

LCD Television

Service Manual

Chassis: MT5651HROI+MST6M40

Product Type:

50、58、65XT880XWSEU3D, 3D type : SG

LTDN84XT900RWSEU3D, 3D type :PR

Ver 1.0

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Service Manual

1. Precautions and notices

BEFORE SERVICING THE LCD TV, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.

USE ONLY MANUFACTURER SPECIFIED REPLACEMENT PARTS WHEN SERVICING.

USE OF NON-AUTHORIZED PARTS WILL VOID THE MANUFACTURE'S WARRANTY

Proper service and repair is important to the safe, reliable operation of all Hisense Equipment. The service procedures recommended by Hisense and described in this Service Guide 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 and pose risk of personal injury

. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Service should only be performed by an experienced electronics

technician trained in the proper Television safety and service methods and procedures

Hereafter throughout this manual, HISENSE will be referred to.

1.1 Warning

1.1.1

Critical components having special safety characteristics are identified with a ▲ by the Ref. No. in the parts list. Use of non-manufacturer's recommended parts may create shock, fire, or other hazards. Under no circumstances should the original design be modified or altered without written permission from RCA. Hisense Eassumes no liability, express or implied, arising out of any unauthorized modification of design. Servicetech assumes all liability.

DANGER CAUTION

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 GUIDE.

1.1.2.

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, be sure to use anti-static table mats and properly use a grounding wrist stra. Keep components and tools also at this same potential.

IMPORTANT:

Always disconnect the power cord from AC outlet before replacing parts or modules.

1.1.3

To prevent electrical shock, use only a properly grounded 3 prong outlet or extension cord.

1.1.4

When replacement parts are required, be sure to use replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards and will void the manufacturer's warranty.

1.1.5

Safety regulations require that after a repair the set must be returned in its original condition. In addition, prior to closing set, check that:

-Note:

>All wire harnesses and flex cables are properly routed and secured with factory tape and/or mounted cable clamps.

> All cables and connectors are properly insulated and do not have any bare wires/lead exposed

1.1.6

(1) Do not supply a voltage higher than that specified to this product. This may

damage the product and may cause a fire.

(2) Do not use this product:

> High humidity areas

> In an area where any water could enter or splash into the unit.

High humidity and water could damage the product and cause fire.

(3) If a foreign substance (such as water, metal, or liquid) gets inside the panel module, immediately turn off the power. Continuing to use the product may cause fire or electric shock.

(4) If the product emits smoke, and abnormal smell, or makes an abnormal sound, immediately turn off the power. Continuing to use the product, it may cause fire or electric shock.

(5) Do not pull out or insert the power cable from/to an outlet with wet hands. It may cause electric shock.

(6) Do not damage or modify the power cable. It may cause fire or electric shock.

(7) If the power cable is damaged, or if the connector is loose, do not use the product: otherwise, this can lead to fire or electric shock.

(8) If the power connector or the connector of the power cable becomes dirty or dusty, wipe it with a dry cloth. Otherwise, this can lead to fire.

(9) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over

1.2 Notes

Notes on Safe Handling of the LCD panel and during service

The work procedures shown with the Note indication are important for ensuring the safety of the product and the servicing work. Be sure to follow these instructions.

- Before starting the work, secure a sufficient working space.
- At all times other than when adjusting and checking the product, be sure to turn OFF the POWER Button and disconnect the power cable from the power source of the TV during servicing.
- To prevent electric shock and breakage of PC board, start the servicing work at least 30 seconds after the main power has been turned off. Especially when installing and removing the power board, start servicing at least 2 minutes after the main power has been turned off.
- While the main power is on, do not touch any parts or circuits other than the ones specified. If any connection other than the one specified is made between the measuring equipment and the high voltage power supply block, it can result in electric shock or may trip the main circuit breaker When installing the LCD module in, and removing it from the packing carton, be sure to have at least two persons perform the work.
- When the surface of the panel comes into contact with the cushioning materials, be sure to confirm that there is no foreign matter on top of the cushioning materials before the surface of the panel comes into contact with the cushioning materials. Failure to observe this precaution may result in, the surface of the panel being scratched by foreign

matter.

- Be sure to handle the circuit board by holding the large parts as the heat sink or transformer. Failure to observe this precaution may result in the occurrence of an abnormality in the soldered areas.
- Do not stack the circuit boards. Failure to observe this precaution may result in problems resulting from scratches on the parts, the deformation of parts, and short-circuits due to residual electric charge.
- Perform a safety check when servicing is completed. Verify that the peripherals of the serviced points have not undergone any deterioration during servicing. Also verify that the screws, parts and cables removed for servicing purposes have all been returned to their proper locations in accordance with the original setup.



The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



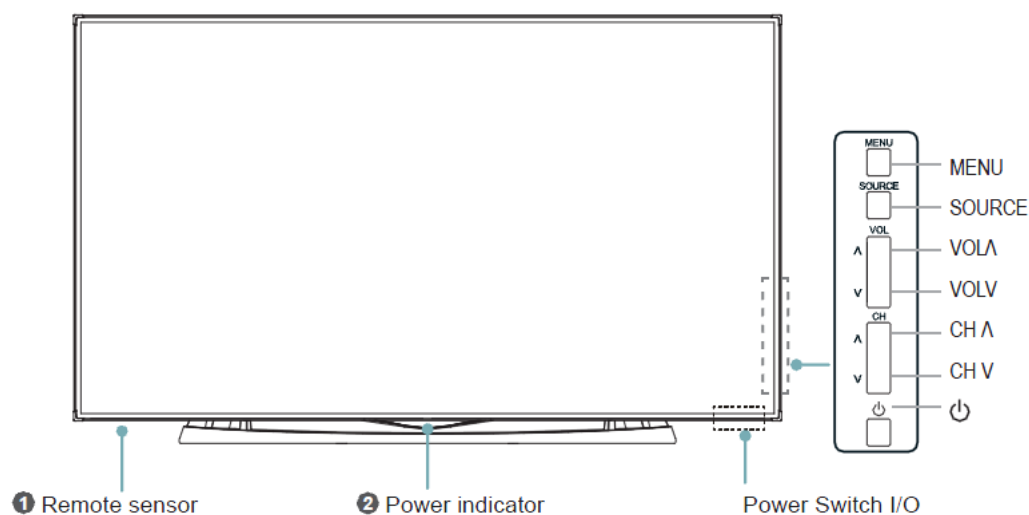
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the set.

2. Product Function Specifications

2.1 Layout

XT880 Series

TV Front

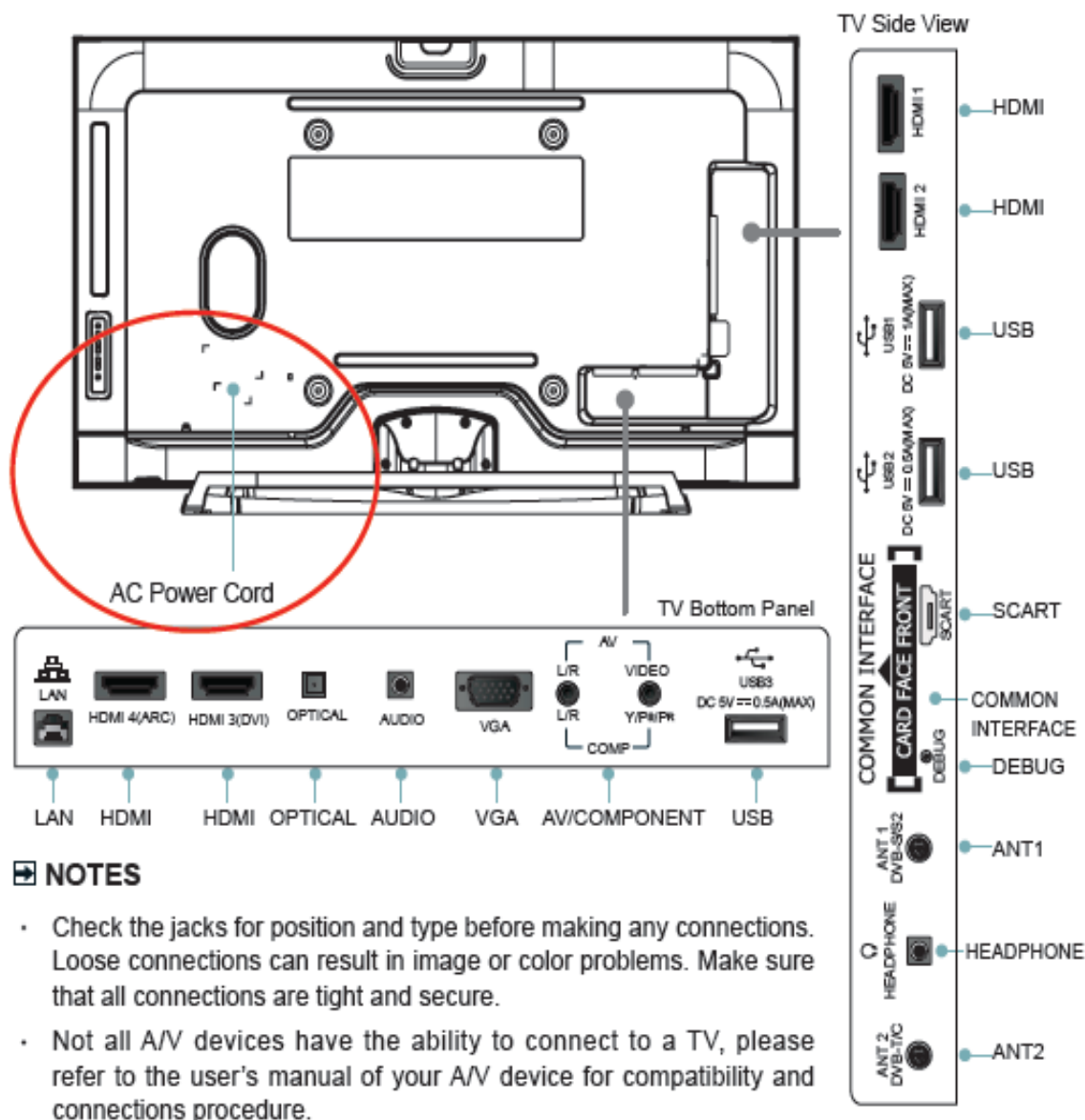


Item	Description
Power Switch I/O	Switch the I/O power ON or OFF.
Power indicator	Lights up in standby mode.
Remote sensor	Receives remote signals from the remote control. Caution: Do not put anything near the sensor, as its function may be affected.
MENU	Display an on-screen menu to setup your TV's features.
SOURCE	Select among the different input signal sources.
VOL \wedge / \vee	Adjust the volume.
CH \wedge / \vee	Switch between channels.
Power button ⏻	Turn on the TV from the standby mode or switch the TV back to standby mode. Caution: The TV consumes the power even in standby mode. Please turn the power off or unplug the power cord to save the power.

NOTES

- The Picture is Only for Reference.
- Powering on the TV requires several seconds to load program. Do not rapidly turn the TV off as it may cause the TV to work abnormally.

TV Rear



2.2 Spec.

☑ Features, appearance and specifications are subject to change without notice.

Model Name		LTDN50XT880XWSEU3D	LTDN58XT880XWSEU3D
Dimension	Without Stand	Width: 44.2 inches (1123 mm) Height: 25.4 inches (646 mm) Depth: 2.3 inches (58 mm)	Width: 51.2 inches (1300 mm) Height: 29.7 inches (754 mm) Depth: 2.3 inches (59 mm)
	With Stand	Width: 44.2 inches (1123 mm) Height: 26.6 inches (675 mm) Depth: 10.2 inches (259 mm)	Width: 51.2 inches (1300 mm) Height: 31.3 inches (795 mm) Depth: 13.6 inches (345 mm)
Weight	Without Stand	45.2 lbs (20.5 kg)	63.9lbs (29 kg)
	With Stand	52.9 lbs (24 kg)	79.4 lbs (36 kg)
LED Panel Minimum size (diagonal)		50 inches	58 inches
Screen resolution		3840× 2160	3840× 2160
Audio power		2×10W + 10W	2×12W + 12W

Model Name		LTDN65XT880XWSEU3D	
Dimension	Without Stand	Width: 57.5 inches (1460 mm) Height: 33.5 inches (852 mm) Depth: 2.6 inches (65 mm)	
	With Stand	Width: 57.5 inches (1460 mm) Height: 34.5 inches (876 mm) Depth: 13.6 inches (345 mm)	
Weight	Without Stand	81.6 lbs (37 kg)	
	With Stand	97 lbs (44 kg)	
LED Panel Minimum size (diagonal)		65inches	
Screen resolution		3840× 2160	
Audio power		2×12W + 12W	

Power consumption		Please refer to the rating label.
Power supply		100-240 V ~ 50/60Hz
Receiving systems	Analog	PAL-D/K, B/G, I SECAM-D/K, B/G, L/L'
	Digital	DVB-T, DVB-C, DVB-S/S2
Environmental conditions		Temperature: 41°F - 95°F (5°C - 35°C) Humidity: 20% - 80% RH Atmospheric pressure: 86 kPa - 106 kPa
Component Input		480 I / 60 Hz, 480 P / 60 Hz, 576 I / 50 Hz, 576 P / 50 Hz, 720 P / 50 Hz, 720 P / 60 Hz, 1080 I / 50 Hz, 1080 I / 60 Hz, 1080 P / 50 Hz, 1080 P / 60 Hz
VGA Input		VGA (640×480 / 60 Hz), SVGA (800×600 / 60 Hz), XGA (1024×768 / 60 Hz)
HDMI Input		RGB / 60 Hz (640×480, 800×600, 1024×768) YUV / 60 Hz (480 I, 480 P, 720 P, 1080 I, 1080 P) YUV / 50 Hz (576 I, 576 P, 720 P, 1080 I, 1080 P) 3840x2160/24Hz, 3840x2160/25Hz, 3840x2160/30Hz only for HDMI1/HDMI2

