Hadish
Sabz Parseh Co.

LED TV
SERVICE MANUAL

CHASSIS : 2851P838

MODEL : ZL – 50SF6152 , ZL – 55SF6263

CAUTION
BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.

CONTENTS

SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Exploded View.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

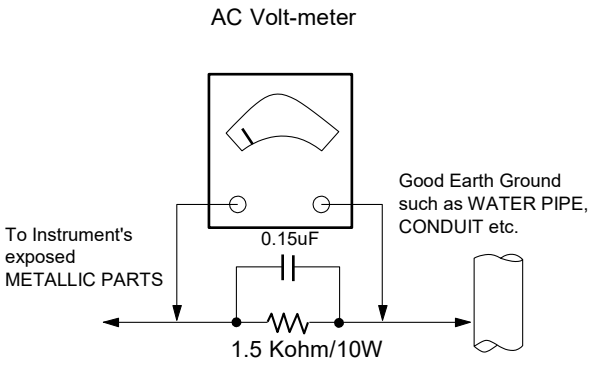
Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone

jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1MΩ and 5.2MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5mA.
In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than 0.1 Ω
*Base on Adjustment standard

SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the *SAFETY PRECAUTIONS* on page 3 of this publication.
NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
   a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
   CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe.
   Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
   CAUTION: This is a flammable mixture.
   Unless specified otherwise in this service manual, lubrication of contacts in not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
   Always remove the test receiver ground lead last.
8. *Use with this receiver only the test fixtures specified in this service manual.*
   CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices.* Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500°F to 600°F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle.
   Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature. (500°F to 600°F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.
   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
   CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. GENERAL DESCRIPTION

HK.T.RT2851P838X is an TV control board. That's a digital and analog TV control board, which is suitable for the Australia, southeast Asia, Middle East, Africa, Colombia a of DVBT/T2/C market. It is designed to apply the V-by-one interface. which can support LED panel larger 49-55" which resolution is up to 3840x2160.

HK.T.RT2851P838X is intended to support the analog TV signal, Digital TV, NICAM/A2, USB, HDMI(V2.0 or 1.4a), CVBS, YPbPr and Coaxial output . And audio amplifier which can support 2X8W (8Ω) speaker output.

The program is built in Cortex A55 ARM quad core CPU main chip and Android 9.0 OS,Also supports wired and wireless network connection, you can browse the web internet play online video.

Main Promotion Power and backlight Spec.			
Power	**Power Output**	**Backlight Value**	**Backlight Connectors**
108W	12V/3.0A 55V/--	90V-120V/800mA_max 80W(Max)	2PIN_2.0 +2PIN_2.0 3PIN_2.0 +3PIN_2.0
	12V/3.0A 75V/--	121V-180V/580mA_max 80W(Max)	
138W	12V/3.0A 55V/--	90V-120V/800mA_max 90W(Max)	
	12V/3.0A 75V/--	121V-180V/720mA_max 100W(Max)	
Note: The accuracy of backlight current is 5%.			

2. STANDARD CONFIGURATION

Pictures are for reference only, specific to prevail in kind.

The optional connectors and functionsare marked with "*".

	（**DVB-T/T2/C**）
Functions	**【HK.T.RT2851P838】** COAX, HEADPHONE,YPBPR,AV,DVB-T/T2/C, RJ45, HDMI 1(*debug), HDMI 2, HDMI 3(*ARC), USB 2.0, USB 2.0
Notes	
FRONT VIEW	
SIDE VIEW	

3. FEATURE

3.1 FEATURE 1

Chipset	RTD2851S(1.5G Byte DDR)/ RTD2851E(2G Byte DDR)	
Market	Australia, southeast Asia, Middle East, Africa and Colombia	
Panel	Type	TFT-LED;

(面板)	Resolution	Max. 3840*2160		
	Interface	V-by-one		
Input Signal	Analog TV (ATV)	Receiving range:		48.25MHz-863.25MHz
		Input impedance:		75Ω
		Video System		PAL,SECAM
		Sound System		BG,DK,I,L/L’
				NICAM/A2
		Teletext		1000Pages
		Max Storage Channels		100CH
	Digital TV (DVBT/T2/C)	Receiving Range		VHF(52.5MHz-219MHz)
				UHF(474MHz-862MHz)
		Input impedance		75Ω
		Channel bandwidth		7MHZ/8MHZ
		Modulation	DVB-T	COFDM 2K/8K QPSK,16QAM,64QAM
			DVB-T2	QPSK, 16QAM, 64QAM, 256QAM
			DVB-C	16QAM, 32QAM, 64QAM, 128QAM, 256QAM
		Video system		MPEG-2, MPEG-4, H.264, H.265,AVS
		Sound system		MPEG-1 layer 1/2, MPEG-2 layer 2, DRA
		Basic function		EPG, Subtitle
		Max Storage Channels		1000CH(DVB-T+DVB-C, dynamic)
				*5000CH(DVB-S/S2, dynamic)

3.2 FEATURE 2

Input Signal	AV	CVBS	Video system: PAL /NTSC /SECAM Video Level: 1.0Vp-p +/-5%
	HDMI	Version	Defaullt 1.4a(*Change to 2.0 through the menu)
		HDCP	HDCP 2.2 compliant receiver
		Format	480i,480P,576i,576p,720p,1080i,1080p,3840x2160@60hz
	YUV	Signal	Y: 1Vp-p@75ohm UV :0.7Vp-p@75ohm
		Format	480i,480P,576i,576p,720p,1080i,1080p
	CVBS Audio	L/R RCA Input	0.2- 2.0 Vrms
	YPBPR Audio		

Output Signal	Audio Output	Fre.q Response	100Hz-15KHz @±3dB (1KHz, 0dB reference signal)
		AMP Max Output power	2x8W(8Ω)　THD+N<10% Audio Input: 1KHz @0.5Vrms
Power	Input	AC 110V~240V SUPPLY	
	Manage	Main Board Standby＜0.5W	
	Panel Voltage	12V	
Picture	Video decoder	H/W auto multi-standard detection and color decoding. High performance adaptive 3D comb filter for Y/C separation. Handling of weak and noisy off-air signals. Support 3-ch for CVBS and S-Video output.	
	De-interlace	3D De-interlacing with Low Angle Detection	
	Noise Reduction	MPEG De-block&De-ringing noise reduction	
	Picture Enhance	Digital hut,saturation,brightness and contrast adjustments . Support DLTI/DCTI video-quality improvement. Support Black/white level extension and ACC. Support 2D Y peaking filter and coring. sRGB compliance and Gamma correction.	
	Scaling	Support 4:3 / 16:9 with Non-linear scaling Advanced Scaling Engine	
Other	OSD language	English.	
	Key definition	VOL-、VOL+、CH-、CH+、MENU、SOURCE、POWER	
Interface	Input	ATV/DTV	1 IEC 75 Ω
		CVBS	3 RCA terminal
		YPBPR	3 RCA terminal
		HDMI	3 HDMI terminal
		USB Slot	2 USB2.0 Slot(Horizontal)
		LAN	1 RJ45 terminal
	Output	Headphone	1 Earphone terminal(black)
		COAX	1 RCA terminal(orange)

3.3 HARDWARE CONFIGURATION

OS	Android 9.0（AOSP）	
CPU	ARM cortex –A55*4	
GPU	Mail 470*3	
CPU Frequency	1.1GHz	
GPU Frequency	600MHz	
DDR SIZE	Embedded 1.5G Byte (*2G Byte Optional)	
eMMC flash	4GB(*Max:32GB)	
WLAN (WIFI)	Max Data Rate	150Mbps （1T1R WIFI）
		866.7Mbps （*2T2R 2.4G+5G WIFI）

