规格书

Product Specification

客户名称 Customer	
客户项目号 Part NO	
产品型号 Part NO	H0205S003AMT003 V0
产品内容 Product type	Mode: AMOLED LCD Module: 2.04”368RGB*448Dot MIPI QSPI
客户确认签章 Signature by Customer:	

PREPARED BY	CHECKED BY	APPROVED BY

Records of Revision 修改记录

Rev 版本号	Date 修改日期	Description 内容	Page 页	Remarks 注释
V0	2024/11/1	首　次	17	

Table of Contents 目录

1 General Description 规格简介

2.04 inch 368x448 is a color active matrix AMOLED module

This module has a 2.04 inch diagonally measured active

area with 368x448 resolutions (368 horizontal by 448 vertical pixel arrays). Each pixel is divided into RED,

GREEN, BLUE dots and this module can display 16.7M colors.

2.04 英寸 368x448 是一个彩色有源矩阵 AMOLED 模块。该模块有一个 2.04 英寸的对角线测量的活动区域，分辨率为 368x448（368 水平和 448 垂直像素数组）。每个像素被分为红色、绿色、蓝点，该模块可以显示 16.7M 的颜色。

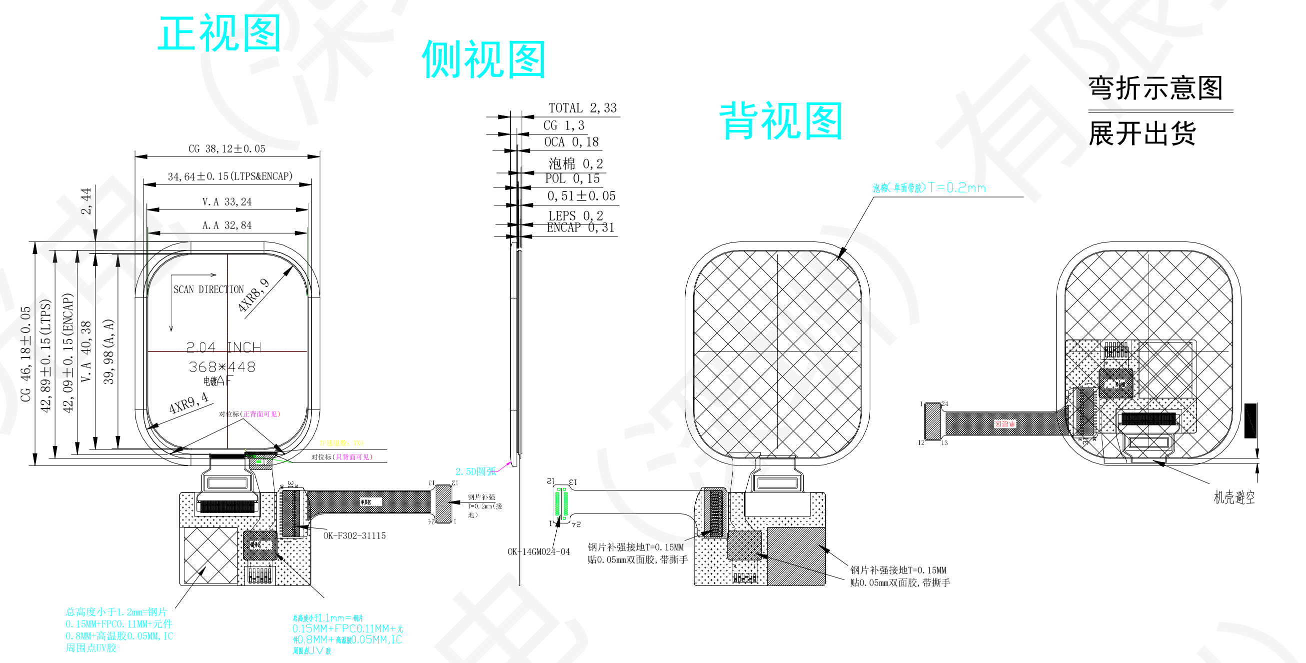
2 Module Parameter 模组参数

Features	Details	Unit
Display Size(Diagonal) 显示尺寸(对角线)	2.04	inch
显示屏类型	LTPS-AMOLED	-
Display Mode 显示模式	Transmissive OLED	-
Resolution 分辨率	368RGB x 448	-
Active Area 显示区	32.844(H) ×39.984(V)	mm
Module Outline 模组外形	34.64(H) ×42.89(V)×0.85(T)	mm
Display Colors 显示颜色	16.7M	-
Interface 接口	QSPI/MIPI	-
Driver IC 驱动 IC	CO5300	-
TP Viewing Area TP 视窗	33.244 (H) ×40.384(V)	mm
TP Outline(assembly) TP 外形	38.12(H) ×46.18(V)×1.30(T)	mm
TP IC	CST820	
Luminance on surface 亮度	800	cd/m²
View Direction 视角方向	All	Best image
Contrast ratio 对比度	30000:1	
