

HISTORY INFORMATION FOR THE FOLLOWING MANUAL:

SERVICE MANUAL (COMMON)

GN2S CHASSIS

Segment: QW

Version	Date	Subject
1	01/2016	1 st Issue.

LCD TV
SONY®

9-888-190-01

For SM - Unique , please refer :

9-888-190-Ax (America)

9-888-190-Cx (China)

9-888-190-Ex (Europe)

9-888-190-Px (Pan Asia)

SERVICE MANUAL (COMMON)

GN2S CHASSIS
Segment: QW

LCD TV
SONY[®]

MODEL LIST

THIS SERVICE MANUAL CONTAINS COMMON INFORMATION FOR BELOW REGIONS AND MODELS:

REGION

ASIA AMERICA EUROPE CHINA

MODEL

*KLV-32W6*D* *KLV-40W6*D* *KLV-48W6*D*
*KDL-32W6*D* *KDL-40W6*D* *KDL-48W6*D* *KDL-55W6*D*

TABLE OF CONTENTS

<u>Section Title</u>	<u>Page</u>	<u>Section Title</u>	<u>Page</u>
1. SAFETY NOTES		4. SERVICE ADJUSTMENTS	
1-1. Warnings and Caution.....	5	4-1. Accessing Service Mode	129
1-2. Caution Handling of LCD Panel	5	4-2. Accessing Software Version.....	129
1-3. Caution About the Lithium Battery.....	6	4-3. Accessing Self Diagnostic History.....	130
1-4. Safety Check Out	6	4-4. Accessing Self Diagnostic Menu.....	130
1-5. Leakage Test	6	4-5. Accessing Serial Number Edit.....	132
1-6. How to Find a Good Earth Ground.....	6	4-6. Accessing Model Number Setting.....	133
1-7. Lead Free Information.....	7	4-7. White Balance.....	135
1-8. Handling the Flexible Flat Cable (FFC).....	7	4-8. Aging Mode.....	139
		4-9. Tuner Detection.....	140
2. SELF DIAGNOSTIC FUNCTION		5. DIAGRAMS	
2-1. Overview of Control Buttons	8	5-1. Circuit Board Location	143
2-2. LED Display Control	8	5-2. Block Diagram.....	144
2-3. LED Pattern.....	8	5-3. Connector Diagram	147
2-4. Standby LED Error Display.....	8		
2-5. Triage Chart	9		
3. TROUBLE SHOOTING			
3-1. LED Blinking.....	12		
3-2. No Power.....	28		
3-3. No Picture.....	54		
3-4. No Sound.....	107		

Please refer to Service Procedure for Panel , Board and Software Change / Upgrade Manual , part number 9-888-196-0x in TISS .


Please refer Service Manual – Unique for below information :

- Safety Warnings
- Wire Dressing
- Circuit Board Location
- Disassembly and Exploded View.

Note: Pictures provided in this Service Manual might have slight difference from the actual sets.

SECTION 1 SAFETY NOTES

1-1. Warnings and Caution

- 1) These servicing instructions are for use by qualified service personnel only.
- 2) To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.
- 3) An isolation transformer should be used during any service to avoid Possible shock hazard, because of live chassis. The chassis of this receiver is directly connected to the ac power line.
- 4) Be sure to follow these guidelines to protect your property and avoid causing serious injury :
 - Carry the TV with an adequate number of people; larger size TVs require two or more people.
 - Correct hand placement while carrying the TV is very important for safety and to avoid damages.
- 5) Components identified by shading and  mark on the exploded views, and in the parts list are critical for safe operation. Replace these components with Sony parts whose part numbers appear as shown in this manual or in supplements published by Sony. Circuit adjustments that are critical for safe operation are identified in this manual. Follow these procedures whenever critical components are replaced or improper operation is suspected.

1-2. Caution Handling of LCD Panel

When repairing the LCD Panel, make sure you are grounded with a wrist band. When repairing the LCD Panel on the wall, the panel must be secured using the 4 mounting holes on the rear cover.

- 1) Do not press the panel or frame edge to avoid the risk of electric shock.
- 2) Do not scratch or press on the panel with any sharp objects.
- 3) Do not leave the module in high temperature or in areas of high humidity for an extended period of time.
- 4) Do not expose the LCD panel to direct sunlight.
- 5) Avoid contact with water. It may cause short circuit within the module.
- 6) Disconnect the AC power when replacing the backlight (CCFL) or inverter circuit. (High voltage occurs at the inverter circuit at 650Vrms)
- 7) Always clean the LCD panel with a soft cloth material.
- 8) Use care when handling the wires or connectors of the inverter circuit. Damaging the wires may cause a short circuit.
- 9) Protect the panel from ESD to avoid damaging the electronic circuit (C-MOS).
- 10) During the repair, DO NOT leave the Power On or Burn-in period for more than 1 hour while the TV is face down on a cloth.

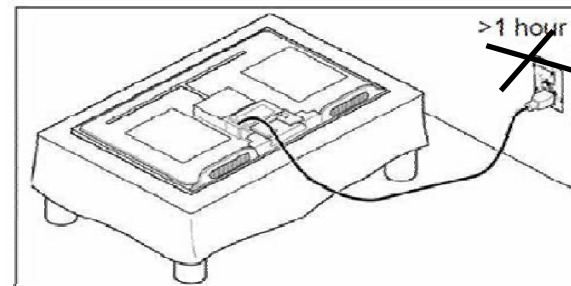


Figure 1. TV is faced down on a cloth during repair.

1-3. Caution About the Lithium Battery

- 1) Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.
- 2) Outer case broken battery should not contact to water.

1-4. Safety Check-Out

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:-

- 1) Check the area of your repair for unsoldered or poorly soldered connections. Check the entire board surface for solder splashes and bridges.
- 2) Check the inter board wiring to ensure that no wires are pinched or contact high-wattage resistors.
- 3) Check all control knobs, shields, covers, ground straps and mounting hardware have been replaced. Be absolutely certain you have replaced all the insulators.
- 4) Look for unauthorized replacement parts, particularly transistors that were installed during a previous repair. Point them out to the customer and recommend their replacement.
- 5) Look for parts which, though functioning show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
- 6) Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
- 7) Check the antenna terminals, metal trim, metalized knobs, screws and all other exposed metal parts for AC leakage. Check leakage test as described next.
8. For safety reasons, repairing the Power board and/or Inverter board is prohibited.

1-5. Leakage Test

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis must not exceed 0.5mA (500 microamperes).

Leakage current can be measured by any one of the three methods:-

- 1) A commercial leakage tester such as the SIMPSON 229 or RCA WT540A. Follow the manufacturers instructions to use those instructions.
- 2) A battery-operated AC milliammeter The DATA PRECISION 245 digital multimeter is suitable for this job.

- 3) Measuring the voltage drop across a resistor by means of a VOM or battery operated AC voltmeter. The 'limit' indication is 0.75V so analog meters must have an accurate low voltage scale. The SIMPSON'S 250 and SANWA SH-63TRD are examples of passive VOMs that are suitable. Nearly all battery operated digital multimeter that have a 2 VAC range are suitable. (see Figure 2.)

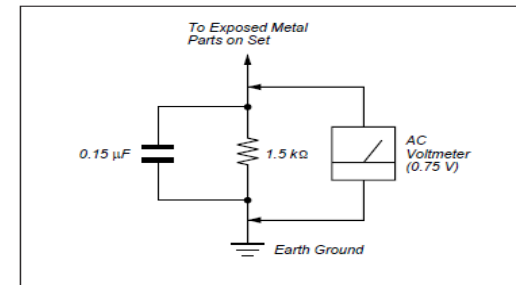


Figure 2. AC voltmeter to check AC leakage

1-6. How to Find a Good Earth Ground

- 1) A cold-water pipe is a guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground.
- 2) If the retaining screw is to be used as your earth ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms.
- 3) If a cold-water pipe is not accessible, connect a 60- to 100-watt trouble-light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side on the line; the lamp should light at normal brilliance if the screw is at ground potential (see Figure 3).

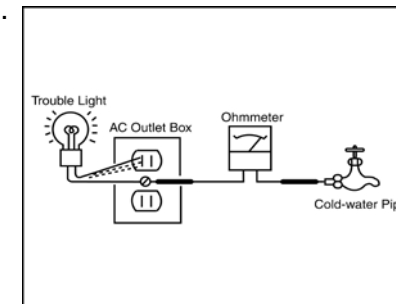


Figure B. Checking for earth ground.

Figure 3. Checking for earth ground.

1-7. Lead Free Information

The circuit boards used in these models have been processed using Lead Free Solder. The boards are identified by the LF logo located close to the board designation.



Figure 4: LF Logo

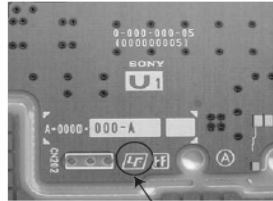


Figure 5: LF logo on circuit board

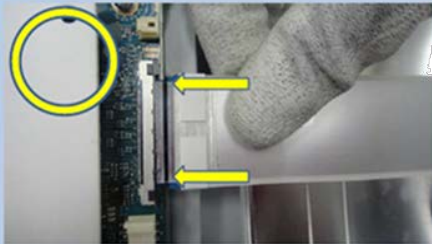
The servicing of these boards requires special precautions. It is strongly recommended to use Lead Free Solder material in order to guarantee optimal quality of new solder joints.

1-8. Handling the FLEXIBLE FLAT CABLE (FFC)

- When you insert / pull out FFC, please grasp a reinforcement board and main body of FFC.

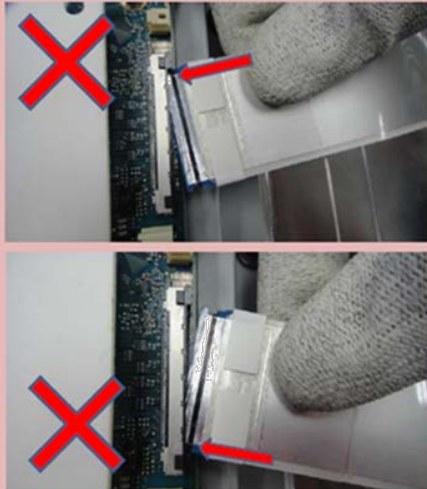
OK operation

→ Insert FFC in straight direction/condition into the connector and plunge it to the depths.



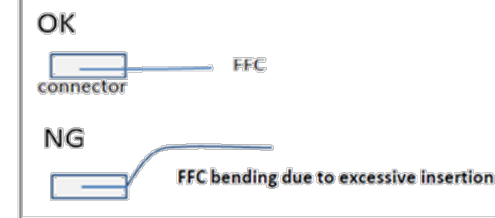
NG operation

→ DO NOT slant the FFC during insertion.



- 1) Don't apply excess insertion force to avoid bending of LVDS 51P FFC.
- 2) Replace FFC even once FFC bended over 30 degree.

Cross-section view of connector



Don't apply excessive force during insertion to avoid bending of LVDS



Caution: For Straight FFC Insertion (FFC insert in flat condition) and wedge design

OK



1) Hold FFC by using the FFC holder



2) Insert FFC to main board straight and as parallel to main board (Allowance: Within 30 Degree)

NG



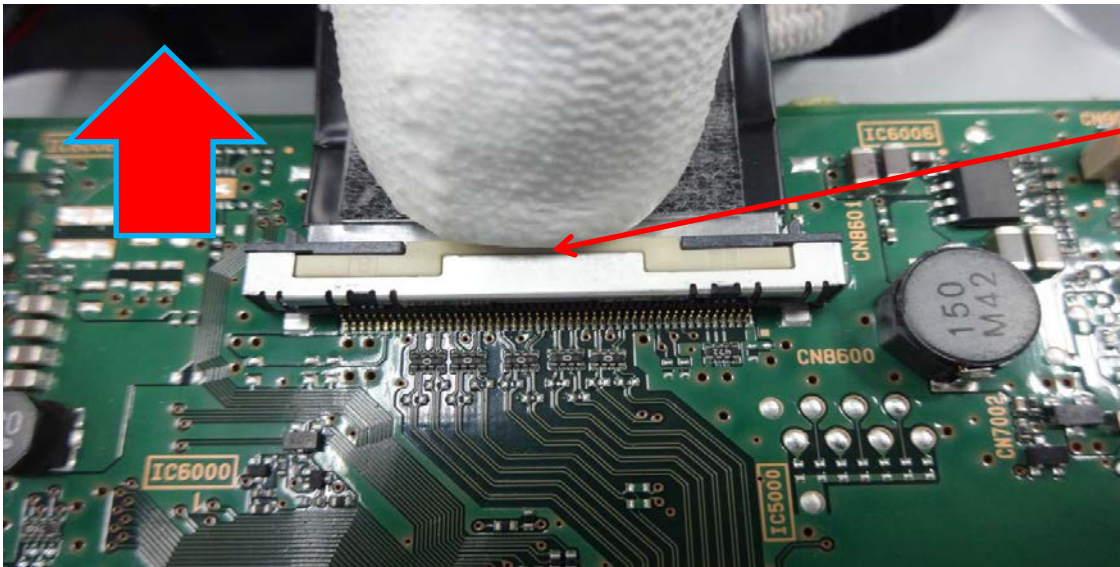
1) FFC conn flip / slanting. (> 30 degree)

1-8. Handling the FLEXIBLE FLAT CABLE (FFC)



<INSERTION>

Insert properly without slanting



<PULL OUT>

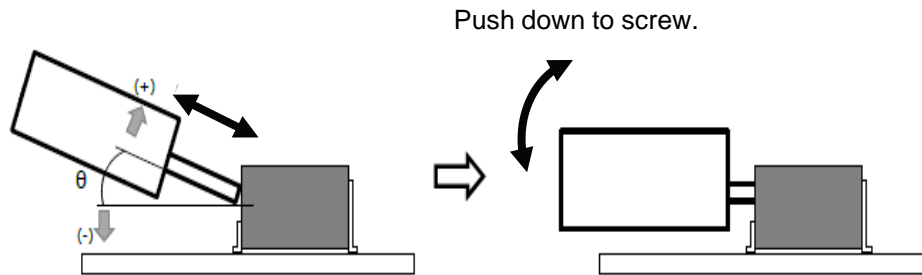
Press release button at the same time pull out FFC cable

1-9. Assemble and Disassemble Tuner Module

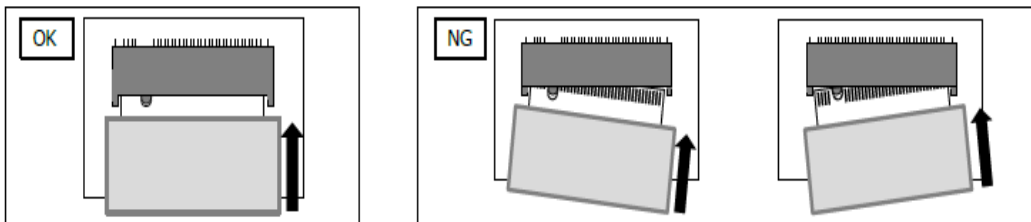
Tuner Module treatment way

1. The insertion & extraction angle of the module is permitted to specified degree for connector

$$\theta = 20^\circ$$



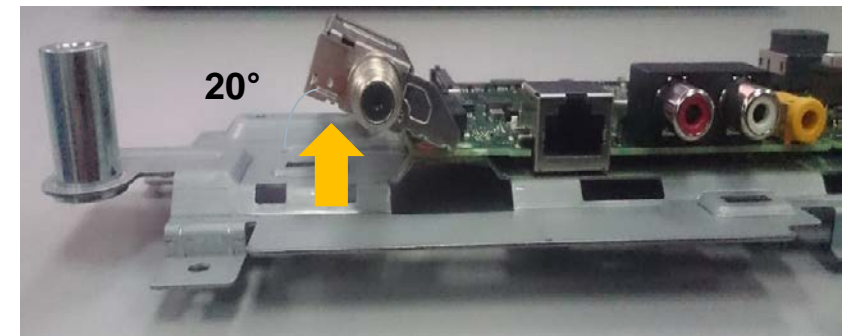
- ② Please insert or extract the module straightly toward the connector. Do NOT insert or extract the module with an angle.



