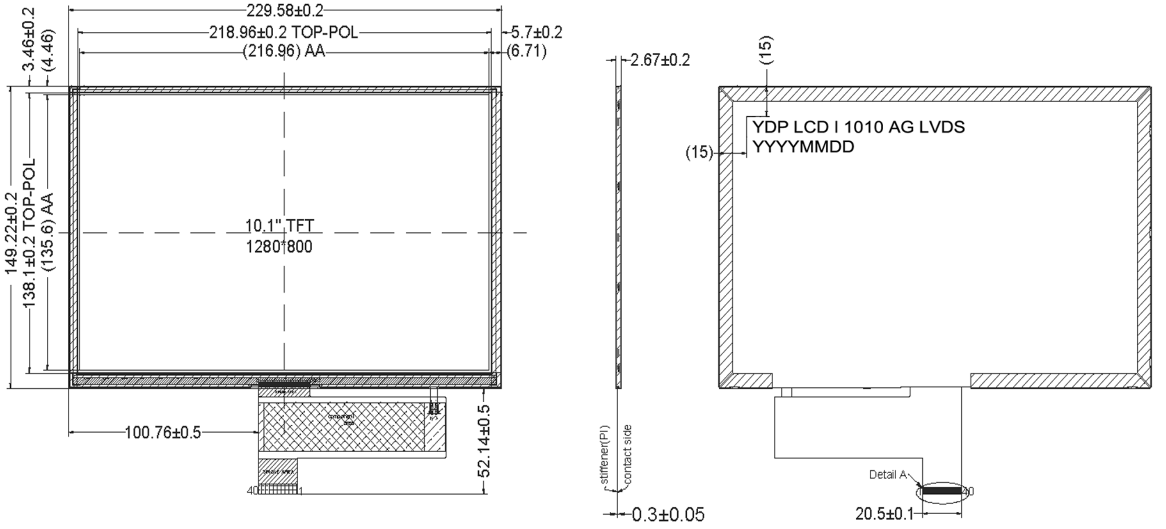
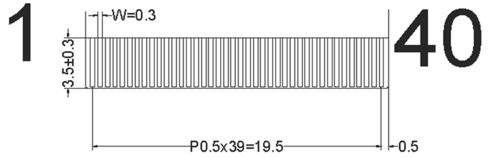
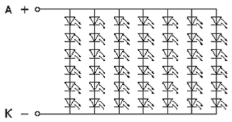


Detail A
8:1





Circuit Diagram (LED 6X7=42)

LCM

NO.	Pin name	NO.	Pin name	NO.	Pin name	NO.	Pin name
1	VDD	11	NIND2	21	SCL	31	LED+
2	VDD	12	PIND2	22	CSB	32	LED+
3	VDD	13	GND	23	NC	33	NC
4	NC	14	CLKN	24	VGH	34	LED-
5	NIND0	15	CLKP	25	VGL	35	LED-
6	PIND0	16	GND	26	NC	36	LED-
7	GND	17	NIND3	27	VSP	37	NC
8	NIND1	18	PIND3	28	VSN	38	NC
9	PIND1	19	NC	29	NC	39	NC
10	GND	20	SDA	30	LED+	40	NC

NOTES:
1.Display size:10.1"TFT
2.Viewing direction:FULL VIEW
3.Display mode:Transmissive/Normal Black/Anti-Glare
4.Operation temperature:-20°C~+70°C
5.Storage temperature:-30°C~+80°C
6.Power supply voltage:3.3V
7.Driver IC:EK79202DB
8.Backlight :White(42 LED)/18.6V/140mA
9.Brightness:300(TYP)cd/m2
10.ROHS must be complied
11.The dimension with mark brackets "()" just for reference
* Unspecification tolerance are ±0.3mm

Compliance: RohS III (2015/863/EU)

Tolerances:

Date	Name
01/25	dr

YDP LCD I 1010 AG LVDS

knitter-switch

30 56 37

Page
1/25

Modifications	Date	Name

PRODUCT SPECIFICATION

10.1” IPS TFT LCD MODULE
MODEL: YDP LCD I 1010 AG LVDS Ver: 1.1

< ◇> Preliminary Specification

< ◆> Finally Specification

CUSTOMER’S APPROVAL	
CUSTOMER :	
SIGNATURE:	**DATE:**

APPROVED BY	**PM REVIEWED**	**PD REVIEWED**	**PREPARED BY**
TFT Y. B 20240205	TFT S. G. H 20240205	TFT 周福云 20240205	TFT L. L 20240205

Revision History

Revision	Date	Originator	Detail	Remarks
1.0	2023.12.15	LQ	Initial Release	
1.1	2024.02.05	LL	Modify Backlight Characteristic Modify Optical Characteristics Modify Outline Drawing	P5 P6 P25

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1. General Description

The specification is a transmissive type color active matrix liquid crystal display (LCD) which uses amorphous thin film transistor (TFT) as switching devices. This product is composed of a TFT-LCD panel, driver ICs and a backlight unit.

2. Module Parameter

Features	Details	Unit
Display Size(Diagonal)	10.1”	
LCD type	IPS TFT	
Display Mode	Transmissive/ Normally Black	
Resolution	1280 RGB x 800	Pixels
View Direction	FULL VIEWING	Best Image
Module Outline	229.46 (H) x 149.1(V) x 2.8(T) (Note1)	mm
Active Area	216.96 (H) x 135.6(V)	mm
Pixel Size	169.5 (H) x 169.5(V)	um
Pixel Arrangement	RGB Stripe	
Polarizer Surface Treatment	Anti-Glare	
Display Colors	16.7M	
Interface	LVDS interface	
Driver IC	EK79202DB	
With or Without Touch Panel	Without	
Operating Temperature	**-20～70**	℃
Storage Temperature	**-30～80**	℃
Weight	TBD	g

Note 1: Exclusive hooks, posts , FFC/FPC tail etc.

3. Absolute Maximum Ratings

GND=0V, Ta=25°C

Item	Symbol	Min.	Max.	Unit
Supply Voltage	VDD	-0.5	4.0	V
Storage temperature	T_{STG}	**-30**	**80**	°C
Operating temperature	T_{OP}	**-20**	**70**	°C

Note 1: If Ta below 50°C, the maximal humidity is 90%RH, if Ta over 50°C, absolute humidity should be less than 60%RH.

Note 2: The response time will be extremely slow when the operating temperature is around -10℃, and the back ground will become darker at high temperature operating.

