SPECIFICATION
FOR
APPROVAL

( ) **Preliminary Specification**
(●) **Final Specification**

Title	13.3" WXGA TFT LCD

BUYER	Dell
MODEL	

SUPPLIER	LG Display Co., Ltd.
*MODEL	LP133WX2
Suffix	TLA2

*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
K. J. Kwon / S.Manager	
REVIEWED BY	
S. W. Paeng / Manager	
PREPARED BY	
H.H.Lee / Engineer	

Product Engineering Dept.
LG Display Co., Ltd

Contents

RECORD OF REVISIONS

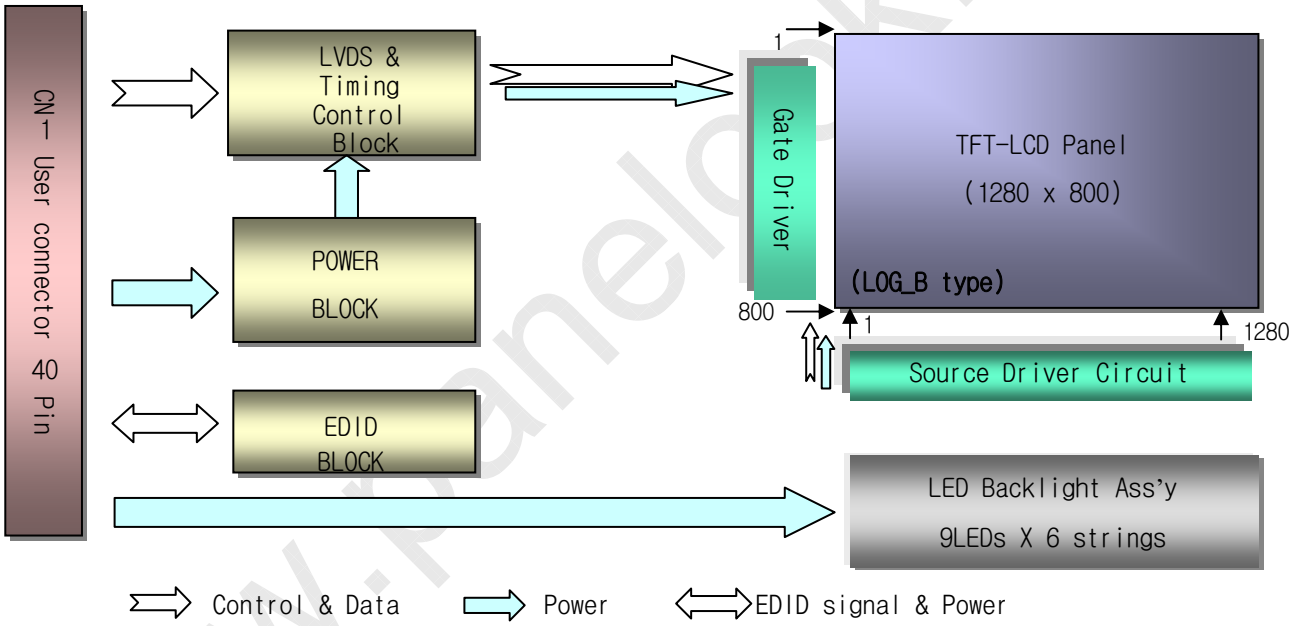
Revision No	Revision Date	Page	Description	EDID ver
1.0	22. Oct. 2008	-	Final CAS	1.0

1. General Description

The LP133WX2 is a Color Active Matrix Liquid Crystal Display with an integral LED backlight system. 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 WXGA resolution(1280 horizontal by 800 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 LP133WX2 has been designed to apply the interface method that enables low power, high speed, low EMI.

The LP133WX2 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 LP133WX2 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	296.5 (H, Max.) × 192.5(V, Max.) × 3.50(D, Max.) mm
Pixel Pitch	0.2235 mm × 0.2235 mm
Pixel Format	1280 horiz. by 800 vert. Pixels RGB strip arrangement
Color Depth	6-bit, 262,144 colors
Luminance, White	300 cd/m^2(Typ., @I_{LED}=19mA)
Power Consumption	0.9W (Logic) / Back Light : 3.3W (typ.@ ILED= 19mA)
Weight	245g(Max.)
Display Operating Mode	Transmissive mode, normally white
Surface Treatment	Anti-Glare treatment of the front Polarizer (Haze 25%)

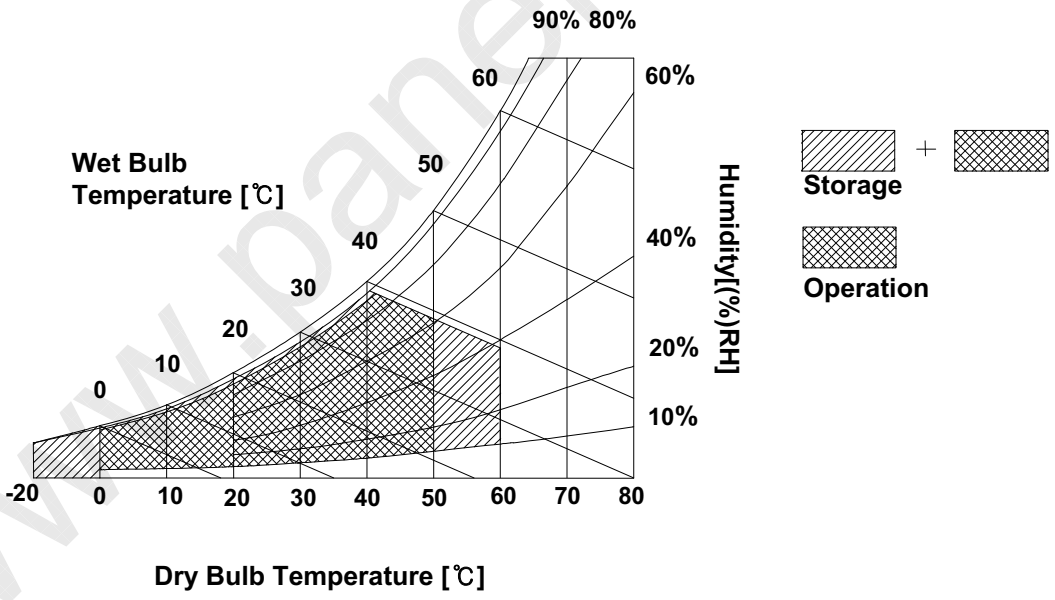
2. Absolute Maximum Ratings

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

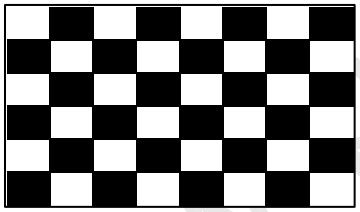
The LP133WX2 requires two power inputs. One is employed to power the LCD electronics and to drive the TFT array and liquid crystal. The second input which powers the LED BL.

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	-	273		mA	1
Power Consumption	Pc	-	0.9		Watt	1
Differential Impedance	Zm	90	100	110	Ohm	2
LED Backlight :						
Operating Current per string	I_{LED}	-	19	-	mA	3
Power Consumption	P_{BL}	-	3.3	3.5	Watt	4
Life Time		15,000	-	-	Hrs	5

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 LVDS Tx to the mating connector.
3. The typical operating current is for the typical surface luminance (L_{WH}) in optical characteristics. I_{LED} is the current of each LEDs' string, LED backlight has 6 strings on it.
4. The LED power consumption shown above does not include power of external LED driver circuit for typical current condition.
5. The life time is determined as the time at which brightness of LED is 50% compare to that of initial value at the typical LED current.