For removing Tuner Module,

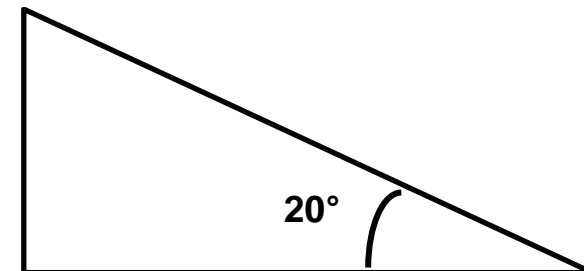
After un screwed, Automatically the Module will float to correct degree.

So please extract it with keeping this degree.



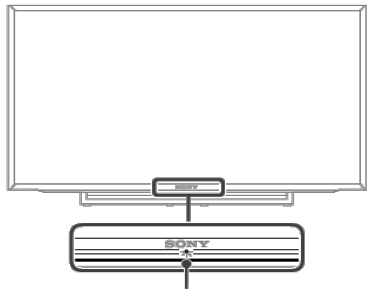
Reference paper for 20 degree

(If need please use for fit by cutting this paper)



SECTION 2 SELF DIAGNOSTIC FUNCTION

2-1. Overview of Control Buttons



LED Indicator

- Lights up in green when you select "Picture Off".
- Lights up in amber when you set the timer or "Photo Frame Mode".
- Lights up in green when the TV is turned on.
- Flashes while the remote is being operated.

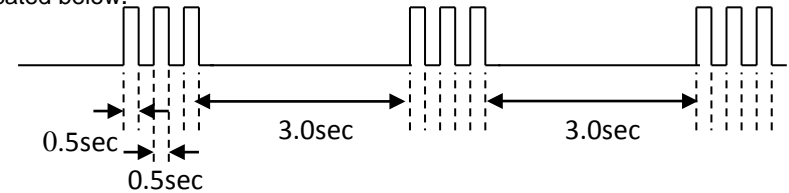
2-2. LED Display Control

Amber = Red + Green

Status	LED Colour	Remarks
Power Off (AC Off and *1)	OFF	*1 power switch off (by touch button)
Power On	Green	
Standby(by remote control off and Side Key off)	OFF	
Picture Off	Green	
Set "Sleep Timer"	Amber	
Set "On Timer" (Power On)	Amber	
Set "On Timer"(Standby)	Amber	
Picture Frame	Amber	
Failure	Red Blinking	The number of LED blinking indicates cause of failure.
Error of panel ID	Amber/Green Blinking	Blinking:0.5sec Amber/ 0.5sec Green
Software Updating	Amber Blinking	Blinking: 1sec On / 1sec Off

2-3. LED Pattern

When safety shutdown occurs, Standby LED display reports the cause by using the lightning patterns as indicated below.



Example: The figure above shows LED display when SHUTDOWN is caused by Audio Error. It repeats flashing for a specified number of times in 0.5sec/cycle and has a 3 seconds interval of lighting off. Please note that a 3 seconds interval of lighting off is fixed regardless of abnormal state types.

2-4. Standby LED Error Display

The Number of Standby LED (RED blinking)	Error Detection	Error Location
2	Main Power Error	AC adapter Error
3	Audio Error	B* board Error
4	Panel Power Error	B* board Error
5	Panel I2C COMM Error	B* or Source board Error
6	Backlight Error	B* board Error

Size	B* Board Type	
	PAN ASIA,AMERICA, CHINA	EUROPE
32"	BBA	BBE
40"	BBA	BBE
48"	BBA	BBE

2-5. Triage Chart

Reference	Segment					Symptoms - Shutdown. Power LED blinking red diagnostics sequences					No Power (No Pic, No Sound, No BL)	Video (missing/distorted)				Remote	Network *QT,QW, SE3N	Audio (missing/distorted)	front LED	Tact-Key
	QT	QW	QW-L	SE3N	SE3	2	3	4	5	6	No Power LED & No Reponse to remote (Dead Set)	Stationary colored lines or dots	No Video in 1 (one) of Inputs	No Video in All Inputs	RF Cannot Tune	No Reponse when press remote key (Tact-Key OK)	Wireless can't connect	No Audio	No LED (Set is still alive)	No Response when press Tact-Key (Remote OK)
B* Board	Y	Y	Y	Y	Y	●	▲	▲	▲	▲	▲	●	●	▲	▲	▲	▲	▲	▲	▲
AC Adaptor	Y	Y	Y	Y	Y	▲			▲		●									
H* Board	Y	Y	Y	Y	Y										●			●		
Stereo Speaker	Y	Y	Y	Y	Y		●										●			
Assist Speaker				Y	Y		●										●			
Wi-Fi module	Y	Y		Y												●				
LVDS FFC	Y	Y	Y	Y	Y			▲	▲			▲		▲						
LED Panel		Y	Y	Y	Y			●	●	●		●		▲						
Tuner module	Y	Y	Y	Y	Y										●					
Switch Unit	Y	Y	Y	Y	Y															●
Problem						Power	Audio	Panel (Power)	Panel (Communication)	Panel (Backlight)										

- Most likely defective part
- ▲ Secondary possible defective part

Size	B* Board Type	
	PAN ASIA,AMERICA, CHINA	EUROPE
32"	BBA	BBE
40"	BBA	BBE
48"	BBA	BBE

SECTION 3 TROUBLESHOOTING

3-1. LED BLINKING

3-1-1. 2x Blinking (Main power Error)

BBE, BBA board (QW, QWL) only

Size	B* Board Type	
	PAN ASIA, AMERICA, CHINA	EUROPE
32"	BBA	BBE
40"	BBA	BBE
48"	BBA	BBE

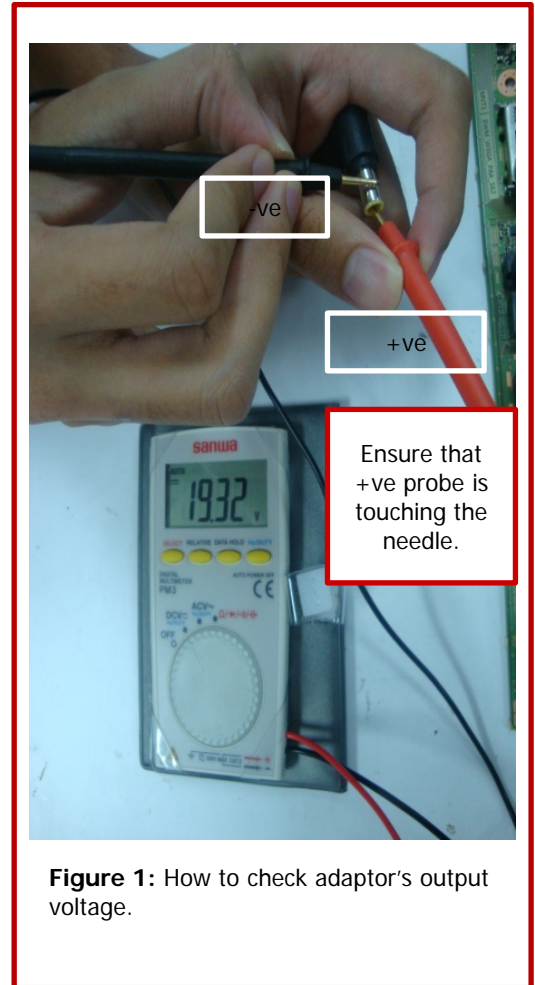
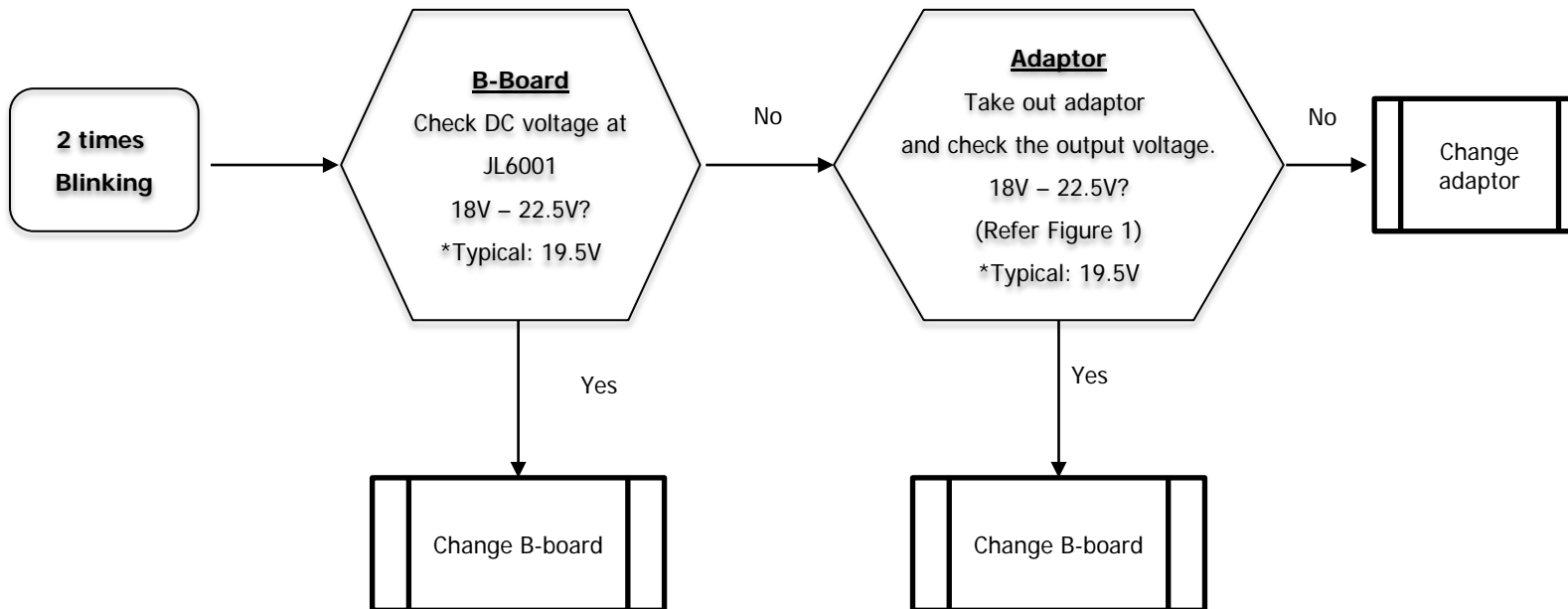
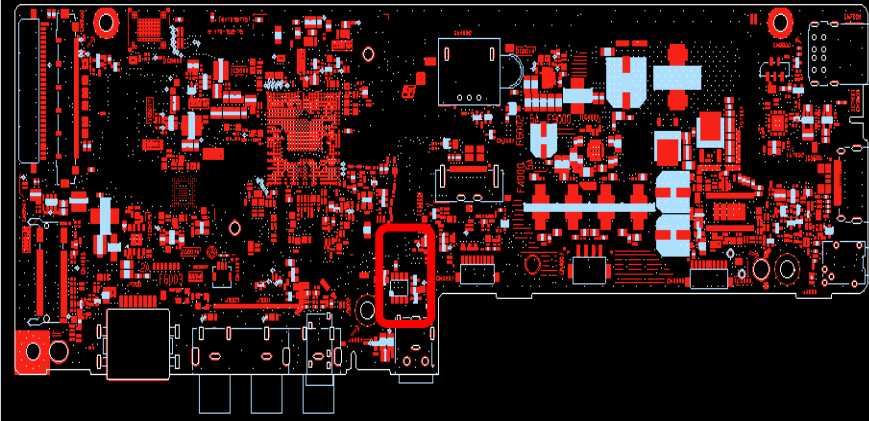
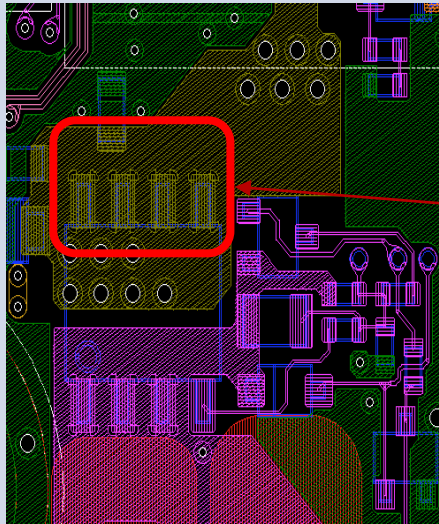
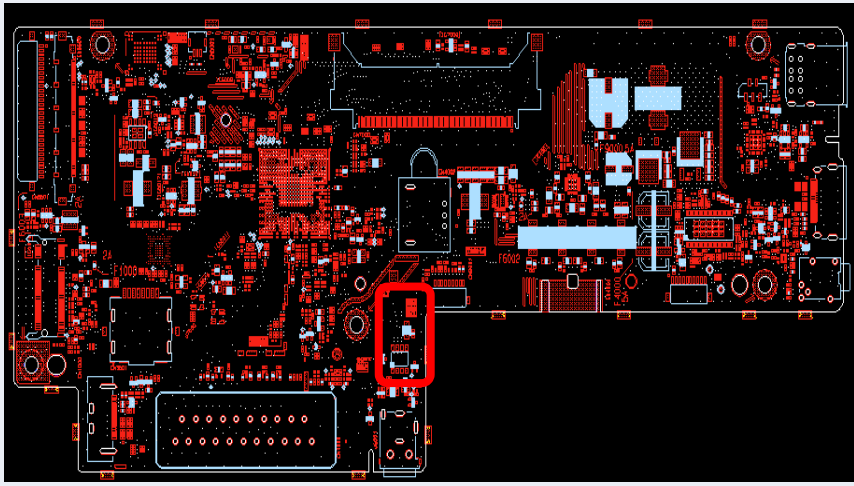
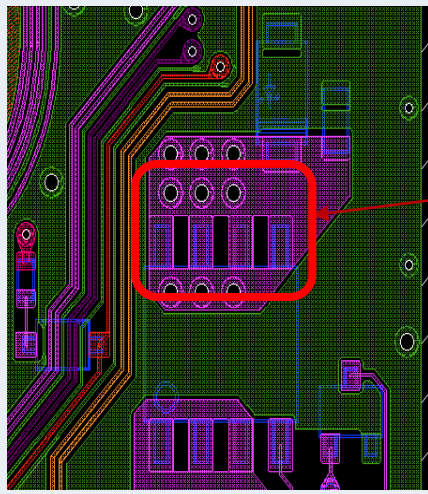


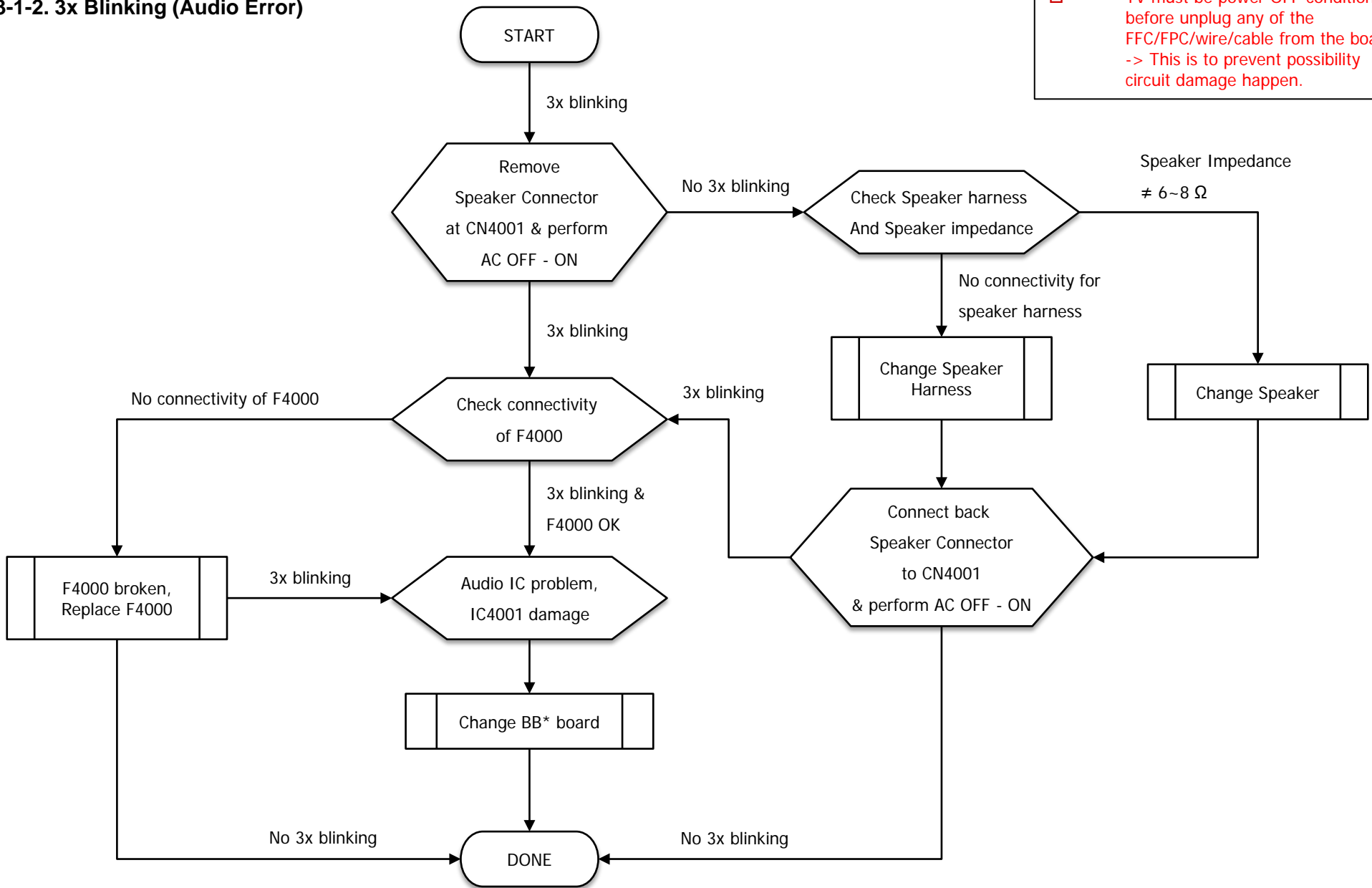
Figure 1: How to check adaptor's output voltage.

