Service Manual

ViewSonic VE1920wmb-2

Model No. VS10866

19” Color TFT LCD Display

(VA1920wmb-2_SM Rev. 1a Aug. 2006)

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Revision History

Revision	SM Editing Date	ECR Number	Description of Changes	Editor
1a	8/23/2006		Initial Release	Jamie Chang

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1. Precautions and Safety Notices

1.1. 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.

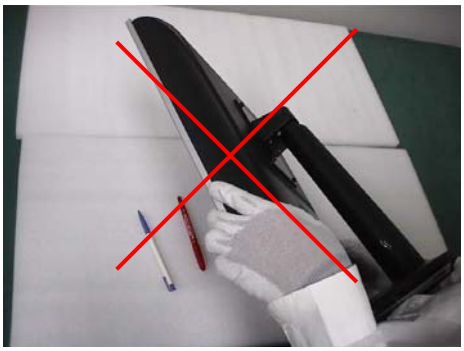
3. Safety Check

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 :	Incorrect Methods :
Only touch the metal-frame of the panel or the front cover of the monitor. Do not touch the surface of the polarizer .	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

Introduction

FEATURES		VE1920wm/wmb
TFTLCD PANEL	Size	19” wide
	Luminance (Typ, cd/㎡)	300 cd/㎡
	Contrast Ratio (Typ)	500:1
	Colors (6 bit + 2 bit FRC)	16.2 M colors
	Response Time (Typ)	8 ms
	Viewing Angle (H/V)	150 ° / 130 °
	Recommend resolution	1440 x 900@60Hz
Input Signal	Analog (75ohms, 0.7/1.0 Vp-p)	Yes
	Digital	Yes
Sync Compatibility	Separate Sync	Yes
	Composite Sync	No
	Sync on Green	No
Compatibility	PC	Yes
	Power Mac	Yes
	TV Box (NextVision 6)	Yes
Power Voltage	AC 100-240V, 50/60Hz	Yes
Power Consumption	On Mode(Max / Typ)	36W(max) / 32W(typ)
	Active Off Mode (Max)	1W
Audio	Amplifier / Speaker	1.5 W / 2.5W x 2
Ergonomics	Tilt (20 ° **to** -5 °)	Yes
	Swivel	No
	Pivot	No
	Height Adjust	0-100mm
OSD Control	[◄ X] [1] [▼] [▲] [2] [⏻]	Yes
Dimension	Physical (W x H x D mm)	451 x 426 x 221 (mm) 17.8 x 16.8 x 8.7 (in)
	Package (W x H x D mm)	492 x478 x186 (mm) 19.3 x 18.8 x 7.3 (in))
Weight	Physical (Net kg/lb)	5.1 kg (11.2 lb)
	Package (Gross Kg/lb)	6.6 kg (14.5 lb)
Operating Condition	Temperature (℉/℃)	41℉-95℉/+5℃-+35℃
	Humidity (%)	20 % - 80 %
Storage Condition	Temperature (℉/℃)	-4℉-131℉/-20℃-55℃
	Humidity (%)	20 % - 85 %
Regulation	CB / TCO03 / UL/cUL / FCC-B / ICES 003 / Argentina-TUV/S / NOM / EPA Energy Star / TUV/Ergo / ISO13406-2 / TUV/GS / CE / GOST-R / SASO / BSMI / PSB / C-Tick / Korea (MIC) / CCC	

GENERAL specification

Test Resolution & Frequency	1440 x 900 @ 60Hz
Test Image Size	Full Size
Contrast and Brightness Controls	Factory Default: Contrast = 70%, Brightness = 100%

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 2B
Video Signals	1. Video RGB (Analog) 2. DVI (Digital) Separate
Video Impedance	75 Ohms (Analog)
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 2B	Compliant with Revision 1.3
Sync Compatibility	Separate Sync
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, 1280 x 768, 1280 x 960, 1280 x 1024, 1440 x 900 * 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

POWER SUPPLY

Power Supply (Adapter)	Part Number: 27-D003247
Input Voltage Range	90 to 264 VAC
Input Frequency Range	47 to 63 Hertz
Short Circuit Protection	OUTPUT CAN BE SHORTED WITHOUT DAMAGE
Over Current Protection	FUSE 3.15A TYPICAL AT 250 VAC
Leakage Current	75 MA (MAX) AT 240VAC / 50HZ
Efficiency	80 % TYPICAL AT 100VAC @60HZ
Fuse	INTERNAL AND NOT USER REPLACEABLE
Power Dissipation	32W(typ)
Max Input AC Current	1.6 ARMS @ nominal RANGE
Inrush Current (Cold Start)	80 A @ 240VAC , 50HZ
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 EN61000-4-4 ±2KV TRANSIENT TEST WITH NO DAMAGE
Power Supply Line Surge Immunity	Shall be able to withstand ±2KV (L-L) and ±2.3KV (L-PE) 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 defined 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 < 36 W (max) / 32 W (typ) ACTIVE OFF < 1 W
Recovery Time	ON Mode = N/A, ACTIVE OFF < 5 sec

ELECTRICAL REQUIREMENT

Horizontal / Vertical Frequency

Horizontal Frequency	30 – 82 kHz
Vertical Refresh Rate	50 – 85* Hz.
Maximum Pixel Clock	135 MHz (EDID file is 140MHz)
Sync Polarity	Independent of sync polarity.

Timing Table

Item	Timing	Analog	Digital
1	640 x 350 @ 70Hz, 31.5kHz	Yes	Yes
2	640 x 400 @ 60Hz, 31.5kHz	Yes*	Yes
3	640 x 400 @ 70Hz, 31.5kHz	Yes	Yes
4	640 x 480 @ 60Hz, 31.5kHz	Yes	Yes
5	640 x 480 @ 67Hz, 35.0kHz	Yes	Yes
6	640 x 480 @ 72Hz, 37.9kHz	Yes	Yes
7	640 x 480 @ 75Hz, 37.5kHz	Yes	Yes
8	640 x 480 @ 85Hz, 43.27kHz	Yes	Yes
9	720 x 400 @ 70Hz, 31.5kHz	Yes	Yes
10	800 x 600 @ 56Hz, 35.1kHz	Yes	Yes
11	800 x 600 @ 60Hz, 37.9kHz	Yes	Yes
12	800 x 600 @ 75Hz, 46.9kHz	Yes	Yes
13	800 x 600 @ 72Hz, 48.1kHz	Yes	Yes
14	800 x 600 @ 85Hz, 53.7kHz	Yes	Yes
15	832 x 624 @ 75Hz, 49.7kHz	Yes	Yes
16	1024 x 768 @ 60Hz, 48.4kHz	Yes	Yes
17	1024 x 768 @ 70Hz, 56.5kHz	Yes	Yes
18	1024 x 768 @ 72Hz, 58.1kHz	Yes	Yes

19	1024 x 768 @ 75Hz, 60.0kHz	Yes	Yes
20	1024 x 768 @ 85Hz, 68.67kHz	Yes	Yes
21	1152 x 864@ 75Hz, 67.5kHz	Yes	Yes
22	1280 x 1024 @ 60Hz, 63.4kHz	Yes	Yes
23	1280 x 1024 @ 75Hz, 79.97kHz	Yes	No
24	1280x 768 @ 60Hz, 47.78kHz	Yes	Yes
25	1280 x 960 @60Hz, 60kHz	Yes	Yes
26	1440 x 900 @ 60Hz, 55.96kHz	Yes	Yes
*The image vertical size might not be full screen.			

Primary Presets

1440 x 900 @ 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 Adjust” time
- Under DOS mode (640 x 350, 720 x 400 & 640 x 400), there is no “Auto Adjust” feature.
- The monitor needs to do “Auto Adjust” the first time a new mode is detected but except the DOS mode 640 x 350, 720 x 400 & 640 x 400.(see section “0-Touch™ Function Actions”)
- While running Change Mode, Auto Adjust or Memory Recall, the image shall blank

3. Front Panel Function Control Description

Front Panel Hardware Controls

Power Switch (Front Head)	Power Control, soft Power Switch.
Power LED (Front Head)	Green – ON Orange – Active Off Dark = Soft Power Switch OFF
Front Panel Controls (Head) [◄X] [1] [▼] [▲] [2] [⏻]	[⏻] Power [1] BUTTON 1 [2] Button 2 [▲] UP ARROW BUTTON [▼] DOWN ARROW BUTTON [◄ X] Audio Mute on/off Note: Power Button, Button 1 and Button 2 and Mute Button 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)
[▼] or [▲]	To immediately activate Contrast menu. It should be change to Brightness OSD by push button [2]
[▼] + [▲]	Recall both of Contrast and Brightness to default
[1] + [2]	Toggle 720x400 and 640x400 mode when input 720x400 or 640x400 mode
[1] + [▼] + [▲]	White Balance. (Not shown on user's guide)
[1] + [▼]	Power Lock
[1] + [▲]	OSD Lock
[◄X]	Audio Mute on /off
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, 6500K(default), 5400, 5000, User Color [R, G, B]

Information

H Frequency, V Frequency, Resolution, Pixel Clock, Serial Number,

Model Number, "www.ViewSonic.com"

Manual Image Adjust

H. Size[*1], H./V. Position[*1], Fine Tune[*1], Sharpness[*3]

Setup Menu

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

[*3] These functions are not available under Native Resolution Mode

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

[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

AUDIO INTERFACE (SPEAKER SPECIFICATION)

Line input connection	3.5 mm stereo jack
Line input signal	1 Vrms
Line input impedance	20k ohms
Maximum power output (Electric)	1.5W / CH
Signal to Noise Ratio	72 dB
Frequency response	300 TO 20KHZ
Distortion	8%@1kHz
Vibration	There should be no audible vibration with volume at 100%. (Input signal within 1 Vrms)
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	NOTE: THERE IS NO GUARANTEE <1 W POWER CONSUMPTION IN ACTIVE OFF MODE, WHEN THE AUDIO CABLE IS CONNECTED

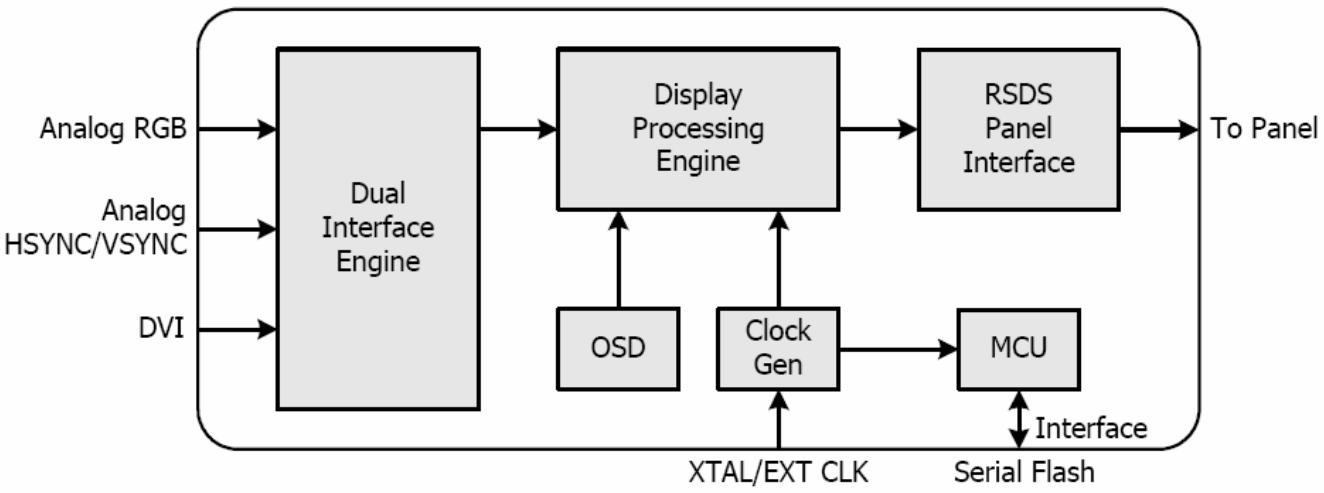
OSD Table

Layer 1	Layer 2	Layer 3
Auto Image Adjust		
Contrast/Brightness	Contrast (+ / -)	
	Brightness (+ / -)	
Input Select	Analog	
	Digital	
Audio adjust	Volume (+, -)	
	Mute	On/Off
Color Adjust	sRGB	
	9300K	
	6500K	
	5400K	
	5000K	
	User Color	Red (+ / -)
		Green (+ / -)
		Blue (+ / -)
Information		
Manual Image Adjust	Horizontal Size	+ / -
	H/V Position	H Position (+ / -)
		V Position (+ / -)
	Fine Tune	+ / -
	Sharpness	+ / -
Setup Menu	Language Select	English
		French
		German
		Spanish
		Italian
		Finnish
		Japanese
		Simplified Chinese
		Traditional Chinese
	Resolution Notice	On/Off
	Input Priority	On/Off
	OSD Position	H Position (+ / -)
		V Position (+ / -)
	OSD Time Out	5/15/30/60
	OSD Background	On/Off
Memory Recall		

4. Circuit Description

The TSUM57AK is total solution graphics processing IC for LCD monitors with panel resolutions up to SXGA. It is configured with a high-speed integrated triple-ADC/PLL, an integrated DVI receiver, a high quality display processing engine, and an integrated output display interface that can support RSDS panel interface format. To further reduce system costs, the TSUM57AK also integrates intelligent power management control capability for green-mode requirements and spread-spectrum support for EMI management.

The TSUM57AK incorporates the world's first coherent oversampled RGB graphics ADC in a monitor controller system. The oversampling ADC samples the input RGB signals at a frequency that is much higher than the signal source pixel rate. This can preserve details in the video signal that ordinarily would be lost due to input signal jitter or bandwidth limitations in non-oversampled systems. The TSUM57AK also incorporates a new Dynamic Frame Rate (DFR) generator for the digital output video to the display panel that preserves the advantages of a fixed output clock rate, while eliminating the output end of frame short-line.



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.

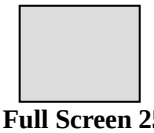
5. Window Shut Down
Test Signal: 1280*1024@60Hz
Test Pattern:

Checkered 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:

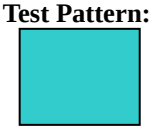
Full Screen Green

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 (右→左，From 0 to 100% White)	Figure 1
2	Gray_Scale_0-100_H	Horizontal 64 (256) Gray Scale (上→下，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

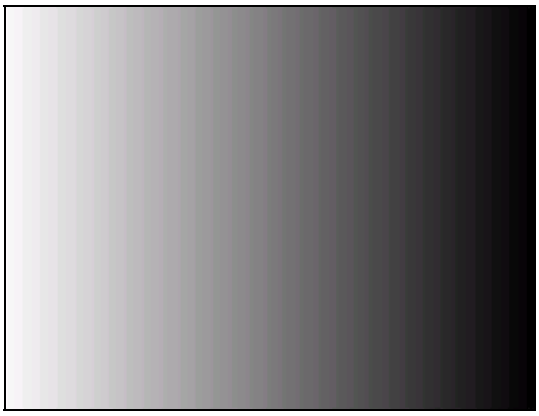


Figure 1

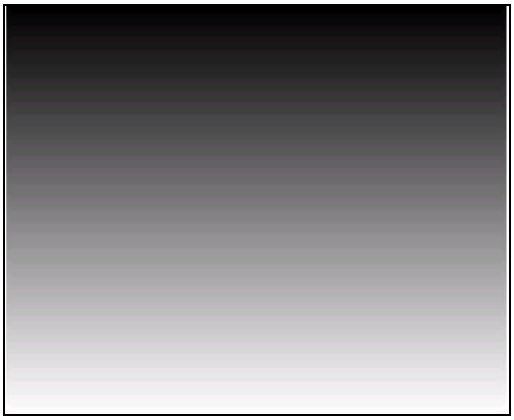


Figure 2

Figure 3

Figure 4

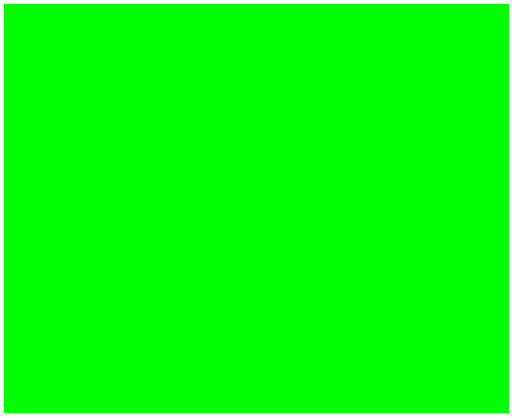


Figure 5

Figure 6

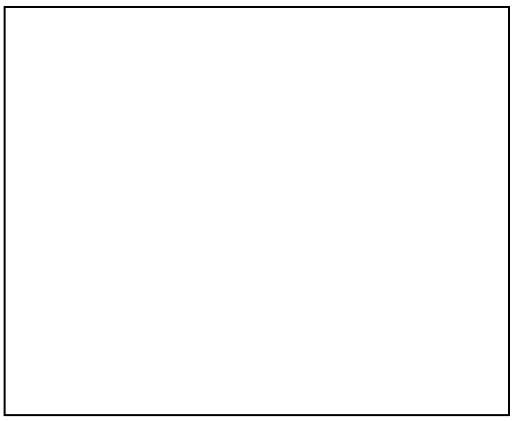


Figure 7

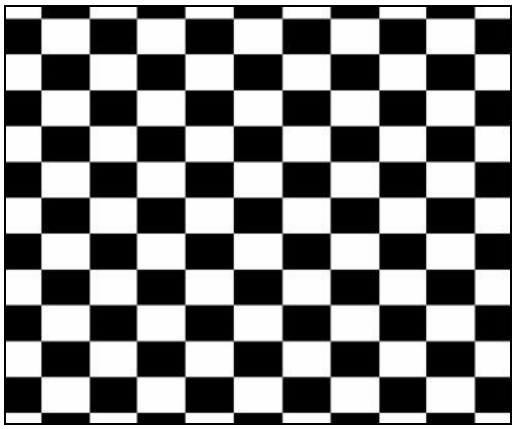
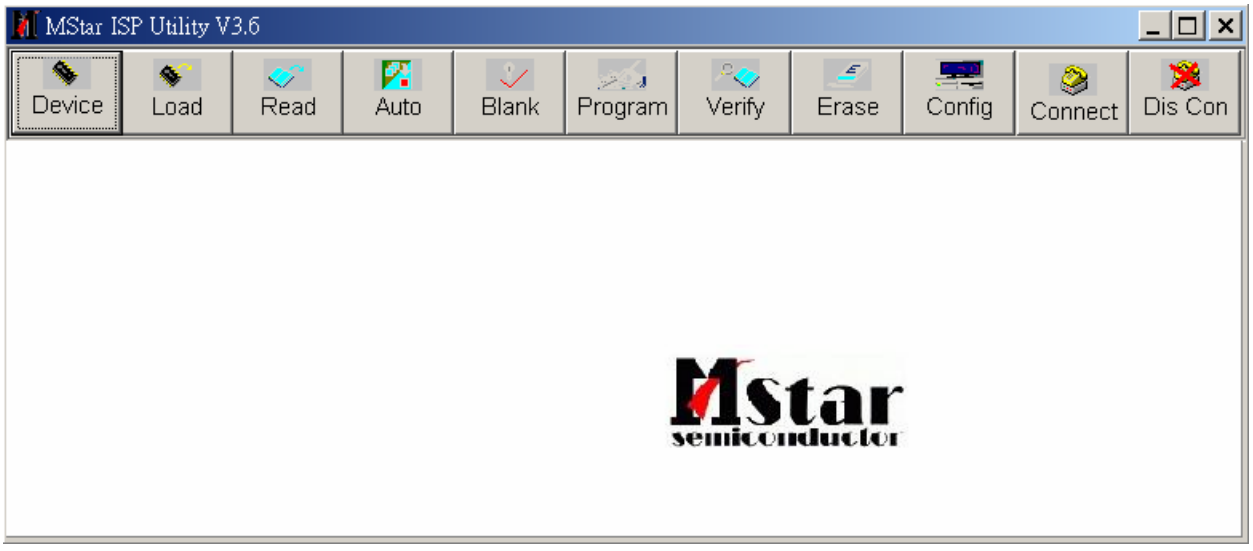