Color gamut 色域	100%	
PPI 图像点密集度	284	-
Window effect 视窗效果	无一体黑	-
Cover plate surface effect 盖板表面效果	镀 AF	-
Operating Temperature 工作温度	-20～70	ºC
Storage Temperature 储存温度	-40～80	ºC
Weight 重量	TBD	g

Note 1: Excluding hooks, posts , FPC/FPC tail etc.

3 Mechanical Drawings 结构

REV.	DESCRIPTION	DATA	NAME



LCM PIN

PIN	NAME
1	LCD_RESET
2	GND
3	LCD_TE
4	LCD_CS
5	SPI_CLK
6	SPI_SI01
7	SPI_SI00
8	GND
9	IM1
10	MTP
11	VBAT
12	VBAT
13	GND
14	GND
15	VDD
16	TP_VDD
17	TP_INT
18	TP_RST
19	TP_SDA
20	TP_SCL
21	GND
22	SPI_SI03
23	SPI_SI02
24	VCI_EN

TP-PIN

NO.	SYMBOL
1	TP_VDD
2	TP_INT
3	TP_RST
4	TP_SDA
5	TP_SCL
6	GND

NO.	SYMBOL
1	GND
2	TP_INT
3	TP_RST
4	TP_SDA
5	TP_SCL
6	TP_3.3V
7	GND
8	IOVCC
9	VCI
10	VBAT
11	VCI_EN
12	GND
13	MTP PWR
14	RESET
15	CSX
16	SDI RDX
17	DCX
18	WRX SCL
19	D(1)
20	D(0)
21	TE
22	GND
23	D1P
24	D1N
25	GND
26	CLKP
27	CLKN
28	GND
29	D0P
30	D0N
31	GND

Notes(AMOLED):

1. Display Type: 2.05″368*448 LTPS-AMOLED(Oncell);
2. Driver IC::CO5300
3. TOUCH IC: CST820
4. POWER IC:BV6802
5. W/O CG Luminance: 800cd/m2(TYP),
6. White (X,Y): x=0.29±0.02,y=0.31±0.02;
7. NTSC:100%typ;
8. Viewing Direction L/R/U/D: 88/88/88/88;
9. General Tolerance: ±0.20 ;
   Unless Otherwise Specified Tolerance of Radius:R0.3;
10. Flatness AMOLED bottom side≤0.25mm;
11. CONFORMITY WITH ROHS & HALOGEN FREE REQUIREMENT;
12. OPERATING TEMPERATURE:-20° C TO 70° C;
    STORAGE TEMPERATURE:-30° C TO 80° C;

NOTES:

