LCD Television
Service Manual

Chassis: MT9900

Version: V 1.0

Hisense Visual Technology Co.，Ltd.

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REVISION HISTORY			
Version	Revise content	Reviser	Date
V1.00	First issued	Wangyue	2021-11-19

Contents

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.

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 assumes no liability, express or implied, arising out of any unauthorized modification of design. Service tech assumes all liability.

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 service personnel to important safety information in the service literature. .

2. TV boards:

2.1 Main board layout

2.1.1 The top of main board (2RSAG7.820.11711)
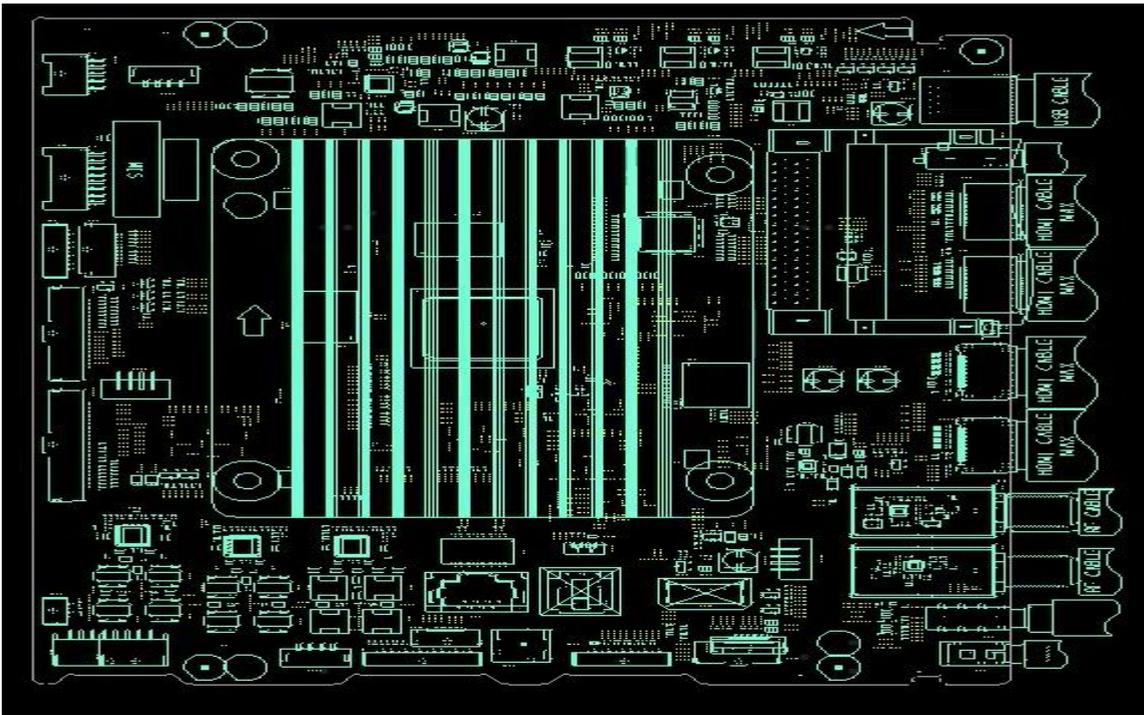
The rear of main board (2RSAG7.820.11711)

USB 3.0

Debug

HDMI 1(HDMI2.0)

HDMI2(HDMI2.0)

HDMI3(HDMI2.1,eARC)

HDMI4(HDMI2.1)

DVB-T/T2/C

DVB-S/S2

AV in

headphone

DDR

DDR

CI/F

MT9900

EMMC

LAN

Digital Audio Out

USB2.0
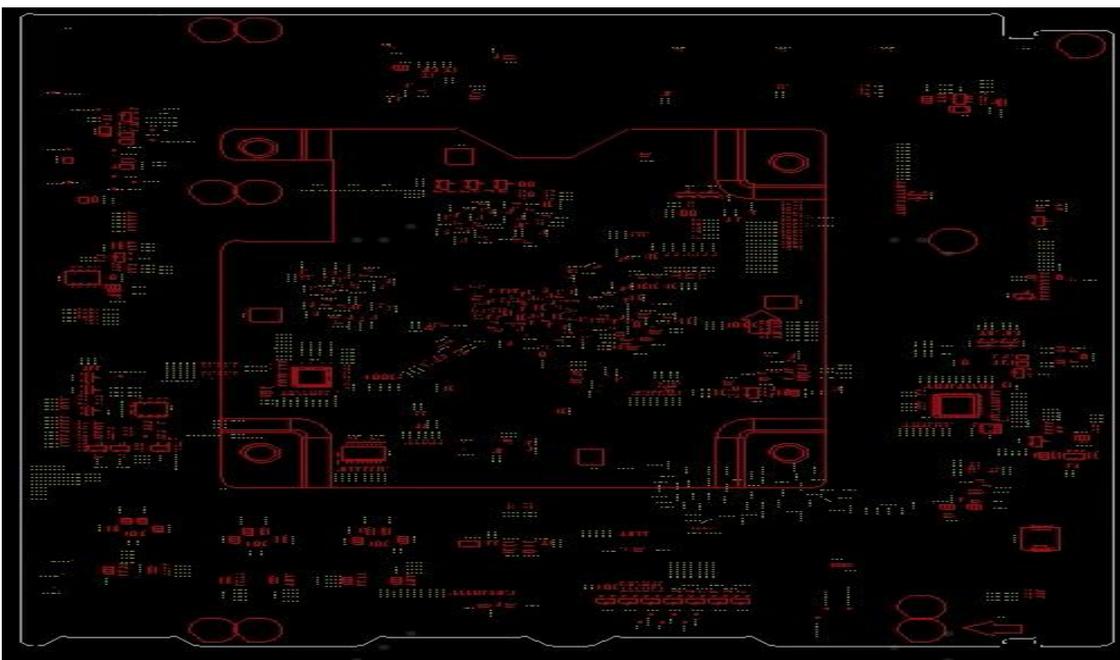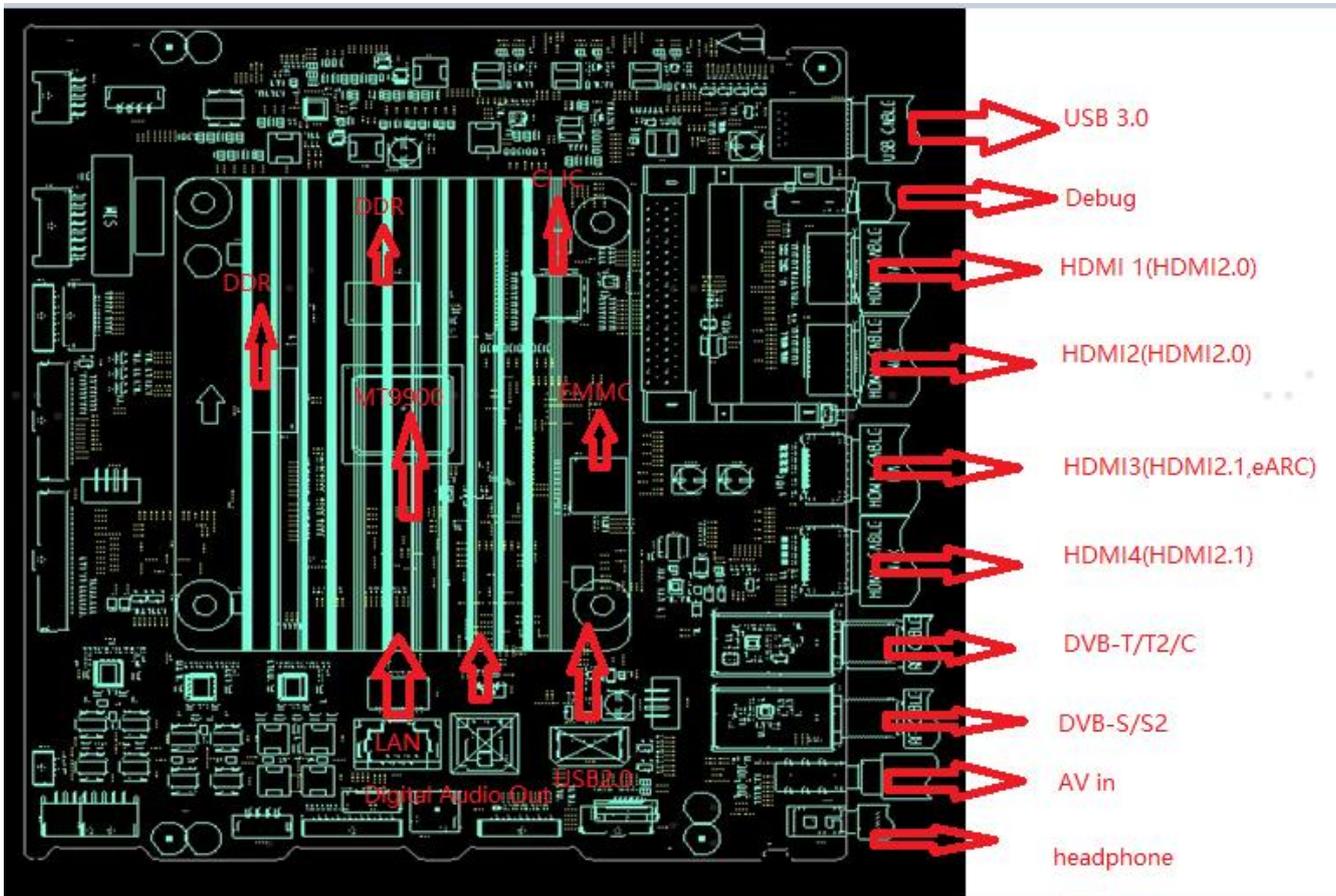
2.2 Wiring diagram(example for 55U69GEVS):
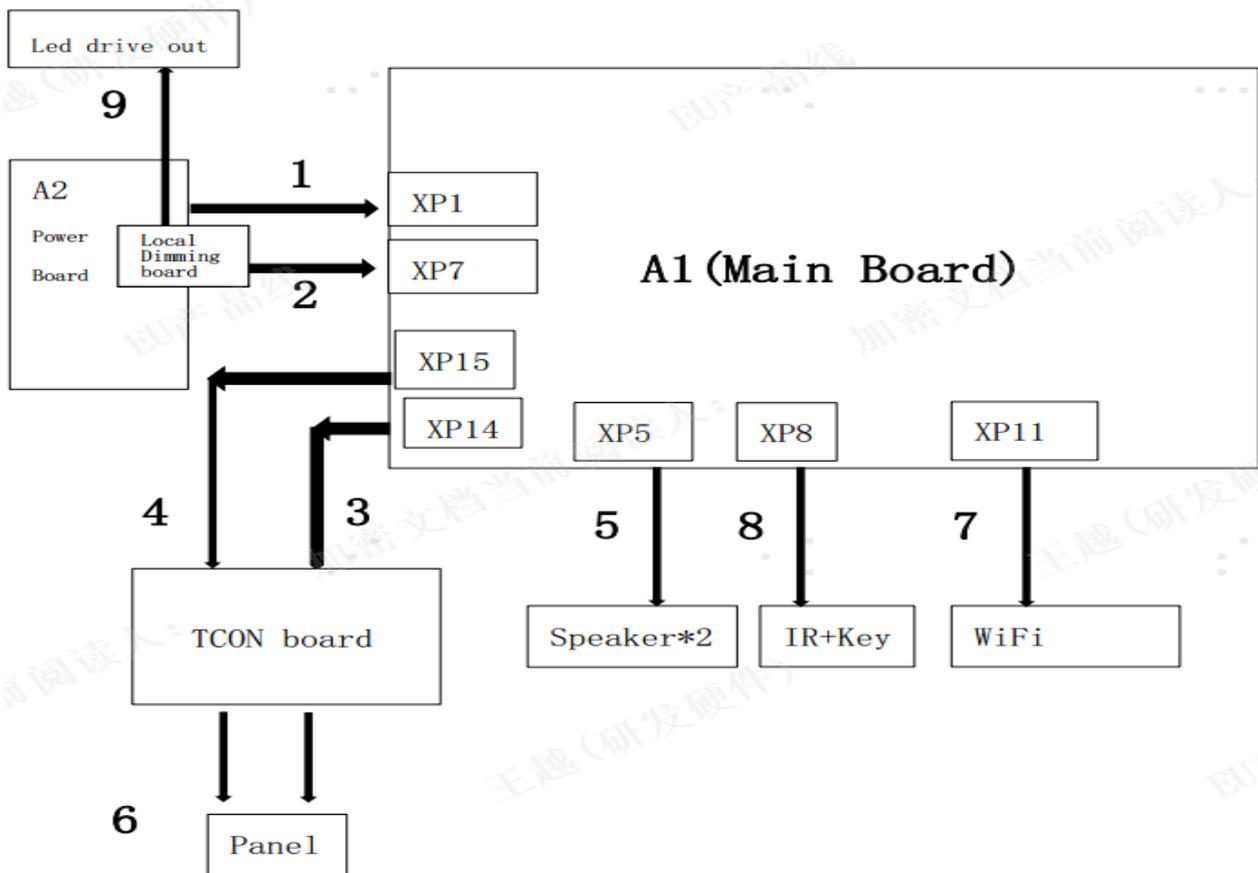
XP1：Power for main board jacket

