Document Title	C097SNX1 R0 Product Information			Page No.	1/22
Document No.		Issue date	2013/09/13	Revision	00

Product Information

To：

Product Name: C097SNX1-0

Document Issue Date: 2013/09/13

Customer	InfoVision Optoelectronics
SIGNATURE _____ _____ _____ Please return 1 copy for your confirmation with your signature and comments.	**SIGNATURE** **QA** _____ **PREPARED BY** **FAE** _____

Note: 1. Please contact InfoVision Company before designing your product based on this product.
2. The information contained herein is presented merely to indicate the characteristics and performance of our products. No responsibility is assumed by IVO for any intellectual property claims or other problems that may result from application based on the module described herein.

FQ-7-30-0-009-03C

Revision	Date	Page	Old Description	New Description	Remark
00	2013/09/13	--	--	First issued.	

Contents

1 General Description

C097SNX1 is a Color Active Matrix Liquid Crystal Display composed of Single Chip IPS TFT LCD Cell. The format of screen is intended to support the XGA resolution 1024 horizontal by768 vertical pixel array.

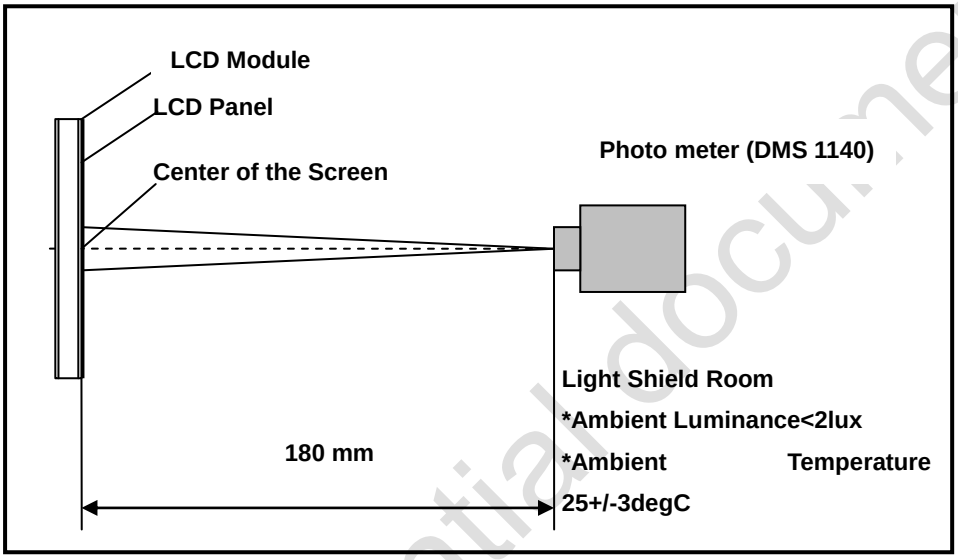
2 General Characteristics

Item			Specification	Unit	Remark
Screen Diagonal			9.676	Inch	
Active Area (W x H)			196.608 x 147.456	mm	Single Chip
Number of Dots (W x H)			1024 (RGB) x 768	dot	Single Chip
Pixel Size (W x H)			0.192 (H)×0.192 (V)	mm	Single Chip
Dimension (W x H x D)			205.81x 158.06x 1.26	mm	include polarizer
Display Type			Transmissive	-	-
Display Mode			Normally Black	-	-
Temperature Range	Storage		-20 ~ 60	℃	-
	Operating		0 ~ 50	℃	
Response Time			(20) (Typ.)	ms	(1) (4) (7)
Contrast Ratio			(900) (Typ.)	-	(1) (3) (7)
Viewing Angle			Up-down : 89/89 (Typ.), Left-right : 89/89 (Typ.)	deg.	(1) (2) (7) Viewing Angle With Customer polarizer
CF only Chromaticity (CIE 1931) Under C-Light	Red	Rx	(0.616) ±0.02	-	(1) (2) (7) Viewing normal angle ΘX = ΘY=0° Color Filter Only, Base on C Light
		Ry	(0.329) ±0.02		
	Green	Gx	(0.285) ±0.02		
		Gy	(0.545) ±0.02		
	Blue	Bx	(0.139) ±0.02		
		By	(0.156) ±0.02		
	White	Wx	(0.296)±0.02		
		Wy	(0.336)±0.02		
Panel Transmittance			（min：5.2）(typ：5.42)	%	(1) (5) (7)
Color Filter Structure			TBD	-	-
Weight			TBD	g	Single Chip (include polarizer)

Note (1) Measurement Setup:

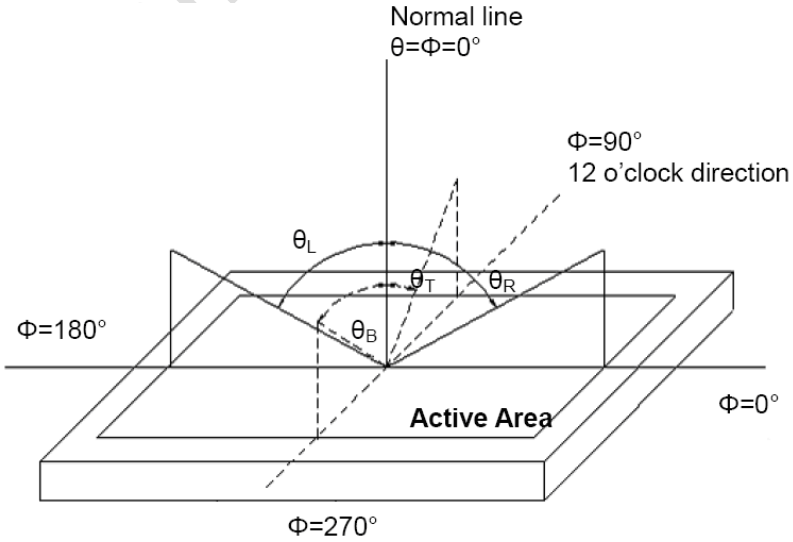
The LCD module should be stabilized at given temperature(25℃) for 15 minutes to Avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting backlight for 15 minutes in a windless room.

