LESSON 立信（万安）智显科技有限公司 Lesson Smart Display Technology Co.,Ltd

SPECIFICATION

Customer: _____

Model Name: LSC116I04-E-V1

Date: _____

Version: 0 _____

☐ Preliminary Specification

■ Final Specification

For Customer's Acceptance

Approved by	Comment

深圳地址：深圳市龙华区大浪北路星河时代大厦2301、2302室
工厂地址：江西省吉安市万安县工业园二区2020厂房4号楼
联系人：陈先生电话：15019200406
网址：www.lessonsd.com

CONTENTS

NO.	ITEM	PAGE
1	GENERAL DESCRIPTION	3
2	ABSOLUTE MAXIMUM RATINGS	4
3	OPTICAL CHARACTERISTICS	5
4	BLOCK DIAGRAM	9
5	INTERFACE PIN CONNECTION	10
6	BACK LIGHT	11
7	OUTLINE DIMENSION	12
8	Power、Signal Sequence	13

1. GENERAL DESCRIPTION

The display model LSC116I04-E-V1 is a ALL O‘ clock 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 11.6 inch diagonally measured active display area with WSVGA(1920 horizontal by 1080 vertical pixel) resolution in a stripe arrangement. Display 16.7M colors by 8 bit R.G.B signal input.

General specifications are summarized in the following table:

1.1 General information

Item	Specification	Unit
Outline Dimension	263.4×157.22×2.65 (Type.)	mm
Display area	256.32(H)×144.18(V)	mm
Number of Pixel	1920RGB(H)×1080(V)	pixels
Pixel pitch	0.1335(H)×0.1335(V)	mm
Pixel arrangement	RGB Vertical stripe	
Display mode	IPS	
Surface treatment	AG25%	
Back-light	White LED	
System interface	eDP 1.2	
NTSC	72（type）	%
Viewing Direction	ALL VIEW	
Power Consumption	TBD	mW

2. ABSOLUTE MAXIMUM RATINGS

2.1 Electrical Absolute Rating:

Item	Symbol	Min.	Type.	Max.	Unit	NOTE
Supply Voltage	VDD	3.1	3.3	3.4	V	
	AVEE	-	-	-	V	
	AVDD	-	-	-	V	
	VBL	7	12	21	V	
	调整对比度，调大颜色变深，调小颜色变浅					
	VGH	-	-	-	V	
	VGL	-	-	-	V	
VCOM	VCOMin	-	-	-	V	
	TYPE VCOM 电压值只做参考,具体以实际效果为准(根据 FLIICKER 状态可调整），IPS 屏，调 VCOM 可以解决残影					
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}	0	45	℃	
Storage Temperature	T_{STG}	-20	60	℃	

2.3 TP

Environment Conditions

项目 Items	标准	值 Value
工作环境（Operating Temperature）	1. 功能 OK 2. 外观 OK	-20℃~+70℃，≤90%RH
存储环境（Temperaturepreservation）		-30℃~+80℃，≤90%RH

Mechanical characteristics

项目 Items	值 Value
手指接触面积（Finger contact area）	Φ≧5mm
光学特征（Optical Characteristics）	透光率 Transmittance：≥85%
表面硬度（Surface Hardness）	6H

Electric Characteristics

项目 Items	值 Value
工作电压（Working voltage）	2.8-3.3V
绝缘阻抗（Insulation Resistance）	＞20M　DC25V
工作电流（Working current）	12mA~14.5mA
响应时间 (Response time)	≤12ms

3. OPTICAL CHARACTERISTICS

3.1 Optical specification

ITEM		SYMBOL	CONDITIONS	SPECIFICATIONS			UNIT	NOTE
				MIN.	TYP.	MAX.		
Brightness		B	Viewing normal angle		220		Cd/m^2	(1)(2)(3)(4)(5)
Contrast Ratio		CR		800	1000	--	--	
colo(u)r temperature		CT		--	--	--	--	
Response Time		Tr+Tf		--	30	35	msec	
CIE Color coordinate	White	XW		TBD	TBD	TBD		
		YW		TBD	TBD	TBD		
	Red	XR		TBD	TBD	TBD		
		YR		TBD	TBD	TBD		
	Green	XG		TBD	TBD	TBD		
		YG		TBD	TBD	TBD		
	Blue	XB		TBD	TBD	TBD		
		YB		TBD	TBD	TBD		
Viewing Angle	Hor.	LEFT	Center CR>=10	--	85	--	Deg.	
		RIGHT		--	85	--		
	Ver.	UP		--	85	--		
		DOWN		--	85	--		
Uniformity	Un			--	75	--	%	

