

Service Manual

ViewSonic VX2235wm-1

Model No. VS11349

22" Color TFT LCD Display

(VX2235wm-1_SM Rev. 1a Aug. 2006)

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Revision History

Revision	SM Editing Date	ECR Number	Description of Changes	Editor
1a	8/14/2006		Initial Release	J. Chang

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1. Precautions and Safety Notices

1. Appropriate Operation

- (1) Turn off the product before cleaning.
- (2) Use only a dry soft cloth when cleaning the LCD panel surface.
- (3) Use a soft cloth soaked with mild detergent to clean the display housing.
- (4) Use only a high quality, safety approved AC/DC power cord.
- (5) Disconnect the power plug from the AC outlet if the product will not be used for a long period of time.
- (6) If smoke, abnormal noise, or strange odor is present, immediately switch the LCD display off.
- (7) Do not touch the LCD panel surface with sharp or hard objects.
- (8) Do not place heavy objects on the LCD display, video cable, or power cord.
- (9) Do not use abrasive cleaners, waxes or solvents for your cleaning.
- (10) Do not operate the product under the following conditions:
 - Extremely hot, cold or humid environment.
 - Areas containing excessive dust and dirt.
 - Near any appliance generating a strong magnetic field.
 - In direct sunlight.

2. Caution

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guidelines.

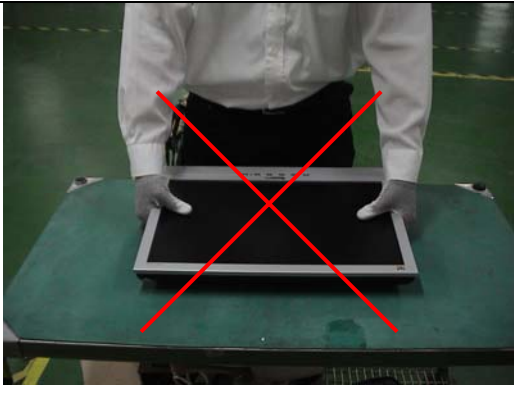
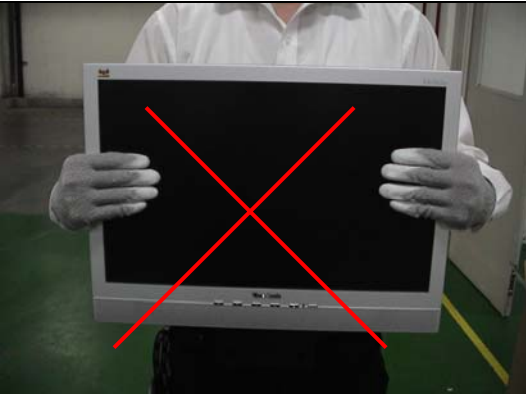
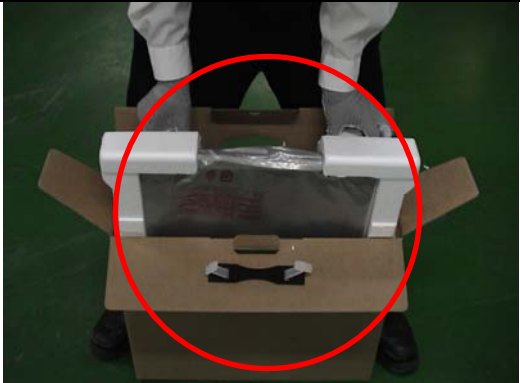
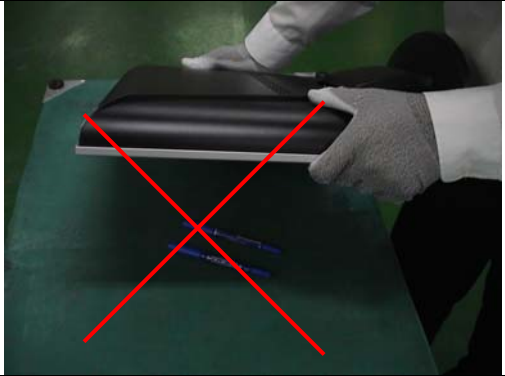
3. Safety Check

Care should be taken while servicing this LCD display. Because of the high voltage used in the inverter circuit, the voltage is exposed in such areas as the associated transformer circuits.

4. LCD Module Handling Precautions

4.1 Handling Precautions

- (1) Since front polarizer is easily damaged, pay attention not to scratch it.
- (2) Be sure to turn off power supply when connecting or disconnecting input connector.
- (3) Wipe off water drops immediately. Long contact with water may cause discoloration or spots.
- (4) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.
- (5) Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface.
- (6) Since CMOS LSI is used in this module, take care of static electricity and ensure human earth when handling.
- (7) Do not open or modify the Module Assembly.
- (8) Do not press the reflector sheet at the back of the module in any direction.
- (9) In the event that a Module must be put back into the packing container slot after it was taken out of the container, do not press the center of the CCFL Reflector edge. Instead, press at the far ends of the CFL Reflector edge softly. Otherwise the TFT Module may be damaged.
- (10) At the insertion or removal of the Signal Interface Connector, be sure not to rotate or tilt the Interface Connector of the TFT Module.
- (11) After installation of the TFT Module into an enclosure (LCD monitor housing, for example), do not twist or bend the TFT Module even momentarily. When designing the enclosure, it should be taken into consideration that no bending/twisting forces may be applied to the TFT Module from outside. Otherwise the TFT Module may be damaged.
- (12) The cold cathode fluorescent lamp in the LCD contains a small amount of mercury. Please follow local ordinances or regulations for disposal.
- (13) The LCD module contains a small amount of materials having no flammability grade. The LCD module should be supplied with power that complies with the requirements of Limited Power Source (IEC60950 or UL1950), or an exemption should be applied for.
- (14) The LCD module is designed so that the CCFL in it is supplied by a Limited Current Circuit (IEC60950 or UL1950). Do not connect the CCFL to a Hazardous Voltage Circuit

Correct methods : Only touch the metal-frame of the panel or the front cover of the monitor. Do not touch the surface of the polarizer .	Incorrect Methods : Surface of the panel is pressed by fingers & this may cause “ MURA “
	
	
Take out the monitor with cushion	Take out the monitor by grasping the LCD panel. That may cause “ MURA “.
	
Place the monitor on a clean & soft foam pad .	Place the monitor on foreign objects . That could scratch the surface of panel
	

2. Specification

2.1 INSTRUCTION

FEATURES		VX2235wm
TFTLCD PANEL 1 st CMO A220Z1	Size	22 " wide
	Luminance (Typ)	280 cd/m ²
	Contrast Ratio (Typ)	700:1
	Colors	16.2 M (6 bits + 2 bits FRC)
	Response Time	5 ms(on/off)
	Viewing Angle (H/V)	170 ° / 160 °
	Recommend resolution	1680x1050@60Hz
Input Signal	Analog	Yes (75ohms, 0.7/1.0 Vp-p)
	Digital	Yes
Sync Compatibility	Separate Sync	Yes
	Composite Sync	Yes
	Sync on Green	Yes
Compatibility	PC	Yes
	Power Mac	Yes
	TV Box (NextVision 6)	Yes
Power Voltage	AC 100-240V, 50/60Hz	Yes
Power Consumption	On Mode(Typ)	< 48 W
	Off Mode (Max)	≤ 1 W
Audio	3W / THD 10% (Max)	Yes
Ergonomics	Tilt (20 ° - -5 °)	Yes
	Swivel	No
	Pivot	No
	Height Adjust	No
OSD Control	[1] [2] [] [] [] []	Yes
Dimension	Physical (W x H x D)	524 x 482 x 244 mm
	Package (W x H x D)	575 x 522 x 150 mm
Weight	Physical (Net Weight)	6 Kg / 13.2 lbs
	Package (Gross Weight)	7.5 Kg / 16.5 lbs
Operating Condition	Temperature (°F/°C)	41°F-95°F/+5°C-+35°C
	Humidity (%)	20 % - 80 %
Storage Condition	Temperature (°F/°C)	-4°F-131°F/-20°C-55°C
	Humidity (%)	20 % - 85 %
Regulation	Global: CB, MPR II, WEEE, ROHS VSA: UL, cUL, FCC-B, TUV-S, NOM, Energy Star VSE: TUV/ERGO (covers ISO13406-2 & MPR II), CE, GOST-R+Hygienic, SASO, ENERGY VSI: BSMI, CCC, PSB, C-TICK, MIC, Green Mark VSCN: CCC	

2.2 GENERAL SPECTION

Test Resolution & Frequency	1680x1050 @ 60Hz
Test Image Size	Full Size
Contrast and Brightness Controls	Factory Default: Contrast = 70%, Brightness = 100%

2.3 VIDEO INTERFACE

Analog Input Connector	DB-15 (Analog), refer the appendix A
Digital Input Connector	DVI-D (Digital), refer the appendix B
Default Input Connector	Defaults to the first detected input
Video Cable Strain Relief	Equal to twice the weight of the monitor for five minutes
Video Cable Connector DB-15 Pin out	Compliant DDC 1/2B
Video Signals	1. Video RGB (Analog) Separate, Composite, and Sync on Green 2. TMDS (Digital)
Video Impedance	75 Ohms (Analog), 100 Ohms (Digital)
Maximum PC Video Signal	950 mV with no damage to monitor
Maximum Mac Video Signal	1250 mV with no damage to monitor
Sync Signals	TTL
DDC 1/2B	Compliant with Revision 1.3
Sync Compatibility	Separate Sync, Composite Sync, SOG
Video Compatibility	Shall be compatible with all PC type computers, Macintosh computers, and after market video cards
Resolution Compatibility	640 x 350*, 640 x 480, 720 x 400* (640 x 400*), 800 x 600, 832 x 624, 1024 x 768, 1152 x 864, 1152 x 870, 1280 x 720, 1280 x 960, 1280 x 1024 , 1400 x 1050 , 1440 x 900 , 1600 x 1200, 1680 x 1050 * The image vertical size might not be full screen. But the image vertical position should be at the center.
Exclusions	Not compatible with interlaced video

2.4 POWER SUPPLY

Internal Power Supply	Part Number: 27-D009542
Input Voltage Range	AC100~240 (Worldwide)
Input Frequency Range	50 to 60 Hertz
Short Circuit Protection	OUTPUT CAN BE SHORTED WITHOUT DAMAGE
Over Current Protection	3.3~4.5A typical at 5 VDC (PROTECT WHEN SHORT CIRCUIT)
Leakage Current	3.5MA (MAX) AT 264VAC / 50HZ
Efficiency	80 % TYPICAL AT 115VAC FULL LOAD
Fuse	INTERNAL AND NOT USER REPLACEABLE
Power Dissipation	< 48 WATTS (TYP)
Max Input AC Current	1.6A (max)
Inrush Current (Cold Start)	80 A Max./ 240V _{AC} / 50Hz (Cold Start at 25°C, Full Load)
Power Supply Cold Start	SHALL START AND FUNCTION PROPERLY WHEN UNDER FULL LOAD, WITH ALL COMBINATIONS OF INPUT VOLTAGE, INPUT FREQUENCY, AND OPERATING TEMPERATURE
Power Supply Transient Immunity	SHALL BE ABLE TO WITHSTAND AN ANSI/IEEE C62.41-1980 6000V 200 AMPERE RING WAVE TRANSIENT TEST WITH NO DAMAGE
Power Supply Line Surge Immunity	Shall be able to withstand 1.5 times nominal line voltage for one cycle with no damage
Power Supply Missing Cycle Immunity	Shall be able to function properly, without reset or visible screen artifacts, when ½ cycle of AC power is randomly missing at nominal input
Power Supply Acoustics	The power supply shall not produce audible noise that would be detectable by the user. Audible shall define to be in compliance with ISO 7779 (DIN EN27779:1991) Noise measurements of machines acoustics. Power Switch noise shall not be considered
US Type Power Cable	Separate 3-prong NEMA 5-15P type plug. Length = 1.8m. Connects to display. Color = Black
European Type Power Cable	Schuko CEE7-7 type plug. Length = 1.8m, Connects to display. Color = Black
CCC Type Power Cable	Separate 3-prong type plug. Length = 1.8m. Connects to display. Color = Black
PSE Type Power Cable	Separate 2-prong NEMA 1-15P type plug. Length = 1.8m. Connects to display. Color = Black
Power Saving Operation(Method)	VESA DPMS Signaling
Power Consumption	On Mode < 48 W (Typ) / 50 W (Max) Saving Mode < 2 W@230VAC 50HZ Off Mode < 1 W @230VAC 50Hz (DC Power Off; Meet to Energy Star Ver4.0 Tier2)
Recovery Time	On Mode = N/A, Active Off < 3 sec

2.5 ELECTRICAL REQUIREMENT

Horizontal / Vertical Frequency

Horizontal Frequency	24 – 82 kHz
Vertical Refresh Rate	50 – 85* Hz
Maximum Pixel Clock	150 MHz
Sync Polarity	Independent of sync polarity.

Timing Table

Item	Timing	Analog			Digital - TMDS	Remark
		Separated	Composite	SOG		
1	640 x 350 @ 70 Hz, 31.5 KHz					For Analog sync, the image vertical size image will be not full screen (Still at the center), And the OSD will be 640x350/640x400/720x400 (primary= 720x400).
2	640 x 350 @ 85 Hz, 37.9 KHz					For Analog sync, the image vertical size image will be not full screen (Still at the center), And the OSD will be 640x350/640x400/720x400 (primary= 720x400).
3	640 x 400 @ 60 Hz, 31.5 KHz					For Analog sync, switch 640x400@60Hz and 640x480@60Hz by [1]+[2] short cut key (primary = 640x480@60Hz)
4	640 x 400 @ 70 Hz, 31.5 KHz					For Analog sync, the image vertical size image will be not full screen (Still at the center), And the OSD will be 640x350/640x400/720x400 (primary= 720x400).
5	640 x 400 @ 85 Hz, 37.9 KHz					For Analog sync, the image vertical size image will be not full screen (Still at the center), And the OSD will be 640x350/640x400/720x400 (primary= 720x400).
6	640 x 480 @ 50 Hz, 24.7 KHz					
7	640 x 480 @ 60 Hz, 31.5 KHz					For Analog sync, switch 640x400@60Hz and 640x480@60Hz by [1]+[2] short cut key (primary = 640x480@60Hz)
8	640 x 480 @ 67 Hz, 35 KHz					
9	640 x 480 @ 72 Hz, 37.9 KHz					

10	640 x 480 @ 75 Hz, 37.5 KHz				
11	640 x 480 @ 85 Hz, 43.3 KHz				
12	720 x 400 @ 70 Hz, 31.5 KHz				For Analog sync, the image vertical size image will be not full screen (Still at the center), And the OSD will be 640x350/640x400/720x400 (primary= 720x400).
13	720 x 400 @ 85 Hz, 37.9 KHz				For Analog sync, the image vertical size image will be not full screen (Still at the center), And the OSD will be 640x350/640x400/720x400 (primary = 720x400).
14	720 x 480 @ 60 Hz, 31.5 KHz				For Analog sync, the image vertical size image will be not full screen (Still at the center),and the information OSD shows 640x480
15	720 x 576 @ 50 Hz, 31.3 KHz				For Analog sync, the image vertical size image will be not full screen (Still at the center),and the information OSD shows 800x600
16	800 x 600 @ 56 Hz, 35.1 KHz				
17	800 x 600 @ 60 Hz, 37.9 KHz				
18	800 x 600 @ 72 Hz, 48.1 KHz				
19	800 x 600 @ 75 Hz, 46.9 KHz				
20	800 x 600 @ 85 Hz, 53.7 KHz				
21	832 x 624 @ 75 Hz, 49.7 KHz				
22	1024 x 768 @ 50 Hz, 39.6 KHz				For Analog sync, Switch 1024x768@50Hz and 1280x768@50Hz by [1]+[2] short cut key (primary = 1024x768@50Hz)
23	1024 x 768 @ 60 Hz, 48.4 KHz				
24	1024 x 768 @ 70 Hz, 56.5 KHz				
25	1024 x 768 @ 75 Hz, 60 KHz				
26	1024 x 768 @ 75 Hz, 60.2 KHz				
27	1024 x 768 @ 85 Hz, 68.7 KHz				
28	1152 x 864 @ 75 Hz, 67.5 KHz				
29	1152 x 870 @ 75 Hz, 68.7 KHz				
30	1280 x 768 @ 50 Hz, 39.6 KHz				For Analog sync, Switch 1024x768@50Hz and 1280x768@50Hz by [1]+[2] short cut key (primary = 1024x768@50Hz)
31	1280 x 768 @ 60 Hz, 47.4 KHz				
32	1280 x 768 @ 60 Hz, 47.8 KHz				
33	1280 x 768 @ 75 Hz, 60.3 KHz				For Analog sync, Switch 1024x768@75Hz and 1280x768@75Hz by [1]+[2] short cut key (primary = 1024x768@75Hz)
34	1280 x 768 @ 85 Hz, 68.6 KHz				For Analog sync, Switch 1024x768@85Hz and

					1280x768@85Hz by [1]+[2] short cut key (primary = 1024x768@85Hz)
35	1280 x 960 @ 50 Hz, 49.4 KHz				
36	1280 x 960 @ 60 Hz, 59.7 KHz				
37	1280 x 960 @ 75 Hz, 75.2 KHz				
38	1280 x 1024 @ 50 Hz, 52.7 KHz				
39	1280 x 1024 @ 60 Hz, 64 KHz				
40	1280 x 1024 @ 70 Hz, 74.6 KHz				
41	1280 x 1024 @ 72 Hz, 76.8 KHz				
42	1280 x 1024 @ 75 Hz, 80 KHz				
43	1360 x 768 @ 60 Hz, 47.7 KHz				
44	1400 x 1050 @ 50 Hz, 54.1 KHz				
45	1400 x 1050 @ 60 Hz, 64.7 KHz				
46	1400 x 1050 @ 60 Hz, 65.3 KHz				For analog sync., Switch 1400x1050@60Hz and 1680x1050@60Hz by [1]+[2] short cut key (primary = 1680x1050@60Hz)
47	1400 x 1050 @ 75 Hz, 82.3 KHz				
48	1440 x 900 @ 60 Hz, 55.5 KHz				
49	1440 x 900 @ 60 Hz, 59.9 KHz				
50	1440 x 900 @ 75 Hz, 75 KHz				
51	1600 x 1200 @ 60 Hz, 75 KHz				
52	1680 x 1050 @ 60 Hz, 65.3 KHz				For analog sync., Switch 1400x1050@60Hz and 1680x1050@60Hz by [1]+[2] short cut key (primary = 1680x1050@60Hz)

*1. Tolerance $\geq \pm 2\text{KHz}$. (if the range dose not cover other timing mode)

*2. Any timing not in the list, it should display as normal or show on “OUT OF RANGE” OSD message with blanking.

*3. The image quality of 85Hz mode might be worse than 75Hz.

Primary Presets

1680x1050 @ 60Hz

User Presets

Number of User Presets (recognized timings) Available: 10 presets total in FIFO configuration

Changing Modes

- Maximum Mode Change Blank Time for image stability : 3 seconds (Max), excluding “Auto Image Adjust” time
- Under DOS mode (640 x 350, 720 x 400 & 640 x 400), it should recall factory setting when execute “Auto Image Adjust”
- The monitor needs to do “Auto Adjust” the first time when a new mode is detected
(See section “0-Touch™ Function Actions”)

2.6 FRONT PANEL CONTROLS AND INDICATORS

Front Panel Hardware Controls

Power Switch (Front Head)	Power Control, soft Power Switch.
Power LED (Front Head)	Blue – ON Orange – Active Off Dark = Soft Power Switch OFF
Front Panel Controls (Head) [1] [2] [⏻] [▼] [▲]	[1] BUTTON 1 [2] Button 2 [⏻] Power [▼] DOWN ARROW BUTTON [▲] UP ARROW BUTTON Note: Power Button, Button 1 and Button 2 must be one-shot logic operation. (i.e. there should be no cycling)
Reaction Time	OSD must fully appear within 0.5s after pushing Button 1

Short Cuts Function from the button(s)

[1]	Main Menu
[2]	Input toggle (Analog or Digital)
[▼]	To immediately activate Brightness/Contrast menu.
[▼] + [▲]	Recall both of Contrast and Brightness to default
[1] + [2]	Toggle 720x400 and 640x400 mode when input 720x400 or 640x400 mode
[1] + [▼] + [▲] (Keep pushing 3 sec)	White Balance. (Not shown on user's guide)
[1] + [▼]	Power Lock
[1] + [▲]	OSD Lock
[▲]	Essential mode switch Standard ->Text -> Cinema -> Game -> Portrait -> Scenery -> Vivid
[2] + [▲]	Skin tone switch Nature -> Reddish -> yellowish
[▼] + [▲] + [⏻]	Factory Mode
Remark : All the short cuts function are only available while OSD off	

Main Menu Controls

Auto Image Adjust*¹

Contrast/Brightness*²*⁴

Input Select

Analog, Digital

Audio Adjust

Volume*⁴, Mute*⁴

Color Adjust

SRGB, 9300K, 7500K, 6500K(default), 5400, User Color [R, G, B]

Information [H Frequency, V Frequency, Resolution, Pixel Clock, Serial Number, Model Number,

[www.ViewSonic.com"]

Manual Image Adjust

Horizontal Size*¹, H/V. Position*¹, Fine Tune*¹, Sharpness*³, Opticolor [Standard, Text, Cinema, Game, Portrait, Scenery, Vivid], Opticolor Skin Tone[Nature, reddish, yellowish]

Setup Menu

Language [English, French, German, Italian, Spanish, Finnish, Japanese, Simplified Chinese, Traditional Chinese],

Resolution Notice, OSD Position, OSD Timeout, OSD Background

Memory Recall

*¹ These functions are not available in Digital Mode

*² These functions are not available under SRGB Mode, Opticolor On, and Opticolor Skin Tone On

*³ These functions are not available under Native Resolution Mode

*⁴ These functions setting can be recalled to default value by pressing [▼]+[▲]

[Remark] Please refer to the detail in the Appendix C

Function descriptions

OSD Lock short cuts function for the buttons

The OSD lock will be activated by pressing the front panel control buttons "(1), & (▲)" for 10 seconds. If the user then tries to access the OSD by pressing any of the buttons "1", "▼", "▲", "2" a message will appear on the screen for 3 seconds showing "OSD Locked". The OSD lock will be deactivated by pressing the front panel control buttons "(1), & (▲)" again for 10 seconds.

Note1: When the OSD is locked will lock all functions, including "Volume" and "Mute"

Note 2: Status bar indicating OSD Lock or Unlock is in progress and when complete it will indicate "OSD Locked"

Note 3: OSD Lock should not lock Power Button and Power Lock function

Power Lock short cuts function for the buttons

The power button lock will be activated by pressing the front panel control buttons "(1), & (▼)" for 10 seconds. Locking the power button means that the user won't be able to turn off the LCD while the power button is locked. If the user presses the power button while it is locked, a message will appear on the screen for 3 seconds showing "Power Button Locked". It also means that with the power button locked, the LCD would automatically turn back "On" when power is restored after a power

failure. If the power button is not in the locked mode, then power should return to it's previous state when power is restored after a power failure. The power button lock will be deactivated by pressing the front panel control buttons "(1), & (▼)" again for 10 seconds.

