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## 1. Introduction

This specification describes Q7C4, which is a 17.0" analog/digital interface color TFT LCD monitor with audio. The monitor supports up to 1280x1024 pixel resolution and refresh rate of 75 Hz. The independent 6 bits R, G, B colors are capable of displaying 16.2M colors. In addition, dithering function is supported. The features summary is shown below,

**\*All panel spec. in C201 definition depends on the variance of panel source.**

| Feature items                             | Specifications   | Remark   |
|---|--|--|
| Panel supplier & module name              | AUO M170EG01   | Further divided into v.0 and v.1 versions (spec v.0)       |
| Screen diagonal                           | 17.0" (432mm)  | 337.920(H) x 270.336(V)                                    |
| Display Format                            | SXGA / 1280 (H) x 1024 (V)   |  |
| Pixel Pitch                               | 0.264 mm x 0.264 mm  |  |
| Viewing Angle (@ Contrast Ratio = 10)     | R/L: <b>70/70</b> degrees (typ.)<br>and U/D: <b>70/60</b> degrees (typ.) | Panel spec.  |
| Analog interface with Scaling supported   | <b>Yes</b>   | With 15-pin D-sub connector                                |
| DVI interface with Scaling supported      | <b>Yes</b>   | With 24-pin DVI-D connector                                |
| Video interface with Scaling supported    | No   |  |
| Max resolution mode supported             | 1280 x 1024 @ 75Hz   |  |
| Number of Display Colors supported        | 16.2M colors   | (RGB 6-bits + FRC data)                                    |
| Contrast Ratio                            | <b>500:1 (typ.)</b>  |  |
| Luminance                                 | <b>300 cd/m<sup>2</sup> (typ.)</b>                                       | At CCFL 7.5mA & R/G/B saturated condition                  |
| AC power input                            | <b>Yes</b>   | 90-264 Volts, 47-63 Hz.                                    |
| DC power input (with AC power adapter)    | No   |  |
| DPMS supported                            | <b>Yes</b>   | ≤1W in power off preferred mode, 115V<br>≤2W, 230V         |
| LED indicator for power status showed     | <b>Yes</b>   | Blue/Amber/Non   |
| OSD for control & information supported   | <b>Yes</b>   |  |
| Multi-language supported for OSD          | <b>Yes</b>   | 8 languages  |
| Buttons control supported                 | <b>Yes</b>   | 6 buttons including 1 monitor power on/off control button. |
| Flywheel control supported                | No   |  |
| Scaling function supported                | <b>Yes</b>   |  |
| Auto adjustment function supported        | <b>Yes</b>   | "i-key" function   |
| DDC function supported (EDID ver. 1.3)    | <b>Yes</b>   | DDC2B only   |
| Audio speakers supported                  | <b>Yes</b>   | Speaker 1W/CH x 2  |
| Audio Jack (input connector) supported    | <b>Yes</b>   |  |
| Earphone Jack (input connector) supported | <b>Yes</b>   |  |
| Microphone function supported             | No   |  |
| Mechanical Tilt base design               | <b>Yes</b>   | From -2 to +20 degree                                      |
| VESA wall mounting design                 | <b>Yes</b>   |  |
| Mechanical Rotate design                  | No   |  |
| Mechanical Lift base design               | No   |  |
| Kensington compatible lock design         | <b>Yes</b>   |  |

## 2. Operational Specification

### 2.1 Power supply

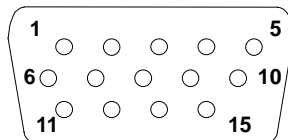
| Item                | Condition                  | Spec               | OK | N.A | Remark |
|---------------------|----------------------------|--------------------|----|-----|--------|
| Input Voltage range | Universal input full range | 90~264VAC /47~63Hz | √  |     |        |
| Input Current range | 90 ~ 264VAC                | ≤ 2.0 Arms         | √  |     |        |