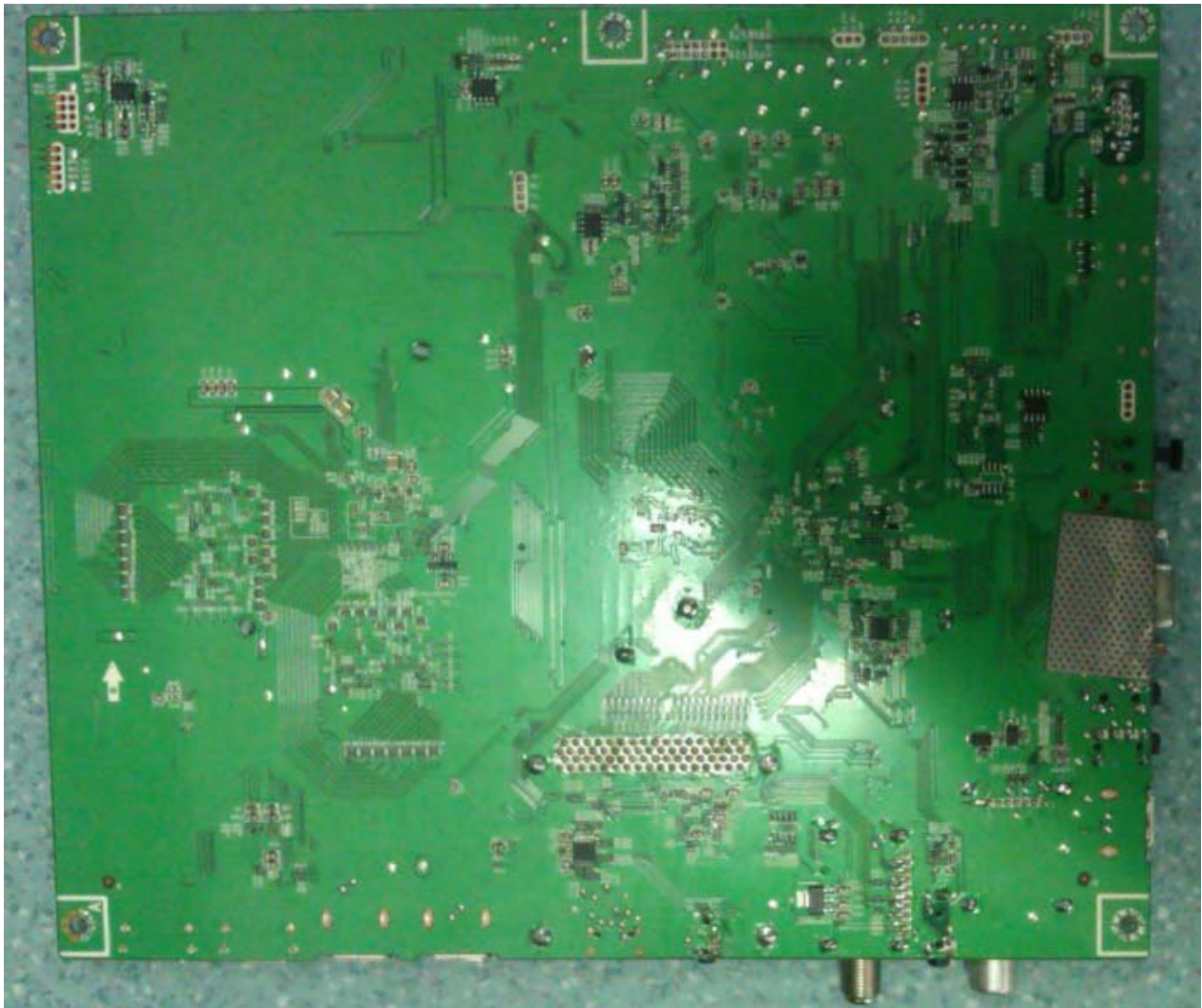
Model Name		LTDN84XT900RWSEU3D
Dimension	Without Stand	Width: 75.6 inches (1920.6 mm) Height: 44.2 inches (1123mm) Depth: 3 inches (75.6 mm)
	With Stand	Width: 75.6 inches (1920.6 mm) Height: 46.2 inches (1174.6 mm) Depth: 17.7 inches (450 mm)
Weight	Without Stand	167.5 lbs (76 kg)
	With Stand	213.8 lbs (97 kg)
LED Panel Minimum size (diagonal)		84 inches
Screen resolution		4K × 2K
Audio power		12W + 12W
Power consumption		Please refer to the rating label.
Power supply		100-240 V ~ 50/60Hz
Receiving systems	Analog	PAL-D/K, B/G, I SECAM-D/K, B/G, L/L'
	Digital	DVB-T, DVB-C, DVB-S/S2
Environmental conditions		Temperature: 41°F - 95°F (5°C - 35°C) Humidity: 20% - 80% RH Atmospheric pressure: 86 kPa - 106 kPa
Component Input		480 I / 60 Hz, 480 P / 60 Hz, 576 I / 50 Hz, 576 P / 50 Hz, 720 P / 50 Hz, 720 P / 60 Hz, 1080 I / 50 Hz, 1080 I / 60 Hz, 1080 P / 50 Hz, 1080 P / 60 Hz
VGA Input		VGA (640×480 / 60 Hz), SVGA (800×600 / 60 Hz), XGA (1024×768 / 60 Hz)
HDMI Input		RGB / 60 Hz (640×480, 800×600, 1024×768) YUV / 60 Hz (480 I, 480 P, 720 P, 1080 I, 1080 P) YUV / 50 Hz (576 I, 576 P, 720 P, 1080 I, 1080 P)

2.3 Main board: 5515

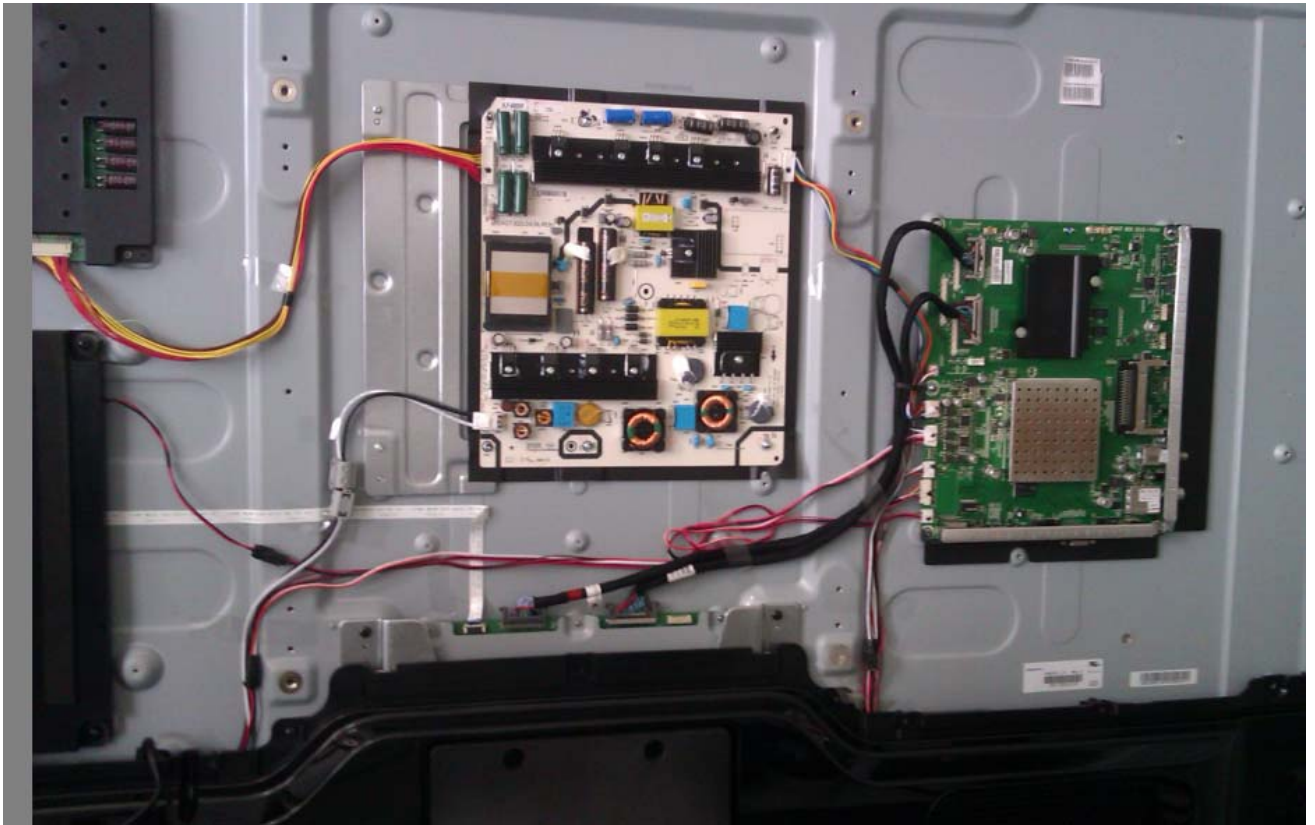
The top:



The bottom:



Wiring diagram (take LTDN58XT880XWSEU3D for example)



3. Factory/Service OSD Menu and Adjustment

3.1 To enter the Factory OSD Menu

- a. With factory RC (remote control)
 1. Press “M” button and enter factory mode.
 2. Press “Menu” button and enter factory OSD menu.
 3. Press “CH+”/“CH-” button select the function menu, press “VOL+”/“VOL-” enter the selected function menu. Press “VOL+”/“VOL-” button adjust values in the menu.
- b. With user’s RC
 1. Power TV On
 2. Press Menu button and call up User OSD Menu
 3. Select Audio-> Balance, when Balance is “0”
 4. Enter 1->9->6->9 in sequence.
Note: If necessary, re-enter number keys.
 5. Factory OSD appears.
 6. Press Menu again and leave factory OSD.

3.2 Factory OSD Menu

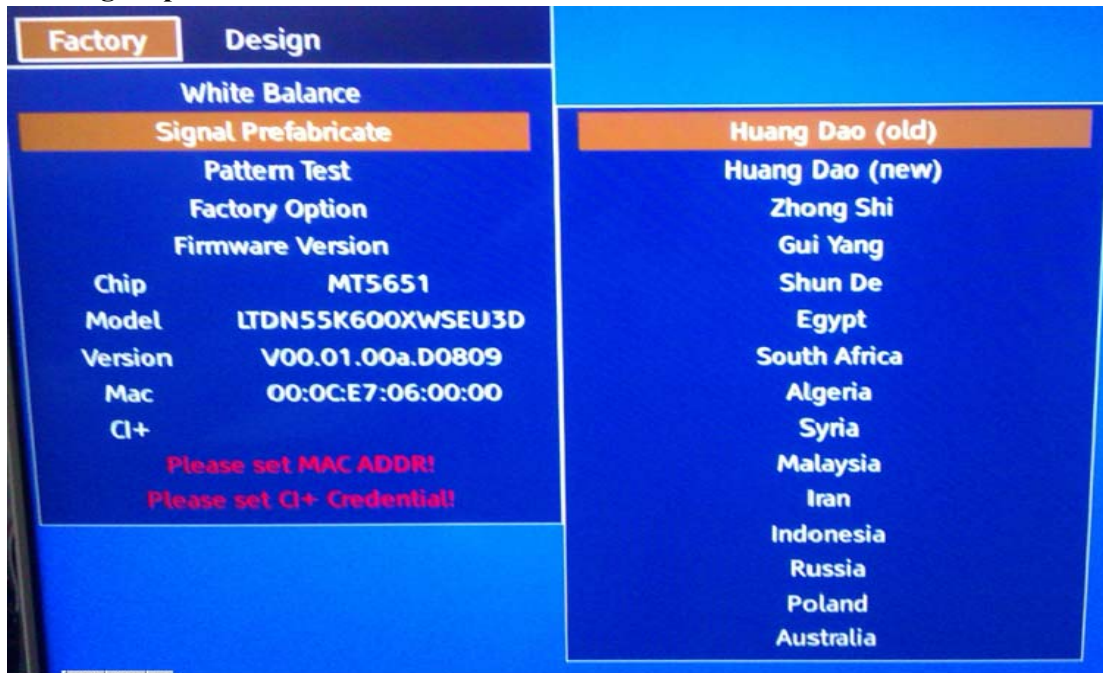
(Take LTDN55K600XWSEU3D for example)

3.2.1 White Balance

Note: Different source has different WB values. Before adjusting, please change to desired source.

Factory	Design		
White Balance		Panel type	B2
Signal Prefabricate		R Gain	129
Pattern Test		G Gain	128
Factory Option		B Gain	126
Firmware Version		R Offset	128
Chip	MT5651	G Offset	128
Model	LTDN55K600XWSEU3D	B Offset	127
Version	V00.01.00a.D0809		
Mac	00:0C:E7:06:00:00		
CI+			
Please set MAC ADDR!			
Please set CI+ Credential!			

3.2.1 Signal prefabricate



3.2.3 Factory Option



	Item	Default	Options	Notes
1	MODE	M	M, U	M-Can enter factory mode with factory RC or user RC. U-Can enter factory mode only with user' s RC.

Note: MODE “M” is only used for factory production.

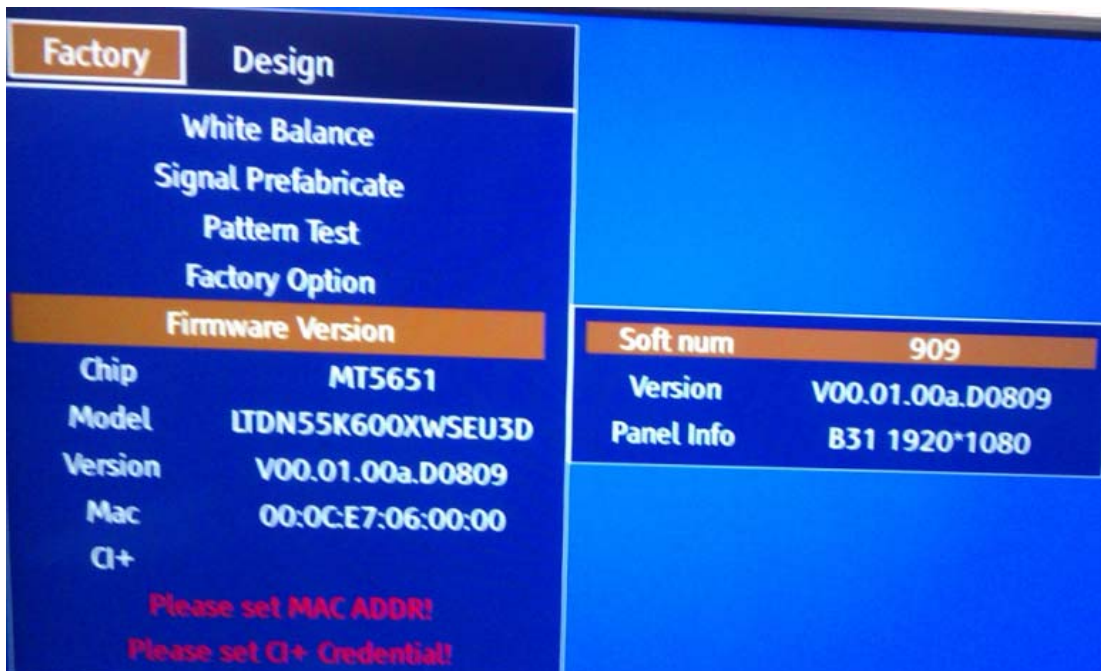
Clear the EEPROM

Item	Meaning	Note
Clean Protected	Clear partly	Clean data except WB data and Auto Color data
Clean All	Clear completely	Clean all data

Update CI+Credential

Query CI+Credential

3.2.4 Firmware



Note: The factory menu data varies according to different sources. In case changing the factory data by error, you can choose to “Clean Protected”, by which you can resume the default value. To clear the EEPROM:

-
- a. Select the item **“Clean Protected”** .
 - b. Press VOL+ button to clear the EEPROM data.
 - c. Close the OSD menu after 5 seconds.
 - d. Restart the TV.

3.3 Designer Menu



Note:

Above **“Factory/Service OSD Menu ”** is reference for chassis MT K5651 , please refer to the actual units to determine the appearances.

4. Software Upgrading

Before upgrading, read the following.

First: Upgrade the software.

Second: To clear the EEPROM .

- A Select the item **“Clear Unprotected”**.
- B Press VOL+ button to clear the EEPROM data.
- C Close the OSD menu after 5 seconds.
- D Restart the TV.

Last: After the operation above all, necessarily, Re-search the channels for the users

4.1 USB Software Upgrading directly

The software can be upgraded by USB Disk.

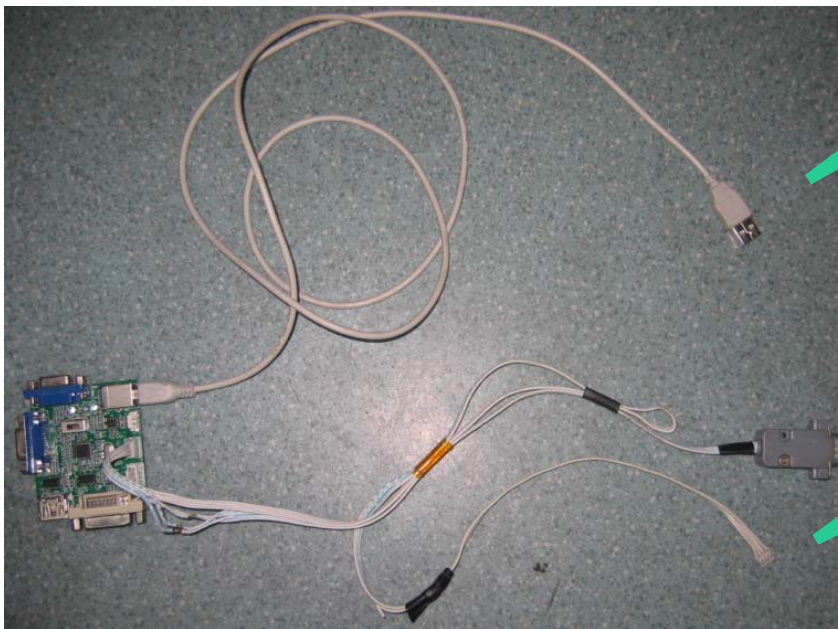
- First, copy the upgrade_loader.pkg file to USB Disk;.
- Second, make sure there is no other .pkg file in the root directory of USB Disk .
- Insert USB Disk to USB port, and then turn on the TV.
- The TV will identify the software and upgrade automatically.

4.2 USB upgrading unsuccessfully

If USB upgrading unsuccessfully, then need burning the Nand Flash program file“ *.bin ”to the Nand Flash.

