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**Product Specification** 

LP133WX3 Liquid Crystal Display

# SPECIFICATION FOR APPROVAL

- ( **♦** ) Preliminary Specification
- ) Final Specification

Title

Customer	APPLE	
MODEL	K6	

13.3"	WXGA	TFT	LCD
	_		-

SUPPLIER	LG. Display Co., Ltd.			
*MODEL	LP133WX3			
Suffix	TLA4			

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

APPROVED BY	SIGNATURE			
/	X			
1				
4				
Please return 1 copy for your confirmation with your signature and comments.				



Oct.23, 2009



Product Specification

LP133WX3 Liquid Crystal Display

## <u>Contents</u>

No	ITEM	Page
	COVER	1
	CONTENTS	2
	RECORD OF REVISIONS	3
1	GENERAL DESCRIPTION	4
2	ABSOLUTE MAXIMUM RATINGS	5
3	ELECTRICAL SPECIFICATIONS	
3-1	ELECTRICAL CHARACTREISTICS	6
3-2	INTERFACE CONNECTIONS	7
3-3	LVDS SIGNAL TIMING SPECIFICATIONS	8
3-4	SIGNAL TIMING WAVEFORMS	11
3-5	COLOR INPUT DATA REFERNECE	12
3-6	POWER SEQUENCE	13
4	OPTICAL SFECIFICATIONS	14
5	MECHANICAL CHARACTERISTICS	18
6	RELIABLITY	21
7	INTERNATIONAL STANDARDS	
7-1	SAFETY	22
7-2	EMC	22
8	PACKING	
8-1	DESIGNATION OF LOT MARK	23
8-2	PACKING FORM	23
9	PRECAUTIONS	24
Α	APPENDIX. Enhanced Extended Display Identification Data	26

Ver. 0.0

Oct.23, 2009

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LP133WX3 Liquid Crystal Display

**Product Specification** 

## **RECORD OF REVISIONS**

Revision No	Revision Date	Page	Description	
0.0	23. Oct. 2009	-	First Draft	0.0

Ver. 0.0

Oct.23, 2009



LP133WX3 Liquid Crystal Display

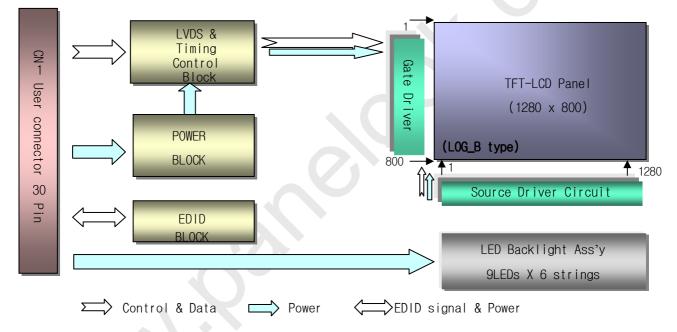
**Product Specification** 

## 1. General Description

The LP133WX3 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 LP133WX3 has been designed to apply the interface method that enables low power birds speed low.

The LP133WX3 has been designed to apply the interface method that enables low power, high speed, low EMI.

The LP133WX3 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 LP133WX3 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	297.15 (H) × 192.15 (V) × 3.75(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	275cd/m²(Typ., @I <sub>LED</sub> =20mA)
Power Consumption	Logic : 0.76W(typ.@Mosaic), Back Light : 3.4W(typ.@ I <sub>LED</sub> = 21mA)
Weight	310(Max.)
Display Operating Mode	Transmissive mode, normally white
Surface Treatment	Hard Coating(Glare), Anti reflection treatment of the front Polarizer (Haze 0%)

Ver. 0.0

Oct.23, 2009



LP133WX3 Liquid Crystal Display

**Product Specification** 

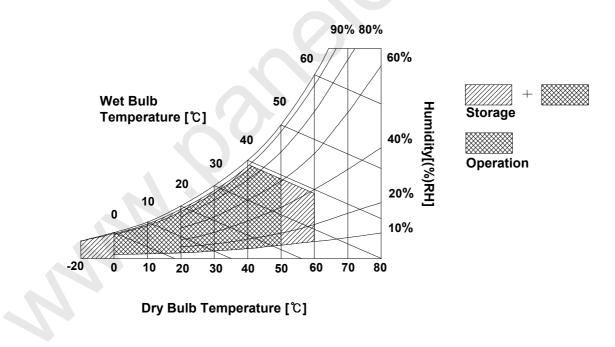
## 2. Absolute Maximum Ratings

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

Parameter	Symbol	Val	ues	Units	Notes	
Falanetei	Symbol	Min	Max	Units		
Power Input Voltage	VCC	-0.3	4.0	Vdc	at 25 $\pm$ 5°C	
Operating Temperature	Тор	0	50	°C	1	
Storage Temperature	Нѕт	-20	60	°C	1	
Operating Ambient Humidity	Нор	10	90	%RH	1	
Storage Humidity	Нѕт	10	90	%RH	1	

#### Table 1. ABSOLUTE MAXIMUM RATINGS

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.



Oct.23, 2009



LP133WX3 Liquid Crystal Display

**Product Specification** 

## 3. Electrical Specifications

#### 3-1. Electrical Characteristics

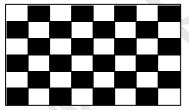
The LP133WX3 requires two power inputs. One is employed to power the LCD electronics and to drive the TFT array and liquid crystal. The second input which powers the LED BL.

Deremeter	Symbol			Linit	Notes		
Parameter			Min	Тур	Max	Unit	Notes
MODULE :							
Power Supply Input Voltage	VCC		3.0	3.3	3.6	V <sub>DC</sub>	
Power Supply Input Current	I <sub>cc</sub>	Mosaic	-	230	265	mA	1
Power Consumption	Pc		-	0.76	0.875	Watt	1
Differential Impedance	Zm		90	100	110	Ohm	2
LED Backlight :							
Operating Current per string		I <sub>LED</sub>	5	20	21	mA	3
Power Consumption		P <sub>BL</sub>	-	3.46	-	Watt	4
Life Time	]		10,000	-	-	Hrs	5

#### Table 2. ELECTRICAL CHARACTERISTICS

#### Note)

1. The specified current and power consumption are under the Vcc = 3.3V, 25°C, fv = 60.2Hz 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<sub>WH</sub>) in optical characteristics.
- 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 lamp is 50% compare to that of initial value at the typical lamp current.

Oct.23, 2009

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#### 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 20474-030E-12 manufactured by I-PEX.

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#### Table 3. MODULE CONNECTOR PIN CONFIGURATION (CN1)

Pin	Symbol	Description	Notes
1	GND	Ground	[LVDS Receiver]
2	VCC	Power Supply, 3.3V Typ.	SiliconWorks, SW0618V
3	VCC	Power Supply, 3.3V Typ.	[Connector]
4	V EEDID	DDC 3.3V power	I-PEX 20474-030E-1#
5	GSP	GSP	[Mating Connector] I-PEX 20472-030T-10 series
6	CIK EEDID	DDC Clock	or equivalent (micro-coax type)
7	DATA EEDID	DDC Data	
8	R <sub>IN</sub> 0-	Negative LVDS differential data input	[Connector pin arrangement]
9	R <sub>IN</sub> 0+	Positive LVDS differential data input	LCD front view
10	GND	Ground	1
11	R <sub>IN</sub> 1-	Negative LVDS differential data input	<u></u>
12	R <sub>IN</sub> 1+	Positive LVDS differential data input	
13	GND	Ground	
14	R <sub>IN</sub> 2-	Negative LVDS differential data input	
15	R <sub>IN</sub> 2+	Positive LVDS differential data input	
16	GND	Ground	
17	CLKIN-	Negative LVDS differential clock input	
18	CLKIN+	Positive LVDS differential clock input	
19	GND	Ground	
20	NC	No Connection	
21	Vdc	LED Anode (Positive)	
22	Vdc	LED Anode (Positive)	
23	NC	No Connection	
. 24	Vdc1	LED Cathode (Negative)	
25	Vdc2	LED Cathode (Negative)	
26	Vdc3	LED Cathode (Negative)	
. 27	Vdc4	LED Cathode (Negative)	
. 28	Vdc5	LED Cathode (Negative)	
29	Vdc6	LED Cathode (Negative)	
30	NC	No Connection	
Ver.	0.0	Oct.23, 2009	7 / 27