	Operating Frequency		2.4GHz （1T1R WIFI）
			2.4GHz/5GHz （*2T2R WIFI）
	Communications Standard		**2.4G WIF:** IEEE 802.11b/g/n **2.4G/5G WIFI:** IEEE 802.11b/g/n/ac
***WIFI+BT** Model:RTL8723BU	Max Data Rate		**WIFI:** 150Mbps **BT:** 1 Mbps for Basic Rate 2,3 Mbps for Enhanced Data Rate
	Operating Frequency		2.4GHz
	Communications Standard		**WIFI:** IEEE 802.11b/g/n **BT:** V2.1+EDR/BT V3.0/BT V4.0
***WIFI+BT** Model:RTL8723DU	Max Data Rate		**WIFI:** 150Mbps **BT:** 1 Mbps for Basic Rate 2,3 Mbps for Enhanced Data Rate
	Operating Frequency		2.4GHz
	Communications Standard		**WIFI:** IEEE 802.11b/g/n **BT:** Compatible with Bluetooth V2.1,V4.2 Systems
***WIFI + BT (2.4G+5G)** Model:RTL8822BU	WIFI	Max Data Rate	866.7Mbps
		Operating Frequency	2.4GHz/5GHz
		Communications Standard	IEEE 802.11 a/b/g/n/ac
	Bluetooth	Max Data Rate	1 Mbps for Basic Rate 2,3 Mbps for Enhanced Data Rate
		Operating Frequency	2.4GHz
		Communications Standard	V4.2
***WIFI + BT (2.4G+5G)** Model:RTL8822CU	WIFI	Max Data Rate	866.7Mbps
		Operating Frequency	2.4GHz/5GHz
		Communications Standard	IEEE 802.11 a/b/g/n/ac
	Bluetooth	Max Data Rate	1 Mbps for Basic Rate 2,3 Mbps for Enhanced Data Rate
		Operating Frequency	2.4GHz
		Communications Standard	V5.0
RJ45 NETWORK	10/100M auto-identification and DHCP		

Note: Licenses involved in specifications above are supposed to be obtained by customers themselves.

4.MEDIA PLAYER FORMAT

RT2851						
P/N	Video Decoder	Resolution	Max fps	Max bltrate (Mbps)	Bit depth	支持
MPEG1/2/4	MPEG1	1920x1080	60	50M	8	V
	MPEG2 MP@HL	1920x1080	60	100M	8	V
	MPEG4 SP@HL 3.0	1920x1080	60	100M	8	V
	MPEG4 ASP@HL 4.0	1920x1080	60	100M	8	V
H.264*	H.264 BP LV 4.0	1920x1080	30	50M	8	V
	H.264 MP LV4.0	2048x1080	60	160M	8	V
	H.264 HP LV 4.0	2048x1080	60	160M	8	V
	H.264 MP LV 5.1	4096x2160	30	250M	8	V
	H.264 HP LV 5.1	4096x2160	30	250M	8	V
H.265*	H.265Main profile 4.1	2048x1080	60	160M	8	V
	H.265Main 10 pro.4.1	2048x1080	60	160M	8/9/10	V
	H.265Main profile 5.0	4096x2160	30	250M	8	V
	H.265Main 10 pro.5.0	4096x2160	30	250M	8/9/10	V
	H.265Main profile 5.1	4096x2160	60	250M	8	V
	H.265Main 10 pro.5.1	4096x2160	60	250M	8/9/10	V
	h.265 still picture pro.	8192x4096	NA	NA	8	V
Geneic	Motion JPEG	1920x1080	60	60M	8	V
WMV*	Windows media video v9	1920x1080	60	100M	8	V
VC1	VC-1	1920x1080	60	100M	8	V
VP8	VP8	1920x1080	60	20M	8	V
VP9	VP9	4096x2160	60	40M	8	V
RM*	RV8	1920x1080	60	20M	8	V
	RV9	1920x1080	60	50M	8	V
	RV10	1920x1080	60	50M	8	V
AVS*	AVS Ji zhun pro.6.0	1920x1080	60	50M	8	V
	AVS Plus	1920x1080	60	50M	8	V
AVS 2.0*	AVS 2.0		60	150M	8/10	X

XVID	XVID	1920x1080	60	50M	8	V
Sorenson	Sorenson H263	1920x1080	30	20M	8	V
Motion JPEG	M-JPEG	1920x1080	60	60M	8	V
H.263	H263V-M5/FW/FOURCE/H263	1920x1080	60	20M	8	V

Audio Decode List		
PN	Audio Decoder	支持
PCM	WAV:PCM/AADPCM/A -law PCM /u-law PCM	V
	ADPCM IMA4	V
AMR	AMR-NB,AAMR-WB/AMR-WB+	NA
LPCM	DVD LPCM	NA
RA	COOK:COOK(RealAudio6)	NA
MPEG1/2/4	MPEG1 Layer1/2	V
	MPEG2	V
	MP3	V
AAC*	MPEG2 AAC	V
	MPEG4 AAC-LC	V
	MPEG4 HE-AAC V1/V2	V
	Raac:MPEG4 AAC-LC	V
	Racp: mpeg4 he-aac v2	V
WMA*	WMA V7	V
	WMA V8	V
	WMA V9	V
Dolby AC3*	AC3	V
	Dolby Digital EX,Dolby Digtal Plus,Dolby TrueHD	V
	Dnet:AC3	V
Dolby Eac3*	Dolby Digital PLUS	V
	Dolby Digital Plus,Dolby lossless	V
Dolby MS11*	NO-HEAAC	V

Dolby MS12*	Config-A/B/D	V
	Config-LC	V
Dolby AC4*		V
		V
Dolby ATMOS*		V
		V
DRA	DRA	V
FLAC	FLAC	V
	FLAC(96h2)	V
VORBIS	VORBIS	V

Image Decoder			
File Extension	Contalner	Data Type	支持
*.jpg	JPEG	Baseline	V
		Progresslve	V
*.bmp	BMP		V
*png	PNG		V
*.gif	GIF	Static	V
.mpo	MPO	3d	V
.jps	JPS	3d baseline	V
.pns	PNS	3d	V

Note: Licenses involved in specifications above are supposed to be obtained by customers themselves.

5. SUBSTITUTABLE PRIMARY MATERIALS

5.1 GENERAL MATERIALS

Including SMT capacitors, SMT resistors, diodes, transistors, MOSFET, connectors, common inductance, electrolytic capacitor, PCB etc., and having no obvious changes in appearance or color. Our company has two or three alternative suppliers with these materials; maybe we will alternative use these materials for follow-up mass production due to delivery time, stock or other reasons. We no longer notice your company the alternative materials used. If necessary, you can apply for using related materials (mention as above) in samples stage.

(**Note**: The alternative materials which have been accepted by our materials Confirmation department and PP will enter our system.)