3-2. Interface Connections

This LCD employs two interface connections, a 40 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 20347-140E-12 manufactured by I-PEX.

Table 3. MODULE CONNECTOR PIN CONFIGURATION (CN1)

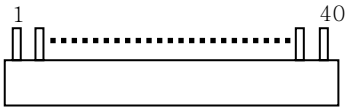
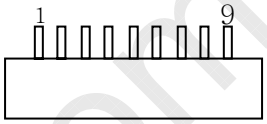
Pin	Symbol	Description	Notes
1	VSS	Ground	**[LVDS Receiver]** Siliconworks, SW0618V
2	CONNTST	Connector test	
3	VDD	Logic power 3.3V (Panel logic, BL logic)	
4	VDD	Logic power 3.3V (Panel logic, BL logic)	**[Connector]** I-PEX 20347-140E–12 or equivalent
5	VDD	Logic power 3.3V (Panel logic, BL logic)	
6	VEDID	EDID 3.3V power	
7	TEST	Panel Self Test	**[Mating Connector]** I-PEX 20345-#40E-## series or equivalent (micro-coax type)
8	CLK	EDID clock	
9	DATA	EDID data	
10	VSS	Ground	
11	VSS	Ground	**[Connector pin arrangement]** LCD rear view
12	NC	no connect	
13	RIN0-	- LVDS differential data input (R0-R5, G0)	
14	RIN0+	+ LVDS differential data input (R0-R5, G0)	
15	VSS	Ground	
16	RIN1-	- LVDS differential data input (G1-G5, B0-B1)	
17	RIN1+	+ LVDS differential data input (G1-G5, B0-B1)	
18	VSS	Ground	
19	RIN2-	- LVDS differential data input (B2-B5,HS,VS, DE)	
20	RIN2+	+ LVDS differential data input (B2-B5,HS,VS, DE)	
21	VSS	Ground	
22	CLK-	- LVDS differential clock input	
23	CLK+	+ LVDS differential clock input	
24	VSS	Ground	
25	INV_PWM	PWM brightness control	
26	VBL-	LED power return	
27	VBL-	LED power return	
28	VBL-	LED power return	
29	VBL-	LED power return	
30	VBL-	LED power return	
31	NC	no connect	
32	VBL+	7V - 20V LED power source	
33	VBL+	7V - 20V LED power source	
34	VBL+	7V - 20V LED power source	
35	VBL+	7V - 20V LED power source	
36	VBL+	7V - 20V LED power source	
37	CONNTST	Connector test	
38	SMB_CLK	SMBus Clock	
39	SMB_DAT	SMBus Data	
40	VSS	Ground	

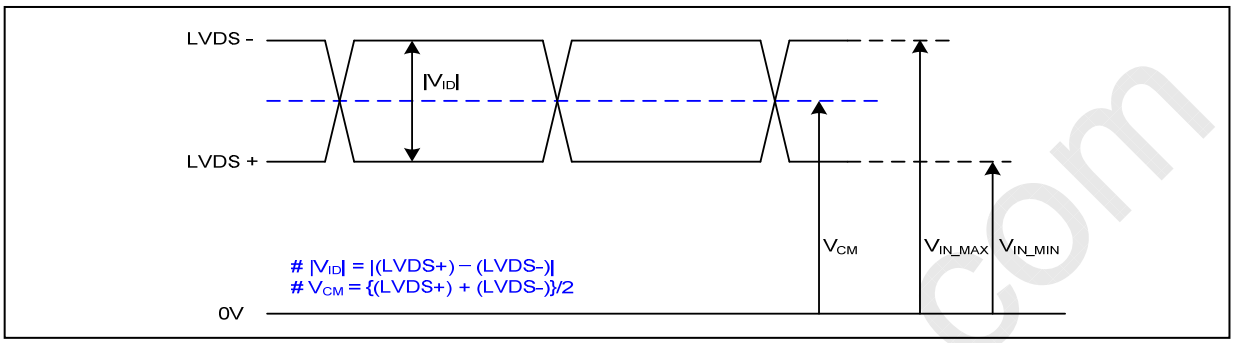
Table 4. BACKLIGHT CONNECTOR PIN CONFIGURATION (CN2)

The LED backlight connector is a model TF12-9S-0.5H, manufactured by Hirose.

Pin	Symbol	Description	Notes
1	Vdc1	LED Cathode (Negative)	
2	Vdc2	LED Cathode (Negative)	
3	Vdc3	LED Cathode (Negative)	
4	Vdc4	LED Cathode (Negative)	
5	Vdc5	LED Cathode (Negative)	
6	Vdc6	LED Cathode (Negative)	
7	NC	No Connection	
8	Vdc(1,2,3,4,5,6)	LED Anode(Positive)	
9	Vdc(1,2,3,4,5,6)	LED Anode(Positive)	

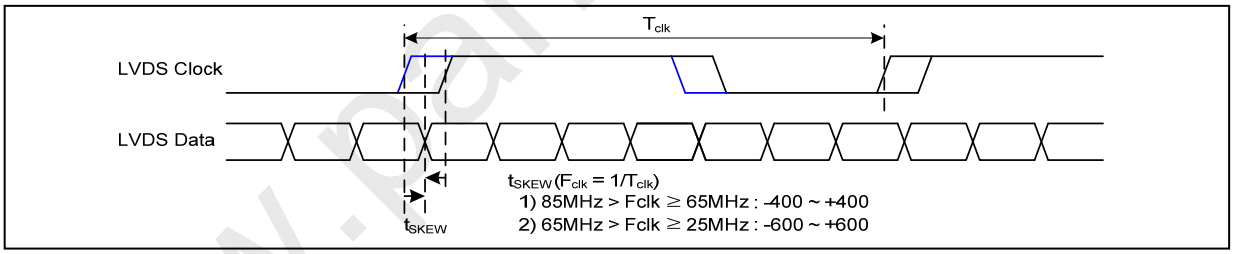
3-3. LVDS Signal Timing Specifications

3-3-1. DC Specification

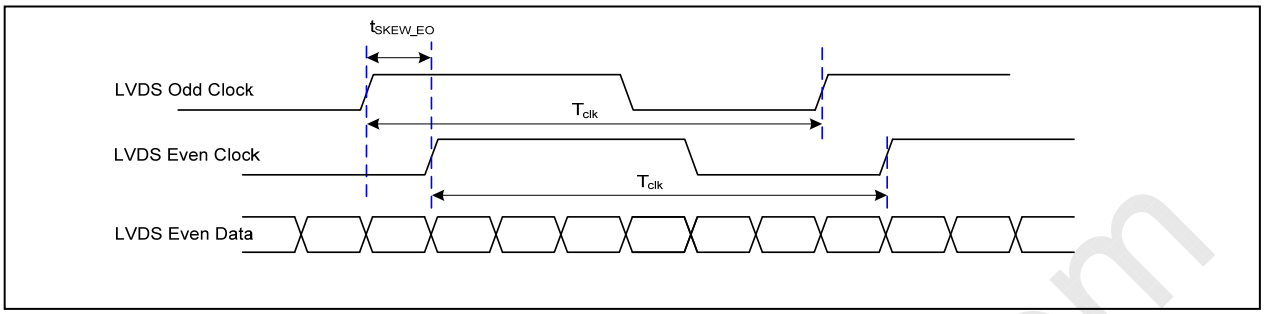


Description	Symbol	Min	Max	Unit	Notes
LVDS Differential Voltage	$\|V_{ID}\|$	100	600	mV	-
LVDS Common mode Voltage	V_{CM}	0.6	1.8	V	-
LVDS Input Voltage Range	V_{IN}	0.3	2.1	V	-