Figure 2 Measurement Setup



Note (2) Definition of Viewing Angle

Figure 3 Definition of Viewing Angle



Note (3) Definition Of Contrast Ratio (CR)

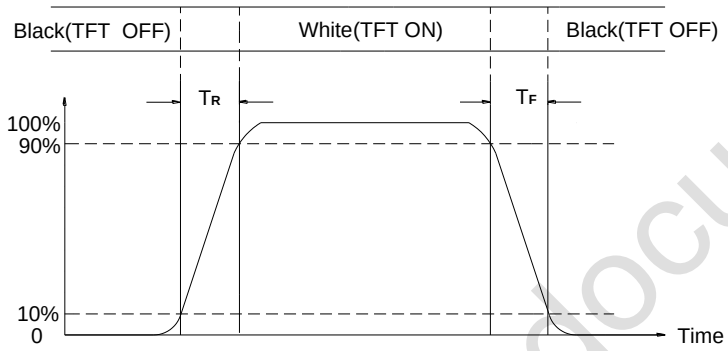
The contrast ratio can be calculated by the following expression

Contrast Ratio (CR) = L63 / L0

L63: Luminance of gray level 63, L0: Luminance of gray level 0

Note (4) Definition Of Response Time (TR, TF)

Figure 4 Definition of Response Time

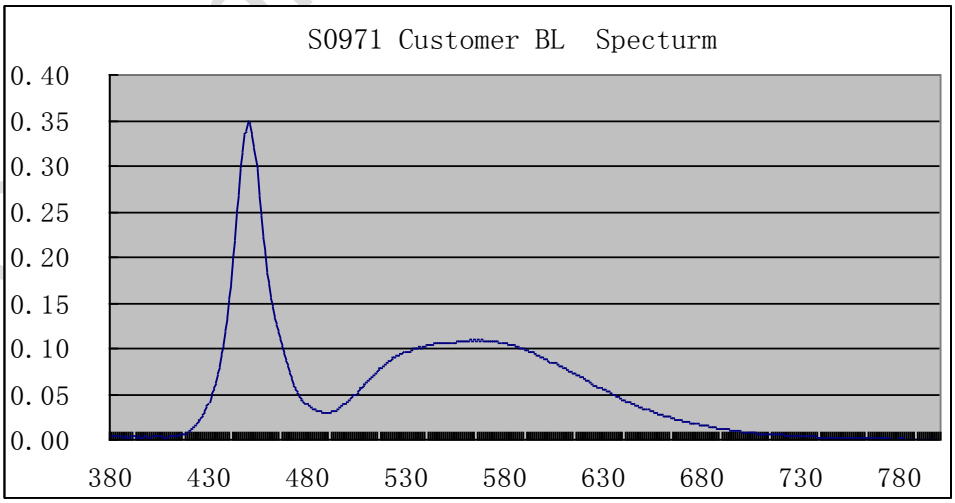


Note (5) Definition of Transmittance (Module is without signal input and Customer backlight).

$$\text{Transmittance} = \frac{\text{Luminance of LCD Module}}{\text{Luminance of Back light}} \text{ X100\%}$$

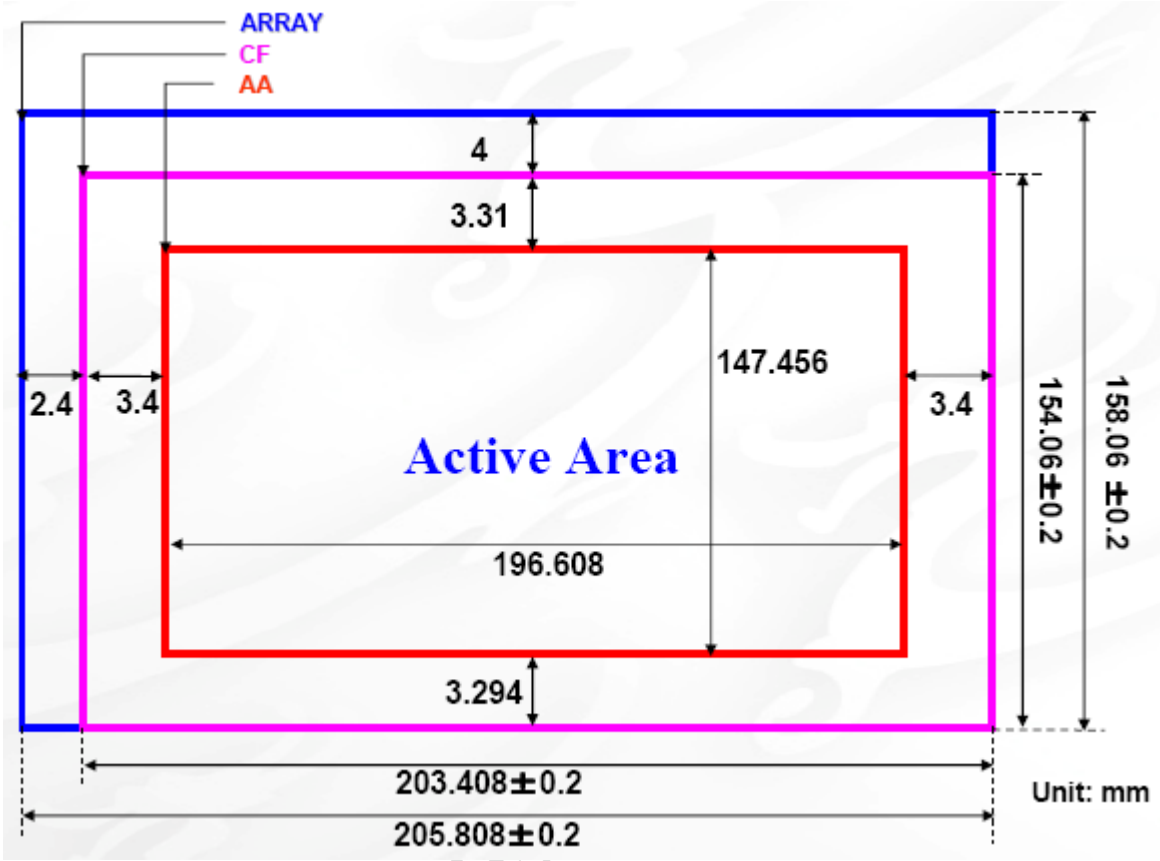
Note (6) Reference Back light Spectrum

Figure 5 Back Light Spectrum

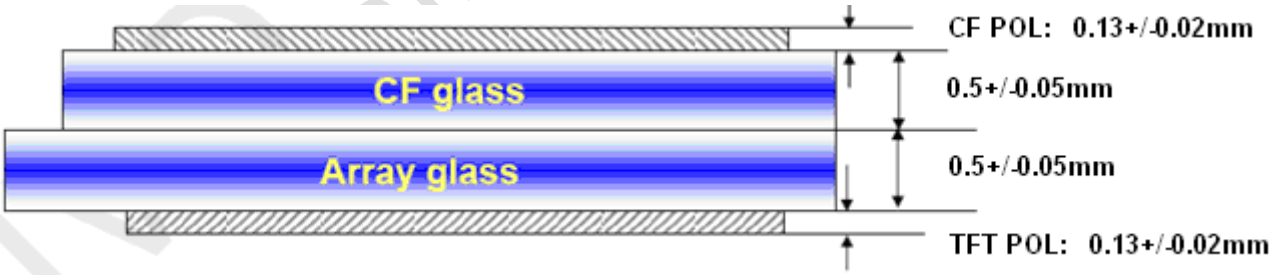


Note (7) All optical data based on IVO given POL& Backlight& testing machine in this document.