4. DC Characteristics

Item	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage/current	VDD	3.0	**3.3**	3.6	V
	VGH	17.5	**18.0**	18.5	V
	VGL	-11.5	**-10.5**	-10	V
	VSP	4.5	**5.0**	6	V
	VSN	-6	**-5.0**	-4.5	V
Differential input high threshold voltage	R_{XVTH}	-	-	0.1	V
Differential input low threshold voltage	R_{XVTL}	-0.1	-	-	V
Input voltage range (singled-end)	R_{XVIN}	0.7	**-**	1.7	V
Differential input voltage	|VID|	0.2	**-**	0.6	V
Current Consumption All White	I_{DD}	-	**TBD**	-	V

5. Backlight Characteristic

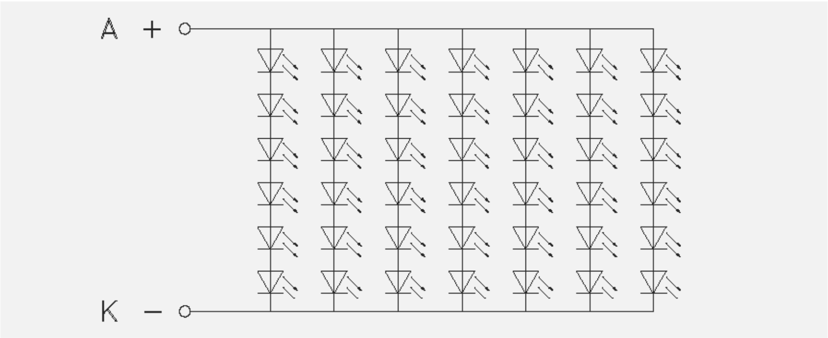
5.1. Backlight Characteristic

Item	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	Ta=25 °C, I_F=20mA/LED	16.8	**18.6**	20.4	V
Forward Current	I_F	Ta=25 °C, V_F=3.1V/LED	-	**140**	-	mA
Power dissipation	P_D		-	**2604**	-	mW
Uniformity	Avg		-	80	-	%
LED working life(25℃)	-		-	30,000	-	Hrs
Drive method	**Constant current**					
LED Configuration	42 White LEDs(6 LEDs in one string and 7 groups in parallel)					

Note:LED life time defined as follows: The final brightness is at 50% of original brightness.

The environmental conducted under ambient air flow, at Ta=25±2 °C,60%RH±5%, I_F=20mA/LED.

5.2. Backlighting circuit



6. Optical Characteristics

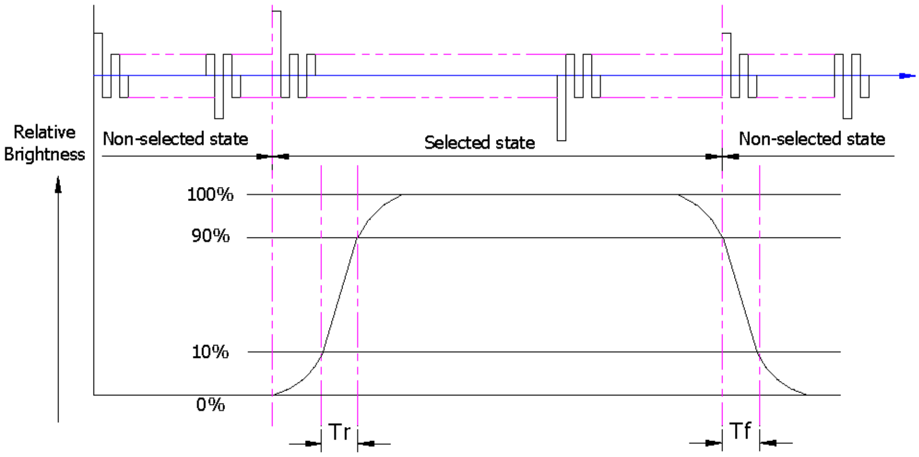
6.1. Optical Characteristics

Ta=25°C, VDD=3.3V

	Item		**Symbol**	**Condition**	**Specification**			**Unit**
					Min.	**Typ.**	**Max.**	
Backlight On (Transmissive Mode)	Luminance on TFT(I_f =20mA/LED)		Lv	Normally viewing angle θx = φY =0°	**240**	**300**	**-**	cd/m²
	Contrast ratio(See 6.3)		CR		800	1000	-	
	Response time (See 6.2)		T_R+T_F		-	25	35	ms
	Chromaticity Transmissive (See 6.5)	Red	X_R		-	TBD	-	-
			Y_R		-	TBD	-	
		Green	X_G		-	TBD	-	
			Y_G		-	TBD	-	
		Blue	X_B		-	TBD	-	
			Y_B		-	TBD	-	
		White	X_W		-	TBD	-	
			Y_W		-	TBD	-	
	Viewing Angle (See 6.4)	Horizontal	θ_{X+}	Center CR≥10	**70**	**80**	**-**	Deg.
			θ_{X-}		**70**	**80**	**-**	
		Vertical	φ_{Y+}		**70**	**80**	**-**	
			φ_{Y-}		**70**	**80**	**-**	
	NTSC Ratio(Gamut)				45	50	-	%

6.2. Definition of Response Time

6.2.1 Normally Black Type (Negative)

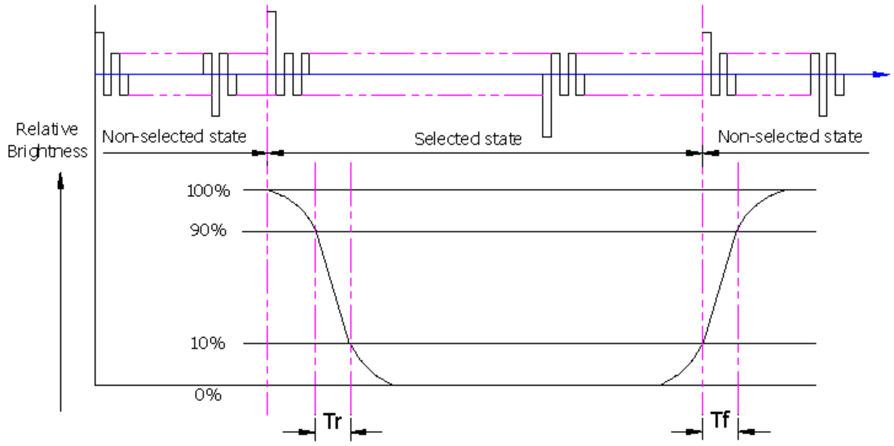


Tr is the time it takes to change form non-selected stage with relative luminance 10% to selected state with relative luminance 90%;

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

Note : Measuring machine: LCD-5100

6.2.2 Normally White Type (Positive)



Tr is the time it takes to change form non-selected stage 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%;

Note : Measuring machine: LCD-5100 or EQUI

6.3. Definition of Contrast Ratio

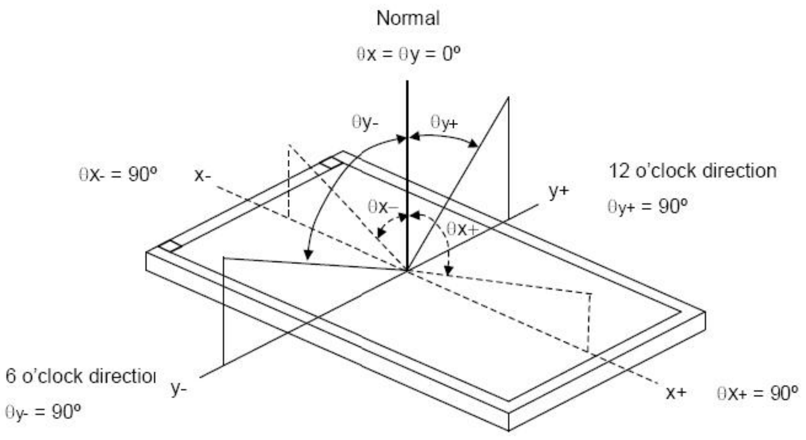
Contrast is measured perpendicular to display surface in reflective and transmissive mode.