2 x Blinking (Checking Point)

Board Name	Board PWB (A side)	Detail
BBA (Q6020)		 <p data-bbox="1848 550 1960 590"><u>Q6020</u></p>
BBE (Q6020)		 <p data-bbox="1848 1117 1960 1157"><u>Q6020</u></p>

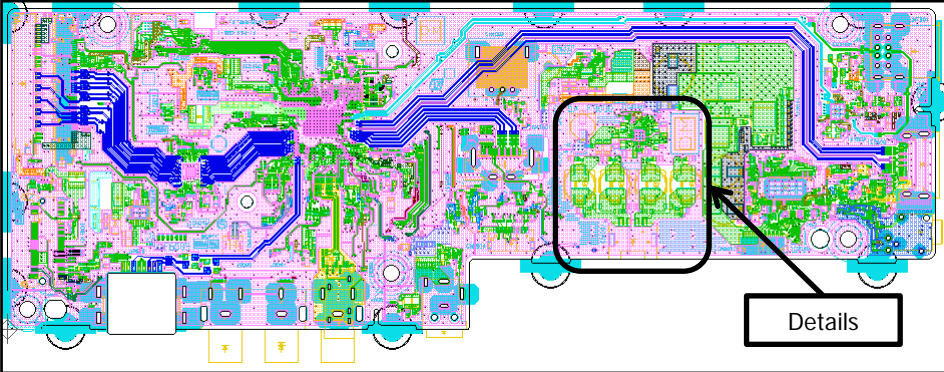
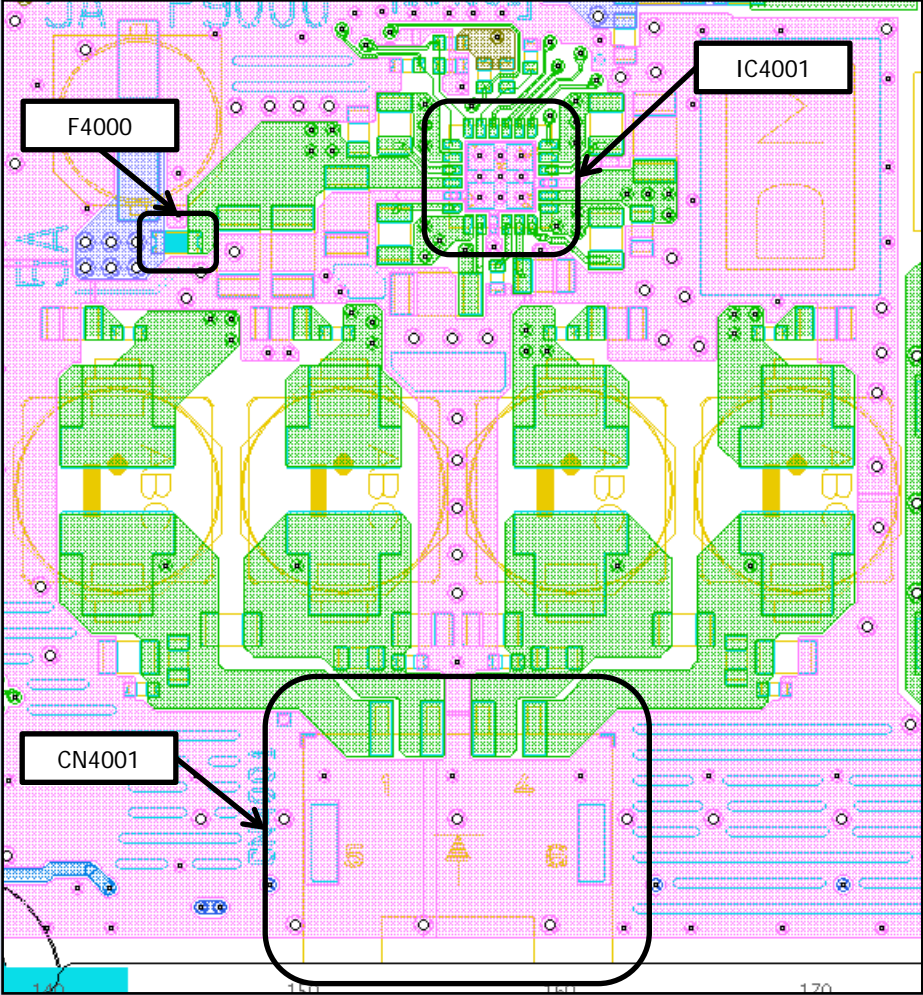
3-1. LED BLINKING

3-1-2. 3x Blinking (Audio Error)

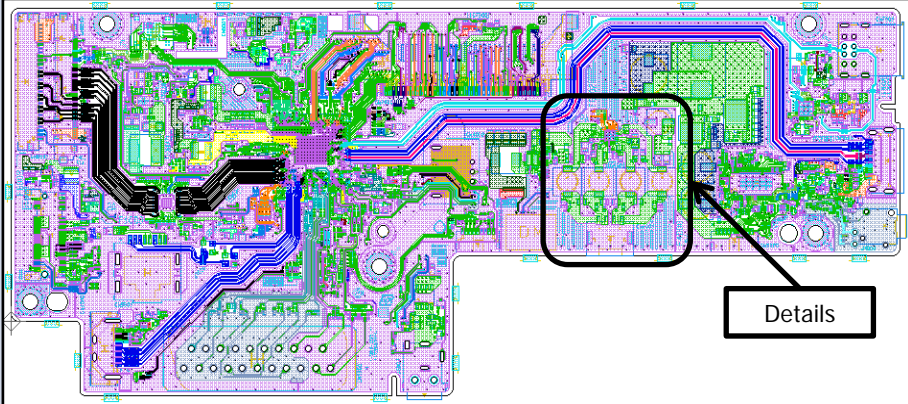
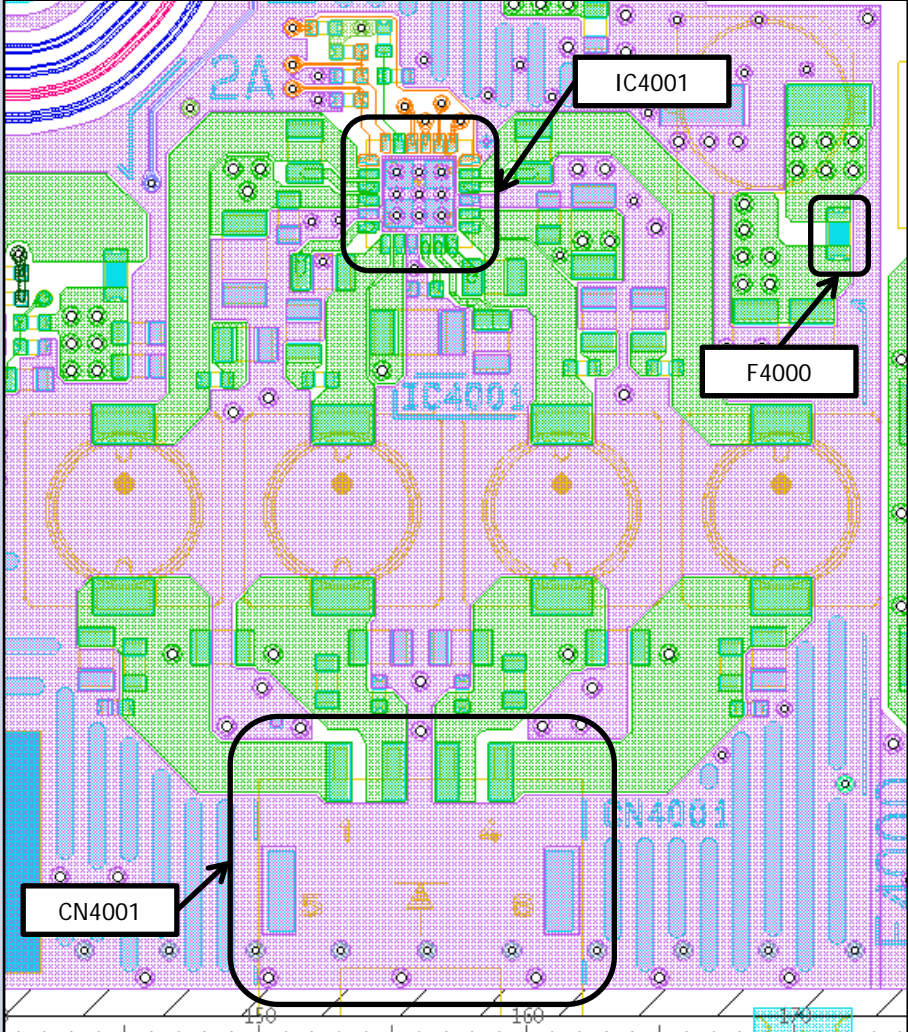


□ TV must be power OFF condition before unplug any of the FFC/FPC/wire/cable from the board. -> This is to prevent possibility circuit damage happen.

3x Blinking (Checking Point)- BBA

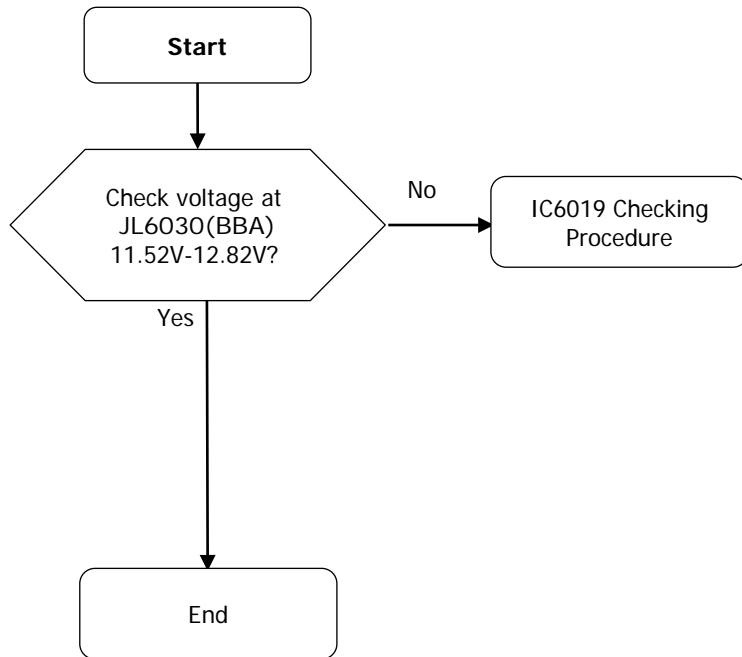
Board Name	Board PWB (A side)	Details
BBA (QW, QT) IC4001 F4000 CN4001	 <p>The image shows the A-side of the Board PWB. A black rectangular callout box highlights a specific area of the board, with an arrow pointing to a label 'Details' located at the bottom right of the callout.</p>	 <p>The image provides a detailed view of the PWB. Three components are highlighted with callout boxes and arrows: 'F4000' (top left), 'IC4001' (top right), and 'CN4001' (bottom left). The board is populated with various components, including a large green IC (IC4001) and several smaller components (F4000 and CN4001).</p>

3x Blinking (Checking Point)- BBE

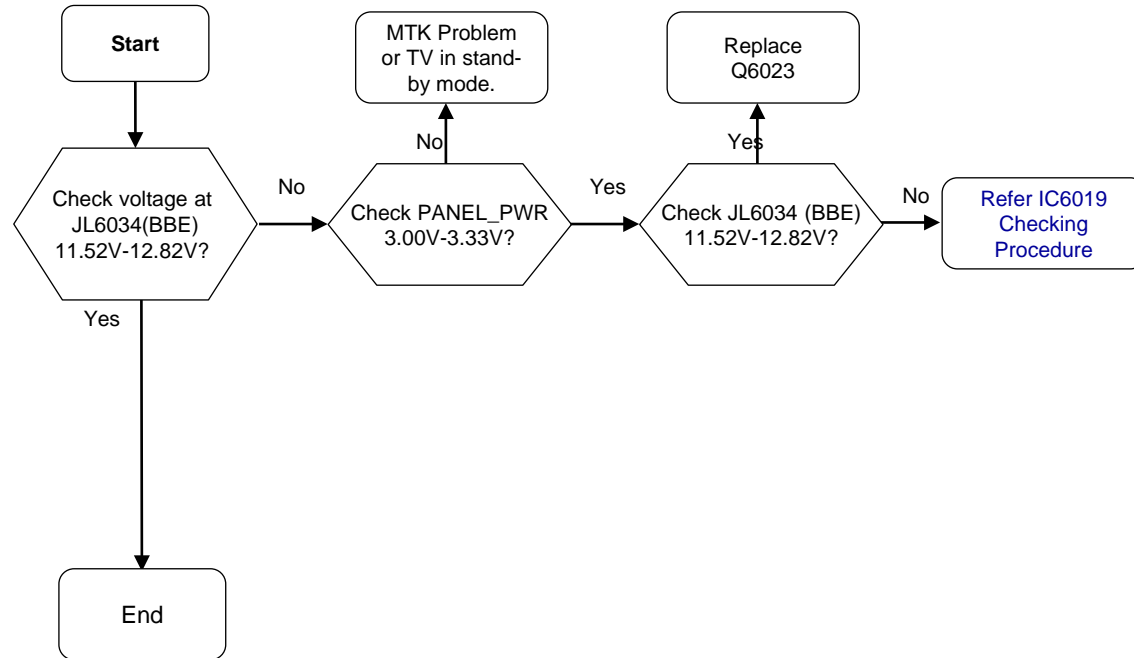
Board Name	Board PWB (A side)	Details
BBE (QW, QWL, QT) IC4001 F4000 CN4001	 <p data-bbox="999 711 1146 756">Details</p> <p>The image shows a top-down view of the Board PWB (A side) with various components and traces. A black box highlights a specific area, with an arrow pointing to a 'Details' label.</p>	 <p data-bbox="1832 469 1980 513">IC4001</p> <p data-bbox="1957 762 2105 807">F4000</p> <p data-bbox="1281 1305 1429 1350">CN4001</p> <p>The image provides a detailed view of the highlighted area from the previous image. It shows the IC4001 chip, the F4000 component, and the CN4001 connector. The components are labeled with their respective part numbers in white boxes with black arrows. The background shows the intricate circuit board layout with various traces and pads.</p>