Note 1: Status bar indicating Power Button lock or unlock is in progress and when complete it will indicate "Power Button Locked"

Note 2: Power should only be lockable in the "On State"

Memory Recall Actions

Memory Recall action on the analog and digital mode as below

1. Set the factory defaults as shown in Section 4-8
2. Clean all the mode setting buffer
3. Execute Auto Image Adjust

Note: Memory Recall should have no effect for Language, Power Lock, User Color Settings or Input Priority

Resolution Notice Actions

1. Resolution Notice OSD should show on screen after changing to non-native mode for 30 sec
2. The OSD should disappear after 10 sec or by pushing button [1] or [2]

Resolution Notice function should be disabled when push button [2] under Resolution Notice OSD

0-Touch™ Function Actions

1. Execute Auto Image Adjust when new mode detected, and save the settings to buffer for further use
2. It should be reset by Memory Recall function

(Should not reset by power off, power unplug and others)

OSD Auto Save

The OSD shall save new settings when it is turned off by the user or when it times out. There shall not be a separate save

Input Priority

This function is defined the auto detect priority when the display has several inputs. Please refer to the detail flow chart as the appendix D

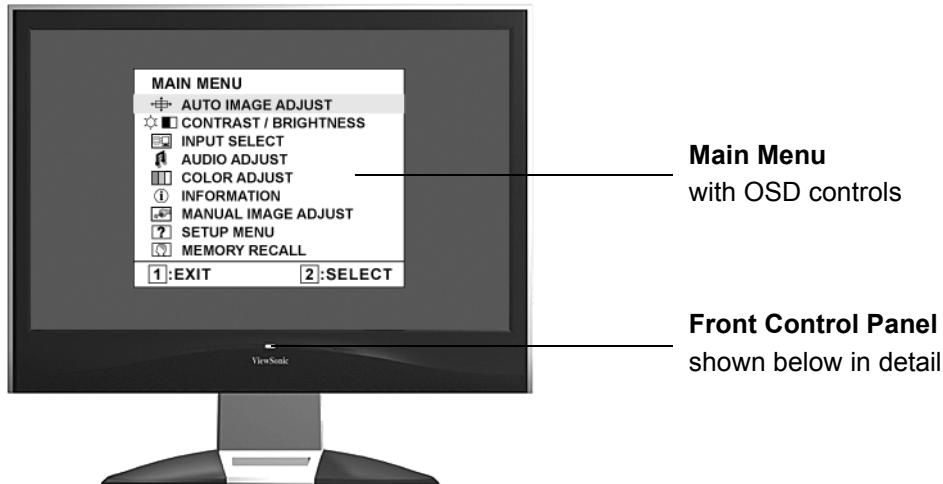
2.7 AUDIO INTERFACE (SPEAKER SPECIFICATION)

Line input signal	1.0 Vrms @1kHz
Line input impedance	10 kOhm
Maximum Amp power output (Watt)	2 W (RL=4Ω)
Amp -THD	< 10 % THD @1kHz
Speaker Power rating(Ω/Watt)	4Ω/2.5 W (TYP.) ; 4Ω/ 3 W (MAX)
Signal to Noise Ratio	72 dB
Frequency response	Fo – 20kHz
SPL.	85 ± 3 dB (at 0.5m)
FO	300 Hz
Line input connection	3.5 mm stereo jacks
Vibration	There should be no audible vibration resonance at volume=100% & treble / bass in def. Value
Screen image	There should be no affect on the screen image stability under any conditions
Connector PC99 requirement Audio in	Lime Green pantone # 577C
Cable type / length	3.5mm stereo cable / 1.8m length
Audio DPMS	SPEAKERS STAY ON WHEN THE REST OF THE MONITOR IS IN POWER SAVING NOTE: THERE IS NO GUARANTEE <1 W AT POWER CONSUMPTION IN ACTIVE OFF MODE, WHEN THE AUDIO CABLE IS CONNECTED

3. Front Panel Function Control Description

Adjusting the Screen Image

Use the buttons on the front control panel to display and adjust the OSD controls which display on the screen. The OSD controls are explained at the top of the next page and are defined in “Main Menu Controls” on page 10.

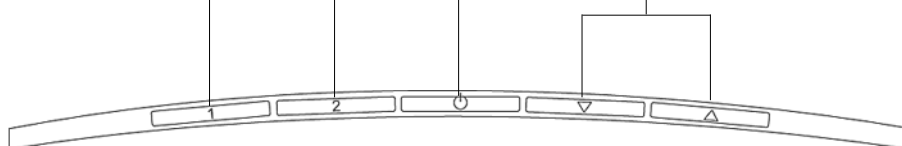


Displays the control screen for the highlighted control.
Also toggles between two controls on some screens.
Also a shortcut to Auto Image Adjust.

Displays the Main Menu or exits the control screen and saves adjustments.

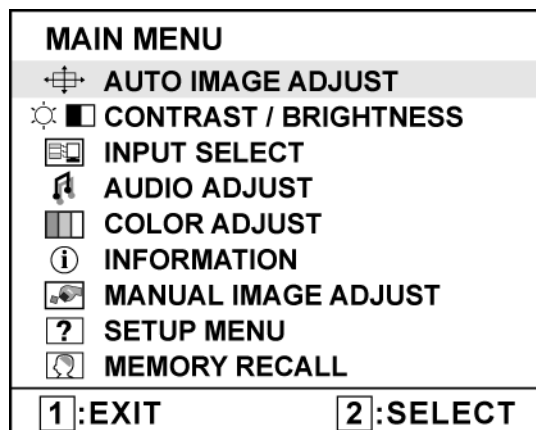
Standby Power On/Off
Power light
Blue = ON
Orange = Power Saving

Scrolls through menu options and adjusts the displayed control.
Also a shortcut to display the Contrast adjustment control screen (▼) / OptiColor (▲)



Do the following to adjust the display setting:

1. To display the Main Menu, press button [1].



NOTE: All OSD menus and adjustment screens disappear automatically after about 15 seconds. This is adjustable through the OSD timeout setting in the setup menu.

2. To select a control to adjust, press ▲ or ▼ to scroll up or down in the Main Menu.
3. After the desired control is selected, press button [2]. A control screen like the one shown below appears.



The command line at the bottom of the control screen tells what to do next from this screen. You can toggle between control screens, adjust the selected option, or exit the screen.

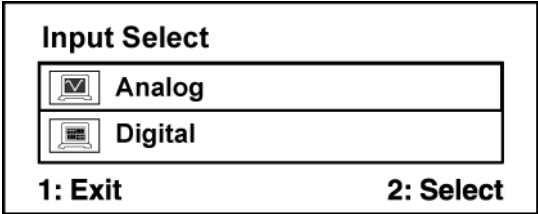
4. To adjust the setting, press the up ▲ or down ▼ buttons.
5. To save the adjustments and exit the menu, press button [1] *twice*.

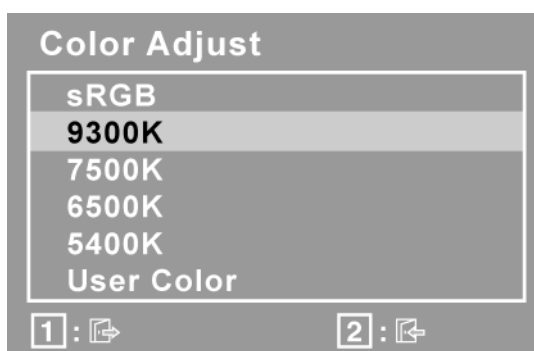
The following tips may help you optimize your display:

- Adjust the computer's graphics card so that it outputs a 1680 x 1050 @ 60Hz video signal to the LCD display. (Look for instructions on “changing the refresh rate” in the graphics card's user guide.)
- If necessary, make small adjustments using H. POSITION and V. POSITION until the screen image is completely visible. (The black border around the edge of the screen should barely touch the illuminated “active area” of the LCD display.)

Main Menu Controls

Adjust the menu items shown below by using the up ▲ and down ▼ buttons.

Control	Explanation
	Auto Image Adjust sizes and centers the screen image automatically.
	Contrast adjusts the difference between the image background (black level) and the foreground (white level).
	Brightness adjusts background black level of the screen image.
	Input Select toggles between inputs if you have more than one computer connected to the VX2235wm.
	
	Audio Adjust Volume increases the volume, decreases the volume, and mutes the audio. Mute temporarily silences audio output.
	Color Adjust provides several color adjustment modes, including preset color temperatures and a User Color mode which allows independent adjustment of red (R), green (G), and blue (B). The factory setting for this product is 6500K (6500 Kelvin).



sRGB-This is quickly becoming the industry standard for color management, with support being included in many of the latest applications. Enabling this setting allows the LCD display to more accurately display colors the way they were originally intended. Enabling the sRGB setting will cause the Contrast and Brightness adjustments to be disabled.

Control	Explanation
	9300K -Adds blue to the screen image for cooler white (used in most office settings with fluorescent lighting).
	7500K - Adds blue to the screen image for cooler white (used in most office settings with fluorescent lighting).
	6500K -Adds red to the screen image for warmer white and richer red.
	5400K -Adds green to the screen image for a darker color.
	User Color Individual adjustments for red (R), green (G), and blue (B). 1. To select color (R, G or B) press button [2]. 2. To adjust selected color, press▲and▼.
	Important: If you select RECALL from the Main Menu when the product is set to a Preset Timing Mode, colors return to the 6500K factory preset.



Information displays the timing mode (video signal input) coming from the graphics card in the computer, the LCD model number, the serial number, and the ViewSonic® website URL. See your graphics card's user guide for instructions on changing the resolution and refresh rate (vertical frequency). **NOTE:** VESA 1680 x 1050 @ 60Hz (recommended) means that the resolution is 1680 x 1050 and the refresh rate is 60 Hertz.

Information

H. Frequency:	XX	kHz
V. Frequency:	XX	Hz
Resolution:	XXX	MHz
Pixel Clock:	XXXXXXXXXX	
Serial Number:	XXXXXXXXXXXXX	
Model Number:	XXXXXXXXXXXXX	

www.ViewSonic.com 1: Exit

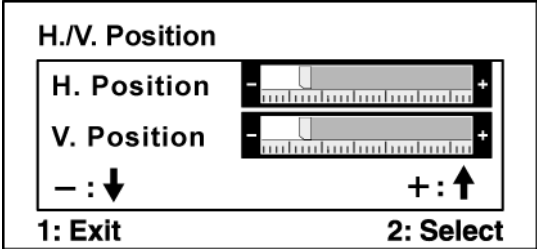


Manual Image Adjust

Manual Image Adjust

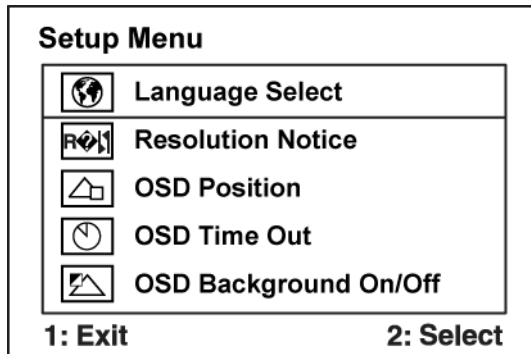
	Horizontal Size
	H./V. Position
	Fine Tune
	Sharpness
	OptiColor Mode
	OptiColor Skin Tone

1: Exit**2: Select**

Control	Explanation
	Horizontal Size adjusts the width of the screen image.
	H./V. Position (Horizontal/Vertical Position) moves the screen image left or right and up or down.
	
	Fine Tune sharpens the focus by aligning text and/or graphics with pixel boundaries. NOTE: Try Auto Image Adjust first.
	Sharpness adjusts the clarity and focus of the screen image.
	OptiColor Mode provides an optimum display environment depending on the contents displayed. It contains 7 user-selectable presets. These 7 presets are easily accessible from the short cut keys.
	Standard is for general windows environment and monitor default setting.
	Text optimized for text editing and viewing in a word processing environment.
	Cinema optimized for movie and video environment.
	Game optimized for PC/TV game environment.
	Portrait optimized for displaying indoor portraits and enhancing pictures.
	Scenery optimized for displaying outdoor scenery images.
	Vivid optimized for color luster and sharpness.
	These 7 presets are carefully chosen by Viewsonic, but may not suit all users' tastes. In that case, the user can either return to the Standard setting and manually adjust the brightness and contrast as desired.
	OptiColor Skin Tone includes 3 presets (Natural / Red Tone / Yellow Tone) which user can select according to user's preference.



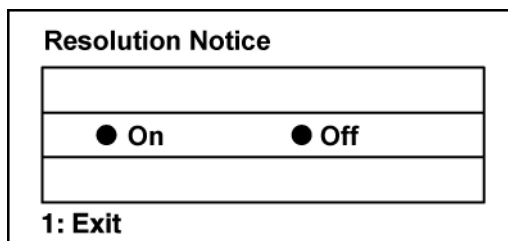
Setup Menu displays the menu shown below:



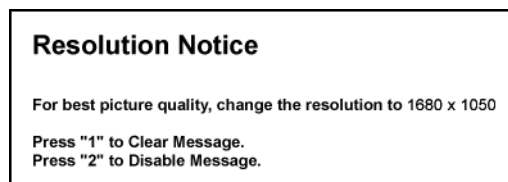
Language Select allows the user to choose the language used in the menus and control screens.



Resolution Notice allows the user to enable or disable this notice.



If you enable the Resolution Notice shown above and your computer is set at a resolution other than 1680 x 1050, the following screen appears.



OSD Position allows the user to move the OSD menus and control screens.



OSD Timeout sets the length of time the OSD screen is displayed. For example, with a "30 second" setting, if a control is not pushed within 30 seconds, the display screen disappears.



OSD Background allows the user to turn the OSD background On or Off.



Memory Recall returns the adjustments back to factory settings if the display is operating in a factory Preset Timing Mode listed in the Specifications of this manual.

4. Circuit Description

1. RTD 2553V

Realtek RTD2553V series products are all-in-one LCD monitor controllers supporting UXGA / WSXGA+ / WXGA+ / SXGA (optional), and integrate Realtek high performance ADC, TMDS Rx(optional), scaling engine, OSD engine, LVDS Tx, RSDS Tx and so on. Moreover, all products are pin compatible in QFP128-pin package to save cost and make the design easier.

2. RTD2120

This chip is the micro-processor of LCD monitor. It uses the design ware DW8051 of Synopsys as the 8051 core of this chip and is compatible with other industry 8051 series. Also, 96Kbyte FLASH with 8 bit bus is embedded in this chip which is licensed from TSMC 0.18um e-FLASH process. Here we use the package of PLCC44/LQFP48 if we would like to have a discrete MCU controller or we make a multi-chip package with our LCD monitor controller to form one chip package to save the cost of package and PCB material.

5. Adjustment Procedure

A. Function Test and Alignment Procedure

1. All Modes Reset

You should do “All Model Reset” (Refer to Chap 3. Hot Keys for Function Controls) first. This action will allow you to erase all end-user’s settings and restore the factory defaults.

2. Auto Image Adjust

The Auto Adjust is aimed to offer a best screen quality by built-in ASIC. For optimum screen quality, the user has to adjust each function manually.

A. Turn the computer and LCD monitor on.

B. Press the ‘Auto’ button on monitor keypad to Auto Adjust.

C. The LCD monitor will start the Auto Adjust process automatically and run for 10 consecutive seconds, during which time you will notice the image change.

3. Firmware

Test Patten: Burn in Model (Refer to Chap3. Hot Keys for Function Control)

-Make sure the F/W is the latest version.

4. DCC

Test Patten: EDID program

-Make sure it can pass test program.

5. Window Shut Down

Test Signal: 1280*1024@60Hz

Test Pattern:



Checked Pattern Every One Pixel (50%Green & 50%Blue)

Inspection Item: Flicker, Mura

6. Window BG

Test Signal: 1280*1024@60Hz

Test Pattern:



Window standard pattern

Inspection Item: Line Defect, Function Defect & Mura

7. 25 Gray

Test Signal: 1280*1024@60Hz

Test Pattern:



Full Screen 25% White (Gray)

Inspection Item: Particle, Line Defect & Mura

8. 50 Gray

Test Signal: 1280*1024@60Hz

Test Pattern:



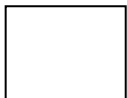
Full Screen 50% White (Gray)

Inspection Item: Bright Dot, Particle, Line Defect & Mura

9. White Box

Test Signal: 1280*1024@60Hz

Test Pattern:



Window standard pattern

Inspection Item: Particle, Line Defect, Power, Image Remain & Mura

10. Black Box**Test Signal:** 1280*1024@60Hz**Test Pattern:****Window standard pattern****Inspection Item:** Bright Dot, Line Defect & Power**11. RED****Test Signal:** 1280*1024@60Hz**Test Pattern:****Full Screen Red****Inspection Item:** Bright Dot, Partial & Line Defect**12. Green****Test Signal:** 1280*1024@60Hz**Test Pattern:****Full Screen Green****Inspection Item:** Bright Dot, Partial & Line Defect**13. Blue****Test Signal:** 1280*1024@60Hz**Test Pattern:****Full Screen Green****Inspection Item:** Bright Dot, Partial & Line Defect**14. Gray_Scale_0-100_V64****Test Signal:** 1280*1024@60Hz**Test Pattern:****Vertical 64 (256) Gray Scale (Right → Left , From 0 to 100% White)****Inspection Item:** Line Defect & Function Defect**15. Function Test Display pattern**

Item	Pattern	Description	Remark
1	Gray_Scale_0-100_V	Vertical 64 (256) Gray Scale (right→left , From 0 to 100% White)	Figure 1
2	Gray_Scale_0-100_H	Horizontal 64 (256) Gray Scale (up→down , From 0 to 100% White)	Figure 2
3	Black	Full Screen Black	Figure 3
4	Red	Full Screen 50% Red	Figure 4
5	Green	Full Screen 50% Green	Figure 5
6	Blue	Full Screen 50% Blue	Figure6
7	White	Full Screen White	Figure7
8	Black_Tile	Black Tile Under White Background	Figure 8

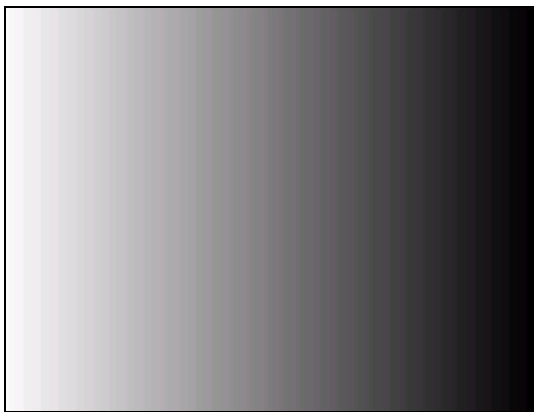


Figure 1



Figure 2

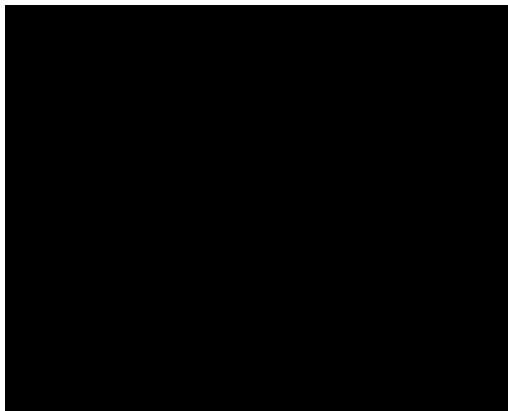


Figure 3



Figure 4



Figure 5



Figure 6



Figure 7

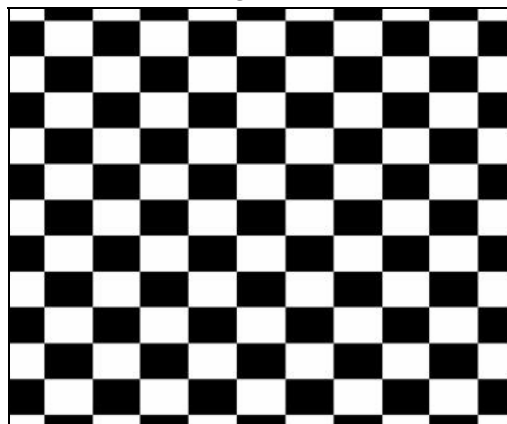


Figure 8

B BIOS update procedure

1. To setup ISP environment

Hardware:

PC or Notebook , Parallel(Printer) cable , ISP tool(Fig 1)

Software:

ISP driver .

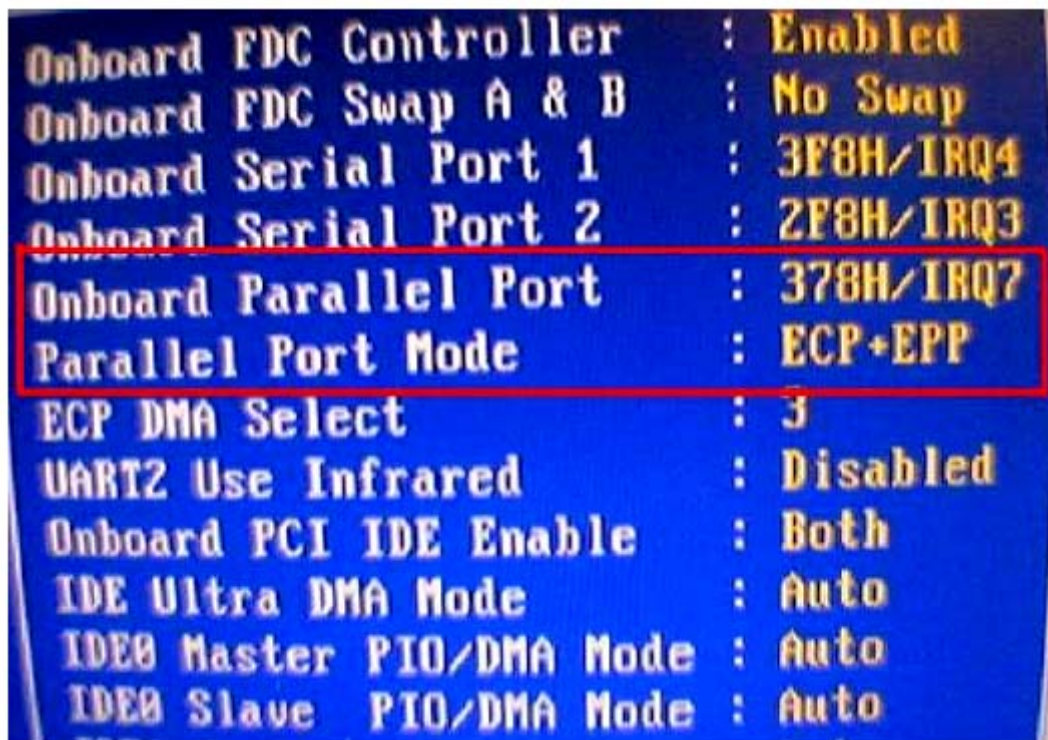
If the O.S. was Win2000 or Win XP please have to install

PORT95NT.exe



Fig1

In order to ensure can execute ISP program, please set BIOS in PC or Notebook as Fig 2



Onboard FDC Controller	: Enabled
Onboard FDC Swap A & B	: No Swap
Onboard Serial Port 1	: 3F8H/IRQ4
Onboard Serial Port 2	: 2F8H/IRQ3
Onboard Parallel Port	: 378H/IRQ7
Parallel Port Mode	: ECP+EPP
ECP DMA Select	: 3
UART2 Use Infrared	: Disabled
Onboard PCI IDE Enable	: Both
IDE Ultra DMA Mode	: Auto
IDE0 Master PIO/DMA Mode	: Auto
IDE0 Slave PIO/DMA Mode	: Auto

Fig 2

2. Install ISP

2.1 User could download ISP driver and PORT95NT install file from Myson Century website([//www.myson.com.tw](http://www.myson.com.tw))

2.2 After extracting the zip file, the total files list as Fig 2.2, and double click the file of setup.exe to install.

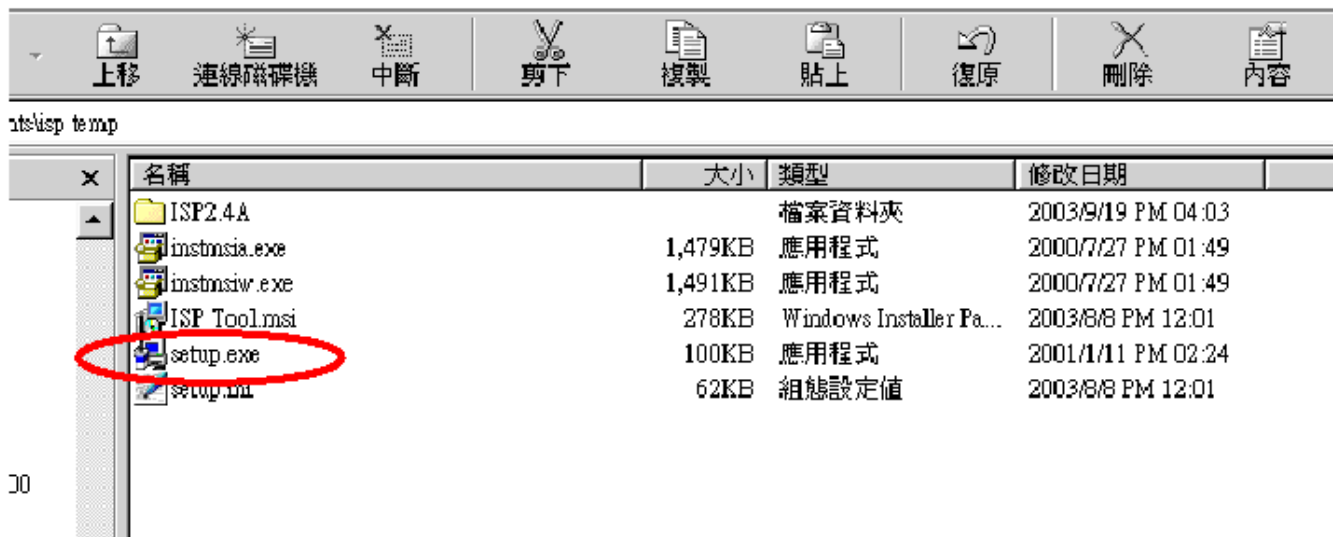


Fig 2.2

2.3 Press “Next” button to continue., see Fig 2.3



Fig 2.3

2.4 Keep default setting or press “Change” button for selecting the path that you want , and then press “Next” button to continue, see Fig 2.4.