3.2 Measuring Condition

A Measuring surrounding:dark room

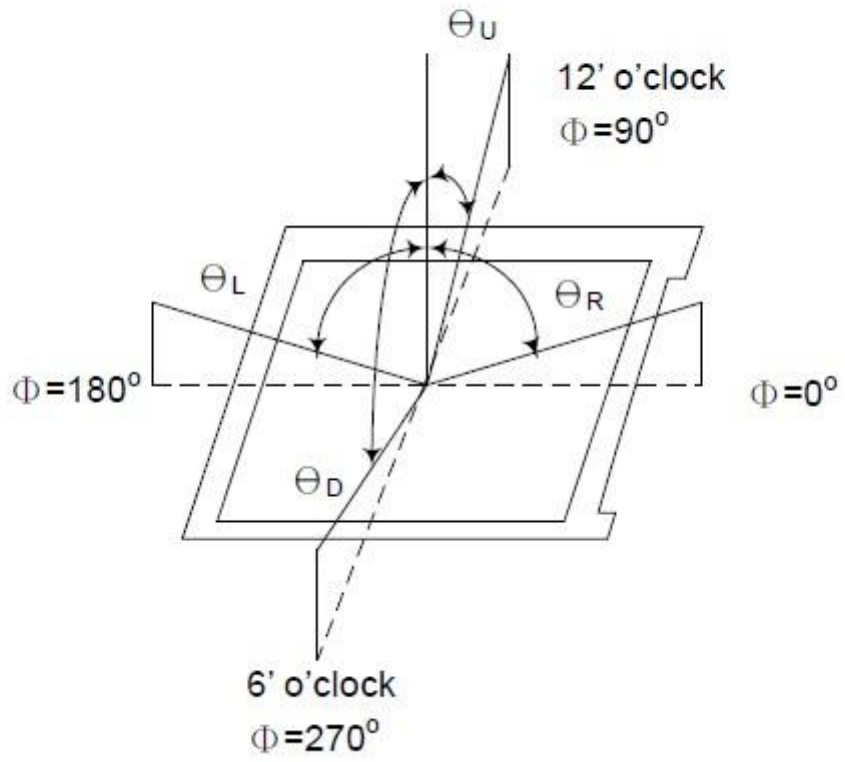
B Ambient temperature: 25+/-2 ℃

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

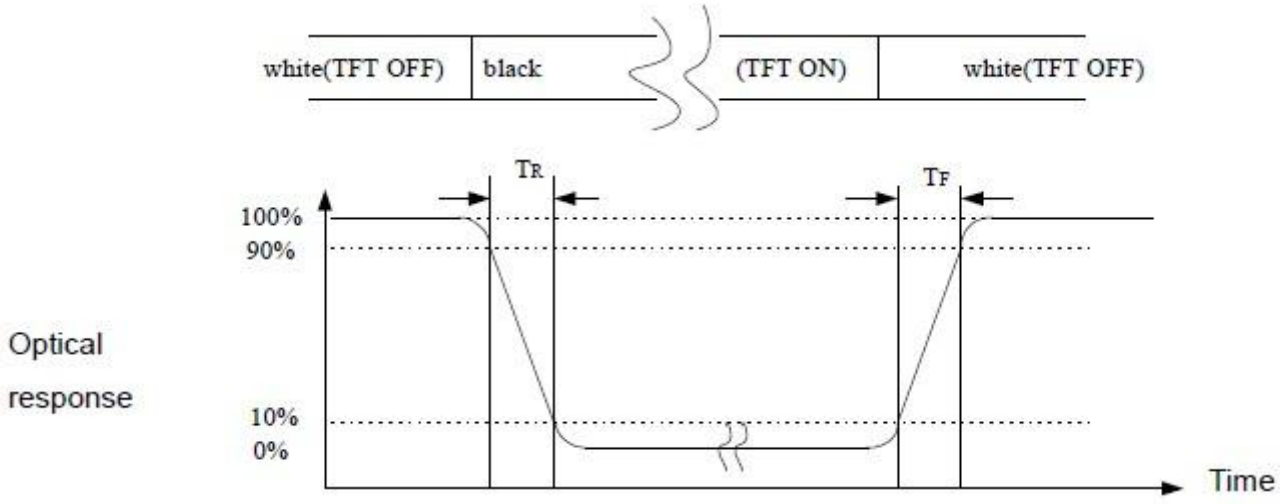
Note (1) Definition of Viewing Angle :



