



## ASI-T-10101B2MP6/AT

General Information Items	Specification	Unit	Note
	Main Panel		
Display area(AA)	135.36(H) *216.576(V) (10.1inch )	mm	-
Driver element	a-Si TFT active matrix	-	-
Display colors	16.7M	colors	-
Number of pixels	800(RGB) *1280	dots	-
Pixel arrangement	RGB vertical stripe	-	-
Pixel pitch	0.1692(H) *0.1692(V)	mm	-
Viewing angle	ALL	o'clock	-
Drive IC	ILI9881C	-	-
Display mode	Normally BLACK	-	-
Operating temperature	-20~+70	°C	-
Storage temperature	-30~+80	°C	-

### Mechanical Information

Item		Min.	Typ.	Max.	Unit	Note
Module size	Horizontal(H)	-	151.65	-	mm	±0.05
	Vertical(V)	-	242.75	-	mm	±0.05
	Depth(D)	-	5.1	-	mm	±0.2
Weight		-	TBD	-	g	-



## REVISION STATUS

Version	Revise Date	Page	Content	Modified by
V1.0	20200623	-	First Issued.	Y.



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1. General Description

**\* DESCRIPTION**

ASI-T-10101B2MP6/AT is a color active matrix TFT (Thin Film Transistor) LCD (liquid crystal display) that uses amorphous silicon TFT as a switching device. This model is composed of a Transmissive type TFT-LCD Panel, driver circuit, back-light unit. The resolution of a 10.1" TFT-LCD contains 800\*1280 pixels, and can display up to 16.7M colors.

**\* Features**

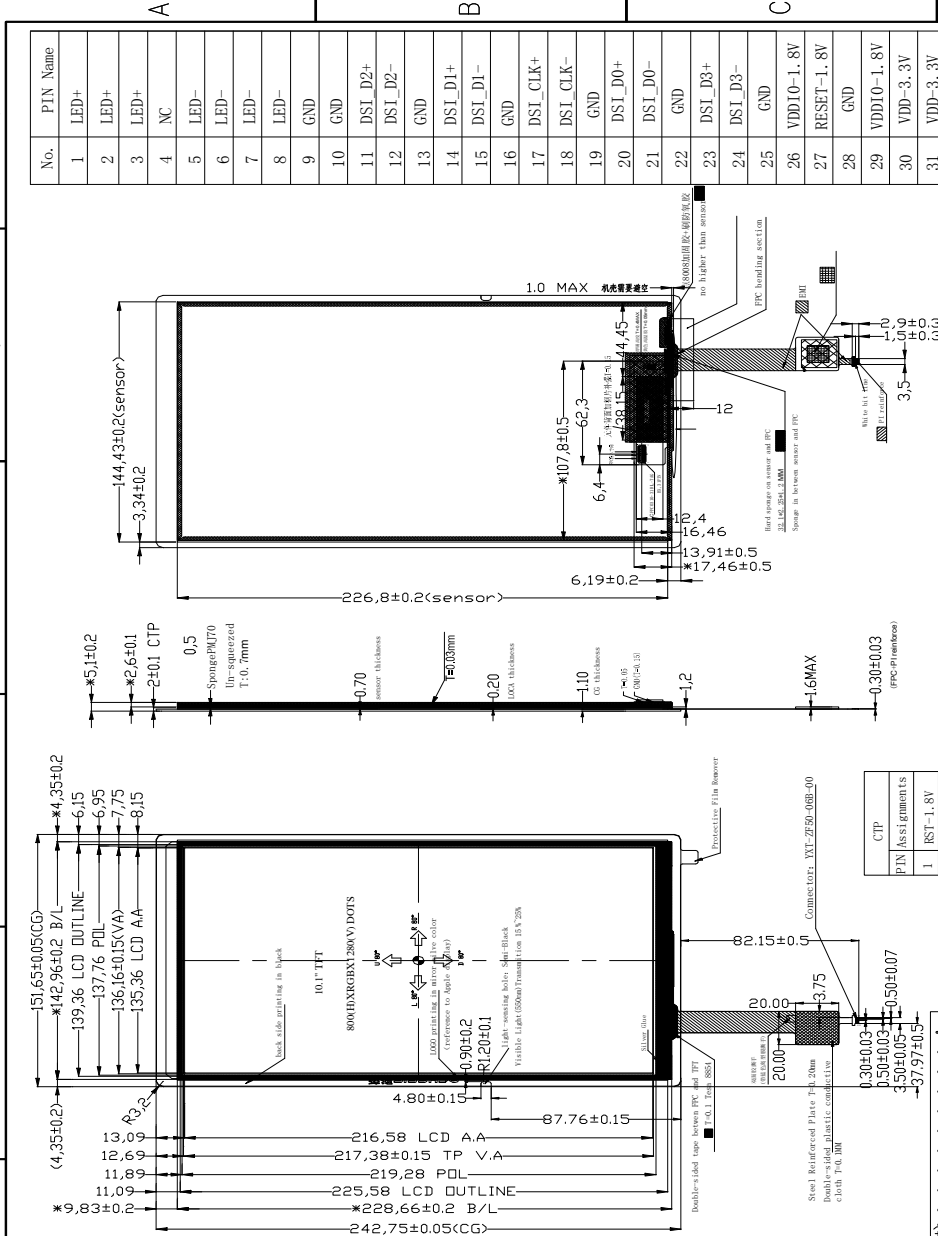
- Low Input Voltage: VDD: 3.3V VDDIO: 1.8V
- Display Colors of TFT LCD: 16.7M colors
- CPU Interface: MIPI 4Lanes

