PV07074H0550B

TFT (Thin-Film-Transistor) Color Liquid Crystal Display Module

< ◇ >   Preliminary Specification

< ◆ >   Finally Specification

CUSTOMER'S APPROVAL	
CUSTOMER :	
SIGNATURE:	**DATE:**

APPROVED BY	PM REVIEWED	PD REVIEWED	PREPARED BY

Revision History

Revision	Date	Originator	Detail	Remarks
Ver 1.0	20230606		Initial Release	

Table of Contents

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.
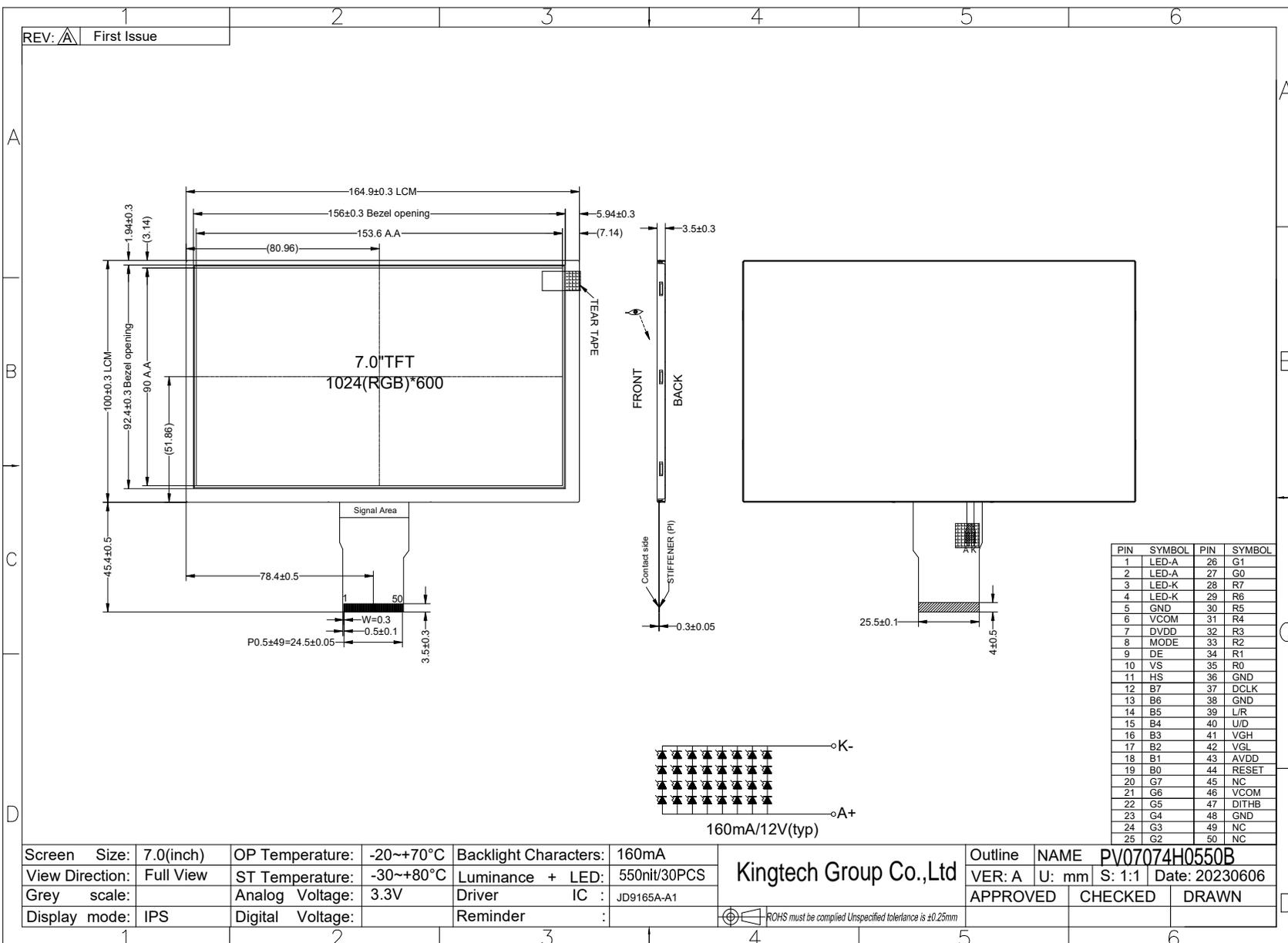
2. Module Parameter

Features	Details	Unit
Display Size(Diagonal)	7.0"	
LCD type	IPS TFT	
Display Mode	Transmissive /Normally black	
Resolution	1024 RGB x 600	Pixels
View Direction	FULL VIEW	Best Image
Gray Scale Inversion Direction	--	
Module Outline	164.9(H) x 100(V) x 3.5(T) (Note1)	mm
Active Area	153.6(H) x90(V)	mm
Pixel Pitch	150(H) x 150(V)	um
Pixel Arrangement	RGB Vertical stripe	
Polarizer Surface Treatment	Glare	
Driver IC	JD9165A-A1	
Display Colors	16.7M	
Interface	RGB Interface	
With or without the touch panel	WithOUT	
Operating Temperature	-20～70	ºC
Storage Temperature	-30～80	ºC
Weight	-	g

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

REV: A First Issue

164.9±0.3 LCM
156±0.3 Bezel opening
153.6 A.A
(80.96)
5.94±0.3
(7.14)
3.5±0.3

1.94±0.3
(3.14)

100±0.3 LCM
92.4±0.3 Bezel opening
90 A.A
(51.86)

7.0"TFT
1024(RGB)*600

TEAR TAPE

FRONT
BACK

Signal Area

45.4±0.5

78.4±0.5

1   50
W=0.3
0.5±0.1
P0.5*49=24.5±0.05
3.5±0.3

Contact side
STIFFENER (PI)
0.3±0.05

25.5±0.1
A K
4±0.5

K-
A+
160mA/12V(typ)