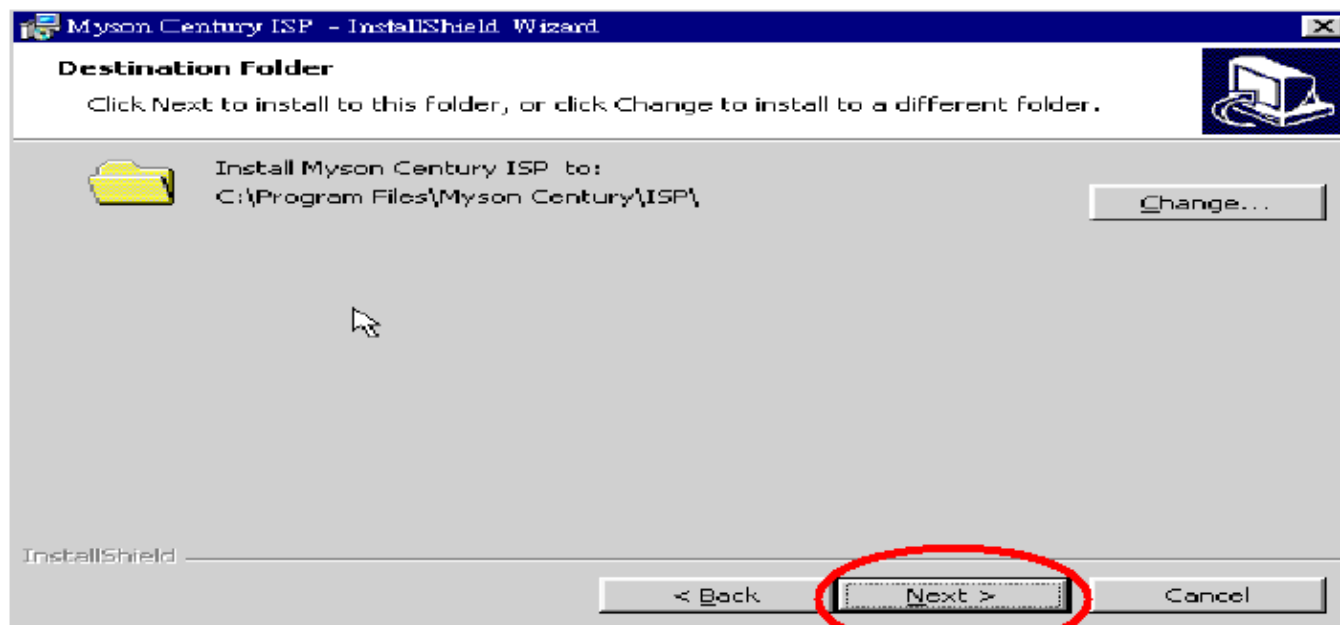


Fig 2.4

2.5 Press “Install” button to continue, see Fig 2.5

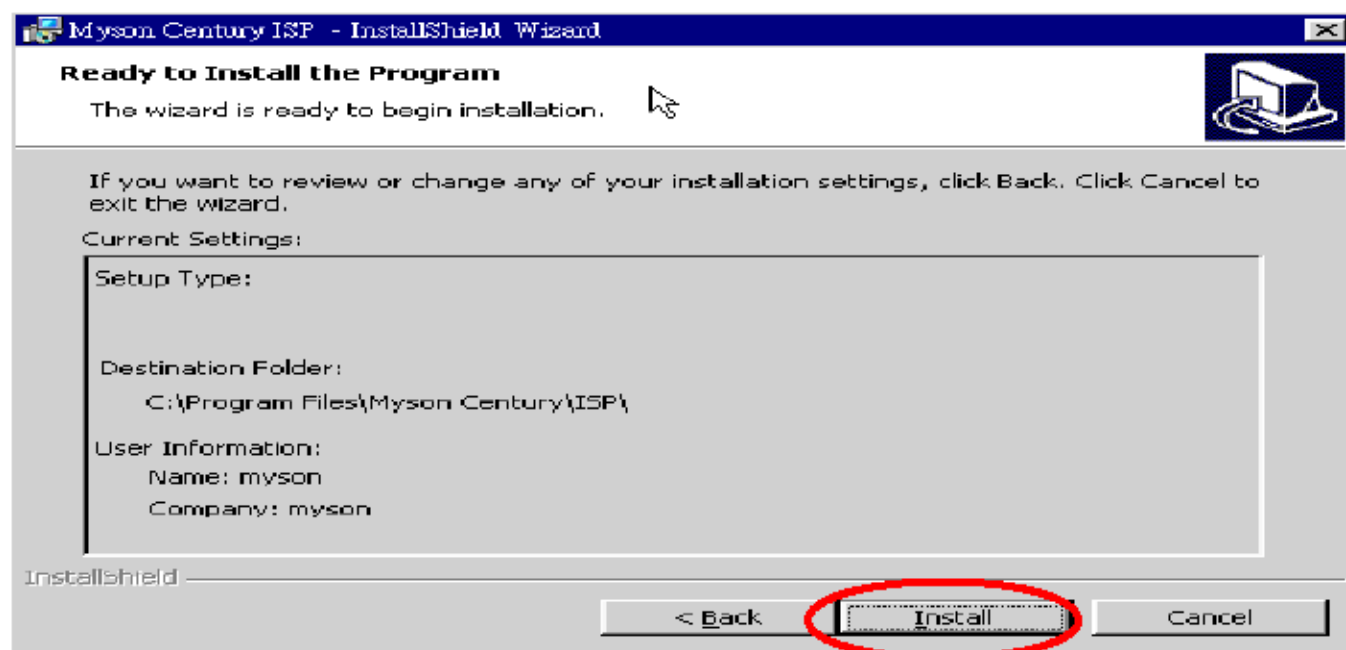


Fig 2.5

2.6 The Installer Information shows package warning, press “Ignore” button to continue, see Fig 2.6.

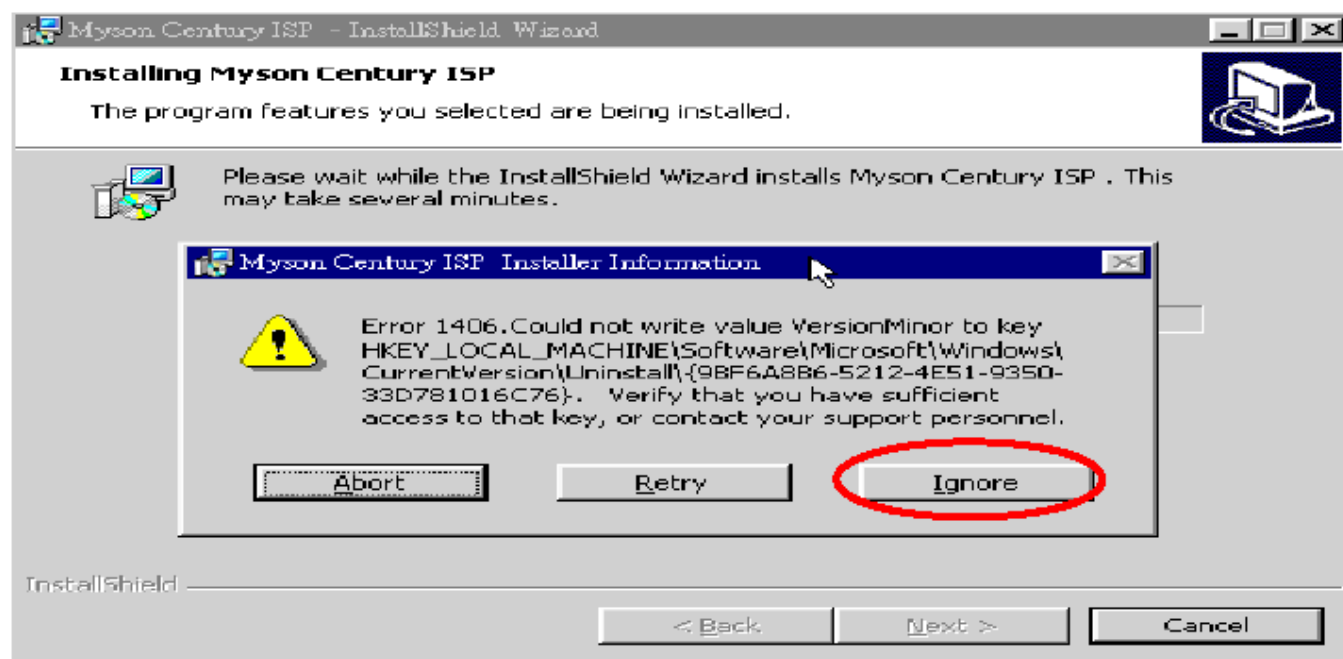


Fig 2.6

2.7 Installation has finished, press “Finish” button, see Fig 2.7.

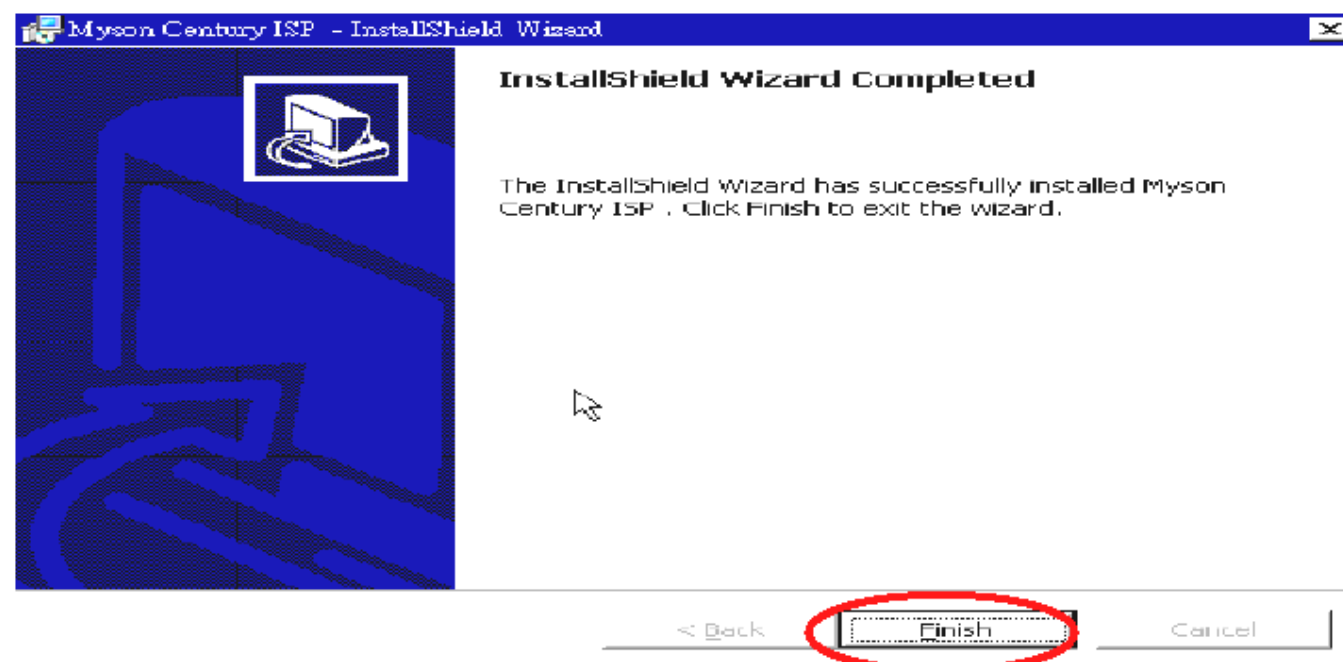


Fig 2.7

3. ISP security code

3.1 After installation, we could find the shortcut in the setting path or the program bar (default setting), see Fig 3.1.

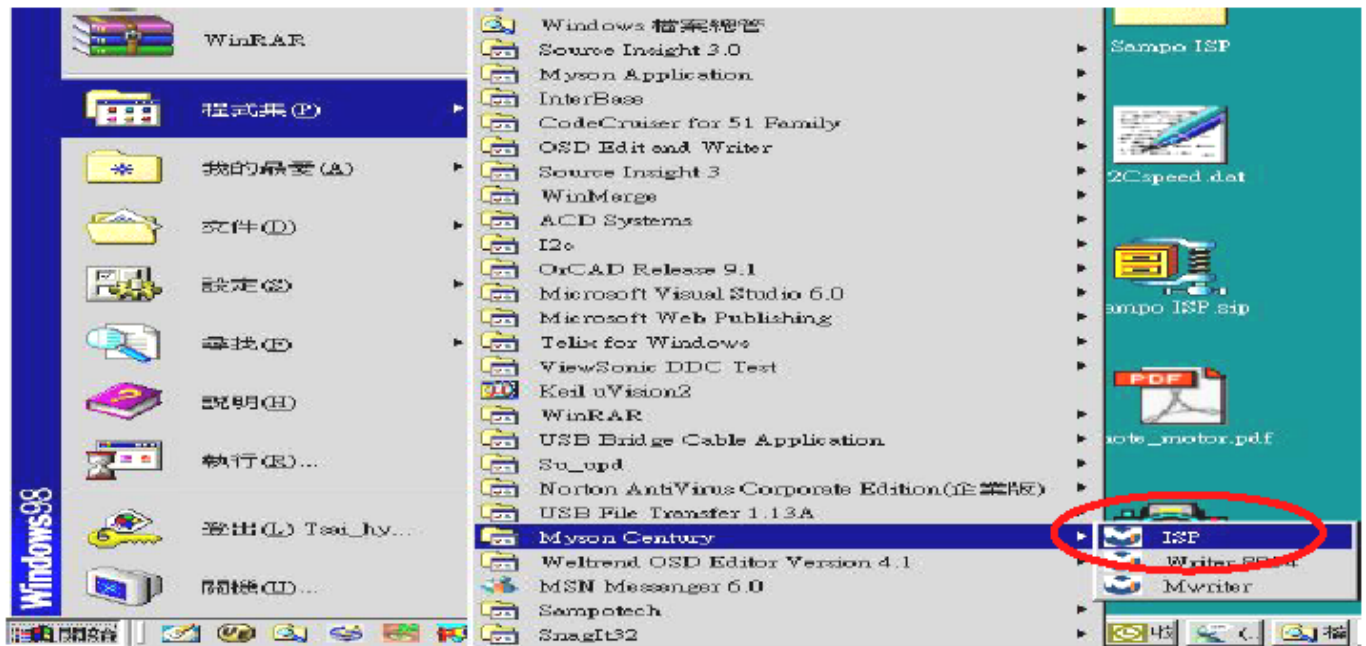


Fig 3.1

2.2 Security file is a key to use ISP function, press “確定” button, see Fig 3.2.

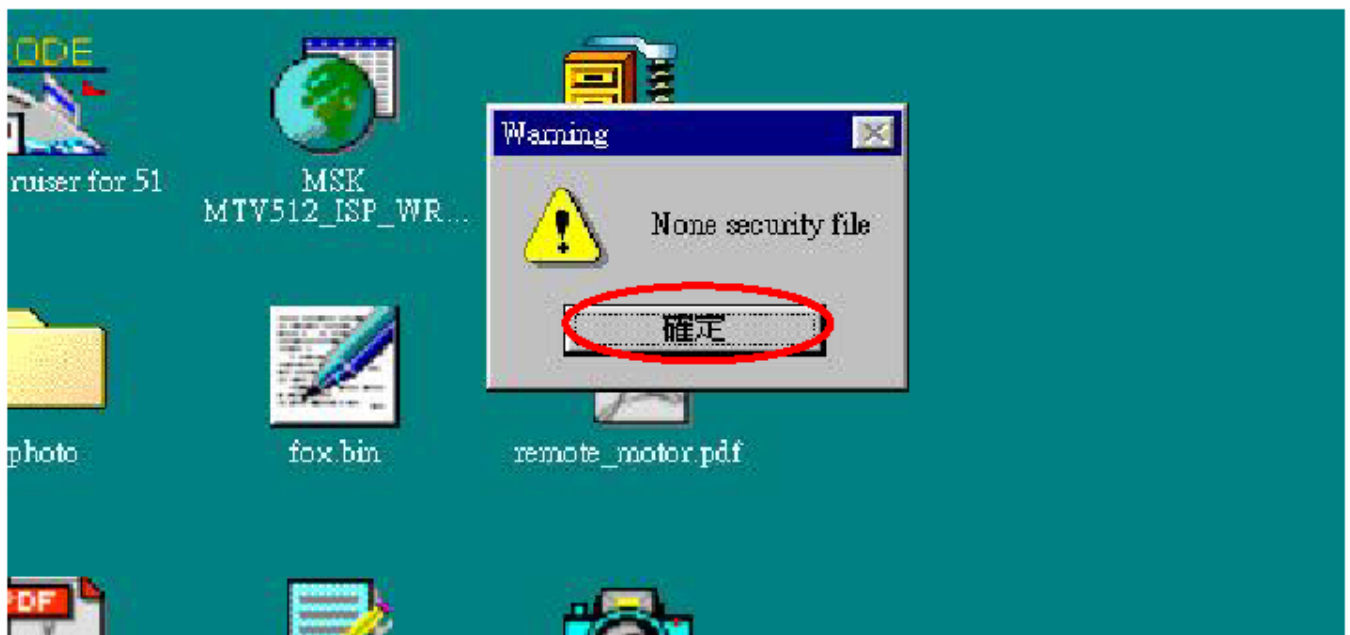


Fig 3.2

3.3 The warning is used to remind user of that different CPU rate may cause ISP function fail(it is limited by IIC protocol), press “確定” button, see Fig 3.3.



Fig 3.3

2.4 Press “Create Security File” button to key in **security code**. Adjusting bar to decrease **speed of IIC bus**, see Fig 3.4.

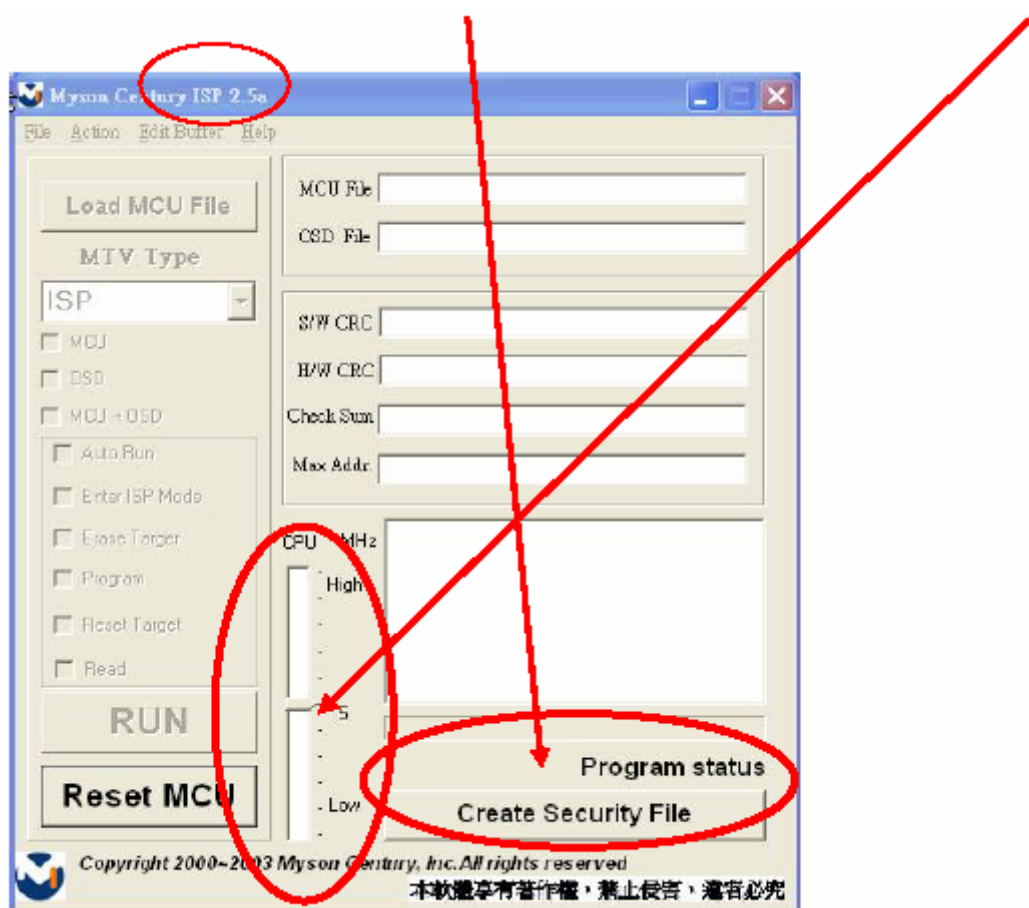


Fig 3.4

3.5 At least 2 Command No of security code, see Fig 3.5, and different security code between hardware ISP and software ISP. The security code of software ISP is set by user while coding, but the security code of hardware ISP is set by Myson Century.

The screenshot shows a window titled "Security" with a list of 16 items, each with a text input field and a range "0x00 - 0xFF". The items are:

- ISP Slave Add.
- SlaveB Add.
- Command 1
- Command 2
- Command 3
- Command 4
- Command 5
- Command 6
- Command 7
- Command 8
- Command 9
- Command 10
- Command 11
- Command 12
- Command 13
- Command 14
- Command 15

To the right of the list is a "Command No" spinner control, which is circled in red and shows the value "2". Below the spinner are "OK" and "CLEAR" buttons. On the far right, there are additional controls including a "status" label and a "File" button.

Fig 3.5

3.6 Fig 3.6 shows the setting for security code of **hardware ISP**, it needs **4** Command No, and key in command sequentially for **94, 94, AC, CA, 53**.

The screenshot shows a 'Security' window with the following fields and values:

Field	Value	Range
ISP Slave Add.	94	0x00 - 0xFF
SlaveB Add.	94	0x00 - 0xFF
Command 1	ac	0x00 - 0xFF
Command 2	ca	0x00 - 0xFF
Command 3	53	0x00 - 0xFF
Command 4		0x00 - 0xFF
Command 5		0x00 - 0xFF
Command 6		0x00 - 0xFF
Command 7		0x00 - 0xFF
Command 8		0x00 - 0xFF
Command 9		0x00 - 0xFF
Command 10		0x00 - 0xFF
Command 11		0x00 - 0xFF
Command 12		0x00 - 0xFF
Command 13		0x00 - 0xFF
Command 14		0x00 - 0xFF
Command 15		0x00 - 0xFF

Below the command fields, there is a 'Command No' field with the value 4, and buttons for 'OK', 'CLEAR', and 'File status'.

Fig 3.6

3.7 Fig 3.7 shows the setting for security code of **software ISP**, it needs **2** Command No, and key in command sequentially for **7C**, **4C**, **77**. The Command No and command must be set by user while coding. About the detail of setting, please refer to Section 6 Boot code of ISP.

The screenshot shows a 'Security' dialog box with the following fields and values:

Field	Value	Range
ISP Slave Add.	7C	0x00 - 0xFF
SlaveB Add.	4C	0x00 - 0xFF
Command 1	77	0x00 - 0xFF
Command 2		0x00 - 0xFF
Command 3		0x00 - 0xFF
Command 4		0x00 - 0xFF
Command 5		0x00 - 0xFF
Command 6		0x00 - 0xFF
Command 7		0x00 - 0xFF
Command 8		0x00 - 0xFF
Command 9		0x00 - 0xFF
Command 10		0x00 - 0xFF
Command 11		0x00 - 0xFF
Command 12		0x00 - 0xFF
Command 13		0x00 - 0xFF
Command 14		0x00 - 0xFF
Command 15		0x00 - 0xFF

Additional controls:

- Command No:** A spinner box set to 2.
- Buttons:** OK, CLEAR, File, and a partially visible 'n status' button.

Fig 3.7

4. Use ISP to program MCU

- 4.1 Select MTV type first, load the binary or Intel hex file that you want to program into the MCU, and select “Auto” item, then press “RUN” button, see Fig 4.1.
- 4.2 If user changes the MTV type, it must load file again, or the buffer of load file will be cleared.
- 4.3 CRC (cyclic redundancy check): the host can check CRC register’ s result instead of reading every byte in flash. The message of Check MCU CRC OK means that the Host verify ok for the progress of program.