|                       |  |  |   |  |                                 |
|-----------------------|--|--|---|--|---------------------------------|
| Power Consumption     | Normal “On” operation                          | $\leq 40$ W (w/o speaker)<br>$\leq 50$ W (w speaker)         | √ |  | LED: Blue                       |
| DPMS                  | DPMS “Off” state                               | $\leq 1$ W in power preferred mode, 115V<br>$\leq 2$ W, 230V | √ |  | LED: Amber                      |
| Inrush Current        | 110 VAC<br>220 VAC                             | $< 30$ A (peak)<br>$< 60$ A (peak)                           | √ |  | Cold-start                      |
| Earth Leakage Current | 264 VAC/50Hz                                   | $< 3.5$ mA   | √ |  |                                 |
| Hi-Pot                | 1. 1500VAC, 1 sec<br>2. Ground test: 30A, 1sec | Without damage<br>$< 0.1$ ohm                                | √ |  | (on-line test)<br>(in-lab test) |
| Power Line Transient  | IEC1000-4-4                                    | 1KV  | √ |  |                                 |
|                       | IEC1000-4-5 (Surge)                            | Common: 2KV,<br>Differential: 1KV                            | √ |  |                                 |
| CCFL operation range  | 90 ~ 264VAC                                    | 3 mA ~8mA  | √ |  | Depends on the panel source.    |
| CCFL Frequency        | 90 ~ 264VAC                                    | 40KHz ~ 80KHz  | √ |  | 50K (typ.)                      |
| Power cord            |  | Color: Black<br>Length: 1500 +/- 50 mm                       | √ |  |                                 |

## 2.2 Signal interface

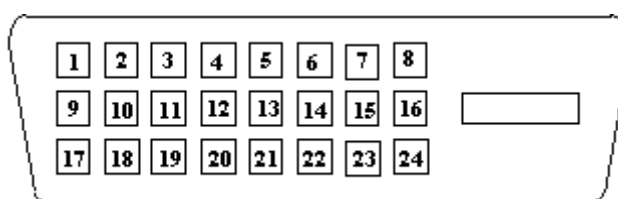
| Item           | Condition              | Spec   | OK | N.A | Remark                              |
|----------------|------------------------|--|----|-----|-------------------------------------|
| Signal Cable   | 15-pin D-Sub           | Color: Black<br>Length: 1500 +/- 30 mm                         | √  |     |                                     |
|                | 24-pin DVI-D           | Color: Black<br>Length: 2000 +/- 50 mm                         | √  |     |                                     |
| Pin assignment | 15-pin D-sub connector | See Note-1   | √  |     | For 15-pin D-sub                    |
|                | 24-pin DVI-D connector | See Note-2   | √  |     | For 24-pin DVI-D                    |
| Video input    | Signal type            | Separate analog R/G/B  | √  |     | For 15-pin D-sub                    |
|                | Level                  | 700 mV (peak to peak)  | √  |     |                                     |
|                | Impedance              | 75 Ohms +/- 1.5 Ohms   | √  |     |                                     |
| Sync input     | Signal type            | Separate H/V-sync<br>Composite H/V-sync<br>(Positive/Negative) | √  |     | For 15-pin D-sub                    |
|                | Level                  | Logic High: 2.4V ~ 5.5V<br>Logic Low: 0V ~ 0.5V<br>(TTL level) | √  |     | Refer to VESA VSIS<br>Standard V1R1 |
|                | Impedance              | Minimum 2.2K $\Omega$ (pull down)                              | √  |     | 10K $\Omega$ for application        |
|                | Sync Pulse Width (SPW) | $0.7 \mu s < H\text{-SPW}$<br>$1H < V\text{-SPW}$              | √  |     |                                     |

**Note-1:** The pin assignment of 15-pin D-sub connector is as below,



| Pin | Signal Assignment | Pin | Signal Assignment    |
|-----|-------------------|-----|----------------------|
| 1   | Red video         | 9   | PC5V (+5 volt power) |
| 2   | Green video       | 10  | Sync Ground          |
| 3   | Blue video        | 11  | Ground               |
| 4   | Ground            | 12  | SDA                  |
| 5   | Cable Detected    | 13  | H-Sync (or H+V)      |
| 6   | Red Ground        | 14  | V-sync               |
| 7   | Green Ground      | 15  | SCL                  |
| 8   | Blue Ground       |     |                      |