Figure 8

Mstar ISP Tool User Manual

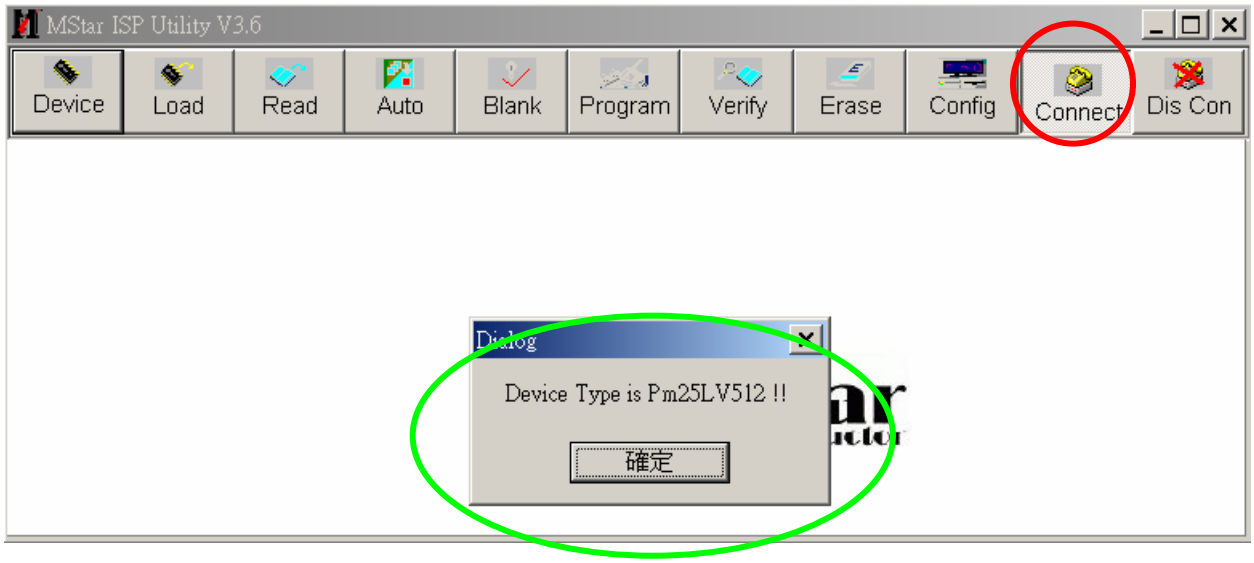
Setp1:
Take the cable of Print Port to connect Print Port of PC and Print Port of fixture(and EDID burn in the same fixture) to connect VGA Cable between D-sub of fixture and D-sub of AD Board of monitor，the monitor must be turned on the power。

Step 2 :
Open ISP Tool



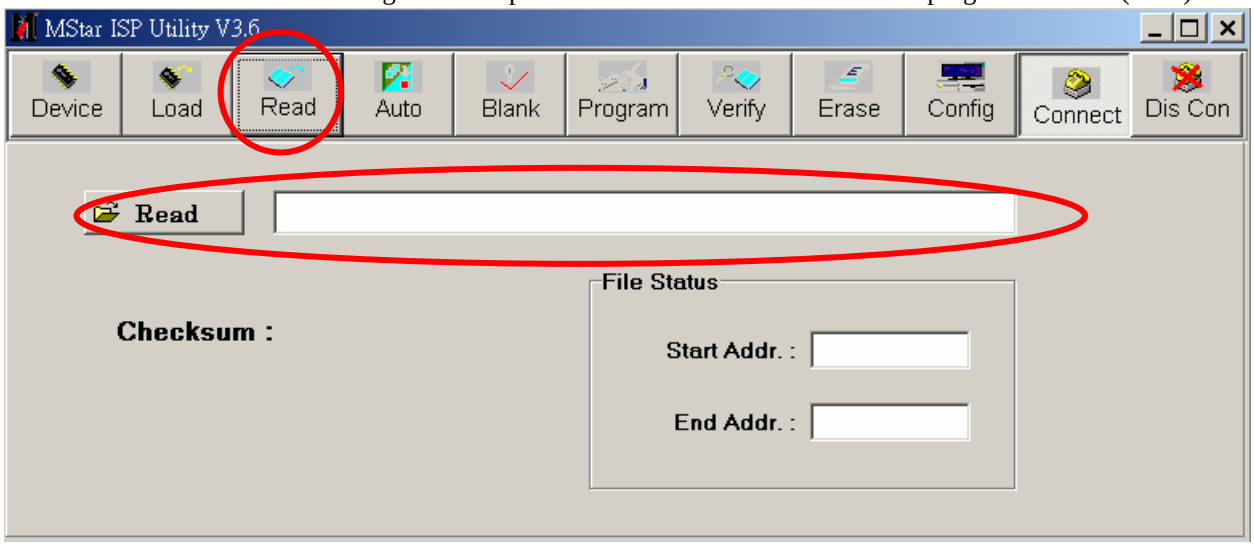
Step 3 :

Press ”connect” into ISP mode，display the model of Flash，The dialog of figure is displayed “Device Type is Pm25LV512” then press ”確定”。

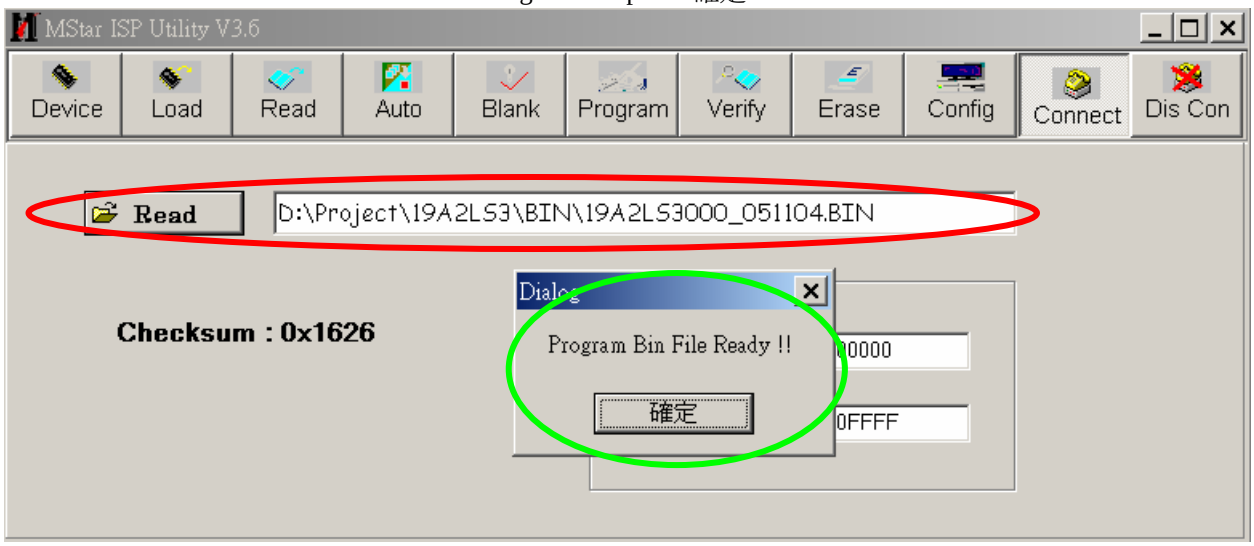


Step 4:

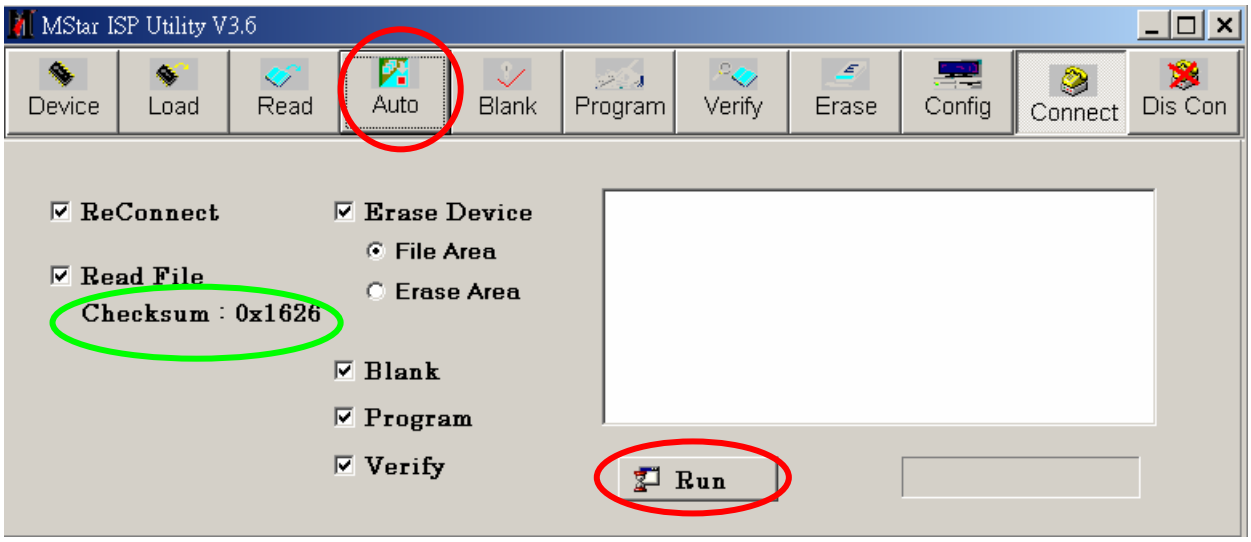
Press ”Read” then enter as below figure，then press  to down load the program of BIOS (*.bin)。



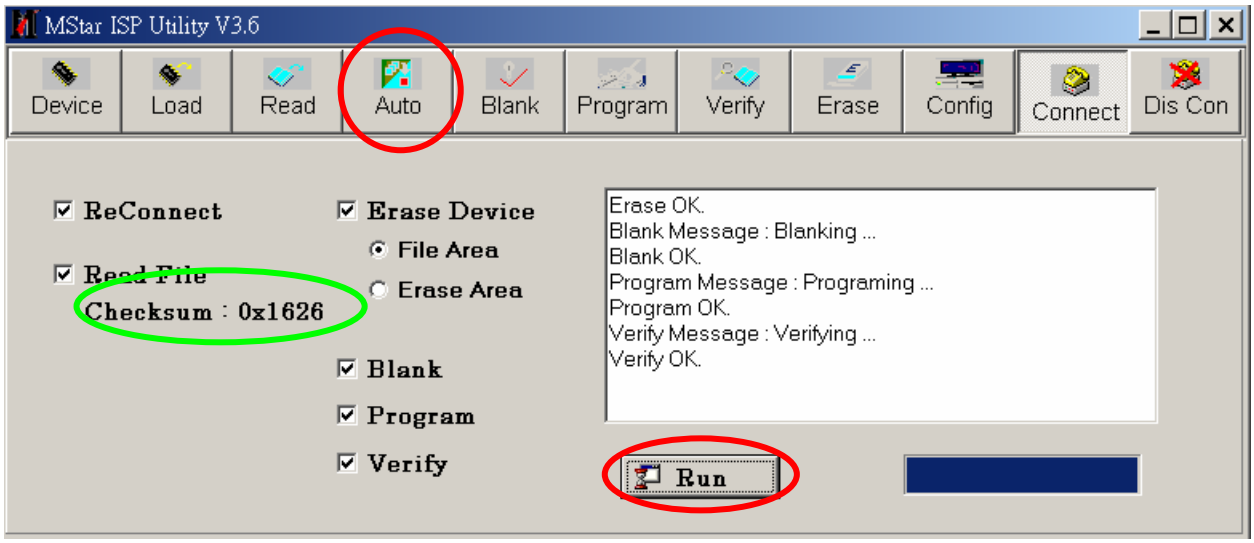
If down load BIOS that is successful as below figure then press”確定”。



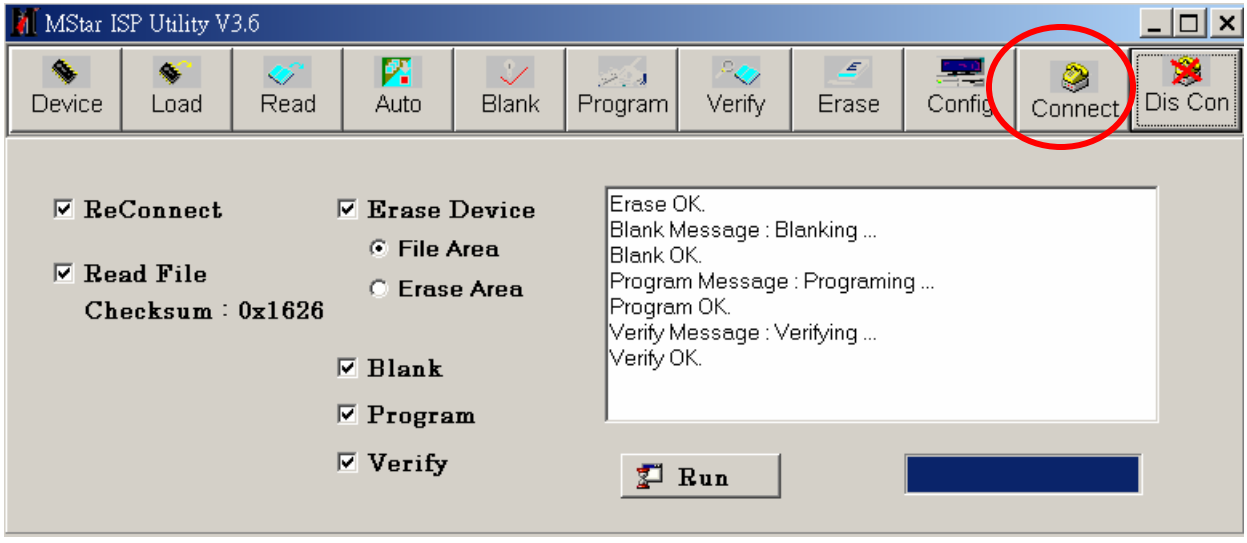
Step 5 :
Press ”Auto” into below figure that display the value of BIOS Checksum below figure is displayed “0x1626” then press ”Run” to execute the BIOS procedure。



The BIOS procedure is displayed the message ”Verify OK” that the BIOS procedure is successful。

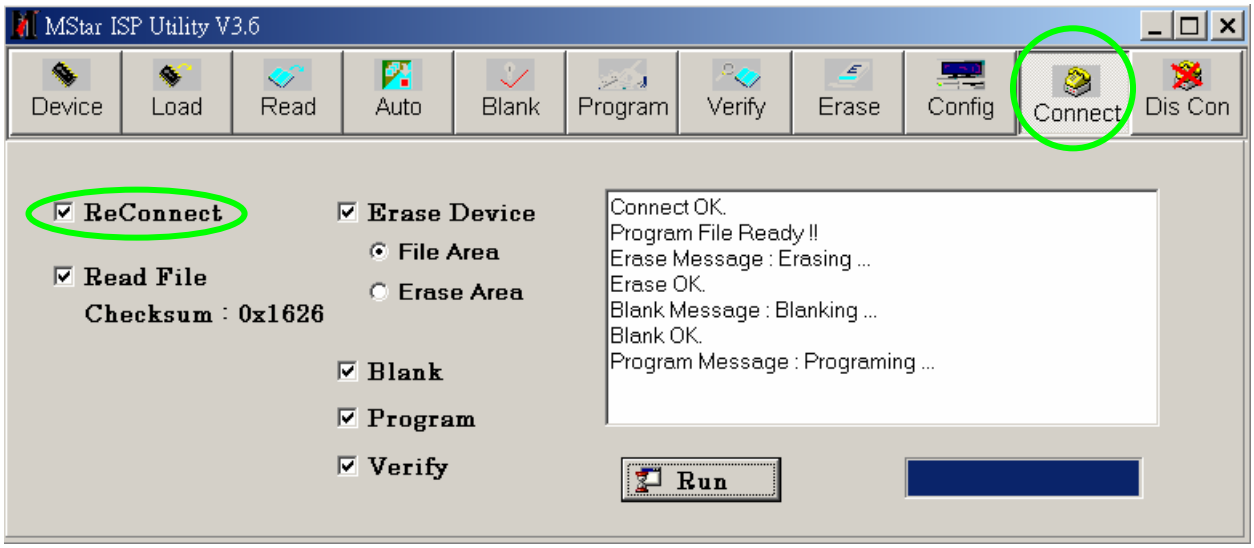


Step 6 :
Press ”Dis Con” then leave the mode of ISP。



Step 7：

When select ”ReConnect” and press “Run” then repeat to connect the mode of ISP into next the action of BIOS procedure



Monitor Assembly and Disassembly

1 Separate Stand Assy

1.1 Remove Seat Assy

Step 1 :

Press Stand Assy's bottom part in Seat Hinge

Step 2:

Remove Seat Assy

1.2 Separate Stand Assy

Step 1 :

Loose and Remove 2 screws

Step 2 :

Remove Stand Assy

2 Separate Rear Cover (Rear Case Assy)

Separate Bezel hooks to take Bezel and Rear Cover apart.

Step 1 :
Remove Cover Hinge

Step 2 :
Loose and Remove 2 screws

Step 3 :
Separate Bezel hooks to take
Bezel and Rear Cover apart.