PIN	SYMBOL	PIN	SYMBOL
1	LED-A	26	G1
2	LED-A	27	G0
3	LED-K	28	R7
4	LED-K	29	R6
5	GND	30	R5
6	VCOM	31	R4
7	DVDD	32	R3
8	MODE	33	R2
9	DE	34	R1
10	VS	35	R0
11	HS	36	GND
12	B7	37	DCLK
13	B6	38	GND
14	B5	39	L/R
15	B4	40	U/D
16	B3	41	VGH
17	B2	42	VGL
18	B1	43	AVDD
19	B0	44	RESET
20	G7	45	NC
21	G6	46	VCOM
22	G5	47	DITHB
23	G4	48	GND
24	G3	49	NC
25	G2	50	NC

Screen Size:	7.0(inch)	OP Temperature:	-20~+70°C	Backlight Characters:	160mA	Kingtech Group Co.,Ltd	Outline	NAME	PV07074H0550B		
View Direction:	Full View	ST Temperature:	-30~+80°C	Luminance + LED:	550nit/30PCS		VER: A	U: mm	S: 1:1	Date: 20230606	
Grey scale:		Analog Voltage:	3.3V	Driver IC :	JD9165A-A1		APPROVED		CHECKED		DRAWN
Display mode:	IPS	Digital Voltage:		Reminder :		ROHS must be complied Unspecified tolerlance is ±0.25mm					

3. Absolute Maximum Ratings

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table.

V_{SS}=0V, Ta=25ºC

Item	Symbol	Min.	Max.	Unit
Digital Supply Voltage	VDD	-0.3	5.5	V
Anolog power supply voltage	AVDD	-0.5	12.5	
TFT Gate on volage	VGH	-0.3	42	V
TFT Gate off volage	VGL	-42	0.3	V
Storage temperature	T_{STG}	-30	80	ºC
Operating temperature	T_{OP}	-20	70	ºC

Note 1: If Ta below 50ºC, the maximal humidity is 90%RH, if Ta over 50ºC, 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.

Note 3: These range above is maximum value not the actual operating temperature . Actual Operating temperature is no more than 40℃ and temperature refers to the LCM surface temperature ;

Note 4: GWD is not responsible for product problems beyond the use conditions.

Note 5: Temperature and relative humidity range are shown in the figure below.Wet bulb temperature should be 39 ℃ max. and no condensation of water.

Relative Humudity(%rh)

(40,90)

(70,20)

Operating Range

(80,10)

Storage Range

Temperature(℃)
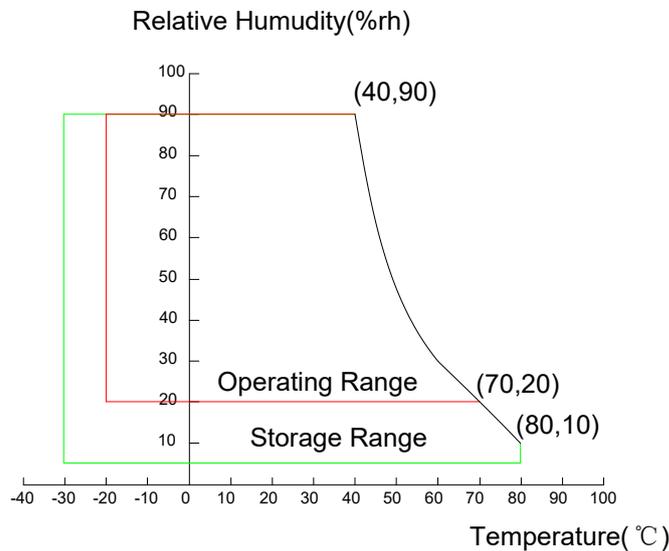
4. DC Characteristics

Item	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	VDD	1.71	1.8	2.0	V
TFT Gate on volage	VGH	19.5	20	20.5	V
TFT Gate off volage	VGL	-6.5	-7	-7.5	V
High level output voltage	VCOM	3.18	3.68	4.18	V

Note 1: All of the voltage listed above are with respective to GND = 0v

Note 2:Device is subject to be damaged permanently if stresses beyond those absolute maximum rating listed above

5. Backlight Characteristic

5.1. Backlight Characteristic

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	Ta=25 ºC, I_F=20mA/LED	11.5	**12**	12.5	V
Forward Current	I_F	Ta=25 ºC, V_F=3V/LED	-	**160**	-	mA
Power dissipation	P_D		-	**1920**	-	mW
Uniformity	Avg		-	80	-	%
LED working life(25℃)	-		-	30,000	-	Hrs
Drive method	Constant current					
LED Configuration	32 White LEDs (4 LEDs in string and 8 groups in parallel)					

Note1：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 ºC,60%RH±5%, I_F=20mA.

5.2. Backlighting circuit

K-

A+

160mA/12V(typ)
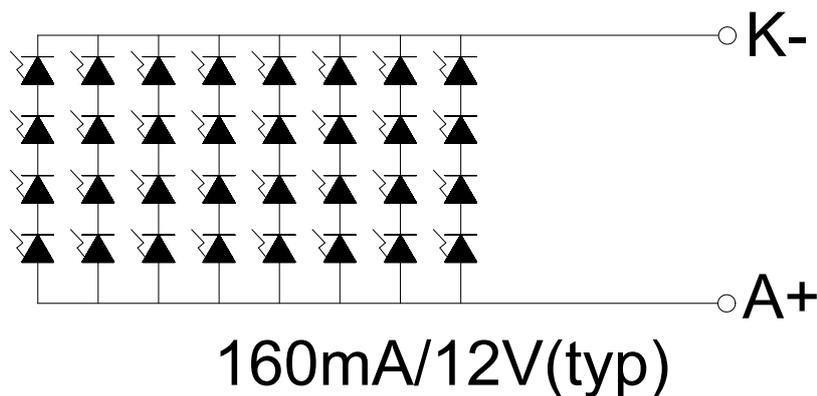
6. Optical Characteristics