Main board terminal		Power board terminal	
Pin	definition	Pin	definition
1	GND	1	GND
2	BL_EN/SW	2	BL_EN/SW1
3	DIMMING2/PWM2	3	DIMMING2/DIM1
4	DIMMING/PWM	4	DIMMING/PWM1
5	VCC_A	5	VCC_A/ VCCA1
6	GND	6	GND
7	VCC_A	7	VCC_A/ VCCA1
8	GND	8	GND
9	GND	9	GND
10	3DEN-NC	10	NC
11	PWR-ON/OFF/ STB	11	POWER ON/OFF/ STB1

12	GND	12	GND
13	12VS/ VCC2	13	12VS/ VCC3
14	12VS/ VCC1	14	12VS/ VCC2
15	12VS/ VCC2	15	12VS/ VCC3
16	GND	16	GND

XP14：51pin VB0 to Tcon board

Tcon			Main board	
Pin	定义	说明	Pin	Config
1	V_{DD}	Power Supply Input Voltage	51	12V-Panel
2	V_{DD}	Power Supply Input Voltage	50	12V-Panel
3	V_{DD}	Power Supply Input Voltage	49	12V-Panel
4	V_{DD}	Power Supply Input Voltage	48	12V-Panel
5	V_{DD}	Power Supply Input Voltage	47	12V-Panel
6	V_{DD}	Power Supply Input Voltage	46	12V-Panel
7	V_{DD}	Power Supply Input Voltage	45	12V-Panel
8	V_{DD}	Power Supply Input Voltage	44	12V-Panel
9	NC	No Connection	43	12V-Panel,L65 NC
10	GND	Ground	42	GND,R223--0Ω
11	GND	Ground	41	GND,R217--0Ω
12	GND	Ground	40	GND,R222--0Ω
13	GND	Ground	39	GND,R216--0Ω
14	GND	Ground	38	GND,R221--0Ω
15	NC	No Connection	37	DATA FORMAT0 R479,R495 NC
16	NC	No Connection	36	DATA FORMAT1R480,R502 NC
17	NC	No Connection	35	Mplusmodel1R207,R213,R485,R526 NC
18	SDA	I2C Data signal	34	Panel_I2C_SDA V16OK,R214,R816--0Ω R326,R332--10K，C271 NC
19	SCL	I2C Data signal	33	Panel_I2C_SCL V15,R818,R224OK
20	NC	NC	32	I2C_WP R219,R318,R215,R220,V30,R220,R208,R338,R540,R799,R797NC
21	NC	No Connection	31	Bit_sel R825,R483,R524,R564,R798 NC
22	SEL_SECTIO	Low or NC: 2 section(default) High: 4 section	30	Data format R218NC,R478NC,R486

	N			OK
23	NC	No Connection	29	AGP R496,R484,R525 NC
24	GND	Ground	28	MSE R814 OK，R482,R523NC
25	HTPDN	Vx1 HTP	27	HTPDN V18 OK,R421 NC
26	LOCKN	Vx1 LOCK	26	LOCKN V17OK,R423,C270 NC, R278,R277OK10k
27	GND	Ground	25	Ground
28	RX0N	VX1 lane 0	24	C_VB1_1N
29	RX0P	VX1 lane 0	23	C_VB1_1P
30	GND	Ground	22	GND
31	RX1N	VX1 lane 1	21	C_VB1_2N
32	RX1P	VX1 lane 1	20	C_VB1_2P
33	GND	Ground	19	GND
34	RX2N	VX1 lane 2	18	C_VB1_3N
35	RX2P	VX1 lane 2	17	C_VB1_3P
36	GND	Ground	16	VGND
37	RX3N	VX1 lane 3	15	C_VB1_4N
38	RX3P	VX1 lane 3	14	C_VB1_4P
39	GND	Ground	13	GND
40	RX4N	VX1 lane 4	12	C_VB1_5N
41	RX4P	VX1 lane 4	11	C_VB1_5P
42	GND	Ground	10	GND
43	RX5N	VX1 lane 5	9	C_VB1_6N
44	RX5P	VX1 lane 5	8	C_VB1_6P
45	GND	Ground	7	GND
46	RX6N	VX1 lane 6	6	C_VB1_7N
47	RX6P	VX1 lane 6	5	C_VB1_7P
48	GND	Ground	4	GND
49	RX7N	VX1 lane 7	3	C_VB1_8N
50	RX7P	VX1 lane 7	2	C_VB1_8P
51	GND	Ground	1	GND

XP15：41pin VB0 to Tcon board

TCON			Main board	
Pin	定义	说明	Pin	Config
1	GND	Ground	41	GND
2	Rxn8	V-by-One HS Data Lane 8	40	C_VB1_9N
3	Rxp8	V-by-One HS Data Lane 8	39	C_VB1_9P
4	GND	Ground	38	GND
5	Rxn9	V-by-One HS Data Lane 9	37	C_VB1_10N
6	Rxp9	V-by-One HS Data Lane 9	36	C_VB1_10P
7	GND	Ground	35	GND

8	Rxn10	V-by-One HS Data Lane 10	34	C_VB1_10N
9	Rxp10	V-by-One HS Data Lane 10	33	C_VB1_10P
10	GND	Ground	32	GND
11	Rxn11	V-by-One HS Data Lane 11	31	C_VB1_10N
12	Rxp11	V-by-One HS Data Lane 11	30	C_VB1_10P
13	GND	Ground	29	GND
14	Rxn12	V-by-One HS Data Lane 12	28	C_VB1_10N
15	Rxp12	V-by-One HS Data Lane 12	27	C_VB1_10P
16	GND	Ground	26	GND
17	Rxn13	V-by-One HS Data Lane 13	25	C_VB1_10N
18	Rxp13	V-by-One HS Data Lane 13	24	C_VB1_10P
19	GND	Ground	23	GND
20	Rxn14	V-by-One HS Data Lane 14	22	C_VB1_10N
21	Rxp14	V-by-One HS Data Lane 14	21	C_VB1_10P
22	GND	Ground	20	GND
23	Rxn15	V-by-One HS Data Lane 15	19	C_VB1_16N
24	Rxp15	V-by-One HS Data Lane 15	18	C_VB1_16P
25	GND	Ground	17	GND,R634OK
26	GND	Groun	16	GND，R636OK
27	NC	No Connection	15	Ground，R637 NC
28	NC	No Connection	14	GND R635 NC
29	NC	No Connection	13	NC
30	NC	No Connection	12	12V panel L82 NC
31	NC	No Connection	11	12V panel L81 NC
32	NC	No Connection	10	12V panel L80 NC
33	NC	No Connection	9	12V panel L79 NC
34	NC	No Connection	8	12V panel L78 NC
35	NC	No Connection	7	12V panel L77 NC
36	NC	No Connection	6	12V panel L76 NC
37	NC	No Connection	5	12V panel L75 NC
38	NC	No Connection	4	12V panel L74 NC
39	NC	No Connection	3	12V panel L73 NC
40	NC	No Connection	2	12V panel L72,R829 NC
41	NC	No Connection	1	12V panel L71,R828 NC

XP5：Speaker jacket

Pin	definition	illustration	Wire color
1	L+	Left speaker positive wire	RED
2	L-	Left speaker negative wire	WHITE
3	R-	right speaker negative wire	WHITE
4	R+	Right speaker positive wire	BLACK

2.3 Ties,clamps and tapes:

To show the positions where ties and clamps and tapes should be, for checking after servicing.Before disassemble the TV ,besure to take photos for the TV assembly example for 55U69GEVS.
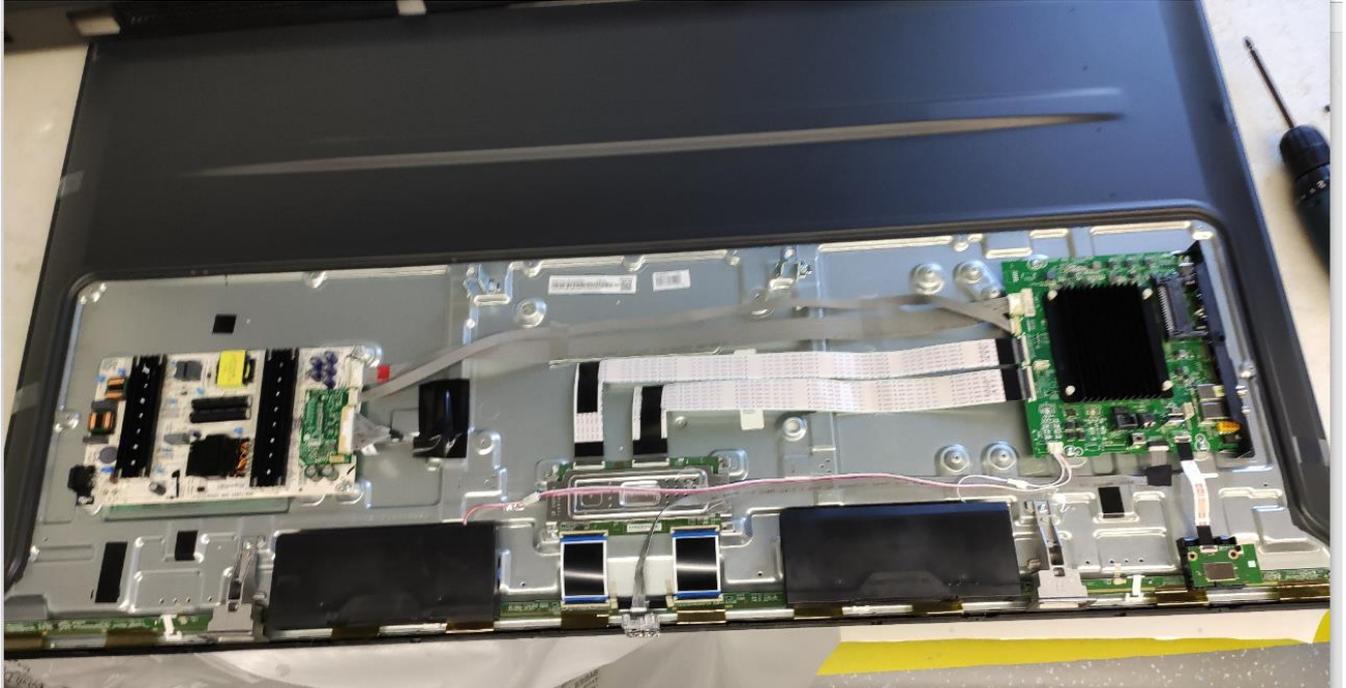
2.2 TV boards part list

