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Custom Display

Production Custom designs Installation

Mechanical design



 优 瑞 泰 克	深圳市优瑞泰克科技有限公司 SHENZHEN YOURITECH TECHNOLOGY CO.,LTD Product Specification	ET050WV06-T 2023-02-08 PAGE 1 OF 12
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Project No. 项目编号	ET050WV06-T
Customer 客户名称	
Module No. 客户型号	
Product type 产品内容	Standard LCD Module TFT: 800*RGBx480Dots 5.0”TFT LCD

客户确认Customer Approval	
项目负责人Project Manager	
品质主管Director of Quality	
采购工程师Purchasing Engineer	

PREPARED BY	CHECKED BY	APPROVED BY

1. Introduction

1.1 Scope of application

This specification applies to the LCD module that is supplied byYOURITECH TECHNOLOGY CO., LTD.

LCD specification: Dots 800xRGBx480.

As to basic specification of the driver IC, refer to the IC (ST7262H) specification and data book.

All material & processing of the LCD module should be Lead Free.

1.2 TFT features:

Structure: TFT PANNEL+IC +FPC+BL;

ALL O'CLOCK Type LCD

800dot-segment and 480 dot-common outputs;

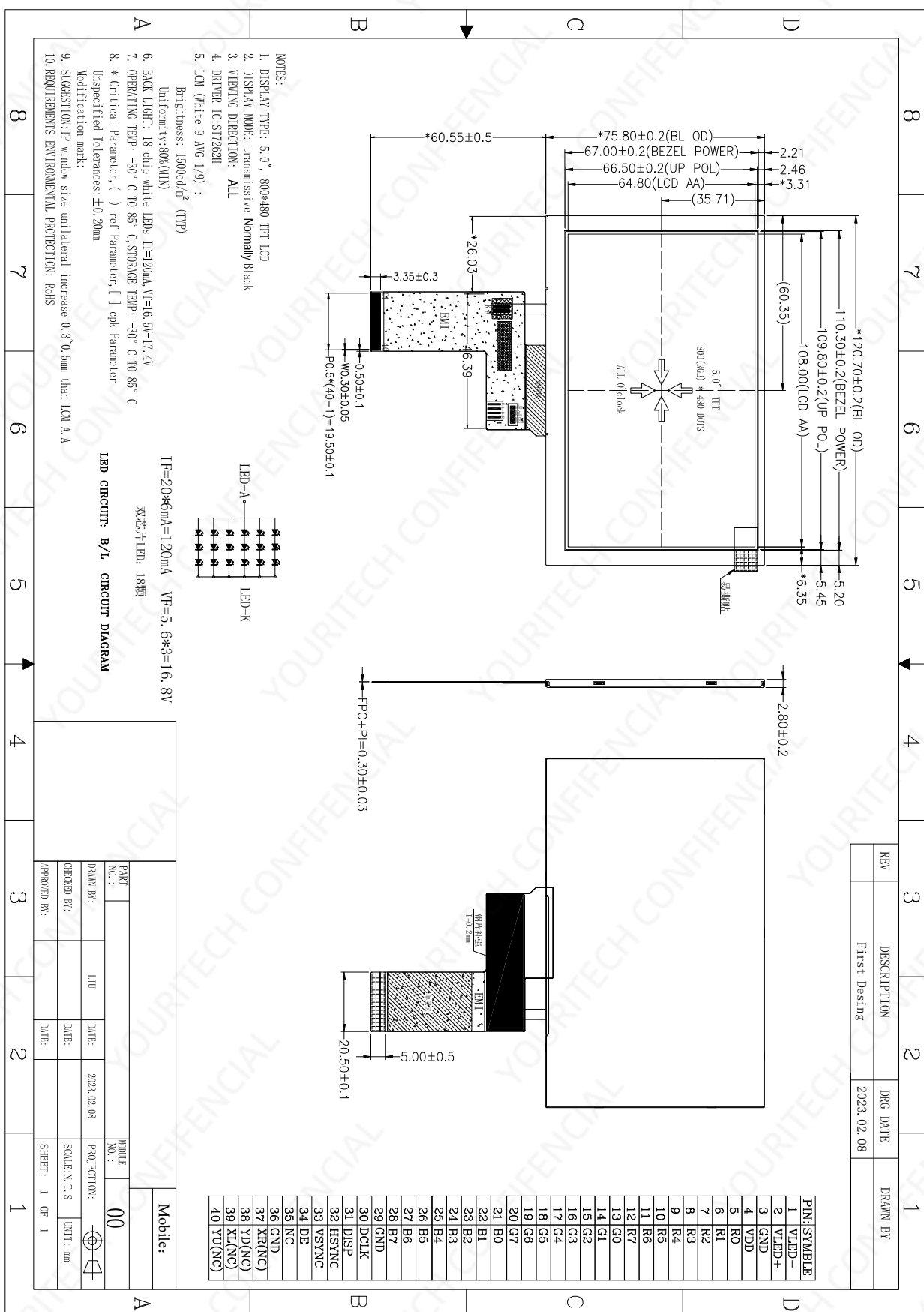
16.7M Color can be selected by software;