The measurement condition is:

Measuring Equipment	Eldim or Equivalent
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

6.4. Definition of Viewing Angles



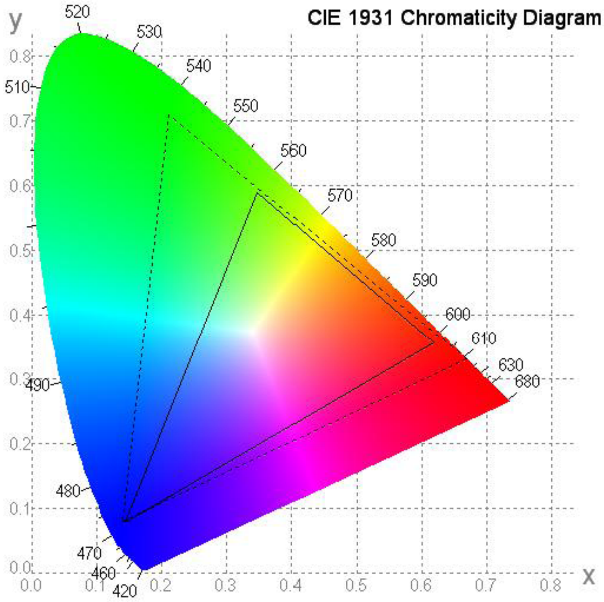
Measuring machine: LCD-5100 or EQUI

6.5. 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)



6.6. Definition of Surface Luminance, Uniformity and Transmittance

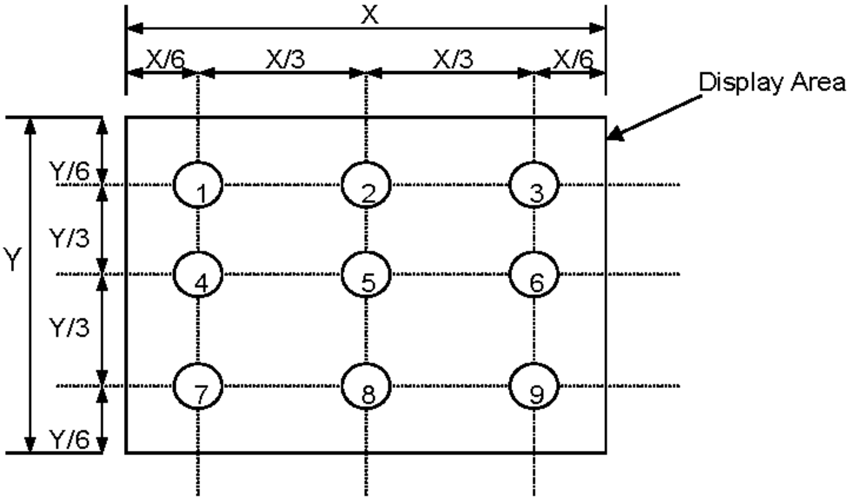
Using the transmissive mode measurement approach, measure the white screen luminance of the display panel and backlight.

6.6.1 Surface Luminance: L_V = average (L_{P1}:L_{P9})

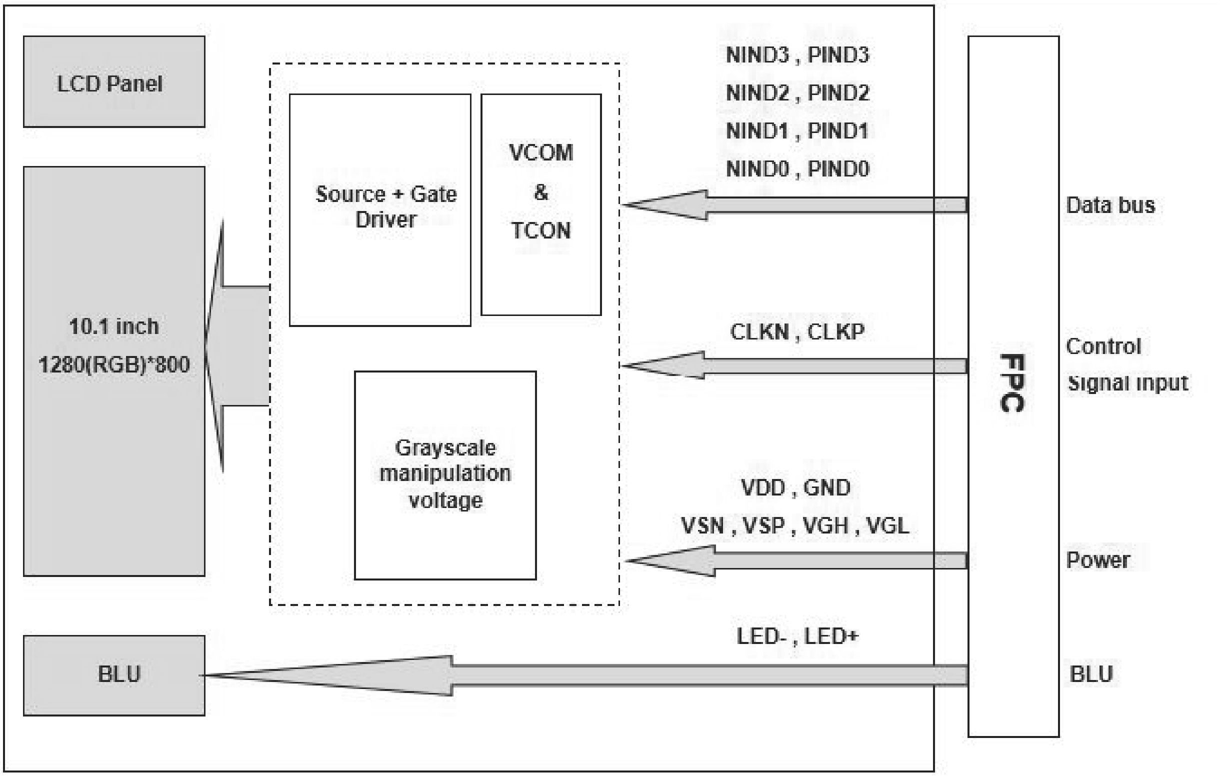
6.6.2 Uniformity = Minimal (L_{P1}:L_{P9}) / Maximal (L_{P1}:L_{P9}) * 100%