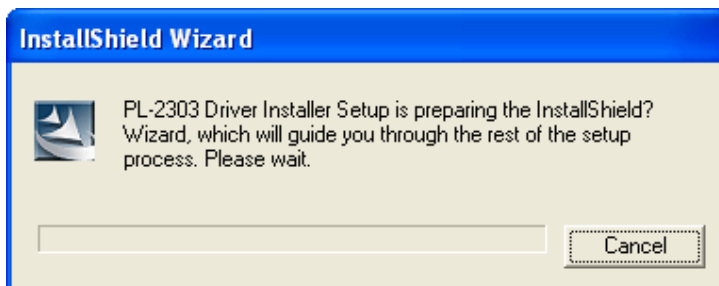
Hardware connecting

Connect the unit to your pc with a USB-to-serial port cable. USB port connects to your PC and serial port to the TV's RS232 port. As following

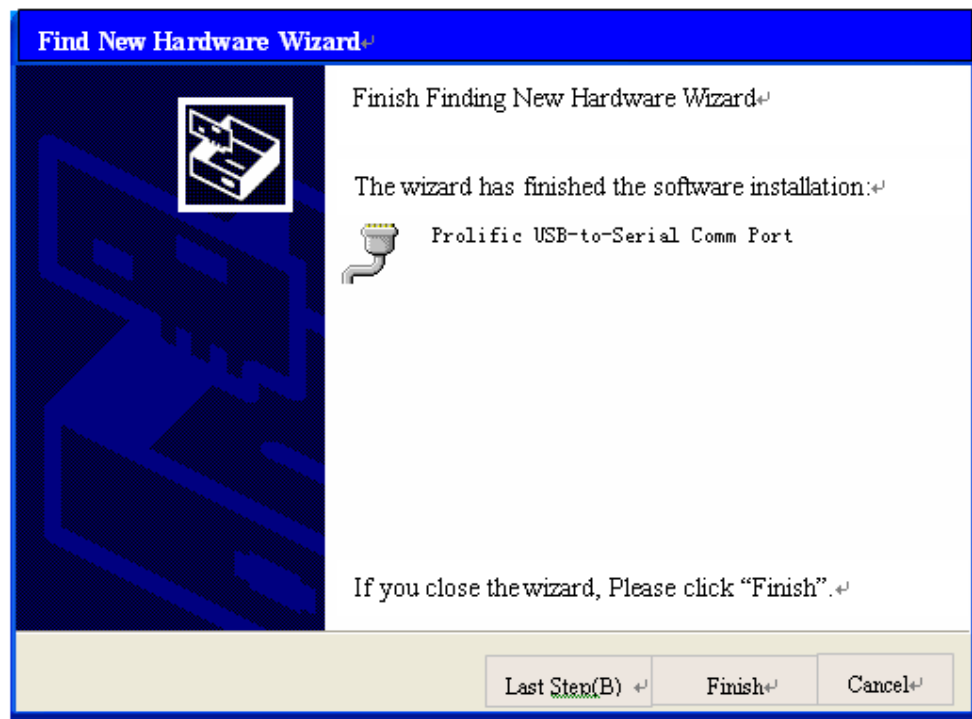
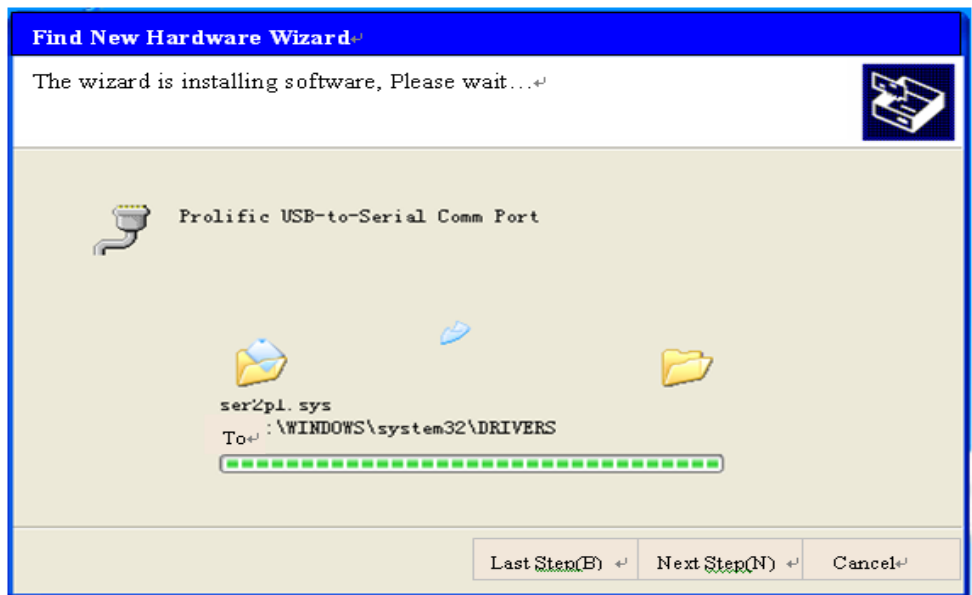


4.2.1 Install the driver

Double click the icon  , install the driver.

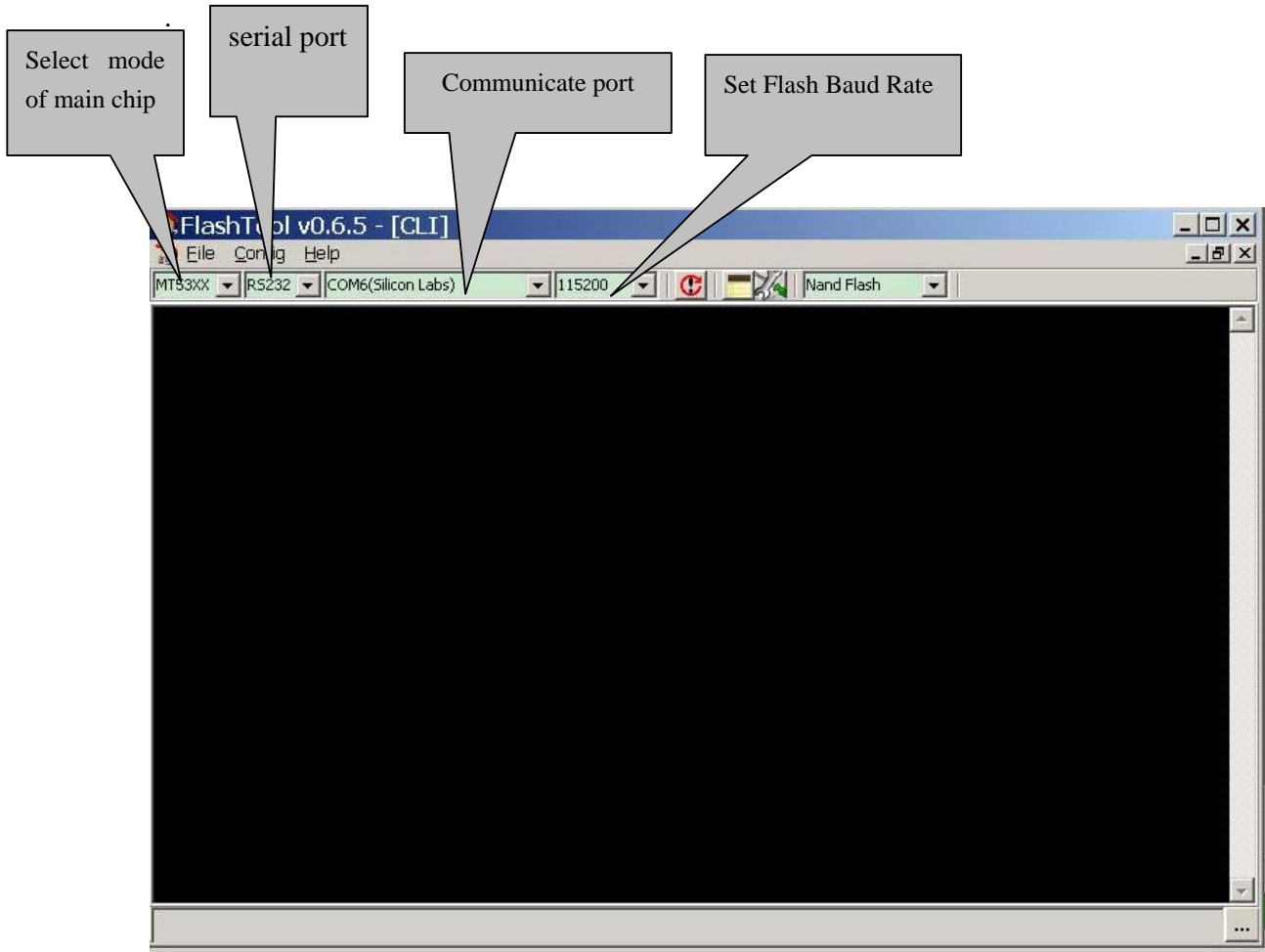


Select the default value, the driver will be installed step by step.

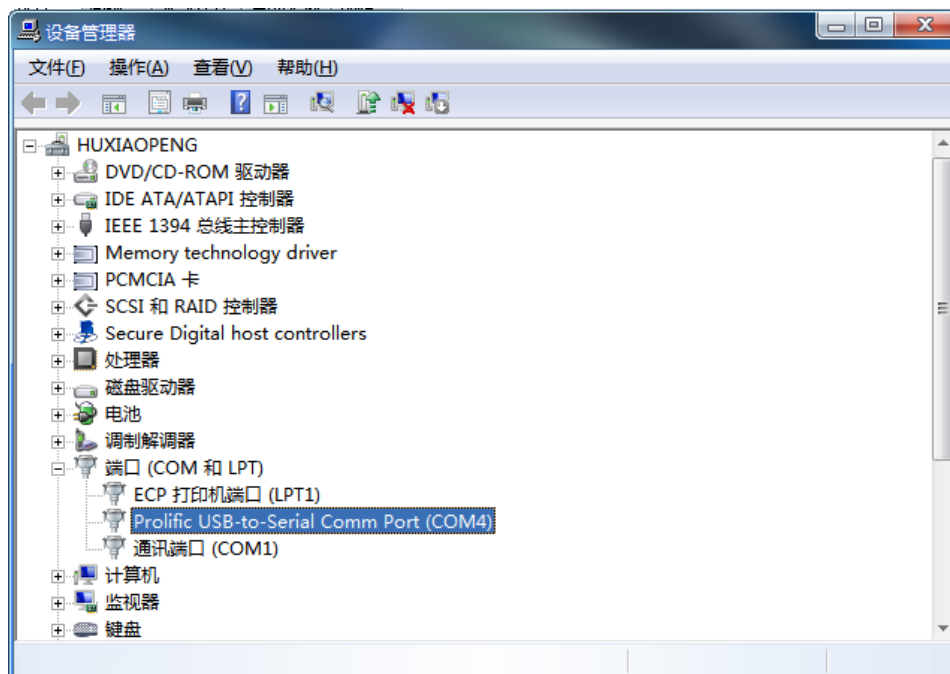


4.3 Upgrading with the FlashTool0.6.0.exe




1、FlashTool is a green program needing no installation. After Connect the unit to your pc with a USB-to-serial port cable, run FlashTool0.6.0.exe. Please refer to the following steps to set.

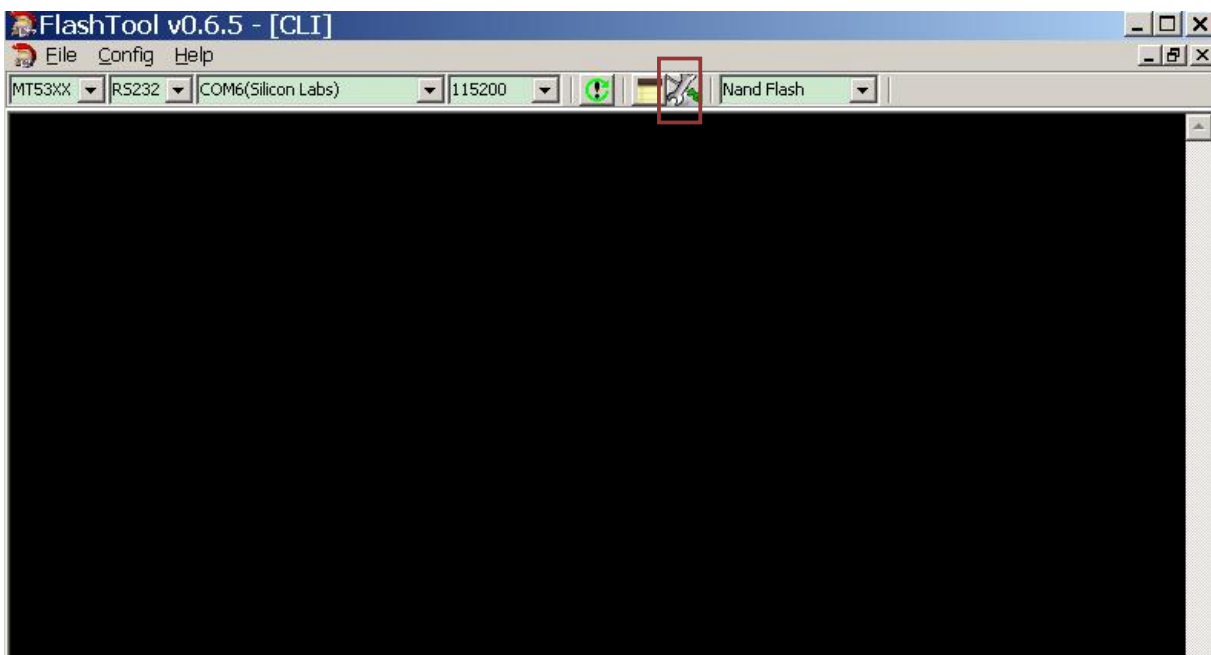



How to choose Communicate port and flash baud rate? See the following instruction..

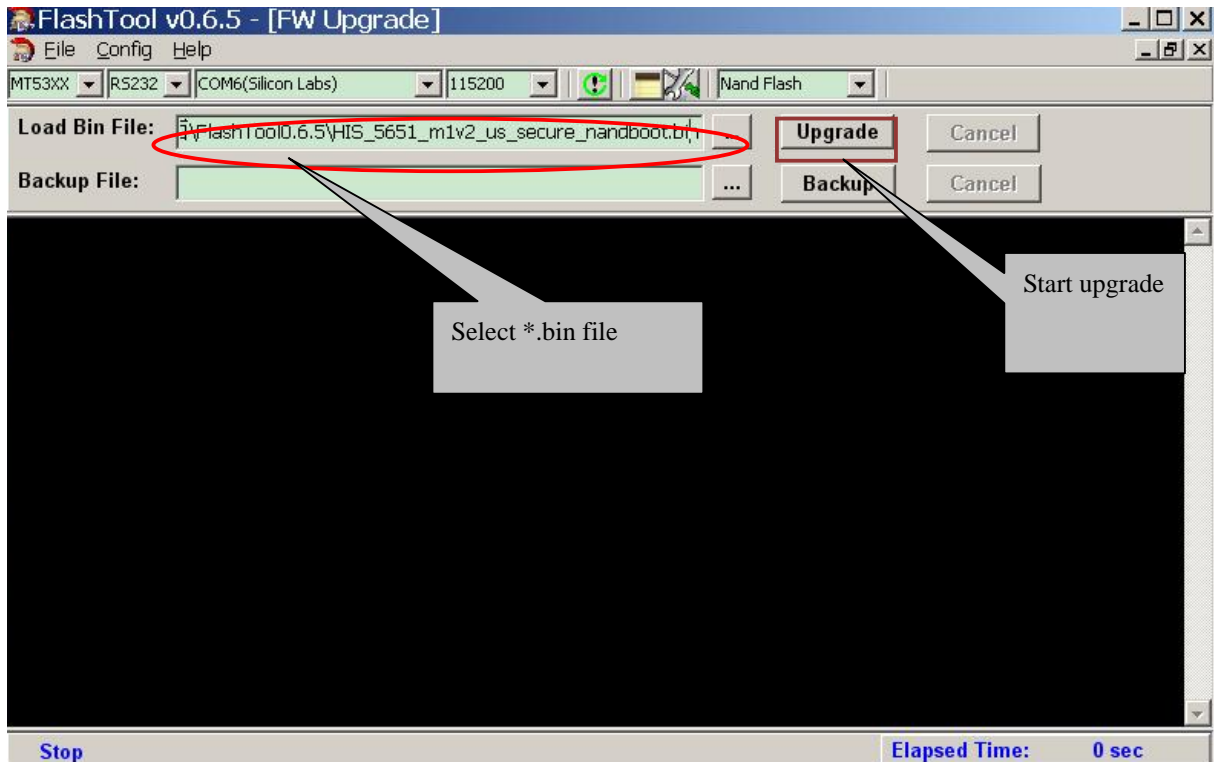


Open “Device Manager” and find which port is connected with the TV. In above picture, COM4 is connected to the TV, so, select “COM4” and if COM6 is connected to the TV, so select “COM6”. Select the right baud rate according to chip model. For this unit(chip model is MT5651), select 115200.