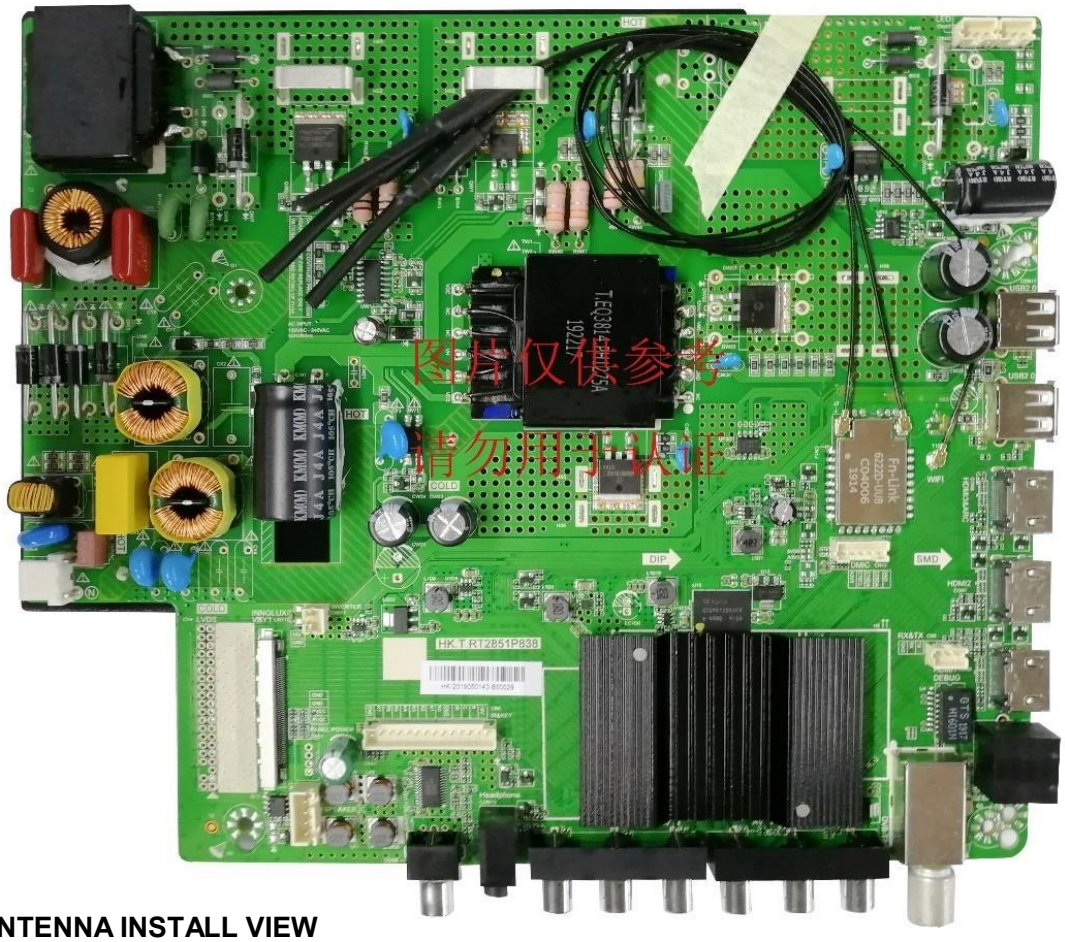
5.2 KEY MATERIALS

The table is for reference only, the actual is the standard.

NAME	TYPE	BRAND	BACKUP TYPE	BACKUP BRAND
EMMC	*THGBMNG5D1LBAIL	TOSHIBA	KLM4G1FETE-B041	Samsung
	THGBMJG6C1LBAIL	TOSHIBA	H26M41204HPR	Hynix
			KLM8G1GETF-B041	Samsung
	*THGBMHG7C1LBAIL	TOSHIBA	KLMAG1JETD-B041	Samsung
LDO	HH1118	HH		
	HH1117-ADJ	HH	BL1117	BL
CRYSTAL	'X-27.000MHz	CREC		
	'X-24.000MHz	CREC		
DC_DC	MPS1655	MPS		
	SY8113	SILERGY	JW5057C	JW
	SY8120	SILERGY	JW5052C	JW
AMP	AD52050B	ESMT	TPA3138D2	TI
			RDA3118E	

6. FUNCTION LAYOUT

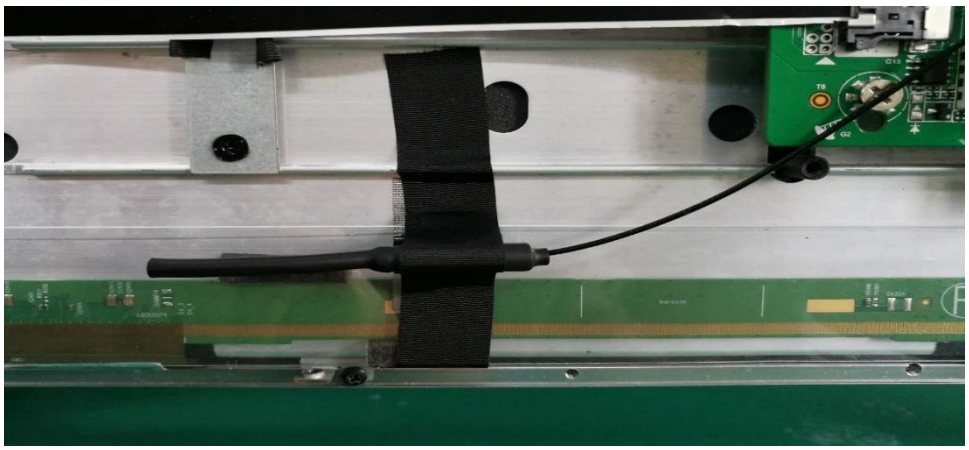
6.1 THE TOP VIEW OF HK.T.RT2851P838X

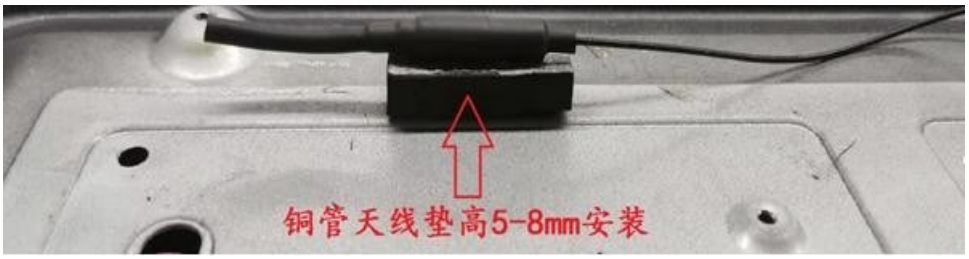


6.2 ANTENNA INSTALL VIEW

It is recommended that the antenna be assembled as far as possible on the lower edge of the TV case.

Copper tube antenna recommended pad height 5-8mm.





7. PCB DIMENSION AND CONFIGURABLE

7.1 PCB DIMENSION

PCB Height=20.00mm

PCB Length=235mm

PCB Width=200mm

PCB Screw Bore Size: Diameter is 3.5mm

7.2 CONFIGURABLE

The structure chart is for a reference only; the actual item is the standard.

Jack configuration can be adjusted according to your jack terminal, it just depends on your board basic, and the final bracket Configuration is determined by the practical sample.

8. INTERFACE DEFINITION

Below, please see the definition and description from left PIN to right PIN or from up PIN to down PIN.

Below, please see the definition and description from left PIN to right PIN or from up PIN to down PIN.

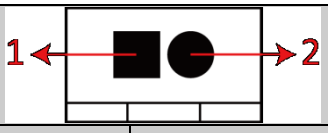
◆ **CN5 (14Pin / 2.0): TO IR/KEY BOARD**

NO	DEFINITION	DESCRIPTION
1	5V	5V Power Supply
2	R	Red Indicator
3	G	Green Indicator
4	IR	Remote Receive
5	GND	GND
6	K0	SOURCE
7	K1	MENU
8	K2	P+
9	K3	P-
10	K4	V+
11	K5	V-
12	K6	POWER
13	K7	NC
14	GND	Ground

◆ **CN1 (4 Pin / 2.54): Audio OUT**

NO	DEFINITION	DESCRIPTION
1	L+	Left Positive audio Out
2	L-	Left Negative audio Out
3	R-	Right Negative audio Out
4	R+	Right Positive audio Out

◆ **CNW1 (4 Pin / 2.54): Amplifier Power**



NO	DEFINITION	DESCRIPTION
1	12V	12V Power Supply
2	GND	Ground

◆ **CN13 (5 Pin / 2.0):DMIC**

NO	DEFINITION	DESCRIPTION
1	A3V3	3.3V Power Supply
2	C1SCL	IIC1 Clock
3	C1SDA	IIC1 Data
4	C2SDA	IIC2 Data
5	GND	Ground

◆ **CN9 (3 Pin / 2.0): TO DEBUG**

NO	DEFINITION	DESCRIPTION
1	TX	Serial Data Transmitter
2	RX	Serial Data Receive
3	GND	Ground

