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 优瑞泰克	深圳市优瑞泰克科技有限公司 SHENZHEN YOURITECH TECHNOLOGY CO.,LTD Product Specification	ET103BA02-T 2024-7-19 PAGE 1 OF 13
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Project No. 项目编号	ET103BA02-T
Customer 客户名称	
Module No. 客户型号	
Product type 产品内容	Standard LCD Module TFT: 1920*RGBx720Dots 10.25" 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



深圳市优瑞泰克科技有限公司
SHENZHEN YOURITECH TECHNOLOGY CO.,LTD
Product Specification

ET103BA02-T
2024-7-19
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1. Introduction

1.1 Scope of application

This specification applies to the LCD module that is supplied by YOURITECH Technology CO., LTD.

LCD specification: Dots 1920xRGBx720

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

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

1.2 TFT features:

Structure: TFT PANNEL+IC +FPC1+BL+CTP;

ALL Viewing Type LCD

1920 dot-segment and 720 dot-common outputs;

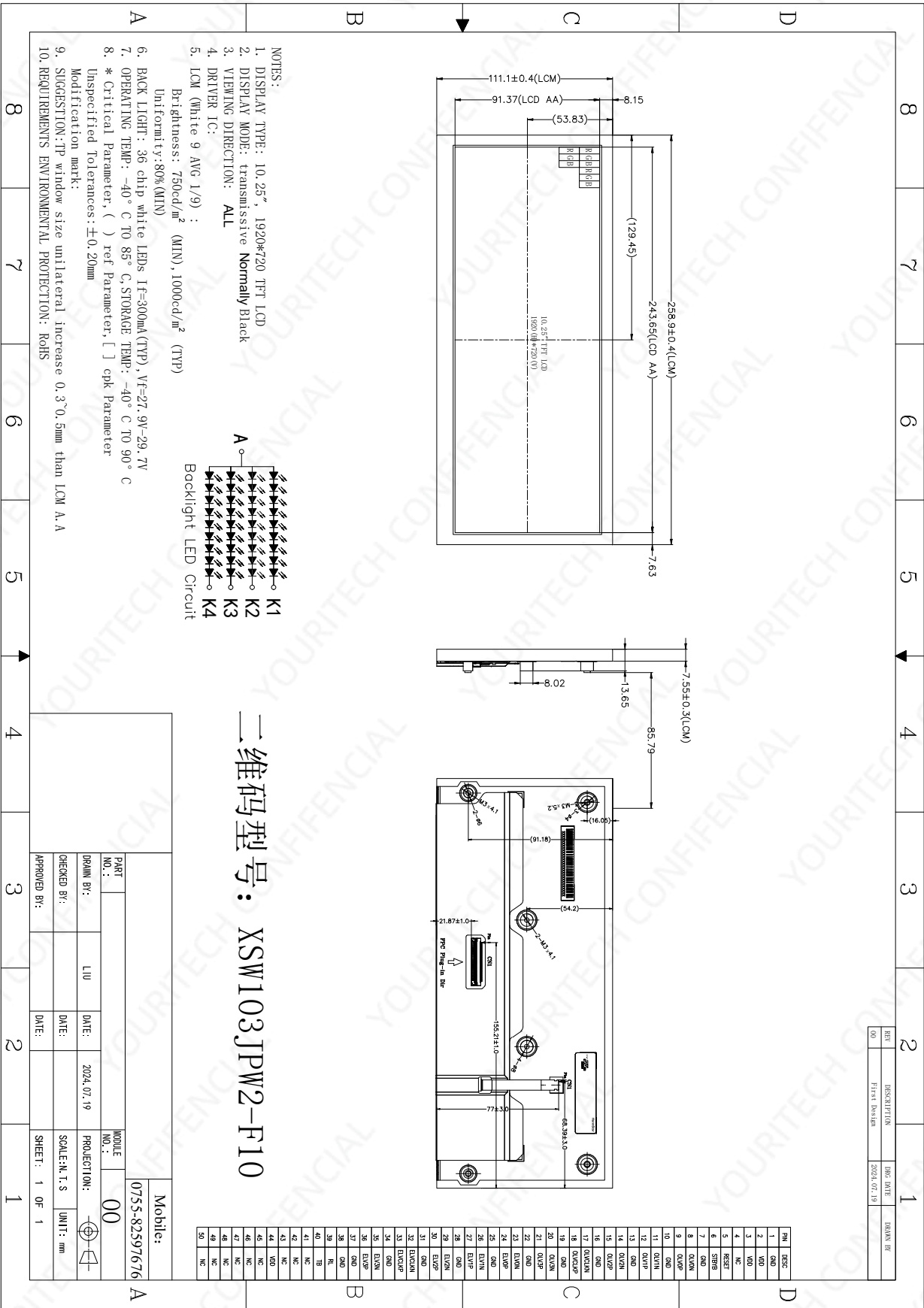
16.7M Color can be selected by software;