2、 Click  to connect, if connect successfully then button  from red turn green .



Click , bounce the following dialog box. Load Bin File: find the upgrading program file, and select it. for example: HIS_5651_m1v2_oceania_secure_nandboot.bin. Press “Upgrade” button and start upgrading., if update defeat, try again.



4.4 Network updating

Network updating includes two ways. one is “Auto Upgrade ”the other is “Internet”. Whether Auto Upgrade is ON or Off, Network Upgrade is validated

Auto Upgrade---- When it is set to “on” , Turn on automatic check whether or not have any new updating file in servers when connects to the network. Customer can download and update according to the guide.

Internet ---- Check the process and it will prompt you to upgrade the software.

1、Internet

Power on---“Menu” on RC

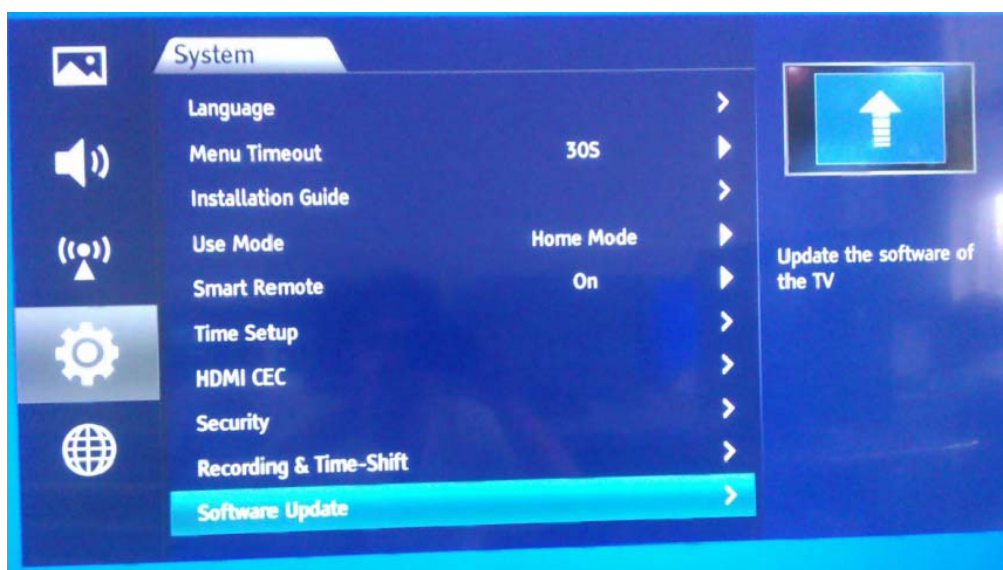


Figure-1

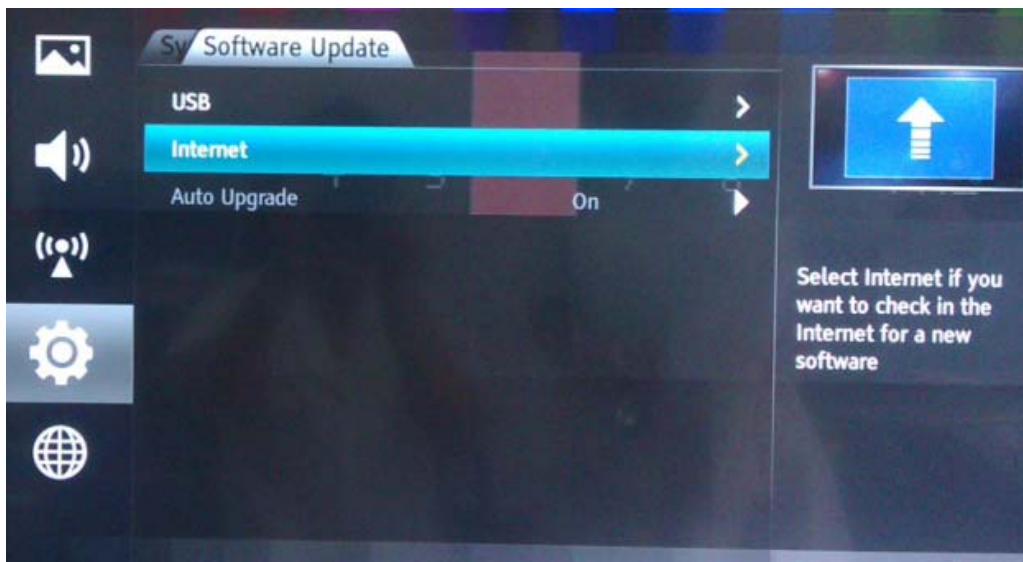


Figure-2

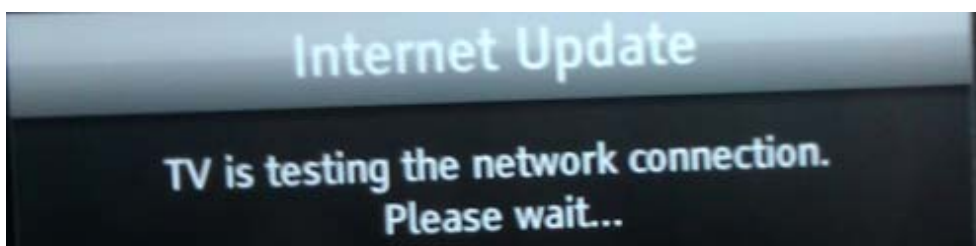


Figure-3

Check new version, then bounce the following .

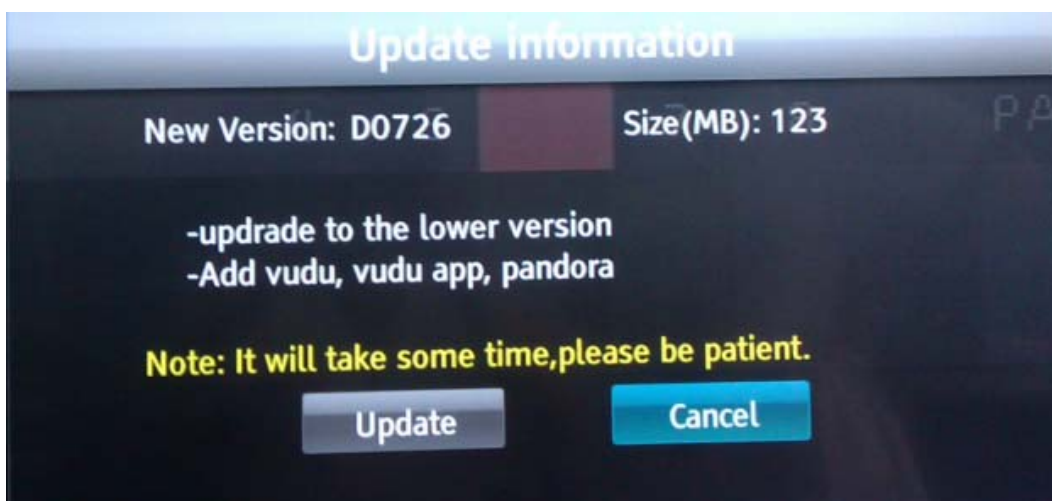


Figure-4

Select update to downloading.....

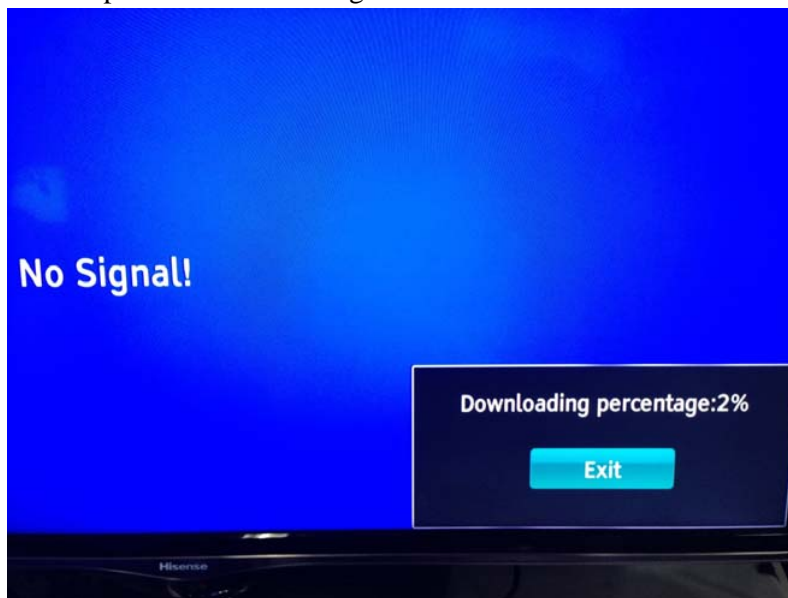


Figure-5

After verify, bounce dialog to select “yes” to sure to update the firmware. Waiting.....



Figure-6



Bounding following interface that indicates firmware update is sussessful.

Figure-7

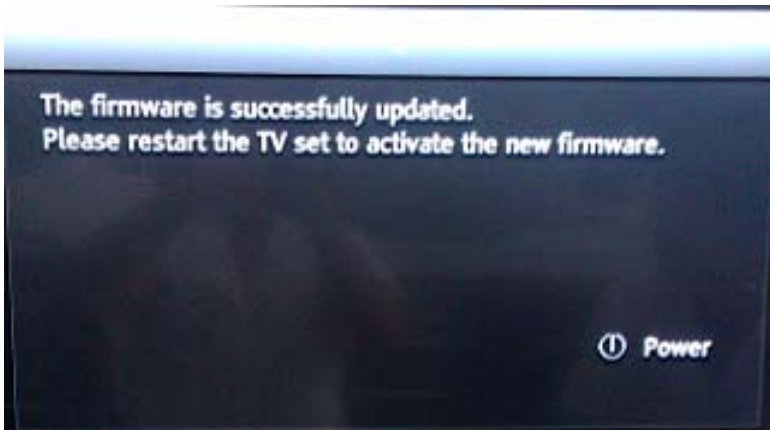


Figure-8

Upgrade successfully. power off and restart TV can bounce following prompt message. otherwise upgrade is defeat.

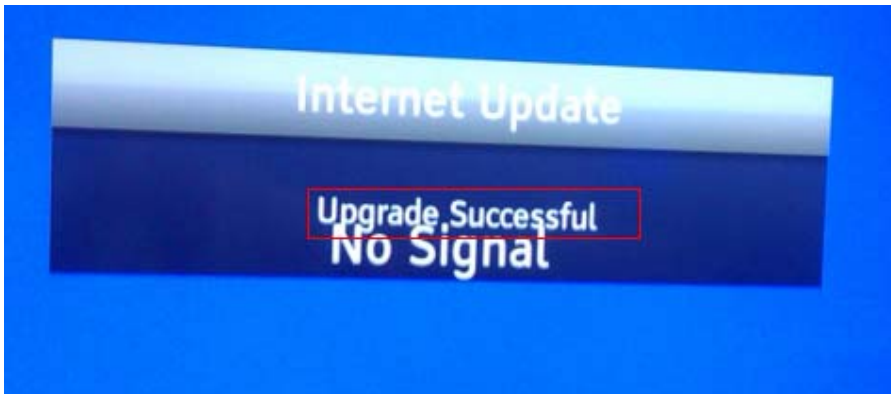
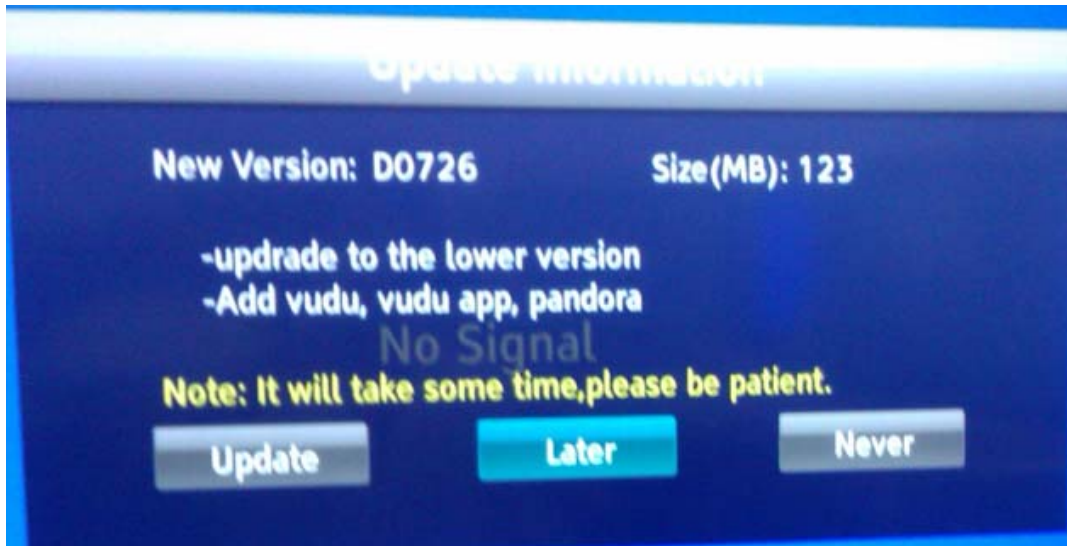


Figure-9

2、 Auto upgrade

Auto upgrade and Network have little difference only in figure-4. As following

Auto Upgrade:



Network upgrade:

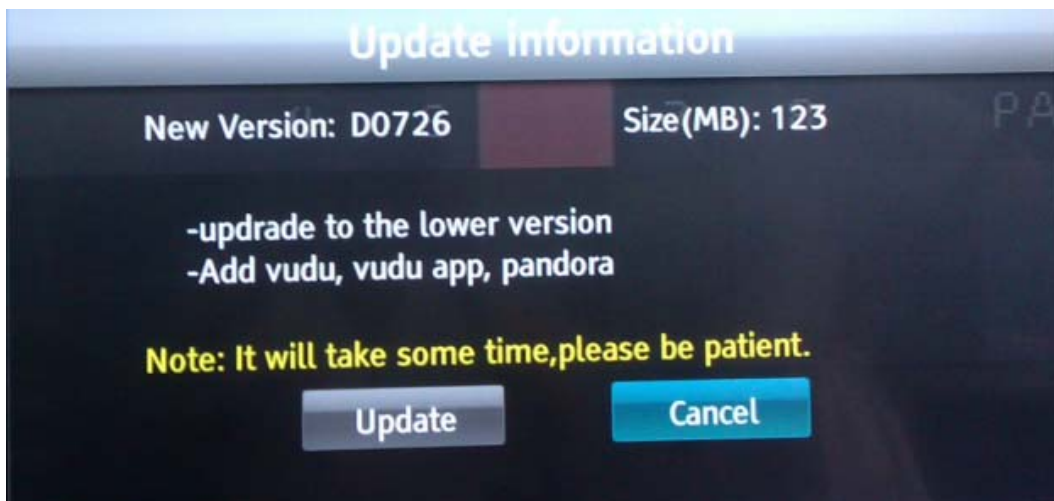


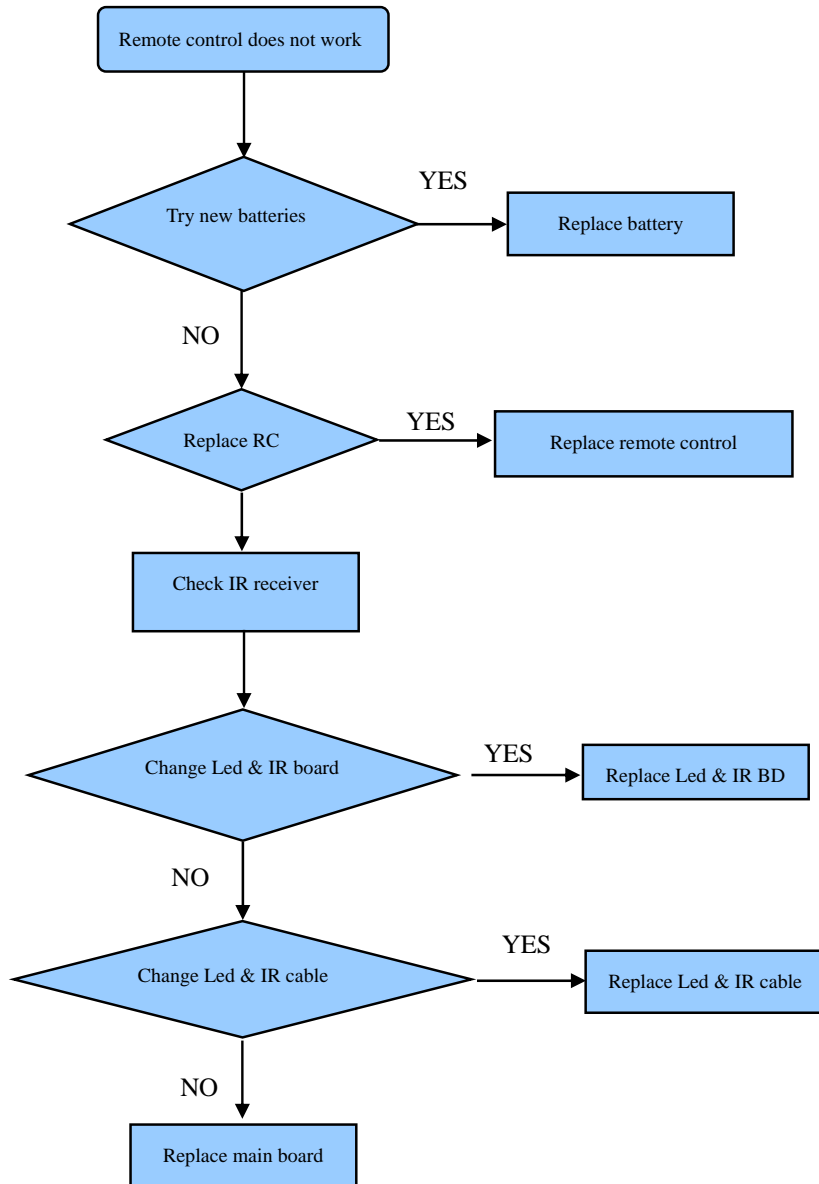
figure-2

5. Trouble shooting

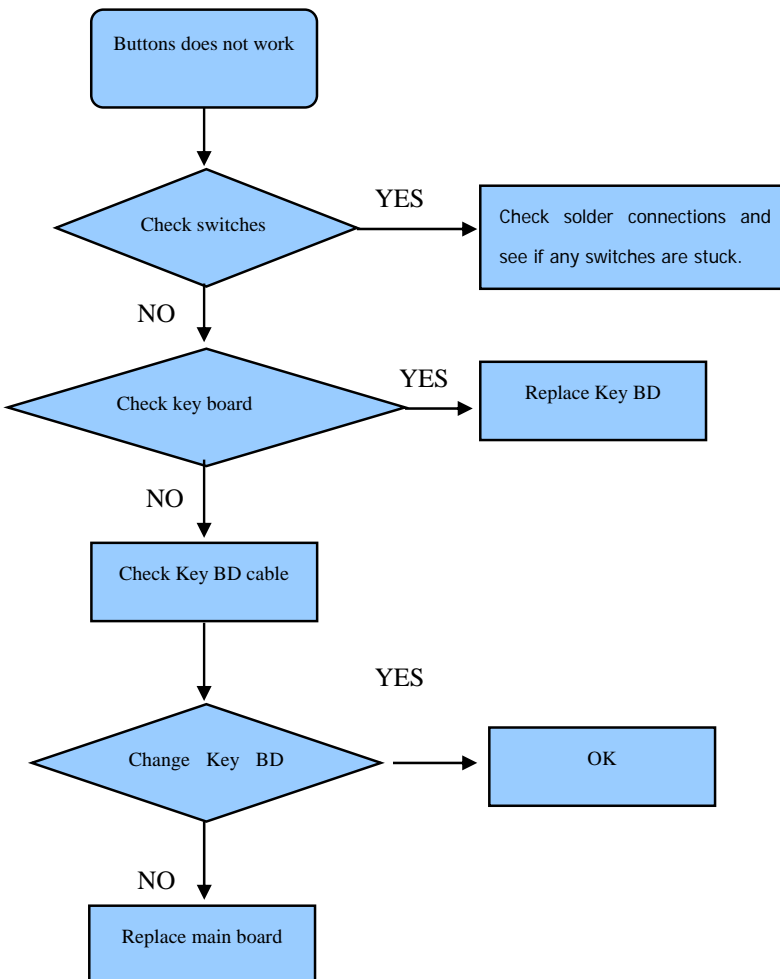
When there is something wrong with your TV, you can try turning off the TV and then restart it. You can also operate according to the follow chart. If the problems still can't be solved, please contact the profession technician.

No sound or picture	<ol style="list-style-type: none">1. Check if the power line is in the outlet and if it has electricity.2. Check if you have pressed Power button on the TV or Power button on the remote control3. Check the setting of picture brightness and contrast.4. Check the volume.
The picture is normal but there is no sound	<ol style="list-style-type: none">1. Check the volume.2. Check if Mute mode is set.
No picture and white or black picture	<ol style="list-style-type: none">1. Adjust Picture Setting.2. Check Color System.
The sound and picture are interfered	<ol style="list-style-type: none">1. Try to find the appliance affecting TV set, and move it far away from the TV set.2. Try to insert the power plug of the TV set into another outlet.
Unclear picture or picture with snow	<ol style="list-style-type: none">1. Check the direction, position and connection of your antenna.2. Adjust the direction of your antenna or reset or fine tune the channel
The remote control does not work	<ol style="list-style-type: none">1. Change the batteries in the remote control.2. Clean the upper side of the remote control (radiating window)3. Check the contacting points of the batteries.4. Check if there is obstruction between the remote control and the monitor.5. Check if the batteries are correctly installed.
H/V strip or the picture shaking	Check if there is an interfering source nearby, such as appliance or electric tools.
The cabinet of the TV makes "Click" sound	makes "Click" sound"Sometimes the room temperature change can cause the television cabinet to inflate or contra, which makes this sound. This does not mean the TV breaks down.

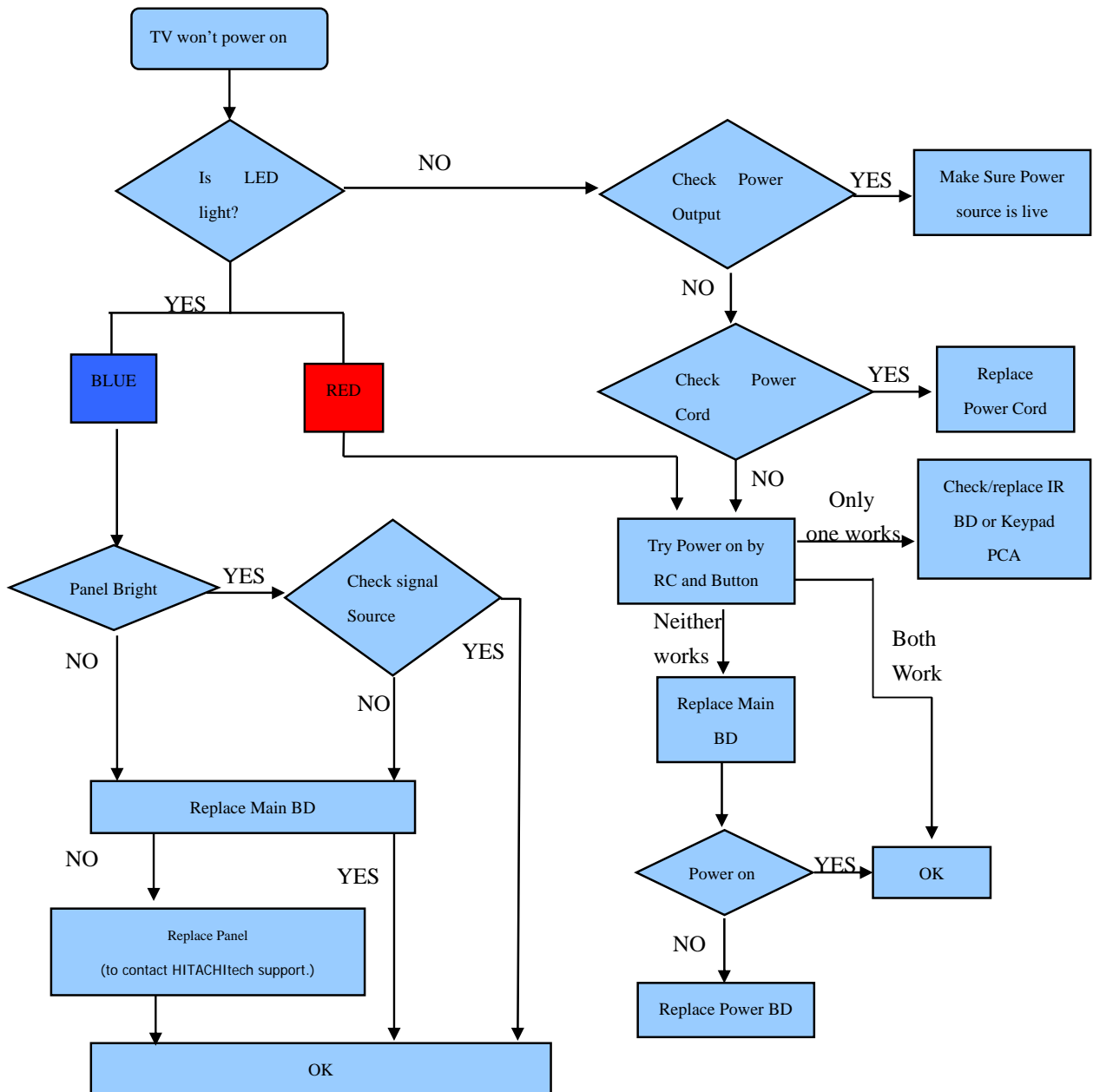
5.1 Troubleshooting for Remote Control



5.2 Troubleshooting for Function Key



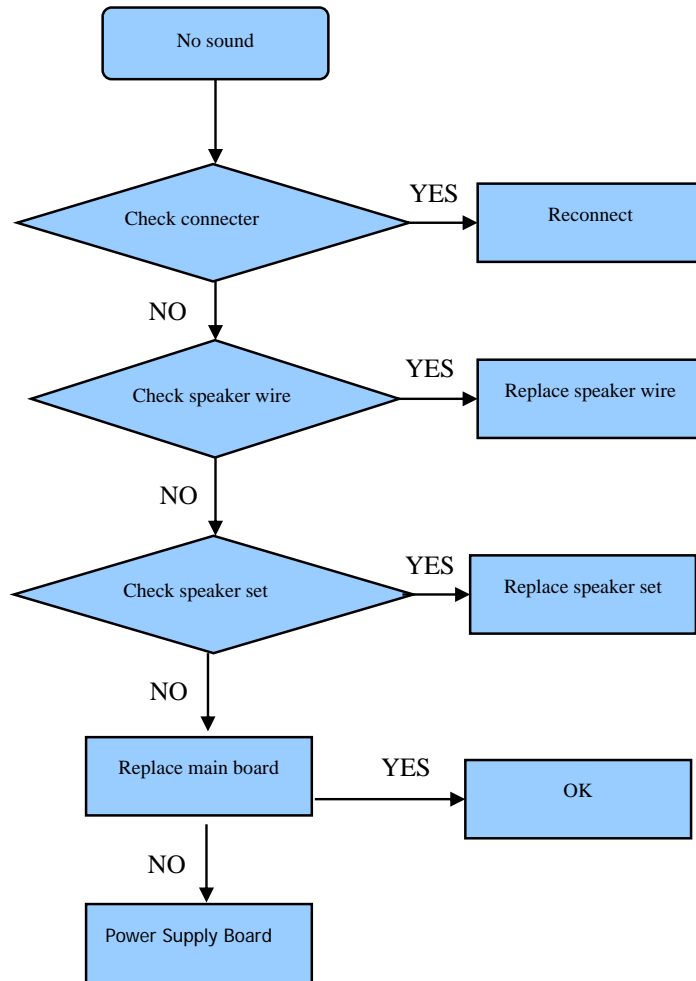
5.3 TV won't Power On



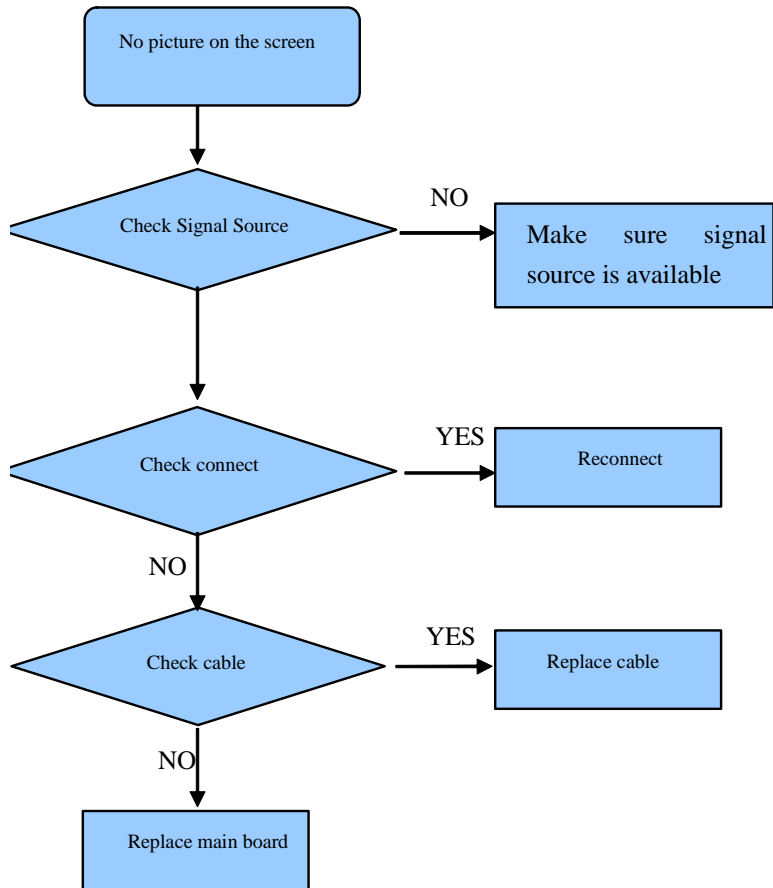
Note:

The indicated led color is only for standby is red , normal is blue.