◆ **CN11 (51 Pin /0.5FIR): TO V-by-one**

NO	DEFINITION	NO	DEFINITION
1	Vin	27	GND
2	Vin	28	RX0N
3	Vin	29	RX0P

4	Vin	30	GND
5	Vin	31	RX1N
6	Vin	32	RX1P
7	Vin	33	GND
8	Vin	34	RX2N
9	NC	35	RX2P
10	GND	36	GND
11	GND	37	RX3N
12	GND	38	RX3P
13	GND	39	GND
14	GND	40	RX4N
15	NC	41	RX4P
16	NC	42	GND
17	NC	43	RX5N
18	SDA	44	RX5P
19	SCL	45	GND
20	NC	46	RX6N
21	NC	47	RX6P
22	LD_EN	48	GND
23	NC	49	RX7N
24	NC	50	RX7P
25	HTPDN	51	GND
26	LOCKN		

◆ **XW1 AC INPUT CONNECTOR**

NO	DEFINITION	DESCRIPTION
1	L	LIVE
2	N	NEUTRAL

9. ELECTRICAL CHARACTERISTICS

9.1.1 AC INPUT CHARACTERISTICS

Input	Minimum	Nominal	Maximum	Unit
Voltage	90	100-240	264	V
Current	---	---	2.0	A
Frequency range	50/60±5%			Hz
Efficiency(Full Load)	80%minimum at 220Vac			
Standby Power Consumption	≦0.5W； 240Vac input and no load condition			
Inrush Current	50Atyp peak, 100Vac ;100Atyp peak, 240Vac			
Leakage Current	Less Than 0.35mA, 240Vac input			
Input Fuse	T5AL/250Vac			

9.1.2 LED INPUT CHARACTERISTICS(LED输入特性)

Parameter	Symbol	Min	Typical	Max	Unit	Remark
INPUT VOLTAGE	Von/off		0	0.8	V	Off State
		2.5	-	3.3	V	On State
ADJ VOLTAGE	Vadj	0	-	3.3	V	Vadj=0V
EFFICIENCY	η	85	-	-	%	Von/off=3.3V Vadj=0V,RL=Panel

*Vadj：22 KHz-28KHz；

9.2 LED DRIVER POWER OUTPUT CONNECTOR

◆ **CNW2/CNW3/CNW4/CNW5(3 pin 2.0):**

NO.	DEFINITION
1	LED-
2	LED-
3	LED+

◆ **OUTPUT PROTECTION SPECIFICATION**

Signal Name	LED Short Protection	LED Open Protection
	Specification	Specification
LED output	Auto restart	Shut down or auto restart

9.3 SHORT CIRCUIT PROTECTION

When any output is short circuited to ground, the power supply is automatically protected, and the continuous short circuit is not damaged. The output impedance is less than 0.1 ohms, which is defined as a short-circuit circuit.

9.4 RESET AFTER SHUTDOWN

If the power supply latches into a shutdown state because of 1 fault condition on its output, the power supply shall return to normal operation only after the fault has been removed，or the PS-On has been cycled off/on, or the AC INPUT has been cycled off/on with a off time of ten second.

10. FUSE PROTECTION

The Fuse inside the power supply shall open when the AC input current is over the rated current of fuse. This Fuse protection will cause switching power supply to fail.

10.1 SAFETY

The power supply shall compliance with the following Criterion:

1) UL60950/UL60065
2) EN60950-1/EN60065
3) IEC60950/IEC60065
4) GB4943-2011/GB8898-2011

10.2 ISOLATION

HI-POT

Input To Output	3000Vac 50Hz 1minute ≤10mA
Input To FG	3000Vac 50Hz 1minute ≤10mA
Output To FG	Non Isolated

INSULATION RESISTANCE

Input To Output	DC500V 50MΩmin (at room temperature)
Input To FG	DC500V 50MΩmin (at room temperature)
Output To FG	Non Isolated

15. NOTICE REGARDING TV MEDIA FORMAT AND INTERFACE TECHNOLOGY

Introduction

This document is used to specify media formats, interface technologies and others that may be involved in TV products.

媒体格式		接口技术及其他	
Dolby Digital Decoder	MPEG2/MPEG4	HDMI	Hbbtv2.0
Dolby Digital Plus Decoder	AMR-NB	HDCP	Netflix
Dolby MS11	AMR-WB	Wi-Fi	Freeview Play
Dolby MS12	DRA	USB	NTFS
Dolby Atmos	AAC/HEAAC	MHL	Seraphic Open Browser
Dolby Vision	H.264	Bluetooth	Seraphic TV Portal
DTS Sound	H.265	NFC	—
DTS TruSurround	DivX	DVB-T2	—
DTS HD	RMVB	DVB-S2x	—
DTS 2.0+Digital Out	WMA	ATSC	—
DTS Express 5.1	WMA Pro	PlayReady	—
DTS Studio Sound	dbx-tv	MSS	—
DTS Studio Sound II	—	Widevine	—

Notice:

In the event the LCD TV Driver Boards (“Boards” purchased or customized by your good company include any hardware(e.g. TV master chip, output connector) and/or software that support the above mentioned media formats, interface technologies & others which may involve thir party technologies or intellectual properties, your company is hereby kindly reminded as follows:

1. The product price under the sale contracts between us does not include any royalties, licensing fees or expenses payable to the IP right holders for acquiring the right to use the third party technologies or the license of the third party’s intellectual properties which may be involved due to the Boards’ and relating TV sets’ supporting of the above mentioned media formats, interface technologies & others. If the IP right holders so request, you shall obtain valid license from the right holders and make payment at your own cost for such license.
2. If your company requests to reduce or cancel the media formats or interface technologies & others supported by the Boards, you shall, upon your confirmation of the Boards’ specifications, or upon payment of the contract price, whichever is earlier, notice us such requests in writing.

3. In the event the “Boards” purchased or customized by your good company do not include hardware and/or software that support part or entire of the above mentioned media formats and interface technologies & others, this Notice shall not be applicable to your company with respect to the media formats and interface technologies & others that not supported by the Boards.

4. The hardware, software and technologies related to the media formats and interface technologies & others that may be involved in the Boards are all provided by third parties . We
may update this Notice from time to time. If you find any omissions, please do not hesitate to let us know.

Regarding the TV mainboard Products (following referred as “the Mainboard”), the technical requirements of which are wholly listed and defined under this Letter of Confirmation for Product Technical Requirements, due to the fact that it was ultimately confirmed and determined by the buyer regarding the software programmed to the Mainboard, and the Mainboard’s features and functions (including patented features and functions, whether the features and functions are realized and practiced through the chips embodied in the Mainboard, the Mainboard itself, or through the TV sets embodying the Mainboard), the buyer
shall be responsible for obtaining appropriate licenses from the relating intellectual property right holders and other right holders, acquiring appropriate permissions to use the software programmed to the Mainboard, obtaining appropriate permissions to realize and practice the relating features and functions of the Mainboard, reporting the transaction data, arranging the payment of royalties, and performing other duties and responsibilities which are necessary to use, sell, offer for sale, import or otherwise to dispose of the Mainboard with programmed software without infringing the intellectual property rights of any third party.
As our company is specialized TV mainboard supplier and unable to acquire the performance
or specifications requirements of the TV sets embodying the Mainboard, we hereby guarantee
that the TV mainboard products supplied by our company are in conformance with the Letter of Confirmation for Product Technical Requirements which was confirmed in writing by both

parties, and your company shall be responsible for the testing, debugging, tuning of the TV sets embodying the Mainboard, application for certifying the Mainboard and the TV sets embodying the Mainboard, and performing other duties and responsibilities which are necessary for complying with the law and regulations of the countries and regions, where the Mainboard and the TV sets embodying the Mainboard were imported and sold.