1、2D;油墨颜色:黑色;
2、LENS材质:熊猫,T=1.3mm;CS≥650Mpa,DOL≥35um,CT≤55Mpa, 表面硬度≥7H(750g)
3、落球测试:64g钢球, 50CM高度, 测试CG中心点及3,6,9,12点方向各冲击各3次不破碎;
4、背面丝印油墨,第一层油墨按4-8um控制,黑色油墨加反盖油墨厚度按≤15um控制;
   反盖层油墨距离视窗严格按0.25-0.55mm控制;
   CG油墨不透明性(OD值),黑色OD≥5.0;
5、100℃水煮 2H,样品不能接触沸水容器壁;用无尘布擦干后常温恢复 0.5H,再做百格附着力测试;
   要求油墨脱落面积<5%,同时不允许露底。附着力:≥4B;
6、LENS平面度¡Ü0.1mm;
7、LENS视窗透光率≥90%;
8、LENS表面蒸镀AF,AF不允许溢镀到油墨面;等离子清洗后:用minoan,面积2*2cm2,施加1000g的负载,以40cycle/min的速度,摩擦行程40mm,摩擦循环2500次;
   摩擦前水滴角≥110°,摩擦后水滴角≥100°,动摩擦系数≤0.04(载荷200g+/-20g,测试速度:100 mm/min);
9、达因值要求(德国品牌ARCOTEST),达因值要求盖板油墨面达因值要求不使用酒精擦拭测试≥34A,酒精擦拭后测试≥36A;
10、绝缘油墨阻抗值≥1000MΩ,在盖板背面油墨区上、下、左、右四边各选取1个测试点,测试笔间距为10mm;
11、温湿度要求:
    工作温度:-20~70℃,存储温度:-40~80℃;
    工作湿度:45~85 RH,存储湿度:45~95 RH;
12、所有材料必须符合RoHS2.0、无卤素标准;
13、所有尺寸均为最终成品尺寸;
14、带*为重点管控尺寸;带( )为参考尺寸;
15、背面需丝印我司型号XX(为供应商名称)及对位线,丝印型号与对位线必须可与底色明显区分;YYWWDD未生产年月日(如180703).

有问题请扫图中二维码

华夏彩光电(深圳)有限公司
Huaxia RGB Display(shenzhen)Co., Ltd

DRAWN BY: 绘 图		PRODUCT NO: 产品编号	H0205S003AMT003	SCALE: 比 例	1:1
CHECKED BY: 审 核		CLIENT NO: 客户编号		UNITS: 单 位	MM
DATA: 日 期		VERSION NUMBER: 版本号	V0	VIEW: 投影方式	

4 Module Interface 模组接口定义

NO	SYMBOL	FUNCTION
1	GND	Power Ground
2	TP_INT	Touch panel interrupt output
3	TP_RST	Touch panel reset
4	TP_SDA	Touch panel I2C data
5	TP_SCL	Touch panel I2C clock
6	TP_3.3v	Connect to voltage source between 2.8V to 3.3V
7	GND	Power Ground
8	IOVCC	Power Supply for logic, VDDIO=1.8V~3.3V.
9	VCI	Touch panel Power Supply for Analog.If not used, please open it.
10	VBAT	Power Input for SIBO VBAT=3.7~4.5V
11	VCL_EN	Touch panel Power Supply for Analog.If not used, please open it.
12	GND	Power Ground
13	MTP_PWR	MTP programming power supply pin. (8V typical) - Must be left open or connected to VSSD in normal condition.
14	RESRT	This signal will reset the device and must be applied to properly initialize the chip. Signal is active low.
15	CSX	Chip select pin of DBI Type B mode. Low active.
16	SDI RDX	serial data input 0 / serial data output
17	DCX	Display data/command selection pin in parallel interface
18	WRX SCL	SCL: A synchronous clock signal in SPI I/F. - If not used, please connect to VSSI
19	D(1)	serial data input 3
20	D(0)	serial data input 2
21	TE	Tearing effect output pin to synchronize MCU to frame writing, activated by S/W command
22	GND	Power Ground
23	D1P	MIPI-DSI data lane positive-end input pin. (Data lane 1 positive polarity))
24	D1N	MIPI-DSI data lane negative-end input pin.(Data lane 1 negative polarity)
25	GND	Power Ground
26	CLKP	CLKP
27	CLKN	CLKN
28	GND	Power Ground
29	D0P	MIPI-DSI data lane positive-end input pin. (Data lane 0 positive polarity))
30	D0N	MIPI-DSI data lane negative-end input pin.(Data lane 0 negative polarity)
31	GND	Power Ground

5.3 Application Circuit 应用电路（）

6 Absolute Maximum Ratings 绝对最大额定值

VSS=0V, Ta=25ºC

Note 1: 90%RH max, If Ta is below 50ºC; 60%RH max, If Ta is over 60ºC.