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Weight		-	TBD	-	g	-

## 2. Mechanical Specification

表樣號: A/1	樣本號: 三安	7	6	5	4	3	2	1																																																																																																		
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CTP Technical requirements :</b></p> <p><b>Note</b></p> <ol style="list-style-type: none"> <li>1. Structure: G-G, Saltmeter G3 Cover Plate;</li> <li>2. Driver IC: ILI2511 · Multi Touch Points;</li> <li>3. Operating Temp : -20° C ~70° C ;</li> <li>4. Storage Temp : -30° C ~80° C, 65° C 95% 120H ;</li> <li>5. Transmission: &gt;85%; Misddegree: ≤1%;</li> <li>6. CG Strength: Index&lt;CS&gt;≥4500Pa, DOL ≥9mm; AFP ≥1600Pa</li> <li>6. Drop ball Standard: 6kg Steel Ball, 60cm height, 3 times on center, No Crack Lin.</li> <li>7. Printing oil dye value ≥32; Attach Strength on TP: 4B;</li> <li>8. Surface Hardness: ≥7H; Angularity: ≤0.40mm;</li> <li>9. * * * Controlled dimension, ( ) reference dimension</li> <li>10. Unspecified tolerance: 0.25MM.</li> <li>11. All parts meet ROHS</li> <li>12.ESD: Touch: +/-8KV; Air: +/-15KV</li> <li>13. Cold &amp; Hot Impact: low temperature -40 degrees, high temperature +70 degrees, test time 30 minutes, 48 cycles, total 24H.</li> <li>14. Salt Mist Module Test: 48H</li> <li>15. Water drop test: the 3-layer finger sleeve is touchable</li> <li>16. Boiling test: 100° C for 2 Hours (TP-C sealed)(FPC not included.</li> <li>17. TP-FPC Bending Test: to bend 180 degrees,</li> <li>18. FPC strength: direct 2KG; pulling: 0.7KG</li> <li>19. Glue: 5290</li> <li>20. Surface treatment: AF</li> <li>21. CTP outline tolerance +/-0.05MM</li> <li>22. CTP-C: Make Steel Reinforce Plate as small as possible</li> </ol>	 <p><b>LED CIRCUIT DIAGRAM:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr><th colspan="2">CTP PIN Assignments</th></tr> </thead> <tbody> <tr><td>1</td><td>RST-1.8V</td></tr> <tr><td>2</td><td>INT-1.8V</td></tr> <tr><td>3</td><td>SCI-1.8V</td></tr> <tr><td>4</td><td>SDA-1.8V</td></tr> <tr><td>5</td><td>VDD-3.3V</td></tr> <tr><td>6</td><td>GND</td></tr> </tbody> </table>	CTP PIN Assignments		1	RST-1.8V	2	INT-1.8V	3	SCI-1.8V	4	SDA-1.8V	5	VDD-3.3V	6	GND	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>No.</th> <th>PIN Name</th> </tr> <tr><td>1</td><td>LED+</td></tr> <tr><td>2</td><td>LED+</td></tr> <tr><td>3</td><td>LED+</td></tr> <tr><td>4</td><td>NC</td></tr> <tr><td>5</td><td>LED-</td></tr> <tr><td>6</td><td>LED-</td></tr> <tr><td>7</td><td>LED-</td></tr> <tr><td>8</td><td>LED-</td></tr> <tr><td>9</td><td>GND</td></tr> <tr><td>10</td><td>GND</td></tr> <tr><td>11</td><td>DSI_D2+</td></tr> <tr><td>12</td><td>DSI_D2-</td></tr> <tr><td>13</td><td>GND</td></tr> <tr><td>14</td><td>DSI_DI+</td></tr> <tr><td>15</td><td>DSI_DI-</td></tr> <tr><td>16</td><td>GND</td></tr> <tr><td>17</td><td>DSI_CLK+</td></tr> <tr><td>18</td><td>DSI_CLK-</td></tr> <tr><td>19</td><td>GND</td></tr> <tr><td>20</td><td>DSI_D0+</td></tr> <tr><td>21</td><td>DSI_D0-</td></tr> <tr><td>22</td><td>GND</td></tr> <tr><td>23</td><td>DSI_D3+</td></tr> <tr><td>24</td><td>DSI_D3-</td></tr> <tr><td>25</td><td>GND</td></tr> <tr><td>26</td><td>VDDI0-1.8V</td></tr> <tr><td>27</td><td>RESET-1.8V</td></tr> <tr><td>28</td><td>GND</td></tr> <tr><td>29</td><td>VDDI0-1.8V</td></tr> <tr><td>30</td><td>VDD-3.3V</td></tr> <tr><td>31</td><td>VDD-3.3V</td></tr> </table>	No.	PIN Name	1	LED+	2	LED+	3	LED+	4	NC	5	LED-	6	LED-	7	LED-	8	LED-	9	GND	10	GND	11	DSI_D2+	12	DSI_D2-	13	GND	14	DSI_DI+	15	DSI_DI-	16	GND	17	DSI_CLK+	18	DSI_CLK-	19	GND	20	DSI_D0+	21	DSI_D0-	22	GND	23	DSI_D3+	24	DSI_D3-	25	GND	26	VDDI0-1.8V	27	RESET-1.8V	28	GND	29	VDDI0-1.8V	30	VDD-3.3V	31	VDD-3.3V	<p><b>3. TITLE:</b></p> <p>View Unit M M Page 1 / 1</p> <p>Proportion 1 : 1</p> <p>DESIGN AUDITING APPROVED</p> <p>Version SYMBOL</p> <p>The first edition Gauge History</p> <p>2020.04.13 Disc</p> <p>Material Code: <b>ASI-T-10101B2MP6/AT</b></p>
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### 3. PIN DESCRIPTION

LCM

Pin NO.	Symbol	Function
1	LEDA	Backlight+
2	LEDA	Backlight+
3	LEDA	Backlight+
4	NC	Not Connect
5	LEDK	Backlight-
6	LEDK	Backlight-
7	LEDK	Backlight-
8	LEDK	Backlight-
9	GND	Ground
10	GND	Ground
11	D2P	DSI_D2P are differential data signal line
12	D2N	DSI_D2N are differential data signal line
13	GND	Ground
14	D1P	DSI_D1P are differential data signal line
15	D1N	DSI_D1N are differential data signal line
16	GND	Ground
17	CLKP	DSI_CLKP are differential data signal line
18	CLKN	DSI_CLKN are differential data signal line
19	GND	Ground
20	D0P	DSI_D0P are differential data signal line
21	D0N	DSI_D0N are differential data signal line
22	GND	Ground
23	D3P	DSI_D1P are differential data signal line
24	D3N	DSI_D1N are differential data signal line
25	GND	Ground
26	VDDIO-1.8V	Power supply 1.8V
27	RESET-1.8V	Hardware reset pin
28	GND	Ground
29	VDDIO-1.8V	Power supply 1.8V
30	VDD-3.3V	Power supply 3.3V
31	VDD-3.3V	Power supply 3.3V



## CTP

1	REST-1.8V	Hardware reset pin
2	INT-1.8V	Interrupt pin
3	SCL-1.8V	Serial clock input
4	SDA-1.8V	Serial data input pin
5	VDD-3.3V	Power supply 3.3V
6	GND	Ground

## 4. ELECTRICAL CHARACTERISTICS

### 4.1 ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Values		Unit	Remark
		Min	Max.		
Supply Voltage for Logic circuit	VDD	3.0	3.6	V	VDD=120mA
Supply Voltage for analog circuit	IOVDD	1.65	3.3	V	-

### 4.2 DC ELECTRICAL CHARACTERISTICS

#### 4.2.1 OPERATING CONDITIONS

Typical Operating Conditions (Ta=25°C)

Item	Symbol	Values			Unit	Remark
		Min	Typ	Max.		
Digital Supply Voltage	VDD	3	3.3	3.6	V	
Digital Supply Voltage	VDDIO	1.65	1.8	2.0	V	
Analog Supply Voltage	AVDD	-	-	-	V	
Common Voltage	VCOM	-1.2	-0.7	-0.2	V	
TFT Gate ON Voltage	VGH	15.5	16	16.5	V	
TFT Gate OFF Voltage	VGL	-12.5	-12	-11.5	V	