White LED back light;

LVDS(two port) interface

2. LCM General specification

ITEM	Standard value	Unit
LCD Type	Normally Black	--
Drive element	TFT active matrix	--
Number of pixels	1920*3RGB(H)X720(V)	Dots
Pixel arrangement	RGB Vertical Stripe	--
Pixel Pitch (W*H)	0.1269(H) X 0.1269(V)	mm
Active area	243.65(H) x 91.37(V)	mm
Viewing direction	ALL O'CLOCK	-
TFT Driver IC	TBD	
TFT interface	LVDS(two port) interface	-
Approx. Weight	TBD	g
LCM Size(W*H*T)	258.90(W) ×111.1(H) ×7.55 (T)	mm
Touch structure	--	
Touch Driver IC	--	-
Touch Interface	--	



3.Absolute Maximum Rating

Characteristics	Symbol	Min.	Max.	Unit
LCM Operating Temperature	T _{OPR}	-40	+85	°C
LCM Storage Temperature	T _{STG}	-40	+90	°C
Humidity	RH	-	90	%

4.Electrical Characteristics

4.1 TFT DC Characteristics

Characteristics	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage for(DC/DC)	VDD	3.0	3.3	3.3	V

4.2 Back-Light Unit Characeristics

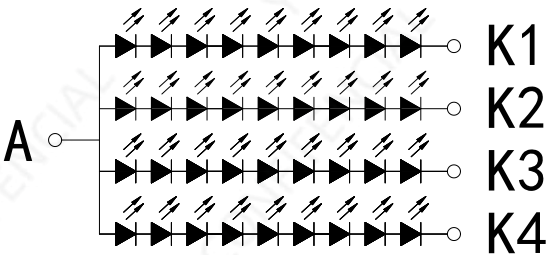
The back-light system is an edge-lighting type with 36 white LEDs. The characteristics of the back-light are shown in the following tables.

Characteristics	Symbol	Min.	Type	Max.	Unit	Notes
Forward Voltage	V _F	27.9	--	29.7	V	--
Forward current	I _F	--	300	--	mA	--
Luminance(With LCD)	L _v	750	1000	--	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=75mA/LED. The LED life time could be decreased if operating I_L is larger than 80mA/LED.

Backlight circuit diagram shown in below:



5. Module Function Description

LCM Functional

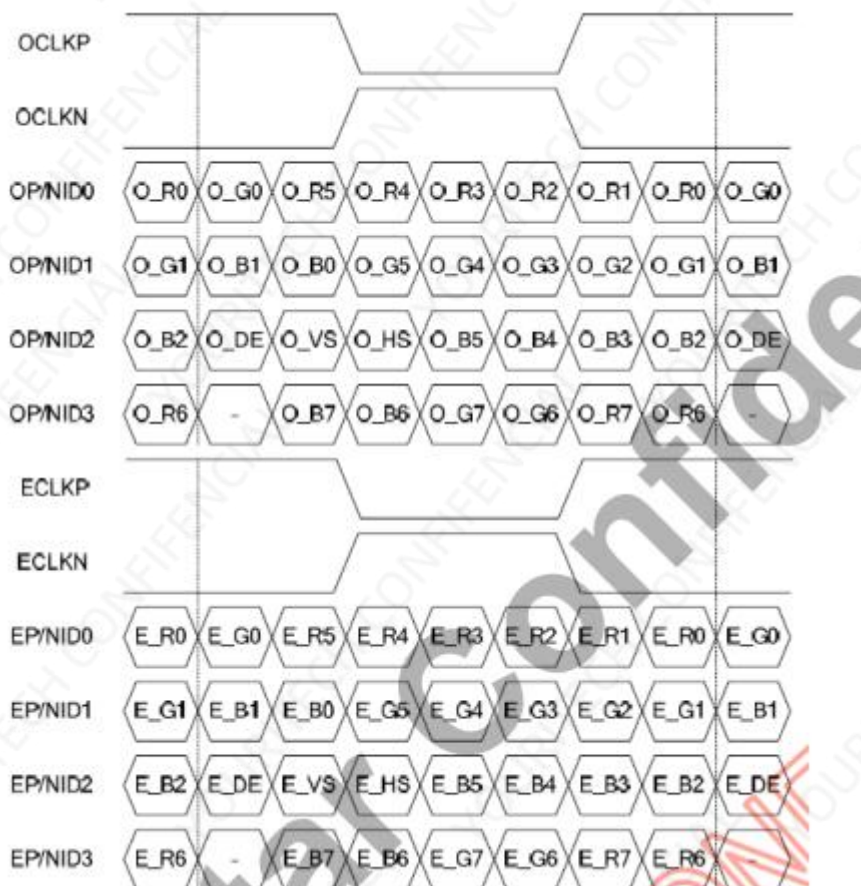
CN1 (Input signal): IRISO 12003S-50Y900

Pin NO.	Symbol	I/O	Description	Note
1	GND	P	Ground	
2	VDD	P	External main and I/O power supply ; +3.3V	
3	VDD	P	External main and I/O power supply ; +3.3V	
4	NC	-	Keep floating	
5	RESET	I	Global reset pin RESET="H",normal operation.(Default) RESET="L",LCM is in reset state.	
6	STBYB	I	Standby mode control. STBYB="H",normal operation. STBYB="L",LCM is in standby state.(Default)	
7	GND	P	Ground	
8	OLV0N	I	LVDS odd data 0-	
9	OLV0P	I	LVDS odd data 0+	
10	GND	P	Ground	
11	OLV1N	I	LVDS odd data 1-	
12	OLV1P	I	LVDS odd data 1+	
13	GND	P	Ground	
14	OLV2N	I	LVDS odd data 2-	
15	OLV2P	I	LVDS odd data 2+	
16	GND	P	Ground	
17	OLVCLKN	I	LVDS odd clk -	
18	OLVCLKP	I	LVDS odd clk +	
19	GND	P	Ground	
20	OLV3N	I	LVDS odd data 3-	
21	OLV3P	I	LVDS odd data 3+	
22	GND	P	Ground	
23	ELV0N	I	LVDS even data 0-	
24	ELV0P	I	LVDS even data 0+	
25	GND	P	Ground	
26	ELV1N	I	LVDS even data 1-	
27	ELV1P	I	LVDS even data 1+	
28	GND	P	Ground	

29	ELV2N	I	LVDS even data 2-	
30	ELV2P	I	LVDS even data 2+	
31	GND	P	Ground	
32	ELVCLKN	I	LVDS even clk -	
33	ELVCLKP	I	LVDS even clk +	
34	GND	P	Ground	
35	ELV3N	I	LVDS even data 3-	
36	ELV3P	I	LVDS even data 3+	
37	GND	P	Ground	
38	GND	P	Ground	
39	RL	I	Horizontal shift direction (source output) selection. RL = "H": Left -> Right(default) RL = "L": Right -> Left	
40	TB	I	Vertical shift direction (gate output) selection. TB = "H": Top ->Bottom (default) TB = "L": Bottom->Top	
41	NC	-	Keep floating	
42	NC	-	Keep floating,internal used for LCM maker.	
43	NC	-	Keep floating	
44	VDD	P	External main and I/O power supply ; +3.3V	
45	NC	-	Keep floating,internal used for LCM maker.	
46	NC	-	Keep floating,internal used for LCM maker.	
47	NC	-	Keep floating,internal used for LCM maker.	
48	NC	-	Keep floating,internal used for LCM maker.	
49	NC	-	Keep floating,internal used for LCM maker.	
50	NC	-	Keep floating,internal used for LCM maker.	