Item 项目		Symbol	Min.最小	Max.最大	Unit 单位
Supply Voltage 电源电压	Power supply 电力供应	VDD	-0.3	+4.6	V
	Analog 模拟	-	-	-	V
	IO	IOVDD	-0.3	+4.6	V
Input Voltage 输入电压		Vi	-0.3	IOVDD+0.3	V
Storage temperature 储存温度		T_{stg}	-30	+70	ºC
Operating temperature 工作温度		T_{op}	-20	+60	ºC
Storage humidity 存储湿度		H_{stg}	10	Note 1	%RH
Operating humidity 操作湿度		H_{op}	10	Note 1	%RH

7 Electrical Specification 电性规格

DC Characteristics 直流特性

Item 项目		Symbol	Min.最小	Typ.中间	Max.最大	Unit 单位
Supply Voltage 电源电压	Powersupply 电力供应	VDD	-	3.3	-	V
	Power 供电电压	VBAT	3.7	-	5.5	V
	IO	IOVDD	1.65	1.8/2.8	3.3	V
Logic Low input voltage 输入电压低		V_{IL}	-0.3IOVDD	-	0.3IOVDD	V
Logic High input voltage 输入电压高		V_{IH}	0.7IOVDD	-	IOVDD	V
Logic Low output voltage 输出电压低		V_{OL}	-	-	0.2IOVDD	V
Logic High output voltage 输出电压高		V_{OH}	0.8IOVDD	-	-	V
Current Consumption 电流消耗	Normal display 正常的显示	Ivdd	-	36	54	mA
	Standby mode 待机模式	Ivdd	-	-	-	uA
Frame Frequency 帧频		f_{FR}	-	60	-	Hz

