  ; humidity/湿度:

$60\% \pm 10\% \text{RH}$ ;

9.3.2 Inspection method: C 检验方法: C

9.3.3 Inspection time: 检验时间

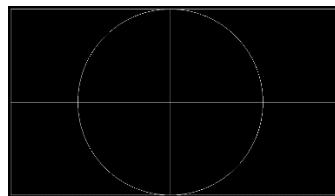
Switch on TFT, with white /dark/red/green/blue each color 10s; 50s total.

检验时间: 10 s (白色/黑色/红色/绿色/蓝色画面各 5 秒), 共 50 秒

### 9.4 Check the TFT position 液晶位置检验

液晶位置度检查, 使用液晶位置度检查软件 use "TFT\_INSPECTION.exe" software

  
TFT\_INSPECTION.  
exe.exe

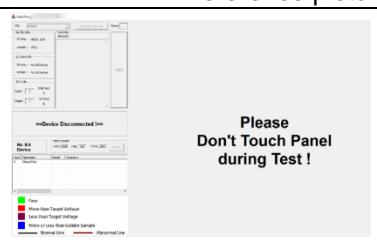
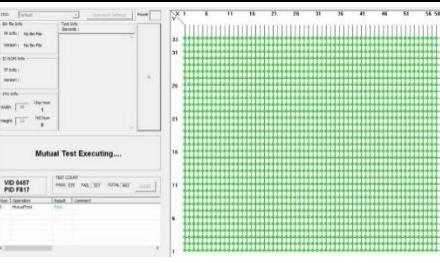
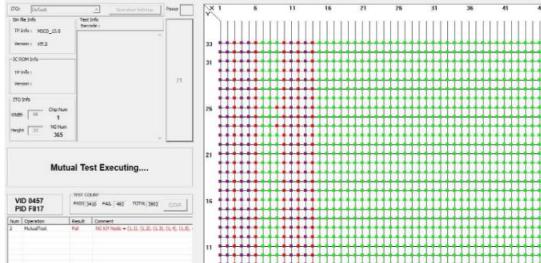


This is the ICON of the used SW to check the TFT position. This SW will be used also to test Black, white, red, blue, green background

### 9.5 Touch panel Function check 功能检查

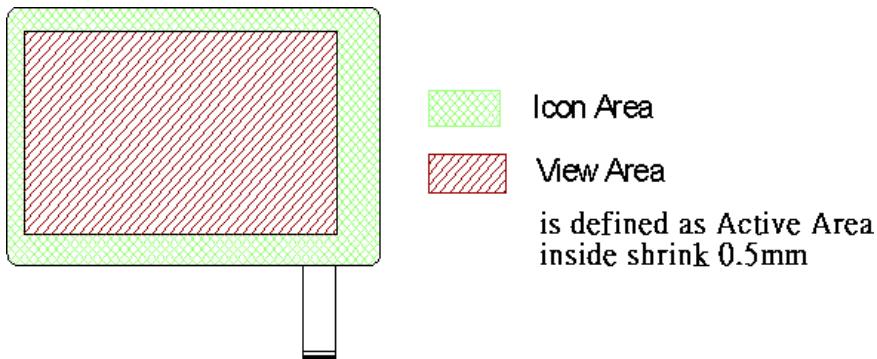
9.5.1 Inspection frequency: 100%

9.5.2 Function test Tool: SIS Auto-tool, picture as below

Steps	Reference picture	Note
connect FPC to laptop and open the SIS-Auto test tool, press "Test" button.		
If Touch panel function is ok, picture show as below "Pass"		
If Touch panel function is NG, will show "Fail" picture		