**Note-2:** The pin assignment of 24-pin DVI-D connector is as below,



| Pin | Signal Assignment | Pin | Signal Assignment |
|-----|-------------------|-----|-------------------|
| 1   | TMDS RX2-         | 13  | Floating          |
| 2   | TMDS RX2+         | 14  | +5V Power         |
| 3   | TMDS Ground       | 15  | Ground            |
| 4   | Floating          | 16  | Hot Plug Detect   |
| 5   | Floating          | 17  | TMDS RX0-         |
| 6   | DDC Clock         | 18  | TMDS RX0+         |
| 7   | DDC Data          | 19  | TMDS Ground       |
| 8   | Floating          | 20  | Floating          |
| 9   | TMDS RX1-         | 21  | Floating          |
| 10  | TMDS RX1+         | 22  | TMDS Ground       |
| 11  | TMDS Ground       | 23  | TMDS Clock+       |
| 12  | Floating          | 24  | TMDS Clock-       |

## 2.3 Video performance

| Item                                      | Condition | Spec   | OK | N.A | Remark                                      |
|---|-----------|--|----|-----|---|
| Max. support Pixel rate                   |           | 135 MHz  | √  |     |   |
| Max. Resolution                           |           | 1280 x 1024  | √  |     |   |
| Rise time + Fall time                     |           | < 6.25 ns<br>(50% of minimum pixel clock period)                 | √  |     | 1280 x 1024 @ 75Hz<br>(max. support timing) |
| Settling Time after overshoot /undershoot |           | < 5% final full-scale value                                      | √  |     | Refer to VESA VSIS Standard V1R1            |
| Overshoot/Undershoot                      |           | < 12% of step function voltage level over the full voltage range | √  |     | Refer to VESA VSIS Standard V1R1            |

## 2.4 Scan range

| Item       | Condition | Spec        | OK | N.A | Remark               |
|------------|-----------|-------------|----|-----|----------------------|
| Horizontal |           | 30 ~ 83 KHz | √  |     |                      |
| Vertical   |           | 50 ~ 76 Hz  | √  |     | Without Frame buffer |

## 2.5 Plug &amp; Play DDC2B Support

| Item             | Condition | Spec        | OK | N.A | Remark   |
|------------------|-----------|-------------|----|-----|--|
| DDC channel type |           | DDC2B       | √  |     |  |
| EDID             |           | Version 1.3 | √  |     | Refer to Q7C4 S/W spec. document to see the detailed EDID data definition. |

## 2.6 Support Timings

| Input Timing |            |          |           | Actual Output  |    |     |           |
|--------------|------------|----------|-----------|----------------|----|-----|-----------|
| Resolution   | Horizontal | Vertical | Dot Clock | Actual display | OK | N.A | Remark    |
| 640x350      | 31.47(P)   | 70.08(N) | 25.17     | 1280x943       | √  |     | DOS       |
| 720x400      | 31.47(N)   | 70.08(P) | 28.32     | 1280x1024      | √  |     | DOS       |
| 640x480      | 31.47(N)   | 60.00(N) | 25.18     | 1280x1024      | √  |     | DOS       |
| 640x480      | 35.00(N)   | 67.00(N) | 30.24     | 1280x1024      | √  |     | Macintosh |
| 640x480      | 37.86(N)   | 72.80(N) | 31.5      | 1280x1024      | √  |     | VESA      |
| 640x480      | 37.50(N)   | 75.00(N) | 31.5      | 1280x1024      | √  |     | VESA      |
| 800x600      | 37.88(P)   | 60.32(P) | 40.00     | 1280x1024      | √  |     | VESA      |
| 800x600      | 48.08(P)   | 72.19(P) | 50.00     | 1280x1024      | √  |     | VESA      |
| 800x600      | 46.86(P)   | 75.00(P) | 49.50     | 1280x1024      | √  |     | VESA      |
| 832X624      | 49.72(N)   | 74.55(N) | 57.29     | 1280x1024      | √  |     | Macintosh |
| 1024x768     | 48.36(N)   | 60.00(N) | 65.00     | 1280x1024      | √  |     | VESA      |
| 1024x768     | 56.48(N)   | 70.10(N) | 75.00     | 1280x1024      | √  |     | VESA      |
| 1024x768     | 60.02(P)   | 75.00(P) | 78.75     | 1280x1024      | √  |     | VESA      |
| 1024X768     | 60.24(N)   | 74.93(N) | 80.00     | 1280x1024      | √  |     | Macintosh |
| 1152x864     | 67.50(P)   | 75.00(P) | 108.00    | 1280x1024      | √  |     | VESA      |
| 1152x870     | 68.68(N)   | 75.06(N) | 100.00    | 1280x1024      | √  |     | Macintosh |
| 1152x900     | 61.80(N)   | 66.00(N) | 94.50     | 1280x1024      | √  |     | SUN 66    |
| 1152x900     | 71.81(N)   | 76.14(N) | 108.00    | 1280x1024      | √  |     | SUN       |
| 1280x1024    | 64.00(P)   | 60.00(P) | 108.00    | 1280x1024      | √  |     | VESA      |
| 1280x1024    | 75.83(N)   | 71.53(N) | 128.00    | 1280x1024      | √  |     | IBM1      |
| 1280x1024    | 80.00(P)   | 75.00(P) | 135.00    | 1280x1024      | √  |     | VESA      |
| 1280x1024    | 81.18(N)   | 76.16(N) | 135.09    | 1280x1024      | √  |     | SPARC2    |

