SPECIFICATION
FOR
APPROVAL

(◆) **Preliminary Specification**
( ) **Final Specification**

Title	13.3" WXGA+ TFT LCD

Customer	Young Jin Co., Ltd.
MODEL	

SUPPLIER	LG Display Co., Ltd.
*MODEL	LP133WP1
Suffix	TJAA

*When you obtain standard approval,
please use the above model name without suffix

APPROVED BY	SIGNATURE
/	
/	
/	

Please return 1 copy for your confirmation with your signature and comments.

APPROVED BY	SIGNATURE
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G.W.Do / Manager	
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J.H.Joo / Engineer	

Product Engineering Dept.
LG Display Co., Ltd

Contents

RECORD OF REVISIONS

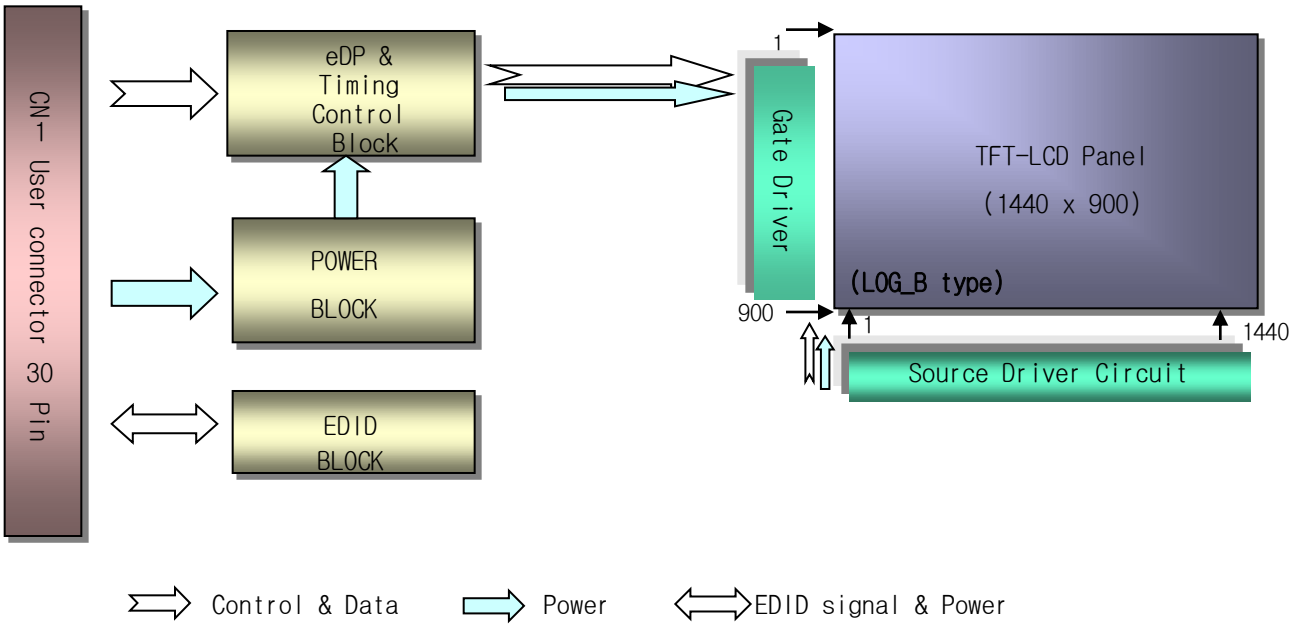
Revision No	Revision Date	Page	Description	EDID ver.
0.0	02.Jul. 2013	-	First Draft	1.0

1. General Description

The LP133WP1 is a Color Active Matrix Liquid Crystal Display. The matrix employs a-Si Thin Film Transistor as the active element. It is a transmissive type display operating in the normally white mode. This TFT-LCD has 13.3 inches diagonally measured active display area with HD resolution(1440 horizontal by 900 vertical pixel array). Each pixel is divided into Red, Green and Blue sub-pixels or dots which are arranged in vertical stripes. Gray scale or the brightness of the sub-pixel color is determined with a 6-bit gray scale signal for each dot, thus, presenting a palette of more than 262,144 colors.

The LP133WP1 has been designed to apply the interface method that enables low power, high speed, low EMI.

The LP133WP1 is intended to support applications where thin thickness, low power are critical factors and graphic displays are important. In combination with the vertical arrangement of the sub-pixels, the LP133WP1 characteristics provide an excellent flat display for office automation products such as Notebook PC.



General Features

Active Screen Size	13.3 inches diagonal
Outline Dimension	299.41 (H) × 190.78 (V) × 1.15(D, Max.) mm
Pixel Pitch	198.75 um × 198.75 um
Pixel Format	1440 horiz. by 900 vert. Pixels RGB strip arrangement
Color Depth	6-bit, 262,144 colors
Transmittance	5.7%(Typ)
Power Consumption	Logic : 0.75W(Typ.@Mosaic)
Weight	135g
Display Operating Mode	Transmissive mode, normally White
Surface Treatment	Glare, 3H

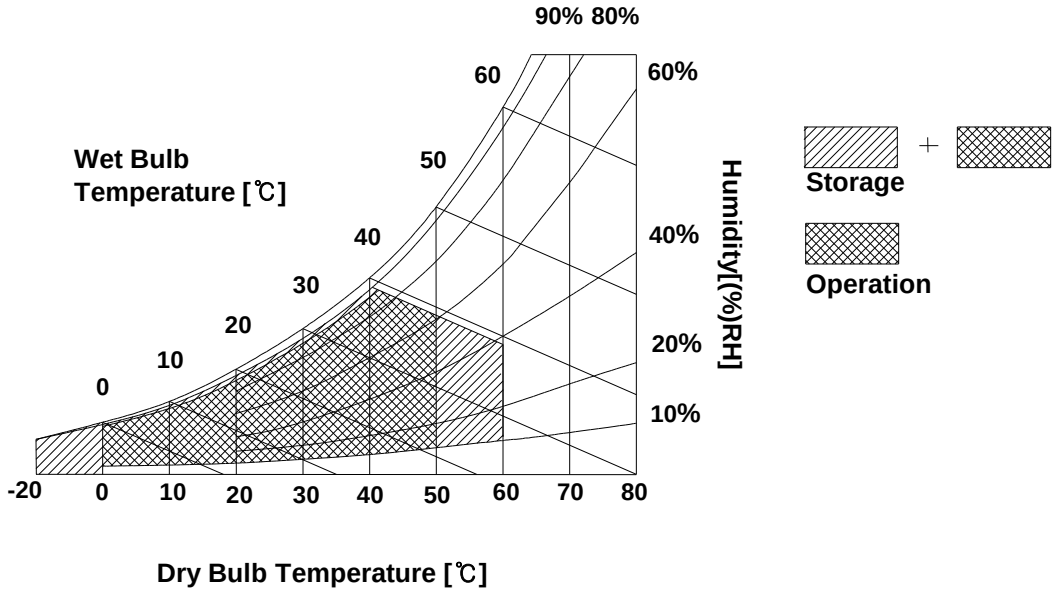
2. Absolute Maximum Ratings

The following are maximum values which, if exceeded, may cause faulty operation or damage to the unit.