6.1. Optical Characteristics

Ta=25ºC, DVDD=3.3V

	Item		Symbol	Condition	Specification			Unit
					Min.	Typ.	Max.	
Backlight On (Transmissive Mode)	Luminance on TFT(I_f=20mA/LED)		Lv		440	550	-	cd/m²
	Contrast ratio(See 6.3)		CR		700	900	-	
	Response time (See 6.2)		TR+TF		-	30	35	ms
	Chromaticity Transmissive (See 6.5)	Red	XR		0.571	0.621	0.671	
			YR		0.286	0.336	0.386	
		Green	XG		0.246	0.298	0.346	
			YG		0.506	0.558	0.606	
		Blue	XB		0.092	0.142	0.192	
			YB		0.120	0.170	0.220	
		White	XW		0.263	0.313	0.363	
			YW		0.279	0.329	0.379	
	Viewing Angle (See 6.4)	Horizontal	θX+	Center CR≥10	-	85	-	Deg.
			θX-		-	85	-	
		Vertical	φY+		-	85	-	
			φY-		-	85	-	
	NTSC ratio（Color gamut）				45	50	-	%

6.2. Definition of Response Time

6.2.1. Normally Black Type (Negative)
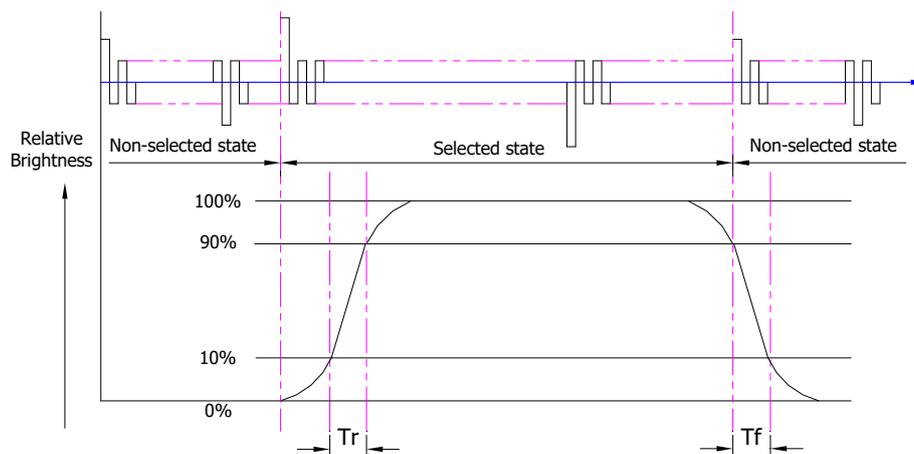
Tr is the time it takes to change form non-selected stage with relative luminance 10% to

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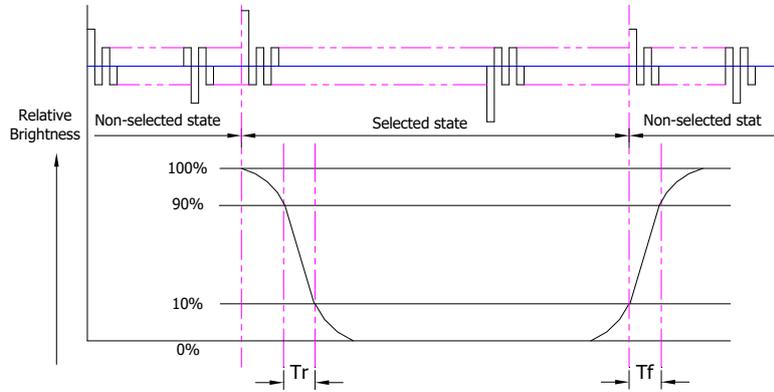
Tr is the time it takes to change form non-selected stage with relative luminance 90% to selected state with relative luminance 10%;

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
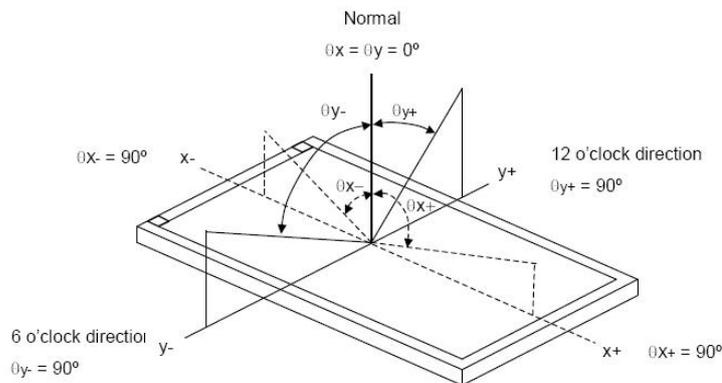
Measuring machine: LCD-5100 or EQUI

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)
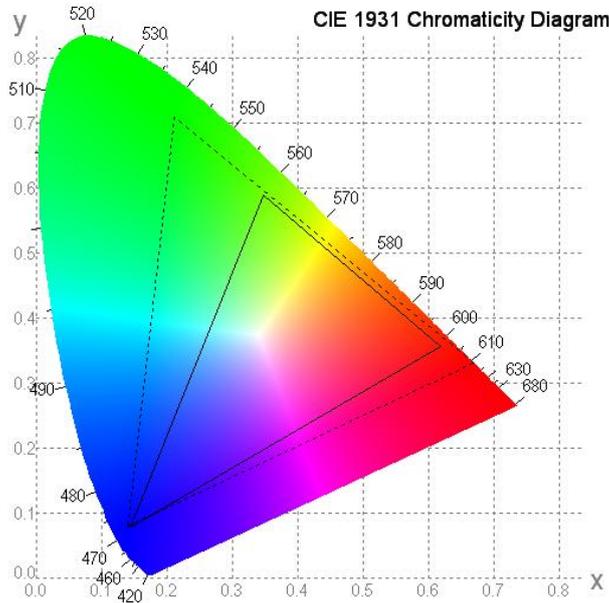
6.6. Definition of Surface Luminance, Uniformity and Transmittance