**Note-3:** “P”, “N” stands for “Positive”, “Negative” polarity of incoming H-sync/V-sync (input timing).

### 3. Operational & Functional Specification

#### 3.1 Video performance

| Item                    | Condition  | Spec                                    | OK | N.A | Remark            |
|-------------------------|--|---|----|-----|-------------------|
| Resolution              | Any input resolution modes which are under 1280 x 1024 | 1280 x 1024                             | √  |     |                   |
| Contrast ratio          |  | 500:1 (typ.)                            | √  |     |                   |
| Brightness              | At R/G/B saturated condition                           | 300 cd/m <sup>2</sup> (typ.) @ 7.5mA    | √  |     |                   |
| Response time           | Rising + Falling time                                  | 12 ms (typ.)                            | √  |     |                   |
| Viewing angle           | At Contrast ratio = 10                                 | R/L: 70/70 degrees (typ.)               | √  |     |                   |
|                         | At Contrast ratio = 10                                 | U/D: 70/60 degrees (typ.)               | √  |     |                   |
| CIE coordinate of White |  | (0.31, 0.33) +/- (0.03, 0.03)           | √  |     |                   |
| Display colors          |  | 16.2M colors<br>(RGB 6-bits + FRC data) | √  |     | Support dithering |

#### 3.2 Brightness Adjustable Range

| Item                        | Condition   | Spec  | OK | N.A | Remark |
|-----------------------------|---|---|----|-----|--------|
| Brightness adjustable range | At default contrast level (saturate point) & Full-white color pattern | (Max. brightness value – Min. brightness value) ≥ 100 cd/m <sup>2</sup> | √  |     |        |

#### 3.3 Acoustical Noise

| Item             | Condition                                       | Spec      | OK | N.A | Remark |
|------------------|---|-----------|----|-----|--------|
| Acoustical Noise | At 1 meter distance & “Audio” function disabled | ≤ 40 dB/A | √  |     |        |

#### 3.4 Environment

| Item        | Condition     | Spec                 | OK | N.A | Remark          |
|-------------|---------------|----------------------|----|-----|-----------------|
| Temperature | Operating     | 0 ~ +40 °C           | √  |     |                 |
|             | Non-operating | -20 ~ +60 °C         | √  |     |                 |
| Humidity    | Operating     | 10 ~ 90%             | √  |     | Non-condensing  |
|             | Non-operating | 5 ~ 95%              | √  |     | Non-condensing  |
| Altitude    | Operating     | 0~3048m (10,000ft)   | √  |     | Without packing |
|             | Non-operating | 0~12,192m (40,000ft) | √  |     | With packing    |