White LED back light;

24 bit RGB interface

2. LCM General specification

ITEM	Standard value	Unit
LCD Type	Normally black	--
Drive element	TFT active matrix	--
Number of pixels	800*3RGB(H)X480(V)	Dots
Pixel arrangement	RGB stripe	--
Pixel Pitch (W*H)	0.135 (H) x 0.135 (V)	mm
Active area	108 .00(H) x 64.80 (V)	mm
Viewing direction	ALL O'CLOCK	--
TFT Driver IC	ST7262H	--
TFT interface	24 bit RGB Interface	--
Module Size(W*H*T)	120.70(W) ×75.80(H) ×2.80(T)	mm
Approx. Weight	TBD	g
Touch structure	--	--
Touch Driver IC	--	--
Touch Interface	--	--



3.Absolute Maximum Rating

Characteristics	Symbol	Min.	Max.	Unit
LCM Operating Temperature	T _{OPR}	-30	+85	°C
LCM Storage Temperature	T _{STG}	-30	+85	°C
Humidity	RH	--	90	%

4.Electrical Characteristics

4.1 TFT DC Characteristics

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Note
Supply Voltage for(DC/DC)	VDD	2.8	3.3	3.6	V	--
TFT Common Voltage	Vcom	--	--	--	V	--
Data (RGB signal) Voltage	Vsig	--	--	--	V	--

4.2 Back-Light Unit Characteristics

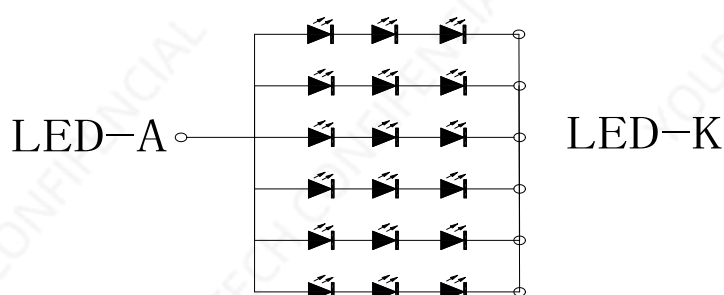
The back-light system is an edge-lighting type with 18 white LEDs. The characteristics of the back-light are shown in the following tables.

Characteristics	Symbol	Min.	Type	Max.	Unit	Notes
Forward Voltage	V _F	16.5	--	17.4	V	--
Forward current	I _F	--	120	--	mA	--
Luminance(With LCD)	L _v	--	1500	--	cd/m ²	--
LED life time	N/A	--	20,000	--	Hr	Note 1

Note:

- (1) The “LED life time” is defined as the module brightness decrease to 50% of original brightness at I_L=20mA/LED. The LED life time could be decreased if operating I_L is larger than 25mA/LED.

Backlight circuit diagram shown in below:



5. Module Function Description

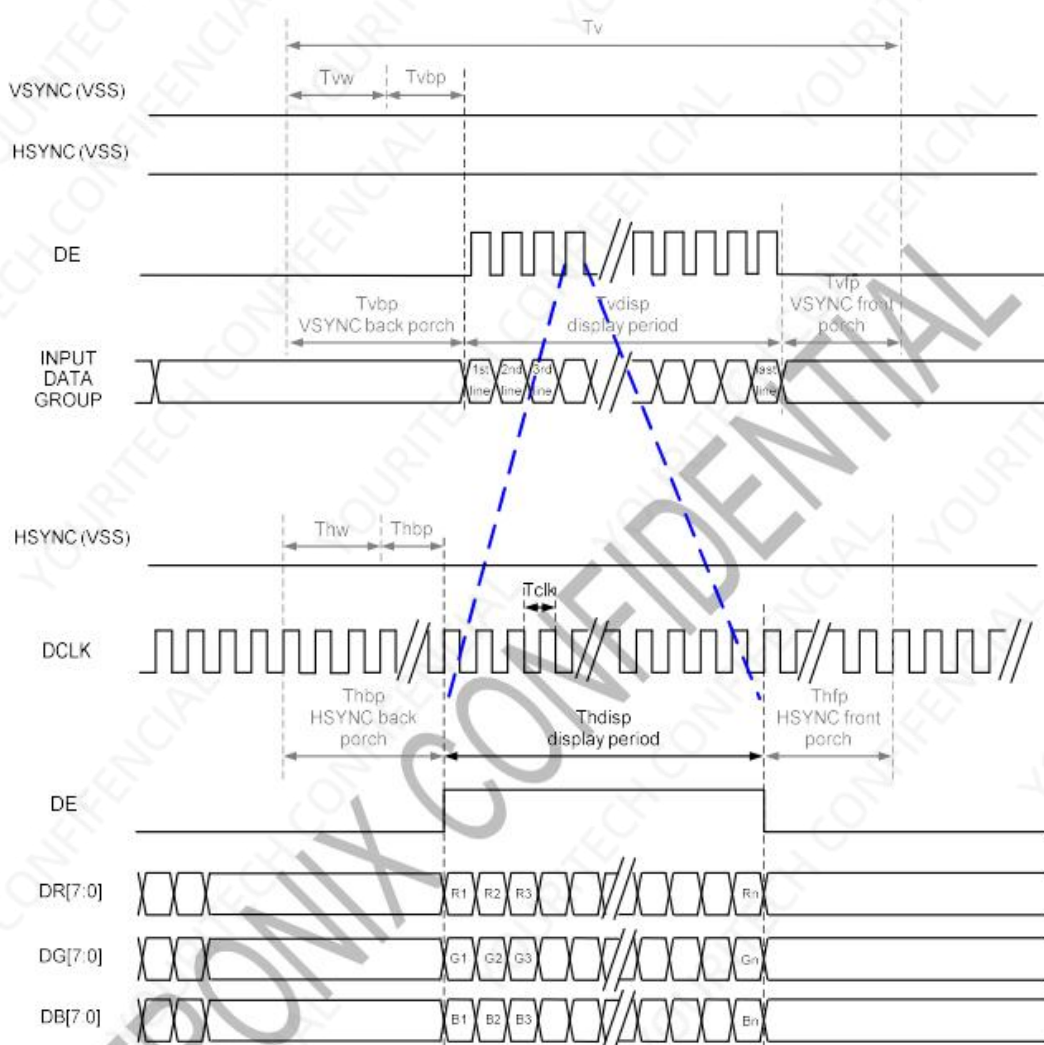
Pin No.	Symbol	Description
1	LEDK	POWER SUPPLY- FOR BACKLIGHT cathode
2	LEDA	POWER SUPPLY+ FOR BACKLIGHT ANODE
3	GND	GND
4	VDD	POWER SUPPLY
5~12	R0~R7	8 bit data bus display red data.
13~20	G0~G7	8 bit data bus display green data
21~28	B0~B7	8 bit data bus display blue data
29	GND	GND
30	DCLK	Pixel clock signal in RGB I/F
31	DISP	DISP=0: Standby mode (Default)、DISP=1: Normal display mode
32	HSYNC	Horizontal sync. Signal in RGB I/F
33	VSYNC	Vertical sync. Signal in RGB I/F
34	DE	Data enable signal in RGB I/F mode 1
35	NC	NC
36	GND	GND
37	XR (NC)	NC
38	YD (NC)	NC
39	XL (NC)	NC
40	YU (NC)	NC