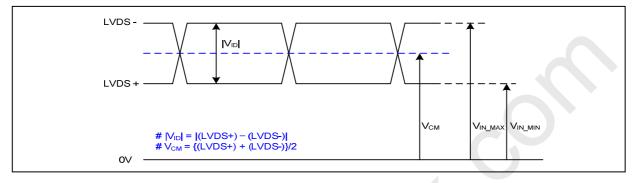


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## 3-3. LVDS Signal Timing Specifications

## 3-3-1. DC Specification



Description	Symb ol	Min	Max	Unit	Notes
LVDS Differential Voltage	V <sub>ID</sub>	100	600	mV	-
LVDS Common mode Voltage	V <sub>CM</sub>	0.6	1.8	V	-
LVDS Input Voltage Range	V <sub>IN</sub>	0.3	2.1	V	-

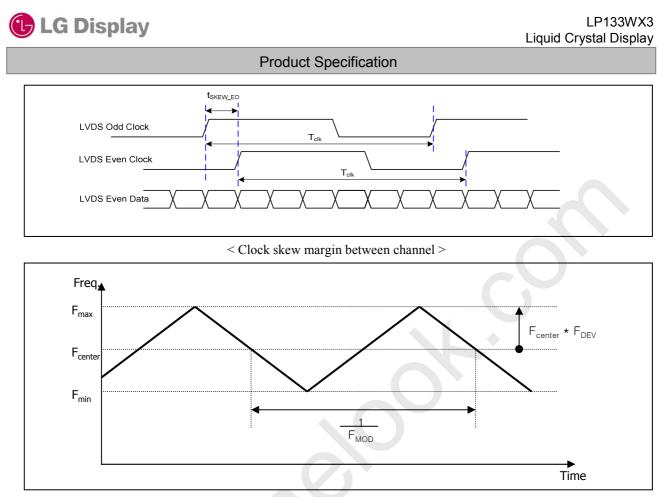
## 3-3-2. AC Specification

$LVDS Clock$ $LVDS Data$ $UVDS Data$ $USSEW (F_{clk} = 1/T_{clk})$ $USS$								
Description	Symbol	Min	Max	Unit	Notes			
	t <sub>skew</sub>	- 400	+ 400	ps	85MHz > Fclk ≥ 65MHz			
LVDS Clock to Data Skew Margin	t <sub>skew</sub>	- 600	+ 600	ps	65MHz > Fclk ≥ 25MHz			
LVDS Clock to Clock Skew Margin (Even to Odd)	t <sub>skew_eo</sub>	- 1/7	+ 1/7	T <sub>clk</sub>	-			
Maximum deviation of input clock frequency during SSC	F <sub>DEV</sub>	-	± 3	%	_			
Maximum modulation frequency of input clock during SSC	F <sub>MOD</sub>	-	200	KHz	-			

Ver. 0.0

Oct.23, 2009

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< Spread Spectrum >

#### **3-3-3. Data Format** 1) LVDS 1 Port

RCLK+			
RA+/-	R3 R2 R1 R0	C0         R5         R4         R3         R2         R1         R0	G0 R5 R4
RB+/-	G4 G3 G2 GI	BI BO C5 G4 G3 G2 G1	BI BO G5
RC+/-	B5 B4 B3 B2	DE VSYNCHSYNC B5 B4 B3 B2	DE VSYNCHSYNC
RD+/-	G7 G6 R7 R6	X B7 B6 G7 G6 R7 R6	X B7 B6
	——Previous (N-1)th Cycle ——	Current (Nth) Cycle ————————————————————————————————————	-Next (N+1)th Cycle

< LVDS Data Format >

Ver.	0.0

Oct.23, 2009

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LP133WX3 Liquid Crystal Display

**Product Specification** 

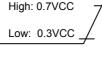
## 3-4. Signal Timing Specifications

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** 

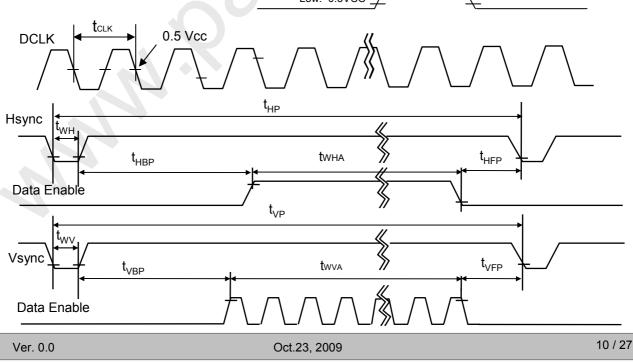
ITEM	Symbol		Min	Тур	Max	Unit	Note			
DCLK	Frequency	f <sub>CLK</sub>	-	72.5	-	MHz				
	Period	Thp	1280	1280	1280					
Hsync	Width	t <sub>wH</sub>	1420	1423	1460	Tclk				
	Width-Active	t <sub>wha</sub>	16	32	48					
	Period	t <sub>vP</sub>	800	800	800					
Vsync	Width	t <sub>wv</sub>	811	846	847	tHP				
	Width-Active	t <sub>wva</sub>	3	6	9					
	Horizontal back porch	t <sub>HBP</sub>	54	63	98	+CLV				
Data	Horizontal front porch	t <sub>HFP</sub>	16	48	62	tCLK				
Enable	Vertical back porch	t <sub>vBP</sub>	5	37	35	tHP				
	Vertical front porch	t <sub>vFP</sub>	3	3	3	ιΠΡ				

## 3-5. Signal Timing Waveforms

Data Enable, Hsync, Vsync



Condition : VCC =3.3V





LP133WX3 Liquid Crystal Display

**Product Specification** 

## 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.

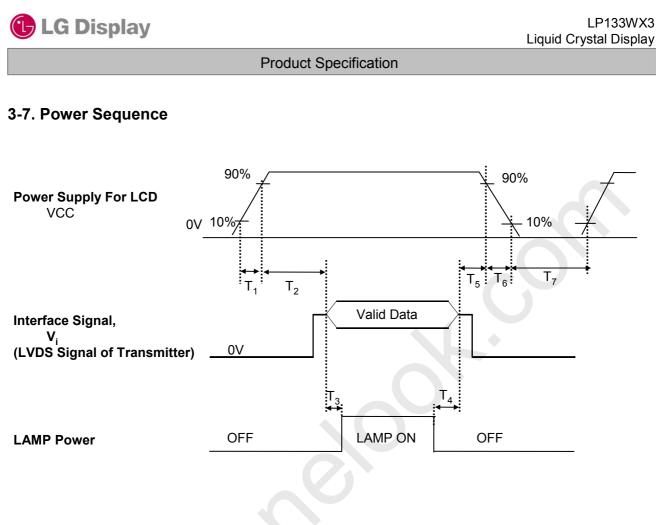
									Inp	out Co	olor D	ata							
	Color			R	ED					GRE	EEN					BL	UE		
		MSE	3					MSE					LSB		_				LSB
	I	R 5	R 4	R 3	R 2	R 1	R 0	G 5	G 4	G 3	G 2	G 1	G 0	B 5	В4	B 3	B 2	B 1	B 0
	Black	0	0		0	0	0				0	0	0	0	0	0	0	0	0
	Red	1	1	1 	1 	1 	1 1	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	. 0	0	0	0	1	1			1	1	0	0	0	0	0	0
Basic	Blue	0	0	0	. 0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Color	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 (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																			
	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 (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				•••••	•••••					•••••		• • • • •	• • • • • •			· · · · · ·	•••••		
	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	1	 1	 1	 1	1	 1	 0	 0	 0	0	0	 0
	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			 1
BLUE	····											••••				· · · · · ·	••••		
	BLUE (62)	 0	 0	0	0	 0		 0	 0	0	0	0	0	 1	 1	· · · · · · 1	····· 1	· · · · · 1	 0
	BLUE (63)	0	0					0		 0	· · · · · · · · · · · · · · · · · · ·		0		 1				····· 1

Table 7. COLOR DATA REFERENCE

Ver. 0.0

Oct.23, 2009

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#### Table 8. POWER SEQUENCE TABLE

Parameter		Value		Units
	Min.	Тур.	Max.	
T <sub>1</sub>	0	-	10	(ms)
T <sub>2</sub>	0	-	50	(ms)
T <sub>3</sub>	200	-	-	(ms)
T <sub>4</sub>	200	-	-	(ms)
T <sub>5</sub>	0	-	50	(ms)
T <sub>6</sub>	0	-	10	(ms)
T <sub>7</sub>	400	-	-	(ms)

Note)

- 1. Valid Data is Data to meet "3-3. LVDS Signal Timing Specifications"
- 2. Please avoid floating state of interface signal at invalid period.
- 3. When the interface signal is invalid, be sure to pull down the power supply for LCD VCC to 0V.
- 4. Lamp power must be turn on after power supply for LCD and interface signal are valid.