6.6.3 Transmittance = L_V on LCD / L_V on Backlight * 100%

Note : Measuring machine: BM-7



7. Block Diagram and Power Supply



8. Interface Pins Definition

No.	Symbol	Function	Remark
1	VDD	Power Supply Voltage	
2	VDD	Power Supply Voltage	
3	VDD	Power Supply Voltage	
4	NC	No connection	
5	NIND0	LVDS data Input Signal-	
6	PIND0	LVDS data Input Signal+	
7	GND	Ground	
8	NIND1	LVDS data Input Signal-	
9	PIND1	LVDS data Input Signal+	
10	GND	Ground	
11	NIND2	LVDS data Input Signal-	
12	PIND2	LVDS data Input Signal+	
13	GND	Ground	
14	CLKN	LVDS clock Input Signal-	
15	CLKP	LVDS clock Input Signal+	
16	GND	Ground	
17	NIND3	LVDS data Input Signal-	
18	PIND3	LVDS data Input Signal+	
19	NC	No connection	
20	SDA	No connection	
21	SCL	No connection	
22	CSB	No connection	
23	NC	No connection	
24	VGH	Gate On voltage.	
25	VGL	Gate Off voltage.	
26	NC	No connection	
27	VSP	Input voltage from the set-up circuit (4.5V to 6.0V).	
28	VSN	Input voltage from the set-up circuit (-4.5V to -6.0V).	
29	NC	No connection	
30	LED+	LED Driver Power Supply.	
31	LED+	LED Driver Power Supply.	
32	LED+	LED Driver Power Supply.	
33	NC	No connection	
34	LED-	LED Driver Ground.	
35	LED-	LED Driver Ground.	
36	LED-	LED Driver Ground.	
37	NC	No connection	
38	NC	No connection	
39	NC	No connection	
40	NC	No connection	

9. AC Electrical Characteristics

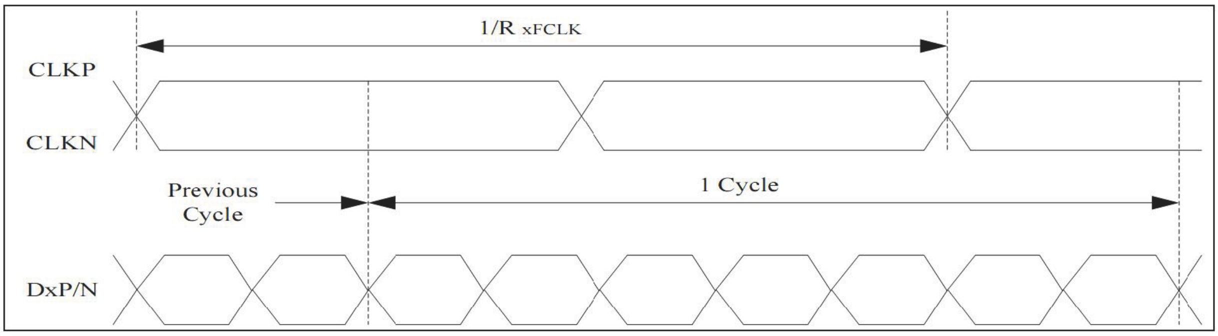
For 1280RGBx800 HV mode

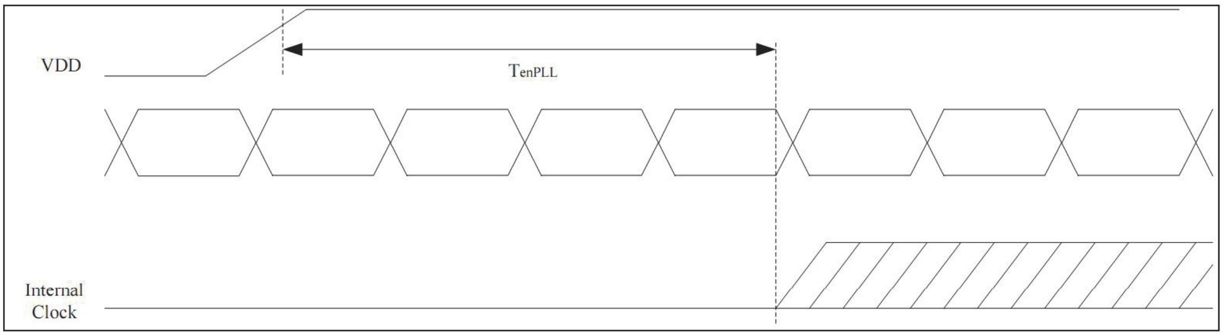
Parameter		Symbol	Value			Unit
			Min.	Typ.	Max.	
DCLK frequency @Frame rate=60Hz (LVDS)		F_{DCLK}	66.3	72.4	78.9	MHz
HSYNC period time		T_H	1380	1440	1500	DCLK
Horizontal display area		T_{HD}	1280			DCLK
HSYNC pulse width	Min.	T_{HPW}	2			
	Typ.		-			
	Max.		40			
HSYNC back porch(with pulse width)		T_{HBP}	88	88	88	DCLK
HSYNC front porch		T_{HFP}	12	72	132	DCLK
VSYNC period time		T_V	824	838	872	H
Vertical display area		T_{VD}	800			H
VSYNC pulse width	Min.	T_{VPW}	2			H
	Typ.		-			
	Max.		20			
VSYNC back porch(with pulse width)		T_{VBP}	23	23	23	H
VSYNC front porch		T_{VFP}	1	15	49	H

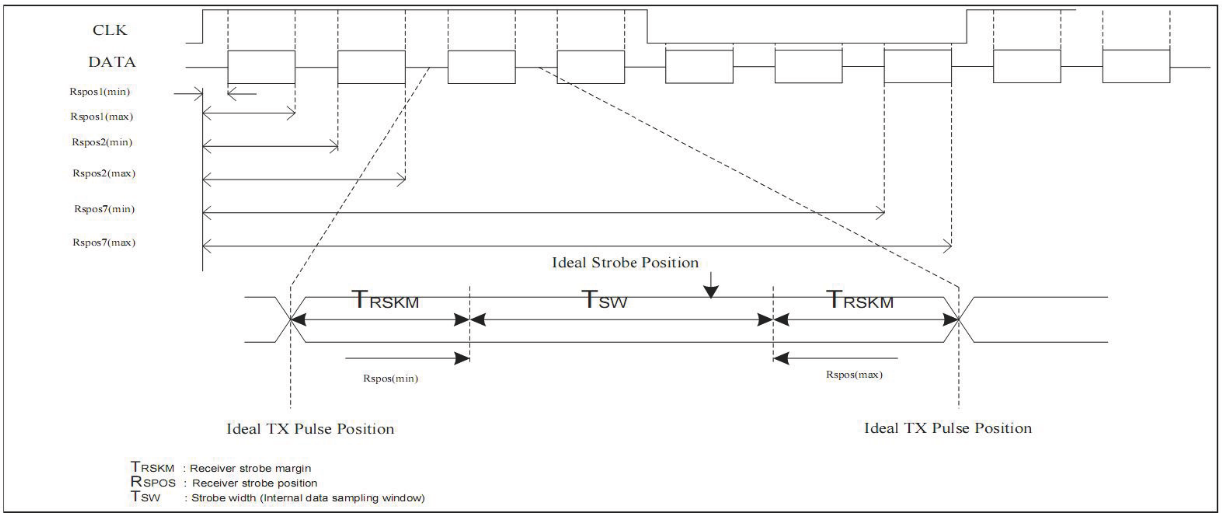
For 1280RGBx800 DE mode

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
DCLK frequency @Frame rate=60Hz (LVDS)	F_{DCLK}	68.2	72.4	78.5	MHz
Horizontal display area	T_{HD}	1280			DCLK
HSYNC period time	T_H	1380	1440	1500	DCLK
HSYNC blanking	$T_{HBP}+T_{HFP}$	100	160	220	DCLK
Vertical display area	T_{VD}	800			H
VSYNC period time	T_V	824	838	872	H
VSYNC blanking	$T_{VBP}+T_{VFP}$	24	38	72	H

