

# SPECIFICATION FOR APPROVAL

- ( ) Preliminary Specification(●) Final Specification
  - Title

BUYER	APPLE
MODEL	K23

27.0" QHD	TFT LCD
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SUPPLIER	LG Display Co., Ltd.			
*MODEL	LM270WQ1			
SUFFIX	SDA2			

\*When you obtain standard approval,

please use the above model name without suffix







# Product Specification

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### **RECORD OF REVISIONS**

Revision No	Revision Date	Page	Description			
0.0	Dec. 9. 2008	-	First Draft(Preliminary)			
0.1	Jan. 15. 2009	11	Pin symbol name is changed			
0.2	Jan. 22. 2009	34	Timing data of EDID is corrected			
		35	Check sum value is changed from BO to F5			
0.3	Feb. 7. 2009	5	Update diagonal size (60.96 $\rightarrow$ 68.47)			
		5	Update pixel pitch (0.270x0.270 $\rightarrow$ 0.2331x0.2331)			
		11	Update pin configuration of 30pin CNT			
		11	Change 30pin CNT (Hirose $\rightarrow$ I-PEX)			
		13	Update timing table			
		35	Check sum value is changed from F5 to 39			
0.4	Feb. 25. 2009	5	Update outline dimension			
		9	Add LED Bar Electrical Characteristics			
		11	Update Backlight Interface			
		18	Update Response time			
		25~26	Add typo (= will be updated)			
0.5	Feb. 27. 2009	11	Update LED Connector & Mating Connector			
		24	Update Outline Dimension			
		25~26	Update a mechanic drawing			
		32~34	Update EDID data			
0.6	Apr. 15. 2009	1	Change SUFFIX			
		5	Update General Features			
		7	Update Electrical Characteristics			
		9	Update LED Bar Electrical Characteristics			
		12	Update Timing Table			
		25~26	Update Mechanical Characteristics			
		29	Update Packing Form			
		32~35	Update EDID data			
0.7	May. 27. 2009	6	Update Power Consumption			

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### **RECORD OF REVISIONS**

Revision No	Revision Date	Page	Description	
		10	Update LED Bar Electrical Characteristics	
		11	Change 30pin CNT (I-PEX $\rightarrow$ JAE)	
			Update pin configuration of 30pin CNT	
		13	Update Timing Table	
		16~17	Update Power Sequence	
		20	Update Optical Characteristics	
		26	Update Mechanical Characteristics	
		27~28	Update a mechanic drawing	
		34~37	Update EDID data	
0.8	Jul. 20. 2009	8	Update Electrical Characteristics	
		12	Update LED CNT pin configuration	
		28	Update a mechanic drawing	
		34~37	Update EDID data	
	Aug. 14. 2009	10	Update LED Bar Electrical Characteristics	
1.0	Aug. 31. 2009	8~9	Update Electrical Characteristics	
	Sep. 16. 2009	28	Update a mechanic drawing	

### **1.** General Description

LM270WQHD is a Color Active Matrix Liquid Crystal Display with Light Emitting Diode (White LED) backlight system without LED driver. The matrix employs a-Si Thin Film Transistor as the active element. It is a transmissive type display operating in the normally black mode. It has a 27inch diagonally measured active display area with QHD resolution (2560 horizontal by 1440 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 8-bit gray scale signal for each dot, thus, presenting a palette of more than 16,7M(True) colors.

It has been designed to apply the 8Bit 4Lane Display port interface.

It is intended to support displays where high brightness, super wide viewing angle, high color saturation, and high color are important.



#### **General Features**

Ver. 1.0	SEP. 16. 2009	5/37
HDCP	HDCP key implemented in Tcon (DP628)	
Surface Treatment	Glare (Low Reflection treatment of the front polarizer)	
Display Operating Mode	Transmissive mode, normally black	
Weight	4600 g (typ.)	
Power Consumption	Total 96.91 Watt (Max.) (15.36 Watt @VLCD, Max 81.55 Watt_Duty 100% of DC 350 mA_w/o	driver)
Viewing Angle(CR>10)	View Angle Free (R/L 178(Typ.), U/D 178(Typ.))	
Luminance, White	380 cd/m <sup>2</sup> ( 5 points Avg.)	
Color Depth	8-bit, 16,777,216 colors	
Pixel Format	2560 horiz. By 1440 vert. Pixels RGB stripes arrangement	
Pixel Pitch	0.2331 mm x 0.2331 mm	
Outline Dimension	630.0(H) x 376.13(V) x 21.8(D) mm(Typ.)	
Active Screen Size	27.0 inches(68.47cm) diagonal	



#### 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

Darameter	Symbol	Valu	ies	Unite	Notos	
Falancici	Symbol	Min	Max	Onics	Notes	
Power Input Voltage	VLCD	-0.3	14	Vdc	at 25 $\pm$ 2°C	
Power Input Voltage	VDPLOGIC	-0.5	4	Vdc	at 25 $\pm$ 2°C	
Operating Temperature	Тор	0	50	°C		
Storage Temperature	Тѕт	-20	60	°C	1	
Operating Ambient Humidity	Нор	10	90	%RH		
Storage Humidity	Нѕт	10	90	%RH		

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**

It requires two power inputs. One is employed to power the LCD electronics and to drive the TFT array and liquid crystal. The second input power for the DP Rx.

#### Table 2-1-1. ELECTRICAL CHARACTERISTICS (Normal Mode)

Doromotor	Cumbol		Values	Unit	Notos	
Parameter	Symbol	Min	Тур	Max	Unit	notes
MODULE :						
Power Supply Input voltage	VLCD	11.4	12.0	12.6	Vdc	
Permissive Power Input Ripple	VdRF	-		400	mVp-p	
Power Supply Input Current	ILCD	-	890	1025	mA	1
Power Supply Input Current	ILCD	-	1280	1475	mA	2
Power Consumption	PLCD	-	10.68	12.30	Watt	1
			15.36	17.70	Watt	2
Rush Current	IRUSH_VLCD	-	-	3.0	А	3
DP Logic Input Voltage	VCC_DPLOGIC	3.13	3.3	3.47	Vdc	
DP Logic Input Current			300		mA	1
			300		mA	2
DP Logic Power Consumption	P_DPLOGIC		1.0		Watt	
DP Rush Current	IRUSH_DPLOGIC	-	-	1.0	А	3



Note :

- The specified current and power consumption are under the V<sub>LCD</sub>=12.0V, 25 ± 2°C,f<sub>V</sub>=60Hz condition whereas mosaic pattern(8 x 6) is displayed and f<sub>V</sub> is the frame frequency.
   The current is specified at the maximum current pattern.
- 3. The duration of rush current is about 2ms and rising time of power Input is 1ms(min.).



Mosaic Pattern(8 x 6)



White Pattern

Deromotor	Cumhal	Condition		Unit	Notos		
Parameter	Symbol	Condition	Min.	Тур.	Max.	Unit	Notes
LED :							1,7
LED String Current	Is		-	350	700	mA	2,7
LED String Voltage	Vs		35	37.8	41	V	3,7
LED Bar Voltage	VBar		-	226.8	233	V	3,7
LED String Power	Ps		12.25	13.23	14.35	Watt	4,6,7
LED Bar Power	PBar		-	79.38	81.55	Watt	4,6,7
LED Life Time	LED_LT		(39,000)	-	-	Hrs	5,7
LED Junction Temperature	Tj		-	-	150	C	7

#### Table 2-2. LED Bar ELECTRICAL CHARACTERISTICS

LED driver design guide

: The design of the LED driver must have specifications for the LED in LCD Assembly.

The performance of the LED in LCM, for example life time or brightness, is extremely influenced by the characteristics of the LED driver.

So all the parameters of an LED driver should be carefully designed and output current should be Constant current control.

When you design or order the LED driver, please make sure unwanted lighting caused by the mismatch of the LED and the LED driver (no lighting, flicker, etc) never occurs. When you confirm it, the LCD module should be operated in the same condition as installed in your instrument.

- 1. Specified values are for a single LED bar including Left & Right Bar.
- 2. The specified current is input LED chip 100% duty current.
- 3. The specified voltage is input LED string and Bar voltage at typical 350 mA 100% duty current.
- 4. The specified power consumption is input LED string & bar power consumption at typical 350 mA 100% duty current.
- 5. The life is determined as the time at which luminance of the LED is 50% compared to that of initial value at the typical LED current on condition of continuous operating at  $25 \pm 2^{\circ}$ C.
- The LED bar power consumption shown above does not include loss of external driver. The used LED bar current is the LED typical current. String Power Consumption is calculated with PS = VS x Is
   Par Power Consumption is calculated with PL = VPart Is

Bar Power Consumption is calculated with PL = VBarx Is

7. LED operating DC Forward Current and Junction Temperature must not exceed LED Max Ratings.



### **3-2. Interface Connections**

### 3-2-1. LCD Module

- LCD Connector(CN1). : FI-X30SSL-HF (manufactured by JAE)

The pin configuration for the 30 pin connector is shown in the table below.

#### Table 3 MODULE CONNECTOR(CN\_SIG) PIN CONFIGURATION

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	DDC_SCL	DDC for Clock	16	Lane3P	True Signal for Main Link 3
2	DDC_SDA	DDC for Data	17	Lane3N	Component Signal for Main Link 3
3	GND	High Speed Ground for Auxiliary Channel	18	GND	High Speed Ground
4	AUX_CH N	Component Signal for Auxiliary Channel	19	SPDIF	Audio output from DP RX
5	AUX_CH P	True Signal for Auxiliary Channel	20	VIDEO_ ON	Video status from DP RX
6	GND	High Speed Ground for Main Link 0	21	HPD	Hot Plug Detect Signal
7	Lane0P	True Signal for Main Link 0	22	GND	GND for main power
8	Lane0N	Component Signal for Main Link 0	23	GND	GND for main power
9	GND	High Speed Ground for Main Link 1	24	GND	GND for main power
10	Lane1P	True Signal for Main Link 1	25	GND	GND for main power
11	Lane1N	Component Signal for Main Link 1	26	VLCD	12V for LCM main power
12	GND	High Speed Ground for Main Link 2	27	VLCD	12V for LCM main power
13	Lane2P	True Signal for Main Link 2	28	VLCD	12V for LCM main power
14	Lane2N	Component Signal for Main Link 2	29	VLCD	12V for LCM main power
15	GND	High Speed Ground for Main Link 3	30	VCC_L_IN	3.3V for DP TCON power

#### Notes: 1. Connector

2.1 Connector(Receptacle) : FI-X30SSL-HF(JAE) or 20389-Y30E-01(I-PEX) 2.2 Mating Connector(Plug) : FI-X30HL(JAE) or 20385-Y30T-12F(I-PEX)



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### **3-2-2. Backlight Interface**

- LED Connector : H401K-D12N-12B (Manufactured by E&T)
- Mating Connector : 4530K-F12N-01R (Manufactured by E&T)

Table 5.	LED CONNECTOR PIN	CONFIGULATION
Pin No.	Symbol	Description

Pin No.	Symbol	Description	Note		
1	L_LED1+ LED channel 1 Anode				
2	L_LED1-	LED channel 1 Cathode			
3	L_LED2+	LED channel 2 Anode	Left here		
4	L_LED2- LED channel 2 Cathode		Left bar		
5         L_LED3+         LE           6         L_LED3-         LED		LED channel 3 Anode			
		LED channel 3 Cathode			
7	7 R_LED1+ LED channel 1 Anode				
8	R_LED1-	LED channel 1 Cathode			
9	R_LED2+	LED channel 2 Anode	Right bar		
10	R_LED2-	LED channel 2 Cathode			
11	I     R_LED3+     LED channel 3 Anode				
12 R_LED3- LED channel 3		LED channel 3 Cathode			



### 3-3. Signal Timing Specifications

All of the interface signal timing should be satisfied with the following specifications for it's proper operation.

