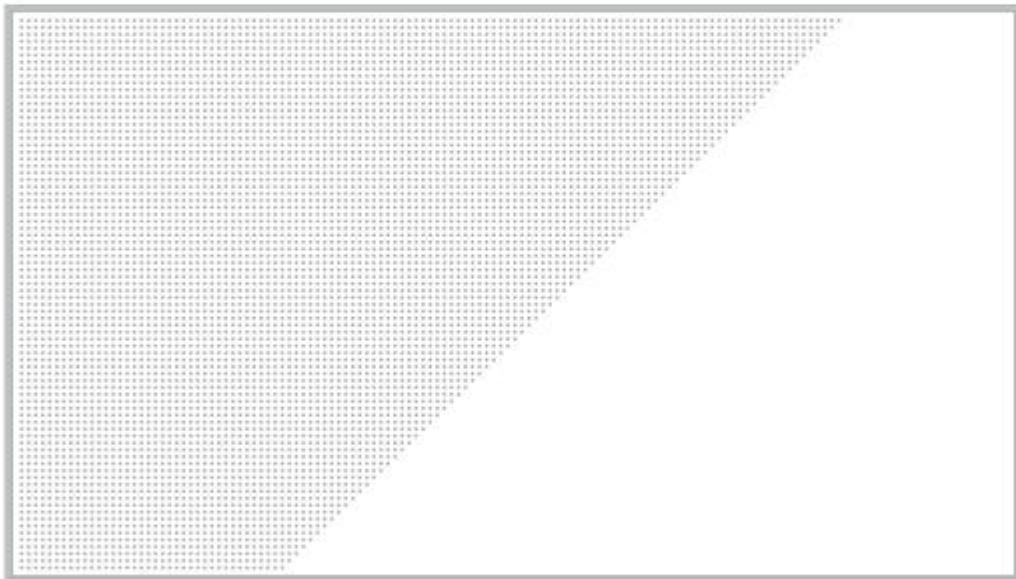

Service Manual

DSX SERIES

Digital Signage

Quick Start Manual



newline

Contents:

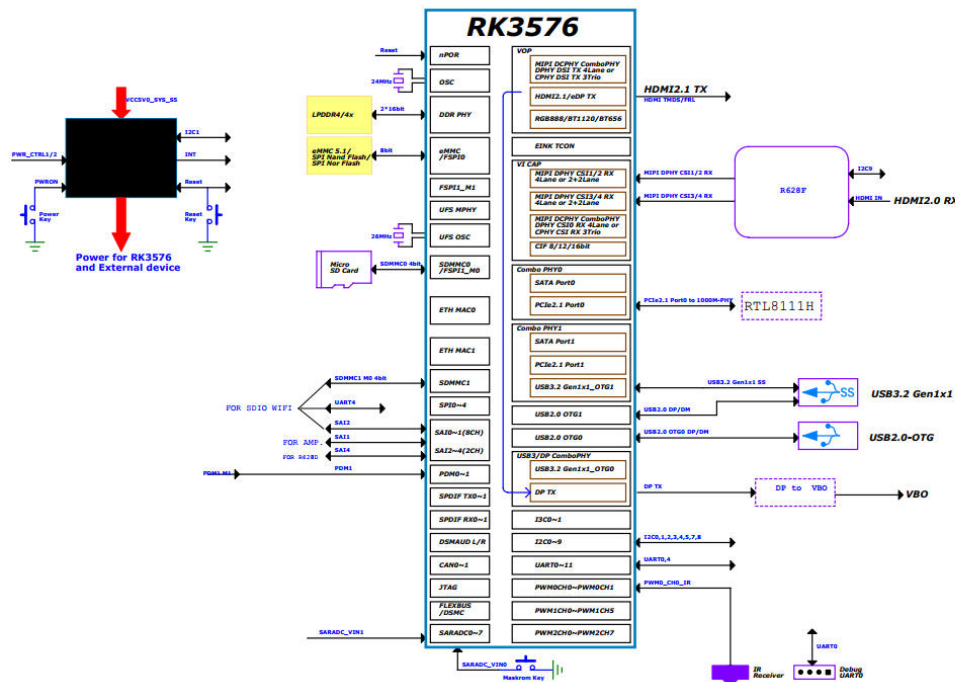
SAFETY NOTICE.....	2
Part A. System Diagram.....	3
Part B. Recommended Spare Parts List.....	4
Part C. Six view.....	6
Part D. Exploded Views.....	8
Part E. Replace OC module	10
Part F. Overview of PCBA screws	11
Part G. Overview of PCBAs.....	12
Part H. Internal cables.....	13
Part I. Replacing the battery in remote control.....	14
Part J. RK3576 Movement Debugging Instruction.....	15
Part K. Trouble shooting	23
Part L. Software Upgrade.....	32

SAFETY NOTICE

1. There are many electrical and mechanical parts in the QCA+ series touchscreen, which the technician need pay attention to the safety precaution before repairing.
2. It is essential that all the components should be replaced with the same or authorized components as recommended in this manual to prevent Shock, Fire, or any other Hazards.
3. Please do not modify the original mechanical or electrical design without previous verification from the manufacturer or authorized agent.
4. Before start repairing or disassembling the machine, please make sure unplug the machine from any power source and properly grounded.

Part A. System Diagram:

RK3576 Ref Block Diagram(Typical Application Case)



Part B. Recommended Spare Parts List

RECOMMENDED SPARE PARTS LIST (43DS50)

*BOM usage

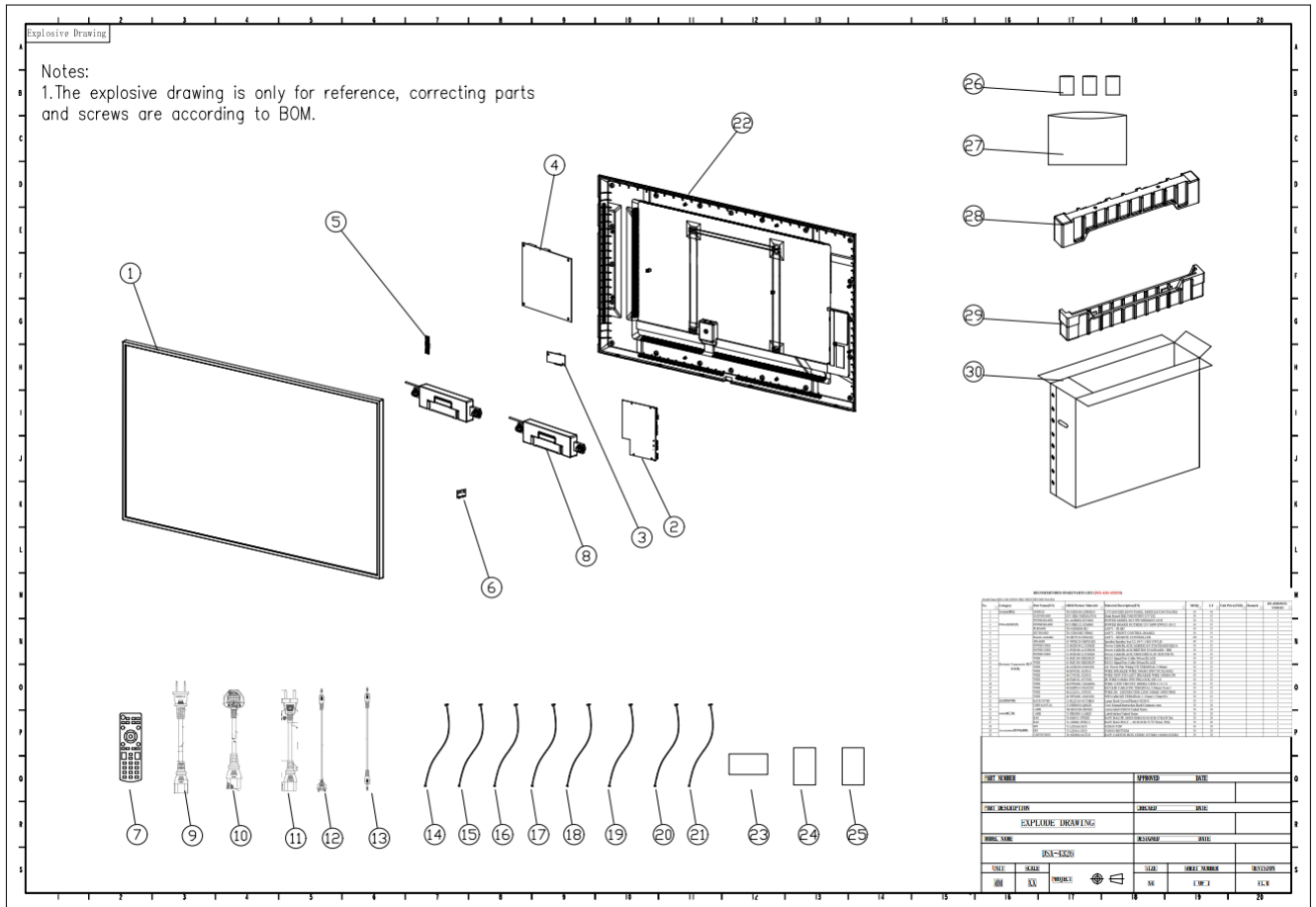
Detailed info: DSX-4326/43DS50/1RK576D3NTHN/CS01T0A/DM