3 Outline Size of Cell

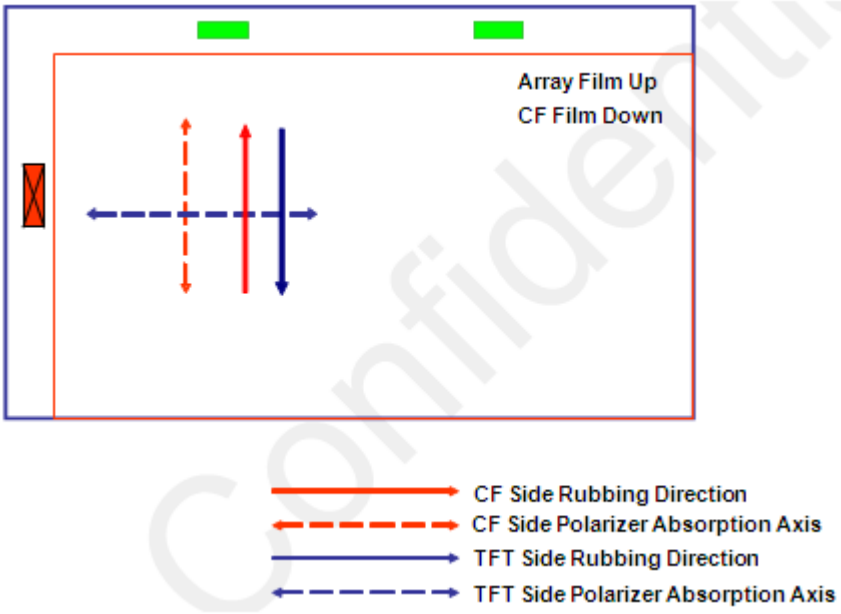


4 Cell Thickness (Single Chip)

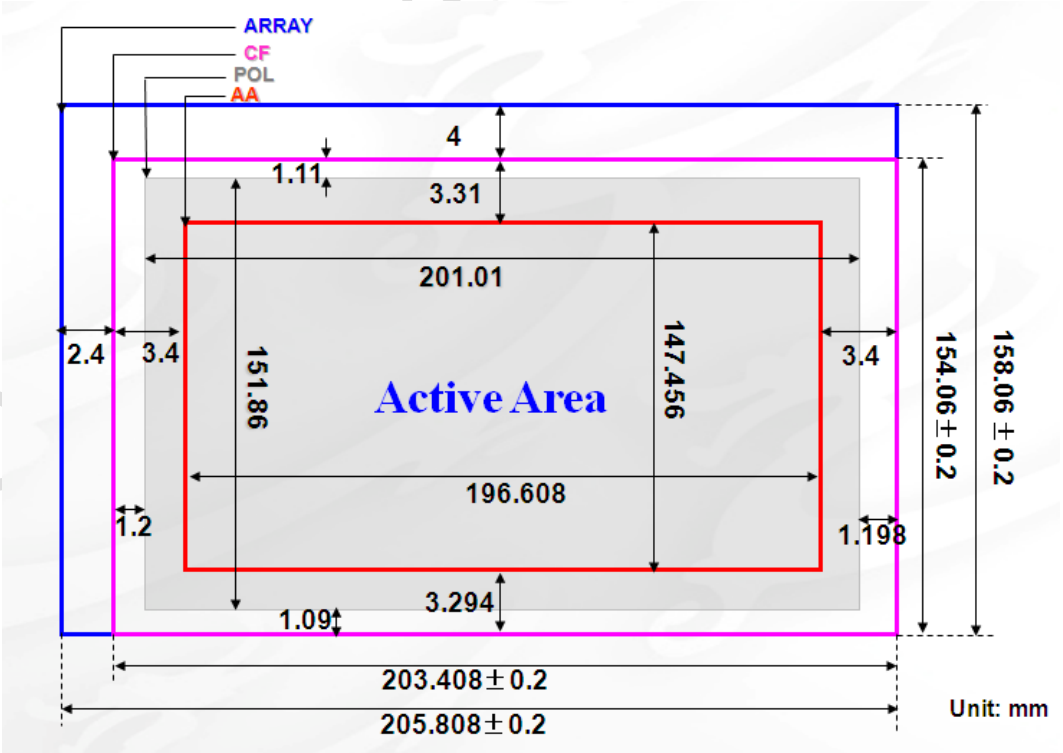


5 Polarizer Attachment Direction and Size

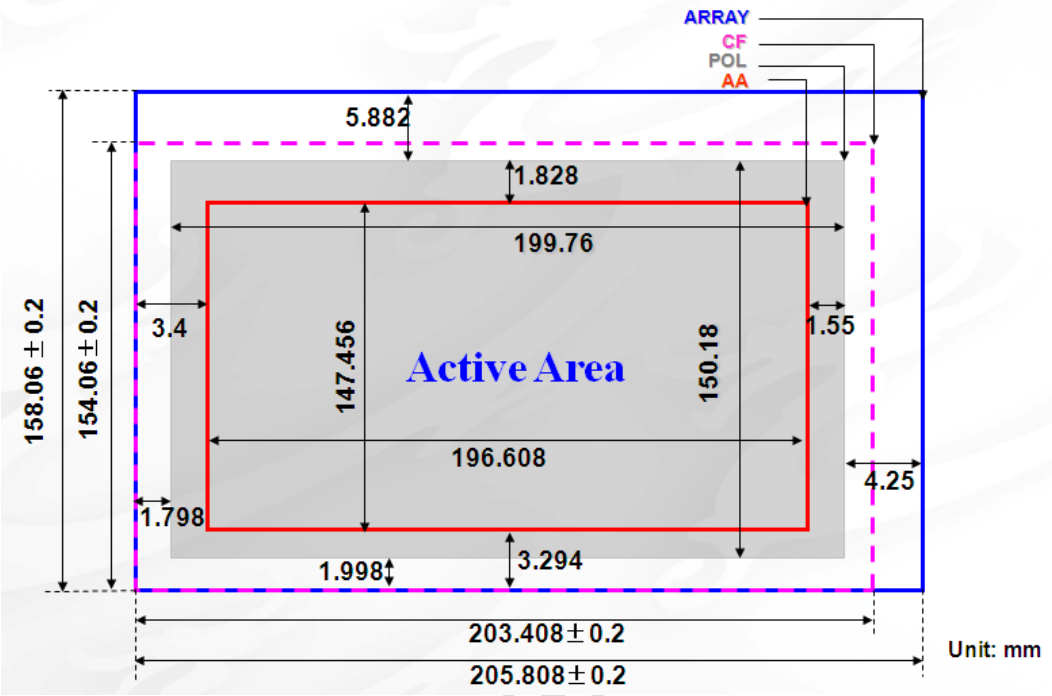
5.1 Polarizer Attachment Direction



5.2 Polarizer size on CF side:

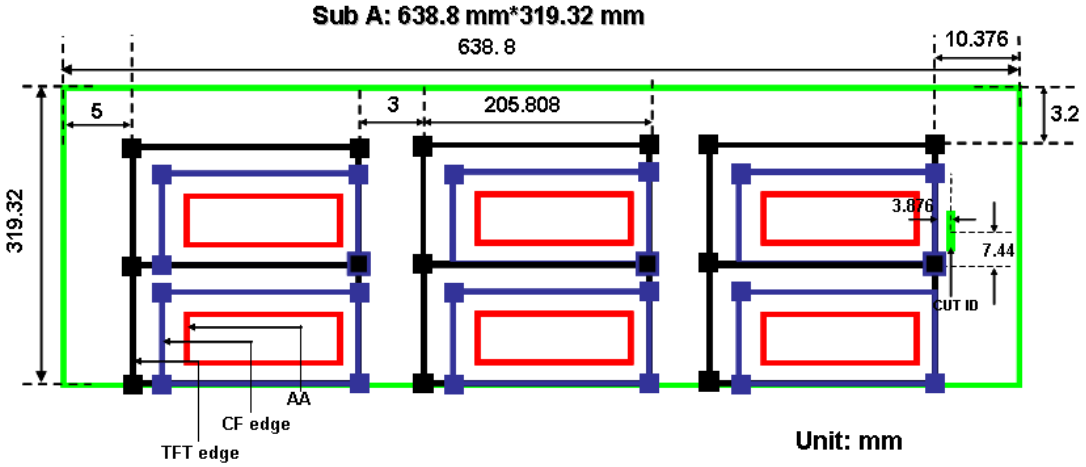


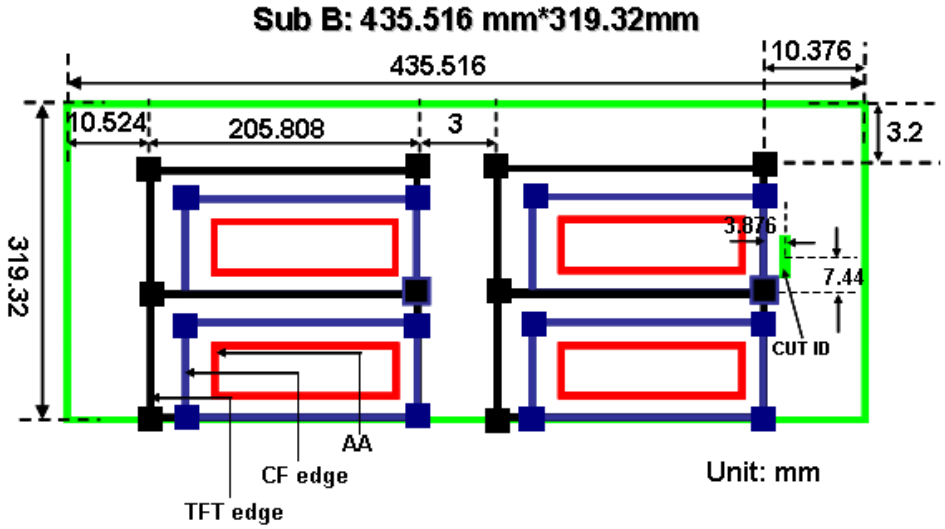
5.3 Polarizer size on array side:

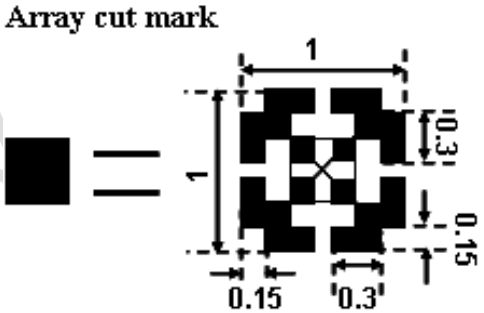


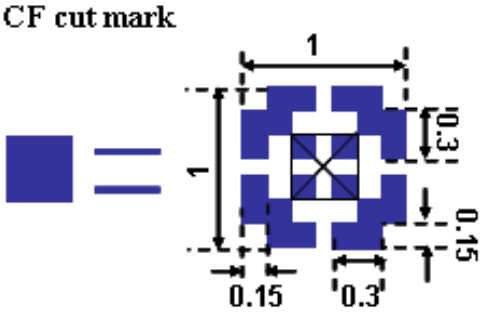
6 Sub-sheet Cutting Accuracy Mark

1/8cut mark location

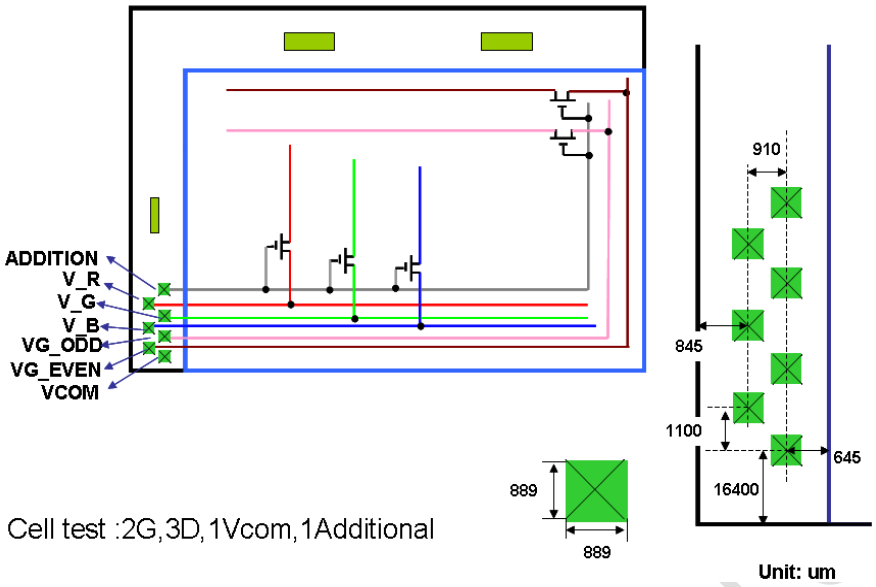




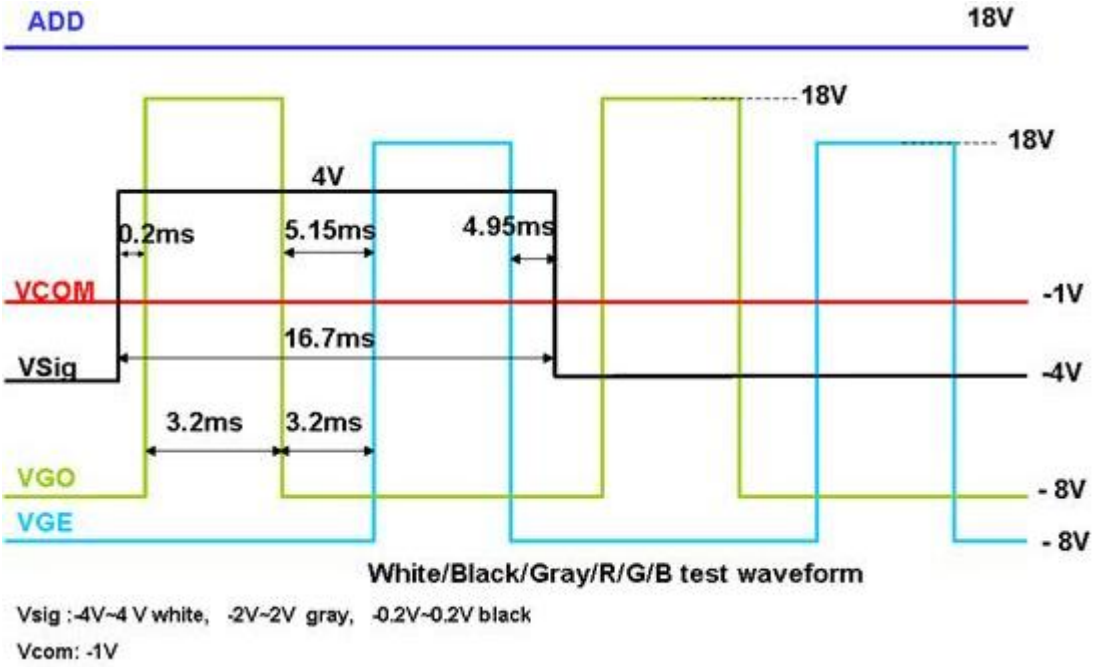




7 Cell Light-On Test Pad Drawing (Shorting bar)



8 Cell Light-On Test Waveform



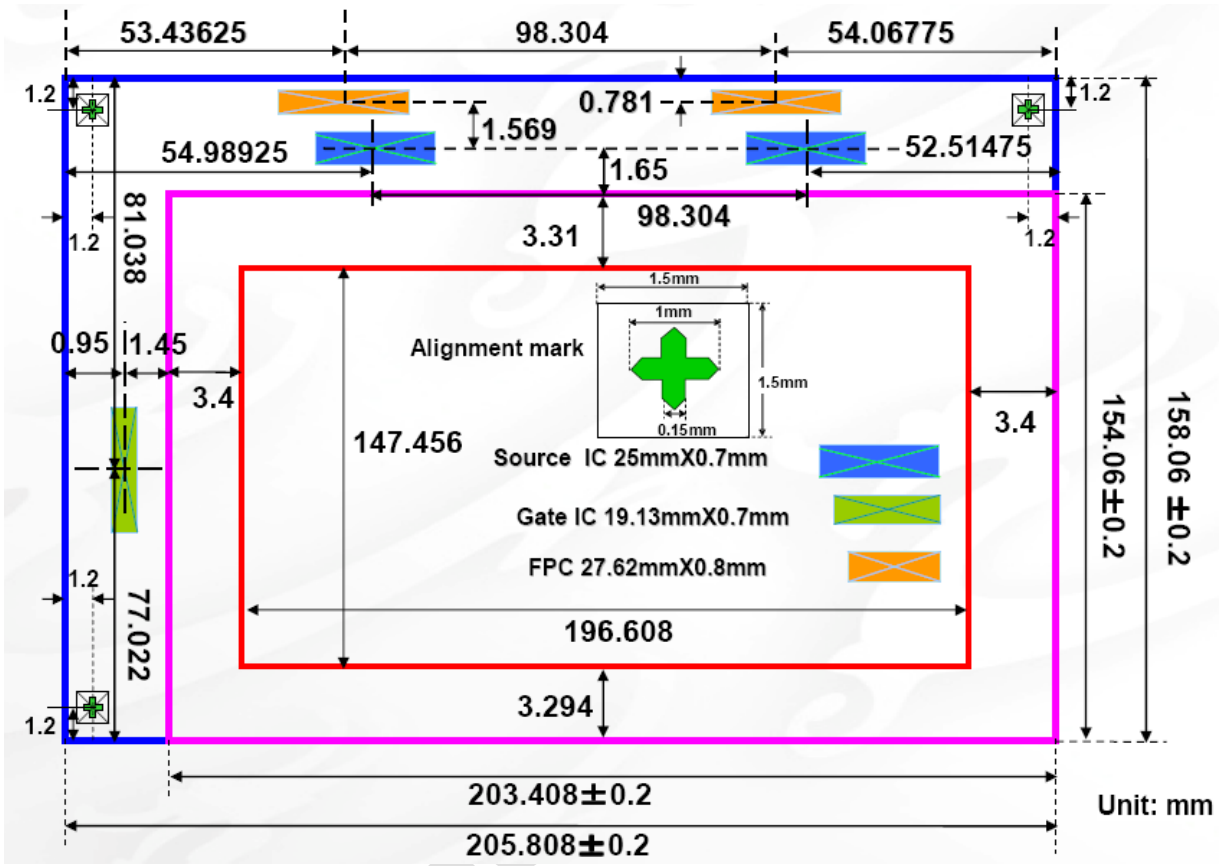
8.1 Shorting Bar Driving Voltage Range

No.	Item	MIN	TYP	MAX	Unit
1	Vcom voltage	-1.2	-1	-0.8	V
2	Vgl voltage	-9	-8	-7	V
3	Vgh voltage	17	18	19	V
4	Vdl voltage	-5	-4	-3	V
5	Vdh voltage	3	4	5	V
6	Vadd	17	18	19	V
7	OE Time	--	4.95	--	ms
8	Vgate line charging time	--	3.2	--	ms
9	Vdate line charging time	--	16.7	--	ms
10	Dummy gate line	Vgl	Vgl	Vgl	--