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
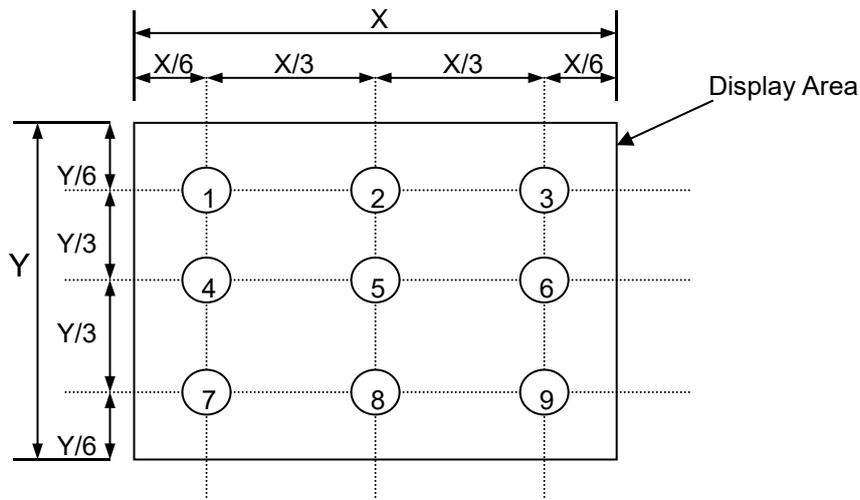
7. Block Diagram and Power Supply
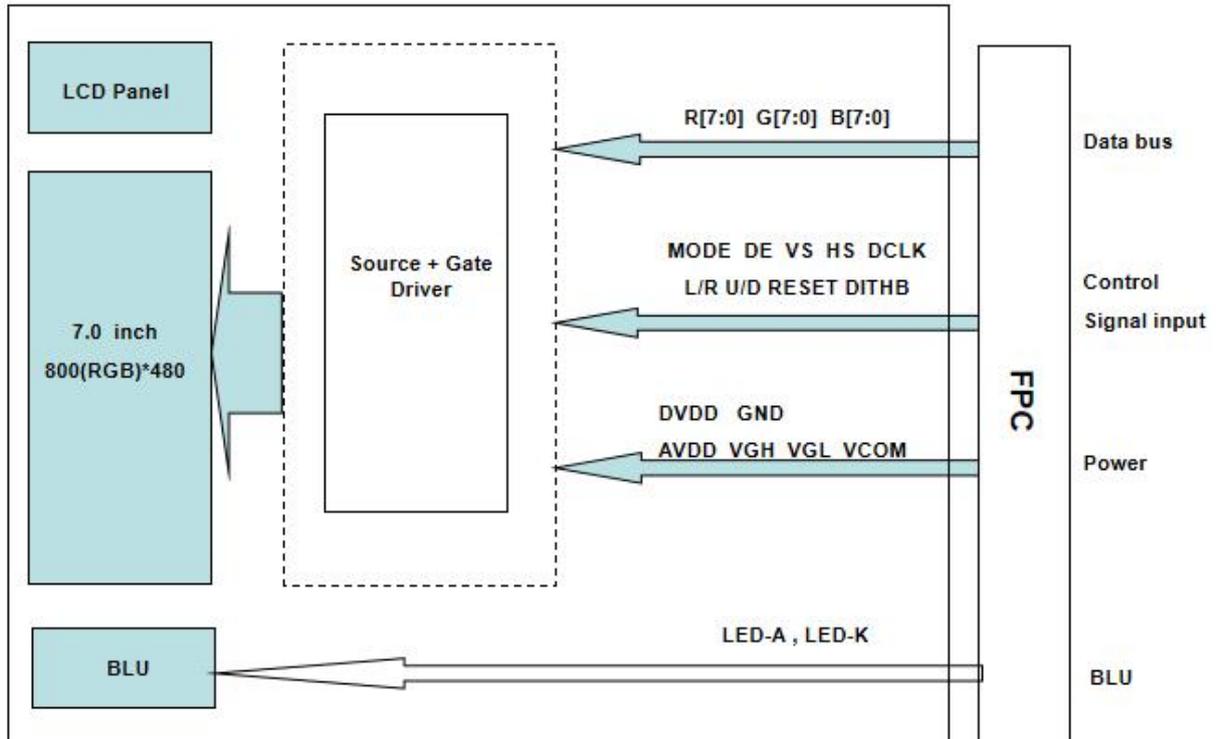
8.　Interface Pins Definition

No.	Symbol	Function
1	VLED+	LED Input Terminal I(Anode).
2	VLED+	LED Input Terminal I(Anode).
3	VLED-	Ground (Cathode).
4	VLED-	Ground (Cathode).
5	GND	Ground.
6	VCOM	Common voltage.
7	DVDD	Power for Digital Circuit.
8	MODE	DE/SYNC mode select.
9	DE	Data Input Enable.
10	VS	Vertical Sync Input.
11	HS	Horizontal Sync Input.
12	B7	Blue data(MSB)
13	B6	Blue data
14	B5	Blue data
15	B4	Blue data
16	B3	Blue data
17	B2	Blue data
18	B1	Blue data
19	B0	Blue data(LSB)
20	G7	Green data(MSB)
21	G6	Green data
22	G5	Green data
23	G4	Green data
24	G3	Green data
25	G2	Green data
26	G1	Green data
27	G0	Green data(LSB)
28	R7	Red data(MSB)
29	R6	Red data
30	R5	Red data
31	R4	Red data
32	R3	Red data
33	R2	Red data
34	R1	Red data
35	R0	Red data(LSB)
36	GND	Ground.
37	DCLK	Sample clock.

38	GND	Ground.
39	L/R	Left / right selection.
40	U/D	Up / Down selection.
41	VGH	Gate ON Voltage.
42	VGL	Gate OFF Voltage.
43	AVDD	Power for Analog Circuit.
44	RESET	Global reset pin.
45	NC	No connection.
46	VCOM	Common voltage.
47	DITHB	Dithering function.
48	GND	Ground.
49	NC	No connection.
50	NC	No connection.