8 Initialization Code 初始化代码

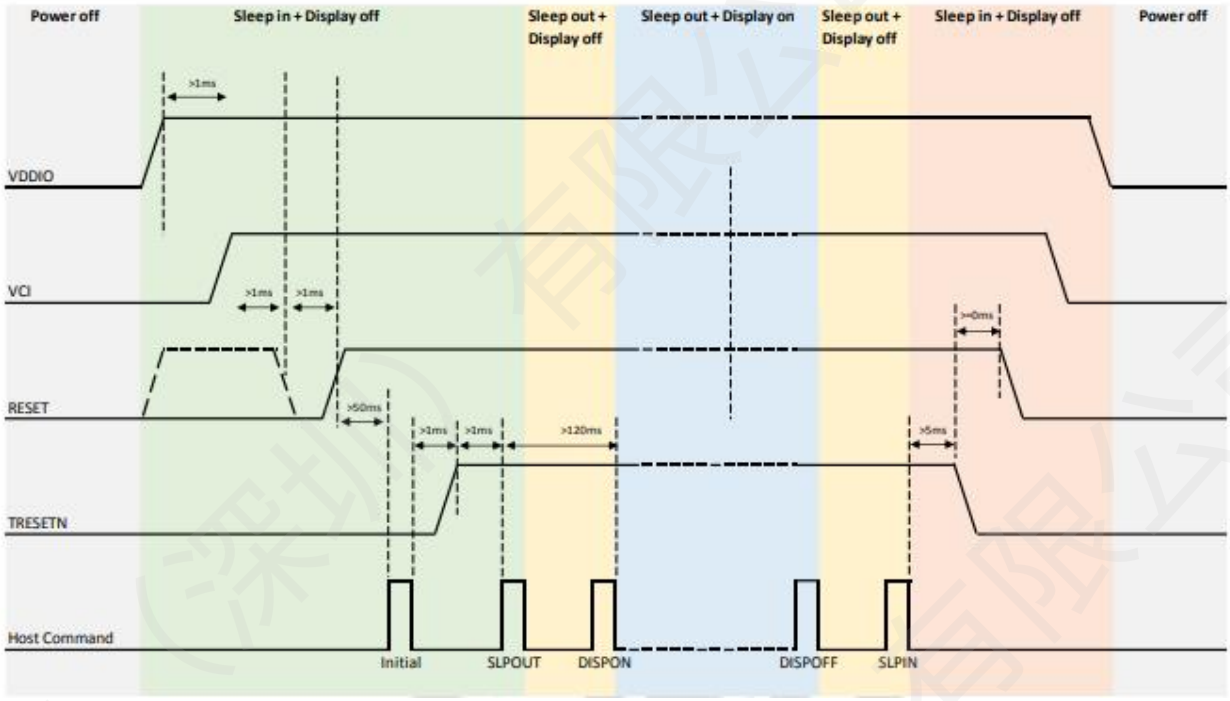
9 Optical Specifications 光学规格

9.1 Optical Specifications 光学规格

Ta=25ºC, VDD=2.8V, TN LC+ Polarizer

	Item 项目		Symbol 标志	Condition 条件	Specification 规范 Min. 最小	Typ. 中间	Max. 最大	Unit 单位
Backlight On (Transmissive Mode)	Luminance on surface(I_f =20mA) 表面亮度		*Lv*	Normally viewing angle $\theta_X=\theta_Y$ =0º		800	-	cd/m²
	Contrast ratio 对比度		*CR*		30000	-	-	-
	Response time 响应时间		*TR*		-	10	15	ms
			TF	-	-	20	20	
	Chromaticity Transmissive 色度	Red 红	*XR*	-	0.657	0.687	0.717	-
			YR		0.282	0.312	0.342	-
		Green 绿	*XG*		0.185	0.225	0.265	-
			YG		0.692	0.732	0.772	-
		Blue 蓝	*XB*		0.117	0.137	0.157	-
			YB		0.033	0.053	0.073	-
		White 白	*XW*		-	0.300	-	-
			YW		-	0.310	-	-
	Viewing Angle 视角	Horizontal	θX+	Center CR≥10	85	-	-	Deg.
			θX-		85	-	-	
		Vertical	θY+		85	-	-	
			θY-		85	-	-	
	NTSC Ratio(Gamut)		-	-	90	110	-	%

9.2 The power on/off sequence is illustrated below 电源启动/关闭顺序



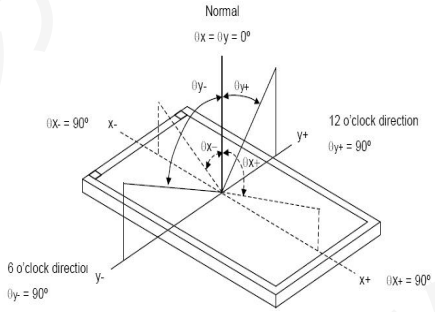
9.3 Definition of Contrast Ratio 对比度的定义

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

Measuring Equipment 测量设备	**BM-7 or EQUI**
Measuring Point Diameter 测点直径	3mm//1mm
Measuring Point Location 测点位置	Active Area centre point
Test pattern 测试模式	A: All Pixels white
	B: All Pixel black
Contrast setting	Maximum

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

9.4 Definition of Viewing Angles 视角的定义



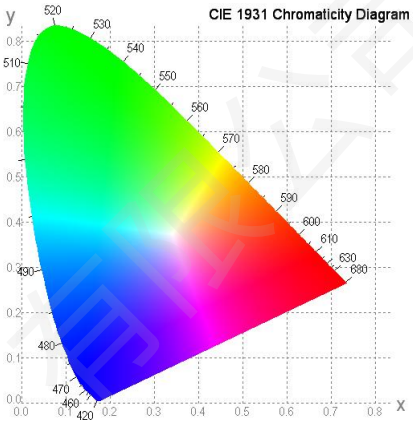
Measuring machine: LCD-5100 or EQUI

9.5 Definition of Color Appearance 色域的定义

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)



9.6 Definition of Surface Luminance, Uniformity and Transmittance
表面亮度、均匀性和透光率的定义

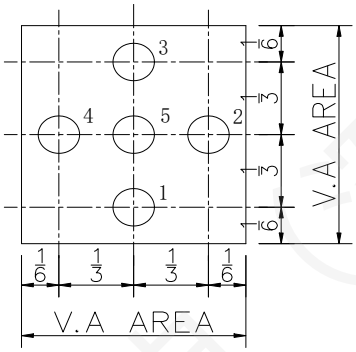
Using the transmissive mode measurement approach, measure the white screen luminance of the display panel and backlight.

9.6.1 Surface Luminance: LV = average (LP1:LP5)

9.6.2 Uniformity = Minimal (LP1:LP5) / Maximal (LP1:LP5) * 100%

9.6.3 Transmittance = LV on LCD / LV on Backlight * 100%

Note :Measuring machine:BM-7



10 Quality Assurance 质量标准

10.1 Purpose 目的

This standard for Quality Assurance assures the quality of LCD module products supplied to customer by HuaXia RGB Display.