3-1. LED BLINKING

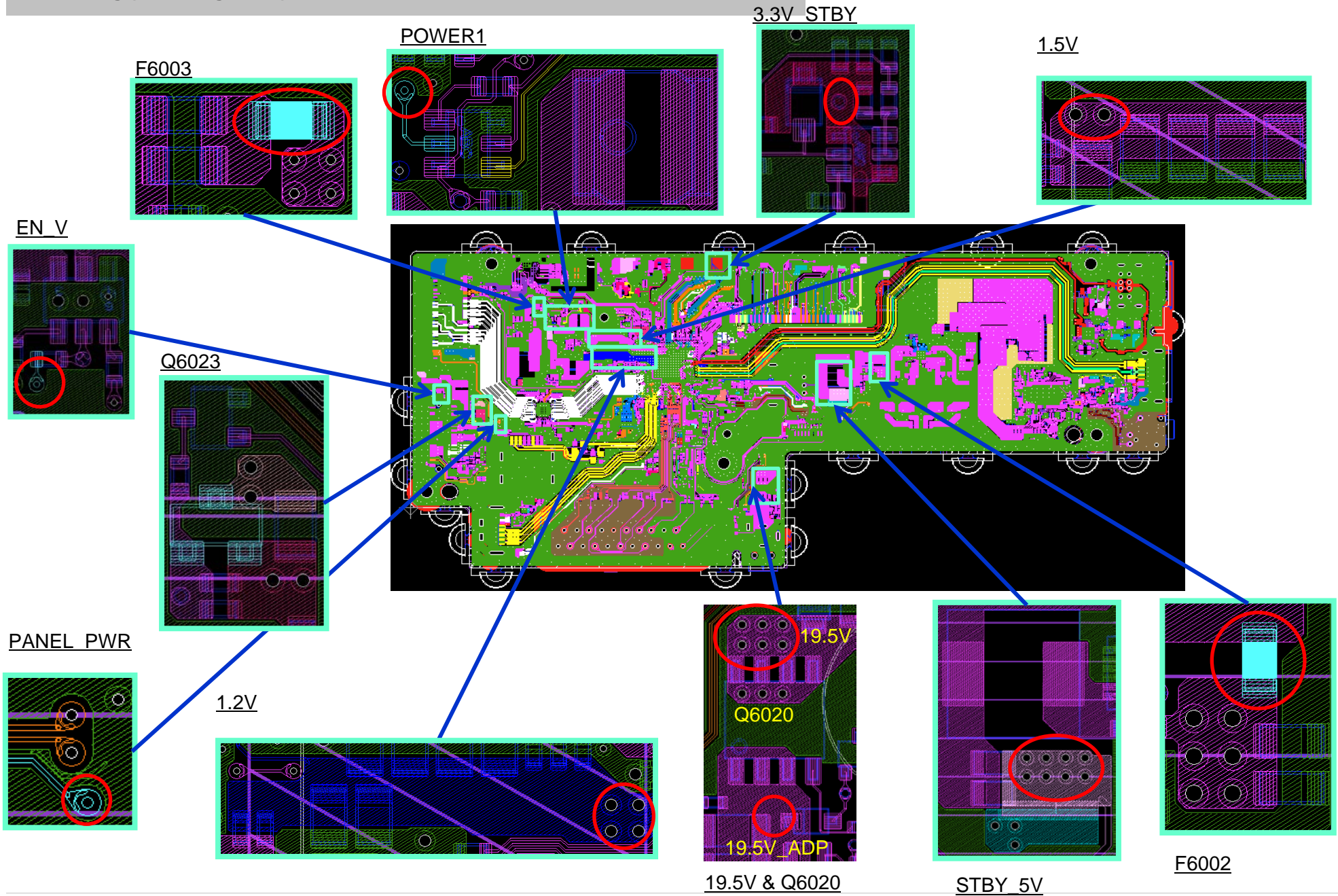
3-1-3. 4 x Blinking (Panel Power Error)- BBA



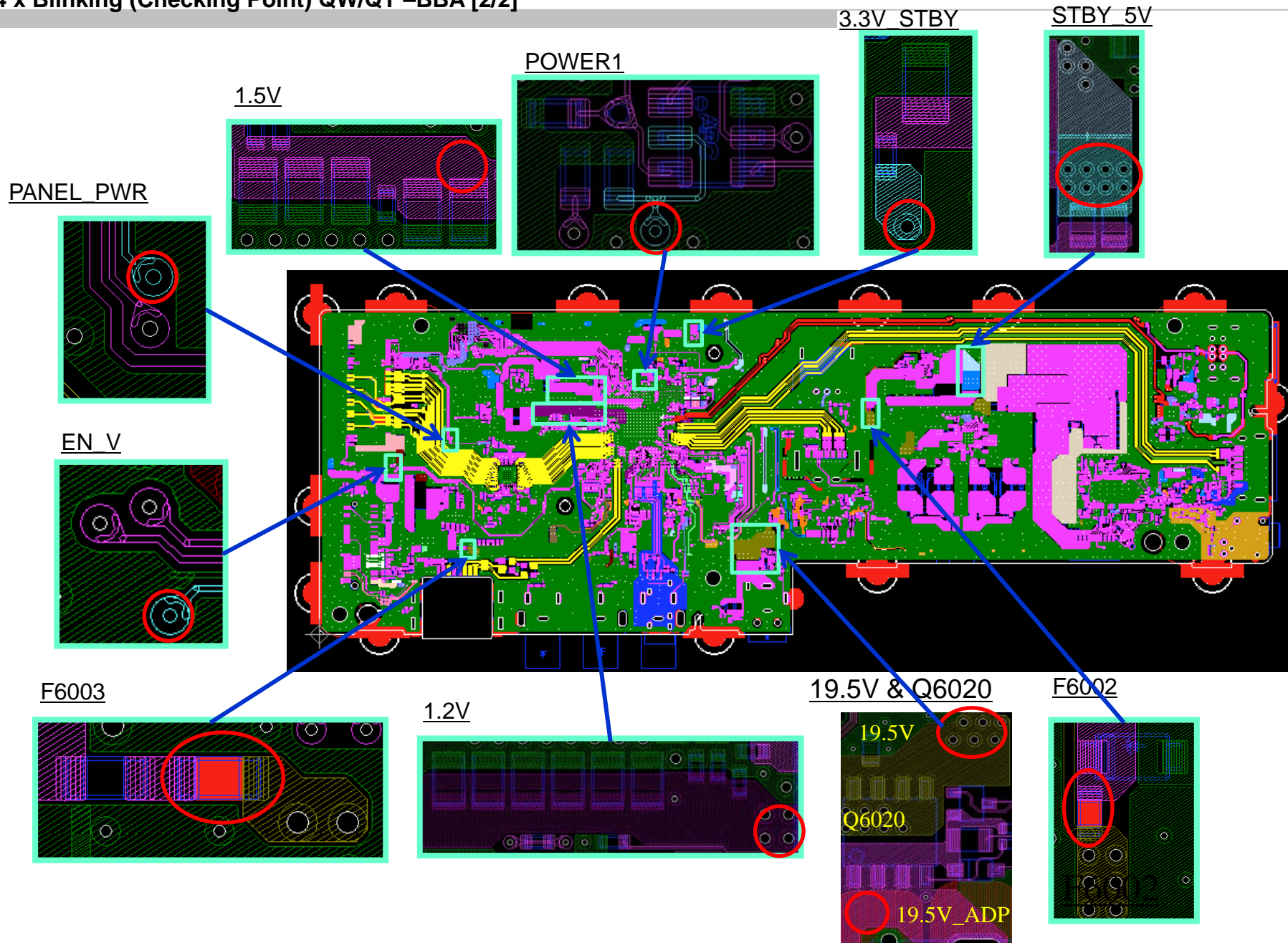
3-1-4. 4 x Blinking (Panel Power Error)- BBE



4 x Blinking (Checking Point) QW/QT-BBE [1/2]

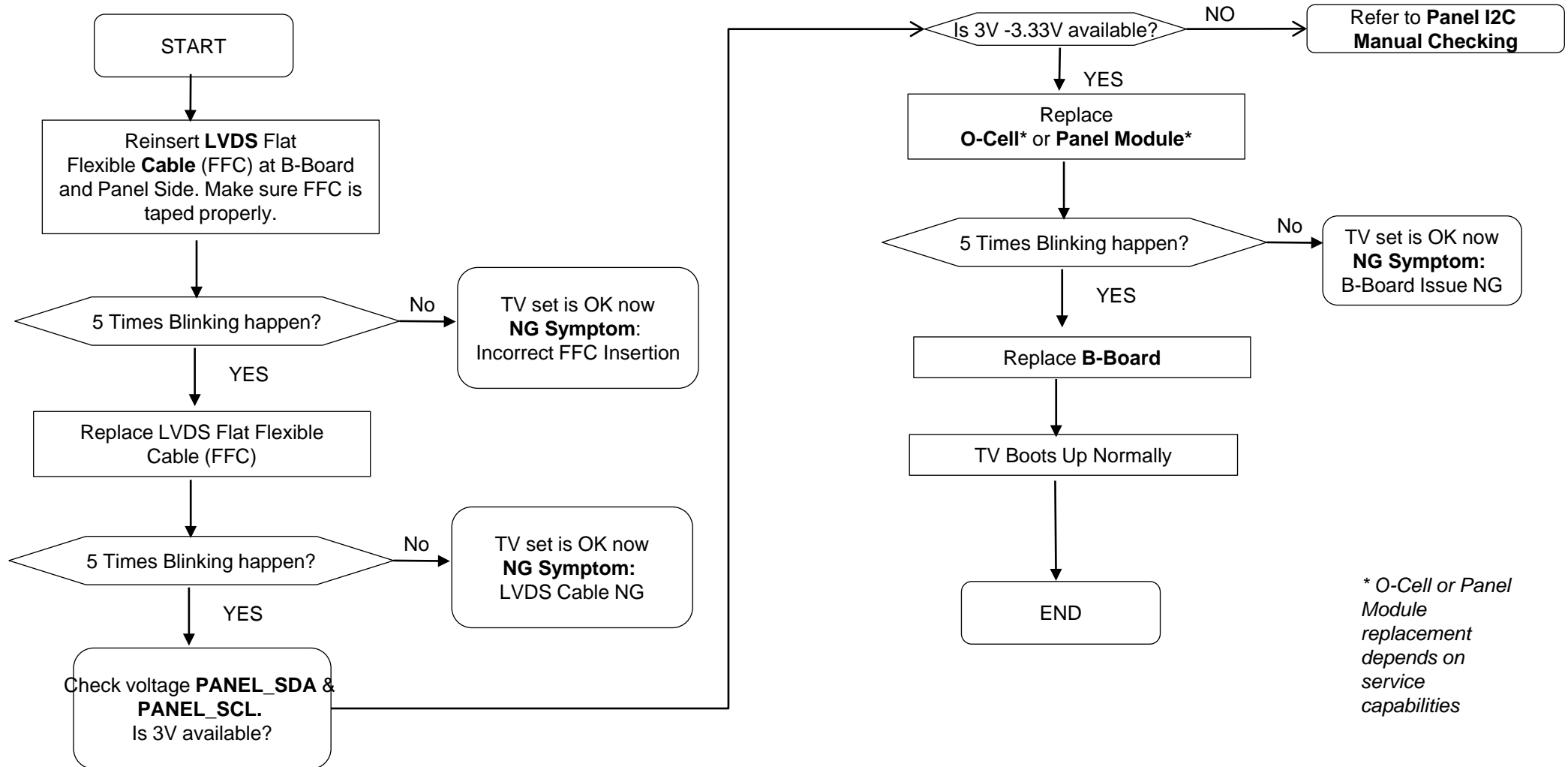


4 x Blinking (Checking Point) QW/QT -BBA [2/2]



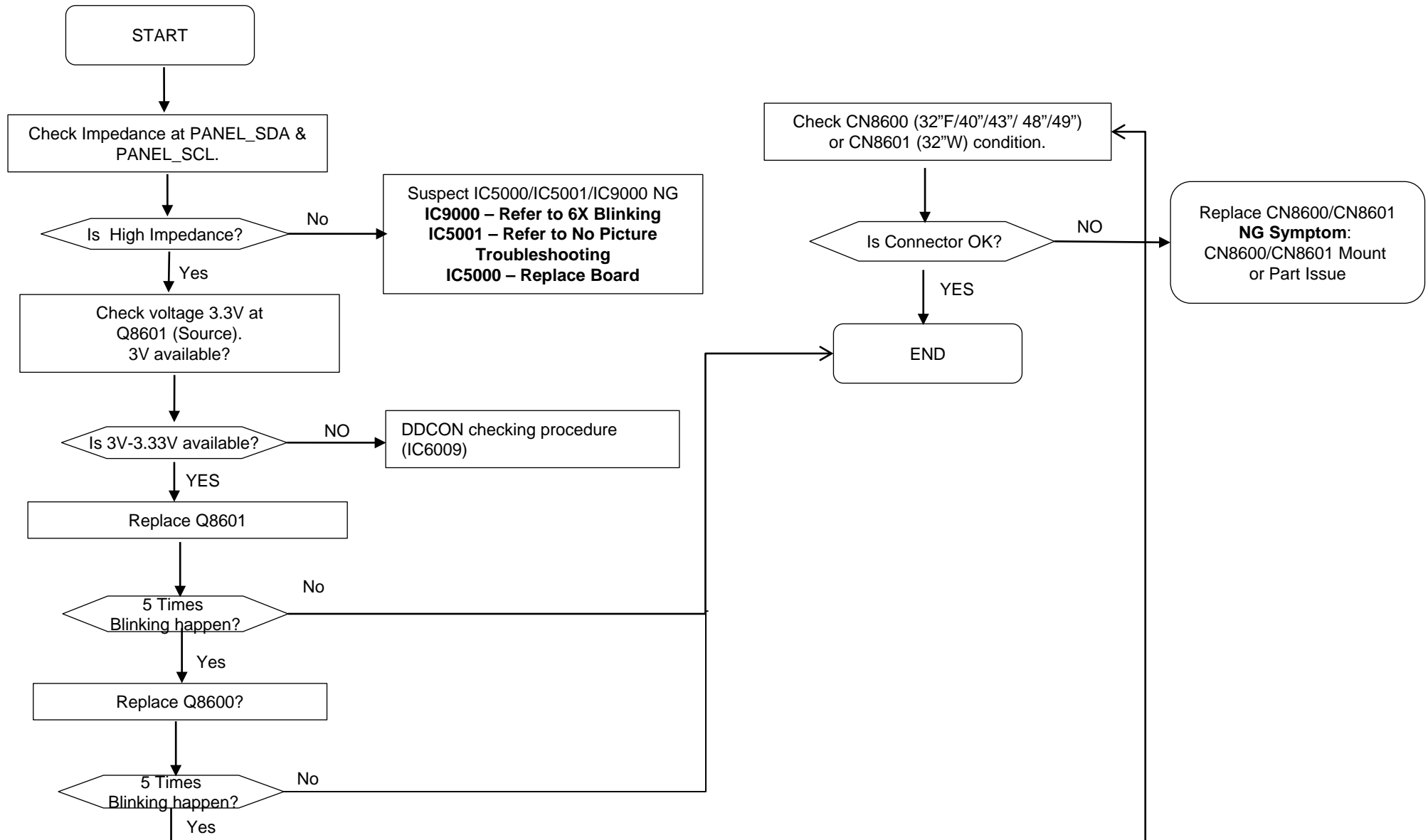
3-1. LED BLINKING

3-1-5. 5 x Blinking (Panel I2C Error - General Checking)



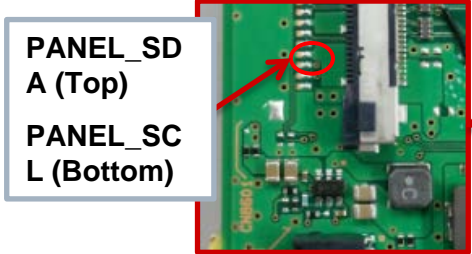
3-1. LED BLINKING

3-1-6. 5x Blinking (Panel I2C Checking Manual)