#### Table 6. TIMING TABLE (VESA COORDINATED VIDEO TIMING)

	ITEM	SYMBOL	Min	Тур	Max	Unit	Note
	Period	tCLK	4.14	4.14	4.14	ns	
DCLK	Frequency	fCLK	241.5	241.5	241.5	MHz	-
	Period	tHP	2720	2720	2720		
Hsync	Width-Active	tWH	32	32	32	tCLK	
	Period	tVP	1481	1481	1481	tHP	
Vsync	Frequency	fV	59.95	59.95	59.95	Hz	
	Width-Active	twv	5	5	5	tHP	
	Horizontal Valid	tHV	2560	2560	2560		
	Horizontal Back Porch	tHBP	80	80	80	tCLK	
	Horizontal Front Porch	tHFP	48	48	48		
Data	Horizontal Blank	-	160	160	160		twn+ thbp+ thfp
Enable	Vertical Valid	tvv	1440	1440	1440		
	Vertical Back Porch	tVBP	33	33	33		
	Vertical Front Porch	tVFP	3	3	3	tHP	
	Vertical Blank	-	41	41	41		twv+ tvbp+ tvfp

Note: Hsync period and Hsync width-active should be even number times of tCLK. If the value is odd number times of tCLK, display control signal can be asynchronous. In order to operate this LCM a Hsync, Vsync, and DE(data enable) signals should be used.

- 1. The performance of the electro-optical characteristics may be influenced by variance of the vertical refresh rates.
- 2. Vsync and Hsync should be keep the above specification.
- 3. Hsync Period, Hsync Width, and Horizontal Back Porch should be any times of of character number(8).
- 4. The polarity of Hsync, Vsync is not restricted.

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### 3-4. Signal Timing Waveforms



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### 3-5. Color Data Reference

The Brightness of each primary color(red,green,blue) is based on the 8-bit gray scale data input for the color; the higher the binary input, the brighter the color. The table below provides a reference for color versus data input.

#### Table 7. COLOR DATA REFERENCE

													Inpu	ut Co	olor	Dat	а									
Color						RE	ED							GRE	EEN							BL	UE			
			MS	B					LS	SB	MS	В					L	SB	MS	B						.SB
	1		R7	R6	R5	R4	R3	R2	R1 F	20	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
	Black		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red (255)		1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green (255)		0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Basic	Blue (255)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Color	Cyan		0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta		1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Yellow		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	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	1	1	1	1	1	1
	RED (000)	Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED (001)		0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RED																										
	RED (254)		1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED (255)		1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREEN (000)	Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREEN (001)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
GREEN																										
	GREEN (254)		0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
	GREEN (255)		0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	BLUE (000)	Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BLUE (001)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
BLUE																										
	BLUE (254)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
	BLUE (255)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1



### **3-6.** Power Sequence

### **3-6-1.** Power Sequence



Notes: 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  $V_{ICD}$  to 0V.
- 3. LED power must be turn on after power supply for LCD and interface signal are valid.

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### **3-6.** Power Sequence

### **3-6-1.** Power Sequence





### 3-6-2. Power Sequence, EDID Read / Write

\*\*\* This timing is for fabrication purpose only, not for normal operation. \*\*\*



\* EDID Read time and EDID write time will be exclusive.

Notes.

In case of without DP signal after DP logic power on, check HPD after TE1 time and if HPD is low status then any time can read EDID

#### Table 8.1 POWER SEQUENCE, EDID

Deventer		Unite		
Parameter	Min	Тур	Max	Units
TE1	-	30	50	ms
TE2	1000	-	-	ms
TE3	-	20		ms
TE4	1	-	-	ms
TE5	-	-	2000	ms
TE6	1	-	-	ms
TE7	-	20	-	ms
TE8	1	-	-	ms

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```



### 3-6-3. State Machine



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### **Product Specification**

### 4. Optical Specifications

Optical characteristics are determined after the unit has been 'ON' for approximately 120 minutes in a dark environment at 25±2°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 ° and aperture 1 degree.

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



FIG. 1 Optical Characteristic Measurement Equipment and Method

#### Table 9. OPTICAL CHARACTERISTICS

(Ta=25 °C, V<sub>LCD</sub>=12.0V, f<sub>V</sub>=60Hz Dclk=242.28MHz)

	Daramo	tor	Symbol		Values		Lipito	Notes																
	Falaille		Symbol	Min	Тур	Max	Units	Notes																
Contrast Rat	io		CR	700	1000	-		1																
Surface Luminance, white		L <sub>WH</sub>	300	380	-	cd/m <sup>2</sup>	2																	
Luminance Variation		δ <sub>WHITE</sub>			30	%	3																	
Response Time		Rise Time	Tr <sub>R</sub>	-	6.5	14	ms	4.1																
Response II	me	Decay Time	Tr <sub>D</sub>	-	7.5	14	ms	4.1																
		RED	Rx		0.652																			
Color Coordinates [CIE1931]		Ry	]	0.334																				
		GREEN	Gx	1	0.304																			
	nates		Gy	Тур	0.619	Тур																		
	BLUE	Bx	-0.03	0.148	+0.03																			
			Ву	1	0.049																			
		WHITE	Wx	1	0.313																			
			Wy	1	0.329																			
Color Chift		Horizontal	$\theta_{\text{CST}_{H}}$	-	178	-	Degree	-																
Color Shirt		Vertical	$\theta_{CST_V}$	-	178	-	Degree	5																
Viewing Ang	le (CR>1	0)																						
Constant	Horizor	ntal	θ <sub>H</sub>	170	178	-	Damas																	
General	Vertica	I	θ <sub>V</sub>	170	178	-	Degree	6																
Effective	Horizon	tal	$\theta_{GMA_H}$		178	-	Degree	7																
Enective	Vertical		Vertical		Vertical		Vertical		Vertical		Vertical		Vertical		Vertical		Vertical		θ <sub>GMA V</sub>		178	-	Degree	/
Gray Scale				1	2.2			8																



Notes 1. Contrast Ratio(CR) is defined mathematically as :

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

It is measured at center point(Location P1)

- 2. Surface luminance(LwH) is luminance value at 5 points average across the LCD surface 50cm from the surface with all pixels displaying white. For more information see FIG 2.  $L_{WH} = = Average[L_{on}1, L_{on}2, L_{on}3, L_{on}4, L_{on}5]$
- 3. The variation in surface luminance ,  $\delta$  WHITE is defined as :

$$\delta_{white} = \frac{\text{Maximum}(L_{on1}, L_{on2}, \dots, L_{on13}) - \text{Minimum}(L_{on1}, L_{on2}, \dots, L_{on13})}{\text{Average}(L_{on1}, L_{on2}, \dots, L_{on5})} \times 100(\%)$$

Where L1 to L13 are the luminance with all pixels displaying white at 13 locations. For more information see FIG 2.

- 4. Response time is the time required for the display to transition from black to white (Rise Time,  $Tr_{R}$ ) and from white to black (Decay Time,  $Tr_{D}$ ). For additional information see FIG 3
- 5. Color shift is the angle at which the color difference is lower than 0.04. For more information see FIG 4.

- Color difference ( $\Delta u'v'$ )

$$u' = \frac{4x}{-2x + 12y + 3} \qquad v' = \frac{9y}{-2x + 12y + 3}$$
  
$$\Delta u'v' = \sqrt{(u'_1 - u'_2)^2 + (v'_1 - v'_2)^2} \qquad u'1, v'1 : u'v' \text{ value at viewing angle direction} u'2, v'2 : u'v' \text{ value at front } (\theta = 0)$$

- Pattern size : 25% Box size
- Viewing angle direction of color shift : Horizontal, Vertical
- 6. 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 5.
- 7. Effective viewing angle is the angle at which the gamma shift of gray scale is lower than 0.3. For more information see FIG 6 and FIG 7.
- 8. Gray scale specification Gamma Value is approximately 2.2. For more information see Table 10.



Measuring point for surface luminance & measuring point for luminance variation.



#### FIG. 2 Measure Point for Luminance

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



FIG. 3. Response Time



Color shift is defined as the following test pattern and color.



25% Box size

FIG. 4 Test Pattern

Average RGB values in Bruce RGB for Macbeth Chart

	Dark skin	Light skin	Blue sky	Foliage	Blue flower	Bluish green
R	98	206	85	77	129	114
G	56	142	112	102	118	199
В	45	123	161	46	185	178
	Orange	Purplish blue	Moderate red	Purple	Yellow green	Orange yellow
R	219	56	211	76	160	230
G	104	69	67	39	193	162
В	24	174	87	86	58	29
	Blue	Green	Red	Yellow	Magenta	cyan
R	26	72	197	241	207	35
G	32	148	27	212	62	126
В	145	65	37	36	151	172
	White	Neutral 8	Neutral 6.5	Neutral 5	Neutral 3.5	black
R	240	206	155	110	63	22
G	240	206	155	110	63	22



Dimension of viewing angle range.



Here the Parameter  $\alpha$  and  $\gamma$  relate the signal level V to the luminance L. The GAMMA we calculate from the log-log representation (FIG. 7)



### Table 10. Gray Scale Specification

Gray Level	Relative Luminance [%] (Typ.)
0	0.10
31	1.08
63	4.71
95	11.5
127	21.7
159	35.5
191	53.1
223	74.5
255	100



### **5. Mechanical Characteristics**

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

	Horizontal	630.0mm			
Outline Dimension	Vertical	376.13mm			
	Depth	21.8mm			
Pozol Area	Horizontal	601.7mm			
Dezel Area	Vertical	340.7mm			
Active Dicalou Area	Horizontal	596.74mm			
Active Display Area	Vertical	335.66mm			
Weight	4,600g (Typ.)				
Surface Treatment	Hard coating(2H) Glare, Low Reflection treatment of the front polarizer				

Notes : Please refer to a mechanic drawing in terms of tolerance at the next page.

# **(LG Display**

#### LM270WQ1 Liquid Crystal Display

## **Product Specification**

#### <FRONT VIEW>



Ver. 1.0

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<REAR VIEW>



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# 6. Reliability

Environment test condition

No	Test Item	Condition					
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)	Wave form : random Vibration level : 1.0G RMS Bandwidth : 10-300Hz Duration : X,Y,Z, 10 min One time each direction					
6	Shock test (non-operating)	Shock level : 100Grms Waveform : half sine wave, 2ms Direction : $\pm X$ , $\pm Y$ , $\pm Z$ One time each direction					
7	Altitude Operating Storage / Shipment	0 - 10,000 feet(3,048m) 0 - 40,000 feet(12,192m)					



### 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.
- d) IEC 60950-1:2001, First Edition, The International Electrotechnical Commission (IEC) Standard for Safety of Information Technology Equipment. (Including report of IEC60825-1 Ed. 1.22001, clause 8 and clause 9)

### 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

### **Product Specification**

### 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 : 7ea
- b) Box Size : 747mm X 335mm X 466mm



### 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 miss-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 higher 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.
- (7) Please do not give any mechanical and/or acoustical impact to LCM. Otherwise, LCM can't be operated its full characteristics perfectly.
- (8) A screw which is fastened up the steels should be a machine screw.
- (if not, it causes metallic foreign material and deal LCM a fatal blow)
- (9) Please do not set LCD on its edge.

Ver. 1.0



**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) The protection film is attached to the bezel with a small masking tape. 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 ionblown equipment or in such a condition, etc.
- (2) 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 bezel after the protection film is peeled off.
- (3) You can remove the glue easily. When the glue remains on the bezel surface or its vestige is recognized, please wipe them off with absorbent cotton waste or other soft material like chamois soaked with normal-hexane.