Step 4 :
Remove Rear Cover

Step 5 :
Completed

3 Remove Power Board and AD Board

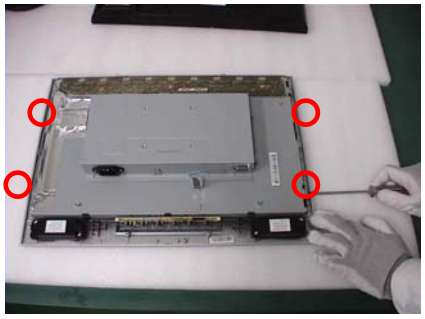
3.1 Remove Metal Cover

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 :

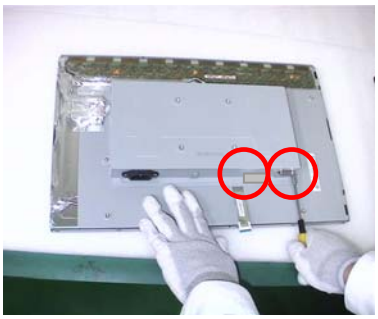
Remove 2 pieces of Backlight wires.

Step 5 :

Remove 2 pieces of Backlight wires.

Step 6 :

Loose and remove 4 screws.

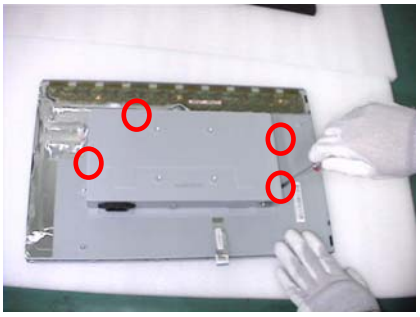


Step 7 :

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 :

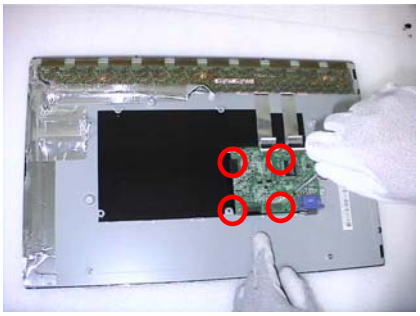
Remove 2 pieces of FFCs.

Step 4 :

Remove the FFC.

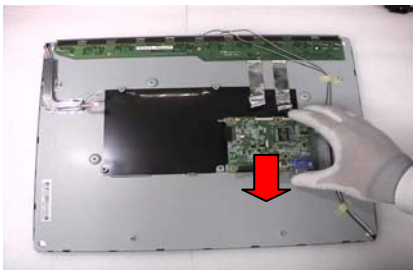
Step 5 :

Loose and remove 4 screws.



Step 6 :

Remove AD PCBA.



Step7 :

Completed.

4 Change New AD Board and Power Board

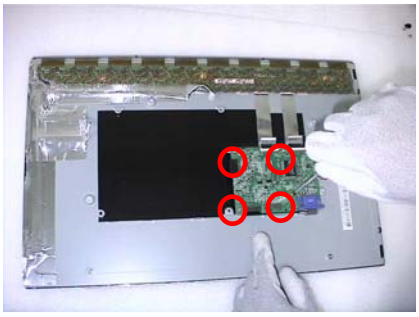
Step 1 :

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 :

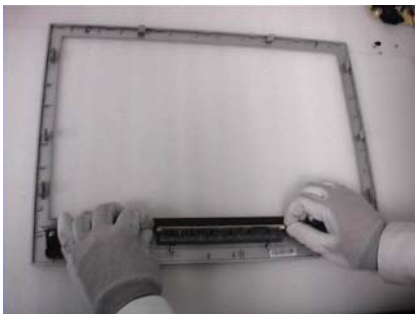
Insert new Lips Board.

Step 6 :
Fasten 4 fixed screws.

Step 7 : Completed.

5 Remove OSD Board

Step 1 :
Separate both Audio Cable.



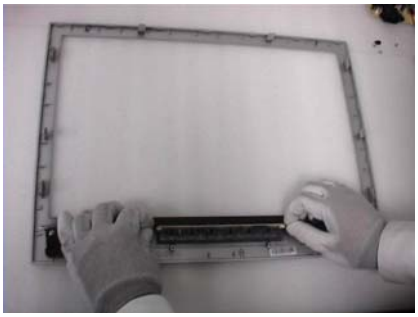
Step 2 :
Take OSD Board apart.

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.

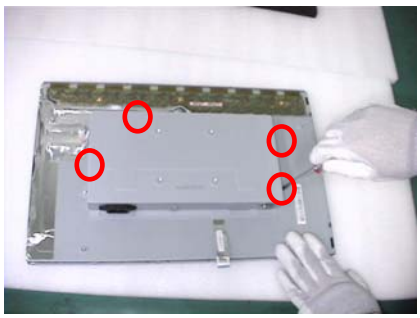


Step 3:
Completed.

7 Add Cover to AD PCB Heatsink

Step 1 :
Join the PCB Cover.

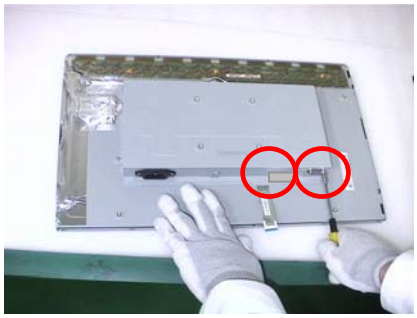
Step 2 :
Fasten 4 fixed screws.



Step 3 :
Fasten 2 fixed screws

Step 4 :

Fasten 4 fixed screws.



Step 5 :

Insert 2 pieces of Backlight wires.

Step 6 :

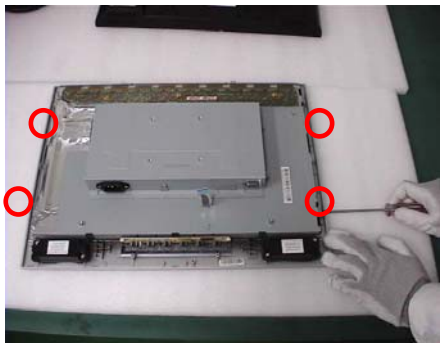
Insert 2 pieces of Backlight. wires.

Step 7 :

Join LCD module and remove bezel.

Step 8 :

Fasten 4 fixed screws.



Step 9 :
Insert FFC.

Step 10 :
Completed.

8 Rear Cover Assy Assembly

Step 1 :
Place Rear Cover

Step 2 :
Fasten 2 screws

Step 3 :
Remove Cover Hinge

9 Stand Assy Assembly

Step 1:
Place Seat Assy

Step 2 :
Fasten 4 screws

Step 3:
Join Seat Assy

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

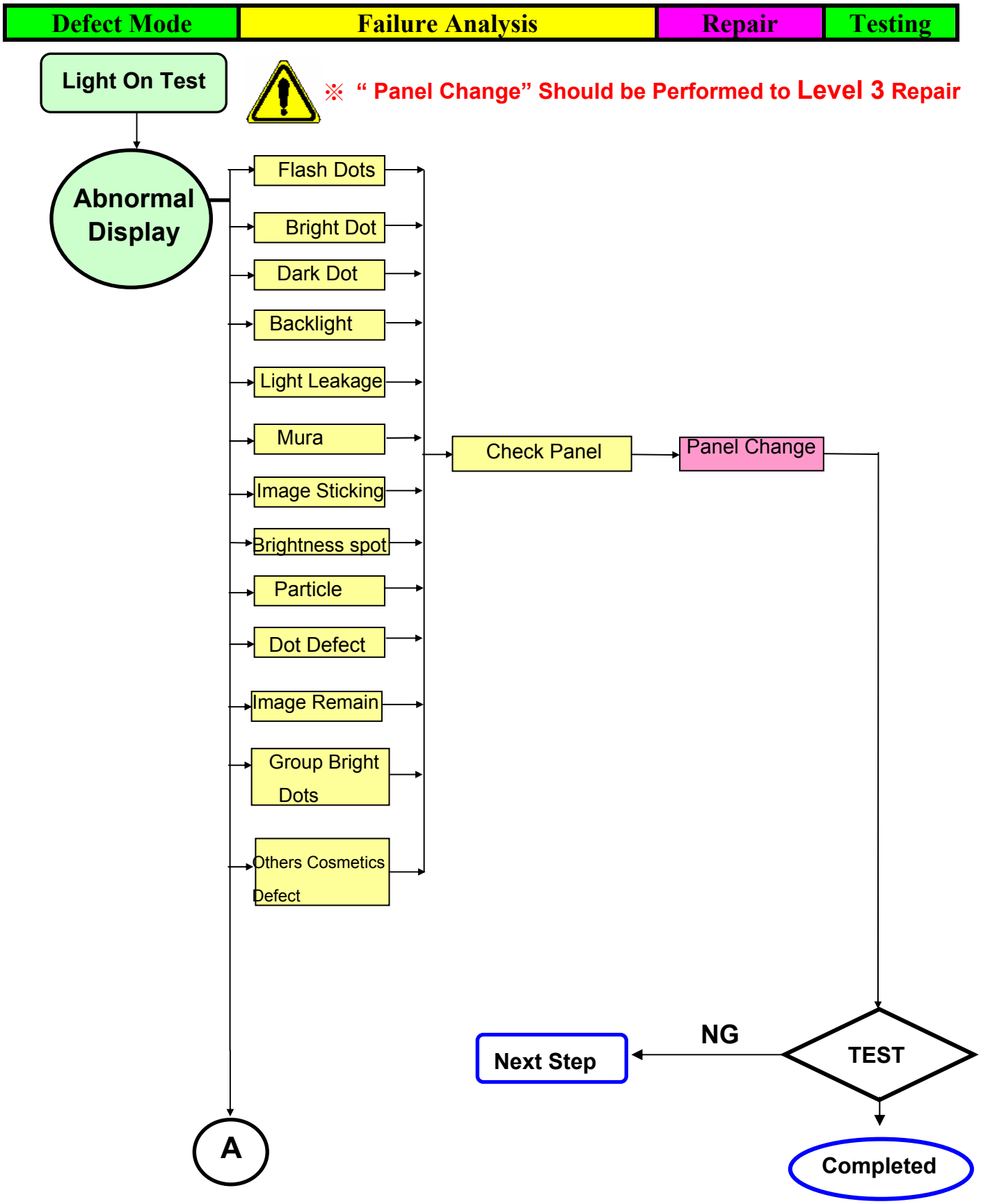
1.3 Put the cushions on the monitor. (Figure 3)

1.4 Place the monitor into the carton and then put all the accessories into the carton. As last, close the carton and seal it with tape. (Figure 4)