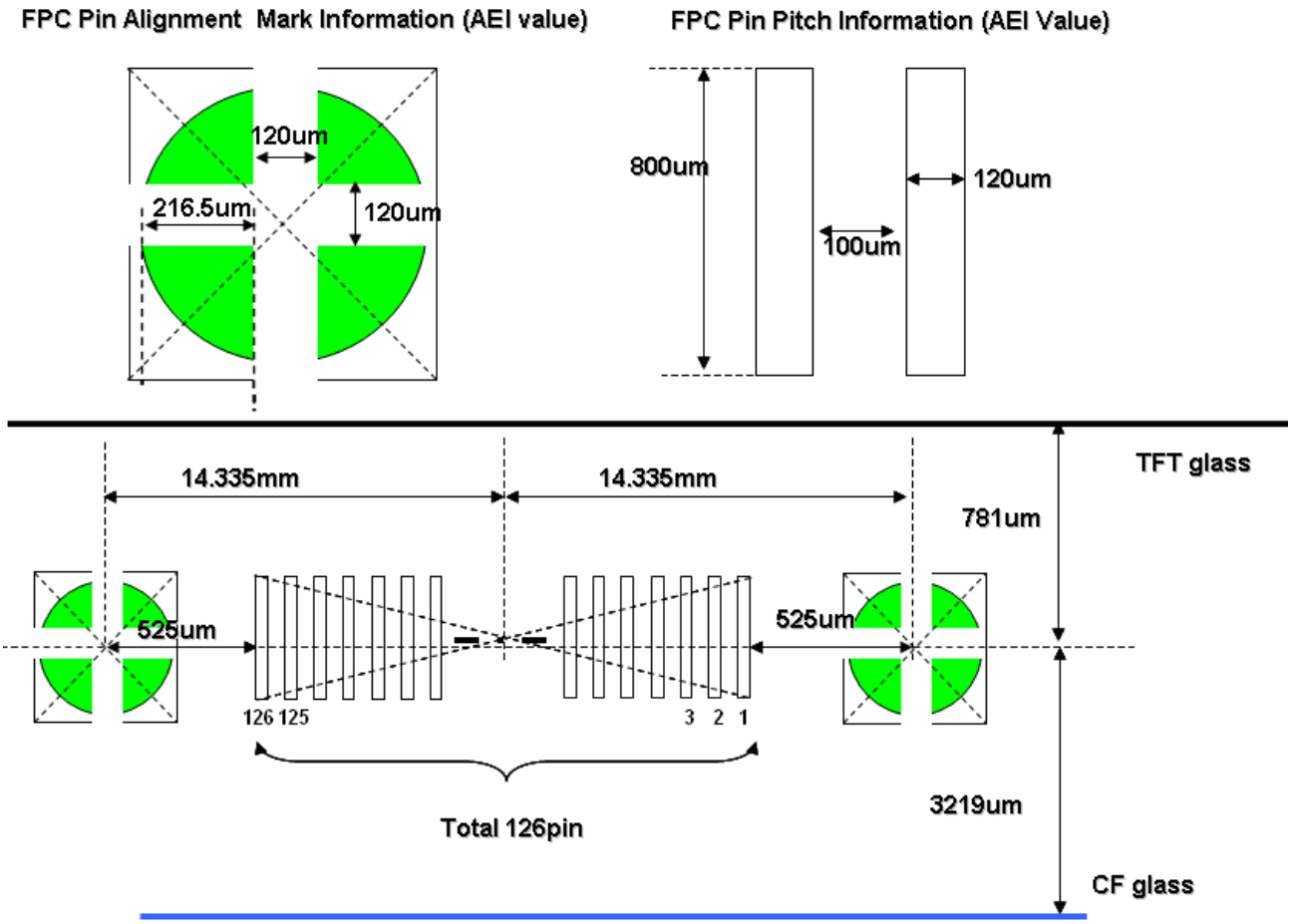
8.2 Vdata Voltage Table

Display	Vdata
Black	Vsig=+0.2V and -0.2V
Gray	Vsig=+2V and -2V
White	Vsig=+4V and -4V
Red	VR=+0.2Vand-0.2V
	VG=+4V and -4V
	VB=+4V and -4V
Green	VR=+4V and -4V
	VG=+0.2Vand-0.2V
	VB=+4V and -4V
Blue	VR=+4V and -4V
	VG=+4V and -4V
	VB=+0.2Vand-0.2V