9. AC Characteristics

9.1. Timing Diagram

MIPI Input Timing	Symbol	1024RGBx768			1024RGBx600			800RGBx600			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
MIPI 24-bit RGB@ 2 lane Operating Frequency	-	100	-	750	100	-	750	100	-	750	Mbps
MIPI 24-bit RGB@ 4 lane Operating Frequency	-	100	-	500	100	-	500	100	-	500	Mbps
Horizontal Total	tht	1114	1344	1400	1114	1344	1400	890	1000	1300	DCLK
Hsync Pulse width	ths	1	24	HBP-1	1	24	HBP-1	1	24	HBP-1	DCLK
Horizontal Back Porch	thb	60	160	160	60	160	160	60	88	250	DCLK
Horizontal Valid Data	thd		1024			1024			800		DCLK
Horizontal Front Porch	thfp	30	160	216	30	160	216	30	112	250	DCLK
Vertical Total	tvt	778	806	845	610	635	800	610	660	800	THT
Vsync Pulse Width	tvs	1	2	VBP-1	1	2	VBP-1	1	2	VBP-1	THT
Vertical Back Porch	tvb	8	23	33	8	23	100	8	39	100	THT
Vertical Valid Data	tvd		768			600			600		THT
Vertical Front Porch	tvfp	2	15	44	2	12	100	2	21	100	THT

MIPI Input Timing	Symbol	640RGBx480			480RGBx272			Unit
		Min	Typ	Max	Min	Typ	Max	
MIPI 24-bit RGB@ 2 lane Operating Frequency	-	100	-	750	100	-	750	Mbps
MIPI 24-bit RGB@ 4 lane Operating Frequency	-	100	-	500	100	-	500	Mbps
Horizontal Total	tht	890	1000	1114	830	890	950	DCLK
Hsync Pulse width	ths	1	24	HBP-1	1	24	HBP-1	DCLK
Horizontal Back Porch	thb	140	88	220	180	210	240	DCLK
Horizontal Valid Data	thd		640			480		DCLK
Horizontal Front Porch	thfp	110	272	254	170	200	230	DCLK
Vertical Total	tvt	610	660	800	498	610	660	THT
Vsync Pulse Width	tvs	1	2	VBP-1	1	2	VBP-1	THT
Vertical Back Porch	tvb	28	39	160	126	180	210	THT
Vertical Valid Data	tvd		480			272		THT
Vertical Front Porch	tvfp	102	141	160	100	158	178	THT

9.2. Input Signal Timing
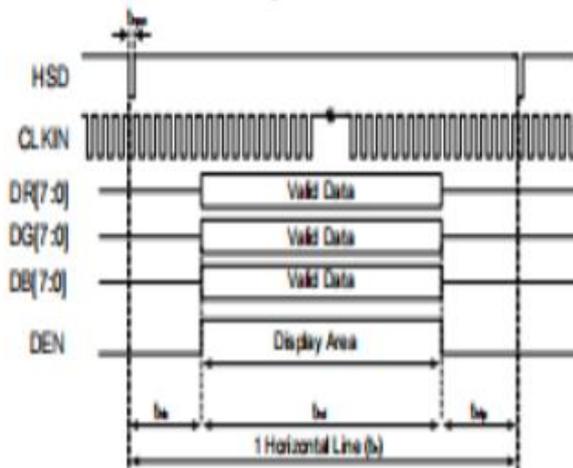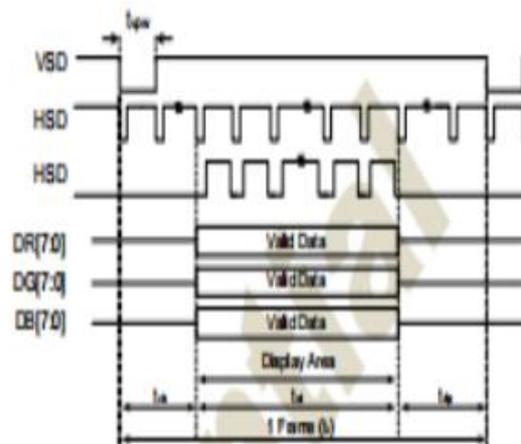
9.3. Power On/Off Sequence