Parameter	**Symbol**	**Spec.**			**Unit**	**Condition**
		Min.	**Typ.**	**Max.**		
Clock frequency	R_{xFCLK}	30	-	TBD	MHz	Refer to input timing table for each display resolution
Input data skew margin	T_{RSKM}	500	-	-	ps	|VID| = 200mV RxVCM = 1.2V RxFCLK = 81MHz
Clock high time	T_{LVCH}	-	$4/(7^{*} R_{xFCLK})$	-	ns	
Clock low time	T_{LVCL}	-	$3/(7^{*} R_{xFCLK})$	-	ns	
PLL wake-up time	T_{enPLL}	-	-	150	us	

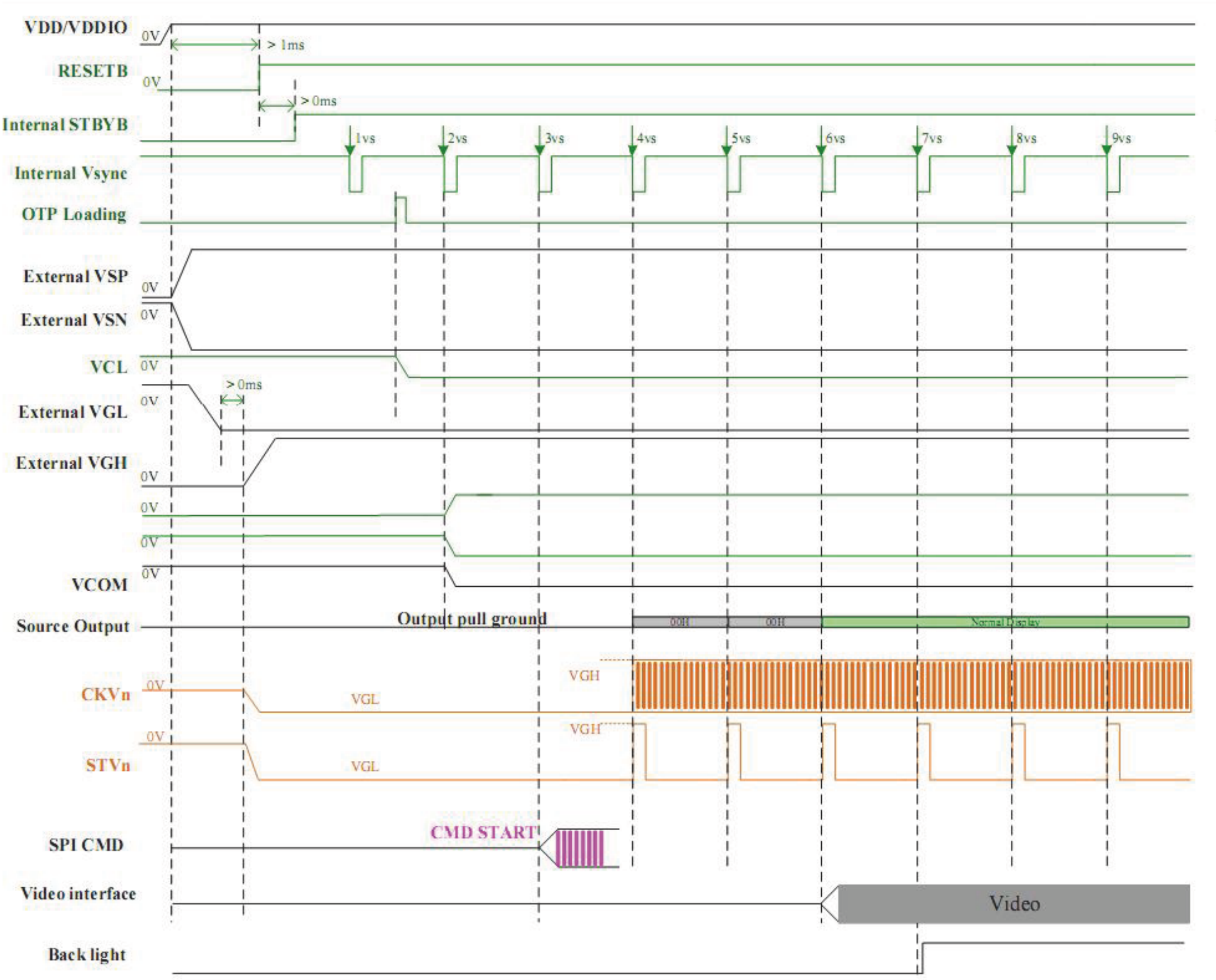

1/R xFCLK
CLKP
CLKN
Previous Cycle
1 Cycle
DxP/N


VDD
TenPLL
Internal Clock


CLK
DATA
Rspos1(min)
Rspos1(max)
Rspos2(min)
Rspos2(max)
Rspos7(min)
Rspos7(max)
Ideal Strobe Position
TRSKM
TSW
TRSKM
Rspos(min)
Rspos(max)
Ideal TX Pulse Position
Ideal TX Pulse Position
TRSKM : Receiver strobe margin
RSPOS : Receiver strobe position
TSW : Strobe width (Internal data sampling window)