Main board	Boards function difference	Main chassis type	For Series
2RSAG7.820.11711\ROH	1. Lateral terminal and vertical terminal. 2. Different AMP design 3.Adapt different panel，such as OLED and LCD	MT9900	55U69GEVS
RSAG7.820.11959\ROH	1. Lateral terminal and vertical terminal. 2. Different AMP design 3.Adapt different panel，such as OLED and Mini LED	MT9900	65E80GEVS

3. Factory/Service OSD Menu and Adjustment

3.1 Remote Control

① POWER: Switch the TV on or into standby mode

② INPUT: Select input sources

③ APP: Quick access buttons to apps

④ Physical Switch (Side view): Switch on to receive voice

⑤ Special function buttons

⑥ ▤ : Display the Quick setup menu

⑦ ▶‖ : Media content control function buttons

⑧ ∧ / ∨ / < / >: Allow you to navigate the on-screen menus and adjust the system settings to your preference

⑨ OK: Confirm the selection in the on-screen menus

⑩ BACK: Return to previous menu

⑪ EXIT: Exit the menu

⑫ HOME: Enter the Home screen

⑬ VOL + /−: Adjust the volume

⑭ CH ∧ / ∨ : Switch channel

⑮ MIC: Activate the microphone

⑯ SUBTITLE: Activate or deactivate the subtitle mode

⑰ INFO: Display the present programme information

⑱ MUTE: Mute or restore the TV sound

⑲ Number button: Direct channel selection or numbers input

⑳ GUIDE: Display the Electronic Programme Guide (DTV mode)

㉑ CH.LIST: Display the Channel List on the screen

① INPUT: Select input sources
② POWER: Switch the TV on or into standby mode
③ Number button: Direct channel selection or numbers input
④ GUIDE: Display the Electronic Programme Guide (DTV mode)
⑤ CH.LIST: Display the Channel List on the screen
⑥ Special function buttons
⑦ ▤ : Display the Quick setup menu
⑧ ▶ll : Media content control function buttons
⑨ ∧ / ∨ / < / >: Allow you to navigate the on-screen menus and adjust the system settings to your preference
⑩ OK: Confirm the selection in the on-screen menus
⑪ BACK: Return to previous menu
⑫ EXIT: Exit the menu
⑬ HOME: Enter the Home screen
⑭ VOL + /−: Adjust the volume
⑮ CH ∧ / ∨ : Switch channel
⑯ MIC: Activate the microphone
⑰ SUBTITLE: Activate or deactivate the subtitle mode
⑱ INFO: Display the present programme information
⑲ MUTE: Mute or restore the TV sound
⑳ APP: Quick access to the app
 MEDIA: Enter the media mode
 ▦ : All Apps
 BROWSER: Enter into BROWSER

Bluetooth remote control module specifications
XF2472C
Frequency Range: 2.400GHz~2.4835GHz
Output Power(Max.): +4dBm
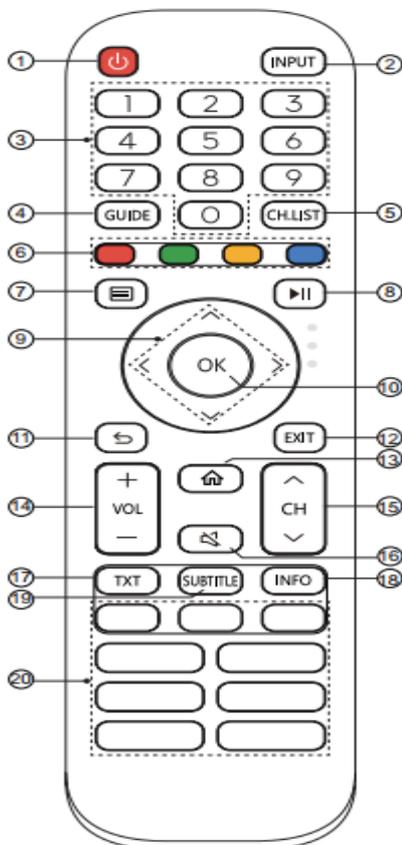
① POWER: Switch the TV on or into standby mode
② INPUT: Select input sources
③ Number button: Direct channel selection or numbers input
④ GUIDE: Display the Electronic Program Guide (DTV mode)
⑤ CH.List: Display the Channel List on the screen
⑥ Special function buttons
⑦ ▤ : Display the Quick setup menu
⑧ ▶ll : Media content control function buttons
⑨ ∧ / ∨ / < / >: Allow you to navigate the OSD menus and adjust the system settings to your preference
⑩ OK: Confirm the selection in the OSD menus
⑪ BACK: Return to previous menu
⑫ EXIT: Exit the menu
⑬ HOME: Enter the Home screen
⑭ VOL + /−: Adjust the volume
⑮ CH ∧ / ∨ : Switch channel
⑯ MUTE: Mute or restore the TV sound
⑰ TXT: Turn on/off the teletext function
⑱ INFO: Display the present programme information
⑲ SUBTITLE: Activate or deactivate the subtitle mode
⑳ APP: Quick access buttons to apps
 MEDIA: Enter the media mode
 ▦ : All Apps
 BROWSER: Enter into BROWSER

3.2 Factory OSD Menu
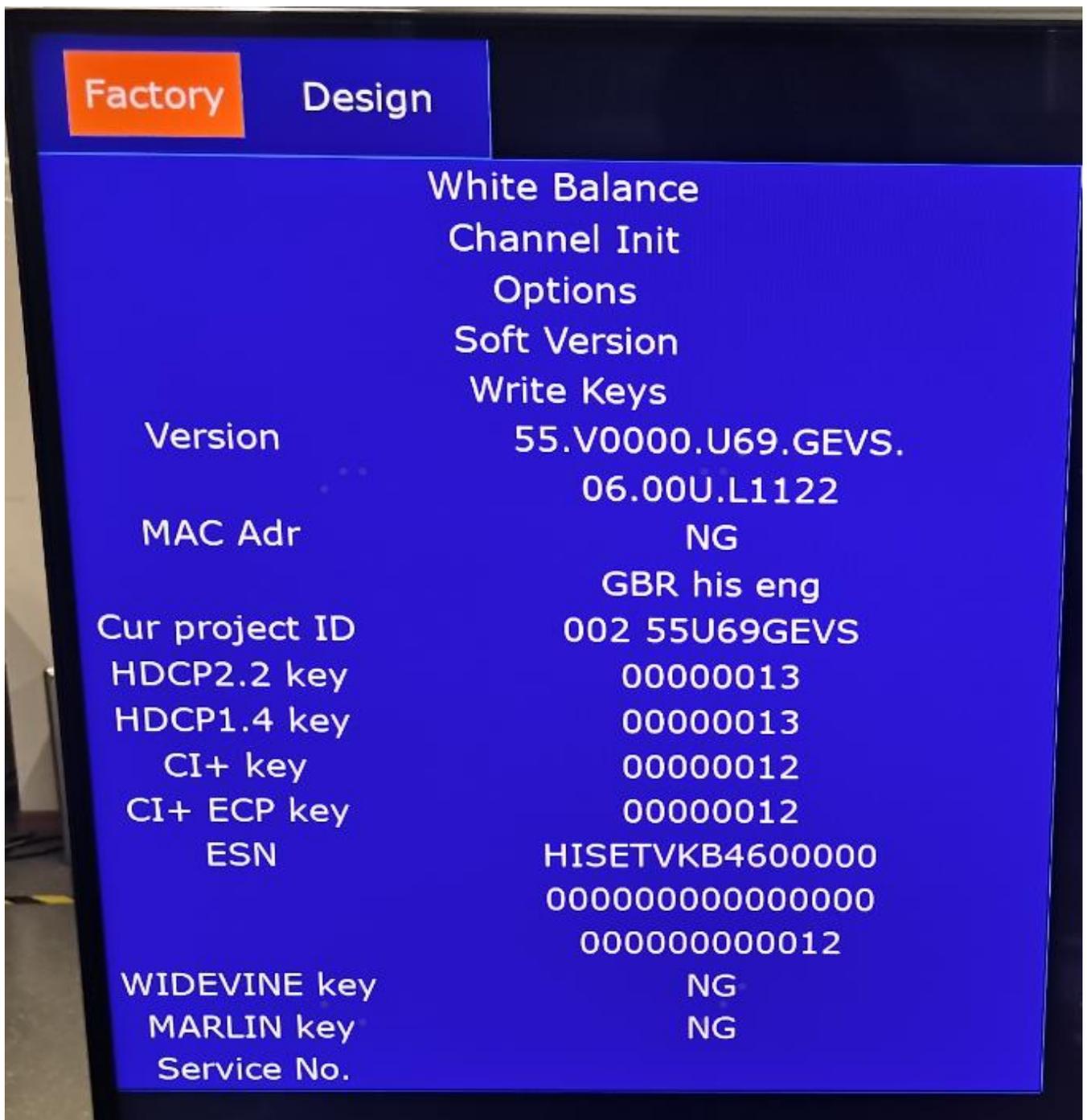
figure -1

Factory OSD menu list: if you want to learn more about TV, you'd better read it but would not adjust the value please. The Factory menu may be have difference for diverse

market and customer. Take 55U69GEVS for example.