### **Product Specification**

### **10. EDID DATA FOR LM240WU6-SDA1**

#### 10-1. EDID Data

LN	4270	WQ1-SDA2 EDID DATA (2560X1440 @	60Hz	)		Modified 7/11/09
Byte#	Byte#		Value	Value	Value	
(decimal)	(HEX)	Field Name and Comments	(HEX)	(binarv)	(DEC)	
0	00	Header	00	00000000	0	
1	01	Header	FF	11111111	255	
2	02	Header	FF	11111111	255	
3	03	Header	FF	11111111	255	Header
4	04	Header	FF	11111111	255	
5	05	Header	FF	11111111	255	
6	06	Header	FF	11111111	255	
7	07	Header	00	00000000	0	
8	08	EISA manufacture code ( 3 Character ID ) APP	06	00000110	6	
9	09	EISA manufacture code (Compressed ASC II )	10	00010000	16	
10	0A	Panel Supplier Reserved - Product Code 9CB5t	B5	10110101	181	product ID for LM270WQ1-SDA2 =
11	0B	( Hex. LSB first )	9⊂	10011100	156	0x9cb5
12	0C	32-bit serial #	00	00000000	0	Vender/
13	0D		00	00000000	0	Product ID
14	0E		00	00000000	0	
15	0F		00	00000000	0	
16	10	Week of Manufacture	10	00011100	28	
17	11	Year of Manufacture 2009 years	13	00010011	19	
18	12	EDID structure version # = 1	01	00000001		EDID Version/
19	13	EDID revision # = 4	04	00000100	4	Revision
20	14	Video input Definition = DisplayPort 8bit	AS	10100101	165	
21	15	Max H image size (Rounded cm) = 60 cm	30	00111100	60	Display
22	16	Max V image size (Rounded cm) = 34 cm	22	00100010	34	Parameter
23	17	Display gamma = (gamma*100)-100 = Example:(2.2*100)-100=1	78	01111000	120	, a aneter
	- <sup>-</sup>	Feature Support [ Display Power Management(DPM) : No_stanby,No_suspend.	, <u> </u>			
24	18	Active Off/Very Low Power., Display Color Type : Monochrome of Grayscale	27	00100010		
6.4	L **	display. ,Other Feature Support Flags : No_sRGB, Preferred Timing Mode,	<sup></sup>		34	
25	19	Red/Green Low Bits (RxRx/GxGv)	65	01101111	111	
26	10	Blue Att/bite Low Bits (BxBx/M/x/M/x)	B1	10110001	177	
27	1R	Red X $R_X = 0.653$	A7	10100111	167	
	10	Red Y Rx = 0.334	55	01010101	85	
29	10	Green X Gy = 0.30	40	01001100	76	Color
30	15	Green Y $G_{Y} = 0.620$	95	10011110	158	Characteristic
31	16	Blue X $B_X = 0.146$	25	00100101	37	Characteristic
32	20	Blue Y By = $0.050$	00	00001001	12	
33	21	White X $Wx = 0.313$	50	01010000	80	
34	22	White Y Wy = $0.329$	54	01010100	84	
35	23	Established timing 1 (00b if not used)	00	00000000		Established
36	24	Established timing 2 (00h if not used)	00	00000000	ő	Timings
	+		r		•	
37	25	Manufacturer's timings	00	00000000		
		· · · · · · · · · · · · · · · · · · ·			0	
38	26	Standard timing ID1 (01h if not used)	01	00000001	1	
39	27	Standard timing ID1 (01h if not used)	01	00000001	1	
40	28	Standard timing ID2 (01h if not used)	01	00000001	1	
41	29	Standard timing ID2 (01h if not used)	01	00000001	1	
42	2A	Standard timing ID3 (01h if not used)	01	00000001	1	
43	2B	Standard timing ID3 (01h if not used)	01	00000001	1	
44	20	Standard timing ID4 (01h if not used)	01	00000001	1	Standard
45	20	Standard timing ID4 (01b if not used)	01	00000001	1	Timing ID
44	25	Standard timing IDS (01b if not used)	<b>1</b>	00000001	;	
47	25	Standard timing IDS (011 in Not used)	01	00000001	1	
40	20	Evandaria (mining IDS (01111 Hot (3580)	01	00000001	1	
40	30	International Control (Control International Control Internationa	01	00000001	1	
49	31	prandard (IMINg 106 (01h Ir not used)	01	00000001	1	
50	32	Standard timing ID7 (01h if not used)	01	00000001	1	
51	33	Standard timing ID7 (01h if not used)	01	00000001	1	
52	34	Standard timing ID8 (01h if not used)	01	00000001	1	
53	35	Standard timing ID8 (01h if not used)	01	00000001	1	
54	36	Detailed timing/monitor	56	01010110	86	
55	37	Pixel Clock = 241.5 MHz	5E	01011110	94	
56	38	Hor active= 2560 pixels	00	00000000	0	
57	39	Hor blanking= 160 pixels	A0	10100000	160	
58	3A		A0	10100000	160	
59	3B	Vertcal active= 1440 lines	AO	10100000	160	
60	3C	Vertical blanking= 41 lines	29	00101001	41	Detailed
61	3D		50	01010000	80	Timing
62	3E	H sync. Offset= 48 pixels	30	00110000	48	Description
63	3F	H sync. Width= 32 pixels	20	00100000	32	#1
64	40	V sync. Offset=3 lines	35	00110101	53	
65	41	V sync. Width= 5 lines	00	00000000	0	
66	42	H image size= 597 mm	55	01010101	85	
67	43	V image size = 336 mm	50	01010000	80	
68	44		21	00100001	33	
69	45	No Horizontal Border	00	00000000	0	
70	46	No Vertical Border	00	00000000	0	
71	47	Non-Interlace, Normal display, no stereo, Digital Separate [ Vsync_NEG, Hsync_P	1 1A	00011010	26	