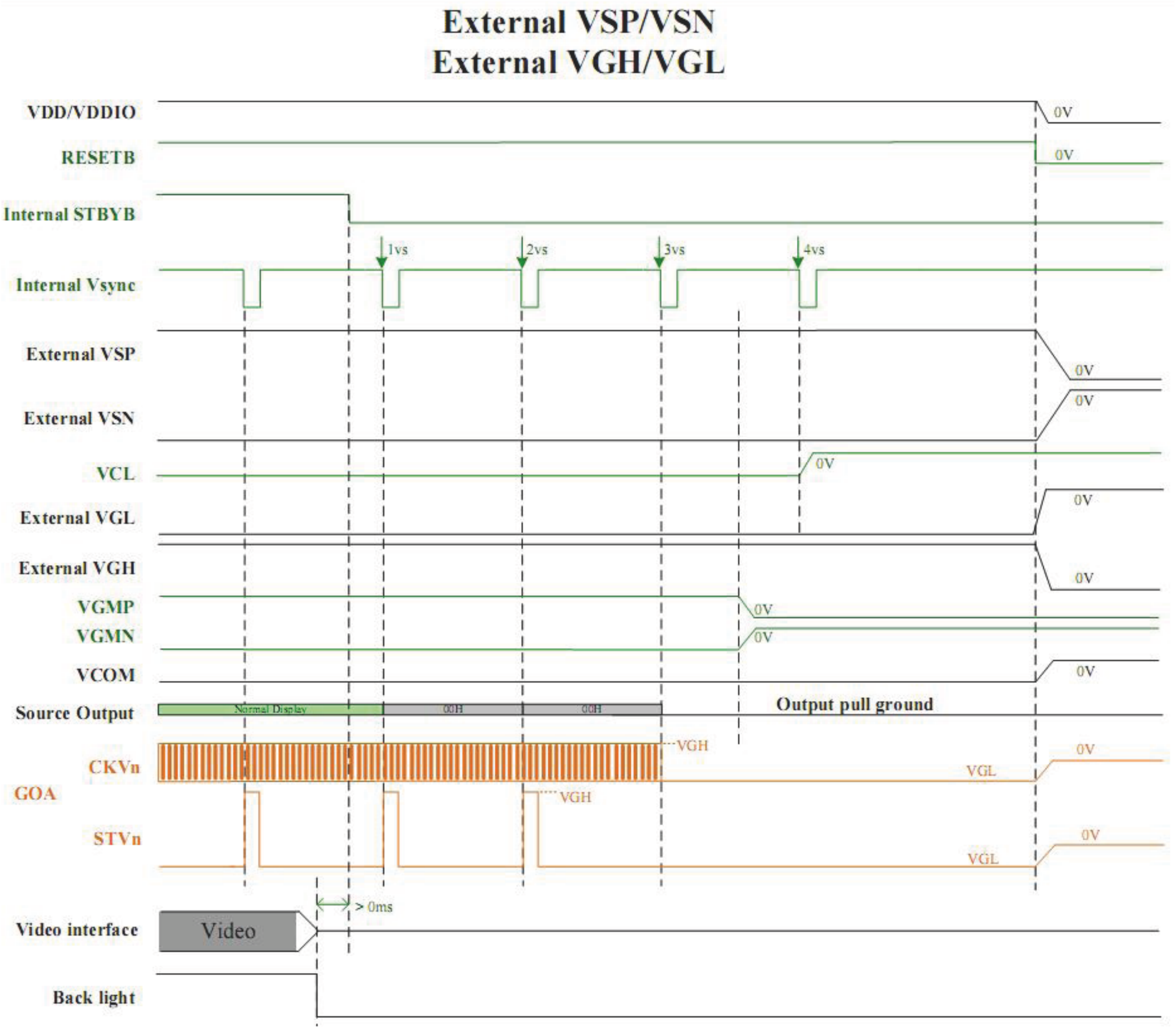
10. Power ON/OFF sequence

10.1. Power ON Sequence



Note:Before Power on process is have to check all power input of external that is GND.

10.2.Power OFF Sequence



11. Quality Assurance

11.1. Purpose

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

11.2. Standard for Quality Test

11.2.1. Sampling Plan:

GB2828.1-2012

Single sampling, general inspection level II

11.2.2. Sampling Criteria:

Visual inspection: AQL 1.5

Electrical functional: AQL 0.65.

11.2.3. Reliability Test:

Detailed requirement refer to Reliability Test Specification.

11.3. Nonconforming Analysis & Disposition

11.3.1. Nonconforming analysis:

11.3.1.1. Customer should provide overall information of non-conforming sample for their complaints.

11.3.1.2. After receipt of detailed information from customer, the analysis of nonconforming parts usually should be finished in one week.

11.3.1.3. If can not finish the analysis on time, customer will be notified with the progress status.

11.3.2. Disposition of nonconforming:

11.3.2.1. Non-conforming product over PPM level will be replaced.

11.3.2.2. The cause of non-conformance will be analyzed. Corrective action will be discussed and implemented.

11.4. Agreement Items

Shall negotiate with customer if the following situation occurs:

11.4.1. There is any discrepancy in standard of quality assurance.

11.4.2. Additional requirement to be added in product specification.

11.4.3. Any other special problem.

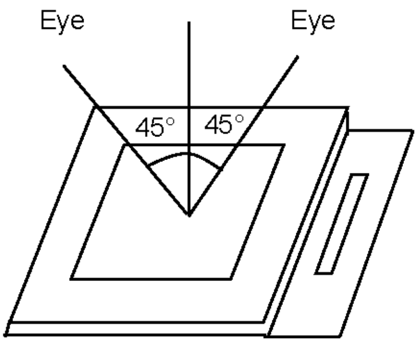
11.5. Standard of the Product Visual Inspection

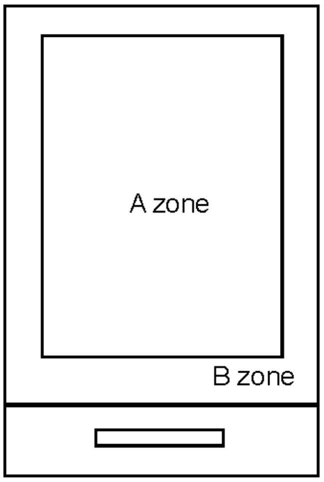
11.5.1. Appearance inspection:

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

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

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



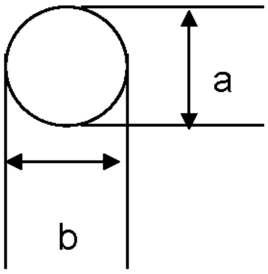


11.5.2. Basic principle:

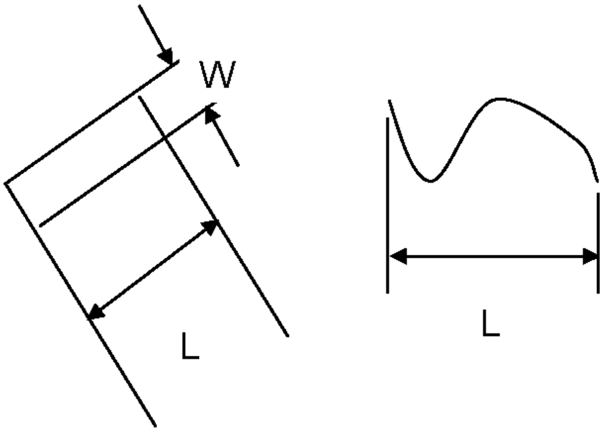
11.5.2.1. A set of sample to indicate the limit of acceptable quality level must be discussed by both us and customer when there is any dispute happened.

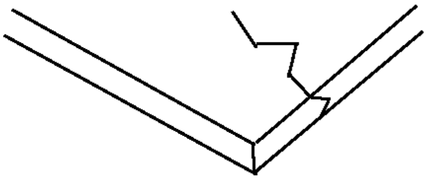
11.5.2.2. New item must be added on time when it is necessary.