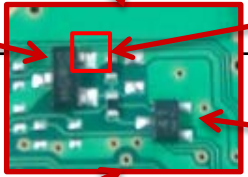


5 x Blinking (checking Point [1/2])

BBA
FHD



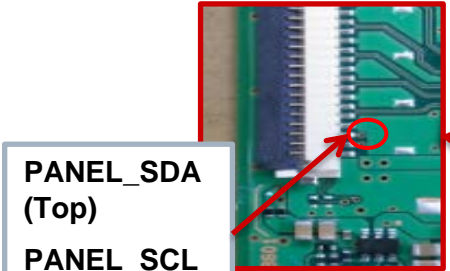
Q860
1





Q8601
(Source
)

Q860
0

BBA
WXGA

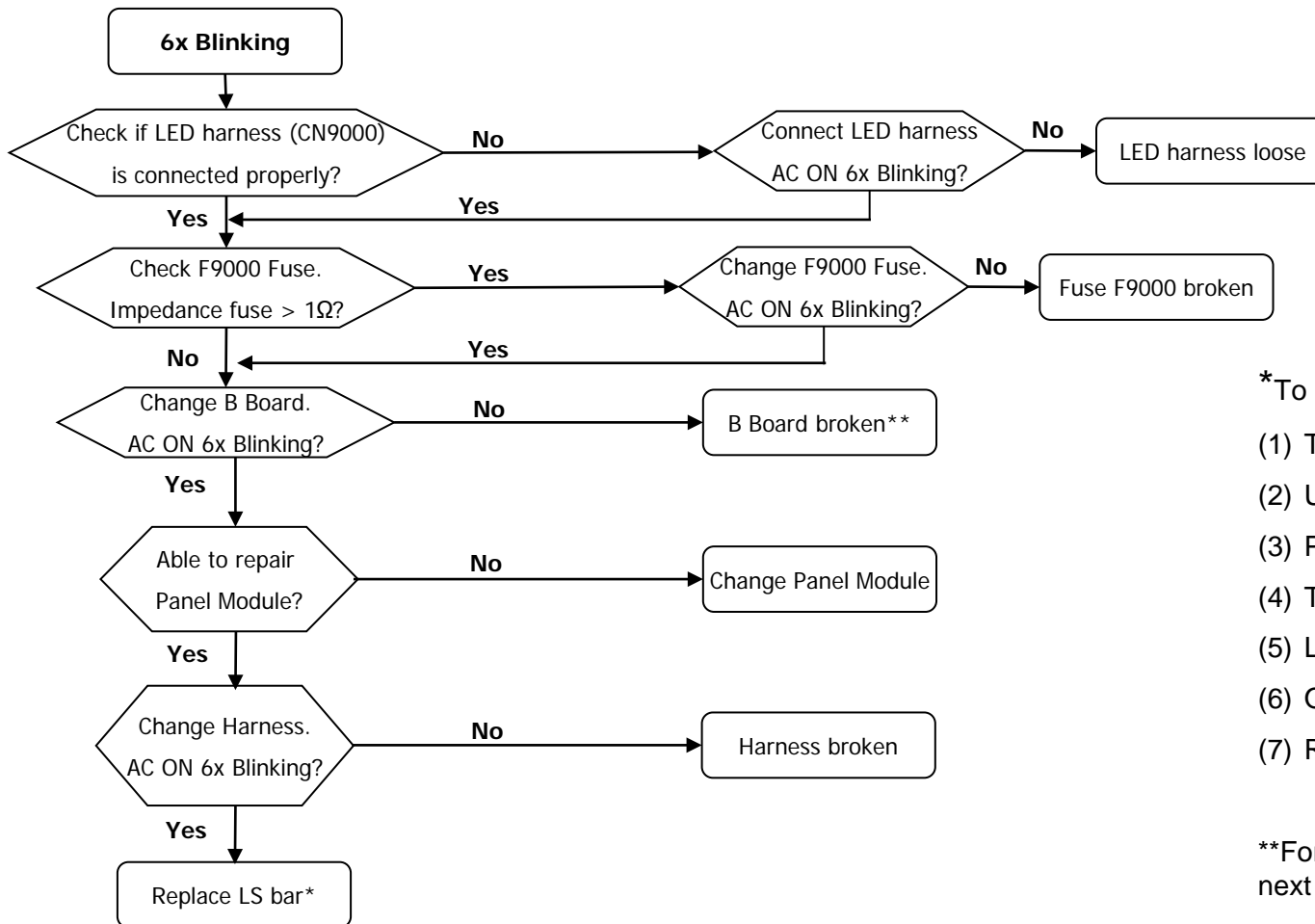


5 x Blinking (Panel I2C Checking Manual [2/2])

<p>BBE FHD</p>	<div data-bbox="235 343 481 502" data-label="Text"> <p>PANEL_SDA (Top) PANEL_SCL (Bottom)</p> </div>  <div data-bbox="963 798 1097 853" data-label="Text"> <p>Q8601</p> </div> <div data-bbox="1444 798 1601 885" data-label="Text"> <p>Q8601 (Source)</p> </div> <div data-bbox="974 901 1108 949" data-label="Text"> <p>Q8600</p> </div>
<p>BBE WXGA</p>	<div data-bbox="280 1252 526 1412" data-label="Text"> <p>PANEL_SDA (Top) PANEL_SCL (Bottom)</p> </div> 

3-1. LED BLINKING

3-1-7. 6x Blinking (Backlight Error)- QW



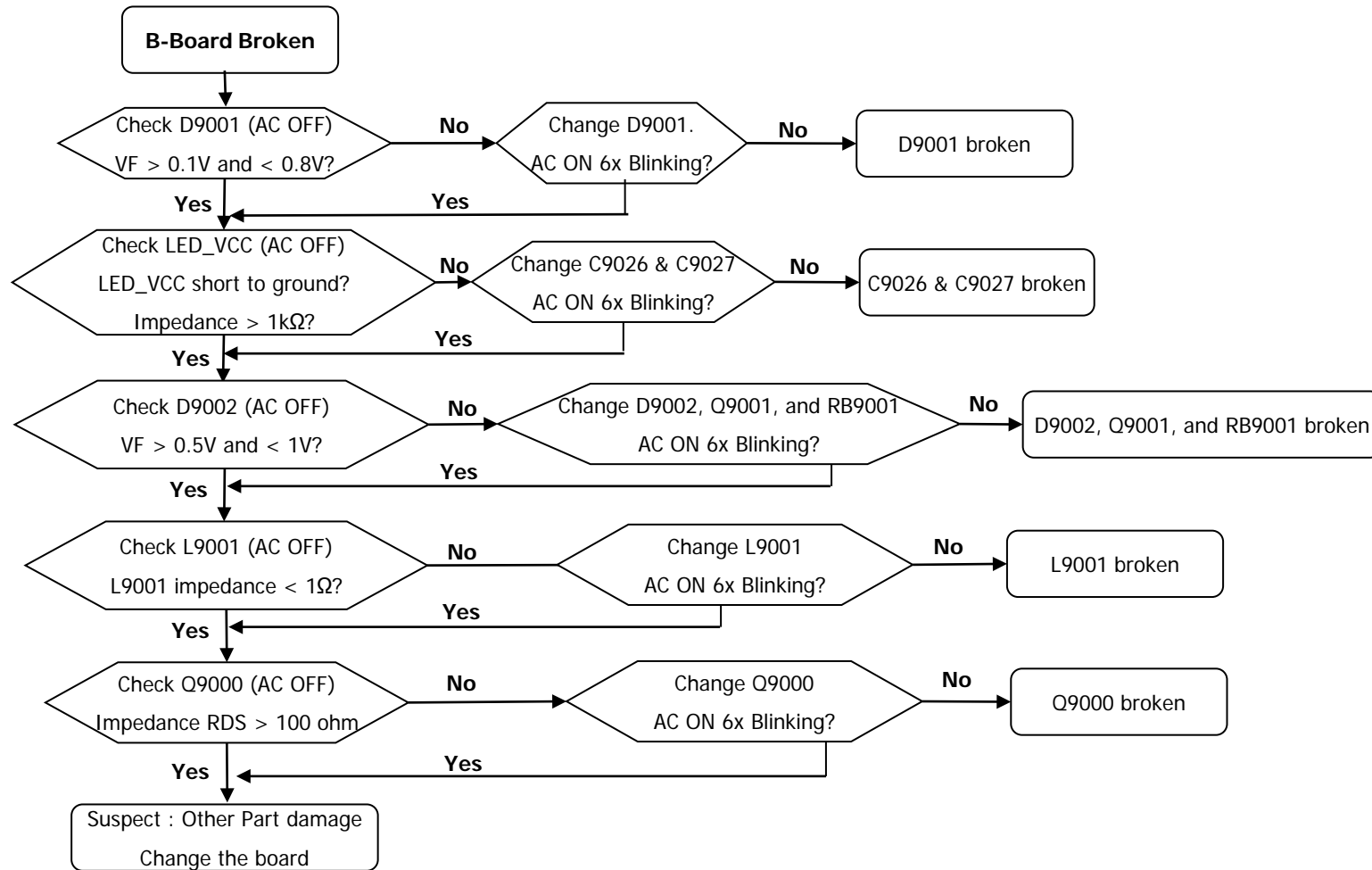
*To avoid changing all LS bar, please follow steps below

- (1) Turn off AC
- (2) Unplug DC adaptor from DC jack
- (3) Plug in DC adaptor to DC jack
- (4) Turn on AC
- (5) LS bar will turn on for ~4s before 6x blinking
- (6) Observe which LS bar cannot turn on during power on
- (7) Replace LS bar that failed to turn on

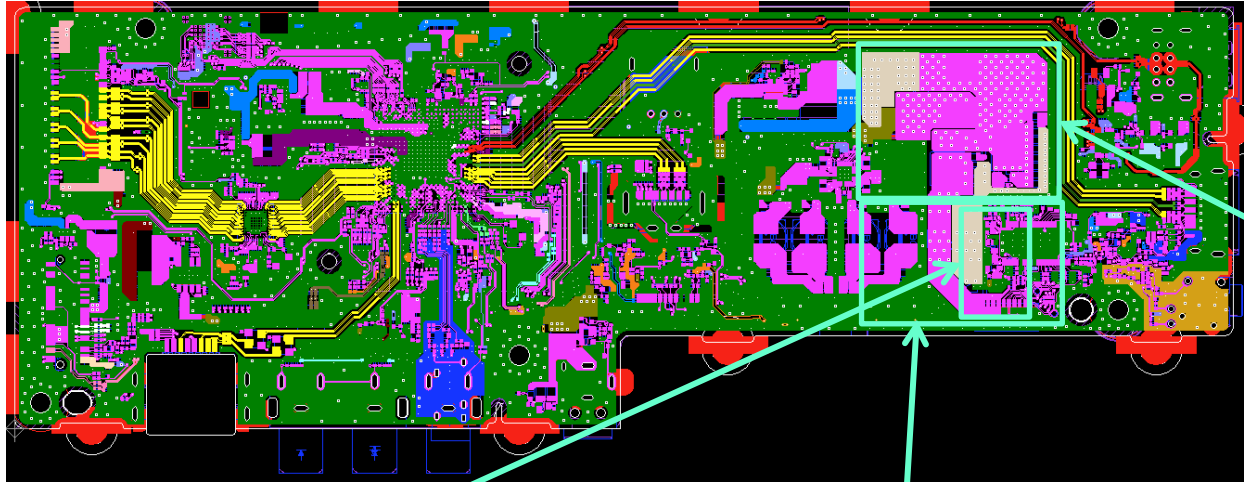
**For 6x blinking B Board Troubleshooting please refer next page.

3-1. LED BLINKING

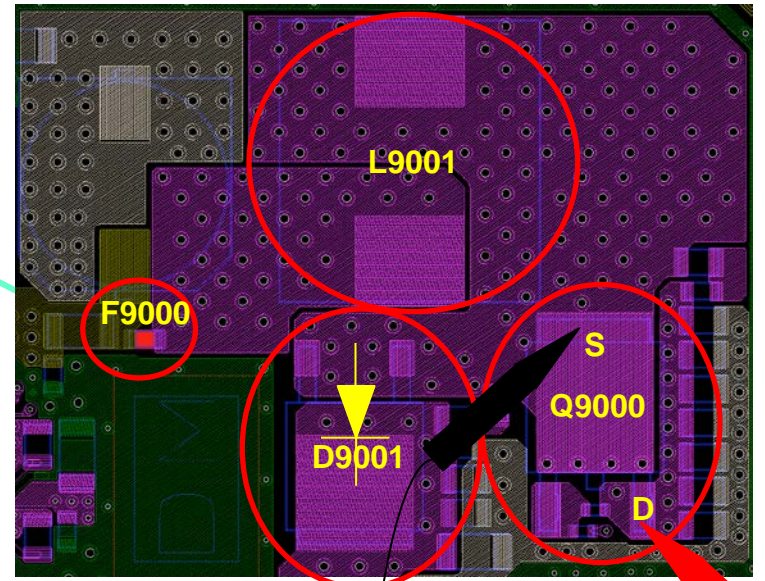
3-1-8. 6x Blinking (Backlight Error - B Board Troubleshooting)-QW



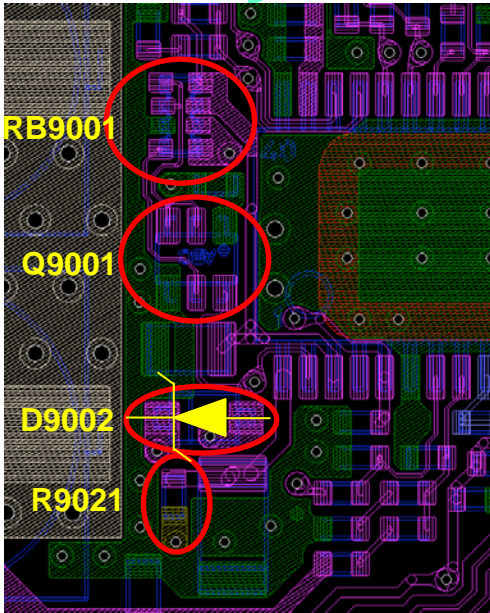
6x Blinking (Checking Point) QW-BBA [1/2]



