Service
Service
Service

226V3LSB/00
226V3LSB/93
226V3LSB/69
226V3LSB/62
226V3LSB/01
226V3LSB/10
226V3LSB/67
226V3LSB/71
226V3LSB/75

226V3LAB/00
226V3LAB/01
226V3LAB/75
226V3LAB/69

Service Manual

SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFOMER FOR THIS UNIT WHEN SERVICING

REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

飛利浦 PHILIPS

Revision List

Version	Release Date	Revision History
A00	May,31,2011	Initial release, Draft Version
A01	Jun,21,2011	Update BOM for 226V3LSB/93 and 226V3LSB/00
A02	Jun,28,2011	Update BOM for 226V3LSB/69 and 226V3LSB/62
A03	Jul,8,2011	Update BOM for 226V3LSB/01
A04	Sep,6,2011	Update BOM for 226V3LSB/10、226V3LSB/67、226V3LSB/71
A05	Nov,8,2011	Update BOM for 226V3LAB/75、226V3LAB/01，upgrade mainboard part NO
A06	Nec,9,2011	Update BOM for 226V3LSB/75

Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all Philips Company Equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a customer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

Hereafter throughout this manual, Philips Company will be referred to as Philips.

WARNING

Use of substitute replacement parts, which do not have the same, specified safety characteristics, may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design.

FOR PRODUCTS CONTAINING LASER:

DANGER- There is invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION-Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION -The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Take care during handling the LCD module with backlight unit:

-Must mount the module using mounting holes arranged in four corners.

-Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.

-Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.

-Protect the module from the ESD as it may damage the electronic circuit (C-MOS).

-Make certain that treatment person’s body is grounded through wristband.

-Do not leave the module in high temperature and in areas of high humidity for a long time.

-Avoid contact with water as it may a short circuit within the module.

-If the surface of panel becomes dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

1. Monitor Specifications

Technical specifications

Picture/Display	
LCD Panel Type	TFT-LCD
Backlight	LED
Panel Size	21.5″ W (54.6 cm)
Aspect Ratio	16:9
Pixel Pitch	0.248 x 0.248 mm
Brightness	250 cd/m²
Smart Contrast	10,000,000:1
Contrast Ratio (typical)	1000:1
Response Time (typical)	5 ms
Optimum Resolution	1920 x 1080 @ 60Hz
Viewing Angle	176° (H) / 170° (V) @ C/R > 10
Picture Enhancement	Smart Image
Display Colors	16.7 M
Vertical Refresh Rate	56Hz - 76Hz
Horizontal Frequency	30 KHz – 83 KHz
sRGB	YES
Connectivity	
Signal Input	DVI-D (Digital), VGA (Analog)
Input Signal	Separate Sync, Sync on Green
Convenience	
User Convenience	
OSD Languages	English, French, German, Italian, Russian, Spanish, Simplified Chinese, Portuguese, Turkish
Other Convenience	Kensington lock
Plug & Play Compatibility	DDC/CI, sRGB, Windows 7 /Vista /XP, Mac OSX, Linux
Stand	
Tilt	-5 / +20

226V3LA:

Power			
On mode	23.77 W (typ.),31.6W(max)		
Energy Consumption (EnergyStar 5.0 test method)	AC Input Voltage at 100V AC +/- 5V AC, 50Hz +/- 3Hz	AC Input Voltage at 115V AC +/- 5V AC, 60Hz +/- 3Hz	AC Input Voltage at 230V AC +/- 5V AC, 50Hz +/- 3Hz
Normal Operation (typ.)	20.63 W	20.49W	20.49 W
Sleep	0.5 W	0.5 W	0.5 W

Off	0.5W	0.5 W	0.5W
Heat Dissipation*	AC Input Voltage at 100V AC +/- 5V AC, 50Hz +/- 3Hz	AC Input Voltage at 115V AC +/- 5V AC, 60Hz +/- 3Hz	AC Input Voltage at 230V AC +/- 5V AC, 50Hz +/- 3Hz
Normal Operation	70.41BTU/hr	69.93BTU/hr	69.93BTU/hr
Sleep	1.706TU/hr	1.706TU/hr	1.706BTU/hr
Off	1.706BTU/hr	1.706BTU/hr	1.706BTU/hr

226V3L:

Power			
On Mode	23.25W (typ.), 28.71W (max.)		
Energy Consumption (EnergyStar 5.0 test method)	AC Input Voltage at 100VAC +/-5VAC, 50Hz +/-3Hz	AC Input Voltage at 115VAC +/-5VAC, 60Hz +/-3Hz	AC Input Voltage at 230VAC +/-5VAC, 50Hz +/-3Hz
Normal Operation (typ.)	20.98W	20.85W	20.94W
Sleep (Standby)	0.5W	0.5W	0.5W
Off	0.5W	0.5W	0.5W
Heat Dissipation*	AC Input Voltage at 100VAC +/-5VAC, 50Hz +/-3Hz	AC Input Voltage at 115VAC +/-5VAC, 60Hz +/-3Hz	AC Input Voltage at 230VAC +/-5VAC, 50Hz +/-3Hz
Normal Operation	71.6 BTU/hr	71.16 BTU/hr	71.47 BTU/hr
Sleep (Standby)	1.706 BTU/hr	1.706 BTU/hr	1.706 BTU/hr
Off	1.706 BTU/hr	1.706 BTU/hr	1.706 BTU/hr
Power LED indicator	On mode: White, Standby/Sleep mode: White (blinking)		
Power Supply	Built-in, 100-240VAC, 50/60Hz		

Dimension	
Product with Stand (W x H x D)	532 x 397 x 209 mm
Product without Stand(W x H x D)	532 x 336 x 44 mm
Box Dimension (W x H x D)	606 x 409 x 101 mm
Weight	
Product with Stand	2.79kg
Product with Packaging	3.84kg
Operating Condition	
Temperature Range (operation)	0°C to 40 °C
Temperature Range (storage)	-20°C to 60°C

Relative Humidity	20% to 80%
Altitude	operation: +12,000 ft (3,658 m)
	Non-operation: + 40,000ft (12,192 m)
MTBF	30,000hrs
Environmental	
ROHS	YES
EPEAT	Silver(www.epeat.net)
Packaging	100% recyclable
Compliance and standards	
Regulatory Approvals	CE Mark, FCC Class B, GOAST, SEMKO, TCO Certified(Only for selective models), UL/cUL, BSMI, ISO9241-307
Cabinet	
Color	Black
Finish	Glossy / Texture

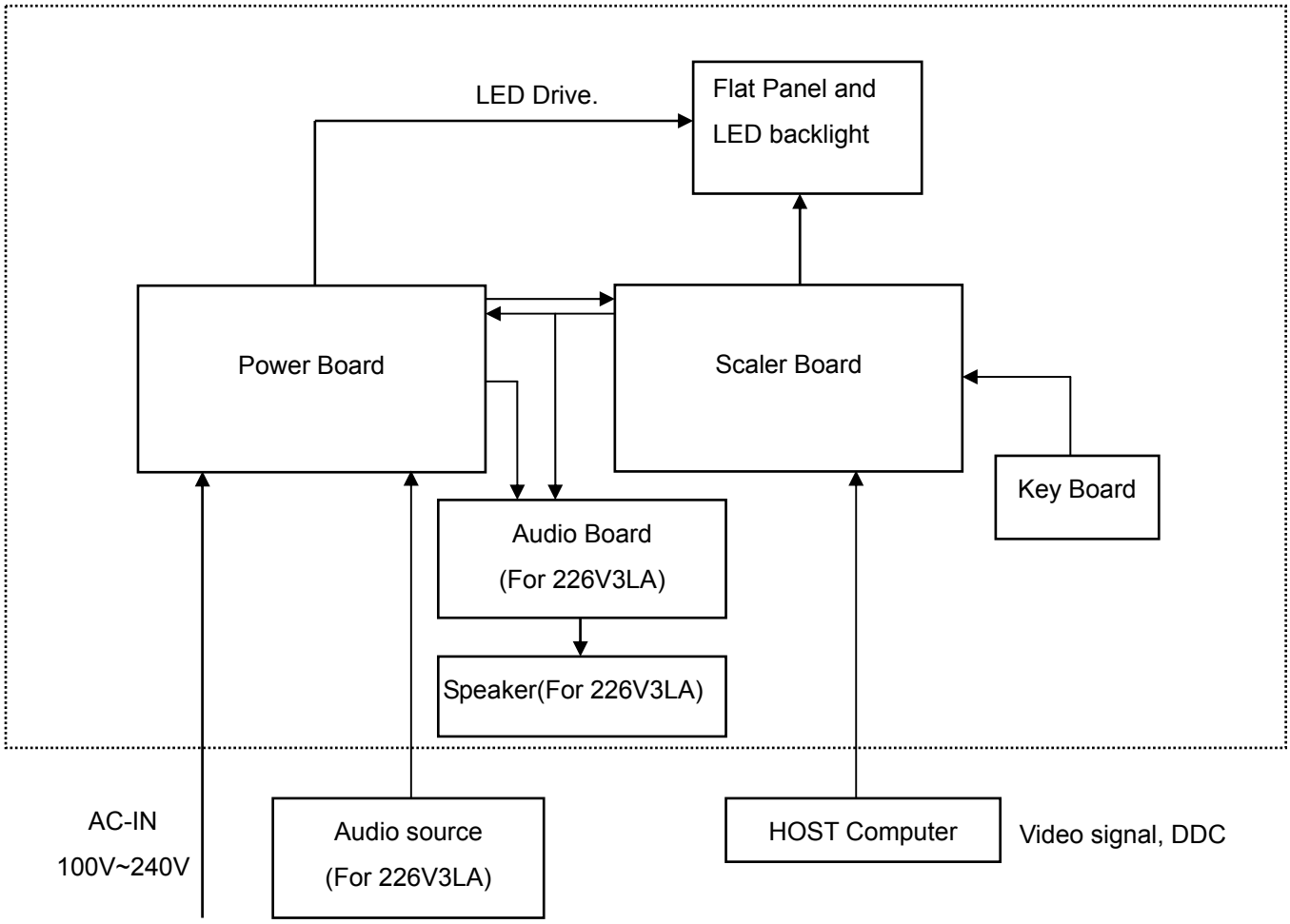
Note:

1. This data is subject to change without notice.
2. Go to www.philips.com/support to download the latest version of leaflet.

2. LCD Monitor Description

The LCD monitor will contain a scaler board ,a power board ,an audio board , a key board and two speakers. The scaler board houses the flat panel control logic, brightness control logic and DDC.

Monitor Block Diagram



3. Operating Instructions

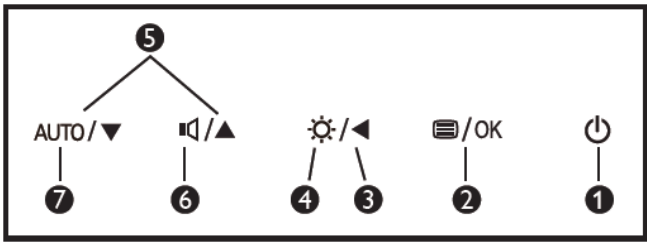
3.1 General Instructions

Press the power button to turn the monitor on or off. The other control knobs are located at front panel of the monitor (see figure). By changing these setting, the picture can be adjusted to your personal preference.

* The power cord should be connected.
* Press the power button to turn on the monitor. The power indicator will light up.

3.2 Control Buttons

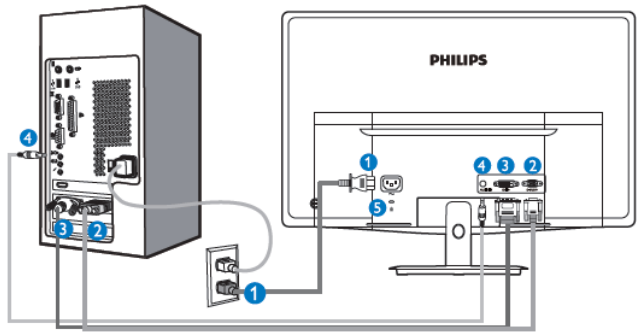
Operating the Monitor



Front view product description

1. : Switch monitor's power ON and OFF.
2. /OK:Access the OSD menu.Confirm the OSD adjustment.
3. : Return to previous OSD level.
4. : Adjust the brightness level.
5. ▲▼ : Adjust the OSD menu.
6. : Adjust the speaker volume.
7. AUTO:Automatically adjust the monitor.

Connecting to your PC



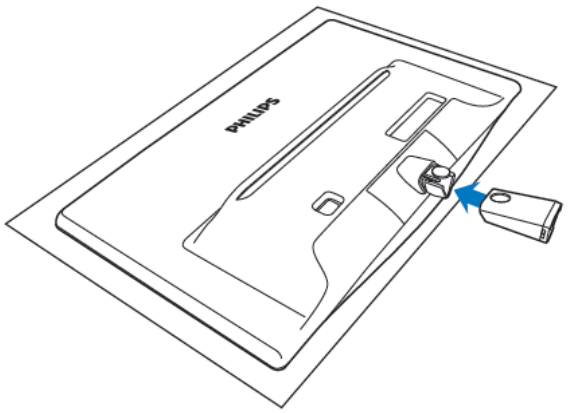
① AC power input
② VGA input
③ DVI-D input(Available for selected models)
④ Audio input (available for selected models)
⑤ Kensington anti-theft lock

Connect to PC

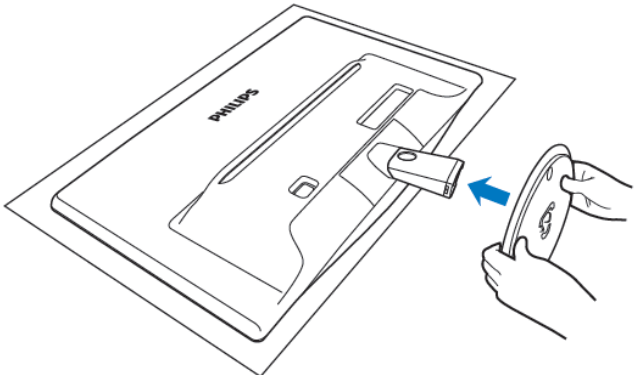
1. Connect the power cord to the back of the monitor firmly.
2. Turn off your computer and unplug its power cable.
3. Connect the monitor signal cable to the video connector on the back of your computer.
4. Plug the power cord of your computer and your monitor into a nearby outlet.
5. Turn on your computer and monitor. If the monitor displays an image, installation is complete.

Install base stand

1. Place the monitor face down on soft and smooth surface taking care to avoid scratching or damaging the screen.
2. Attach the base column with the monitor until it clicks into position.



3. Hold the monitor base stand with both hands and firmly insert the base stand into the base column.



3.3 OSD Menu

On-Screen Display (OSD) is a feature in all Philips LCD monitors. It allows an end user to adjust screen performance or select functions of the monitors directly through an on-screen instruction window. A user friendly on screen display interface is shown as below:

Basic and simple instruction on the control keys

In the OSD shown above, you can press▼▲ buttons at the front bezel of the monitor to move the cursor, and press OK button to confirm the choice or change.

The OSD tree

Below is an overall view of the structure of the On-Screen Display. You can use this as a reference when you want to work your way around the different adjustments later on.

- Input
  - VGA
  - DVI

  (available for selective models)
- Picture
  - Picture Format — Wide Screen, 4:3
  - Brightness — 0~100
  - Contrast — 0~100
  - SmartContrast — On, Off
- Audio
  - Stand-Alone — On, Off
  - Mute — On, Off

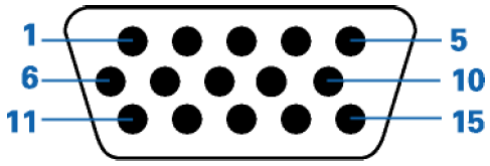
  (available for selective models)
- Color
  - Color Temperature — 6500K, 9300K
  - sRGB
  - User Define
    - Red: 0~100
    - Green: 0~100
    - Blue: 0~100
- Language — English , Español, Français, Deutsch, Italiano, Português, Русский , 简体中文, Türkçe
- OSD Settings
  - Horizontal — 0~100
  - Vertical — 0~100
  - Transparency — Off, 1, 2, 3, 4
  - OSD Time Out — 5s, 10s, 20s, 30s, 60s
- Setup
  - Auto
  - H. Position — 0~100
  - V. Position — 0~100
  - Phase — 0~100
  - Clock — 0~100
  - Resolution Notification — On, Off
  - Reset — Yes, No
  - Information

4. Input/ output Specification

4.1 Input Signal Connector

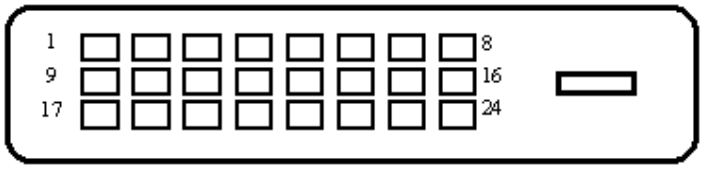
Analog Connectors

Pin No.	Signal Name	Pin No.	Signal Name
1	Red	9	DDC +3.3V or +5V
2	Green/ SOG	10	Logic GND
3	Blue	11	Sense (GND)
4	Sense (GND)	12	Bi-directional data
5	Cable Detect (GND)	13	H/H+V sync
6	Red GND	14	V-sync
7	Green GND	15	Data clock
8	Blue GND		



Digital Connectors (Option)

Pin No.	Signal Name	Pin No.	Signal Name
1	T.M.D.S. data2-	13	No Connect
2	T.M.D.S. data2+	14	+5V Power
3	T.M.D.S. data2 shield	15	Ground (for +5V)
4	No Connect	16	Hot plug detect
5	No Connect	17	T.M.D.S. data0-
6	DDC clock	18	T.M.D.S. data0+
7	DDC data	19	T.M.D.S. data0 shield
8	No Connect	20	No Connect
9	T.M.D.S. data1-	21	No Connect
10	T.M.D.S. data1+	22	T.M.D.S clock shield
11	T.M.D.S. data1 shield	23	T.M.D.S. clock+
12	No Connect	24	T.M.D.S. clock-



4.2 Resolution & Preset Modes

Maximum Resolution

1920 x 1080 at 60 Hz (analog input)

1920 x 1080 at 60 Hz (digital input)

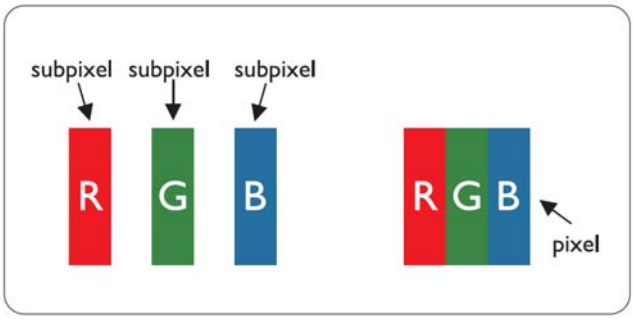
Recommended Resolution

1920 x 1080 at 60 Hz (digital input)

H. freq (kHz)	Resolution	V. freq (Hz)
31.47	720 x 400	70.09
31.47	640 x 480	59.94
35.00	640 x 480	66.67
37.86	640 x 480	72.81
37.50	640 x 480	75.00
37.88	800 x 600	60.32
46.88	800 x 600	75.00
48.36	1024 x 768	60.00
60.02	1024 x 768	75.03
63.89	1280 x 1024	60.02
79.98	1280 x 1024	75.03
55.94	1440 x 900	59.89
70.64	1440 x 900	74.98
65.29	1680 x 1050	59.95
67.50	1920 x1080	60.00

4.3 Pixel Defect Policy

Philips strives to deliver the highest quality products. We use some of the industry's most advanced manufacturing processes and practice stringent quality control. However, pixel or sub pixel defects on the TFT Monitor panels used in flat panel monitors are sometimes unavoidable. No manufacturer can guarantee that all panels will be free from pixel defects, but Philips guarantees that any monitor with an unacceptable number of defects will be repaired or replaced under warranty. This notice explains the different types of pixel defects and defines acceptable defect levels for each type. In order to qualify for repair or replacement under warranty, the number of pixel defects on a TFT Monitor panel must exceed these acceptable levels. For example, no more than 0.0004% of the sub pixels on a 21.5" XGA monitor may be defective. Furthermore, Philips sets even higher quality standards for certain types or combinations of pixel defects that are more noticeable than others. This policy is valid worldwide.



Pixels and Sub pixels

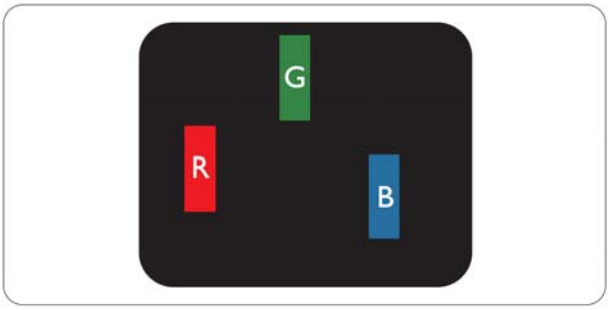
A pixel, or picture element, is composed of three sub pixels in the primary colors of red, green and blue. Many pixels together form an image. When all sub pixels of a pixel are lit, the three colored sub pixels together appear as a single white pixel. When all are dark, the three colored sub pixels together appear as a single black pixel. Other combinations of lit and dark sub pixels appear as single pixels of other colors.

Types of Pixel Defects

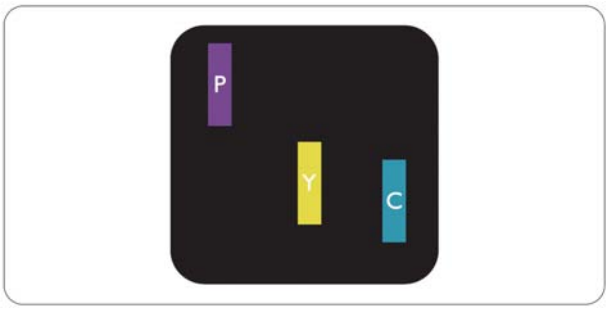
Pixel and sub pixel defects appear on the screen in different ways. There are two categories of pixel defects and several types of sub pixel defects within each category.

Bright dot defects

Bright Dot Defects Bright dot defects appear as pixels or sub pixels that are always lit or 'on'. That is, a bright dot is a sub-pixel that stands out on the screen when the monitor displays a dark pattern. There are the types of bright dot defects:

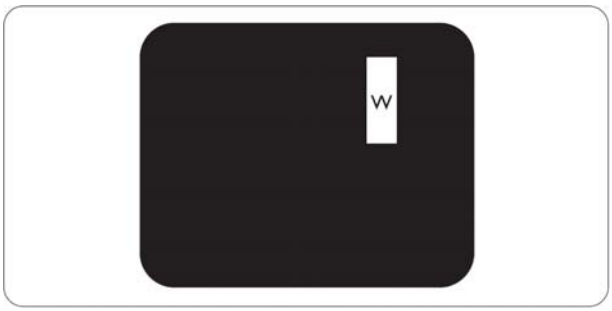


One lit red, green or blue sub pixel



Two adjacent lit sub pixels:

- Red + Blue = Purple
- Red + Green = Yellow
- Green + Blue = Cyan (Light Blue)



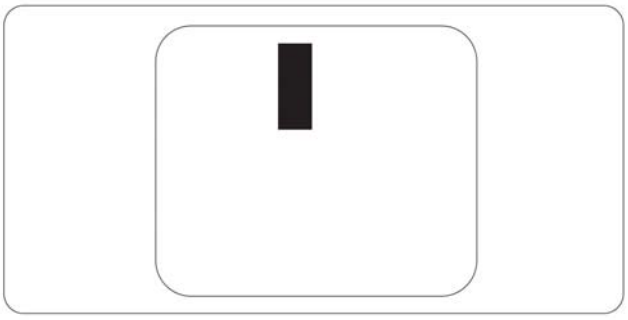
Three adjacent lit sub pixels (one white pixel)

Note:

A red or blue bright dot must be more than 50 percent brighter than neighboring dots while a green bright dot is 30 percent brighter than neighboring dots.

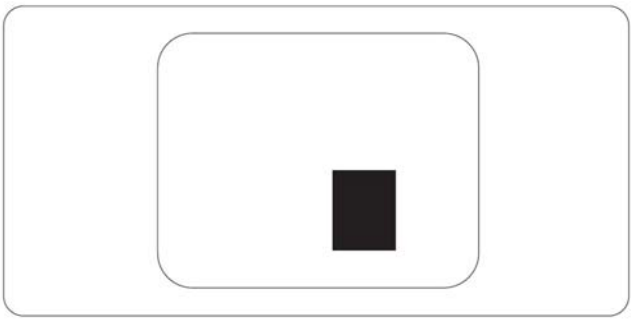
Black Dot Defects

Black dot defects appear as pixels or sub pixels that are always dark or 'off'. That is, a dark dot is a sub-pixel that stands out on the screen when the monitor displays a light pattern. There are two types of black dot defects:



Proximity of Pixel Defects

Because pixel and sub pixels defects of the same type that are near to one another may be more noticeable, Philips also specifies tolerances for the proximity of pixel defects.



Pixel Defect Tolerances

In order to qualify for repair or replacement due to pixel defects during the warranty period, a TFT Monitor panel in a Philips flat panel monitor must have pixel or sub pixel defects exceeding the tolerances listed in the following tables.

Bright Dot Defects	Acceptable level
MODEL	226V3L
1 lit subpixel	3
2 adjacent lit subpixels	1
3 adjacent lit subpixels (one white pixel)	0
Distance between two bright dot defects*	>15mm
Total bright dot defects of all types	3

Black Dot Defects	Acceptable level
MODEL	226V3L
1 dark subpixel	5 or fewer
2 adjacent dark subpixels	2 or fewer
3 adjacent dark subpixels	0
Distance between two black dot defects*	>15mm
Total black dot defects of all types	5 or fewer

Total Dot Defects	Acceptable level
MODEL	226V3L
Total bright or black dot defects of all types	5 or fewer

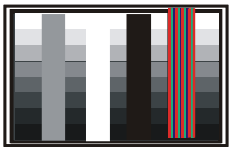
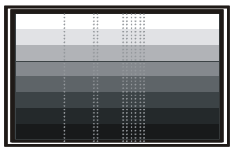
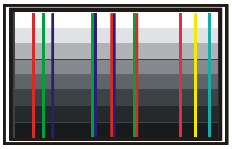
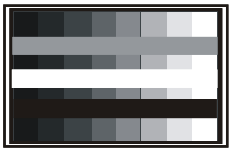
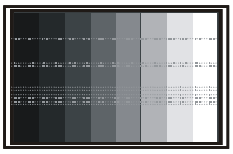
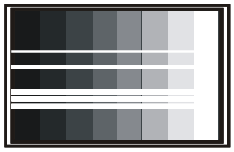
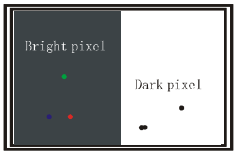
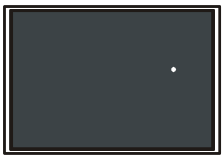
Note: 1 or 2 adjacent sub pixel defects = 1 dot defect.

This monitor is ISO9241-307 compliant.

4.4 Failure Mode Of Panel

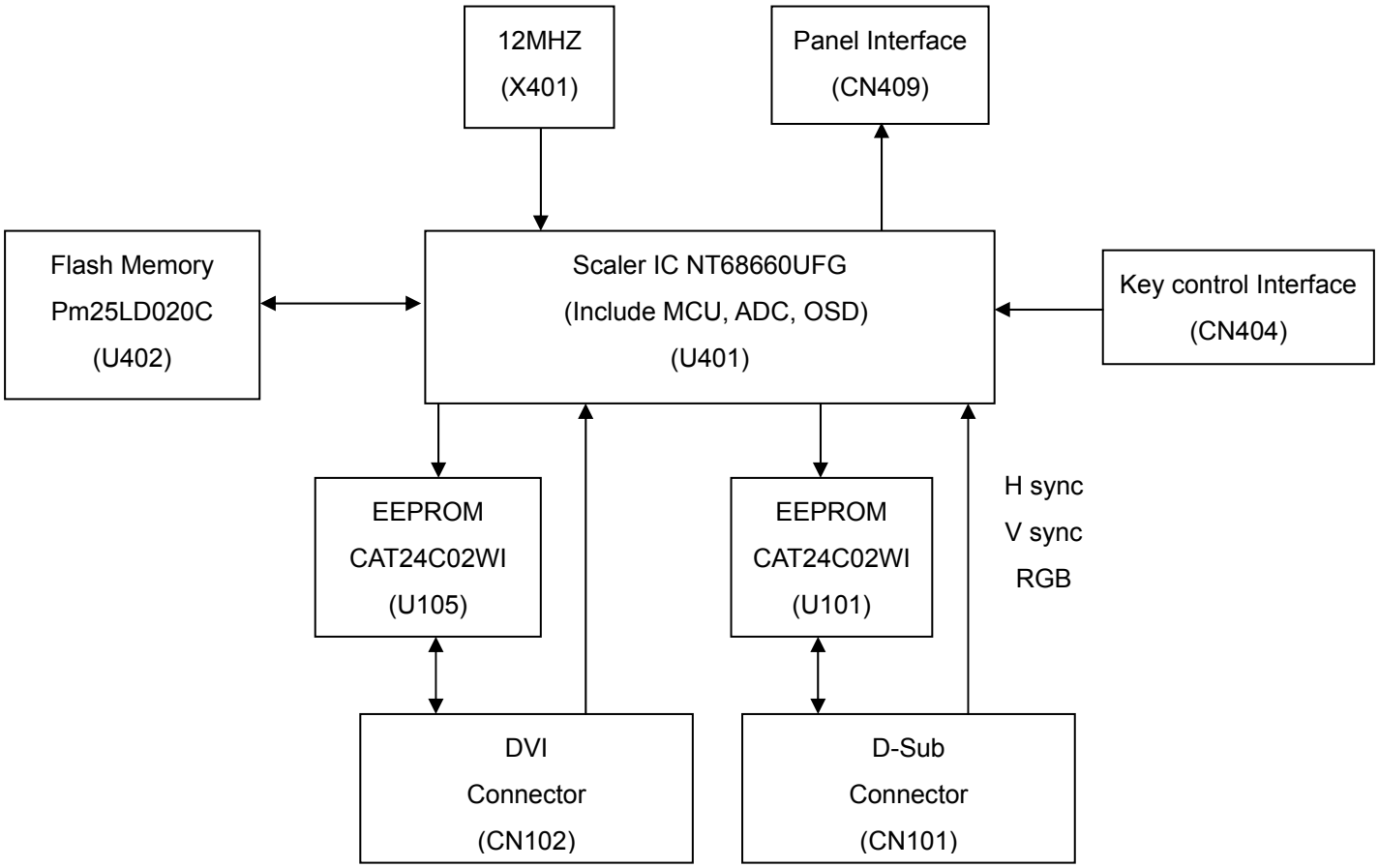
Quick reference for failure mode of LCD panel

this page presents problems that could be made by LCD panel.
It is not necessary to repair circuit board. Simply follow the mechanical instruction on this manual to eliminate failure by replace LCD panel.