11.6. Inspection Specification

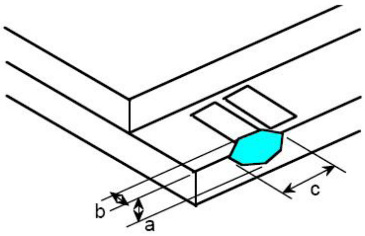
<table>
<tr><th>No.</th><th>Item</th><th>Criteria (Unit: mm)</th></tr>
<tr><td>01</td><td>Black / White spot
Foreign material (Round type)
Pinholes
Stain
Particles inside cell.
(Minor defect)</td><td>

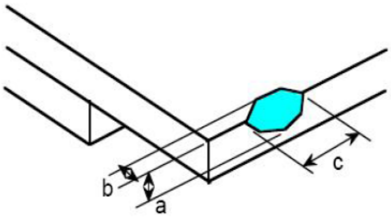
<table>
<tr><th>Area
Size</th><th>Acc. Qty</th></tr>
<tr><td>$\varphi \le 0.20$</td><td>Ignore</td></tr>
<tr><td>$0.20 < \varphi \le 0.50$</td><td>$N \le 3$</td></tr>
<tr><td>$0.50 < \varphi$</td><td>0</td></tr>
</table>
$\varphi = (a + b) / 2$
Distance between 2 defects should more than 5mm apart.</td></tr>
<tr><td>02</td><td>Electrical Defect
(Minor defect)</td><td><table>
<tr><td rowspan="2">Bright dot</td><td>Display Area</td><td>Total</td><td rowspan="4">Note1</td></tr>
<tr><td>$N \leqslant 2$</td><td>$N \leqslant 2$</td></tr>
<tr><td>Dark dot</td><td>$N \leqslant 4$</td><td>$N \leqslant 4$</td></tr>
<tr><td>Total dot</td><td>$N \leqslant 4$</td><td>$N \leqslant 4$</td></tr>
<tr><td>Mura</td><td colspan="2">Not visible through 5% ND filters.</td><td>Note2</td></tr>
</table>
Remark:
1. Bright dot caused by scratch and foreign object accords to item 1.</td></tr>
</table>

<table>
<tr>
<td>03</td>
<td>Black and White line
Scratch
Foreign material
(Line type)
(Minor defect)</td>
<td>


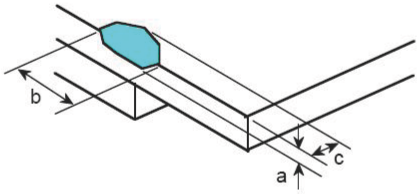
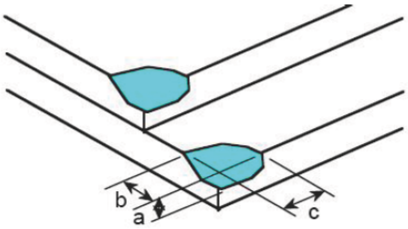
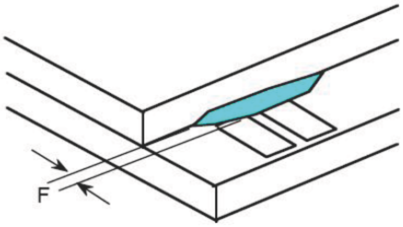
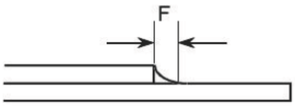
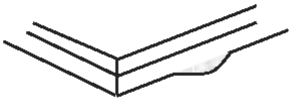
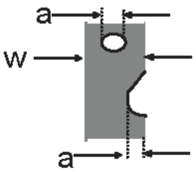
<table>
<tr><th>Length</th><th>Width</th><th>Acc. Qty</th></tr>
<tr><td>/</td><td>W ≦ 0.1</td><td>Ignore</td></tr>
<tr><td>L ≦ 2.5</td><td>0.1 ＜ W ≦ 0.2</td><td>3</td></tr>
<tr><td>L＞2.5</td><td>0.2 ＜ W</td><td>0</td></tr>
<tr><td colspan="2">Total</td><td>3</td></tr>
</table>
Distance between 2 defects should more than 3mm apart. Scratches not viewable through the back of the display are acceptable.
</td>
</tr>
<tr>
<td>04</td>
<td>Glass Crack
(Minor defect)</td>
<td>


Crack is potential to enlarge, any type is not allowed.
</td>
</tr>
</table>

<table>
<tr>
<td>05</td>
<td>Glass Chipping Pad Area:
(Minor defect)


</td>
<td>
<table>
<tr><th>Length and Width</th><th>Acc. Qty</th></tr>
<tr><td>c > 3.0, b< 1.0</td><td>1</td></tr>
<tr><td>c< 3.0, b< 1.0</td><td>3</td></tr>
<tr><td colspan="2">a<Glass Thickness</td></tr>
</table>
</td>
</tr>
<tr>
<td>06</td>
<td>Glass Chipping Rear of Pad Area:
(Minor defect)


</td>
<td>
<table>
<tr><th>Length and Width</th><th>Acc. Qty</th></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>
</table>

<table>
<tr><td>07</td><td>Glass Chipping Except Pad Area:
(Minor defect)
 </td><td><table><tr><th>Length and Width</th><th>Acc. Qty</th></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>08</td><td>Glass Corner Chipping:
(Minor defect)
 </td><td><table><tr><th>Length and Width</th><th>Acc. Qty</th></tr><tr><td>c < 3.0, b< 3.0</td><td>Ignore</td></tr><tr><td colspan="2">a<Glass Thickness</td></tr></table></td></tr>
<tr><td>09</td><td>Glass Burr:
(Minor defect)


</td><td><table><tr><th>Length</th><th>Acc. Qty</th></tr><tr><td>F < 1.0</td><td>Ignore</td></tr></table>
Glass burr don’t affect assemble and module dimension.</td></tr>
<tr><td>10</td><td>FPC Defect:
(Minor defect)
 </td><td>10.1 Dent, pinhole width a<w/3.
(w: circuitry width.)
10.2 Open circuit is unacceptable.
10.3 No oxidation, contamination and distortion.</td></tr>
</table>

<table>
<tr><td>11</td><td>Bubble on Polarizer
(Minor defect)</td><td><table><tr><th>Diameter</th><th>Acc. Qty</th></tr><tr><td>φ≤0.30</td><td>Ignore</td></tr><tr><td>0.30 <φ≤0.50</td><td>N≤2</td></tr><tr><td>0.50 < φ</td><td>N=0</td></tr></table></td></tr>
<tr><td>12</td><td>Dent on Polarizer
(Minor defect)</td><td><table><tr><th>Diameter</th><th>Acc. Qty</th></tr><tr><td>φ≤0.25</td><td>Ignore</td></tr><tr><td>0.25 <φ≤0.50</td><td>N≤4</td></tr><tr><td>0.50 < φ</td><td>None</td></tr></table></td></tr>
<tr><td>13</td><td>Bezel</td><td>13.1 No rust, distortion on the Bezel.
13.2 No visible fingerprints, stains or other contamination.</td></tr>
<tr><td>14</td><td>PCB</td><td>14.1 No distortion or contamination on PCB terminals.
14.2 All components on PCB must same as documented on the BOM/component layout.
14.3 Follow IPC-A-600F.</td></tr>
<tr><td>15</td><td>Soldering</td><td>Follow IPC-A-610C standard</td></tr>
<tr><td>16</td><td>Electrical Defect
(Major defect)</td><td>The below defects must be rejected.
16.1 Missing vertical / horizontal segment,
16.2 Abnormal Display.
16.3 No function or no display.
16.4 Current exceeds product specifications.
16.5 LCD viewing angle defect.
16.6 No Backlight.
16.7 Dark Backlight.
16.8 Touch Panel no function.</td></tr>
</table>

Remark: LCD Panel Broken shall be rejected. Defect out of LCD viewing area is acceptable.