Table 1. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Values		Units	Notes
		Min	Max		
Power Input Voltage	VCC	-0.3	4.0	Vdc	at 25 ± 5°C
Operating Temperature	TOP	0	50	°C	1
Storage Temperature	HST	-20	60	°C	1
Operating Ambient Humidity	HOP	10	90	%RH	1
Storage Humidity	HST	10	90	%RH	1

Note : 1. Temperature and relative humidity range are shown in the figure below.
Wet bulb temperature should be 39°C Max, and no condensation of water.



3. Electrical Specifications

3-1. Electrical Characteristics

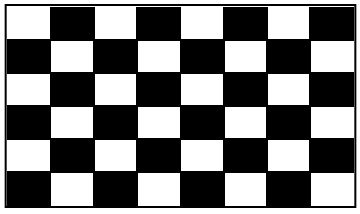
The LP133WP1 requires only one power input. That is employed to power the LCD electronics and to drive the TFT array and liquid crystal.

Table 2. ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Values			Unit	Notes
		Min	Typ.	Max		
MODULE :						
Power Supply Input Voltage	VCC	3.0	3.3	3.6	V_{DC}	
Power Supply Input Current	I_{CC} Mosaic	-	227	261	mA	1
Power Consumption	Pc	-	0.75	0.86	Watt	1
Differential Impedance	Zm	90	100	110	Ohm	2

Note)

1. The specified current and power consumption are under the Vcc = 3.3V , 25℃, fv = 60Hz condition whereas Mosaic pattern is displayed and fv is the frame frequency.

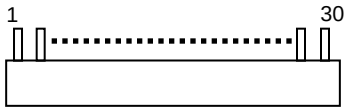


2. This impedance value is needed to proper display and measured form eDP Tx to the mating connector.

3-2. Interface Connections

This LCD employs two interface connections, a 30 pin connector is used for the module electronics interface and the other connector is used for the integral backlight system.
The electronics interface connector is a model **20525-030E-02** manufactured by I-PEX.

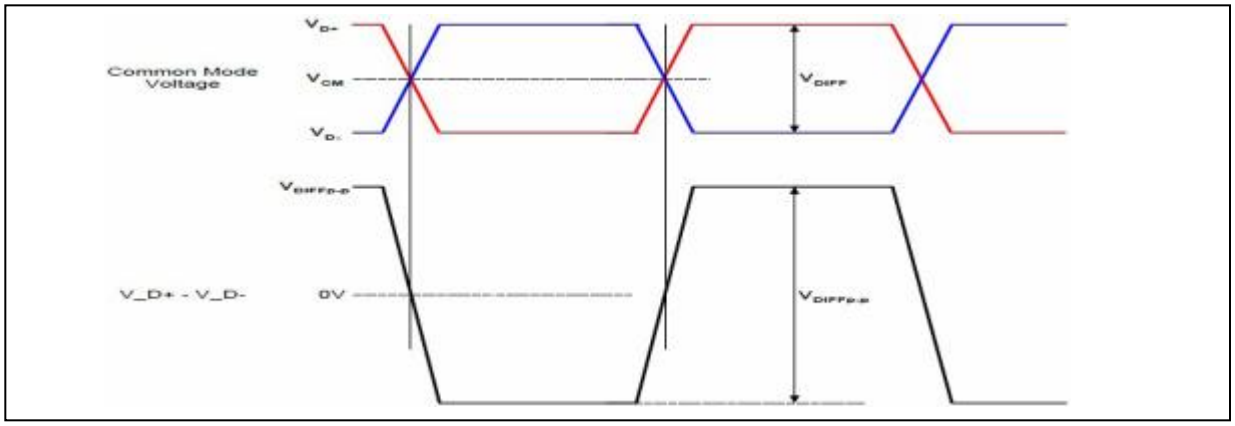
Table 3. MODULE CONNECTOR PIN CONFIGURATION (CN1)

Pin	Symbol	Description	Notes
1	DATA_EDID	DDC Data	**[eDP Receiver]** Analogix, ANX9858 **[Connector]** 20525-030E-02 (IPEX), 30pin **[Connector pin arrangement]** LCD rear view 
2	VLED	LED Anode (Positive)	
3	VLED	LED Anode (Positive)	
4	VLED	LED Anode (Positive)	
5	NC	Not connected	
6	FB1	LED Cathode (Negative)	
7	FB2	LED Cathode (Negative)	
8	FB3	LED Cathode (Negative)	
9	FB4	LED Cathode (Negative)	
10	FB5	LED Cathode (Negative)	
11	FB6	LED Cathode (Negative)	
12	Vsync	LED Synchronization signal	
13	FSS	Frame Sync Signal	
14	HPD	HPD signal pin	
15	GND	Ground	
16	GND	Ground	
17	BIST	LCD Panel Self Test Enable	
18	VCC	Power Supply, 3.3V Typ.	
19	VCC	Power Supply, 3.3V Typ.	
20	GND	Ground	
21	AUX_N	Complement Signal Auxiliary Ch.	
22	AUX_P	True Signal Auxiliary Ch.	
23	GND	Ground	
24	DP0P	True Signal Link Lane 0	
25	DP0N	Complement Signal Link Lane 0	
26	GND	Ground	
27	NC	Not Connected	
28	NC	Not Connected	
29	GND	Ground	
30	CLK_EDID	DDC Clock	

3-3. eDP Signal Timing Specifications

3-3-1. DC Specification

The VESA Display Port related AC specification is compliant with the VESA Display Port Standard v1.1a.



Description	Symbol	Min	Max	Unit	Notes
Differential peak-to-peak Input voltage	VDIFF p-p	120	-	mV	For high bit rate
		40	-		For reduced bit rate
Rx DC common mode voltage	VCM	0	2.0	V	-

3-3-2. AC Specification

The VESA Display Port related AC specification is compliant with the VESA Display Port Standard v1.1a.