D3-43DS50T1-EUSIAU

No.	Category	ODM Partner	ODM Partner Material	Material Description in System	Material Description	
1	Module	MODULE	T8-43DS500-LPBX012	LVU430CSDX E0498 PANEL MODULE/CS01T0A/DM	LCD Module	1
2	PCBA	FRONT CONTROL BOARD	T8-55DS50R7-FB002	ASS'Y - FRONT CONTROL BOARD	Front control board	1
3		IR BOARD	T8-43DS6D6-IR1	ASS'Y - IR BD	IR Board	1
4		MAIN BOARD	02-1RK576DMA-F01I	Main Board/1RK576D3NTHN/12V/UD	Mainboard	1
5		WIFI BOARD	07-WBRTL8-852BUGD	WIFI & Bluetooth Module/WXT04R2511A/RTL	WIFI board	1
6		POWER MODEL	81-ACB00X-H370002	POWER MODEL/00/370W/SHD6001F-101H	AC socket adapter board	1
7		POWER BOARD	81-PBE122-Z160001	POWER BOARD OUTSIDE/12V/160W/ZW9251-D-12	Power board	1
8	Electronic Components	REMOTE CONTR	T6-H87N19-ZX00122	ASS'Y - REMOTE CONTROLLER	Remote controller	1
9		SPEAKER	42-WFB220-X6PX1HX	Speaker/Speaker box/UL 94/V-1/6Ω/11W/LR/	Speaker L&R	2
10		RS232 Signal	41-RSC300-NBXX02P	RS232 Signal Port Cable/300cm/BLACK	RS232 Signal Port Cable	1
11		RS232 Signal	41-RSC300-NBXX03P	RS232 Signal Port Cable/300cm/BLACK	RS232 Signal Port Cable	1
12		POWER CORD	51-BCB240-L1U0H1B	Power Cable/BLACK/AMERICAN STANDARD/SQUA	Power cord	1
13		POWER CORD	51-PCB300-A1U0H1B	Power Cable/BLACK/BRITISH STANDARD / BRI	Power cord	1
14		POWER CORD	51-PCB300-C2U0H1B	Power Cable/BLACK/UROCODE/JL201 ROUND PL	Power cord	1
15		WIRE	46-ACK020-03G01XX	AC Power Pair Wiring/VH TERMINAL/3.96mm/	AC WIRE	1
16		WIRE	46-BV020L-02J01G	WIRE SPEAKER WIRE 200MM 2PIN TJC3(LOCK)	Speaker cable R	1
17		WIRE	46-CV050L-02J01G	WIRE NEW STD LEFT SPEAKER WIRE 500MM 2PI	Speaker cable L	1
18		WIRE	46-FM035L-05V03G	IR WIRE/350MM 5PIN PH(LOCK) GH 2.0/	IR WIRE	1
19		WIRE	46-FW0400-51DA0HG	WIRE 51PIN VBO FFC 400MM 51PIN 0.5 0.5 0	LVDS WIRE	1
20		WIRE	46-KRP014-03G01XX	KEY&IR CABLE/PH TERMINAL/2.00mm/14cm/3	KEY&IR WIRE	1
21		WIRE	46-LL025L-14T03G	WIRE DC CONNECTING LINE 250MM 14PIN PHD	DC WIRE	1
22		WIRE	46-WFG085-10G01XX	WiFi Cable/GH TERMINAL/1.25mm/1.27mm/85c	WIFI WIRE	1
23	ME	BACK COVER	55-RLZ5A0-0UY6RH	Large Back Cover(Plastic)/43DS50	Back cover up	1
24		AV Support	56-AVZ5A0-8UY6RH	DS50 AV Support	AV Support	1
25		KEY Holder	56-KSZ5A1-0HCZ1H	DS50 Key Holder	KEY Holder	1
26		VSEA	67-MLZ5A0-0G0	43DS50 vesa holder/DS50	VSEA	4
27		Wall mount b	68-990110-800W1H	DS60 DEC BRACKET VESA -- 00 00 00 R=Y	Wall mount bracket	1
28	LABEL	Quick Start	70-XIA0MI-EPEZ2	Quick Start Guide	Quick Start Guide	1
29		LABEL	7B-HH43EU-BOXZ2	carton label/43DS50/Europe	Carton Label	1
30		LABEL	58-43DS50-80JZ1	43DS50/AV Label	AV Label	1
31		LABEL	58-HHDSEU-OUHZ1	Caution Label/Model Name Plate/DS50/Euro	Model Name Plate	1
32	Accessories	Instruction	72-HHDSEU-QSGZ1	User Manual/Instruction Book/Europe	Instruction Book	1
33		BAG	74-026035-5WE9V	RAW BAG PE 260X350MM 00 00 00 R=Y/RAW BA	Accessory bag (Power cord/RS232 Signal	1
34		BAG	74-120080-3WKU2	RAW BAG POLY -- 00 00 00 R=Y/TV BAG /POL	Machine bag (Bag for whole machine)	1
35		POLYFOAM	75-LZ50A4-EE0	43DS50-EPE-TOP	Polyfoam top	1
36		POLYFOAM	75-LZ50A5-EE0	43DS50-EPE-BOTTOM	Polyfoam bottom	1
37		CARTON	76-43DS60-0ATT5FN	RAW CARTON-BOX 43DS60 1075MM 144MM 652MM	Carton	1

Part D: Exploded Views

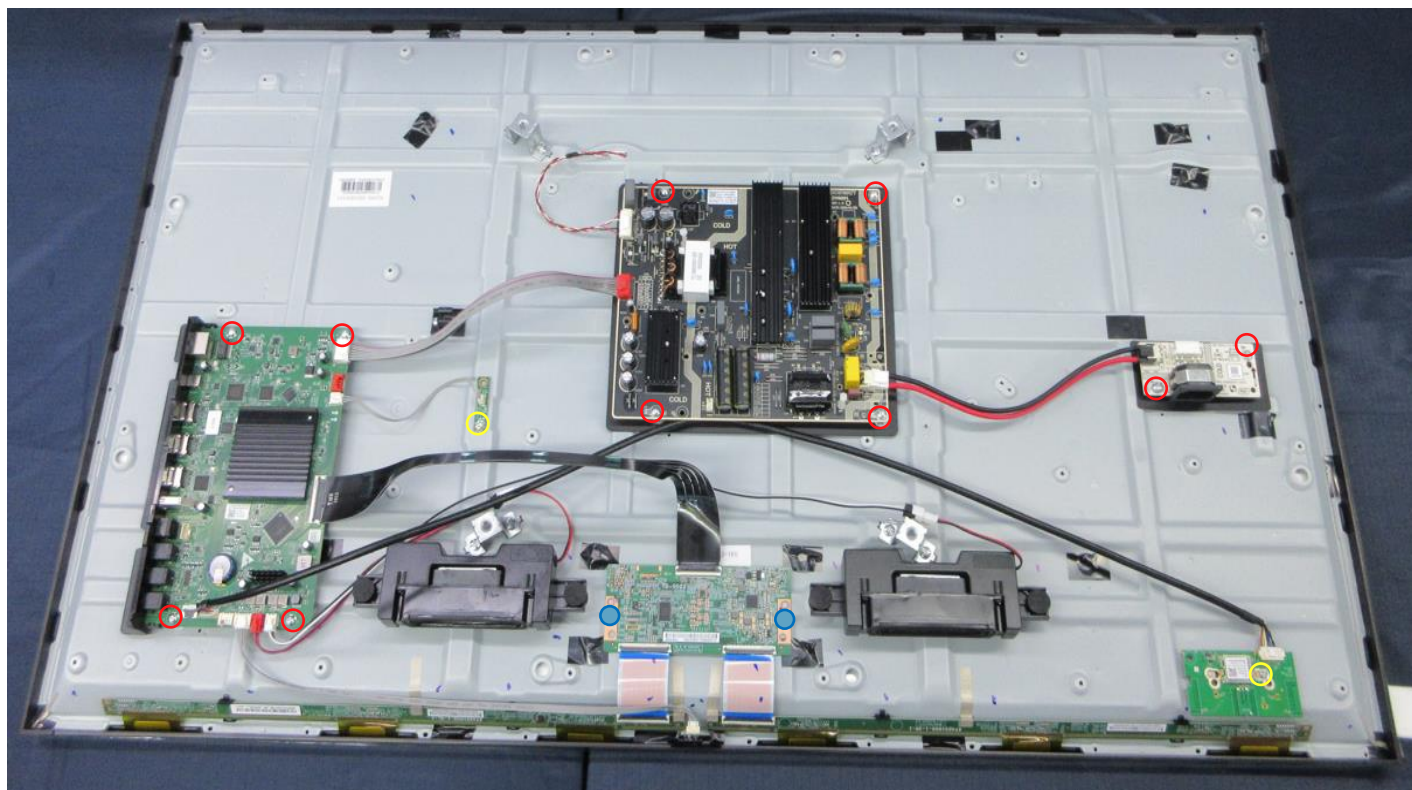
DSX-4326:



Part E. Replace OC module

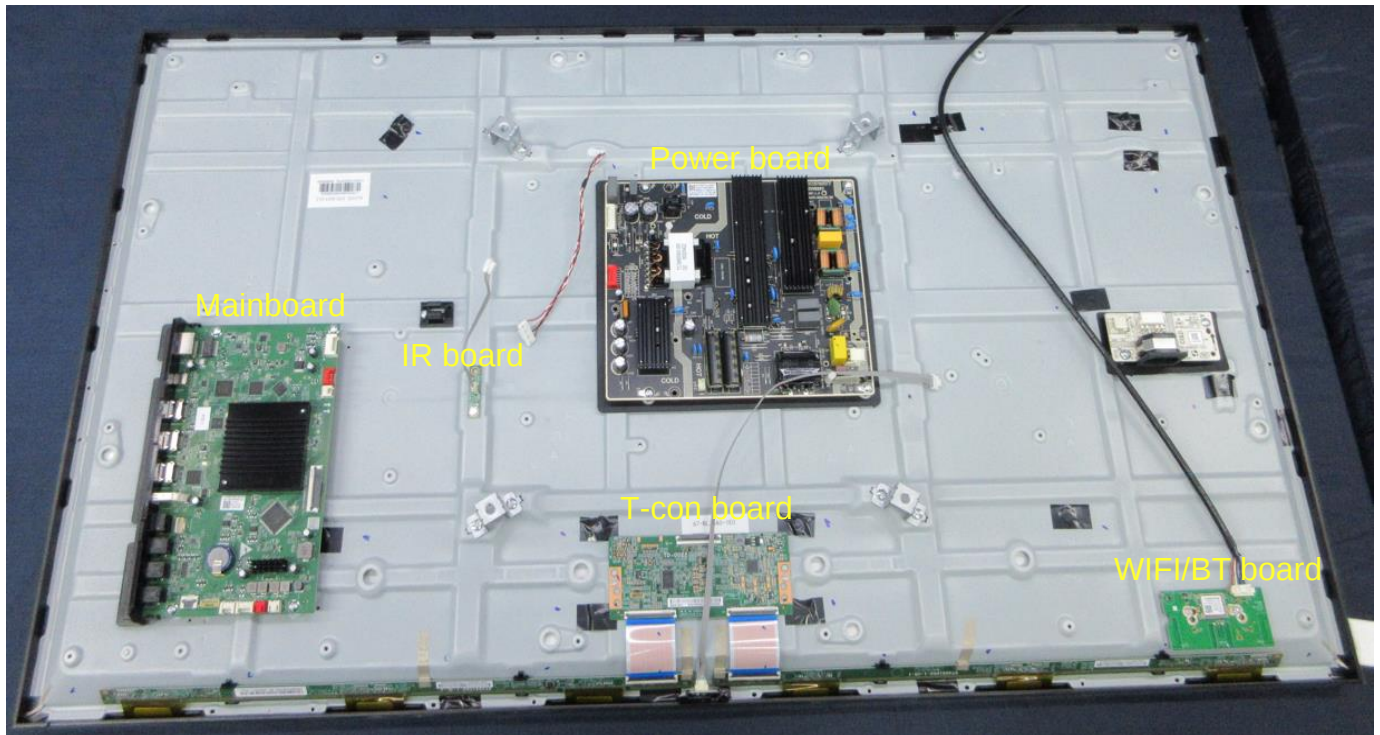
1. Take off rear covers, remove all components like mainboard, power board, camera & mic board, inner cables and IR PCB SET from the original defect unit.
2. Remove glass from defect unit.
3. Assemble new OC module to original glass
4. Assemble all of components that removed from the defect unit to the new OC module.
5. Hang on the screen and power on, testing.
6. Keep the T-CON board of defect unit as spare parts buffer