Power On
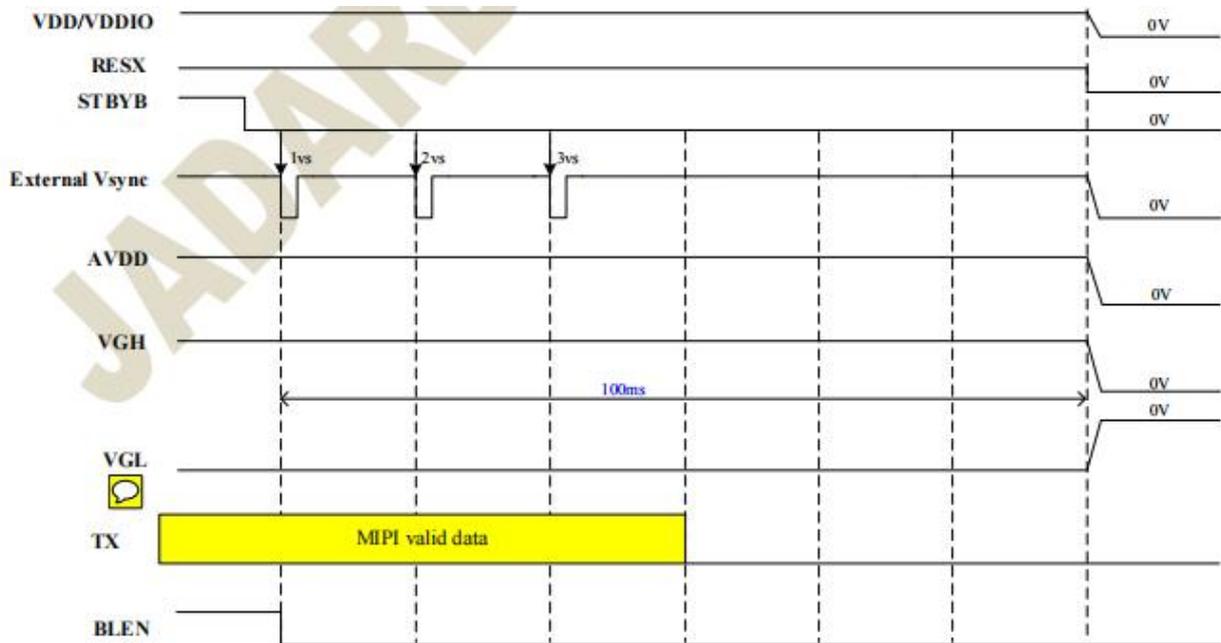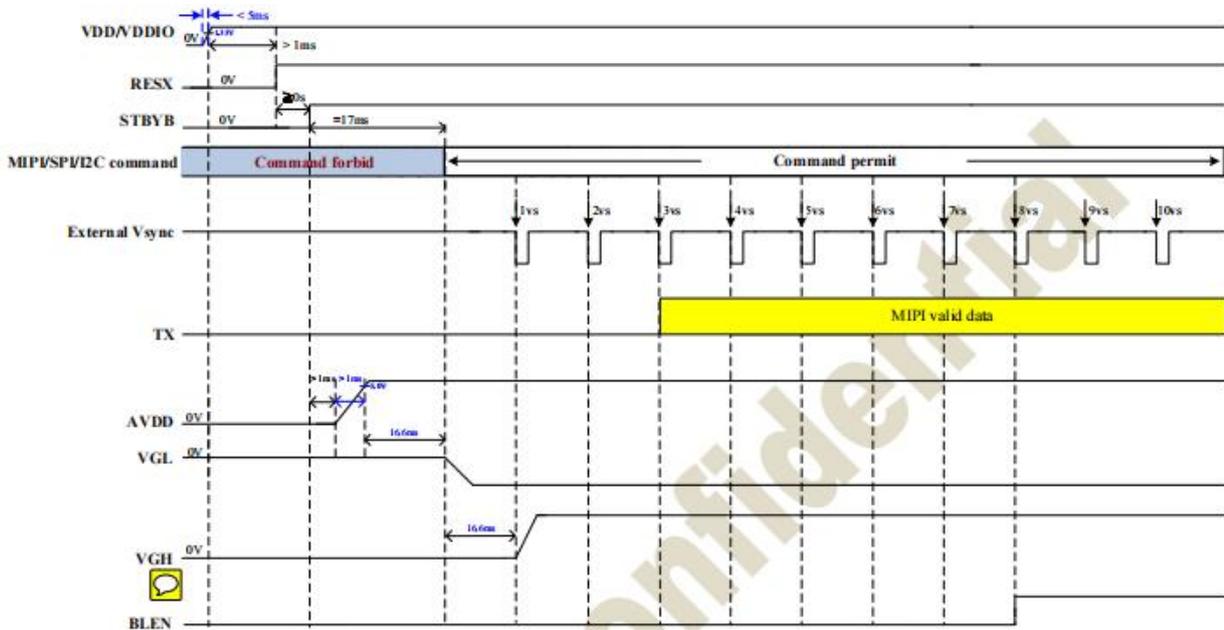
10. Quality Assurance

10.1. Purpose

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

10.2. Standard for Quality Test

10.2.1. Sampling Plan:

GB2828.1-2012

Single sampling, general inspection level II

10.2.2. Sampling Criteria:

Visual inspection: AQL 1.5%

Electrical functional: AQL 0.65%.

10.2.3. Reliability Test:

Detailed requirement refer to Reliability Test Specification.

10.3. Nonconforming Analysis & Disposition

10.3.1. Nonconforming analysis:

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

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

10.3.1.3. If cannot finish the analysis on time, customer will be notified with the progress status.

10.3.2. Disposition of nonconforming:

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

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

10.4. Agreement Items

Shall negotiate with customer if the following situation occurs:

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

10.4.2. Additional requirement to be added in product specification.

10.4.3. Any other special problem.

10.5. Standard of the Product Visual Inspection

10.5.1. Appearance inspection:

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

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

10.5.1.3. Definition of area: A Zone: Active Area, B Zone: Viewing Area,
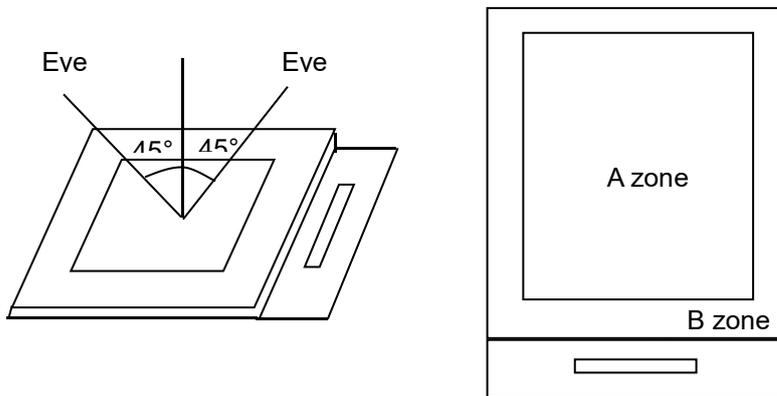
10.5.2. Basic principle:

10.5.2.1. 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.

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

10.6. Inspection Specification

These inspection standards shall be applied to LCD Module supplied by Kingtech Group Co.,Ltd This model is only used in CE product, if it is used in other product applications; it still adopts this copy of specification. If there are any other product applications such as handwriting recognition, Industrial use, Medical use, Aerospace usage and so on, the specifications should be negotiated separately.

01   Definition of dot defect induced from the panel inside

a) Bright dot：Dots appear bright and unchanged in size in which LCD panel is displaying under black pattern.

b) Dark dot：Dots appear dark and unchanged in size in which LCD panel is displaying under pure red, green, blue picture.

c) 2 dot adjacent = 1 pair = 2 dots

Picture:
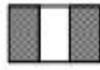
2 dot adjacent   2 dot adjacent   2 dot adjacent (vertical)   2 dot adjacent(slant)
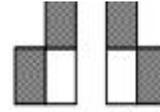
No.	Display Inspection		
	Items		**Criteria (Unit: mm)**
02	Bright dot	Random	N ≦ 2
		2 dots adjacent	N ≦ 0
		3 dots adjacent	N ≦ 0
	Dark dot	Random	N ≦ 3
		2 dots adjacent	N ≦ 0
		3 dots adjacent	N ≦ 0
	Total bright dot and dark dot		N ≦ 4
	Distance	Minimum Distance Between dark dots	5mm
		Minimum Distance Between dark and bright dots	
	Tiny bright dot		visible through 6% ND filter D≦0.25mm，Ignore 0.25mm＜D≦0.5mm，N≦3 Distance≧5mmm
Display failure （V-line/Cross line etc)			
Mura/Waving/Hot spot	Not visible through 6% ND filter in 50% gray or judge by limit sample if necessary		

*Note: Defect which is on the Black Matrix (outside of Active Area) are not considered as a defect.