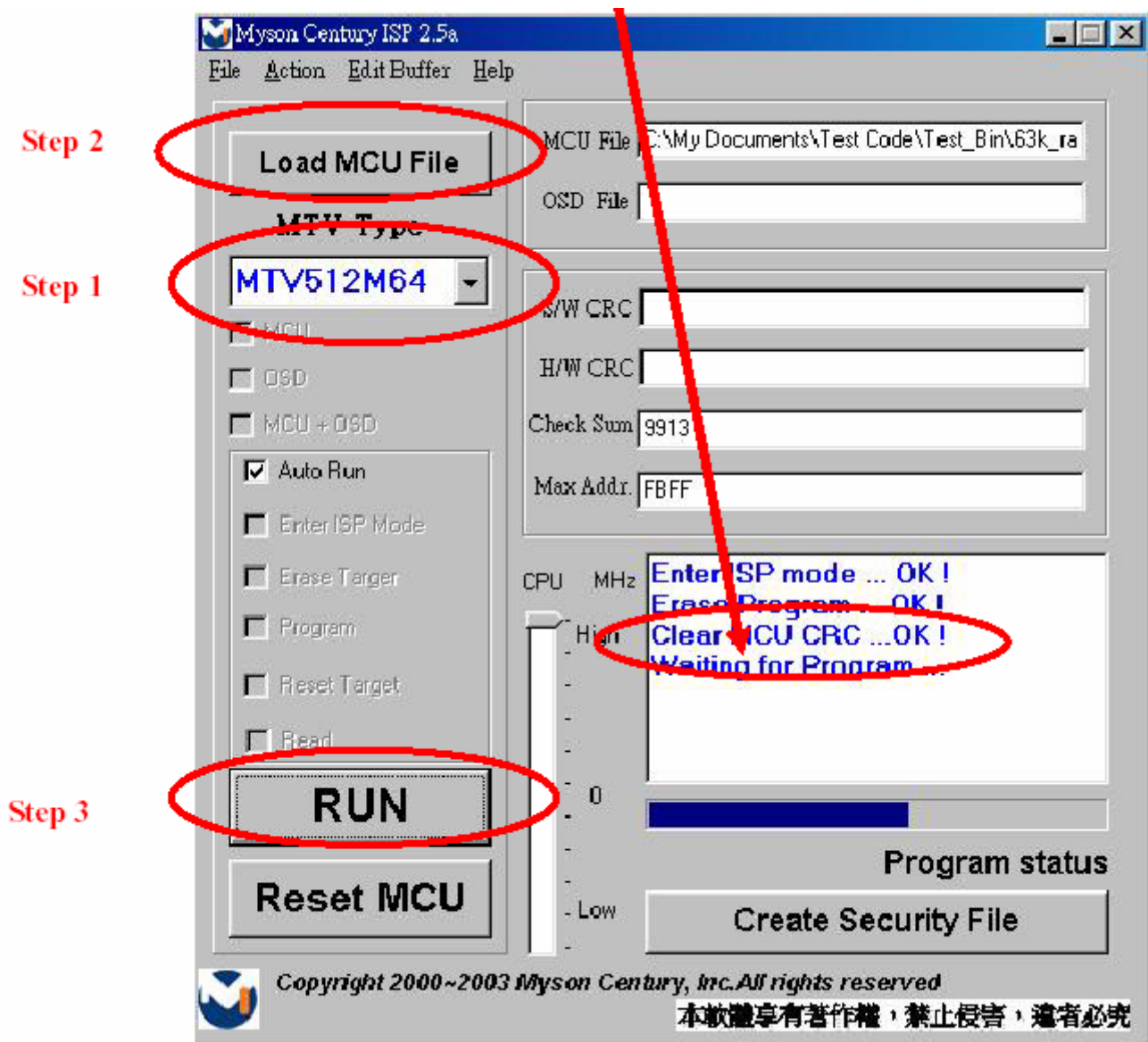


Fig 4.1

5 Use ISP to read MCU content

5.1 Only software ISP could read the MCU content, it is according to program the boot code while coding. The limitation is used for the security of customer' s code. Select “Read Target” item, and press “RUN” button, the MCU content will show as Fig 5.1.

The screenshot shows a software window titled "Read Data" with a "Save" button in the top-left corner. The main area contains a table of memory data. The table has 17 columns labeled 0 through F. The rows are indexed from 0 to 130. Below the table, there is a large "RUN" button, a "Low" indicator, a "Program status" label, the "Myson Century, Inc." logo, and a "Creat Security File" button.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	02	00	06	02	00	6D	78	7F	E4	F6	D8	FD	75	81	07	02
10	01	11	FF	02	00	16	C0	E0	C0	83	C0	82	C0	D0	75	D0
20	00	C0	01	C0	02	C0	03	C0	04	C0	05	C0	06	C0	07	E4
30	F9	D2	96	7F	32	7E	00	12	00	B4	C2	96	12	00	B4	09
40	E9	B4	04	ED	79	00	D2	95	7F	0A	12	00	AD	09	E9	B4
50	04	F4	D2	95	D2	96	D0	07	D0	06	D0	05	D0	04	D0	03
60	D0	02	D0	01	D0	D0	D0	82	D0	83	D0	E0	32	C0	E0	C0
70	83	C0	82	C0	D0	75	D0	00	C0	01	C0	02	C0	03	C0	04
80	C0	05	C0	06	C0	07	E4	F9	D2	95	7F	32	12	00	AD	09
90	E9	B4	04	F4	D2	95	D0	07	D0	06	D0	05	D0	04	D0	03
A0	D0	02	D0	01	D0	D0	D0	82	D0	83	D0	E0	32	7E	00	12
B0	00	B4	C2	95	E4	FD	FC	C3	ED	9F	EC	9E	50	21	E4	FB
C0	FA	90	00	00	A3	E5	82	64	78	45	83	70	F7	0B	BB	00
D0	01	0A	EB	64	0A	4A	70	E9	0D	BD	00	01	0C	80	D8	22
E0	90	0F	52	74	A0	F0	90	0F	07	74	B7	F0	90	0F	87	74
F0	D0	F0	90	0F	09	74	A6	F0	90	0F	06	74	90	F0	90	0F
100	86	74	A0	F0	75	A8	85	90	0F	8E	74	80	F0	75	90	FF
110	22	12	00	E0	D2	95	D2	96	7F	05	7E	00	12	00	B4	C2
120	95	C2	96	12	00	B4	80	EC	90	0F	30	74	01	F0	A3	F0
130	A3	F0	A3	F0	A3	F0	A3	F0	A3	F0	A3	F0	22	90	0F	38

RUN Low Program status

Myson Century, Inc. **Creat Security File**

Fig 5.1

5.2 If user uses hardware ISP to read MCU content, it shows as Fig 5.2.

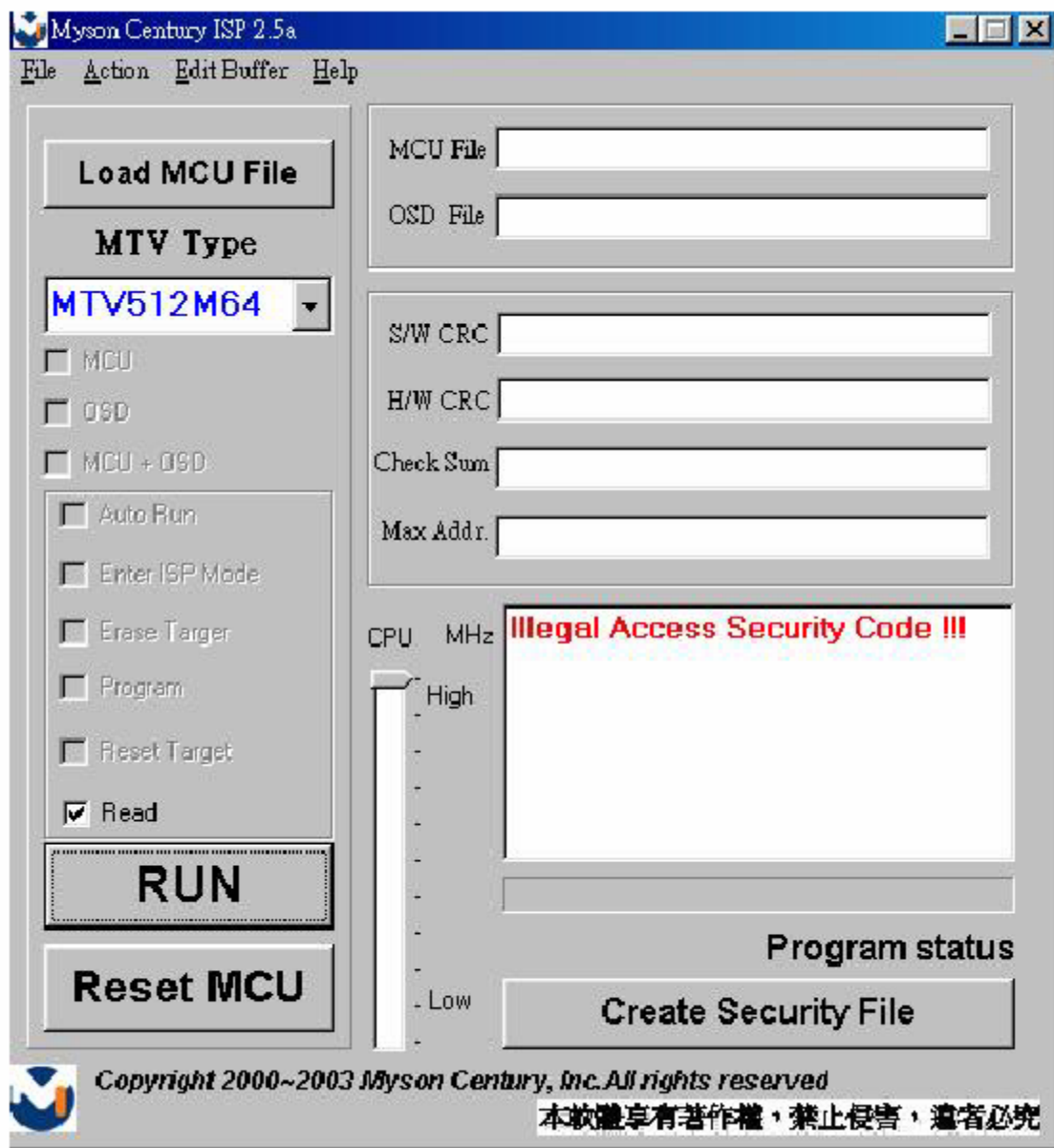
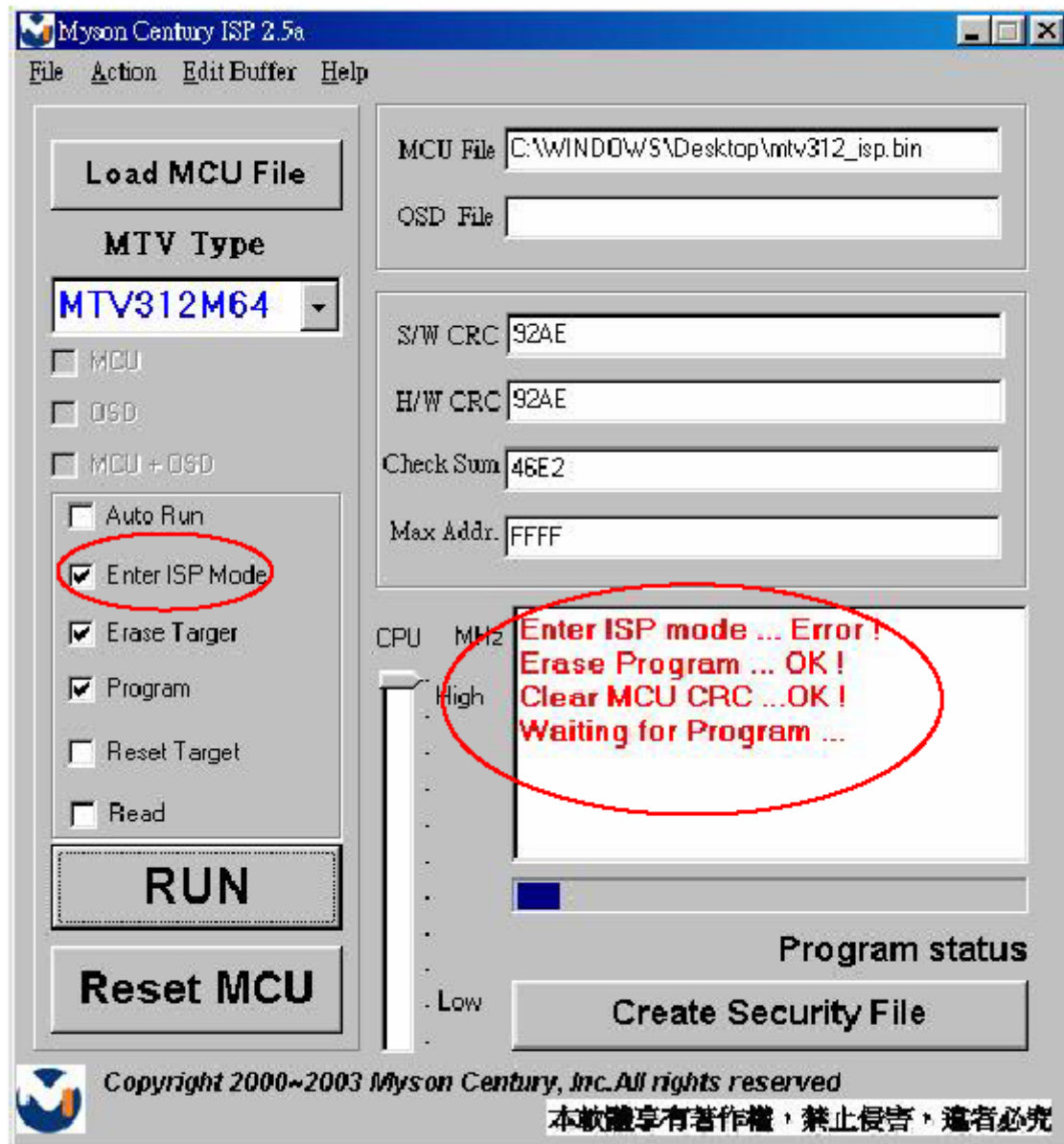
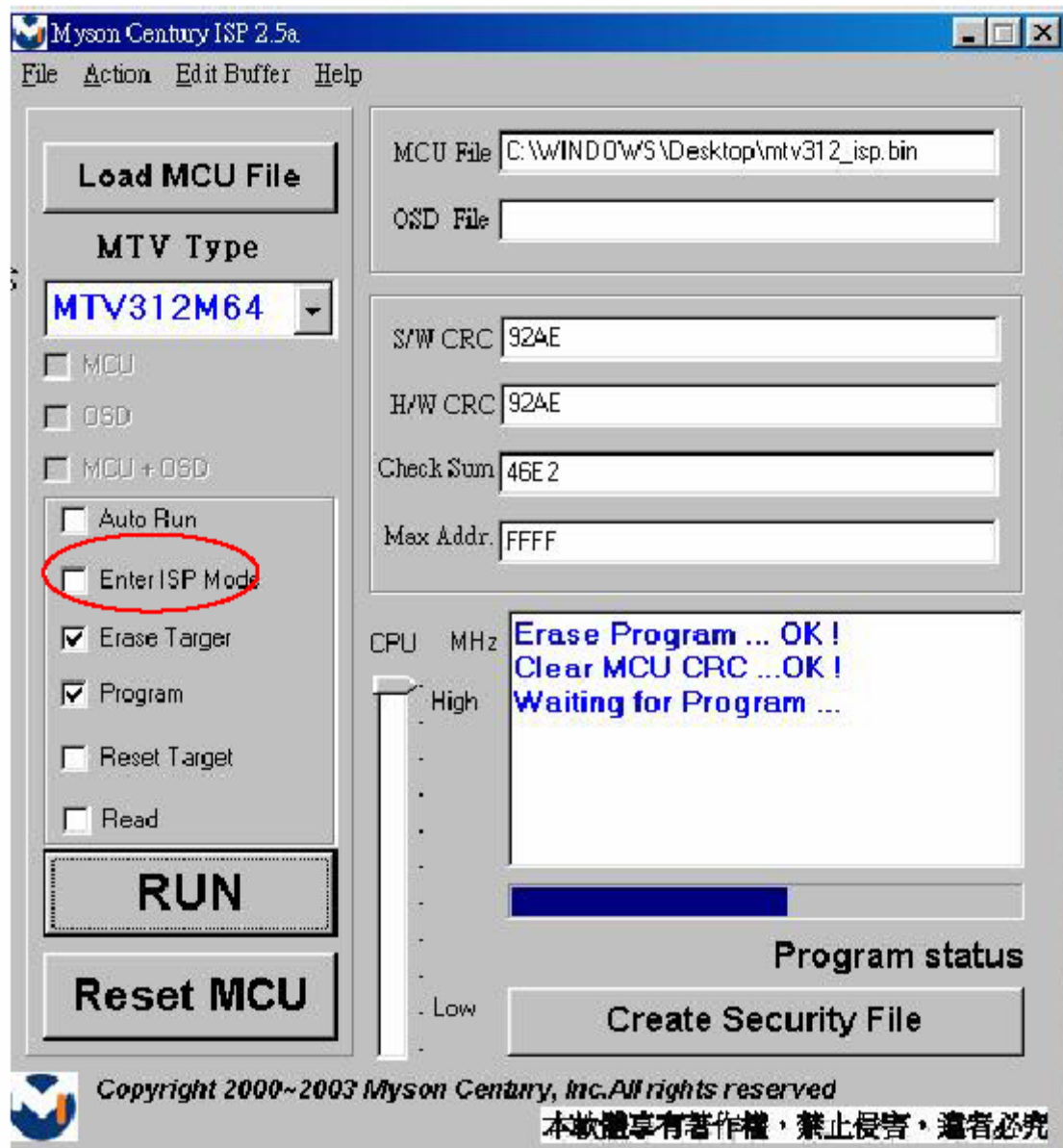


Fig 5.2

6 Re-entry the ISP Mode

When you could not select or click '**Reset MCU**' button and enter ISP mode again, you refer the message as below:





Note:

- (1) Disable the 'Enter ISP Mode' option to avoid the error message display.
- (2) If you are using the MTV312M64 or before MCU serials, the MCU will always be in 'ISP Mode' even if programming fails or erases the MCU. Instead of selecting or pressing 'Reset MCU'.

7. Boot code of ISP

7.1 Hardware ISP

- (1) Without boot code
- (2) Fixed security code: 94, 94, AC, CA, 53
- (3) Attention to the pin of HSCL (1) and HSDA (1) should keep in enable
- (4) MTV412M, MTV512M, CS8954 support hardware ISP

7.2 Software ISP

- (1) With boot code
- (2) User define the security code
- (3) Attention to the pin of HSCL (1) and HSDA (1) should keep in enable
- (4) Only software ISP could read the MCU content
- (5) MTV212M, MTV312M, MTV230M, MTV412M, MTV512M, CS8954 support software ISP

7.3 Boot code of software ISP

- (1) Initialize MCU
 - (a) Define the I/O pin to HSCL (1) and HSDA (1)
 - (b) Define the slave B address
 - (c) Enable 8051 INT1 (ISR 2)
- (2) Coding for INT1 while get into ISP mode
 - (a) Clear watchdog to prevent reset during ISP period
 - (b) Disable all interrupt to prevent CPU wake-up
 - (c) Write ISP slave address
 - (d) Write 93h to ISP enable address to enable ISP
 - (e) Enter 8051 idle mode

7.4 The followings show the relationship between the code and the security code.

```

//
XRAM[SLV0ADR]=0x80| (0x4c>>1);
// Set P3.0, P3.1, P3.4, p3.5 to IIC related pins
XRAM[PADMOD0]=0xc0;
XRAM[PADMOD1]=0xff;
XRAM[PADMOD2]=0xf7;
XRAM[PADMOD3]=0xff; // Use HSCL, HSDA, ISCL, ISDA
XRAM[HVSTATUS]=0xe0; // enable composite
XRAM[HV_INTEN]=0x01;

TH0=0x0fc;
TLO=0x18;
IT1=0;
TMOD=0x51;
TRO=1;
//IE=0x86;
IE = 0x84; //enable INT1
P1=0x0ff; // Set a:
}

```

```

if( ( INTFLG&0x20) !=0 )
{
XRAM[IIC_INTFLG]=INTFLG&0x08;
}
if( ( INTFLG&0x40) !=0 )
{
if( XRAM[IIC_STUS1]&0x80 !=0)
{
temp=XRAM[TXRCBBUF];
if( temp == 0x77)
{
//test=1;-----
IE=0;
XRAM[WDT]=0;
XRAM[ISPSLV]=0x7c;
XRAM[ISPEN]=0x93;
PCON=1;
}
}
}

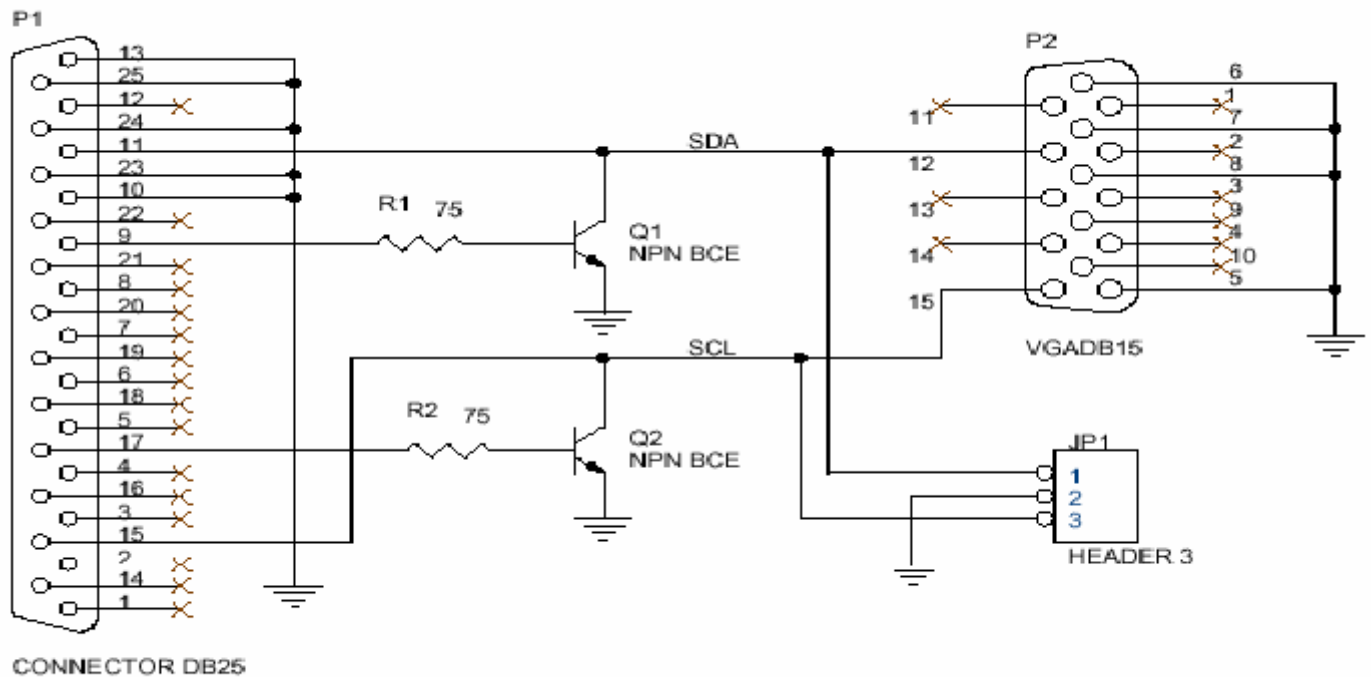
```

Command	Value	Range
ISP Slave Add.	7c	0x00 - 0xFF
SlaveB Add.	4c	0x00 - 0xFF
Command 1	77	0x00 - 0xFF
Command 2		0x00 - 0xFF
Command 3		0x00 - 0xFF
Command 4		0x00 - 0xFF
Command 5		0x00 - 0xFF
Command 6		0x00 - 0xFF
Command 7		0x00 - 0xFF
Command 8		0x00 - 0xFF
Command 9		0x00 - 0xFF
Command 10		0x00 - 0xFF
Command 11		0x00 - 0xFF
Command 12		0x00 - 0xFF
Command 13		0x00 - 0xFF
Command 14		0x00 - 0xFF
Command 15		0x00 - 0xFF

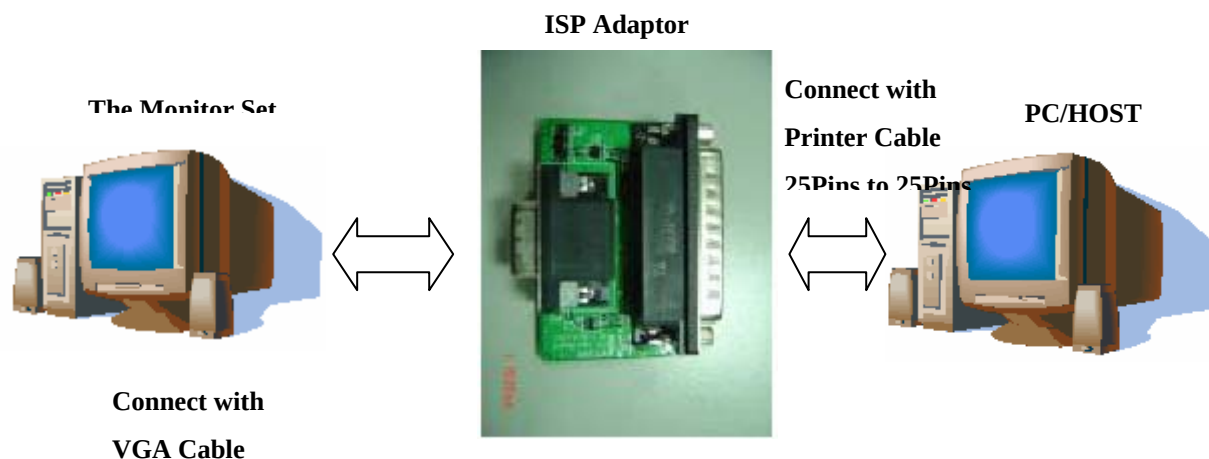
Command No: 2

OK CLEAR

8. ISP Adaptor Schematic



9. Adaptor Linking



C. Packing For Shipping And Disassembly Procedure

Packing For Shipping

1. Packing Procedure

1.1 Paste protection film to protect the monitor. (Figure 1)

1.2 Put the monitor in the PE bag and seal the bag with tape. (Figure 2)



Figure 1



Figure 2

1.3 Put the cushion into the carton then place the monitor on the cushion. (Figure 3)

1.4 Put the cushion then place the seat assy and all the accessories into the carton. As last, close the carton and seal it with tape. (Figure 4)



Figure 3



Figure 4

Monitor Assembly and Disassembly

1 Separate Stand Assy

1.1 Remove Stand Cover

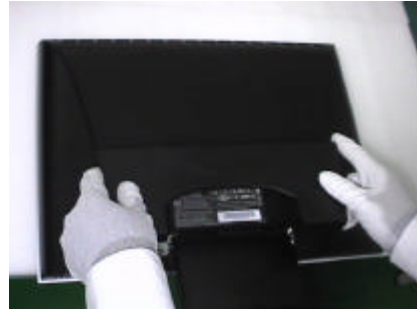
Step 1 :

Remove the Seat Assy



Step 2 :

Remove the Stand Cover.