9 COG+FPC Position On Panel

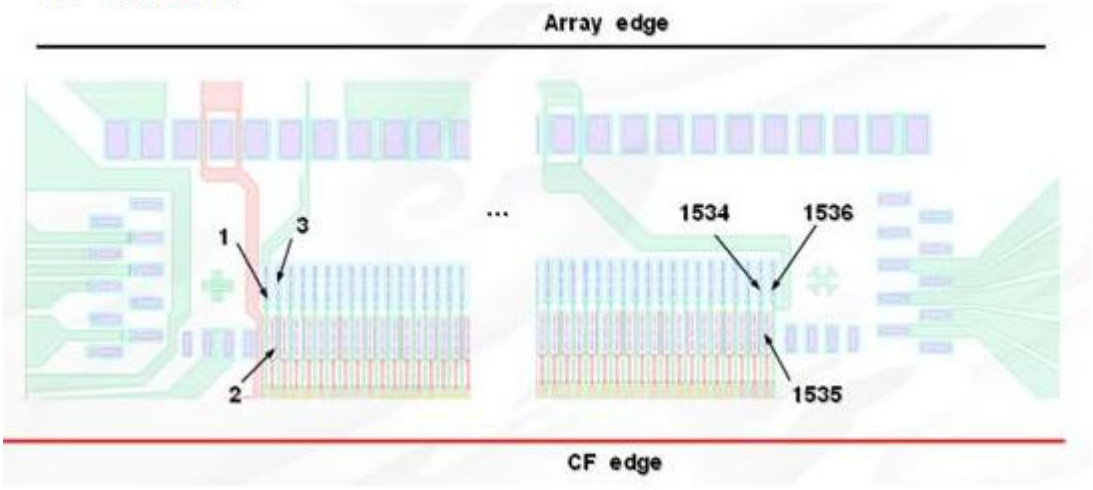


10 FPC Pad Information

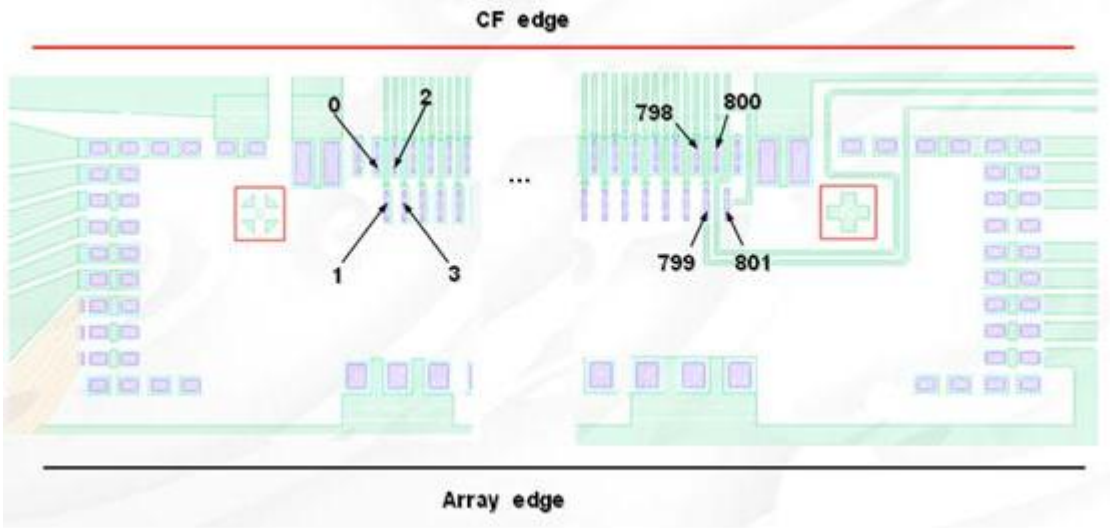


11 Cell Electrode Pin Assignment

A、Source IC:



B、Gate IC:

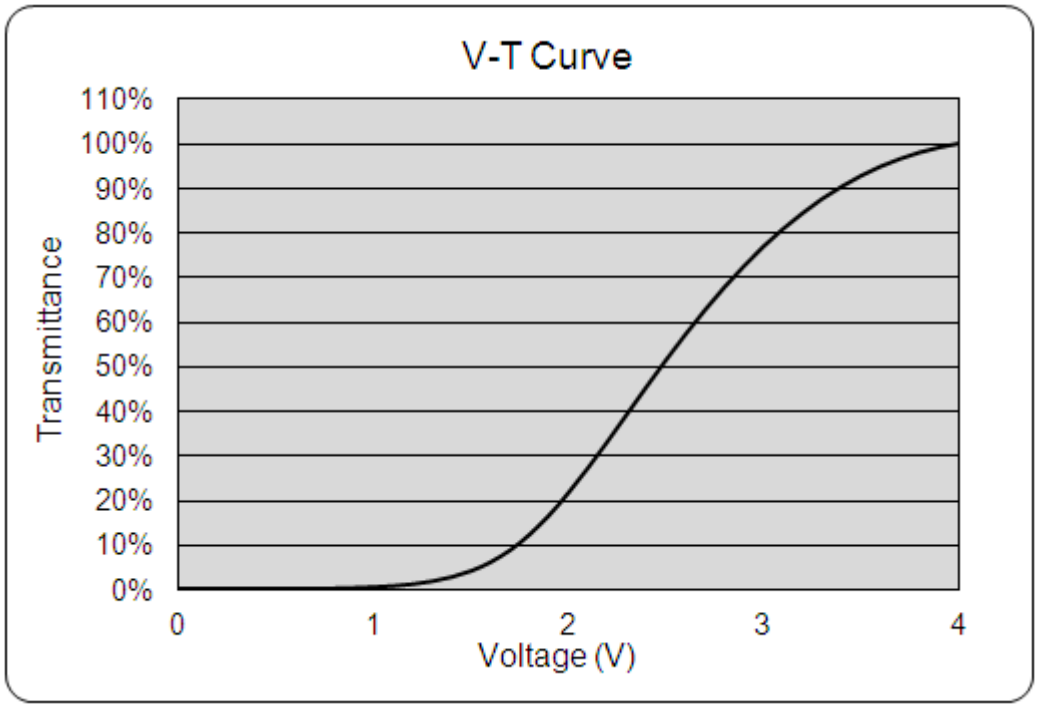


11.1 FPC Pin assignment

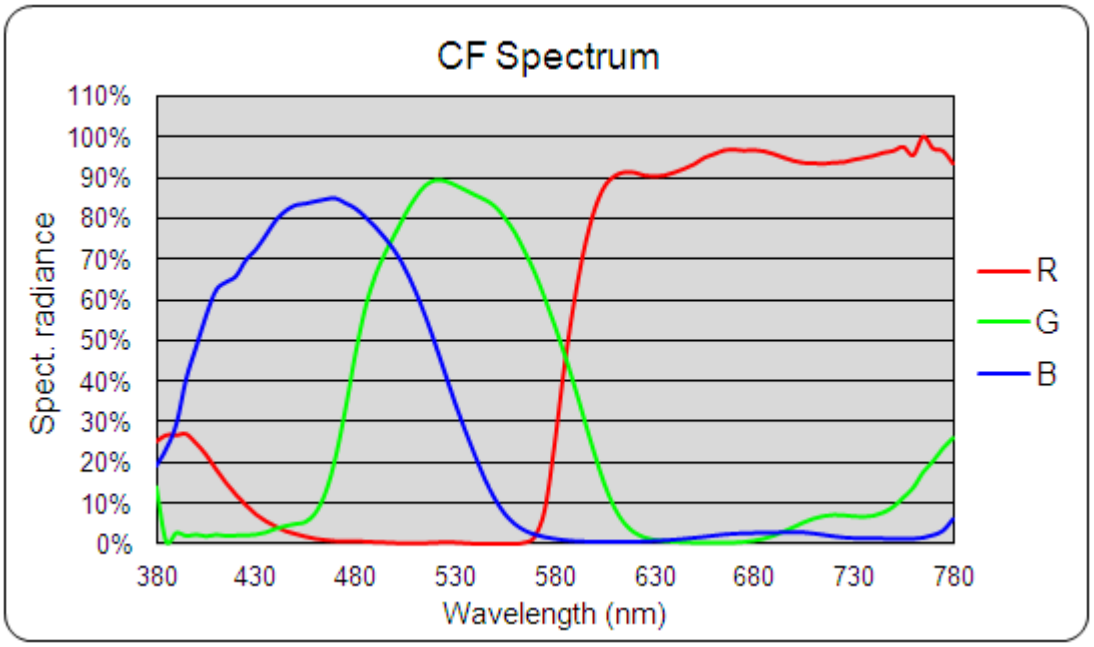
FPC Pin Assignment							
1	VCOM	33	VDD	65	NIND3	97	PINCTL
2	VCOM	34	GND	66	PIND3	98	DIMI
3	NC	35	GND	67	DASHD	99	VDD
4	NC	36	GND	68	NIND4	100	VDD
5	REPO	37	AVDD	69	PIND4	101	VDD
6	REPI3	38	AVDD	70	GND_LVDS	102	GND
7	S2	39	AVDD	71	GND_LVDS	103	GND
8	VDDN(1uF)	40	AGND	72	GND_LVDS	104	GND
9	VDDN(1uF)	41	AGND	73	V7	105	AVDD
10	AGND	42	AGND	74	V6	106	AVDD