Part F. Overview of PCBA screws

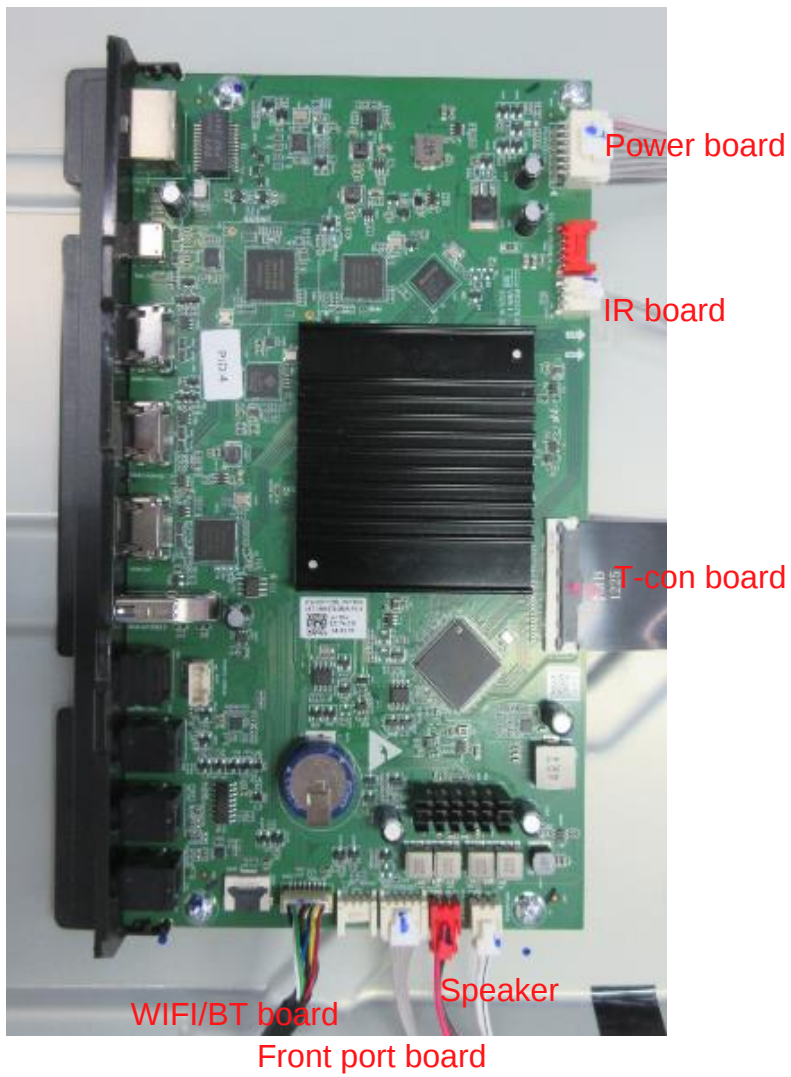


Color	Picture	Description
		M3*6 Power board and mainboard screw
		M3*4 IR board and WIFI/BT board
		M3*4 T-CON board screws

Part G. Overview of PCBAs



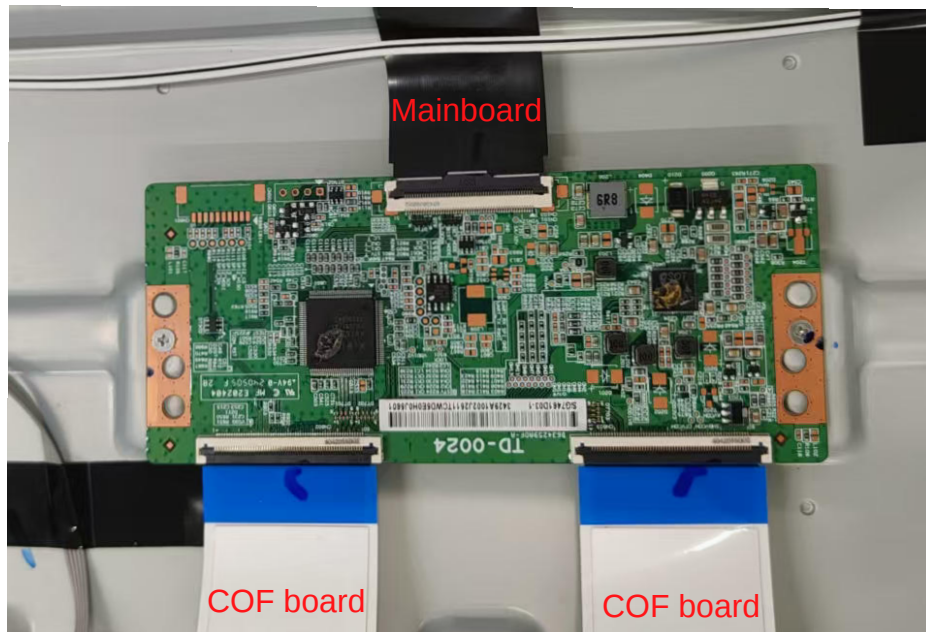
1. Mainboard wiring



2. Power board wiring



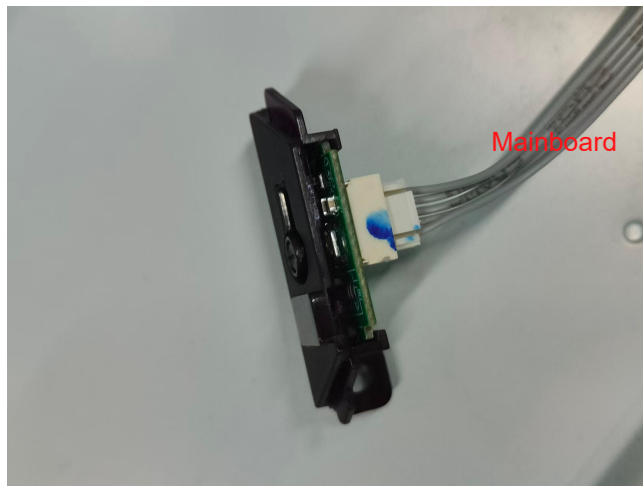
3. T-con board wiring



4. WIFI/BT board wiring



5. Front port board

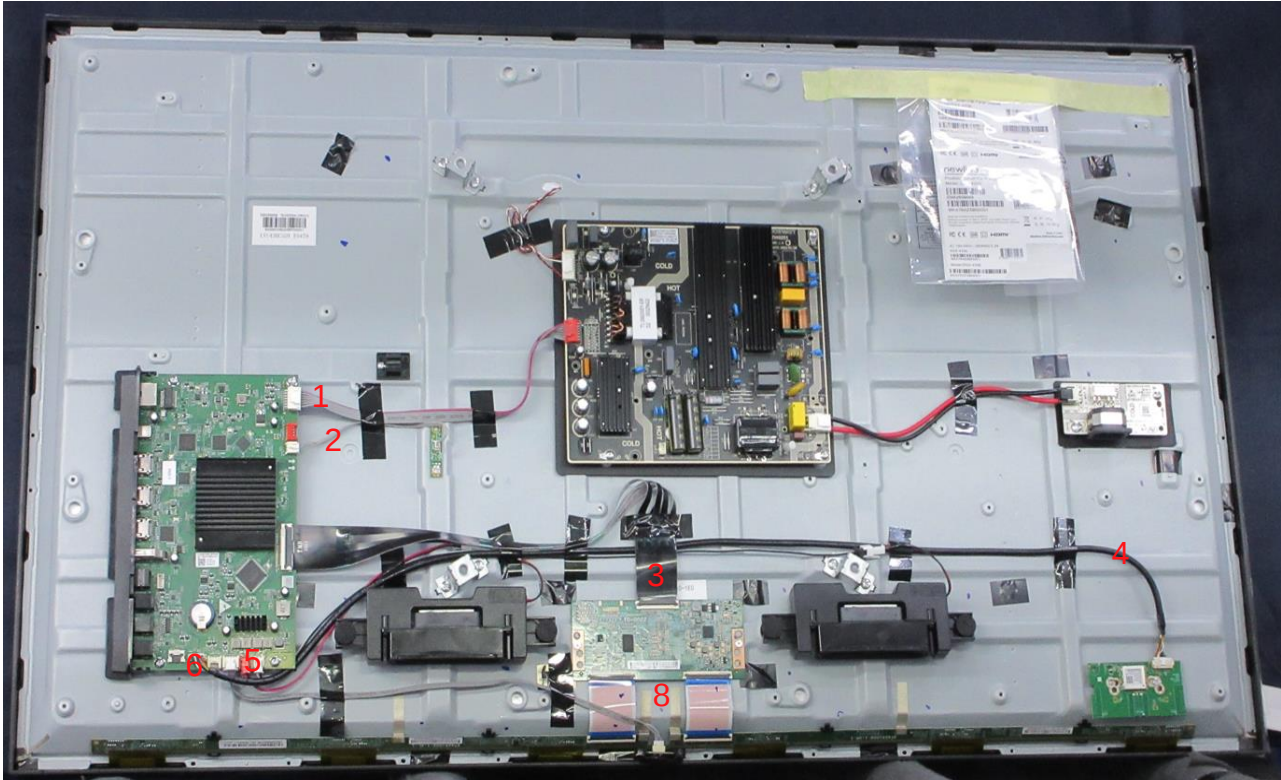


6. IR board wiring



Part H. Internal cables

7



No	Part name
1	DC cable
2	IR cable
3	T-con cable
4	WIFI/BT cable
5	Speaker cable
6	Keyboard cable
7	AC cable
8	FFC cable