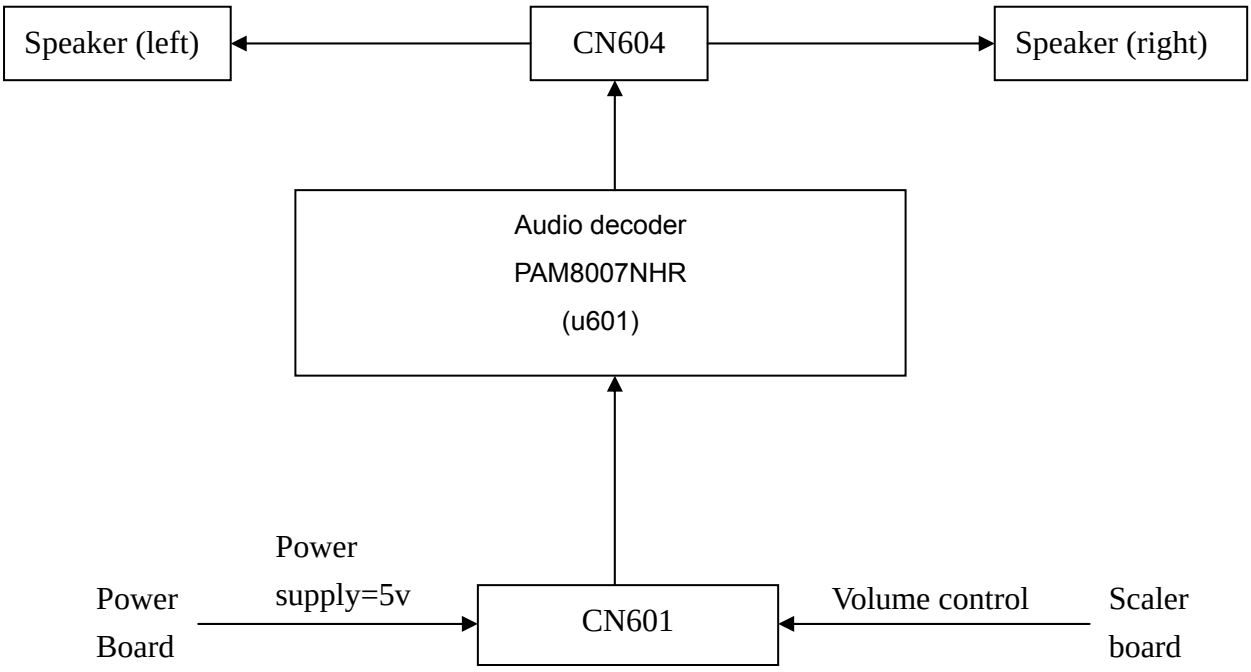
Failure description	Phenomenon
Vertical block defect	
Vertical dim lines	
Vertical lines defect (Always bright or dark)	
Horizontal block defect	
Horizontal dim lines	
Horizontal lines defect (Always bright or dark)	
Has bright or dark pixel	
Polarizer has bubbles	
Polarizer has bubbles	
Foreign material inside polarizer. It shows liner or dot shape.	
Concentric circle formed	
Bottom back light of LCD is brighter than normal	
Back light un-uniformity	
Backlight has foreign material. Black or white color, liner or circular type	

5. Block Diagram

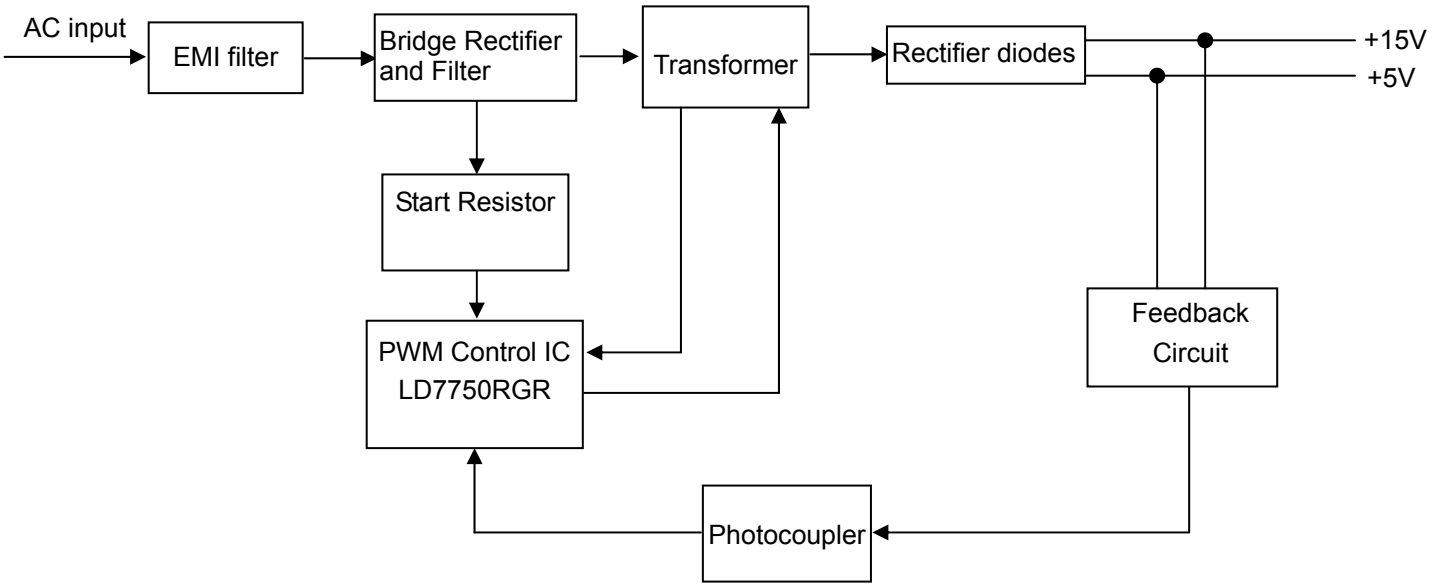
5.1 Scaler Board

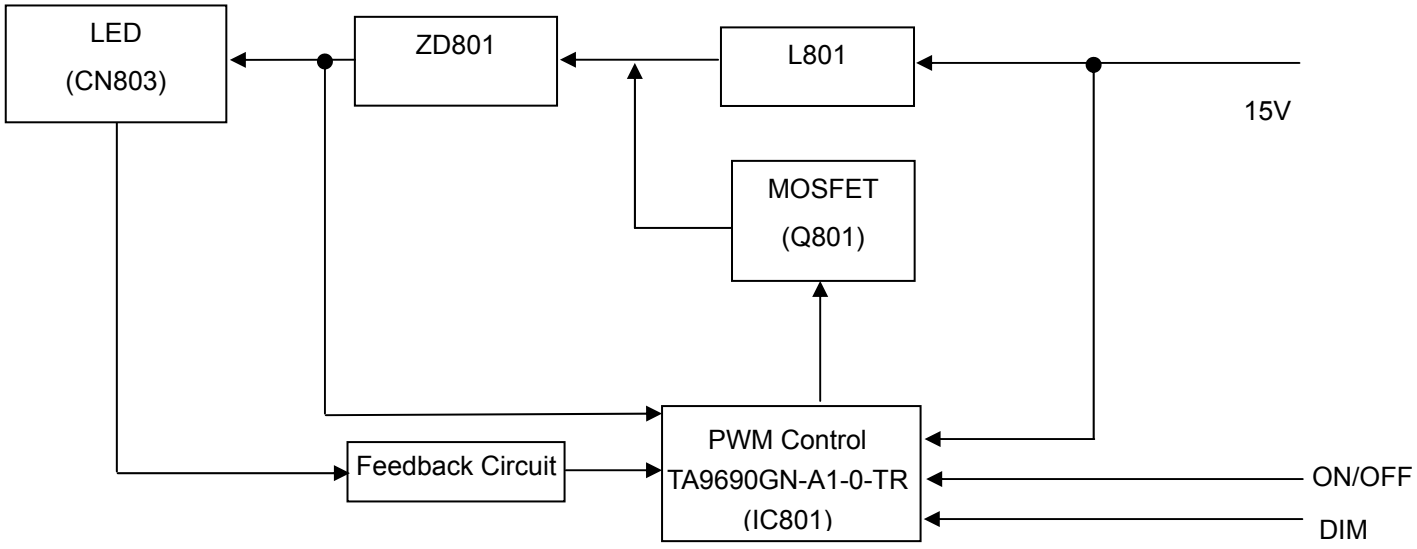


5.2 Audio board(For 226V3LA)



5.3 Power Board

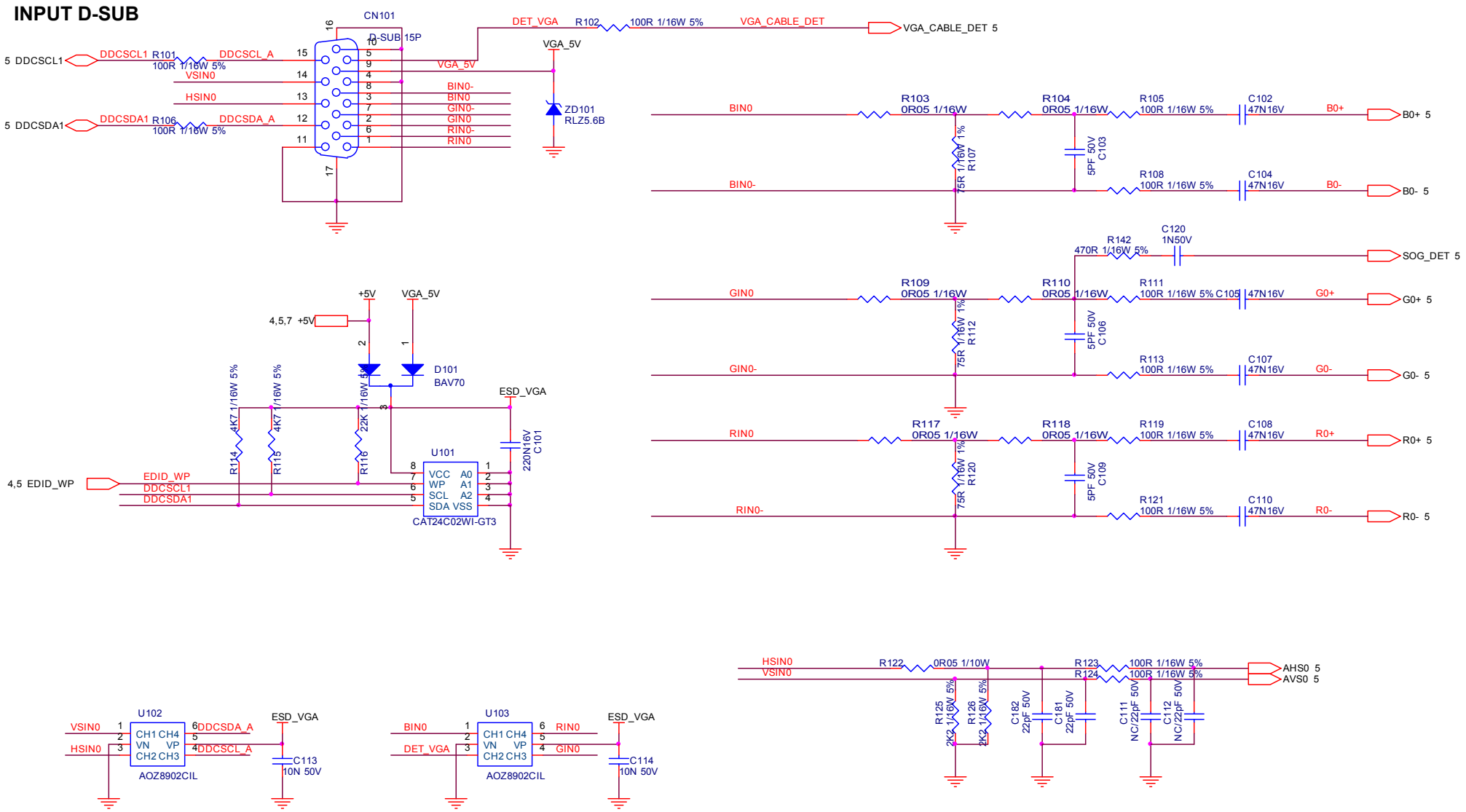




6. Schematic

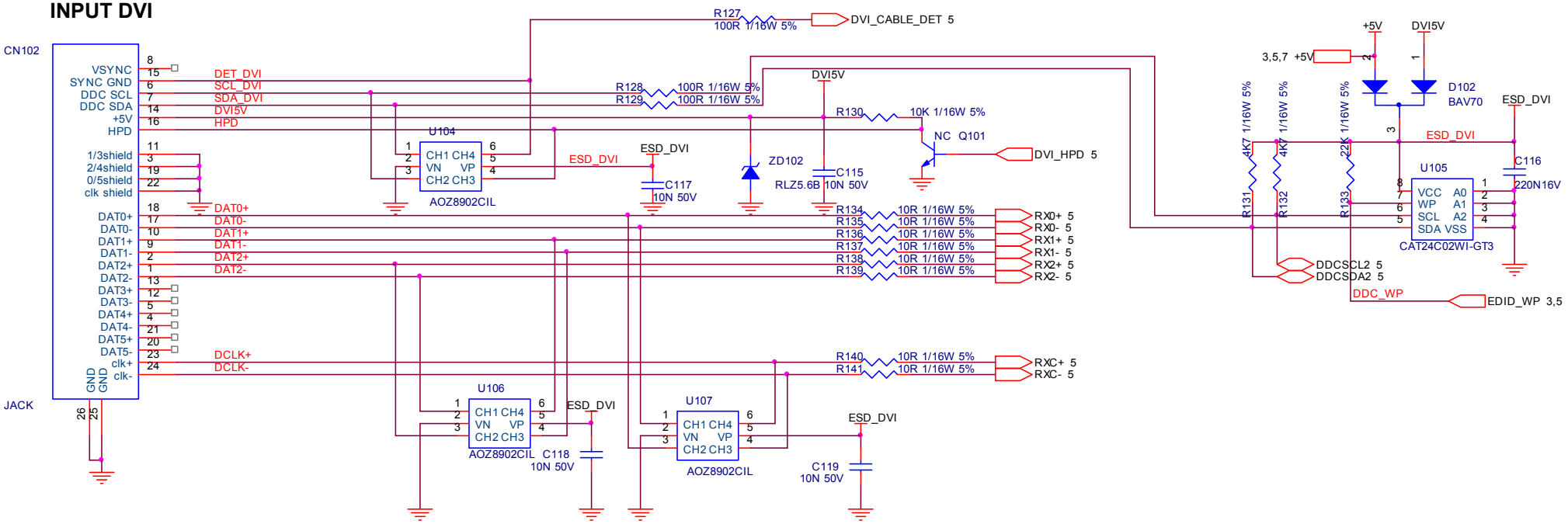
6.1 Scaler Board (715G4502M01000004C)

Remark: Parts position can be searched by using FIND function in PDF.



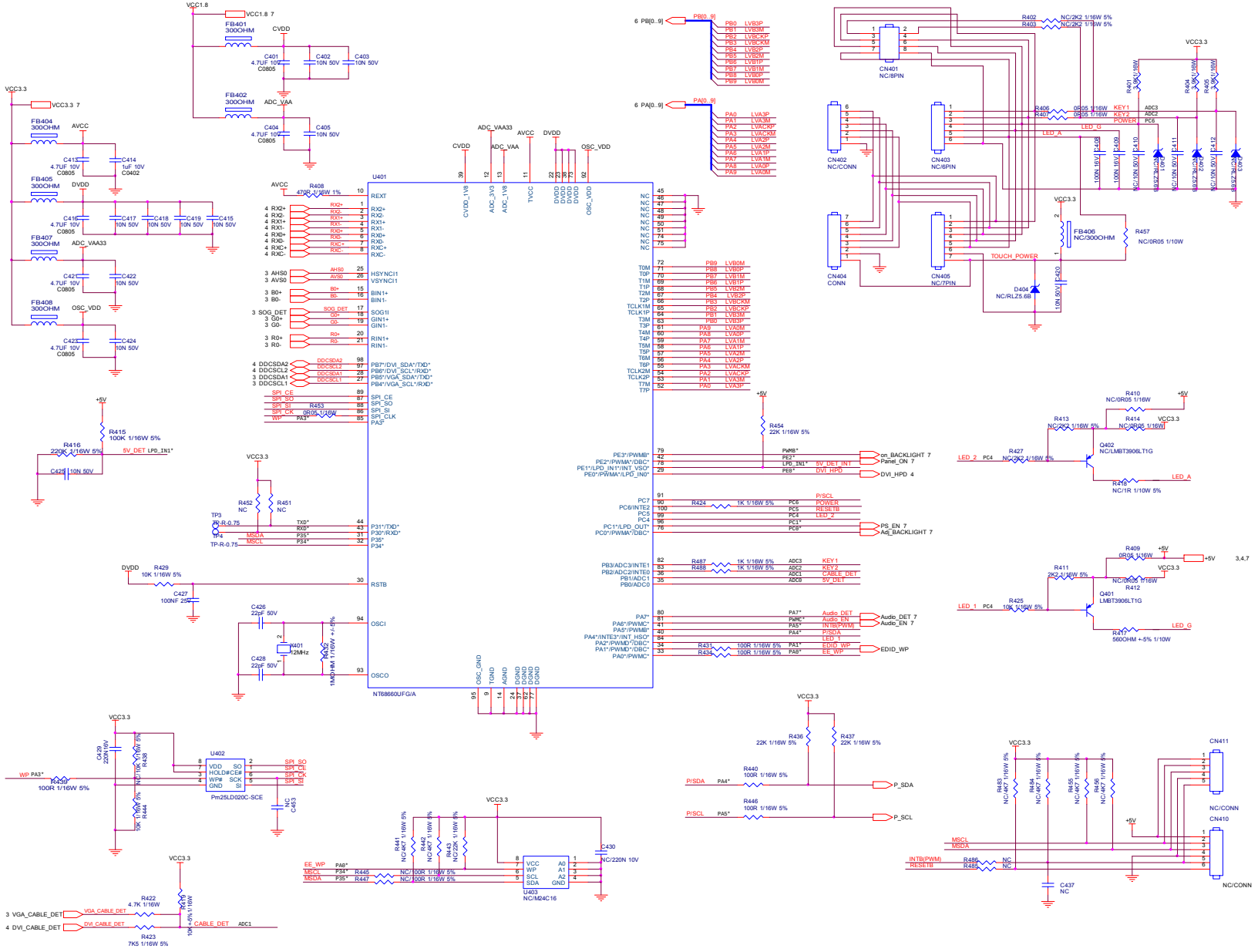
Remark: Parts position can be searched by using FIND function in PDF.

INPUT DVI



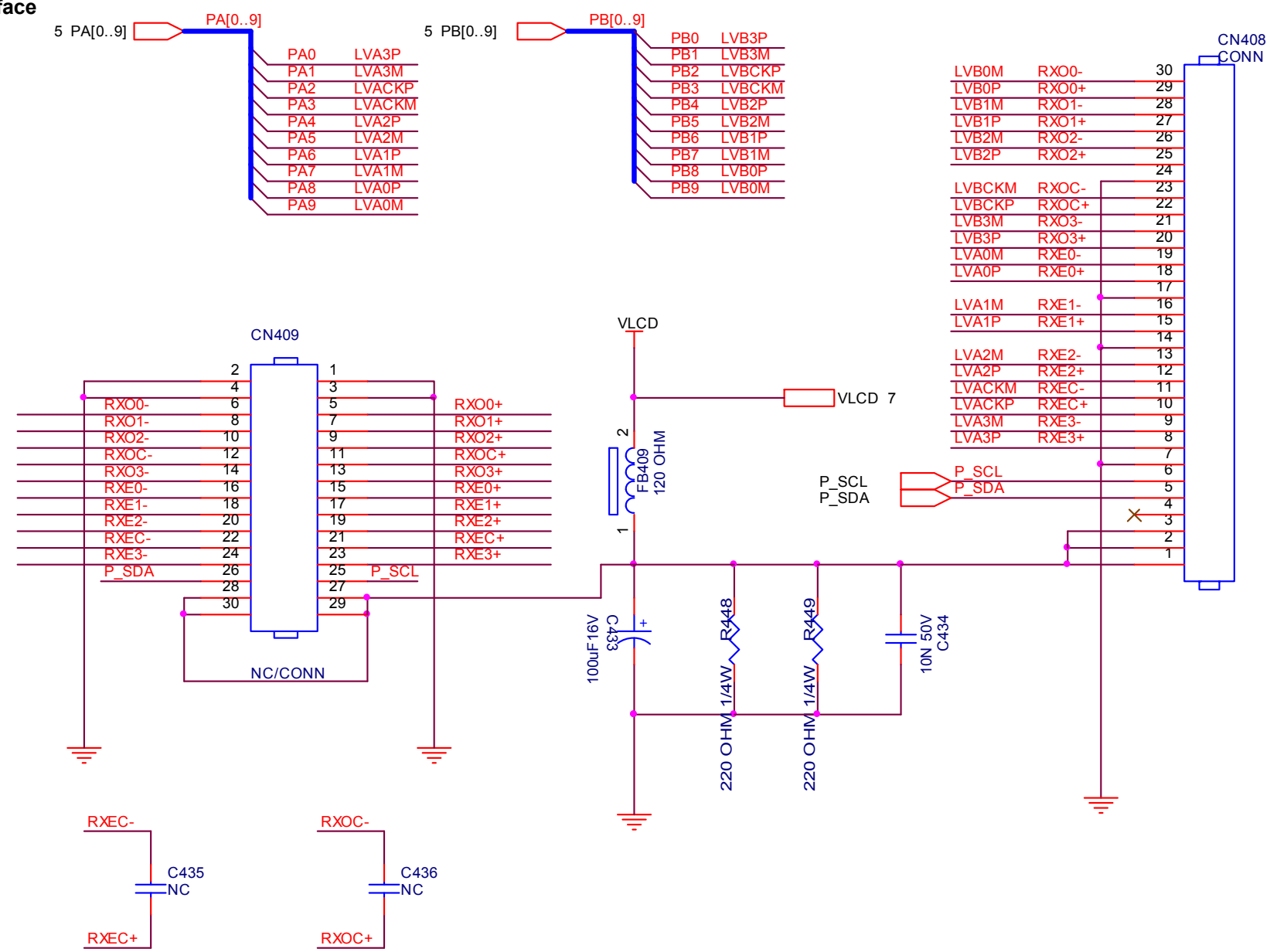
Remark: Parts position can be searched by using FIND function in PDF.

Scaler

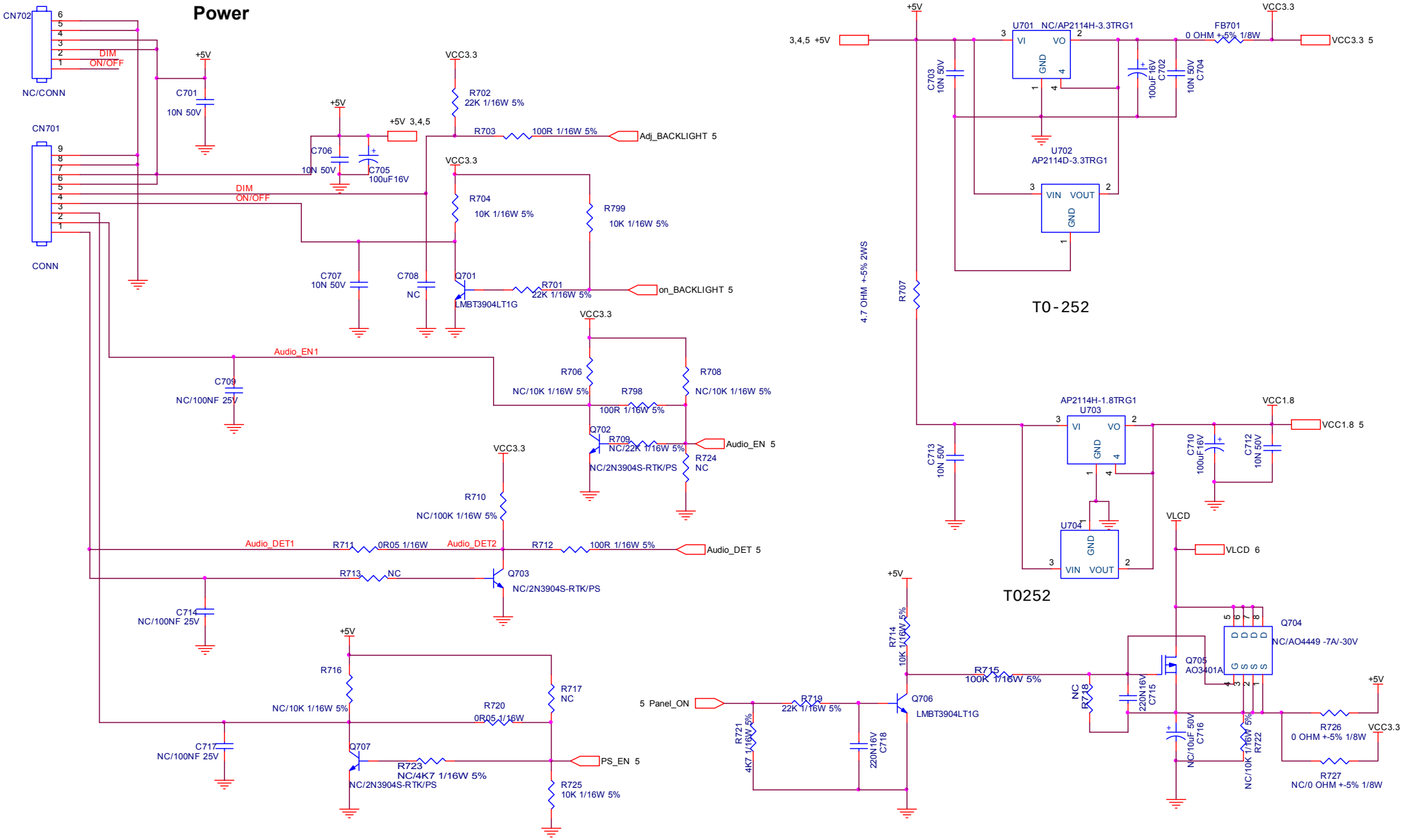


Remark: Parts position can be searched by using FIND function in PDF.

Panel Interface

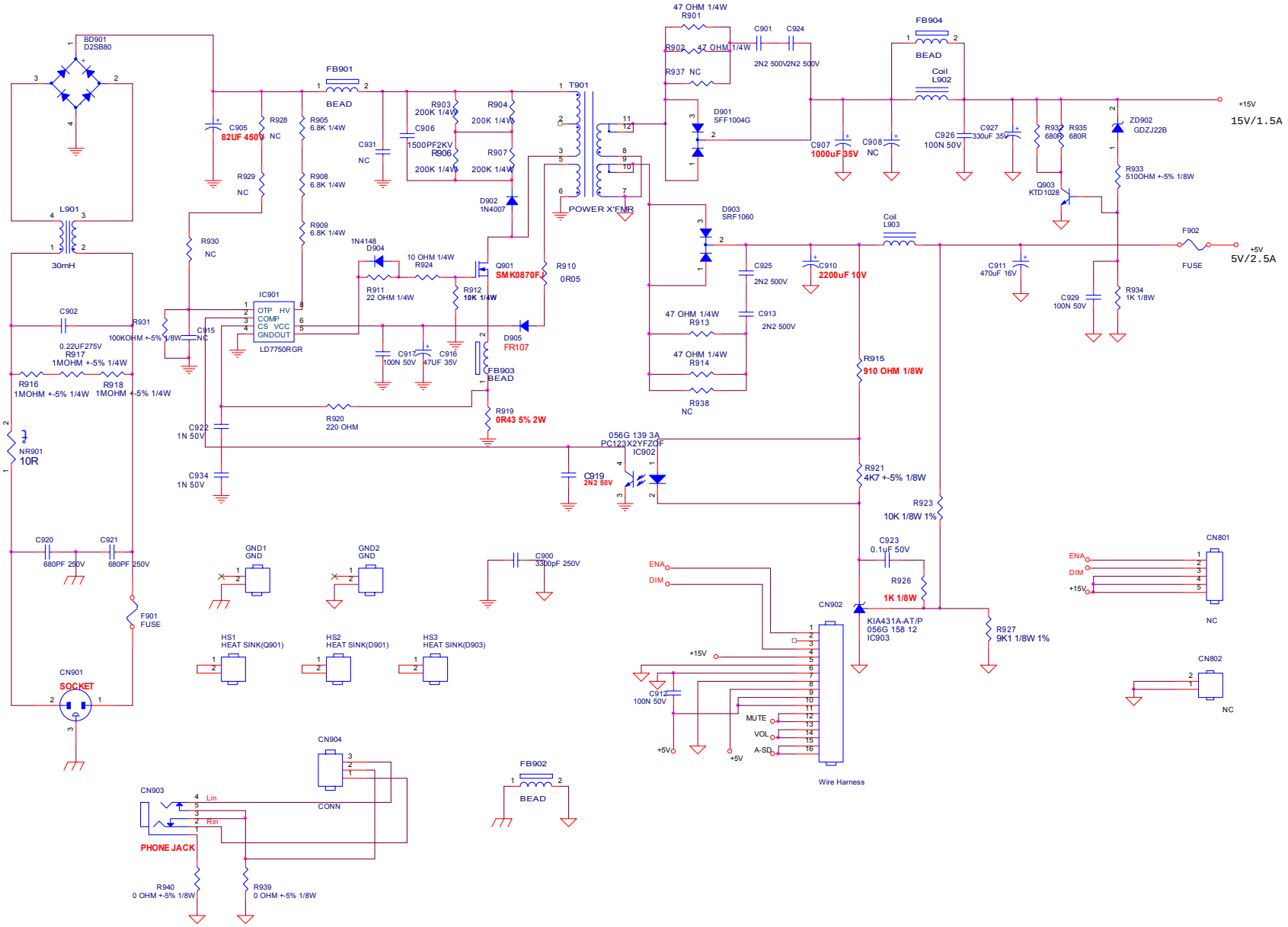


Remark: Parts position can be searched by using FIND function in PDF.



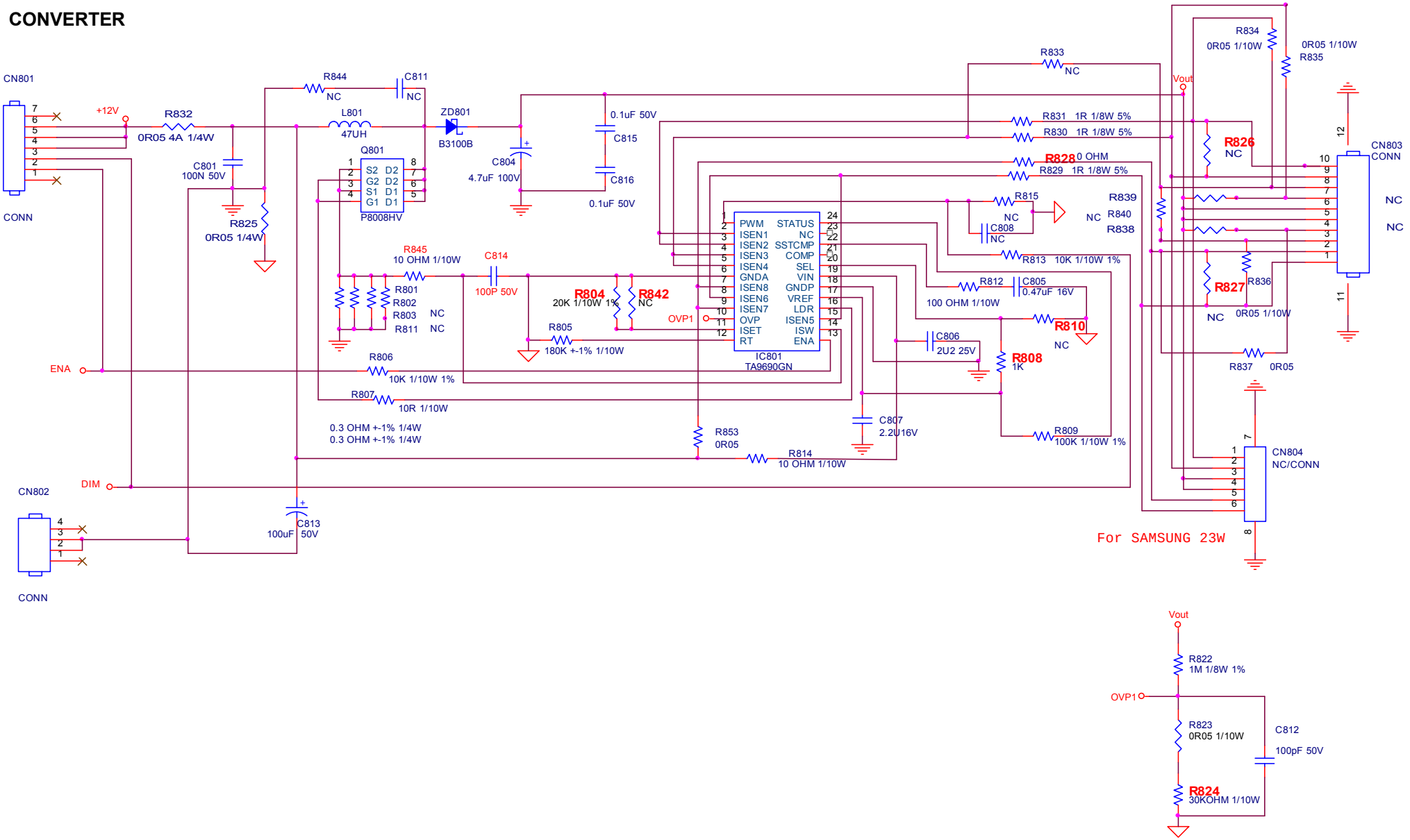
6.2 Power Board (715G4220P1A000004L)

Remark: Parts position can be searched by using FIND function in PDF.