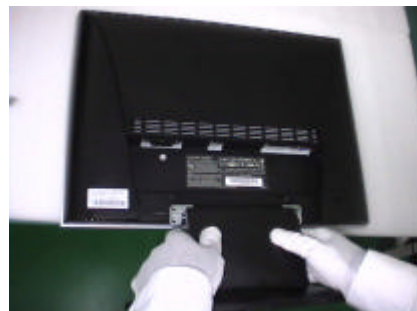
Step 3 :

Loose and remove 4 screws



Step4 :

Remove the Stand Assy



Step 5 :

Completed.

2 Separate Rear Cover (Rear Case Assy)

Separate Bezel hooks to take Bezel and Rear Cover apart.

Step 1 :

Loose and remove 2 screws.



Step 2 :

Separate Bezel hooks to take Bezel and Rear Cover apart.



Step 3 :

Remove Rear Cover.



Step 4 :

Completed.

3 Remove Power Board and AD Board

3.1 Remove Metal Cover

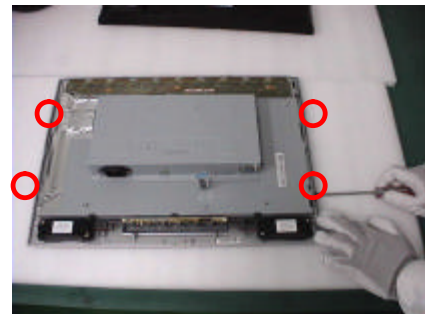
Step 1 :

Remove FFC from OSD Board.



Step 2 :

Loose and remove 4 screws.



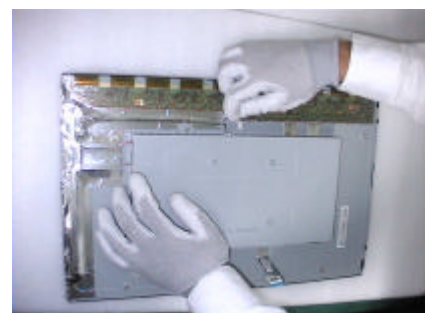
Step 3 :

Lift up LCD module and remove bezel.



Step 4 :

Remove 2 pieces of Backlight wires.



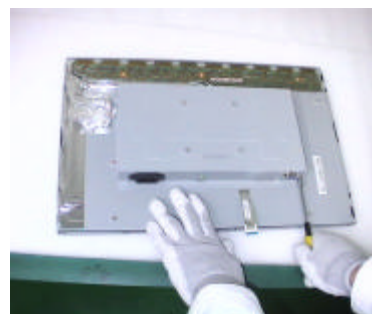
Step 5 :

Remove 2 pieces of Backlight wires.



Step 6 :

Loose and remove 2 screws.



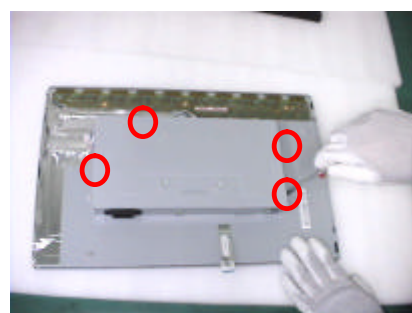
Step 7 :

Loose and remove 2 screws.



Step 8 :

Loose and remove 4 screws.



Step 9 :

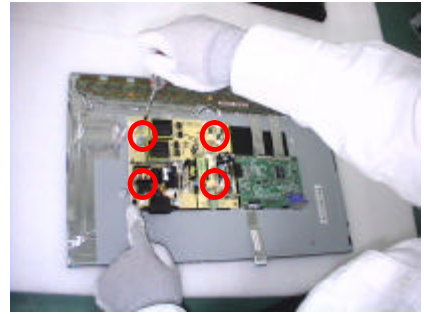
Remove the PCBA Cover



3.2 Remove Power Board and AD Board

Step 1 :

Loose and remove 4 screws.



Step 2 :

Remove Lips Board



Step 3 :

Remove 2 pieces of FFCs.



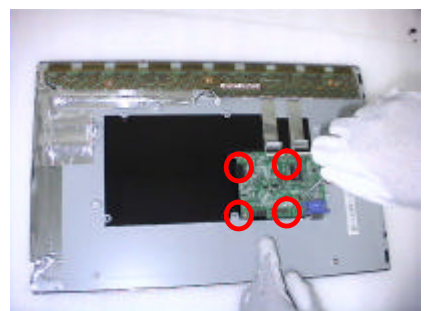
Step 4 :

Remove the FFC.



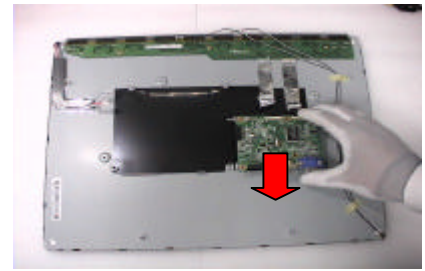
Step 5 :

Loose and remove 4 screws.



Step 6 :

Remove AD PCBA.



Step7 :

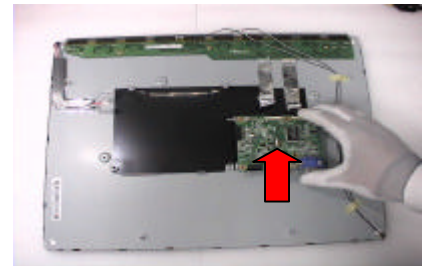
Completed.

4 Change New AD Board and Power Board

Step 1 :

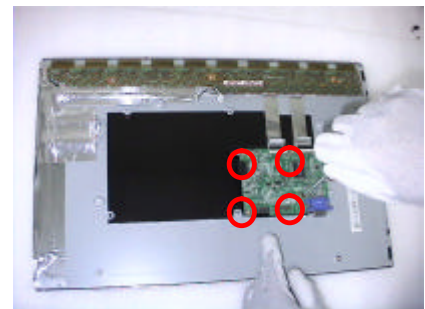
Place new AD Board.

And fasten 4 fixed screws.



Step 2 :

Fasten 4 fixed screws.



Step 3 :

Insert FFC.



Step 4 :

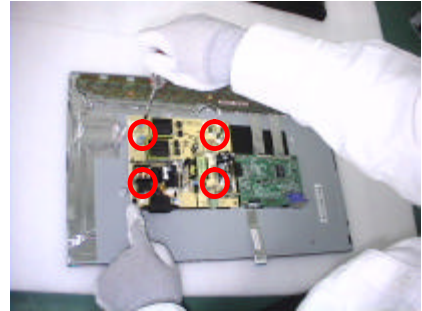
Insert 2 pieces of FFCs .



Step 5 :
Insert new Lips Board.



Step 6 :
Fasten 4 fixed screws.



Step 7 :Completed.

5. Remove OSD Board

Step 1 :

Separate both Audio Cable.



Step 2 :

Take OSD Board apart.



Step 3:

Completed.



6.Change New OSD Board

Step 1 :

Place New OSD Board.



Step 2 :

Insert Audio cable to connectors of New OSD Board.



Step 3:

Completed.

7. Add Cover to AD PCB Heatsink

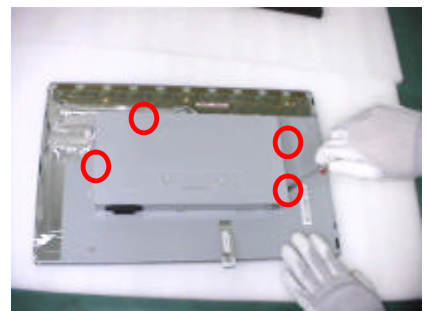
Step 1 :

Join the PCB Cover.



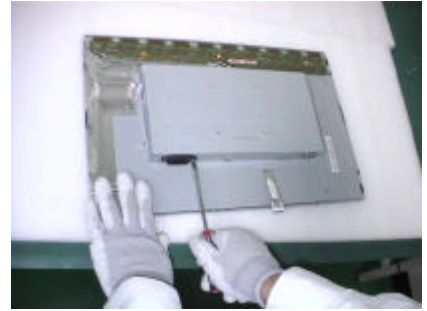
Step 2 :

Fasten 4 fixed screws.



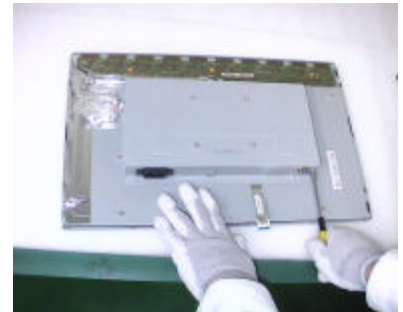
Step 3 :

Fasten 2 fixed screws



Step 4 :

Fasten 2 fixed screws.



Step 5 :

Insert 2 pieces of Backlight wires.



Step 6 :

Insert 2 pieces of Backlight. wires.



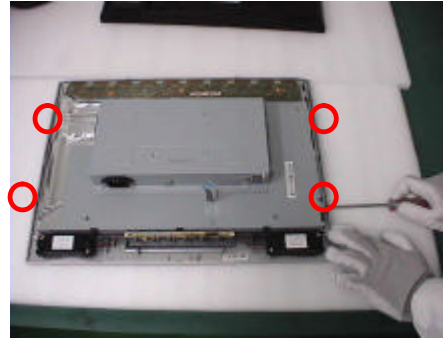
Step 7 :

Join LCD module and remove bezel.



Step 8 :

Fasten 4 fixed screws.



Step 9 :

Insert FFC.



Step 10 :

Completed.

8. Rear Assy & Stand Assembly

Step 1 :

Place Rear Cover.



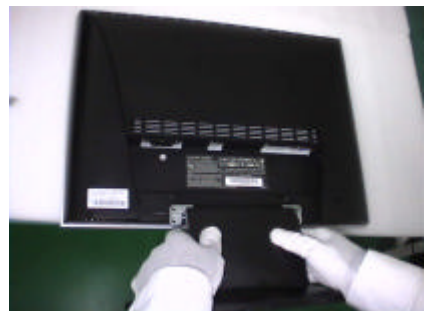
Step 2 :

Fasten 2 fixed screws.



Step 3 :

Place the Stand Assy.



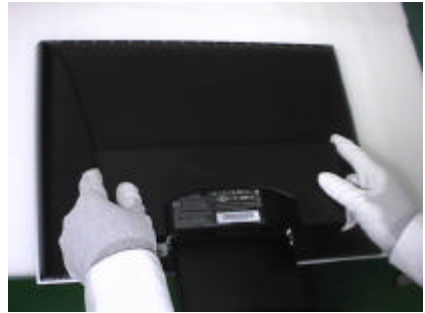
Step 4 :

Fasten 4 fixed screws.



Step 5 :

Join the Stand Cover.



Step 6 :

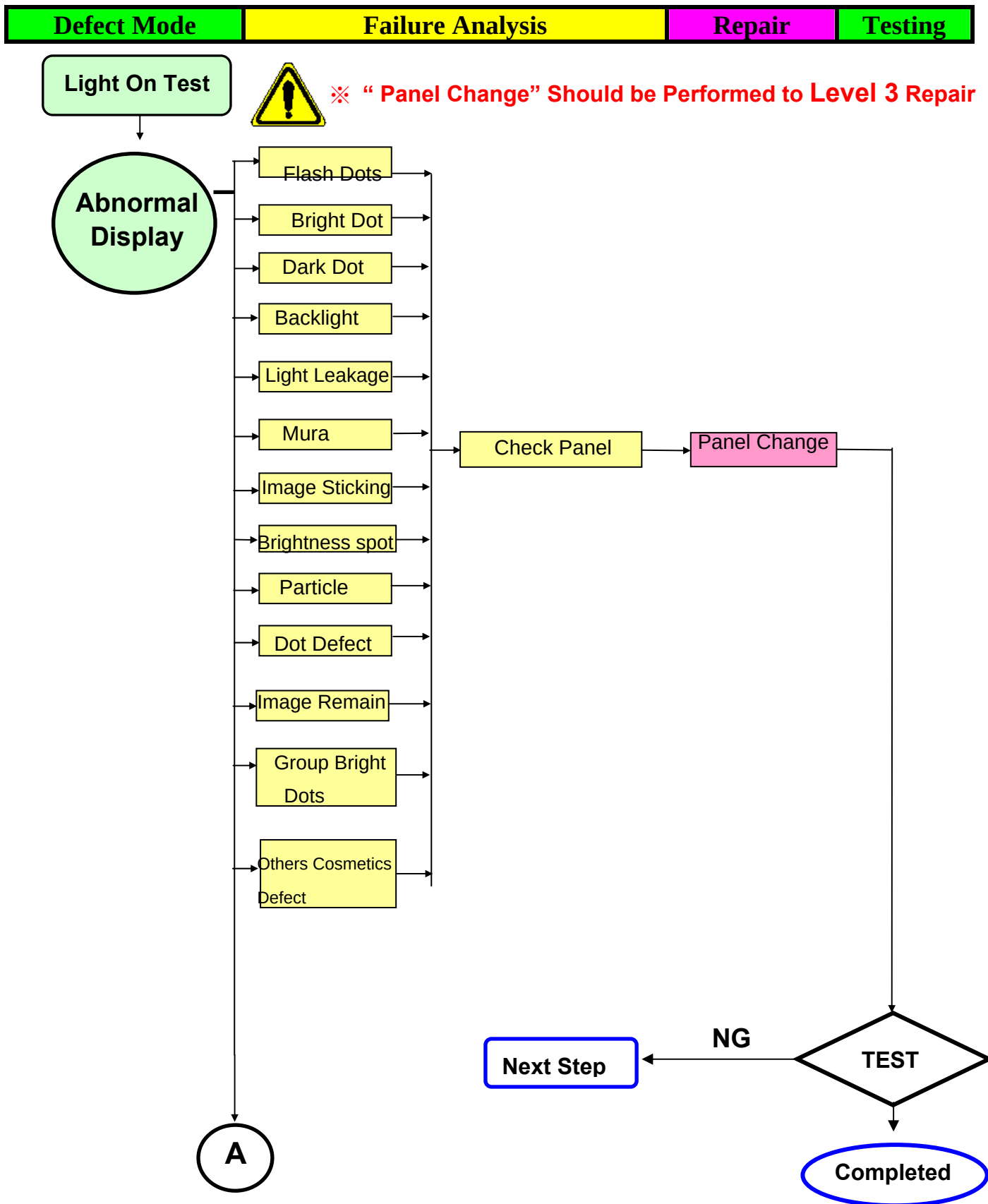
Join the Seat Assy



Step 7 :

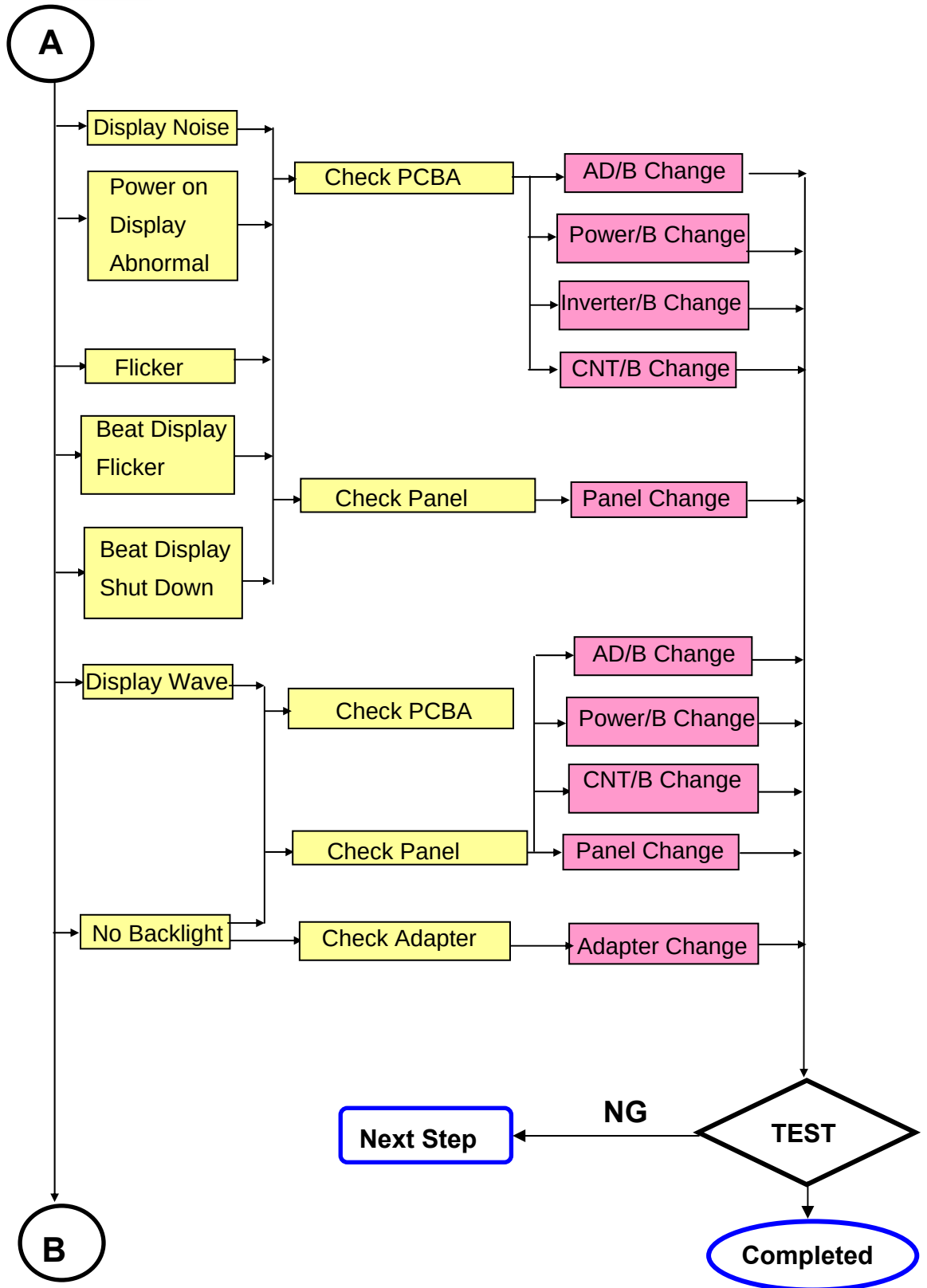
Completed.