Ver. 0.0

Oct.23, 2009

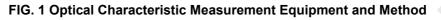


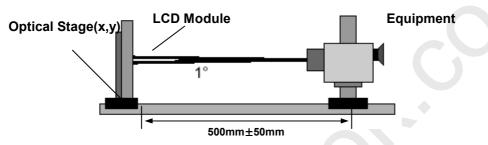
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Product Speci	fication

## 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  $\Phi$  and  $\Theta$  equal to 0°.

FIG. 1 presents additional information concerning the measurement equipment and method.





#### Table 9. OPTICAL CHARACTERISTICS

Ta=25°C, VCC=3.3V, fv=60Hz, f<sub>CLK</sub>= 72.5MHz, ILED = 19mA

Parameter Sym		Symbol	Condition	Min	Тур	Max	Units	Notes
Average L	uminance	LAVE	160 Points (ILED= 19mA)	280	330	-	cd/m <sup>°</sup>	Fig 2
Luminanc	e variation	%	160 points	60	70	-	-	Fig 2
С	/R	-	Center 1 Point	450	600	-	-	
Respor	nse time	TrR + TrD		-	16	25	ms	Fig 3
	Horizontal	Θ	φx(Left,Right)		±70	-		
Viewing angle	Vertical	Θ	φyu(Up)		60	-	o	Fig 4
	venical	Θ	φyd(Down)		60	-		
Worst r Brightness	Worst neighbor Brightness uniformity			80				
	romaticity ation center)		d u'v'	-	-	0.0095		
(Over	romaticity ation panel)		d u'v'	-	-	0.0145		
White chromaticity deviation (Worst neighbor)			d u'v'	-	-	0.0035		
Cross Talk		DSHA	-	-	-	4.0	%	Fig 5
Gray	Scale	-	_		Gamn	าล 2.2		

Ver. 0.0

Oct.23, 2009



**Product Specification** 

#### Table 10. RGB Color Chromaticity

	White		Re	ed	Gre	een	Blue		
	Wx	Wy	Rx	Ry	Gx	Gy			
Max.	0.338	0.354	TBD	TBD	TBD	TBD	TBD	TBD	
Тур.	0.313	0.329	TBD	TBD	TBD	TBD	TBD	TBD	
Min.	0.288	0.304	TBD	TBD	TBD	TBD	TBD	TBD	

Notes)

1. Contrast Ratio(CR) is defined mathematically as

Surface Luminance with all white pixels

Contrast Ratio =

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<sub>v</sub>=60Hz

Gray Level	Luminance [%] (Typ)
LO	0.10
L7	0.71
L15	3.43
L23	8.90
L31	19.2
L39	31.9
L47	47.2
L55	71.2
L63	100

Oct.23, 2009

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- 5. Average Luminance
- Ave. = SUM(L1:L160) / 160

where L1 to L160 are the luminance values measured at point #1 to #160.

- 6. Luminance Uniformity
- Luminance Uniformity:
- U = 100% (Lmax-Lmin)/Lmax

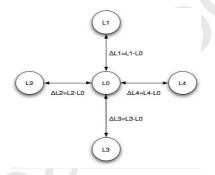
where, Lmax = max {Luminance values at 160 points},

Lmin = min {Luminance values at 160 points}

7. Worst neighbor Luminance Uniformity

Worst Neighbor Luminance Uniformity (The 4 points that are closest to the test point) WNU=100%-Max( $\Delta$ L1,  $\Delta$ L2,  $\Delta$ L3,  $\Delta$ L4)/L0

Global WNU = min (WNU1, ...WNU160)



- 8. White chromaticity deviation with respect to center Center color coordinate is defined as the Average of points: 72, 73, 88, 89.
- White chromaticity deviation over panel
   Maximum delta u'v' between any two measured points over the 160 points
- 10. White chromaticity deviation worst neighborMaximum delta u'v' between any two neighboring points on the panel
- 11. White Chromaticity Average (72, 73, 88, 89 Points)

12. RGB Chromaticity Center Point

Ver. 0.0

Oct.23, 2009

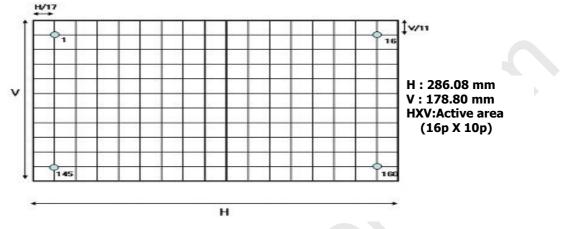


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**Product Specification** 

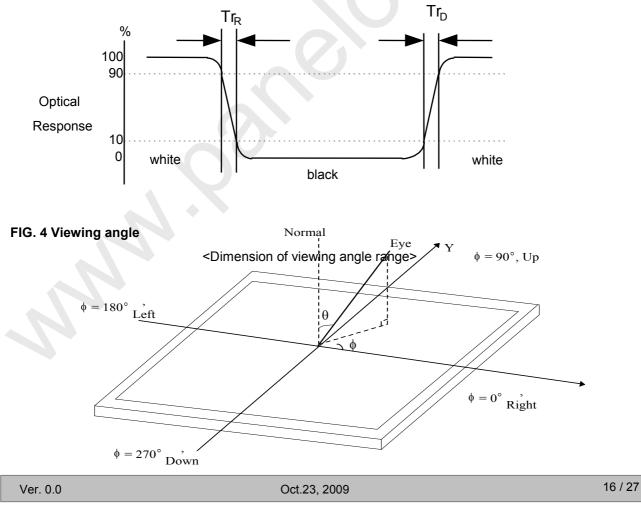
#### FIG. 2 Luminance

<Measuring point for Average Luminance & measuring point for Luminance variation>



#### 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".



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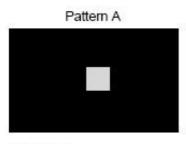
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#### FIG. 5 Cross talk

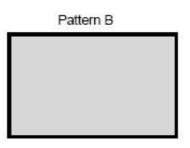
No visual cross-talk will be allowed. Two luminance values are measured at center spot with 50 x 50 pixels. The cross-talk,  $D_{SHA}$ , is defined as,  $D_{SHA} = (L_B - L_A)/L_B \cdot 100\%$ ,

Where, LA = 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 LP133WX2. In addition the figures in the next page are detailed mechanical drawing of the LCD.