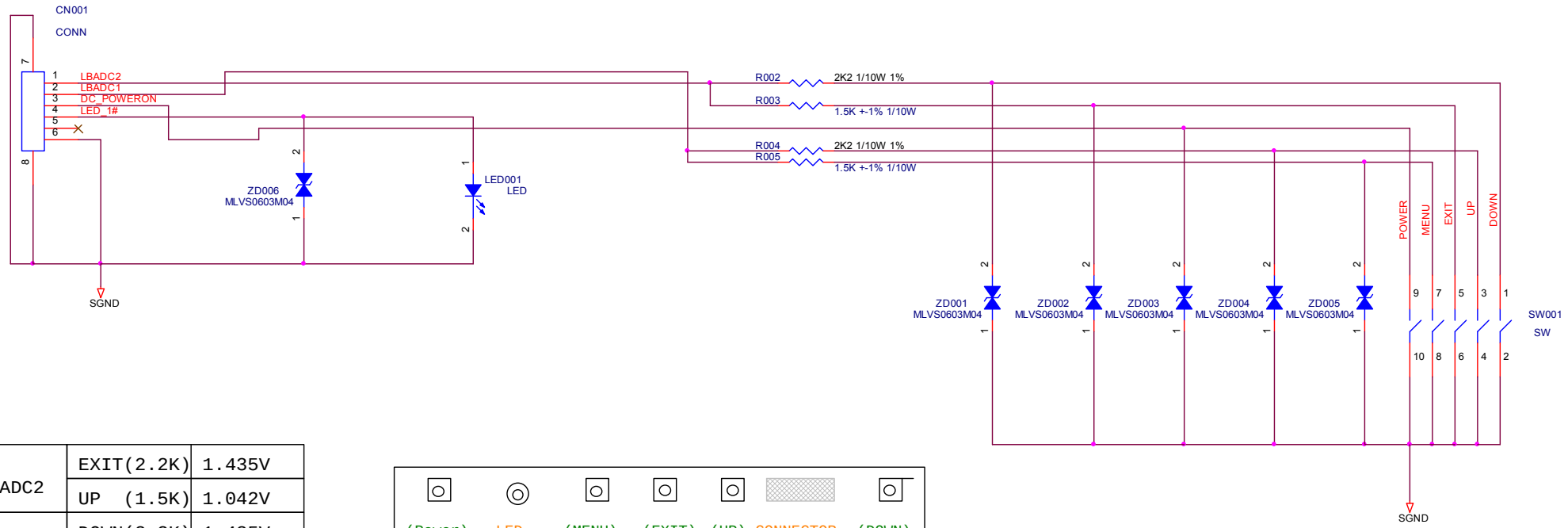
Remark: Parts position can be searched by using FIND function in PDF.

CONVERTER

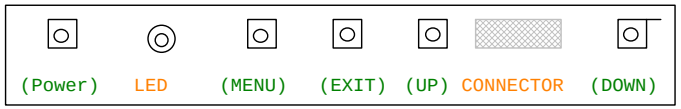


6.3 Key Board (715G4921K0D000004M)

Remark: Parts position can be searched by using FIND function in PDF.



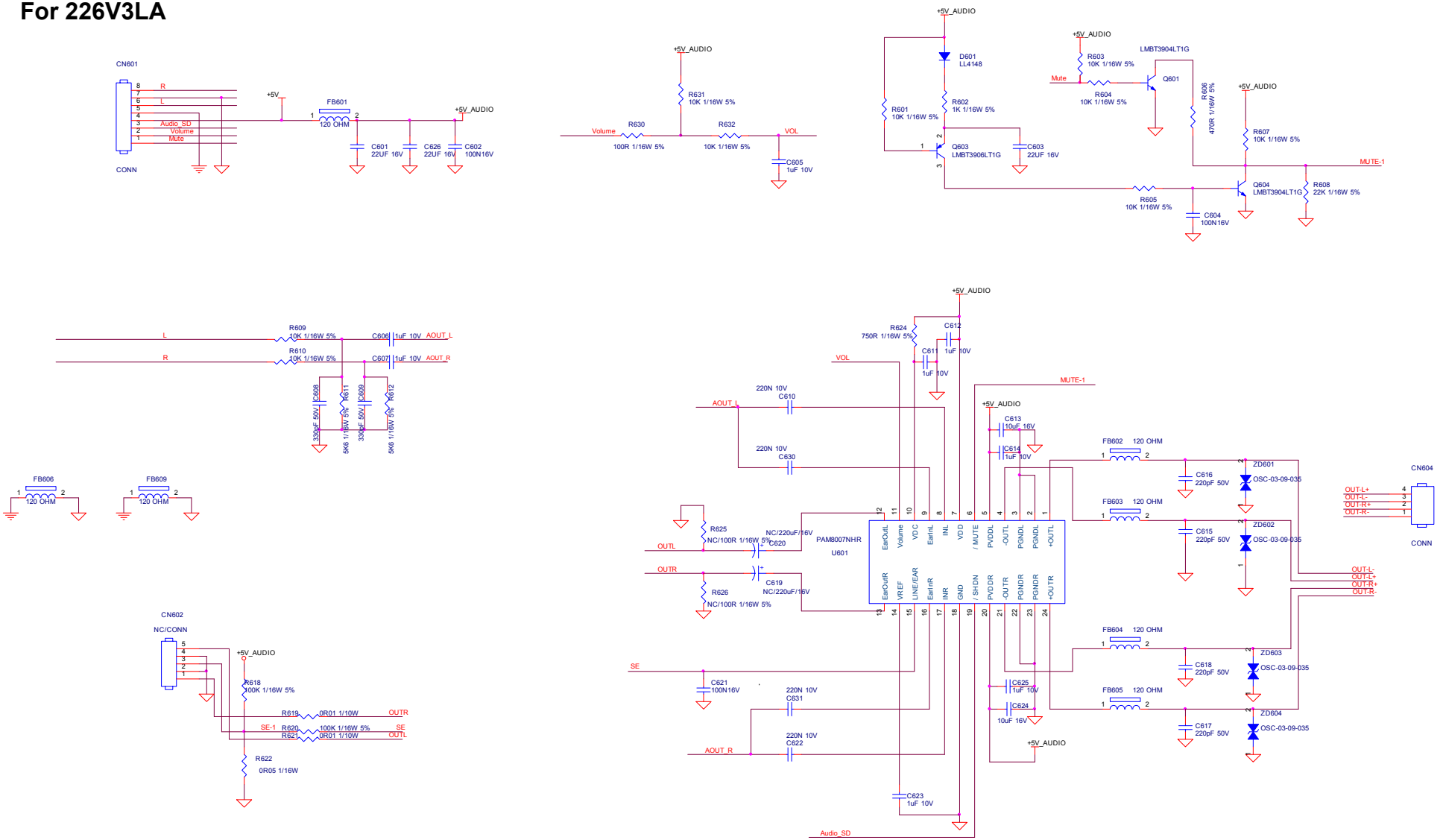
LBADC2	EXIT(2.2K)	1.435V
	UP (1.5K)	1.042V
LBADC1	DOWN(2.2K)	1.435V
	MENU(1.5K)	1.042V



6.4 Audio Board (715G5032T0G000004M)

Remark: Parts position can be searched by using FIND function in PDF.

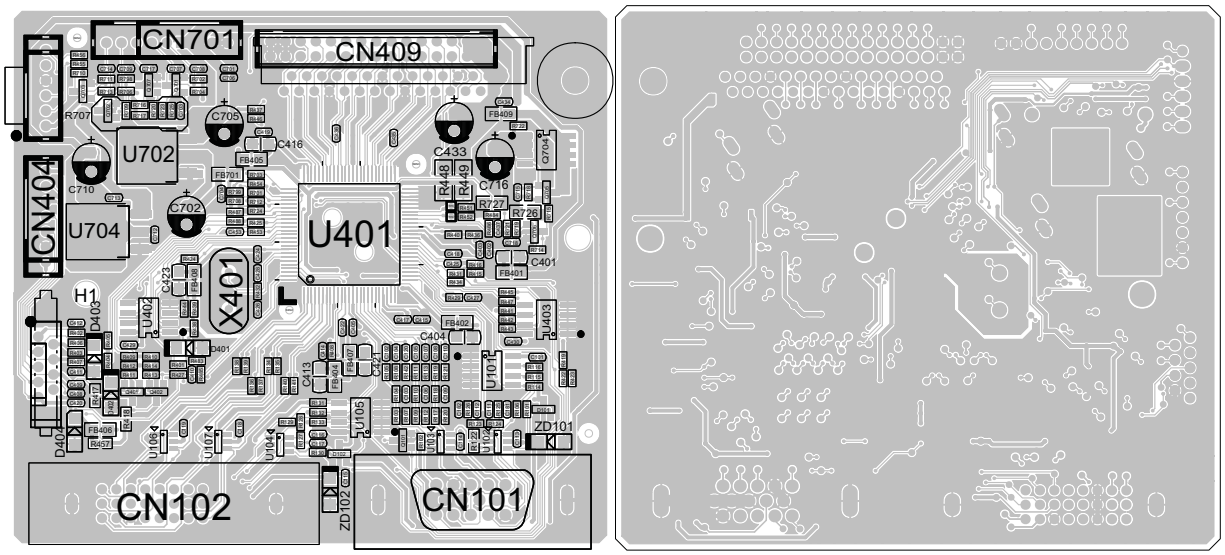
For 226V3LA



7. Pcb Layout

7.1 Scaler Board (715G4502M01000004C)

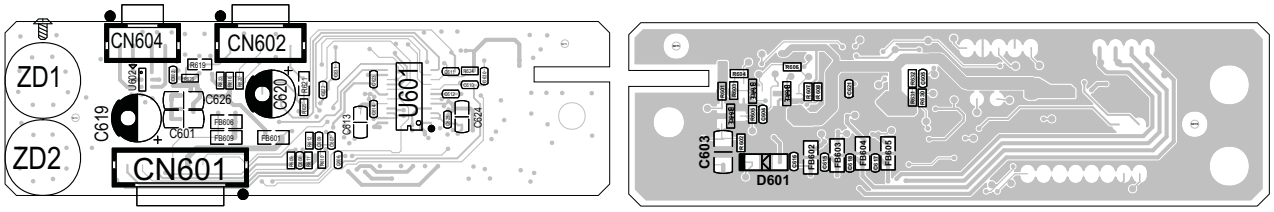
Remark: Parts position can be searched by using FIND function in PDF.



7.2 Audio Board(only for 226V3LA)

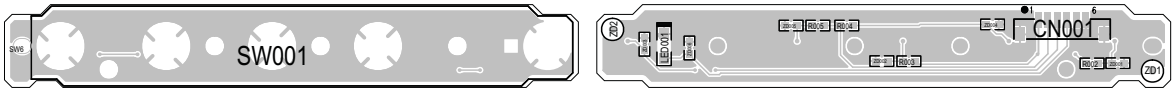
715G5032T0G000004M

Remark: Parts position can be searched by using FIND function in PDF.



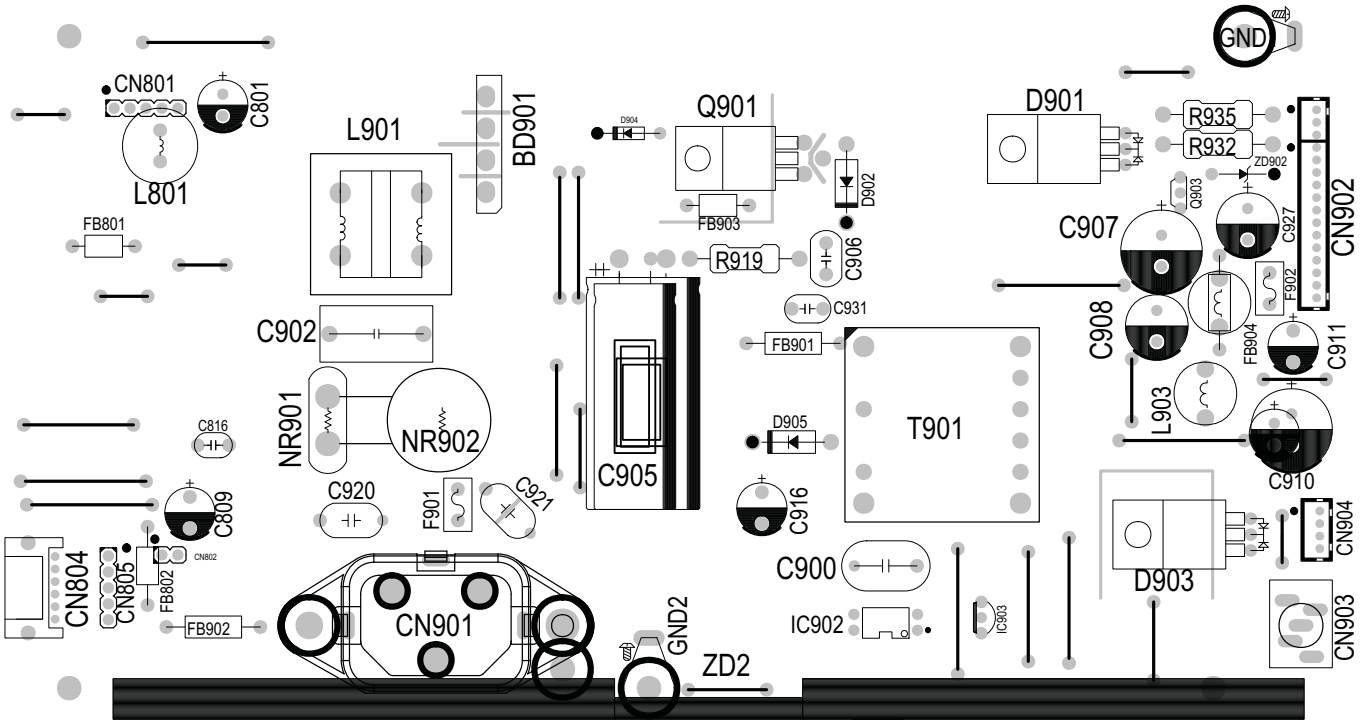
7.3 Key Board (715G4921K0D000004M)

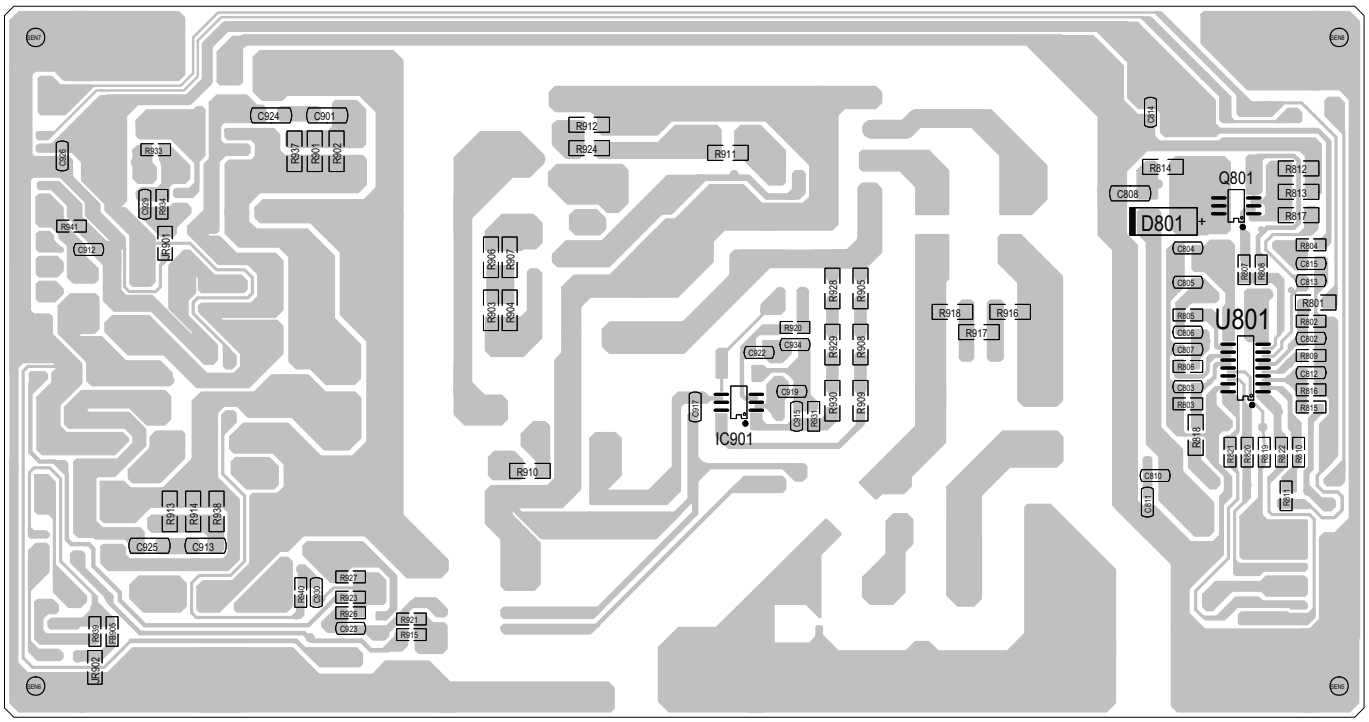
Remark: Parts position can be searched by using FIND function in PDF.



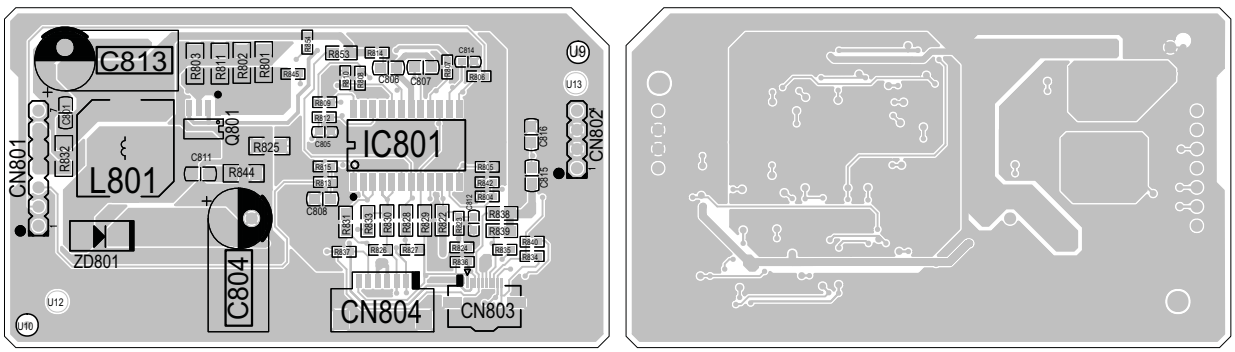
7.4 Power Board (715G4889P0E0000010)

Remark: Parts position can be searched by using FIND function in PDF.



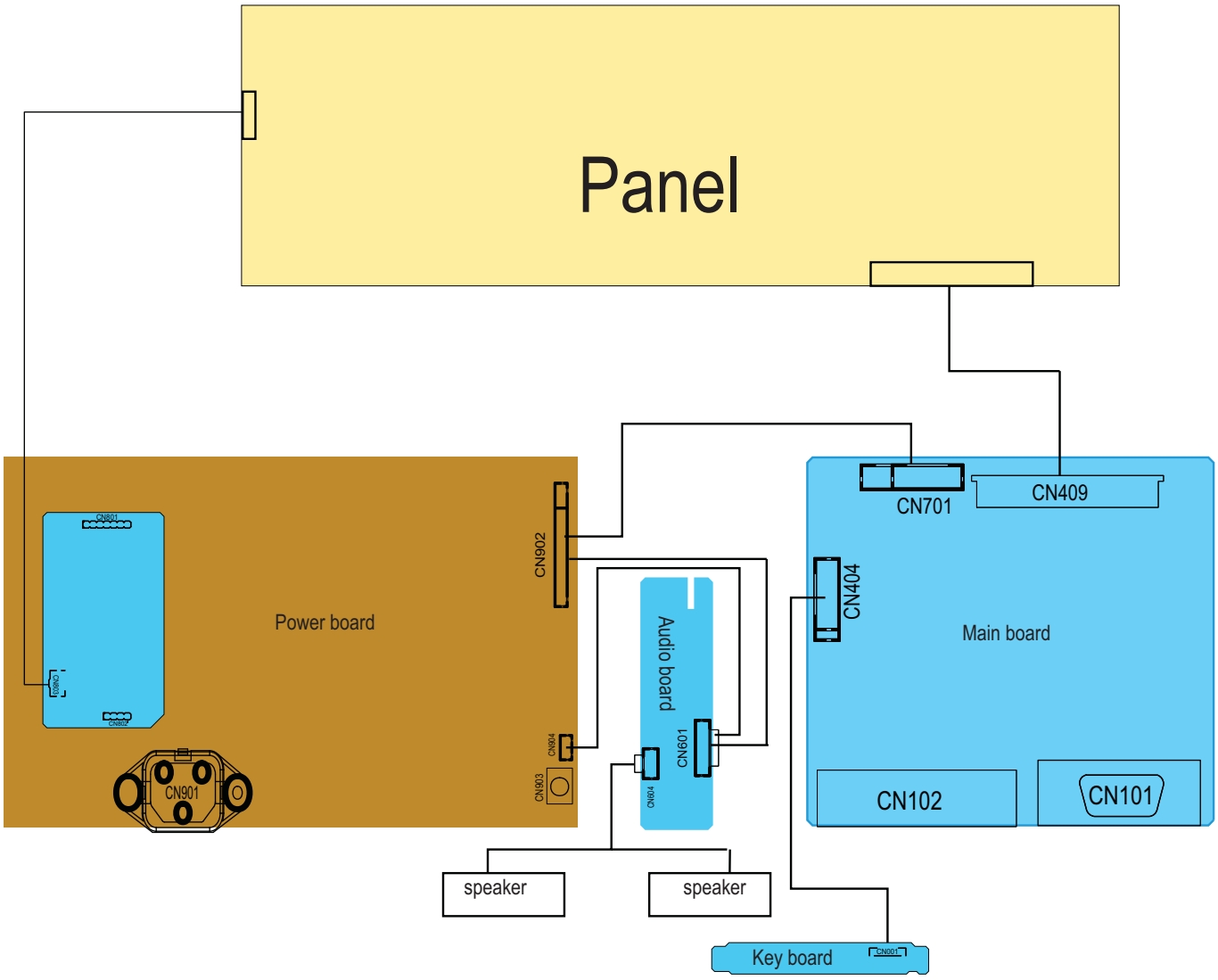


715G4220P1A000004L

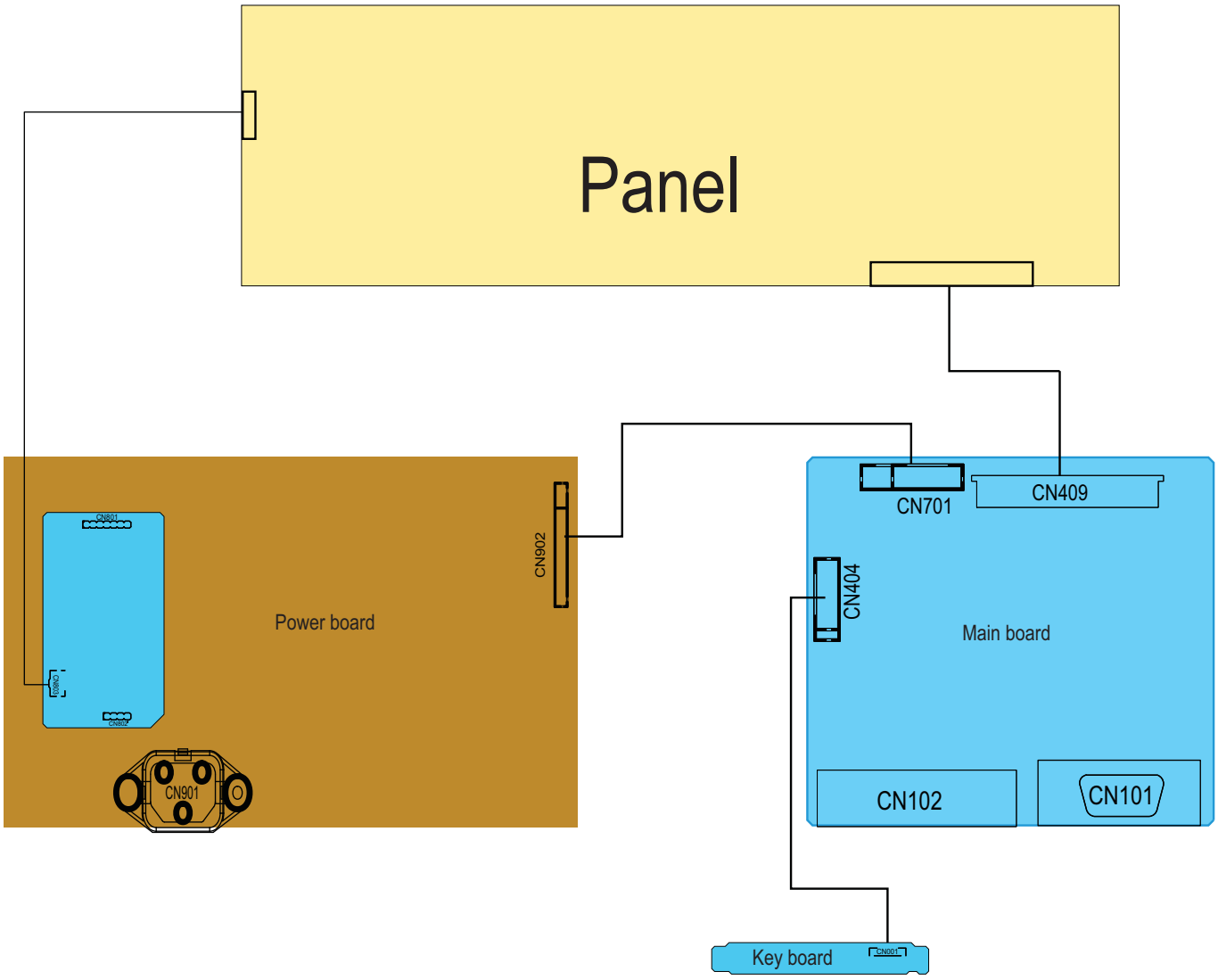


8. Wiring Diagram

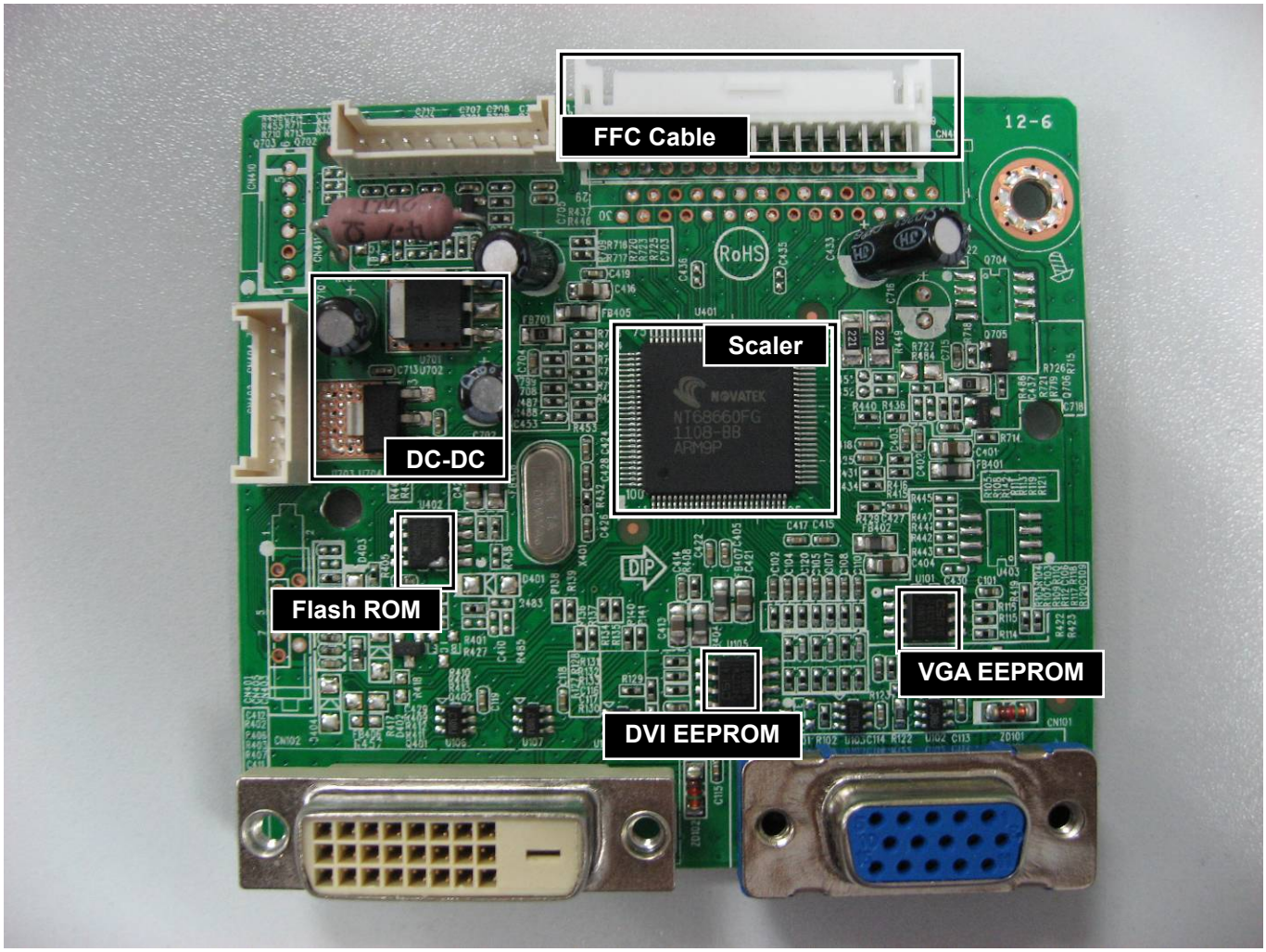
226V3LA



226V3LS


Panel
Power board
CN902
CN901
CN701
CN409
CN404
Main board
CN102
CN101
Key board

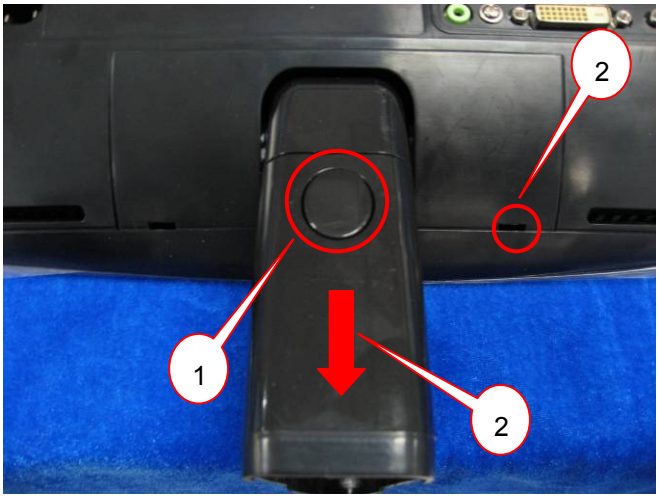
9. Scaler Board Overview



Note: DVI EEPROM is available for selective models.

10. Mechanical Instructions

2. Press the button and then remove the stand. press the two ribs and the remove hinge cover

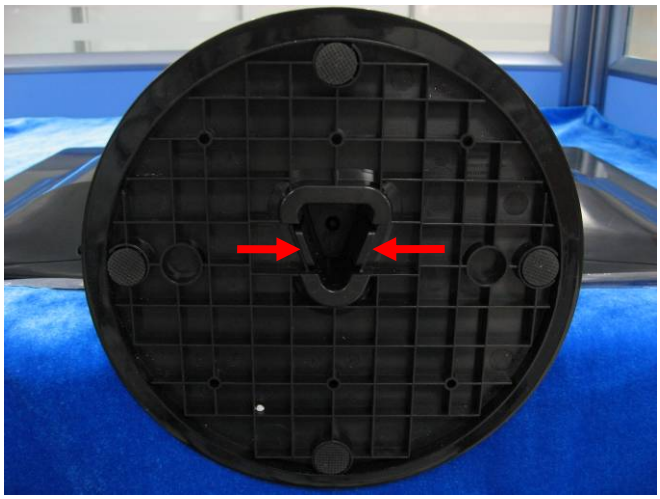


3. Unscrew the five screws

Step 1: Remove the base ,stand and rear cover

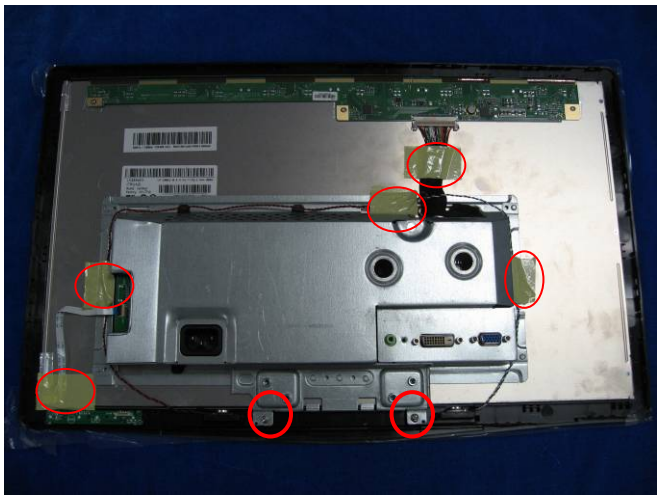
1. Place the monitor face on a safe surface and remove the base.

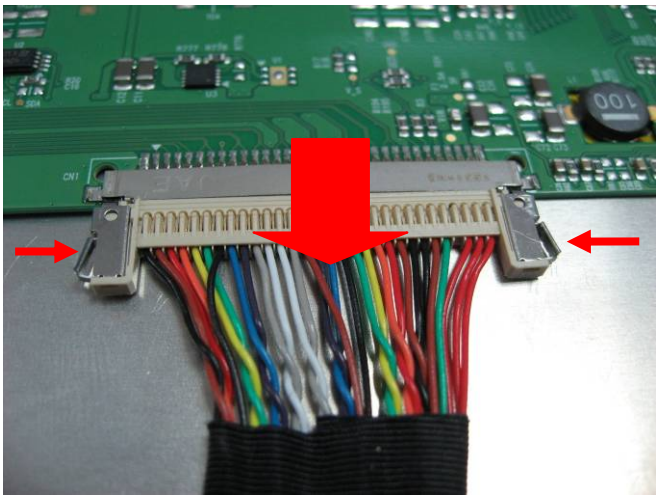
4. Open the latches and along the red arrowhead direction as the picture to open other latches.