Description	Symbol	Min	Typ	Max	Unit	Notes
Unit Interval for high bit rate (2.7Gbps/lane)	UI_High_Rate	-	370	-	ps	Range is nominal ±350ppm. DisplayPort Link Rx does not require local crystal for link clock generation
Unit Interval for high bit rate (1.62Gbps/lane)	UI_Low_Rate	-	617	-	ps	
Lane-to-Lane skew	V Rx-SKEW-INTER_PAIR	-	-	5200	ps	-
Lane intra-pair skew	V Rx-SKEW-INTRA_PAIR	-	-	100	ps	For high bit rate
		-	-	300	ps	For reduced bit rate

3-4. Signal Timing Specifications

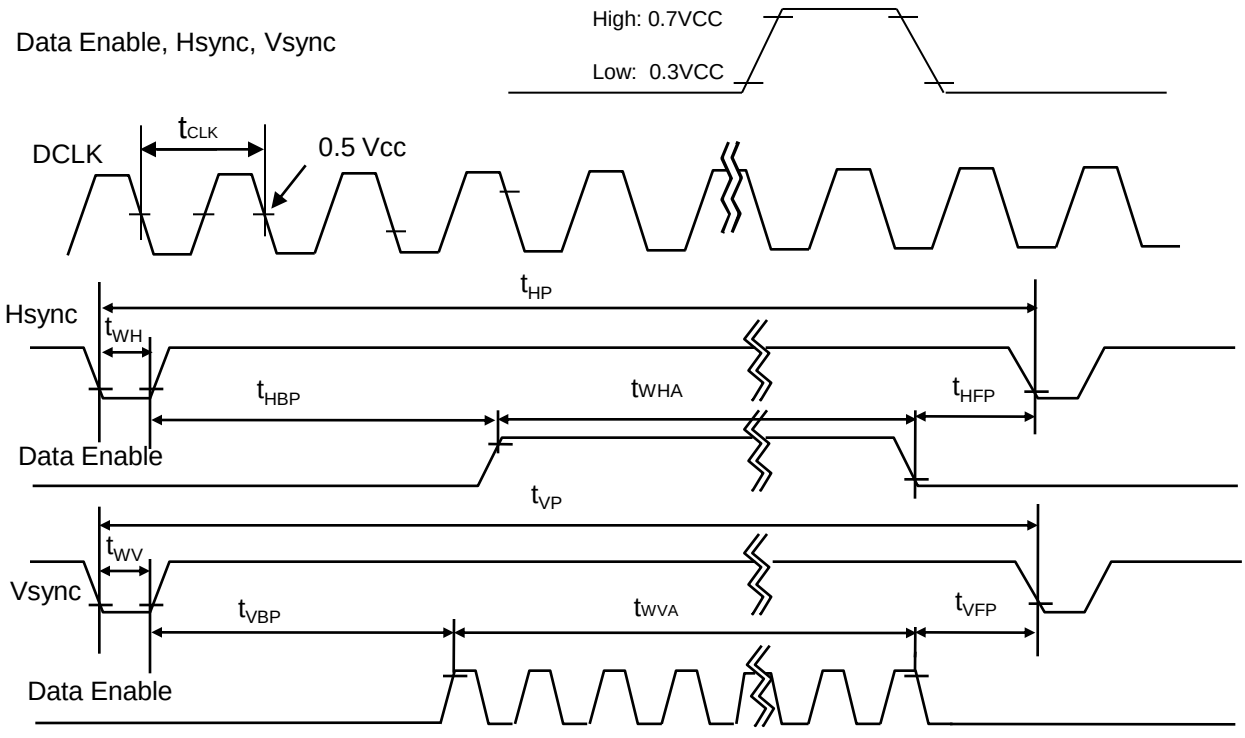
This is the signal timing required at the input of the User connector. All of the interface signal timing should be satisfied with the following specifications and specifications of LVDS Tx/Rx for its proper operation.

Table 6. TIMING TABLE

ITEM	Symbol		Min.	Typ.	Max.	Unit	Note
DCLK	Frequency	f_{CLK}	87.8	91.54	94.5	MHz	
Hsync	Active	tw_{HA}	1440	1440	1440	tCLK	
	Period	t_{HP}	1600	1652	1676		
	Width-Active	t_{WH}	32	42	50		
Vsync	Active	tw_{VA}	900	900	900	tHP	
	Period	t_{VP}	915	926	940		
	Width-Active	t_{WV}	3	6	9		
Data Enable	Horizontal back porch	t_{HBP}	80	106	114	tCLK	
	Horizontal front porch	t_{HFP}	48	64	72		
	Vertical back porch	t_{VBP}	9	17	28	tHP	
	Vertical front porch	t_{VFP}	3	3	3		

3-5. Signal Timing Waveforms

Condition : VCC =3.3V



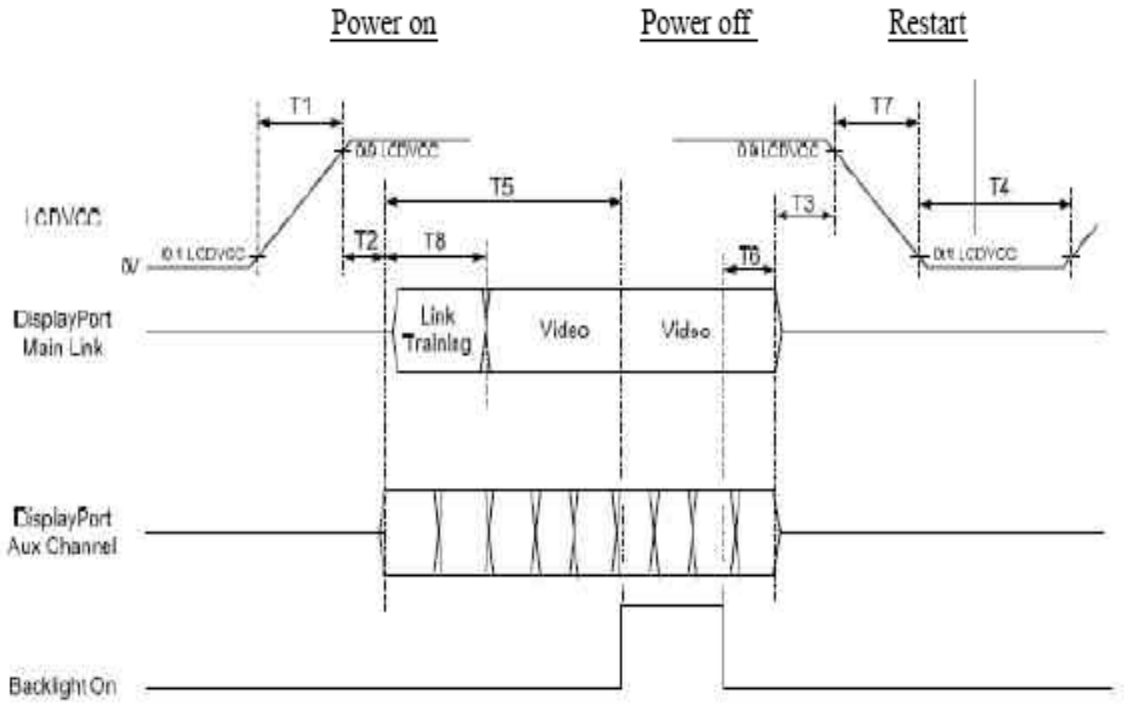
3-6. Color Input Data Reference

The brightness of each primary color (red,green and blue) is based on the 6-bit gray scale data input for the color ; the higher the binary input, the brighter the color. The table below provides a reference for color versus data input.