#### 4.2.2 BACKLIGHT UNIT (GND=0V)

Item	Symbol	Values			Unit	Remark
		Min	Typ	Max.		
Forward supply Voltage	V <sub>f</sub>	8.4	-	10.2	V	
Forward supply Current	I <sub>f</sub>	-	200	-	mA	
LCM Luminance	L <sub>v</sub>	200	230	-	cd/m <sup>2</sup>	I <sub>B</sub> =200mA
Uniformity	/	80			%	-



## 4.3 TIMING CHARACTERISTICS

### 18.4. AC Characteristics

#### 18.4.1. DSI Timing Characteristics

#### 18.4.2. High Speed Mode – Clock Channel Timing

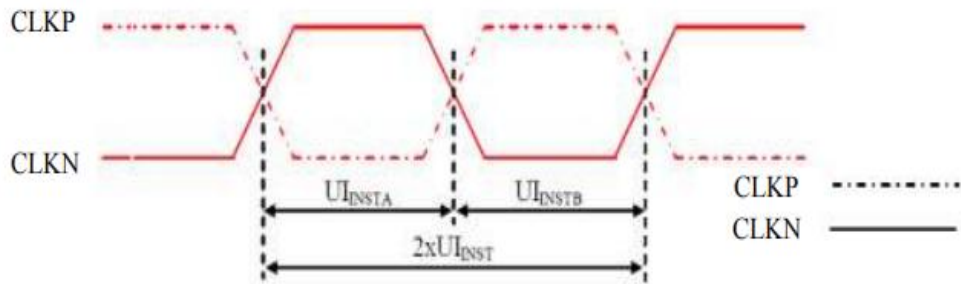


Figure 116: DSI Clock Channel Timing

Table 38: DSI Clock Channel Timing

Signal	Symbol	Parameter	Min	Max	Unit
CLKP/N	$2xUI_{INST}$	Double UI instantaneous	Note 2	25	ns
CLKP/N	$UI_{INSTA}, UI_{INSTB}$ (Note 1)	UI instantaneous Half	Note 2	12.5	ns

**Notes:**

1.  $UI = UI_{INSTA} = UI_{INSTB}$
2. Define the minimum value, see Table 39.

Table 39: Limited Clock Channel Speed

Data type	Two Lanes speed	Three Lanes speed	Four Lanes speed
Data Type = 00 1110 (0Eh), RGB 565, 16 UI per Pixel	566 Mbps	466 Mbps	366 Mbps
Data Type = 01 1110 (1Eh), RGB 666, 18 UI per Pixel	637 Mbps	525 Mbps	412 Mbps
Data Type = 10 1110 (2Eh), RGB 666 Loosely, 24 UI per Pixel	850 Mbps	700 Mbps	550 Mbps
Data Type = 11 1110 (3Eh), RGB 888, 24 UI per Pixel	850 Mbps	700 Mbps	550 Mbps

### 18.4.3. High Speed Mode – Data Clock Channel Timing

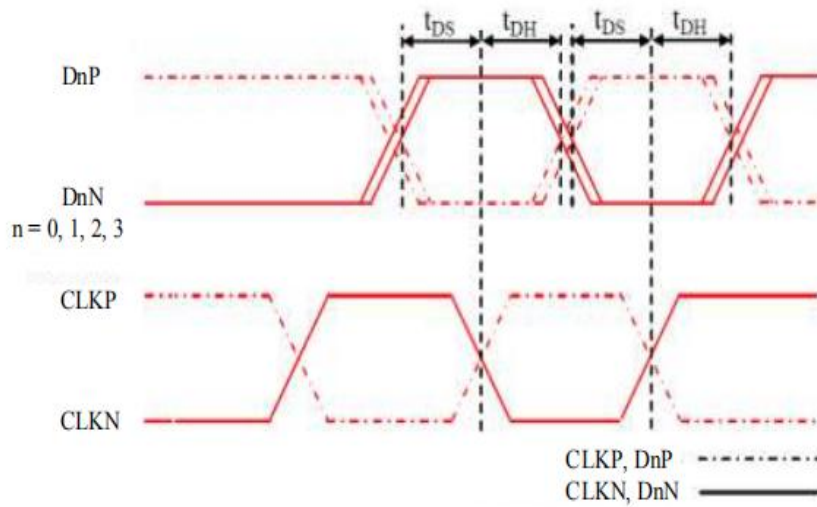


Figure 117: DSI Data to Clock Channel Timings

Table 40: DSI Data to Clock Channel Timings

Signal	Symbol	Parameter	Min	Max
DnP/N , n=0 and 1	$t_{DS}$	Data to Clock Setup time	0.15xUI	-
	$t_{DH}$	Clock to Data Hold Time	0.15xUI	-

#### 18.4.4. High Speed Mode – Rising and Falling Timings

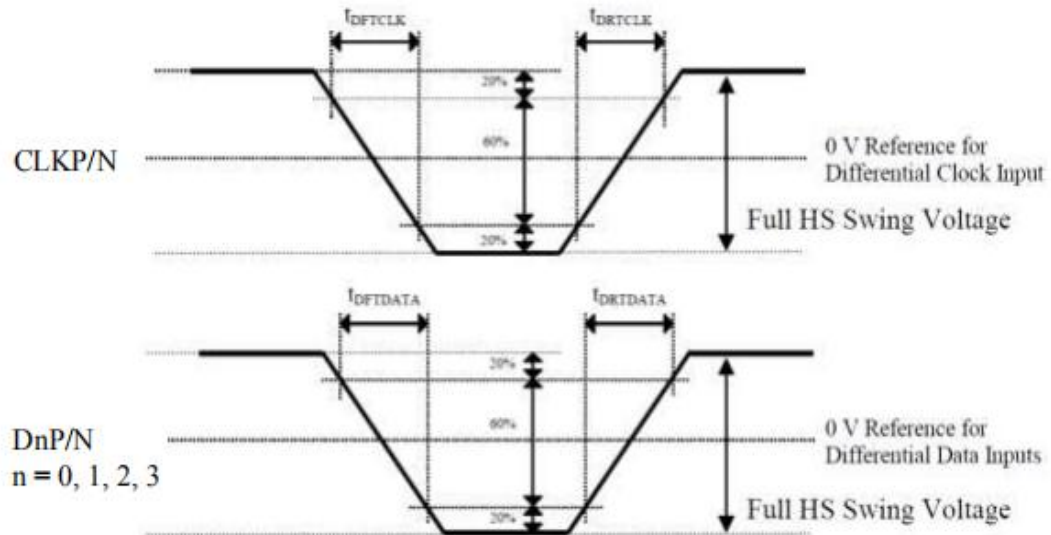


Figure 118: Rising and Falling Timings on Clock and Data Channels

Table 41: Rise and Fall Timings on Clock and Data Channels

Parameter	Symbol	Condition	Specification		
			Min	Typ	Max
Differential Rise Time for Clock	$t_{DR1CLK}$	CLKP/N	150 ps	-	0.3UI (Note)
Differential Rise Time for Data	$t_{DR1DATA}$	DnP/N n=0 and 1	150 ps	-	0.3UI (Note)
Differential Fall Time for Clock	$t_{DF1CLK}$	CLKP/N	150 ps	-	0.3UI (Note)
Differential Fall Time for Data	$t_{DF1DATA}$	DnP/N n=0 and 1	150 ps	-	0.3UI (Note)

**Note:** The display module has to meet timing requirements, which are defined for the transmitter (MCU) on MIPI D-Phy standard.