#### 3.5 Transportation

| Item          | Condition              | Spec   | OK | N.A | Remark |
|---------------|------------------------|--|----|-----|--------|
| (1) Vibration | Package, Non-Operating | (1) Sine wave<br>5~200Hz 1.5G, 1 octave/min,<br>15 min dwell on each resonant<br>frequency, all primary axis,<br>one sweep (30 min minimum)<br>per orientation, total of 90+<br>min. | √  |     |        |

|                          |                               |   |   |  |  |
|--------------------------|-------------------------------|---|---|--|--|
|                          |                               | <p>(2) Random<br/>5 ~100 Hz, 0 dB/Oct. 0.015 g<sup>2</sup>/Hz<br/>100 ~200 Hz, -6 dB/Oct. 200 Hz, 0.0038 g<sup>2</sup>/Hz<br/>Equivalent to 1.47 Grms, All primary axis, 20 min per-orientation, total is 60 min.</p> <p>(3) Procedure:<br/>Confirmed sample with appearance and function ready before testing then compare with after test record as brightness, uniformity and contrast ratio. Perform random vibration after sine-wave vibration test.</p> |   |  |  |
| (2) Unpackaged Vibration | Unpackaged, Non-Operating     | <p>Test Spectrum:<br/>20 Hz 0.0185(g<sup>2</sup>/Hz)<br/>200Hz 0.0185(g<sup>2</sup>/Hz)<br/>Duration : 5 Minutes<br/>Axis : 3 axis ( Horizontal and Vertical axis ,Z axis)</p>  | √ |  |  |
| (3) Drop                 | Package, Non-Operating        | <p>91 cm Height (MP stage)<br/>(1 corner, 3 edges, 6 faces)</p>   | √ |  |  |
| (4) Shock                | Wooden package, Non-Operating | <p>Waveform: half sine<br/>Faces: 6 sides/ per orientation<br/>3 shocks.<br/>Duration: &lt;3ms<br/>Velocity accelerate: 75g</p>   | √ |  |  |

### 3.6 Electrostatic Discharge Requirements

| Item                    | Condition         | Spec                              | OK | N.A | Remark |
|-------------------------|-------------------|-----------------------------------|----|-----|--------|
| Electrostatic Discharge | IEC801-2 standard | <p>Contact: 8KV<br/>Air: 15KV</p> | √  |     |        |

### 3.7 EMC

| Item  | Condition            | Spec   | OK | N.A | Remark |
|-------|----------------------|--|----|-----|--------|
| TCO03 | Electric             | <p>Band 1 &lt; 10 V/m<br/>Band 2 &lt; 1 V/m</p>  | √  |     |        |
|       | Magnetic             | <p>Band 1 &lt; 200nT<br/>Band 2 &lt; 25nT</p>  | √  |     |        |
| EMI   | FCC part 15J class B | <p>After Mass production under 1dBuv for constant measure. Besides DNSF and VCCI class-2 are optional.</p> | √  |     |        |
|       | EN55022 class B      |  |    |     |        |

### 3.8 Reliability

| Item            | Condition              | Spec                | OK | N.A | Remark         |
|-----------------|------------------------|---------------------|----|-----|----------------|
| MTBF Prediction | Refer to MIL-217F      | > 60,000 Hours      | √  |     | Excluding CCFL |
| CCFL Life time  | At 25±2°C, under 7.0mA | 50,000 Hours (typ.) | √  |     | See Note-4     |

**Note-4:** CCFL lifetime is determined as the time at which brightness of lamp is 50%. The typical lifetime of CCFL is on the condition at 7.0mA lamp current.



### 3.9 Audio performance

| Item                            | Condition | Spec                      | OK | N.A | Remark |
|---------------------------------|-----------|---------------------------|----|-----|--------|
| <b>Preamplifier + Power amp</b> |           |                           |    |     |        |
| (1)Output power                 |           | 1 Wrms/CH @ 1KHz          | √  |     |        |
| (2)THD (@ 1W)                   |           | <1%                       | √  |     |        |
| (3)S/N ratio                    |           | >40dB                     | √  |     |        |
| <b>Speaker Driver</b>           |           |                           |    |     |        |
| (1)Nominal impedance            |           | 8 ohm                     | √  |     |        |
| (2)Rated input power            |           | 2 W/CH                    | √  |     |        |
| (3)Frequency response           |           | 180~20KHz SPL-10dB        | √  |     |        |
| (4)Output sound pressure level  |           | 84 ± 3 dB (1W 0.5M)       | √  |     |        |
| (5)Dimension of box             |           | 62x33cx20 mm <sup>2</sup> | √  |     |        |
| <b>Audio Control</b>            |           |                           |    |     |        |
| (1)Volume range                 |           | 0 ~100 levels             | √  |     |        |
| (2)Mute                         |           | On/Off                    | √  |     |        |