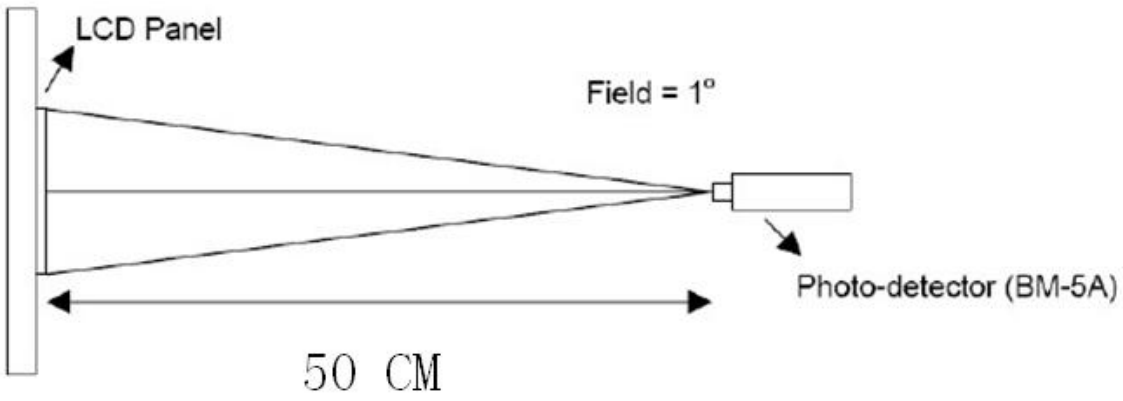
Note (2) Definition of Contrast Ratio (CR):
Measured at the center point of panel

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

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



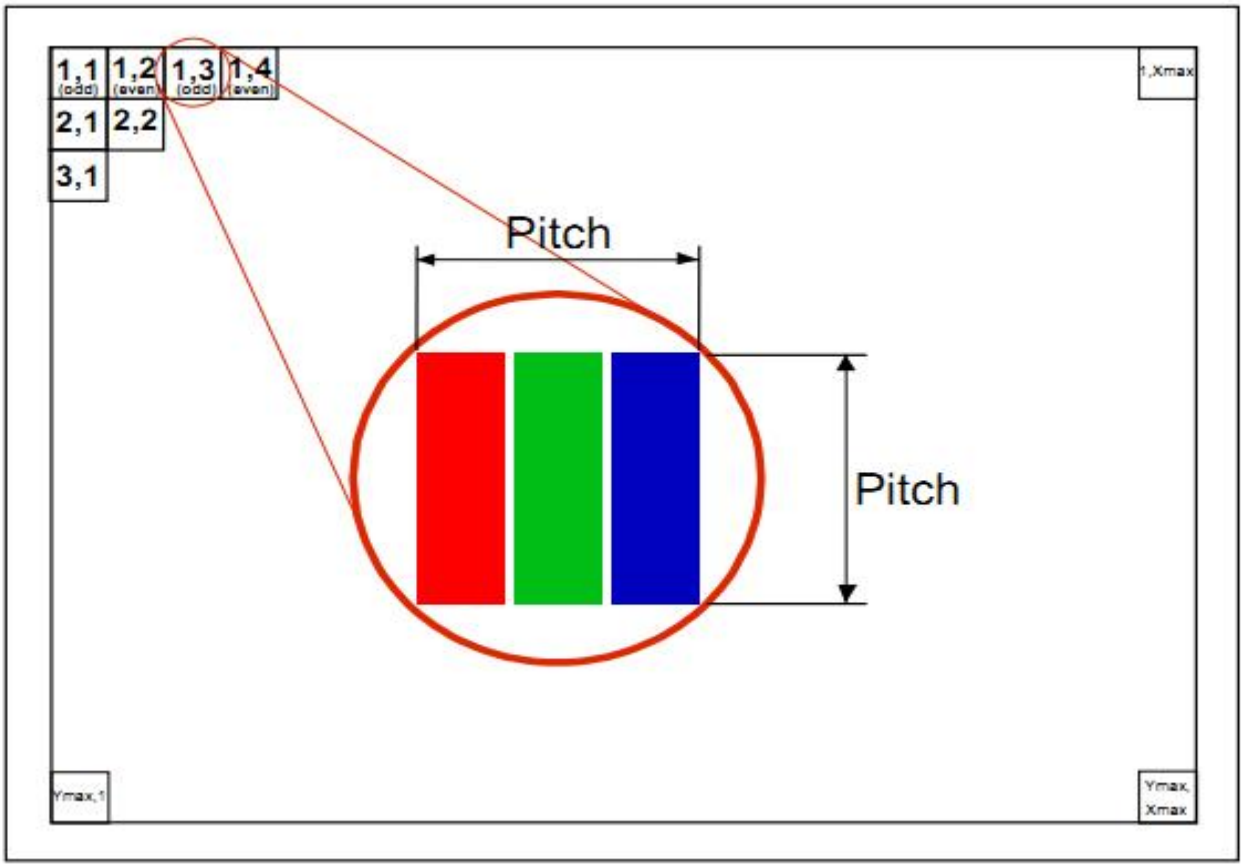
Note (4) Definition of optical measurement setup