**18.4.10. Reset Timing**

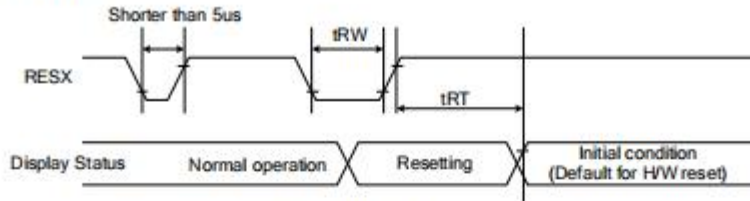


Figure 124: Reset Timing

Table 47: Reset Timing

Signal	Symbol	Parameter	Min	Max	Unit
RESX	tRW	Reset pulse duration	10		uS
	tRT	Reset cancel		5 (note 1,5) 120 (note 1,6,7)	mS

**Notes:**

1. The reset cancel also includes required time for loading ID bytes, VCOM setting and other settings from EEPROM to registers. This loading is done every time when there is HW reset cancel time (tRT) within 5 ms after a rising edge of RESX.
2. Spike due to an electrostatic discharge on RESX line does not cause irregular system reset according to the Table 48.

Table 48: Reset Descript

RESX Pulse	Action
Shorter than 5us	Reset Rejected
Longer than 10us	Reset
Between 5us and 10us	Reset starts

3. During the Resetting period, the display will be blanked (The display enters the blanking sequence, which maximum time is 120 ms, when Reset Starts in the Sleep Out mode. The display remains the blank state in the Sleep In mode.) and then return to Default condition for Hardware Reset.
4. Spike Rejection can also be applied during a valid reset pulse, as shown below:

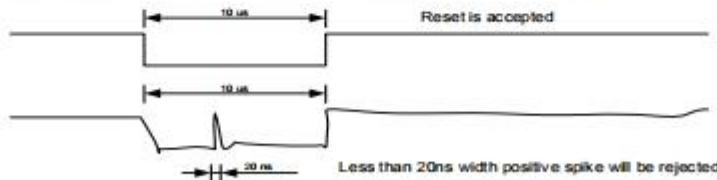


Figure 125: Positive Noise Pulse during Reset Low

5. When Reset applied during Sleep In Mode.
6. When Reset applied during Sleep Out Mode.
7. It is necessary to wait 5msec after releasing RESX before sending commands. Also Sleep Out command cannot be sent for 120msec.

## 5.OPTICAL CHARACTERISTICS

### (LCM MONOMER PARAMETERS)

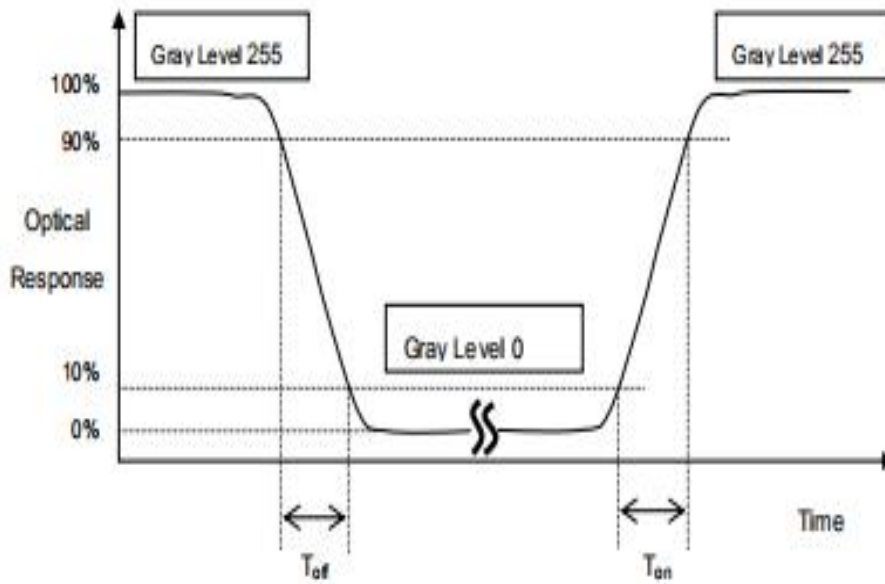
The following items are measured under stable conditions. The optical characteristics should be measured in a dark room or equivalent state with the methods shown in Note.0.

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle	Horizontal	$\Theta_R$	$CR \geq 10$	-	80	-	degree	Note.2
		$\Theta_L$		-	80	-		
	Vertical	$\Phi_H$		-	80	-		
		$\Phi_L$		-	80	-		
Response Time( $T_r+T_f$ )			$\Theta=0$	-	25	-	ms	Note.3
Brightness			Center	220	230		$cd/m^2$	
Contrast Ratio		CR	At optimized viewing angle	800	1000	-	-	Note.4
Color Gamut(NTSC)		S		-	-	-	%	
Color Chromaticity	White	$X_w$	Viewing normal angle $\Phi, \Theta=0$	-0.03	0.2944	+0.03	-	Note.5
		$Y_w$			0.3217			
	Red	$X_R$			0.6199			
		$Y_R$			0.3540			
	Green	$X_G$			0.3316			
		$Y_G$			0.5877			
	Blue	$X_B$			0.1448			
		$Y_B$			0.0591			