Step 2: Remove the main board

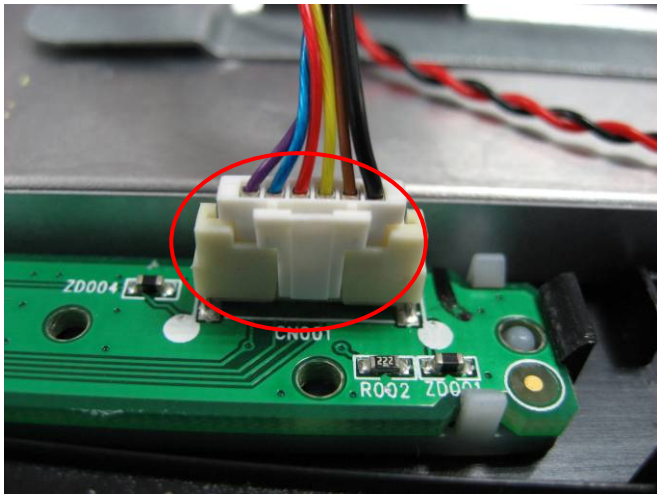
5. Tear out all tapes and unscrew two screws.

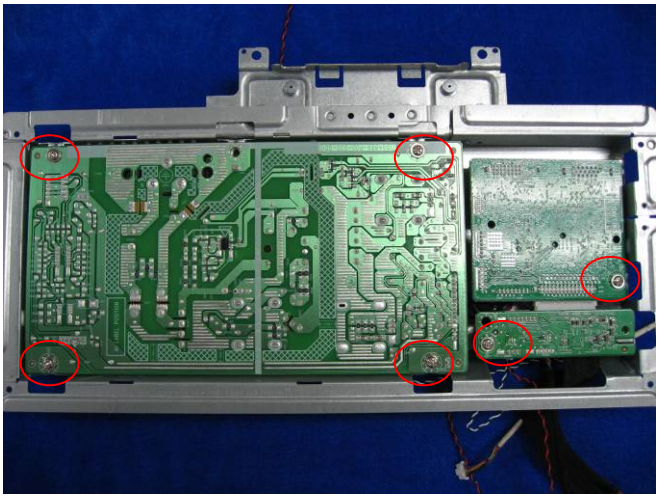


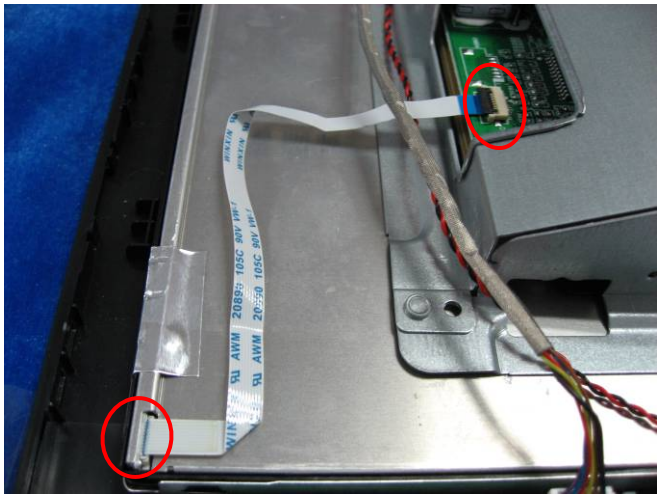


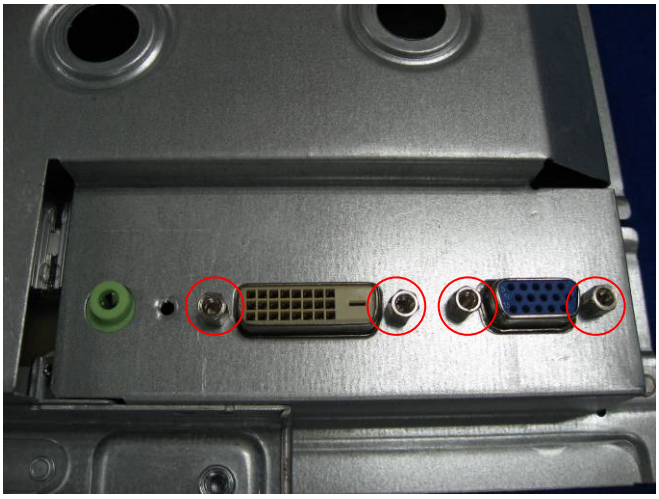
6. Disconnect all cables.

7. Unscrew the screws marked in red

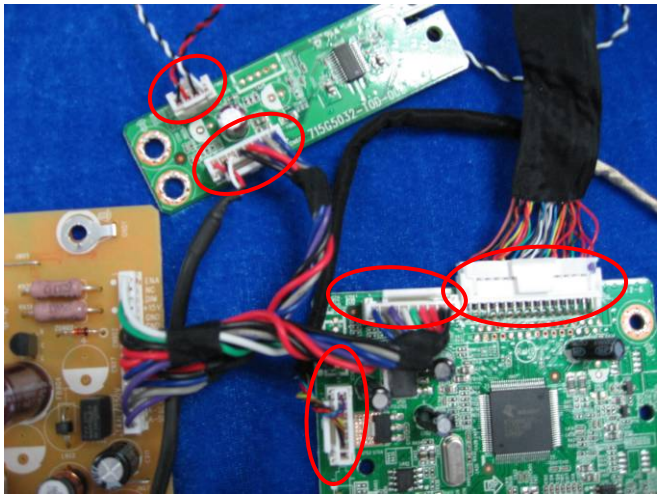


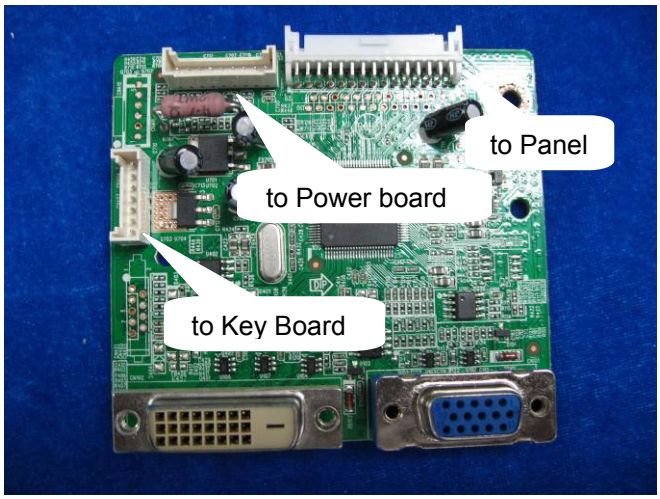


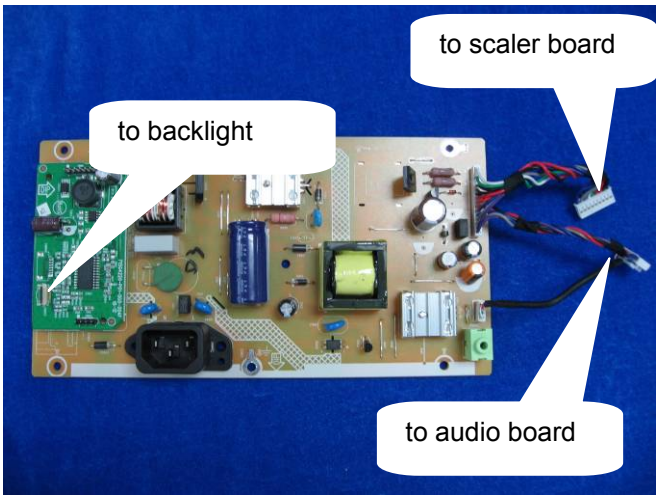


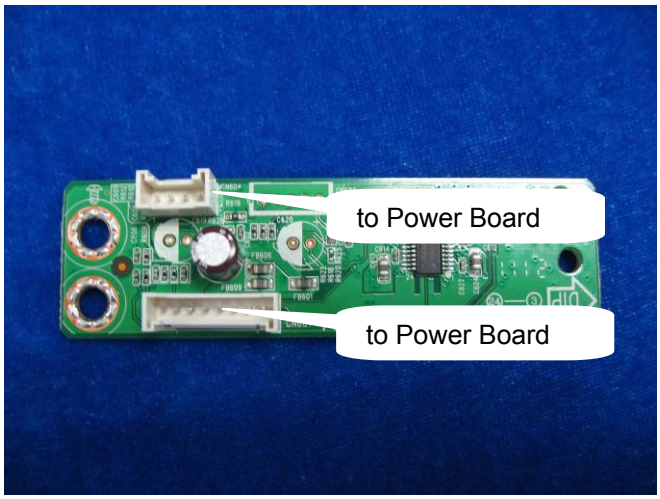


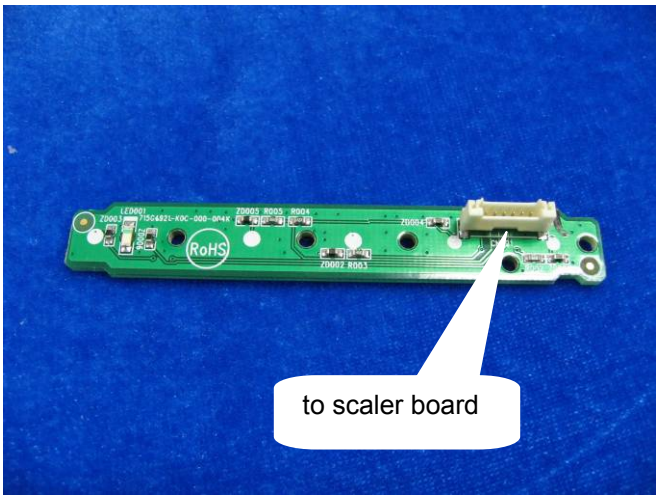
8. Disconnect all cables.





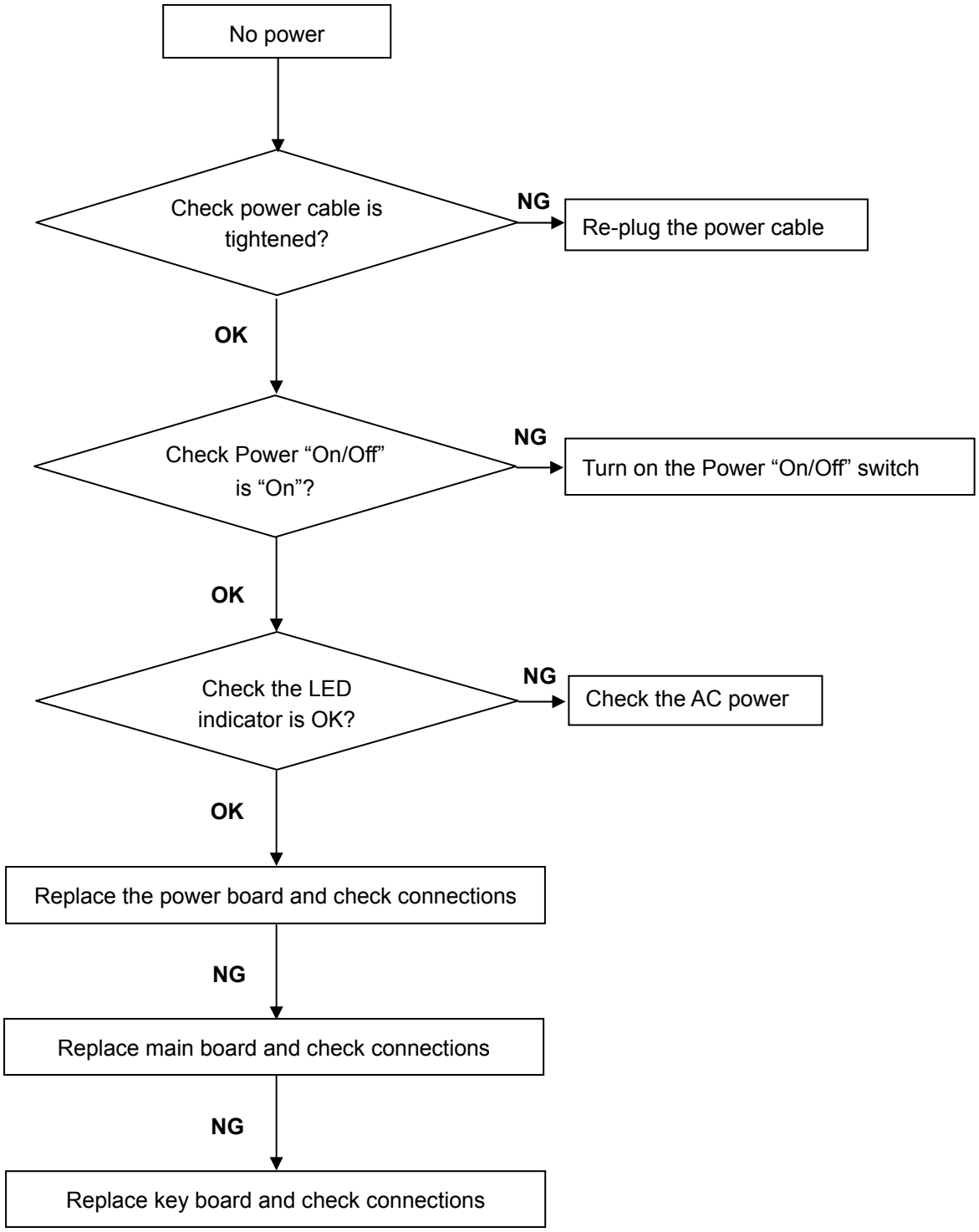




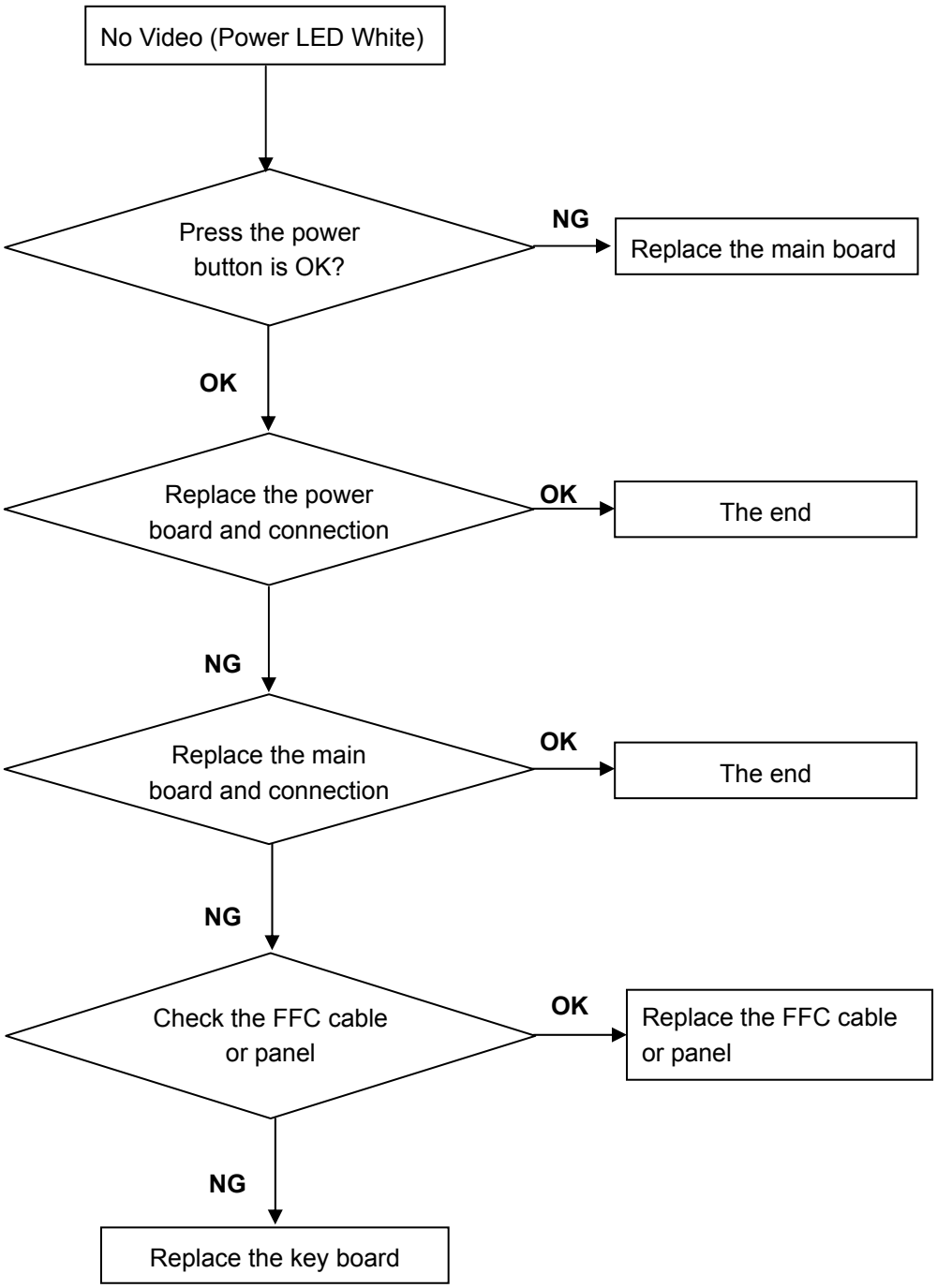


11. Repair Flow Chart

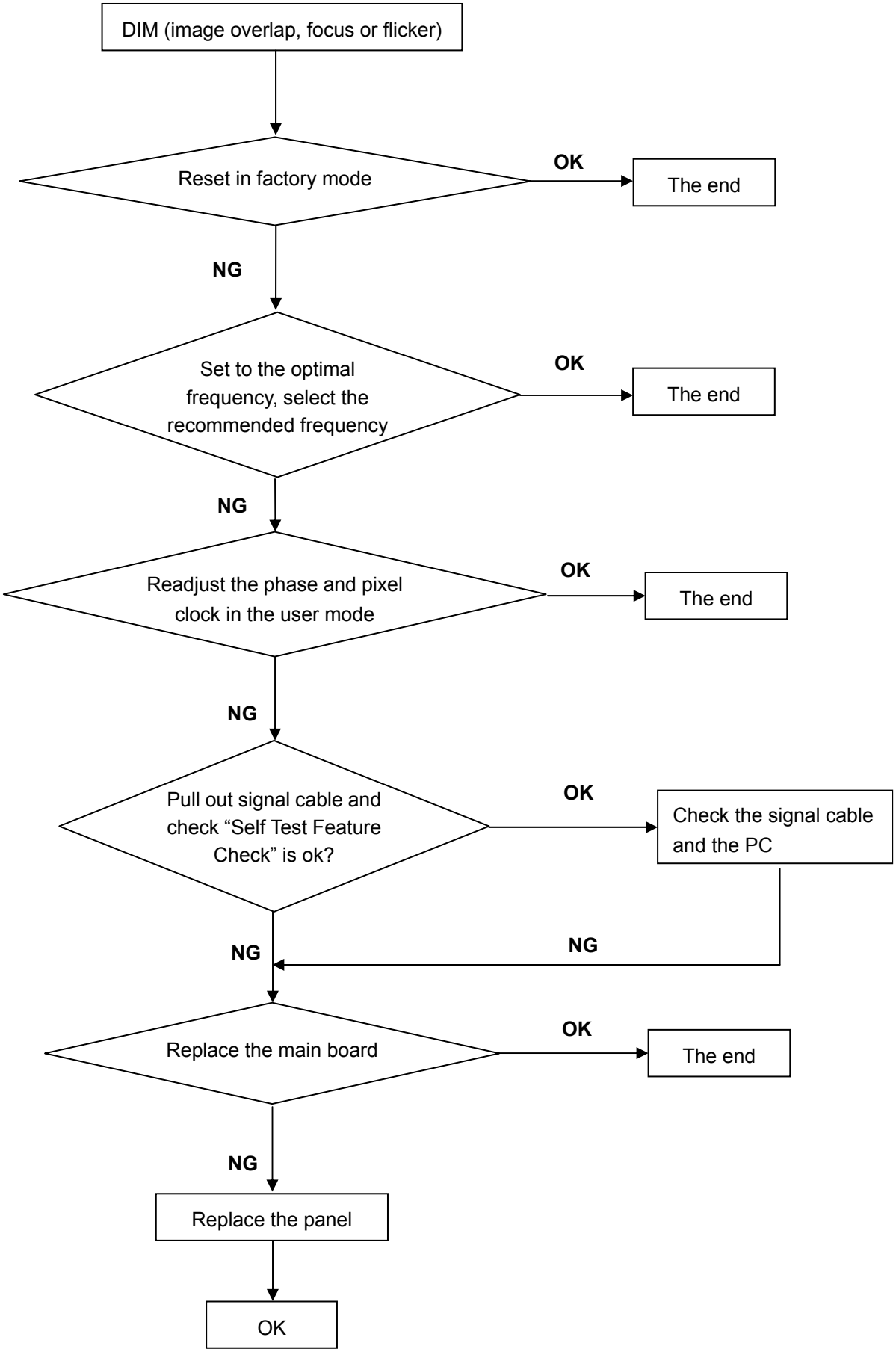
1. No Power



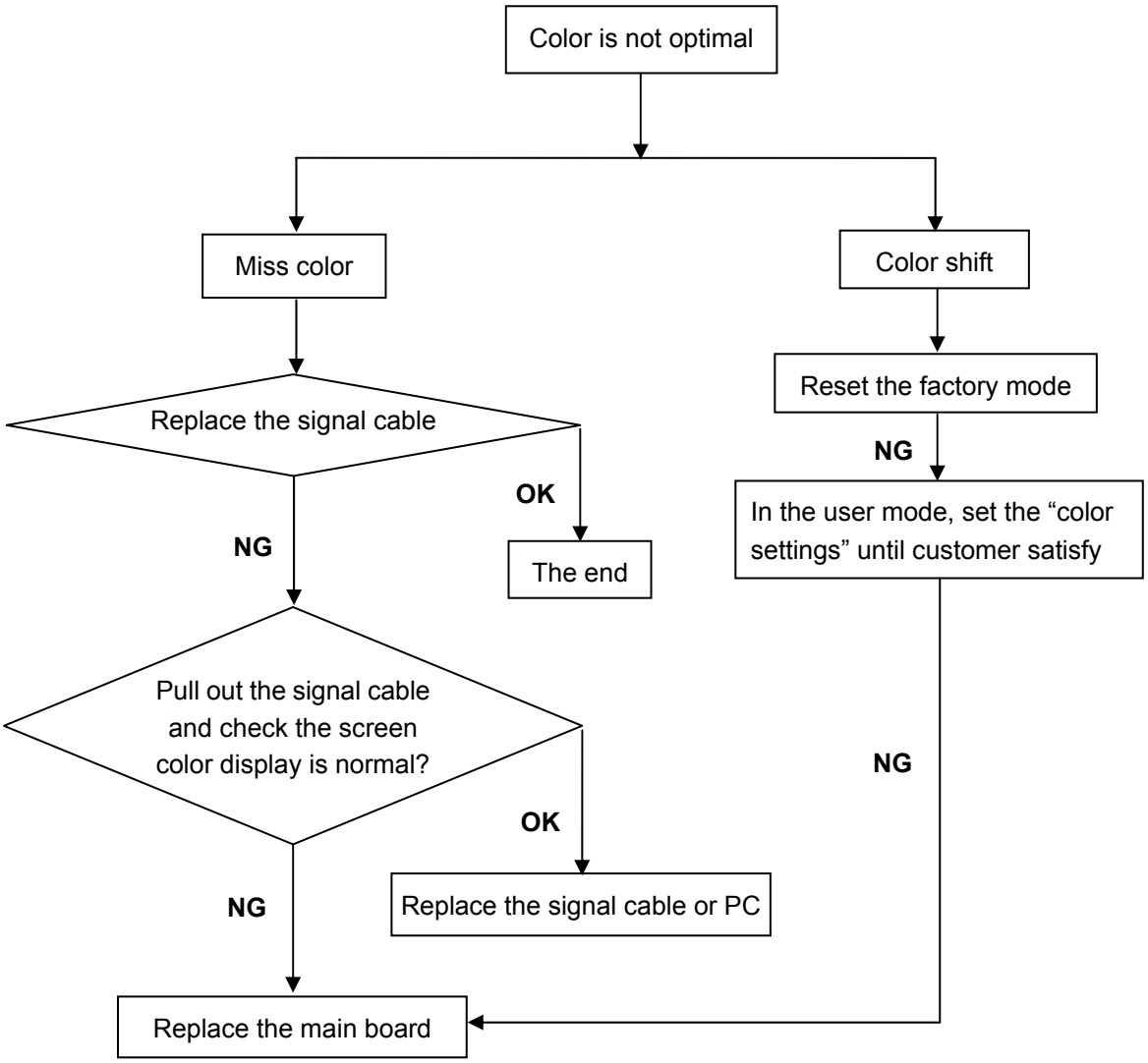
2. No Video (Power LED White)



3. DIM


DIM (image overlap, focus or flicker)
Reset in factory mode
OK
The end
NG
Set to the optimal frequency, select the recommended frequency
OK
The end
NG
Readjust the phase and pixel clock in the user mode
OK
The end
NG
Pull out signal cable and check “Self Test Feature Check” is ok?
OK
Check the signal cable and the PC
NG
NG
Replace the main board
OK
The end
NG
Replace the panel
OK

4. Color is not optimal



12. ISP Instruction

When do the parts, need the tools as follow:

A. An i486 (or above) personal computer or compatible.

B. Microsoft operation system Windows 95/98/2000/XP.

C. “PORT95NT.exe” ,“RegSetup.exe” and “ISP_Tool V4.56.exe” programs

D. ISP Board (715GT034-B) x1, Printer cablex1, VGA cable x1

E. software

12.1 Double Click 

to install the “PORT95NT.exe”,double click 

to install the “RegSetup.exe”,and then restart the computer.

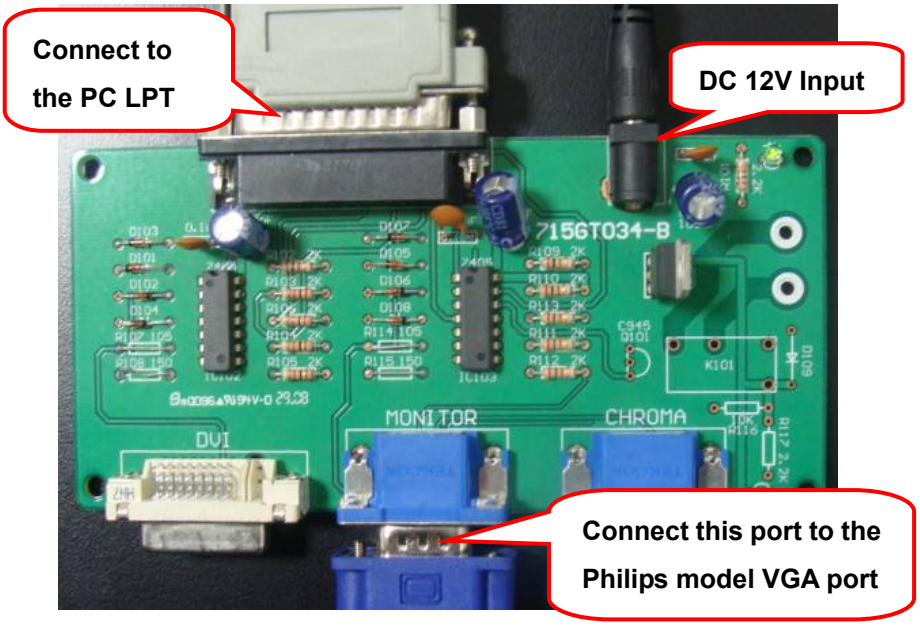
12.2. Connect the ISP board as follow:

Note:

a. When update, should make sure the LCD AC on, DC off.

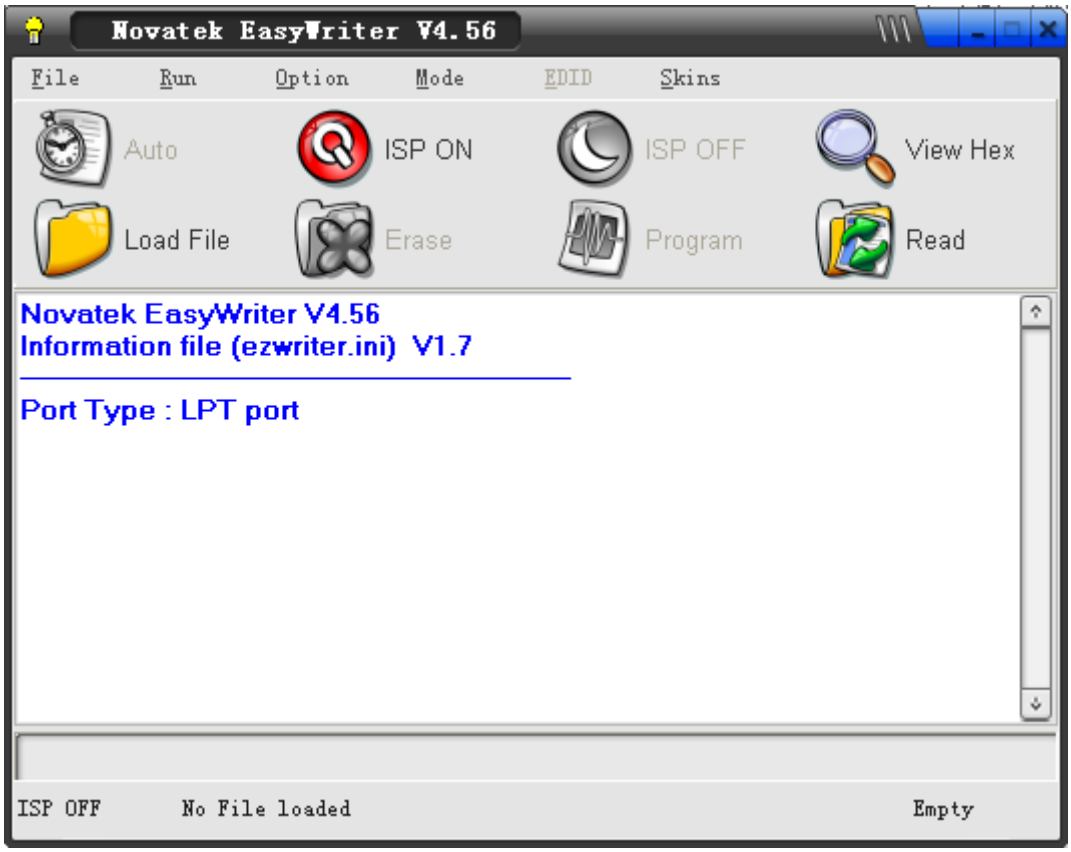
b. If the monitor can power on, enter into the factory mode to record the ADC value before programming. After programming, check if the ADC value is changed, if it’s, you must change it to the value you recorded before programming, finally press “Exit” to save.

c. If the monitor can’t be power on, after programming, switch the source to “Gray” or “black and white” pattern and VGA mode, then do “Auto Color/Level”.