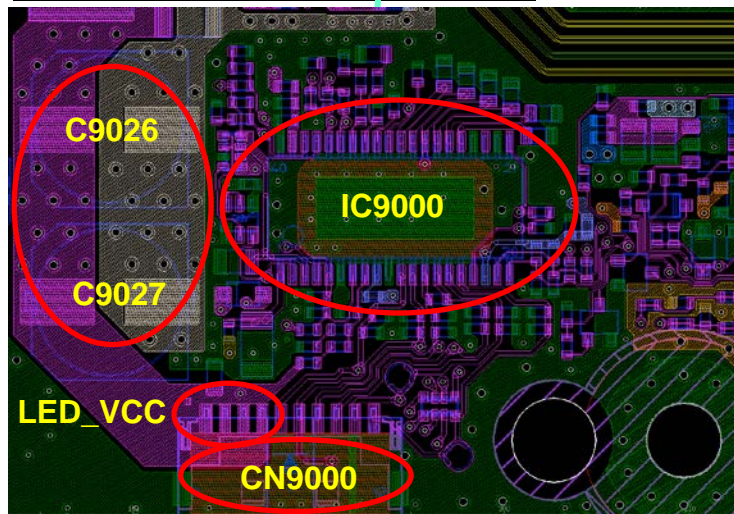
F9000, L9001, D9001, Q9000



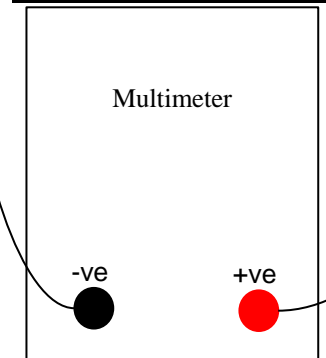
RB9001, Q9001, D9002, R9021



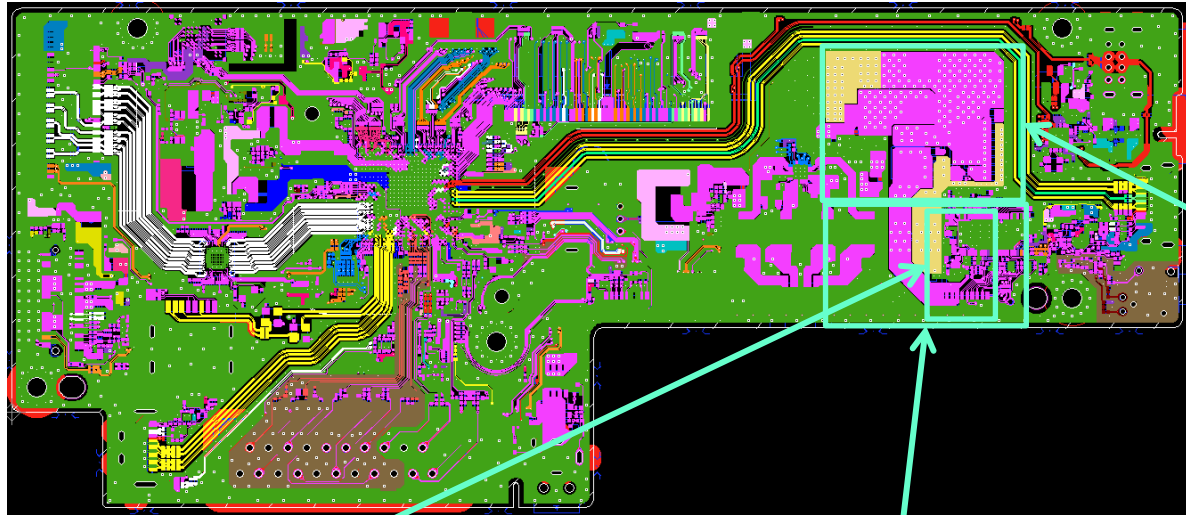
C9026, C9027, CN9000, IC9000, LED_VCC



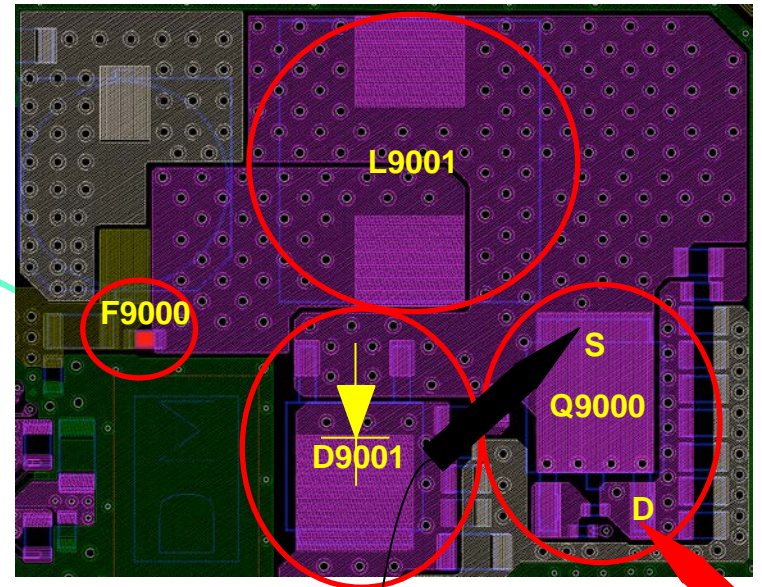
Q9000 RDS Measurement



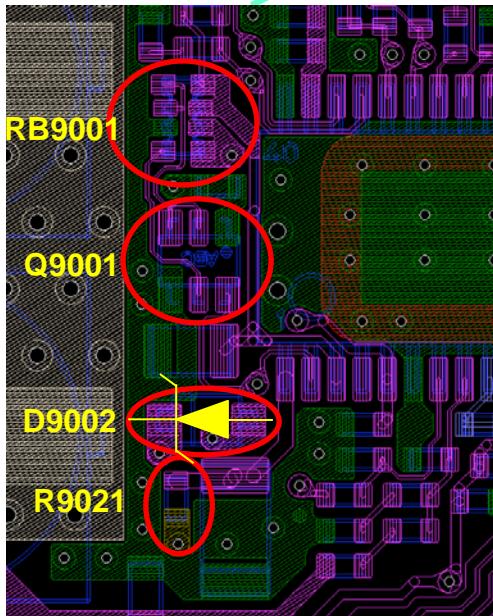
6x Blinking (Checking Point) QW-BBE [2/2]



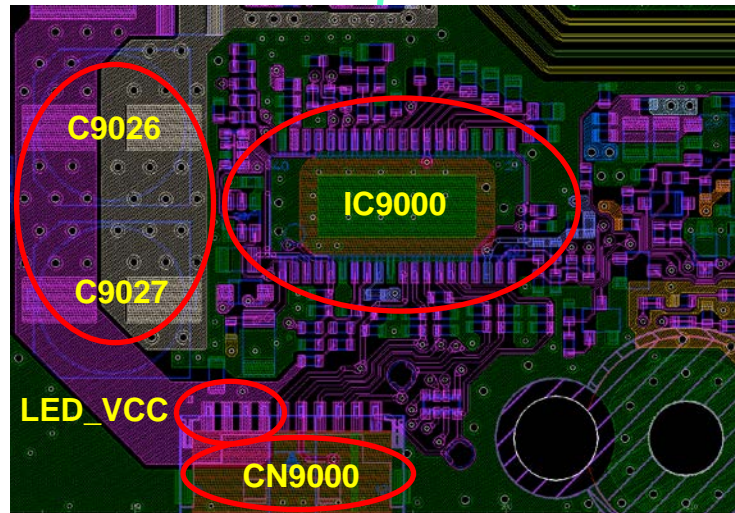
F9000, L9001, D9001, Q9000



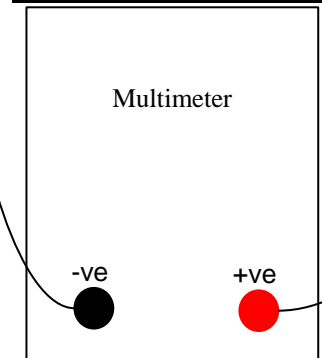
RB9001, Q9001, D9002, R9021



C9026, C9027, CN9000, IC9000, LED_VCC

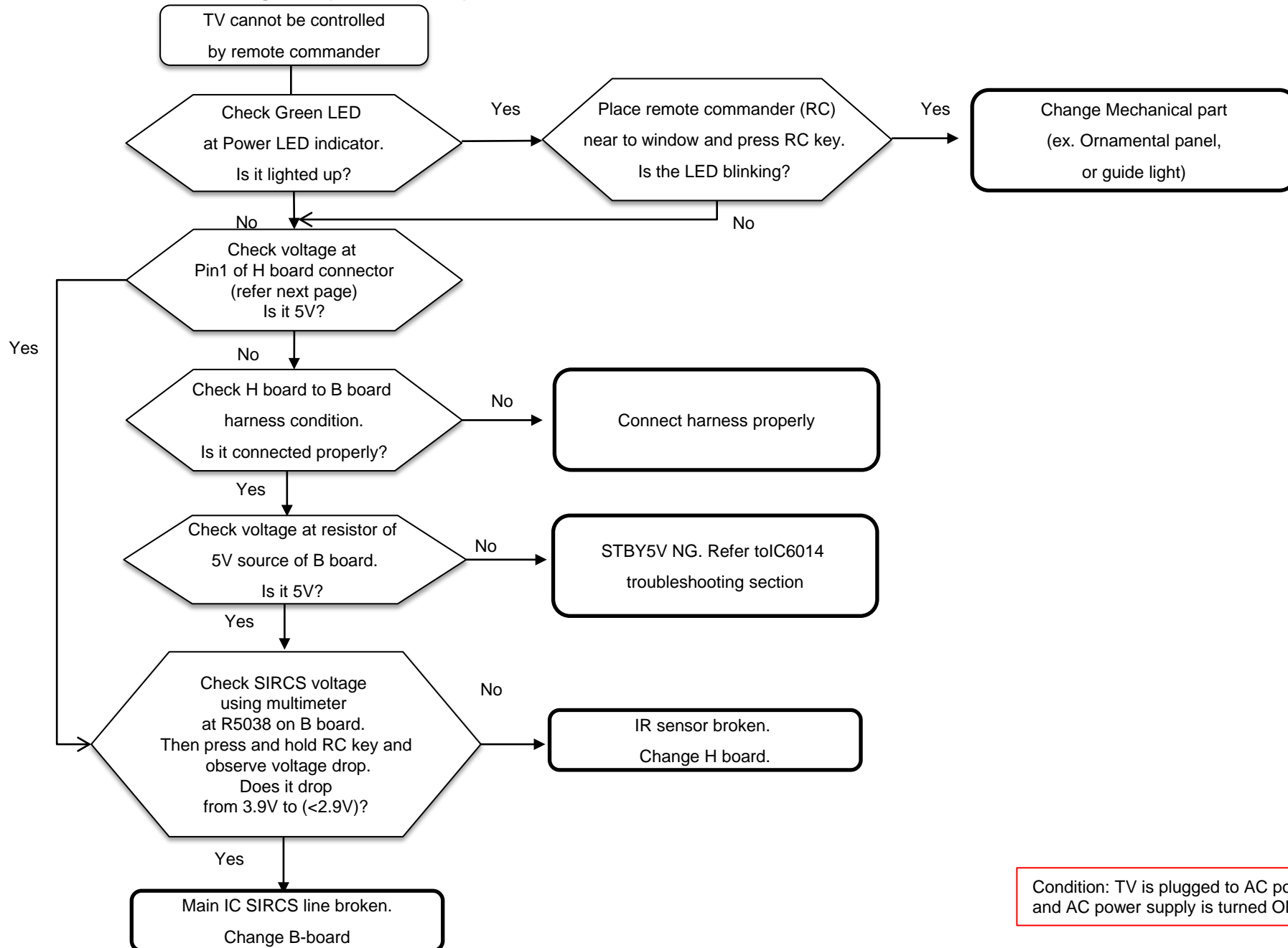


Q9000 RDS Measurement



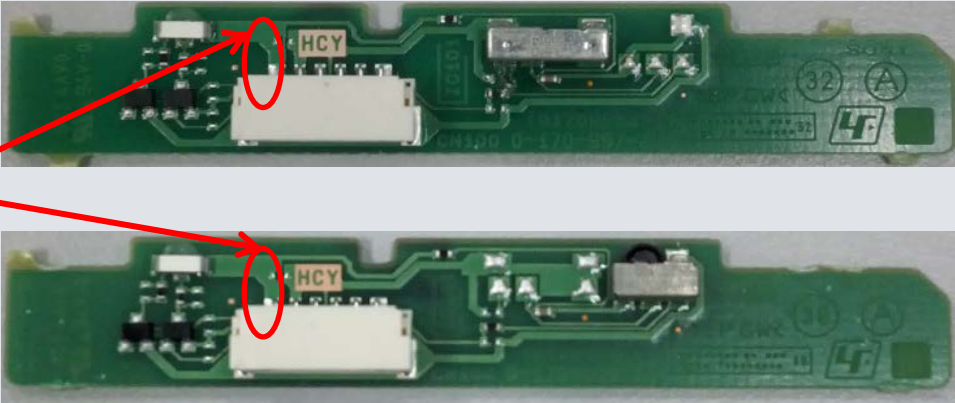
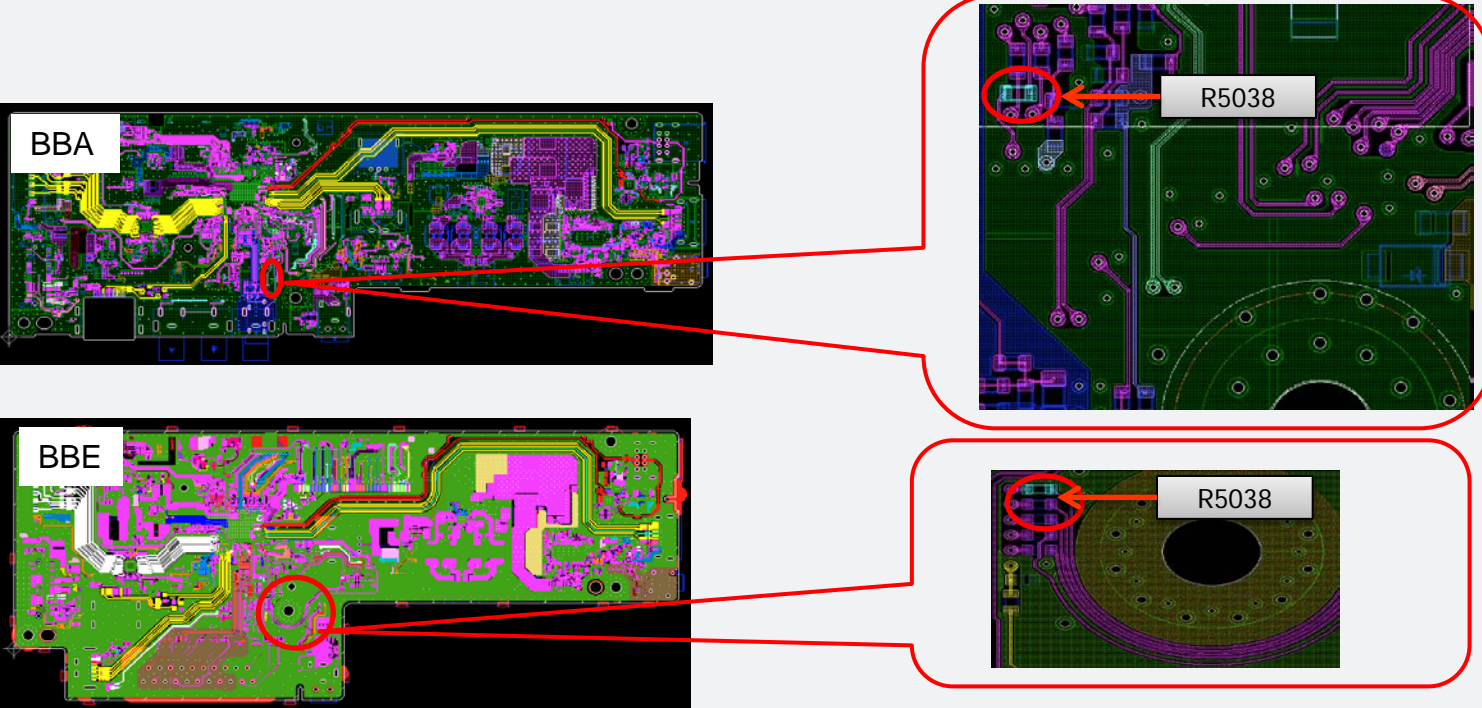
3-2. NO POWER

3-2-1.H-board troubleshooting flow (for QW, QWL)



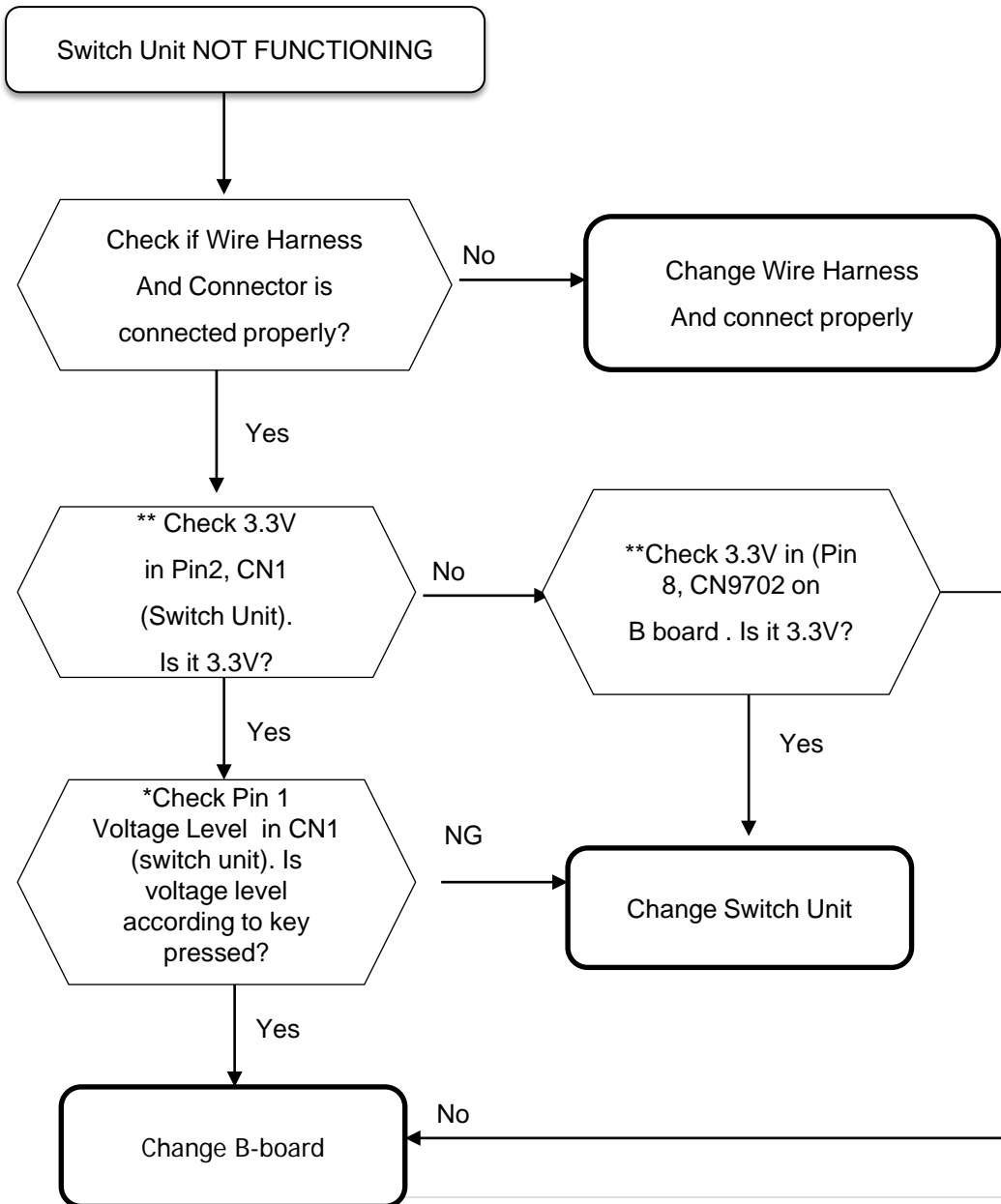
Condition: TV is plugged to AC power supply, and AC power supply is turned ON.