# Product Specification

72	48	1280x720p Timing	14	00011010	1 26	
73	49	Divel Clock = 745 MHz	10	00011101	29	
		Haviagetal Astiva — 1200 Divala		00000000		
		Horizontal Active — 1200 Pitels	00	00000000		
	48	Horizontal Blanking = 384 Pixels	80	10000000	128	
76	4C		51	01010001	81	
77	4D	Vertical Avtive = 720 Lines	D0	11010000	208	
78	4E	Vertical Blanking = 28 Lines	1C	00011100	28	Detailed
79	4₽		20	00100000	32	Timing
00		Harizantal Sync. Offrat. — 64 Divals	40	01000000	6	Description
	50	Hohzonkar Sync, Onset – 64 Pikels		10000000	64	Description
81	51	Horizontal Sync Pulse Width = 128 Pixels	80	10000000	128	#2
82	52	V sync. Offset=3 lines	35	00110101	53	
83	53	V sync. Width= 5 lines	00	00000000	0	
84	54	H image size= 597 mm	55	01010101	1 85	
0F		V image size = 226 mm	50	01010000	00	
		o image size – 550 mm	50	01010000		
86	56		21	00100001	33	
87	57	No Horizontal Border	00	00000000	] 0	
88	58	No Vertical Border	00	00000000	0	
89	59	Non-Interlace, Normal display, no stereo, Digital Separate ( Vsvnc, NEG, Hsvnc, PC	1C	00011100	28	
90	50	Detailed timing/monitor	00	00000000	1 0	
		Jerented unit grinter kon	×	00000000	i ő	
	58	descriptor #5	00	00000000		
92	5C		00	00000000	0	
93	5D		02	00000010	2	
94	5E		01	00000001	1	
95	5F		06	00000110		
96	t'		10	00010000	1	Detailed
0t			10	000010000	16	Detailed
97	61		01	00000001	1 1	Timing
98	62		0A	00001010	10	Description
99	63		01	00000001	1	#3
100	64		00	00000000	1 .	-
101	60		00	00000000	.	Assii Data Stringu
101	+ <u>65</u>		00	00000000	ł .	Ascil Data String:
102	66		00	00000000	0	LM270WQ1-SDA2
103	67		00	00000000	0	
104	68		00	00000000	1 o	
105	69		00	00000000	1 0	
100				00000000		
106	- <u>6</u> A		00	00000000	0	
107	6B		00	00000000	. 0	
108	6C	Detailed timing/monitor	00	00000000	0	
109	6D	descriptor #4	00	00000000	l o	
110	6F	Color I CD	00	00000000	1 .	
110			50	1111100		
111	6		FC	11111100	252	
112	1 70		00	00000000	0	
116						
112	71	C	43	01000011	67	
112 113 114	71	С	43 6F	01000011 01101111	67 111	Detailed
112 113 114 115	71 72 73	C	43 6F	01000011 01101111	67 111	Detailed Timing
112 113 114 115	71 72 73	с Р I	43 6F 6C	01000011 01101111 01101100	67 111 108	Detailed Timing
112 113 114 115 116	71 72 73 74	<u>د</u> ۱ ۰	43 6F 6⊂ 6F	01000011 01101111 01101100 01101111	67 111 108 111	Detailed Timing Description
112 113 114 115 116 117	71 72 73 74 75	с о 1 о г	43 6F 6C 6F 72	01000011 01101111 01101100 01101111 01110010	67 111 108 111 114	Detailed Timing Description #4
112 113 114 115 116 117 118	70 71 72 73 74 75 76	с о і г	43 6F 6C 6F 72 20	01000011 01101111 01101100 01101111 01110010 00100000	67 111 108 111 114 32	Detailed Timing Description #4
112 113 114 115 116 117 118 119	70 71 72 73 74 75 76 77	C 0 1 0 r L	43 6F 6C 6F 72 20 4C	01000011 01101111 01101100 01101111 01110100 00100000 01001100	67 111 108 111 114 32 76	Detailed Timing Description #4 Monitor Name:
112 113 114 115 116 117 118 119 120	71 72 73 74 75 76 77 78	C o I v r	43 6F 6C 6F 72 20 4C 43	01000011 01101111 01101100 01101111 01110010 00100000 01001100	67 111 108 111 114 32 76 67	Detailed Timing Description #4 Monitor Name:
112 113 114 115 116 117 118 119 120	71 72 73 74 75 76 77 78	C 0 1 0 r 1 0 r	43 6F 6C 6F 72 20 4C 43	01000011 01101111 01101100 01101111 01110010 00100000 01001100 01000011	67 111 108 111 114 32 76 67	Detailed Timing Description #4 Monitor Name: Color LCD
112 113 114 115 116 117 118 119 120 121	71 72 73 74 75 76 77 78 79	С о I о г г С С D	43 6F 6C 72 20 4C 43 44	01000011 01101111 01101100 01101111 01110010 00100000 01001100 01000011 01000010	67 1111 108 111 114 32 76 67 68	Detailed Timing Description #4 Monitor Name: Color LCD
112 113 114 115 116 117 118 119 120 121 121 122	70 71 72 73 74 75 76 77 78 79 78 79 7A	C 0 1 0 7 1 0 7 7 0 7 0 7 0 0 0 0 0 0 0 0	43 6F 6C 72 20 4C 43 44 0A	01000011 01101111 01101100 01101111 01110010 00100000 01001100 01000011 01000100 00001010	67 1111 108 1111 114 32 76 67 68 10	Detailed Timing Description #4 Monitor Name: Color LCD
112 113 114 115 116 117 118 119 120 121 122 123	71 72 73 74 75 76 77 78 79 78 79 7A 7B	C O I C C D	43 6F 6C 72 20 4C 43 44 0A 20	01000011 01101111 01101100 01101111 0110010 0100000 01000010 01000011 01000100 0000100 0000100	67 1111 108 111 114 32 76 67 68 10 32	Detailed Timing Description #4 Monitor Name: Color LCD
112 113 114 115 116 117 118 119 120 121 122 123 124	70 71 72 73 74 75 76 77 78 79 78 79 7A 7B 7C	C O I O F C D	43 6F 6C 72 20 4C 43 44 0A 20 20	01000011 01101111 01101100 01101111 01110010 00100000 01001100 01000101 01000100 001000000	67 111 108 111 114 32 76 67 68 10 32 32	Detailed Timing Description #4 Monitor Name: Color LCD
112 113 114 115 116 117 118 119 120 121 122 122 123 124	71 72 73 74 75 76 77 78 79 78 79 7A 78 79 7A 70 70	C 0 1 0 7 7 2 2 2 0	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20	01000011 01101111 01101100 01101111 01100100	67 1111 108 111 114 32 76 67 68 10 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD
112 113 114 115 116 117 118 119 120 121 122 123 124 125 125	70 71 72 73 74 75 76 77 78 79 78 79 7A 78 79 7A 7B 7C 7D	C	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20 20	01000011 01101111 01101100 01101111 01110010 00100000 01001100 01000110 00001010 00001010 00100000 00100000	67 111 108 111 114 32 76 67 68 10 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD
113 114 115 116 117 118 119 120 121 122 123 124 125 126	70 71 72 73 74 75 76 77 78 79 78 79 7A 79 7A 7B 7C 7D 7E	C 0 1 0 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20 20 20	01000011 01101111 01101100 01101111 01110010 00100000 01000110 01000010 00100000 00100000 00100000 00100000	67 111 108 111 114 32 76 67 68 10 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag
113 114 115 116 117 118 119 120 121 122 122 122 123 124 125 126 127	70 71 72 73 74 75 76 77 78 79 78 79 7A 78 70 7A 7B 7C 7D 7E 7F	C o i o r c D Extension Flag = 01 Checksum	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20 20 01 01 08	01000011 01101111 01101100 01101111 001100000 010010	67 111 108 111 114 32 76 67 68 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113 114 115 116 117 118 119 120 121 122 122 123 124 125 126 127 128	70 71 72 73 74 75 76 77 78 77 78 79 7A 78 70 7A 7B 7C 7D 7E 7E 80	C o o r L C D D Extension Flag = 01 Checksum Tao	43 6F 6C 72 20 4C 43 44 0A 20 20 20 20 01 01 08 02	01000011 01101111 01101100 01101111 011100100	67 1111 108 1111 114 32 76 67 68 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113 114 115 116 117 118 119 120 121 122 122 123 124 125 126 <b>127</b> 128 129	71 72 73 74 75 76 77 78 79 7A 78 79 7A 7B 7C 7D 7E <b>7F</b> 80 81	C o i o r c C C D D Extension Flag = 01 Checksum Tag Revision Number	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20 20 20 01 01 08 02 02	01000011 01101111 01101100 01101110 01100000 01000010 01000011 000001010 00100000 00100000 00100000 000000	67 1111 108 1111 114 32 76 67 68 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113 114 115 116 117 117 118 119 120 121 122 123 124 125 126 <b>127</b> 128 129	71 72 73 74 75 76 77 78 79 7A 79 7A 79 7A 70 7D 7E 70 7E 7E 80 81	C o I O r L C D Extension Flag = 01 Checksum Tag Revision Number City of General State Official of Divided Uniting Description	43 6F 6C 72 20 4C 43 44 0A 20 20 20 20 20 01 08 02 03 02 03 02 03 02 03 02 03 02 03 02 03 03 03 03 04 05 05 05 05 05 05 05 05 05 05	01000011 01101111 01101100 011001110 01100111 01100110 00100000 001000001 00100000 00100000 00100000 000000	67 111 108 1111 114 114 114 114 114 114 114 114 1	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag <u>Checksum</u>
113 114 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130	71 72 73 74 75 76 77 78 79 7A 78 79 7A 7B 7C 7D 7E 7E 80 81 81 82	C 0 1 0 7 L C D Extension Flag = 01 Checksum Tag Revision Number Construction State Construction Checksum C C C C C C C C C C C C C	43 6F 6C 72 20 4C 43 44 0A 20 20 20 20 20 20 01 01 08 02 03 02 03 0C	01000011 01101110 01101110 01101100 01101100 00100000 01000100	67 111 1088 1111 114 32 76 67 67 68 100 32 32 32 32 32 32 2 32 2 32 2 32 2	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag <u>Checksum</u>
113 114 114 115 116 117 118 119 120 121 122 123 124 123 124 125 126 127 128 129 130 131	71 72 73 74 75 76 77 78 79 7A 78 79 7A 7B 7C 7D 7E 7C 7D 7E 7F 80 81 82 83	C o o I C C C D D Extension Flag = 01 Checksum Tag Revision Number Offset of first Detailed Timing Description Offset of first Detailed Timing Description Device Support & No. of Native Formats	43 6F 6C 72 20 4C 43 44 0A 20 20 20 20 20 01 00 01 00 02 03 00 C C1	01000011 0101100 01101100 01101100 01101100 01001000 01000100	67 111 108 111 114 32 76 67 68 67 68 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag <u>Checksum</u>
113 114 114 115 116 117 119 120 121 122 123 124 125 125 125 125 125 125 125 125 125 129 130 131 132	71 72 73 74 75 76 77 78 79 7A 79 7A 79 7A 79 7A 70 7E 7E 7E 80 81 82 83 84	C o o C I I O C Extension Flag = 01 Checksum Tag Revision Number Offset of first Detailed Timing Description Device Support & No. of Native Formats Audio Data Block Tag	43 6F 6C 72 20 4C 43 44 0A 20 20 20 20 20 01 01 08 02 03 00 02 03 0C 1 23	01000011 01101110 01101110 01101110 01101110 01100110	67 111 108 111 114 32 76 67 68 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113 114 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 120 121 123 124 125 126 127 128 129 130 131	71 72 73 74 75 76 77 78 79 78 79 7A 79 7A 79 7A 79 7A 79 7A 79 7A 78 70 7D 7E 70 7E 77 80 81 82 83 84 85	C o o I I O F C C C C D C C C D C C C C D C C C C C	43 6F 6F 72 20 4C 43 44 0A 20 20 20 20 20 20 20 01 01 02 03 00 02 03 00 C C1 23 09	01000011 0101101 01101110 01101100 01101100 00100000 01000100	67 111 108 111 114 322 76 67 68 8 10 32 32 32 32 32 11 8 8 2 3 22 33 22 11 193 35 9 9	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag <u>Checksum</u>
113 114 115 116 117 118 119 120 121 122 123 124 125 126 125 126 127 128 129 131 132 133	71 72 73 74 75 76 77 78 79 78 79 78 79 78 79 78 70 70 72 70 72 70 72 70 72 72 80 81 82 83 84 85	C o o I O V C C D D Extension Flag = 01 C C C D D C C C C D D D D D D D D D D	43 6F 6C 6F 72 20 43 43 44 0A 20 20 20 20 20 01 01 08 02 03 00 02 03 00 02 03 00 02 03 00 02 03 00 02 03 00 02 03 03 03 03	01000011 01101100 01101110 01101110 01101110 01101100 01000100	67 111 100 111 114 32 76 68 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag <u>Checksum</u>
113 114 115 116 117 118 120 121 122 122 122 123 124 125 <b>127</b> 128 <b>127</b> 128 <b>129</b> 130 131 132 133	71 71 72 73 74 75 76 77 77 78 79 74 77 78 79 74 77 70 72 70 72 70 72 70 72 72 72 72 80 81 82 83 83 84 85 85	C o o I O F Characteristic Support & No. of Native Formats Audio Data Block Tag C Audio Data Block Tag	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20 20 20 20 20 20 01 08 02 03 0C C1 23 09 7 7	01000011 01101110 01101110 01101100 01101100 00100000 01000100	67 111 1088 1111 114 114 32 76 67 67 67 67 68 10 32 322 322 322 322 322 322 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113           114           115           116           117           118           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134	71 71 72 73 74 75 76 77 78 77 78 77 78 77 78 77 78 77 70 72 70 72 70 72 70 72 70 74 73 74 73 74 75 80 81 82 83 84 85 85	C o o C O O O O O O O O O O O O O O O O	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20 20 20 20 20 20 20 20	010000111 01101100 011011100 011011100 011011	67 111 108 111 114 322 76 67 68 10 322 322 322 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag <u>Checksum</u>