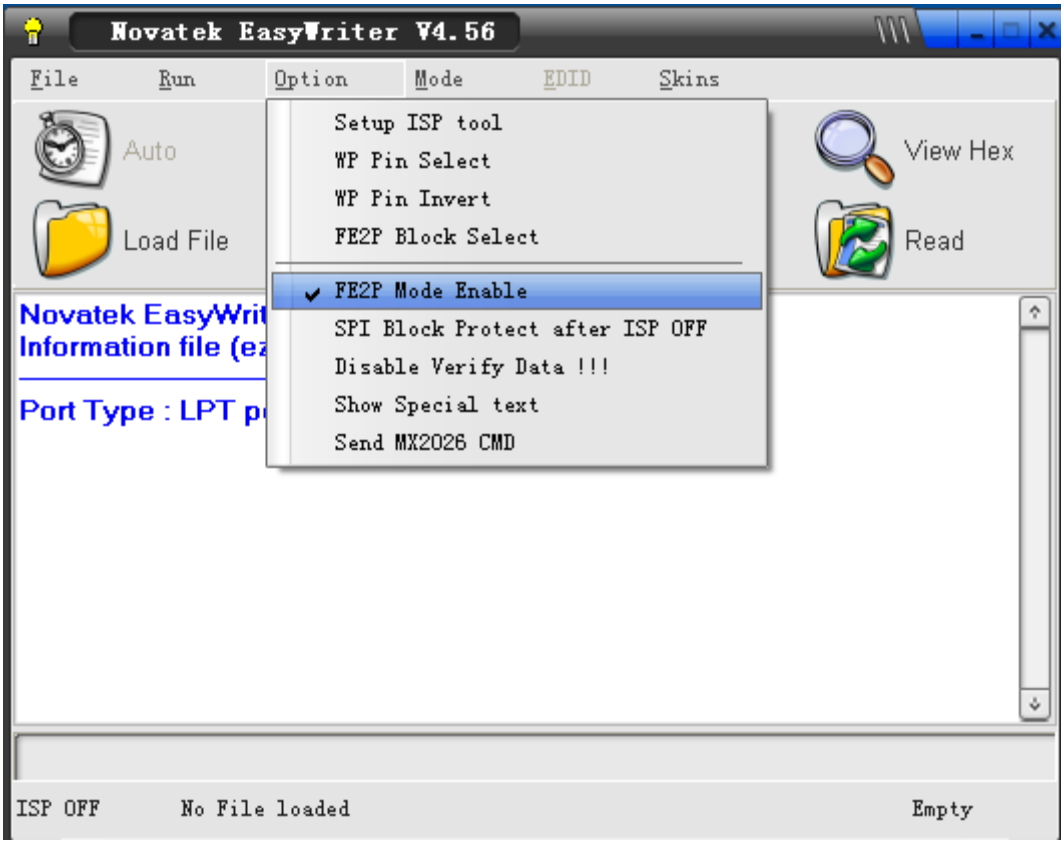


12.3 The process of ISP writing as follows:

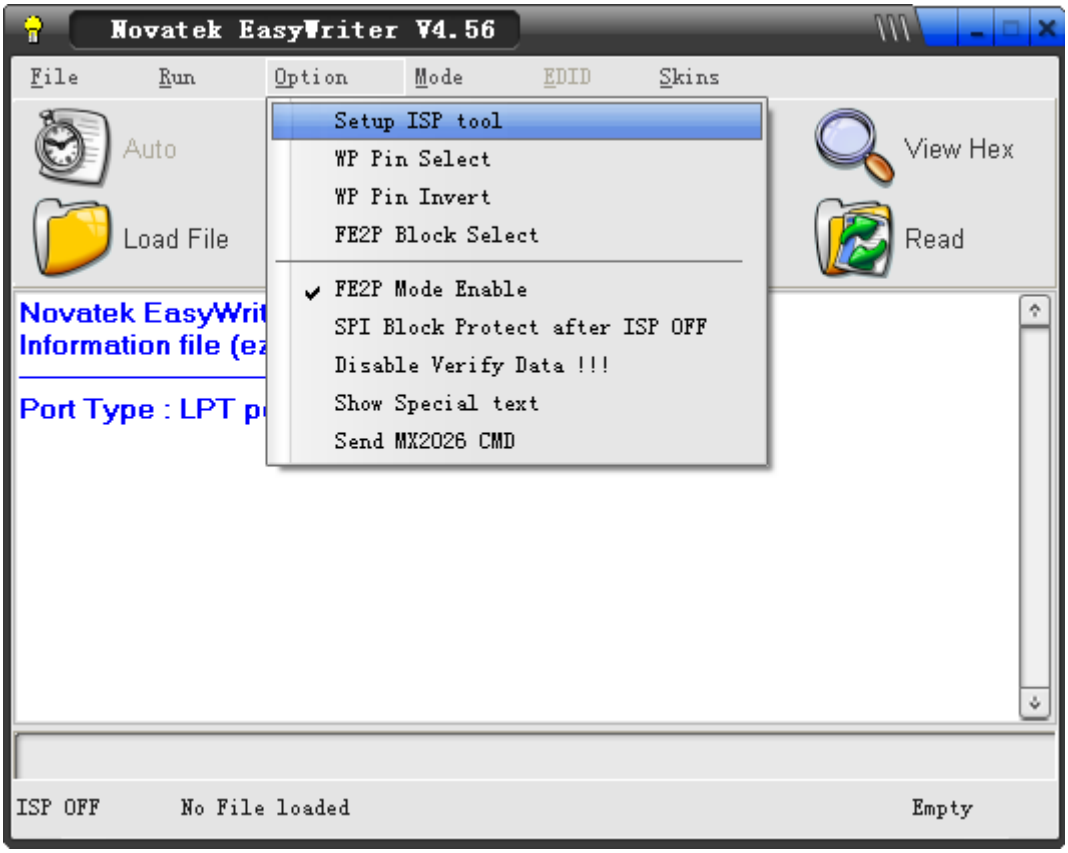
1. Double-click  to running the program as follows:



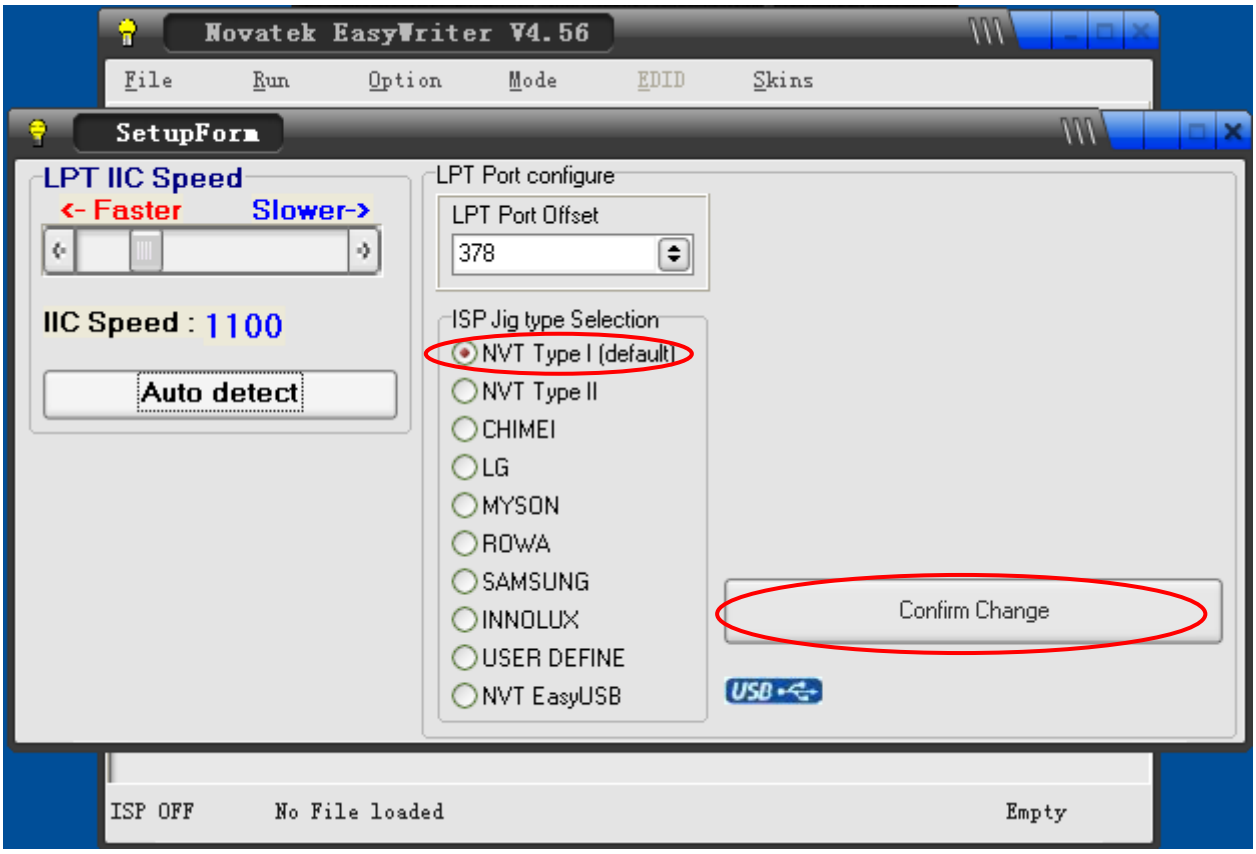
2. Judge the monitor whether belong to “data in flash” or not, if belong to it, please click “option” item and select “FE2P Mode Enable”, otherwise, don’t do any actions. Like as below picture:

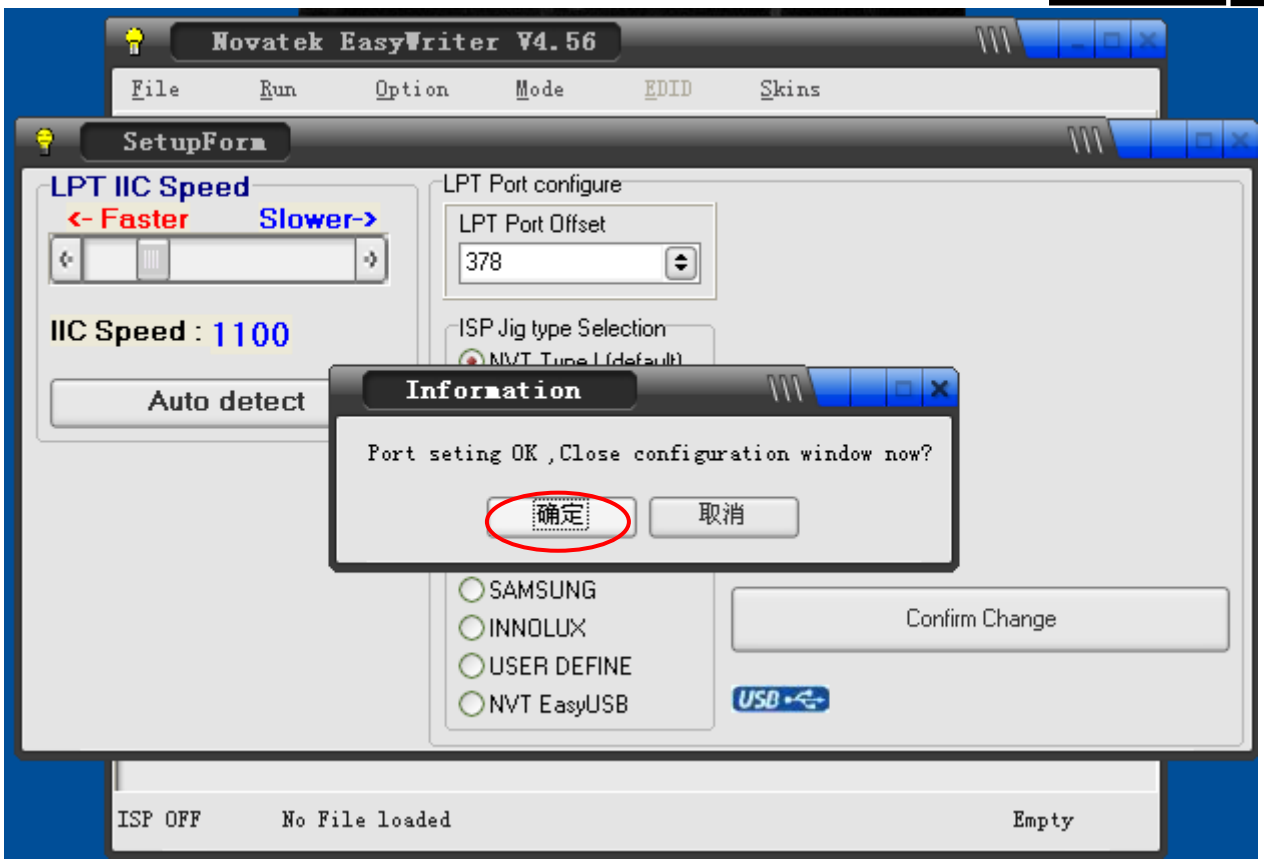


3. Click “option” and select “Setup ISP tool ”,



4. Select the “NVT Type I (default)”, click the icon “Confirm Change”. and then click the “OK”

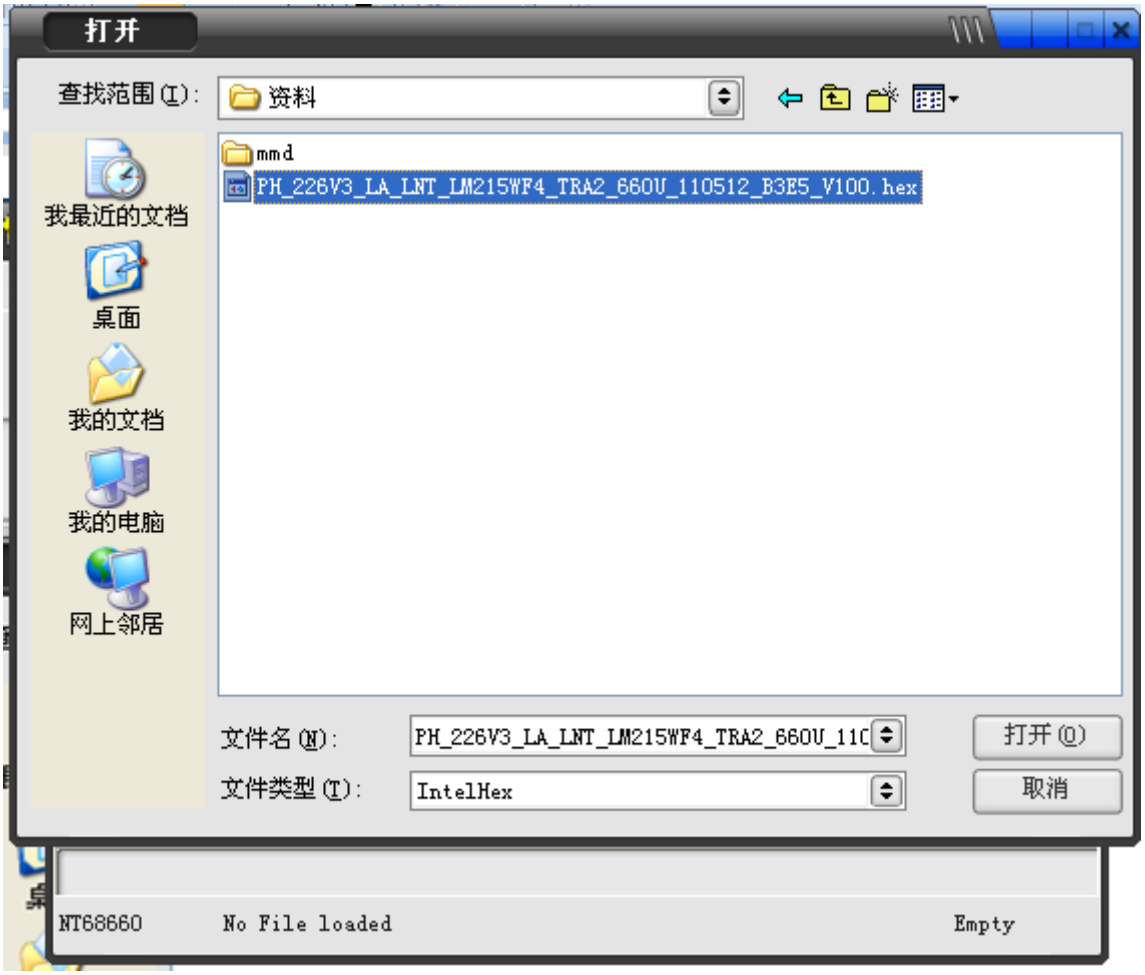




Note: when click the icon “Confirm Change”, if the following picture appears, you must install the “ntport24”.

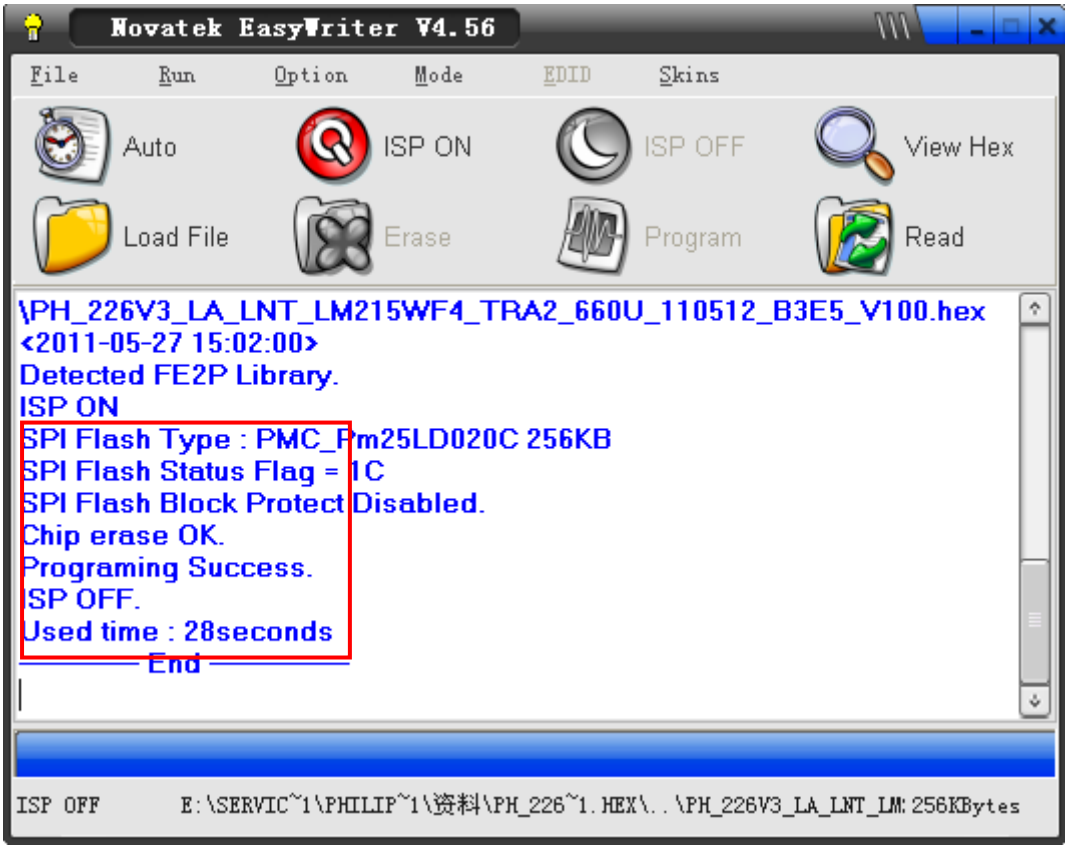
5. Click 

icon, choose the correct program, and then click open:



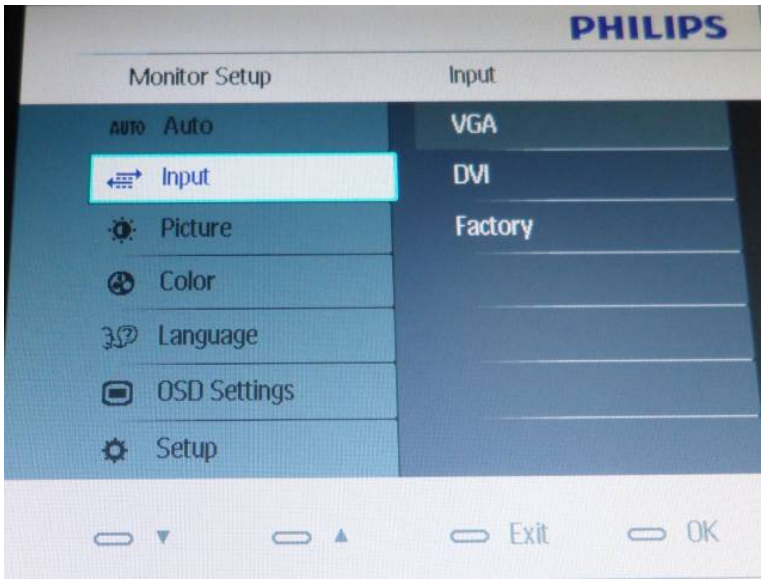
6. Click 

icon. After display “Chip erase OK.”, “Programming Success”, “ISP OFF”, it means F/W updated OK, it will show as the follow picture:



12.4 Check the firmware version:

1. Press ▼ and OK buttons at the same time, power on the monitor, and then press the menu again; the picture will appear on the top left corner. Choose “Input” item, and then choose “Factory”, you will enter into the factory mode.



2. If the firmware version is the same as the version that you have loaded, it means the ISP writing successful.
3. AC on/off to exit the factory mode.

13. DDC Instruction

General

DDC Data Re-programming

In case the main EEPROM with Software DDC which store all factory settings were replaced because a defect repaired monitor' the serial numbers have to be re-programmed.

It is advised to re- soldered the main EEPROM with Software DDC from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data (EDID) information may be also obtained from VESA.

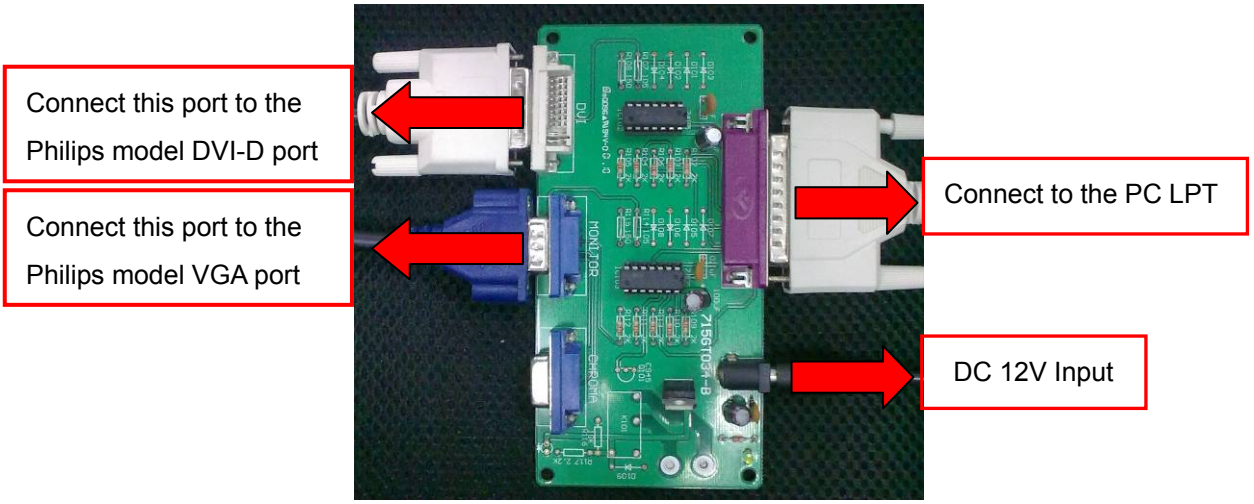
1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98/2000/XP.
3. "PORT95NT.exe, TPVDDC6.0.exe" program.
4. EDID Board (715GT034-B) x1,
5. Printer cablex1, VGA cable x 1, DVI-D cable x 1, 12V DC power source
6. EDID data

13.1. Install the "PORT95NT.EXE", and restart the computer.

The process of installing "PORT95NT" has been specified in, so it will not be specified again. If you have any problem, please read it.

13.2 Connect the EDID Board as follow:

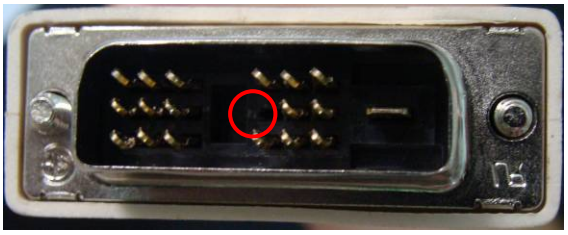
Note: when update, should make sure the LCD AC on, DC on.



Note:

If the VGA can not write successfully, please try to cut off the 5th and 9th pin of the VGA connector.

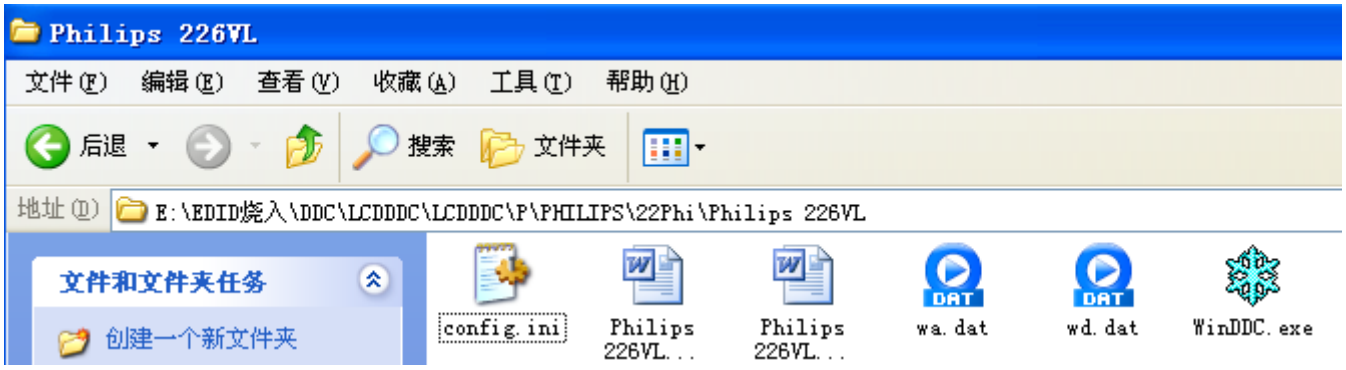
If the DVI can not write successfully, please try to cut off the 14th pin of the DVI connector.



1. Rename the EDID data to “wa”, “wd”.
2. Put the “wa” and “wd” into a new folder, and then create another new folder named “ddc” (It must be “ddc” instead of other names).

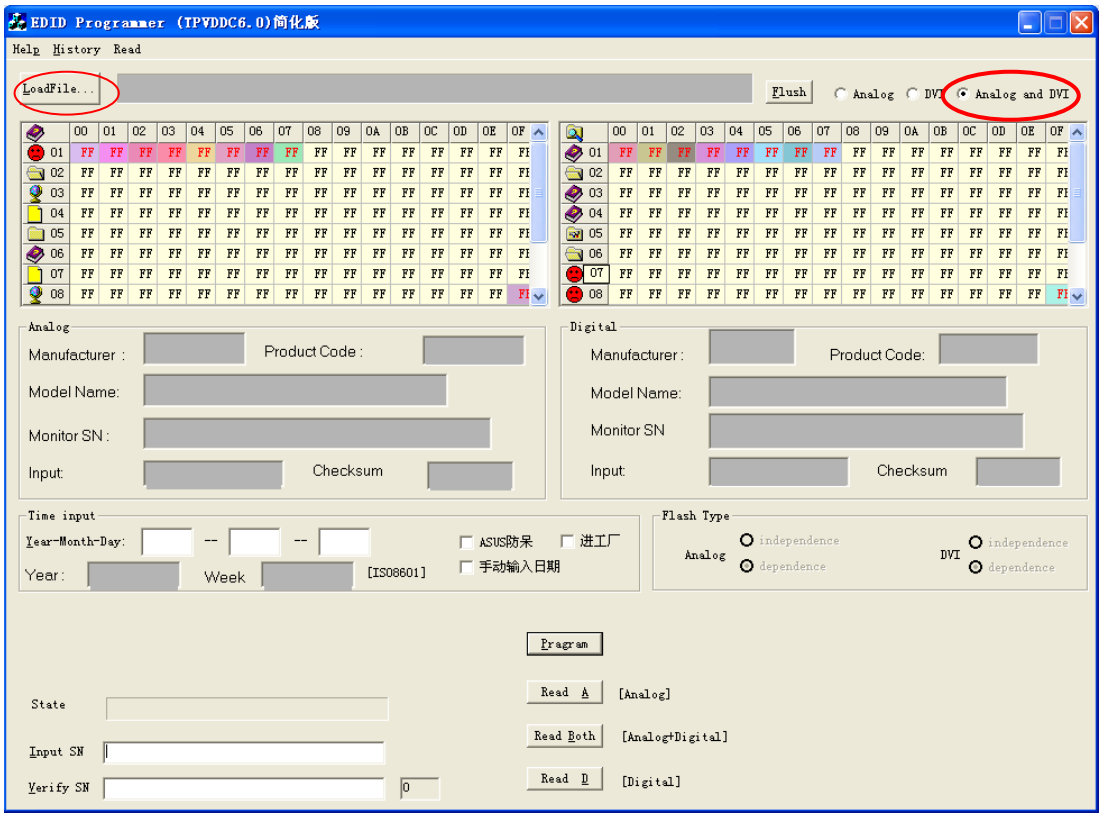
   Step1: ***Must*** put the “ddc” folder and “TPVDDC6.0.exe” into the ***same*** folder.

   Step2: ***Must*** copy the folder which contains EDID data and “config” to “ddc” folder.

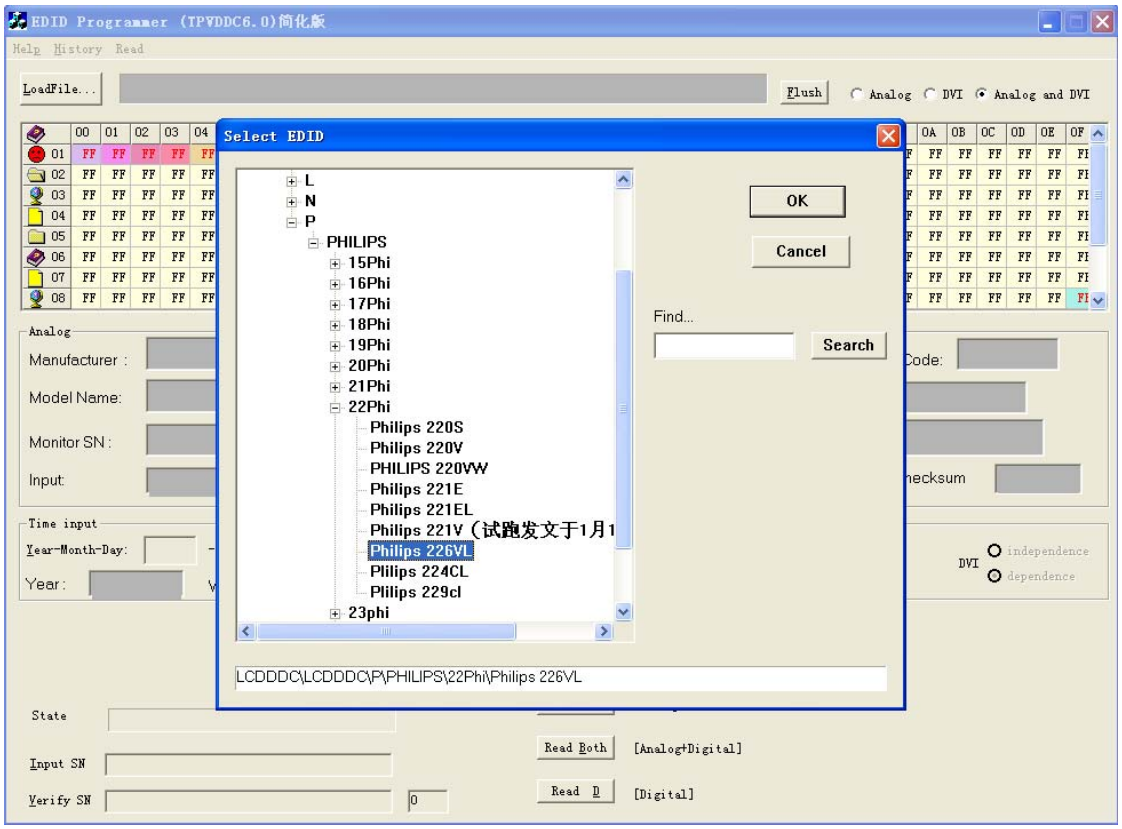


3. Double-click 

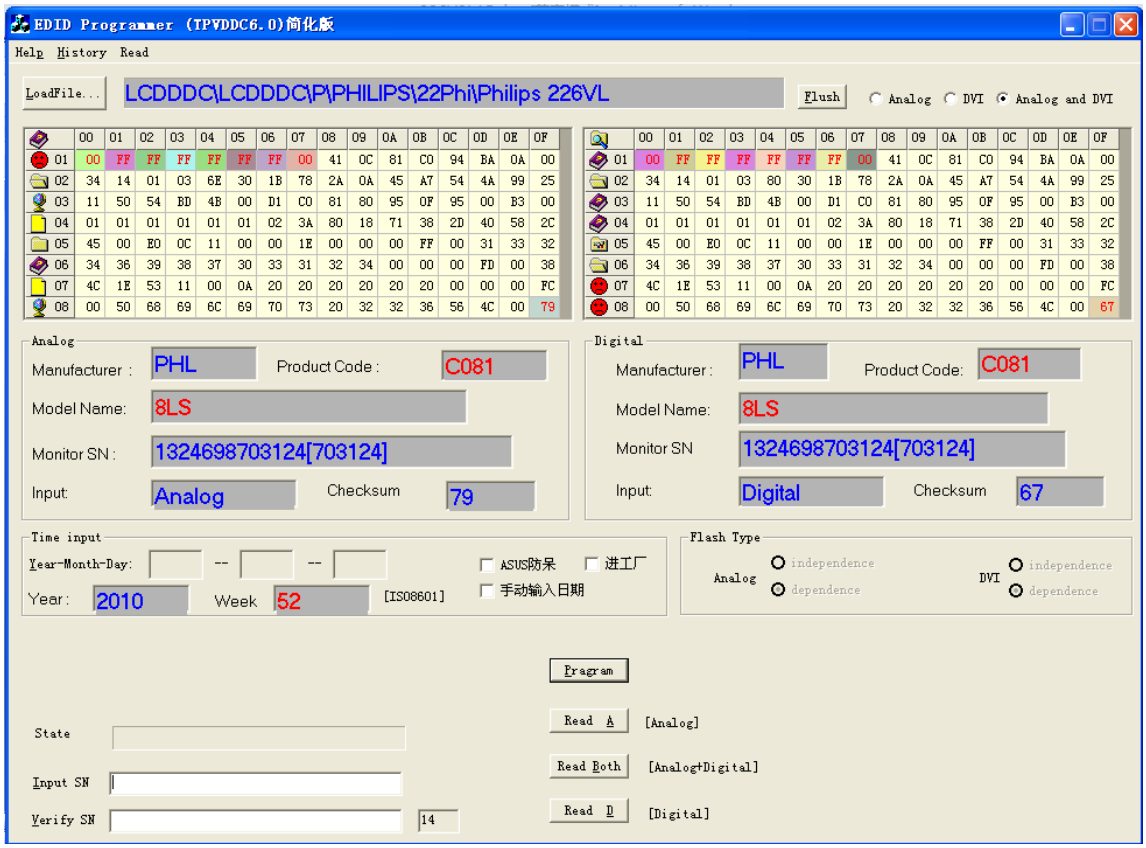
, and choose the “**Analog and DVI**”, it will show the picture as follow:



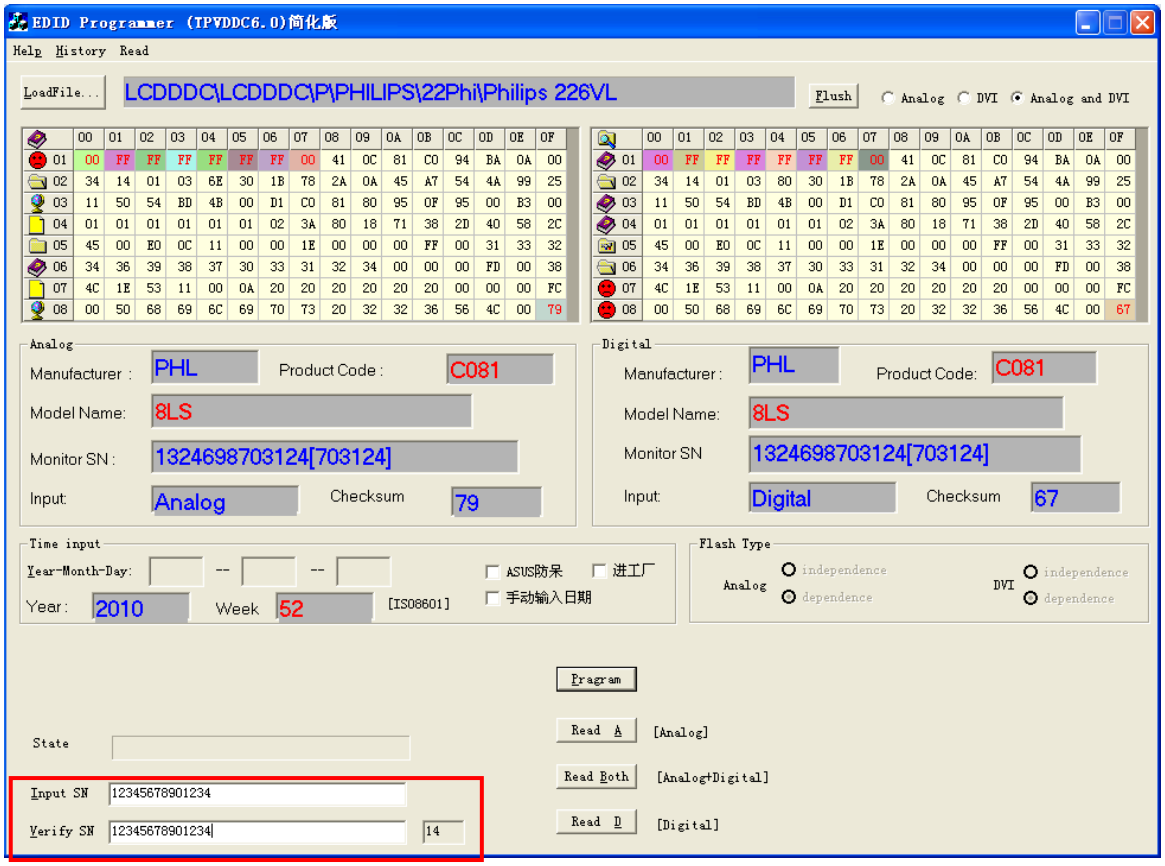
4. Click “Next”,it will show the picture as follow:



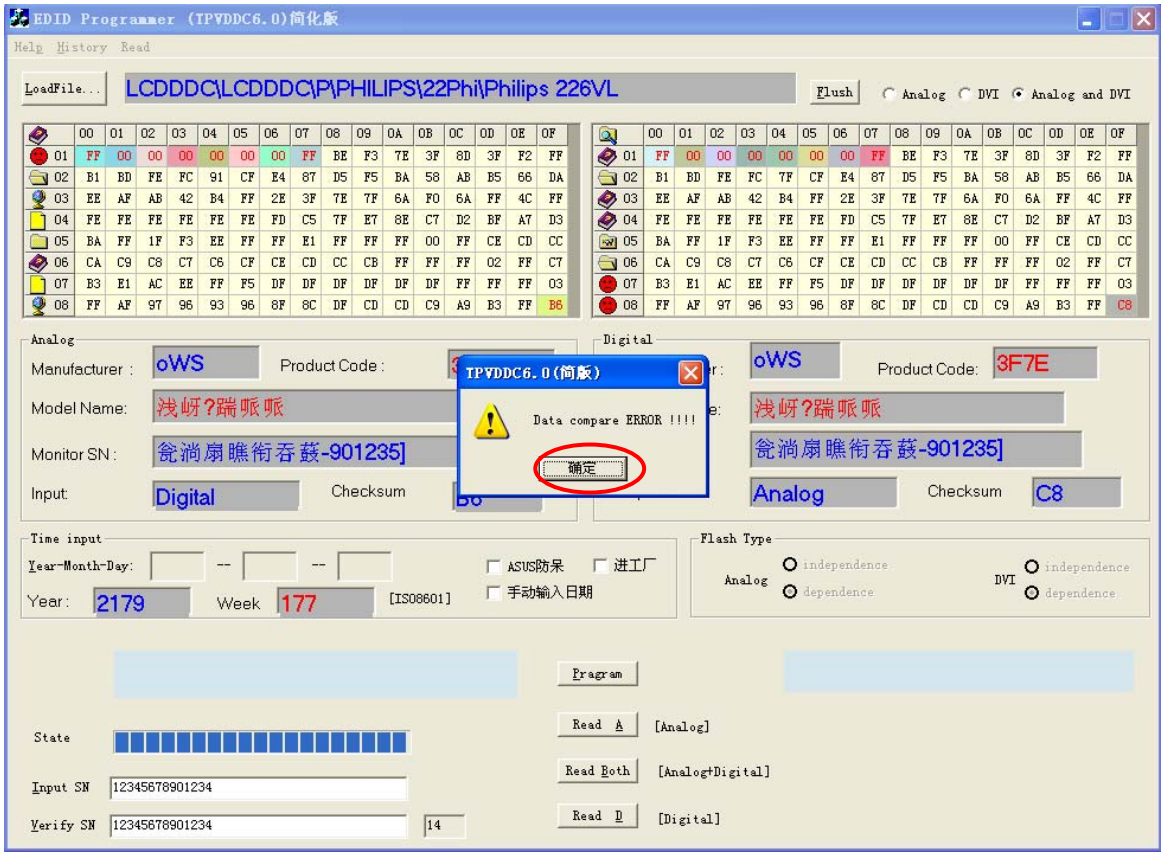
5. Click “OK” ,it will show the picture as follow:

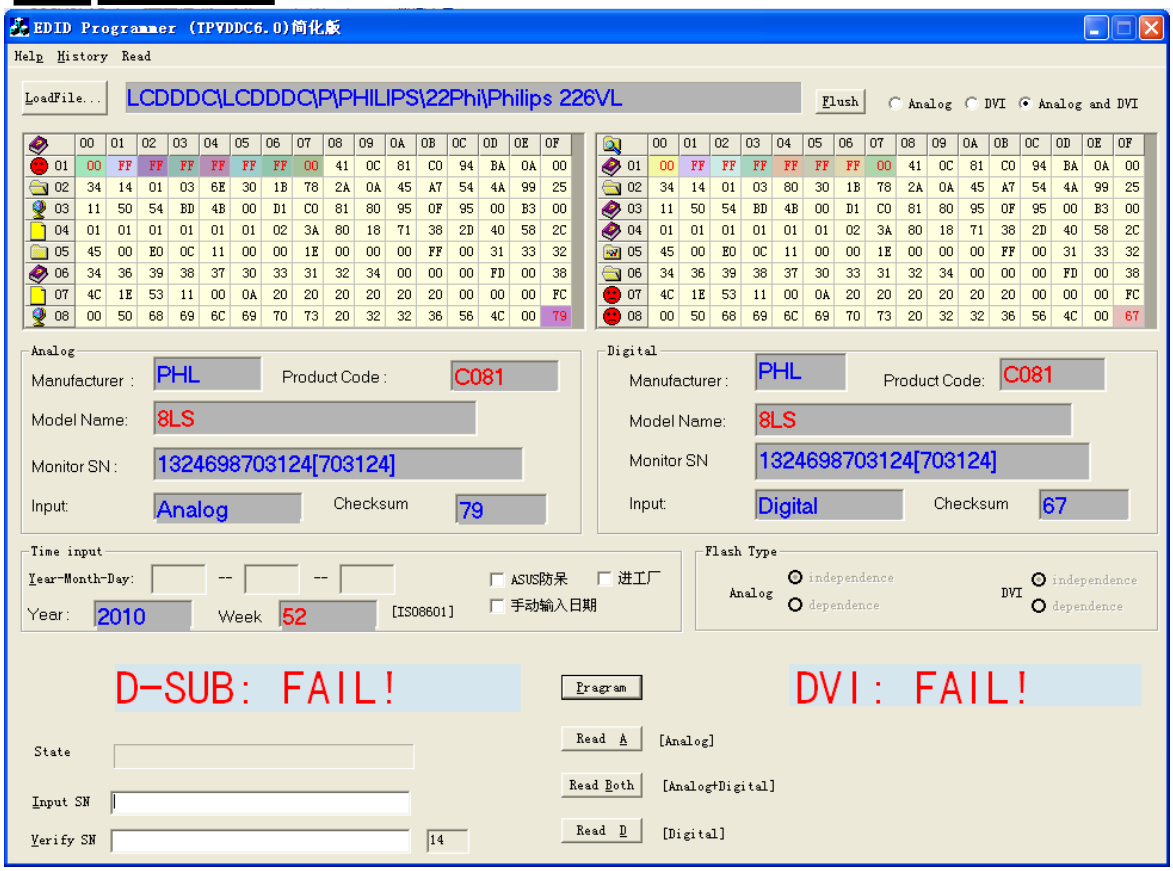


6. Key in the same 14 numbers in the Input SN and Verify SN.

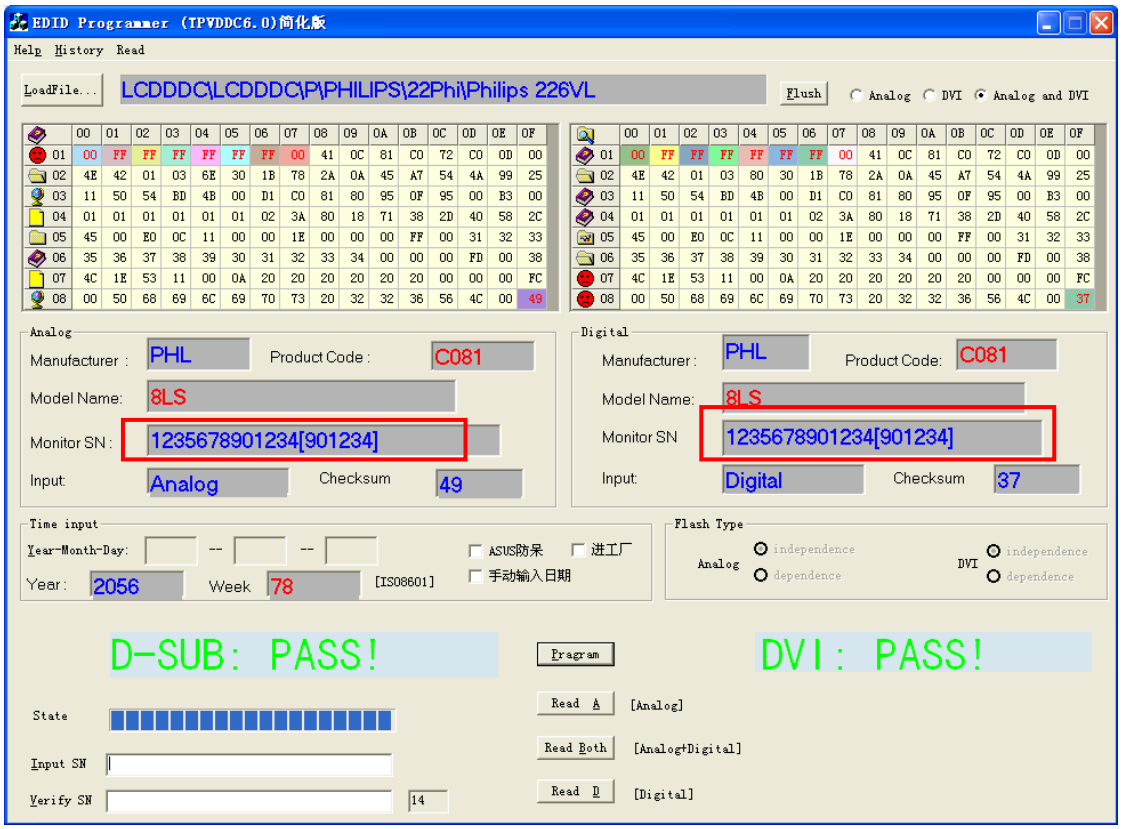


7. Click “Program”, if it shows the below mistake, please try to write again.

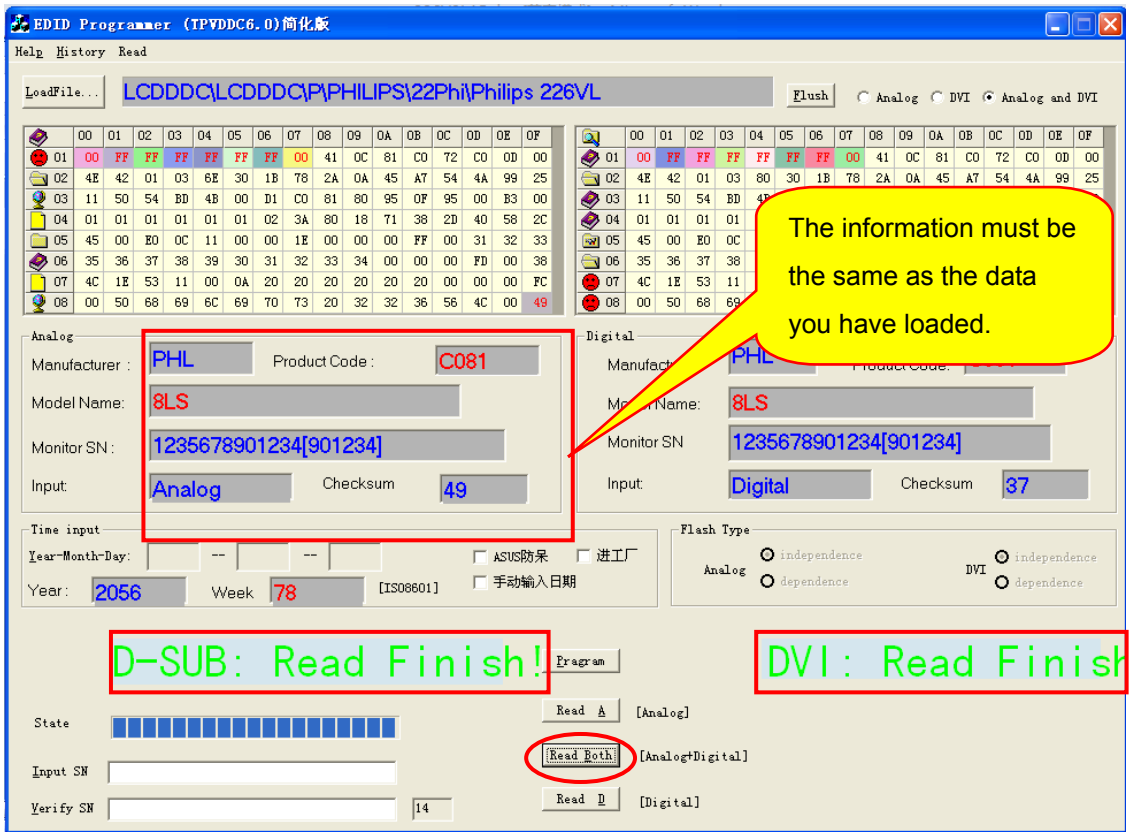



EDID Programmer (TPVDDC6.0)简化版
Help History Read
LoadFile...
LCDDDC\LCDDDC\P\PHILIPS\22Phi\Philips 226VL
Flush
Analog DVI Analog and DVI
Analog
Manufacturer : PHL
Product Code : C081
Model Name: 8LS
Monitor SN : 1324698703124[703124]
Input: Analog
Checksum 79
Digital
Manufacturer : PHL
Product Code: C081
Model Name: 8LS
Monitor SN 1324698703124[703124]
Input: Digital
Checksum 67
Time input
Year-Month-Day:
Year : 2010
Week 52
[ISO8601]
ASUS防呆
进工厂
手动输入日期
Flash Type
Analog independence dependence
DVI independence dependence
D-SUB: FAIL!
Pragram
DVI: FAIL!
State
Input SN
Verify SN
14
Read A [Analog]
Read Both [Analog+Digital]
Read D [Digital]

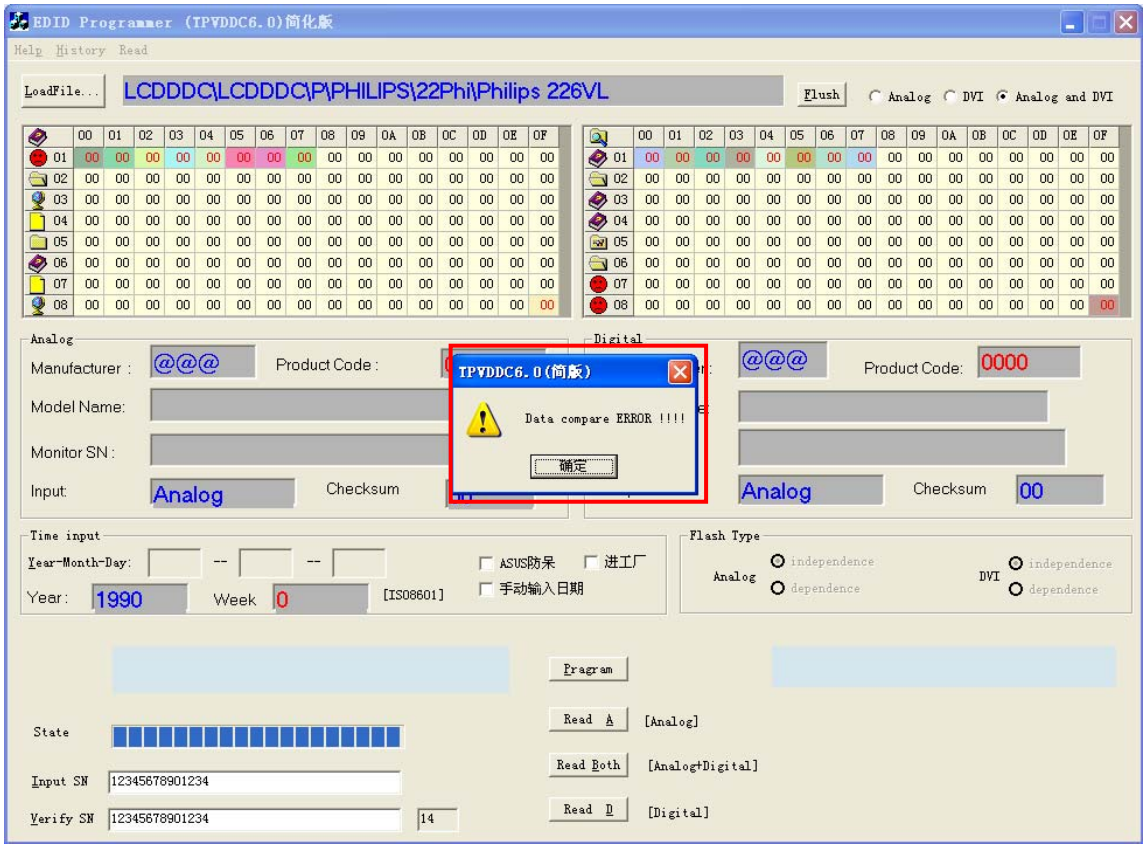
8. If it shows the below picture, it means the write is successful.



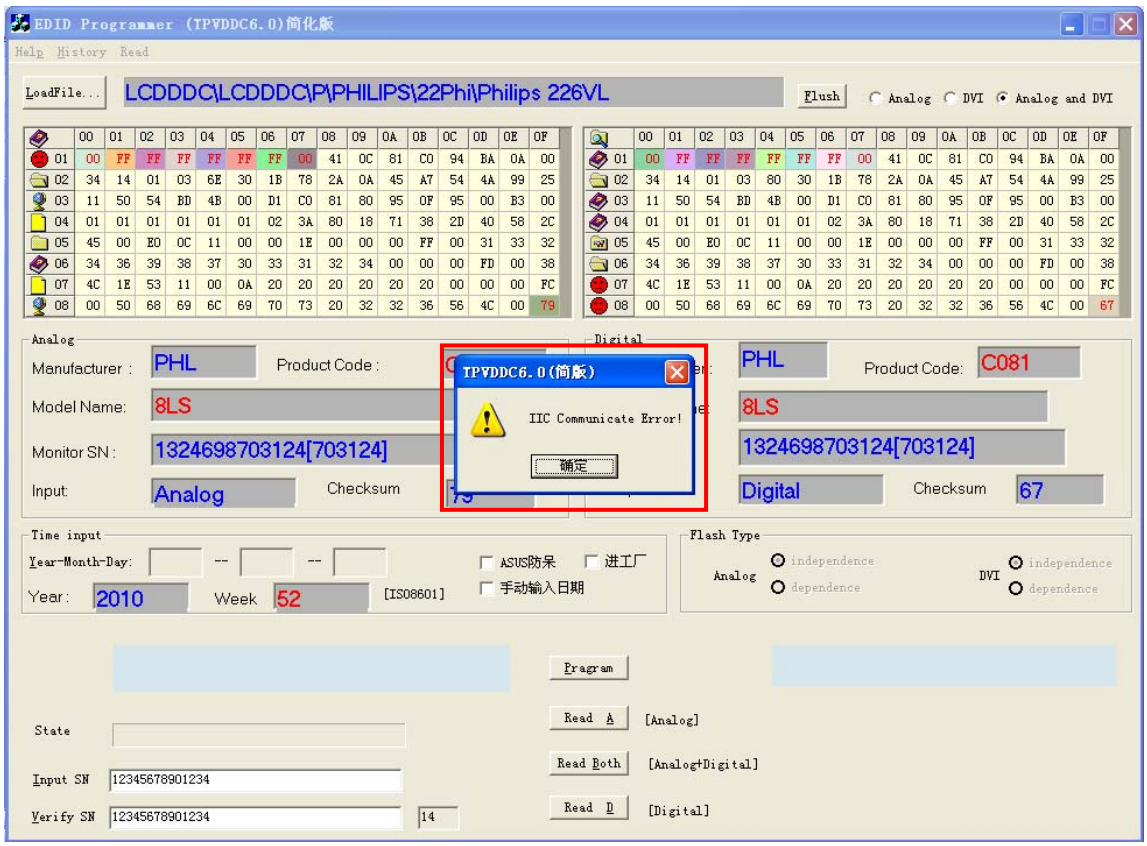
9. Click “ReadBoth”, if the DDC Write is OK, it will show the picture as follow:



10.Click “program”, if the 12V connector is not OK, it will show the picture as follow:



11.Click “program”, if the cable connector is not OK, it will show the picture as follow:



226V3L EDID

Analog

```
      00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
      -----------------------------------------------
 00| 00 FF FF FF FF FF FF 00 41 0C 81 C0 94 BA 0A 00
 10| 34 14 01 03 6E 30 1B 78 2A 0A 45 A7 54 4A 99 25
 20| 11 50 54 BD 4B 00 D1 C0 81 80 95 0F 95 00 B3 00
 30| 01 01 01 01 01 01 02 3A 80 18 71 38 2D 40 58 2C
 40| 45 00 E0 0C 11 00 00 1E 00 00 00 FF 00 31 33 32
 50| 34 36 39 38 37 30 33 31 32 34 00 00 00 FD 00 38
 60| 4C 1E 53 11 00 0A 20 20 20 20 20 20 00 00 00 FC
 70| 00 50 68 69 6C 69 70 73 20 32 32 36 56 4C 00 79
```

EDID Structure Version/Revision: 01 03

<-Vendor/Product Identification:->

ID Manufacturer Name: PHL
ID Product Code: C081
ID Serial Number: 703124
Week of Manufacture: 52
Year of Manufacture: 2010

<-Basic Display Parameters/Features:->

Video i/p definition: Analog
Max. H. Image Size : 48cm
Max. V. Image Size : 27cm
Display Gamma : 2.2

<-Color Characteristics:->

Rx: 0.652 Gx: 0.291 Bx: 0.146 Wx: 0.313
Ry: 0.328 Gy: 0.600 By: 0.066 Wy: 0.329

<-Established Timings:->

Established Timings 1:BD
720 x 400 @ 70Hz VGA,IBM
640 x 480 @ 60Hz VGA,IBM
640 x 480 @ 67Hz Apple,Mac II
640 x 480 @ 72Hz VESA
640 x 480 @ 75Hz VESA

800 x 600 @ 60Hz VESA

Established Timings 2:4B

800 x 600 @ 75Hz VESA

1024 x 768 @ 60Hz VESA

1024 x 768 @ 75Hz VESA

1280 x1024 @ 75Hz VESA

Established Timings 3:00

<-Standard Timing Identification:->

1920 x 1080 @ 60Hz

1280 x 1024 @ 60Hz

1440 x 900 @ 75Hz

1440 x 900 @ 60Hz

1680 x 1050 @ 60Hz

<-Detailed Timing Descriptions:->

FC (Monitor Name) : Philips 226VL

FD (Monitor Limits):

Min. V. rate: 56 Hz

Max. V. rate: 76 Hz

Min. H. rate: 30 KHz

Max. H. rate: 83 KHz

Max. P Clock: 170 MHz

FF (Monitor SN) : 1324698703124

Detailed Timing : 1920x1080 @ 60Hz

Extension Flag : 00

Block0 Checksum : 79

Digital

```
     00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
        -----------------------------------------------
  00| 00 FF FF FF FF FF FF 00 41 0C 81 C0 94 BA 0A 00
  10| 34 14 01 03 80 30 1B 78 2A 0A 45 A7 54 4A 99 25
  20| 11 50 54 BD 4B 00 D1 C0 81 80 95 0F 95 00 B3 00
  30| 01 01 01 01 01 01 02 3A 80 18 71 38 2D 40 58 2C
  40| 45 00 E0 0C 11 00 00 1E 00 00 00 FF 00 31 33 32
  50| 34 36 39 38 37 30 33 31 32 34 00 00 00 FD 00 38
  60| 4C 1E 53 11 00 0A 20 20 20 20 20 20 00 00 00 FC
  70| 00 50 68 69 6C 69 70 73 20 32 32 36 56 4C 00 67
```

EDID Structure Version/Revision: 01 03

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ID Manufacturer Name: PHL
ID Product Code: C081
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720 x 400 @ 70Hz VGA,IBM
640 x 480 @ 60Hz VGA,IBM
640 x 480 @ 67Hz Apple,Mac II
640 x 480 @ 72Hz VESA
640 x 480 @ 75Hz VESA
800 x 600 @ 60Hz VESA

Established Timings 2:4B

800 x 600 @ 75Hz VESA

1024 x 768 @ 60Hz VESA

1024 x 768 @ 75Hz VESA

1280 x1024 @ 75Hz VESA

Established Timings 3:00

<-Standard Timing Identification:->

1920 x 1080 @ 60Hz

1280 x 1024 @ 60Hz

1440 x 900 @ 75Hz

1440 x 900 @ 60Hz

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FC (Monitor Name) : Philips 226VL

FD (Monitor Limits):

Min. V. rate: 56 Hz

Max. V. rate: 76 Hz

Min. H. rate: 30 KHz

Max. H. rate: 83 KHz

Max. P Clock: 170 MHz

FF (Monitor SN) : 1324698703124

Detailed Timing : 1920x1080 @ 60Hz

Extension Flag : 00

Block0 Checksum : 67

14. White Balance, Luminance Adjustment

1. Apparatuses and program: analyzer CA-210, PC, tool, FGA adjustment program (PHILIPS 226V3L.DDCI), Pattern generator.

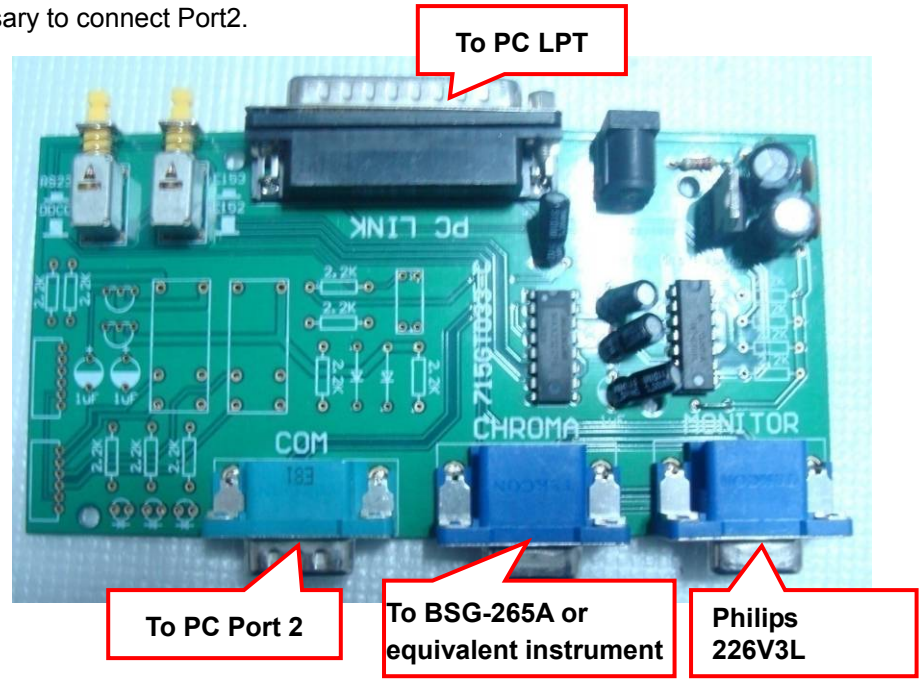
2. Equipment installation:

a. Connect analyzer CA-210 to PC by USB connector, install drive program CA-SDK Ver4.00 for CA-210 and restart PC after finish installing

b. Install Port95NT drive program, set PC printer connector mode as ECP mode and reset PC after finish installing.

c. Connect tool as follow:

Note: It's not necessary to connect Port2.



3. Adjustment

Preparation before adjustment:

a. Monitor should be warmed up for more than half an hour.

b. Make sure that the tools are connected right and drive programs have been installed OK.

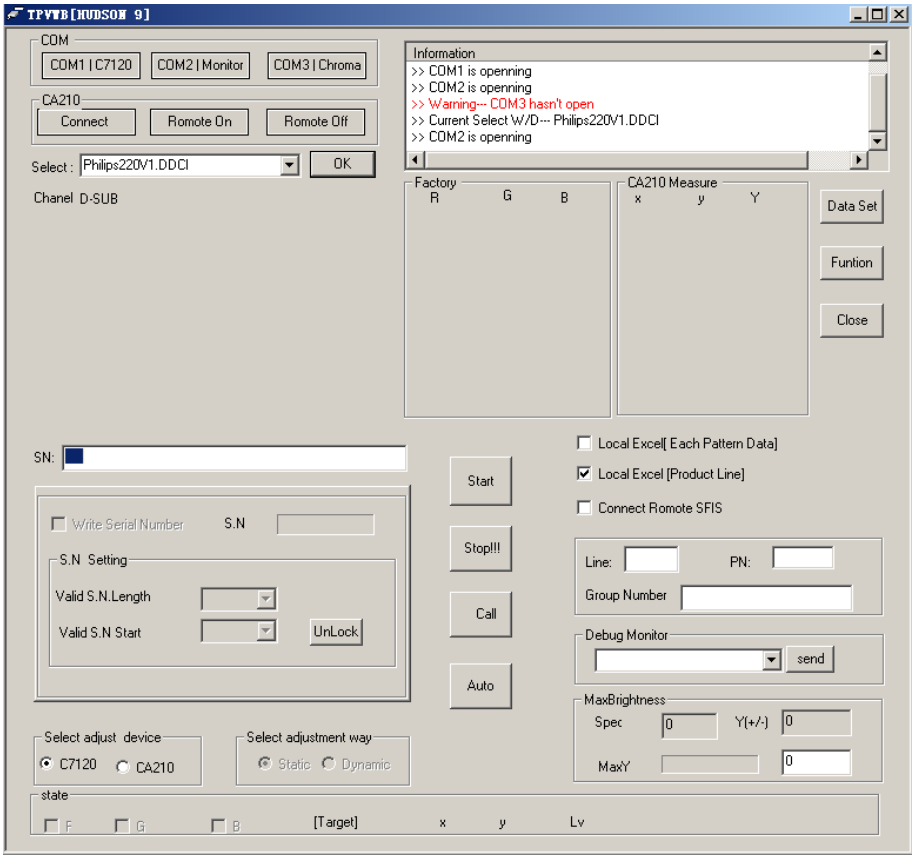
4. Adjustment process:

a. Press the power of CA-210, shut off the lens, press 0-Cal and open the lens after analyzer reset.

b. Open white balance adjustment program, select the right parameter according with the program and click OK.

c. Make sure that the lens of CA-210 aims at the center of the screen, then click START to adjust.

d. After finish adjusting, the adjustment program displays pass, and the START button changes for NEXT, which means that you can adjust another monitor.