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	OPEN
2	H_GND	High Speed Ground
3	LANE1_N	Complement Signal Link Lane 1
4	LANE1_P	True Signal Link Lane 1
5	H_GND	High Speed Ground
6	LANE0_N	Complement Signal Link Lane 0
7	LANE0_P	True Signal Link Lane 0
8	H_GND	High Speed Ground
9	AUX_CH_P	True Signal Auxiliary Channel
10	AUX_CH_N	Complement Signal Auxiliary Channel
11	H_GND	High Speed Ground
12-13	LCD_VDD	LCD logic and driver power(3.3V)
14	NC	OPEN
15-16	LCD_GND	LCD logic and driver ground
17	HPD	HPD signal pin
18-21	BL_GND	Backlight ground
22	BL_ENABLE	Backlight ON/OFF
23	BL_PWM	System PWM
24-25	NC	OPEN
26-29	BL_PWR	Power for LED backlight (12V)
30	NC	OPEN

TP pin USB IIC

PIN #	Assignment	PIN #	Assignment
1	VCC(5V)	7	GND
2	VCC(5V)	8	SCL(3.3V)
3	USB_D-	9	SDA(3.3V)
4	USB_D+	10	RST(3.3V)
5	GND	11	INT(3.3V)
6	GND	12	VCC(3.3V)

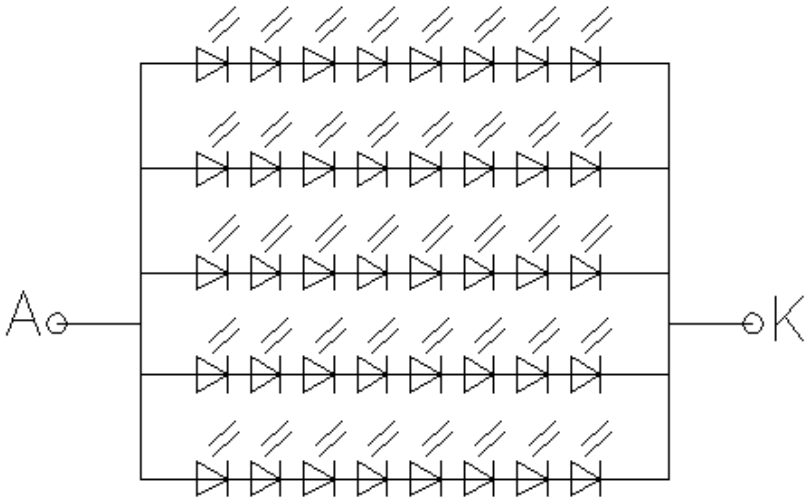
6. BACK LIGHT

6.1 The Characteristic Of The Back Light

The back-light system is an edge-lighting type with 40 LEDS. The characteristic of the LED is shown in the following tables.