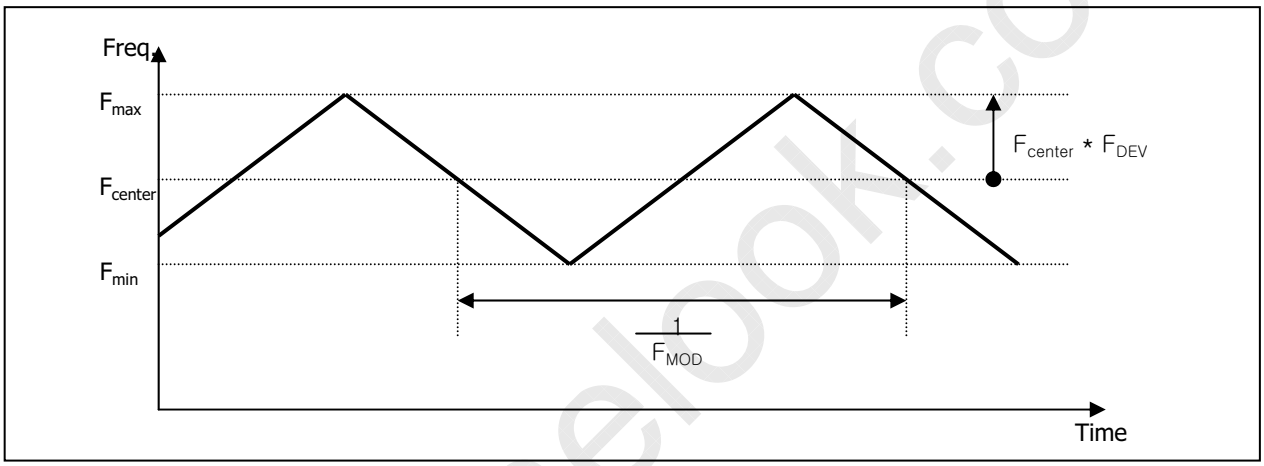
3-3-2. AC Specification



Description	Symbol	Min	Max	Unit	Notes
LVDS Clock to Data Skew Margin	t_{SKEW}	- 400	+ 400	ps	85MHz > Fclk ≥ 65MHz
	t_{SKEW}	- 600	+ 600	ps	65MHz > Fclk ≥ 25MHz
LVDS Clock to Clock Skew Margin (Even to Odd)	t_{SKEW_EO}	- 1/7	+ 1/7	T_{clk}	-
Maximum deviation of input clock frequency during SSC	F_{DEV}	-	± 3	%	-
Maximum modulation frequency of input clock during SSC	F_{MOD}	-	200	KHz	-