6. Timing Characteristics

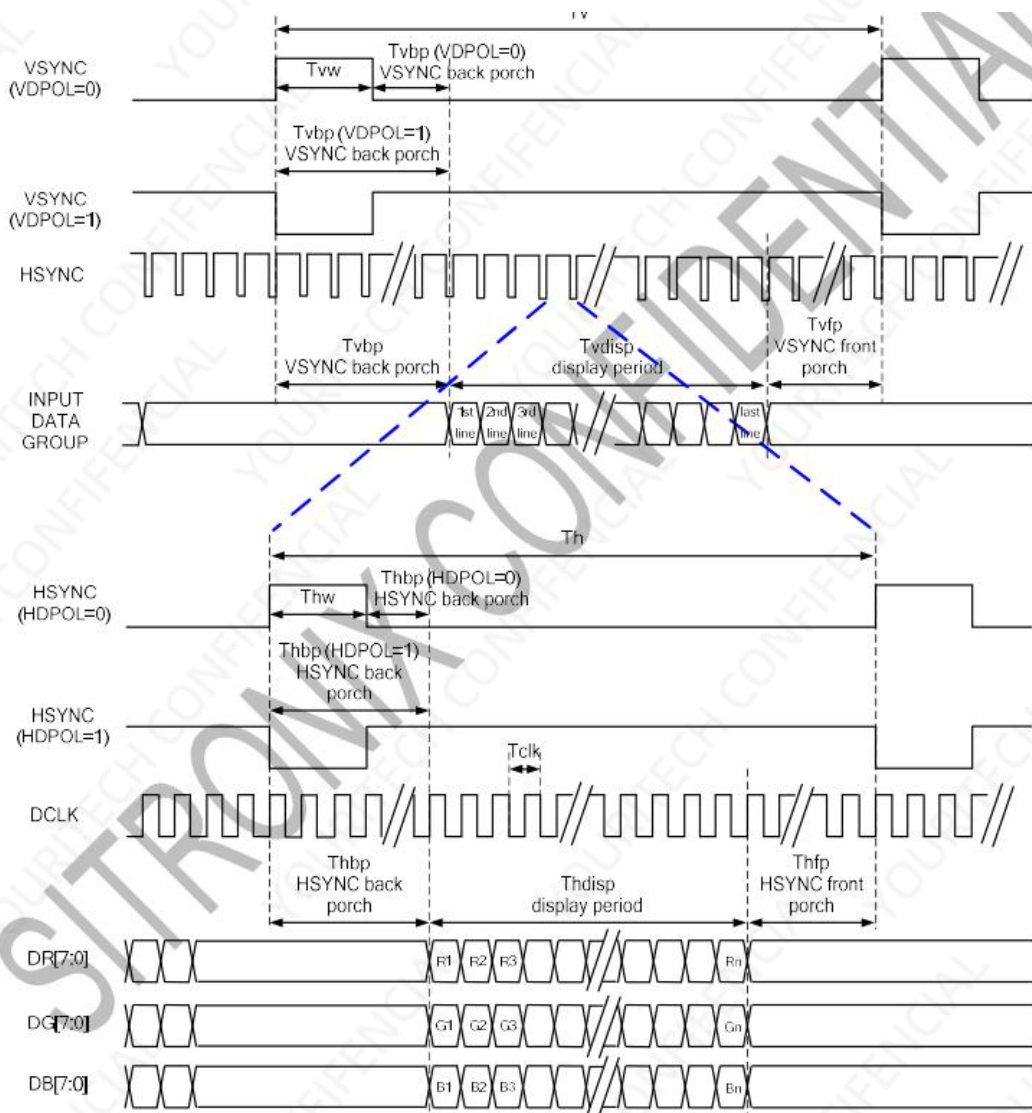
RGB Mode Selection Table	DCLK	HSYNC	VSYNC	DE
SYNC - DE Mode	Input	Input	Input	Input
SYNC Mode	Input	Input	Input	GND
DE Mode	Input	GND	GND	Input

Note: "Input" means these signals are driven by host side

DE Mode:



SYNC Mode:



Parallel 24-bit RGB Input Timing (PVDD=PVDD1=VDD=VDDI= 3.3V, AGND= 0V, TA=25°C)

Parallel 24-bit RGB Interface Timing Table						
Item	Symbol	Min.	Typ.	Max.	Unit	Remark
DCLK Frequency	Fclk	23	25	27	MHz	
HSYNC	Period Time	Th	-	816	896	DCLK
	Display Period	Thdsp	-	800		DCLK
	Back Porch	Thbp	-	8	48	DCLK
	Front Porch	Thfp	-	8	48	DCLK
	Pulse Width	Thw	-	4	8	DCLK
VSYNC	Period Time	Tv	-	496	504	HSYNC
	Display Period	Tvdsp	-	480		HSYNC
	Back Porch	Tvbp	-	8	12	HSYNC
	Front Porch	Tvfp	-	8	12	HSYNC
	Pulse Width	Tvw	-	4	8	HSYNC

Note: The minimum blanking time depends on the GIP timing of the panel specification.