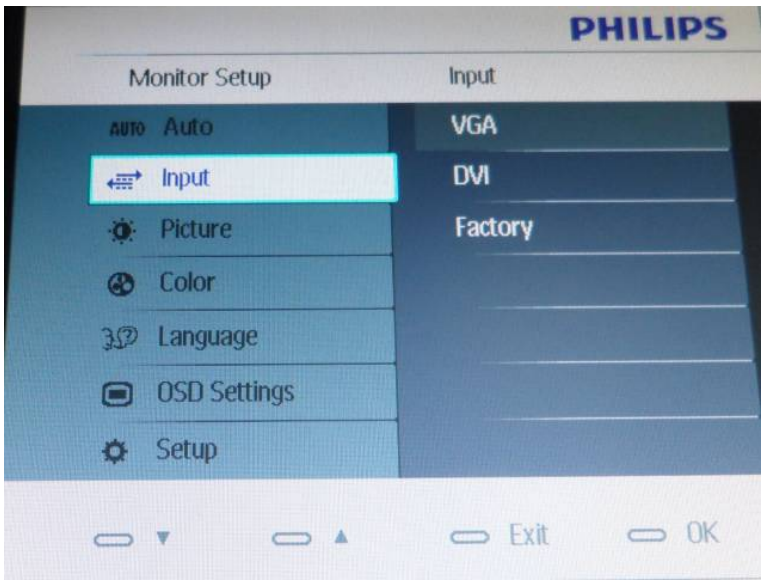


5. Color Temp confirmation

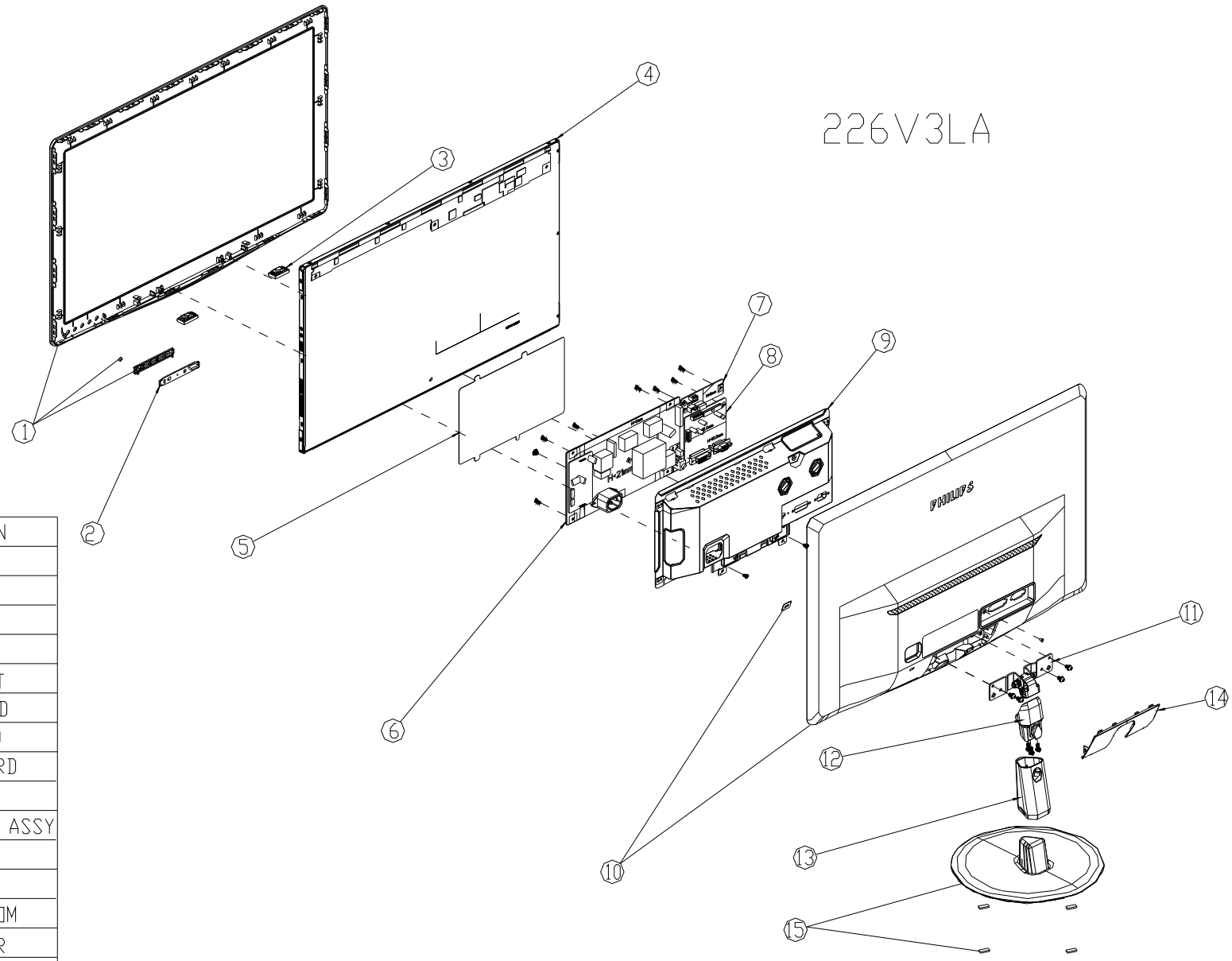
Connect the signal to the monitor, the monitor displays white-picture, use CA-210 to measure the Color Temp of the screen center and select the OSD to make sure whether the Color Temps accord with the SPEC.

6. How to enter into the factory mode:

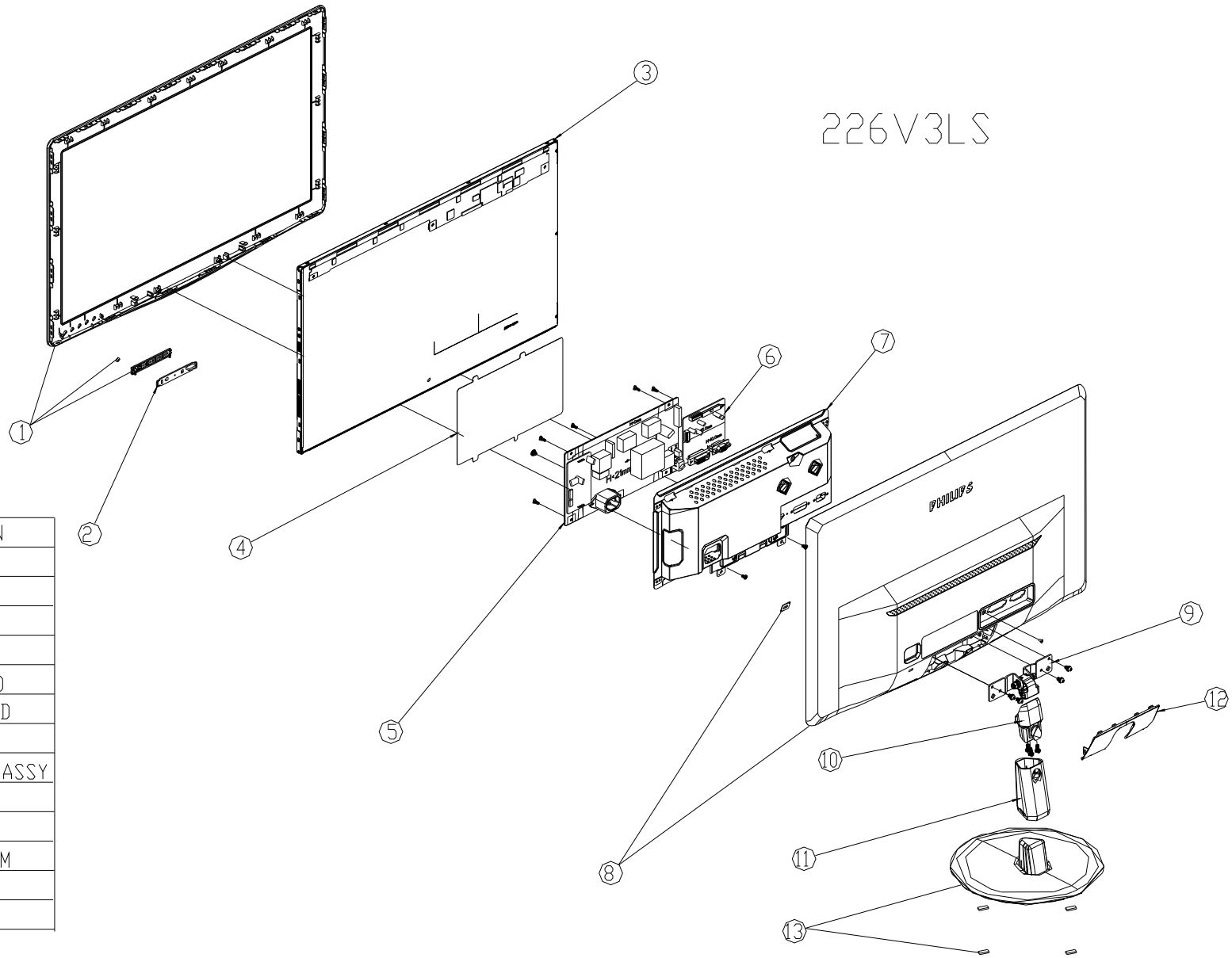
Press ▼ and OK buttons at the same time, power on the monitor, and then press the menu again; the picture will appear on the top left corner. Choose “Input” item, and then choose “Factory”, you will enter into the factory mode.



15. Monitor Exploded View



ITEM	DESCRIPTION
1	BEZELASSY
2	KEY BOARD
3	SPEAKER
4	PANEL
5	MYLAR SHEET
6	POWER BOARD
7	AUDIO BOARD
8	SCALER BOARD
9	MAIN_FRAME
10	REAR COVER ASSY
11	HINGE
12	STAND TOP
13	STAND-BOTTOM
14	HINGE COVER
15	BASE ASSY



ITEM	DESCRIPTION
1	BEZELASSY
2	KEY BOARD
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6	SCALER BOARD
7	MAIN_FRAME
8	REAR COVER ASSY
9	HINGE
10	STAND TOP
11	STAND-BOTTOM
12	HINGE COVER
13	BASE ASSY

16. Recommended & Spare Parts List

Recommended Parts List for 226V3LAB/00

ITEM	LOCATION	PCM CODES	DESCRIPTION	REMARK
1	FQ101	705GFACS085	BEZEL ASSY	
2	FQ004	KEPCAQV6	KEY BOARD	
3	FQ419	078G020A--6--V	SPEAKER	
4	FQ001	750GMT215W4A21N100	LM215WF4-TRA2 FQ LTD	
5	FQ570	Q52G1801MNT058	MYLAR	
6	FQ003	PLPCAB571UAAZ	POWER BOARD	
7	FQ005	AUPCAQV1	AUDIO BOARD	
8	FQ002	CBPCAN2PHQJ	MAIN BOARD	
9	FQ124	A15G1654101101	MAIN_FRAME	
10	FQ102	705GFACS086	REAR COVER ASSY	
11	FQ110	A37G0258011	HINGE	
12	FQ107	A34G2611AFL-1B0100	STAND TOP	
13	FQ108	A34G2612AFL-1B0100	STAND BOTTOM	
14	FQ118	A33G1215AFL-1B0100	HINGE COVER	
15	FQ111	705GFACS087	BASE ASSY	
	U3	0IDIL-0002A	AP7167-FNG-7, DIODES, ADJUST_3.3V, 1.2A, DFN3030-10, R/TP, 10	
	U4	0ISGL-0008C	M24C04-RDW, STmicroeletronics, 4K, 5ms, TSSOP, R/TP, 8	
	U402	056G2233-11	IC Pm25LD020C-SCE SIOC-8(150mil) 2M	
	U601	056G-616110	AUDIO PAM8007NHR 3W SSOP-24	
	U602	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U401	056G-562369	SCALER NT68660UFG/B TQFP-100	
	U703	056G-563161	IC AME8815BEGT180Z 1.5A/1.8V SOT-223	
	U702	056G-563520	LDO LSP1117D33AG 1A 3.3V TO-252	
	U102	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U103	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U104	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U106	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U107	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U101	056G1133956	IC CAT24C02WI-GT3 SO-8	
	U105	056G1133956	IC CAT24C02WI-GT3 SO-8	
	U402	056G2233-11	IC Pm25LD020C-SCE SIOC-8(150mil) 2M	

	U402	070GHDCP500HDC	HDCP CODE	
	X401	093G--2251B--J	CRYSTAL 12MHZ NXS12.000AC30F-KAB10	
	IC902	056G-139--9	IC EL817M(X) photocoupler DIP-4	
	IC801	056G-379185	AC/DC CONVERTER TA9690GN-A1-0-TR SOP-24	
	IC901	056G-379190	AC/DC CONVERTER LD7750RGR SOP-7	
	IC903	056G-563354	Shunt. Reg. TL431-A-TA TO-92	
	F1	0FFST-0002A	F0603FA2500V032T, AEM, 2.5, 32 Volt, 1.6X0.8X0.8, SMT, Ceramic, UL/CSA	
	F901	084G--56-4W	FUSE 4.0A 250V	
	F902	084G--56-4W	FUSE 4.0A 250V	
	E08903	089G-17356C554	AUDIO CABLE 1800MM	
	E08902	089G-725HAA-2G	D-SUB CABLE 1500MM	
	E08902	089G-725CAA-2G	D-SUB CABLE 1500MM	2nd source
	E08901	089G404A15N-IS	AC POWER CORD 1500MM Europe Reg.	
	E08901	089G404A15N-CX	AC POWER CORD 1500MM Europe Reg.	2nd source
	E09503	F95G176J-10113	FFC CABLE 10PIN 168MM 0.5MM	
	E09503	F95G176X-10113	FFC CABLE 10PIN 168MM 0.5MM	2nd source
	E09502	F95G8014-7D100	WIRE HARNESS 500MM 7P-7P	
	E09502	F95G8014-7X100	WIRE HARNESS 500MM 7P-7P	2nd source
	E09502	F95G8014-7R100	WIRE HARNESS 500MM 7P-7P	2nd source
	E09501	F95G801830D301	LVDS CABLE 140mm 30P-30P	
	E09501	F95G801830X301	LVDS CABLE 140mm 30P-30P	2nd source
	E09501	F95G801830R301	LVDS CABLE 140mm 30P-30P	2nd source

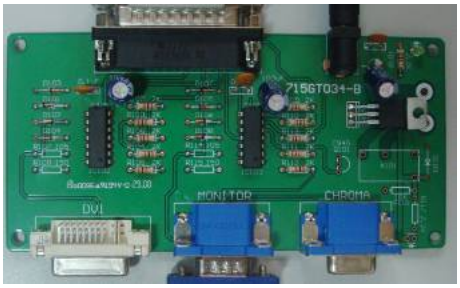
Recommended Parts List for 226V3LSB/00

ITEM	LOCATION	PCM CODES	DESCRIPTION	REMARK
1	FQ101	705GFACS091	BEZEL ASSY	
2	FQ004	KEPCAQV6	KEY G4921-K0B-X-X-1-110128	
3	FQ001	750GMT215W4A21N100	LM215WF4-TRA2 FQ LTD	
4	FQ570	Q52G1801MNT058	MYLAR	
5	FQ003	PLPCBB571GQAV	POWER G4889-P0D-000-0010-7-110411	
6	FQ002	CBPCBN2PHQQ	MAIN BOARD	
7	FQ124	A15G1654101201	MAIN_FRAME	
8	FQ102	705GFACS092	REAR COVER ASSY	
9	FQ110	A37G0258011	HINGE_21.5""	

10	FQ107	A34G2611AFL-1B0100	STAND TOP	
11	FQ108	A34G2612AFL-1B0100	STAND BOTTOM	
12	FQ118	A33G1215AFL-1B0100	HINGE COVER	
13	FQ111	705GFACS087	BASE ASSY	
	U3	0IDIL-0002A	AP7167-FNG-7, DIODES, ADJUST_3.3V, 1.2A, DFN3030-10, R/TP, 10	
	U4	0ISGL-0008C	M24C04-RDW, STmicroeletronics, 4K, 5ms, TSSOP, R/TP, 8	
	U402	056G2233-11	IC Pm25LD020C-SCE SIOC-8(150mil) 2M	
	U602	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U401	056G-562369	SCALER NT68660UFG/B TQFP-100	
	U703	056G-563161	IC AME8815BEGT180Z 1.5A/1.8V SOT-223	
	U702	056G-563520	LDO LSP1117D33AG 1A 3.3V TO-252	
	U102	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U103	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U104	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U106	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U107	056G-662-48	ESD PROTECT AZC399-04S SOT23-6L	
	U101	056G1133956	IC CAT24C02WI-GT3 SO-8	
	U105	056G1133956	IC CAT24C02WI-GT3 SO-8	
	U402	056G2233-11	IC Pm25LD020C-SCE SIOC-8(150mil) 2M	
	U402	070GHDCP500HDC	HDCP CODE	
	X401	093G--2251B--J	CRYSTAL 12MHZ NXS12.000AC30F-KAB10	
	IC902	056G-139--9	IC EL817M(X) photocoupler DIP-4	
	IC801	056G-379185	AC/DC CONVERTER TA9690GN-A1-0-TR SOP-24	
	IC901	056G-379190	AC/DC CONVERTER LD7750RGR SOP-7	
	IC903	056G-563354	Shunt. Reg. TL431-A-TA TO-92	
	F1	0FFST-0002A	F0603FA2500V032T, AEM, 2.5, 32 Volt, 1.6X0.8X0.8, SMT, Ceramic, UL/CSA	
	F901	084G--56-4W	FUSE 4.0A 250V	
	F902	084G--56-4W	FUSE 4.0A 250V	

	E08902	089G-725HAA-2G	D-SUB CABLE 1500MM	
	E08902	089G-725CAA-2G	D-SUB CABLE 1500MM	2nd source
	E08901	089G404A15N-IS	AC POWER CORD 1500MM Europe Reg.	
	E08901	089G404A15N-CX	AC POWER CORD 1500MM Europe Reg.	2nd source
	E09503	F95G176J-10113	FFC CABLE 10PIN 168MM 0.5MM	
	E09503	F95G176X-10113	FFC CABLE 10PIN 168MM 0.5MM	2nd source
	E09502	F95G8014-7D100	WIRE HARNESS 500MM 7P-7P	
	E09502	F95G8014-7X100	WIRE HARNESS 500MM 7P-7P	2nd source
	E09502	F95G8014-7R100	WIRE HARNESS 500MM 7P-7P	2nd source
	E09501	F95G801830D301	LVDS CABLE 140mm 30P-30P	
	E09501	F95G801830X301	LVDS CABLE 140mm 30P-30P	2nd source
	E09501	F95G801830R301	LVDS CABLE 140mm 30P-30P	2nd source

Service Kit

Description	Part No.	Picture
EDID & ISP TOOL	715GT034-B	

17. Different Parts List

Diversity of 226V3LAB/75 compared with 226V3LAB/00					
226V3LAB/75			226V3LAB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**
E08901	089G412A15NHL3	POWER CORD 1500MM Australia H	E08901	089G404A15N-HL	POWER CORD 1500MM Europe HONG

Diversity of 226V3LAB/01 compared with 226V3LAB/00					
226V3LAB/01			226V3LAB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**

Diversity of 226V3LAB/69 compared with 226V3LAB/00					
226V3LAB/69			226V3LAB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**

Diversity of 226V3LAB/93 compared with 226V3LAB/00					
226V3LAB/93			226V3LAB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**

Diversity of					
			226V3LAB/00		
Location	PCM Codes	Description	Location	PCM Codes	Description

Diversity of					
			226V3LAB/00		
Location	PCM Codes	Description	Location	PCM Codes	Description

Diversity of					
			226V3LAB/00		
Location	PCM Codes	Description	Location	PCM Codes	Description

Diversity of 226V3LAB/75 compared with 226V3LAB/00					
226V3LAB/75			226V3LAB/00		
Location	PCM Codes	Description	Location	PCM Codes	Description

Diversity of 226V3LAB/01 compared with 226V3LAB/00					
226V3LAB/01			226V3LAB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**

Diversity of 226V3LAB/69 compared with 226V3LAB/00					
226V3LAB/69			226V3LAB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**

Diversity of 226V3LSB/93 compared with 226V3LSB/00					
226V3LSB/93			226V3LSB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**
E08901	089G414A15N-HL	POWER CORD 1500MM CHINA HONGL	E08901	089G404A15N-HL	POWER CORD 1500MM Europe HONG

Diversity of 226V3LSB/62 compared with 226V3LSB/00					
226V3LSB/62			226V3LSB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**
E08901	089G404A15N-IS	E08901	E08901	089G404A15N-HL	POWER CORD 1500MM Europe HONG
FQ124	A15G1654101301	MAIN_FRAME	FQ124	A15G1654101201	MAIN_FRAME
FQ106	A34G2610AFL-3B0130	REAR_COVER_L215WA-Uph2	FQ106	A34G2610AFL-2B0130	REAR_COVER_L215WA-Uph2
FQ002	CBPCBN3PHQS	CONVERSION G4502-M01-X-X-9-110	FQ002	CBPCBN2PHQQ	CONVERSION G4502-M01-X-X-8-110
	756GQBCB-PH018--00	MCU ASS""Y		756GQBCB-PH017--00	MCU ASS""Y
	100GPNJI002NT1	MMD 226V3LSB A		100GPNJI001NT1	MMD 226V3LSB A+D

Diversity of 226V3LSB/69 compared with 226V3LSB/00					
226V3LSB/69			226V3LSB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**
E08901	089G410A15N-CX	POWER CORD 1500MM UK XUEXIAN	E08901	089G404A15N-HL	POWER CORD 1500MM Europe HONG

Diversity of 226V3LSB/01 compared with 226V3LSB/00					
226V3LSB/01			226V3LSB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**

Diversity of 226V3LSB/10 compared with 226V3LSB/00					
226V3LSB/10			226V3LSB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**
E08901	089G404A15N-CX	POWER CORD 1500MM Europe XUEX	E08901	089G404A15N-HL	POWER CORD 1500MM Europe HONG
JV119	A15G1654101301	MAIN_FRAME	JV119	A15G1654101201	MAIN_FRAME
JV002	CBPCBN3PHQS	CONVERSION G4502-M01-X-X-9-110	JV002	CBPCBN2PHQQ	CONVERSION G4502-M01-X-X-8-110
JV102	705GFACS093	REAR COVER ASSY	JV102	705GFACS092	REAR COVER ASSY

Diversity of 226V3LSB/67 compared with 226V3LSB/00					
226V3LSB/67			226V3LSB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**

Diversity of 226V3LSB/71 compared with 226V3LSB/00					
226V3LSB/71			226V3LSB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**
E08901	089G401A15NISA	POWER CORD 1500MM JAPAN I-SHE	E08901	089G404A15N-HL	POWER CORD 1500MM Europe HONG

Diversity of 226V3LSB/75 compared with 226V3LSB/00					
226V3LSB/75			226V3LSB/00		
Location	**PCM Codes**	**Description**	**Location**	**PCM Codes**	**Description**
E08901	089G412A15NHL3	POWER CORD 1500MM Australia H	E08901	089G404A15N-HL	POWER CORD 1500MM Europe HONG

18. General Product Specification

V3 Series

GENERAL PRODUCT

SPECIFICATION

Issued by: Wenchih Wang/Paul Tsai

Revision History

Ver.	Date (yy.mm.dd)	Author	Brief Description
0.1	2011.01.01	UC Hsu	Initial version
0.2	2011.05.19	Samou.Wu	Update 9300K color temperature SPEC

Blue: Changes than last version

Red: TBD

Quick Specification table:

V3 series_M3 QSG2011_Feb_1.xlsx

Quick Specification table:

Model	Input	Feature
V3 L	1A1D or 1A	
V3 LA	1A1D + Audio	

Smart features

SmartImage	NO	
SmartResponse	NO	
SmartPower	NO	
SmartTouch	NO	
SmartControl	NO	
Pixel Orbiting	NO	

.CONTENTS

FOREWORD

This specification describes a multi-scan color TFT LCD monitor.
All optical characteristics are determined according to panel specification after warming up longer than 30 minutes.

PRODUCT PROFILE

EDID header

Data for EDID & .inf file

166V3LSB , 166V3LAB

1	User visible strings on .inf file	Philips 166VL (16inch Wide LCD MONITOR 166V3L)
2	Manufacturer ID (EDID data)	PHL
3	Product ID, "xxxx" 4 codes	MSB(byte 12): C0
		LSB (byte 11): 7E
4	maximum resolution	1366x768
5	Horizontal Frequency Range	30~60 KHz
6	Vertical Frequency Range	56~63Hz
7	Monitor Name (13 characters max.)	Philips 166VL

196V3LSB,196V3LAB

1	User visible strings on .inf file	Philips 196VL (19inch Wide LCD MONITOR 196V3L)
2	Manufacturer ID (EDID data)	PHL
3	Product ID, "xxxx" 4 codes	MSB(byte 12): C0
		LSB (byte 11): 7F
4	maximum resolution	1366x768
5	Horizontal Frequency Range	30~83 KHz
6	Vertical Frequency Range	56~76Hz
7	Monitor Name (13 characters max.)	Philips 196VL

190V3LSB,190V3LAB

1	User visible strings on .inf file	Philips 190VL (19inch Wide LCD MONITOR 190V3L)
2	Manufacturer ID (EDID data)	PHL
3	Product ID, "xxxx" 4 codes	MSB(byte 12): C0
		LSB (byte 11): 80
4	maximum resolution	1400x900
5	Horizontal Frequency Range	30~83 KHz
6	Vertical Frequency Range	56~76Hz
7	Monitor Name (13 characters max.)	Philips 190VL

206V3LSB,206V3LAB

1	User visible strings on .inf file	Philips 206VL (20inch WIDE LCD MONITOR 206V3L)

2	Manufacturer ID (EDID data)	PHL
3	Product ID, "xxxx" 4 codes	MSB(byte 12): C0
		LSB (byte 11): 8C
4	maximum resolution	1600x900
5	Horizontal Frequency Range	30~83 KHz
6	Vertical Frequency Range	56~76Hz
7	Monitor Name (13 characters max.)	Philips 206VL

226V3LSB,226V3LAB

1	User visible strings on .inf file	Philips 226VL (22inch Wide LCD MONITOR 226V3L)
2	Manufacturer ID (EDID data)	PHL
3	Product ID, "xxxx" 4 codes	MSB(byte 12): C0
		LSB (byte 11): 81
4	maximum resolution	1920x1080
5	Horizontal Frequency Range	30~83 KHz
6	Vertical Frequency Range	56~76Hz
7	Monitor Name (13 characters max.)	Philips 226VL

236V3LSB,236V3LAB

1	User visible strings on .inf file	Philips 236VL (19inch Wide LCD MONITOR 236V3L)
2	Manufacturer ID (EDID data)	PHL
3	Product ID, "xxxx" 4 codes	MSB(byte 12): C0
		LSB (byte 11): 82
4	maximum resolution	1920x1080
5	Horizontal Frequency Range	30~83 KHz
6	Vertical Frequency Range	56~76Hz
7	Monitor Name (13 characters max.)	Philips 236VL

LCD

Suppliers to offer panel specifications.

Panel incoming specification: Follow Philips' specification.

166V3 :

CPT

Type NR.	: CPT CLAA156WB-11A
Resolution	: 1366 x 768 (SXGA+)
Outside dimensions	: 359.8(H) x 210(V) Typ. x 5.5(D) Typ.
Pitch (mm)	: 0.252mm x 0.252mm
Color pixel arrangement	: RGB vertical stripe
Display surface	: Glare
Color depth	: 16.7M (6 bit Hi-FRC)
Backlight	: LED
Active area (W x H)	: 344.23(H) x 193.54(V) mm
View angle (CR=10)	: =40/40 for Right/Left (Typ)
	: =15/30 Up/Down (Typ)
Contrast ratio	: 600:1 (Typ.), 500:1 (Min.)
White luminance	: 220(Typ.), 200(Min.)
Color gamut	: 56% (Min.)
Gate IC	: N/A
Source IC	: N/A
Response time	: Tr + Tf <=8 ms (Typ)
Vertical frequency range	: 56~76Hz

AUO

Type NR.	: AUO B156XW02 V6 (only ME reserved)
Resolution	: 1366 x 768 (SXGA+)
Outside dimensions	: 359.8(H) x 210(V) Typ. x 5.5(D) Typ.
Pitch (mm)	: 0.252mm x 0.252mm
Color pixel arrangement	: RGB vertical stripe
Display surface	: Glare
Color depth	: 16.7M (6 bit Hi-FRC)
Backlight	: LED
Active area (W x H)	: 344.23(H) x 193.54(V) mm
View angle (CR=10)	: =40/40 for Right/Left (Typ)
	: =15/30 Up/Down (Typ)
Contrast ratio	: 500:1 (Typ.), 400:1 (Min.)
White luminance	: 200(Typ.), 180(Min.)
Color gamut	: 56% (Min.)
Gate IC	: N/A
Source IC	: N/A
Response time	: Tr + Tf <=8 ms (Typ)
Vertical frequency range	: 56~76Hz

196V3 :

LNT

Type NR.	: L&T LM185WH2-TRA2
Resolution	: 1366 x 768 (SXGA+)
Outside dimensions	: 430.4(H) x 254.6(V) Typ. x 8.2(D) Typ.
Pitch (mm)	: 0.3mm x 0.3mm
Color pixel arrangement	: RGB vertical stripe
Display surface	: Hard coating (3H)
Color depth	: 16.7M (6 bit Hi-FRC)
Backlight	: LED
Active area (W x H)	: 409.8(H) x 230.4(V) mm
View angle (CR=10)	: =170 for Right/Left (Typ)

: =160 for Up/Down (Typ)
Contrast ratio : 1000:1 (Typ)
White luminance : 250(Typ.)
Color gamut : 66% (Min.)
Gate IC : N/A
Source IC : N/A
Response time : Tr + Tf <=5 ms (Typ)
Vertical frequency range : 56~76Hz

190V3 :

LNT

Type NR. : L&T LM190WX2-TJC1
Resolution : 1400 x 900 (SXGA+)
Outside dimensions : 430.5(H) x 278.2(V) Typ. x 6.2(D) Typ.
Pitch (mm) : 0.2835mm x 0.2835mm
Color pixel arrangement : RGB vertical stripe
Display surface : Hard coating (3H)
Color depth : 16.7M (6 bit Hi-FRC)
Backlight : LED
Active area (W x H) : 408.24(H) x 255.15(V) mm
View angle (CR=10) : =170 for Right/Left (Typ)
: =160 for Up/Down (Typ)
Contrast ratio : 1000:1 (Typ)
White luminance : 250(Typ.)
Color gamut : 70% (Min.)
Gate IC : N/A
Source IC : N/A
Response time : Tr + Tf <=5 ms (Typ)
Vertical frequency range : 56~76Hz

206V3 :

LNT

Type NR. : L&T LM200WD3-TRA2
Resolution : 1600 x 900 (SXGA+)
Outside dimensions : 462.8(H) x 272.0(V) Typ. x 8.2(D) Typ.
Pitch (mm) : 0.2766mm x 0.2766mm
Color pixel arrangement : RGB vertical stripe
Display surface : Haze 25% Hard coating (3H)
Color depth : 16.7M (6 bit Hi-FRC)
Backlight : LED
Active area (W x H) : 442.8(H) x 249.1(V) mm
View angle (CR=10) : =170 for Right/Left (Typ)
: =160 for Up/Down (Typ)
Contrast ratio : 1000:1 (Typ)
White luminance : 250(Typ.)
Color gamut : 66% (Min.)
Gate IC : N/A
Source IC : N/A
Response time : Tr + Tf <=5 ms (Typ)
Vertical frequency range : 56~76Hz

226V3 :

LNT

Type NR.	: LNT LM215WF4-TRA2
Resolution	: 1920 x 1080 (WSXGA+)
Outside dimensions	: 495.6(H) x 292.2(V) Typ. x 8.2(D) Typ.
Pitch (mm)	: 0.248mm x 0.248mm
Color pixel arrangement	: RGB vertical stripe
Display surface	: Hard coating (3H)
Color depth	: 16.7M (6 bit Hi-FRC)
Backlight	: LED
Active area (W x H)	: 479.64(H) x 268.11(V) mm
View angle (CR=10)	: =170 for Right/Left (Typ)
	: =160 for Up/Down (Typ)
Contrast ratio	: 1000:1 (Typ)
White luminance	: 250(Typ.)
Color gamut	: 66% (Min.)
Gate IC	: N/A
Source IC	: N/A
Response time	: Tr + Tf <=5 ms (Typ)
Vertical frequency range	: 56~76Hz

236V3 :

LNT

Type NR.	: L&T LM230WF5-TRA2
Resolution	: 1920 x 1080 (WSXGA+)
Outside dimensions	: 533.2(H) x 312.0(V) Typ. x 8.3(D) Typ.
Pitch (mm)	: 0.265mm x 0.265mm
Color pixel arrangement	: RGB vertical stripe
Display surface	: Hard coating (3H)
Color depth	: 16.7M (6 bit Hi-FRC)
Backlight	: LED
Active area (W x H)	: 509.2(H) x 286.4(V) mm
View angle (CR=10)	: =170 for Right/Left (Typ)
	: =160 for Up/Down (Typ)
Contrast ratio	: 1000:1 (Typ)
White luminance	: 250(Typ.)
Color gamut	: 66% (Min.)
Gate IC	: N/A
Source IC	: N/A
Response time	: Tr + Tf <=5 ms (Typ)
Vertical frequency range	: 56~76Hz

Scanning frequencies

Hor. : 30 – 83 K Hz
Ver. : 56 - 76 Hz
Video dot rate: < 210 MHz for VGA and < 170 MHz for DVI, warning message must be displayed while over 165 MHz (supplier to provide accurate scaler bandwidth number)
Power input: 90-264 V AC, 50/60 ± 2 Hz

Functions:
(1) D-SUB analog R/G/B separate inputs, H/V sync separated, Composite (H+V) TTL level,
(2) SOG sync: a. Sync select: H + V
b. Sync select: SERR
(3) DVI digital Panel Link TMDS inputs, HDCP supported.