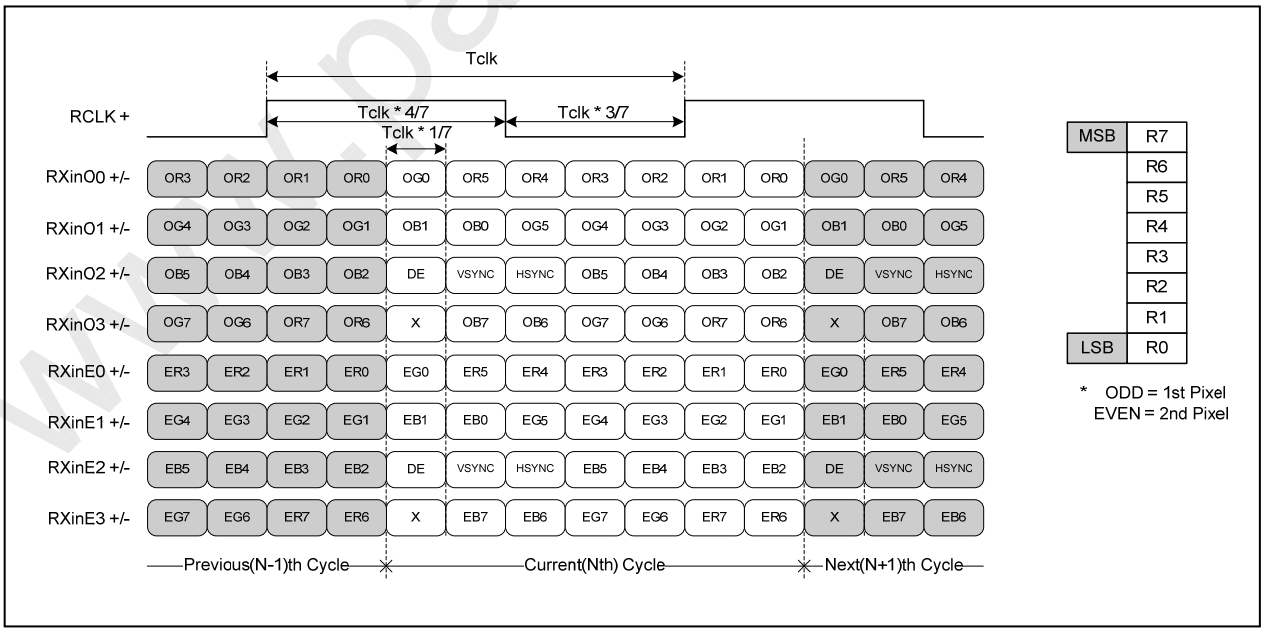
< Clock skew margin between channel >



< Spread Spectrum >

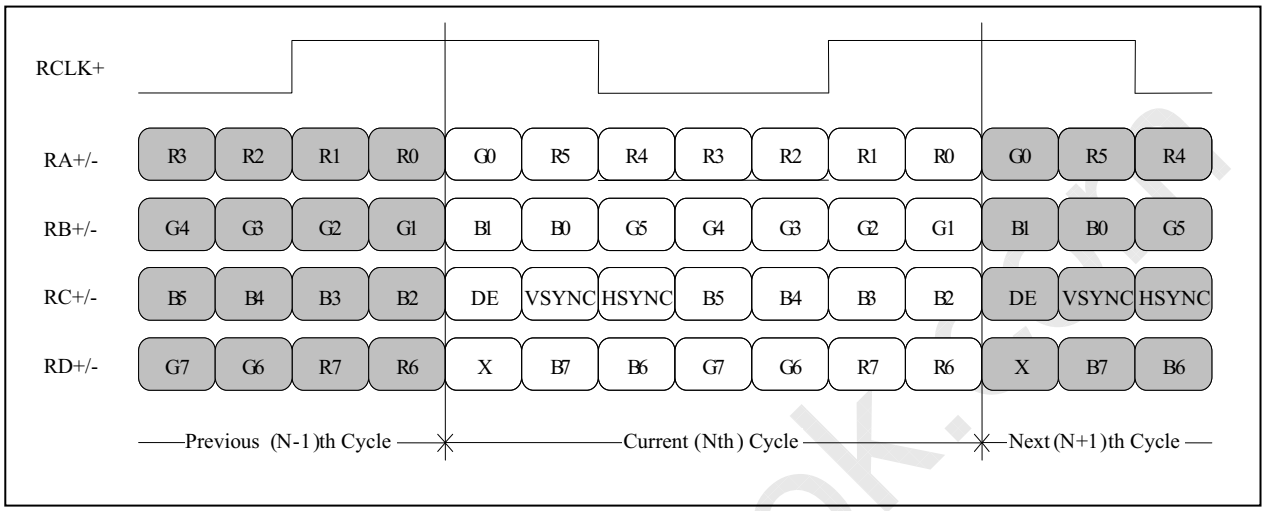
3-3-3. Data Format

1) LVDS 2 Port



< LVDS Data Format >

2) LVDS 1 Port



3-4. Signal Timing Specifications

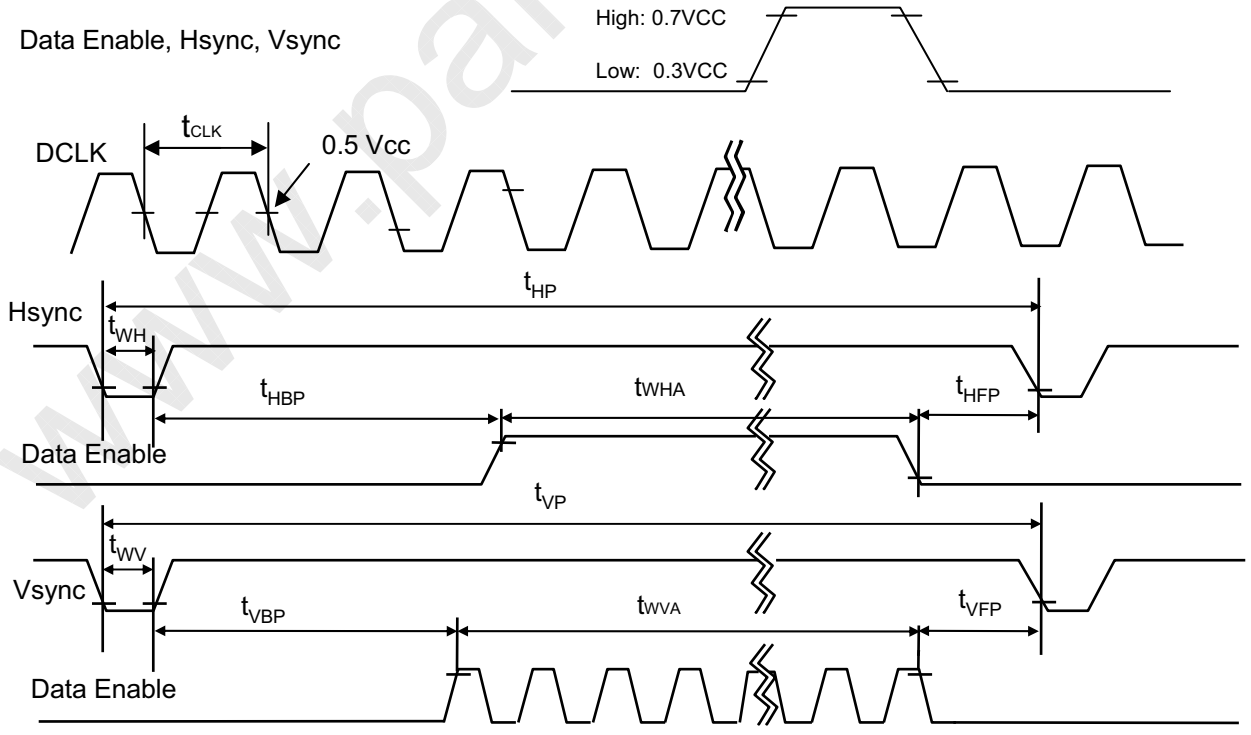
This is the signal timing required at the input of the User connector. All of the interface signal timing should be satisfied with the following specifications and specifications of LVDS Tx/Rx for its proper operation.

Table 5. TIMING TABLE

ITEM	Symbol		Min.	Typ.	Max.	Unit	Note
DCLK	Frequency	f_{CLK}	65.5	69.0	72.5	MHz	
Hsync	Active	tw_{HA}	1280	1280	1280	tCLK	
	Period	t_{HP}	1410	1410	1460		
	Width-Active	t_{WH}	32	32	48		
Vsync	Active	tw_{VA}	800	800	800	tHP	
	Period	t_{VP}	811	816	847		
	Width-Active	t_{WV}	3	6	9		
Data Enable	Horizontal back porch	t_{HBP}	50	50	98	tCLK	
	Horizontal front porch	t_{HFP}	48	48	62		
	Vertical back porch	t_{VBP}	5	7	35	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 6. 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

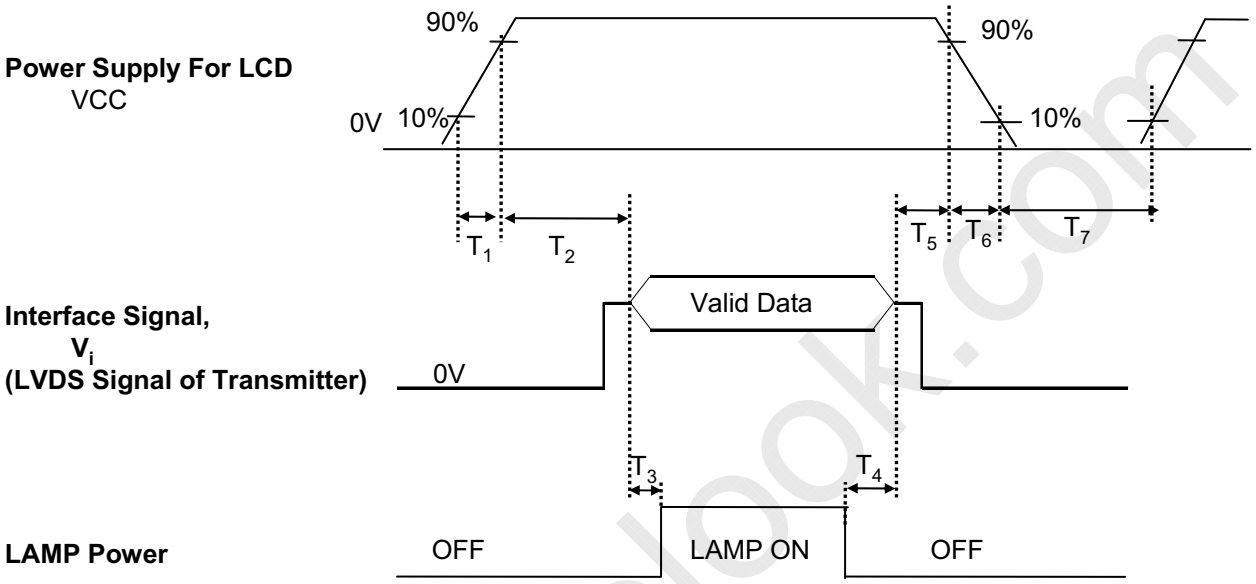


Table 7. POWER SEQUENCE TABLE

Parameter	Value			Units
	Min.	Typ.	Max.	
T_1	-	-	10	(ms)
T_2	0	-	50	(ms)
T_3	200	-	-	(ms)
T_4	200	-	-	(ms)
T_5	0	-	50	(ms)
T_6	0	-	10	(ms)
T_7	400	-	-	(ms)

Note)
1. Please avoid floating state of interface signal at invalid period.
2. When the interface signal is invalid, be sure to pull down the power supply for LCD VCC to 0V.
3. Lamp power must be turn on after power supply for LCD and interface signal are valid.