113 114 115 116 117 118 120 121 122 122 122 124 125 125 125 125 125 125 125 125	71 71 72 73 75 75 76 77 75 76 77 77 78 77 79 7A 79 7A 79 7A 79 7A 79 74 78 70 77 78 70 77 78 79 74 80 81 82 83 84 85 85 86	C o o I O F C C O O O O O O O O O O O O O O O O	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20 20 20 20 20 20 20 20	01000011 01101100 01101100 01101100 01101100 00100000 00000010 00000000	67 111 108 1111 114 32 76 67 68 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113           113           114           115           116           117           118           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135	71 771 72 73 74 75 76 77 77 78 77 77 78 77 77 78 77 77 77 77	C o o I I O F C C C C C C C C C C C C C C C C C C	43 6F 6C 6F 72 20 4C 43 44 43 44 20 20 20 20 01 01 08 02 03 00 02 03 00 02 03 07 7 20 01 01 03 02 03 07 03 07 03 07 03 03 03 03 03 03 03 03 03 03	010000111 01101100 011011100 011011100 011011	67 1111 108 1114 322 76 67 68 10 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag <u>Checksum</u>
113 114 114 115 116 117 119 120 121 122 123 124 125 125 126 127 128 129 130 131 132 133 134 135 136	71 71 72 73 75 75 75 75 75 75 75 75 77 78 77 78 79 70 70 70 70 70 70 70 70 70 70 70 70 70	C o o C C C C C C C C C C C C C C C C C	43 6F 72 20 4C 43 44 0A 20 20 20 20 01 08 02 03 0C C1 23 09 7 07 83	010000111 01101100 01101110 01101110 011011	67 111 108 111 114 32 76 68 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
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113           113           114           115           116           117           118           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137	71 71 72 73 75 75 76 77 78 73 74 73 74 75 76 77 77 78 80 81 82 83 84 83 84 85 85 86 87 88 88 88	C o o i i i o i Extension Flag = 01 Checksum Tag Revision Number Offset of first Detailed Timing Description Device Support & No. of Native Formats Audio Data Block Tag CEA Short Video Descriptor 1 Audio Data Block Tag CEA Short Audio Descriptor 1 Speaker Allocation Data Block Tag Seaker Allocation Data Block Tag Seaker Allocation Data Block Tag Seaker Allocation Data Block Tag	43 6F 6C 6C 20 42 43 44 0A 20 20 20 01 02 02 01 01 02 02 03 00 C 1 23 09 7 7 07 83 01	010000111 01101100 01101110 01101110 011011	67 111 1000 1111 114 32 766 68 100 322 322 322 322 11 8 322 322 322 322 322 322 322 322 322 3	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113 114 114 115 116 117 119 120 121 122 122 123 124 125 126 <b>127</b> 129 130 131 132 133 134 135 136 137 138	71 71 72 73 74 75 76 77 78 79 74 77 78 79 74 77 70 77 70 70 70 70 70 70 70 70 80 81 82 83 83 83 83 84 85 85 86 87 88 88 83 83	C o o i i o i Extension Flag = 01 C C C D D Extension Flag = 01 C C C C C D C C C C C C C C C C C C C	43 6F 6C 6F 72 20 43 44 40 A 20 20 20 20 20 20 20 20 01 01 02 03 00 C C C 1 23 09 7 7 07 83 01 00	010000111 01101100 01101110 01101100 01101100 01000100	67 111 108 111 114 322 76 67 68 30 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag <u>Checksum</u>
113           113           114           115           116           117           118           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137           138           139	71 71 72 73 74 75 76 77 77 78 77 77 78 77 77 77 77 77 77 77	C o o i i i i o i c c o c o i c o c o c o	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 01 20 01 20 01 01 02 03 00 C1 23 09 7 7 07 83 01 00 00 00 00 00 00 00	010000111 01101100 011011100 011011100 011011	67 111 100 111 122 76 68 10 322 322 32 32 32 32 32 32 32 32 32 32 3	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113           113           114           115           116           117           118           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137           138           139	71 71 72 73 74 75 76 77 77 78 77 77 78 77 77 77 77 78 77 77	C o o i i i o i c c o c o i c o c o c o c	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20 01 02 02 03 00 02 03 00 02 03 00 02 03 07 83 01 00 07 83 01 00 00 00	010000111 01101100 011011100 011011100 011011	67 111 100 111 122 76 67 68 10 322 32 32 32 32 32 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113           113           114           115           116           117           118           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137           138           139           140	71 72 73 74 75 75 75 77 77 78 77 77 78 77 77 77 77 77 77 77	C o o i i i o i c o c o c o o c o c o o c o c	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 01 20 01 02 02 03 00 02 03 00 02 03 00 02 03 00 7 7 07 83 01 00 00 00 00 00 00 55	010000111 01101100 011011100 011011100 011011	67 111 1000 1111 114 32 76 67 68 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113           113           114           115           116           117           118           120           121           122           122           122           123           124           125           126           127           128           129           130           131           132           133           134           135           138           139           140	71 71 72 73 74 75 76 77 77 78 77 77 78 77 77 78 77 77 78 77 77	C o o I O O I O O O O O O O O O O O O O O	43 6F 6C 6F 72 20 43 44 40 A 20 20 20 20 20 20 01 20 20 20 20 20 20 01 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	010000111 0101101 0101110 01101100 01101100 01001000 01000100	67 111 108 111 114 32 76 67 68 30 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag <u>Checksum</u>
113           113           114           115           116           117           118           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137           138           139           140           141	71 72 73 74 75 75 75 76 77 77 78 77 77 78 77 77 78 77 77 78 77 77	C o o i i i o i c o r o r c c c c c c c c c c c c c c c	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20 01 02 02 03 00 02 03 00 02 03 00 02 03 00 7 7 07 83 01 00 00 7 55 5 5 5	010000111 01101100 011011100 011011100 011011	67 111 100 111 120 76 67 68 10 322 322 32 32 32 32 32 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113           113           114           115           116           117           118           120           121           122           123           124           125           126           127           128           130           131           132           133           134           135           136           137           138           139           140           141	71 71 72 73 74 75 76 77 78 77 78 77 78 77 78 77 78 77 77 78 77 77	C o o i i o i c c o c c c c D D Extension Flag = 01 Checksum Tag Revision Number Offset of first Detailed Timing Description Device Support & No. of Native Formats Audio Data Block Tag CEA Short Video Descriptor 1 Audio Data Block Tag CEA Short Audio Descriptor 1 Audio Data Block Tag CEA Short Audio Descriptor 1 Speaker Allocation Data Block Tag Speaker Allocation Data Block Tag Detailed timing/monitor Pixel Clock = 241.5 MHz Hor active= 2560 pixels	43 6F 6C 6F 72 20 42 20 43 43 44 0A 20 20 20 20 20 20 20 20 20 20 20 20 20	010000111 01101100 01101110 01101100 01101100 01000100	67 111 108 111 114 322 76 67 68 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag <u>Checksum</u>
113           113           114           115           116           117           118           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137           138           139           140           141           142	71 72 73 74 75 75 76 77 77 78 77 77 78 77 77 78 77 77 77 77	C o o i i i o i c o i c o i c o i c o o r c o c o c o o r c o c o o c o c	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 01 20 20 01 02 02 03 05 C1 23 09 7 07 83 01 00 00 00 56 5E 00 00 00 00 00 00 00 00 00 0	010000111 01101100 011011100 011011100 011011	67 111 108 111 114 32 76 67 68 10 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113           113           114           115           116           117           118           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137           138           139           140           141           142           143	71 71 72 73 74 75 76 77 78 77 78 77 78 77 78 77 78 77 78 77 78 77 78 77 77	C o o i i o i c c o o r o r c c c o D C c c D D C c c c D D C c c c c D D C c c c c	43 6F 6C 6F 72 20 43 44 40 A 20 20 20 20 20 20 01 01 02 03 02 00 01 20 20 20 01 01 02 03 07 7 7 7 7 7 7 83 01 00 00 05 6 5 5 6 5 6 5 7 20 20 43 44 44 20 20 20 20 20 20 20 20 20 20 20 20 20	010000111 0101111 01101110 01101110 01101110 01101100 01001000 000000011 00000000	67 111 108 111 114 32 76 67 68 10 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113           113           114           115           116           117           118           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137           138           139           140           141           142           144	71 72 73 74 75 76 77 77 78 79 79 77 77 78 77 77 77 77 77 77 77 77 77 77	C o o i i o i i o r o r c c o o r o r c o r c o o r o r	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 01 20 01 02 03 0C C1 23 09 07 83 01 00 00 56 55 00 00 00 00 00 00 00 00 00	010000111 01101100 01101110 01101110 011011	67 111 108 111 114 32 76 67 68 32 32 32 32 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113           113           114           115           116           117           118           120           121           122           123           124           125           126           127           128           130           131           132           133           134           135           136           137           138           139           140           141           142           144           145	71 71 72 73 74 75 76 77 77 78 77 78 77 77 78 77 77 78 77 77	C o o i i o i c o i c o i c o i c o o i c o o o o	43 6F 6C 6F 72 20 43 44 40 A 20 20 20 20 20 20 20 01 01 02 03 02 00 01 02 03 07 7 7 7 7 7 7 7 7 7 7 83 01 00 00 00 56 55 55 00 A0 A0 A0 A0	010000111 0101111 011011100 011011100 011011100 01100110	67 111 100 111 120 76 67 68 10 322 322 322 11 8 322 322 12 193 322 322 12 193 322 322 322 11 133 12 193 35 2 9 7 7 7 7 7 7 6 8 8 6 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum
113           113           114           115           116           117           118           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137           138           139           140           141           142           144           145	71 72 73 74 75 76 77 77 78 79 79 77 77 77 78 80 81 81 82 83 84 85 86 83 84 85 86 87 88 88 88 88 88 88 88 88 88 88 88 88	C o o r C C C C D C C C C D C C C C C C C C C	43 6F 6C 6F 72 20 4C 43 44 0A 20 20 20 01 02 02 01 02 03 0C C1 23 00 0C C1 23 00 7 07 83 01 00 00 56 55 55 55 55 55 55 55 55 55	010000111 01101100 01101110 01101100 01101100 01001000 01000100	67 111 108 111 114 32 76 67 68 10 32 32 32 32 32 32 11 8 8 2 32 32 32 32 32 32 32 32 32	Detailed Timing Description #4 Monitor Name: Color LCD Extension Flag Checksum