Part I.Replacing the battery in remote control

a. Remove the back cover of the remote control and remove the battery



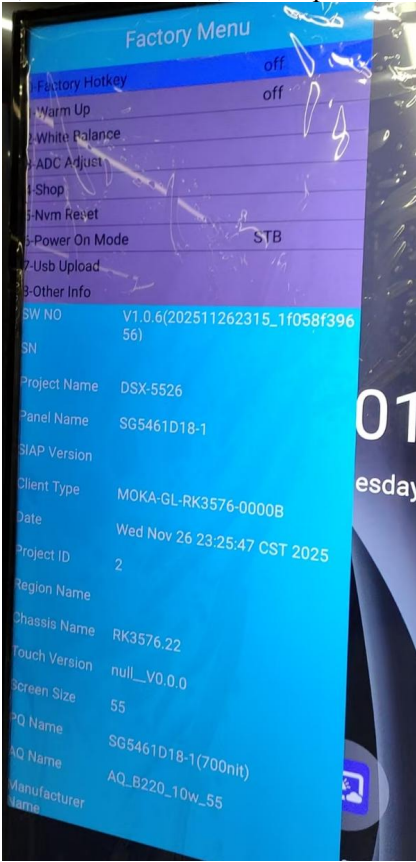
b. Take the new batteries and install them



Part J . RK3576 Movement Debugging Instructions

1 Overview

HH 3576 (DSX series) uses the 3576.22 motherboard. The factory menu is mainly used for factory production and function debugging related to the factory. Currently, the main functions include Factory Hotkey, Warm up, White Balance, ADC Adjust, Shop, NVM Reset, Power On Mode, USB Upload, and Other Info.



2 Characteristics of movement scheme

2.1 KEY FEATURE

编号 NO.	端子 TERMINAL
1	RJ45 (1000M) (J715)
2	Type C IN (JC1)
3	HDMI1 in (J2) (ARC)
4	HDMI2 in (J3)
5	HDMI out (J726)
6	Android USB3.0 (J712)
7	S/PDIF out (J727)
8	LINE out (J725)
9	RS232 IN (J728)
10	RS232 OUT (J729)

Item		Content
System parameter	Chip	RK3576
	CPU	Cortex A72*4 (MAX: 2.2GHz)+Cortex A53*4 (MAX: 2.0GHz)
	Frequency	ARM Mali G52 MC3 GPU (MAX: 900MHz)
	GPU	Computing power is up to 6TOPs
	RAM	4G Bytes LPDDR5
	Flash	32G EMMC on board
	Android version	14.0
	type	TFT-LCD
	resolution	3840*2160_60Hz

panel	voltage	12V
	interface	VByOne (8 lanes)
HDMI in+DP in	resolution	MAX: 3840*2160@60Hz
HDMI2.0 out	resolution	HDMI2.0 out→MAX: 3840*2160@60Hz

3 Adjustment method of P mode

RK3576.22 movement supports TCL factory remote control. When debugging the factory menu, please use TCL factory button type remote control.

Remote control pairing method:

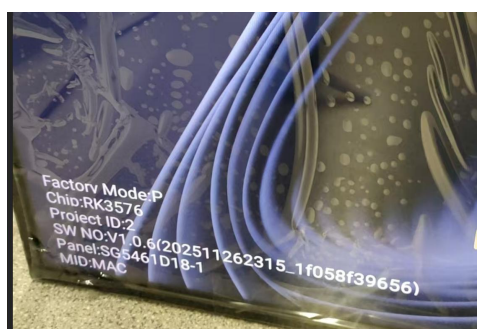
- ① Press and hold the pat key
- ② Wait for the Power and Mute keys to light up
- ③ Press 001 to pair

3.1 Entering and Exiting P Mode

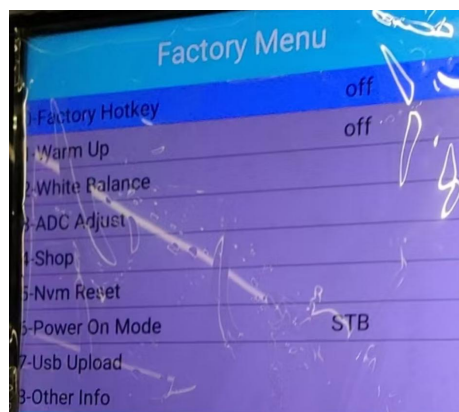
(1) To enter the factory menu, use the remote control directional keys "up, up,down,down, left,left,right, right" on the homepage. Select Factory Hotkey, choose on to enter P mode, and choose off to exit P mode.

(2) Using the SN key on the factory remote control can also quickly open the factory menu. Select Factory Hotkey, choose on to enter P mode, and choose off to exit P mode.

(3) Press the P key on the factory remote control once to turn on P mode, and press once to turn off P mode



P mode on



Factory Menu

Main\Factory		Menu Directory
0-Factory Hotkey	ON/OFF	Factory mode hotkey switch
1-Warm up	ON/OFF	Aging status switch
2-White Balance	OK	White balance adjustment
3-ADC Adjust	Disabled state	ADC calibration
4-SHOP	DO/WAIT/OK	Factory initialization
5-NVM reset	DO/WAIT/OK	Software Reset
6-Power On Mode	Power on/standby/QHB	Power on mode
7-Usb Upload	Disabled state	USB upgrade
8-Other Info	ProjectID/Eye Swing/SSC	PID/eye diagram/spread spectrum

3.2 Factory Menu

3.2.1 Factory hotkey

- 1) When this item is set to ON, the "P" window is displayed in the lower left corner;
- 2) When this item is set to ON, press the SN key to open the factory menu;
- 3) The serial command communication must be set to ON. After the serial command communication is connected, the window in the lower left corner will display "P" and change to "PS";
- 4) Execute SHOP operation, this item is automatically set to OFF

3.2.2 Warm up

When "Factory hotkey" is set to ON, "Warm up" can be set. When set to ON, it enters the aging state, and the screen displays "PW" in the upper left corner, with red, green, blue, and white fields in sequence. At this time, the remote control buttons are blocked (except for the factory remote control PW button), and the remote control does not work.

Method to exit aging mode:

- 1) Press the power button on the control panel to exit the aging mode;
- 2) Serial command tool sends serial port to disable aging mode, serial command AA 06 13 0 E2 9D;
- 3) Press the PW button on the factory remote control to exit the aging mode.

3.2.3 ADC (This movement does not support)

Enter the ADC calibration submenu, as shown below:

MAIN\ADC		Menu Directory
Auto ADC	DO/WAIT	
ADC status	FAIL/SUCCESS	Last calibration result
R-gain	**	R gain correction
G-gain	**	G gain correction
B-gain	**	B gain correction
R-offset	**	R offset correction
G-offset	**	G-offset correction
B-offset	**	B offset correction

ADC calibration is only required under VGA/YPBPR, no signal connection is needed. Select "Auto ADC" with the cursor, press "" to execute, and "Success" will be displayed after calibration is OK. (Note: This operation can be omitted before automatically debugging white balance.)

version: V1.0

3.2.4 White balance

You can select the corresponding source adjustment in this menu. This machine needs to adjust three color temperatures: NORMAL, WARM, and COOL.

Please place the machine in standard condition before making adjustments.。

See the table below for specific function explanations:

Options	Default value	Function Description
COLOR TEMPERATE	NORMAL/WARM/COOL	Adjust the color temperature of different modes of Standard /COOL/WARM
R-GAIN		R channel gain, manually adjustable, cannot be changed after auto tuning
G-GAIN		G channel gain, manually adjustable, cannot be changed after automatic tuning
B-GAIN		B channel gain, adjustable manually, cannot be changed after automatic tuning
R-OFFSET		R channel offset, manually adjustable, must not be changed after auto-tuning
G-OFFSET		G channel offset, manually adjustable, must not be changed after auto-tuning
B-OFFSET		B channel offset, manually adjustable, must not be changed after auto-tuning
Balance Init	DO/OK	Initialization of white balance debugging status

3.2.5 SHOP

This function is used to reset the device before leaving the factory. After execution, all information related to factory production and debugging will be cleared and the default settings related to the system will be restored.

After the machine is successfully reset, it will display the state shown in the figure and needs to manually turn off the power.



3.2.5 NVM reset

This operation is used in the event of software data errors on the machine, and can be performed when such malfunctions occur.

Initialize the following data values:

Catalogue	Initialize value	Menu Directory
Factory Hotkey	ON	Factory mode hotkey switch
Design Mode Hotkey	OFF	Factory D mode switch
Power On Mode	ON	Power on mode selection
Warm Up	OFF	Aging status switch
Volume	According to project requirements	volume

3.2.6 Power on mode

Used to set the power on mode:

- ① When the user selects the power-on mode as power on, it corresponds to the power-on option in the factory menu (power on mode).
- ② When the user selects the power-on mode as standby, it corresponds to the power-on standby option in the factory menu (standby).

When WOL(fastboot) is enabled:

- ① When the user selects the power-on mode as power on, it corresponds to the power-on option in the factory menu (power on mode).
- ② When the user selects the power-on mode as standby, it corresponds to the silent standby option in the factory menu

(QHB).