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

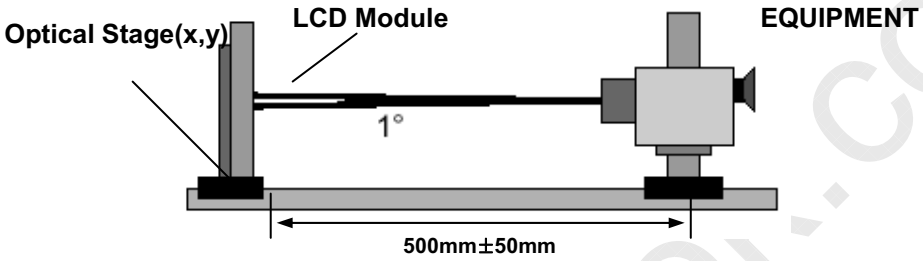


Table 8. OPTICAL CHARACTERISTICS

Ta=25°C, VCC=3.3V, fv=60Hz, f_{CLK}= 69.0MHz, ILED = 19mA

Parameter	Symbol	Values			Units	Notes
		Min	Typ	Max		
Contrast Ratio	CR	400		-		1
Surface Luminance, white	L_{WH}	250	300	-	cd/m²	2
Luminance Variation	δ_{WHITE}	-	1.4	1.6		3
Response Time	$Tr_R + Tr_D$		16	25	ms	4
Color Coordinates						
RED	RX	0.562	0.592	0.622		
	RY	0.321	0.351	0.381		
GREEN	GX	0.312	0.342	0.372		
	GY	0.521	0.551	0.581		
BLUE	BX	0.119	0.149	0.179		
	BY	0.093	0.123	0.153		
WHITE	WX	0.283	0.313	0.343		
	WY	0.299	0.329	0.359		
Viewing Angle						5
x axis, right(Φ=0°)	Θr	65	70	-	degree	
x axis, left (Φ=180°)	Θl	65	70	-	degree	
y axis, up (Φ=90°)	Θu	50	55	-	degree	
y axis, down (Φ=270°)	Θd	50	55	-	degree	
Gray Scale						6

Note)

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. Surface luminance is the average of 5 point across the LCD surface 50cm from the surface with all pixels displaying white. For more information see FIG 1.

$$L_{WH} = \text{Average}(L_1, L_2, \ldots L_5)$$

3. The variation in surface luminance , The panel total variation (δ_{WHITE}) is determined by measuring L_N at each test position 1 through 13 and then defined as followed numerical formula. For more information see FIG 2.

$$\delta_{WHITE} = \frac{\text{Maximum}(L_1, L_2, \ldots L_{13})}{\text{Minimum}(L_1, L_2, \ldots L_{13})}$$

4. 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.

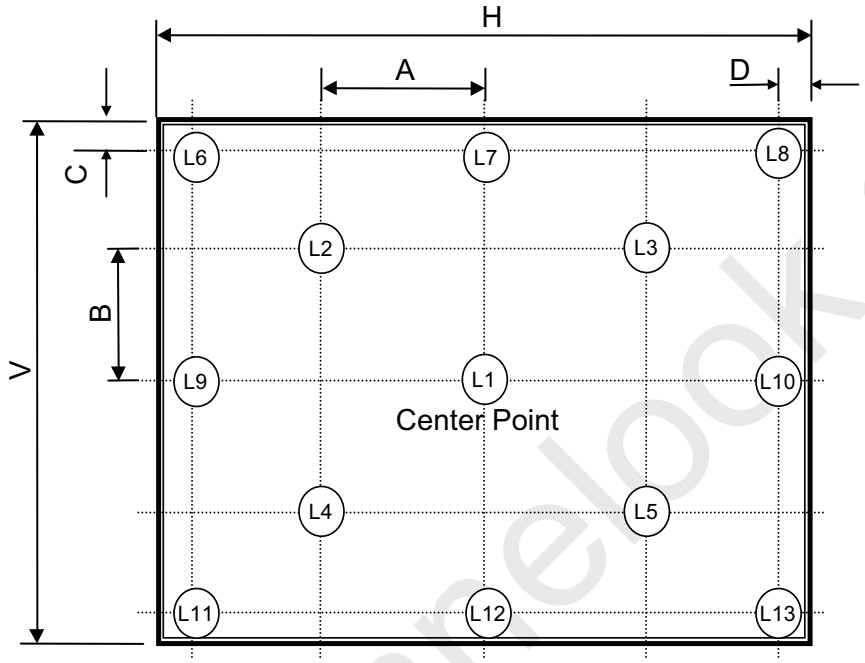
5. Viewing angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see FIG 4.

6. Gray scale specification * f_V = 60Hz

Gray Level	Luminance [%] (Typ)
L0	0.10
L7	0.40
L15	2.70
L23	8.60
L31	21.8
L39	37.0
L47	53.6
L55	74.7
L63	100

FIG. 2 Luminance

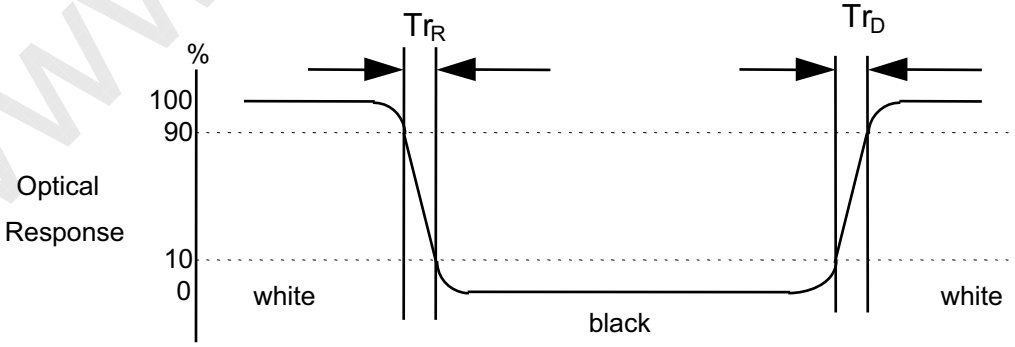
<measuring point for surface luminance & measuring point for luminance variation>



H,V : ACTIVE AREA
A : H/4 mm
B : V/4 mm
C : 10 mm
D : 10 mm
POINTS : 13 POINTS

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”.