Options:
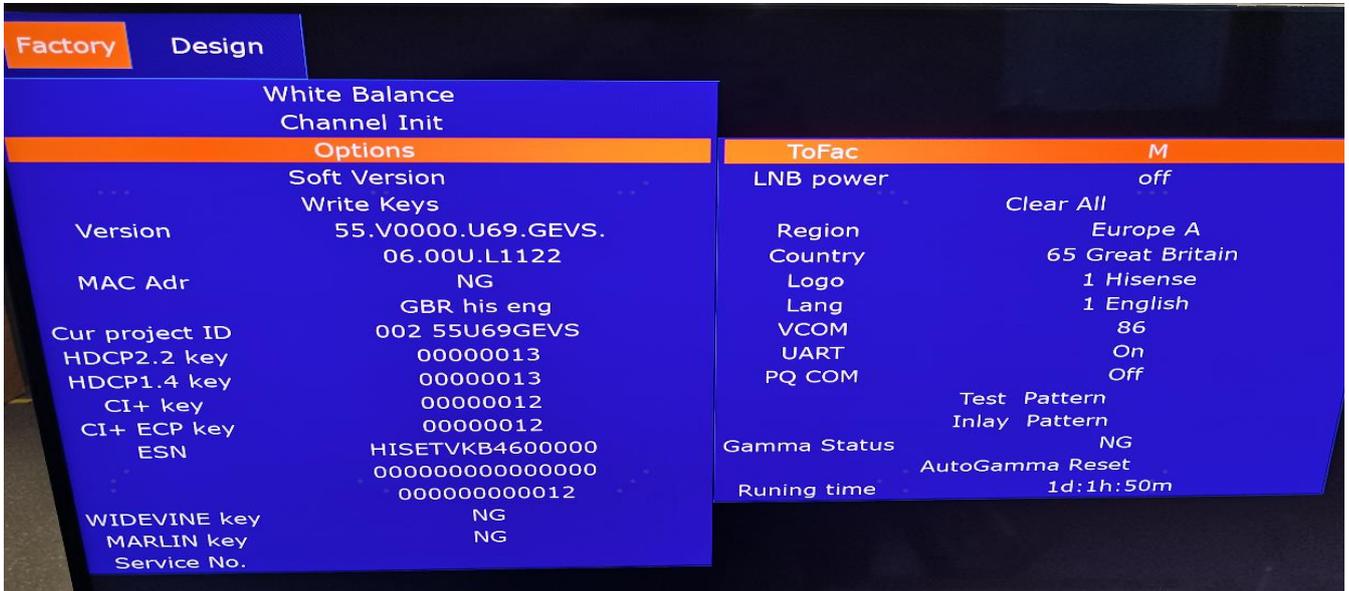
Write keys:
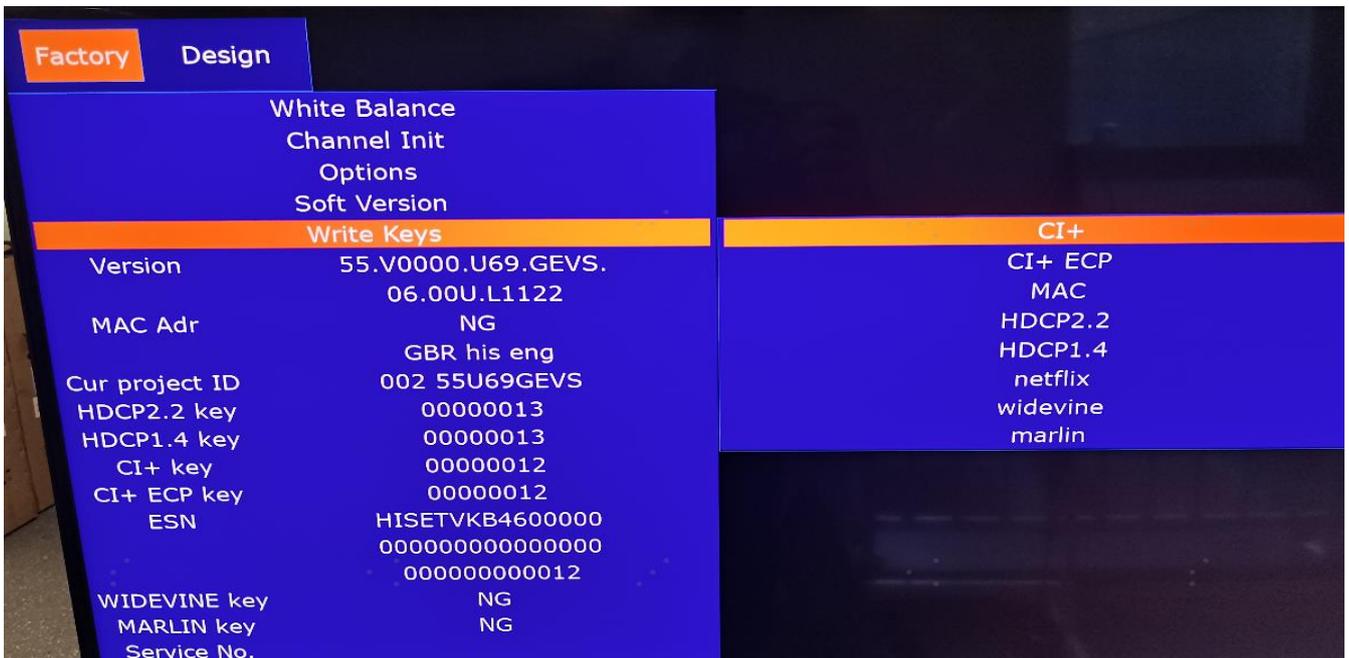
Note:

Check whether the Key information under the current Version is OK, if appears "NG" or such as following red surround irregular information then need rewrite the key.

	Factory menu	Description	Remark
Menu	White Balance	White Balance data adjusting, different source has different WB values. Before adjusting, please change to desired source.	
	channel init	TV Produce signal preset, during the factory produce using.	
	Option	Items can choose	
	Clear all	initial the TV，EEPROM reset	
	Soft version	current software version information	
	Version	Software Version information	
	MAC Adr	MAC address information	
	HDCP2.2 key	HDCP2.2 key information	
	ESN	The TV's electronic Serial number	
	WIDEVINE key	WIDEVINE key code	
	Service No.	LTDNXXXXXXY-P0001	

White Balance	BIN B1 ⬌	can choose B1/B2/B3/B4/B5/B6
	R Gain ▭ 128	High Brightness Red
	G Gain ▭ 128	High Brightness Green
	B Gain ▭ 128	High Brightness Blue
	R Offset ▭ 128	Low Brightness Red
	G Offset ▭ 128	Low Brightness Green
	B Offset ▭ 128	Low Brightness Blue

Channel init	huangdao old	
	Qing Dao	TV Produce signal preset, during the factory produce using.
	huangdao new	
	……	

Option	ToFAC M/U	"M" used in factory product. "U" used in user state.
	LNB power	13/14;18/19;Power off
	Region	Region choose
	country	Country choose
	Logo	Customer logo choose
	Language	Language choose
	VCOM	Panel voltage,
	UART	On/off (when choose "on" then can serial port connect with Tool successfully)
	PQ COM	On/off
Write keys	CI+	If CI+ key code lost, you can write.
	MAC	If MAC key code lost, you can write.
	HDCP2.2	If HDCP key code lost, you can write .
	Netflix	If Netflix key code lost, you can write .
	Widevine	If Widevine key code lost, you can write .

Note:

The Factory menu may be have difference for diverse market and customer, above Factory menu only for reference.

The factory menu data varies according to different sources. Incase changing the factory data by error, you can choose to "Clear all", by which you can resume the default value.

To clean the EEPROM:

a.   Select the item "**Option**"--"**Clear all**" in Factory mode.

b.   Press ⟩button to clear the EEPROM data.

c.   Close the OSD menu after 5 seconds.

d. Restart the TV.

e Also the Keys information must been checked, if appear "NG", then must rewrite key code.

4. Software Upgrading

4.1 USB Upgrade

Main software upgrade directly with USB

The main software can be upgraded with USB disk. It includes two modes: user mode、 factory mode. Take 55U69GEVS for example.

4.1.1 TV in user mode：

a. Decompress MTK_9900_EU_pkg_YYYYMMDD.tar.gz (YYYYMMDD is the year/month/day when the software is being built, such as MTK_9900_EU_pkg_20211119.tar.gz) and copy usb_MTK_9900_EU.pkg file to the USB root directory. Please make sure there are no other "*.bin" files in the root directory of USB disk .

b. AC power off the TV, insert the USB disk to the USB 2.0 port, TV in standby status,next long press the "power key . If "Usb Upgrade Checking" is shown on TV, it means TV successfully enters upgrading status..

c. Waiting TV is trying to load the software and it will spend about 2 minutes. After that "Usb Upgrade Checking" will be displayed and upgrade process bar will indicate the progress. It needs about 5 minutes to complete the whole software upgrade.

d. After upgrade, TV can automatically reboot.

e. Enter the Factory OSD Menu to check the main software version, and then choose "option"◊"Clear All" to do clean up.

4.1.2   TV in factory mode：

a. If TV is in Factory mode, only have difference from chapter 4.1.1 b. as following. others are same.

b. TV is in factory mode,   only AC power off TV and insert the USB disk, next AC power on, TV can identify automatically to update, till call up "Usb Upgrade Checking" interface , update process bar is 1%.

4.1.3   If the above USB upgrade methods fail,   you can rename the upgrade software to usb_MTK_9900_EU.pkg,next use   serical "cu" to update