Figure 3

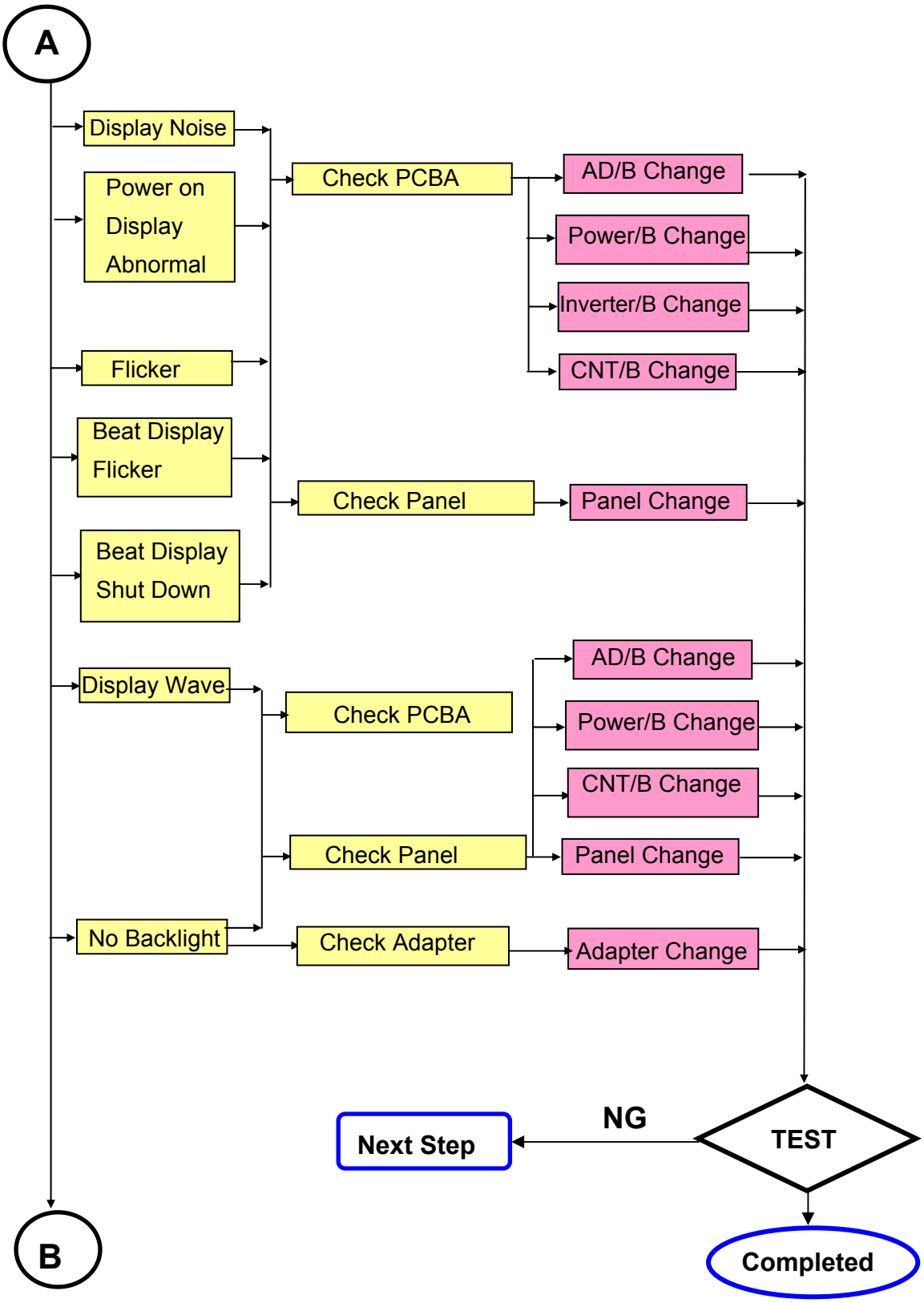
Figure 4

6. Troubleshooting Flow Chart

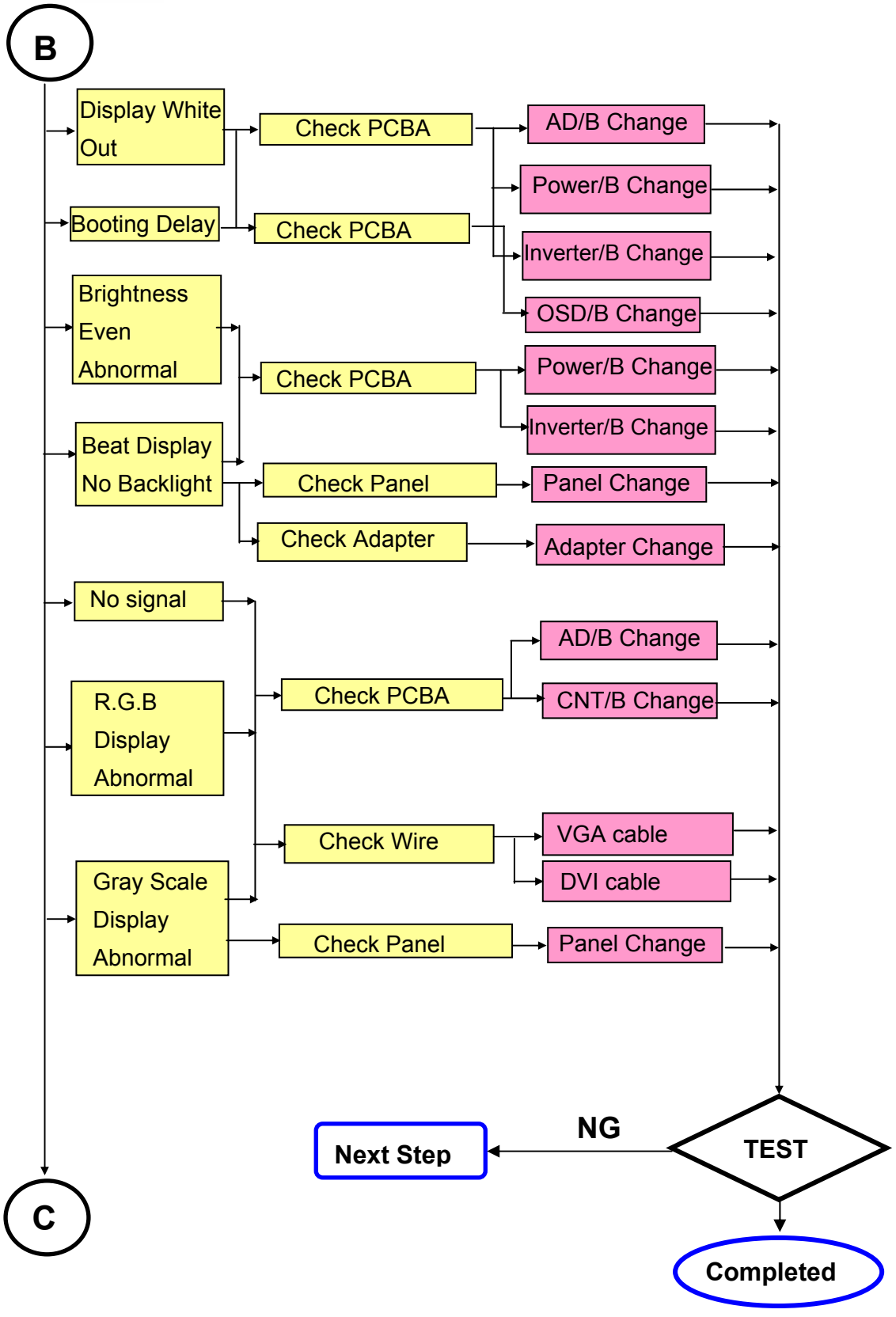


Defect Mode	Failure Analysis	Repair	Testing

※ " Panel Change" Should be Performed to Level 3 Repair

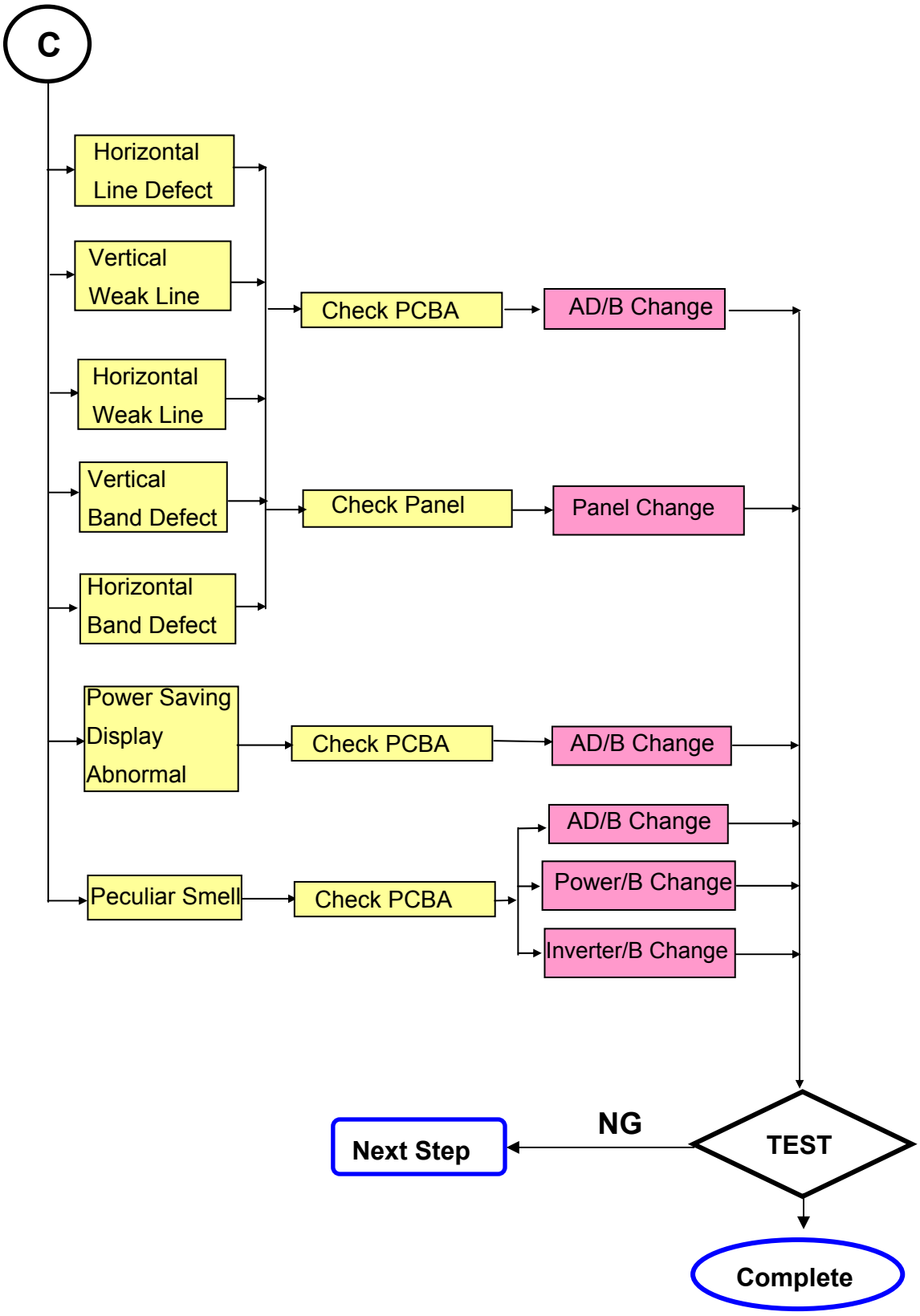


※ " Panel Change" Should be Performed to Level 3 Repair



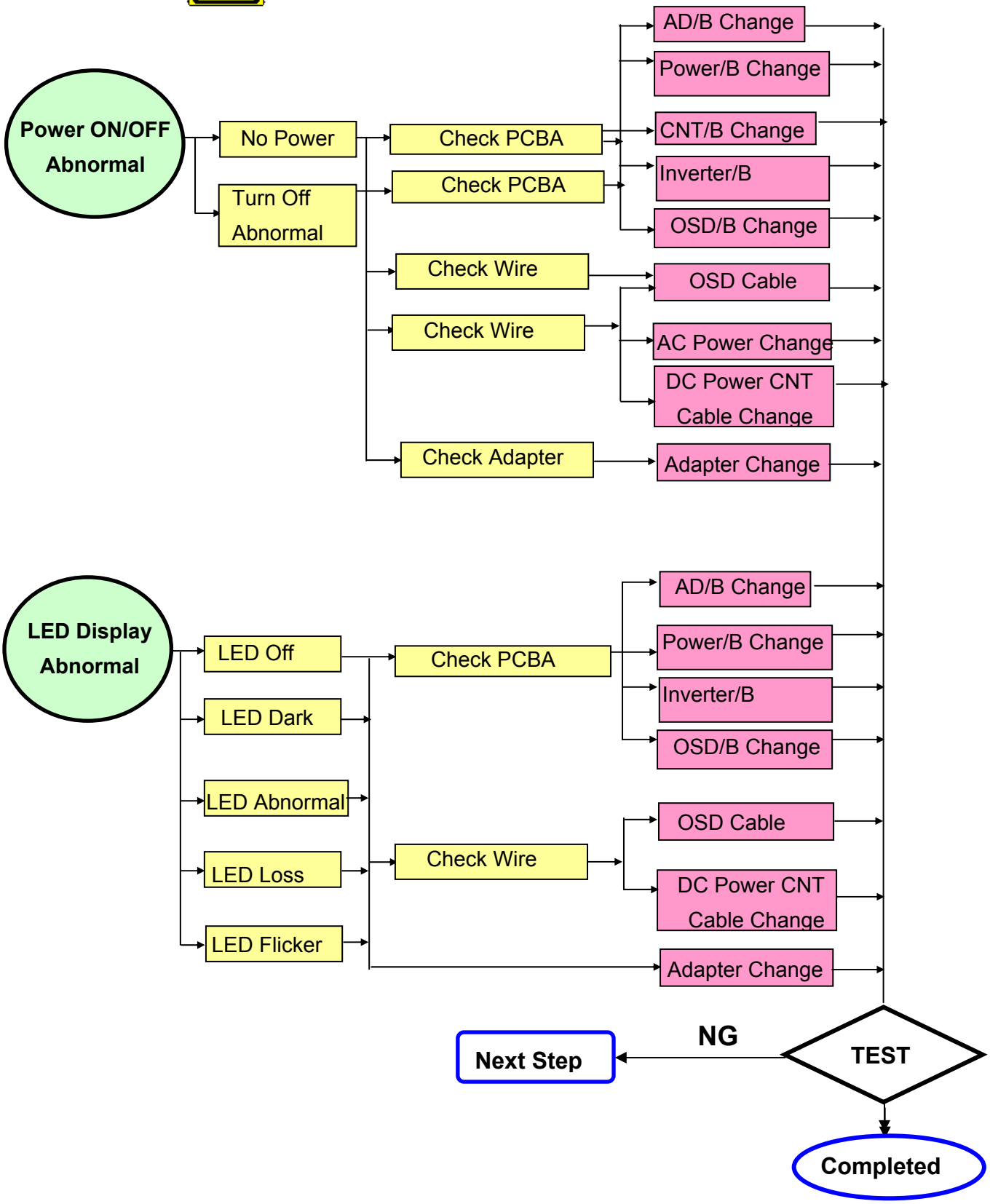
Defect Mode	Failure Analysis	Repair	Testing

※ " Panel Change" Should be Performed to Level 3 Repair

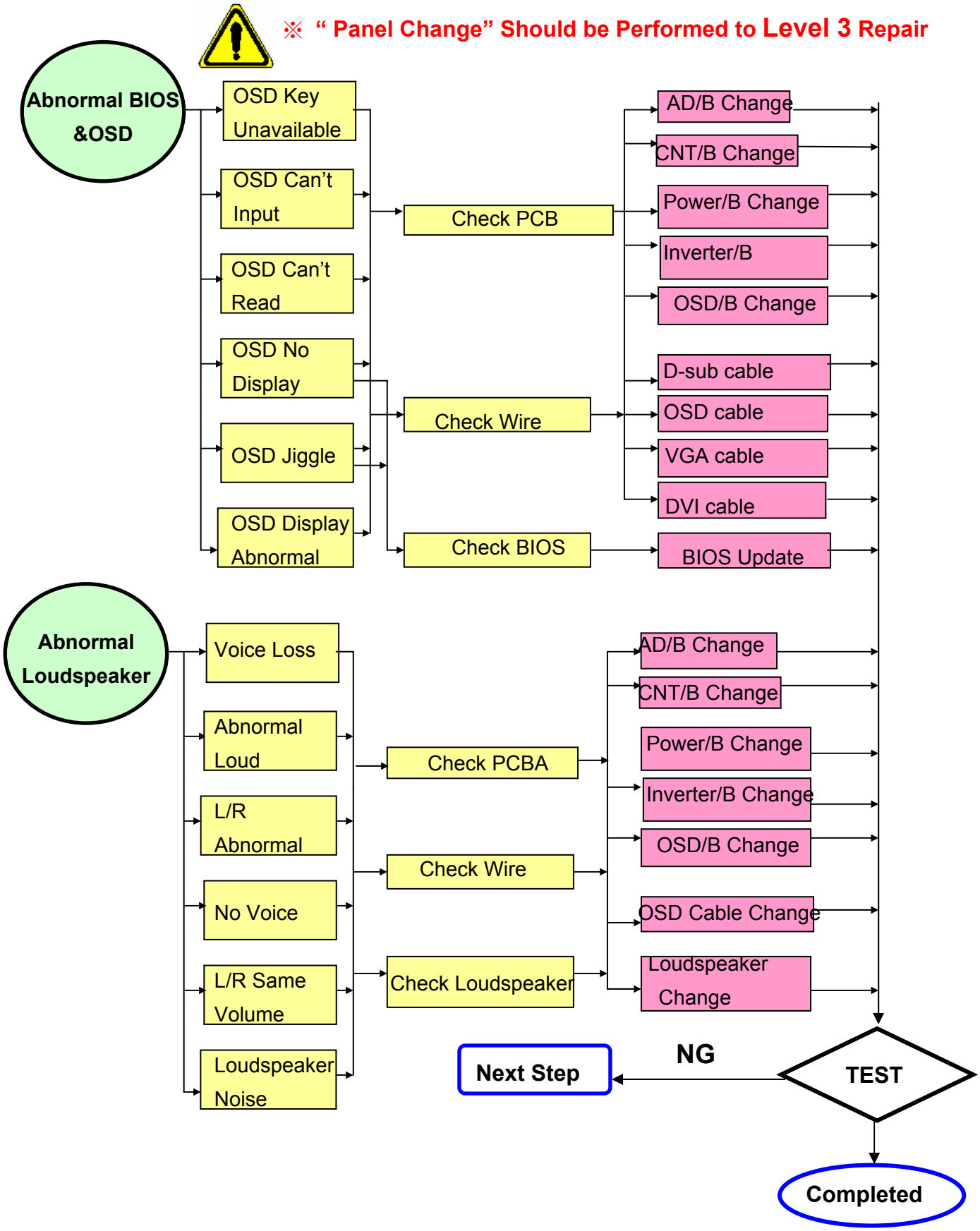


Defect Mode	Failure Analysis	Repair	Testing

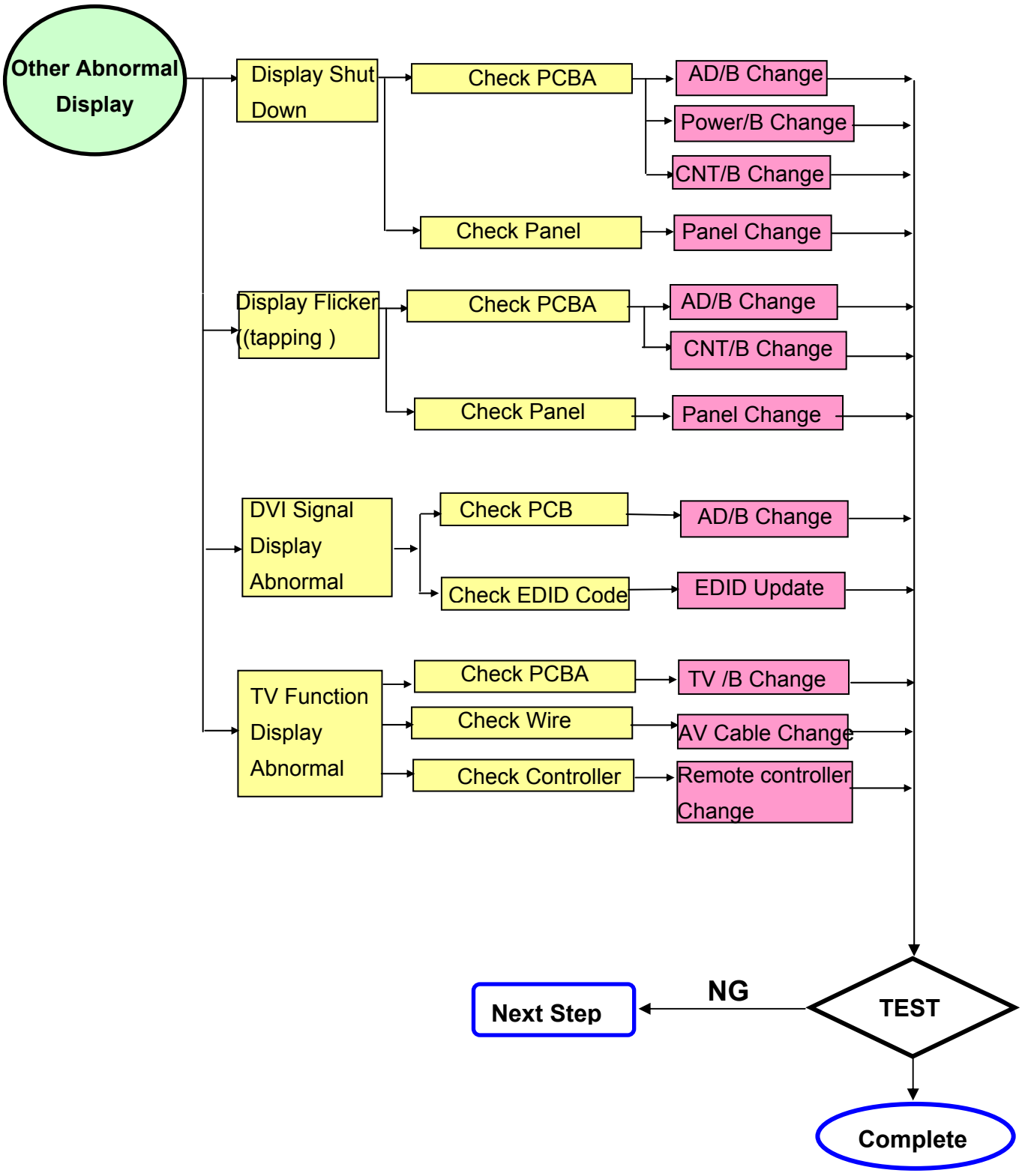
※ " Panel Change" Should be Performed to Level 3 Repair



Defect Mode	Failure Analysis	Repair	Testing



※ " 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 (VE1920wmb-2)

ViewSonic Model Number: VS10866

Serial No. Prefix: QCB **Rev: 1a**

Item	Description		ECR/ECN	ViewSonic P/N	Ref. P/N	Location	Universal number#	Q'ty
1	**Accessories:**	Power Cord		A-00002058	32E1818013			1
2	**PC Board Assembly:**	Audio Board (Rev.02)		B-00005600	35-D005166			1
3		Audio Control Board (Rev.04)		B-00005705	35-D005062			1
4		Power Supply Board (Ver:0F)Lips with Audio		B-00008008	27-D007836			1
5	**Cabinets:**	Cover Hinge		C-00004284	40-D004250			1
6		Seat Assy Black		C-00005847	40-D008680			1
7		Front Panel (Bazel)		C-00006042	40-D010962			1
8		Back Cover		C-00006043	40-D008950			1
9		Base Assembly		C-00006044	40-D008951			1
10	**Cables:**	Audio Cable, A150X2,18AWG, 180cm		CB-00000544	32F2818004			1
11		DVI Cable, S/L, 1.8M, W/2F		CB-00002083	32F0000004			1
12		Accessory Cable, D-Sub		CB-00004287	32F3018003			1
13		Flat Cable (FFC L=108.5)		CB-00004288	32-D004533			1
14		Flat Cable (FFCX816,36)		CB-00005742	32-D005773			2
15	**Documentation:**	Safety Label, 120 mmx50 mm		DC-00006045	77-D010603			1
16		Carton Label 76.2 mmx76.2 mm		DC-00008035	77-D011986			1
17		CD-ROM (Menu)		DC-00008036	76-D011994			1
18	**Hardware:**	SCREW,3,P=0.5 mm,L=4 mm		HW-00000553	42A9930008			16
19		SCREW,3,P=0.5 mm,L=4 mm		HW-00000553	42A9930008			4
20		SCREW,M3,P=1.27 mm,L=12 mm		HW-00000556	42A9990005			2
21		SCREW,M4,P=0.7 mm,L=8 mm		HW-00004042	42-D000649			1
22		SCREW,M4,P=0.7 mm,L=15 mm		HW-00005884	42-D001756			4
23		SCREW,4,P=0 mm,L=11.8 mm		HW-00006041	42A9940007			4
24	**Miscellaneous:**	Tape, 900 mmx50 mmx0 mm		M-00000560	7345511002			0.058
25	**Packing Material:**	PE Bag		P-00000595	7841919921			1
26		Foam(Right)		P-00006049	78-D009100			1
27		Foam(Left)		P-00006050	78-D009098			1
28		Generic Foam Set		P-00001347	30833			
29		Generic Box		P-00002515	20653			
30		Craft Box		P-00008028	78-D011984			1
31	**Plastics:**	Panel Cover (Panel Protector Film)		PL-00006048	73-D005900			1

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

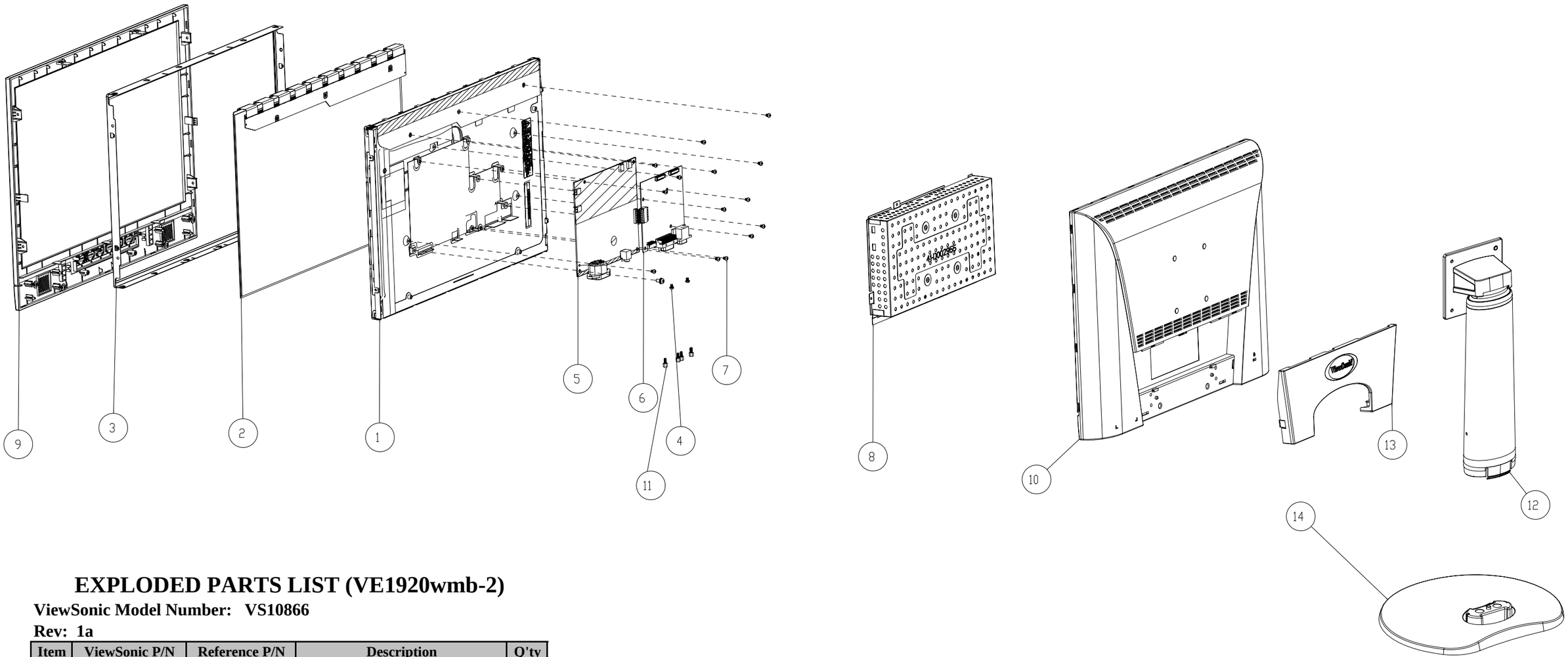
Remark 2: All revised RSPLs with newly added items or any change made should be highlighted and correlated with the ECN/ECR approved by ViewSonic Corporation. This is to eliminate repeated cross checks of each item between this version and prior versions.