10.2 Agreement Items 协议项目

HuaXia RGB Display and customer shall negotiate if the following situation occurs:

10.2.1 Discrepancies between HuaXia RGB Display's QA standards and customer's QA standards.

10.2.2 Additional requirement to be added in product specification.

10.2.3 Any other special problem.

10.3 Standard of the Product Visual Inspection 产品外观检验标准

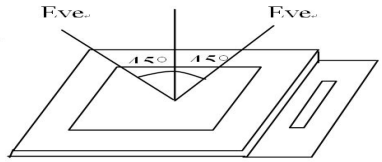
10.3.1 Appearance inspection:

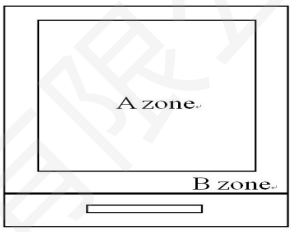
10.3.1.1 The inspection must be under illumination about 1000 – 1500 lx, and the distance of view must be at 30cm ± 2cm.

10.3.1.2 The viewing angle should be 45° from the vertical line without reflection light or

follows customer's viewing angle specifications.

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





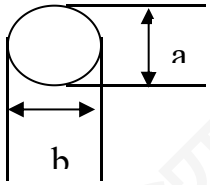
10.3.2 Basic principle:A set of sample to indicate the limit of acceptable quality level must be discussed by both HuaXia RGB Display and customer when there is any dispute happened.

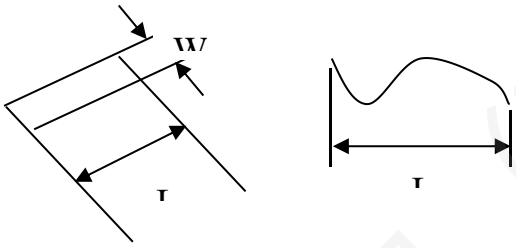
10.4 Inspection Specification 检验标准

Sampling plan according to GB/T2828.1-2012/ISO 2859-1：1999 and ANSI/ASQC Z1.4-1993,normal level 2 and based on:

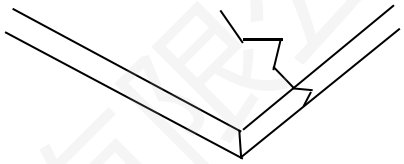
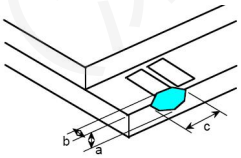
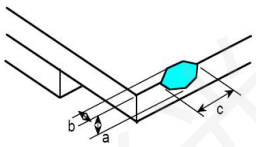
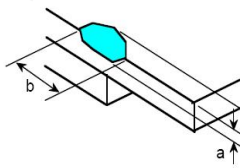
Major defect: AQL 0.4

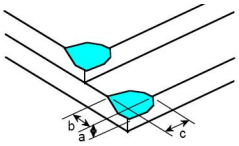
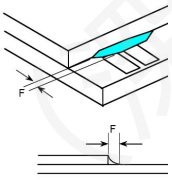
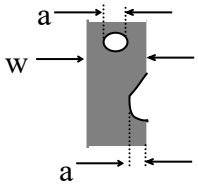
Minor defect: AQL 1.0

<table>
<tr><th>No.</th><th>Item 项目</th><th>Criteria (Unit: mm) 标准</th></tr>
<tr><td>01</td><td>Black / White spot
Foreign material
(Round type)
Pinholes Stain
Particles inside cell.
(Minor defect) 黑/白斑/异物
(圆类型)细胞内的针孔染色颗粒。(小瑕疵)</td><td>


<table>
<tr><th>Size \ Area</th><th>Acc. Qty</th></tr>
<tr><td>φ≤0.10</td><td>Ignore</td></tr>
<tr><td>0.10<φ≤0.2</td><td>2</td></tr>
<tr><td>0.2<φ</td><td>0</td></tr>
<tr><td>Total</td><td>N≦3
NO include
φ≤ 0.10</td></tr>
</table>
φ= (a + b) /2
Distance between 2 defects should more than10mm apart.
</td></tr>
<tr><td>02</td><td>Black and White line
Scratch
Foreign material
(Line type)
(Minor defect) 黑白线刮伤异物(类型)行(小瑕疵)</td><td>