Table 7. COLOR DATA REFERENCE

Color		Input Color Data																	
		RED						GREEN						BLUE					
		MSB					LSB	MSB					LSB	MSB					LSB
		R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0
Basic Color	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
RED	RED (00)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED (01)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	…			…						…						…			
	RED (62)	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED (63)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
GREEN	GREEN (00)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREEN (01)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	...			...						...						...			
	GREEN (62)	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0
	GREEN (63)	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
BLUE	BLUE (00)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BLUE (01)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	…			…						…						…			
	BLUE (62)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
	BLUE (63)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1

3-7. Power Sequence



Parameter	Limit Values		Units	Description
	Min	Max		
T1	0.5	10	ms	Power rail rise time 10% to 90%
T2	0	50	ms	Delay from power on to Sink Aux Channel response ready (note 1)
T3	0	50	ms	Delay from Main Link activity to power off
T4	500	-	ms	Power off time
T5	200	-	ms	Delay from Main Link enable to backlight enable
T6	200	-	ms	Delay from backlight disable to Main Link disable
T7	-	10	ms	Power rail fall time 90% to 10%
T8	-	10	ms	Link training duration, active video enabled by the end of this period

4. Optical Specification

Optical characteristics are determined after the unit has been 'ON' and stable for approximately 20 minutes in a dark environment at 25°C. The values specified are at an approximate distance 50cm from the LCD surface at a viewing angle of Φ and Θ equal to 0°.
FIG. 1 presents additional information concerning the measurement equipment and method.

FIG. 1 Optical Characteristic Measurement Equipment and Method

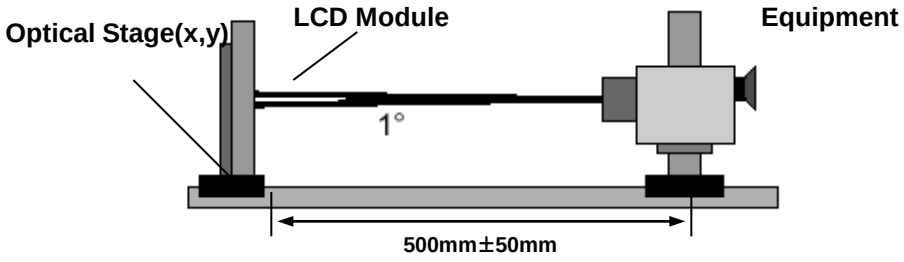


Table 9. OPTICAL CHARACTERISTICS

Ta=25°C, VCC=3.3V, fv=60Hz, f_{CLK}= 72MHz, ILED = 20mA

Parameter		Symbol	Condition	Min	Typ.	Max	Units	Notes
Transmittance		-	Center 1 Point	5.2	5.5	-	%	Fig 2
C/R		-	Center 1 Point	500	600	-	-	
Response time			-	-	16	20	ms	Fig 3
Viewing angle	Horizontal	Θ	φx(Left,Right)	±65	±70	-	°	Fig 4
	Vertical	Θ	φyu(Up)	50		-		
		Θ	φyd(Down)	50		-		
White chromaticity deviation (W.R.T center)			d u'v'	-	-	-		
White chromaticity deviation (Over panel)			d u'v'	-	-	-		
White chromaticity deviation (Worst neighbor)			d u'v'	-	-	-		
Cross Talk		DSHA	-	-	-	4.0	%	Fig 5
Gray Scale		-	-	Gamma 2.2				

Table 10. RGB Color Chromaticity

	White		Red		Green		Blue	
	Wx	Wy	Rx	Ry	Gx	Gy	Bx	By
Min.	0.298	0.314	0.549	0.304	0.296	0.514	0.124	0.099
Typ.	0.313	0.329	0.579	0.334	0.326	0.544	0.154	0.129
Max.	0.328	0.344	0.609	0.364	0.356	0.574	0.184	0.159

Notes)

1. Contrast Ratio(CR) is defined mathematically as

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

2. Response time is the time required for the display to transition from white to black (rise time, Tr_R) and from black to white(Decay Time, Tr_D). For additional information see FIG 3.

3. Viewing angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see FIG 4.

4. Gray scale specification * f_V=60Hz

Gray Level	Luminance [%] (Typ.)
L0	0.18
L7	1.25
L15	4.30
L23	9.80
L31	19.2
L39	34.2
L47	53.5
L55	74.5
L63	100

5. RGB Chromaticity
- Measure : Center Point
- Back Light Condition

Items		Spec.			Remarks
Color		Min	Typ.	Max	
B/L	Wx	0.291	0.316	0.341	Rank: 4G,5G, 4H,5H
	Wy	0.275	0.300	0.325	

FIG. 2 Luminance

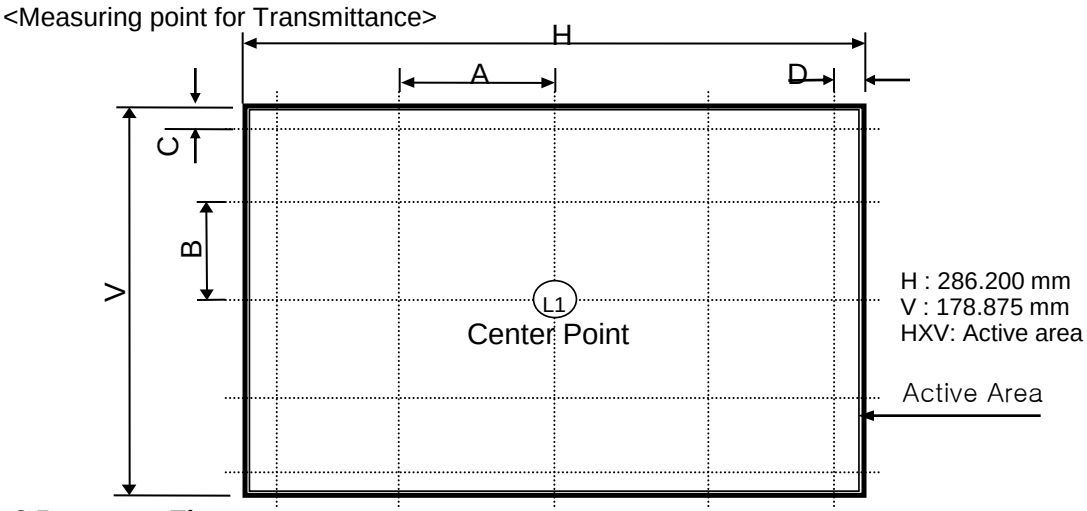


FIG. 3 Response Time

The response time is defined as the following figure and shall be measured by switching the input signal for “black” and “white”.