	Horizontal	$297.15\pm0.30 \text{mm}$			
Outline Dimension	Vertical	$192.15\pm0.30 \text{mm}$			
	Thickness	3.75mm(Max.)			
Bezel Area	Horizontal	289.38 mm			
Dezel Alea	Vertical	182.5mm			
Activo Display Area	Horizontal	286.08mm			
Active Display Area	Vertical	178.80 mm			
Weight	310g (Max.)				
Surface Treatment	Hard coating(2H), Gla	are treatment of the front Polarizer (Haze 0%)			

Ver. 0.0

Oct.23, 2009

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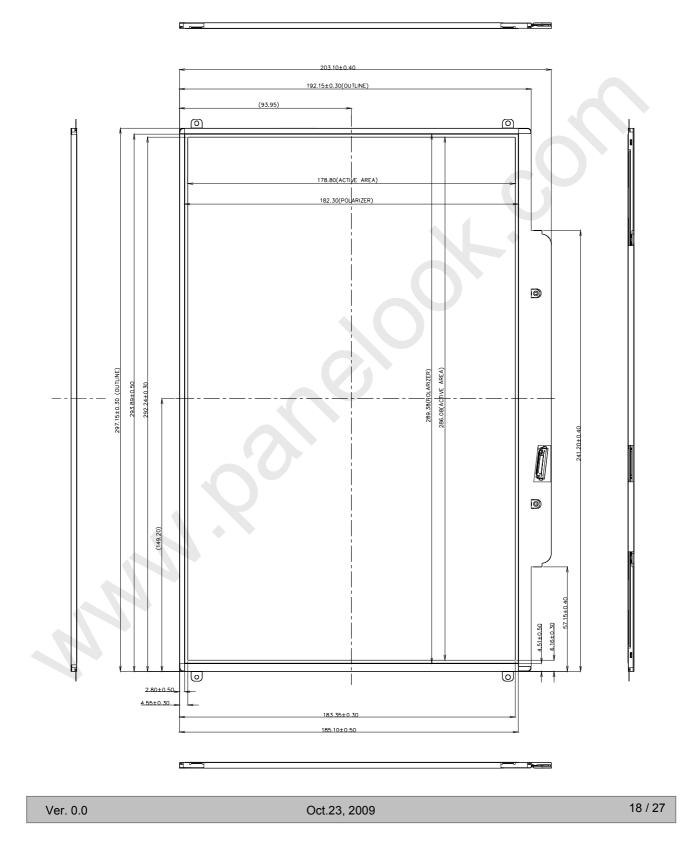


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<FRONT VIEW>



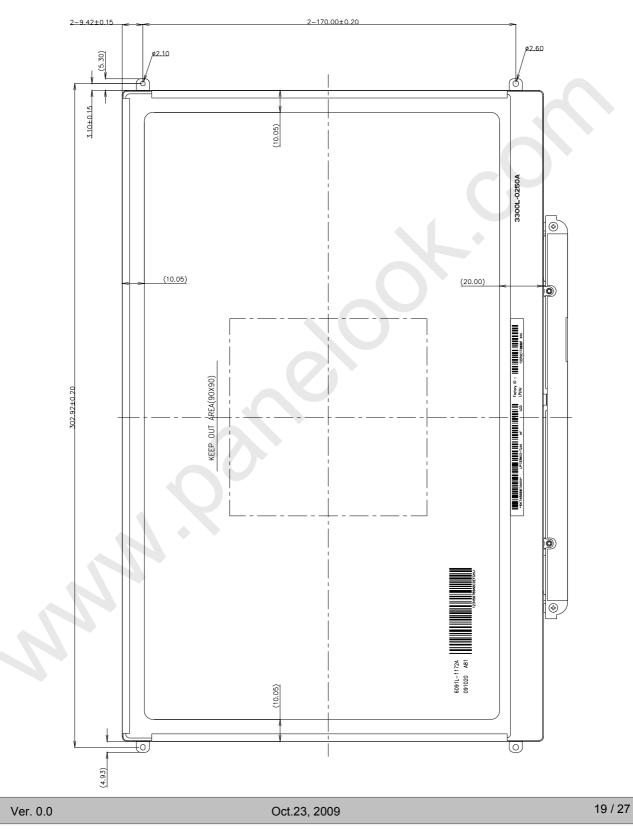
**Product Specification** 

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LP133WX3 Liquid Crystal Display

<REAR VIEW>





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**Product Specification** 

## 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.

Ver. 0.0

Oct.23, 2009



**Product Specification** 

## 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 1<sup>st</sup> 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)



🕒 LG Display	LP133WX3 Liquid Crystal Display
Product Specificatio	
8. Packing	

## 8-1. Designation of Lot Mark

a) Lot Mark



A,B,C : SIZE(INCH)
E : MONTH

D : YEAR 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	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mark	1	2	3	4	5	6	7	8	9	А	В	С

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

Ver. 0.0

Oct.23, 2009



**Product Specification** 

LP133WX3 Liquid Crystal Display

## 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 :  $V=\pm 200 mV$ (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.

Ver. 0.0

Oct.23, 2009



**Product Specification** 

## 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.

Ver. 0.0

Oct.23, 2009

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**LG** Display

LP133WX3 Liquid Crystal Display

**Product Specification** 

## APPENDIX A. Enhanced Extended Display Identification Data (EEDID<sup>™</sup>) 1/3

Byte#	Byte#		Va	alue	Value	
(decimal)	(HEX)	Field Name and Comments	(H	IEX)	(binary)	
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	Header
4	04	Header	F	F	1111 1111	
5	05	Header	F	F	1111 1111	
6	06	Header	F 0	F 0	1111 1111	
8	07 08	Header EISA manufacturer code(3 Character ID) = APP	0		0000 0000 0000 0000 0110	
9	09	Compressed ASCII	1	and the second second	0001 0000	
10	00 0A	Product code(Refer to Apple's request) = K6(0x9cc5)	С	_	1100 0101	
10	0R	(Hex, LSB first)	9	C	1001 1100	
12	00	LCD module Serial No - Preferred but Optional ("0" if not used)	0		0000 0000	Vender/
13	0D	LCD module Serial No – Preferred but Optional ("0" if not used)	0		0000 0000	Product ID
13	0E	LCD module Serial No – Preferred but Optional ("0" if not used)	0		0000 0000	FIGUELID
14	0E 0F	LCD module Serial No - Preferred but Optional ("0" if not used)	0	-	0000 0000	
15	0F 10	Week of Manufacture = Jul. 24th 28week	1	C	0001 1100	
10	10	Year of Manufacture = 2009	1		0001 1100	
17	11	EDID Structure version # = 1	0	-	0001 0011	EDID Version/
19	12		0	3	0000 0001	Revision
20	13	Video Input Definition = Digital I/P,non TMDS CRGB	8		1000 0000	nevision
21	15	Max H image size(cm)=28.608cm(29)	1	D	0001 1101	Display
22	16	Max V image size(cm)=17.880cm(18)	1	2	0001 0010	Parameter
23	17	Display gamma =2.2	7	8	0111 1000	
24	18	Feature support(DPMS) = Active off, RGB Color	0	Α	0000 1010	
25	19	Red/Green low Bits	0	-	0000 0000	
26	1A	Blue/White Low Bits	0		0000 0000	
27	1B	Red X =	0	-	0000 0000	
28	1C 1D	Red Y =	0	_	0000 0000	Color
<u>29</u> 30	1D 1E	Green X = Green Y =	0	_	0000 0000	Color Characteristic
31	1F	Blue X =	0	_	0000 0000	Gilaracteristic
32	20	Blue Y =	0	-	0000 0000	
33	21	White X = 0.313	5	0	0101 0000	
34	22	White Y = 0.329	5	4	0101 0100	
35	23	Established Timing I = 00h(If not used)	0	0	0000 0000	Established
36	24	Established Timing II = 00h(If not used)	0	0	0000 0000	Timings
37	25	Manufacturer's Timings = 00h(If not used)	0	0	0000 0000	
38	26	Standard Timing Identification 1 was not used	0		0000 0001	
39	27	Standard Timing Identification 1 was not used	0		0000 0001	
40	28	Standard Timing Identification 2 was not used	0	1	0000 0001	
41	29	Standard Timing Identification 2 was not used	0	1	0000 0001	
42	2A	Standard Timing Identification 3 was not used	0	of postoor	0000 0001	
43	2B	Standard Timing Identification 3 was not used	0	1	0000 0001	
44	2C	Standard Timing Identification 4 was not used	0	1	0000 0001	Standard
45	2D	Standard Timing Identification 4 was not used	0		0000 0001	Timing ID
46	2E	Standard Timing Identification 5 was not used	0	-	0000 0001	
47	2F	Standard Timing Identification 5 was not used	0		0000 0001	
48	30	Standard Timing Identification 6 was not used	0	CO C	0000 0001	
49	31	Standard Timing Identification 6 was not used	0	1	0000 0001	
50	32	Standard Timing Identification 7 was not used	0	1	0000 0001	
51	33	Standard Timing Identification 7 was not used	0	1	0000 0001	
52	34	Standard Timing Identification 8 was not used	0	1	0000 0001	
53	35	Standard Timing Identification 8 was not used	0	1	0000 0001	
-0	50		Ŭ	1 ·	0000 0001	