6. Troubleshooting Flow Chart



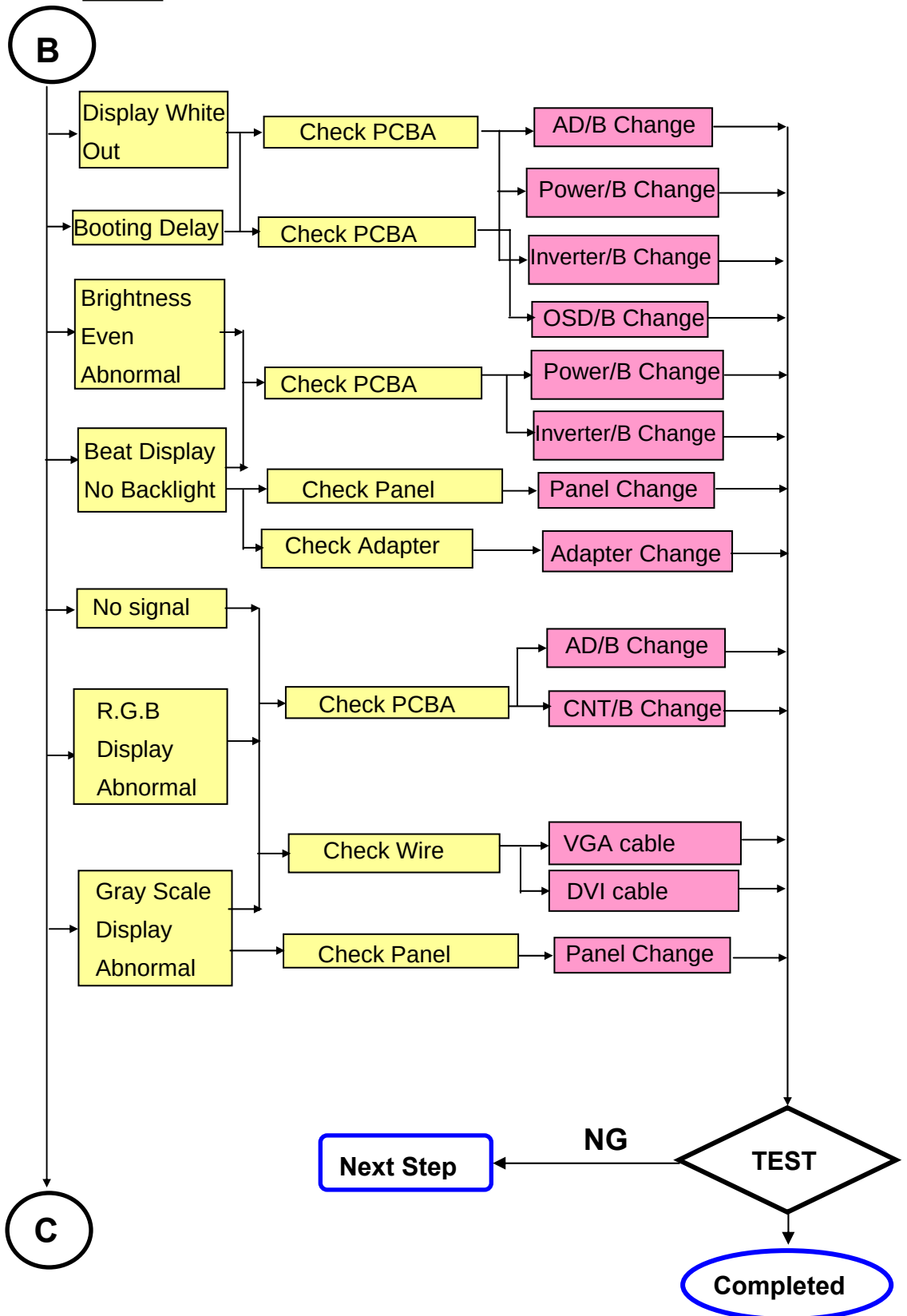


※ “Panel Change” Should be Performed to Level 3 Repair



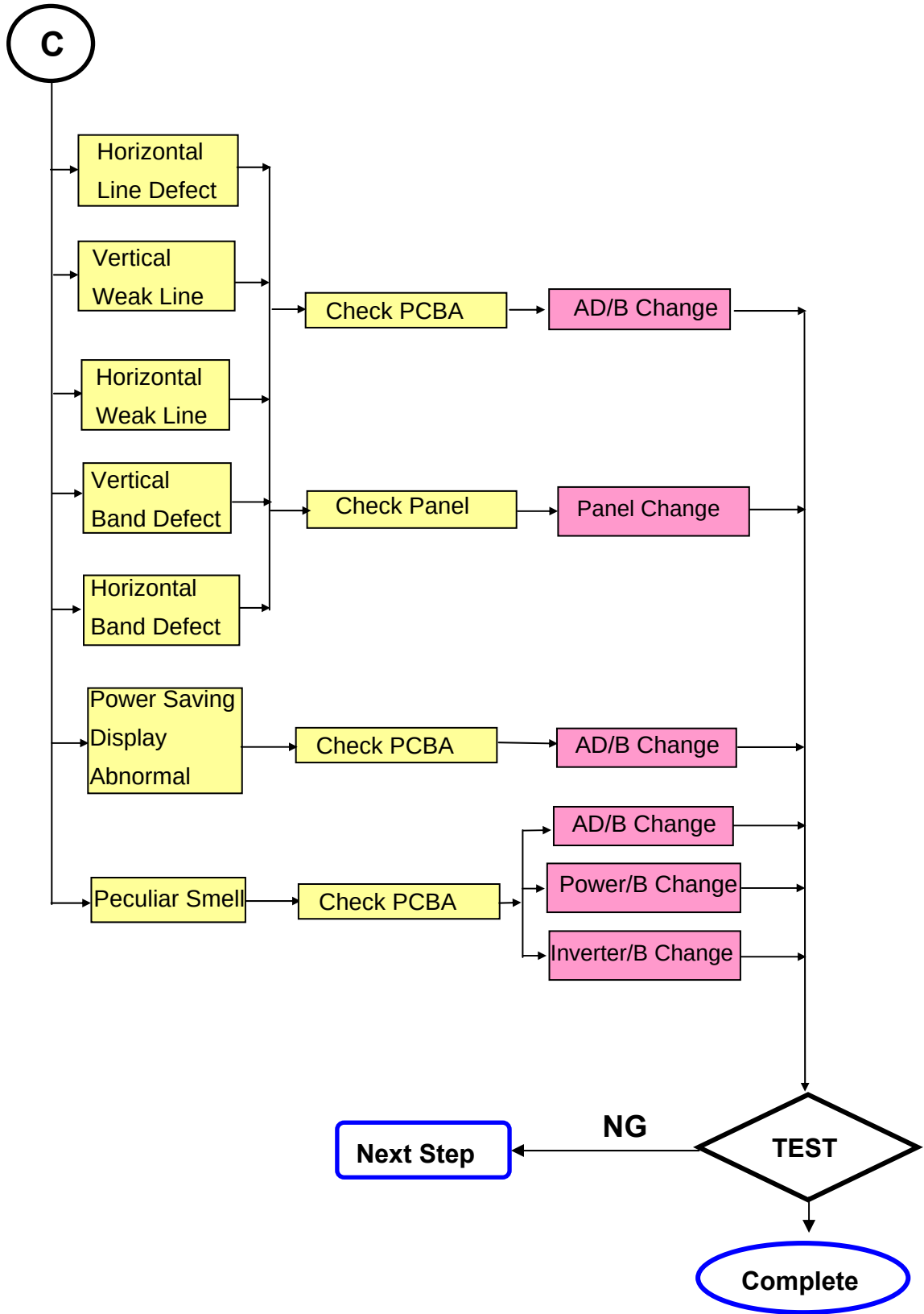


※ “Panel Change” Should be Performed to Level 3 Repair



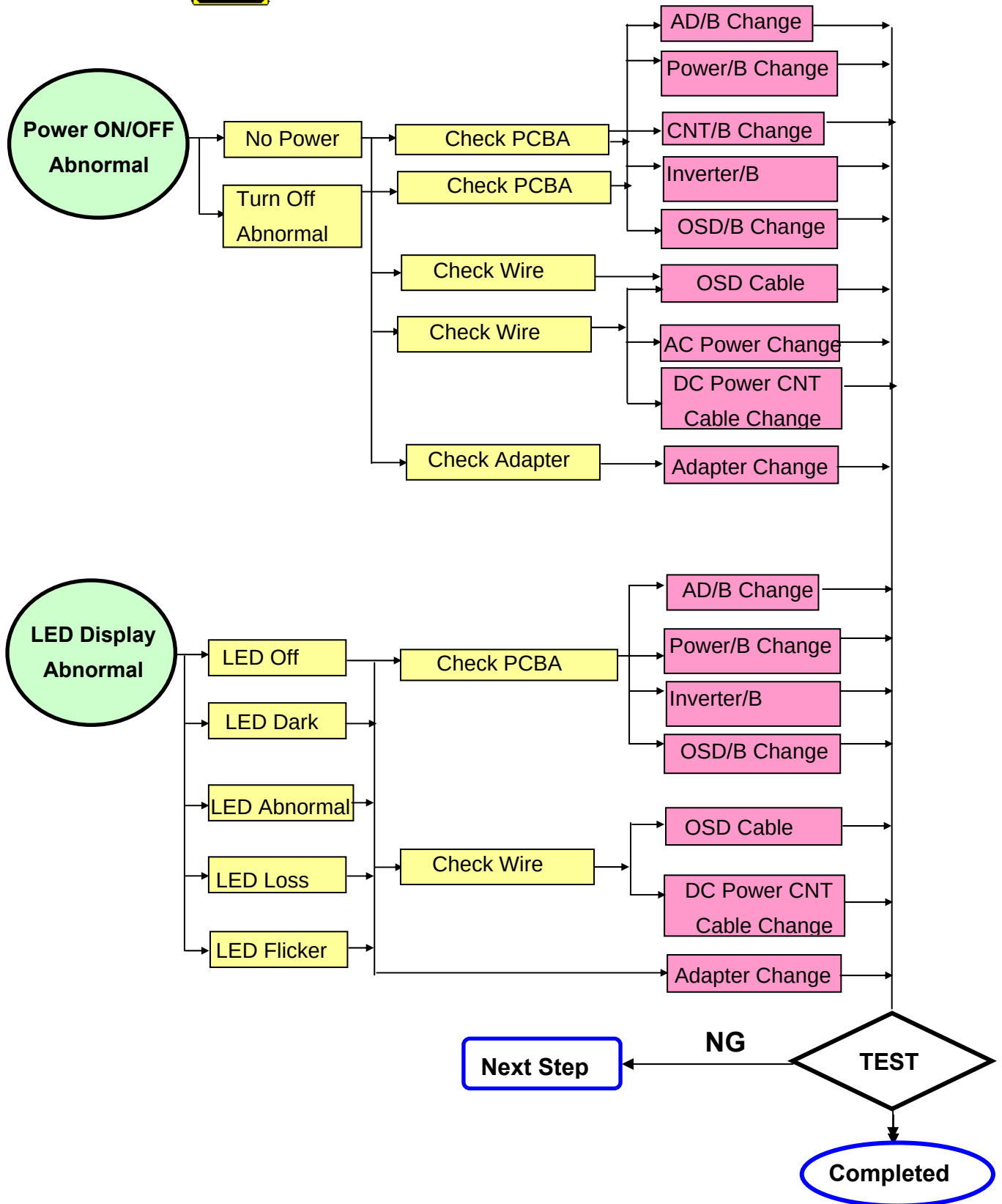


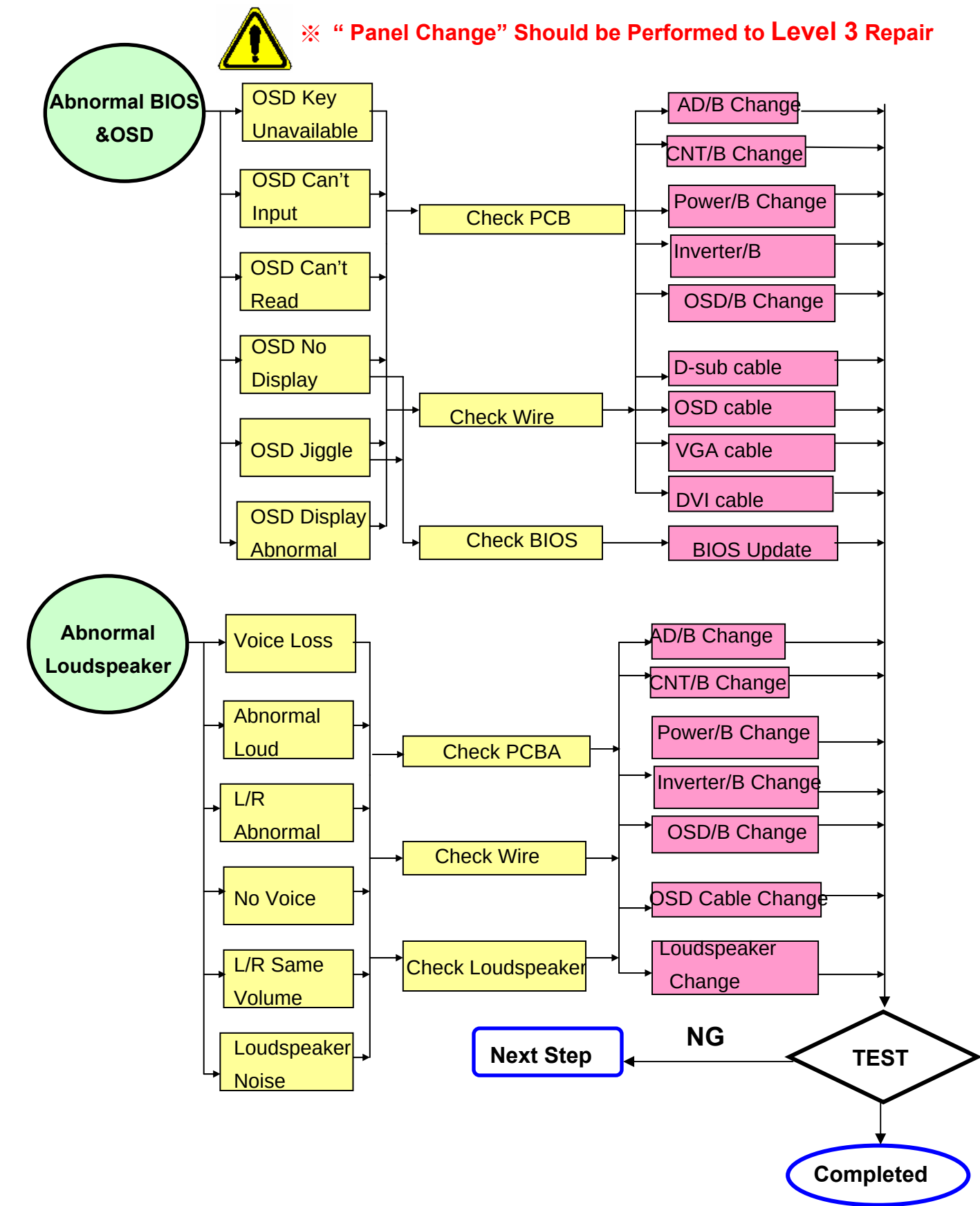
※ “ Panel Change” Should be Performed to Level 3 Repair





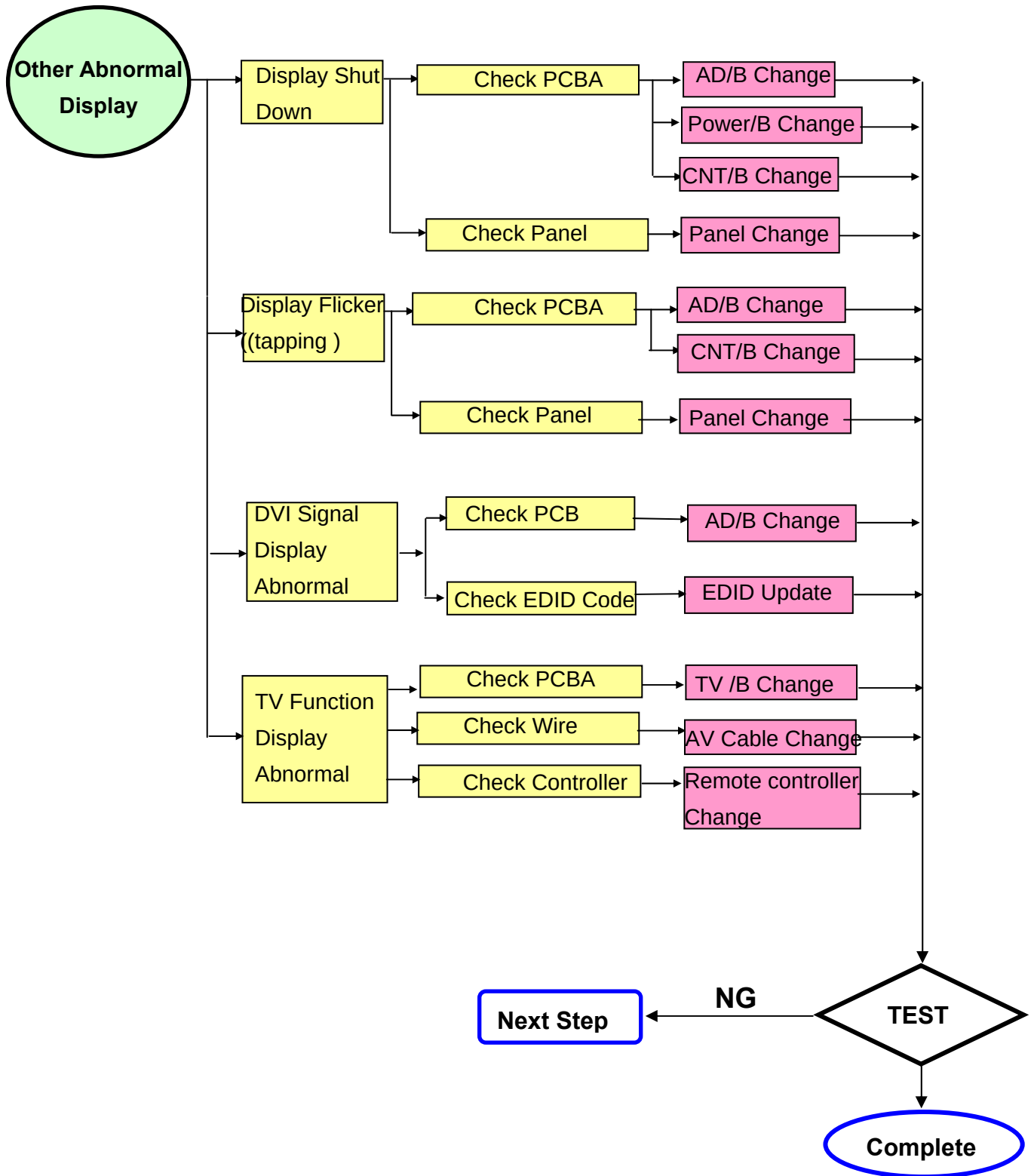
※ “Panel Change” Should be Performed to Level 3 Repair







※ “ Panel Change ” Should be Performed to Level 3 Repair



Trouble Shooting Analysis

Check the information in this section to see if the problems can be solved before requesting repair.

Note : The consumers are only allowed to solve the problems described as below. Any unauthorized product modification, or failure to follow instructions supplied with the product will end the warranty immediately.

- **No image**
 - ◆ Make sure power button is ON.
 - ◆ Check whether the LCD monitor and computer power cords are plugged and whether there is a supply of power.
- **No Signal Input**
 - ◆ Check the signal connection between the computer and LCD monitor.
- **“Out of Range”**
 - ◆ Check the computer image output resolution and frequency and compare the value with the preset values (Please refer to [Appendix-Display Mode]).
- **Fuzzy Image**
 - ◆ Adjust Phase.
- **Image too bright**
 - ◆ Adjust brightness and contrast by OSD.
- **Image too dark**
 - ◆ Adjust brightness and contrast by OSD.
- **Irregular image**
 - ◆ Check the signal connection between the computer and LCD monitor.
 - ◆ Perform Auto Adjust.
- **Distorted image**
 - ◆ Reset the LCD monitor
 - ◆ Take off extra accessories (such as signal extension cord).
- **Image is not centered**
 - ◆ Use OSD Image Menu to adjust H_Position and V_Position.
 - ◆ Check image size setting.
 - ◆ Perform Auto Adjust.
- **Size is not appropriate**
 - ◆ Use OSD Image Menu to adjust H_Position and V_Position.
 - ◆ Check image size setting.
 - ◆ Perform Auto Adjust.
- **Uneven color**
 - ◆ Use OSD Color Menu to adjust color setting.
- **Color too dark**
 - ◆ Use OSD Color Menu to adjust color setting.
- **Dark area distorted**
 - ◆ Use OSD Color Menu to adjust color setting.
- **White color is not white**
 - ◆ Use OSD Color Menu to adjust color setting.

7. Recommended Spare Parts List

RECOMMENDED SPARE PARTS LIST (VX2235wm-1)

ViewSonic Model Number: VS11349

Serial No. Prefix: QA5

Rev: 1a

Item	Description	ECR/ECN	ViewSonic P/N	Ref. P/N	Location	Universal number#	Q'ty
1	Accessories:						
2	PC Board Assembly:						
3							
4							
5	Cabinets:						
6							
7							
8							
9							
10							
11	Cables:						
12							
13							
14							
15							
16	Documentation:						
17							
18							
19	Hardware:						
20							
21							
22							
23							
24							
25							
26	Miscellaneous:						
27	Packing Material:						
28							
29							
30							
31	Plastics:						

Remark 1: Above listed items are examples, supplier can expand the rows to add more necessary items

Remark 2: All revised RSPLs with newly added items or any change made should be highlighted and correlated with the ECN/ECR approved by ViewSonic Corporation. This is to eliminate repeated cross checks of each item between this version and prior versions.

BOM LIST (VX2235wm-1)