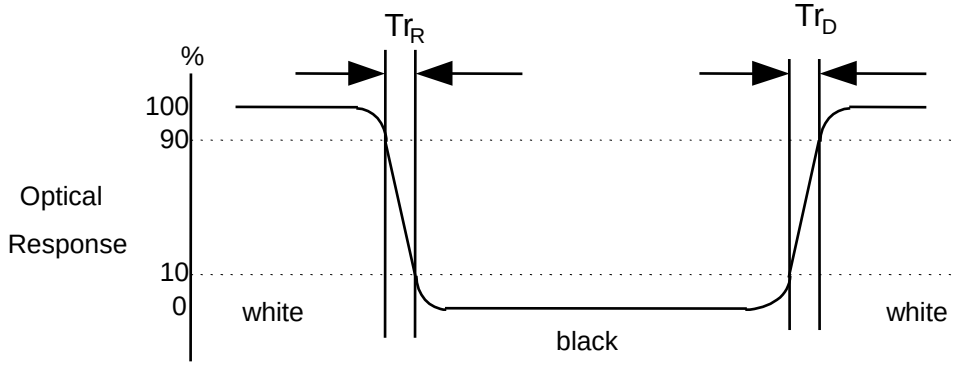


FIG. 4 Viewing angle

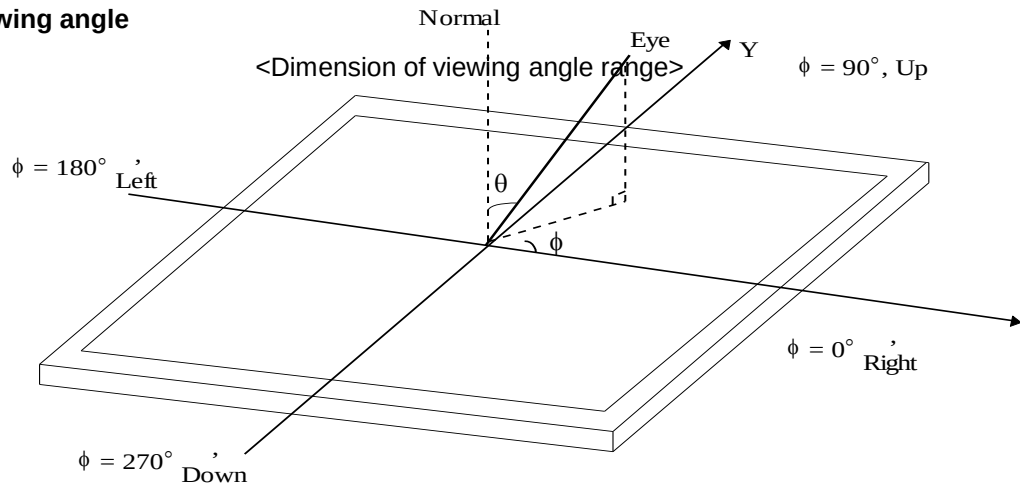


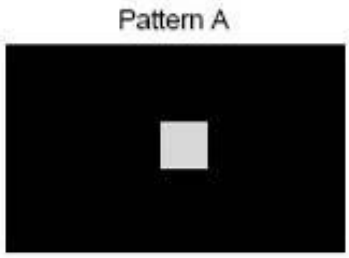
FIG. 5 Cross talk

No visual cross-talk will be allowed. Two luminance values are measured at center spot with 50 x 50 pixels. The cross-talk, D_{SHA}, is defined as,

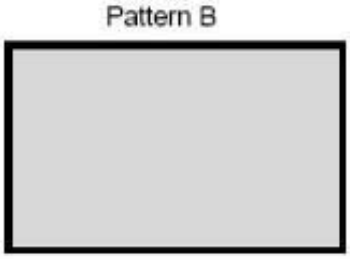
$$D_{SHA} = (L_B - L_A)/L_B \cdot 100\%,$$

Where, L_A = Luminance in Pattern A

L_B = Luminance in Pattern B.