<table>
<tr><th>Length</th><th>Width</th><th>Acc. Qty</th></tr>
<tr><td>/</td><td>W ≦ 0.03</td><td>Ignore</td></tr>
<tr><td>L ≦ 3</td><td>0.05 ＜ W ≦ 0.08</td><td>2</td></tr>
<tr><td>/</td><td>0.08 ＜ W</td><td>0</td></tr>
<tr><td colspan="2">Total</td><td>N≦2</td></tr>
</table>
Distance between 2 defects should more than 10mm apart.
Scratches not viewable through the back of the display are acceptable.
</td></tr>
</table>

<table>
<tr><th>No.</th><th>Item 项目</th><th>Criteria (Unit: mm) 标准</th></tr>
<tr><td>03</td><td>Glass Crack
(Minor defect) 玻璃裂纹(小瑕疵)</td><td> 
LCD with extensible crack line is unacceptable(When press the cracked LCD area, the line will expand, we define it is extensible crack line)</td></tr>
<tr><td>04</td><td>Glass Chipping Pad Area: (Minor defect) 玻璃碎片面积:(轻微缺陷)
  </td><td><table><tr><td>Length and Width</td><td>Acc. Qty</td></tr><tr><td>c ＜ 5.0, b< 0.4</td><td>Ignore</td></tr></table></td></tr>
<tr><td>05</td><td>Glass Chipping Rear of PadArea:(Minordefect) 玻璃切屑垫区后方:(小瑕疵)
  </td><td><table><tr><td>Length and Width</td><td>Acc. Qty</td></tr><tr><td>c > 3.0, b< 1.0</td><td>1</td></tr><tr><td>c< 3.0, b< 1.0</td><td>2</td></tr><tr><td>c< 3.0, b< 0.5</td><td>4</td></tr><tr><td colspan="2">a<Glass Thickness</td></tr></table></td></tr>
<tr><td>06</td><td>Glass Chipping Except Pad Area: (Minor defect) 除垫区外的玻璃切屑:(小瑕疵)
  </td><td><table><tr><td>Length and Width</td><td>Acc. Qty</td></tr><tr><td>c ≤0.6, b< 5.0</td><td>Ignore</td></tr><tr><td colspan="2">aGlass Thickness</td></tr></table></td></tr>
</table>

<table>
<tr><th>No.</th><th>Item 项目</th><th>Criteria (Unit: mm) 标准</th></tr>
<tr><td>07</td><td>Glass Corner Chipping: (Minor defect) 玻璃切角:(小瑕疵)
  </td><td><table><tr><td>Length and Width</td><td>Acc. Qty</td></tr><tr><td>c < 2.0, b< 1.5</td><td>Ignore</td></tr><tr><td>c < 1.5, b< 2</td><td>Ignore</td></tr><tr><td colspan="2">a<Glass Thickness</td></tr></table></td></tr>
<tr><td>08</td><td>Glass Burr: (Minor defect) 玻璃磨:(小瑕疵)
  </td><td>Glass burr don’t affect assemble and module dimension.<table><tr><td>Length</td><td>Acc. Qty</td></tr><tr><td>F < 0.5</td><td>Ignore</td></tr></table></td></tr>
<tr><td>09</td><td>FPC Defect: (Minor defect) FPC 缺陷:(小瑕疵)
  </td><td>9.1 Dent, pinhole width a<w/3.
(w: circuitry width.)
9.2 Open circuit is unacceptable.
9.3 No oxidation, contamination and distortion.</td></tr>
<tr><td>10</td><td>Screen deformation 屏幕上的变形
  </td><td>Test for insertion of plug gauge at highest warping point：
(3.1-6.0inches)
H≦0.3MM
The client has special requirements,according to drawing</td></tr>
<tr><td>11</td><td>Bubble on Polarizer (Minor defect) 偏光片上的气泡(小瑕疵)</td><td><table><tr><td>Diameter</td><td>Acc. Qty</td></tr><tr><td>φ≤0.15</td><td>Ignore</td></tr><tr><td>0.15 <φ≤0.25</td><td>2</td></tr><tr><td>0.25 <φ≤0.3</td><td>1</td></tr><tr><td>0.3 < φ</td><td>0</td></tr></table></td></tr>
<tr><td>12</td><td>Dent on Polarizer (Minor defect) 偏光片上的凹痕(小瑕疵)</td><td><table><tr><td>Diameter</td><td>Acc. Qty</td></tr><tr><td>φ≤0.15</td><td>Ignore</td></tr><tr><td>0.15 <φ≤0.25</td><td>2</td></tr><tr><td>0.2 5<φ≤0.30</td><td>1</td></tr><tr><td>0.3< φ</td><td>0</td></tr></table></td></tr>
</table>

