TFT LCD Preliminary Specification

Model Name: SL006PH14B403

CUSTOMER CODE: _____

Customer:_____

Approved by:_____

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

Approved By	ASSEMBLY LCD TV Division	
Designed by	Liuxiuzhen	
Checked by	R&D DEPT.	QA Dept
Reviewed	TV LCM Marketing and Sale Dept	

CONTENTS

1. GENERAL DESCRIPTION

The display model SL006PH14B403 is a ips TFT-LCD (Thin Film Transistor Liquid Crystal Display) module. This model is Composed of a TFT LCD panel ,a driving circuit and a back light ,and also has a 5.94 inch diagonally measured active display area with QHD(540 horizontal by 960 vertical pixel) resolution in a stripe arrangement. Display 16 M colors by two data lanes of mipi interface.

General specifications are summarized in the following table:

1.1 General information

Item	Specification	Unit
Outline Dimension	81.20*143.90*2.40MAX	mm
Display area	73.99*131.53	mm
Number of Pixel	540RGB*960	pixels
Pixel pitch	0.13701*0.13701	mm
Pixel arrangement	RGB Vertical stripe	
Display mode	Normally black	
Surface treatment	Hard-Coating with EWV film	colors
Back-light	14 White LEDS	
System interface	two data lanes of mipi interface	
NTSC	70 (type)	%
Viewing Direction	ALL	
Total Power Consumption	TBD	mW

2. ABSOLUTE MAXIMUM RATINGS

2.1 Electrical Absolute Rating:

Item	Symbol	Min.	Type.	Max.	Unit	NOTE
Supply Voltage	VCC		2.8		V	
	IOVCC		1.8/2.8		V	
	VGH		15.0		V	
	VGL		-10.0		V	
VCOM	VCOMin	-2.0			V	
Input signal voltage	V_{IH}	0.7 V_{CC}	-	V_{CC}	V	
	V_{IL}	0	-	0.3V_{CC}	V	

2.2 Environment Absolute Rating

Item	Symbol	Min	Max	Uint	Note
Operating Temperature	T_{OPA}	-20	60	℃	
Storage Temperature	T_{STG}	-30	70	℃	

3. OPTICAL CHARACTERISTICS

3.1 Optical specification

ITEM		SYMBOL	CONDITIONS	SPECIFICATIONS			UNIT	NOTE
				MIN.	TYP.	MAX.		
Brightness		B	Viewing normal angle	--	300	--	Cd/m^2	(1) (2) (3) (4) (5)
Contrast Ratio		CR		640	800	--		
Response Time		Tr		--	16	21	msec	
		Tf		--	19	24	msec	
CIE Color coordinate	White	XW		0.284	0.304	0.324		
		YW		0.304	0.324	0.344		
	Red	XR		0.627	0.647	0.667		
		YR		0.297	0.317	0.337		
	Green	XG		0.238	0.258	0.278		
		YG		0.546	0.566	0.586		
	Blue	XB		0.120	0.140	0.160		
		YB		0.069	0.089	0.109		
Viewing Angle	Hor.	LEFT	Center CR>=10	--	80	--	Deg.	
		RIGHT		--	80	--		
	Ver.	UP		--	80	--		
		DOWN		--	80	--		
Uniformity	Un			--	80	--	%	