4.1.4   When upgrade successfully,   We must   ensure the   TV mode of running correctly.
Paths: Factory---Design –Project ID
Once choose another TV mode ,must AC power off   and power on the TV to reboot.
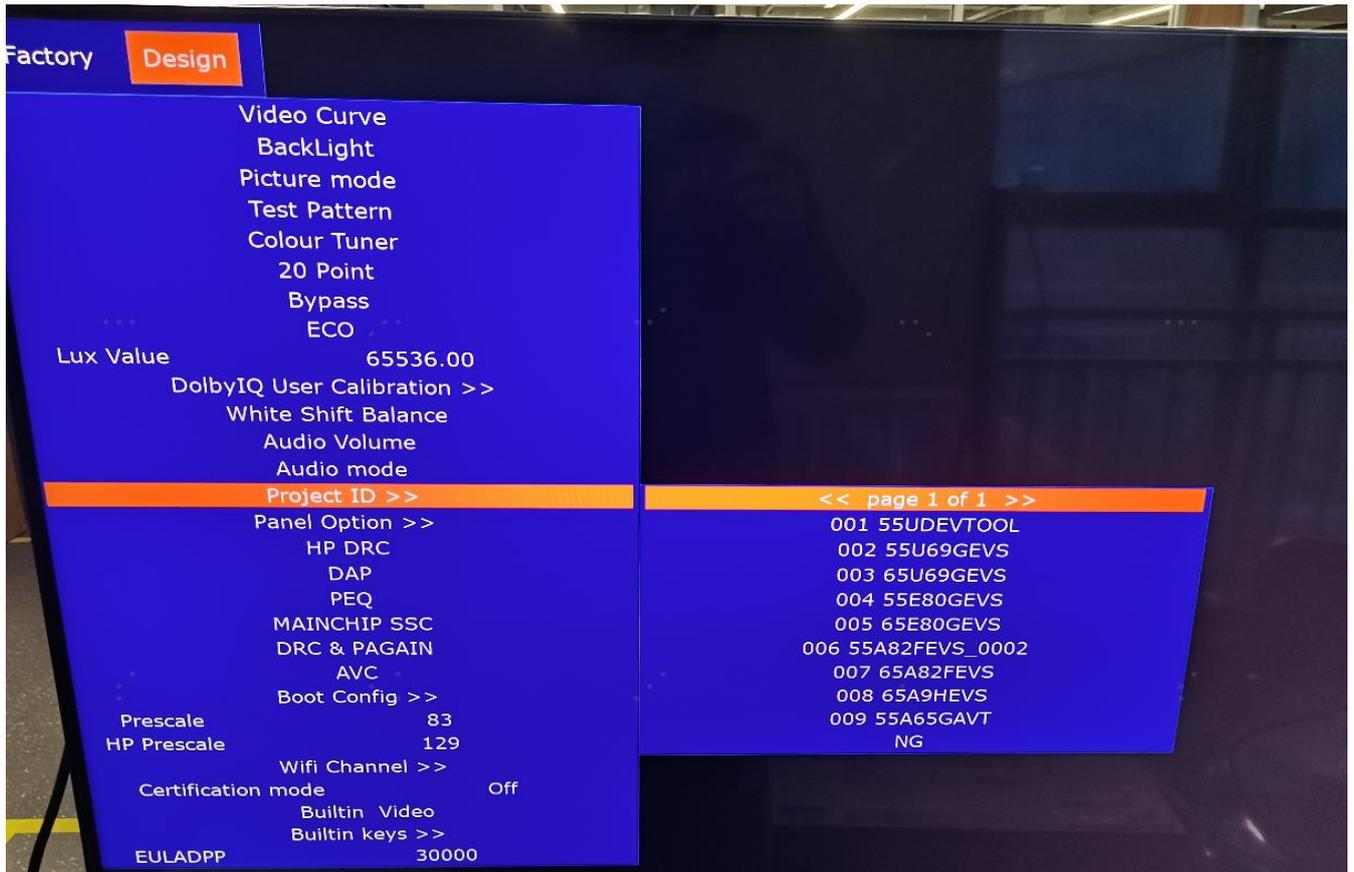
Firgure-1: Upgrading software
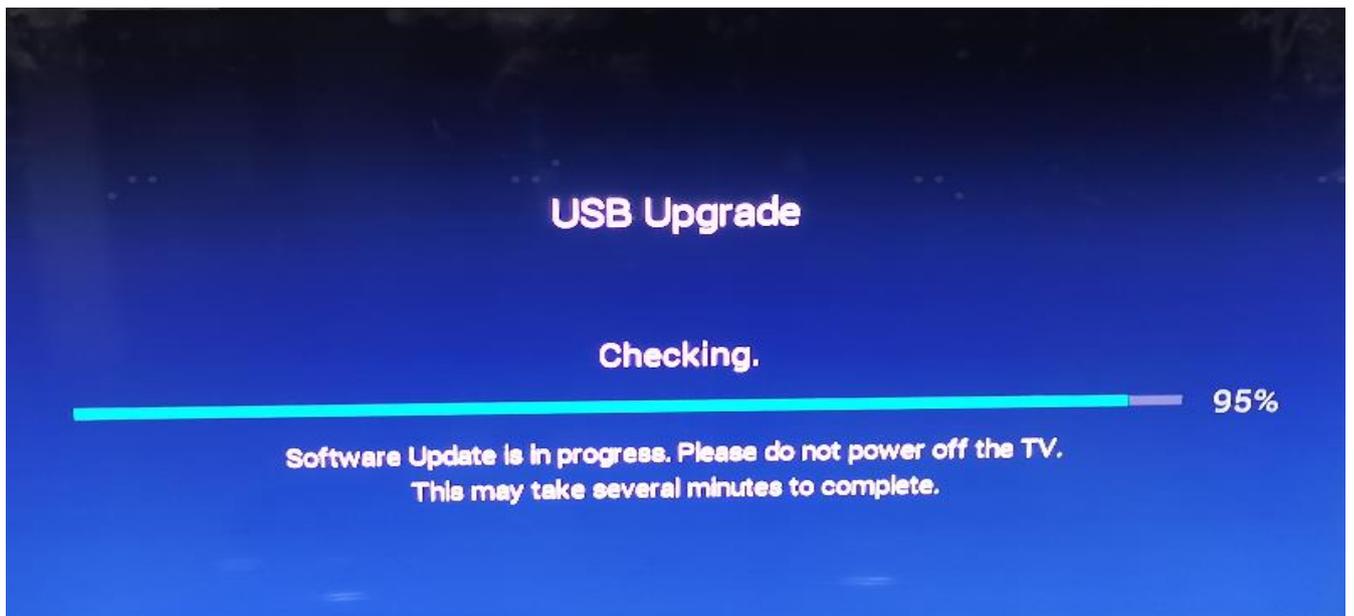
Firgure-1

4.2 Flash Tool upgrading

   First set program or if USB upgrades failure ,may causing TV crashed and SecureCRT no print message. If the above measures cannot use，repairers need to burn the boot program . Then USB disk to upgrade the"mt5895_m1v1_em_secure_emmcboot.bin"file.

4.2.1
 TV needs to be linked serial port.And you should stop the serial port toor on the PC(like securecrt and putty).Open flashtool.

4.2.2
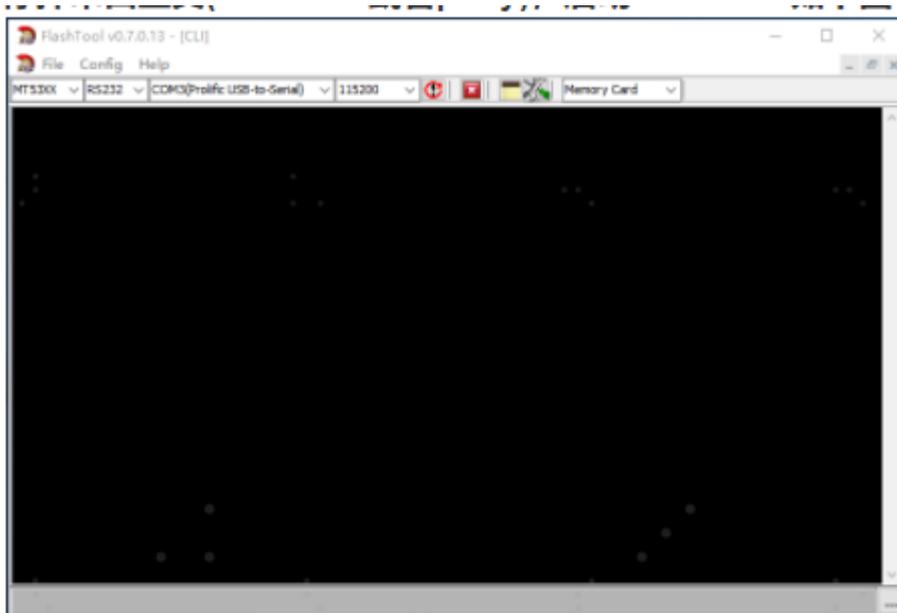
Clik and wait it turns green.

4. 2. 3
In the submenu of the 'config' menu 'Flash Download Option',delete the **Auto Set Baudrate**
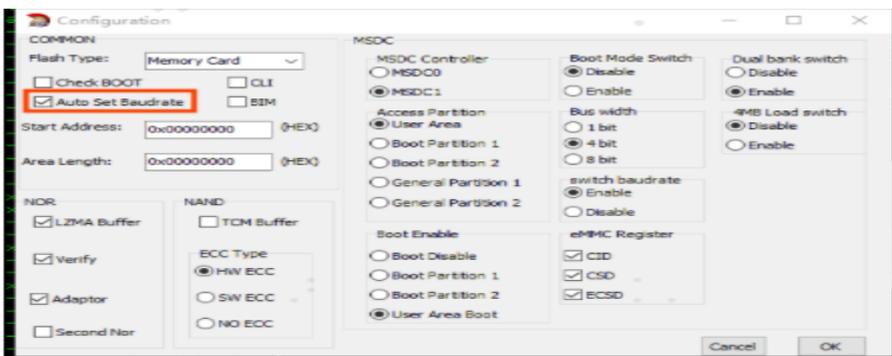
4. 2. 4

Click , choose bootloader image, and the click 'upgrade'