H-board troubleshooting flow (Checking Point)

Board name	Board picture
HCY	<p data-bbox="582 443 869 555">Pin 1 of H board connector</p> 
B board	

3-2. NO POWER

3-2-2 : Switch unit troubleshooting flow (for QW, QWL)



***VOLTAGE LEVEL FOR EACH PRESSED BUTTON (for QW, QWL, QT switch unit only)**

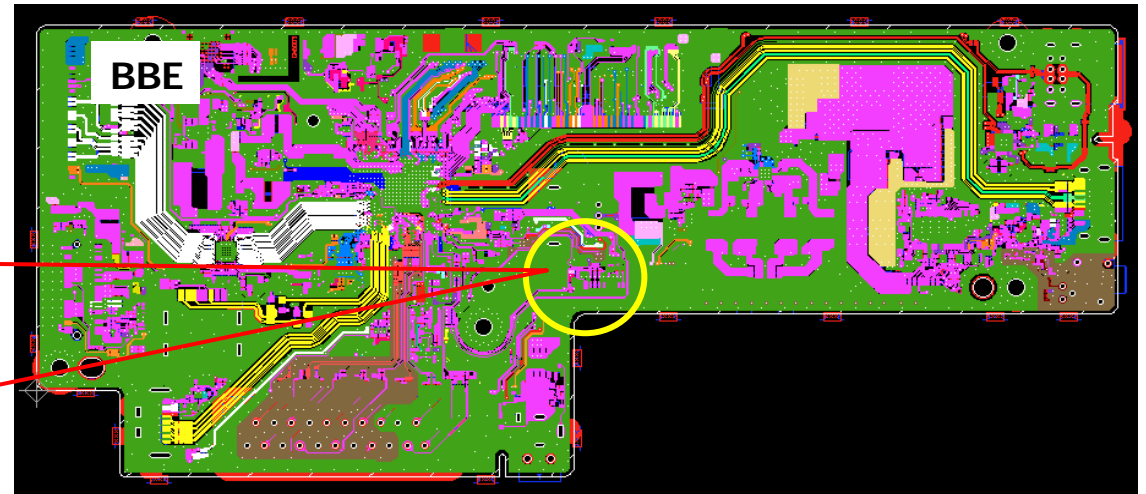
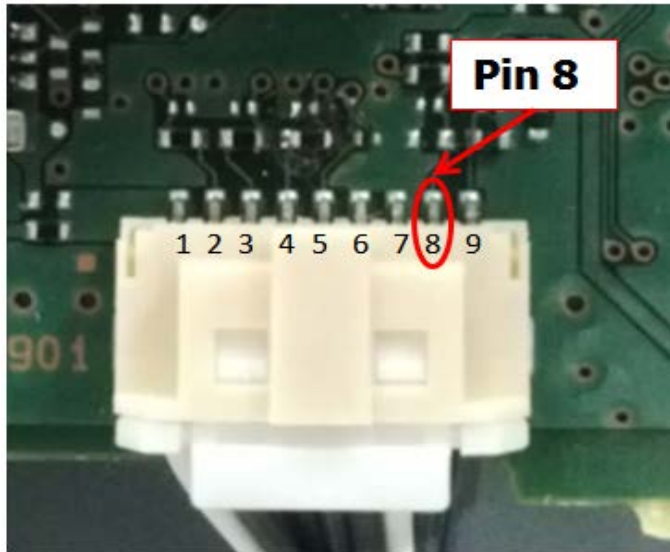
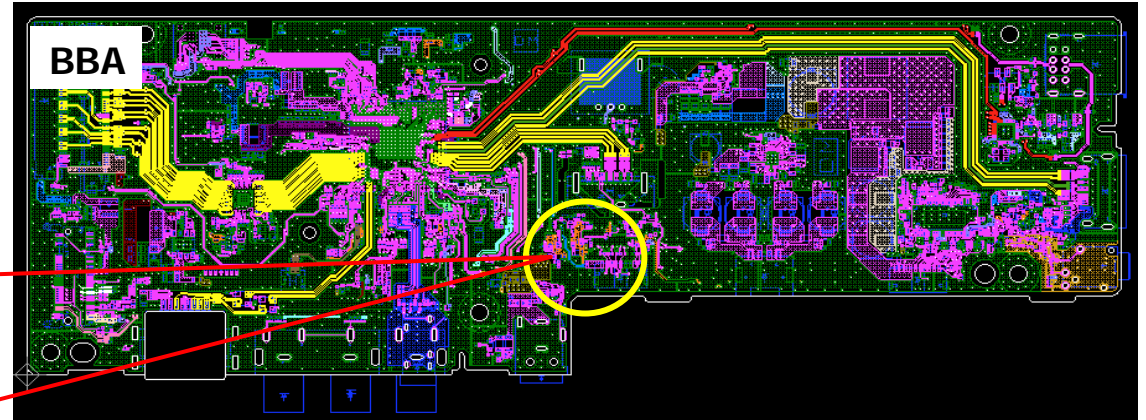
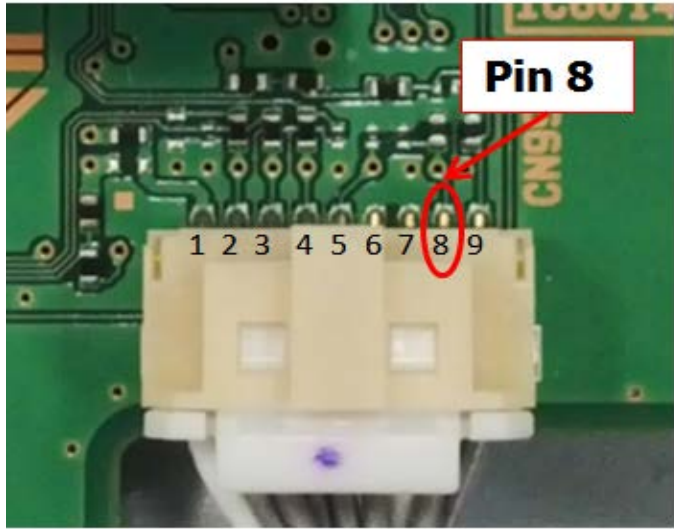
KEY	Voltage (average)	Voltage range
-	0.000	0.00 – 0.2
+	1.05	1.00 – 1.13
No Input	2.420	2.26 – 2.58

Probe point for QW, QWL switch unit

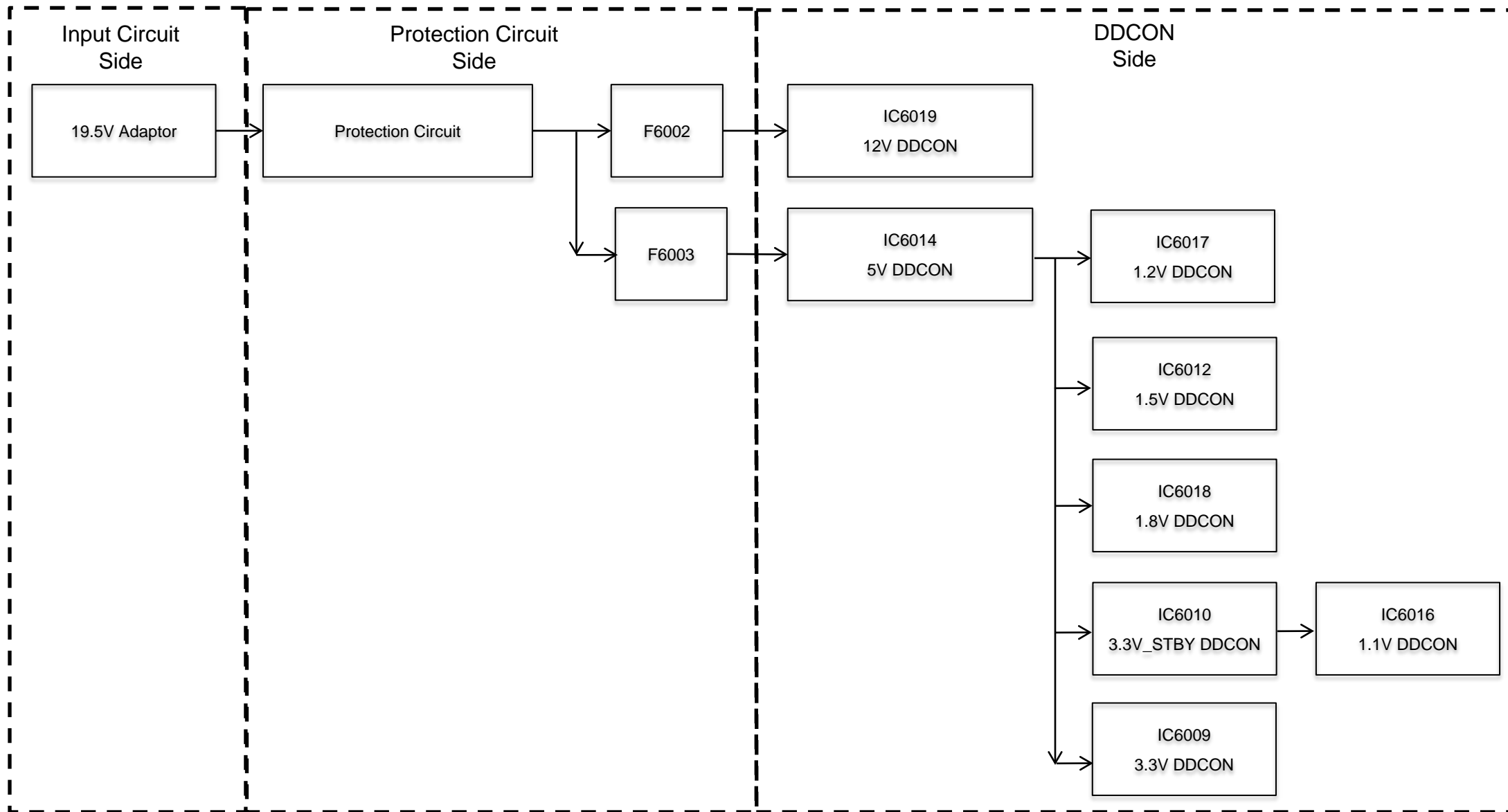


Back of switch unit

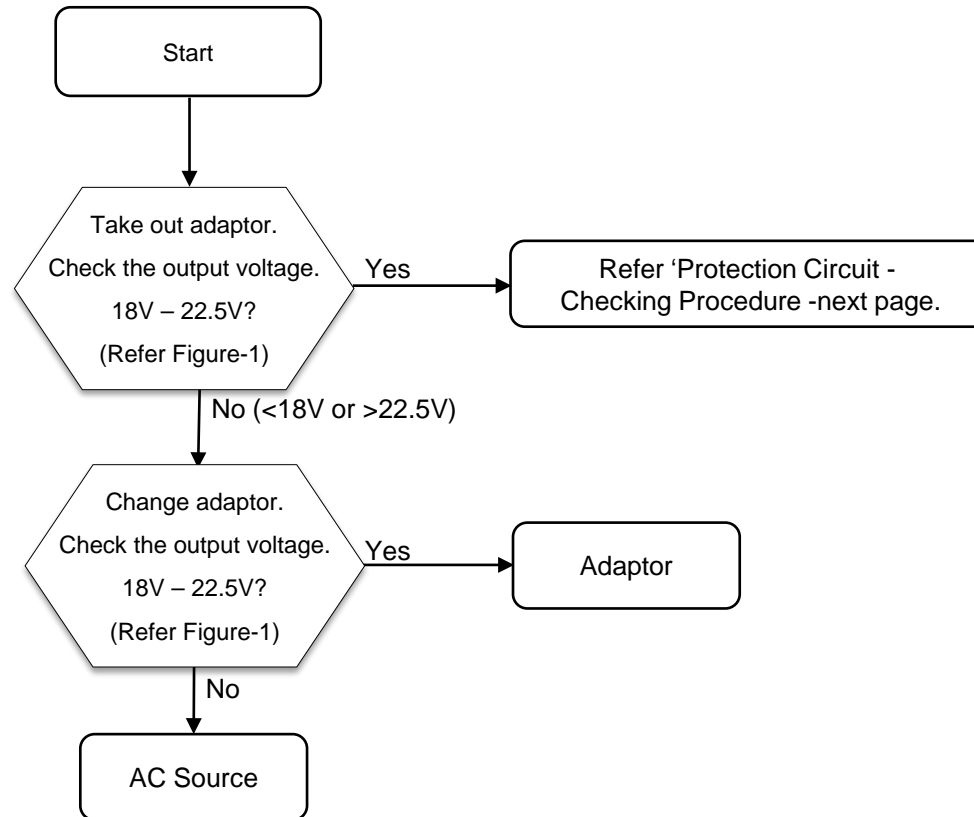
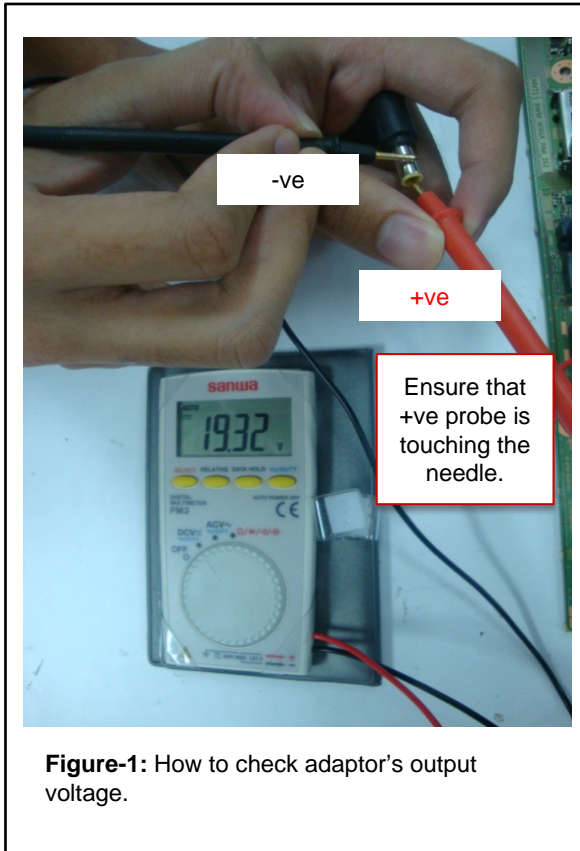
****see next page for probing point of B board**