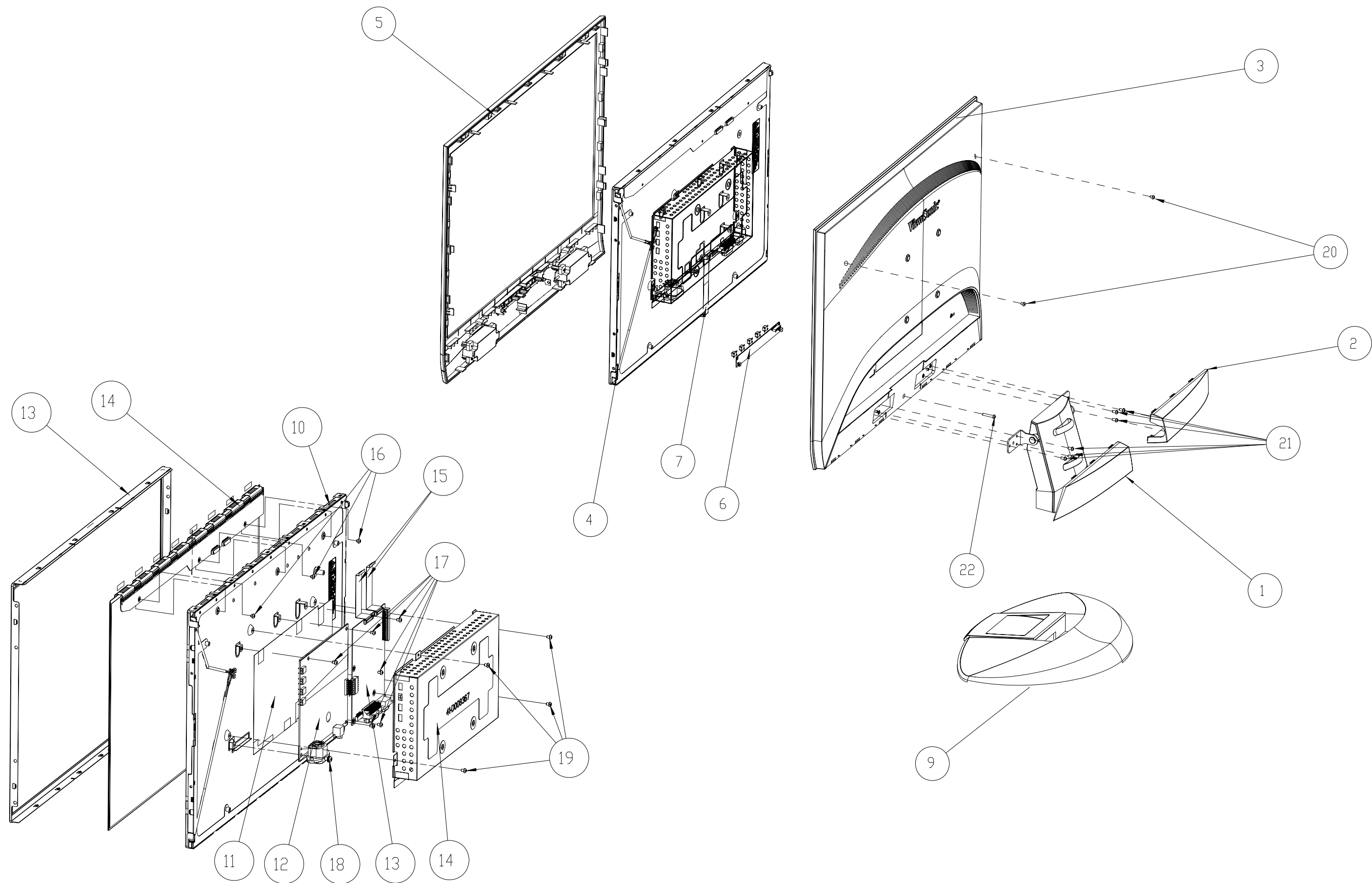
ViewSonic Model Number: VS11349

Rev: 1a

Serial No. Prefix: QA5

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
1	N/A	73-C000047	ACF, COG, AC-8405Z-23 1.5mmX100M, 100000 mmx1.5 mm, Hitachi Chemical, COG-ACF, Green I			0.0028
2	N/A	36-D006411	Driver IC, COG, Scan, M170E5-L09, HX8653-A000PD400, 240/263/256Channel, Himax, (HX8633 shrank version), Green II			4
3	N/A	L4M003XXXX	22"wide_TN, Photo Spacer, Corning 0.7mm Glass, Resin/BM(Panell Base)			1
4	N/A	L4M003XXBI	22"wide_TN, Photo Spacer, Corning 0.7mm Glass, Resin/BM(Sheet Base)			0.0833
5	N/A	74-D007599	Polarizer, TFT, Degree 135, 478.16 mmx300.2 mmx0.215 mm, XT300CMM220Z1H0B, M220Z1, LG Chem, LG HCR EWV			1
6	N/A	74-D007598	Polarizer, CF, Degree 135, 480.76 mmx303.1 mmx0.215 mm, XT320CMM220Z1H0T, M220Z1, LG Chem, LG HCR EWV			1
7	N/A	36-D007038	Driver IC, COF, Data, M220Z1-L01, HX8019-A07BCBC5, COF, 6 bit, 642Channel, Himax, Green II			8
8	N/A	73-D008216	ACF, COF, AC-4255U-16, 200000 mmx1.2 mm, Hitachi Chemical, Green II			0.0025
9	N/A	73-D002676	ACF, PCB, AC-9825R-35, 100000 mmx1.5 mm, Hitachi Chemical, PCB-ACF, Green I			0.005
10	N/A	35-D010045	PCBA for, A220Z1-Z01-H, A220Z1-Z01-H-X, 1101-03, Rev.04, USI/ITC, ODM, Green II			1
11	N/A	7349951002	Silicone, TORAY/-9187L, 330g			0.5
12	HW-00008003	42A9930015	SCREW, M3, P=1.27 mm, L=10 mm, Pan Head, Phillips Cross Recess, Green I			1
13	B-00008028	35-D010238	PCBA for, A220Z1-Z01-H, A220Z1-Z01-H-K2, 1101-02, Rev.02, USI/ITC, ODM, Green II			1
14	C-00008039	40-D010946	Cover Hinge, A220Z1-H05, ABS PA-757N, ORIGINAL, Fuking, RIGHT, Green II			1
15	C-00008040	40-D010960	Cover Hinge, A220Z1-H05, ABS PA-757N, ORIGINAL, Fuking, LEFT, Green II			1
16	C-00008041	40-D010959	Bezel Assy, A220Z1-H05, Black(J01-J91A11B5), Fuking, SPK, Green II			1
17	C-00008042	40-D010948	Rear Assy, A220Z1-H05, Silver(TY4818A)/Black(M1077), Fuking, audio_in+DVI-D, Green II			1
18	CB-00008015	32-D011077	FFC, FFC1DDX-A186S1A, 15 Pins, Tennsure_FFC, A220Z1-H05, Green II			1
19	HW-00000553	42A9930008	SCREW, 3, P=0.5 mm, L=4 mm, Pan Head, Phillips Cross Recess, Hama Naka Motogawa/Shin Yee/Hama Naka Shoukin/Shiho/Shye Ching, Green I			2
20	HW-00000555	42A9930014	SCREW, 3, P=0.5 mm, L=6 mm, Pan Head, Phillips Cross Recess, Hama Naka Shoukin/Shye Ching/Hama Naka Motogawa/Shin Yee, NA, Green I			6
21	C-00008043	40-D010942	Stand Assy, A220Z1-H05, Silver(TY4818A), Hontech, Green II			1
22	PL-00008008	73-D009538	Panel Protector Film, A220Z1-H03, XG-536 T=0.1mm, Just Enter, BLANK			1
23	N/A	77-D010938	SN Label for, A220Z1-H05, 50 mmx25 mm, Chang Huang/Kunshan Hwakuan, VSC_VX2235wm, Green II			1
24	DC-00008038	77-D010937	Safety Label for, A220Z1-H05, 149 mmx29 mm, Chang Huang, VSC_VX2235wm, Green II			1
25	HW-00002076	7841595111	Corner Protector, paper, 50 mmx50 mmx1850 mm, Green II			0.083
26	N/A	7841996911	Separator, (AA), A190E2-H04, 1200 mmx1050 mmx11 mm, Shanghai Zhong Hao/Hua Sun Paper, ACER, Non Green			0.021
27	DC-00000586	7741999141	Module Label, A190E2-H03, 75 mm, 40 mm, Non Green			0.042
28	M-00000560	7345511002	Tape, A170E1-H0P, 900 mmx50 mmx0 mm, Symbio, OPP			0.005
29	N/A	73-D001327	Tape, 82296 mmx48 mmx0.045 mm, cmo, OPP, Green I			0.014
30	N/A	78-D003113	Pallet, A190E3-H02_acer, Wooden, (KD-HT), 1209 mmx1066 mmx135 mm, Hua Sun Paper/Shanghai Hang Wei/Ming Li, Green I			0.021
31	P-00008033	78-D009624	Bag, 600 mmx650 mmx0.13 mm, PE Foam, 650, Huang Jyii, Green II			1
32	DC-00008039	77-D010936	Carton Label for, A220Z1-H05, 76.2 mmx76.2 mm, Chang Huang/Kunshan Hwakuan, VSC_VX2235wm, Green II			1
33	C-00008044	40-D010947	Seat Assy, A220Z1-H05, Black(ABS-757-J01)/Silver(TY4818A), Hontech, Green II			1
34	N/A	79-D011065	Shipping Package Information for, A220Z1-H05, VSC			1
35	P-00008034	78-D011076	Cushion, A220Z1-H05, EPS, White, 565 mmx520 mmx75 mm, Li Ta, EPS-FORM(Top), Green II			1
36	P-00008035	78-D011075	Cushion, A220Z1-H05, EPS, White, 565 mmx520 mmx65 mm, Li Ta, EPS-FORM(Bottom), Green II			1
37	P-00008036	78-D011103	Carton, A220Z1-H05, 522 mmx154 mmx575 mm, Chen Yi Paper, VSC_VX2235wm, Green II			1
38	DC-00008040	76-D011105	MENU for A220Z1-H05, Complex, 4C, Yi Ching/Car Tong Kunshan, VSC_VX2235wm CD-ROM, Green II			1
39	HW-00000553	42A9930008	SCREW, 3, P=0.5 mm, L=4 mm, Pan Head, Phillips Cross Recess, Hama Naka Motogawa/Shin Yee/Hama Naka Shoukin/Shiho/Shye Ching, Green I			13
40	HW-00006041	42A9940007	SCREW, 4, P=0 mm, L=11.8 mm, Hexagon Stand Off, Socket, Hama Naka Motogawa/Shiho/Shin Yee/Shye Ching, Green I			4
41	HW-00004042	42-D000649	SCREW, M4, P=0.7 mm, L=8 mm, Round Head, Phillips Cross Recess, plate color Zn, Screw_with_Washer, Shye Ching/Hama Naka Motogawa, head D8, Green I			1
42	N/A	41-D007402	Metal Frame Front, M220Z1-L01, SECC 0.6t, Fomgder/CLT_Metal, Green II			1
43	N/A	44-D008027	Backlight Unit, A220Z1, Forhouse/ROE, Green II			1
44	N/A	41-D008024	Cover AD Assy, A190A2, SECC, Jiin Ming, Left_Side 4 connector_VESA100*100, Green II			1
45	CB-00008014	32-D008479	FFC, CFC2128/862P060068D, 36 Pins, Tennsure/Hung Fu, AL foil, Green I			2
46	HW-00008002	42-D009237	SCREW, M3, P=0.5 mm, L=2.5 mm, Pan Head, Phillips Cross Recess, Shye Ching, Green II			3
47	B-00008026	27-D009542	Lips With Audio, DAC-19M009 AF, 00 A, 5 V/3 A, 13.8 V0.7 A, I TYPE, 7 mA, 1710 V, Delta Dongguan_LIPS, Green II			1
48	B-00008027	35-D010627	PCBA for, A220Z1-Z01-H, A170E2-E03-H-S6, 1101-02, Rev.04, ITC/USI, ODM, RTD2120S-LF, Green II			1
49	N/A	10-D011770	Software (EDID_DVI), A220Z1, VSC591ED01, ViewSonic, Checksum(6A), VX2235wm, Digital Port, Green II			1
50	N/A	10-D011769	Software (EDID_D-SUB), A220Z1, VSC591EA01, ViewSonic, Checksum(15), VX2235wm, Analog Port, Green II			1
51	N/A	10-D012223	Software (BIOS), A220Z1, 22Z1LR3002, ViewSonic, Checksum(Bank1:0xEC, Bank2:0xD5), RSDS, RTD2120, Dual+Audio/Analog+Audio, Green II			1
52	CB-00002083	32F0000004	Accessory Cable, DVI, Black, Jceprocable, DVI-D(M) TO DVI-D(M), S/L, W/2F, Green I			1
53	CB-00005678	32F2818011	Accessory Cable, Audio, Black, Jhen Vei, A170E1-H01, 28AWG, Green I			1
54	CB-00005851	32-D002132	Accessory Cable, D-Sub, JV-4777, Black, Pins-Pins, Jhen Vei, 30AWG, Reduce Shield Rate, Green I			1
55	A-00005071	32-D002330	Power Cord, LP-53 & VCTF 0.75mm^2 3C 6 BLACK & LS-13J, BLACK, BSMI, 1800 mm, Linetek, Green I			1

8. Exploded Diagram and Exploded Parts List



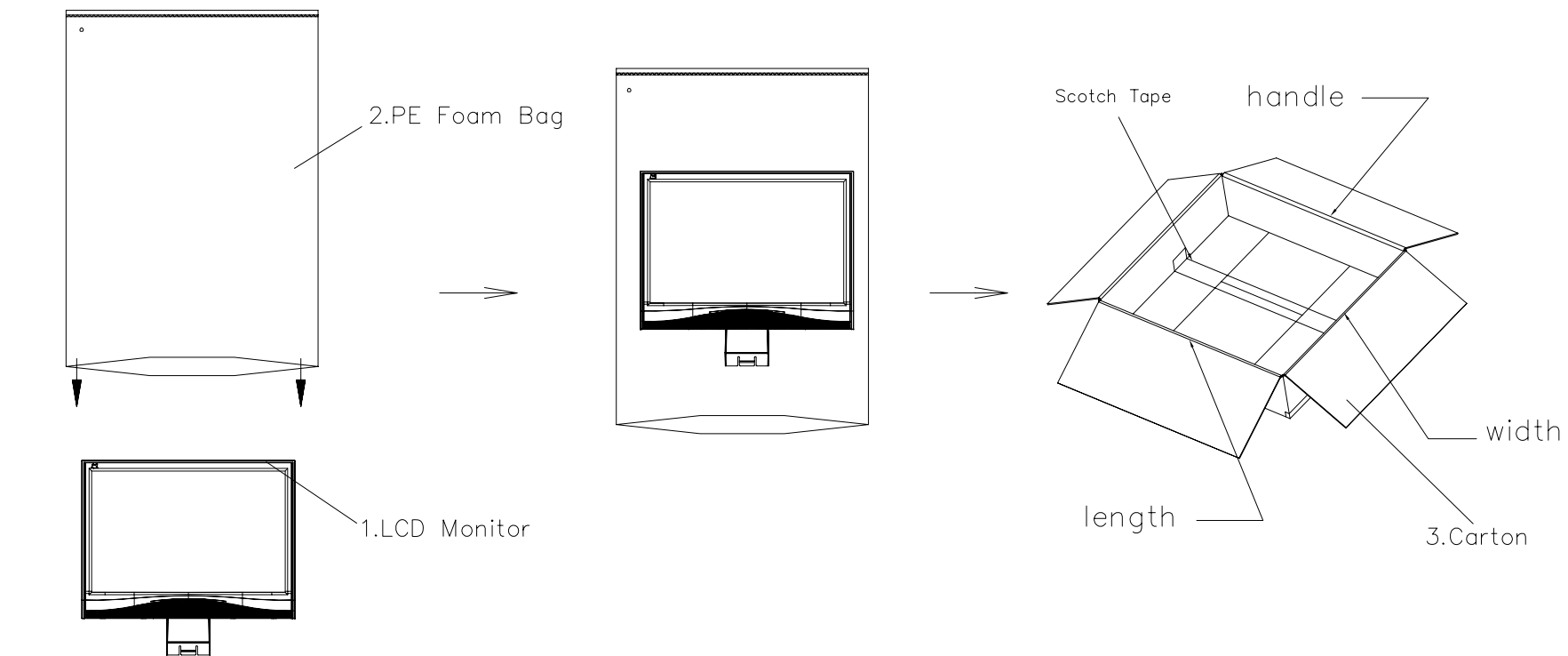
EXPLODED PARTS LIST (VX2235wm-1)

ViewSonic Model Number: VS11349

Rev: 1a

Serial No. Prefix: QA5

Item	ViewSonic P/N	Ref. P/N	Description	Q'ty
1	C-00008040	40-D010960	COVER_HINGE_LEFT_22W15	1
2	C-00008039	40-D010946	COVER_HINGE_RIGHT_22W15	1
3	N/A	40-D010955	REAR_ASSY_22W15	1
4	N/A	PM0ZFH0R00	22" Wide,Monitor,D-Sub+DVI+Audio	1
5	N/A	40-D010955	BEZEL_ASSY_22W15	1
6	N/A	35-D0110238	PCBA_A220Z1-Z01-H-K2	1
7	CB-00008015	32-D011077	FFC_15pin	1
8	C-00008043	40-D010942	STAND_ASSY_22W15	1
9	C-00008044	40-D010947	SEAT_ASSY_22W15	1
10	N/A	44-D009236	Backlight Unit,A220Z for MFM	1
11	N/A	N/A	Maylar	1
12	N/A	27-D008552	Lips Without Audio,DAC-19M009 BF	1
13	N/A	35-D009418	PCBA for A220Z1-Z01-P	1
14	N/A	41-D008024	Cover AD Assy	1
15	N/A	32-D009479	FFC,36pin	2
16	HW-00008002	42-D009237	SCREW,M3,P=0.5mm,L=2.5mm,Pan Head	3
17	HW-00000553	42A9930008	SCREW,M3,P=0.5mm,L=4mm,Pan Head	7
18	HW-00004042	42-D000649	SCREW,M4,P=0.7mm,L=8mm,Round Head	1
19	HW-00000553	42A9930008	SCREW,M3,P=0.5mm,L=4mm,Pan Head	4
20	N/A	42A9930008	SCREW,M3,P=0.5mm,L=5mm,Pan Head	2
21	HW-00000555	42A9930014	SCREW,M3,P=0.5mm,L=8mm,Pan Head	6
22	HW-00008003	42A9930015	SCREW,M3,P=1.27mm,L=10mm,Pan Head	1

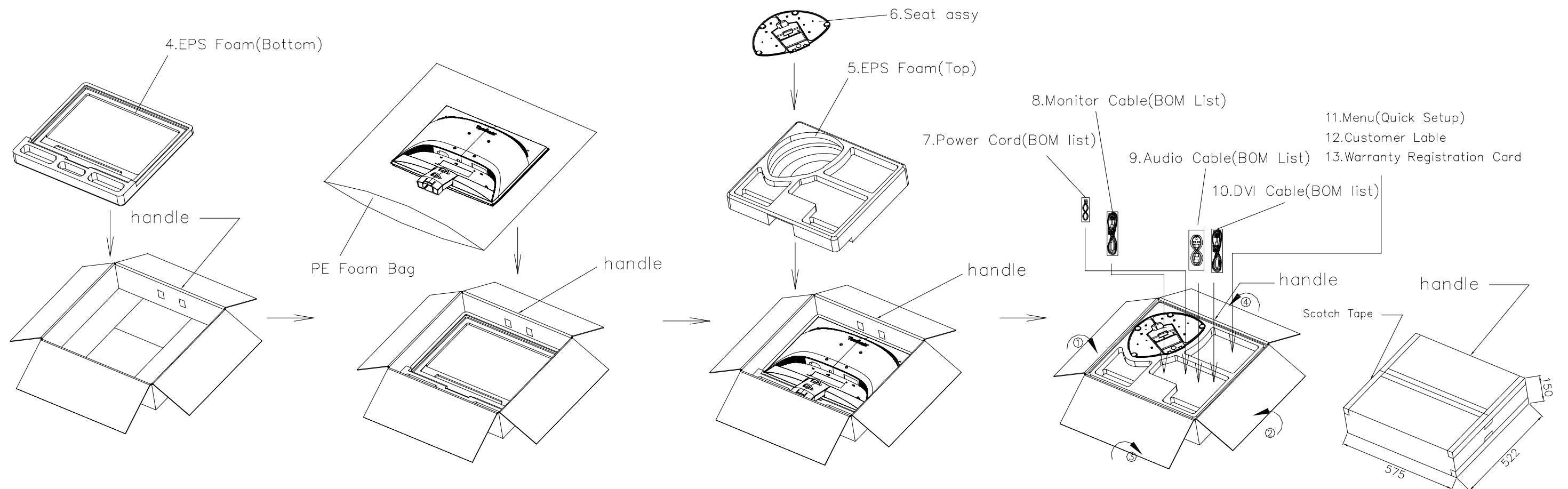


PACKING PART LIST (VX2235wm-1)

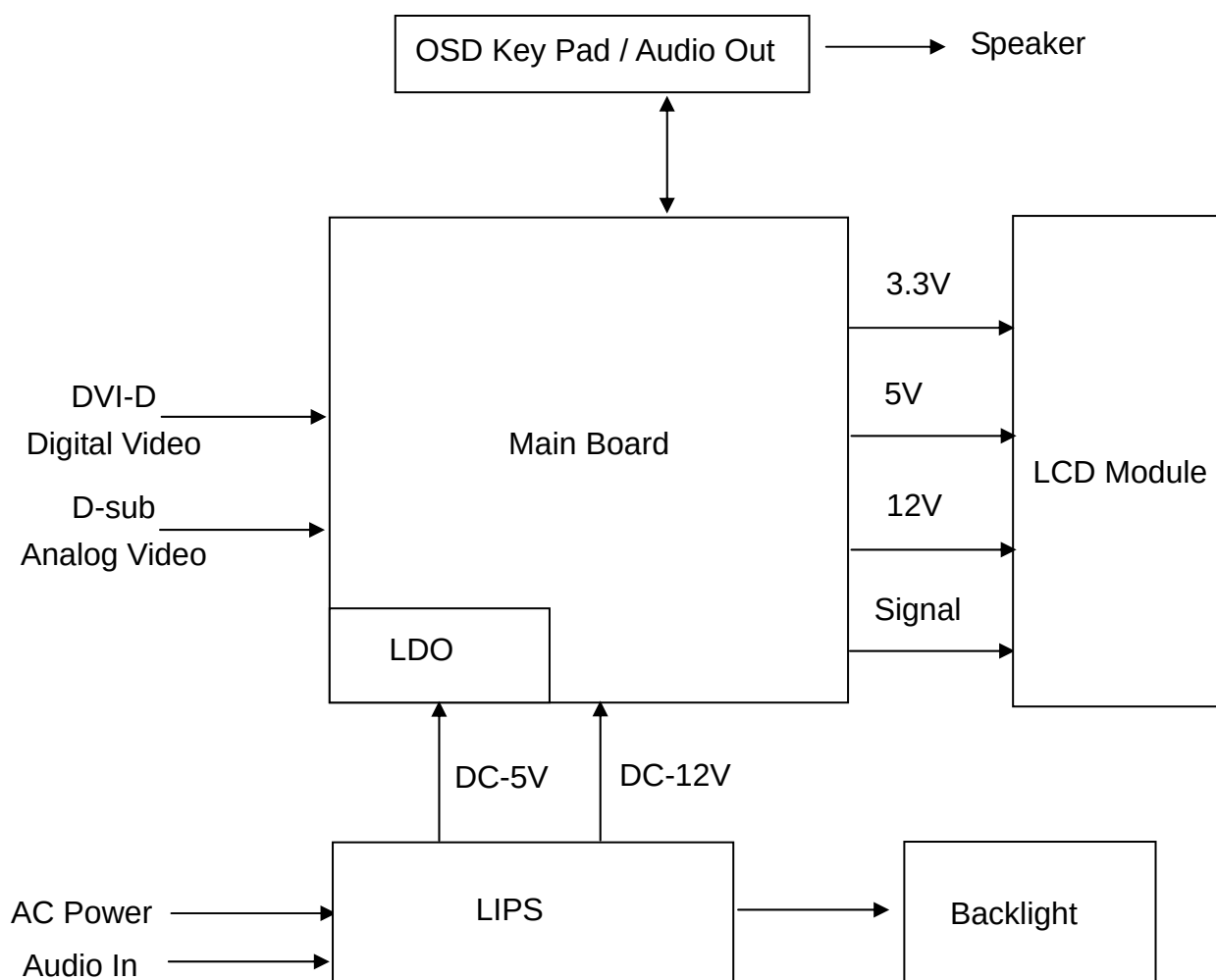
ViewSonic Model Number: VS11349

Rev: 1a

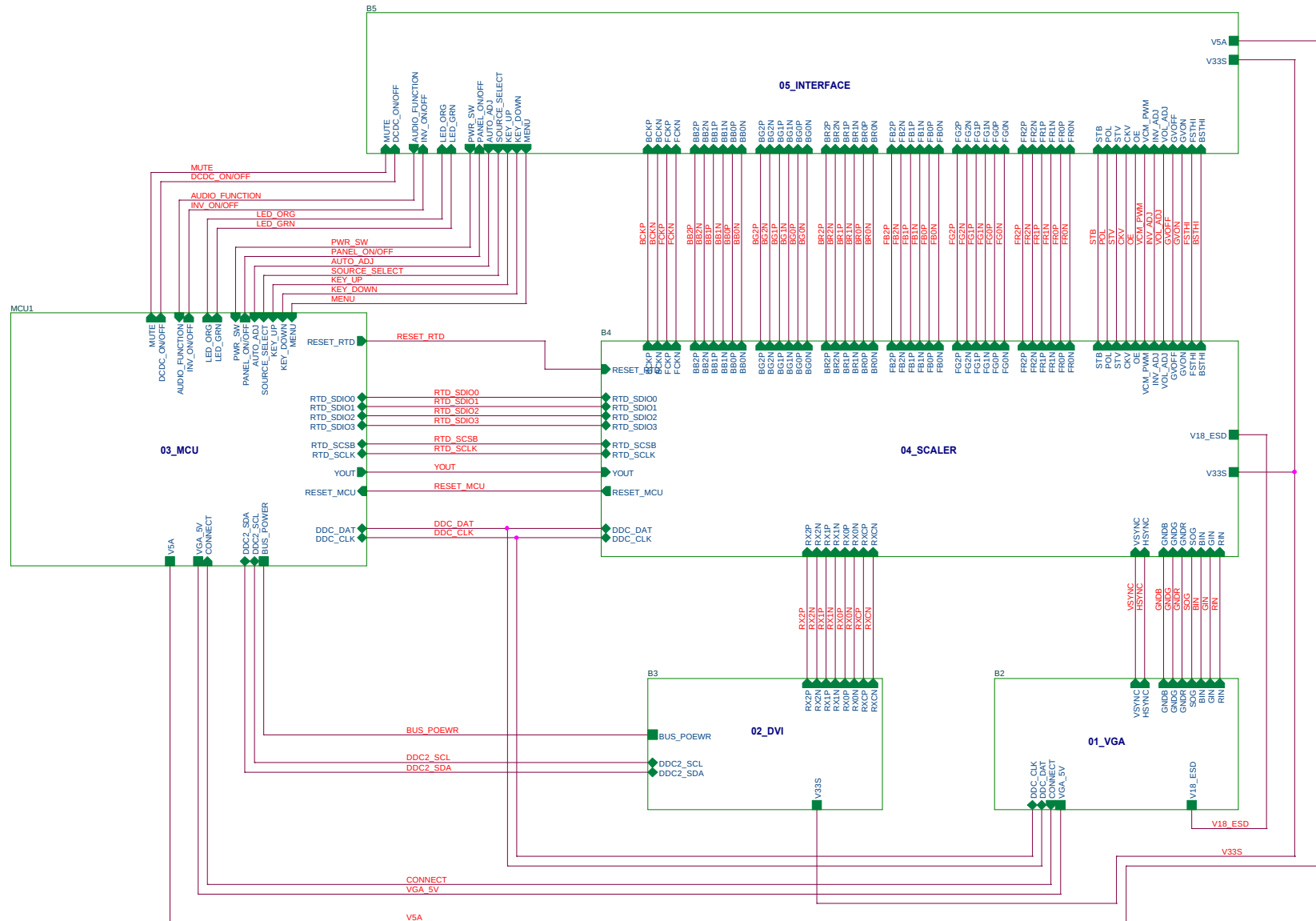
Item	ViewSonic P/N	Ref. P/N	Location	Q'ty
1	N/A	VX2235wm	LCD Monitor	1
2	P-00008033	78-D009624	PE Foam Bag	1
3	P-00008036	78-D011103	Carton	1
4	P-00008035	78-D011075	EPS Foam (Bottom)	1
5	P-00008034	78-D011076	EPS Foam(Top)	1
6	C-00008044	40-D010947	Seat Assy	1
7	A-00005071	32-D002330	Power Cord	1
8	CB-00005851	32-D002132	Monitor Cable	1
9	CB-00005678	32F2818011	Audio Cable	1
10	CB-00002083	32F0000004	DVI Cable	1
11	DC-00008040	76-D011105	Menu (Quick Setup)	1
12	N/A	Different region (refer to BOM)	Customer Label	1
13	N/A	Different region (refer to BOM)	Warranty Registration card	1



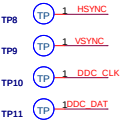
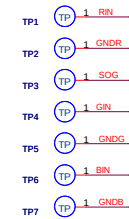
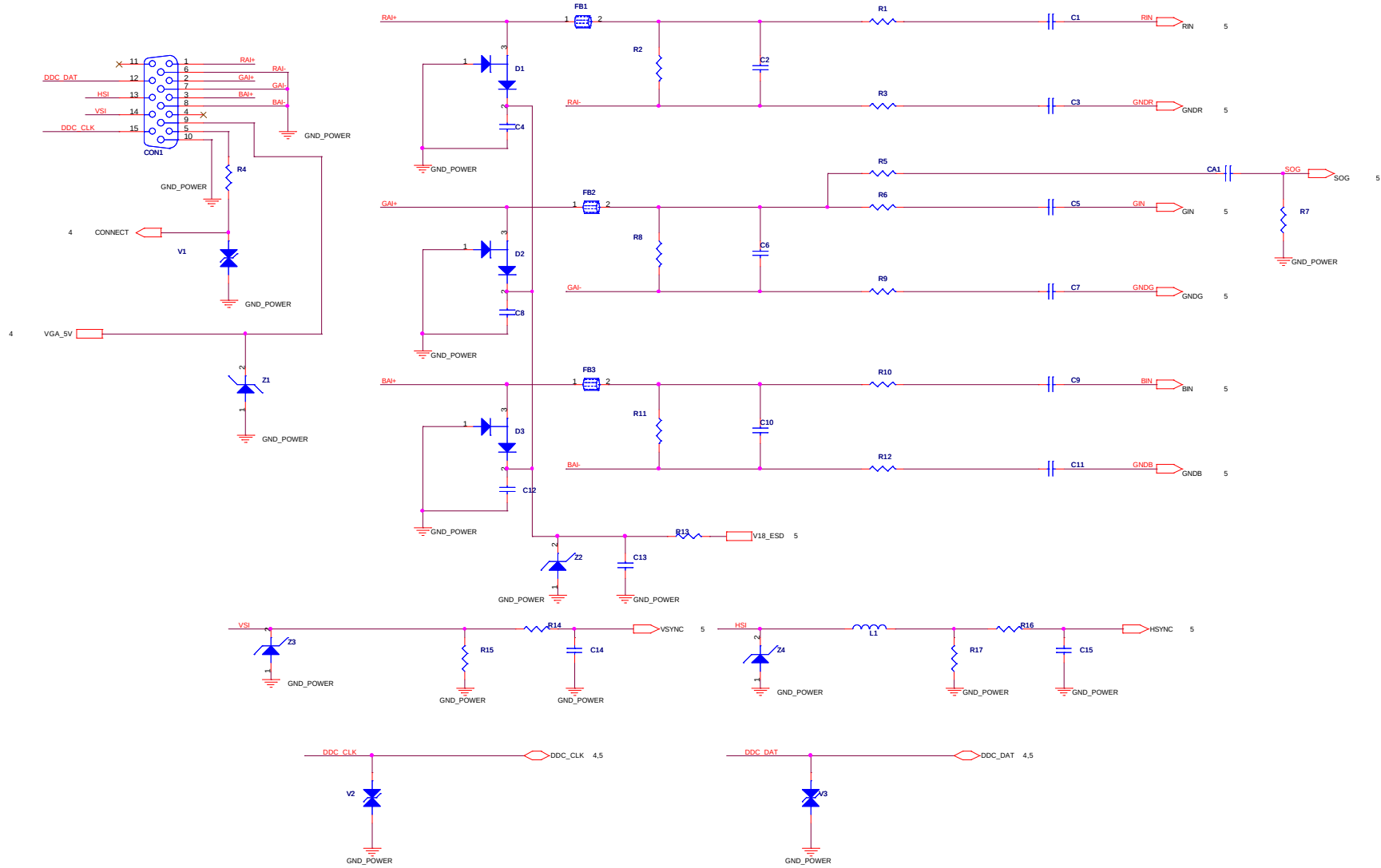
9. Block Diagram