Load Bin File:	G:\mt5895_m3v1_tvs_arib_secure_emmcboot.bin	...	Upgrade	Cancel
Backup File:	G:\liupeng-boot1-817	...	Backup	Cancel
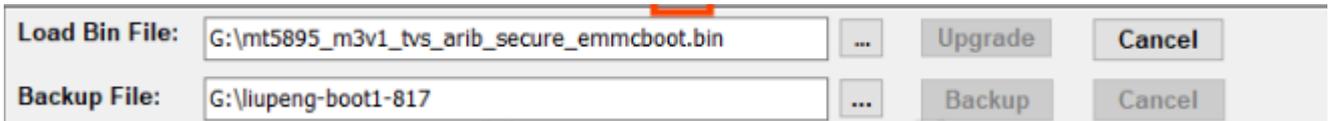
Then wait the upgrade finished.
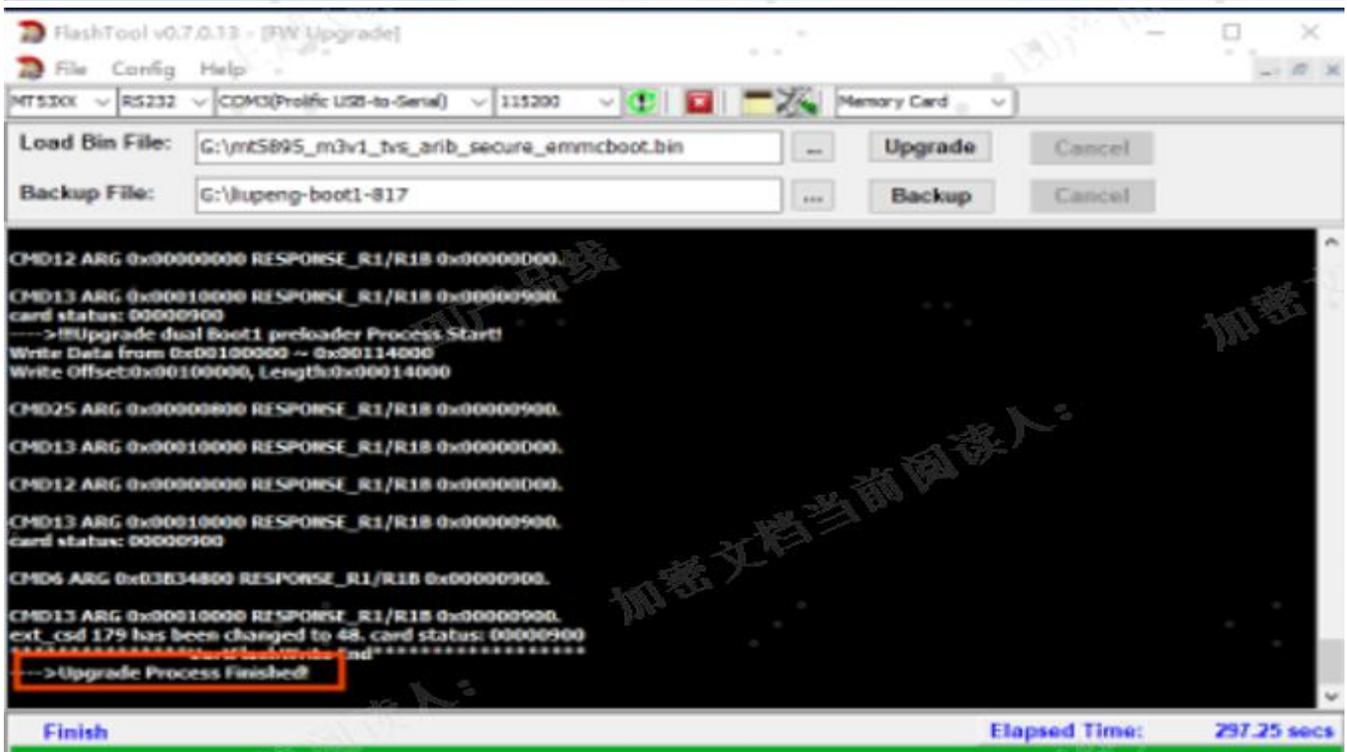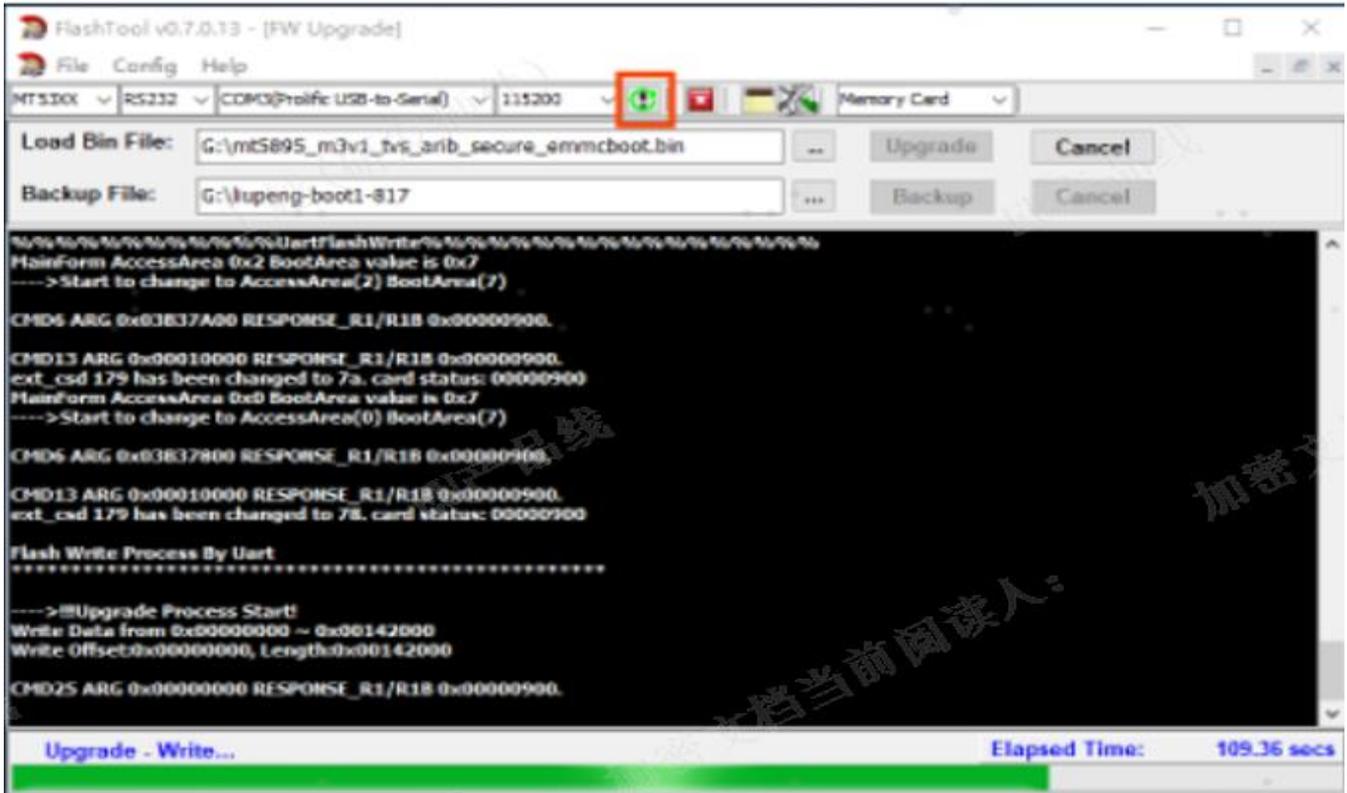
4.2.5

USB disk to upgrade the "usb_MTK_9900_EU.pkg" file.The file needs to changed name as 'upgrade_loader.pkg'.Then open the TV and Open the SecureCRT in the meanwhile.

clik 'ESC' into bootloader,   DTV>

　set：　eeprom.bw 0x38a 0xff 0x64

　set:　cu

When the program finished, we need to change projectID

Execute the following orders in   DTV>

1). cd hispid

2). list   //show all the models

3. update 2 deploy   //change projectID to 55U69GEVS

Some remarks：

1.Get boot from dailybuild in MTK_9900_EU_bootloader.tar.gz

2.Open the UART serial option

UAR serial choose "on "

Menu: Factory-->Options–>UART–>on
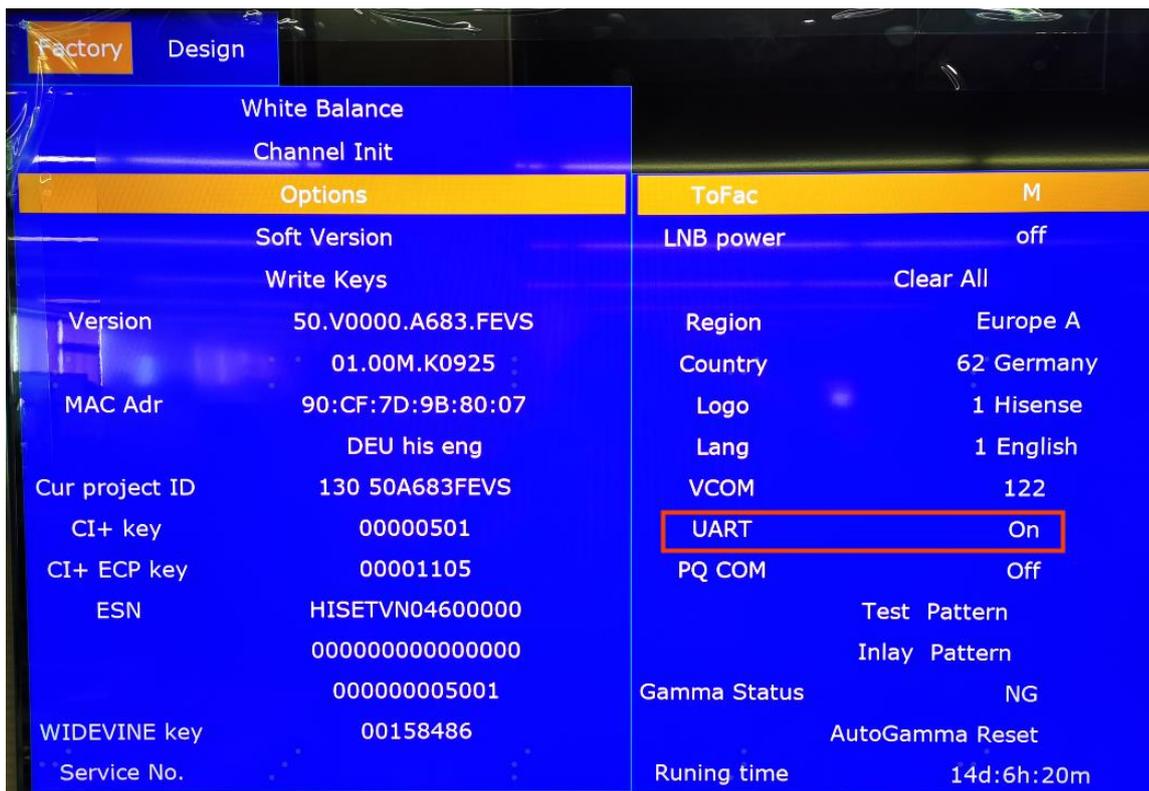
If finish the updating and data adjust UART serial, UART choose "off "

5. Trouble shooting

5.1 Troubleshooting for Remote Control

```
┌─────────────────────────────┐
│ Remote control does not work │
└─────────────────────────────┘
              │
              ▼
         ╱─────────╲        YES      ┌──────────────────┐
        ╱ Try new    ╲──────────────▶│  Replace battery  │
        ╲ batteries  ╱               └──────────────────┘
         ╲─────────╱
              │ NO
              ▼
         ╱─────────╲        YES      ┌──────────────────────┐
        ╱ Replace RC ╲─────────────▶│ Replace remote control │
         ╲─────────╱                └──────────────────────┘
              │
              ▼
      ┌──────────────────┐
      │ Check IR receiver │
      └──────────────────┘
              │
              ▼
         ╱───────────────╲   YES     ┌──────────────────┐
        ╱ Change Led & IR ╲─────────▶│ Replace Led & IR BD│
        ╲ board           ╱          └──────────────────┘
         ╲───────────────╱
              │ NO
              ▼
         ╱───────────────╲   YES     ┌──────────────────────┐
        ╱ Change Led & IR ╲─────────▶│ Replace Led & IR cable │
        ╲ cable           ╱          └──────────────────────┘
         ╲───────────────╱
              │ NO
              ▼
      ┌──────────────────┐
      │ Replace main board │
      └──────────────────┘
```
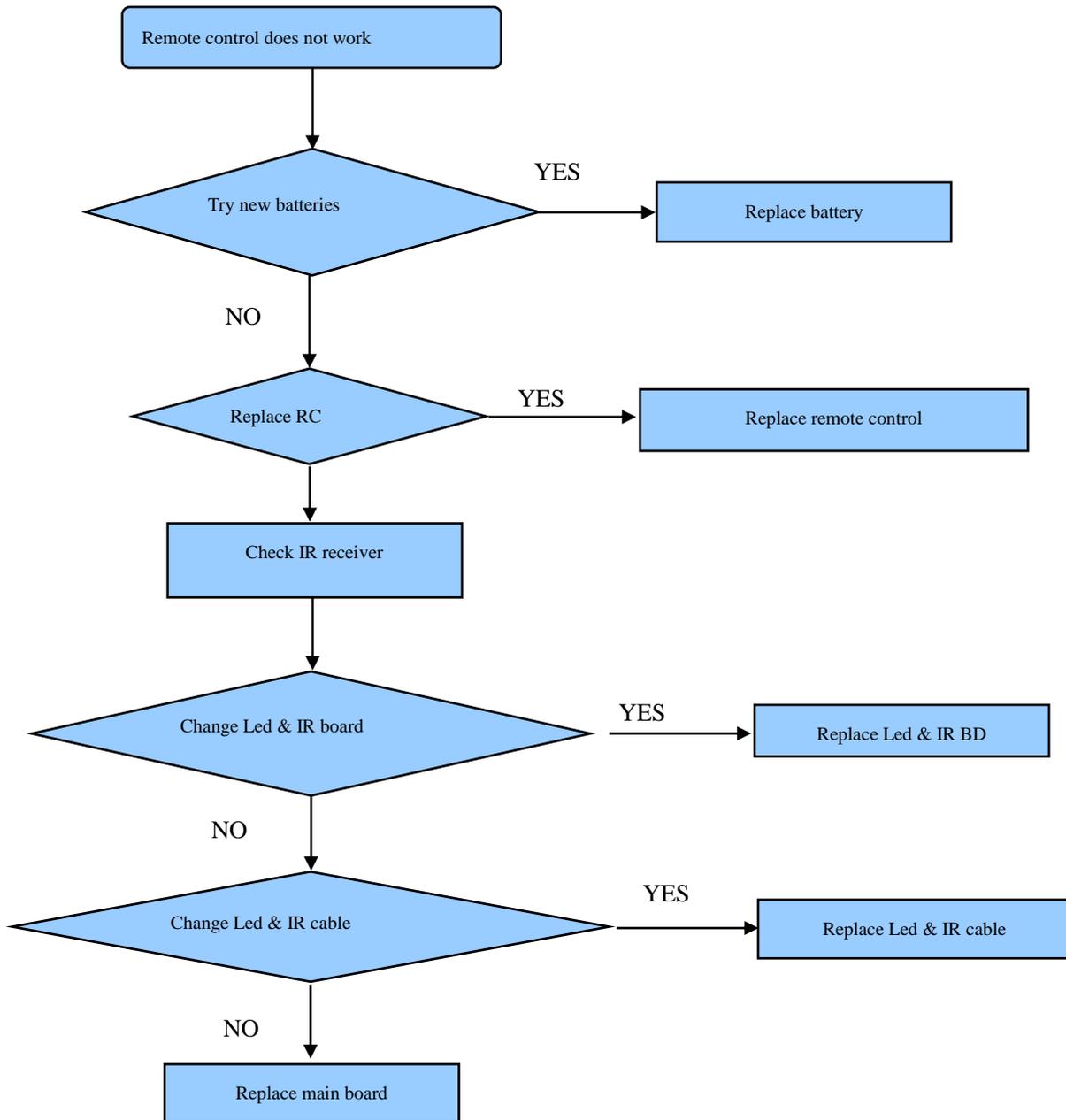
5.2 Troubleshooting for Function Key

```
          ┌─────────────────────┐
          │ Buttons does not work│
          └──────────┬──────────┘
                     │
                     ▼
              ◇ Check switches ◇ ──YES──►  ┌──────────────────────────────┐
                     │                      │ Check solder connections and │
                    NO                      │ see if ...                   │
                     ▼                      └──────────────────────────────┘
              ◇ Check key board ◇ ──YES──► ┌──────────────────┐
                     │                      │  Replace Key BD  │
                    NO                      └──────────────────┘
                     ▼
          ┌─────────────────────┐
          │ Check Key BD cable  │
          └──────────┬──────────┘
                     │
                     ▼
              ◇ Change  Key  BD ◇ ──YES──► ┌──────────────────┐
                     │                      │        OK        │
                    NO                      └──────────────────┘
                     ▼
          ┌─────────────────────┐
          │  Replace main board │
          └─────────────────────┘
```