Pattern A
Gray Scale = 31 in center
Black in surrounding area



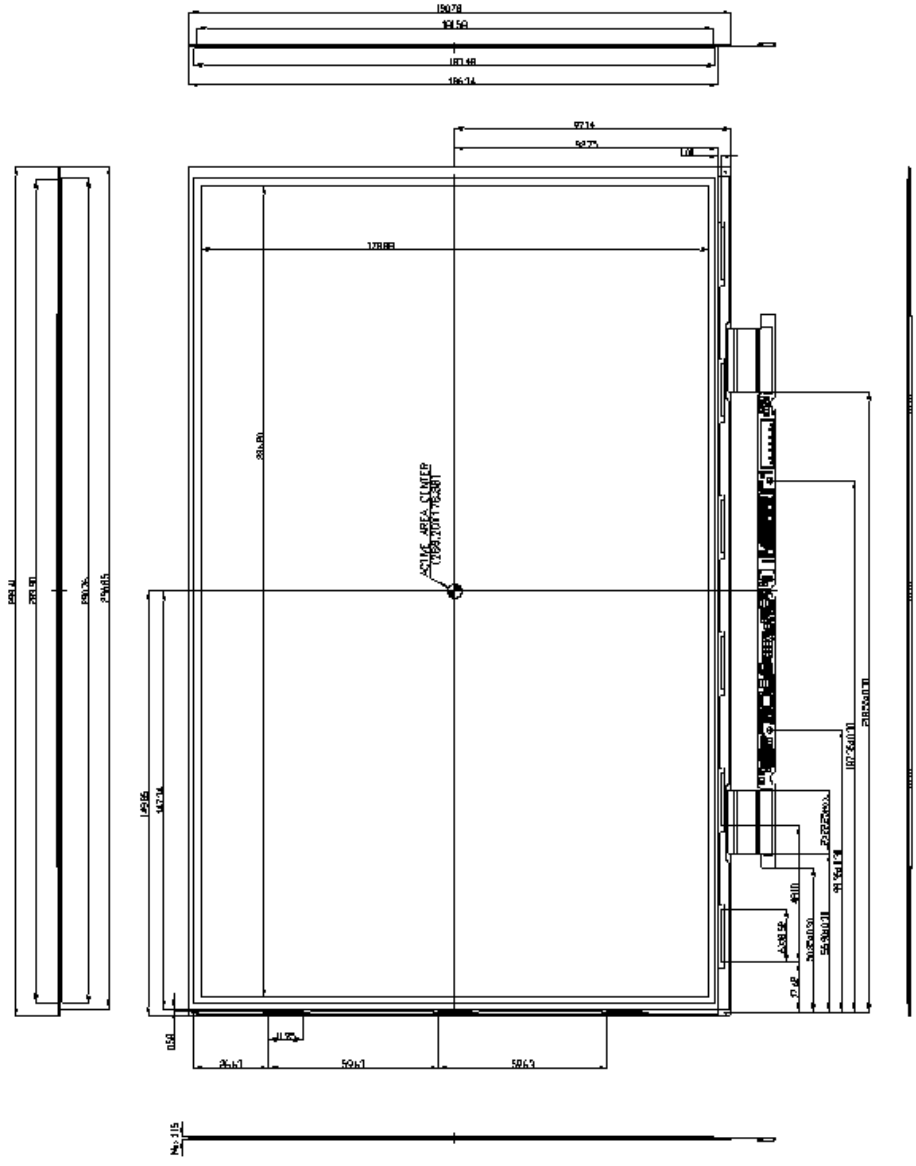
Pattern B
Gray Scale = 31 full screen

5. Mechanical Characteristics

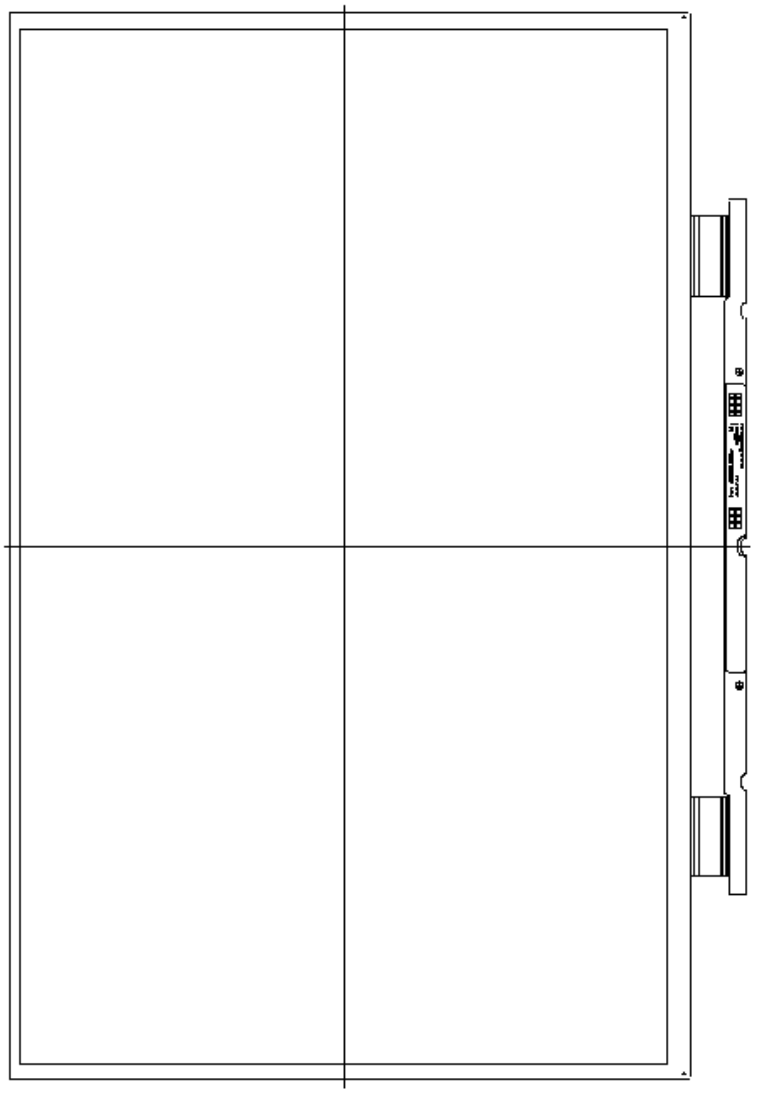
The contents provide general mechanical characteristics for the model LP133WP1. In addition the figures in the next page are detailed mechanical drawing of the LCD.

Outline Dimension	Horizontal	299.41 ± 0.50mm
	Vertical	190.78 ± 0.50mm
	Thickness	1.15 (D, Max.)mm
Active Display Area	Horizontal	286.200mm
	Vertical	178.875mm
Weight	135g (Max.)	
Surface Treatment	Hard coating(2H), Glare treatment of the front Polarizer (Haze 0%)	

<FRONT VIEW>



<REAR VIEW>



6. Reliability

Environment test condition

No.	Test Item	Conditions
1	High temperature storage test	Ta= 60°C, 240h
2	Low temperature storage test	Ta= -20°C, 240h
3	High temperature operation test	Ta= 50°C, 50%RH, 240h
4	Low temperature operation test	Ta= 0°C, 240h
5	Vibration test (non-operating)	Sine wave, 10 ~ 500 ~ 10Hz, 1.5G, 0.37oct/min 3 axis, 1hour/axis
6	Shock test (non-operating)	Half sine wave, 180G, 2ms one shock of each six faces(I.e. run 180G 6ms for all six faces)
7	Altitude operating storage / shipment	0 ~ 10,000 feet (3,048m) 24Hr 0 ~ 40,000 feet (12,192m) 24Hr

{ Result Evaluation Criteria }
There should be no change which might affect the practical display function when the display quality test is conducted under normal operating condition.

7. International Standards

7-1. Safety

a) UL 60950-1:2003, First Edition, Underwriters Laboratories, Inc.,
Standard for Safety of Information Technology Equipment.
b) CAN/CSA C22.2, No. 60950-1-03 1st Ed. April 1, 2003, Canadian Standards Association,
Standard for Safety of Information Technology Equipment.
c) EN 60950-1:2001, First Edition,
European Committee for Electrotechnical Standardization(CENELEC)
European Standard for Safety of Information Technology Equipment.

7-2. EMC

a) ANSI C63.4 “Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electrical Equipment in the Range of 9kHZ to 40GHz. “American National Standards Institute(ANSI), 1992
b) C.I.S.P.R “Limits and Methods of Measurement of Radio Interface Characteristics of Information Technology Equipment.“ International Special Committee on Radio Interference.
c) EN 55022 “Limits and Methods of Measurement of Radio Interface Characteristics of Information Technology Equipment.“ European Committee for Electrotechnical Standardization.(CENELEC), 1998
(Including A1: 2000)

8. Packing

8-1. Designation of Lot Mark

a) Lot Mark

A	B	C	D	E	F	G	H	I	J	K	L	M

A,B,C : SIZE(INCH)
E : MONTH
D : YEAR
F ~ M : SERIAL NO.