Ver. 0.0

Oct.23, 2009

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LP133WX3 Liquid Crystal Display  $\Diamond$ 

## **Product Specification**

## APPENDIX A. Enhanced Extended Display Identification Data (EEDID<sup>™</sup>) 2/3

(HeX)         Check None (HeX)	Byte#	Byte#			alue	Value	
54         36         Pixel Clock/10:00 (USB)         72.5 MHz @0.02kz         51         2         201 0010           56         37         Pixel Clock/10:00 (USB)         1CC         00 1000           76         38         Horizontal Active (Tower Bubb)         1280 Previs         0.0         0.0000.000           78         38         Horizontal Active (Tower Bubb)         143 Previs         8.F         0.0000.000           90         38         SA         Horizontal Active (Tower Bubb)         143 Previs         30.0         0.000.000           90         38         Vertical Active Unstrantal Active : Verteal Banking (Tov-HA) (Ucger 4.4bib)         3.0         0.0100.000           60         35         Horizontal Sync. Offset (Thip)         39.7         20.000.000           61         34         Horizontal Sync. Offset (Thip)         39.7         0.0         0.000.000           64         40         Vertical Arbive Size = 178.80mr (390         1.1         2         0.0         0.000.000           65         41         Horizontal Sync. Offset (Thip)         :gync Midt (SPM)         :gypca Zise = 178.80mr (390.000         0.0         0.0         0.000.000           64         44         Horizontal Sync. Offset (Thip)         :gync Zise 2.7			Field Name and Comments				
55.         37.         Preci Clock/10.001 (MS2)         1         C         0.000000           57.         38.         Hotizental Active (Nover Bibls)         128 Pixels         0.0         0.000000           57.         38.         Hotizental Active (Nover Bibls)         129 Pixels         0.0         0.000000           58.         38.         Vertical Bracking (Tho-HA) (Lower Abibls)         129 Pixels         0.0         0.000000           59.         38.         Vertical Active / Hotizental Bracking (Tho-HA) (Loper 4-Bibls)         3.0         0.0011000         Pixels         3.0         0.0011000           61.         32.         Vertical Active : Vertical Bracking (Tho-HA)         48 Pixels         3.0         0.0011000         Pixels           62.         34.         Hotizental Sone, Olset (Mbi)         Sone Wals         3.0         0.0011000         Pixels           63.         37.         Hotizental Sone Olset (Mbi)         Sone Wals         3.0         0.0         0.000000           64.         40.         Vertical Imoge Size - 280 Pixels         3.0         0.0         0.000000           64.         Hotizental Ascence Jone Wals         Norm-makeed Norm datalets no steres. Dipital second or normal (B-Dipital Size Active	_						
56       38       Horizontal Active (Lover 8 bits)       1280 Pixelia       0       0       00000000         57       38       Horizontal Anteng(Thp-HA) (Lover 8 dbits)       149 Pixelia       8       6       0.0010000         68       34       Horizontal Anteng(Thp-HA) (Lover 4 dbits)       30       0.0010000       20       0.0010000         60       30       Vertical Advice       Noncontal Active (Horizontal Blanking(Thp-HA) (Lover 4 dbits)       30       0.0011000       Timing         61       30       Vertical Advice       Vertical Advice       1000000       0.000000       0.0000000       0.0000000         62       55       Horizontal Since Dulas (Mich (NSPW)       2 Pixels       2.0       0.0000000       0.0000000         66       42       Horizontal Since Dias (Mich (NSPW)       3 Lines : 6 Lines       3       6       0.0000000       0.0000000         66       44       Horizontal Since Bar Attra 8 (Mich (NSPW)       3 Lines : 6 Lines       3       6       0.0000000       0.000000         66       44       Horizontal Since Bar Attra 8 (Mich (NSPW)       3 Lines : 6 Lines       3       0       0.000000         67       45       Horizontal Since Bar Attra 8 (Mich (NSPW)       3 Lines : 6 Lines       3							
57       39       Hoto cental Rearking (Tho p-HA)       (Lower & Bink)       143 Pixels       5       6       1000 1000         88       38       Vertical Advice       (Notice and Rearking (Tho p-HA)       800 Lines       2       2       0.001 1000         89       38       Vertical Advice       (Notice and Rearking (Tho p-HA)       40 Lines       2       0.001 1100         61       30       Vertical Advice       (Notice and Rearking (Tho p-HA)       40 Lines       3       0.001 1100         62       32       Hoto cental Sunce Oldse Widh (LSPW)       22 Pixels       2       0.001 1100       6         63       37       Hoto cental Sunce Piase Widh (LSPW)       32 Lines : 6 Lines       3       6       0.000000       6         64       40 Vertical Image Size = 280 Origo Size       1       6       0.0000000       10       6       1       10000 0000       6       1       10000 0000       6       1       1       1       0.0000000       1       6       0.0000000       1       1       0.0000000       1       1       0       0.0000000       1       1       0       0.0000000       1       1       0       0.0000000       1       0       0       0.0000000							
59       34       Horizontal Active / Horizontal Blanking(Trp-H4) (upcer 44:0its)       5       0       0101 0000         60       3C       Vertical Marking (Trp-H4) (EB Banking Arbor DE only panels). 46 (Lines.       2       E       0001 1000         61       3D       Vertical Marking (Trp-H4) (DE Banking (Trp-H4) (upper 4-9bits)       3       0       0011 0000         62       3E       Horizonal Syne. Offset (Thib)       48 (Pixels)       3       0       0011 0000         63       3F       Horizonal Syne. Offset (Thib)       Syne Marking (Trp-H4)       48 (Pixels)       3       6       0011 0010         64       40       Vertical Syne Offset (Walth (VSPW)       3 Lines : 6 Lines       3       6       0011 0010         65       41       Horizontal Backer 18 (Song Marking (Trp-H4) (Lipper 2this)       1       1       0       0000 0000         66       42       Horizontal Backer 18 (Song Marking (Trp-H4) (Lipper 2this)       1       1       0       0000 0000         67       43       Vertical Backer 18 (Song Marking (Trp-H4) (Lipper 2this)       1       1       0       0000 0000         71       47       Horizontal Backer 1       0       0       0       0       0       0       0       0       0 </td <td>0.0.00000000000000000000000000000000000</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	0.0.00000000000000000000000000000000000						
99       38       Vertical Advice       CE Banking burch of E andy applies       46 Lines       2 E       000 0000         61       30       Vertical Advice 1 (E Banking burch 16)       46 Lines       3 0       00110000         62       32       Horizontal Syme Diles (Minho 11)       48 Pixels       3 0       00110000         63       37       Horizontal Syme Diles (Minho 11)       28 Pixels       2 0       00100000         64       40       Vertical Advice (Minho 11)       28 Pixels       2 0       0011000         64       40       Vertical Advice (Minho 11)       1 E       00010000       1 E       00010000         66       41       Horizontal Brack = 28       Pixels       1 E       0 0000000       1 E       00010000         66       42       Horizontal Brack = 28       Pixels       1 E       0 0000000       1 E       00011001         68       44       Horizontal Brack = 28       Pixels       1 E       0 0000000       1 E       00011000         72       48       Detailed Timage Size - Pixels Advice = 0       0 0       0 00000000       0 00000000         74       4A       Advice Idd Signature       0 0       0 000000000       0 00000000       0 00000000							
60         3C         Vertical Ranking (Turo+HA) (DE Blanking (Turo+HA) (upper 4-Buils)         3         0         00110000           61         3D         Vertical Active Vertical Banking (Turo+HA) (upper 4-Buils)         3         0         00110000           62         3F         Hoizontal Sync. Offset (Tufo)         4B Previs.         3         0         00110000           63         3F         Hoizontal Sync. Offset (Tufo)         3E Previs.         2         0         00100000           64         40         Vertical Async. Offset (Tufo)         3L Ines : 6 Lines         3         6         0011 0001           65         41         Horizontal Inneg Size = 206000000         1         B         0         0.000.0000           66         42         Horizontal Inneg Size = 206000000         1         B         0         0.000.0000           73         44         Horizontal Inneg Size = 2080         1         0         0.000.0000           73         48         Detailed Timing Descriptor #2         0         0         0.000.0000           75         48         Detailed Timing Descriptor #2         0         0         0.000.0000           75         48         Detailed Signature         0         0							
61       30       Vertical Acids :: Vertical Blanking (Vor+N) (upper 4-faits)       31       0       0011 0000       Timing         63       37       Horizontal Sync. Oftest (Thi)       32 Presis       2       0       0011 0000       #         63       37       Horizontal Sync. Oftest (Thi)       32 Presis       2       0       0011 0000       #         64       40       Vertical Sync. Oftest (Thi)       32 Presis       2       0       0011 0010       #         65       41       Horizontal Acider 30       1       0       0       0000 0000       #         66       42       Horizontal Acider 30       1       0       0       0000 0000       #         67       43       Vertical Image Size = 178.00m(170)       B       1       0       0000 0000       #         72       44       Horizontal Acider =0       0       0       0000 0000       #							
62       3E       Hutzonial Sync. Oliset (Thp)       48 Pixels       3 0 0 011 000       Description         63       3F       Hotzonial Sync. Oliset (With (HEPW)       32 Pixels       2 0 0010 000       Pixels       3 6 0 011 0110         64       40       Vertical Sync. Oliset (With)       3 Lines : 6 Lines       3 6 0 011 0110       Pixels       3 6 0 011 0010       Pixels         65       41       Hotzonial Vertical Sync. Oliset (With)       (upper 2its)       1 1 E       0 0 000000       Pixels       1 0 0001 000       Pixels       Pixels       1 0 0001 000       Pixels       Pixels       1 0 0000 000       Pixels       Pixels       1 0 0000 000       Pixels       Pixels       1 0 0000 000       Pixels       Pixels       1 0 000 000       Pixels       Pixels       1 0 000 000       Pixels       Pixels       1 0 000 000       Pixels	61	3D	Vertical Active : Vertical Blanking (Tvp-HA) (upper 4:4bits)			0011 0000	Timing
64         40         Vertical Sync Offica(Tvb) : Sync Width (SpPW)         3 Lines : 6 Lines         3 6 6         6011 0110           65         41         Herizontal Vertical Sync Offica(Vvdth (upper Zbits)         0         0         00000000           66         42         Herizontal Image Size = 280.08mr(280)         1         E         0001 1110           67         43         Vertical Image Size = 78.80cm (179)         B         3         101 001           68         44         Horizontal Border = 0         0         0         00000000           69         45         Horizontal Border = 0         0         0         0000000           71         47         Non-interfaced, Nomal display, no stere, Dybat separate sync, HV pol megatives         1         8         0         0         0000000           73         49         0         0         0         00000000         0         00000000           74         44         0	62	3E					-
65         41         Horizontal Vertical Sync Offset/Width (upper 2xis)         0         0         00000000           66         42         Horizontal Image Size = 178.80cm (179)         B         3         1011 001           67         43         Vertical Image Size = 178.80cm (179)         B         3         1011 001           68         44         Horizontal Redret = 0         1         0         0000 0000           69         45         Horizontal Redret = 0         0         0         0000 0000           70         46         Vertical Border = 0         0         0         0000 0000           71         47         Non-indicades/non stereo, Digital separate sync, HV pol negatives         1         8         0000 0000           72         48         Detailed Timing Descriptor #2         0         0         0000 0000           73         49         Apple edid signature         0         6         0000 0000           73         49         Apple edid signature         0         0         0         0000 0000           74         40         Apple edid signature         0         0         0         0         0         0         0         0         0         0	63	3F		2	0		#1
66         42         Horizontal Image Size = 286.08mr(286)         1         E         Conti 110           67         43         Vertical Image Size = 178.80ml 179)         B         3         1         0         0000 0000           68         44         Horizontal & Vertical Image Size = 0         0         0         0000 0000           70         44         Vertical Image Size = 286.08mr(280)         1         0         0         0000 0000           71         47         Non-intefaced Normal display, no stere, Jiptal separate sync, HV pol negatives         1         8         0001 0000           72         48         Detailed Timing Descriptor #2         0         0         0000 0000           73         49         0         1         0000 0000         0 <td< td=""><td>64</td><td>40</td><td>Vertical Sync Offset(Tvfp) : Sync Width (VSPW) 3 Lines : 6 Lines</td><td>3</td><td>6</td><td></td><td></td></td<>	64	40	Vertical Sync Offset(Tvfp) : Sync Width (VSPW) 3 Lines : 6 Lines	3	6		