## 4. LCD Characteristics

### 4.1 The Physical definition & Technology summary of LCD panel

| Item                   | Condition | Spec                                  | OK | N.A | Remark        |
|------------------------|-----------|---------------------------------------|----|-----|---------------|
| LCD Panel Supplier     |           | AUO                                   | √  |     |               |
| Panel type of Supplier |           | M170EG01                              | √  |     |               |
| Screen Diagonal        |           | 432mm(17.0")                          | √  |     |               |
| Display area           | Unit=mm   | 337.920(H) x 270.336(V)               | √  |     |               |
| Physical Size          | Unit=mm   | 358.5(H) x 296.5(V) x 17.0 (D) (typ.) | √  |     |               |
| Weight                 | Unit=gram | 1900 (typ.)                           | √  |     |               |
| Technology             |           | TN type                               | √  |     |               |
| Pixel pitch            | Unit=mm   | 0.264 x 0.264                         | √  |     | Per one triad |
| Pixel arrangement      |           | R/G/B vertical stripe                 | √  |     |               |
| Display mode           |           | Normally white                        | √  |     |               |
| Support color          |           | 16.2M colors (RGB 6-bits + FRC data)  | √  |     |               |

### 4.2 Optical characteristics of LCD panel

| Item                                   | Unit     | Conditions         | Min. | Typ. | Max. | Remark |
|--|----------|--------------------|------|------|------|--------|
| Viewing Angle                          | [degree] | Horizontal (Right) | 60   | 70   | -    |        |
|  | [degree] | CR = 10 (Left)     | 60   | 70   | -    |        |
|  | [degree] | Vertical (Up)      | 60   | 70   | -    |        |
|  | [degree] | CR = 10 (Down)     | 50   | 60   | -    |        |
| Contrast ratio                         |          | Normal Direction   | 300  | 500  |      |        |
| Response Time                          | [msec]   | Rising Time        | -    | 9    | 12   |        |
|  | [msec]   | Falling Time       | -    | 3    | 4    |        |
|  | [msec]   | Rising + Falling   | -    | 12   | 16   |        |
| Color / Chromaticity Coordinates (CIE) |          | Red x              | 0.61 | 0.64 | 0.67 |        |
|  |          | Red y              | 0.31 | 0.34 | 0.37 |        |
|  |          | Green x            | 0.26 | 0.29 | 0.32 |        |
|  |          | Green y            | 0.58 | 0.61 | 0.64 |        |

|                                       |                      |                      |      |      |      |  |
|---------------------------------------|----------------------|----------------------|------|------|------|--|
|                                       |                      | Blue x               | 0.11 | 0.14 | 0.17 |  |
|                                       |                      | Blue y               | 0.04 | 0.07 | 0.10 |  |
| Color Coordinates (CIE) White         |                      | White x              | 0.28 | 0.31 | 0.34 |  |
|                                       |                      | White y              | 0.30 | 0.33 | 0.36 |  |
| Luminance Uniformity                  | [%]                  | 9 points measurement | 75   | 80   | -    |  |
| White Luminance @ CCFL 7.5mA (center) | [cd/m <sup>2</sup> ] |                      | 250  | 300  | -    |  |
| Crosstalk (in 75Hz)                   | [%]                  |                      |      |      | 1.5  |  |

\* The test methods for the above items' definition, please refer to the relative panel specification.

## 5. User Controls

### 5.1 User's hardware control definition

| Item                       | Condition | Spec | OK | N.A | Remark |
|----------------------------|-----------|------|----|-----|--------|
| Monitor Power button       |           |      | √  |     |        |
| Enter button               |           |      | √  |     |        |
| Right/Inc. button          |           |      | √  |     |        |
| Left/Dec. button           |           |      | √  |     |        |
| Exit /Volume button        |           |      | √  |     |        |
| I-key button               |           |      | √  |     |        |
| Mode Selection button      |           |      |    | √   |        |
| Mute button                |           |      |    | √   |        |
| Input source select button |           |      |    | √   |        |