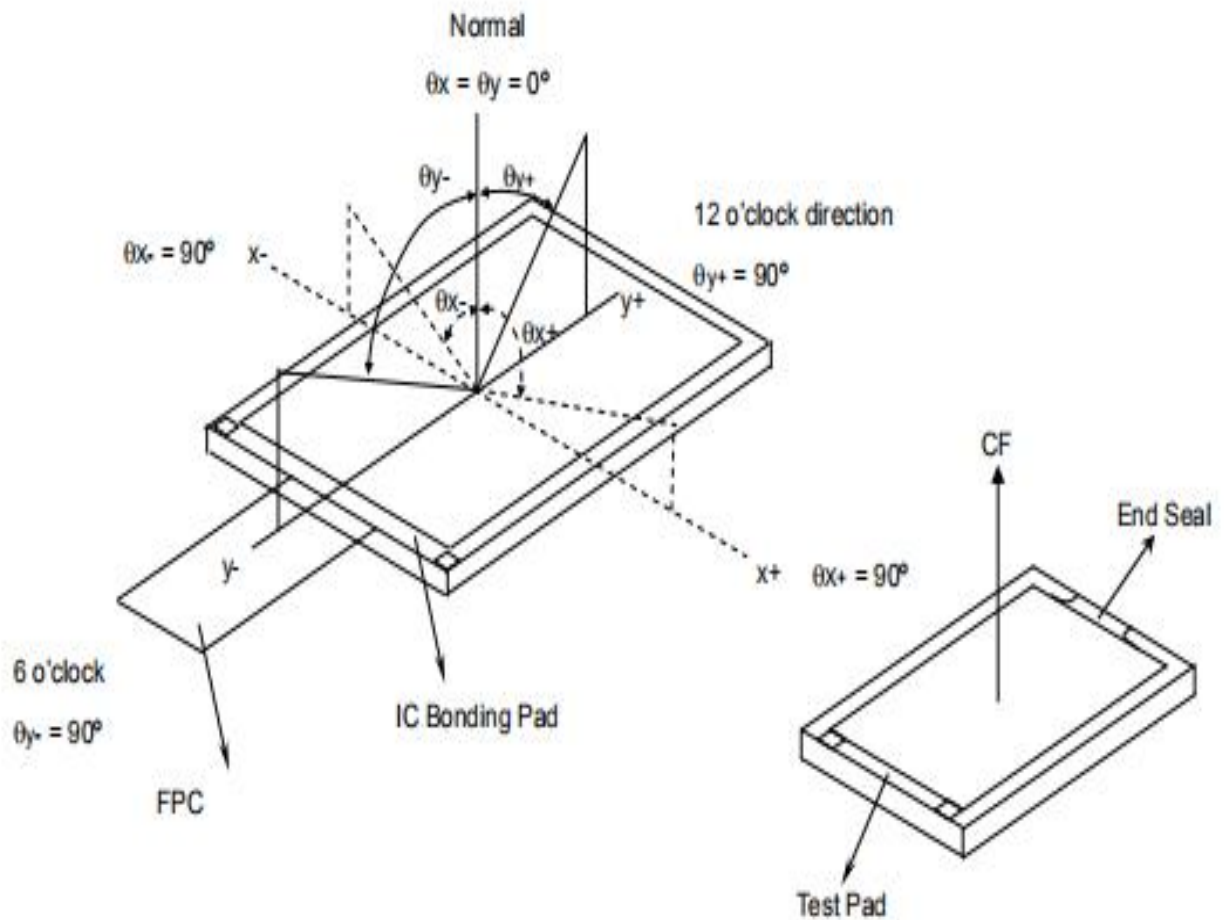
Note.1: Definition of Viewing Angle: Refer to figure as below:



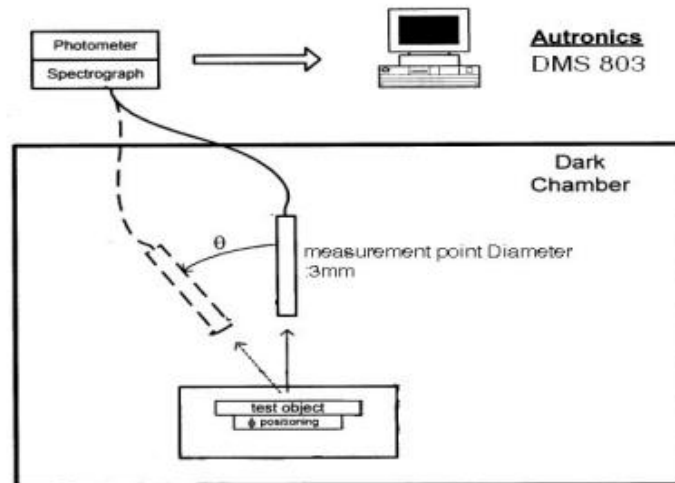
\*Note (2) Definition of Response Time ( $T_{on}$ ,  $T_{off}$ ):



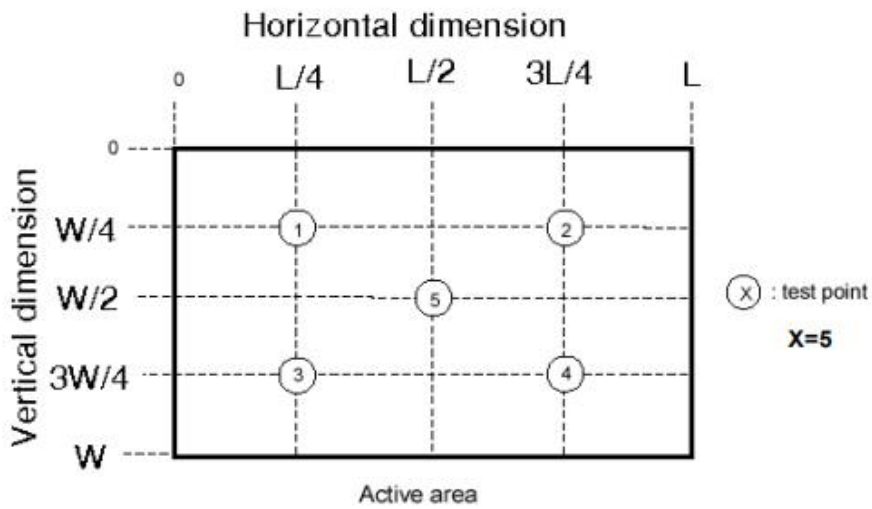
\*Note(3) Definition of Viewing Angle



The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.



\*Note (5)