3.2.7 Other Info

- Project ID: PID parameter (reads panel, AQ, PQ and other data separately according to the content defined in the model file. As the called file is loaded in real time according to the definition in the model file, it achieves the goal of compatibility with multiple commercial display projects in one version of the software, thus realizing the customization function of the software)

The PID for each size is as follows::

Size	ID
43	1
55	2
65	3
75	4
86	5

Attention: Do not switch IDs randomly, as incorrect IDs can cause machine data errors

- Eye Swing:Eye Chart Parameters
- SSC: Spread spectrum parameters

4 Main program upgrade methods

4.1 Upgrading the main program with a USB flash drive

- Preconditions:
 - (1) Use NTFS format USB drive, other formats cannot be upgraded
 - (2) Please do not turn off the power during the upgrade process
 - (3) Do not interfere with the PID upgrade interface, otherwise it may cause PQ/AQ data errors

Step 1: Insert the USB flash drive

Step 2: Long press the Power button on the machine until the upgrade interface appears

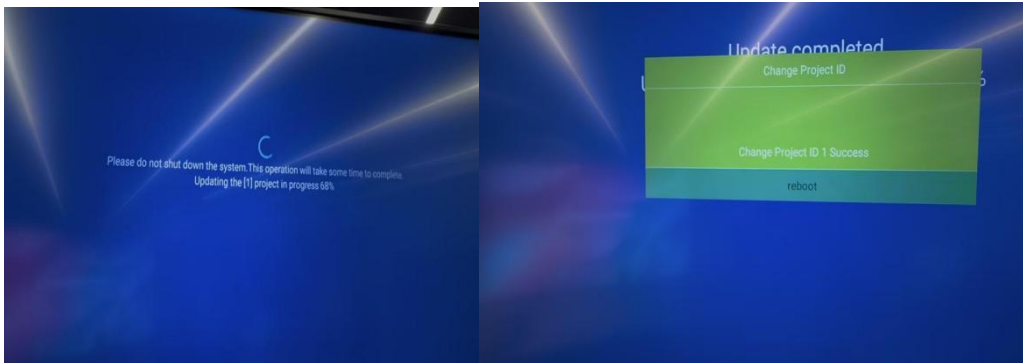
Step 3: Once the upgrade interface appears on the machine, you can release it



Step 4: After the upgrade progress bar is completed, the machine will automatically restart and a startup wizard

will appear

Step 5: When the PID upgrade interface appears, it will automatically upgrade and restart. Please do not interfere



4.2 USB Disk Requirements

Format: NTFS

Capacity size: Recommended 8G~64G

5 System environment

5.1 Requirements for serial communication tools (such as third-party serial communication tools)

None

6 Special requirements for resetting

Special precautions for resetting:

- 1) Do not power off during the reset process;
- 2) Wait until a green screen appears to indicate successful reset;;
- 3) If there is an abnormal power outage or reset interruption during the process, the factory menu has implemented error prevention measures and will reset again the next time the machine is turned on.

7 Cut PID Method and Precautions

7.1 Method of switching PID

Remote control, select Factory menu Other info ->ID

7.2 Precautions for switching PID

Change ID duration: $\leq 2s$

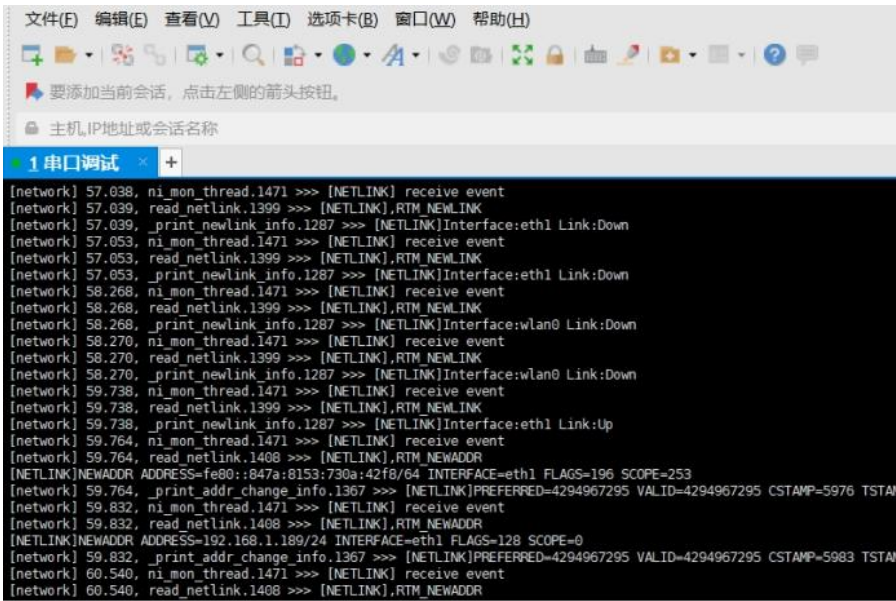
Do I need to restart: I need to restart. After completing the ID, many configurations need to be reset to take effect due to changes in ID.

8 Methods for capturing logs

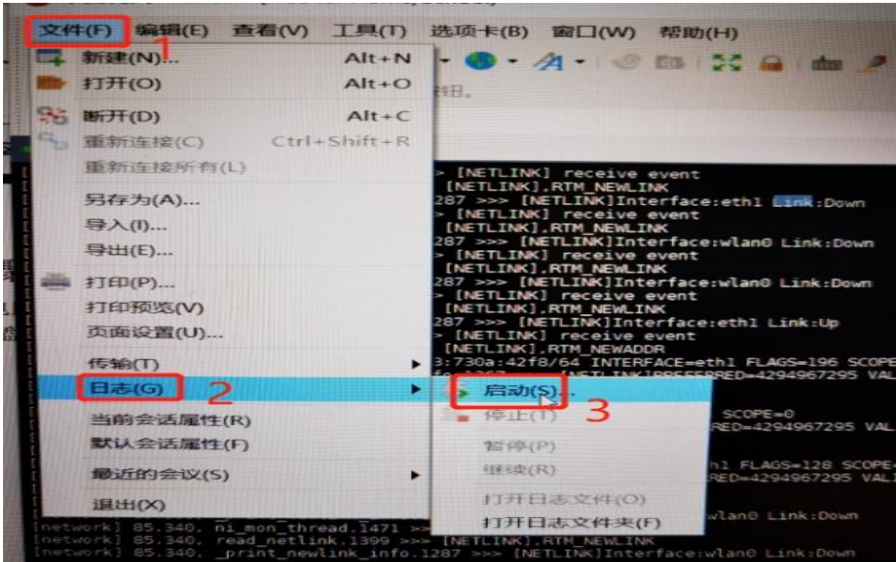
8.1 Serial Port Capturing Log and Printing Information

Step 1. Turn off P mode

Step 2. Connect the computer to the motherboard RS232 or debug interface through a serial port tool. After Xshell software successfully connects to the serial port tool, a print message will appear, such as:



Step 3. In the Xshell tool, select "File - Log - Start", retrieve the log, and save it



9 Factory menu and other information

The configuration information of software and hardware in the factory menu section is shown in the following table:

name	illustrate
SW NO	VERSION
SN	The serial number of the device
Project name	Machine Name
Panel name	Screen parameter name
Client type	Client type field
Project ID	PID
Region name	This movement is currently unavailable
Chassis Name	Movement name
Touch Version	Touch version

version: V1.0

Screen Size	Screen size
PQ Name	PQ Name
AQ Name	AQ Name

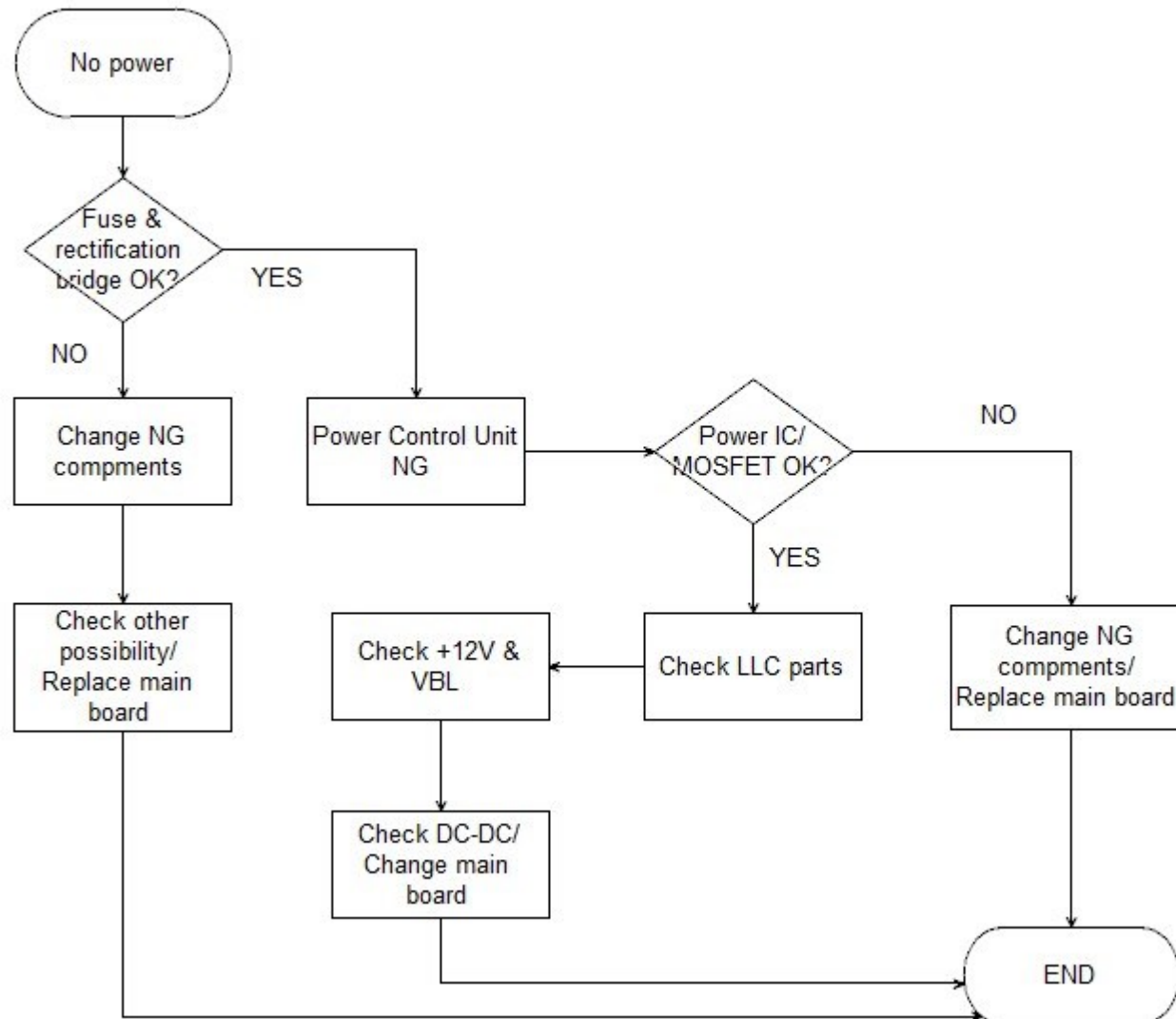
Part K . Trouble shooting

Terms:

- ✓ **IR:** *Infrared Receiver*
- ✓ **RC:** *Remote Control*
- ✓ **IR logic:** *IR blink with RC action*
- ✓ **LVDS:** *Low Voltage Differential Signal, output from processor and input for panel*
- ✓ **O/C:** *Open Cell, panel with source board*
- ✓ **BL:** *Back Light, light source for panel module*
- ✓ **LB:** *LED (Light Emitting Diode) Bar, light source for BL module*
- ✓ **VBL:** *Voltage for Back Light (before Boost)*
- ✓ **VLED:** *Voltage for LED (after Boost)*
- ✓ **OVP:** *Over Voltage Protection*
- ✓ **OSD:** *On Screen Display*
- ✓ **AMP:** *Amplifier*

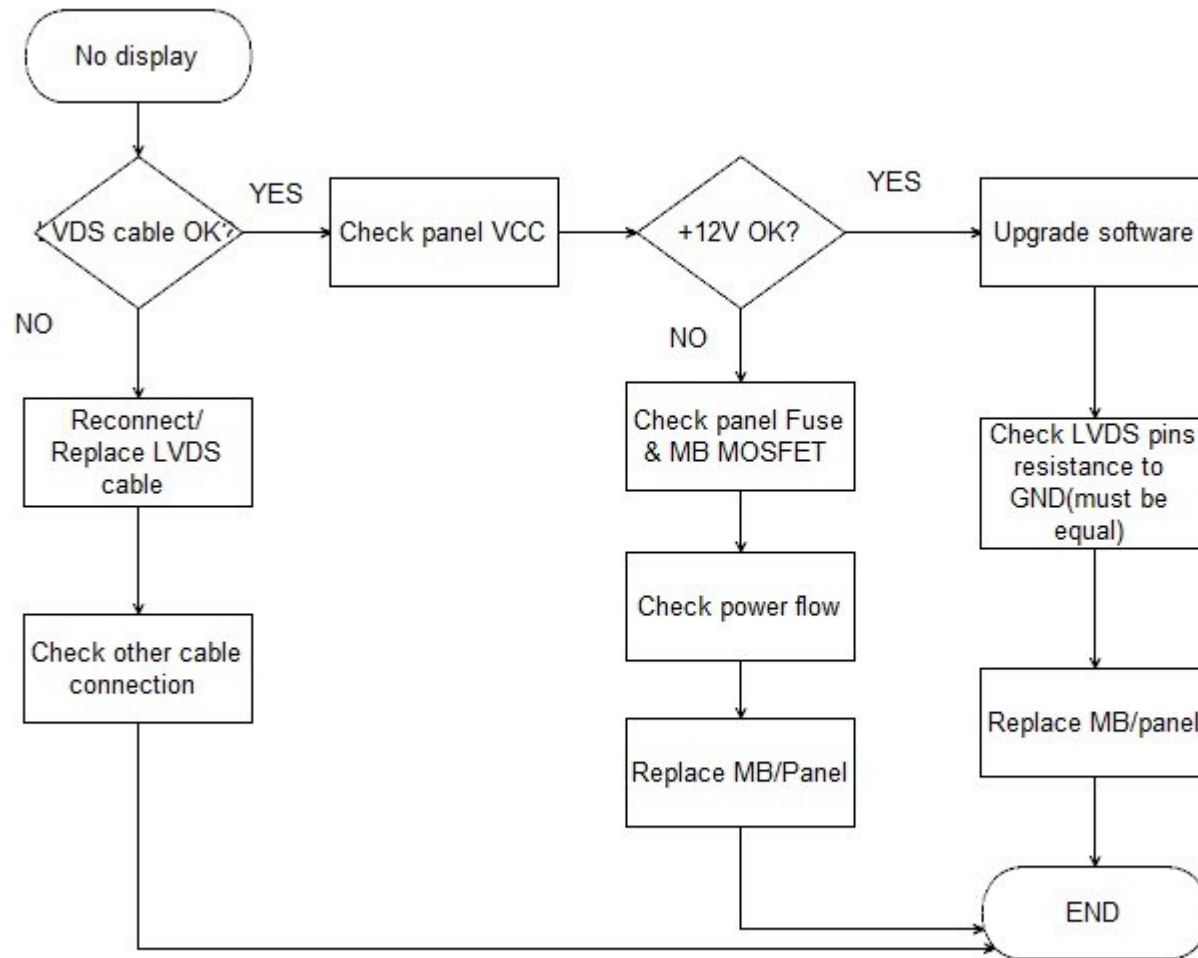
1.No power

No power LED, RC or Key can not turn on TV. Power LED no light/no change.



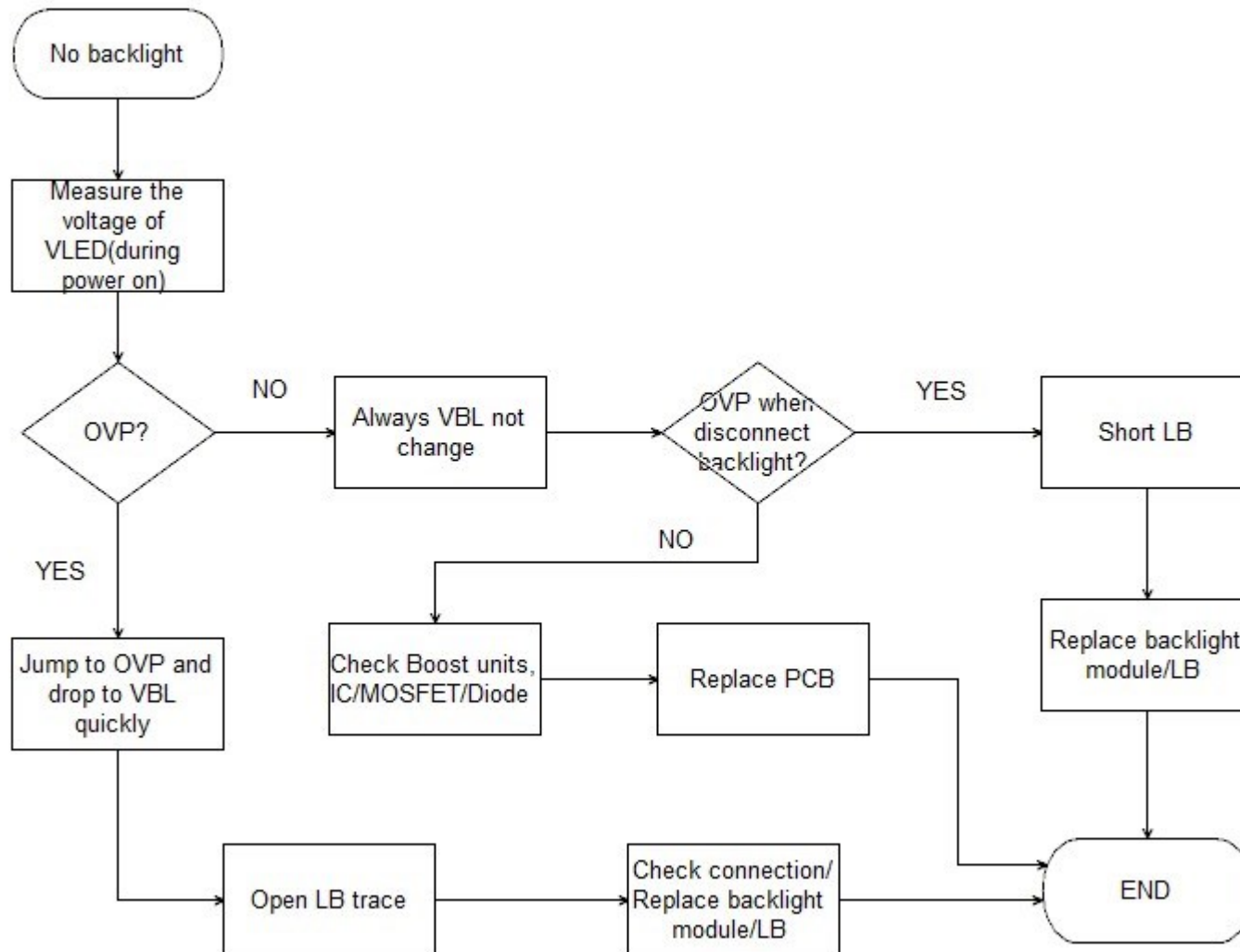
2.No Display / Black Panel

Back light is OK, sound is OK, but no picture.



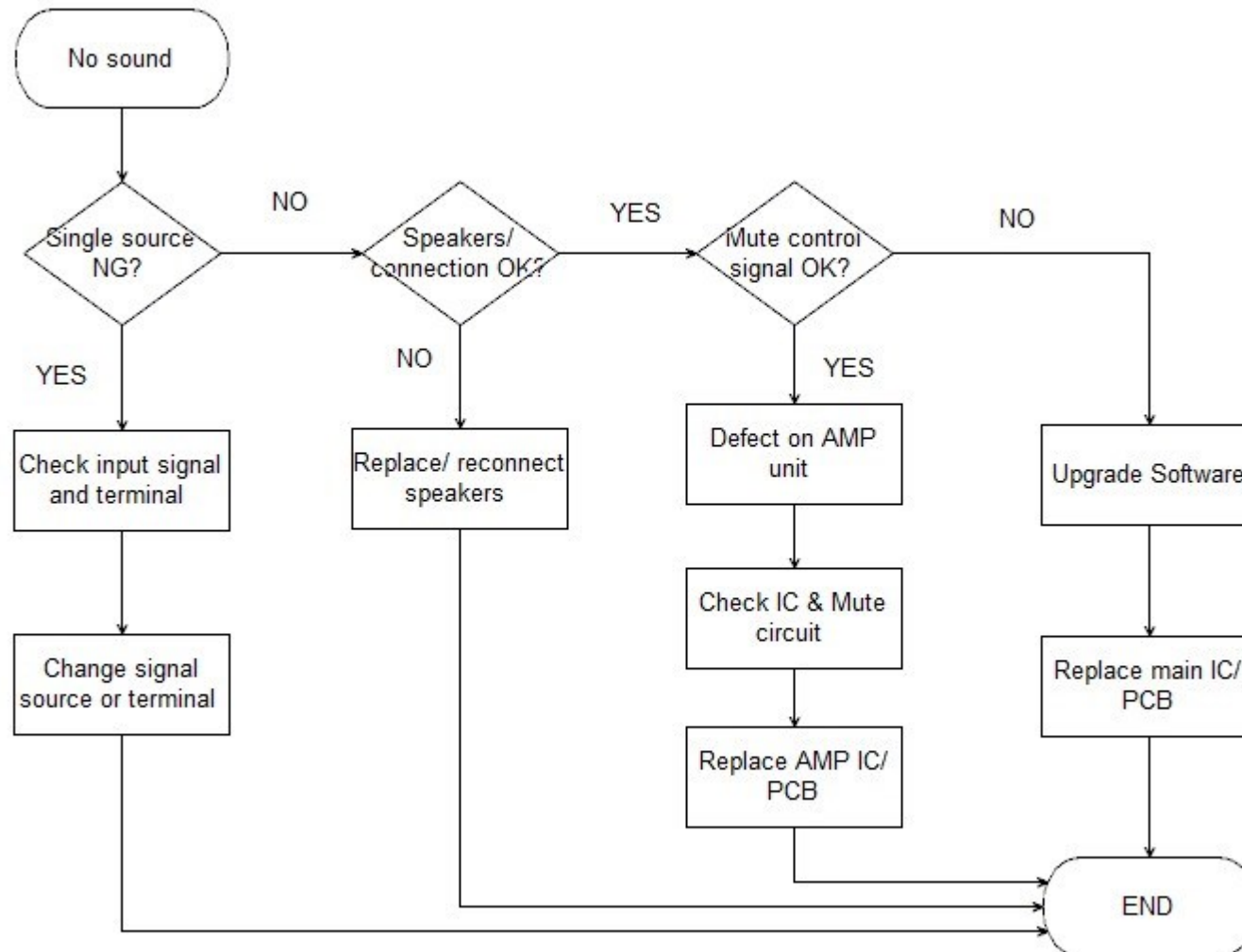
3.No back light

Power LED logic OK, sound OK, but no picture(Different from No Display).