Item	Symbol	Min	Typ.	Max.	Unit	Note
LED current	IF	-	-	-	mA	-
LED voltage	V	-	-	-	V	-
Brightness Uniformity	Iv-m	-	80	-	-	-
Backlight lifetime	T	-	15000	-	hrs	25 ℃

6.2 Back Light Circuit

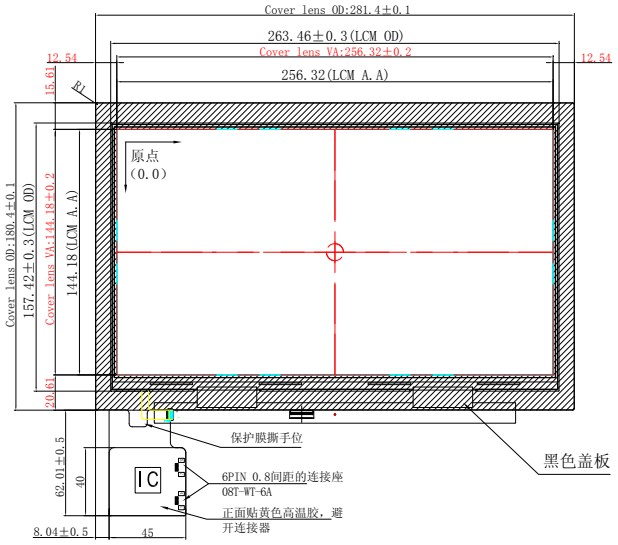


背光电路图

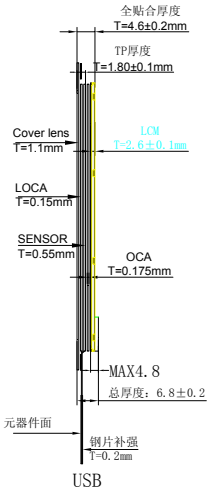
Backlight LED Circuit

REV.	NATURE OF MODIFICATION	NAME	DATE
REV.0			
REV.2	盖板视窗内缩0.5mm	JYB	20201019

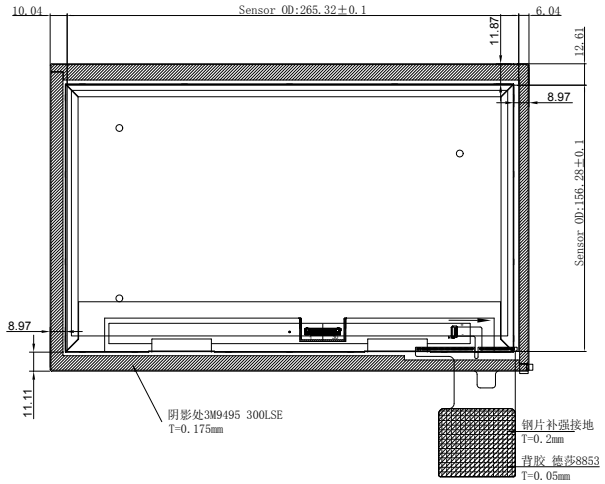
正视图



侧视图

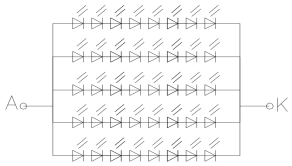


背视图



技术参数：

1. Cover GLASS+ITO GLASS+SCA+FPC
   ITO GLASS:0.55mm
   SCA=0.2mm
   Cover GLASS:1.1mm（化学钢化）
   总厚=1.85±0.15mm
   全贴合厚度：5.2±0.25mm
   IC:ILI2511 (41*23)
2. 透光率:≥85%;
3. 表面硬度：≥6H;
4. 工作环境：-10℃~+60℃，≤90%RH;
5. 储存环境：-20℃~+70℃，≤90%RH;
6. 未注尺寸公差按±0.2mm。