11.7. Classification of Defects

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

11.7.2. Two minor defects are equal to one major in lot sampling inspection.

11.8. Identification/marking criteria

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

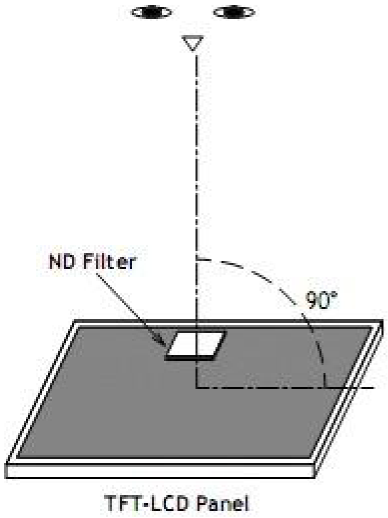
11.9. Packing

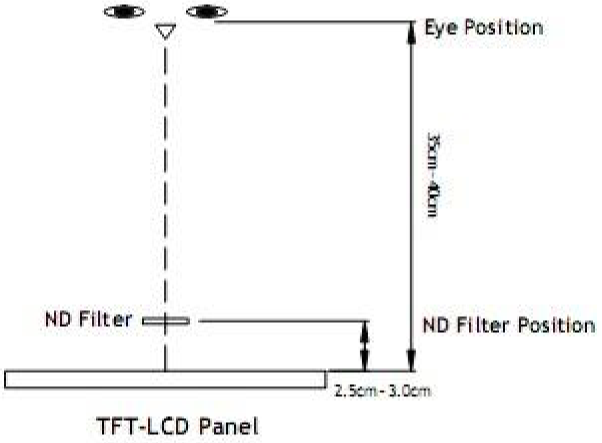
11.9.1. There should be no damage of the outside carton box, each packaging box should have one identical label.

11.9.2. Modules inside package box should have compliant mark.

11.9.3. All direct package materials shall offer ESD protection.

Note1:Bright dot is defined as the defective area of the dot is larger than 50% of one sub-pixelarea.





Bright dot:The bright dot size defect at black display pattern.It can be recognized by 2% transparency of filter when the distance between eyes and panel is 350mm±50mm.

Dark dot:Cyan,Magenta or Yellow dot size defect at white display pattern.It can be recognized by 5% transparency of filter when the distance between eyes and panel is 350mm±50mm.

Note2: Mura on display which appears darker / brighter against background brightness on parts of display area.

12. Reliability Specification

No	Item	Condition	Quantity	Criteria
1	High Temperature Operating	**70℃, 96Hrs**	2	GB/T2423.2 -2008
2	Low Temperature Operating	**-20℃, 96Hrs**	2	GB/T2423.1 -2008
3	High Humidity Storage	**50℃, 90%RH, 96Hrs**	2	GB/T2423.3 -2016
4	High Temperature Storage	**80℃, 96Hrs**	2	GB/T2423.2 -2008
5	Low Temperature Storage	**-30℃, 96Hrs**	2	GB/T2423.1 -2008
6	Thermal Cycling Test Storage	**-20℃, 60min~70℃, 60min, 20 cycles.**	2	GB/T2423.22 -2012
7	Packing vibration	Frequency range:10Hz~50Hz Acceleration of gravity:5G X,Y,Z 30 min for each direction.	-	GB/T5170.14 -2009
8	Electrical Static Discharge	Air:±4KV 150pF/330Ω 5 times	2	GB/T17626.2 -2018
		Contact:±2KV 150pF/330Ω 5 times		
9	**Drop Test (Packaged)**	Height:80 cm,1 corner, 3 edges, 6 surfaces.	-	GB/T2423.8 -1995

Note1. No defection cosmetic and operational function allowable.

Note2. Total current Consumption should be below double of initial value

13. Precautions and Warranty

13.1. Safety

13.1.1. 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.

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

13.2. Handling

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

13.2.2. 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.

13.3. Storage

13.3.1. Do not store the LCD module beyond the specified temperature ranges.

13.3.2. Strong light exposure causes degradation of polarizer and color filter.

13.4. Metal Pin (Apply to Products with Metal Pins)

13.4.1. Pins of LCD and Backlight

13.4.1.1. Solder tip can touch and press on the tip of Pin LEAD during the soldering

13.4.1.2. Recommended Soldering Conditions

Solder Type: Sn96.3~94-Ag3.3~4.3-Cu0.4~1.1

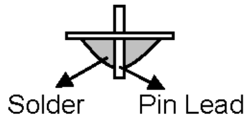
Maximum Solder Temperature: 370℃

Maximum Solder Time: 3s at the maximum temperature

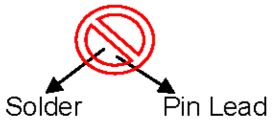
Recommended Soldering Temp: 350±20℃

Typical Soldering Time: ≤3s

13.4.1.3. Solder Wetting



Recommended



Not Recommended

13.4.2. Pins of EL

13.4.2.1. Solder tip can touch and press on the tip of EL leads during soldering.

13.4.2.2. No Solder Paste on the soldering pad on the motherboard is recommended.

13.4.2.3. Recommended Soldering Conditions

Solder type: Nippon Alimit Leadfree SR-34, size 0.5mm

Recommended Solder Temperature: 270～290℃

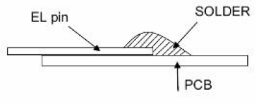
Typical Soldering Time: ≤2s

Minimum solder distance from EL lamp (body):2.0mm

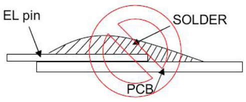
13.4.2.4. No horizontal press on the EL leads during soldering.

13.4.2.5. 180° bend EL leads three times is not allowed.

13.4.2.6. Solder Wetting

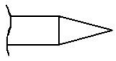


Recommended

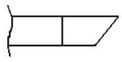


Not Recommended

13.4.2.7. The type of the solder iron:

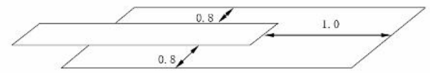


Recommended



Not Recommended

13.4.2.8. Solder Pad



13.5.Operation

13.5.1. Do not drive LCD with DC voltage

13.5.2. Response time will increase below lower temperature

13.5.3. Display may change color with different temperature

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

13.5.5. Do not connect or disconnect the LCM to or from the system when power is on.

13.5.6. Never use the LCM under abnormal condition of high temperature and high humidity.

13.5.7. Module has high frequency circuits. Sufficient suppression to the electromagnetic interface shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.

13.5.8. Do not display the fixed pattern for long time（we suggest the time not longer than one hour）because it will develop image sticking due to the TFT structure.

13.6.Static Electricity

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

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

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

13.7.Limited Warranty

13.7.1. Our warranty liability is limited to repair and/or replacement. We will not be responsible for any consequential loss.

13.7.2. If possible, we suggest customer to 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

13.7.3. After the product shipped, any product quality issues must be feedback within three months, otherwise, we will not be responsible for the subsequent or consequential events.

14. Packaging

TBD