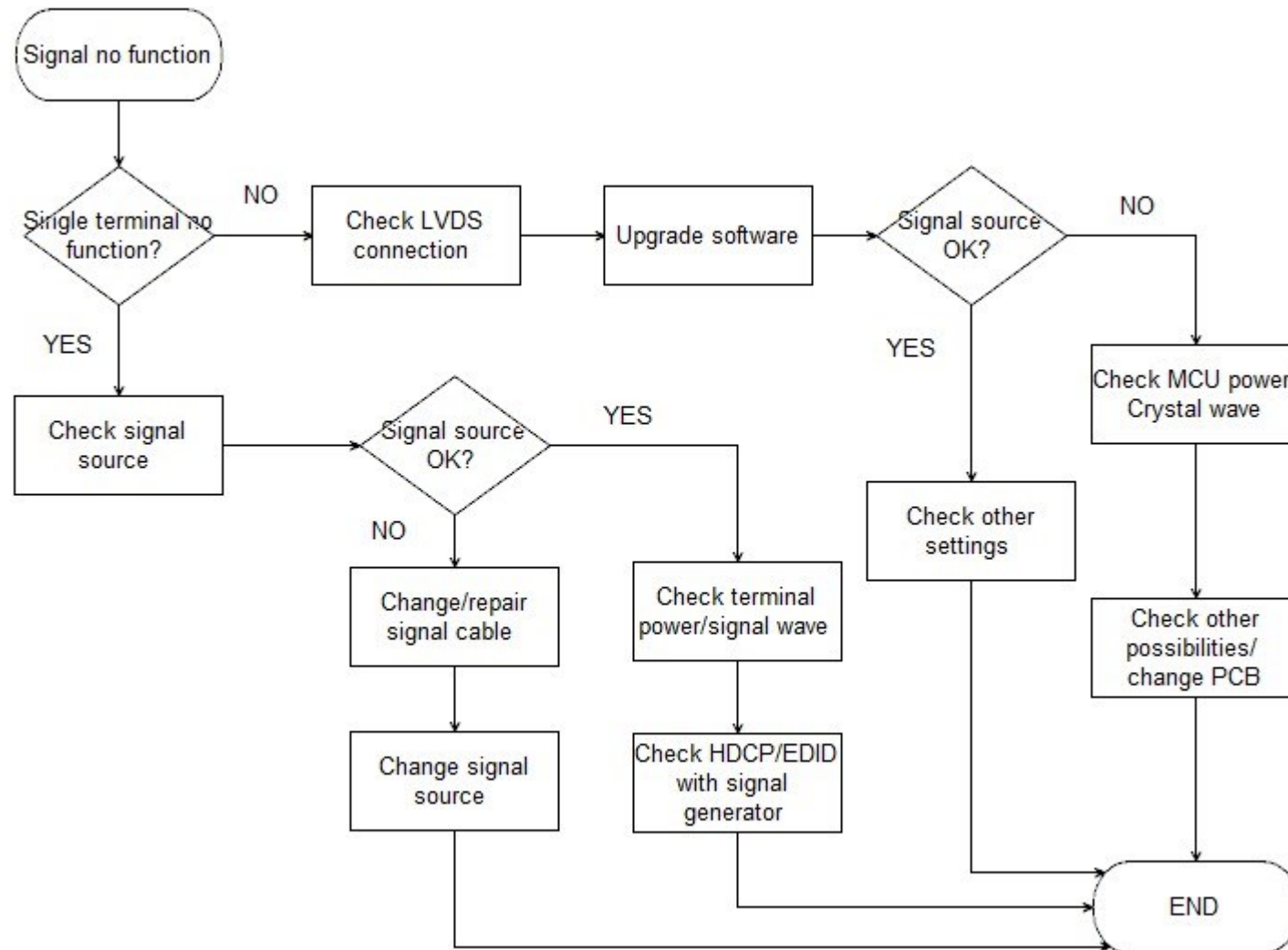
4.No sound

One or all signal source without sound.



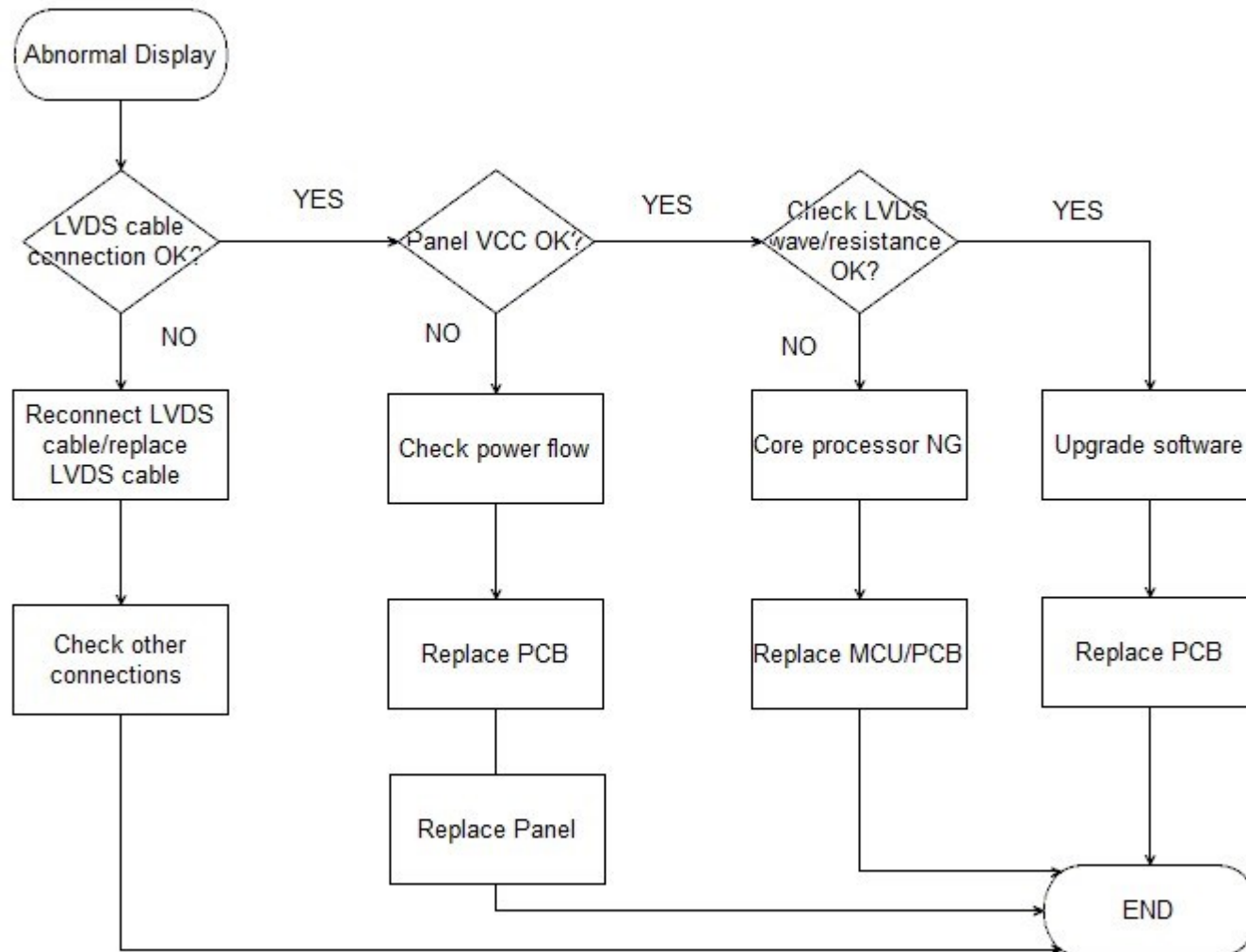
5.Signal source no function

One or several source no function.