# Product Specification

1-9     30     1-17-0. Office 4 pink     20     0.10000       150     35     V. Yur. Office 3 pink     20     0.00000       151     54     V. Yur. Office 3 pink     20     0.00000       152     54     Hunga are 150 rm     21     0.00000       151     55     56     N. Wirk 20 body     20       155     56     56     N. Wirk 20 body     20       155     56     56     N. Wirk 20 body     20       155     56     N. Wirk 20 body     20       157     50     bit Neicous 20 body     20       158     50     bit Neicous 20 body     20       159     50     bit Neicous 20 body     20       150     50     bit Neicous 20 body     20       150     50     bit Neicous 20 body     20       151     50     bit Neicous 20 body     20       152     50     bit Neicous 20 body     20       153     50     bit Neicous 20 body     20       154     A0     Velicit Neicous 20 body     20       155     40     Velicit Neicous 20 body     20       156     A0     Velicit Neicous 20 body     20       157     A0     bit Neicous 20 body <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>1</th> <th></th>							1	
140       34       H spin: Offster 3 plake       20       01,0000       42         151       35       H yen: Offster 3 plake       20       00,0000       6         151       37       H yen: Offster 3 plake       20       00,0000       6         151       37       H yen age tace 37 mm       40       00,00000       6         151       35       H storatal backfur       40       00,00000       6         153       56       He storatal backfur       40       00,00000       6         154       57       He storatal backfur       40       00,00000       6         155       57       He storatal backfur       40       00,00000       6         155       78       He storatal backfur       40       00,00000       124         154       74       Hadronal Backfur       40       00,00000       124         154       74       Henderal Backfur       72       00,00000       124         154       74       Henderal Backfur       72       00,00000       124         154       74       Henderal Backfur       72       00,00000       124         154       74       Henderal Backfur	147	93			50	01010000	80	
140       50       H yes, Moha 2 Reb       20       010000       35         151       54       Version 2 Res       70       010000       35         151       54       Version 2 Res       70       010000       35         151       74       Version 2 Res       70       010000       35         151       74       Version 2 Rose       70       010000       35         151       75       Version 2 Rose       70       0100000       35         151       75       Version 2 Rose       70       0000000       35         151       75	148	94	H sync. Offset= 48 pixels		30	00110000	48	
150       80       V yrx, Office 1 line       5       011011       51         151       91       V hoge 18:e - 25% mm       50       0000001       6         151       94       V hoge 18:e - 25% mm       50       0000001       6         153       54       54       54       54       56       10       0000001       6         153       55       56       10       1000001       6       6       6         154       54       54       10       0000001       6       6         155       56       10       10       10       0000001       6         155       56       10       10       10       0000001       6         156       76       10	149	95	H sync. Width= 32 pixels		20	00100000	32	
151       97       V yrac, Robbel is load.       00       0000000         151       93       Marga taxe 35 mm       51       0000000         151       93       Marga taxe 35 mm       51       0000000         151       93       Marga taxe 35 mm       51       0000000       0         151       95       Noticeal Early       00       0000000       0         151       95       Noticeal Early       00       0000000       0         151       95       Noticeal Early       00       0000000       0         151       96       Noticeal Early       00       0000000       124         153       97       Particleak Artive = 2100 Halt       00       0000000       124         154       A4       Verticleak Early = 270 Intel       10       1000000       124         154       A4       Verticleak Early = 270 Intel       10       1000000       124         155       A5       Noticeae Early = 270 Intel       10       1000000       124         154       A4       Verticleak Early = 270 Intel       10       1000000       124         154       A4       Verticleak Early = 270 Intel       10 <td< td=""><td>150</td><td>96</td><td>V sync. Offset=3 lines</td><td></td><td>35</td><td>00110101</td><td>53</td><td></td></td<>	150	96	V sync. Offset=3 lines		35	00110101	53	
15:       9       Hinage taxe 35 mm       55       100000       9         15:       54       Marge taxe 35 mm       1000000       3         15:       55       Marketal Boder       10       0000000       3         15:       50       Marketal Boder       10       0000000       3         15:       54       Marketal Babder       10       0000000       3         15:       AA       Marketal Babder       10       0000000       3         16:       AA       Marketal Babder       10       0000000       3         17:       AA       Marketal Babder       10       0000000       3         17: <td>151</td> <td>97</td> <td>V sync. Width= 5 lines</td> <td></td> <td>00</td> <td>00000000</td> <td>0</td> <td></td>	151	97	V sync. Width= 5 lines		00	00000000	0	
151     90     Unique tate = 3.58 km     50     10.00001     0       151     44     44     0.000000     0       151     45     14     10.00001     0       151     50     14.0001101     2       152     50     15.0001101     2       153     50     15.0001101     2       154     45     10.000100     12       155     50     10.000100     12       154     44     10.000100     12       154     44     10.000100     12       155     45     10.00000     12       156     45     10.00000     12       157     47     10.00000     12       156     46     10.00000     12       157     47     10.00000     12       157     47     10.00000     12       158     48     10.000000     12       157     47     10.00000     12       157     47     10.00000     12       158     48     10.000000     12       159     44     10.000000     12       157     40     10.000000     12       158     45     10.000000 <td>152</td> <td>98</td> <td>H image size= 597 mm</td> <td></td> <td>55</td> <td>01010101</td> <td>85</td> <td></td>	152	98	H image size= 597 mm		55	01010101	85	
154       98	153	99	V image size = 336 mm		50	01010000	80	
165       96       No. Hencoral Stroke       00       0000000         157       96       No. World Body       10       0000000       10         157       96       No. World Body       10       0000000       10         157       96       No. World Body       10       0000000       10         158       A0       Hencoral Attives       120       100       10       100         150       A0       Hencoral Attives       120       100       100       100       100         151       A1       Hencoral Biddya       28       100       1000000       12         154       A4       Vencial Actives       720 Ibest       100       1000000       12         155       A5       1000000       10       1000000       12       1000000       12         154       A4       Hencoral Synce. Offer Hendow       128       1000000       12       12         157       A4       Hencoral Synce. Offer Hendow       128       1000000       12       12         157       A5       Vence Share       120       1000000       12       12         158       A5       Hencoral Biddy       12	154	9A			21	00100001	33	
155       50       No. Venci Jacobar       00       0000000       0         157       50       No. None and the start were used to start wer	155	9B	No Horizontal Border		00	00000000		
120       00       Instrument server, the num, the nu	156	90	No Vertical Border		 00	00000000	ů	
150         W         120/780         120         121 </td <td>157</td> <td>90</td> <td>Non-interfaced Normal display No starge Digital separate por, N/V ool Negatives</td> <td></td> <td>1.4</td> <td>00011010</td> <td></td> <td></td>	157	90	Non-interfaced Normal display No starge Digital separate por, N/V ool Negatives		1.4	00011010		
195         Pipe Leds = 38 5 Prot         10         0001001         13           151         AA         Hencoral Batting = 344 Prot         60         1000000         12           151         AA         Hencoral Batting = 344 Prot         70         1000000         12           151         AA         Hencoral Batting = 344 Prot         70         1000000         12           151         AA         Hencoral Batting = 344 Prot         70         1000000         12           154         AA         Venical Batting = 344 Prot         70         1000000         12           155         AS         Protocol Batting = 344 Prot         70         1000000         12           155         AS         Hencoral Sync. Offsat = 64 Prod         40         1000000         12           156         AS         Hencoral Batting protocol         73         0100001         13           157         AO         Hencoral Batting protocol         73         00         1000000           157         AO         Hencoral Batting protocol         70         10000001         12           158         AO         10000000         12         12         12         12         12         12	159	95	1290x720p Timing		14	00011010	20	
190         A0         Hermonik Antrove         1200 Fired.         00         0000000         10           151         A1         Hermonik Antrove         1200 Fired.         10         1000000         10           152         A2         Vential Antrove         720 Late:         12         1000000         10           154         A4         Vential Antrove         720 Late:         12         1000000         12           155         A5         Heroscal Sync. Char.         64 Pineth         10         1000000         14           156         A5         Heroscal Sync. Char.         64 Pineth         10         1000000         16           157         A4         Heroscal Sync. Char.         64 Pineth         10         1000000         10           158         A4         Venc With S Bate         00         0000000         10         10           159         A6         Nort With S Bate         00         0000000         10         10           157         A6         Nort With S Bate         00         0000000         10         10           157         A6         Nort With S Bate         00         00000000         10         10	159	9F	Divel Clock - 74 5 MHz		10	00011101	29	
15:         A1         Hencered Burking = 29-Place         100 </td <td>160</td> <td>- <u>2</u>0</td> <td>Horizontal Active – 1280 Divels</td> <td></td> <td>00</td> <td>00000000</td> <td></td> <td></td>	160	- <u>2</u> 0	Horizontal Active – 1280 Divels		00	00000000		
152       A2       A2       A2       A3       A3       A3       A4       Vertical Bahring       = 28 lines       D0       11010000       20         156       A3       Vertical Bahring       = 28 lines       1C       0001100       23         156       A5       20       00100000       164       164       A4       Vertical Bahring       = 28 lines       10       1000000       164         157       A5       Max Proceedings       55       00110000       153       100	161	A1	Horizontal Blanking = 384 Pirels		80	10000000	128	
150       AS       Ventcal Astriking       220 Lines       100       100       20         165       AS       Introde Banking       IC       001100000       22         165       AS       Introde Banking       IC       001100000       22         166       AS       Hetroard Sync Duble Media       120       10000000       128         167       AF       Hetroard Sync Duble Media       120       10000000       10         168       AS       Vync Offfeet = Inec       100       00000000       10         169       AS       Vync Offfeet = Inec       100       00000000       10         170       AF       Northel Border       100       000000000       00000000         170       AF       Northel Border       100       000000000       00000000         170       AF       Northel Border       100       000000000       00000000         170       B1	162	A2			51	01010001	81	
154         A4         Vertcal Elasking         = 28 Line         10         0001100         28           155         A5         20         00110000         32         32           156         A6         Hetzonal Sync. Officat = 64 Pixels         40         00000000         124           167         A7         Hetzonal Sync. Officat = 164 Pixels         40         00000000         128           168         A8         Vyrc. Officat = 10 mea         75         00110101         85           168         A7         Yenc. Works = 10 mm         75         00110010         85           179         A0         Hetzonal Sync. Optical Separate (Vyrc. POS. H         00         00000000         10           170         A0         Hetzonal Separate (Vyrc. POS. H         00         00000000         10           170         A5         Hetzonal Separate (Vyrc. POS. H         00         00000000         10           171         A6         Hetzonal Separate (Vyrc. POS. H         00         00000000         10           171         A6         Hetzonal Separate (Vyrc. POS. H         00         00000000         10           172         A5         Hetzonal Separate (Vyrc. POS. H         00         0000	163	A3	Vertical Avtive = 720 Lines		D0	11010000	208	
15         A5         100         20         0000000         22           156         A5         Hetsmal Sync. Offset = 64Piget         40         0000000         129           156         A3         V Sync. Offset = 64Piget         35         0011001         159           157         A7         Hetsmal Sync. Offset = 64Piget         35         0011001         159           158         A5         V Sync. Offset = 597 mm         55         010100000         169           127         AA         Hings is at = 357 mm         75         01010000         169           127         AO         Hetsend Bonder         70         00         00000000           128         AG         Hetsend Bonder         10         00         00000000           129         AF         Nexteel Bonder         10         00         00000000           129         AF         Nexteel Bonder         10         00         00000000           129         AF         Nexteel Bonder         00         000000000         10           129         AF         Nexteel Bonder         00         000000000         10         10           129         AF         Nexteel Bonder <td>164</td> <td>A4</td> <td>Vertical Blanking = 28 Lines</td> <td></td> <td>1C</td> <td>00011100</td> <td>28</td> <td></td>	164	A4	Vertical Blanking = 28 Lines		1C	00011100	28	
165         A5         20         00100000         20           185         A5         Henismad Sync. Office is 64 Pluels         40         00000000         12           186         A6         Vync. Office is 184         50         00100000         12           186         A8         Vync. Office is 184         50         00100001         15           187         A8         Vinseg is the 35 mm         55         01010001         86           171         AA         Vinseg is the 35 mm         55         01010001         86           172         AA         Vinseg is the 35 mm         50         00000000         10           172         AB         Vinseg is the 35 mm         50         00000000         10           173         AB         Vinseg is the 35 mm         50         00000000         10           174         AE         No Henized Synce         No Henized Synce         100         00000000           174         AE         No Vince AB code         00         00000000         10           175         AB         No Vince AB code         00         00000000         10           175         AB         No         00         00								
1         -	165	A5			20	00100000		
166       A6       Hetiocal Syr. Offset = 44 Push       40       01000000       120         168       A8       V syr. Offset = 1 me       73       0110101       53         168       A8       V syr. Offset = 1 me       73       0110101       53         174       AH evental Syr. Offset = 1 me       73       0110101       53         174       AA       Hynes the = 30 mn       73       0110001       60         172       AO       Ne hetioxal Border       00       00000000       0         174       AE       Neural diaglay, no stereo, Dipidal Separate (Vayne, POS, H       1C       0001100       2         175       B1       60       000000000       0       0       0         175       B2       00       00000000       0       0       0       0         176       B3       00       00000000       0       0       0       0       0       0         177       B2       00       00000000       0 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>32</td> <td></td>							32	
167       A7       Hotzand Sync. Pube Wich = 129 Pube       60       1000000       128         168       A5       Vync. Wifed = 5 hest       00       0000000       0         164       A4       Vync. Wifed = 5 hest       00       0000000       0         164       A4       Vync. Wifed = 5 hest       00       0000000       0         174       AC       Vinage ate = 326 mm       55       0011001       30         179       AC       Ninage ate = 326 mm       00       0000000       0         174       AE       No Vertical Bodar       00       00000000       0         174       AE       No Vertical Bodar       00       00000000       0         175       BE       00       00000000       0       0         178       BE       00       00000000       0       0         178       BE       00       00000000       0       0         179       BE       00       00000000       0       0         179       BE       00       00000000       0       0         179       BE       00       00000000       0       0         189	166	A6	Horizontal Sync. Offset = 64 Pixels		40	01000000	64	
168         A9         Vyrc. (Mehn Shes         35         0011011         55           170         AA         Hinaga tize = 537 mm         55         0101001         65           171         AA         Minaga tize = 358 mm         50         0101000         66           171         AA         Minaga tize = 358 mm         50         0101000         66           172         AC         Me Hetscard Booler         60         0000000         60           172         AC         Me Hetscard Booler         60         0000000         60           174         AC         Me Hetscard Booler         60         0000000         60           174         AC         Me Hetscard Booler         60         0000000         60           175         B3	167	A7	Horizontal Sync Pulse Width = 128 Pixels		80	10000000	128	
159         A9         V spor. Heffen 5 lines         00         00000001         0           170         AA         Hings itses 325 mm         50         01101001         80           171         AC         Nings itses 325 mm         50         01010001         80           171         AC         No Hostonal Border         00         00000000         0           172         AC         No Hostonal Border         00         00000000         0           172         AC         No Hostonal Border         00         00000000         0           173         AS         Notacial Separate (Varter, DS); HI         10         00000000         0           179         AS         Notacial Separate (Varter, DO)         00         00000000         0           180         AS         No         00         00000000         0         0           181         AS         No         00         00000000         0         0           184         AS         No         00         00000000         0         0           184         AS         No         00         00000000         0         0           185         AS         No </td <td>168</td> <td>A8</td> <td>V sync. Offset=3 lines</td> <td></td> <td>35</td> <td>00110101</td> <td>53</td> <td></td>	168	A8	V sync. Offset=3 lines		35	00110101	53	
120         AA         Hange size = 37 mm         55         0101001         ss           121         AB         Mage size = 336 mm         21         00100001         33           127         AD         Ne Hotstonal Border         00         00000000         0           127         AD         Ne Hotstonal Border         00         00000000         0           128         AE         Ne Vartial Border         00         00000000         0           128         AE         Nemal display, no stereo, Digital Separate (Vsyme, POS, HI         00         00000000         0           129         B2         00         00000000         0         0         00000000         0           129         B2         00         00000000         0         0         00000000         0           129         B2         00         00000000         0         0         00000000         0           139         B3         00         000000000         0         0         00000000         0           148         B4         00         000000000         0         0         00000000         0         0         000000000         0         0         000	169	A9	V sync. Width= 5 lines		00	00000000	0	
191         AB         Vinage tax = 328 mm         59         0010000         00           172         AC         No Hottosal Border         00         00000000         0           174         AE         No Vental Border         00         00000000         0           174         AE         No Vental Border         00         00000000         0           175         AF         ex. Normal display, no steep. Dighal Separate (Vsym, POS, H         1C         00000000         0           176         B1         00         00000000         0         0           178         B1         00         00000000         0         0           178         B2         00         00000000         0         0           179         B2         00         00000000         0         0           189         B7         00         00000000         0         0           180         B2         00         00000000         0         0           181         B2         00         00000000         0         0           181         B3         00         00000000         0         0           182         B4	170	AA	H image size= 597 mm		55	01010101	85	
122         AC         b-fonctual Border         01         0000000         0           124         AE         No Ventical Border         00         00000000         0           126         AF         No Ventical Border         00         00000000         0           126         AF         No Ventical Border         00         00000000         0           127         B1         00         00000000         0         0           127         B1         00         00000000         0         0           128         B2         00         00000000         0         0           138         B4         00         00000000         0         0           138         B4         00         00000000         0         0           138         B4         00         00000000         0 <td>171</td> <td>AB</td> <td>V image size = 336 mm</td> <td>· · · ·</td> <td>50</td> <td>01010000</td> <td>80</td> <td></td>	171	AB	V image size = 336 mm	· · · ·	50	01010000	80	