Note

1. YEAR

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mark	A	B	C	D	E	F	G	H	J	K

2. MONTH

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mark	1	2	3	4	5	6	7	8	9	A	B	C

b) Location of Lot Mark

Serial No. is printed on the label. The label is attached to the backside of the LCD module.
This is subject to change without prior notice.

8-2. Packing Form

a) Package quantity in one box : 20 pcs

b) Box Size : 427mm × 327mm × 173mm

9. PRECAUTIONS

Please pay attention to the followings when you use this TFT LCD module.

9-1. MOUNTING PRECAUTIONS

(1) You must mount a module using holes arranged in four corners or four sides.
(2) You should consider the mounting structure so that uneven force (ex. Twisted stress) is not applied to the module. And the case on which a module is mounted should have sufficient strength so that external force is not transmitted directly to the module.
(3) Please attach the surface transparent protective plate to the surface in order to protect the polarizer. Transparent protective plate should have sufficient strength in order to the resist external force.
(4) You should adopt radiation structure to satisfy the temperature specification.
(5) Acetic acid type and chlorine type materials for the cover case are not desirable because the former generates corrosive gas of attacking the polarizer at high temperature and the latter causes circuit break by electro-chemical reaction.
(6) Do not touch, push or rub the exposed polarizers with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment.
Do not touch the surface of polarizer for bare hand or greasy cloth.(Some cosmetics are detrimental to the polarizer.)
(7) When the surface becomes dusty, please wipe gently with absorbent cotton or other soft materials like chamois soaks with petroleum benzene. Normal-hexane is recommended for cleaning the adhesives used to attach front / rear polarizers. Do not use acetone, toluene and alcohol because they cause chemical damage to the polarizer.
(8) Wipe off saliva or water drops as soon as possible. Their long time contact with polarizer causes deformations and color fading.
(9) Do not open the case because inside circuits do not have sufficient strength.

9-2. OPERATING PRECAUTIONS

(1) The spike noise causes the mis-operation of circuits. It should be lower than following voltage :
V=± 200mV(Over and under shoot voltage)

(2) Response time depends on the temperature.(In lower temperature, it becomes longer.)
(3) Brightness depends on the temperature. (In lower temperature, it becomes lower.)
And in lower temperature, response time(required time that brightness is stable after turned on) becomes longer.
(4) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
(5) When fixed patterns are displayed for a long time, remnant image is likely to occur.
(6) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimized the interference.

9-3. ELECTROSTATIC DISCHARGE CONTROL

Since a module is composed of electronic circuits, it is not strong to electrostatic discharge. Make certain that treatment persons are connected to ground through wrist band etc. And don't touch interface pin directly.

9-4. PRECAUTIONS FOR STRONG LIGHT EXPOSURE

Strong light exposure causes degradation of polarizer and color filter.

9-5. STORAGE

When storing modules as spares for a long time, the following precautions are necessary.

(1) Store them in a dark place. Do not expose the module to sunlight or fluorescent light. Keep the temperature between 5°C and 35°C at normal humidity.
(2) The polarizer surface should not come in contact with any other object.
It is recommended that they be stored in the container in which they were shipped.

9-6. HANDLING PRECAUTIONS FOR PROTECTION FILM

(1) When the protection film is peeled off, static electricity is generated between the film and polarizer. This should be peeled off slowly and carefully by people who are electrically grounded and with well ion-blown equipment or in such a condition, etc.
(2) The protection film is attached to the polarizer with a small amount of glue. If some stress is applied to rub the protection film against the polarizer during the time you peel off the film, the glue is apt to remain on the polarizer.
Please carefully peel off the protection film without rubbing it against the polarizer.
(3) When the module with protection film attached is stored for a long time, sometimes there remains a very small amount of glue still on the polarizer after the protection film is peeled off.
(4) You can remove the glue easily. When the glue remains on the polarizer surface or its vestige is recognized, please wipe them off with absorbent cotton waste or other soft material like chamois soaked with normal-hexane.

APPENDIX A. Enhanced Extended Display Identification Data (EEDID™) 1/3

	Byte (Dec)	Byte (Hex)	Field Name and Comments	Value (Hex)	Value (Bin)
Header	0	00	Header	00	00000000
	1	01	Header	FF	11111111
	2	02	Header	FF	11111111
	3	03	Header	FF	11111111
	4	04	Header	FF	11111111
	5	05	Header	FF	11111111
	6	06	Header	FF	11111111
	7	07	Header	00	00000000
Vendor / Product Identification	8	08	EISA manufacture code (3 Character ID)	00	00000000
	9	09	EISA manufacture code (Compressed ASC II)	00	00000000
	10	0A	Panel Supplier Reserved - Product Code	DF	11011111
	11	0B	(Hex. LSB first)	9C	10011100
	12	0C	LCD Module Serial No - Preferred but Optional ("0" if not used)	00	00000000
	13	0D	LCD Module Serial No - Preferred but Optional ("0" if not used)	00	00000000
	14	0E	LCD Module Serial No - Preferred but Optional ("0" if not used)	00	00000000
	15	0F	LCD Module Serial No - Preferred but Optional ("0" if not used)	00	00000000
	16	10	Week of Manufacture	1A	00011010
	17	11	Year of Manufacture	15	00010101
EDID structure Version	18	12	EDID structure version #	01	00000001
	19	13	EDID revision #	04	00000100
Display Parameters	20	14	Video input Definition	95	10010101
	21	15	Max H image size (Rounded cm)	1D	00011101
	22	16	Max V image size (Rounded cm)	12	00010010
	23	17	Display gamma	78	01111000
	24	18	Feature Support (no_DPMS, no_Active Off/Very Low Power, RGB color display, Timing BLK 1,no_GTF)	02	00000010
Panel Color Coordinates	25	19	Red/Green Low Bits (RxRy/GxGy)	EF	11101111
	26	1A	Blue/White Low Bits (BxBy/WxWy)	05	00000101
	27	1B	Red X	97	10010111
	28	1C	Red Y	57	01010111
	29	1D	Green X	54	01010100
	30	1E	Green Y	92	10010010
	31	1F	Blue X	27	00100111
	32	20	Blue Y	22	00100010
	33	21	White X	50	01010000
	34	22	White Y	54	01010100
Established Timing	35	23	Established timing 1 (00h if not used)	00	00000000
	36	24	Established timing 2 (00h if not used)	00	00000000
	37	25	Manufacturer's timings (00h if not used)	00	00000000
Standard Timing ID	38	26	Standard timing ID1 (01h if not used)	01	00000001
	39	27	Standard timing ID1 (01h if not used)	01	00000001
	40	28	Standard timing ID2 (01h if not used)	01	00000001
	41	29	Standard timing ID2 (01h if not used)	01	00000001
	42	2A	Standard timing ID3 (01h if not used)	01	00000001
	43	2B	Standard timing ID3 (01h if not used)	01	00000001
	44	2C	Standard timing ID4 (01h if not used)	01	00000001
	45	2D	Standard timing ID4 (01h if not used)	01	00000001
	46	2E	Standard timing ID5 (01h if not used)	01	00000001
	47	2F	Standard timing ID5 (01h if not used)	01	00000001
	48	30	Standard timing ID6 (01h if not used)	01	00000001
	49	31	Standard timing ID6 (01h if not used)	01	00000001
	50	32	Standard timing ID7 (01h if not used)	01	00000001
	51	33	Standard timing ID7 (01h if not used)	01	00000001
	52	34	Standard timing ID8 (01h if not used)	01	00000001
	53	35	Standard timing ID8 (01h if not used)	01	00000001