## 9.6 Defect criteria 判定标准

## 9.6.1 Terms Definition 定义



## 9.6.2 Appearance Specifications 外观判定标准

## 9.6.2.1 ICON Area Appearance Inspection Criteria 印刷区域判定标准

检验方法inspection method : refer to 9.1.1,9.1.2

Items	Conditions	Inspection Criteria	Method
Light Transparent Hole/Light Leakage 印刷针孔	TL/RL	Within 0.3mm of printing outer border: 从玻璃外边缘往里0.3mm 范围内 $D \leq 0.2\text{mm}$ , ignore; $D > 0.2\text{mm}$ , not allowed; Without 0.3mm of printing outer border: 从玻璃外边缘往里0.3mm 范围外 $D \leq 0.1\text{mm}$ , ignore; $D > 0.1\text{mm}$ , not allowed	Eye view, dot /wire gauge
Printing Saw edge 印刷锯齿	TL	Follow Glass VA dot-like and Linear defects SPEC. 按照可视区域点状，线状不良管控。	Eye view, dot /wire gauge
Ink Off 油墨脱落	TL	not allowed 不允许	Eye view
Stain and Dirty Mark 脏污、污迹	RL	* Contamination cannot be cleaned by soft cloth and alcohol, not Allowed; the non-cleanable stain should be inspected as "Dot-like Defects". 无尘布或者酒精无法擦拭的脏污不可有。不可擦拭脏污，按照点状不良管控。 * Contamination can be cleaned by soft cloth and alcohol, Accept; but if the ratio of such contamination defected products is more than 10% of all the inspected products, not allowed; 可擦拭脏污，可接受，但是比例不可超过整批产品的10%。	Eye view
Linear Particle 线状不良	RL	Refer to the view area Dot-like Defects 参考可视区线状不良管控标准	Eye view, dot /wire gauge
Dot-like Defects 点状不良	RL	Refer to the view area Dot-like Defects 参考可视区点状不良管控标准	Eye view, dot /wire gauge

## 9.6.2.2 View Area and other Area Appearance Inspection Criteria (Not TFT defect)

可视区域以及其他区域外观检验规范(非液晶模组)

检验方法inspection method : refer to 9.1.1 , 9.1.2

Items	Condition s	Inspection Criteria	Method
Dot-like Defects 点状不良	RL	$D \leq 0.15\text{mm}$ , ignore; $0.15\text{mm} < D \leq 0.2\text{mm}$ , $N \leq 5$ $0.2\text{mm} < D \leq 0.3\text{mm}$ , $N \leq 2$ , accept $D > 0.3\text{ mm}$ , not allowed	Eye view, Dot/ wire gauge
Glass Dent Bubble 玻璃的平凹, 气泡	RL	$D \leq 0.1\text{mm}$ , ignore; $0.1\text{mm} < D \leq 0.15\text{mm}$ , $N \leq 4$ , accept $D > 0.15\text{mm}$ , not allowed	Eye view, dot /wire gauge
Linear Particle 线状不良	RL	$W \leq 0.03\text{mm}$ , $L \leq 10\text{mm}$ , ignore; $0.03\text{mm} < W \leq 0.05\text{ mm}$ , $L \leq 10\text{mm}$ , $N \leq 4$ , accept $0.05\text{mm} < W \leq 0.08\text{ mm}$ , $L \leq 10\text{mm}$ , $N \leq 2$ , accept $W > 0.08\text{mm}$ or $L > 5\text{mm}$ , not allowed	Eye view, dot /wire gauge
Scratch (sensor/glass) 玻璃或sensor上的划伤	RL	$W \leq 0.03\text{mm}$ , $L \leq 10\text{mm}$ , ignore; $0.03\text{mm} < W \leq 0.08\text{mm}$ , $L \leq 10\text{mm}$ , $N \leq 2$ , accept $W > 0.08\text{mm}$ or $L > 10\text{mm}$ , not allowed Inductive scratch , not allowed 有感刮伤不允许	Eye view, dot /wire gauge
Corner Defect、 Edge Defect 缺角、崩边	RL	<p>“X” for Length, “Y” for Width, “Z” for Thickness, “T” for Total thickness of the glass;X: 长度, Y: 宽度, Z: 厚度, T: 玻璃总厚度;</p> <p>Corner defect/ 崩角: <math>X \leq 1.5\text{mm}</math>, <math>Y \leq 1\text{mm}</math>, <math>Z \leq 1\text{GT}</math>, and do not hurt line;</p> <p>warped corner/翘角: <math>X &lt; 1.5\text{mm}</math>, <math>Y &lt; 1\text{mm}</math>, <math>Z &lt; \text{GT}</math>, except the exterior surface;</p> <p>Edge Defect /崩边: <math>X \leq 2\text{mm}</math>, <math>Y \leq 1\text{mm}</math>, <math>Z \leq \text{GT}</math>, and do not hurt line;</p>	
Glass Crack玻璃裂痕	RL	Not allowed;	
FPC	RL	Bonding offset: FPC and sensor pin bonding about migration < pin width 1/2;(FPC与Sensor Pin bonding左右偏移 < Pin 宽的 1/2;)	
	RL	FPC surface are not allowed to have: crack, crease, with glue etc. 表面: 破裂、折痕、沾胶, 不允许;	
	RL	TFT all connectors have to be installed correctly 液晶模组上所有连接, 需要准确无误	
Gold finger 金手指	RL	Glue residue, broken, oxidation, smudgy, does not allow; 残胶、折伤、氧化、脏污, 不允许;	
Dirty/脏污	RL	Flake smudgy does not allow, bad dot the dirt of the specifications of the reference point; 片状脏污不允许, 点状脏污不良参照点的规格;	
Total Defects 总缺点数		The defects were ignore, it is not count here. 忽略不计的不良, 不做统计。 Total 6 defects Max. 不超过6个缺点。	