背光电路图

Backlight LED Circuit

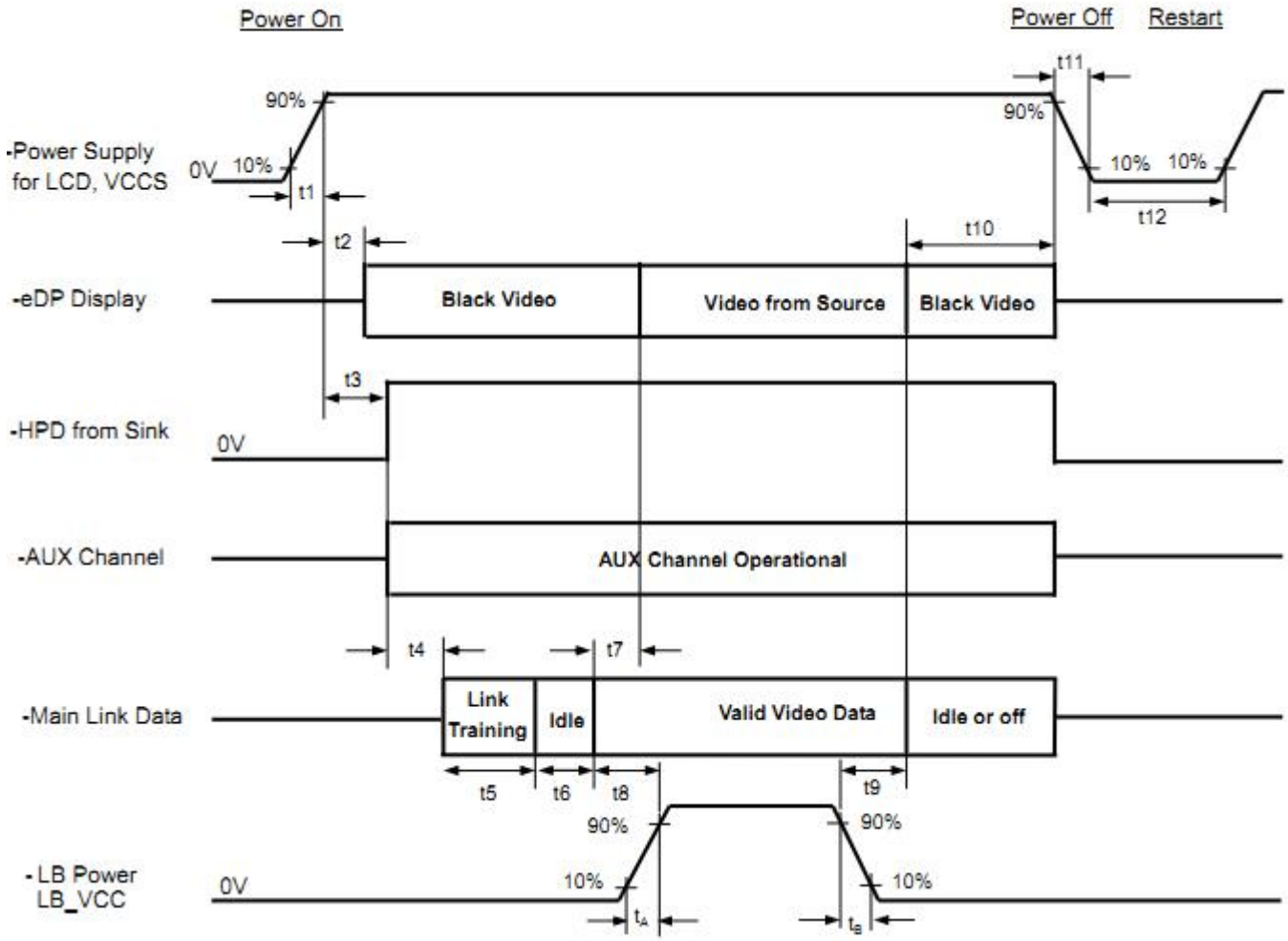
USB IIC

PIN #	Assignment	PIN #	Assignment
1	VCC(5V)	7	GND
2	VCC(5V)	8	SCL(3.3V)
3	USB_D-	9	SDA(3.3V)
4	USB_D+	10	RST(3.3V)
5	GND	11	INT(3.3V)
6	GND	12	VCC(3.3V)

立信（万安）智显科技有限公司						
DRAWN BY: 绘 图:	HTY	2020-07-24	TITLE ID: 产品编号:		UNITS: 单 位:	MM
CHECKED BY: 审 核:			CUSTOMER ID: 客户编号:		SCALE: 比 例:	1:1
APPROVED BY: 批 准:			MANAGE ID: 管理编号:	Ver.2	PAGE : 页 码:	1/1
客户确认: 确认此型号所有图纸；签字确认：						

8. Power、Signal Sequence

4.6 POWER ON/OFF SEQUENCE



Records of Revision

DATE	REF.PAGE PARAGRAPH DRAWING No.	REVISED No.	SUMMARY	Revised By
20200820	ALL	V00	FIRST ISSUE	CH