ADJUSTMENT INSTRUCTION

BootLogo Import/ Export/ Switch Introduction

一：LOGO import

1. Prepare the LOGO picture to be replaced, with a resolution of 1280x720 in 2K and 1920x1080 in 4K;

2. Convert picture format;

(1) Open image format conversion tool：XnView.rar -> xnview.exe；

(2) Load LOGO image file and save it as .Raw format file.

(3) Name the raw file bootfile.raw and place it in the U disk root directory.

(4) Plug the U disk onto the TV and enter the password "source 2580" to open the factory menu；

Factory Menu → General Settings → BootLogo → LOGO Import→Confirm

(5) Operation LOGO Import option to import, after successful import, press power key long, choose Restart to take effect;

二：LOGO Export

1.Plug the U disk onto the TV and enter the password "source 2580" to open the factory menu；

Factory Menu → General Settings → BootLogo → LOGO Export→Confirm

三：LOGO Switch

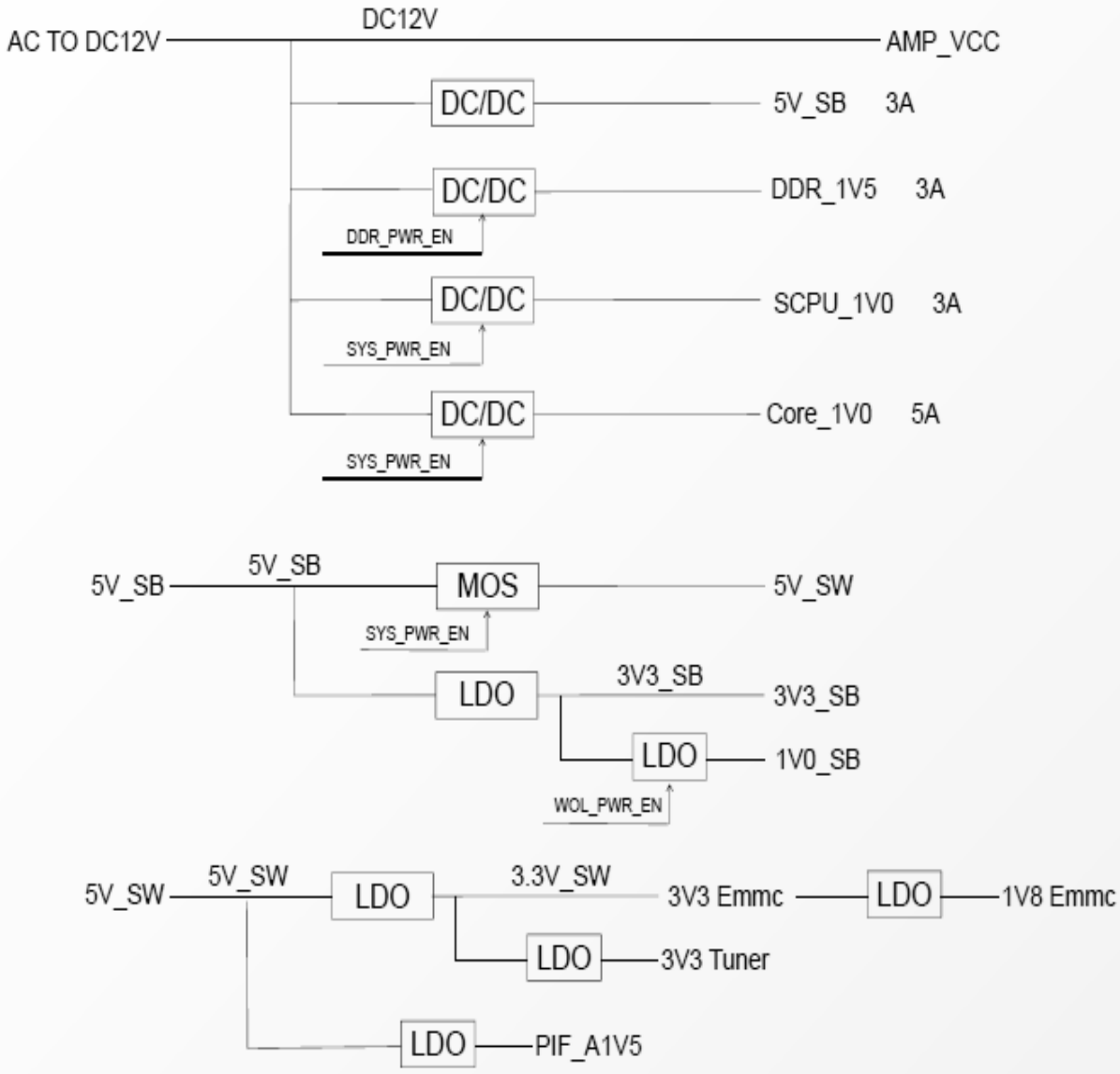
1. TV enter the password "source 2580" to open the factory menu；

Factory Menu → General Settings → BootLogo → Logo→ON/OFF

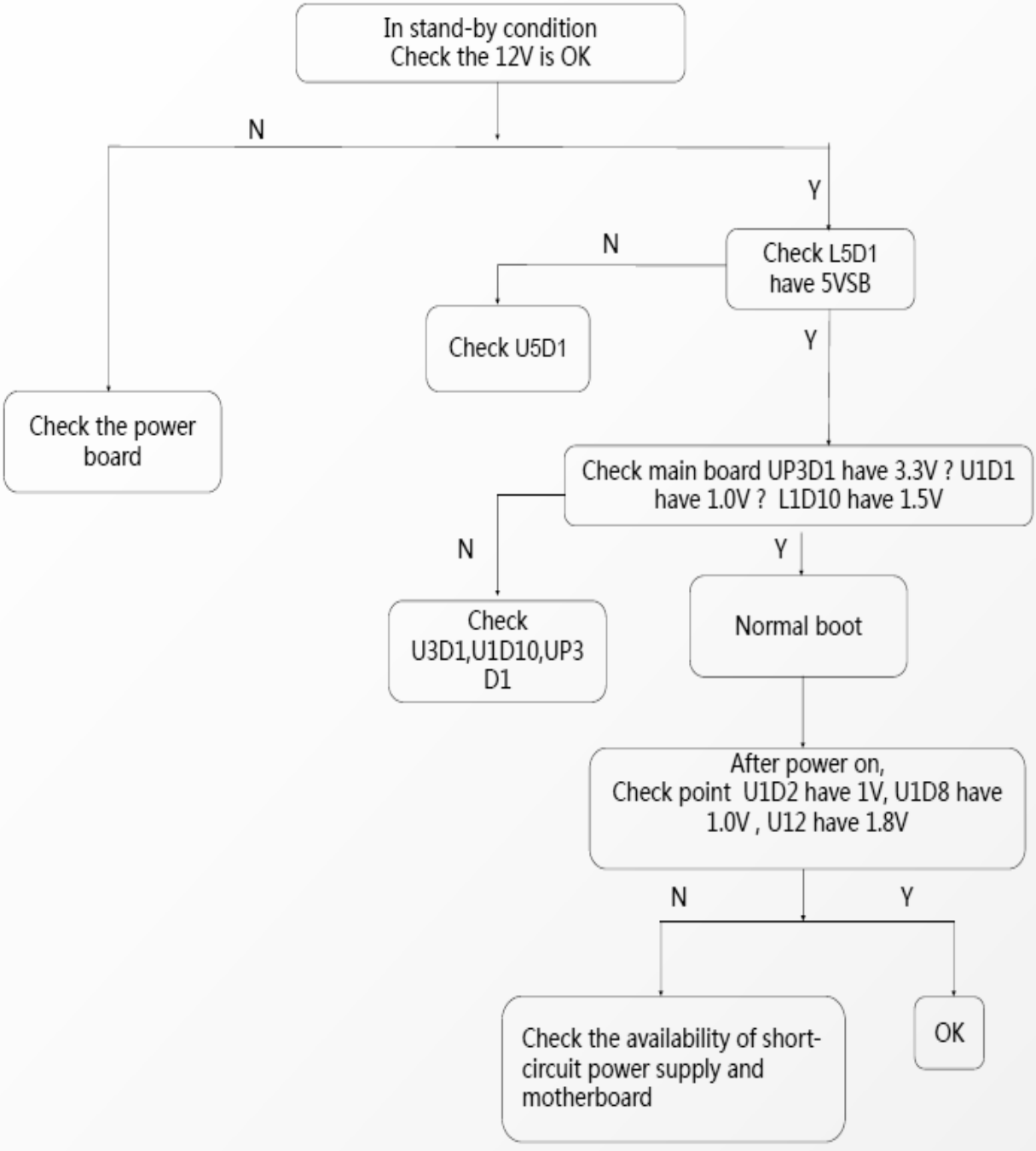
2.Select On, the TV has a logo, and select Off, the TV has a black screen without a logo.