Ambient temperature:

0 °C - 40 °C

Power Range

FULL RANGE POWER SUPPLY 90 – 264 VAC

ELECTRICAL CHARACTERISTICS

Scaler should be capable of below items.
1) Scaler must support color engine for Image enhancement feature (SmartImage)
2) Scaler must have enough memory to support PerfecTune feature and Philips OSD
3) Scaler must support SmartContras,500K:1 DCR preferred
4) VGA signal Auto adjustment:
Monitor automatically adjusts and optimizes resolution and frequency based on input signal defined by "Source" function. "NO VIDEO INPUT" message to be displayed on screen while no signal is detected. Monitor will automatically optimize resolution and frequency whenever connected to different signal source. When press the "Auto", the screen also show a status bar. During adjustment period, a status bar will show on screen from 0% to 100% to indicate the progress of adjustment.
Auto auto adjustment : new timing & preset modes (non- factory preset mode) should do auto adjustment at first time detection and save the related date into memory.
Resolution ≦ 800x600 , do not do auto auto adjustment.

Interface signals

1). D-Sub Analog
Input signal : Video, Hsync., Vsync
Video : 0.7 Vp-p, input impedance, 75 ohm @DC
Sync. : Separate sync TTL level , input impedance 2.2k ohm terminate
Hsync Positive/Negative
Vsync Positive/Negative

Composite sync TTL level, input impedance 2.2k ohm terminate (Positive/Negative)

Sync on green video 0.3 Vp-p Negative (Video 0.7 Vp-p Positive)

2). DVI-D Digital
Input signal: Single TMDS link (Three channels: RX0-/+, RX1-/+, RX2-/+)

3). HDMI (option , refer to Quick specification table)
Follow HDMI 1.4 specification
TMDS channel:

- Carries audio, video and auxiliary data.
- Signaling method: According to DVI 1.0 specification. Single-link (Type A HDMI).
- Video pixel rate: 25 MHz to 165 MHz (Type A)
- Pixel encodings: RGB 4:4:4, YCbCr 4:2:2, YCbCr 4:4:4.
- Audio sample rates: 32 kHz, 44.1 kHz, 48 kHz
- Audio channels: **2.**

DDC channel:

- Allows source to interrogate capabilities of sink.
- I²C signaling with 100 kHz clock.
- E-EDID data structure according to EIA/CEA-861D and VESA Enhanced EDID.

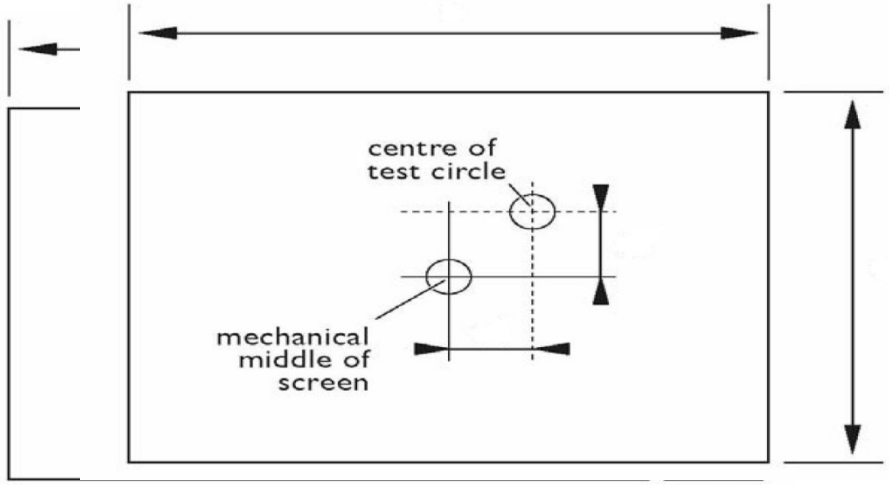
Content protection:

According to High-Definition Content Protection (HDCP) Specification 1.10.

HDMI video input should support timing defined in **CEA 861-D** specification with extended EDID blocks

Video Timing Support :

Format	Resolution	Type	Vertical frequency
480i	720 x 480	SD	60Hz
480p	720 x 480	SD	60Hz
576i	720 x 576	SD	50Hz
576p	720 x 576	SD	50Hz
720p	1280 x 720	HD	50Hz , 60Hz
1080i	1920 x 1080	HD	50Hz , 60Hz
1080p	1920 x 1080	HD	24Hz, 25Hz, 30Hz, 50Hz, 60Hz



- Picture centering - H & V ≤ 0.5 %. (for TV, 480i/p, 576i/p, 720p, 1080i/p)

Over Scan -

1. RGB signal : OFF (no this function)
2. YUV signal : (Video timming) ON (Be use and set ON/OFF)
   (But only 1080p define is OFF)

PC timing: to follow PC timing table

TMDS/+5V/DDC/HPD/CEC Signals

(TMDS Signal)

Termination Supply Voltage AV_{CC}: 3.3V±5%

Differential Voltage Level : 150mV – 1200mV

Common Mode Voltage : (AV_{CC} – 300mV) – (AV_{CC} – 37.5mV)

Differential Sensitivity : 150mVp-p

Maximum differential Voltage : 1560mVp-p

(+5V Power)

Power Supply Voltage : 4.7V – 5.3V

Maximum Current Consumption : 50mA

(DDC Signal)

Maximum Capacitance : 50pF

(HPD Signal)

High Voltage Level : 2.4V – 5.0V

Low Voltage Level : 0 – 0.4V

Output Resistance : 1KΩ±20%

(CEC Signal, not supported by this model)

Input Low Voltage : < 0.8V

Input High Voltage : > 2.0V

Output Low Voltage: 0 – 0.4V

Output High Voltage: 2.5V – 3.6V

Pull-up Resistor: 2.7KΩ±10%

Leakage Current in standby/off : < 1.8uA

Maximum Capacitance: 100pF

4). DisplayPort (option , refer to Quick specification table)
Follow DisplayPort 1.1 specification.

5). USB Hub 2.0 (option , refer to Quick specification table)
USB port (1 upstream, 2 or 4 downstream)

6). Audio in (option , refer to Quick specification table)
Input signal: 1Vrms
Loudspeaker: stereo of RMS Power
Frequency range: (WAIT FOR SUPPLIER INPUT)
Headphone connection will mute speaker

7). USB PLUG (option , refer to Quick specification table)
USB port (1 upstream, 1 downstream), black jack color

8). HDMI audio out (headphone): (option, refer to Quick specification table)
Stereo, > 50mVrms for headphone of 32Ω

Interface

D-Sub Cable

Length : Please refer to M3 cable bundle summary file
Fix with monitor when packing, with transplant pin protective cover.

Connector type : D-Sub male with DDC2B pin assignments.
Blue connector thumb-operated jack screws

Pin assignments:

PIN No.	SIGNAL
1	Red
2	Green/ SOG
3	Blue
4	Sense (GND)
5	Cable Detect (GND)
6	Red GND
7	Green GND
8	Blue GND
9	DDC +3.3V or +5V
10	Logic GND
11	Sense (GND)
12	Bi-directional data

13	H/H+V sync
14	V-sync
15	Data clock

DVI Cable

The input signals are applied to the display through DVI-D cable.
Length : Please refer to cable bundle summary file
Connector type : DVI-D male with DDC-2B pin assignments
White connector thumb-operated jackscrews
With transplant pin protective cover.

Pin Assignment:

Pin No.	Description
1	T.M.D.S. data2-
2	T.M.D.S. data2+
3	T.M.D.S. data2 shield
4	No Connect
5	No Connect
6	DDC clock
7	DDC data
8	No Connect
9	T.M.D.S. data1-
10	T.M.D.S. data1+
11	T.M.D.S. data1 shield
12	No Connect
13	No Connect
14	+5V Power
15	Ground (for +5V)
16	Hot plug detect
17	T.M.D.S. data0-
18	T.M.D.S. data0+
19	T.M.D.S. data0 shield
20	No Connect
21	No Connect
22	T.M.D.S clock shield
23	T.M.D.S. clock+
24	T.M.D.S. clock-

DisplayPort cable

Length : Please refer to cable bundle summary file
Connector type : DisplayPort 1.1 External cable-connector

Pin Assignment:

Pin No.	Description
1	Lane 0 (positive)
2	Ground
3	Lane 0 (negative)
4	Lane 1 (positive)
5	Ground
6	Lane 1 (negative)
7	Lane 2 (positive)

8	Ground
9	Lane 2 (negative)
10	Lane 3 (positive)
11	Ground
12	Lane 3 (negative)
13	connected to Ground
14	connected to Ground
15	Auxiliary Channel (positive)
16	Ground
17	Auxiliary Channel (negative)
18	Hot Plug Detect
19	Return for Power
20	Power for connector

3.2.4 HDMI cable

Length : Please refer to cable bundle summary file
Connector type : HDMI 1.4 type A cable-connector

Pin Assignment:

Pin No.	Description
1	TMDS Data2+
2	TMDS Data2 Shield
3	TMDS Data2–
4	TMDS Data1+
5	TMDS Data1 Shield
6	TMDS Data1–
7	TMDS Data0+
8	TMDS Data0 Shield
9	TMDS Data0–
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock–
13	CEC
14	Reserved (HDMI 1.0-1.3c), HEC Data- (Optional, HDMI 1.4+ with Ethernet)
15	SCL (I²C Serial Clock for DDC)
16	SDA (I²C Serial Data Line for DDC)
17	DDC/CEC/HEC Ground
18	+5 V Power (max 50 mA)
19	Hot Plug Detect (All versions) and HEC Data+ (Optional, HDMI 1.4+ with Ethernet)

3.2.5 3.5mm Audio Jack cable

Length : Please refer to cable bundle summary file
Connector type : 3.5mm stereo audio jack (TRS) connector

Timing requirement

Factory Preset mode definition:

1. Perfect FOS while presenting those timings.
2. Will specify those timing in User's Manual

Preset mode definition:

1. Need to support those timings.
2. Perfect FOS after auto adjustment.

User mode

1. Can save those timing that not in Preset mode and can be showed (not over scaler or Panel spec.)
2. It needs to reserve the 10 timings space in memory size.

Mode storing capacity

Factory preset modes : Refer to Timing table_
preset modes : Refer to Timing table
User modes : Refer to Timing table
Timing pixel clock over H/W limitation do not support.

1. Factory preset modes and preset modes are defined in the enclosed timing table file


M3 Timing table_20110408.xlsx

OSD/Keypad functions

ITEM			
1	OSD/keypad definition	 M3 MICON SPEC_20110406.doc	Reset - No: Exit Yes: Auto adjustment for displaying timing mode and recall factory preset
2	OSD Translation	 OSD_String_M3_20110322.xls	English, French, German, Spanish, Italian, Russian, Simplified Chinese, Portuguese, Turkish (9)
3	Power On logo	 Philips_Logo_1920x1080.bmp	Power On Logo: Power On → Show up Philips logo 3 seconds → Change to input signal. This picture is reference only. The official drawing will send out by PM.

Horizontal scanning

Sync polarity : Positive or Negative
Scanning frequency : 30 – 83 K Hz

PS : Item 3.4 and 3.5 , as far as possible to be display (another Horizontal and Vertical)

Vertical scanning

Sync polarity : Positive or Negative
Scanning frequency : 56 - 76 Hz

Power input connection

Power cord length :please refer to M3 cable bundle summary file
Power cord type : 3 leads power cord with protective earth plug.

Power management

The monitor must comply with the Microsoft On Now specification, and meet EPA requirements.

Mode	HSYNC	VSYNC	Video	Pwr-cons.	Indication	Rec. time
Power-On	On	On	Active	21.5" , 23.6": <30W (typ.),< 35W(max.) 15.6" , 18.5", 19", 20": <20W (typ.),<25W(max.)	White LED	--
Standby (Sleep mode)	Off	Off	Blanked	< 0.5W	Blinking white LED Period 3ec on, 3sec off	Note 1 Note 2
DC Power Off			N/A	< 0.3W	LED Off	

PS: SmartImage Economy mode: < EPA5.0 spec. (Brightness=20%)
EPA 5.0 spec. as below

Panel size	Native resolution	Max. Power (W)
16"(16:9)	1366x768	14.5
17"(4:3)	1280x1024	21.9
17"(16:10)	1440x900	21.2
18.5"(16:9)	1366x768	16.6
19"(16:10)	1440x900	22.7
19"(4:3)	1280x1024	23.6
20"(16:10)	1680x1050	28
20"(16:9)	1600x900	24.5
22"(16:10)	1680x1050	30
22"(16:9)	1920x1080	31.6
23"(16:9)	1920x1080	32.9
24"(16:10)	1920x1200	36.8
24"(16:9)	1920x1080	34

Note 1 :

a. D-SUB mode,
Normal node to Power saving mode: 15/s (typ.)
Power saving mode to Normal: 4/s(typ.)

b. DVI mode,
Normal node to Power saving mode: 15/s(typ.)

Power saving mode to Normal: 3.8s(typ.)

Note 2 :

Measurement power Saving.


measurement of power saving.pdf


Power consumption measure the way -090

VGA Display identification

In accordance with VESA Display Channel Standard Ver.1.0 and DDC 2B capability

DVI Display identification

In accordance with DVI requirement (DDWG digital Visual Interface revision 1.0)

use DDC-2B, DDC/CI, and EDID V1.3

~~**USB support**~~

~~Connect the upstream port of the monitor to host PC's USB port via USB cable. Then attach external device to the downstream port of the monitor. Check if the device can work properly.~~

DDC /CI Support and Smart Manage/Control

In accordance with VESA DDC/CI and MCCS ver.2.0, the monitor should be workable with , Philps SmartManage, SmartControl V6.1, and Protrait Display Tune at least.

~~**Pivot function(Auto pivot)**~~

~~It needs to support AUTO-PIVOT function with SmartControl PC application tool.~~

Hot-key definition


D:\ENG\monitor projects\spec\H8\hot k

~~**Smart image**~~


Smart Image.doc

PerfectTune II (formerly FGA, FACTORY GAMMA Alignment)

A. PerfectTune must be done after warming 30 minutes at least.
B. PerfectTune must be performed after Auto Color.
C. PerfectTune must be conducted through DVI or scaler embedded patterns.
D. Delta E < 2.5

audio

3.17.1 Frequency Response

The amplifier and speaker combination shall provide a frequency response of 300 Hz to 20 kHz, with +/- 3 dB variation over the entire response range.

3.17.2 Total Harmonic Distortion

Total harmonic distortion shall be limited to 5% THD at the maximum wattage speaker rating specified in section 1.3, at 1 kHz, when the input is 1.0Vrms.

3.17.3 Power Handling

Each speaker transducer shall accept up to the specified Wattage of audio power without damage or exceeding the frequency response and total harmonic distortion specifications.

3.17.4 Audio Amplifier

The amplifier shall provide two channels of audio up to 1.5 Watts per channel from 100 Hz
to 20 kHz, based upon an audio signal input of 1.0V RMS per channel.

3.17.5 Volume Control

For monitors with a manual volume control, the direction (at the bottom) of the bezel volume control is "-" key for Minimum volume and "+" key for Maximum volume. The default shipping position of the Volume Control shall be approximately 90%.

3.17.6 Speaker Sensitivity

The speakers shall support a minimum sensitivity of 75 dB +/- 3 dB at 2W/1m at 1 kHz.

3.17.7 Maximum Audio Card Output

The monitor audio amplifier shall accept a maximum input voltage of 1.5 Vrms and meet the following requirements at the maximum monitor volume setting:

1. The ratings of the audio amplifier may not be exceeded.
2. The ratings of the speakers may not be exceeded.
3. There must not be any clipping of the audio amplifier output signal.

Voltage dividers may be used to reduce the input signal level.

3.17.8 Monitor Audio Amplifier Input Impedance

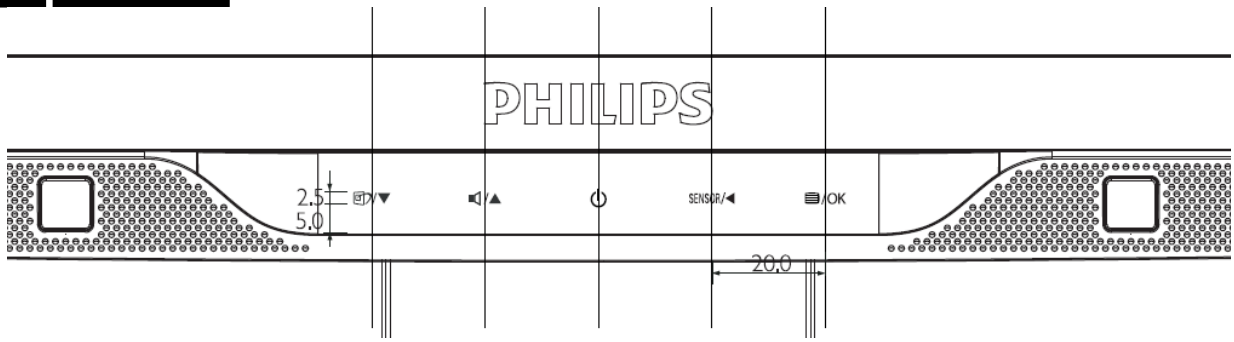
The monitor audio amplifier shall have minimum 10K Ohm AC input impedance

~~**Power sensor (option)**~~

UNCTIONAL Requirements for the front detection

For the presence sensor functionality, the following requirements are defined:

- Two IRs be used for user present detections, one IR is for transmission signals, the other one is for receiving reflection IR signals



- User must be detected in the following range:
  40 up to 100 cm (+ 20cm).

- Detection angle:
  +- 35 degree (for IR LED)

- SENSOR key control,
  Adjust detection distances (0~4 scales), default is 3 , tolerance : (±10cm)

  0 : 0FF

  1 : 90 cm

  2 : 100 cm

  3 : 110 cm

  4 : >130 cm

- SENSOR distance measure :
  1. Cotton material color : black
  2. Monitor center straight distance (90 deg)
  3. Body width : about 40cm
  4. Body horizontal move : Monitor center +- 5cm

- Anti-interference between two monitors,
  Monitors must have anti-interference methods(coding ..etc) to prevent monitors to talk to each other

- power sensor Functional behavior

Time Period	60sec	60sec ~ 180sec	180sec ~

PowerSensor	No ACTION	Lower down backlight brightness	Backlight & LCD panel shutdown
Power Saving	0	50%	80%

- The following set-up's will be supported

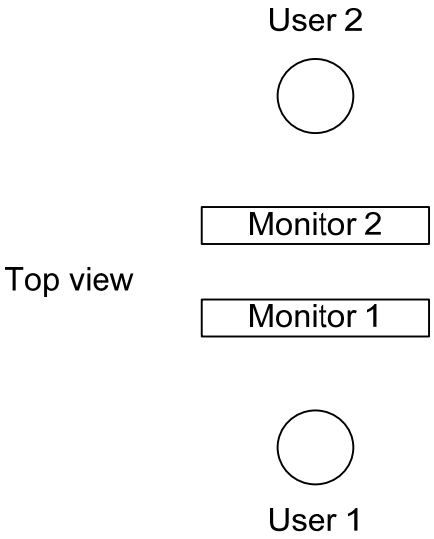


Fig. 2: 2 monitors standing back to back.

The monitors may influence each other. So Monitor 1 may produce unexpected brightness-switches in monitor 2 (and vice versa). Furthermore, user 1 could perhaps (via monitor 1) influence the powersensor readout on monitor 2.

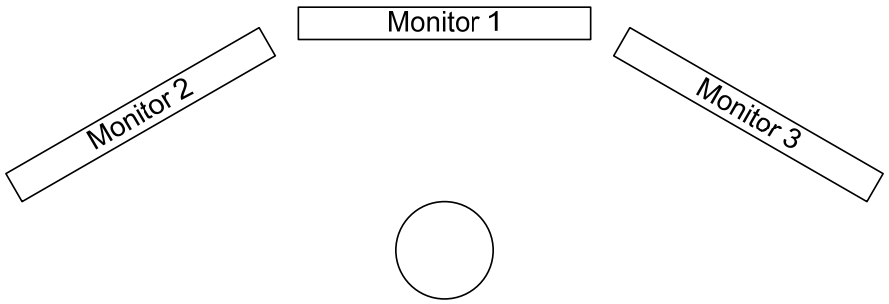


Fig. 3: set up of multiple monitors under an angle

.

~~**Smart Power (option , refer to Quick specification table)**~~
~~To reduce the power by adjusting backlight , contrast and color.~~
~~Algorithm is provided by Supplier.~~

VISUAL CHARACTERISTICS

Test conditions

Unless otherwise specified, this specification is defined under the following conditions.

(1) Input signal : As defined in 3.3, follow panel resolution, signal sources must have 75 ohm output impedance.
(2) Luminance setting : controls to be set to 250 nits(except 166V3 220 nits) with full screen 100 % duty cycle white signal

(3) Warm up: more than 30 minutes after power on with signal supplied.

(4) Ambient light: 400 -- 600 lux.

(5) Ambient temperature: 20 ± 5 °C

Brightness

Follow Panel specification.

Color temperature adjustment

There are three factory preset white color 9300K, 6500K, sRGB.

Apply full white pattern, with brightness in 100 % position and the contrast control at 50 % position.

The 1931 CIE Chromaticity (color triangle) diagram (x ,y) coordinate for the screen center should be:

Product specification

CIE coordinates	(x,y)	
11500K	x = 0.270 ± 0.02 y = 0.281 ± 0.02	PerfecTune II
9300K	x = 0.283 ± 0.02 y = 0.297 ± 0.02	PerfecTune II
8200K	x = 0.291 ± 0.02 y = 0.306 ± 0.02	PerfecTune II
7500K	x = 0.298 ± 0.02 y = 0.314 ± 0.02	PerfecTune II
6500K/sRGB	x = 0.313 ± 0.02 y = 0.329 ± 0.02	PerfecTune II

sRGB	x = 0.313 ± 0.02 y = 0.329 ± 0.02	PerfecTune II
5000K	x = 0.345 ± 0.02 y = 0.357 ± 0.02	PerfecTune II

Production alignment spec.

CIE coordinates	(x,y)	
11500K	x = 0.270 ± 0.006 y = 0.281 ± 0.006	PerfecTune II
9300K	x = 0.283 ± 0.006 y = 0.297 ± 0.006	PerfecTune II
8200K	x = 0.291 ± 0.006 y = 0.306 ± 0.006	PerfecTune II
7500K	x = 0.298 ± 0.006 y = 0.314 ± 0.006	PerfecTune II
6500K/sRGB	x = 0.313 ± 0.006 y = 0.329 ± 0.006	PerfecTune II
sRGB	x = 0.313 ± 0.006 y = 0.329 ± 0.006	PerfecTune II
5000K	x = 0.345 ± 0.006 y = 0.357 ± 0.006	PerfecTune II

Quality Inspection specification:

CIE coordinates	(x,y)	
9300K	x = 0.283 ± 0.015 y = 0.297 ± 0.015	Note 1
6500K/sRGB	x = 0.313 ± 0.015 y = 0.329 ± 0.015	
sRGB	x = 0.313 ± 0.015 y = 0.329 ± 0.015	

Note 1：Test in 9 points pattern，9300K color temperature x-shift or y—shift must be less than 15 at center，the x-shift or y—shift in 9 points should be judged by panel Spec.

MECHANICAL CHARACTERISTICS

Cosmetic -

Philips ID

Mechanical data files -

ProE files required

Location of Philips logo -

Per Philips make-up sheet

Gap between panel and front bezel

15"~19": <0.8mm, 19"W:<1.0mm, 20W~23"W: <1.2mm, 24"W: <1.4mm

Location of Control icons -

Location of Control icons -

Per Philips Graphic sheet

Color for resin/paint -

Per Philips make-up sheet

Fire enclosure request

Shielding Cover should fulfill international standard

Resins

- RoHS required
- WEEE required.
- Resin type/selection refer to Project Book Section 7.2 Plastic material.

If paint is used

- RoHS required
- WEEE require
- If new painting type need to implement, refer to UN-D 1235.

Plastic mold tooling

- Tooling to be designed to minimize cosmetic defects induced by molding process (sink, blush, weld lines, gate marks, ejector marks, etc.). Refer to "TYV61-90007".
- Painting to cover up cosmetic defects due to molding is strongly discouraged.
- China RoHS mark requested.

Plastics flammability

- All Plastics to be Flame Retardant UL 94-HB or Better.
- Base / Pedestal to be Flame Retardant UL 94-HB.
- All major plastic parts (bezel, back cover) need to be molded from same resin.
- Plastic resin type selection should be referred to "plastic-Philips Pool monitor".

Texture/Glossing of housing

- The texture area and texture no should follow Philips make-up sheet.
- The exterior surfaces shall have a uniform texture.
- Philips must approve the mold texturing.
- Detail document for texture refer to "UN-D249", "UN-D 600".
- < = 20 gloss units

Tilt and swivel base

- Tilt angle : -5 ° +2/- 0 ° (forward)
  +20 °+ 0/- 3 ° (backward)
- Swivel angle : nil
- High Adjustment : nil
- Portrait Display : nil

Kensington Lock

- Must meet Kensington_slot.spec "TYE-M0004".
- MMD request metal plate in Kensington hole.

Product dimension / Weight (Refer to Philips approved SHT 191/SHT560)

Transportation

Transportation standards refer to UAN-D1534/00/01/02.

Transportation packages

- Net weight Packaging and wrapping shall be sufficient to protect the product against damage or loss during shipment from the supplier to the destination specified in the purchase order. All packaging materials are subject to test and evaluation per UAN-D1534/00/01/02.
- The cushion material shall be constructed using EPS material.
- The doggy hole is requested.

Transportation Test_

Overall tests refer to UAN-D1534/00/01/02.
Vibration, drop test should be performed at ambient temperature (20°C to 23°C) and relative humidity (40% to 65%).

A. Transportation test specification for all regions

- Package test
  1. Random Vibration test
  2. Drop test
  3. Cold Drop test (for design reference)
- Un-package test
  1. Half sine shock test (non operation)

B. Transportation test specification for China/India

- Package test

1. Random Vibration test
2. Drop test
3. Cold Drop test (for design reference)

- Un-package test
  1. Sine vibration (operating)
  2. Half sine shock test (non operation)

Pallet / Container loading (Refer to Philips approved SHT 560)

Transportation standards refer to TYE-M0002 ,UAN-D1534 and UAW-0309.

- Air shipment -
- Sea container 20'(pallet/slip sheet)
- Sea container 40'(pallet/slip sheet)
- Sea container 40' High Cube (pallet/slip sheet)
- Land 45‵ Truck and Trailer (800X1200mm pallet)
- Land 45‵ Truck and Trailer (1000X1200mm pallet) for UK
- Truck shipment-

Transportation request for all regions except China/India

A. Air shipment
B. 20’/40’/40’HQ Container loading for WW

Transportation request for China and India

A. Container loading for China and India
B. Truck loading

Transportation request for EU

A. Land 45‵ Truck and Trailer (800X1200mm pallet)
B. Land 45‵ Truck and Trailer (1000X1200mm pallet) for UK

ENVIRONMENTAL CHARACTERISTICS

The following sections define the interference and susceptibility condition limits that might occur between external environment and the display device.

Susceptibility of display to external environment

Operating
- Temperature : 0 to 40 degree C
- Humidity : 80% max
- Altitude : 0-3658m
- Air pressure : 600-1100 mBAR

Storage
- Temperature : -20 to 60 degree C
- Humidity : 95% max
- Altitude : 0-12192m
- Air pressure : 300-1100 mBAR

Note: recommend at 5 to 35°C, Humidity less than 60 %

Transportation tests

Refer to 5.15.2

Display disturbances from external environment

According to IEC 801-2 for ESD disturbances

Display disturbances to external environment

TELEVISION/MONITOR SAFFTY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Safety Checks
After the original service problem has been corrected,a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition,which could be unknowingly passed on to your customer. Be sure to check all of the following:

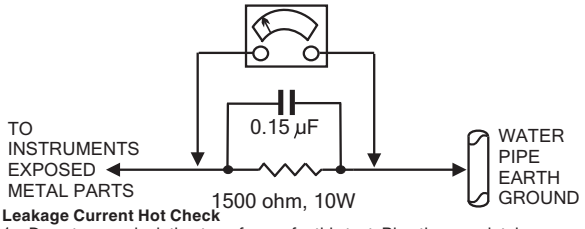
Fire and Shock Hazard
1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barries, covers, strain reliefs, and other hardware have been installed in accordance with the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints,solder splashes,sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord).Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout,lead length, and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with ans by the Ref. No. in the parts list and enclosed within a broken line * (where several critical components are grouped in one area) along with the safety symbols on the schematic diagrams and/or exploded views.
7. When servicing any unit, always use a separate isolation transformer for the chassis Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug.) Defeating this safety feature may create a potential hazard to the service and the user. Extension cords which do not incorporate the polarizing feature should never be used.
9. After reassembly of the unit, always perform an leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also check all metal control shafts(with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit may be safety operated without danger of electrical shock.

* Broken line

Implosion
1. All picture tubes used in current model receivers are equipped with an integral implosion system. Care should always be used, and safety glasses worn,whenever handling any picture tube. Avoid scratching or otherwise damaging the picture tube during installation.
2. Use only replacement tubes specified by the manufacturer.

X-radiation
1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the high voltage at the factory recommended level.
2. To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
3. It is essential that the service technician has an accurate HV meter available at all times. The calibration of this meter should be checked periodically against a reference standard.
4. When the HV circuitry is operating properly there is no possibility of an x-radiation problem. High voltage should always be kept at the manufacturer's rated value-no higher - for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV is regulated correctly and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV and HV regulation are always checked as a standard servicing procedure, and the reason for this prudent routine is clearly understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV recorded on each customer's invoice, which will demonstrate a proper concern for the customer's safety.
5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, reduce the line voltage by means of a Variac to bring the HV into acceptable limits while troubleshooting. Do not operate the chassis longer than necessary to locate the cause of the excessive HV.
6. New picture tubes are specifically designed to withstand higher operathng voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service. Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types, as this may result in excessive X-radiation.
7. It is essential to use the specified picture tube to avoid a possible X-diation problem.
8. Most TV receivers contain some type of emergency "Hold Down" circuit to prevent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

Leakage Current Cold Check
1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



Leakage Current Hot Check
1. Do not use an isolation transformer for this test. Plug the completely reassembled receiver directly into the ac outlet.
2. Connect a 1.5k, 10w resistor paralleled by a 0.15uf. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed.(Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

Picture Tube Replacement
The primary source of X-radiation in this television receiver is the picture tube. The picture tube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter, or a Philips approved type.

Parts Replacement
Many electrical and mechanical parts in Philips television sets have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards

WARNING : Before removing the CRT anode cap, turn the unit **OFF** and short the HIGH VOLTAGE to the CRT DAG ground.
SERVICE NOTE : The CRT DAG is not at chassis ground.