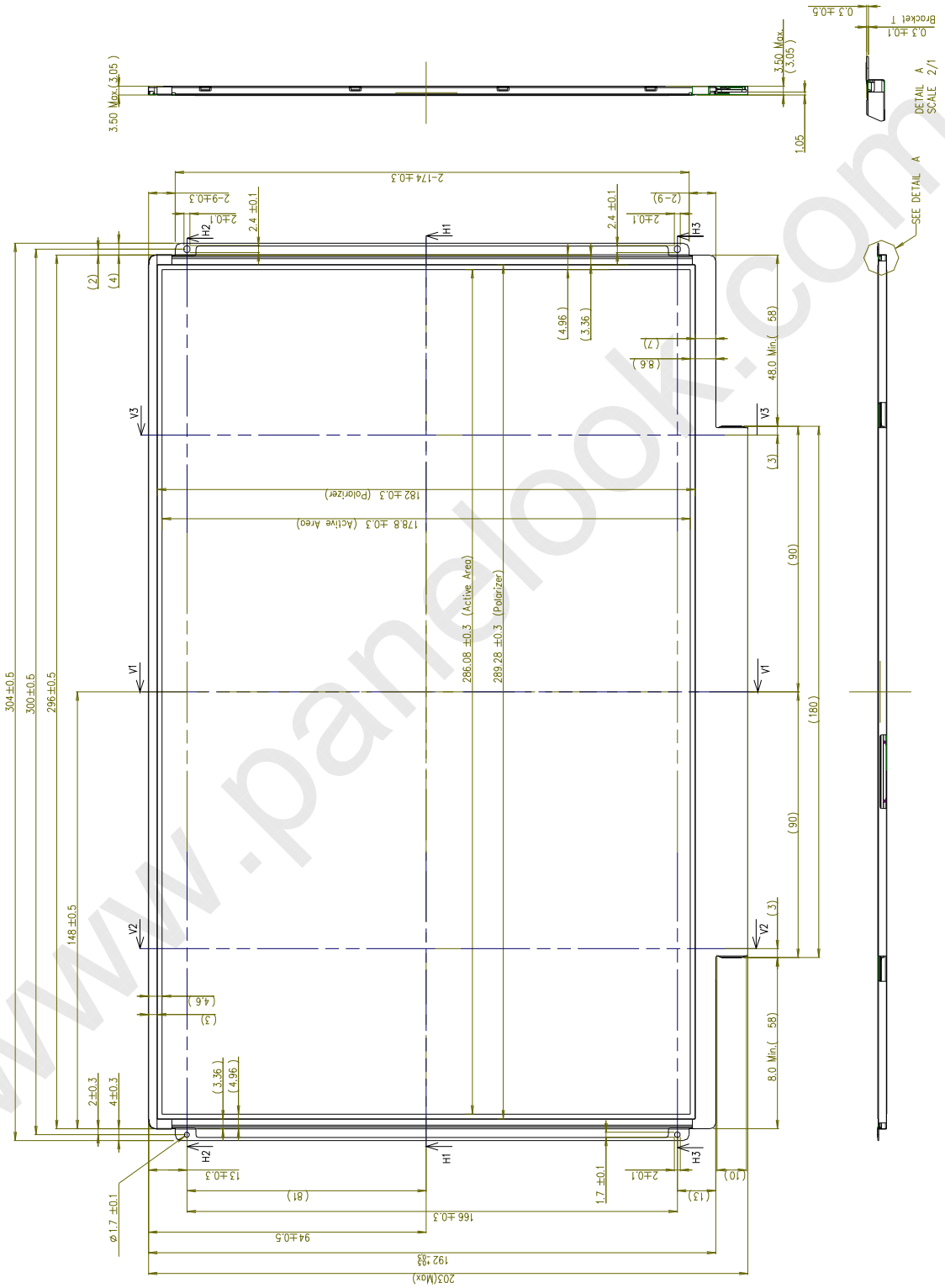
5. Mechanical Characteristics

The contents provide general mechanical characteristics for the model LP133WX2.
In addition the figures in the next page are detailed mechanical drawing of the LCD.

Outline Dimension	Horizontal	296.0 ± 0.5mm
	Vertical	192.0 ± 0.5mm
	Depth	3.50mm(Max.)
Bezel Area	Horizontal	289.28mm
	Vertical	182mm
Active Display Area	Horizontal	286.08mm
	Vertical	178.80 mm
Weight	245g(Max.)	
Surface Treatment	Anti-Glare treatment of the front Polarizer (Haze 25%)	