172         AD         No hydroxal Booder         00         0000000           175         AF         Rev Normal display, no stereo, Digital Separate (Vsync POS, He         1C         000100000         28           176         B0         000000000         0         00         00000000         0           177         B1         00         00000000         0	172	AC		-	21	00100001	32	
1         AE         10: Uncertain barder         20         20000000         0           175         AF         50: Normal diplay, no zereo, Diplal Separate (Vyrs, POS, H         00         00000000         0           179         B2         00         00000000         0         0           179         B2         00         00000000         0         0           180         B4         00         00000000         0         0           181         B5         00         00000000         0         0           182         B5         00         00000000         0         0           184         B5         00         00000000         0         0         0           184         B5         00         00000000         0	173	AD	No Horizontal Border			00000000	0	
Total         Total <th< td=""><td>174</td><td>AF</td><td>No Vertical Border</td><td>-</td><td> 00</td><td>00000000</td><td>, ,</td><td></td></th<>	174	AF	No Vertical Border	-	 00	00000000	, ,	
100         100 <td>175</td> <td></td> <td>re Norroal display: no stereo, Diaital Consesta (Usuna DOC, Us</td> <td></td> <td>10</td> <td>00011100</td> <td>201</td> <td></td>	175		re Norroal display: no stereo, Diaital Consesta (Usuna DOC, Us		10	00011100	201	
Description         Description         Description         Description           170         85         00         00000000         0           180         85         00         00000000         0           180         85         00         00000000         0           181         85         00         00000000         0           182         85         00         00000000         0           183         86         00         00000000         0           184         88         00         00000000         0           185         84         00         00000000         0           186         84         00         00000000         0           187         86         00         00000000         0           188         85         00         00000000         0           193         C1         00         00000000         0           194         C2         00         00000000         0           195         C3         00         00000000         0           194         C2         00         00000000         0           195	175	PIC PO	se, normal display, no stereo, orgital peparate ( vsynt_POB, Hs		<u>.</u>	00000000	20	
22.         23.         24.         25.         26. <td>177</td> <td></td> <td></td> <td></td> <td>00</td> <td>00000000</td> <td>0</td> <td></td>	177				00	00000000	0	
DD         DD         DD         DD         DD         DD           180         84         00         0000000         0           181         85         00         0000000         0           182         87         00         0000000         0           183         87         00         0000000         0           184         83         00         0000000         0           185         84         00         0000000         0           186         84         00         0000000         0           187         85         00         0000000         0           188         86         00         0000000         0           191         85         00         0000000         0           192         62         00         0000000         0           193         62         00         0000000         0           193         63         64         00         0000000           193         63         00         0000000         0           193         65         00         0000000         0           194         62	170	87			00	00000000		
123       0.1       0.0       0000000       0         181       85       0.0       0000000       0         182       85       0.0       0000000       0         184       85       0.0       0000000       0         185       85       0.0       0000000       0         186       85       0.0       0000000       0         186       85       0.0       0000000       0         186       85       0.0       0000000       0         186       86       0.0       0000000       0         187       86       0.0       0000000       0         198       86       0.0       0000000       0         191       87       0.0       0000000       0         192       63       0.0       0000000       0         194       C1       0.0       0000000       0         195       C3       0.0       0000000       0         194       C4       0.0       0000000       0         195       C4       0.0       0000000       0         196       C4       0.0       000	1/0				00	00000000		
180       65       00       0000000       0         182       65       00       0000000       0         184       67       00       0000000       0         185       83       00       0000000       0         186       84       00       0000000       0         187       85       00       0000000       0         188       84       00       0000000       0         189       86       00       0000000       0         189       86       00       0000000       0         190       86       00       0000000       0         191       87       00       0000000       0         192       C1       00       0000000       0         193       C2       00       0000000       0         194       C2       00       0000000       0         195       C3       00       0000000       0         196       C4       00       0000000       0         201       C3       00       0000000       0         202       CA       00       00000000 <t< td=""><td>1/3</td><td>65</td><td></td><td></td><td>00</td><td>00000000</td><td></td><td></td></t<>	1/3	65			00	00000000		
182       B5       00       0000000         182       B5       00       0000000         184       B5       00       0000000         184       B5       00       0000000         185       B4       B5       00       0000000         186       B5       00       0000000       0         187       B4       00       0000000       0         189       B0       00       0000000       0         199       B5       00       00000000       0         191       B7       00       00000000       0         193       C1       00       00000000       0         194       C2       00       00000000       0         195       C3       00       00000000       0         195       C4       00       00000000       0         195       C5       00       00000000       0         200       C8       00       00000000       0         201       C4       00       00000000       0         204       C5       00       00000000       0         204       C	180	84			00	00000000	0	
182       B7       00       0000000         184       B7       00       0000000         184       B8       00       0000000         185       B3       00       0000000         186       B4       00       0000000         186       B4       00       0000000         187       B8       00       0000000         189       B6       00       0000000         180       B6       00       0000000         191       B7       00       0000000         192       C0       00       0000000         193       C1       00       0000000         194       C2       00       0000000         195       C3       00       0000000         195       C4       00       0000000         195       C4       00       0000000         196       C4       00       0000000         197       C5       00       00000000         201       C4       00       00000000         202       CA       00       00000000         203       C5       00       00000000	181	B5			00	0000000	0	
184       B4       B5       00       0000000       0         185       B4       00       0000000       0       0         186       B4       00       0000000       0       0         187       B4       00       0000000       0	182	ВБ			00	0000000	0	
Hat         B3         00         0000000           185         B3         00         0000000         0           186         B4         00         0000000         0           189         B4         00         0000000         0           189         B4         00         0000000         0           191         D4         00         0000000         0           192         C0         00         0000000         0           193         C1         00         0000000         0           194         C2         00         00000000         0           195         C4         00         00000000         0           198         C6         00         00000000         0           201         C3         00         00000000         0           202         CA         00         00000000         0           203         C6         00	183	<u> </u>			00	00000000	0	
Libs         BA         Ob         Outcome           Libs         BA         00         Outcome         0           Libs         BE         00         Outcome         0           Libs         DE         00         Outcome         0           Libs         C1         00         Outcome         0           Libs         C1         00         Outcome         0           Libs         C3         00         Outcome         0           Libs         C4         00         Outcome         0           Libs         C5         00         Outcome         0           Libs         C6	184	B8			00	00000000	, v	
Libs         BA         OU         OURDADD           Libs         BC         00         OURDADD         0           Libs         BE         00         OURDADD         0           Libs         C1         00         OURDADD         0           Libs         C3         00         OURDADD         0           Libs         C4         00         OURDADD         0         0           Libs         C5         00         OURDADDD         0         0         0           Libs         C5         00         OURDADDDD         0         0         0         0           Libs         C4         C2	105	63			00	00000000	, i	
L00         D0         D000000           180         BO         00         D000000           181         BF         00         D000000           191         BF         00         D000000           191         BF         00         D000000           191         BF         00         D000000           191         C1         00         D000000           191         C2         00         D000000           195         C3         00         D000000           195         C3         00         D000000           196         C4         00         D000000           197         C5         00         D000000           200         C8         00         D000000           201         C9         00         D000000           202         CA         00         D000000           204         CC         00         D0000000           205         CD         00         D0000000           206         CE         00         D0000000           205         CD         00         D0000000           206         CE         00<	100	- DA			00	00000000	ő	
100         BC         00         0000000           190         BC         00         0000000           191         BF         00         0000000           192         C1         00         0000000           193         C1         00         0000000           194         C2         00         0000000           194         C2         00         0000000           195         C2         00         0000000           195         C2         00         0000000           195         C2         00         0000000           196         C4         00         0000000           197         C5         00         0000000           200         C3         00         0000000           201         C3         00         0000000           202         CA         00         0000000           203         CB         00         0000000           204         CC         00         0000000           205         CD         00         0000000           206         CE         00         00000000           210         D2 <td>107</td> <td></td> <td></td> <td></td> <td>00</td> <td>00000000</td> <td>Å</td> <td></td>	107				00	00000000	Å	
100         DE         00         0000000           191         BF         00         0000000         0           192         C0         00         0000000         0           193         C1         00         0000000         0           193         C1         00         0000000         0           195         C2         00         0000000         0           195         C4         00         0000000         0           197         C5         00         0000000         0           199         C7         00         0000000         0           201         C3         00         0000000         0           202         CA         00         0000000         0           203         C5         00         00000000         0           204         CC         00         00000000         0           205         CD         00         00000000         0           203         D4         00         00000000         0           204         CC         00         00000000         0           204         CD         00	100				00	00000000	ő	
191         BF         00         0000000         0           192         CO         00         0000000         0           193         CI         00         0000000         0           194         C2         00         0000000         0           195         C3         00         0000000         0           195         C3         00         0000000         0           195         C3         00         0000000         0           196         C4         00         0000000         0           197         C5         00         00000000         0           200         C3         00         00000000         0           201         C3         00         00000000         0           202         CA         00         00000000         0           203         CB         00         00000000         0           204         CC         00         00000000         0           205         CD         00         00000000         0           206         CE         00         00000000         0           210         D2	190	BE			00	00000000	ő	
132         C0         00         0000000           133         C1         00         0000000           134         C2         00         0000000           135         C3         00         0000000           135         C3         00         0000000           135         C4         00         0000000           136         C4         00         0000000           139         C5         00         0000000           139         C5         00         0000000           139         C5         00         0000000           200         C8         00         0000000           201         C4         00         0000000           202         CA         00         0000000           203         C8         00         0000000           204         CC         00         0000000           205         CD         00         0000000           206         CE         00         0000000           210         D2         00         0000000           211         D3         00         00000000           2121         D4 <td>191</td> <td>BE</td> <td></td> <td></td> <td>00</td> <td>00000000</td> <td>ő</td> <td></td>	191	BE			00	00000000	ő	
133         C1         00         0000000           194         C2         00         0000000         0           195         C2         00         0000000         0           195         C3         00         0000000         0           195         C4         00         0000000         0           195         C5         00         0000000         0           195         C7         00         0000000         0           200         C3         00         0000000         0           201         C3         00         0000000         0           202         CA         00         0000000         0           204         CC         00         0000000         0           205         CD         00         0000000         0           206         CE         00         0000000         0           210         02         00         0000000         0           210         02         00         0000000         0           210         02         00         0000000         0           211         03         00         <	192	 			00	00000000	ň	
194         C2         00         0000000         0           195         C3         00         0000000         0           195         C4         00         0000000         0           196         C4         00         0000000         0           197         C5         00         0000000         0           198         C6         00         0000000         0           200         C3         00         0000000         0           201         C4         00         0000000         0           202         CA         00         0000000         0           203         C8         00         0000000         0           204         CC         00         0000000         0           205         CE         00         0000000         0           206         CE         00         0000000         0           210         D2         00         0000000         0           211         D3         00         0000000         0           213         D5         00         00000000         0           214         D6         <	193	Č1			00	00000000	ŏ	
195         C3         00         00000000         0           195         C4         00         00000000         0           197         C5         00         00000000         0           199         C7         00         00000000         0           200         C8         00         00000000         0           201         C3         00         00000000         0           202         CA         00         00000000         0           202         CA         00         00000000         0           202         CA         00         00000000         0           203         CB         00         00000000         0           204         CC         00         00000000         0           205         CD         00         00000000         0           206         CE         00         00000000         0           208         D0         00         00000000         0           214         D5         00         00000000         0           215         D7         00         00000000         0           216         D6	194	C2			00	00000000	ŏ	
195         C4         00         00000000         0           197         C5         00         00000000         0           198         C5         00         00000000         0           199         C7         00         00000000         0           200         C3         00         00000000         0           201         C3         00         00000000         0           202         CA         00         00000000         0           203         CB         00         00000000         0           204         CC         00         00000000         0           205         CE         00         00000000         0           206         CE         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           214         D5         00         00000000         0           213         D5         00         000000000         0           214         D	195	C3			00	00000000	ő	
197         CS         00         00000000           198         C6         00         00000000         0           200         C8         00         00000000         0           201         C3         00         00000000         0           202         CA         00         00000000         0           202         CA         00         00000000         0           203         CB         00         00000000         0           204         CC         00         00000000         0           205         CD         00         00000000         0           206         CF         00         00000000         0           203         CF         00         00000000         0           204         CC         00         00000000         0           205         CF         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           214         D6         00         00000000         0           215         D7         0	196	C4			00	00000000	0	
198       C7       00       00000000         200       C8       00       00000000         201       C3       00       00000000         202       CA       00       00000000         203       CB       00       00000000         203       CA       00       00000000         204       CC       00       00000000         205       CE       00       00000000         206       CE       00       00000000         207       CF       00       00000000         208       CE       00       00000000         209       D1       00       00000000         211       D3       00       00000000         212       D4       00       00000000         213       D5       00       00000000         214       D6       00       00000000         215       D7       00       00000000         216       D8       00       00000000         217       D3       00       00000000         223       DF       00       00000000         224       E0       00	197	C5			00	00000000	0	
199       C7       00       00000000         200       C8       00       00000000         201       C9       00       00000000         202       CA       00       00000000         203       C8       00       00000000         204       CC       00       00000000         205       CD       00       00000000         206       CE       00       00000000         206       CE       00       00000000         206       CF       00       00000000         207       CF       00       00000000         208       D0       00       00000000       0         210       D2       00       00000000       0         211       D3       00       00000000       0         212       D4       00       00000000       0         213       D5       00       00000000       0         214       D6       00       00000000       0         215       D7       00       00000000       0         216       D8       00       00000000       0         219 <t< td=""><td>198</td><td>C6</td><td></td><td></td><td>00</td><td>00000000</td><td>0</td><td></td></t<>	198	C6			00	00000000	0	
200         C8         00         00000000         0           201         C9         00         00000000         0           202         CA         00         00000000         0           203         C8         00         00000000         0           204         CC         00         00000000         0           205         CE         00         00000000         0           206         CE         00         00000000         0           208         D0         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           213         D5         00         00000000         0           214         D6         00         00000000         0           215         D7         00         00000000         0           214         D6         00         00000000         0           213         D5         00         000000000         0           214         D	199	C7			00	00000000	0	