TROUBLE SHOOTING

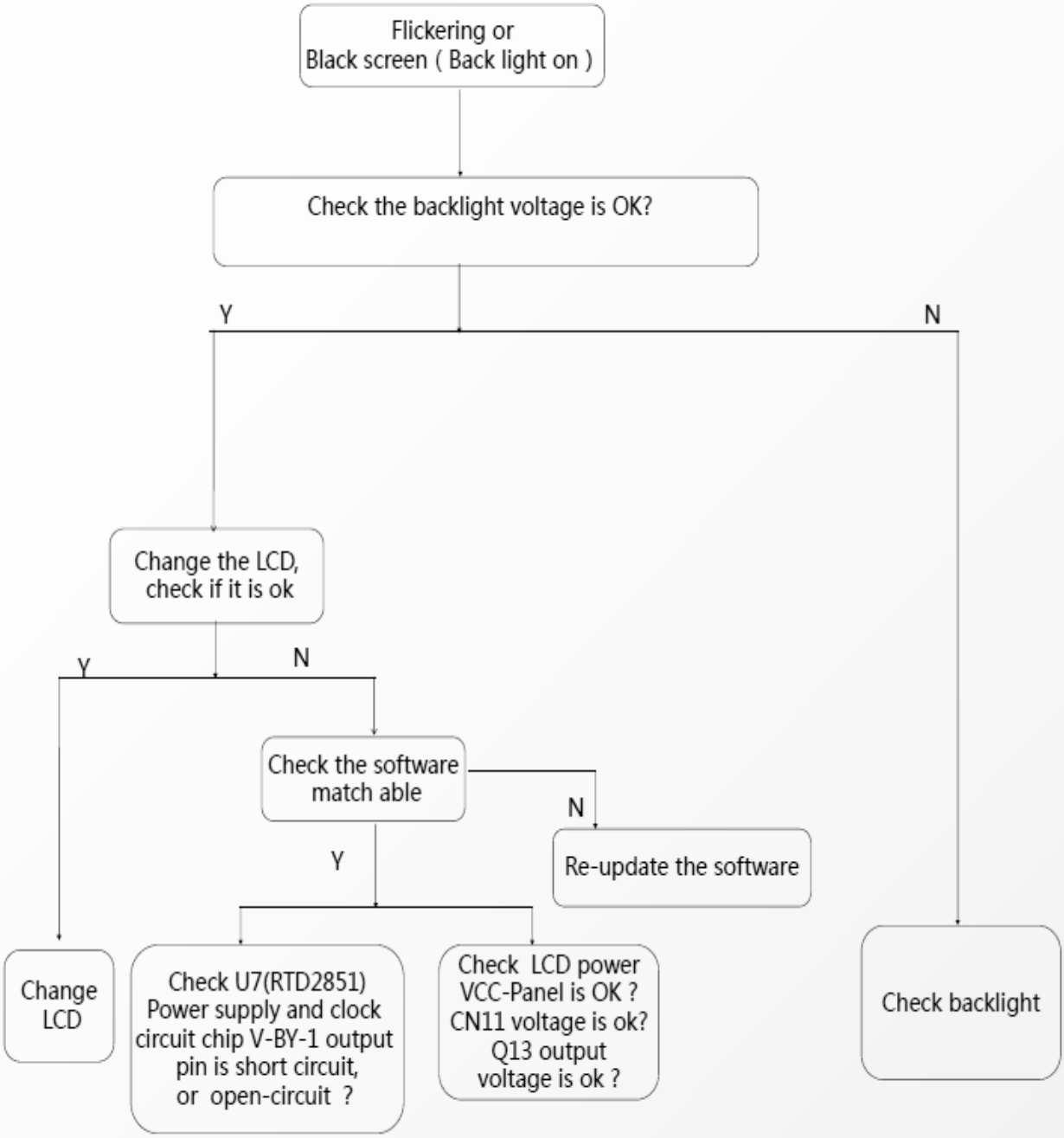
1.1 RT2851P838 Power Chart



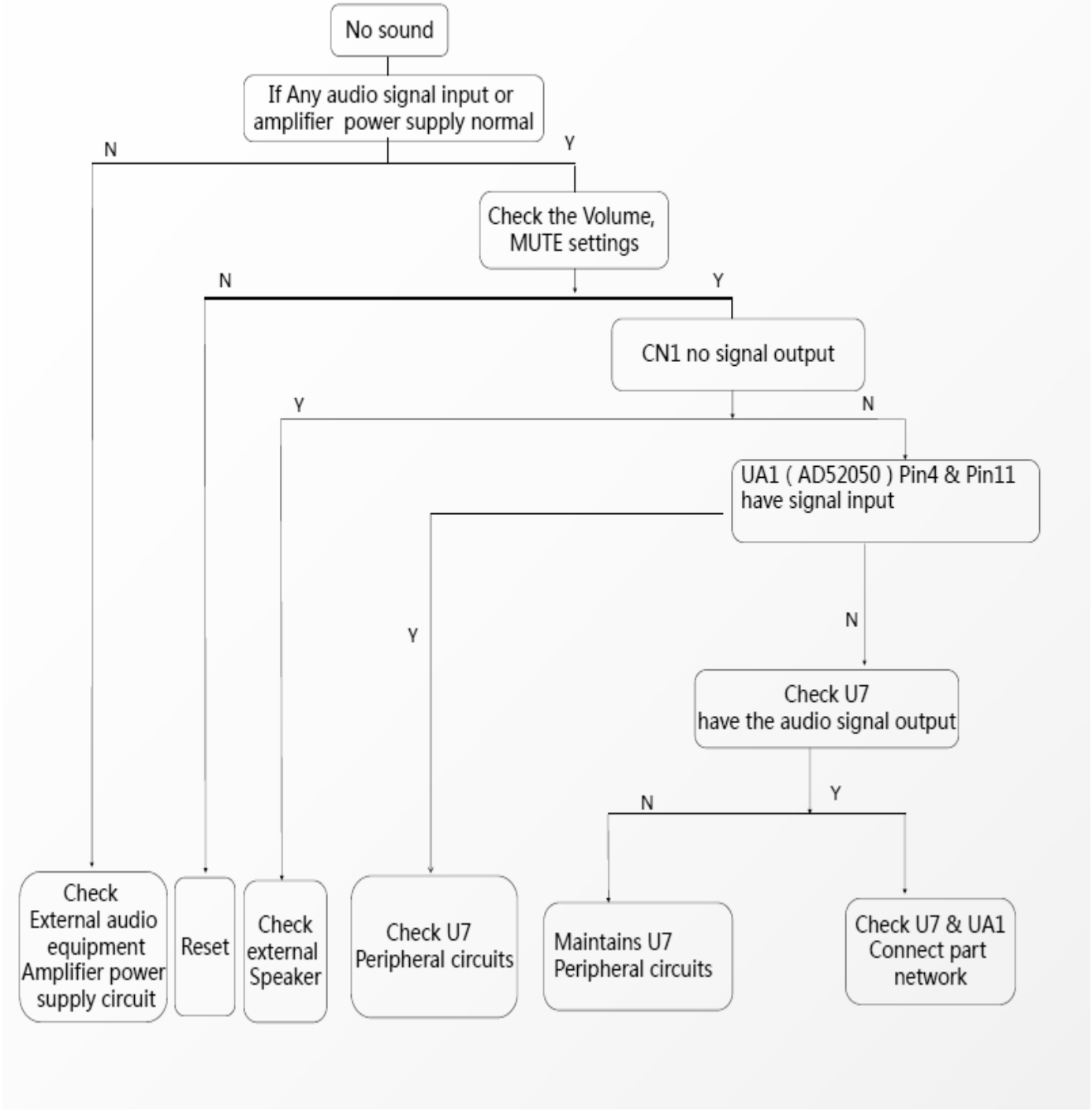
2.1 Power Units Problem Solving (Mainboard can not boot.)