No.	Item 项目	Criteria (Unit: mm) 标准
13	Bezel 边框	13.1 No rust, distortion on the Bezel.
14	Touch Panel 触控面板	D: Diameter W: width L: length 14.1 Spot: D≤0.20 is acceptable 0.20<D≤0.3, acceptable QTY, 3 D>0.3 is unacceptable 14.2 Dent（dot): D≤0.20 is acceptable 0.20<D≤0.3, acceptable QTY, 3 D>0.30 is unacceptable 2dots are acceptable and the distance between defects should more than 10 mm. Dent（line） According to the limit sample 14.3 Scratch: W≤0.03, L≤10 is acceptable, 0.03<W≤0.10, L≤10 ,acceptable QTY, 3 W>0.10 is unacceptable. Distance between 2 defects should more than 10 mm.
15	PCB	15.1 No distortion or contamination on PCB terminals. 15.2 All components on PCB must same as documented on the BOM/component layout. 15.3 Follow IPC-A-600F.
16	Soldering 焊接	Follow IPC-A-610C standard
17	Electrical Defect (Major defect) 电气缺陷(主要缺陷)	The below defects must be rejected. 17.1 Missing vertical / horizontal segment, 17.2 Abnormal Display. 17.3 No function or no display. 17.4 Current exceeds product specifications. 17.5 LCD viewing angle defect. 17.6 No Backlight. 17.7 Dark Backlight. 17.8 Touch Panel no function. 17.9 Dark Dot –one Allowed. 17.10 Bright Dot – one Allowed. Remark: 1. A pixel defect is acceptable if one color is none functional and causes a bright dot. The display may have one case where one color is out and cause a dark dot. 2. Bright dot caused by scratch and foreign object accords to item1.
18	Light leak 漏光	Yellow light OK; White light,According to the limit sample

Remark: Visual and cosmetic defects are rejectable only if these fall within the LCD viewing area.

10.5 Classification of Defects 缺陷的分类

Visual defects (Except no / wrong label) are treated as minor defect and electrical defect is major.

10.6 Identification/marking criteria 识别/评分标准

Any unit with illegible / wrong /double or no marking/ label shall be rejected.

10.7 Packing 包装

10.7.1 There should be no damage of the outside carton box, each packaging box should has label in the correct location per packing drawing requirement.

10.7.2 All direct package materials shall offer ESD protection.

11 Reliability Specification 可靠性规范

Item 项目	Condition 条件	Cycle Time 周期时间	Quantity 数量	Remark 备注
Constant Temp. and Constant Humidity Operation Test 恒温恒湿运行试验	+40 ± 3ºC,90 ± 3%RH	96hrs	--	*1
High Temp. Operation Test 高温操作试验	+70 ± 3ºC	96hrs	--	
Low Temp. Operation Test 低温操作试验	-20 ± 3ºC	96hrs	--	
Thermal Shock Test 热冲击试验	-20 ± 3ºC (30min) +70 ± 3ºC (30min)	10cycles	--	
ESD Test(end product) ESD 测试(最终产品)	150pF, 330Ω, ±2KV,Contact 150pF, 330Ω, ±6KV, Air	10times	--	*2, *3
Vibration Test(for packaging) 振动测试(包装)	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.

12 Precautions and Warranty 注意事项和保证

12.1 Safety 安全

12.1.1 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.

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

12.2 Handling 处理

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

12.2.2 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.

12.3 Operation 操作

12.3.1 Do not drive LCD with DC voltage

12.3.2 Response time will increase below lower temperature

12.3.3 Display may change color with different temperature

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

12.4 Static Electricity 静电

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

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

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

12.5 Limited Warranty 有限质量保证

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

12.5.2 The warranty liability of HuaXia RGB Display is limited to repair and/or replacement. HuaXia RGB Display will not be responsible for any consequential loss.

12.5.3 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.

13 Packaging 包装

TBD

14 Prior Consult Matter 免责声明

1. For HuaXia RGB 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.

Reference 参考

Item 项目	Description 描述	Revision 修订
CO5300	IC Data sheet	V0
Panel 2.04 寸 368X448	LCM assembly drawing	V0