## 6. QUALITY SPECIFICATIONS

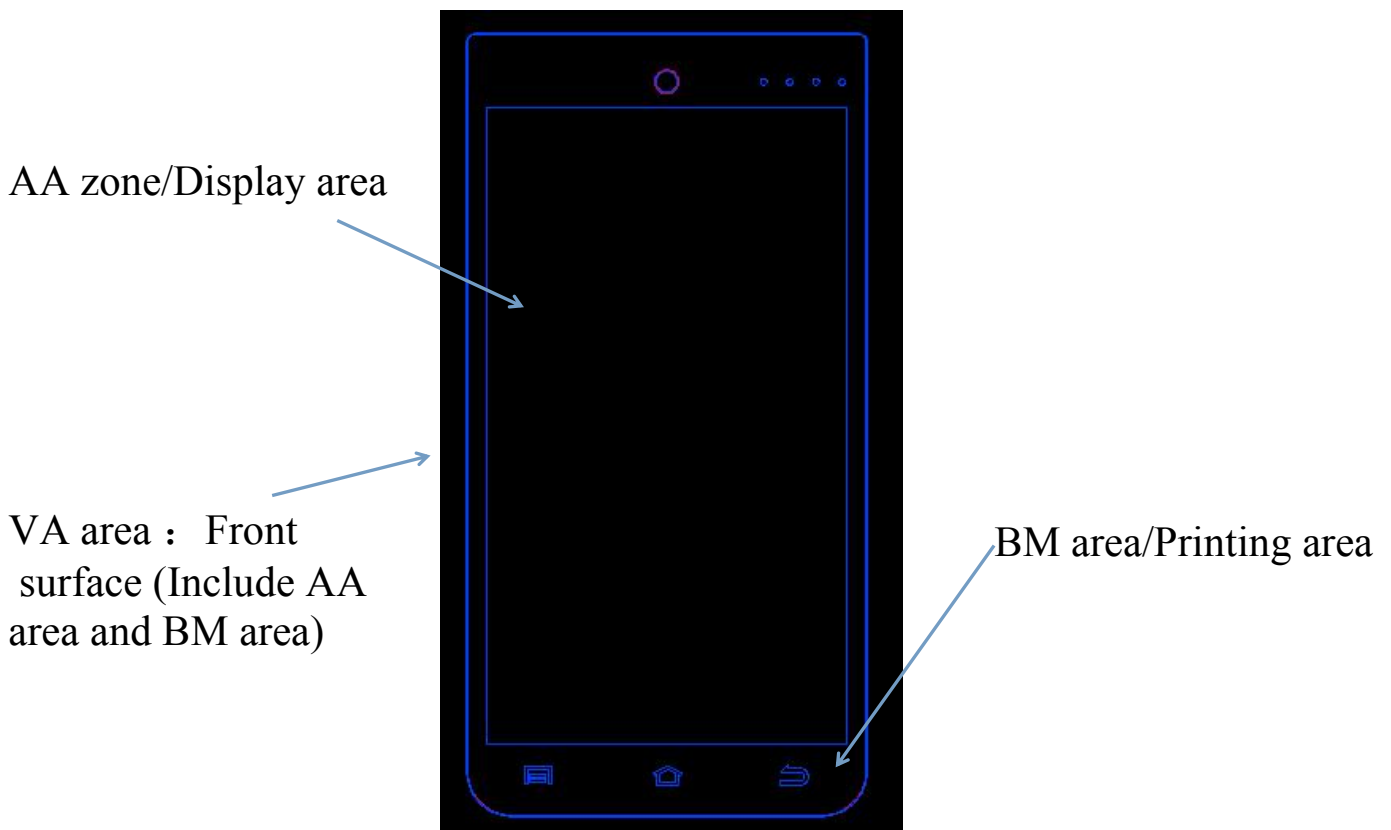
### 1. Inspection condition

1.1:Cosmetic inspection: viewing distance is about 30cm with bare eyes, and under an environment of 20~40W light intensity ( 600~1200LUX) , all directions for inspecting the sample should be within 45° against perpendicular line.

6.1.2:Function inspection: viewing distance is about 30cm with bare eyes, and under an environment of 300LUX light intensity, all directions for inspecting the sample should be within 45° against perpendicular line.

### 2. Definition of Inspection Item.

2.1 Definition of Inspection zone in I-touch module.



AA zone: Character/Display area

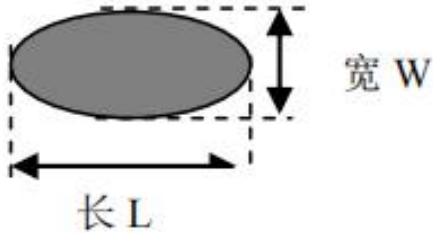
BM zone: Printing area

VA zone: Viewing area ( AA area + BM area = viewing area )

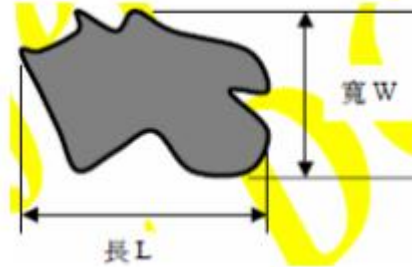


### 3. Defect definition

#### 3.1 Circular defect

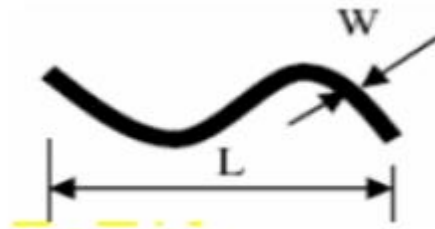


Diameter  $\Phi = 1/2(L+W)$

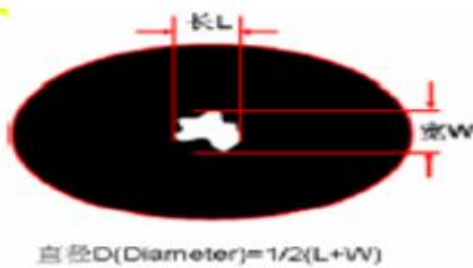


Diameter  $\Phi = 1/2(L+W)$

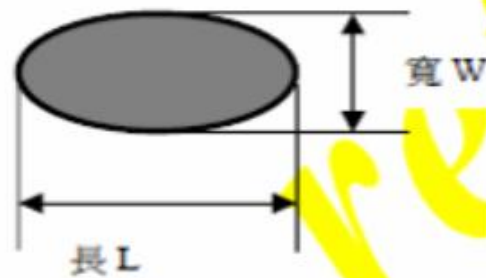
#### 3.2 Linear defect



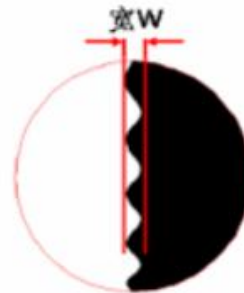
#### 3.3 Pin hole



直径D(Diameter) =  $1/2(L+W)$



#### 3.4 Zigzag



## 4. Inspection standards

### 4.1 Major defect

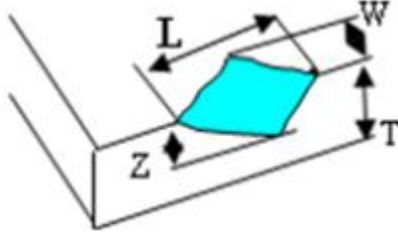
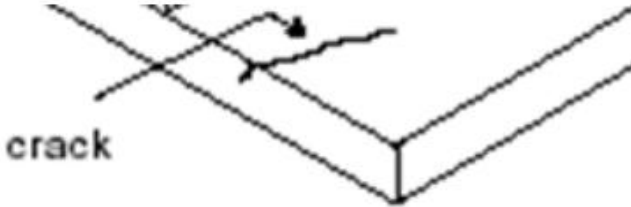
-Item -No	Items to be inspected	Inspection Standard	Classification of defects
4.1.1	All functional defects	1) No display 2) Display abnormally 3) Missing vertical, horizontal segment 4) Short circuit 5) Back-light no lighting, flickering and abnormal lighting. 6) Touch panel abnormal.	Major
4.1.2	Missing	Missing component	
4.1.3	Outline dimension	Overall outline dimension beyond the drawing is not allowed.	
4.1.4	LCD Mura	LCD Mura according to ND 5% keep out to determine, if keep out distance at 30cm be seen by eyes is NG, otherwise will be ok if invisible.	