6. Timing Characteristics

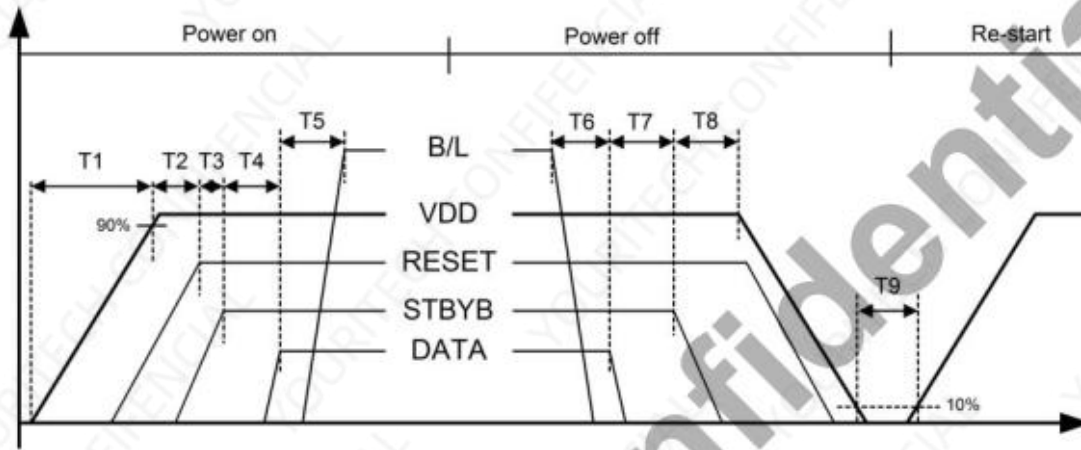
6.1 8Bit LVDS input



6.2 Interface Timing (DE mode)

Item	Symbol	Min.	Typ.	Max.	Unit
Frame Rate	--	55	60	65	Hz
Vertical Total Time	T _v	730	732	764	line
Vertical Display Time	T _{vd}	720			
Vertical Blanking Time	T _{vb}	10	12	44	line
Horizontal Total Time	T _h	1022	1045	1080	clock
Horizontal Display Time	T _{hd}	960			
Horizontal Blanking Time	T _{hb}	62	85	120	clock
Clock Rate	1/ T _{clock}	45.4	45.9	48.5	MHz

6.3 Power On/Off Sequence



Item	Min.	Typ.	Max.	Unit
T1	0.5	--	20	ms
T2	1	--	--	ms
T3	1	--	--	ms
T4	200	--	--	ms
T5	50	--	--	ms
T6	50	--	--	ms
T7	16	--	--	ms
T8	16	--	--	ms
T9	1000	--	--	ms

7. Optical Characteristics

7.1 Optical Specification

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Contrast	CR		1000	1500	—		(1)(2)
Response time	25°C	TR+TF	—	—	30	msec	(1)(3)
	-20°C		—	—	250		
	-30°C		—	—	500		
White luminance (Center)	Y _L	Θ=0	750	1000	—	cd/m ²	(1)(4) (I _L =300mA)
Color chromaticity (CIE1931)	White	W _x	±0.04	0.313	±0.04		(1)(4)
		W _y		0.329			
	Red	R _x		0.642			
		R _y		0.332			
	Green	G _x		0.288			
		G _y		0.600			
	Blue	B _x		0.148			
		B _y		0.065			
Viewing angle	Hor.	Θ _L	80	85	—		
		Θ _R	80	85	—		
	Ver.	Θ _U	80	85	—		
		Θ _D	80	85	—		
Brightness uniformity	B _{UNI}	Θ=0	75	80	—	%	(5)
Optima View Direction	Free						(6)
Reflection	%	R (%)	—	—	5.0	5.5	% (7)