5.3 TV won't Power On

```
┌──────────────────────┐
│  TV won't power on   │
└──────────────────────┘
            │
            ▼
      ◇ Is  LED ◇ ─────NO─────►  ◇ Check  Power ◇ ───YES───►  ┌────────────────────┐
      ◇  light?  ◇                ◇  Output        ◇             │ Make Sure Power    │
                                                                  │ source is live     │
                                                                  └────────────────────┘
            │ YES                          │ NO
            │                              ▼
   ┌────────┴────────┐            ◇ Check  Power ◇ ───YES───►  ┌────────────────────┐
   ▼                 ▼            ◇  Cord          ◇             │ Replace Power Cord │
┌──────────┐    ┌─────────┐                                     └────────────────────┘
│ No light │    │  RED    │              │ NO
└──────────┘    └─────────┘              ▼
```

Only one works → Check/replace IR BD or Keypad PCA

Try Power on by RC and Button

Neither works → Replace Main BD

Both Work

◇ Panel Bright ◇ ──YES──► ◇ Check signal Source ◇ ──YES──►

NO ── Replace Main BD ── NO ── Replace Panel (to contact Hisense tech support.) ── OK

◇ Power on ◇ ──YES──► OK

NO ──► Replace Power BD

Notice:

MT9900 Europe market：

TV work normally indication led is no light.

TV standby indication led is red.