BOM LIST (VE1920wmb-2)

ViewSonic Model Number: VS10866
Rev: 1a
Serial No. Prefix: QCB

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
1	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			16
2	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
3	N/A	41-D000643	Metal Frame Front, M190A1-L01/A190A2/M190A1-L03, SECC 0.6t, Kunshan Jincheng_Base Assy/Wai Gin/Jiin Ming, 19"wide, Green I			1
4	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
5	B-00005705	35-D005062	PCBA for , A190A2-A02-H, A190A2-A02-H-S1, 1206-03, Rev.04, USI/ITC, ODM, Green II			1
6	CB-00005742	32-D005773	FFC, FFCX816, 36 Pins, Tennsure, package AL_Foil, Green I			2
7	N/A	41-D007621	Cover AD Assy, A190A2, SECC, Jiin Ming/Kunshan Jincheng_Base Assy, Left_Side 4 connector, Green II			1
8	N/A	44-D007620	Backlight Unit, a190a2, CLT_BL/Kenmos/Forhouse, Hign&Low Voltage into the same connector, Green II			1
9	B-00008008	27-D007836	Lips With Audio, DAC-19M008 AF, 0F, 5 V/3 A, 13.8 V0.7 A, I TYPE, 7 mA, 1710 V, Delta Dongguan LIPS, Green II			1
10	N/A	36X8636401	Driver IC, COG, Scan, HX8636APD400(TSMC), 300Channel, Himax, Green I			3
11	N/A	73-C000047	ACF, COG, AC-8405Z-23 1.5mmX100M, 100000 mmx1.5 mm, Hitachi Chemical, COG-ACF, Green I			0.00168
12	N/A	L3J009XXX8	19" wide PS TN Asahi 0.7mm glass Resin BM (Panel Base)			1
13	N/A	L3J009X4BI	19" wide PS TN Asahi 0.7mm glass Resin BM+5ms LC (Sheet Base)			0.08333
14	N/A	74-D000461	Polarizer, CF, Degree 135, 415.84 mmx262.15 mmx0.215 mm, LPT-HL56T-12AGA1SU, M190A1, Optimax, Green I			1
15	N/A	74-D000462	Polarizer, TFT, Degree 135, 414 mmx259.7 mmx0.215 mm, LPT-HL56T-12SU, M190A1, Optimax, Green I			1
16	N/A	36-D007589	Driver IC, COF, Data, A190A2-A02-H, HX8018-A060CBAK, 6 bit, 432Channel, Himax, Green II			10
17	N/A	73-D008216	ACF, COF, AC-4255U-16, 200000 mmx1.2 mm, Hitachi Chemical, Green II			0.0022
18	N/A	73-D002676	ACF, PCB, AC-9825R-35, 100000 mmx1.5 mm, Hitachi Chemical, PCB-ACF, Green I			0.0044
19	N/A	35-D007815	PCBA for , A190A2-A02-H, A190A2-A02-H-X, 1206-05, Rev.02, ITC/USI/WUS_PCBA, ODM, Green II			1
20	N/A	7349951002	Silicone, TORAY/-9187L, 330g			0.4
21	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			4
22	HW-00000556	42A9990005	SCREW, M3, P=1.27 mm, L=12 mm, Pan Head, Phillips Cross Recess, Green I			2
23	CB-00004288	32-D004533	FFC, A190A2-H05, 15 Pins, Tennsure/Young Shin, L=108.5, Green I			1
24	B-00005600	35-D005166	PCBA for , A190A2-H, A190A2-H-K3, 106-02, Rev.02, USI/ITC, ODM, Green II			1
25	C-00006043	40-D008950	Rear Assy, A190A2-H0C, ASSY, Black, Fuking, Green II			1
26	C-00006042	40-D010962	Bezel Assy, A190A2-H0C, ABS PA-757-J01, BLACK, Fuking, Dual, VSC, 1st, Green II			1
27	HW-00005884	42-D001756	SCREW, M4, P=0.7 mm, L=15 mm, Round Head, Phillips Cross Recess, Zn(Black), Screw with Washer, Hama Naka Motogawa/Shye Ching, Green I			4
28	C-00004284	40-D004250	Cover Hinge, A190A2-H05, ABS PA757N, Black(J91A11B5), Fuking, Green I			1
29	C-00006044	40-D008951	Stand Assy, A190A2-H0C, ASSY, Black, Cherng Jyieh, Green II			1
30	N/A	77-D001323	Customer Label for , A170E1-H0G, 15 mmx15 mm, Chang Huang, QC Pass Label_VSC_for China, Green I			1
31	PL-00006048	73-D005900	Panel Protector Film, A190A2-H05, XG-536 T=0.1, With_Print, Just Enter, Green II			1
32	DC-00006045	77-D010603	Safety Label for , A190A2-H0C, 120 mmx50 mm, Chang Huang, VSC_VE1920wmb, Green II			1
33	HW-00002076	7841595111	Corner Protector, paper, 50 mmx50 mmx1850 mm, Green II			0.083
34	N/A	7841996911	Separator, (AA), A190E2-H04, 1200 mmx1050 mmx11 mm, Shanghai Zhung Hao/Hua Sun Paper, ACER, Non Green			0.021
35	P-00000595	7841919921	Bag, 570 mmx600 mmx0.13 mm, Huang Jyii/Taiwan Hon Chuan/Suzhuo Hon Chuan, Default, Green I			1
36	DC-00000586	7741999141	Module Label, A190E2-H03, 75 mm, 40 mm, Non Green			0.021
37	M-00000560	7345511002	Tape, A170E1-H0P, 900 mmx50 mmx0 mm, Symbio, OPP			0.058
38	N/A	77-D000114	Customer Label for , A170E1-H0G, 180 mmx100 mm, Chang Huang, VSC_on Carton, Green I			1
39	N/A	77-D000118	Customer Label, A170E1-H0G, 130 mm, 80 mm, Green I			1
40	N/A	78-D000801	Pallet, N150X6, Wooden, KD-HT, 1200 mmx1000 mmx135 mm, Shanghai Hang Wei/Ming Li/Hua Sun Paper, Green I			0.021
41	C-00005847	40-D008680	Seat Assy, A170E1-H0P, ASSY, Black, Cherng Jyieh, Green II			1
42	P-00006049	78-D009100	Cushion, A190A2-H0C, EPS, White, 464 mmx180 mmx220 mm, Telung, PS_Foam(Right), Green II			1
43	N/A	79-D009099	Shipping Package Information for , A190A2-H0C, Viewsonic			1
44	P-00006050	78-D009098	Cushion, A190A2-H0C, EPS, White, 464 mmx180 mmx220 mm, Telung, PS_Foam(Left), Green II			1
45	N/A	78-D010933	Warranty Card, A170E1-H0G, 143 mmx210 mm, Yi Ching/Car Tong Kunshan, VSC_VA712 Ver.2, Green II			1
46	N/A	77-D011988	SN Label for , A190A2-H0C, 50 mmx25 mm, Chang Huang/Kunshan Hwakuan, VSC VE1920wmb-2 for China, Green II			1
47	DC-00008035	77-D011986	Carton Label for , A190A2-H0C, 76.2 mmx76.2 mm, Chang Huang/Kunshan Hwakuan, VSC VA1920wmb-2, Green II			1
48	P-00008028	78-D011984	Carton, A190A2-H0C, 492 mmx186 mmx478 mm, Chen Yi Paper, VSC_VE1920wmb-2 5ms, Green II			1
49	DC-00008036	76-D011994	MENU for A190A2-H0C, Complex, 1C, Yi Ching/Car Tong Kunshan, VSC_VE1920wmb-2 CD-ROM, Green II			1
50	N/A	10-D011883	Software (BIOS), A190A2, 19A2LS1000, VSC, Checksum(0x8A47), VSC 19W TSUM, DUAL+AUDIO/Analog+Audio for 5ms Panel, Green II			1
51	N/A	10-D012406	Software (EDID_D-SUB), A190A2, VSC501EAb0, VSC, Checksum(XX), VSC 19W Analog Port, Green II			1
52	N/A	10-D012434	Software (EDID_DVI), A190A2, VSC501EDb0, VSC, Checksum(XX), VSC 19W Digital Port, Green II			1
53	CB-00000544	32F2818004	Accessory Cable, Audio, NONE, Black, Pins-Pins, Green I			1
54	CB-00002083	32F0000004	Accessory Cable, DVI, Black, Jceprocable, DVI-D(M) TO DVI-D(M), S/L, W/2F, Green I			1
55	A-00002058	32E1818013	Power Cord, CCC, 300/500V, 0.75mm2, 3C, PC-323+COC-01, L=1830+/-50mm, Black, Linetek, 18AWG, No Bag, Green I			1
56	CB-00004287	32F3018003	Accessory Cable, D-Sub, BLACK, Jceprocable, A150X2, Green I			1

8. Exploded Diagram and Exploded Parts List



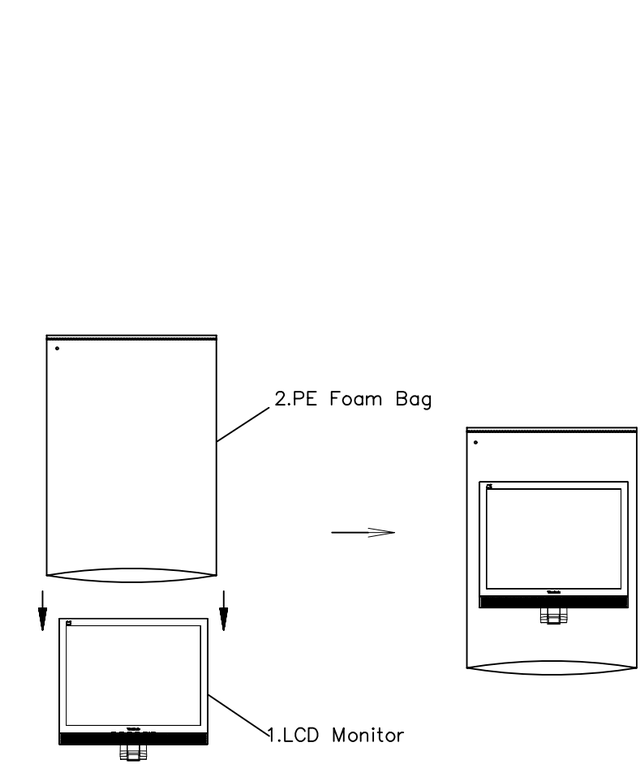
EXPLODED PARTS LIST (VE1920wmb-2)

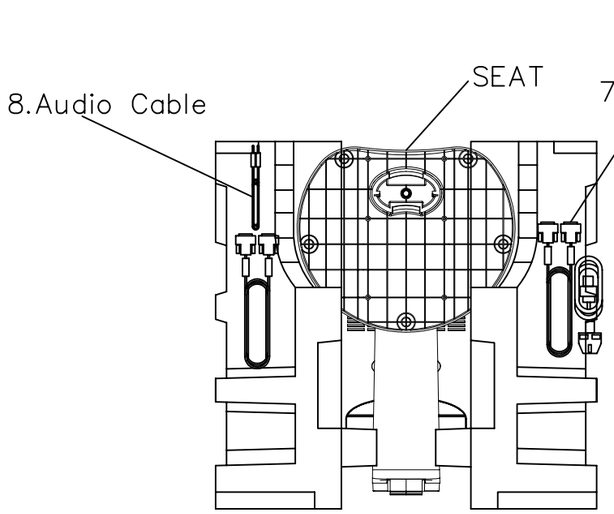
ViewSonic Model Number: VS10866

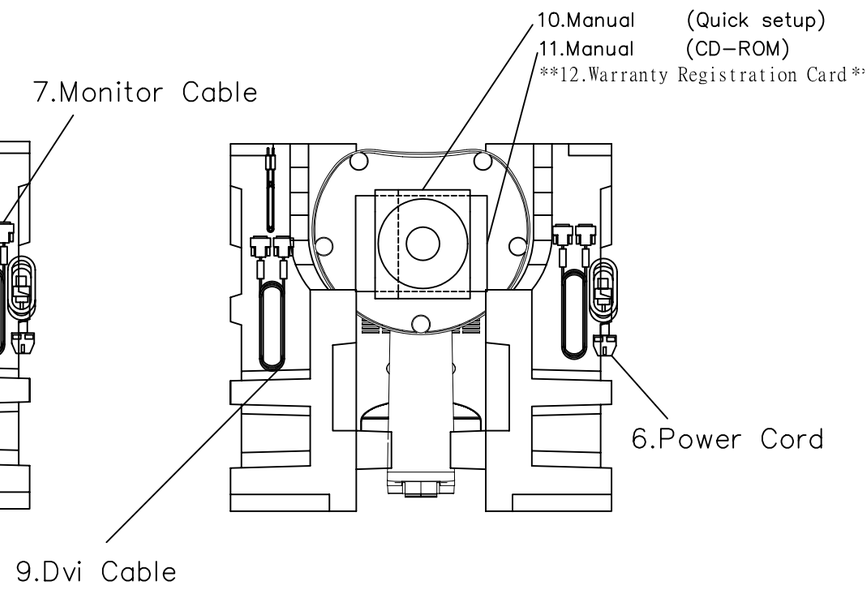
Rev: 1a

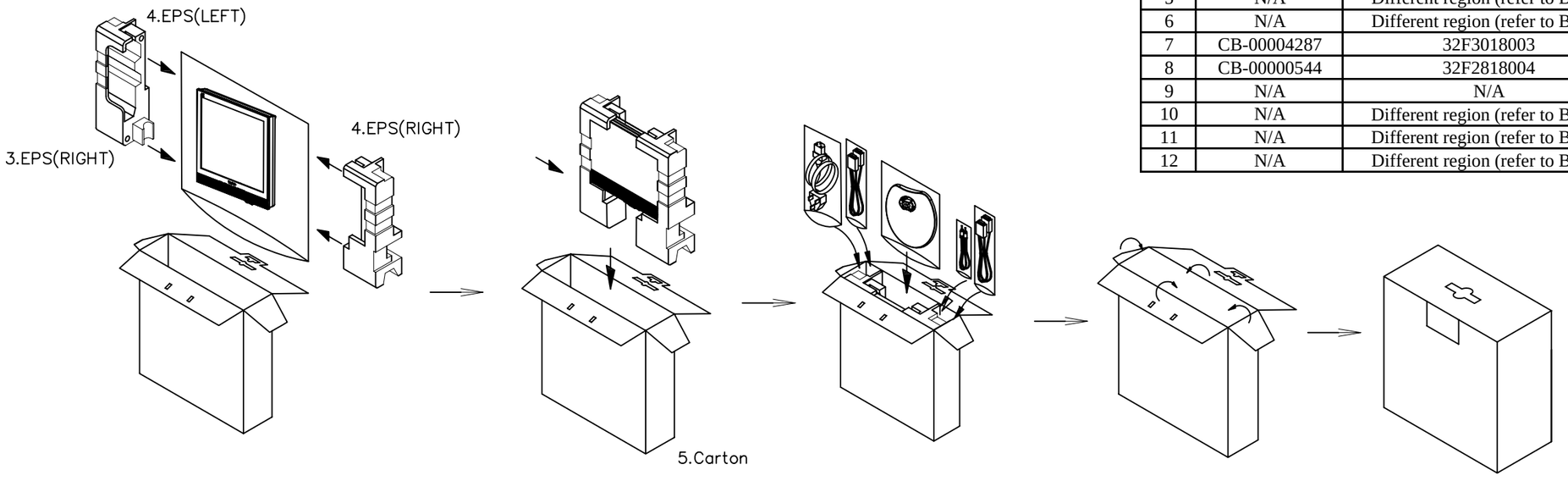
Item	ViewSonic P/N	Reference P/N	Description	Q'ty
1	N/A	44-D003904	BACKLIGHT ASSY	1
2	E-00005747	MJ0A10AK01	PANEL ASSY	1
3	N/A	41-D004053	BACKLIGHT FRONT COVER	1
4	HW-00000553	42A9930008	SCREW M3*4L	2
5	B-00006039	27-D003247	POWER PCB ASSY	1
6	B-00005705	35-D005062	AD PCB ASSY	1
7	HW-00000553	42A9930008	SCREW M3*4L	7
8	N/A	41-D002610	AD COVER	1
9	C-00006042	40-D010962	BEZEL ASSY	1
10	C-00006043	40-D008950	REAR ASSY	1
11	HW-00004042	42-D000649	SCREW D3*8L	4
12	C-00006044	40-D008951	STAND ASSY	1
13	C-00004284	40-D004250	COVER HINGE	1
14	C-00005847	40-D008680	SEAT ASSY	1