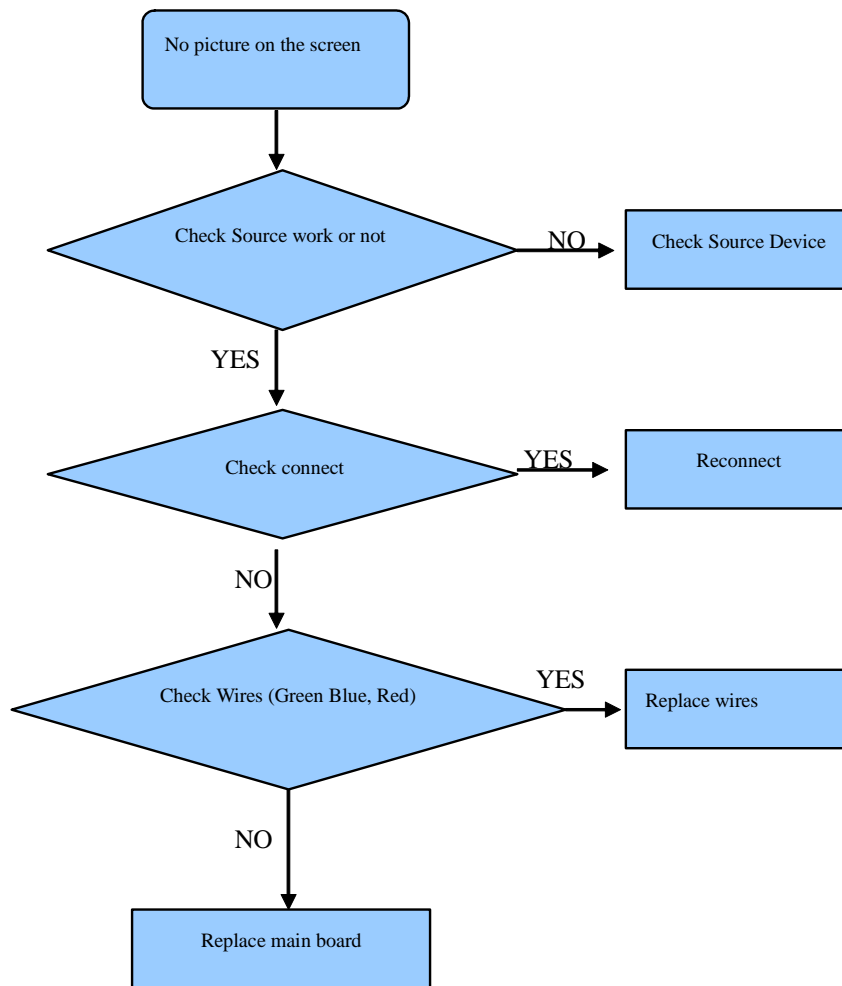
5.4 Troubleshooting for Audio



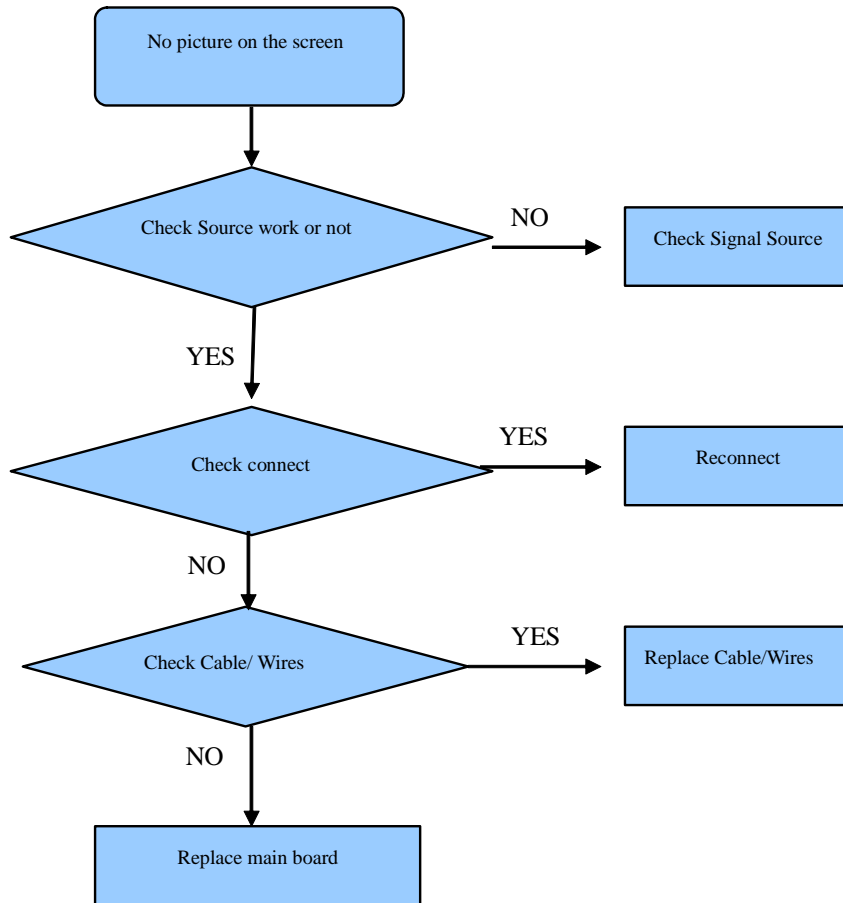
5.5 Troubleshooting for TV/VGA/HDMI input



5.6 Troubleshooting for YPbPr input



5.7 Troubleshooting for Video input



5.8 Troubleshooting for 3D

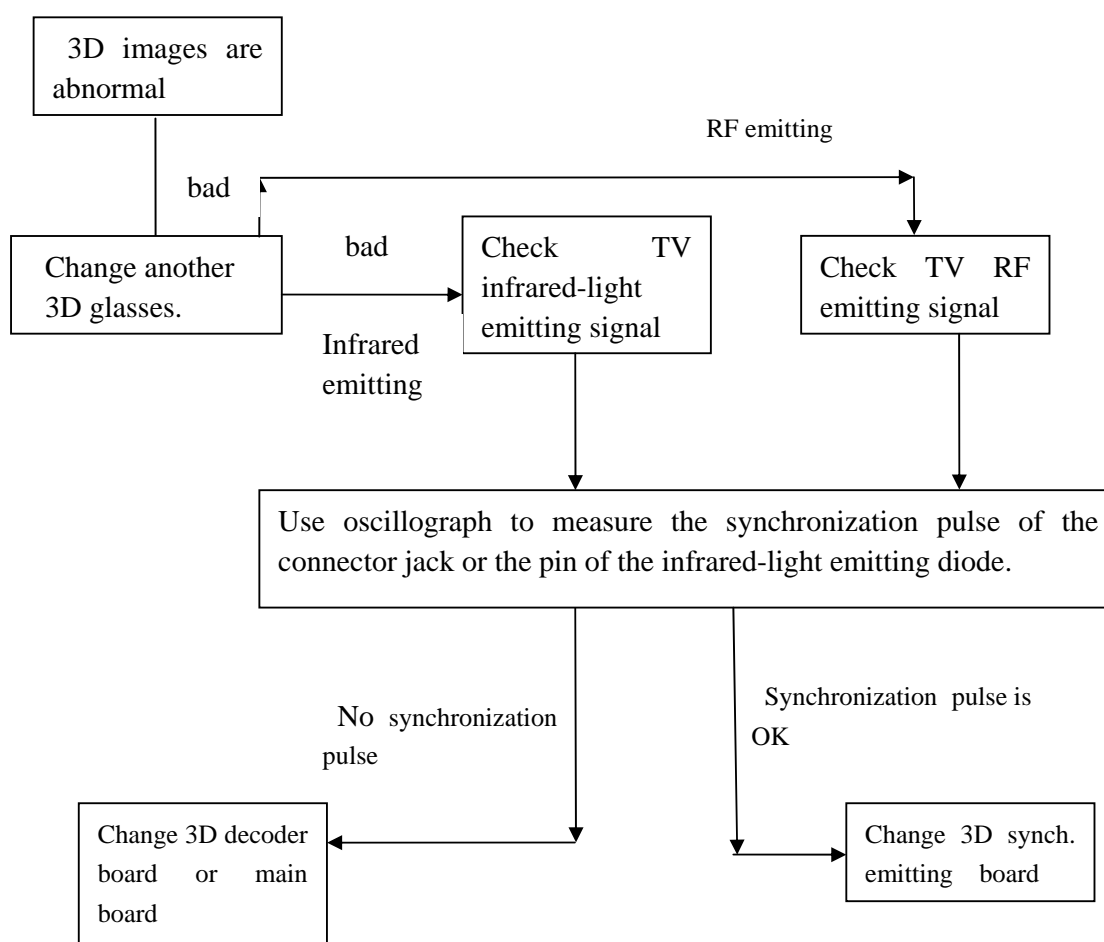
SG 3D

1、 Turn on 3D function and ensure TV on showing must support 3D format..

The Set can automatically identify common 3D format in HDMI1.4, other signals(DTV、 DMP)need manual adjust part items. Detailed operation can refer to the user's manual.

2、 Power on the 3D glasses and check battery electron through feeling shining sunlight or lamp.

3、 If don't see any 3D images, follow the instruction to conclude step by step.



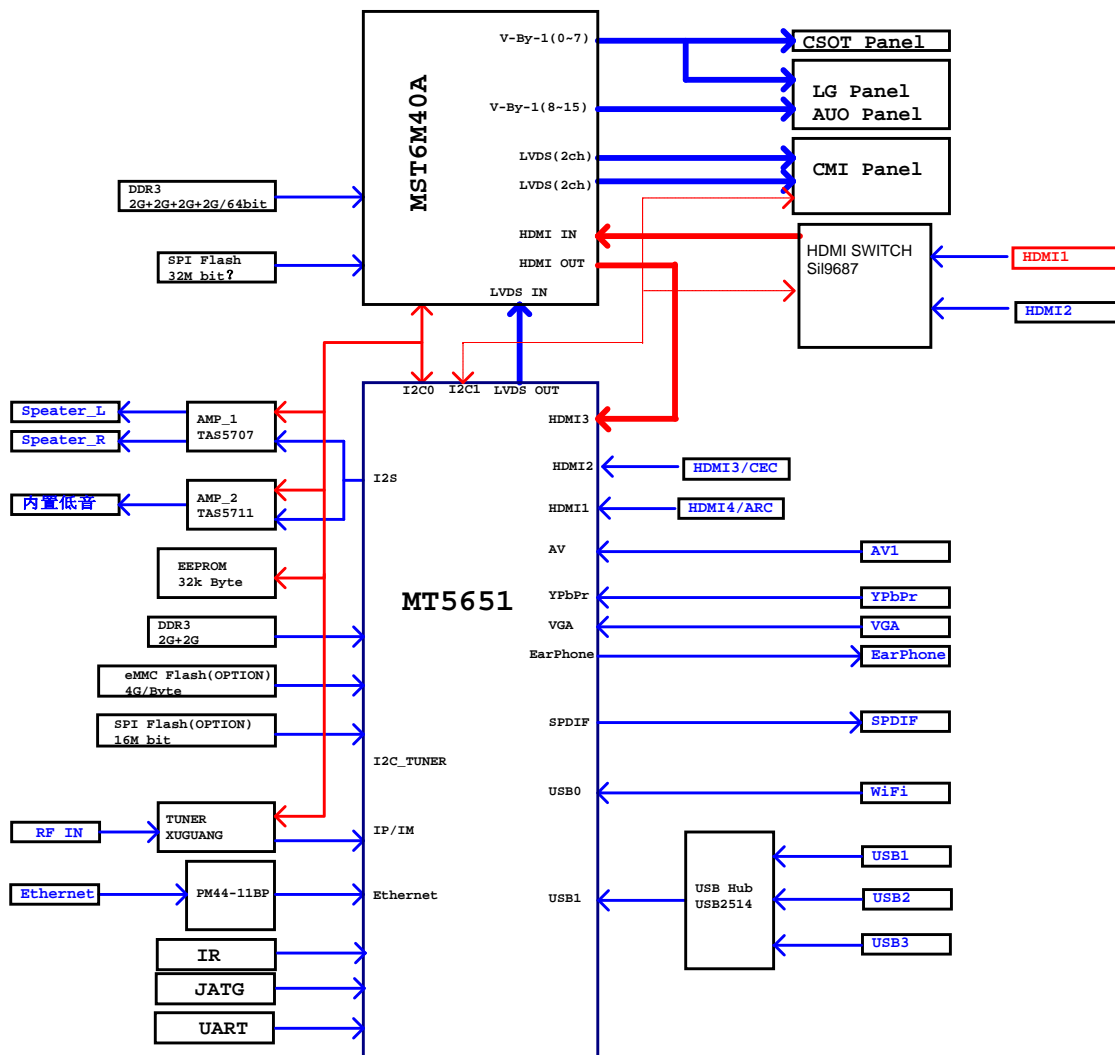
PR 3D

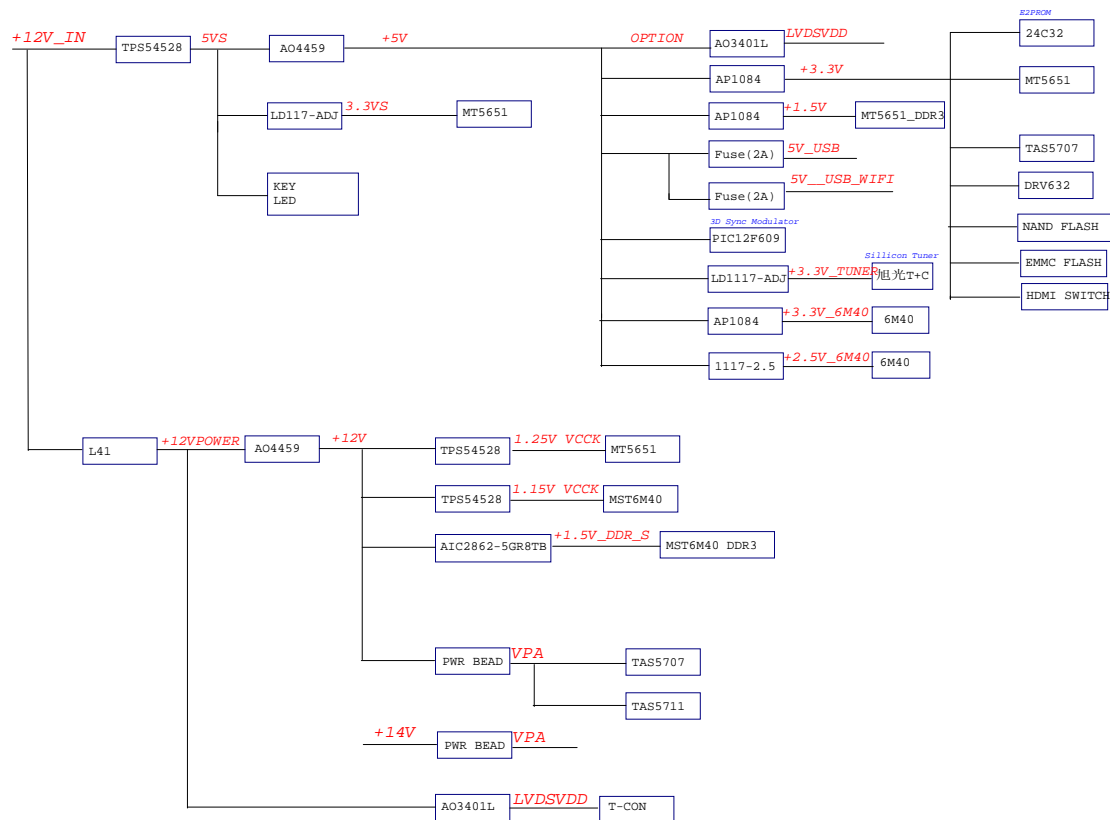
The panel has polarizer film and interface horizontal output. So it does not need synchronization signal with the PR 3D glasses, The 3D glasses is the common type without electricity.. If 3D function fails, First check the validity of TV 3D function setting (detailed operation refer to the user's manual).moreover, check the 3D glasses and panel. In addition, check the main board.

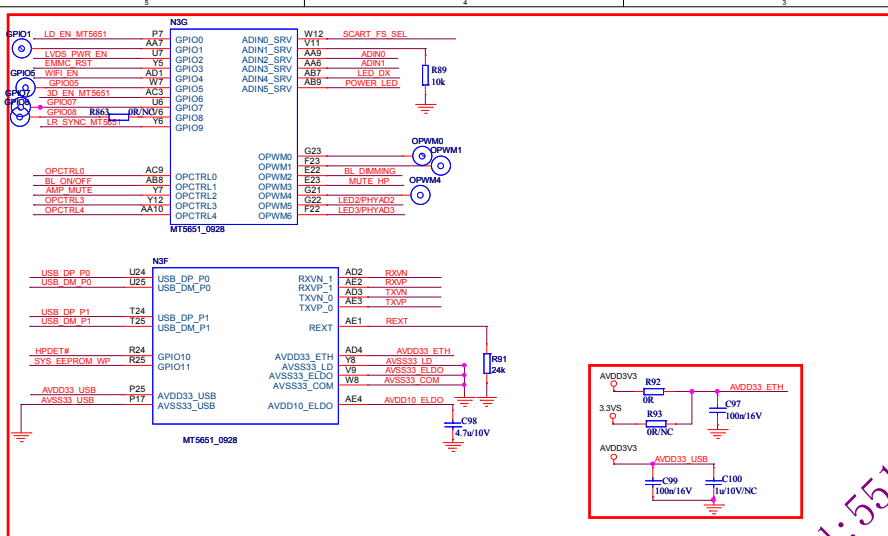
6 Signals Block Diagram and power assign