11	AGND	43	V14	75	V5	107	AVDD
12	AGND	44	V13	76	V4	108	AGND
13	AVDD	45	V12	77	V3	109	AGND
14	AVDD	46	V11	78	V2	110	AGND
15	AVDD	47	V10	79	V1	111	S3073
16	GND	48	V9	80	AGND	112	REPI2
17	GND	49	V8	81	AGND	113	VCOM
18	GND	50	NC	82	AGND	114	VCOM
19	VDD	51	NC	83	AVDD	115	XON
20	VDD	52	VDD_LVDS	84	AVDD	116	VGH
21	VDD	53	VDD_LVDS	85	AVDD	117	VGH
22	UPDN	54	VDD_LVDS	86	GND	118	NC
23	SHL	55	DASHD	87	GND	119	VEE
24	GRB	56	NINC	88	GND	120	VEE
25	STBYB	57	PINC	89	VDD	121	NC
26	BIST	58	DASHD	90	VDD	122	VCC
27	OPDRV	59	NIND1	91	VDD	123	VCC
28	CABC_EN[1]	60	PIND1	92	SCL	124	NC
29	CABC_EN[0]	61	DASHD	93	SDA	125	GND
30	MASL	62	NIND2	94	CSB	126	GND
31	VDD	63	PIND2	95	DITHER		
32	VDD	64	DASHD	96	DIMO		