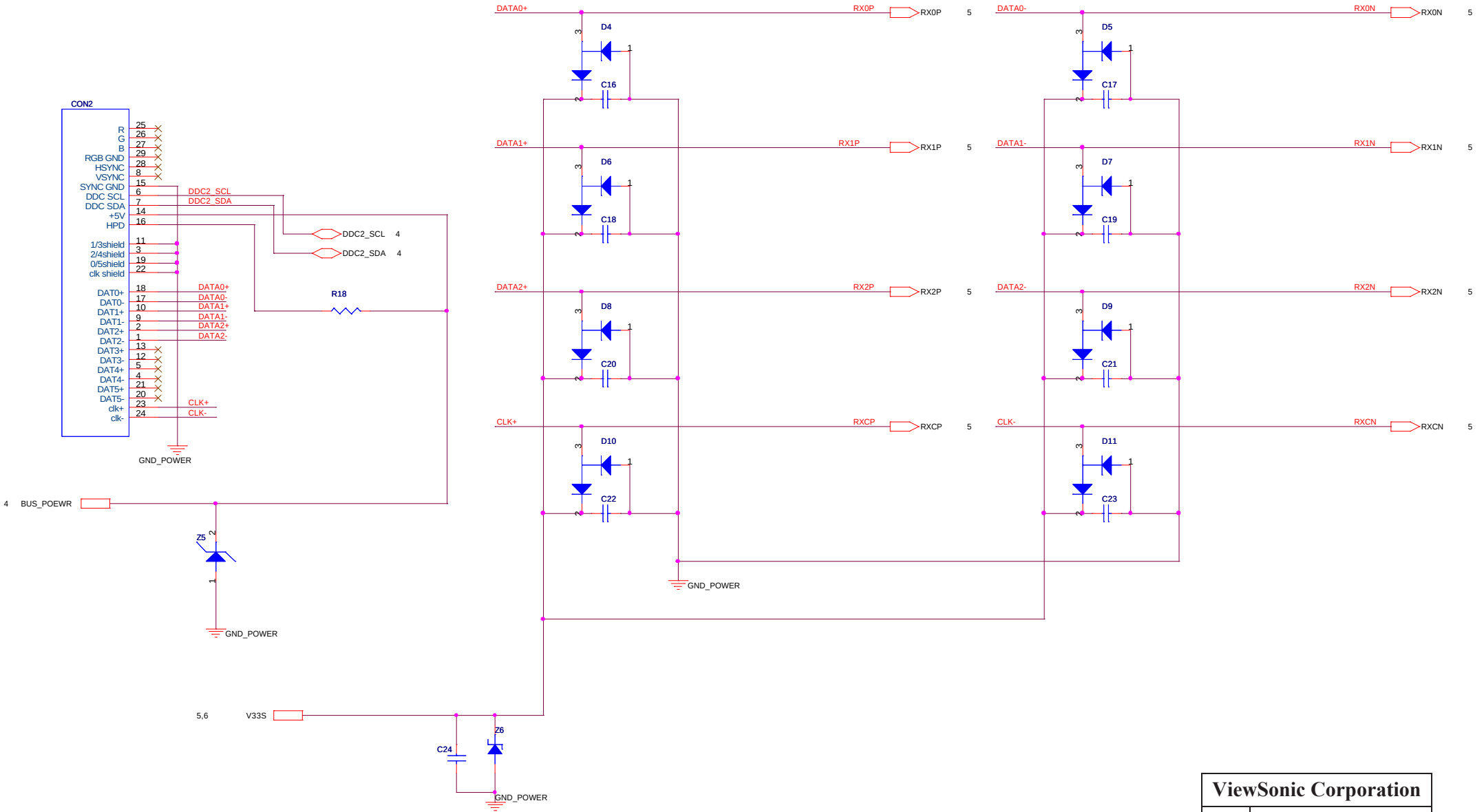
10. Schematic Diagrams



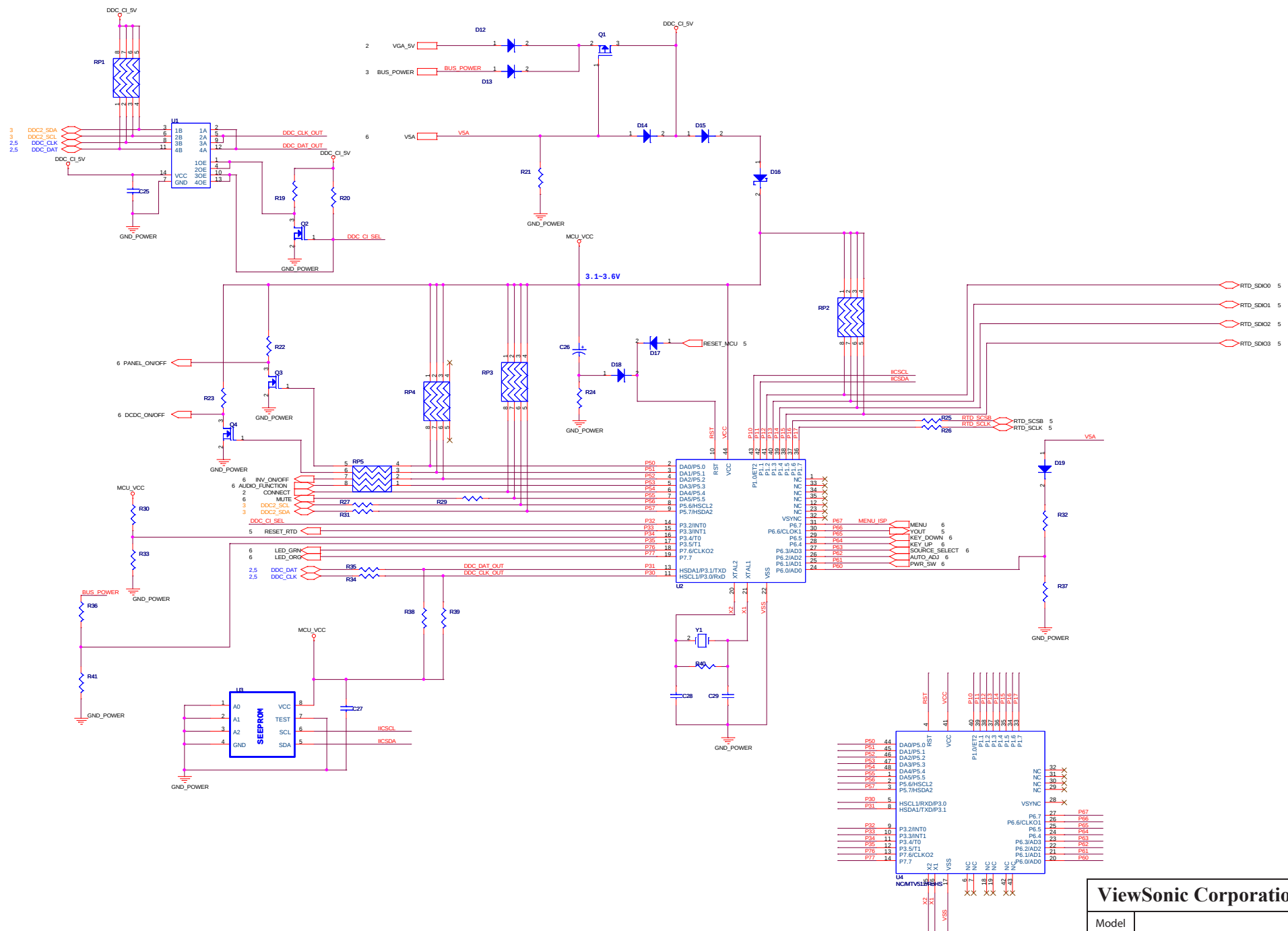
ViewSonic Corporation		
Model		
Title	DIAGRAM	
Date		Rev:



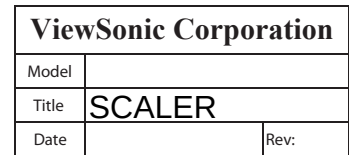
ViewSonic Corporation		
Model		
Title	VGA	
Date		Rev:

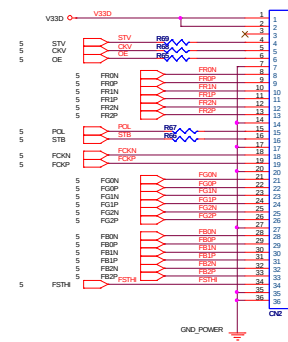
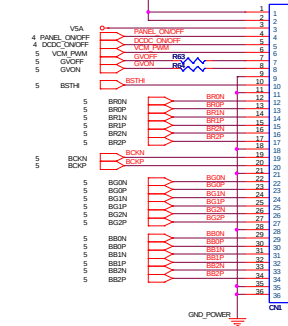
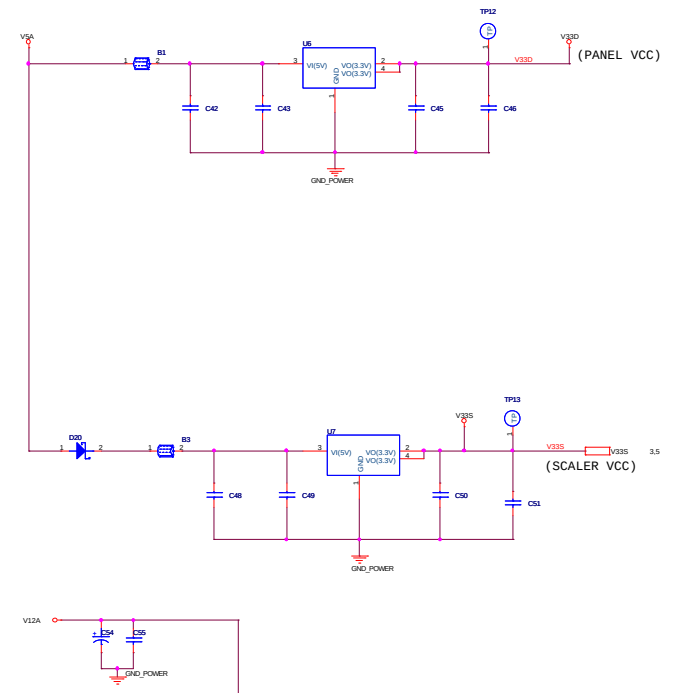
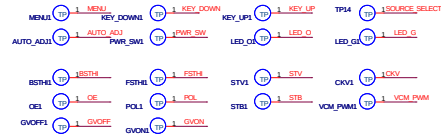
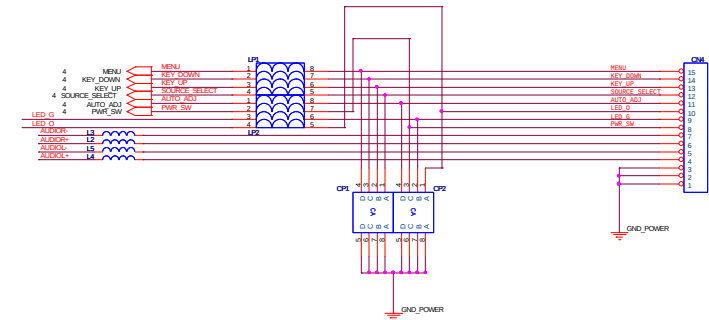
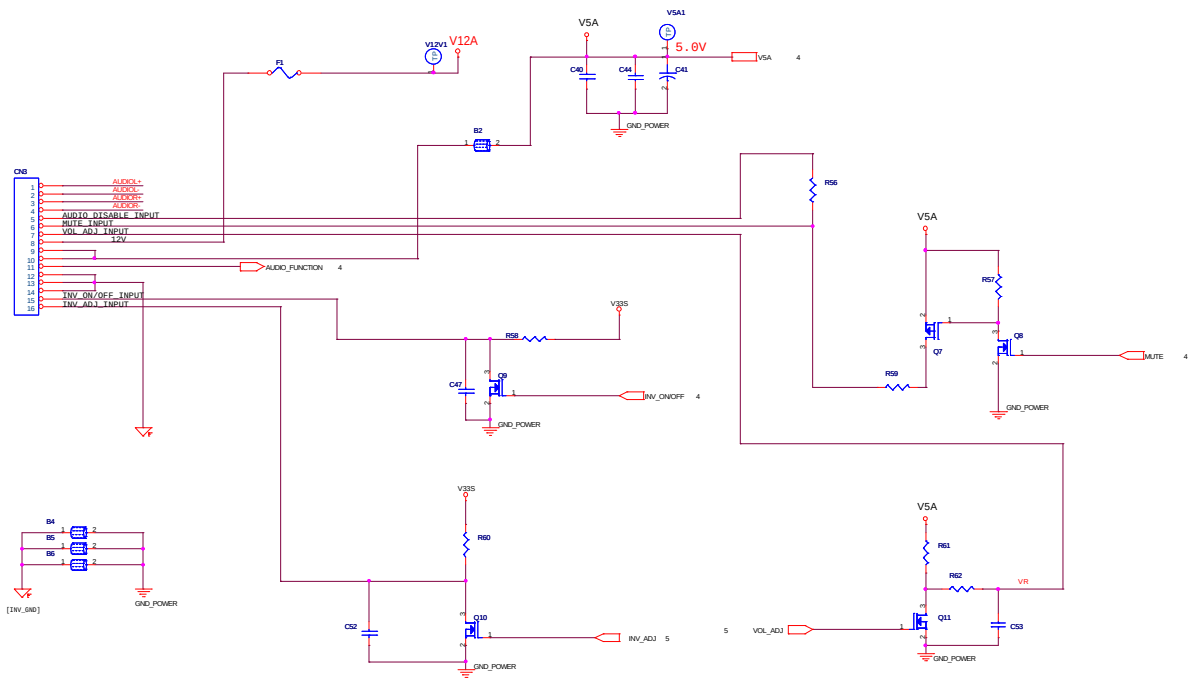


ViewSonic Corporation		
Model		
Title	DVI	
Date		Rev:



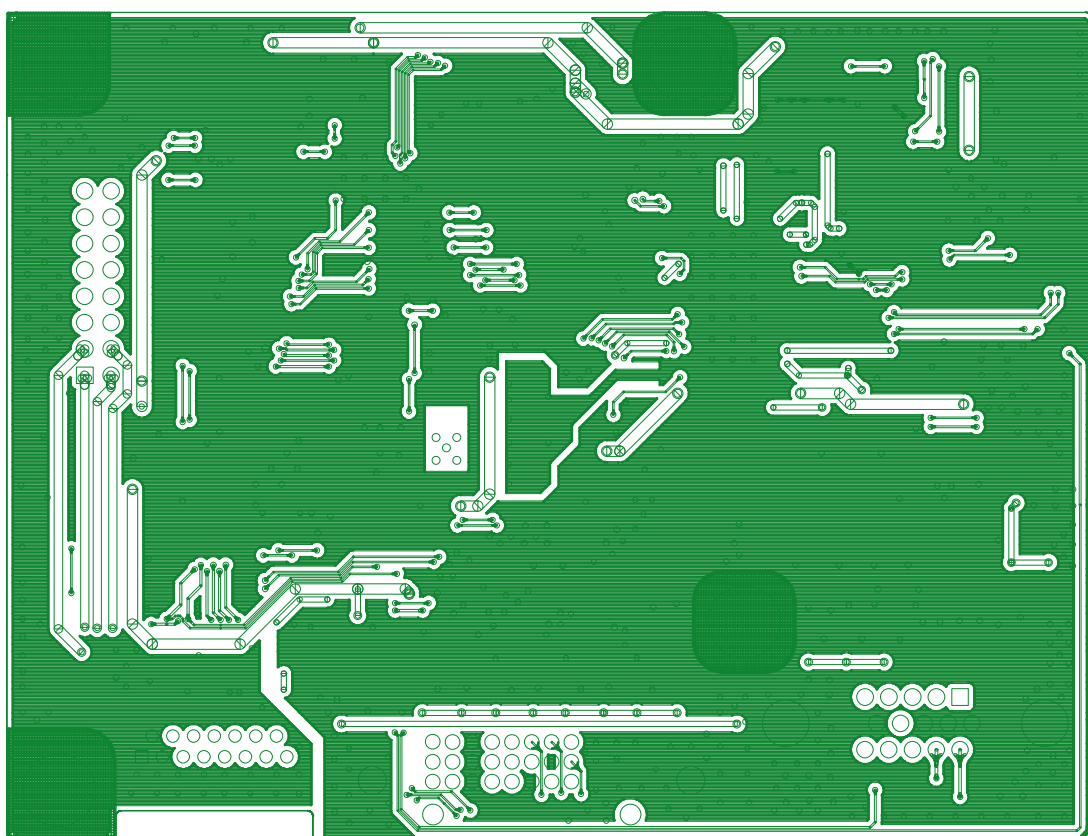
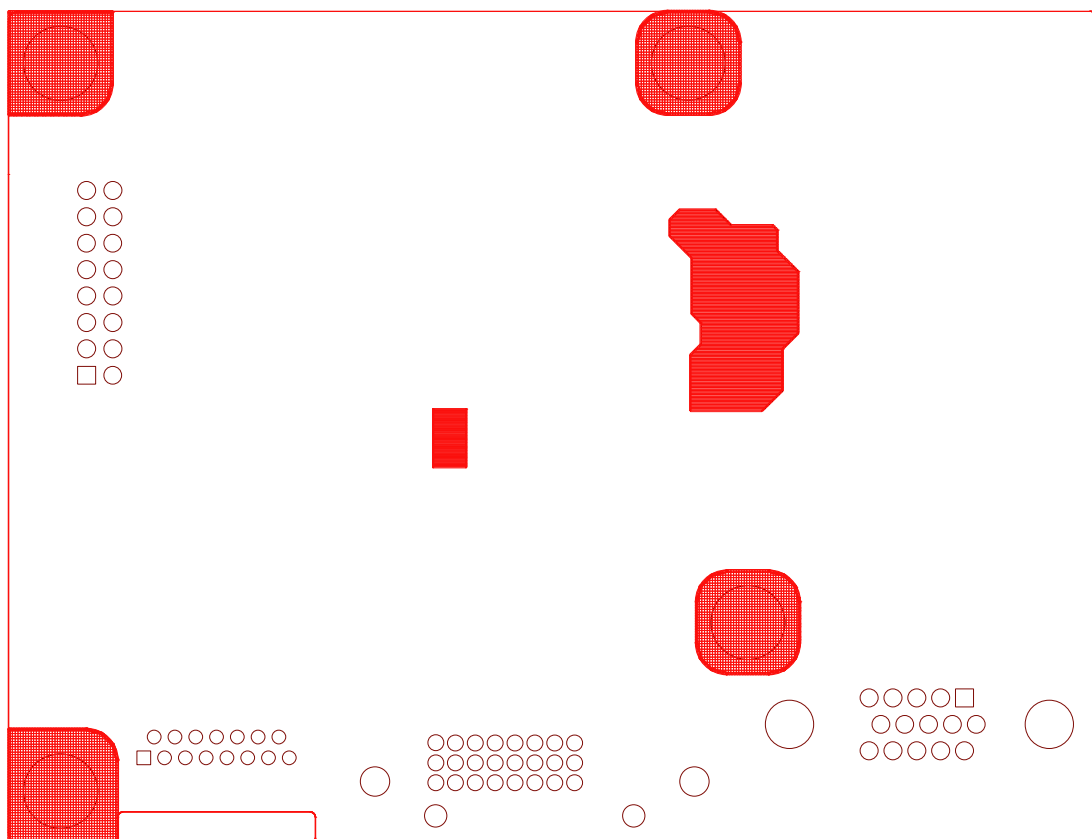
ViewSonic Corporation		
Model		
Title	MCU	
Date		Rev:

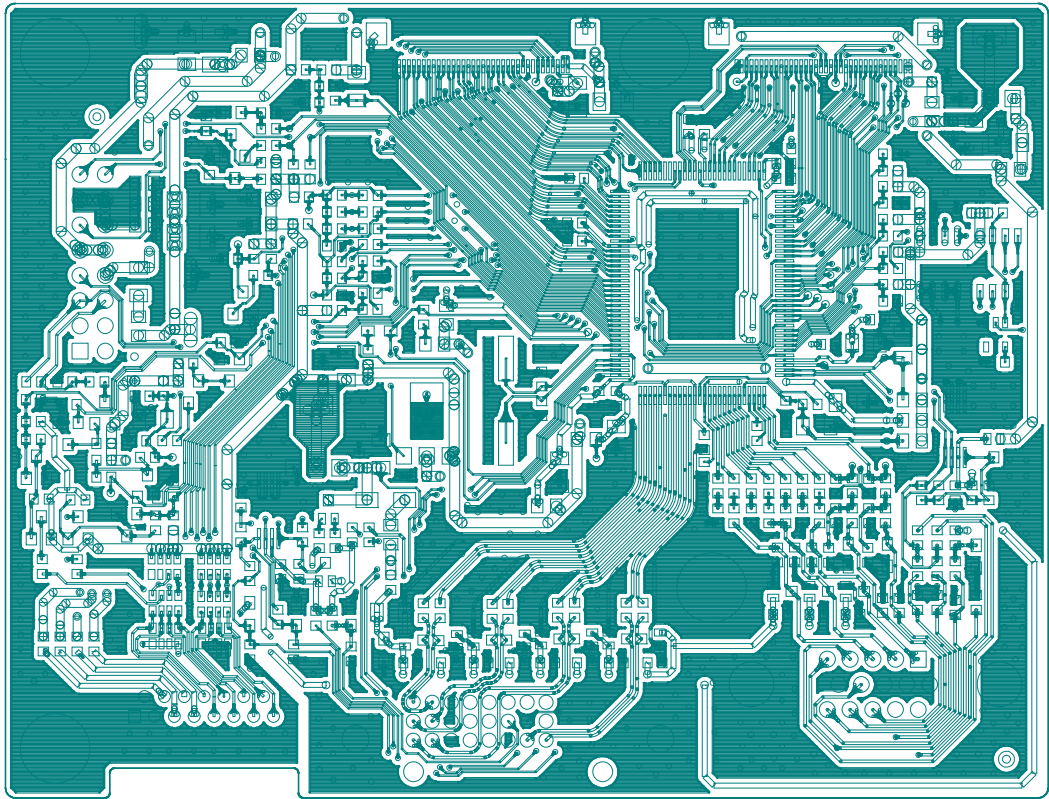




ViewSonic Corporation		
Model		
Title	I/F	
Date		Rev:

11. PCB Layout Diagrams





*** Reader's Response***

Dear Readers:

Thank you in advance for your feedback on our Service Manual, which allows continuous improvement of our products. We would appreciate your completion of the Assessment Matrix below, for return to ViewSonic Corporation.

Assessment

A. What do you think about the content of this Service Manual?

<i>Unit</i>	<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Bad</i>
1. Precautions and Safety Notices				
2. Specification				
3. Front Panel Function Control Description				
4. Circuit Description				
5. Adjustment Procedure				
6. Troubleshooting Flow Chart				
7. Recommended Spare Parts List				
8. Exploded Diagram and Exploded Parts List				
9. Block Diagrams				
10. Schematic Diagrams				
11. PCB Layout Diagrams				

B. Are you satisfied with this Service Manual?

<i>Item</i>	<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Bad</i>
1. Service Manual Content				
2. Service Manual Layout				
3. The form and listing				

C. Do you have any other opinions or suggestions regarding this service manual?

Reader's basic data:

Name:		Title:	
Company:			
Add:			
Tel:		Fax:	
E-mail:			

After completing this form, please return it to ViewSonic Quality Assurance in the USA at facsimile 1-909-839-7943. You may also e-mail any suggestions to the Director, Quality Systems & Processes (marc.maupin@viewsonic.com)