7. Schematic circuit diagram

8. Explode View

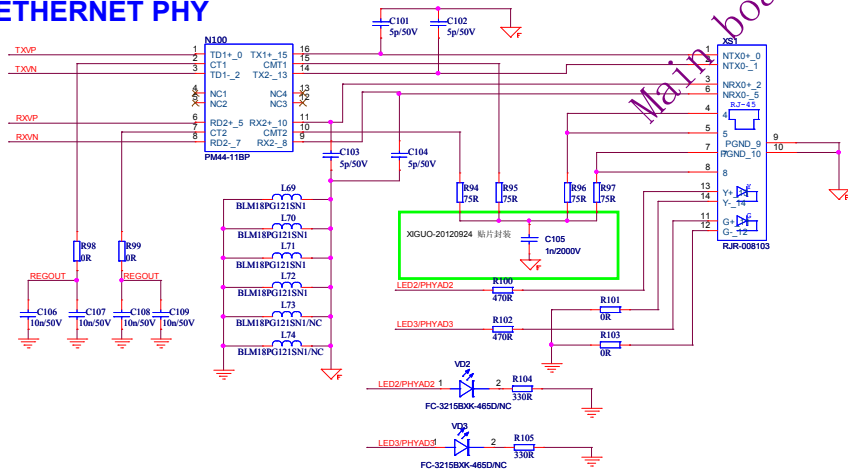




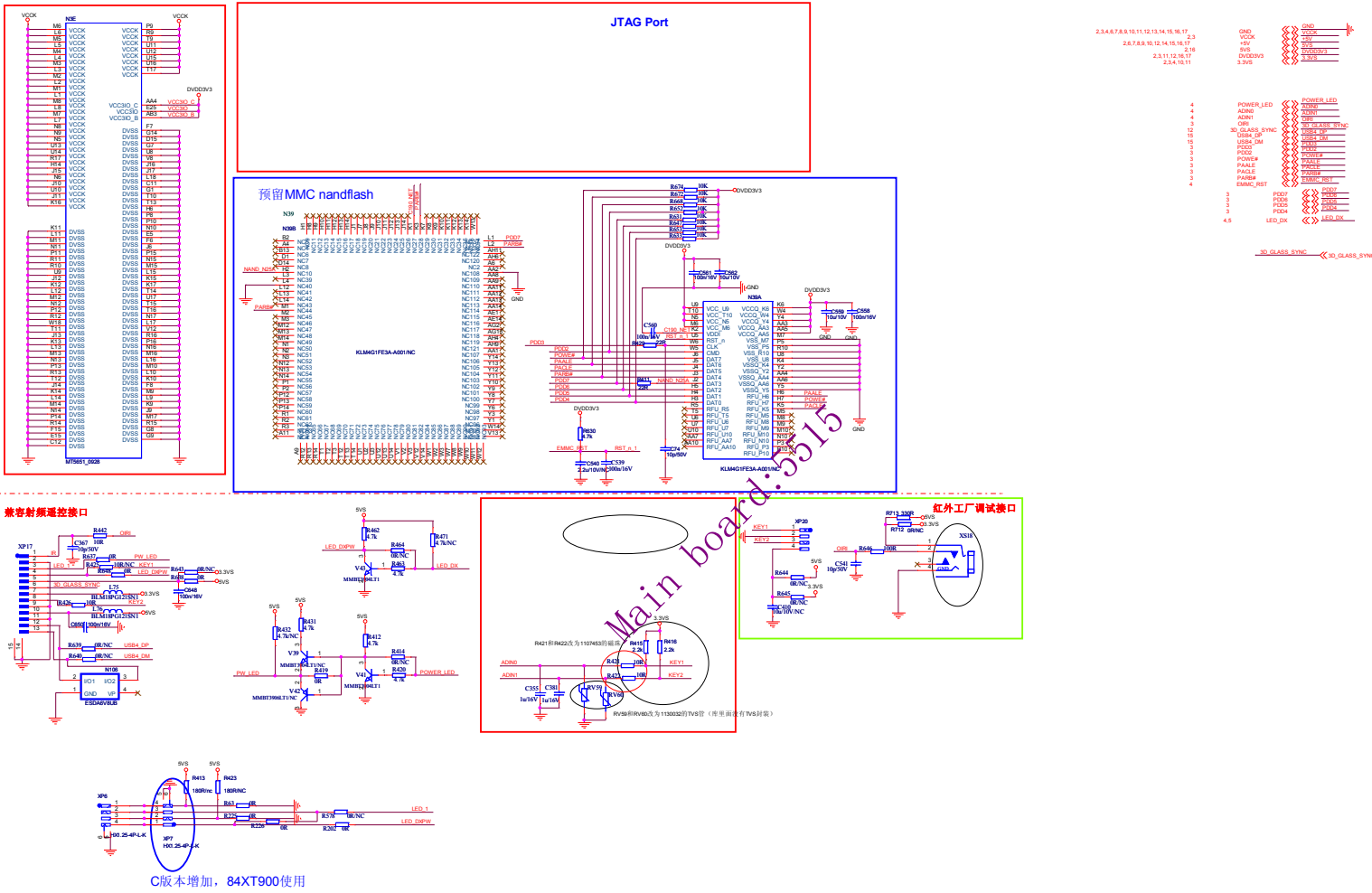


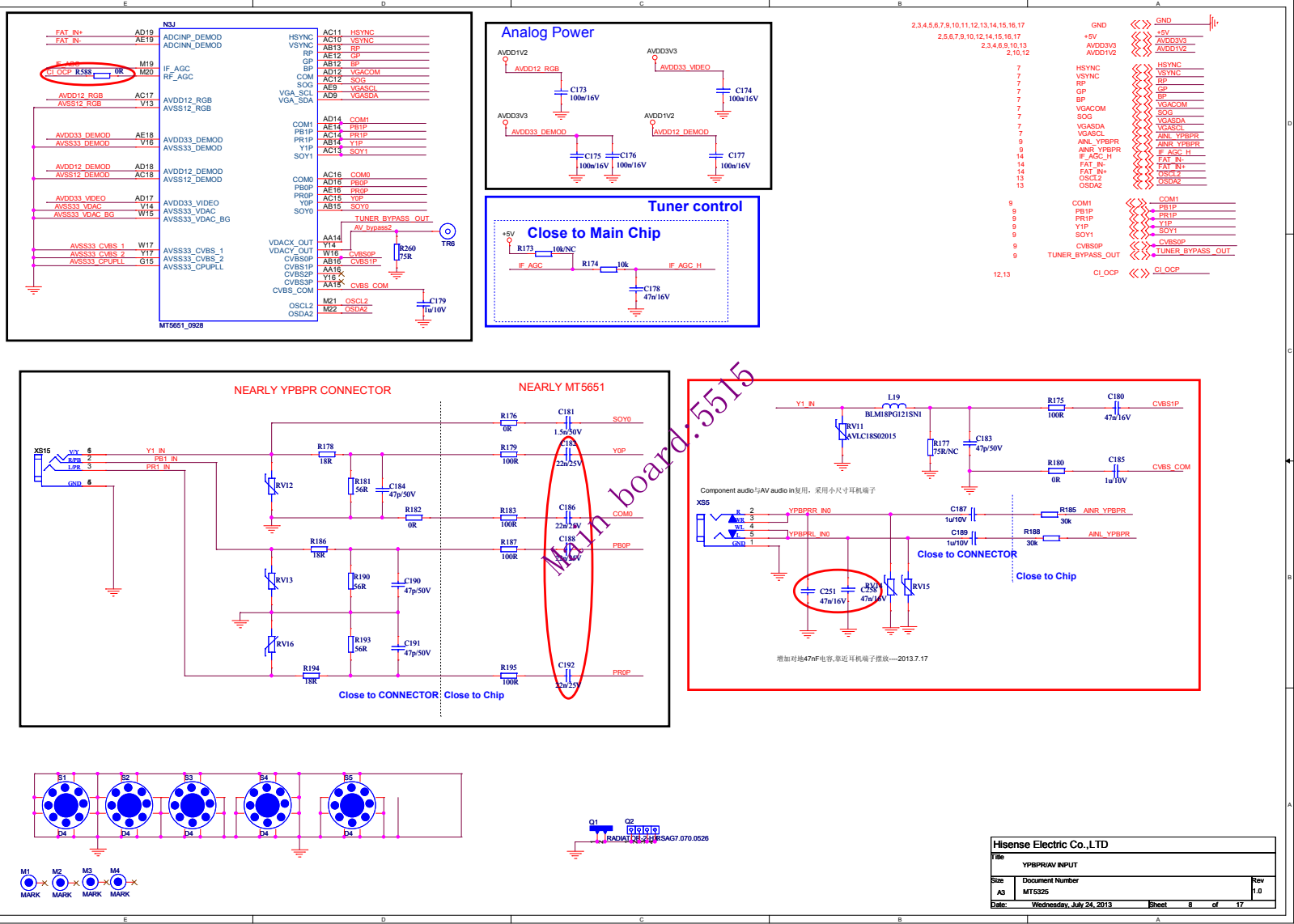
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2,3,5,10,11	3.3VS	<<>	3.3VS
3	OPCTRL3	<<>	OPCTRL3
3,16	OPCTRL4	<<>	OPCTRL4
3	OPCTRL0	<<>	OPCTRL0
3	SYS_EEPROM_WP	<<>	SYS_EEPROM_WP
17	HPDET#	<<>	HPDET#
17	MUTE_HP	<<>	MUTE_HP
12	LVDS_PWR_EN	<<>	LVDS_PWR_EN
13	LD_EN MT5651	<<>	LD_EN MT5651
15	WIFI_EN	<<>	WIFI_EN
5	POWER_LED	<<>	POWER_LED
5	ADIN0	<<>	ADIN0
5	ADIN1	<<>	ADIN1
15	USB_DP_P0	<<>	USB_DP_P0
15	USB_DM_P0	<<>	USB_DM_P0
15	USB_DP_P1	<<>	USB_DP_P1
15	USB_DM_P1	<<>	USB_DM_P1
5	EMMC_RST	<<>	EMMC_RST
2	BL_DIMMING	<<>	BL_DIMMING
2	BL_ON/OFF	<<>	BL_ON/OFF
12	LR_SYNC MT5651	<<>	LR_SYNC MT5651
12	3D_EN MT5651	<<>	3D_EN MT5651
12,13	GPIO07	<<>	GPIO07
12,13	GPIO08	<<>	GPIO08
16	AMP_MUTE	<<>	AMP_MUTE
13	GPIO05	<<>	GPIO05
4,5	LED_OX	<<>	LED_OX
3,4	Flash_WP#	<<>	Flash_WP#
4	SCART_FS_SEL	<<>	SCART_FS_SEL

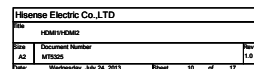
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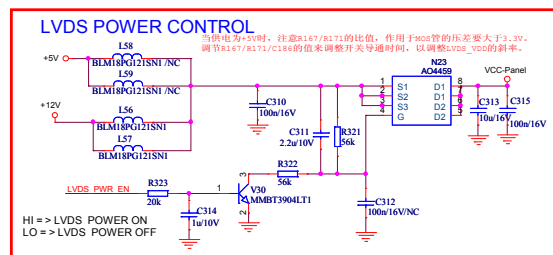
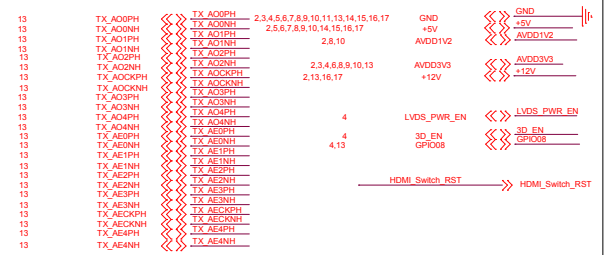
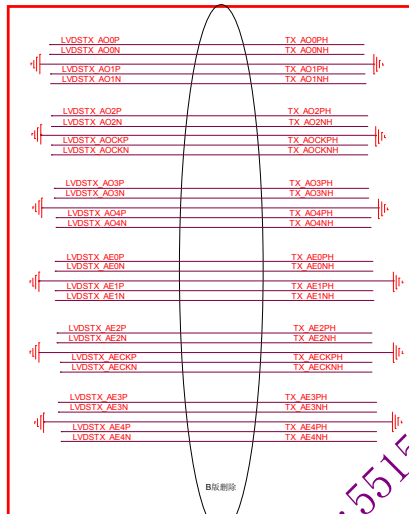
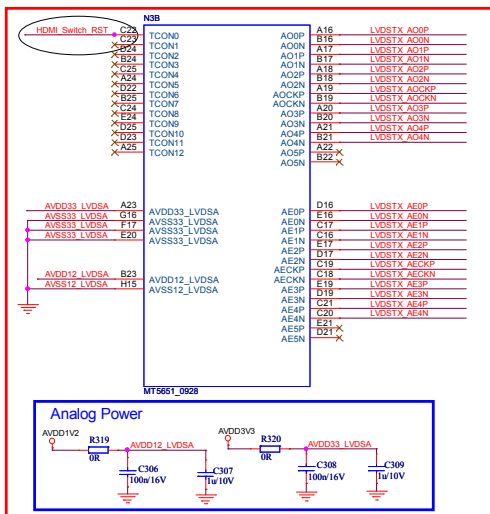


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GPIOADETHERNET PHY		
Size	Document Number	Rev
A3	MT5325	1.0
Date:	Wednesday, July 24, 2013	Sheet 4 of 17

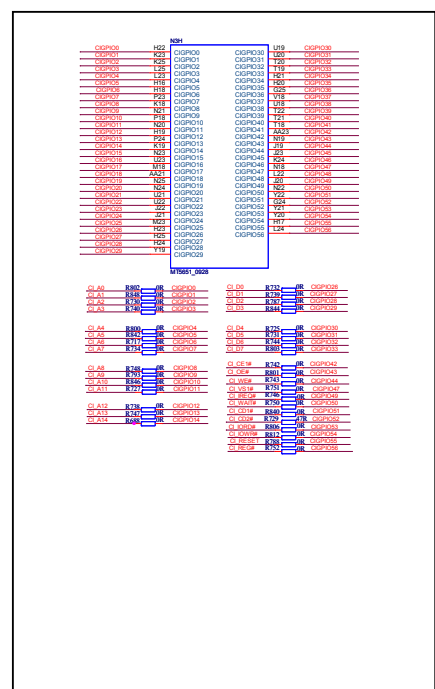
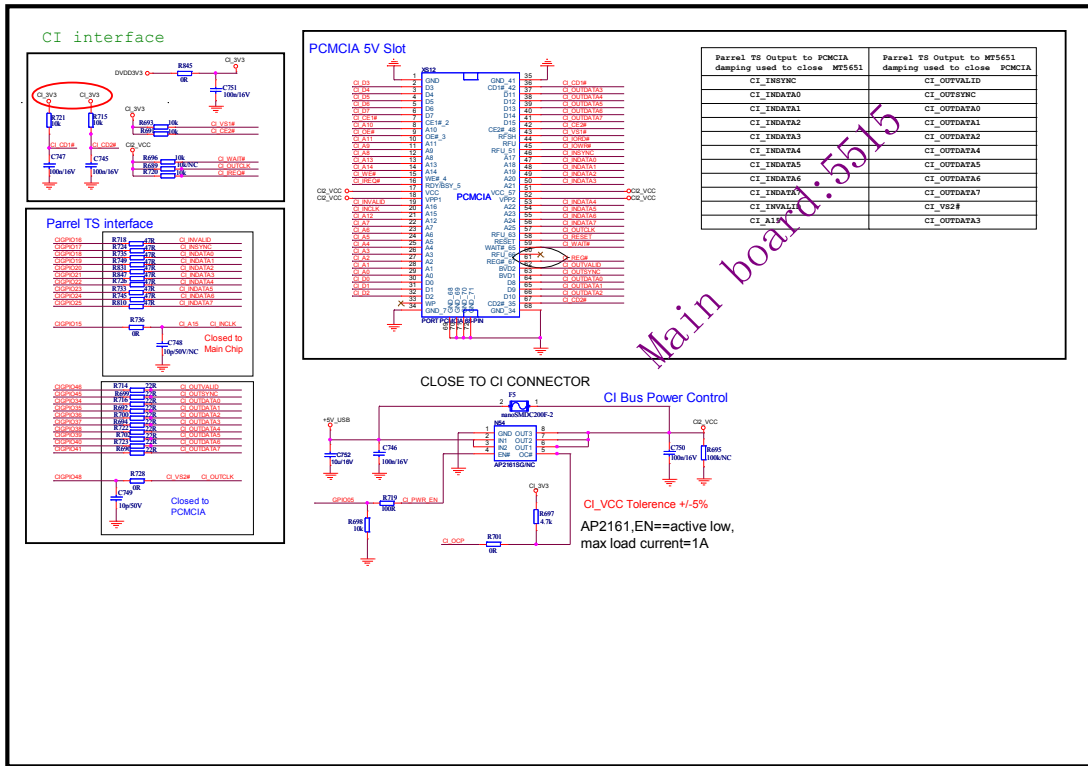
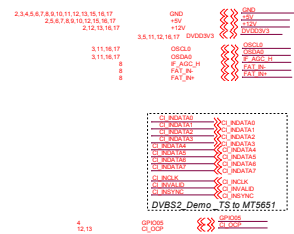
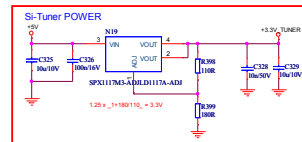
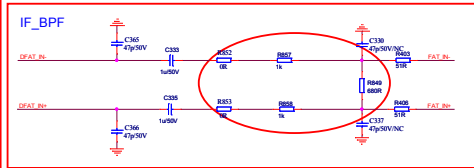
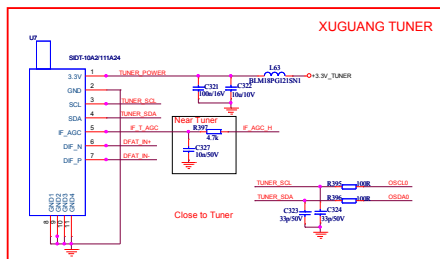