### 4.2 Cosmetic defect


Item No	Items to be inspected	Inspection Standard	Classification of defects										
4.2.1	Dot defect	<table border="1"> <thead> <tr> <th>Zone Size(mm)</th> <th>VA area Acceptable Qty</th> </tr> </thead> <tbody> <tr> <td><math>\Phi \leq 0.1</math></td> <td>Ignore</td> </tr> <tr> <td><math>0.10 &lt; \Phi \leq 0.25</math></td> <td>3</td> </tr> <tr> <td><math>0.25 &lt; \Phi \leq 0.30</math></td> <td>1</td> </tr> <tr> <td><math>0.30 &lt; \Phi</math></td> <td>0</td> </tr> </tbody> </table>	Zone Size(mm)	VA area Acceptable Qty	$\Phi \leq 0.1$	Ignore	$0.10 < \Phi \leq 0.25$	3	$0.25 < \Phi \leq 0.30$	1	$0.30 < \Phi$	0	Minor
		Zone Size(mm)	VA area Acceptable Qty										
		$\Phi \leq 0.1$	Ignore										
		$0.10 < \Phi \leq 0.25$	3										
		$0.25 < \Phi \leq 0.30$	1										
$0.30 < \Phi$	0												

4.2.2	Dim Spots: Circle shaped and dim edged defects	<table border="1"> <thead> <tr> <th colspan="2" data-bbox="517 293 826 371">Zone</th> <th data-bbox="826 293 1169 371">VA area</th> </tr> <tr> <th colspan="2" data-bbox="517 371 826 479">Size(mm)</th> <th data-bbox="826 371 1169 479">Acceptable Qty</th> </tr> </thead> <tbody> <tr> <td colspan="2" data-bbox="517 479 826 533"><math>\Phi \leq 0.20</math></td> <td data-bbox="826 479 1169 533">Ignore</td> </tr> <tr> <td colspan="2" data-bbox="517 533 826 586"><math>0.20 &lt; \Phi \leq 0.40</math></td> <td data-bbox="826 533 1169 586">3</td> </tr> <tr> <td colspan="2" data-bbox="517 586 826 640"><math>0.40 &lt; \Phi \leq 0.60</math></td> <td data-bbox="826 586 1169 640">2</td> </tr> <tr> <td colspan="2" data-bbox="517 640 826 712"><math>0.60 &lt; \Phi</math></td> <td data-bbox="826 640 1169 712">0</td> </tr> </tbody> </table>	Zone		VA area	Size(mm)		Acceptable Qty	$\Phi \leq 0.20$		Ignore	$0.20 < \Phi \leq 0.40$		3	$0.40 < \Phi \leq 0.60$		2	$0.60 < \Phi$		0	Minor
Zone		VA area																			
Size(mm)		Acceptable Qty																			
$\Phi \leq 0.20$		Ignore																			
$0.20 < \Phi \leq 0.40$		3																			
$0.40 < \Phi \leq 0.60$		2																			
$0.60 < \Phi$		0																			
Item No	Items to be inspected	Inspection Standard	Classification of defects																		
4.2.3	Dent Spot Fish eye	<table border="1"> <thead> <tr> <th colspan="2" data-bbox="491 898 839 976">Zone</th> <th data-bbox="839 898 1169 976">VA area</th> </tr> <tr> <th colspan="2" data-bbox="491 976 839 1048">Size(mm)</th> <th data-bbox="839 976 1169 1048">Acceptable Qty</th> </tr> </thead> <tbody> <tr> <td colspan="2" data-bbox="491 1048 839 1102"><math>\Phi \leq 0.10</math></td> <td data-bbox="839 1048 1169 1102">Ignore</td> </tr> <tr> <td colspan="2" data-bbox="491 1102 839 1155"><math>0.10 &lt; \Phi \leq 0.20</math></td> <td data-bbox="839 1102 1169 1155">3</td> </tr> <tr> <td colspan="2" data-bbox="491 1155 839 1209"><math>0.20 &lt; \Phi \leq 0.30</math></td> <td data-bbox="839 1155 1169 1209">2</td> </tr> <tr> <td colspan="2" data-bbox="491 1209 839 1263"><math>0.30 &lt; \Phi</math></td> <td data-bbox="839 1209 1169 1263">0</td> </tr> </tbody> </table>	Zone		VA area	Size(mm)		Acceptable Qty	$\Phi \leq 0.10$		Ignore	$0.10 < \Phi \leq 0.20$		3	$0.20 < \Phi \leq 0.30$		2	$0.30 < \Phi$		0	Minor
Zone		VA area																			
Size(mm)		Acceptable Qty																			
$\Phi \leq 0.10$		Ignore																			
$0.10 < \Phi \leq 0.20$		3																			
$0.20 < \Phi \leq 0.30$		2																			
$0.30 < \Phi$		0																			
4.2.4	Line defect	<table border="1"> <thead> <tr> <th colspan="2" data-bbox="491 1312 967 1384">Zone</th> <th data-bbox="967 1312 1169 1384">VA area</th> </tr> <tr> <th data-bbox="491 1384 683 1424">L ( Length )</th> <th data-bbox="683 1384 967 1424">W ( Width )</th> <th data-bbox="967 1384 1169 1424">Acceptable Qty</th> </tr> </thead> <tbody> <tr> <td data-bbox="491 1424 683 1496">Ignore</td> <td data-bbox="683 1424 967 1496"><math>W \leq 0.03</math></td> <td data-bbox="967 1424 1169 1496">Ignore</td> </tr> <tr> <td data-bbox="491 1496 683 1550"><math>L \leq 5.0</math></td> <td data-bbox="683 1496 967 1550"><math>0.03 &lt; W \leq 0.05</math></td> <td data-bbox="967 1496 1169 1550">3</td> </tr> <tr> <td data-bbox="491 1550 683 1603"><math>L \leq 3.0</math></td> <td data-bbox="683 1550 967 1603"><math>0.05 &lt; W \leq 0.07</math></td> <td data-bbox="967 1550 1169 1603">1</td> </tr> <tr> <td data-bbox="491 1603 683 1657">/</td> <td data-bbox="683 1603 967 1657"><math>0.07 &lt; W</math></td> <td data-bbox="967 1603 1169 1657">Define as spot defect</td> </tr> </tbody> </table>	Zone		VA area	L ( Length )	W ( Width )	Acceptable Qty	Ignore	$W \leq 0.03$	Ignore	$L \leq 5.0$	$0.03 < W \leq 0.05$	3	$L \leq 3.0$	$0.05 < W \leq 0.07$	1	/	$0.07 < W$	Define as spot defect	Minor
Zone		VA area																			
L ( Length )	W ( Width )	Acceptable Qty																			
Ignore	$W \leq 0.03$	Ignore																			
$L \leq 5.0$	$0.03 < W \leq 0.05$	3																			
$L \leq 3.0$	$0.05 < W \leq 0.07$	1																			
/	$0.07 < W$	Define as spot defect																			

4.2.5	Scratch	<p>If the scratch can be seen after mobile phone cover assembling or in the operating condition, judged as the line defect of 4.2.4.</p> <p>If the scratch can be seen only in non-operating condition or some special angle, judged as the following table.</p>			Minor
		Size (mm)		VA area	
		L ( Length )	Acceptable Qty	Acceptable Qty	
		Ignore	$W \leq 0.03$	Ignore	
		$5.0 < L \leq 10.0$	$0.03 < W \leq 0.05$	2	
		$L \leq 5.0$	$0.05 < W \leq 0.08$	1	
		/	$W > 0.08$	0	