7.Optical Characteristics

7.1 Optical Specification

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Transmittance (with Polarizer)		T (%)	$\Theta=0$ Normal viewing angle	—	(4.8)	—	%	Measuring with normal polarizer , Reference Only Base on Vop=5.1V
Transmittance (without Polarizer)		T (%)		—	(16.2)	—	%	
Contrast Ratio		CR		(800)	(1000)	—	—	(1)(2)
Response Time		T _R +T _F		—	30	40	msec	(1)(3)
Color Gamut	(%)			45	50	—	%	C-light
Color Chromaticity (CIE1931)	White	W _x		—	(0.320)	—	—	(1)(4) CF glass C-light
		W _y		—	(0.345)	—		
	Red	R _x		—	(0.629)	—	—	
		R _y		—	(0.326)	—		
	Green	G _x	—	(0.337)	—	—		
		G _y	—	(0.546)	—			
	Blue	B _x	—	(0.136)	—	—		
		B _y	—	(0.143)	—			
Viewing Angle	Hor.	Θ_L	CR>10	70	80	—	—	(1)(4) Measuring with normal polarizer , Reference Only
		Θ_R		70	80	—		
	Ver.	Θ_U		70	80	—		
		Θ_D		70	80	—		
Optima View Direction		Free						(5)

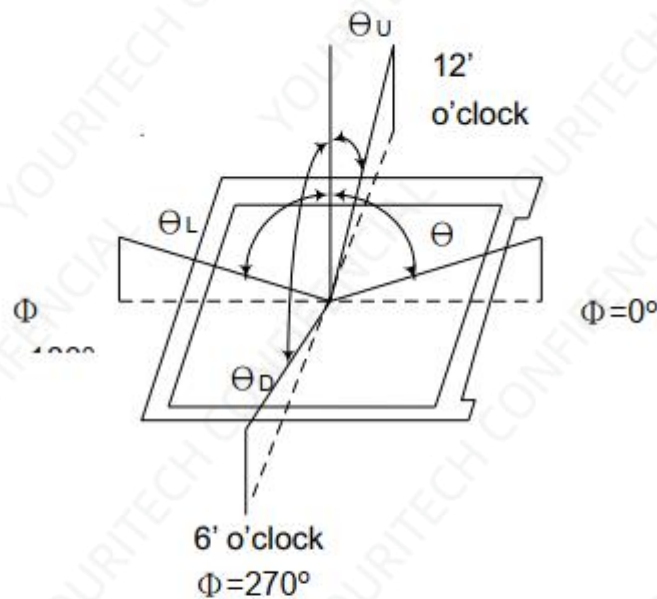
7.2 Measuring Condition

- Measuring surrounding: dark room
- Ambient temperature: $25\pm 2^\circ C$
- 15min. warm-up time.

7.3 Measuring Equipment

- FPM520 of Westar Display technologies, INC., which utilized SR-3 for Chromaticity and BM-5A for other optical characteristics.

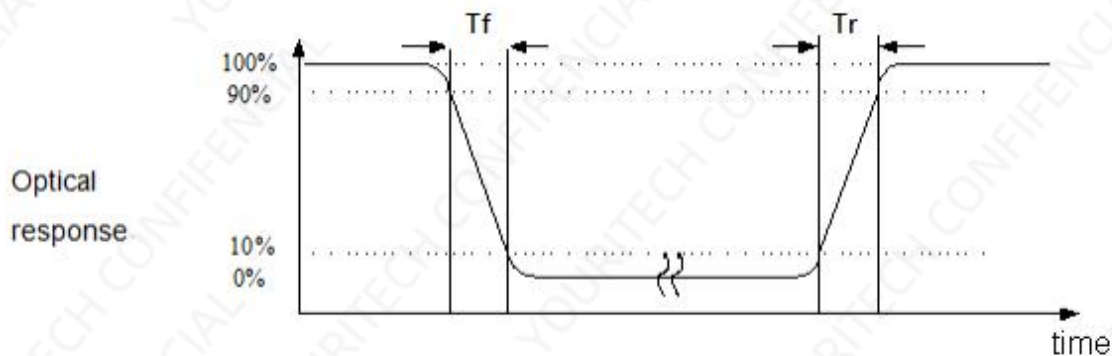
Note (1) Definition of Viewing Angle:



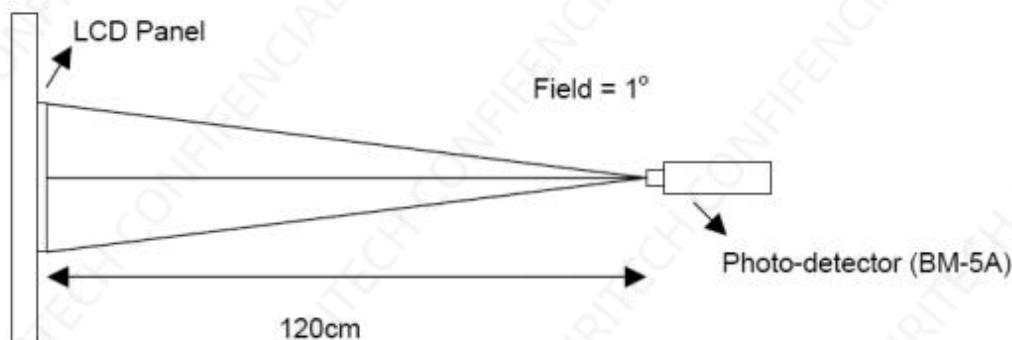
Note (2) Definition of Contrast Ratio (CR) :
measured at the center point of panel

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

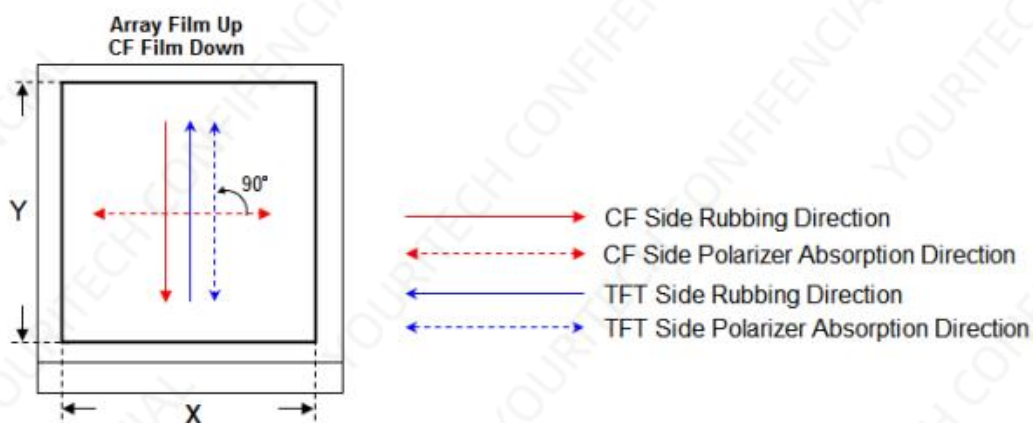
Note (3) Definition of Response Time : Sum of T_R and T_F



Note (4) Definition of optical measurement setup



Note (5) Rubbing Direction & Polarizer Absorption Direction



Item	Specifications	Unit	Note
Rubbing Direction	90° (TFT) / -90° (CF)	degree	2-domain IPS-pro
Absorption axis of Polarizer	90° (TFT) / 0° (CF)	degree	Array Film Up CF Film Down

8. Reliability Test Item

No.	Test Item	Test Condition	Notes
1	High Temp. Storage	+85°C / 240H	1. Functional test is OK. Missing Segment, short, unclear segment non-display, display abnormally and liquid crystal leakage un-allowed. 2. No low temperature bubbles, end seal loose and fall, frame rainbow.
2	Low Temp. Storage	-30°C / 240H	
3	High Temp. Operating	+85°C / 240H	
4	Low Temp. Operating	-30°C / 240H	
5	High Temperature / Humidity storage	60±5°C x 90%RH / 240H	
6	Thermal and cold shock	Static state, -30°C (30min) ~85°C (30min), 50 cycles	

9. Packing Method----TBD

- END -