3.2 Measuring Condition

A Measuring surrounding: dark room

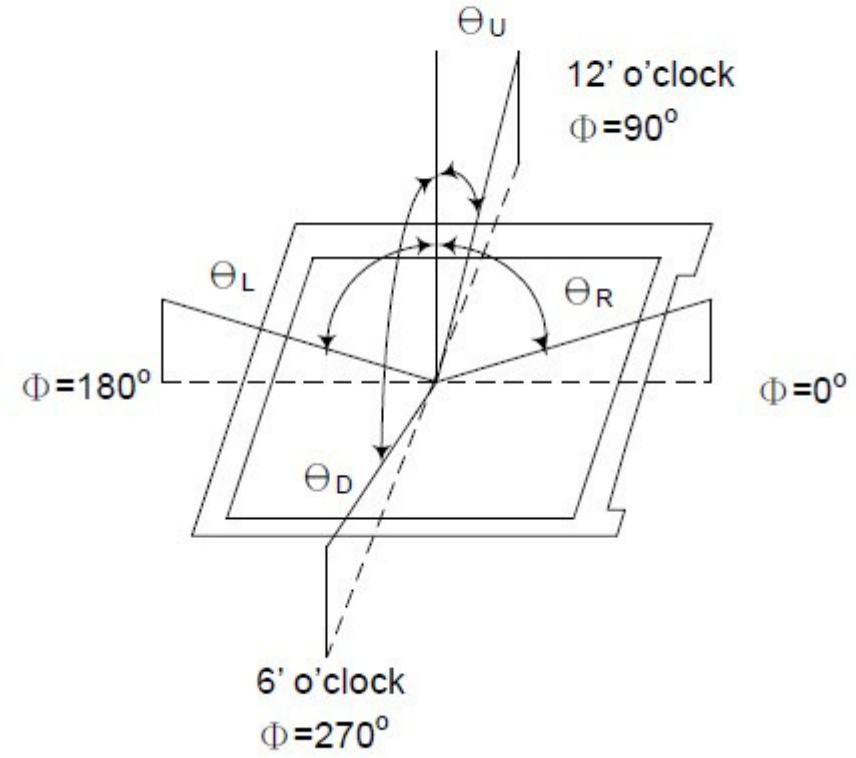
B Ambient temperature: 25+/-2 ℃

3.3 Measuring Equipment

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

B Measuring spot size:20-21 mm

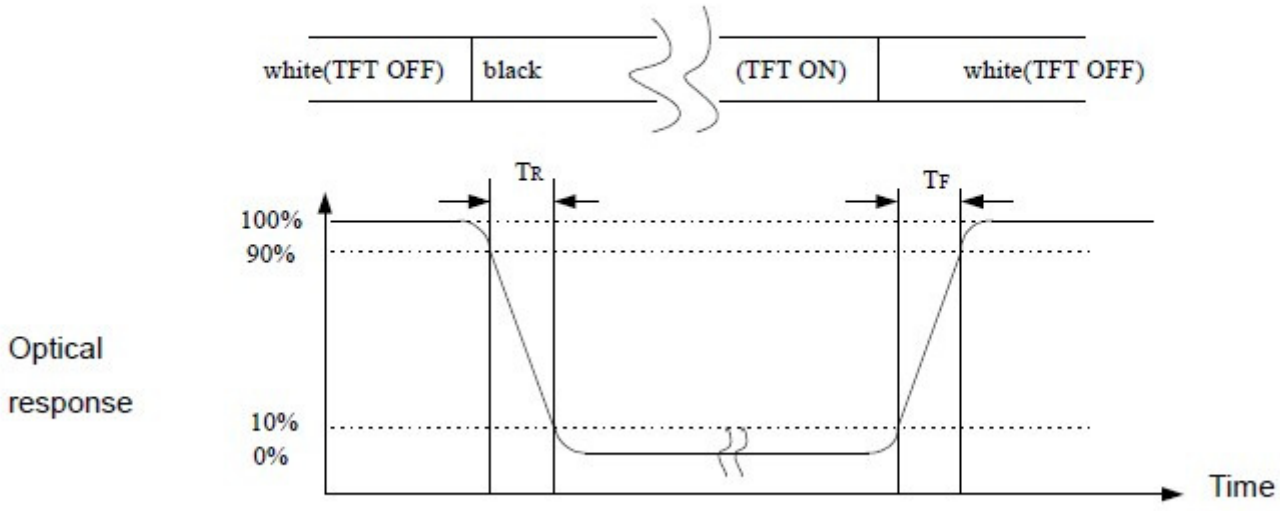
Note (1) Definition of Viewing Angle :



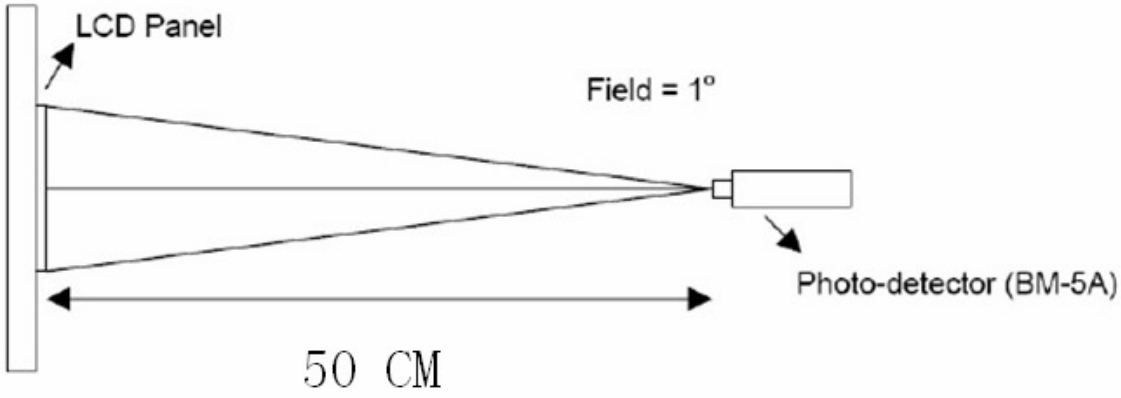
Note (2) Definition of Contrast Ratio (CR):
Measured at the center point of panel