Item No	Items to be inspected	Inspection Standard	Classification of defect										
4.2.6	Bubble	<table border="1"> <thead> <tr> <th data-bbox="491 421 852 495">Zone</th> <th data-bbox="853 421 1214 495">VA area</th> </tr> <tr> <th data-bbox="491 497 852 551">Size(mm)</th> <th data-bbox="853 497 1214 551">Acceptable Qty</th> </tr> </thead> <tbody> <tr> <td data-bbox="491 553 852 607"><math>\Phi \leq 0.15</math></td> <td data-bbox="853 553 1214 607">Ignore</td> </tr> <tr> <td data-bbox="491 609 852 663"><math>0.15 &lt; \Phi \leq 0.25</math></td> <td data-bbox="853 609 1214 663">2</td> </tr> <tr> <td data-bbox="491 665 852 719"><math>0.25 &lt; \Phi</math></td> <td data-bbox="853 665 1214 719">0</td> </tr> </tbody> </table>	Zone	VA area	Size(mm)	Acceptable Qty	$\Phi \leq 0.15$	Ignore	$0.15 < \Phi \leq 0.25$	2	$0.25 < \Phi$	0	
Zone	VA area												
Size(mm)	Acceptable Qty												
$\Phi \leq 0.15$	Ignore												
$0.15 < \Phi \leq 0.25$	2												
$0.25 < \Phi$	0												
4.2.7	Glass defect	<p data-bbox="491 792 906 831">4.2.7a Chip on corner or surface</p>  <table border="1" data-bbox="491 1151 1209 1312"> <thead> <tr> <th data-bbox="491 1151 730 1227">L(length)</th> <th data-bbox="732 1151 970 1227">W(width)</th> <th data-bbox="971 1151 1209 1227">Z(thickness)</th> </tr> </thead> <tbody> <tr> <td data-bbox="491 1229 730 1305"><math>L \leq 0.30</math></td> <td data-bbox="732 1229 970 1305"><math>W \leq 0.20</math></td> <td data-bbox="971 1229 1209 1305">T/2</td> </tr> </tbody> </table> <p data-bbox="491 1391 1134 1469">Notes: T=Lens thickness, <math>\Phi \leq 0.10</math> ignore Acceptable Qty: Single edge <math>N \leq 2</math>, Total <math>N \leq 4</math></p> <p data-bbox="491 1570 1011 1637">4.2.7b Cracks Cracks tend to break are not allowed.</p> 	L(length)	W(width)	Z(thickness)	$L \leq 0.30$	$W \leq 0.20$	T/2	Minor				
L(length)	W(width)	Z(thickness)											
$L \leq 0.30$	$W \leq 0.20$	T/2											

Item No	Items to be inspected	Inspection Standard	Classification of defect
4.2.8	Parts alignment	1) Not allow IC and FPC/heat-seal lead width is more than 50% beyond lead pattern. 2) Not allow chip or solder component is off center more than 50% of the pad outline.	Minor
4.2.9 view area/ printing area of front surface and view area of rear surface	LOGO Pattern	 <p><b>Dot: according to Dot spec.</b>  <b>Thickness odds:</b></p> $\frac{ \text{Spec pattern width} - \text{Print pattern width}  \times 100\%}{\text{Spec pattern width}} \leq 30\%$ <p><b>Drawing slant:</b></p> <p>Print pattern length <math>\leq 10\text{mm}</math>, slant angle <math>\leq 3^\circ</math> ;  <math>10\text{mm} &lt; \text{Print pattern length} \leq 20\text{mm}</math>, slant angle <math>\leq 1.5^\circ</math></p>  <p><b>Pattern serration:</b> <math>H \leq 0.05 \text{ mm}</math></p> <p><b>Pattern leak print/ error/overprint:</b> not allowed</p> <p><b>Pattern break line:</b> width <math>\leq 0.10 \text{ mm}</math></p> <p><b>Logo pattern color windage / color thin:</b> Follow the limit samples.</p>	Minor

Item No	Items to be inspected	Inspection Standard	Classification of defects
4.2.10 view area/print i ng area of front surface and view area of rear surface	IR hole(A)/ Light sensor hole(B)/ LED hole(C)	 <ol style="list-style-type: none"> <li>A.B.C hole must be according the transmittancy</li> <li>Light leakage on A.B.C hole or follow the limited sample.</li> <li>A.B.C hole (LED) hole only judge by black background, no need to check in the lamb condition.</li> </ol>	Minor
	Surface dirty	<ol style="list-style-type: none"> <li>Dirty can not be cleaned follow the dot spec.</li> <li>Accept while the dirty can be cleaned.</li> <li>The quality guarantee period of protective film is 3months, during the period, the spot or contamination is not allowed.</li> </ol>	
	Printing area Light leakage	Follow the dot defect spec, MAX, Severity - see light leakage limit sample	
	Ink overflow	Visual inspection 30cm not allowed	
	Color discordant	Obvious color difference in the BM area is not allowed	
	Icon scratch of printing logo area	Icon printing logo area is not allow penetrability scratch	

## 7. RELIABILITY

Test Item	Test Condition
High Temperature Operation	70°C for 96 hours
Low Temperature Operation	-20°C for 96 hours
High Temperature Storage	80°C for 96 hours
Low Temperature Storage	-30°C for 96 hours
High Temperature Operation Humidity Operation	60°C, 90%RH for 72 hours
Thermal Shock	-10°C (30min) ~+25°C (5min)~ +60°C (30min) for 10 cycles



## 8. HANDLING PRECAUTION

### 8.1 SAFETY

- (1) Do not swallow any liquid crystal, even if there is no proof that liquid crystal is poisonous.
- (2) If the LCD panel breaks, be careful not to get liquid crystal to touch your skin.
- (3) If skin is exposed to liquid crystal, wash the area thoroughly with alcohol or soap.

### 8.2 STORAGE CONDITIONS

- (1) Store the panel or module in a dark place where the temperature is  $23\pm 5^{\circ}\text{C}$  and the humidity is below  $50\pm 20\% \text{RH}$ .
- (2) Store in anti-static electricity container.
- (3) Store in clean environment, free from dust, active gas, and solvent.
- (4) Do not place the module near organics solvents or corrosive gases.
- (5) Do not crush, shake, or jolt the module.

### 8.3 HANDLING PRECAUTIONS

- (1) Avoid static electricity which can damage the CMOS LSI.
- (2) The polarizing plate of the display is very fragile. So, please handle it very carefully.
- (3) Do not give external shock.
- (4) Do not apply excessive force on the surface.
- (5) Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of plate.
- (6) Do not use ketonic solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.
- (7) Do not operate it above the absolute maximum rating.
- (8) Do not remove the panel or frame from the module.

### 8.4 WARRANTY

- 1) The period is within twelve months since the date of shipping out under normal using and storage conditions.
- 2) According to our TFT LCD quality standard, we will rework or exchange for functional defect goods sine within one year.

## 9. Package Drawing

TBD