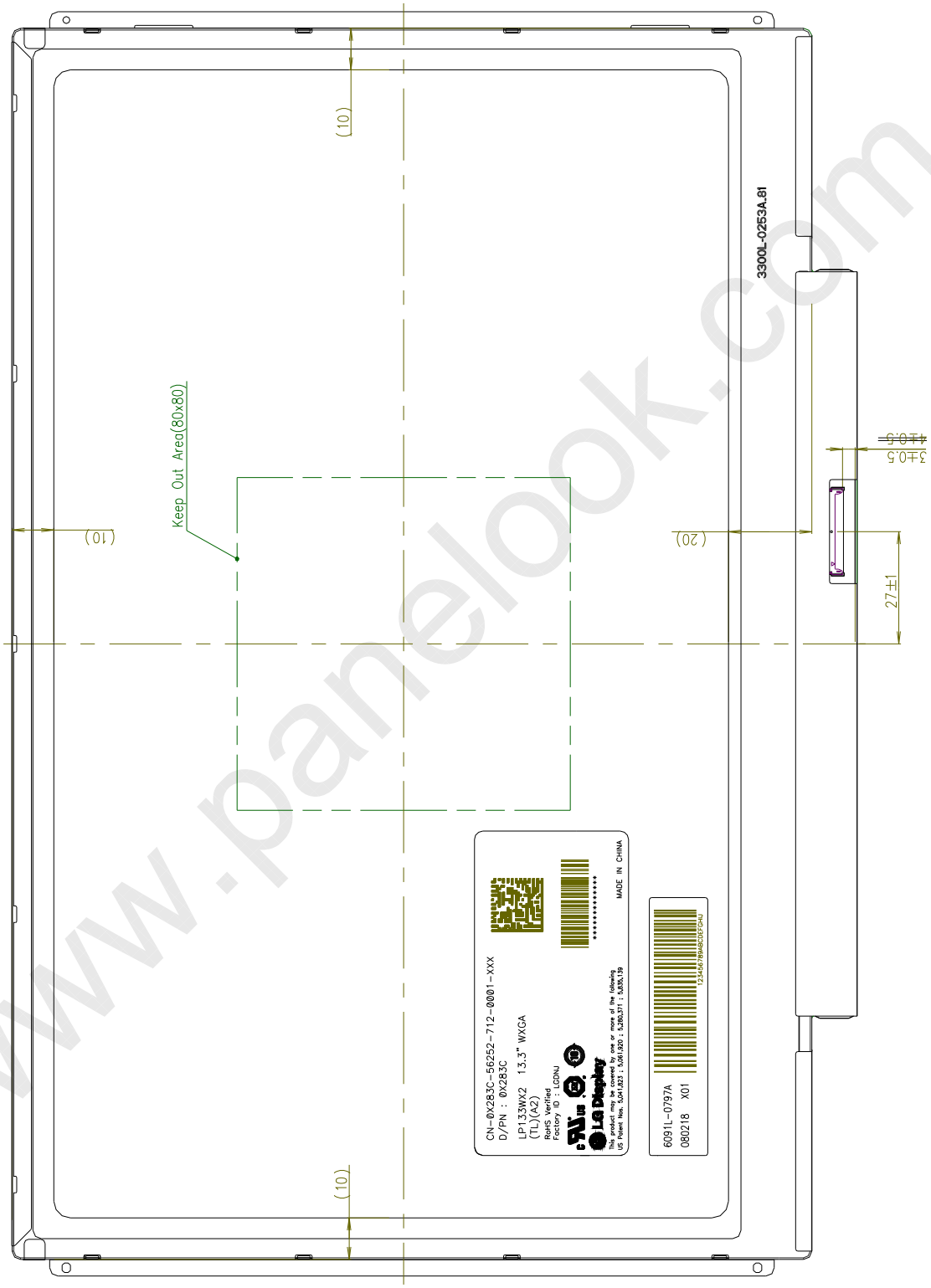
<FRONT VIEW>

Note) Unit:[mm], General tolerance: ± 0.5mm

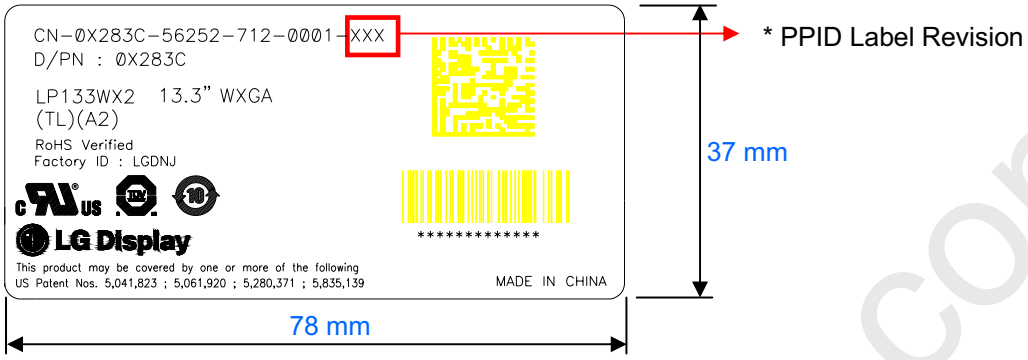


<REAR VIEW>

Note) Unit:[mm], General tolerance: ± 0.5mm



[DETAIL INFORMATION OF PPID LABEL AND REVISION CODE]



* PPID Label Revision :
It is subject to change with Dell event. Please refer to the below table for detail.

Classification	No Change	1st Revision	2nd Revision	…	9th Revision	…
SST(WS)	X00	X01	X02	…	A09	…
PT(ES)	X10	X11	X12	…	A19	…
ST(CS)	X20	X21	X22	…	A29	…
XB(MP)	A00	A01	A02	…	A09	…

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)
D : YEAR
E : MONTH
F ~ M : SERIAL NO.

Note

1. YEAR

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Mark	1	2	3	4	5	6	7	8	9	0

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 : 422mm × 340mm × 257mm

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	0 0	0000 0000
	1	01	Header	F F	1111 1111
	2	02	Header	F F	1111 1111
	3	03	Header	F F	1111 1111
	4	04	Header	F F	1111 1111
	5	05	Header	F F	1111 1111
	6	06	Header	F F	1111 1111
	7	07	Header	0 0	0000 0000
Vendor / Product	8	08	EISA manufacture code (3 Character ID) LGD	3 0	0011 0000
	9	09	EISA manufacture code (Compressed ASCII)	E 4	1110 0100
	10	0A	Panel Supplier Reserved - Product Code 0145h	4 5	0100 0101
	11	0B	(Hex. LSB first)	0 1	0000 0001
	12	0C	LCD Module Serial No - Preferred but Optional ("0" If not used)	0 0	0000 0000
	13	0D	LCD Module Serial No - Preferred but Optional ("0" If not used)	0 0	0000 0000
	14	0E	LCD Module Serial No - Preferred but Optional ("0" If not used)	0 0	0000 0000
	15	0F	LCD Module Serial No - Preferred but Optional ("0" If not used)	0 0	0000 0000
	16	10	Week of Manufacture : 00 weeks	0 0	0000 0000
	17	11	Year of Manufacture 2008 year	1 2	0001 0010
	18	12	EDID structure version # = 1	0 1	0000 0001
	19	13	EDID revision # = 3	0 3	0000 0011
Display	20	14	Video input Definition = Digital signal	9 0	1001 0000
	21	15	Max H image size (Rounded cm) = 29 cm	1 D	0001 1101
	22	16	Max V image size (Rounded cm) = 18 cm	1 2	0001 0010
	23	17	Display gamma = (gamma*100)-100 = Example:(2.2*100)-100=120 = 2.2 Gamma	7 8	0111 1000
	24	18	Feature Support (no_DPMS, no_Active Off/Very Low Power, RGB color display, Timing BLK 1,no_ GTF)	0 A	0000 1010
Vendor / Product	25	19	Red/Green Low Bits (RxRy/GxGy)	D F	1101 1111
	26	1A	Blue/White Low Bits (BxBy/WxWy)	4 5	0100 0101
	27	1B	Red X Rx = 0.585	9 5	1001 0101
	28	1C	Red Y Ry =0.353	5 A	0101 1010
	29	1D	Green X Gx = 0.331	5 4	0101 0100
	30	1E	Green Y Gy =0.554	8 D	1000 1101
	31	1F	Blue X Bx = 0.149	2 6	0010 0110
	32	20	Blue Y By = 0.113	1 D	0001 1101
	33	21	White X Wx =0.313	5 0	0101 0000
	34	22	White Y Wy =0.329	5 4	0101 0100
Estab lished	35	23	Established timing 1 (00h if nt used)	0 0	0000 0000
	36	24	Established timing 2 (00h if nt used)	0 0	0000 0000
	37	25	Manufacturer's timings (00h if nt used)	0 0	0000 0000
Standard Timing ID	38	26	Standard timing ID1 (01h if not used)	0 1	0000 0001
	39	27	Standard timing ID1 (01h if not used)	0 1	0000 0001
	40	28	Standard timing ID2 (01h if not used)	0 1	0000 0001
	41	29	Standard timing ID2 (01h if not used)	0 1	0000 0001
	42	2A	Standard timing ID3 (01h if not used)	0 1	0000 0001
	43	2B	Standard timing ID3 (01h if not used)	0 1	0000 0001
	44	2C	Standard timing ID4 (01h if not used)	0 1	0000 0001
	45	2D	Standard timing ID4 (01h if not used)	0 1	0000 0001
	46	2E	Standard timing ID5 (01h if not used)	0 1	0000 0001
	47	2F	Standard timing ID5 (01h if not used)	0 1	0000 0001
	48	30	Standard timing ID6 (01h if not used)	0 1	0000 0001
	49	31	Standard timing ID6 (01h if not used)	0 1	0000 0001
	50	32	Standard timing ID7 (01h if not used)	0 1	0000 0001
	51	33	Standard timing ID7 (01h if not used)	0 1	0000 0001
	52	34	Standard timing ID8 (01h if not used)	0 1	0000 0001
	53	35	Standard timing ID8 (01h if not used)	0 1	0000 0001