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

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



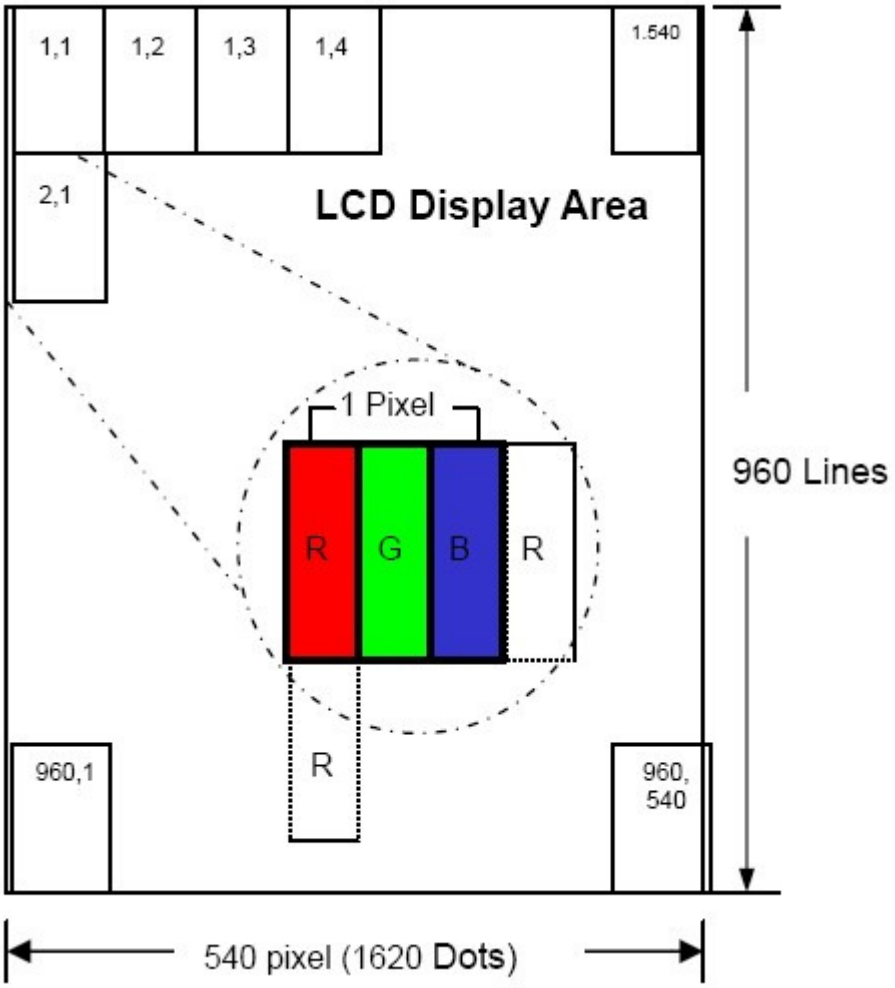
Note (4) Definition of optical measurement setup



Note (5) Rubbing Direction (The different Rubbing Direction will cause the different optimal view direction.

4. BLOCK DIAGRAM

4.1 Pixel Format



5. INTERFACE PIN CONNECTION

PIN NO	SYMBOL	Description
1	NC	No connection
2	DVDD	Power supper 2.8v
3	IOVDD	Power supper 1.8~2.8v
4	NC	No connection
5	RESET	Global reset pin.
6	GND	Ground
7	NC	No connection
8	LED_PWM	This pin is connect to the external LED driver.
9	LED-	Power for LED backlight (Cathode)
10	LED+	Power for LED backlight (Anode)
11	GND	Ground
12	GND	Ground
13	NC	No connection
14	LPTE	Tearing effect output pin to synchronize MCU to frame writing
15	GND	Ground
16	TDP0	HSSI_D0_P/N are differential small amplitude signals.
17	TDN0	
18	GND	Ground
19	TDP1	HSSI_D1_P/N are differential small amplitude signals.
20	TDN1	
21	GND	Ground
22	TCP	HSSI_CLK_P/N are differential small amplitude signals
23	TCN	
24	GND	Ground