97       43       Vertical Image Size = 178.80cm(179)       B       B       101 0011         68       44       Horizontal & Vertical Image Size       0       0       0000 0000         69       45       Horizontal Border = 0       0       0       0000 0000         70       46       Vertical Border = 0       0       0       0000 0000         71       47       Non-indicatedNemai delayu,no stereo.Dgtal separate wnc.HV pol negatives       1       8       0       0       0000 0000         72       48       Detailed Timing Descriptor #2       0       0       0000 0000       0       0       0000 0000         73       49       0       0       0       0000 0000       0       0       0000 0000         75       48.       0       1       0       0       0000 0000       0 <td>65</td> <td>41</td> <td></td> <td>0</td> <td></td> <td></td> <td></td>	65	41		0			
68       44       Horizontal & Vertical Image Size       1       0       001       0000       0000         70       46       Vertical Border = 0       0       0       0       0000       0000       0000         71       47       Nor-interaced.Kornal dialay.no stereo.Digital separate sync, HV pol negatives       1       8       001       0000	66	42				Internet internet internet internet internet internet	
18       45       Horizontal Border = 0       0       0       00000000         70       46       Vertical Border = 0       0       0       00000000         71       47       Non-interaced, Normal diaplay, no stereo, Digital separate sync, H/V pol negatives       1       8       0001 1000         72       48       Detailed Tirring Descriptor #2       0       0       0000 0000         73       49       0       0       0000 0000       0       0         74       44       0       0       0       0000 0000       0         75       48       0       1       0000 0000       0       0       0000 0000         76       47       Apple edid signature       0       0       0000 0000       0       0       0000 0000         77       40       Apple edid signature       0       0       0000 0000       #2       0       0       0000 0000       #2         80       50       Pixel and link component format(6-bit panel interface)       0       0       0       0000 0000       #2         81       51       Panel features(Inverter NA, no inverter)       0       0       0       0       0       0       0	67	43	Vertical Image Size = 178.80cm(179)	B			
170       46       Vertical Border = 0       0       0       0 00000000000000000000000000000000000							
71       47       Non-interfaced, Normal display, no stereo, Digital separate sync, H/V pol negatives       1       8       0001 (000)         72       48       Detailed Tirring Descriptor #2       0       0       00000000         73       49       0       0       00000000       0       0       00000000         73       49       0       1       00000000       0       1       0000000         76       42       Version       0       0       0000000       0       0       0000000         76       48       0       0       0       0       0000000       0       0       0000000         77       40       Apple edid signature       1       0       0       0       0000000       0				old DOUDEDO	000000000000		
172       48       Detailed Timing Descriptor #2       0       0       0       00000000         73       49       0       0       00000000       0       0       0       00000000         73       49       0       0       0       00000000       0       0       0       00000000         75       48       0       0       0       0       0       0000000       0         76       4C       Version       0       6       0000000       0	70	46					
73       49       0       0       00       00000000         74       4A       0       0       0       00000000         75       48       0       0       0       00000000         76       42       Version       0       6       00000000         77       40       Apple edid signature       0       6       0000000         78       42       Apple edid signature       1       0       0000000         78       42       Apple edid signature       1       0       0000000         79       44       Link Type       2       0       0000000       0         80       50       Parel features(inverter NA, no inverter)       0       0       0       0000000         81       54       0       0       0000000       0				- ·	_		
74       4A       0       0       00000000         75       4B       0       1       00000000         76       4C       Version       0       0       00000000         77       4D       Apple edid signature       0       6       00000000         78       4E       Apple edid signature       1       0       00000000         78       4F       Link Type       2       0       00000000         80       50       Pixel and link component format(6-bit panel interface)       0       0       00000000         81       51       Panel features(Inverter NA, no inverter)       0       0       00000000       #2         83       53       0       0       00000000       0       00000000       #2         84       54       0       0       00000000       0       0       00000000         86       56       0       0       0       00000000       0       0       00000000         88       58       0       0       0       00000000       0       0       00000000         90       5A       Detailed Timing Descriptor #3       0       0       0			Detailed Timing Descriptor #2				
75       48       0       1       0000 0001         76       4C       Version       0       0       0000 0000         77       4D       Apple edid signature       1       0       0000 0000         79       4F       Link Type       2       0       0000 0000         79       4F       Link Type       0       0       0000 0000         79       4F       Link Type       0       0       0000 0000         81       51       Panel features(Inverter NA, no inverter)       0       0       0000 0000         82       0       0       0       0000 0000       #2       1       0       0       0000 0000         83       53       0       0       0       0000 0000       #2       1       1       0       0       0000 0000       #2         84       54       0       0       0       0000 0000       0       0       0000 0000       #2       1       1       0       0       0000 0000       #2       1       1       0       0       0000 0000       0       0       0       0       0       0       0       0       0       0       <				COLO DE COLONICACIÓN COLONICACIÓN COLONICACIÓN COLONICACIÓN COLONICACIÓN COLONICACIÓN COLONICACIÓN COLONICACIÓN	OC DOCTORDED		
76       4C       Version       0       0       0       00000000         77       4D       Apple edid signature       1       0       00000000         78       4E       Apple edid signature       1       0       00000000         79       4F       Link Type       2       0       00100000         80       50       Pixel and link component format(6-bit panel interface)       0       0       00000000         81       51       Panel features(Inverter NA, no inverter)       0       0       0       00000000         83       53       0       0       0       00000000       #2         84       54       0       0       0       00000000       #2         86       56       0							
77         4D         Apple edid signature         0         6         0000 0110           78         4E         Apple edid signature         1         0         0010 0000           79         4F         Link Type         2         0         0010 0000           80         50         Pixel and link component format(6-bit panel interface)         0         0         0         0000 0000           81         51         Panel features(Inverter NA, no inverter)         0         0         0         0         0000 0000           84         54         0         0         0         0         0000 0000         #2           85         56         0         0         0         0         0         0         0000 0000           84         54         0		*****					
78         4E         Apple edid signature         1         0         0001 0000           79         4F         Link Type         2         0         0010 0000           80         50         Pixel and link component format(6-bit panel interface)         0         0         0000 0000         #2           82         52         Panel features(Inverter NA, no inverter)         0         0         0         0000 0000         #2           83         53         O         0         0         0         0         0000 0000         #2           84         54         O         0         0         0         0         0000 0000         #2           85         55         O         0         0         0000 0000         #2           86         56         O         0         0         0000 0000         #2           90         5A         Detailed Timing Descriptor #3         0         0         0         0000 0000           91         5B         C         C         0         0         0         0000 0000           92         5C         O         0         0         0         0         0         0         0				000 0000000	of succession		
79       4F       Link Type       2       0       0010 0000         80       50       Pixel and link component format(6-bit panel interface)       0       0       0       00000000         81       51       Panel features(Inverter NA, no inverter)       0       0       0       00000000       #2         83       53       0       0       00000000       0       00000000       #2         84       54       0       0       00000000       0       00000000       #2         85       55       0       0       0       00000000       0       00000000       #2         86       56       0       0       0       0       0       00000000       #2         87       57       0							
80         50         Pixel and link component format(6-bit panel interface)         0         0         0         00000000         Description           81         51         Panel features(Inverter NA, no inverter)         0         0         0         00000000         Pixel and link component format(6-bit panel interface)         0	78	4E				0001 0000	
81       51       Panel features(Inverter NA, no inverter)       0       0       0       0000 0000         82       52       0       0       0       0000 0000       0       0000 0000         83       53       0       0       0       0000 0000       0       0       0000 0000         84       54       0       0       0       0000 0000       0       0       0000 0000         85       55       0       0       0       0000 0000       0	79	4F		2	0		Timing
82         52         0         0         0         0         00000000           83         53         0         0         0         00000000         00000000           84         54         0         0         0         00000000         00000000           85         55         0         0         0         0         00000000           86         56         0         0         0         00000000         00000000           88         58         0         0         0         0         00000000           90         5A         Detailed Timing Descriptor #3         0         0         0         00000000           91         58         0         0         0         00000000         0         00000000           92         5C         0         0         0         00000000         0 <td>80</td> <td>50</td> <td></td> <td>0</td> <td>0</td> <td></td> <td>Description</td>	80	50		0	0		Description
83       53       0       0       0       0000 0000         84       54       0       0       0000 0000         85       55       0       0       0       0000 0000         86       56       0       0       0       0000 0000         87       57       0       0       0000 0000         88       58       0       A       0000 0000         90       5A       Detailed Timing Descriptor #3       0       0       0000 0000         91       5B       0       0       0000 0000       0         92       5C       0       0       0000 0000         93       5D       L       0       0       0000 0000         94       5E       0       0       0000 0000       0       0         95       5F       L       4       C       0       0       0000       0001         96       60       P       5       0       0101 0001       3       3       3       0011 001         98       62       3       3       3       0011 0001       #3       3       3       0011 0001       #3	81	51	Panel features(Inverter NA, no inverter)	0	0		#2
84       54       0       0       0       0000 0000         85       55       0       0       0       0000 0000         86       56       0       0       0       0000 0000         87       57       0       0       0       0000 0000         88       58       0       A       0000 1010         89       59       2       0       0010 0000         90       5A       Detailed Timing Descriptor #3       0       0       0       0000 0000         91       5B       0       0       00000 0000       0       00000 0000         92       5C       0       0       0       00000 0000       0         93       5D       5       0       0       00000 0000       0 <td>82</td> <td>52</td> <td></td> <td></td> <td></td> <td></td> <td></td>	82	52					