201         C3         00         00000000         0           202         CA         00         00000000         0           204         CC         00         00000000         0           204         CC         00         00000000         0           205         CD         00         00000000         0           206         CE         00         00000000         0           207         CF         00         00000000         0           208         D0         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           213         D5         00         00000000         0           214         D4         00         00000000         0           215         D7         00         00000000         0           218         DA         00         00000000         0           221         D4         00         000000000         0           222         D	200	C8			00	00000000	0	
202         CA         00         00000000         0           203         CB         00         00000000         0           204         CC         00         00000000         0           205         CD         00         00000000         0           206         CE         00         00000000         0           207         CF         00         00000000         0           208         D0         00         00000000         0           209         D1         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           213         D5         00         00000000         0           214         D6         00         00000000         0           215         D7         00         00000000         0           214         D6         00         00000000         0           213         D8         00         000000000         0           220         D	201	C9			00	00000000	0	
203         CB         00         00000000         0           204         CC         00         00000000         0           205         CD         00         00000000         0           206         CE         00         00000000         0           207         CF         00         00000000         0           208         D0         00         00000000         0           209         D1         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           214         D6         00         00000000         0           215         D7         00         00000000         0           218         DA         00         00000000         0           218         DA         00         00000000         0           220         DC         00         00000000         0           221         D9         00         00000000         0           222         DE	202	CA			00	00000000	0	
204         CC         00         00000000         0           205         CD         00         00000000         0           206         CE         00         00000000         0           207         CF         00         00000000         0           208         D0         00         00000000         0           209         D1         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           213         D5         00         00000000         0           214         D6         00         00000000         0           215         D7         00         00000000         0           216         DA         00         00000000         0           213         D5         00         00000000         0           214         D6         00         00000000         0           215         D8         00         00000000         0           220         DC	203	CB			00	00000000	0	
205         CD         00         00000000         0           206         CE         00         00000000         0           208         D0         00         00000000         0           208         D0         00         00000000         0           209         D1         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           213         D5         00         00000000         0           214         D6         00         00000000         0           215         D7         00         00000000         0           216         D8         00         00000000         0           219         D6         00         00000000         0           222         DE         00         00000000         0           223         DF         00         00000000         0           224         E0         00         00000000         0           225         E3	204	CC			00	00000000	0	
206         CE         00         00000000         0           207         CF         00         00000000         0           208         D0         00         00000000         0           209         D1         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           213         D5         00         00000000         0           214         D6         00         00000000         0           215         D7         00         00000000         0           216         D8         00         00000000         0           218         DA         00         00000000         0           220         DC         00         00000000         0           222         DE         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2	205	CD			00	00000000	0	
207         CF         00         00000000         0           208         D0         00         00000000         0           210         D2         00         000         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           213         D5         00         00000000         0           214         D6         00         00000000         0           215         D7         00         00000000         0           216         D8         00         00000000         0           213         D5         00         00000000         0           214         D6         00         00000000         0           215         D7         00         00000000         0           216         D8         00         00000000         0           217         D9         00         00000000         0           220         DC         00         00000000         0           221         DD         00         000000000         0           2	206	CE			00	00000000	0	
208         D0         00         00000000         0           209         D1         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           213         D5         00         00000000         0           214         D6         00         00000000         0           215         D7         00         00000000         0           216         D8         00         00000000         0           218         DA         00         00000000         0           219         D8         00         00000000         0           221         DD         00         00000000         0           221         DD         00         00000000         0           217         D9         00         00000000         0           220         DC         00         00000000         0           221         DD         00         00000000         0           222         DE	207	CF			00	00000000	0	
209         D1         00         00000000         0           210         D2         00         00000000         0           211         D3         00         00000000         0           212         D4         00         00000000         0           213         D5         00         0000000         0           214         D6         00         0000000         0           215         D7         00         0000000         0           216         D8         00         0000000         0           218         DA         00         0000000         0           219         DA         00         00000000         0           213         DB         00         00000000         0           220         DC         00         00000000         0           221         DD         00         00000000         0           222         DE         00         00000000         0           223         DF         00         00000000         0           224         E0         00         00000000         0           223         E5	208	D0		!	00	0000000	0	
211         D3         00         0000000         0           212         D4         00         0000000         0           213         D5         00         0000000         0           214         D6         00         0000000         0           215         D7         00         0000000         0           216         D8         00         0000000         0           219         D4         00         0000000         0           220         DC         00         0000000         0           221         DD         00         0000000         0           220         DC         00         0000000         0           221         DD         00         0000000         0           222         DE         00         0000000         0           221         DD         00         0000000         0           222         DE         00         00000000         0           221         DD         00         00000000         0           223         DF         00         00000000         0           224         E0	209	D1		<b>.</b> !	00	00000000	0	
211         D-5         00         0000000         0           212         D-4         00         0000000         0           213         D-5         00         0000000         0           214         D-6         00         0000000         0           215         D-7         00         0000000         0           216         D-8         00         0000000         0           217         D-9         00         0000000         0           218         D-A         00         0000000         0           219         D-B         00         0000000         0           220         D-C         00         00000000         0           222         D-F         00         00000000         0           223         D-F         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           224         E0         00         00000000         0           224         E2         00         000000000         0           224 <t< td=""><td>210</td><td>D2</td><td></td><td>!</td><td>00</td><td>00000000</td><td>0</td><td></td></t<>	210	D2		!	00	00000000	0	
212         D-4         00         0000000         0           213         D-5         00         0000000         0           214         D-6         00         0000000         0           215         D-7         00         0000000         0           216         D-8         00         0000000         0           217         D-9         00         00000000         0           218         D-A         00         00000000         0           219         D-B         00         00000000         0           220         D-C         00         00000000         0           221         D-D         00         00000000         0           222         D-E         00         00000000         0           224         E-0         00         00000000         0           225         E1         00         00000000         0           224         E-0         00         00000000         0           224         E-1         00         00000000         0           224         E-2         00         00000000         0           229	211	D3		ļ!	00	00000000	0	
c13         C5         00         0000000         0           214         D6         00         00000000         0           215         D7         00         00000000         0           216         D8         00         00000000         0           217         D9         00         00000000         0           218         DA         00         00000000         0           219         DB         00         00000000         0           220         DC         00         00000000         0           221         DD         00         00000000         0           222         DE         00         00000000         0           223         DF         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           228         E4         00         00000000         0           230         E6         00         00000000         0           232         E8<	212	D4			00	00000000	0	
214         Ub         00         0000000         0           215         D7         00         0000000         0           216         D8         00         0000000         0           217         D3         00         0000000         0           218         DA         00         0000000         0           219         D8         00         0000000         0           220         DC         00         0000000         0           221         DD         00         00000000         0           222         DE         00         00000000         0           223         DF         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           228         E4         00         00000000         0           230         E6         00         00000000         0           232         E8         00         00000000         0           232         E8	213	D5		ļ!	00	00000000	0	
C10         00         0000000         0           216         D8         00         0000000         0           217         D9         00         0000000         0           218         DA         00         0000000         0           219         DB         00         0000000         0           220         DC         00         00000000         0           221         DD         00         00000000         0           222         DE         00         00000000         0           223         DF         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           228         E4         00         00000000         0           229         E5         00         00000000         0           231         E7         00         00000000         0           234         E4         00         00000000         0           237         E8         00	214	DP			00	00000000	0	
217         D9         00         00000000         0           218         DA         00         00000000         0           218         DA         00         00000000         0           219         DA         00         00000000         0           219         DA         00         00000000         0           220         DC         00         00000000         0           221         DD         00         00000000         0           222         DE         00         00000000         0           223         DF         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           228         E4         00         00000000         0           230         E6         00         00000000         0           232         E8         00         00000000         0           234         E3         00         00000000         0           232         E8	215	- <u></u>		<b>.</b>	00	00000000	ů,	
C2         00         0000000         0           218         DA         00         0000000         0           229         DE         00         0000000         0           221         DD         00         0000000         0           222         DE         00         0000000         0           223         DF         00         0000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           228         E4         00         00000000         0           229         E5         00         00000000         0           231         E7         00         00000000         0           232         E8         00         00000000         0           233         E9         00         00000000         0           235         EB         00         00000000         0	215	08		,	00	00000000	0	
213         DB         00         0000000         0           220         DC         00         00000000         0           221         DD         00         00000000         0           222         DE         00         00000000         0           223         DF         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           227         E3         00         00000000         0           228         E4         00         00000000         0           229         E5         00         00000000         0           231         E7         00         00000000         0           232         E8         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           234         EA         00         00000000         0           235         EB<	21/	D3		-	00	00000000		
220         DC         00         0000000         0           221         DD         00         00000000         0           222         DE         00         00000000         0           223         DF         00         00000000         0           224         E0         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           228         E4         00         00000000         0           229         E5         00         00000000         0           230         E6         00         00000000         0           231         E7         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	210				00	00000000	0	
221         DD         00         00000000           222         DE         00         00000000         0           223         DF         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           227         E3         00         00000000         0           228         E4         00         00000000         0           229         E5         00         00000000         0           230         E6         00         00000000         0           231         E7         00         00000000         0           238         E4         00         00000000         0           230         E6         00         00000000         0           231         E7         00         00000000         0           234         E9         00         00000000         0           235         EB         00         00000000         0	220	t pc			00	00000000	ő	
222         DE         00         00000000         0           223         DF         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           227         E3         00         00000000         0           228         E4         00         00000000         0           229         E5         00         00000000         0           231         E7         00         00000000         0           232         E8         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           234         EA         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	221				00	00000000	ŏ	
223         DF         00         00000000         0           224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           227         E3         00         00000000         0           228         E4         00         00000000         0           230         E6         00         00000000         0           231         E7         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	222	DE			00	00000000	ŏ	
224         E0         00         00000000         0           225         E1         00         00000000         0           226         E2         00         00000000         0           227         E3         00         00000000         0           228         E4         00         00000000         0           229         E5         00         00000000         0           231         E7         00         00000000         0           232         E8         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	223	DF			00	00000000	ő	
225         E1         00         00000000         0           226         E2         00         00000000         0           227         E3         00         00000000         0           228         E4         00         00000000         0           229         E5         00         00000000         0           231         E7         00         00000000         0           232         E8         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	224	E0			00	00000000	0	
226         E2         00         00000000         0           227         E3         00         00000000         0           228         E4         00         00000000         0           229         E5         00         00000000         0           231         E7         00         00000000         0           232         E8         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	225	E1			00	00000000	0	
227         E3         00         00000000         0           228         E4         00         00000000         0           229         E5         00         00000000         0           230         E6         00         00000000         0           231         E7         00         00000000         0           232         E8         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	226	E2			00	00000000	0	
228         E4         00         00000000         0           229         E5         00         00000000         0           230         E6         00         00000000         0           231         E7         00         00000000         0           232         E8         00         0000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	227	E3			00	00000000	0	
229         E5         00         00000000         0           230         E6         00         00000000         0           231         E7         00         00000000         0           232         E8         00         00000000         0           233         E9         00         00000000         0           234         EA         00         0000000         0           235         EB         00         00000000         0	228	E4		!	00	00000000	0	
231         E7         00         00000000         0           232         E8         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	229	E5		!	00	00000000	0	
231         E/         00         00000000         0           232         E8         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	230	E6		!	00	00000000	0	
233         E9         00         00000000         0           233         E9         00         00000000         0           234         EA         00         00000000         0           235         EB         00         00000000         0	231	E7		!	00	00000000	0	
234         EA         00         0000000         0           225         EB         00         00000000         0	232	E8		· ····	00 00	00000000	0	
235 EB 0000000 0	233	- <u>E</u> 3		-	00	00000000	ů,	
	234	- <u></u>		-	00	00000000	ů,	
· · · ·	درے	t <u>rp</u>			~~		٩	



236	EC		00	00000000
237	ED		00	00000000
238	EE		00	00000000
239	EF		00	00000000
240	F0		00	00000000
241	F1		00	00000000
242	F2		00	00000000
243	F3		00	00000000
244	F4		00	00000000
245	F5		00	00000000
246	F6		00	00000000
247	F7		00	00000000
248	F8		00	00000000
249	F9		00	00000000
250	FA		00	00000000
251	FB		00	00000000
252	FC		00	00000000
253	FD		00	00000000
254	FE		00	00000000
255	FF	Checksum	13	00010011

### **10-2. EDID DATA READ/WRITE PROTOCOL**

### 10-2-1. READ Operation

<Start><Slave Address, RW=0><Byte Address><Start><Slave Address, RW=1><Data><Stop>

### 10-2-2. WRITE Operation

<Start><Slave Address, RW=0><Byte Address><Data><Stop>

#### - Device Address (Slave Address)

Туре			Hex						
IS24C02B	1	0	1	0	0	0	0	RW	0xA0 + RW

#### - Byte Address

Byte Address							
<b>Decimal</b> 0 ~ 127							
Hex	0x00 ~ 0x7F						

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