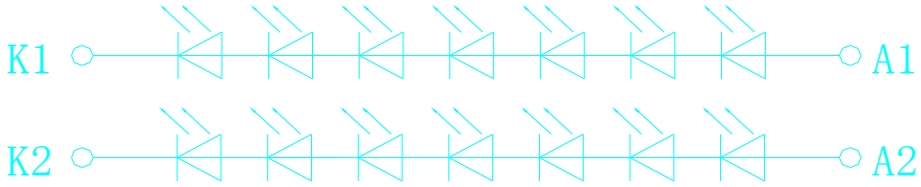
6. BACK LIGHT

6.1 The Characteristic Of The Back Light

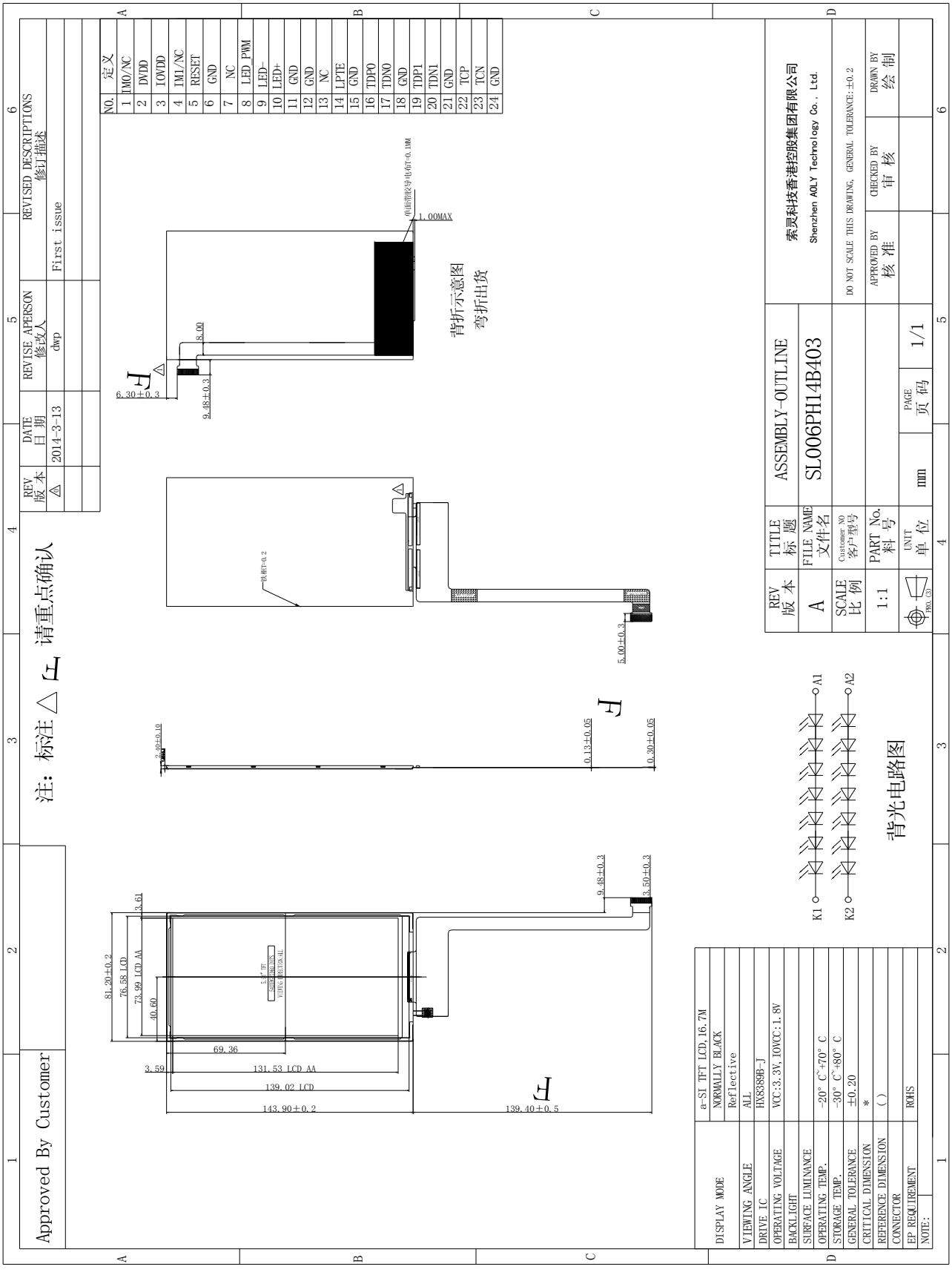
The back-light system is an edge-lighting type with 14 LEDS.

The characteristic of the LED is shown in the following tables.

Item	Symbol	Min	Type.	Max.	Unit	Note
LED current	IF		40		mA	
LED voltage	V	21.0	22.4	23.8	V	
Coordinates	X	0.260		0.310		
	Y	0.270		0.320		
Brightness Uniformity	Iv-m		80			
Backlight lifetime	T		20000		hrs	25 °C



7. OUTLINE DIMENSION



Records of Revision

DATE	REF.PAGE PARAGRAPH DRAWING No.	REVISED No.	SUMMARY	REMARK
2014-12-8	ALL	V00	FIRST ISSUE	lxzh