APPENDIX A. Enhanced Extended Display Identification Data (EEDID™) 2/3

	Byte (Dec)	Byte (Hex)	Field Name and Comments	Value (Hex)	Value (Bin)
Timing Descriptor #1	54	36	Pixel Clock/10,000 (LSB)	C2	11000010
	55	37	Pixel Clock/10,000 (MSB)	23	00100011
	56	38	Horizontal Active (lower 8 bits)	A0	10100000
	57	39	Horizontal Blanking(Thp-HA) (lower 8 bits)	D4	11010100
	58	3A	Horizontal Active : Horizontal Blanking(Thp-HA) (upper 4:4bits)	50	01010000
	59	3B	Vertical Active	84	10000100
	60	3C	Vertical Blanking (Tvp-HA) (DE Blanking typ.for DE only panels)	1A	00011010
	61	3D	Vertical Active : Vertical Blanking (Tvp-HA) (upper 4:4bits)	30	00110000
	62	3E	Horizontal Sync. Offset (Thfp)	40	01000000
	63	3F	Horizontal Sync Pulse Width (HSPW)	2A	00101010
	64	40	Vertical Sync Offset(Tvfp) : Sync Width (VSPW)	36	00110110
	65	41	Horizontal Vertical Sync Offset/Width (upper 2bits)	00	00000000
	66	42	Horizontal Image Size (mm)	1E	00011110
	67	43	Vertical Image Size (mm)	B3	10110011
	68	44	Horizontal Image Size / Vertical Image Size	10	00010000
	69	45	Horizontal Border = 0 (Zero for Notebook LCD)	00	00000000
	70	46	Vertical Border = 0 (Zero for Notebook LCD)	00	00000000
	71	47	Non-Interlace, Normal display, no stereo, Digital Separate (Vsync_NEG, Hsync_NEG)	18	00011000
Timing Descriptor #2	72	48	Flag	00	00000000
	73	49	Flag	00	00000000
	74	4A	Flag	00	00000000
	75	4B	Data Type Tag (Descriptor Defined by manufacturer)	10	00010000
	76	4C	Flag	00	00000000
	77	4D	Descriptor Defined by manufacturer (Apple EDID signature)	00	00000000
	78	4E	Descriptor Defined by manufacturer (Apple EDID signature)	00	00000000
	79	4F	Descriptor Defined by manufacturer (Link Type)	00	00000000
	80	50	Descriptor Defined by manufacturer (Pixel and link component format_6bit panel interface)	00	00000000
	81	51	Descriptor Defined by manufacturer (Panel feature_Inverter NA, no Inverter)	00	00000000
	82	52	Descriptor Defined by manufacturer	00	00000000
	83	53	Descriptor Defined by manufacturer	00	00000000
	84	54	Descriptor Defined by manufacturer	00	00000000
	85	55	Descriptor Defined by manufacturer	00	00000000
	86	56	Descriptor Defined by manufacturer	00	00000000
	87	57	Descriptor Defined by manufacturer	00	00000000
	88	58	(If<13 char--> 0Ah, then terminate with ASC II code 0Ah,set remaining char = 20h)	00	00000000
	89	59	(If<13 char--> 0Ah, then terminate with ASC II code 0Ah,set remaining char = 20h)	00	00000000
Timing Descriptor #3	90	5A	Flag	00	00000000
	91	5B	Flag	00	00000000
	92	5C	Flag	00	00000000
	93	5D	Data Type Tag (ASCII String)	FE	11111110
	94	5E	Flag	00	00000000
	95	5F	ASCII String	4C	01001100
	96	60	ASCII String	50	01010000
	97	61	ASCII String	31	00110001
	98	62	ASCII String	33	00110011
	99	63	ASCII String	33	00110011
	100	64	ASCII String	57	01010111
	101	65	ASCII String	50	01010000
	102	66	ASCII String	31	00110001
	103	67	ASCII String	2D	00101101
	104	68	ASCII String	54	01010100
	105	69	ASCII String	4A	01001010
	106	6A	ASCII String	41	01000001
	107	6B	ASCII String	41	01000001

APPENDIX A. Enhanced Extended Display Identification Data (EEDID™) 3/3

	Byte (Dec)	Byte (Hex)	Field Name and Comments	Value (Hex)	Value (Bin)
Timing Descriptor #4	108	6C	Flag	00	00000000
	109	6D	Flag	00	00000000
	110	6E	Flag	00	00000000
	111	6F	Data Type Tag (ASCII String)	FC	11111100
	112	70	Flag	00	00000000
	113	71	ASCII String	43	01000011
	114	72	ASCII String	6F	01101111
	115	73	ASCII String	6C	01101100
	116	74	ASCII String	6F	01101111
	117	75	ASCII String	72	01110010
	118	76	ASCII String	20	00100000
	119	77	ASCII String	4C	01001100
	120	78	ASCII String	43	01000011
	121	79	ASCII String	44	01000100
	122	7A	(If<13 char--> 0Ah, then terminate with ASC II code 0Ah,set remaining char = 20h)	0A	00001010
	123	7B	(If<13 char--> 0Ah, then terminate with ASC II code 0Ah,set remaining char = 20h)	20	00100000
	124	7C	(If<13 char--> 0Ah, then terminate with ASC II code 0Ah,set remaining char = 20h)	20	00100000
	125	7D	(If<13 char--> 0Ah, then terminate with ASC II code 0Ah,set remaining char = 20h)	20	00100000
Chec	126	7E	Extension flag (# of optional 128 panel ID extension block to follow, Typ = 0)	00	00000000
	127	7F	Check Sum (The 1-byte sum of all 128 bytes in this panel ID block shall = 0)	86	10000110