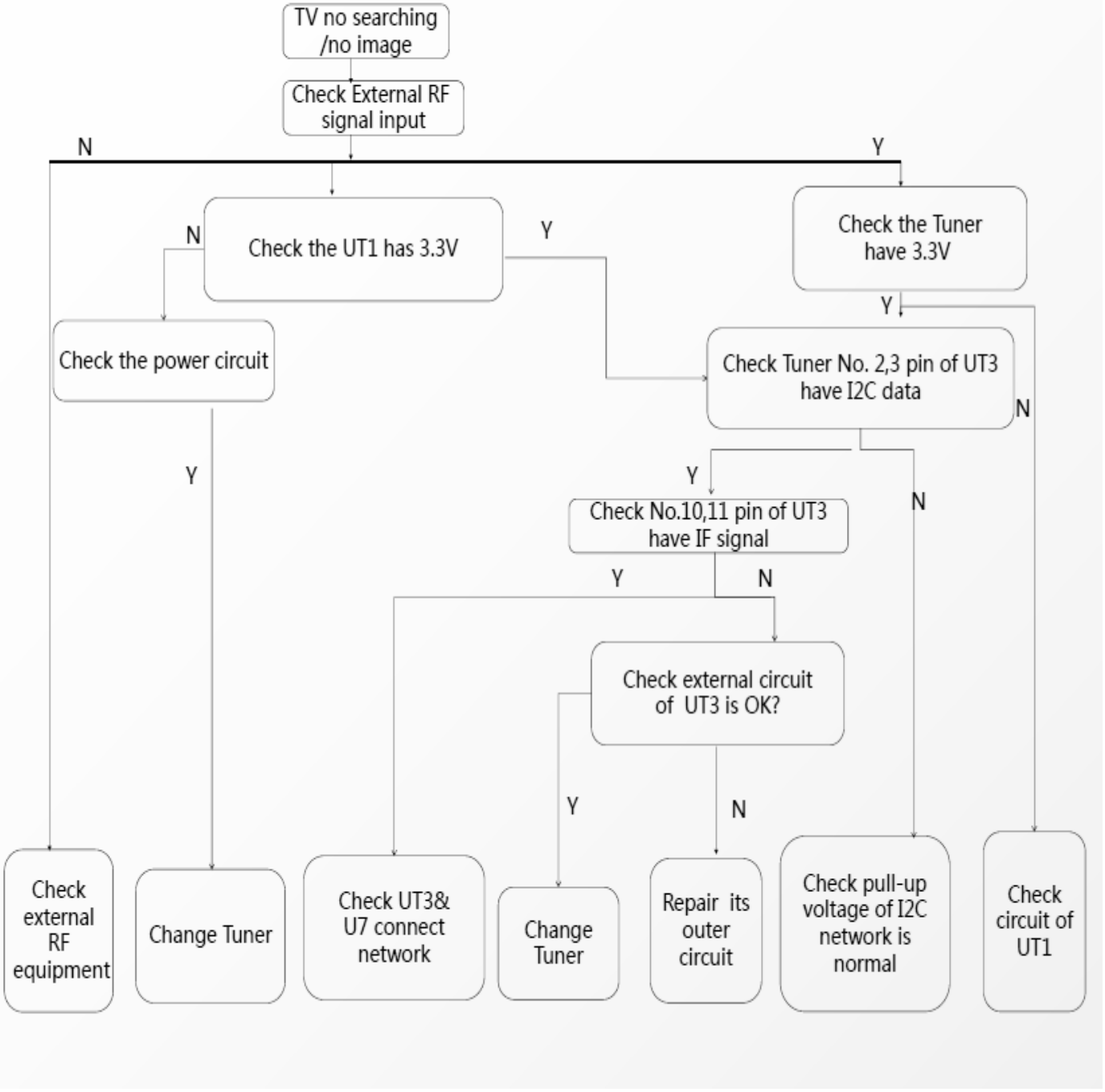
2.2 Display Unit (black screen)



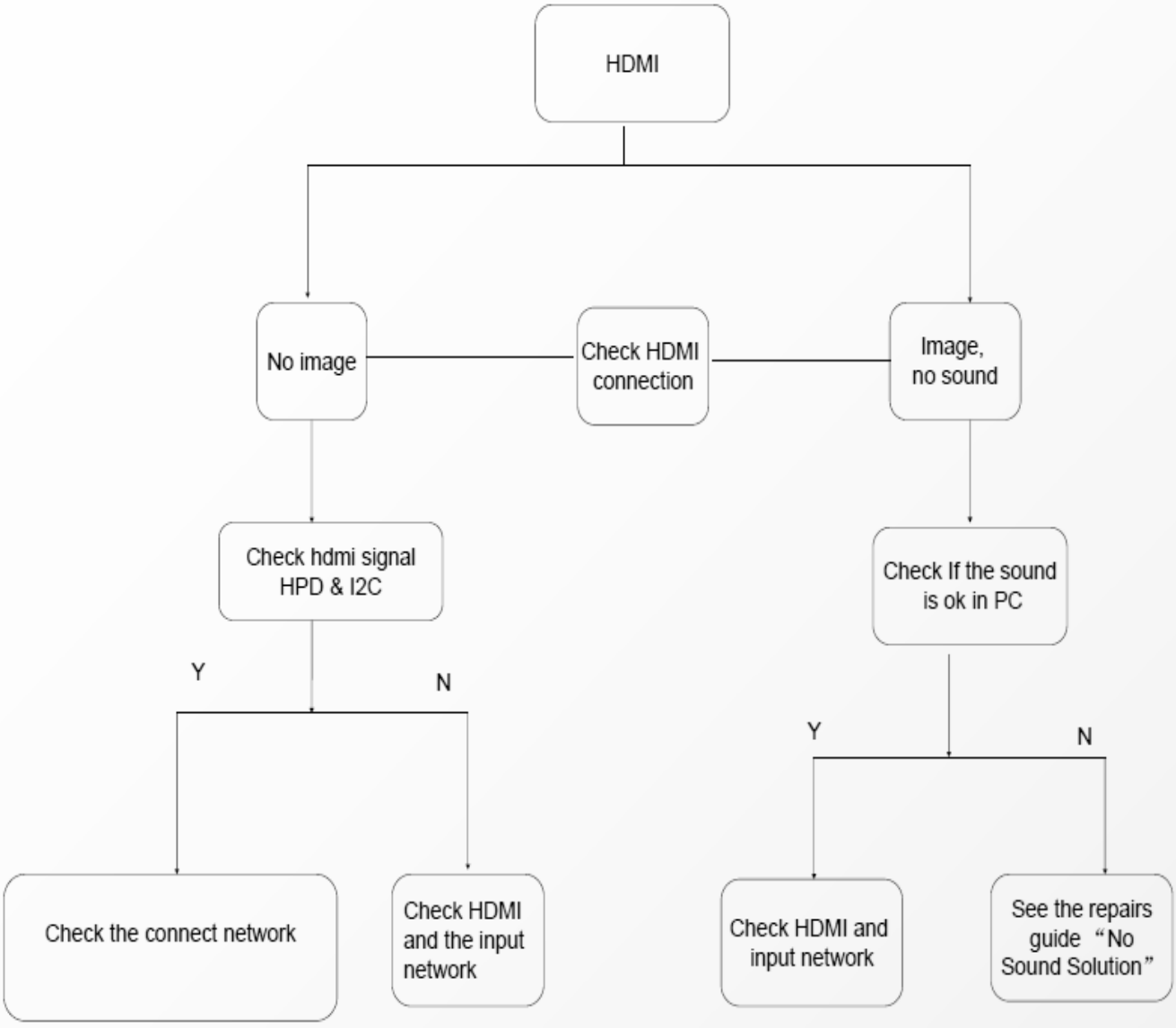
2.3 Audio Unit (no sound)