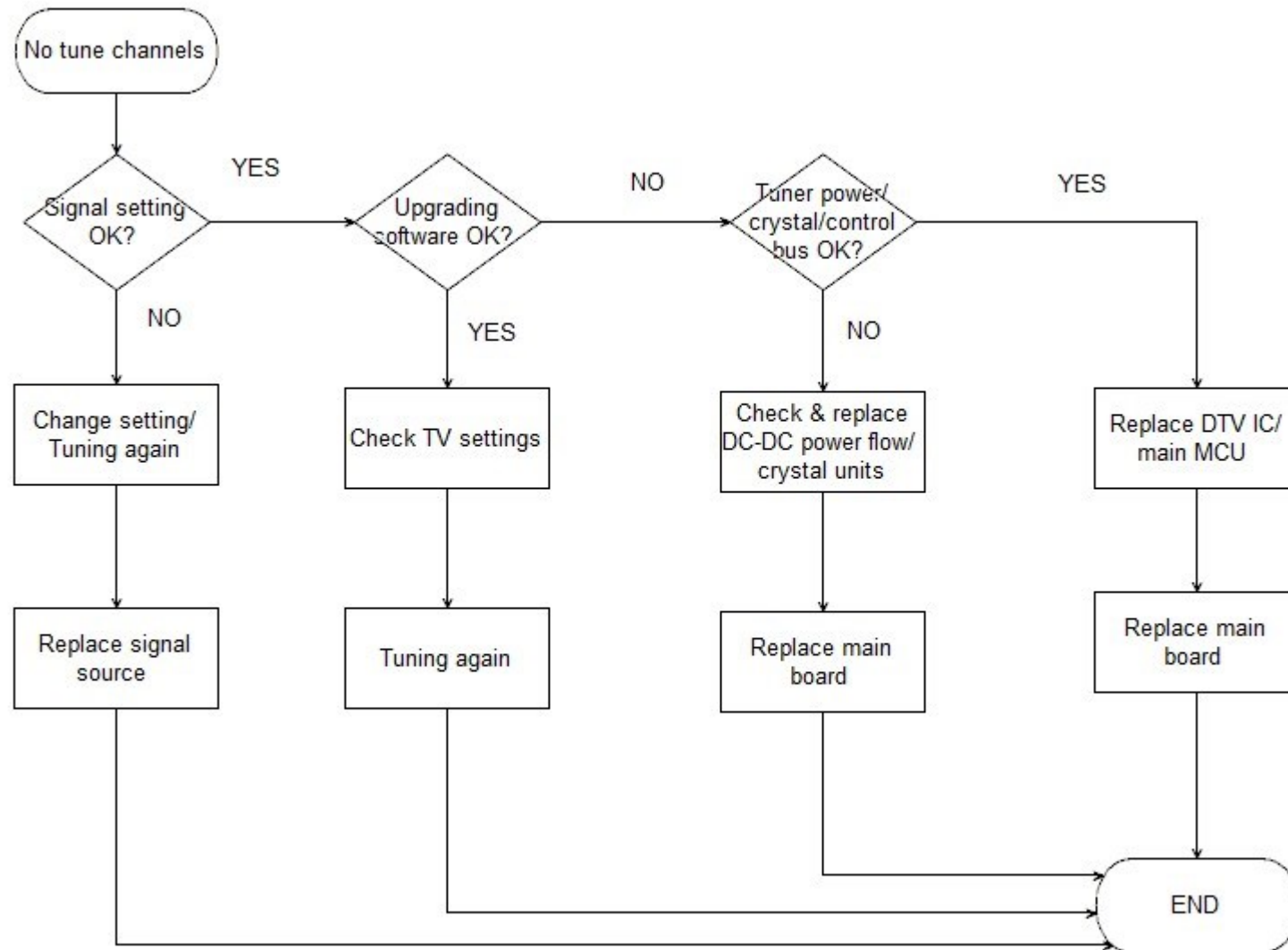


6.Abnormal Display

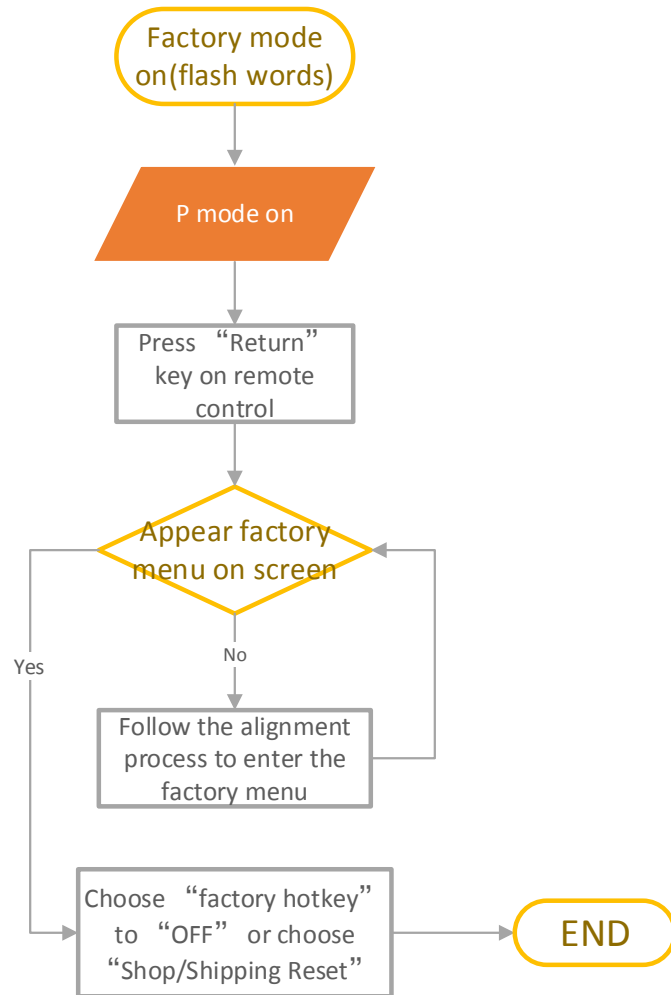
OSD NG or picture NG.



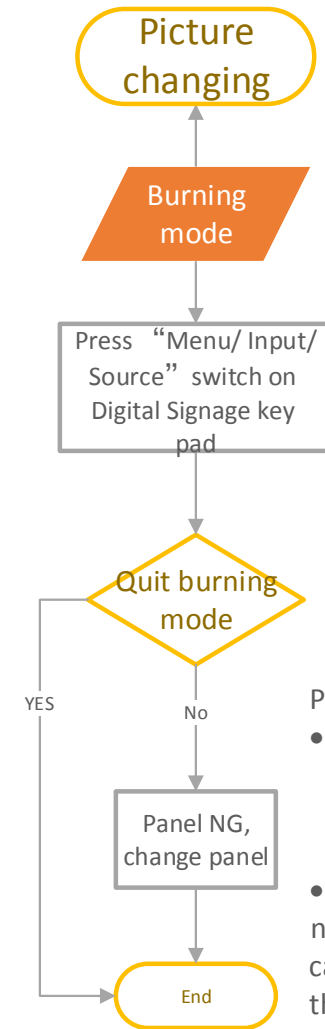
7.No tuning channels DTV or ATV no Channels



8.P mode on and burning mode



- PS: If you choose "Shop/Shipping Reset", the Digital Signage will automatically restart. When start again, the Digital Signage turn to welcome screen



PS:

- Most of the time, main board burning mode have time records on screen.
- If the Digital Signage can not exit burning mode, you can check panel CLK signal if the voltage is not 1.1V~1.3V panel NG.

Part L. SoftwareUpgrade

HH DSX Software Upgrade SOP

Preconditions:

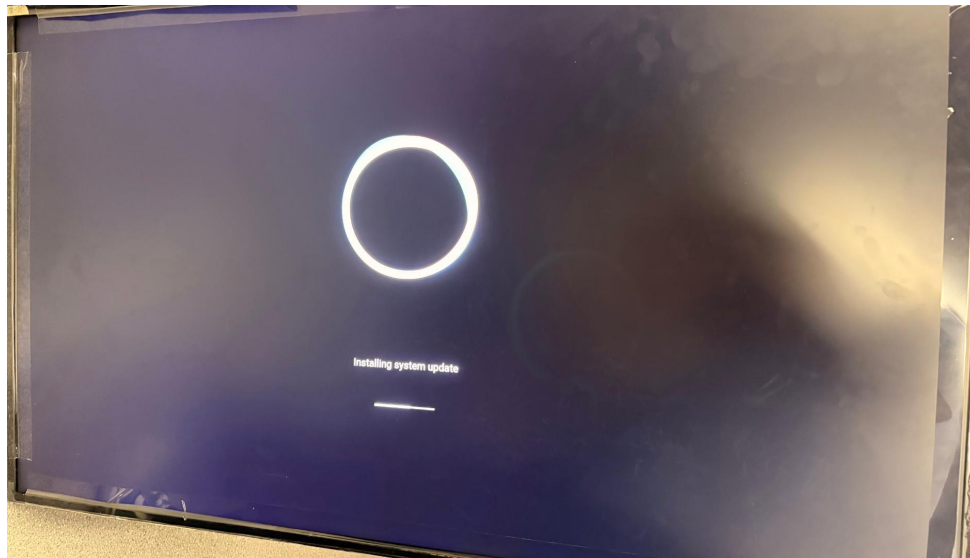
Format: NTFS

Capacity size: Recommended 8G~64G

- (1) Use NTFS format USB drive, other formats cannot be upgraded
- (2) Please do not turn off the power during the upgrade process
- (3) Do not interfere with the PID upgrade interface, otherwise it may cause PQ/AQ data errors

Step 1: Insert the USB flash drive

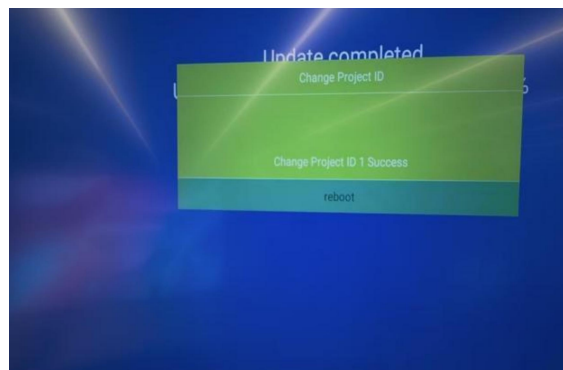
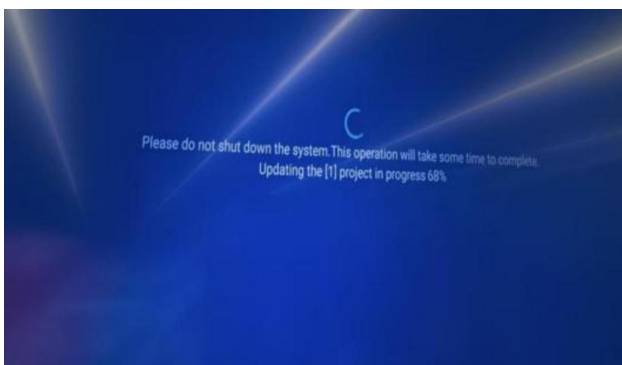
Step 2: Long press the Power button on the machine, then cut off the power and restore it until the upgrade interface appears



Step 3: Once the upgrade interface appears on the machine, you can release it

Step 4: After the upgrade progress bar is completed, the machine will automatically restart and a startup wizardversion will appear

Step 5: When the PID upgrade interface appears, it will automatically upgrade and restart. Please do not interfere





Thank you for reading!

For more info, please contact the manufacturer or authorized agent.