## 9.6.2.3 Display Specifications 液晶模组显示检验标准

Inspection method: 9.1.3 C 检验方法: 9.1.3 C

Symptom	Judgment criteria	Note
Bright Dots	1	Note 1
Dark Dots	3	Note 1
Distance between Bright - Bright	$\geq 15\text{mm}$	Note2
Distance between Dark- dark	$\geq 5\text{mm}$	Note2
Distance between Bright - Dark	$\geq 5\text{mm}$	Note2
Total Bright and Dark Dots	3	
Line defect	Not Allowed	
No Function	Not Allowed	
Mura	ND5% (50% Gray)	Note3

Note 1. Bright, Dark dot defect description

a) Less than 1/2 dot are ignored. When it is densely distributed, the judgment standard: In a circle of  $R=5\text{mm}$ ,  $N \leq 5$  is allowed.

b) Visible under: ND 5%.

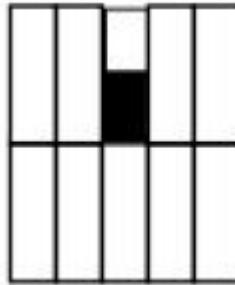
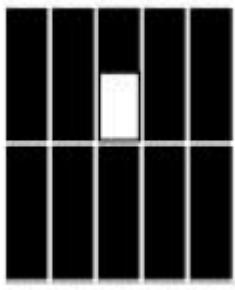
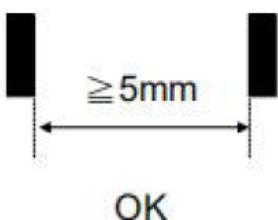
亮点, 暗点不良缺陷定义

a) 面积小于1/2子像素的亮点可以忽略; 当聚集分布时, 在半径为5mm的圆内, 数量少于等于5个是可接受的。

b) 使用ND 5%时, 可见。

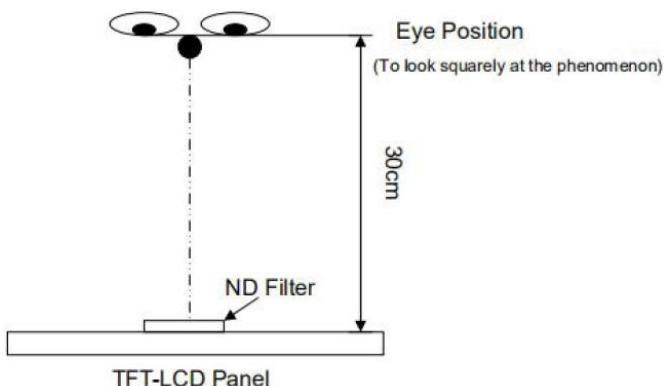
--bright area is more than 50% of one dot

---Dark area is more than 50% of one dot

Note 2. Minimum distance between dot defects  
-Dark dot to Dark dot, Bright dot to Bright dot

OK

Note 3. Bright dot, mura and leak are defined through transmission ND Filter as following.



## 9.6.2.4 TFT appearance Specification 液晶模组外观检验标准

Inspection method: 9.1.1 A , 检验方法: 9.1.1 A

Defect Type	Specification Size		Count(N)
Dot Shape (Particle, Scratch and Bubbles in active area)	D $\leq$ 0.2 mm		Ignored
	0.2mm $<$ D $\leq$ 0.4mm		N $\leq$ 4
	D $>$ 0.4mm		N=0
Backlight light leakage	visible through 5% ND filter	L $\leq$ 10 mm 10 $<$ L $\leq$ 20 mm L $>$ 20 mm	Ignored N $\leq$ 3 N=0
	Invisible through 5% ND filter		Ignored
Line Shape (Particles, Scratch, Lint and Bubbles in active area)	W $\leq$ 0.05 mm 且 L $\leq$ 1.0 mm		Ignored
	0.05mm $<$ W $\leq$ 0.2mm 且 1 $\leq$ L $\leq$ 5.0 mm		N $\leq$ 4
	0.2mm $<$ W or L $>$ 5 mm		N=0
Bubble in cell (active area)	It should be found by eyes		
Bezel	Scratch	No harm	
	Dirt	No harm	
	Wrap	No harm	
	Sunken	No harm	
Label	No label	No	
	Inverted label	No	
	Broken	Word can be read.	
	Dirt	Word can be read.	
	Not clear	No	
	Word out of shape	No	
	Mistake	No	
	Position	Be attached on right position	
FPC/FFC	Broken	No	
Minimum distance between 2 same defect type:5mm			

## 9.6.2.5 TFT Characteristics

The following items are neither defects nor failures.