ViewSonic Corporation		
Model		
Title	Exploded chart	
Date		Rev:









Carton dimensions: 492(L)x186(W)x478(H)mm

PACKING PART LIST (VE1920wmb-2)

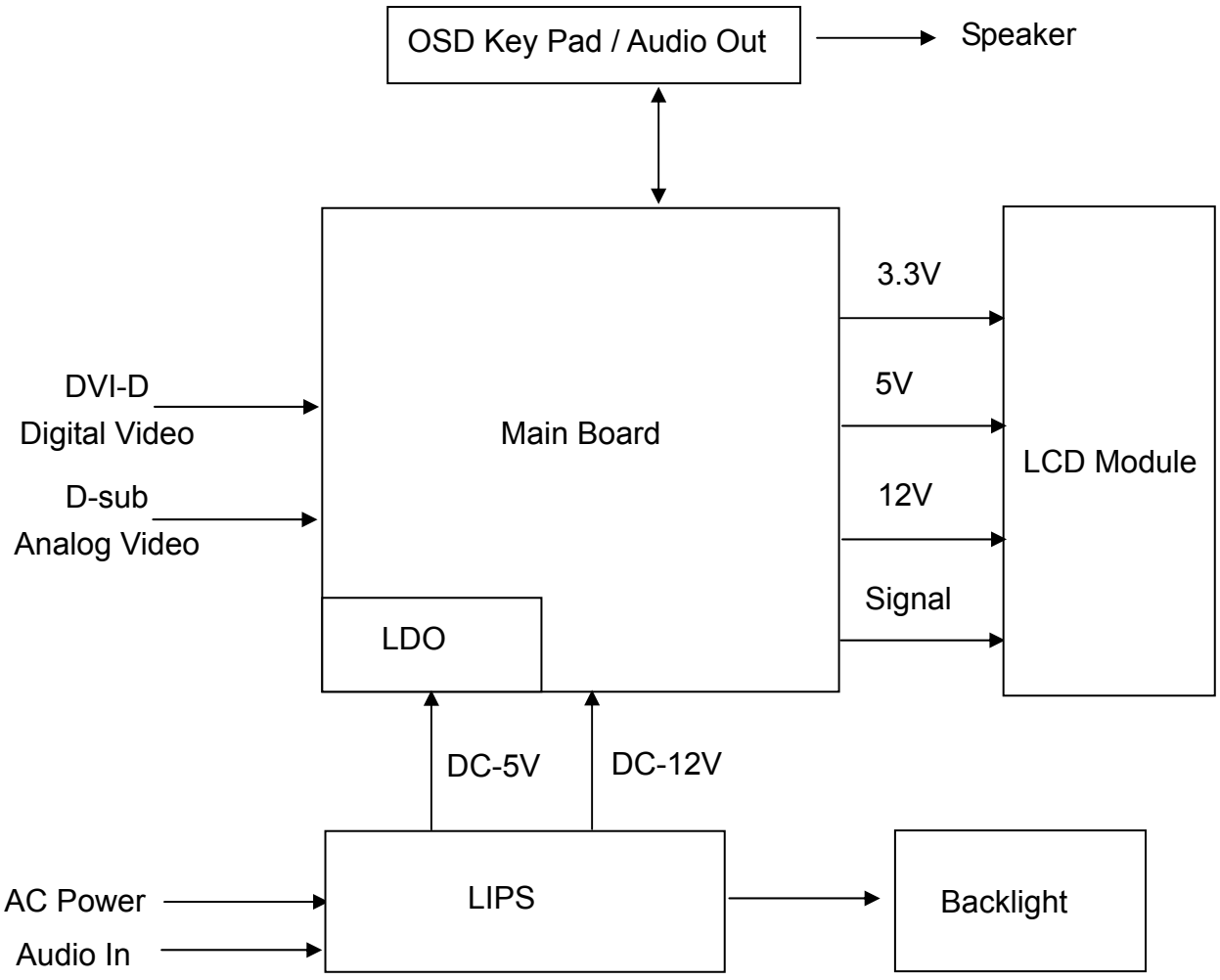
ViewSonic Model Number: VS10866

Rev: 1a

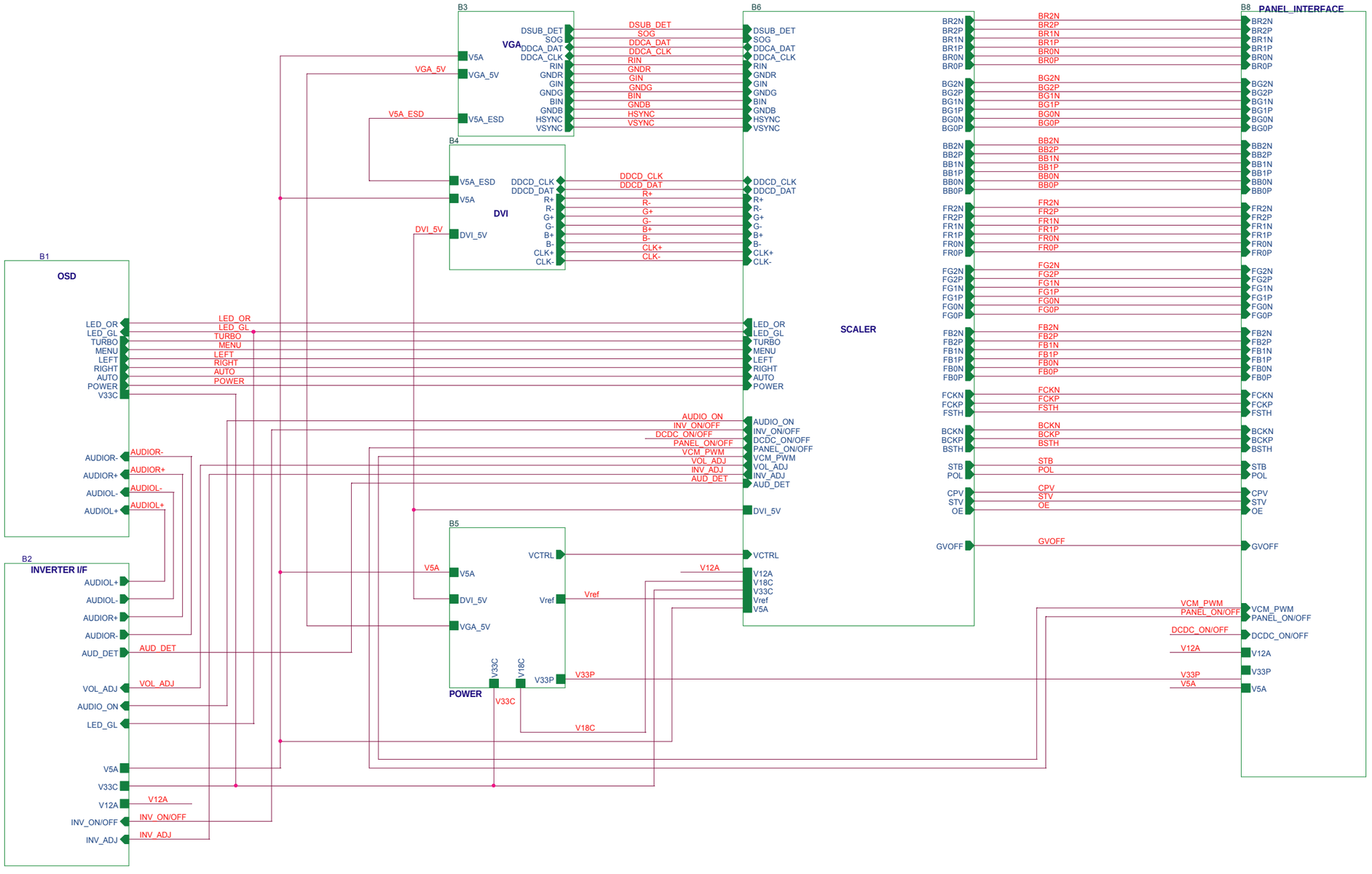
Item	ViewSonic P/N	Ref. P/N	Location	Q'ty
1	N/A	VE1920wmb	LCD Monitor	1
2	P-00000595	7841919921	PE Foam Bag	1
3	P-00006049	78-D009100	PS Foam (Right)	1
4	P-00006050	78-D009098	PS Foam (Left)	1
5	N/A	Different region (refer to BOM)	Carton	1
6	N/A	Different region (refer to BOM)	Power Cord	1
7	CB-00004287	32F3018003	Monitor Cable	1
8	CB-00000544	32F2818004	Audio Cable	1
9	N/A	N/A	DVI Cable	1
10	N/A	Different region (refer to BOM)	Menu (Quick Setup)	1
11	N/A	Different region (refer to BOM)	Menu (CD-ROM)	1
12	N/A	Different region (refer to BOM)	Warranty Registration Card	1

ViewSonic Corporation		
Model		
Title	Packing Exploded chart	
Date		Rev:

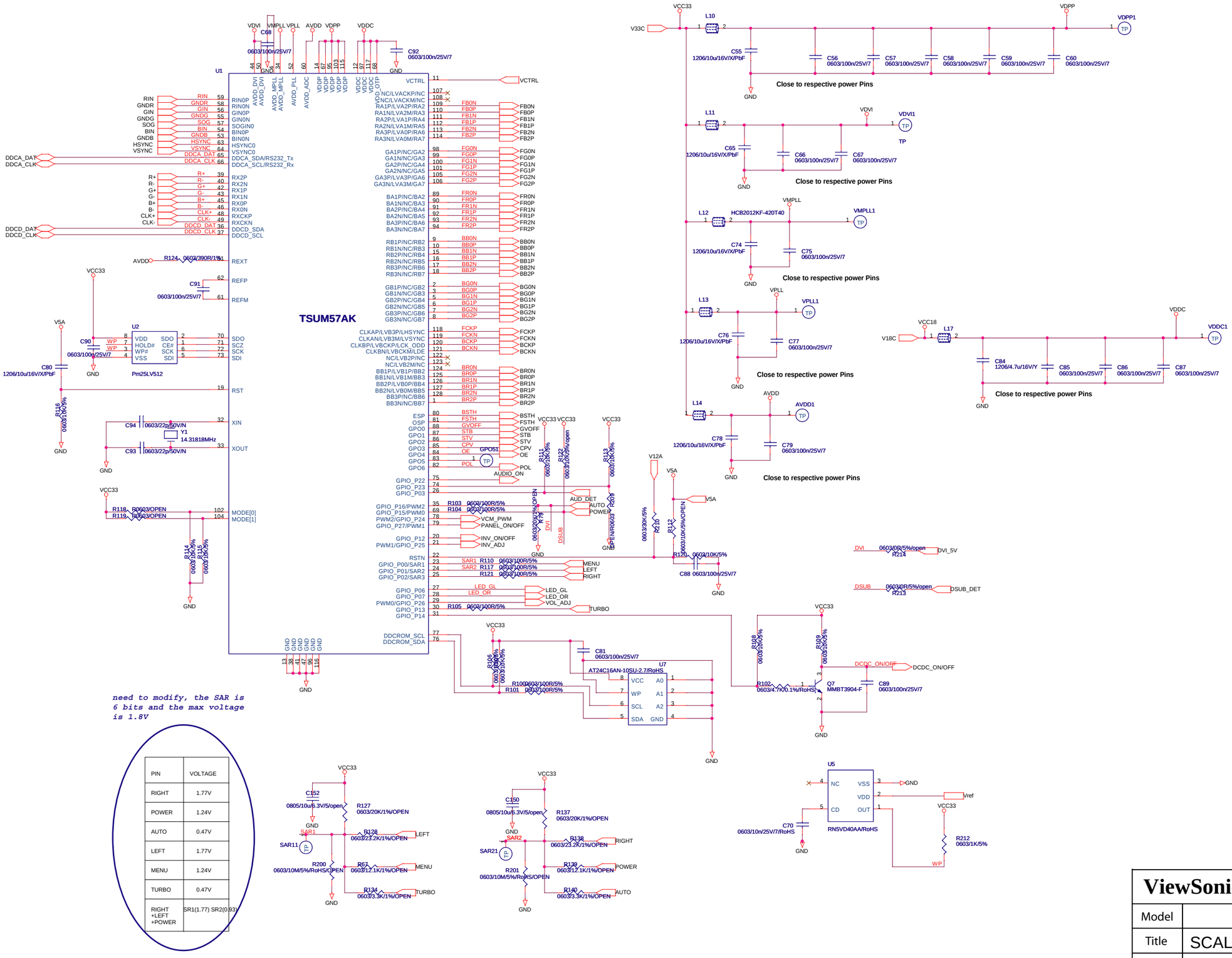
9. Block Diagram



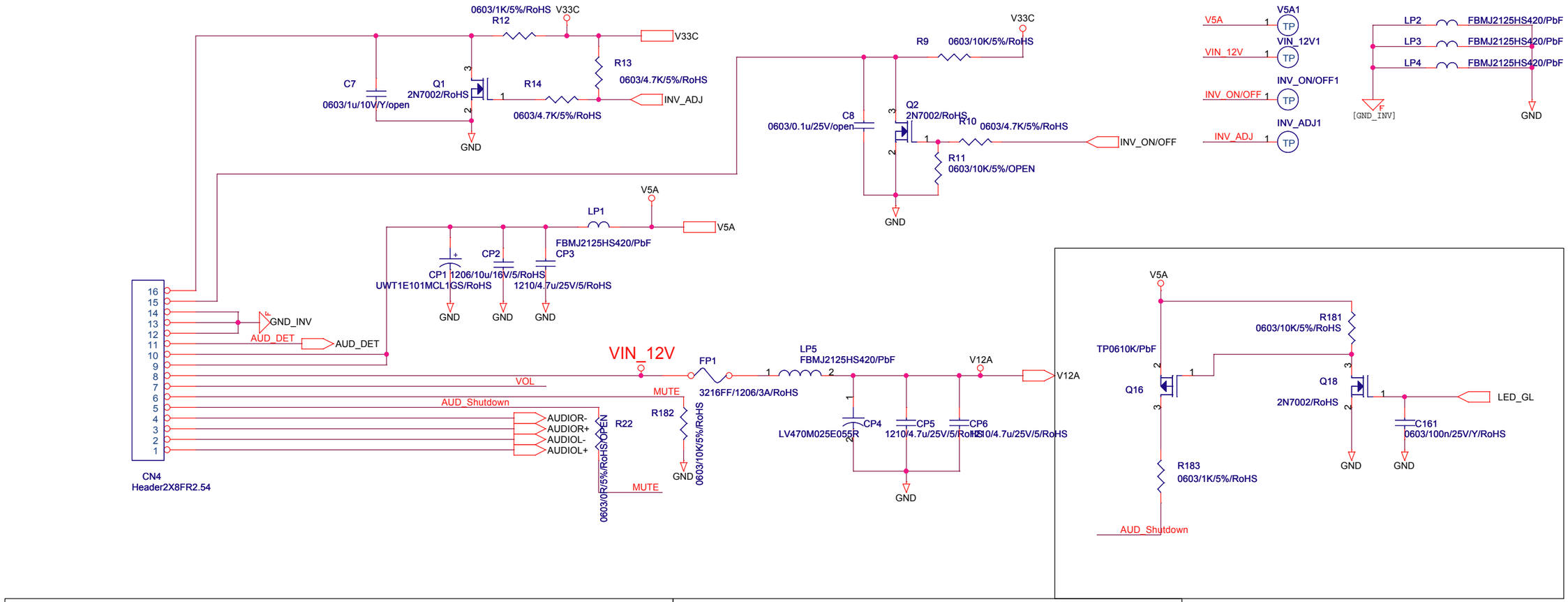
10. Schematic Diagrams



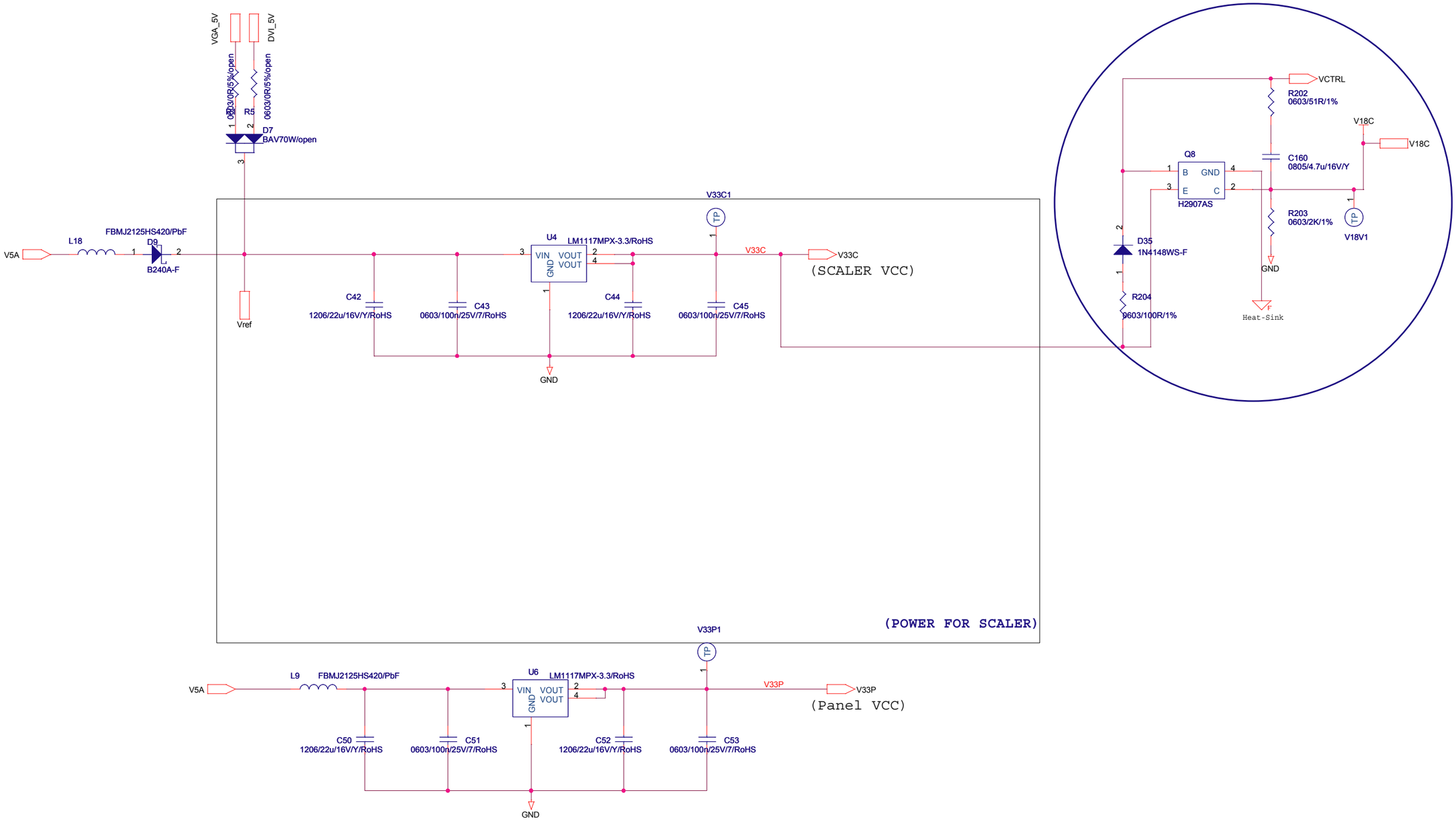
ViewSonic Corporation		
Model		
Title	SYSTEM DIAGRAM	
Date		Rev:



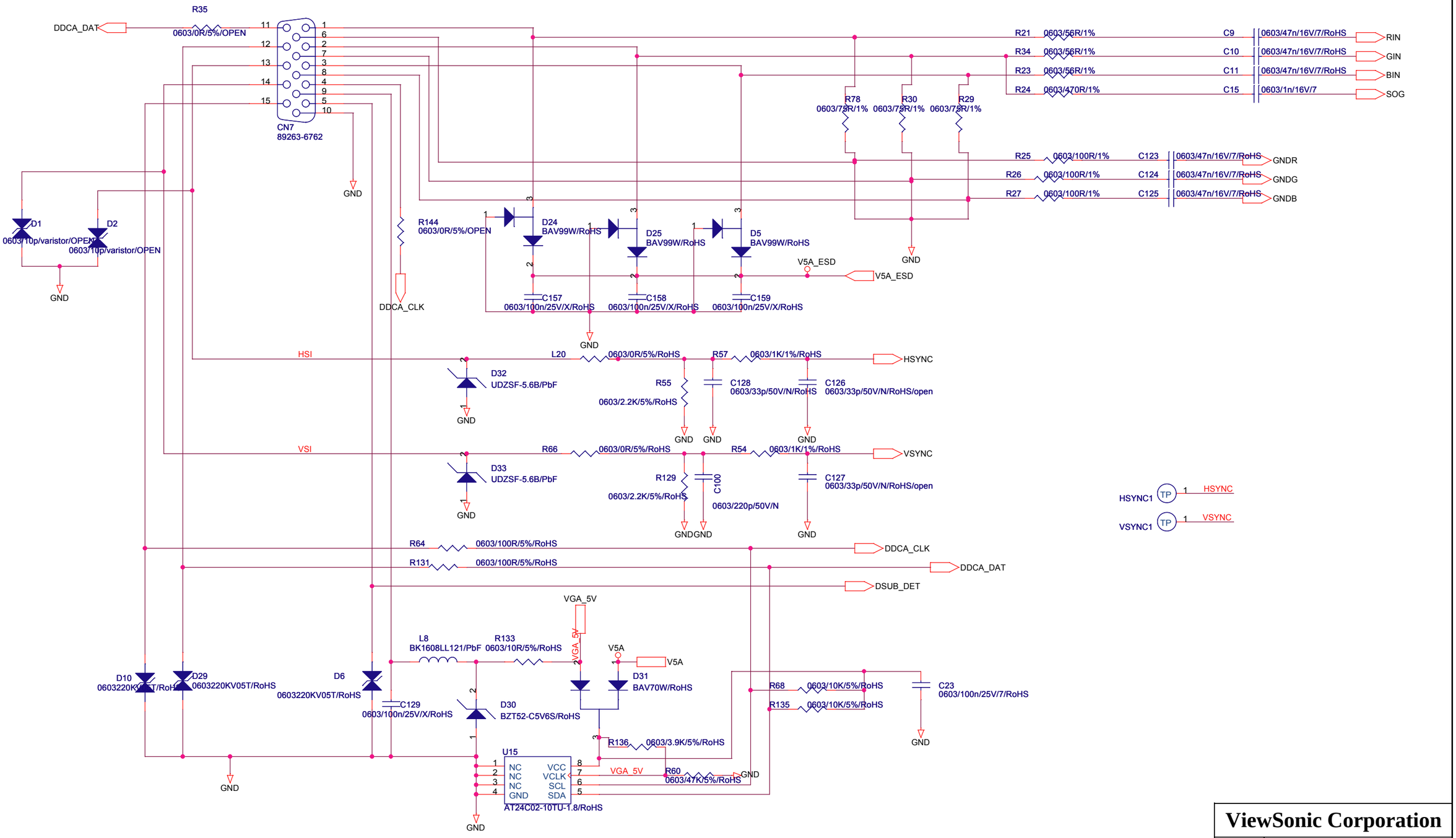
ViewSonic Corporation		
Model		
Title	SCALER	
Date		Rev:



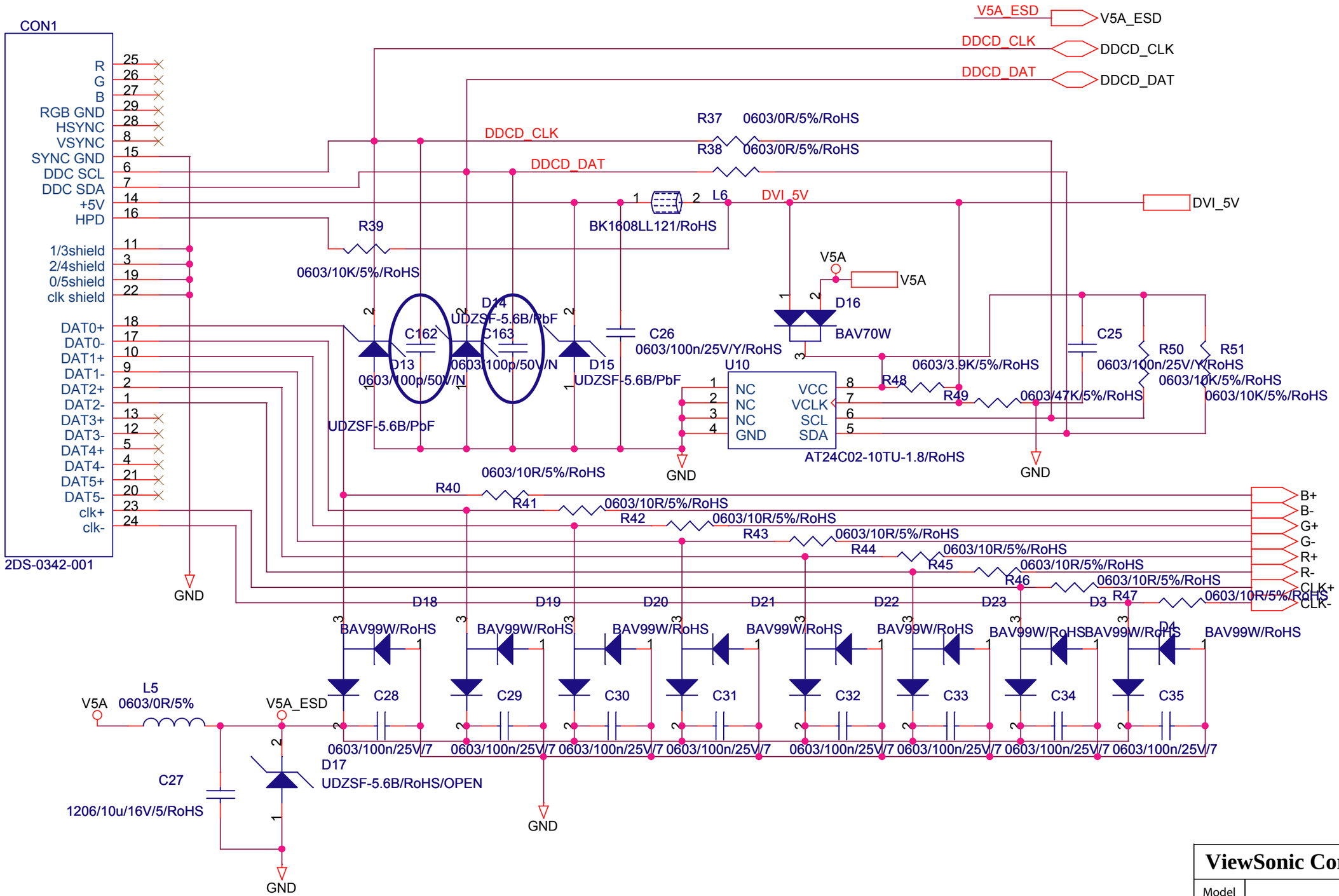
ViewSonic Corporation		
Model		
Title	INVERTER INTERFACE	
Date		Rev:



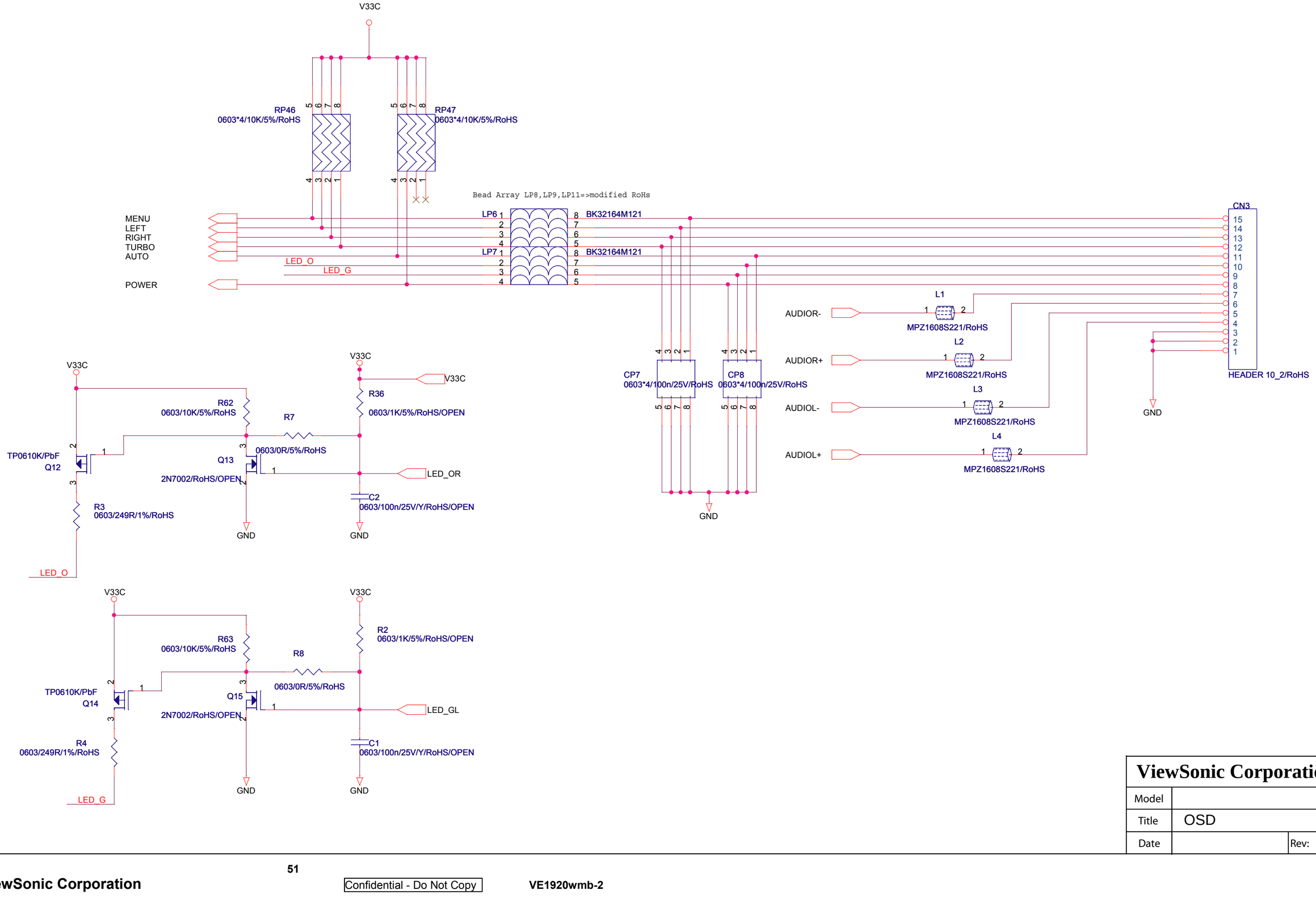
ViewSonic Corporation		
Model		
Title	POWER	
Date		Rev:



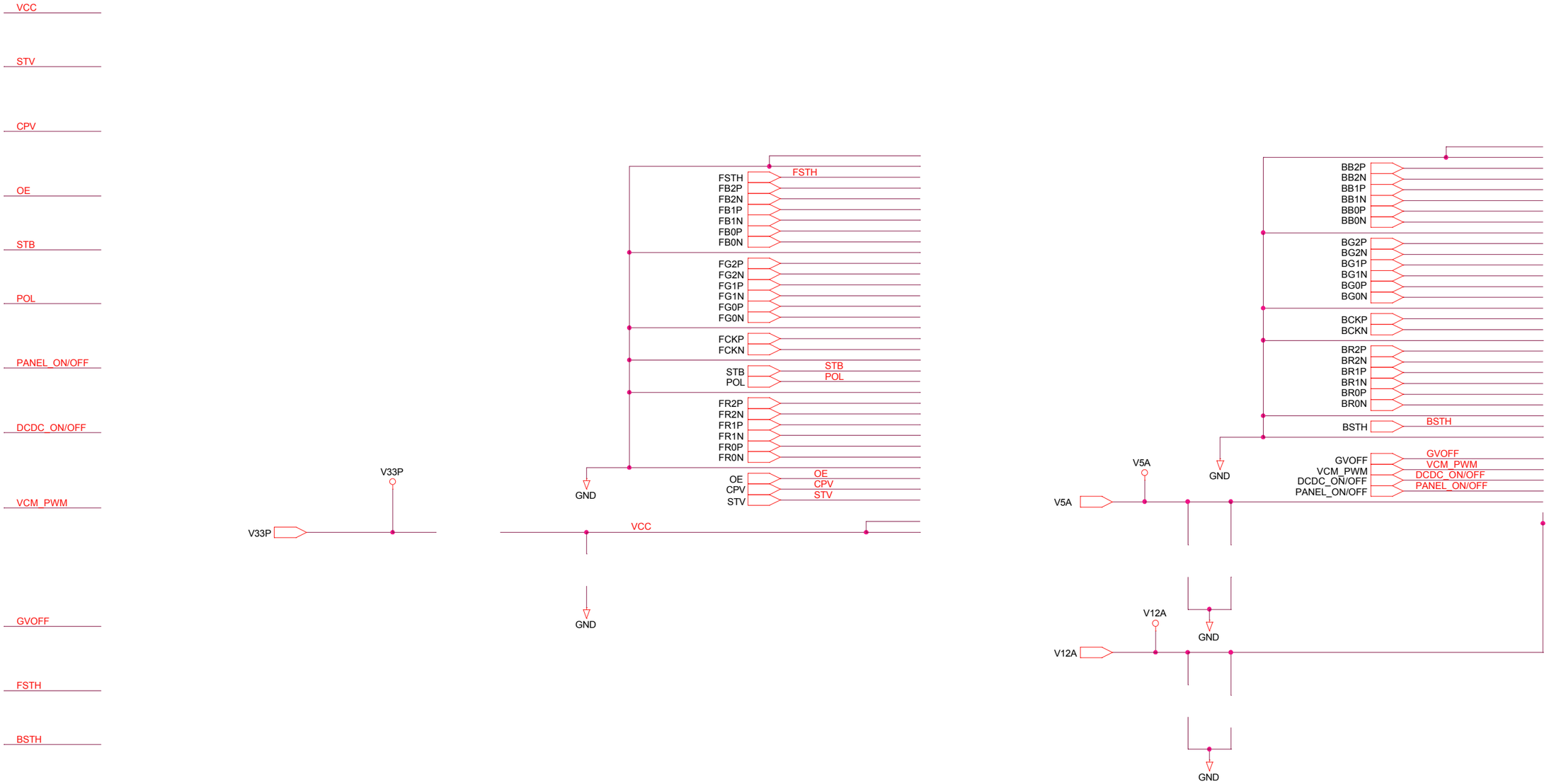
ViewSonic Corporation		
Model		
Title	VGA	
Date		Rev:



ViewSonic Corporation		
Model		
Title	DVI	
Date		Rev:



ViewSonic Corporation		
Model		
Title	OSD	
Date		Rev:



S Board X Board

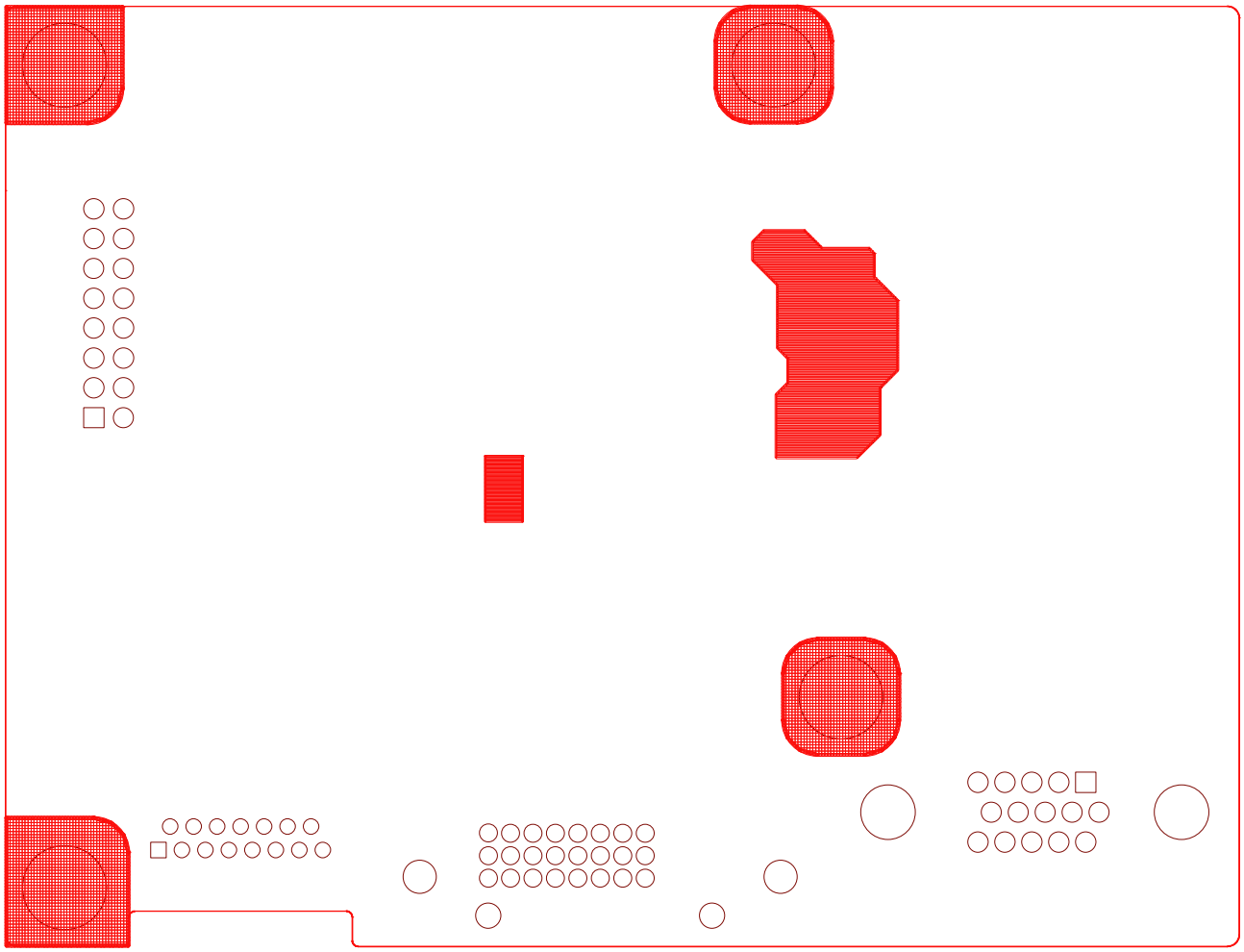
RA N/P --> BA P/N

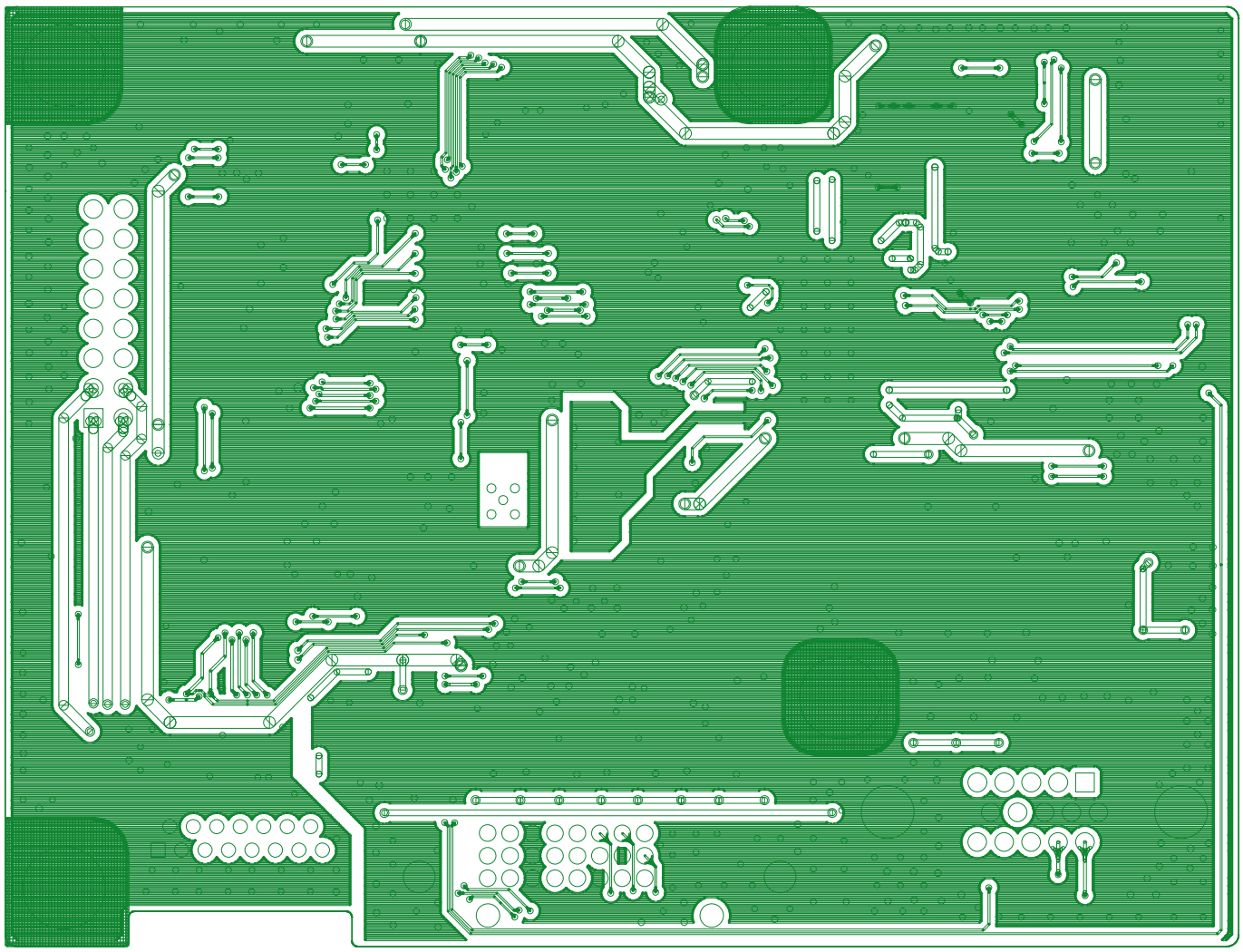
GA N/P --> GA P/N

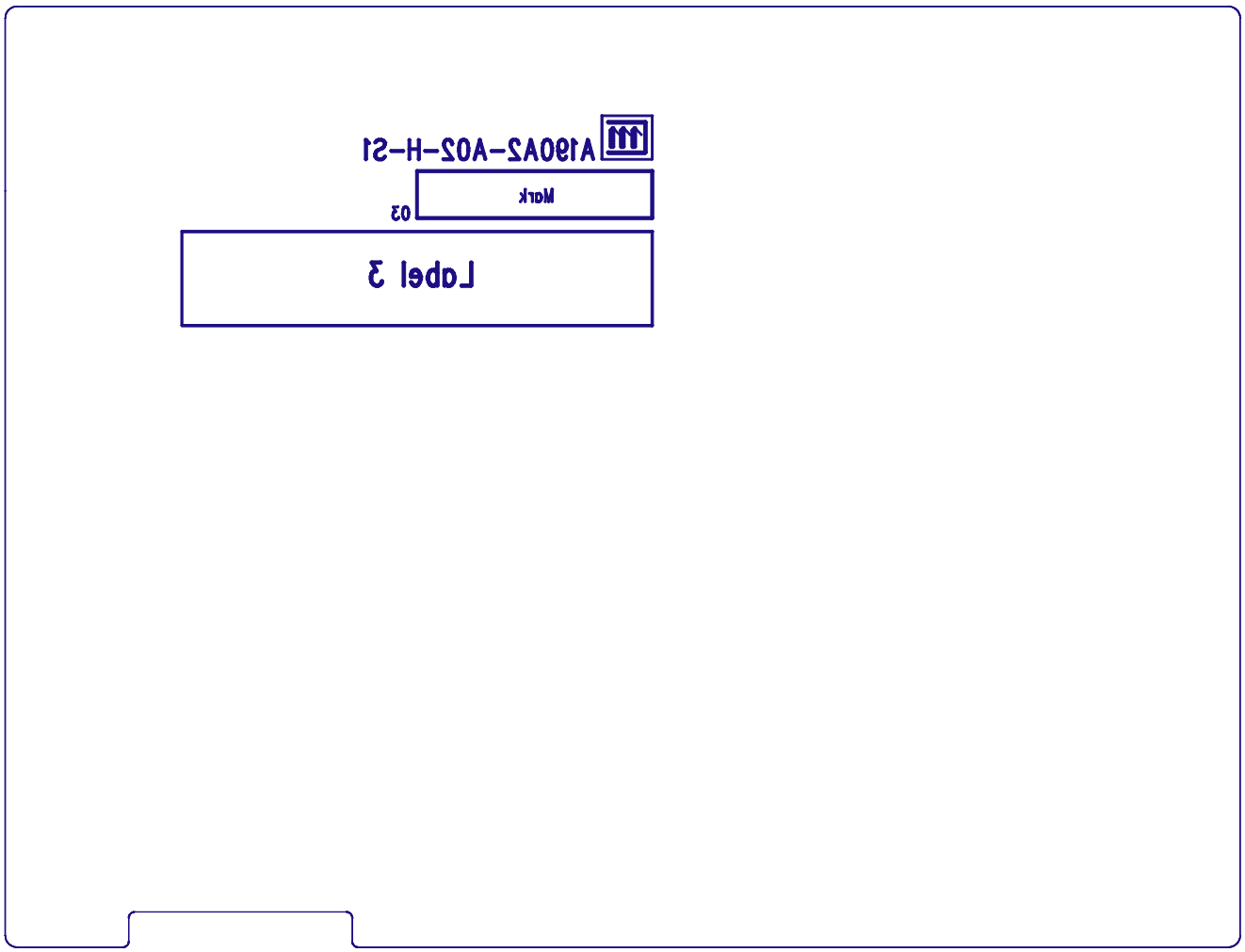
BA N/P --> RA P/N

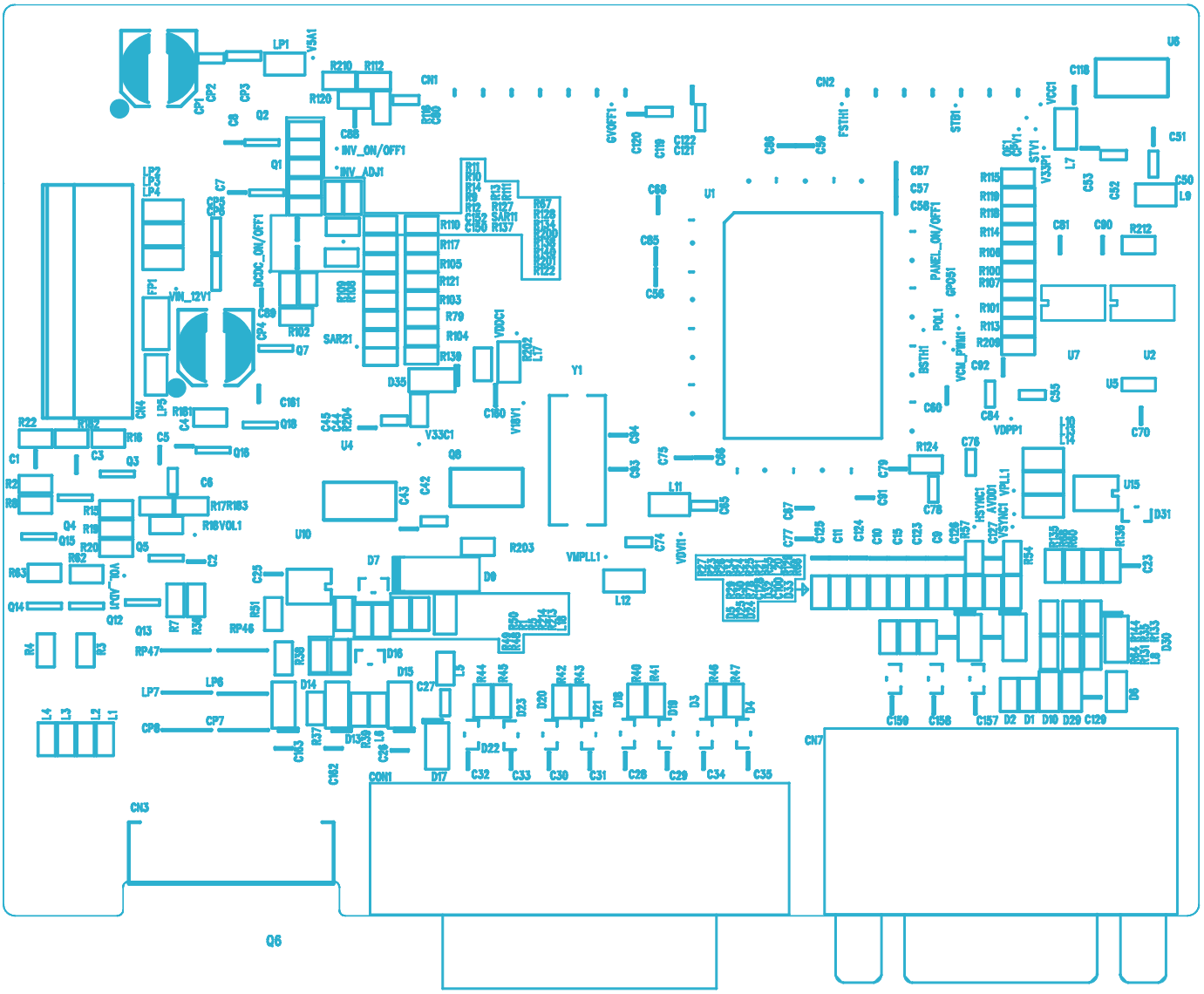
ViewSonic Corporation		
Model		
Title	PANEL INTERFACE	
Date		Rev:

11. PCB Layout Diagrams






A190AZ-A02-H-S1
Mark
03
Label 3


LP1
VSA1
CN1
CN2
U6
C118
C51
C50
L9
C53
C52
L7
VCC1
V33P1
STY1
STB1
FSTH1
GVOFF1
C120
C119
C121
C86
C59
C87
C57
C58
PANEL_ON/OFF1
GPO51
U1
C88
C85
C56
R115
R119
R118
R114
R106
R100
R107
R101
R113
R209
C81
C80
R212
C82
C84
C83
C60
VDPP1
C70
U7
U2
U5
C35
R124
C76
C78
C79
C91
C77
C47
C125
C11
C124
C10
C15
C123
C9
C126
R57
HSTY1C1
C127
AVDD1
VSTY1C1
VPLL1
U15
D31
R54
R59
C23
R55
R56
R58
R53
D30
L8
D6
C150
C156
C157
D2
D1
D10
D29
C129
CN7
C64
C75
C66
C63
C65
L11
C74
VDVH1
VMPLL1
L12
Y1
C84
C43
C42
U10
Q8
U4
V33C1
C45
C44
R204
C180
VBV1
VDDC1
R202
L17
D35
R110
R117
R105
R121
R103
R79
R104
R139
SAR21
R102
Q7
C89
DCDC_ON/OFF1
R3
R11
R27
R31
R37
R39
R137
C7
C93
C94
C95
C96
C97
C98
C99
C100
C101
C102
C103
C104
C105
C106
C107
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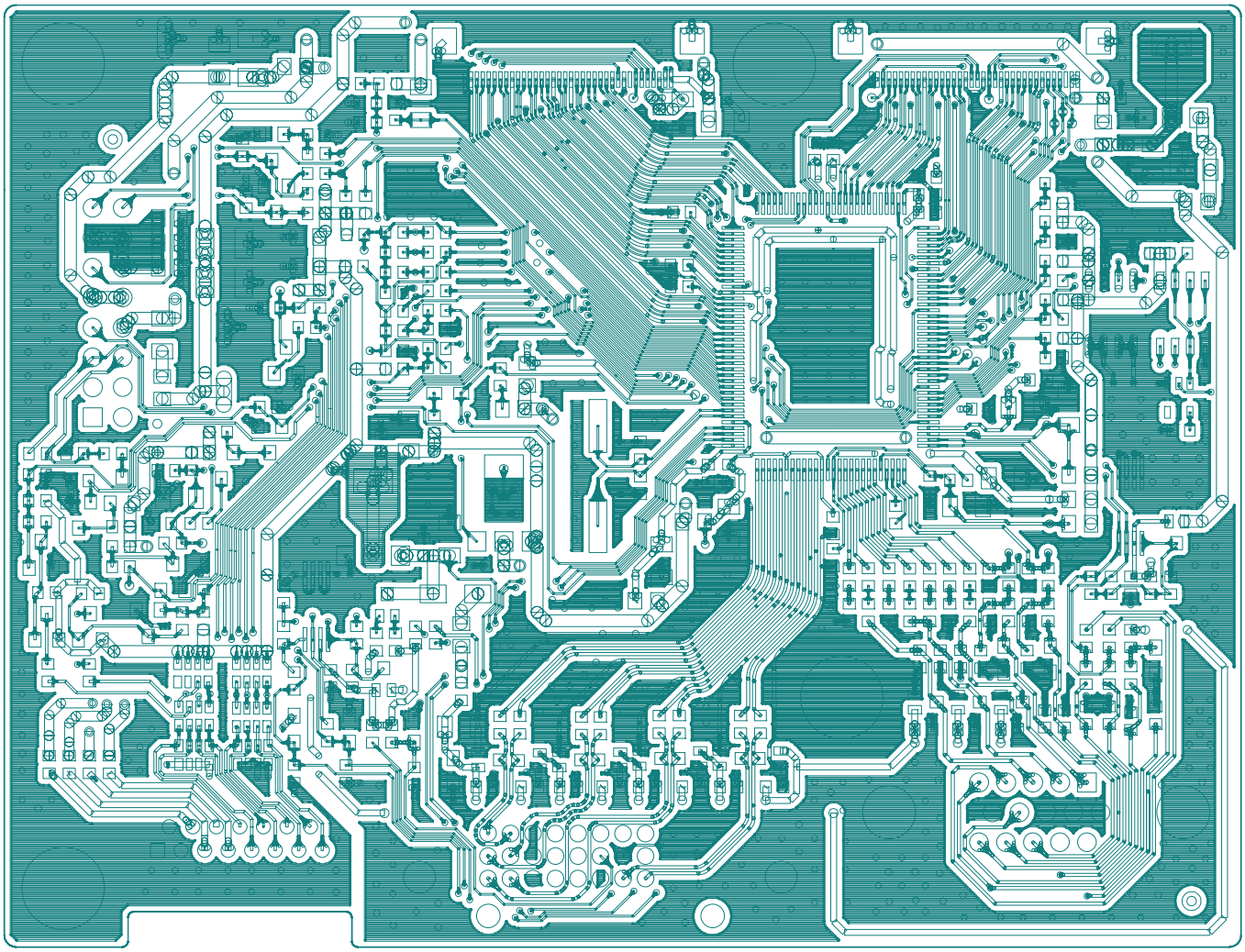
C129
C130
C131
C132



* 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?

Unit	*Excellent*	*Good*	*Fair*	*Bad*
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?

Item	*Excellent*	*Good*	*Fair*	*Bad*
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 dada:

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)