5.4 Troubleshooting for Audio

```
                  ┌─────────────────────┐
                  │      No sound       │
                  └─────────────────────┘
                             │
                             ▼
              ◇ Check connecter ◇ ──YES──► ┌──────────────────┐
                             │             │    Reconnect     │
                            NO             └──────────────────┘
                             ▼
              ◇ Check speaker wire ◇ ──YES──► ┌──────────────────────┐
                             │                │ Replace speaker wire │
                            NO                └──────────────────────┘
                             ▼
              ◇ Check speaker set ◇ ──YES──► ┌──────────────────────┐
                             │               │  Replace speaker set │
                            NO               └──────────────────────┘
                             ▼
              ┌──────────────────────┐ ──YES──► ┌──────────────────┐
              │  Replace main board  │          │        OK        │
              └──────────────────────┘          └──────────────────┘
                             │
                             ▼
              ┌──────────────────────────────┐
              │     Power Supply Board       │
              └──────────────────────────────┘
```
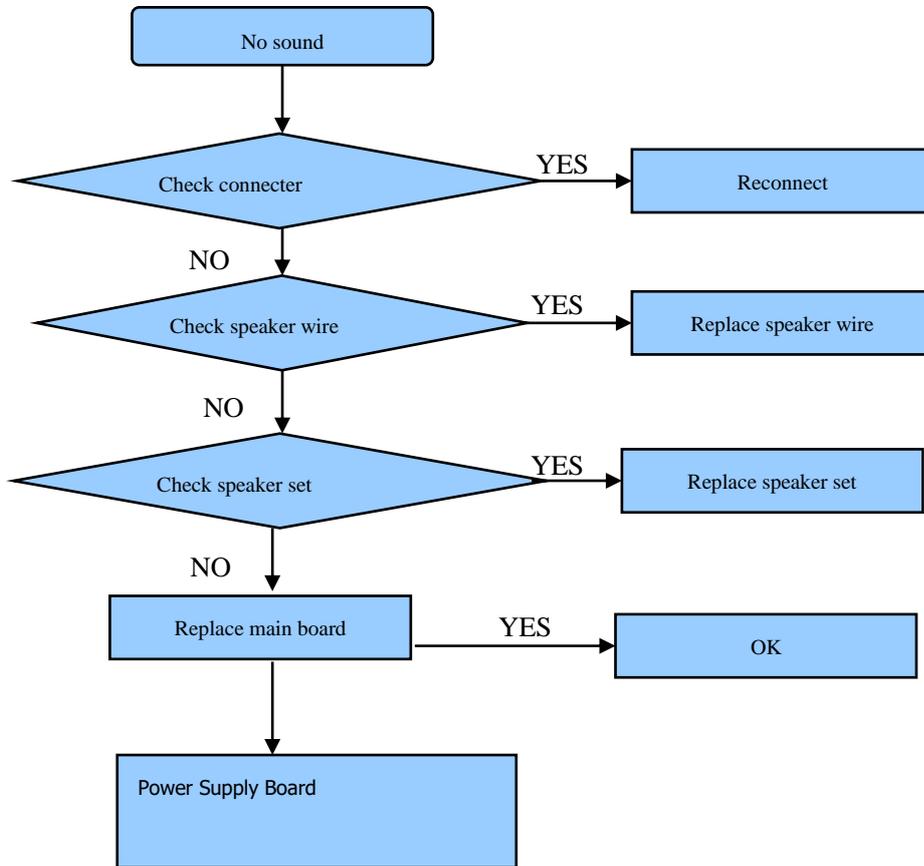
5.5 Troubleshooting for TV/VGA/HDMI input

```
┌──────────────────────────┐
│  No picture on the screen │
└──────────────────────────┘
              │
              ▼
         ◇ Check Signal Source ◇ ──NO──▶ ┌──────────────────────┐
              │                          │ Make sure signal     │
              │                          │ source is available  │
              │                          └──────────────────────┘
              ▼
         ◇ Check connect ◇ ──YES──▶ ┌──────────┐
              │                     │ Reconnect │
              │ NO                  └──────────┘
              ▼
         ◇ Check cable ◇ ──YES──▶ ┌───────────────┐
              │                   │ Replace cable │
              │ NO                └───────────────┘
              ▼
   ┌──────────────────────┐
   │ Replace main board   │
   └──────────────────────┘
```
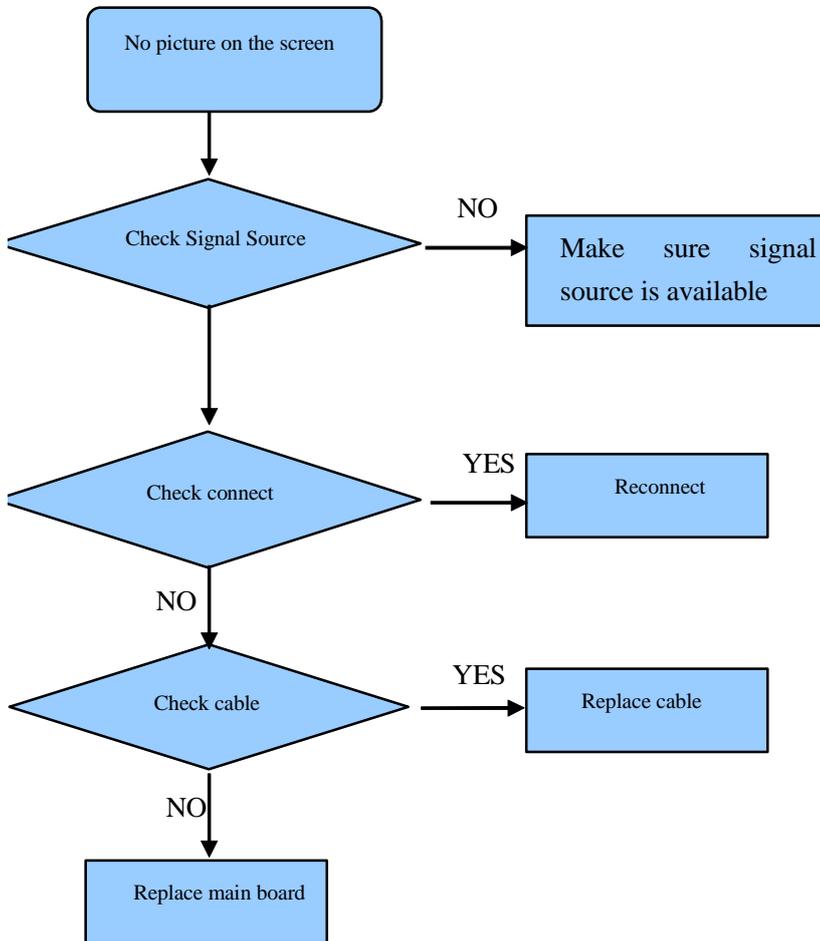
5.6 Troubleshooting for YPbPr input

```
        ┌─────────────────────────┐
        │ No picture on the screen │
        └─────────────────────────┘
                     │
                     ▼
              ╱─────────────╲
             ╱               ╲        NO      ┌──────────────────────┐
            ╱ Check Source    ╲───────────────▶│  Check Source Device │
            ╲ work or not     ╱               └──────────────────────┘
             ╲               ╱
              ╲─────────────╱
                  │ YES
                  ▼
              ╱─────────────╲
             ╱               ╲        YES     ┌──────────────────────┐
            ╱  Check connect  ╲──────────────▶│      Reconnect       │
            ╲                 ╱               └──────────────────────┘
             ╲               ╱
              ╲─────────────╱
                  │ NO
                  ▼
              ╱─────────────╲
             ╱               ╲        YES     ┌──────────────────────┐
            ╱ Check Wires     ╲──────────────▶│    Replace wires     │
            ╲ (Green Blue,Red)╱               └──────────────────────┘
             ╲               ╱
              ╲─────────────╱
                  │ NO
                  ▼
        ┌─────────────────────────┐
        │   Replace main board    │
        └─────────────────────────┘
```
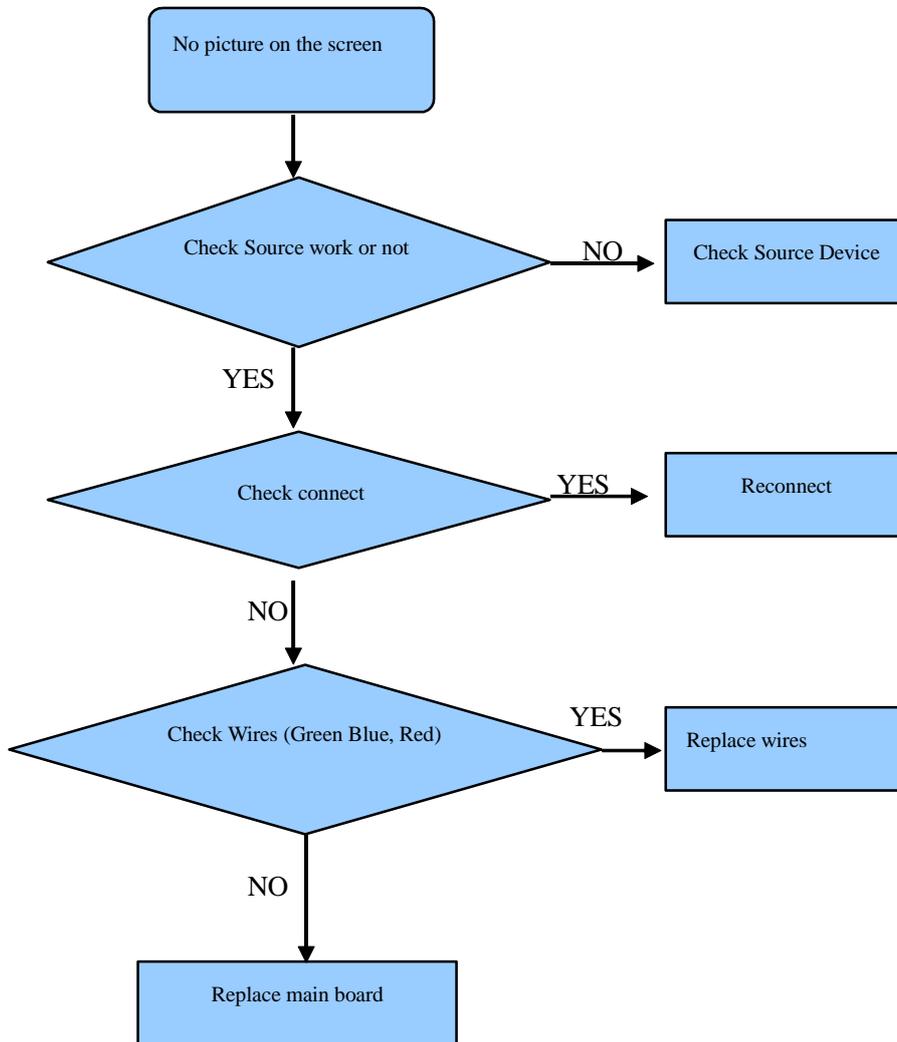
5.7 Troubleshooting for Video input

```
┌──────────────────────────┐
│  No picture on the screen │
└──────────────────────────┘
              │
              ▼
         ◇ Check Source work or not ◇ ──── NO ───▶ ┌──────────────────────┐
                                                    │  Check Signal Source │
                                                    └──────────────────────┘
              │
             YES
              │
              ▼
         ◇ Check connect ◇ ──── YES ───▶ ┌──────────────────────┐
                                          │      Reconnect       │
                                          └──────────────────────┘
              │
             NO
              │
              ▼
         ◇ Check Cable/ Wires ◇ ──── YES ───▶ ┌──────────────────────┐
                                               │  Replace Cable/Wires │
                                               └──────────────────────┘
              │
             NO
              │
              ▼
┌──────────────────────┐
│  Replace main board  │
└──────────────────────┘
```
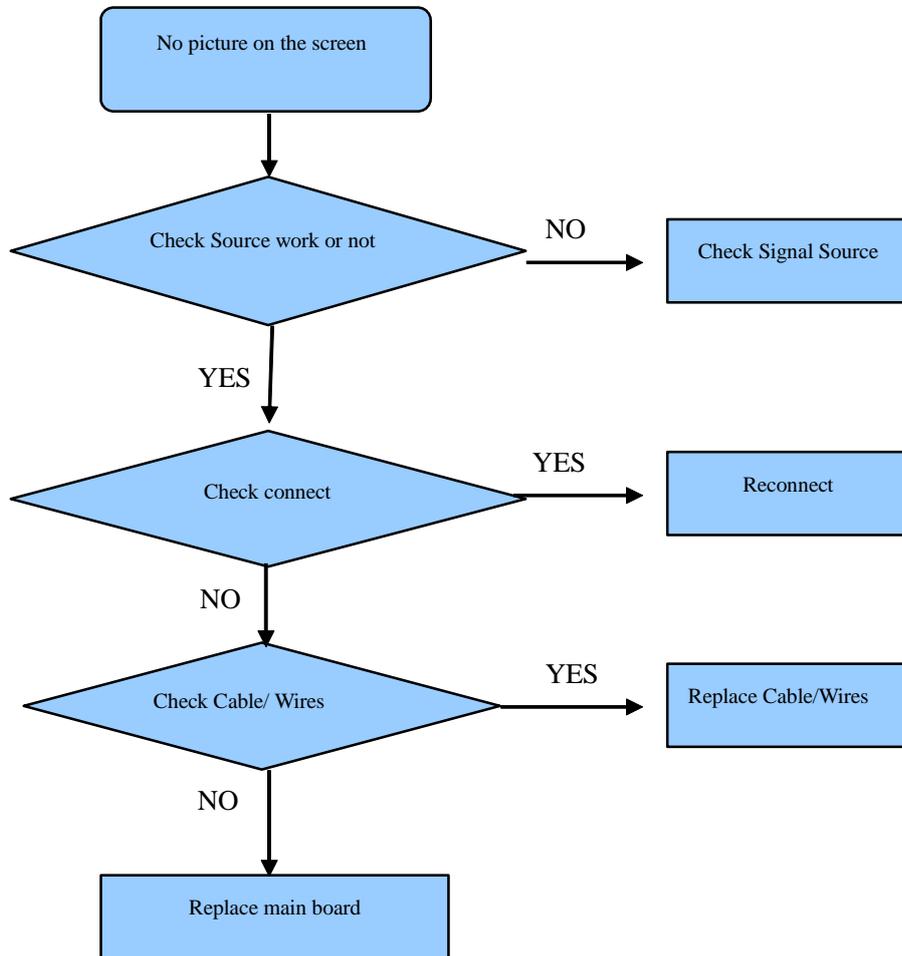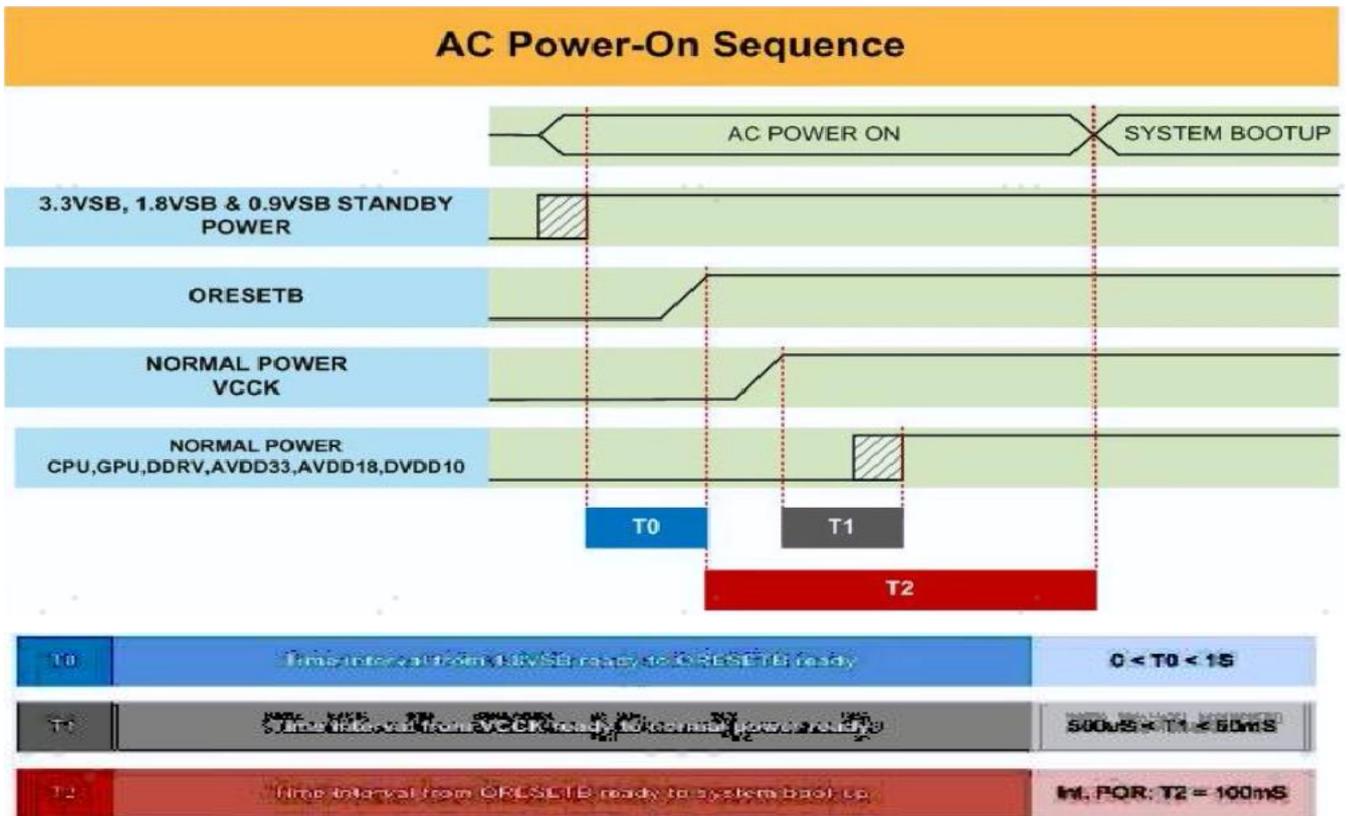
6. Signals Block Diagram & power assign & schematic diagram

Fig. 1-1 Recommended AC Power on sequence with internal POR