85         55         0         0         0         00000000           86         56         0         0         0         00000000           87         57         0         0         0         00000000           88         58         0         A         00001010           89         59         2         0         010000000           90         5A         Detailed Timing Descriptor #3         0         0         00000000           91         5B         0         0         00000000         0           92         5C         0         0         00000000         0           93         5D         F         E         11111110         0           94         5E         0         0         00000000         0           95         5F         L         4         C         01010001           96         60         P         5         0         0101001           98         62         3         3         30110011         1           99         63         X         5         8         0101 1000           100         66         3 </td <td>***************************************</td> <td>*****</td> <td></td> <td></td> <td></td> <td></td> <td></td>	***************************************	*****					
86       56       0       0       0000 0000         87       57       0       0       0000 0000         88       58       0       A       0000 1010         89       59       2       0       0010 0000         90       5A       Detailed Timing Descriptor #3       0       0       0000 0000         91       58       0       0       00000 0000       0         92       5C       0       0       00000 0000       0         93       5D       F       1111 1110       0       0       00000 0000         93       5D       C       0       0       00000 0000         94       5E       0       0       00000 0000         95       5F       L       4       C       0101 0000         96       60       P       5       0       0110 001         98       62       3       3       3       0011 0011         99       63       3       3       0011 0011       1         99       63       3       3       0011 0011       1         99       63       3       3       0011 001				COLUMN TWO IS NOT	and the second second		
87       57       0       0       00000000         88       58       0       A       00001010         89       59       2       0       00100000         90       5A       Detailed Timing Descriptor #3       0       0       00000000         91       5B       0       0       00000000       0       00000000         92       5C       0       0       00000000       0       00000000         93       5D       F       E       1111 1110       0       0       00000000         94       5E       0       0       00000000       0       00000000         95       5F       L       4       C       0101 1000         96       60       P       5       0       0101 0001         97       61       1       3       1       0011 0001         98       62       3       3       3       0011 0101         99       63       X       5       8       0101 1001         102       66       3       3       3       0011 0101         102       66       3       3       3       0010 1001							
88       58       0       A       0000 1010         89       59       2       0       0010 0000         90       5A       Detailed Timing Descriptor #3       0       0       0       0000 0000         91       5B       0       0       0       0000 0000         92       5C       0       0       0       0000 0000         93       5D       F       E       1111 1110         94       5E       0       0       00000000         95       5F       L       4       C       0100 1100         96       60       P       5       0       011 0001         98       62       3       3       3       0011 0011         99       63       3       3       0011 0011       #3         100       64       W       5       7       010 1111         101       65       X       5       8       011 0011         102       66       3       3       3       0011 0010         102       66       3       3       0011 0010       #3         103       67       -       2		******		non prophore			
89       59       2       0       0010 0000         90       5A       Detailed Timing Descriptor #3       0       0       0000 0000         91       5B       0       0       00000 0000       0         92       5C       0       0       00000 0000         93       5D       F       1111 1110         94       5E       0       0       0000 0000         95       5F       L       4       C       0100 1000         96       60       P       5       0       0111 0001         98       62       3       3       0011 0001       #3         100       64       W       5       7       0101 1001       #3         101       65       X       5       8       0101 1001       #3         102       66       3       3       3       0011 0001       101         102       66       3       3       3       0011 0001       101         104       68       T       -       2       D       0010 1100         105       69       L       4       C       0100 1100							
90       5A       Detailed Timing Descriptor #3       0       0       0000 0000         91       5B       0       0       0000 0000         92       5C       0       0       0000 0000         93       5D       0       0       0000 0000         94       5E       0       0       0000 0000         95       5F       0       0       0000 0000         96       60       P       5       0       0101 0001         98       62       3       3       0011 0011       1001         99       63       3       3       0011 0011       #3         100       64       W       5       7       0101 011         101       65       X       5       8       0101 000         102       66       3       3       3       0011 0011         103       67       -       2       D       0010 1000         104       68       T       5       4       0101 0100         105       69       L       4       C       0100 100							
91       5B       0       0       0000 0000         92       5C       0       0       0000 0000         93       5D       F       E       1111 1110         94       5E       0       0       0000 0000         95       5F       L       4       C       0100 1000         96       60       P       5       0       0110 001         96       62       3       3       0011 001       1001         98       62       3       3       0011 001       100         99       63       3       3       0011 001       #3         100       64       W       5       7       0101 011         102       66       3       3       3       0011 001         103       67       -       2       D       0010 100         104       68       T       5       4       0101 010         105       69       L       4       C       0100 100				_			
92       5C       0       0       0000 0000         93       5D       F       E       1111 1110         94       5E       0       0       0000 0000         95       5F       L       4       C       0100 1000         96       60       P       5       0       0101 0001         98       62       3       3       0011 0011         99       63       3       3       0011 0011         100       64       W       5       7       0101 011         101       65       X       5       8       0101 1001         102       66       3       3       3       0011 0011         103       67       -       2       D       0010 1001         104       68       T       5       4       0101 0100         105       69       L       4       C       0100 100			Detailed Liming Descriptor #3	and the second second	The other Distance in the local distance in		
93       5D       F       E       1111 110         94       5E       0       0       00000000         95       5F       L       4       C       0100 1000         96       60       P       5       0       0101 0001         96       62       3       1       0011 0011         98       62       3       3       0011 0011         99       63       3       3       0011 0011         100       64       W       5       7       0101 011         101       65       X       5       8       0101 1001         102       66       3       3       3       0011 0011         103       67       -       2       D       0010 1001         104       68       T       5       4       0101 0100         105       69       L       4       C       0100 100					and the second second		
94         5E         0         0         0         00000000           95         5F         L         4         C         01001000           96         60         P         5         0         01010000           97         61         1         3         1         0011001           98         62         3         3         0011001           99         63         3         3         0011001           100         64         W         5         7         0101011           101         65         X         5         8         0101000           102         66         3         3         0011001         #3           102         66         3         3         0011001         #3           103         67         -         2         D         0010101      104         68         T         1         4         C         0100100           105         69         L         4         C         0100100							
95         5F         L         4         C         0100 1100           96         60         P         5         0         0101 0000           97         61         1         3         1         0011 0001           98         62         3         3         011 0011         001           99         63         3         3         0011 0011         101           100         64         W         5         7         0101 0111         100           102         66         X         5         8         0101 1001         #3           102         66         3         3         3         0011 011         101           103         67         -         2         D         0010 1101         101           104         68         T         L         4         C         0100 1100           105         69         L         4         C         0100 1100	0.0000000000000000000000000000000000000			COLO DODOEDO	OC DOCTOR DOCT		
96         60         P         5         0         0101 0000           97         61         1         3         1         0011 0001           98         62         3         3         011 0011         001           99         63         3         3         0011 0011         001         001           100         64         W         5         7         0101 0111         #3           101         65         X         5         8         0101 1001         #3           102         66         3         3         3         0011 011         101           103         67         -         2         D         0010 1101         101           104         68         T         5         4         0101 0100         101           105         69         L         4         C         0100 1100         100					COLORADO DE LA COLORA		
97       61       1       0011 0001       Timing         98       62       3       3       0011 0011       Description         99       63       3       3       0011 0011       #3         100       64       W       5       7       0101 0111       #3         101       65       X       5       8       0101 1001       #3         102       66       3       3       0011 0011       101         103       67       -       2       D       0010 1001         104       68       T       5       4       0101 1000         105       69       L       4       C       0100 1100							
98       62       3       3       0011 0011       Description         99       63       3       3       0011 0011       #3         100       64       W       5       7       0101 0111       #3         101       65       X       5       8       0101 1000       #3         102       66       3       3       0011 0011       #3         103       67       -       2       D       0010 1101         104       68       T       5       4       0101 000         105       69       L       4       C       0100 1100	010100000000000000000000000000000000000						Timine
99       63       3       0011 0011       #3         100       64       W       5       7       0101 0111         101       65       X       5       8       0101 1000         102       66       3       3       0011 0011         103       67       -       2       D       0010 1101         104       68       T       5       4       0101 0100         105       69       L       4       C       0100 1100		*****					-
100       64       W       5       7       0101 0111         101       65       X       5       8       0101 1000         102       66       3       3       0111 0001         103       67       -       2       D       0010 1101         104       68       T       5       4       0101 0100         105       69       L       4       C       0100 1100							•
101         65         X         5         8         0101         1000           102         66         3         3         3         0011         0011           103         67         -         2         D         0010         1101           104         68         T         5         4         0101         0100           105         69         L         4         C         0100         1100							#3
102         66         3         3         0011 0011           103         67         -         2         D         0010 1101           104         68         T         5         4         0101 0100           105         69         L         4         C         0100 1100		*****					
103       67       -       2       D       0010       101         104       68       T       5       4       0101       0100         105       69       L       4       C       0100       100				old DOIOFOR	000000000000		
104         68         T         5         4         0101 0100           105         69         L         4         C         0100 1100				and the second second	THE OWNER WATER OF		
105 69 L 4 C 0100 1100							
	106	6A	A	4	and the second second	0100 0001	
107 6B 4 3 4 0011 0100					-		