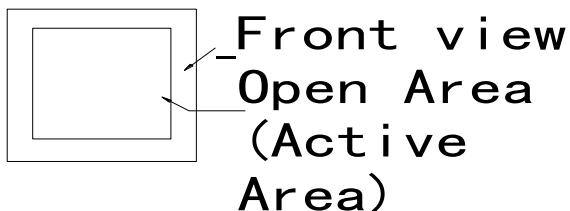
- ① Characteristics of the LCD ( such as response time, luminance, color uniformity and so on ) may be changed depending on ambient temperature. If the product is stored under condition of low temperature for a long time, it may cause display Mura. In this case, the product should be operated after enough time being left under condition of operating temperature.
- ② Display Mura, flickering, vertical steamship or tiny spots may be observed depending on display patterns.
- ③ Don not display the fixed pattern for a long time because it may cause image sticking. Use a screen saver,

If the fixed pattern is displayed on the screen.

- ④ The display color may be changed depending on viewing angle because of the use of condenser sheet in the backlight.
- ⑤ Optical characteristics may be changed depending on input signal timings.

**Note :**

- 1) If we cannot see any spot or line in the appropriate operating condition of panel, it is Acceptable.
- 2) The foreign materials that can be blown out by air and washed out by wet cleaning are not regarded as a defect.
- 3) Available Inspection Area is shown as "Active Area" of the picture.



- 4) If glass with AR coat, then ignore the AR white dots defects
- 5) Defects of Back side, located outside the View Area: Appearance defects, such as Scratch, Foreign Object, Stain and Dirtymark, on the backside of a Module do nt lead to performance failure, Accept.
- 6) W=Width; L=Length

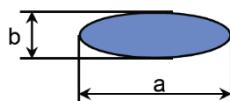


#### 7) Definition

Dot-like Defects:  $a \leq 2b$

Linear :  $a > 2b$

$$D=(a+b)/2$$



注意:

- 1) 如果在适当的操作面板的条件下, 我们不能看到任何点或线, 它是可以接受的。
- 2) 异物通过风不能吹掉的, 且无尘布也不能擦拭掉的, 视为不良。
- 3) 可视区检查部位在图中标示为“活动区域”。
- 4) 如果玻璃有进行 AR 处理, 则 AR 镀层的白点不良忽略
- 5) 产品背面外观不良, 不影响产品性能以及使用, 则允收
- 6) W=宽度; L=长度 (线状不良测量方法)

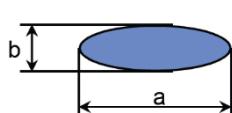


#### 7) 定义

点状缺点:  $a \leq 2b$

线状缺点:  $a > 2b$

$$D=(a+b)/2$$



## 10. Precautions 注意事项

### 10.1 MEANING OF CAUTION SIGNS

The following caution signs have very important meaning. **Be sure to read "10.2 CAUTIONS" and "10.3 ATTENTIONS"!**



This sign has the meaning that a customer will be injured or the product will sustain damage if the customer practices wrong operations



This sign has the meaning that a customer will be injured if the customer practices wrong operations.

### 10.2 CAUTIONS



\* Do not shock and press the LCD panel and the backlight! There is a danger of breaking, because they are made of glass. (Shock: Equal to or no greater than  $539\text{m/s}^2$  and equal to or no greater than 11ms, Pressure: Equal to or no greater than 19.6 N ( $\phi 16\text{mm}$  jig))

### 10.3 ATTENTIONS

#### 10.3.1 Handling of the product

- ① Take hold of both ends without touching the circuit board when the product (LCD module) is picked up from inner packing box to avoid broken down or misadjustment, because of stress to mounting parts on the circuit board.
- ② When the product is put on the table temporarily, display surface must be placed downward.
- ③ When handling the product, take the measures of electrostatic discharge with such as earth band, ionic shower and so on, because the product may be damaged by electrostatic.
- ④ The torque for product mounting screws must never exceed 0.230N·m. Higher torque might result in distortion of the bezel. And the length of product mounting screws must be  $\leq 2.5\text{mm}$ .
- ⑤ The product must be installed using mounting holes without undue stress such as bends or twist (See outline drawings). And do not add undue stress to any portion (such as bezel flat area). Bends or twist described above and undue stress to any portion may cause display Mura.
- ⑥ Do not press or rub on the sensitive product surface.
- ⑦ When cleaning the panel surface, wipe it with a soft dry cloth.