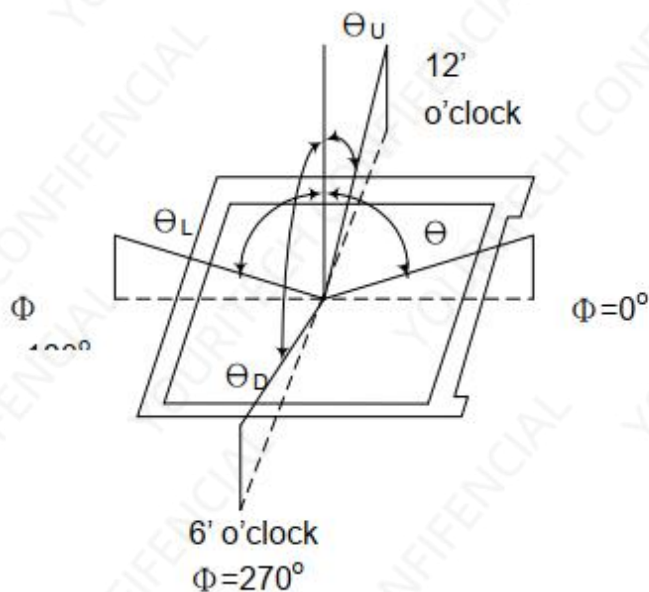
7.2 Measuring Condition

- Measuring surrounding: dark room
- LEDcurrent I_L: 300mA
- Ambient temperature: 25±2°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.
- Measuring spot size: 20~21mm

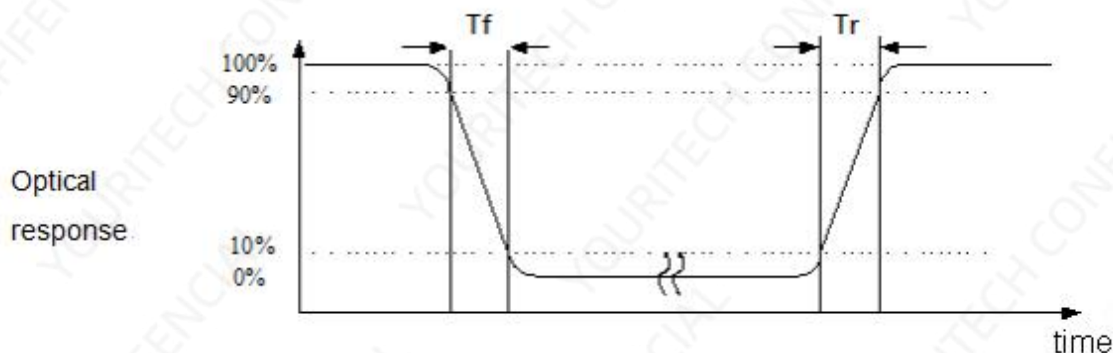
Note (1) Definition of Viewing Angle:



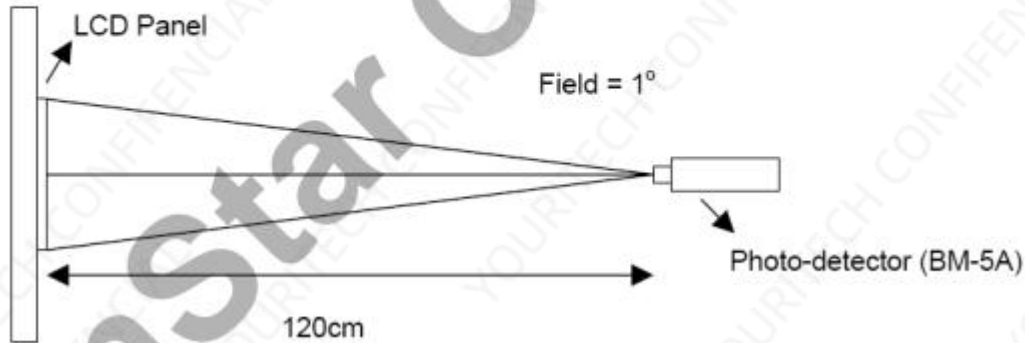
Note (2) Definition of Contrast Ratio (CR) :
measured at the center point of panel