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) 69 MHz @ 60Hz	F 4	1111 0100
	55	37	Pixel Clock/10,000 (MSB)	1 A	0001 1010
	56	38	Horizontal Active (lower 8 bits) 1280 Pixels	0 0	0000 0000
	57	39	Horizontal Blanking(Thp-HA) (lower 8 bits) 130 Pixels	8 2	1000 0010
	58	3A	Horizontal Active / Horizontal Blanking(Thp-HA) (upper 4:4bits)	5 0	0101 0000
	59	3B	Vertical Avtive 800 Lines	2 0	0010 0000
	60	3C	Vertical Blanking (Tvp-HA) (DE Blanking typ.for DE only panels) 16 Lines	1 0	0001 0000
	61	3D	Vertical Active : Vertical Blanking (Tvp-HA) (upper 4:4bits)	3 0	0011 0000
	62	3E	Horizontal Sync. Offset (Thfp) 48 Pixels	3 0	0011 0000
	63	3F	Horizontal Sync Pulse Width (HSPW) 32 Pixels	2 0	0010 0000
	64	40	Vertical Sync Offset(Tvfp) : Sync Width (VSPW) 3 Lines : 6 Lines	3 6	0011 0110
	65	41	Horizontal Vertical Sync Offset/Width (upper 2bits)	0 0	0000 0000
	66	42	Horizontal Image Size (mm) 286 mm	1 E	0001 1110
	67	43	Vertical Image Size (mm) 179 mm	B 3	1011 0011
	68	44	Horizontal Image Size / Vertical Image Size	1 0	0001 0000
	69	45	Horizontal Border = 0 (Zero for Notebook LCD)	0 0	0000 0000
	70	46	Vertical Border = 0 (Zero for Notebook LCD)	0 0	0000 0000
	71	47	Non-Interlace, Normal display, no stereo, Digital Separate (Vsync_NEG, Hsync_NEG)	1 8	0001 1000
Timing Descriptor #2	72	48	Pixel Clock/10,000 (LSB) 69 MHz @ 60Hz	F 4	1111 0100
	73	49	Pixel Clock/10,000 (MSB)	1 A	0001 1010
	74	4A	Horizontal Active (lower 8 bits) 1280 Pixels	0 0	0000 0000
	75	4B	Horizontal Blanking(Thp-HA) (lower 8 bits) 130 Pixels	8 2	1000 0010
	76	4C	Horizontal Active / Horizontal Blanking(Thp-HA) (upper 4:4bits)	5 0	0101 0000
	77	4D	Vertical Avtive 800 Lines	2 0	0010 0000
	78	4E	Vertical Blanking (Tvp-HA) (DE Blanking typ.for DE only panels) 16 Lines	1 0	0001 0000
	79	4F	Vertical Active : Vertical Blanking (Tvp-HA) (upper 4:4bits)	3 0	0011 0000
	80	50	Horizontal Sync. Offset (Thfp) 48 Pixels	3 0	0011 0000
	81	51	Horizontal Sync Pulse Width (HSPW) 32 Pixels	2 0	0010 0000
	82	52	Vertical Sync Offset(Tvfp) : Sync Width (VSPW) 3 Lines : 6 Lines	3 6	0011 0110
	83	53	Horizontal Vertical Sync Offset/Width (upper 2bits)	0 0	0000 0000
	84	54	Horizontal Image Size (mm) 286 mm	1 E	0001 1110
	85	55	Vertical Image Size (mm) 179 mm	B 3	1011 0011
	86	56	Horizontal Image Size / Vertical Image Size	1 0	0001 0000
	87	57	Horizontal Border = 0 (Zero for Notebook LCD)	0 0	0000 0000
	88	58	Vertical Border = 0 (Zero for Notebook LCD)	0 0	0000 0000
	89	59	Non-Interlace, Normal display, no stereo, Digital Separate (Vsync_NEG, Hsync_NEG)	1 8	0001 1000
Timing Descriptor #3	90	5A	Flag	0 0	0000 0000
	91	5B	Flag	0 0	0000 0000
	92	5C	Flag	0 0	0000 0000
	93	5D	Data Type Tag : Alphanumeric Data String (ASCII String)	F E	1111 1110
	94	5E	Flag	0 0	0000 0000
	95	5F	Dell P/N 1st Character = X	7 8	0111 1000
	96	60	Dell P/N 2nd Character = 2	3 2	0011 0010
	97	61	Dell P/N 3rd Character = 8	3 8	0011 1000
	98	62	Dell P/N 4th Character = 3	3 3	0011 0011
	99	63	Dell P/N 5th Character = C	6 3	0110 0011
	100	64	EDID Revision Build Name = MP (X-build) , Revision # = A00	8 0	1000 0000
	101	65	Manufacturer P/N = 1	3 1	0011 0001
	102	66	Manufacturer P/N = 3	3 3	0011 0011
	103	67	Manufacturer P/N = 3	3 3	0011 0011
	104	68	Manufacturer P/N = W	5 7	0101 0111
	105	69	Manufacturer P/N = X	5 8	0101 1000
	106	6A	Manufacturer P/N = 2	3 2	0011 0010
	107	6B	Manufacturer P/N(If<13 char--> 0Ah, then terminate with ASCⅡ code 0Ah,set remaining char = 20h)	0 A	0000 1010

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	**0**	**0**	0000 0000
	109	**6D**	Flag	**0**	**0**	0000 0000
	110	**6E**	Flag	**0**	**0**	0000 0000
	111	**6F**	Data Type Tag : Alphanumeric Data String (ASCII String)	**F**	**E**	1111 1110
	112	**70**	Flag	**0**	**0**	0000 0000
	113	**71**	SMBUS Value(Step #1) = 10 nits	**0**	**8**	0000 1000
	114	**72**	SMBUS Value(Step #2) = 17 nits	**0**	**E**	0000 1110
	115	**73**	SMBUS Value(Step #3) = 24 nits	**1**	**4**	0001 0100
	116	**74**	SMBUS Value(Step #4) = 30 nits	**1**	**9**	0001 1001
	117	**75**	SMBUS Value(Step #5) = 60 nits	**3**	**3**	0011 0011
	118	**76**	SMBUS Value(Step #6) = 120 nits	**6**	**6**	0110 0110
	119	**77**	SMBUS Value(Step #7) = 190 nits	**A**	**1**	1010 0001
	120	**78**	SMBUS Value(Step #8) = 300 nits (Typically = FFh, Max nits)	**F**	**F**	1111 1111
	121	**79**	Single channel LVDS, No RTC support	**0**	**1**	0000 0001
	122	**7A**	BIST support	**0**	**1**	0000 0001
	123	**7B**	(If<13 char--> 0Ah, then terminate with ASCⅡ code 0Ah,set remaining char = 20h)	**0**	**A**	0000 1010
	124	**7C**	(If<13 char--> 0Ah, then terminate with ASCⅡ code 0Ah,set remaining char = 20h)	**2**	**0**	0010 0000
	125	**7D**	(If<13 char--> 0Ah, then terminate with ASCⅡ code 0Ah,set remaining char = 20h)	**2**	**0**	0010 0000
Checksum	126	**7E**	Extension flag (# of optional 128 panel ID extension block to follow, Typ = 0)	**0**	**0**	0000 0000
	127	**7F**	Check Sum (The 1-byte sum of all 128 bytes in this panel ID block shall = 0)	**A**	**E**	1010 1110