No.	Appearance & Display inspection	
	Items	**Criteria (Unit: mm)**
03	Foreign Black/White/Bright Spot (Display & Appearance)	D≦0.25mm，Ignore, 0.25mm＜D≦0.5mm，N≦3 Distance≧5mm,It is shown in Fig. 2.
	Foreign Black/White/Bright Line (Display & Appearance)	W≦0.05 mm，Ignore 0.05＜W≦0.1mm L≦3.0 mm，N≦3 It is shown in Fig. 3.
	Polarizer Dent/Air Bubble	D≦0.25mm，Ignore 0.25mm＜D≦0.5mm，N≦3 Distance≧5mm
	Polarizer Scratches	W≦0.05mm，Ignore 0.05＜W≦0.1mm L≦3.0 mm，N≦3

Notes: If any specific defect is not included in the above defect table, this defect should be judged by INX/ODM/Brand customer discussion.

1. W：Width   3. D：Average Diameter

2. L：Length   4. N：Count

$D=(a+b)/2$

Fig. 2

W: width, L : length
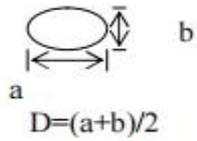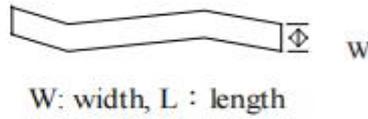
Fig. 3

No.	Item	Criteria (Unit: mm)
04	Glass Crack (Minor defect)	Crack is potential to enlarge, any type is not allowed.
05	Glass　Chipping Pad Area: (Minor defect)	
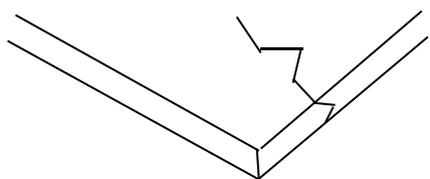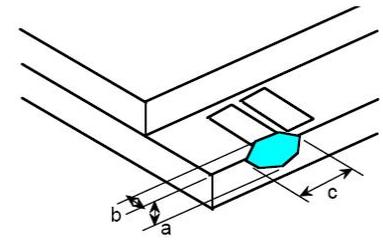
Length and Width	Acc. Qty
c > 3.0, b< 1.0	1
c< 3.0, b< 1.0	3
a<Glass Thickness	

| 06 | Glass　Chipping Rear of Pad Area: (Minor defect) | |

Length and Width	Acc. Qty
c > 3.0, b< 1.0	1
c< 3.0, b< 1.0	2
c< 3.0, b< 0.5	4
a<Glass Thickness	

| 07 | Glass　Chipping Except Pad Area: (Minor defect) | |

Length and Width	Acc. Qty
c > 3.0, b< 1.0	1
c< 3.0, b< 1.0	2
c< 3.0, b< 0.5	4
a<Glass Thickness	

08	Glass Corner Chipping: (Minor defect)	Length and Width	Acc. Qty
		c < 3.0, b< 3.0	Ignore
		a<Glass Thickness	
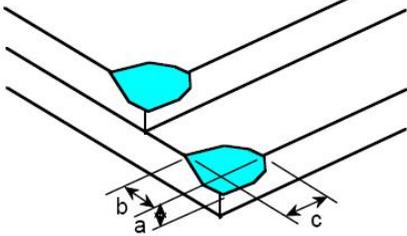
09	Glass Burr: (Minor defect)	Length	Acc. Qty
		F < 1.0	Ignore
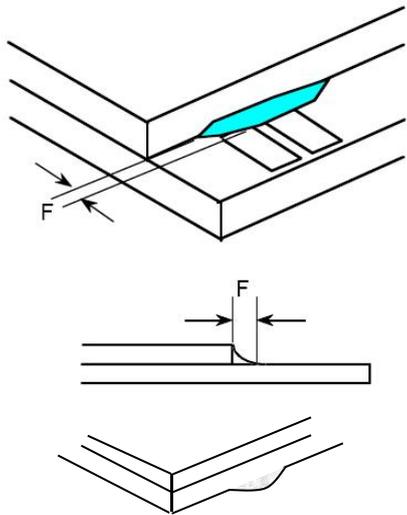
Glass burr don't affect assemble and module dimension.

10	FPC Defect: (Minor defect)
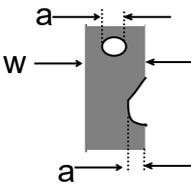
10.1 Dent, pinhole width a<w/3.

(w: circuitry width.)

10.2 Open circuit is unacceptable.

10.3 No oxidation, contamination and distortion.

11	Bubble on Polarizer (Minor defect)	Diameter	Acc. Qty
		$\varphi\leq0.30$	Ignore
		$0.30 <\varphi\leq0.50$	N≤2
		$0.50 < \varphi$	N=0

12	Dent on Polarizer (Minor defect)		

Diameter	Acc. Qty
φ≤0.25	Ignore
0.25 <φ≤0.50	N≤4
0.50 < φ	None

13	Bezel	13.1 No rust, distortion on the Bezel. 13.2 No visible fingerprints, stains or other contamination.
14	Touch Panel	D: Diameter W: width L: length 14.1 Spot: D<0.25 is acceptable 　　　　0.25≤D≤0.4 2dots are acceptable and the distance between defects should more than 10 mm. 　　　D>0.4 is unacceptable 14.2 Dent: D>0.40 is unacceptable 14.3 Scratch: W≤0.03, L≤10 is acceptable, 　　　　0.03<W≤0.10, L≤10 is acceptable Distance between 2 defects should more than 10 mm. 　　　　W>0.10 is unacceptable.
15	LCD Ripple	Touch the touch panel, cannot see the LCD ripple. Pen: R 0.8mm silicon rubber. Operation Force:120g
16	PCB	16.1 No distortion or contamination on PCB terminals. 16.2 All components on PCB must same as documented on the BOM/component layout. 16.3 Follow IPC-A-600F.
17	Soldering	Follow IPC-A-610C standard
18	Electrical Defect (Major defect)	The below defects must be rejected. 18.1 Missing vertical / horizontal segment, 18.2 Abnormal Display. 18.3 No function or no display. 18.4 Current exceeds product specifications. 18.5 LCD viewing angle defect. 18.6 No Backlight. 18.7 Dark Backlight. 18.8 Touch Panel no function.