Ver. 0.0

Oct.23, 2009

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 $\oslash$ 

**Product Specification** 

## APPENDIX A. Enhanced Extended Display Identification Data (EEDID<sup>™</sup>) 3/3

Byte#	Byte#		Va	lue	Value	
(decimal)	(HEX)	Field Name and Comments	_	EX)	(binary)	
108	6C	Detailed Timing Descriptor #4	0	0	0000 0000	
109	6D		0	0	0000 0000	
110	6E		0	0	0000 0000	
111	6F		F	E	1111 1110	
112	70		0	0	0000 0000	
113	71	С	4	3	0100 0011	
114	72	0	6	F	0110 1111	
115	73		6		0110 1100	Timing
116	74	0	6	ACCOUNTS OF	0110 1111	Description
117	75	r	7	2		#4
118	76	SPACE	2	0	0010 0000	
119	77		4	and the second second	0100 1100	
120	78	C	4	3		
121	79		4	4	0100 0100	
122	7A	LF	CONTRACTOR OF TAXABLE PARTY.	A		
123	7B	SPACE	2	0	0010 0000	
124	7C	SPACE	2	0	0010 0000	
125	7D	SPACE	2	0		
126	7E	Extension flag = 00	0	0		Extension Flag
127	7F	Checksum	1	D	0001 1101	Checksum

Ver. 0.0

Oct.23, 2009