- ⑧ Do not push or pull the interface connectors while the product is working.
- ⑨ Usually liquid crystals don't leak through the breakage of glasses because of the surface tension of thin layer and the construction of LCD panel. But, if you contact with liquid crystal by any chance, please wash it away with soap and water.

#### 10.3.2 Environment

- ① Do not operate or store in high temperature, high humidity, dewdrop atmosphere or corrosive gases. Keep the product in packing box with antistatic pouch in room temperature to avoid dusts and sunlight, when storing the product.
- ② In order to prevent dew condensation occurred by temperature difference, the product packing box must be opened after enough time being left under the environment of an unpacking room. Evaluate the storage time sufficiently because dew condensation is affected by the environmental temperature and humidity. (Recommended leaving time: 6 hours or more with the original packing state after a customer receives the package)
- ③ Do not operate in high magnetic field. If not, circuit boards may be broken.
- ④ This product is not designed as radiation hardened.

#### 10.3.3 Characteristics

The following items are neither defects nor failures.

- ① Characteristics of the LCD (such as response time, luminance, color uniformity and so on) may be changed depending on ambient temperature. If the product is stored under condition of low temperature for a long time, it may cause display mura. In this case, the product should be operated after enough time being left under condition of operating temperature.
- ② Display Mura, flickering, vertical streams or tiny spots may be observed depending on display patterns.
- ③ Do not display the fixed pattern for a long time because it may cause image sticking. Use a screen saver, if the fixed pattern is displayed on the screen.
- ④ The display color may be changed depending on viewing angle because of the use of condenser sheet in the backlight.
- ⑤ Optical characteristics may be changed depending on input signal timings.

#### 10.3.4 Others

- ① All GND, and VCC terminals should be used without any non-connected lines.
- ② Do not disassemble a product or adjust variable resistors.
- ③ The product should be kept in a dark, cool place under 10°C~30°C, 60% RH. Direct sunlight exposure or piling should be avoided.
- ④ Use clean sacks or glove to prevent fingerprints and/or stains left on the panel. Extra attention and carefulness should be taken while handling the glass edge.

- ⑤ Avoid high voltage and/or static charge, Holding the panel instead of the tail at all time.
- ⑥ Use neutral detergent or isopropyl alcohol on a clean soft cloth to clean the panel surface  
Prevent using any kind of chemical solvent, acidic or alkali solution.  
Excessive force or strain to the panel or tail is prohibited.
- ⑦ Touch the panel with your finger or stylus only to assure normal operation. Any sharp  
edged or hard objects are prohibited.
- ⑧ Operate the panel in a steady environment. Abrupt variation on temperature and  
humidity  
may cause malfunction of the panel.
- ⑨ 12months guarantee after shipment in storage, shipment conditions described in this  
document.
- ⑩ Pack the product with the original shipping package, in order to avoid any damages during  
transportation, when returning the product to IVT.

## 11 Label

### 11.1 Label ①

Label ① : FPC label, Label size: 25\*15mm, QR code size: Min 7\*7mm

  
**IVA-080O1**  
**-NC9509**  
**-G020**  
**080P0323280001**

Customer PN:  
**IVA-080O1-NC9509-G020** type: Arial ; size: 7.1  
 080P0323280001 type: Arial ; size: 5.5  
 080: size; P03: project code ; 23: year; 28: week ;  
 0001: series number

### 11.2 Label ③ : on Flat box

Project name:	Touch Display
Customer Type:	
Customer SAP:	
Quantity:	
D/C:	

### Label ④ : On Big box

Product Name:	Touch Display
Customer PN:	
Customer SAP:	
Country of origin:	
D/C:	
Order Number:	
Shipping Lots:	
Shipping Date:	
Quantity	
Box Number:	
Internal Number:	
Note:	
RoHS Compliant	

## 12. Packaging 包装

TBD

## 13. Drawing

# SIMPLEPLUS

Touch Displays