### 5.2 OSD control function definition

| Item                | Condition | Spec   | OK | N.A | Remark |
|---------------------|-----------|--|----|-----|--------|
| Auto Adjust         |           | Auto-Geometry  | √  |     |        |
| Brightness          |           |  | √  |     |        |
| Contrast            |           |  | √  |     |        |
| Horizontal Position |           |  | √  |     |        |
| Vertical Position   |           |  | √  |     |        |
| Pixel Clock         |           |  | √  |     |        |
| Phase               |           |  | √  |     |        |
| Color               |           | Bluish<br>Reddish<br>sRGB<br>User: Separate R/G/B adjustment | √  |     |        |
| OSD Position        |           | OSD Horizontal position<br>OSD Vertical position             | √  |     |        |
| OSD Time            |           | From 5 sec to 60 sec   | √  |     |        |
| Language            |           | 8 languages  | √  |     |        |
| Recall              |           | Color recall<br>Recall All                                   | √  |     |        |
| Mode Selection      |           |  |    | √   |        |
| Input Select        |           | D-sub<br>DVI   | √  |     |        |
| Sharpness           |           |  | √  |     |        |
| Display Information |           | For input timing   | √  |     |        |

|                        |  |  |   |   |  |
|------------------------|--|--|---|---|--|
| Volume                 |  |  | √ |   |  |
| Mute                   |  |  | √ |   |  |
| Hot key for Brightness |  |  | √ |   |  |
| Hot key for Contrast   |  |  | √ |   |  |
| Hot key for Volume     |  |  | √ |   |  |
| Hot key for Mode       |  |  |   | √ |  |

\* The detailed firmware functions' specification, please refer to C212 S/W spec. document.

## 6. Mechanical Characteristics

### 6.1 Dimension

| Item                  | Condition    | Spec                                       | OK | N.A | Remark |
|-----------------------|--------------|--|----|-----|--------|
| Bezel opening         |              | 339.8 x 272.2 mm                           | √  |     |        |
| Monitor without Stand | L x W x H mm | 349.7*375.3*72mm                           | √  |     |        |
| Monitor with Stand    | L x W x H mm | 385.8*375.3*201.1 mm                       | √  |     |        |
| Carton Box (outside)  | L x W x H mm | 456 x 423 x 157mm                          | √  |     |        |
| Tilt and Swivel range |              | Tilt: -2 ~ +20 degree<br>Swivel: 0 degrees | √  |     |        |

### 6.2 Weight

| Item                         | Condition | Spec   | OK | N.A | Remark |
|------------------------------|-----------|--------|----|-----|--------|
| Monitor (Net)                |           | 4.7 Kg | √  |     |        |
| Monitor with packing (Gross) |           | 6.2 Kg | √  |     |        |

### 6.3 Plastic

| Item               | Condition | Spec                             | OK | N.A | Remark                    |
|--------------------|-----------|----------------------------------|----|-----|---------------------------|
| Flammability       |           | 94-HB                            | √  |     |                           |
| Heat deflection To | ABS       | 65 °C                            | √  |     |                           |
| UV stability       | ABS       | Delta E < 8.0                    | √  |     |                           |
| Resin              |           | MPRII: ABS<br>(VW55/VE0856/D350) | √  |     |                           |
| Texture            |           | MT-11020                         | √  |     | Bezel texture<br>MT-11000 |
| Color              |           | BCS-Y5003A                       | √  |     | Bezel painting<br>T8020C  |

### 6.4 Carton

| Item                 | Condition | Spec    | OK | N.A | Remark |
|----------------------|-----------|---------|----|-----|--------|
| Color                |           | Kraft   | √  |     |        |
| Material             |           | B Flute | √  |     |        |
| Compression strength |           | 288 KGF | √  |     |        |

|                  |  |                        |   |  |  |
|------------------|--|------------------------|---|--|--|
| Burst Strength   |  | 16 KGF/cm <sup>2</sup> | √ |  |  |
| Stacked quantity |  | 13 Layers              | √ |  |  |