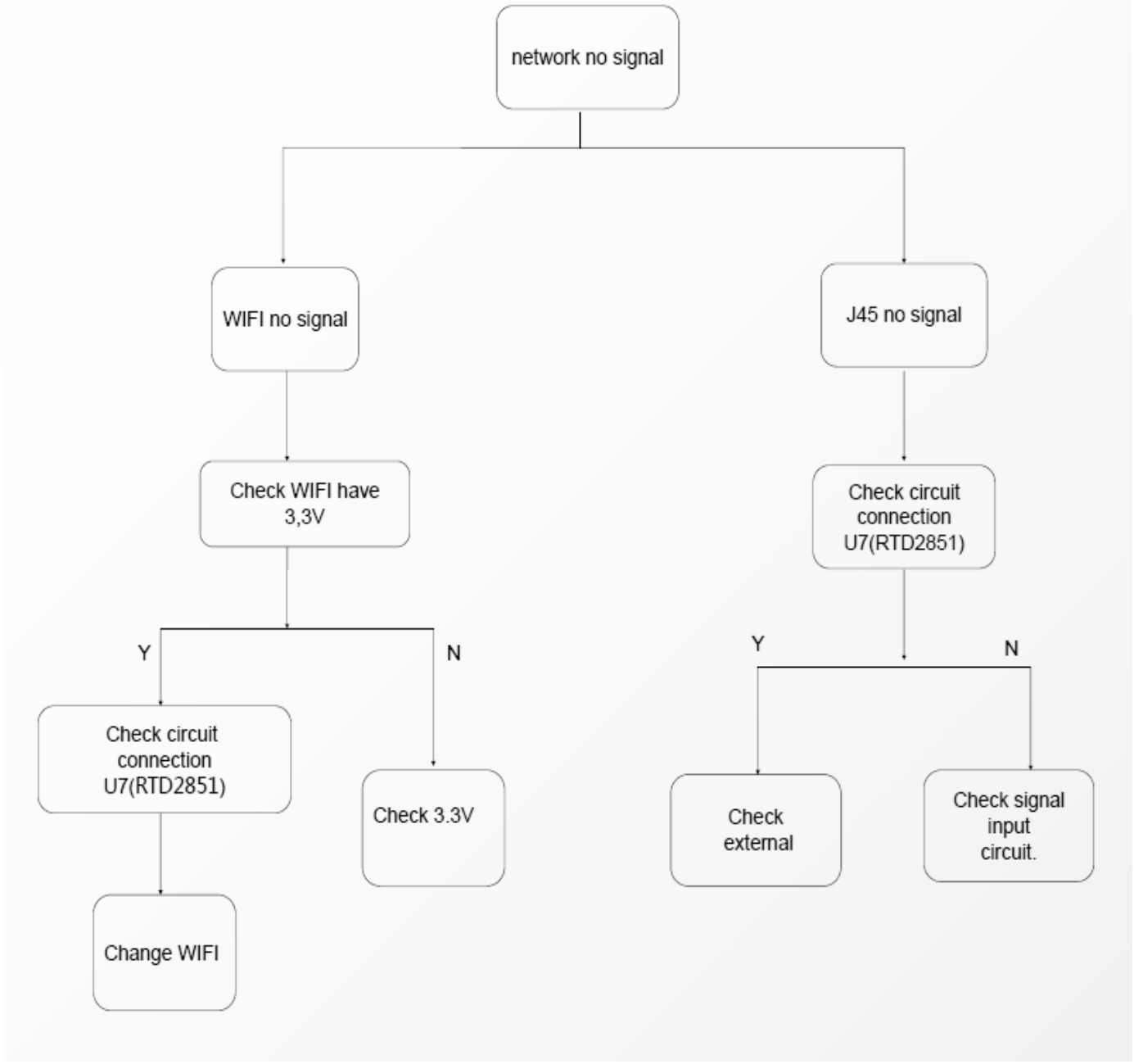
2.4 Function Unit (TV broke down)



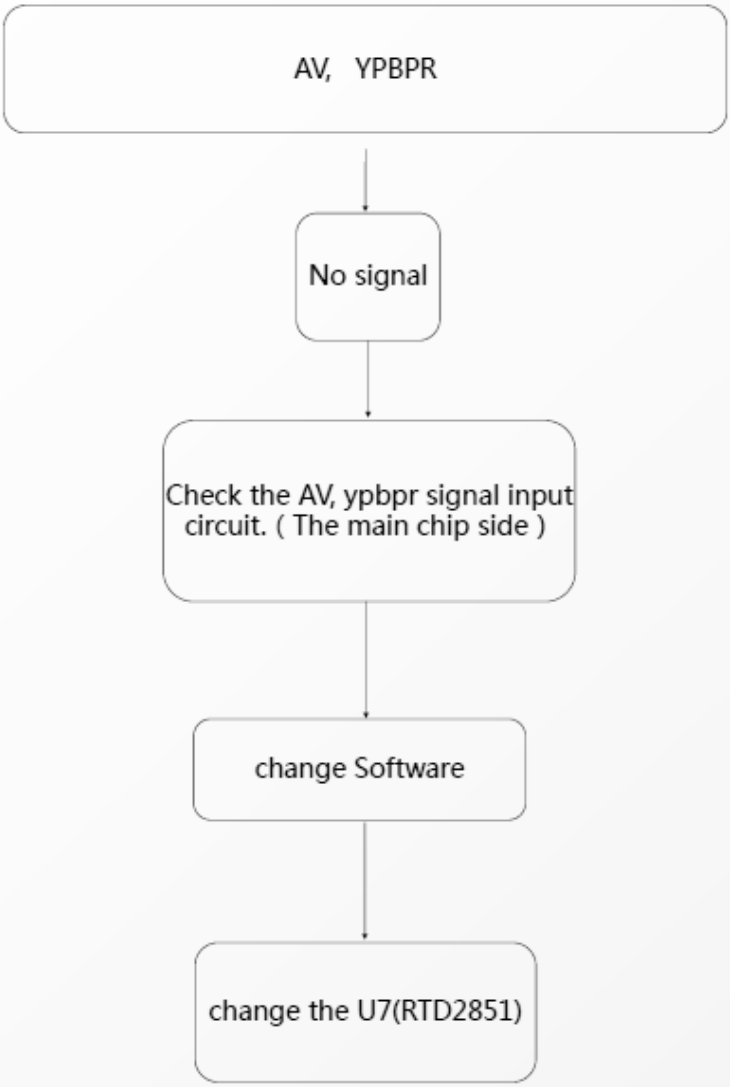
Function Unit （HDMI）



Function Unit （network no signal）



Function Unit (AV,YPBPR)



Hadish

Sabz Parseh Co.

Feb., 2021