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

10.7. Classification of Defects

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

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

10.8. Identification/marking criteria

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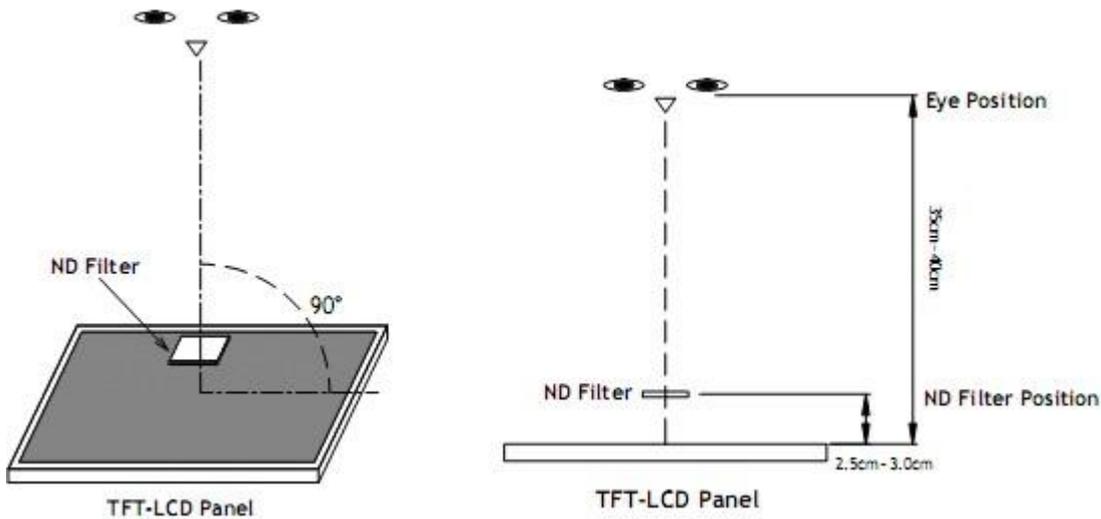
10.9. Packing

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

10.9.2.   Modules inside package box should have compliant mark.

10.9.3.   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-pixel area.

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.

11. Reliability Specification

No	Item	Condition	Quantity	Criteria
1	High Temperature Operating	70℃, 120Hrs	2	GB/T2423.2 -2008
2	Low Temperature Operating	-20℃, 120Hrs	2	GB/T2423.1 -2008
3	High Humidity	60℃, 90%RH,120Hrs	2	GB/T2423.3 -2006
4	High Temperature Storage	80℃,120Hrs	2	GB/T2423.2 -2008
5	Low Temperature Storage	-30℃, 120Hrs	2	GB/T2423.1 -2008
6	Thermal Cycling Test	-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.	2	GB/T5170.14 -2009
8	Electrical Static Discharge	Air:±8KV 150pF/330Ω 5 times	2	GB/T17626.2 -2006
		Contact:±4KV 150pF/330Ω 5 times		
9	Drop Test (Packaged)	Height:80 cm,1 corner, 3 edges, 6 surfaces.	2	GB/T2423.8 -1995

Note1.   After the reliability test, the product only guarantee function normally without any fatal defect (non-display, line defect, abnormal display). All the cosmetic specification is judged before the reliability test.

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

Note3.   One product only can borne one item of reliability test. Can not take same single one product to do different reliability test .

Note4.   All adjustment of display are performed after temperature of product back to room temperature and under static situation for 2 hrs.

Note5.   Under no condensation of dew

12. Precautions and Warranty

12.1.Safety

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

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.Storage

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

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

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

12.4.1.　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
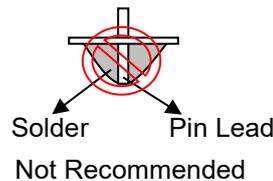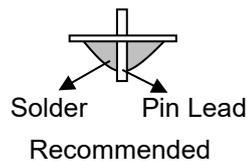
Solder Type: Sn96.3~94-Ag3.3~4.3-Cu0.4~1.1

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

Solder　　Pin Lead	Solder　　Pin Lead
Recommended	Not Recommended

12.4.2.　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
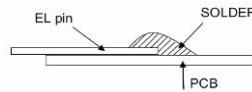
Minimum solder distance from EL lamp (body):2.0mm

13.4.2.4 No horizontal press on the EL leads during soldering.

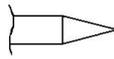13.4.2.5 180° bend EL leads three times is not allowed.
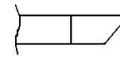
13.4.2.6 Solder Wetting

Recommended   Not Recommended

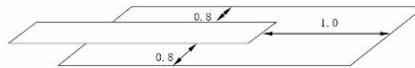13.4.2.7 The type of the solder iron:

Recommended   Not Recommended

13.4.2.8 Solder Pad

12.5. Operation

12.5.1.   Do not drive LCD with DC voltage

12.5.2.   Response time will increase below lower temperature

12.5.3.   Display may change color with different temperature

12.5.4.   Mechanical disturbance during operation, such as pressing on the display area, may cause the segments to appear "fractured".

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

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

12.5.7.   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.

12.5.8.   Do not display the fixed pattern for long time（we suggest the duration time not longer than half an hour）because it may develop image sticking due to the TFT structure.

12.6. Static Electricity

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

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

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

12.7. Limited Warranty

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

12.7.2.   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.

12.7.3.   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.

13. Packaging

TBD