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

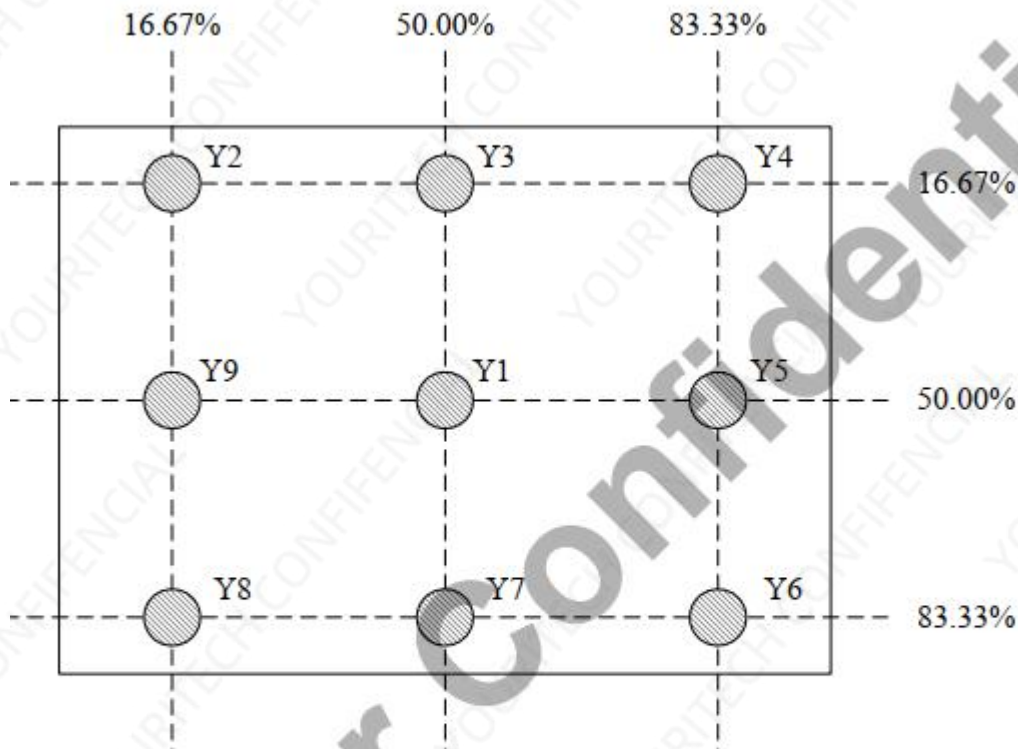
Note (3) Definition of Response Time : Sum of T_R and T_F



Note (4) Definition of optical measurement setup



Note (5) Definition of brightness uniformity

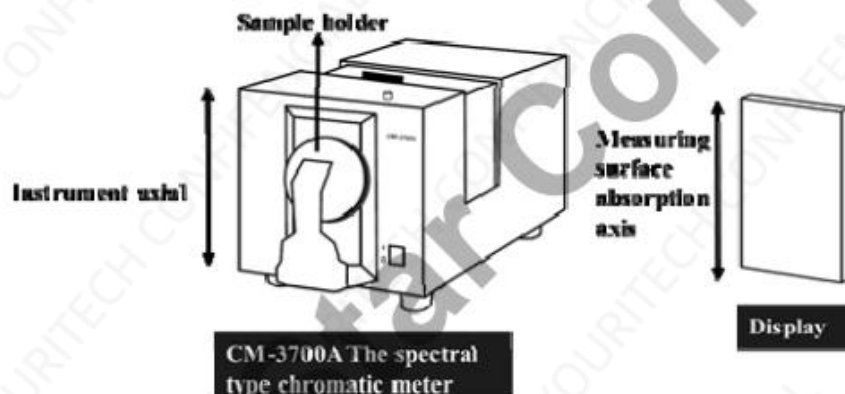


$$\text{Luminance uniformity} = \frac{(\text{Min Luminance of 9 points})}{(\text{Max Luminance of 9 points})} \times 100\%$$

Note (6) : Rubbing Direction (The different Rubbing Direction will cause the different optima view direction.

Note (7) Definition of CM-3700A(Konica Minolta) Measurement specification

- The Settings of the instrument :
 - A. reflection rate;
 - B. Measuring the aperture: MAV(8mm);
 - C. Observer perspective: 2°;
 - D. Specular light: SCI;
 - E. The light source: D65.
- The definition of measurement way
Chromatic meter will display the absorption of shaft and spectral type axial parallel alignment, and placed the sample frame for photometry.



8. Reliability Test Item

No.	Test Item	Test Condition	Notes
1	High Temp. Storage	+90°C / 96H	1. Functional test is OK. Missing Segment, short, unclear segment non-display, display abnormally and liquid crystal leakage are un-allowed. 2. No low temperature bubbles, end seal loose and fall, frame rainbow.
2	Low Temp. Storage	-40°C / 96H	
3	High Temp. Operating	+85°C / 96H	
4	Low Temp. Operating	-40°C / 96H	
5	High Temperature / Humidity storage	60°C x 90%RH / 96H	
6	Thermal and cold shock	Static state, -40°C (30min) ~85°C (30min), 10 cycles	

9. Packing Method----TBD