12 V-T Curve

12.1 V-T Curve (Reference)



12.2 CF Spectrum (SVA CF Spectrum)



※ Measured at ambient temperature 25℃, under requirement driving condition

13 Requirement Driving Condition

13.1 Timing Range

Category	Parameter	Unit	Min	Typ	Max
Timings	Frame Rate	Hz	55	60	65
Scanning Method	Gate Scanning Method (single / double)	single			
Line Impedance	Capacitive Load of a Signal Line	pF	119.6	88.88	59.4
	Capacitive Load of a Gate Line	pF	412.4	376	346.9
	Resistance Load of Signal Line	KOhm	4.45	6.22	10.31
	Resistance Load of Gate Line	KOhm	2.28	2.61	3.05

13.2 Power Supply Voltage

No.	Item	MIN	TYP	MAX	Unit
1	Vcom voltage	2.45	3.45	4.45	V
2	Vgl voltage	-8.5	-7.5	-6.5	V
3	Vgh voltage	17	18	19	V
4	Vdl voltage	0	0.2	0.7	V
5	Vdh voltage	7	8.2	8.7	V
6	Vadd	--	8.42	--	V

13.3 Gamma Reference Voltage:

TBD

13.4 OLB Outline

	Source Driver	Gate Driver
Output Channels	1536	768
Driver Amount	2	1
Component Type	COG	COG
OLB Pad Pitch	TBD	TBD

13.5 Driver Recommendation

Driver Supplier and Model No.	Source Driver	Gate Driver
	NT510008	NT39212F

14 Recommended Cell Packaging

TBD

15 General Precaution

15.1 Use Restriction

This product is not authorized for use in life supporting systems, aircraft navigation control systems, military systems and any other application where performance failure could be life-threatening or otherwise catastrophic.

15.2 Handling Precaution

(1) Since the LCD is made of glass, do not apply strong mechanical impact or static load onto it. Handling with care since shock, vibration, and careless handling may seriously affect the product. If it fall a high place or receives a strong shock, the glass maybe broken.

(2) Use fingerstalls of soft gloves in order to keep clean display quality, when persons handle the LCD for incoming inspection or assembly.

(3) When the surface is dusty, please wipe gently with absorbent cotton or other soft material.

(4) Wipe off saliva or water drops as soon as possible. If saliva or water drops contact with polarizer for a long time, they may causes deformation or color fading.

(5) When cleaning the adhesives, please use absorbent cotton wetted with a little petroleum benzine or other adequate solvent.

15.3 Storage Precaution

(1) Please do not leave cell in the environment of high humidity and high temperature for long time.

(2) suggests to assembly the cell to LCD module in one month after cut into single chip.

(3) The Cell should be stored in a dark place .Store in an ambient temperature of 5°C to 45°C,and in a relative humidity of 40% to 60%.Don’t expose to sunlight or fluorescent light.

(4) Storage in a clean environment, free from dust, active gas, and solvent.

(5) Store in anti-static electricity container.

(6) Store without any physical load.

15.4 Caution For operation

(1) The Polarizer on the surface of panel are made from organic substance. Be very careful for chemicals not to touch the polarizer or it leads the polarizer to be deteriorated.

(2) Dot drop water or any chemicals onto the LCD’s surface.

(3) Please do not leave LCD in the environment of high humidity and high temperature for a long time.

(4) Do not connect or disconnect the LCD to or from the system when power is on.

(5) When expose to drastic fluctuation of temperature(hot to cold or cold to hot）,the LCD may be affected; specifically, drastic temperature fluctuation from cold to hot, produces dew on the LCD's surface which may affect the operation of the polarizer and the LCD.

(6) Do not display the fixed pattern for a long time because it may develop image sticking due to the LCD structure.

15.5 Static Electricity

(1) Protection film must remove very slowly from the surface of LCD to prevent from electrostatic occurrence if the LCD attaches a polarizer.

(2) Because TFT-LCD panel is very weak to electrostatic discharge, please be careful with electrostatic discharge. Persons who handle the LCD should be grounded through adequate methods.

15.6 Safety

(1) For the crash damaged or unnecessary LCD, it is recommended to wash off liquid crystal by either of solvents such as acetone and ethanol an should be burned up later.

(2) In the case the LCD is broken, watch out whether liquid crystal leaks out or not. If your hands touch the liquid crystal, wash your hands cleanly with water an soap as soon as possible.

(3) If you should swallow the liquid crystal, first, wash your mouth thoroughly with water, then drink a lot of water and induce vomiting, and then, consult a physician.

(4) If the liquid crystal should get in your eyes, flush your eyes with running water for at least fifteen minutes.

(5) If the liquid crystal touches your skin or clothes, remove it and wash the affected part of your skin or clothes with soap and running water.

15.7 Disposal

When disposing LCD module, obey the local environmental regulations.