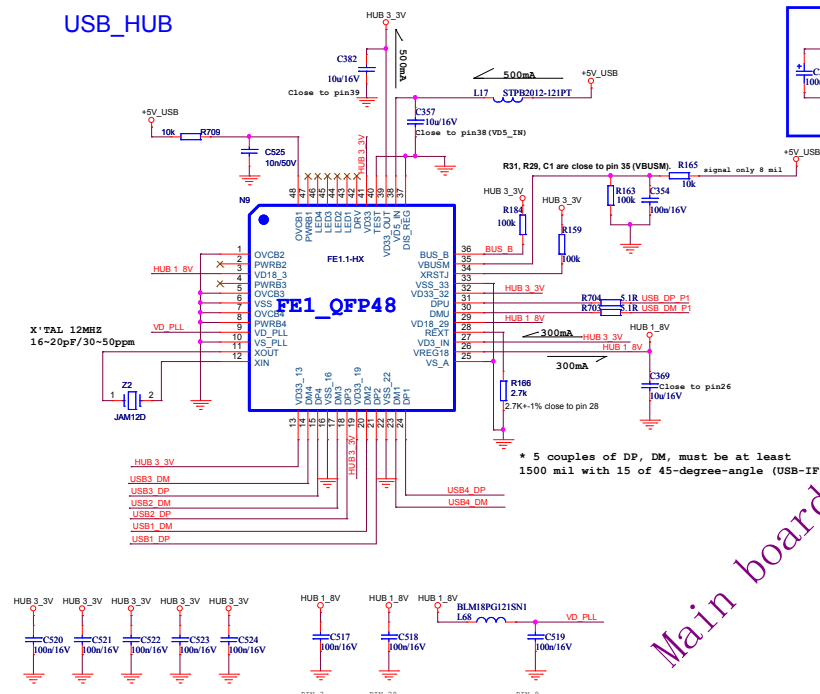




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Size	Document Number	Rev	
A3	MT5651	1.0	
Date:	Wednesday, July 24, 2013	Sheet	12 of 17

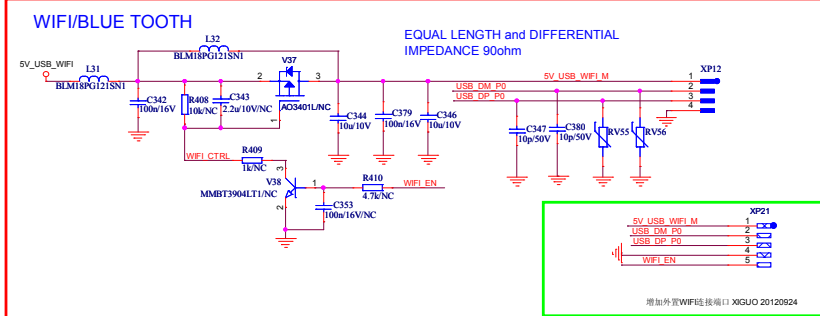


USB_HUB

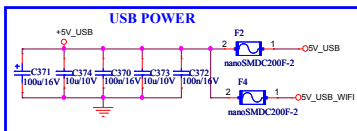


Bypass CAP , close to each indicated pin of FE1.1, and should not be removed.

WIFI/BLE TOOTH



USB POWER

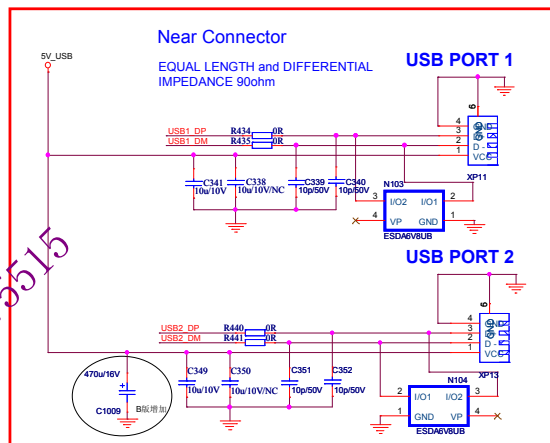


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2,5,6,7,8,9,10,12,14,16,17

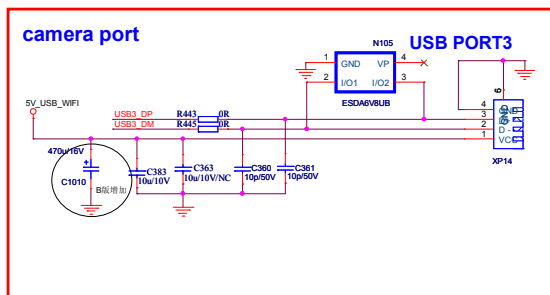
Left Pin	Right Pin
GND	GND
+5V	+5V
USB_DP_P0	USB_DP_P0
USB_DM_P0	USB_DM_P0
USB_DP_P1	USB_DP_P1
USB_DM_P1	USB_DM_P1
USB4_DP	USB4_DP
USB4_DM	USB4_DM
WIFI_EN	WIFI_EN

Near Connector

EQUAL LENGTH and DIFFERENTIAL IMPEDANCE 90ohm



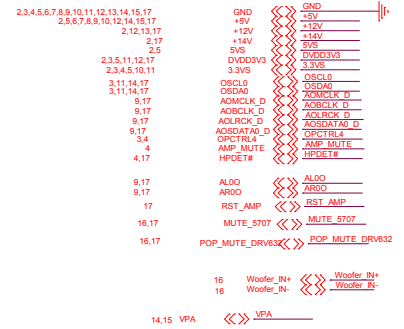
camera port



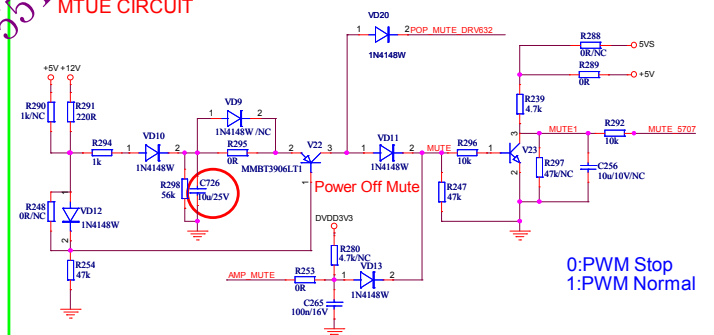
Hisense Electric Co.,LTD

Title				USB/WiFi			
Size		Document Number				Rev	
A3		MT5325				1.0	
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I2C Address
= 0x6A

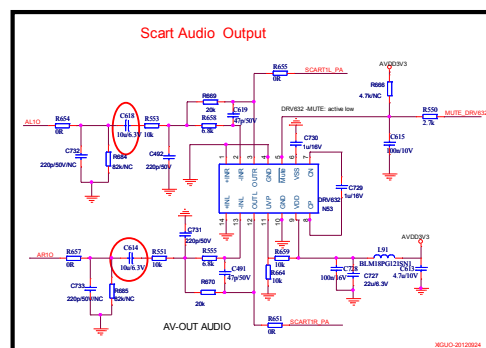
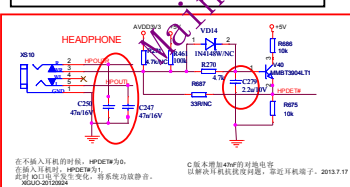
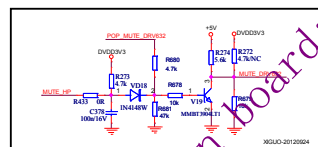
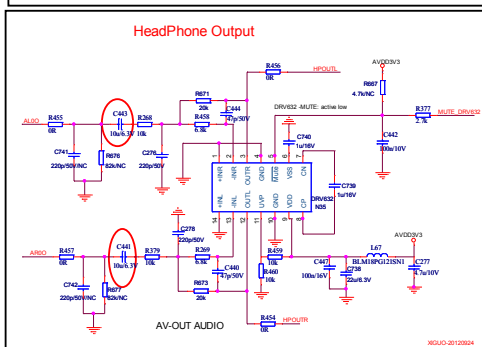
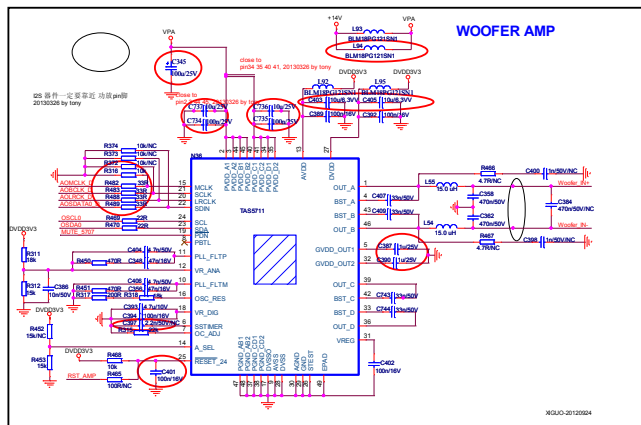


Power On Mute



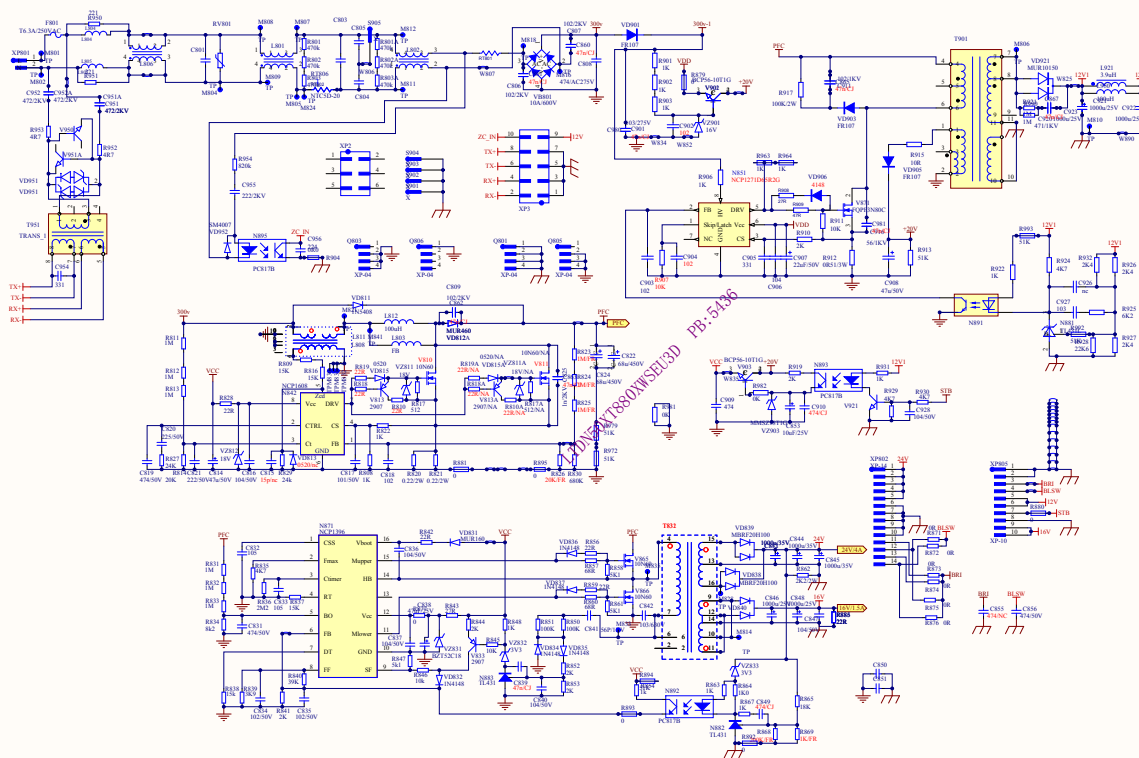
0:PWM Stop
1:PWM Normal

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Title			
SPEAKER/MUTE			
Size	Document Number		Rev
A3	MTS311G		1.0
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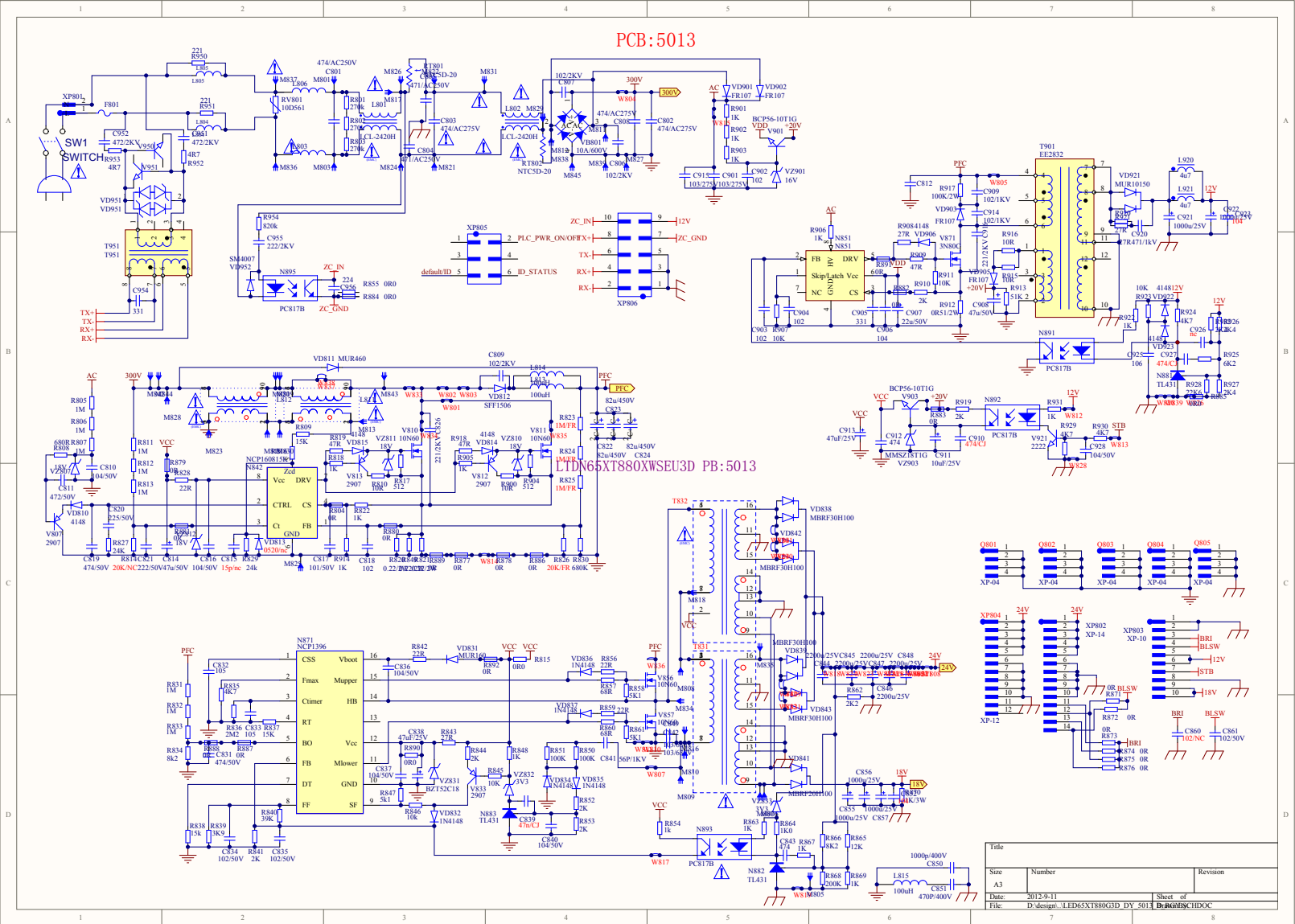
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Power:5436



Title		
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Date 2011-3-29	Sheet of 1000 of 1000	
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PCB:5013



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