## 7. Pallet & Shipment

### 7.1 Container Specification

| Stowing Type   | Container | Quantity of products (sets)<br>(Every container) | Quantity of Products (sets)<br>(Every Pallet) | Quantity of pallet (sets)<br>(Every Container) |
|----------------|-----------|--|---|--|
| With pallet    | 20'       | <b>780</b>                                       | <b>Pallet A: 78</b>                           | <b>Pallet A: 6</b>                             |
|                |           |  | <b>Pallet B: 52</b>                           | <b>Pallet B: 6</b>                             |
|                | 40'       | <b>1820</b>                                      | <b>Pallet A: 78</b>                           | <b>Pallet A: 14</b>                            |
|                |           |  | <b>Pallet B: 52</b>                           | <b>Pallet B: 14</b>                            |
| Without pallet | 20'       | <b>974</b>                                       | X   | X  |
|                |           |  | X   | X  |
|                | 40'       | <b>2099</b>                                      | X   | X  |
|                |           |  | X   | X  |

### 7.2 Carton Specification

#### Product:

| Net Weight (Kg) | Gross Weight (Kg) | Dimension w/o Base<br>L*W*H (mm) | Dimension w/ Base<br>L*W*H (mm) |
|-----------------|-------------------|----------------------------------|---------------------------------|
| <b>4.7Kg</b>    | <b>6.2Kg</b>      | <b>349.7 x 375.3 x 72</b>        | <b>385.82 x 375.3 x 201.1</b>   |

#### Package:

| Carton Interior Dimension (mm)<br>L*W*H | Carton External Dimension (mm)<br>L*W*H |
|---|---|
| <b>448 x 415 x 143</b>                  | <b>456 x 423 x 157</b>                  |

## 8. Certification

| Item        | Condition         | Spec             | OK | N.A | Remark               |
|-------------|-------------------|------------------|----|-----|----------------------|
| Environment | Green design      | API Doc. 715-C49 | √  |     | ISO14000 Requirement |
|             | Blue Angel        | German Standard  |    | √   |                      |
|             | E-2000            | Switzerland      |    | √   |                      |
|             | EPA               | USA Standard     | √  |     |                      |
|             | TCO'99            |                  | √  |     |                      |
|             | TCO'03            |                  | √  |     |                      |
|             | Green Mark        |                  | √  |     |                      |
| PC-Monitor  | Microsoft Windows | PC98/99          | √  |     |                      |
|             | DPMS              | VESA             | √  |     |                      |
|             | DDC 2B            | Version 1.3      | √  |     |                      |

|                    |                    |                                 |   |   |  |
|--------------------|--------------------|---------------------------------|---|---|--|
|                    | USB                | External                        |   | √ |  |
| Safety             | UL (USA)           | UL60950 3 <sup>rd</sup> edition | √ |   |  |
|                    | CSA (Canada)       | CAN/CSA-C22.2 No. 60950         |   | √ |  |
|                    | Nordic / D.N.S.F   | EN60950                         |   | √ |  |
|                    | FIMKO              | EN60950                         | √ |   |  |
|                    | CE Mark            | 73/23/EEC                       | √ |   |  |
|                    | IEC60950           |                                 | √ |   |  |
|                    | EN60950            |                                 | √ |   |  |
|                    | CB                 | EN60950                         | √ |   |  |
|                    | TUV/GS             | EN60950 /<br>EK1-ITB 2000:2003  | √ |   |  |
|                    | CCC (China)        |                                 | √ |   |  |
|                    | GOST               | EN60950                         | √ |   |  |
|                    | SASO               |                                 | √ |   |  |
| EMC                | CE Mark            | 89/336/EEC                      | √ |   |  |
|                    | FCC (USA)          | FCC Part 15 B                   | √ |   |  |
|                    | EN55022            | Class B                         | √ |   |  |
|                    | CISPR 22           | Class B                         | √ |   |  |
|                    | VCCI (Japan)       | VCCI Class B                    | √ |   |  |
|                    | BSMI (Taiwan)      | CNS 13438                       | √ |   |  |
|                    | C-Tick (Australia) | AS/ NZS CISPR22                 | √ |   |  |
| X- Ray Requirement | DHHS (21 CFR)      | USA X- Ray Standard             |   | √ |  |
|                    | DNHW               |                                 |   | √ |  |
|                    | PTB                | German X- Ray standard          |   | √ |  |
| Ergonomics         | TUV / Ergo         |                                 | √ |   |  |
|                    | ISO 13406-2        |                                 | √ |   |  |
|                    | prEN50279          |                                 | √ |   |  |

Appendix: Physical Dimension Front View and Side view

Fig. 1 Physical Dimension Front View and Side view