3-2-3. DC-DC Converter Basic Block Diagram

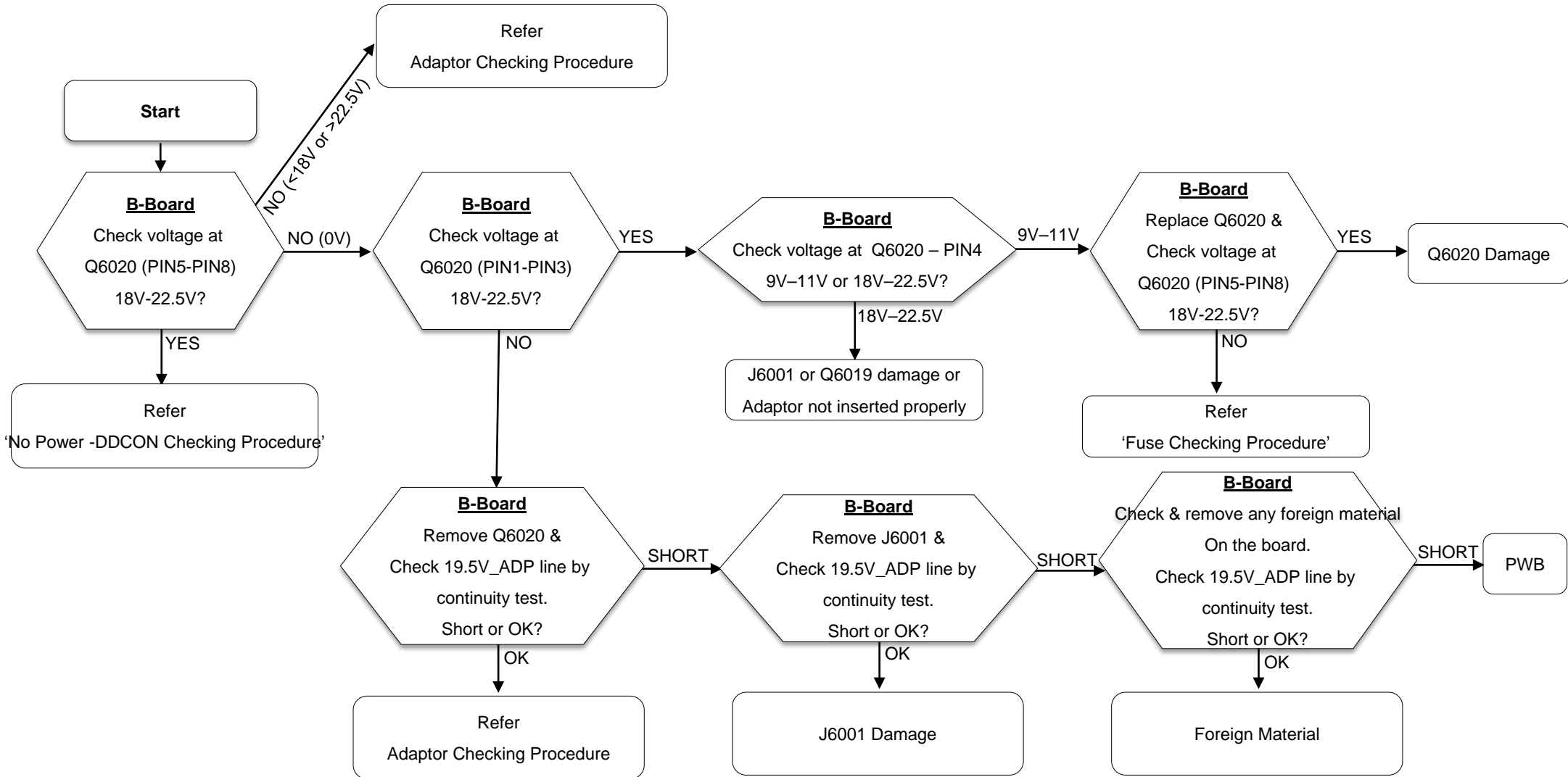


3-2-4. Adaptor Checking Procedure

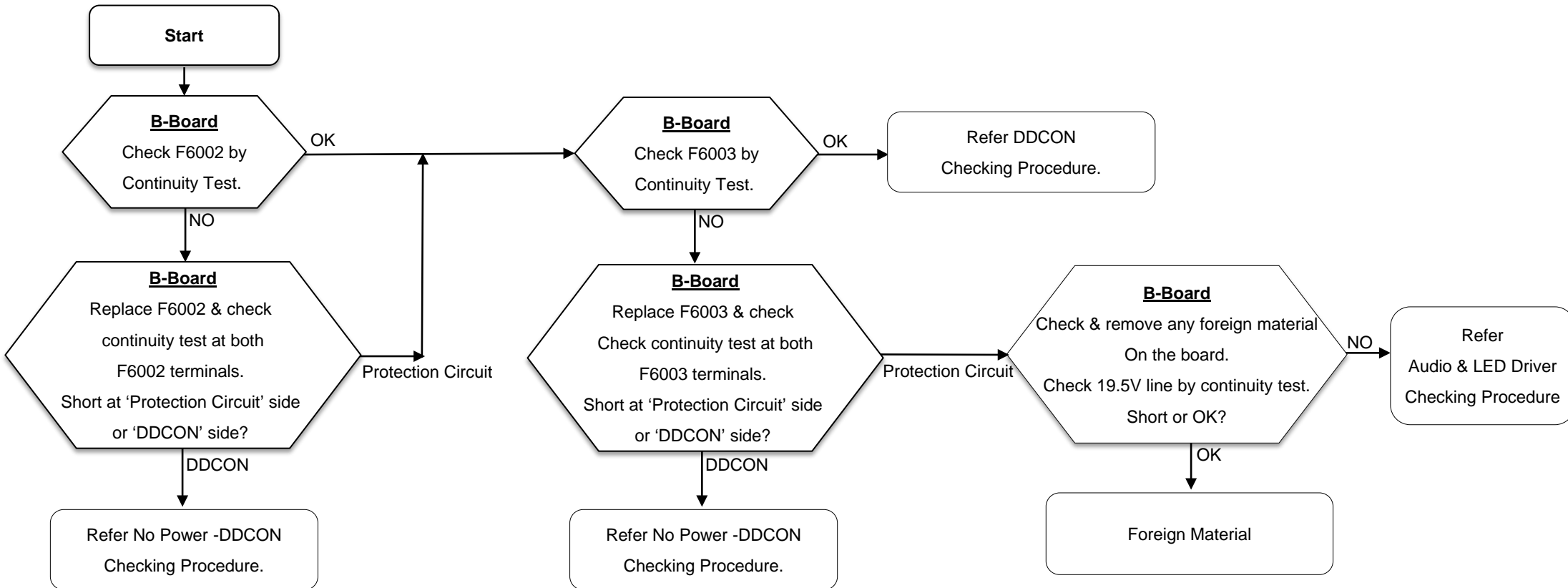


3-2. NO POWER

3-2-5. Protection Circuit– Checking Procedure



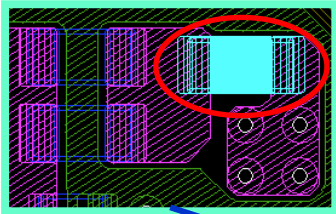
3-2-6. Fuse Checking Procedure



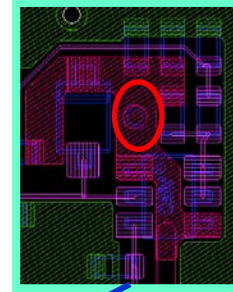
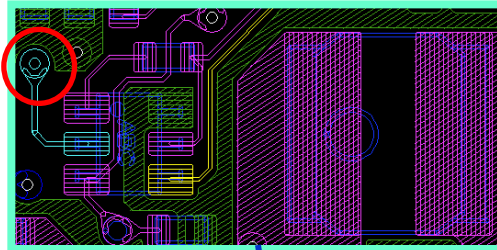
Checking Point - BBE

3.3V STBY

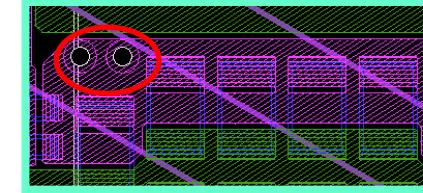
F6003



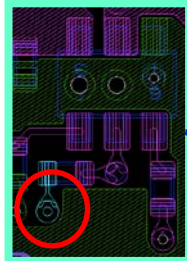
POWER1



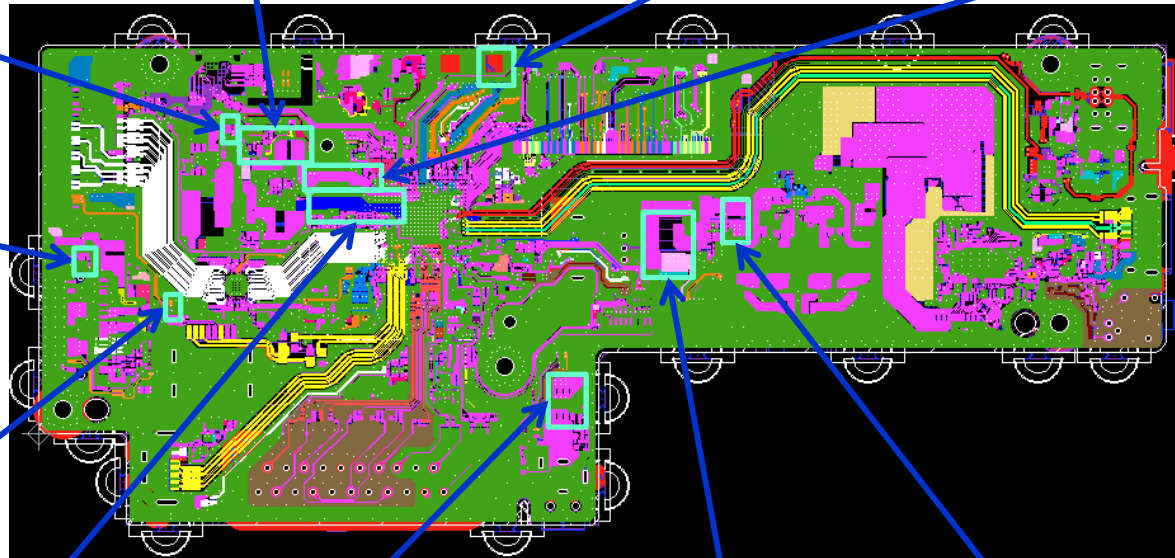
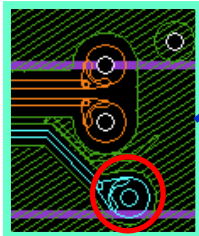
1.5V



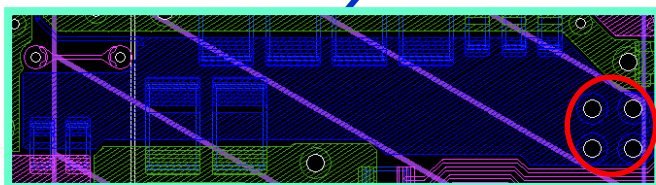
EN_V



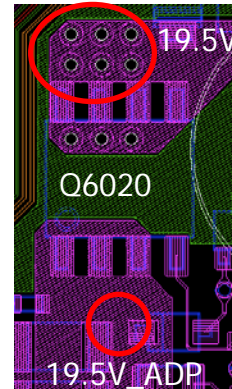
PANEL PWR



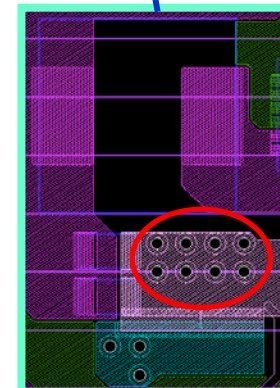
1.2V



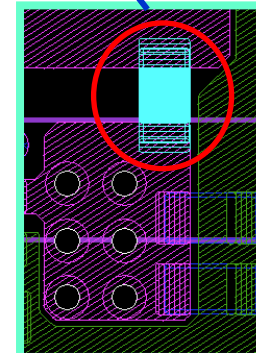
19.5V & Q6020



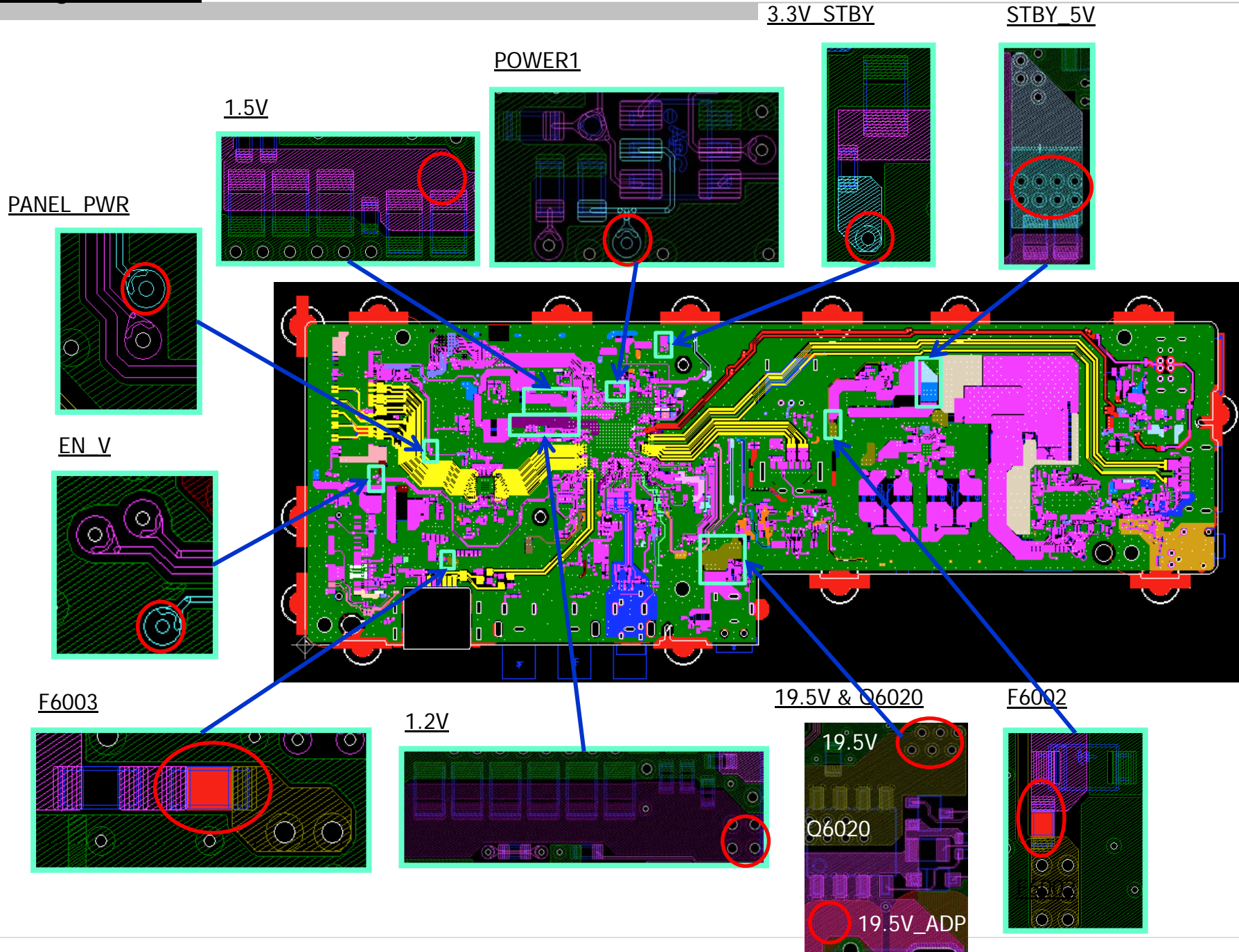
STBY 5V



F6002

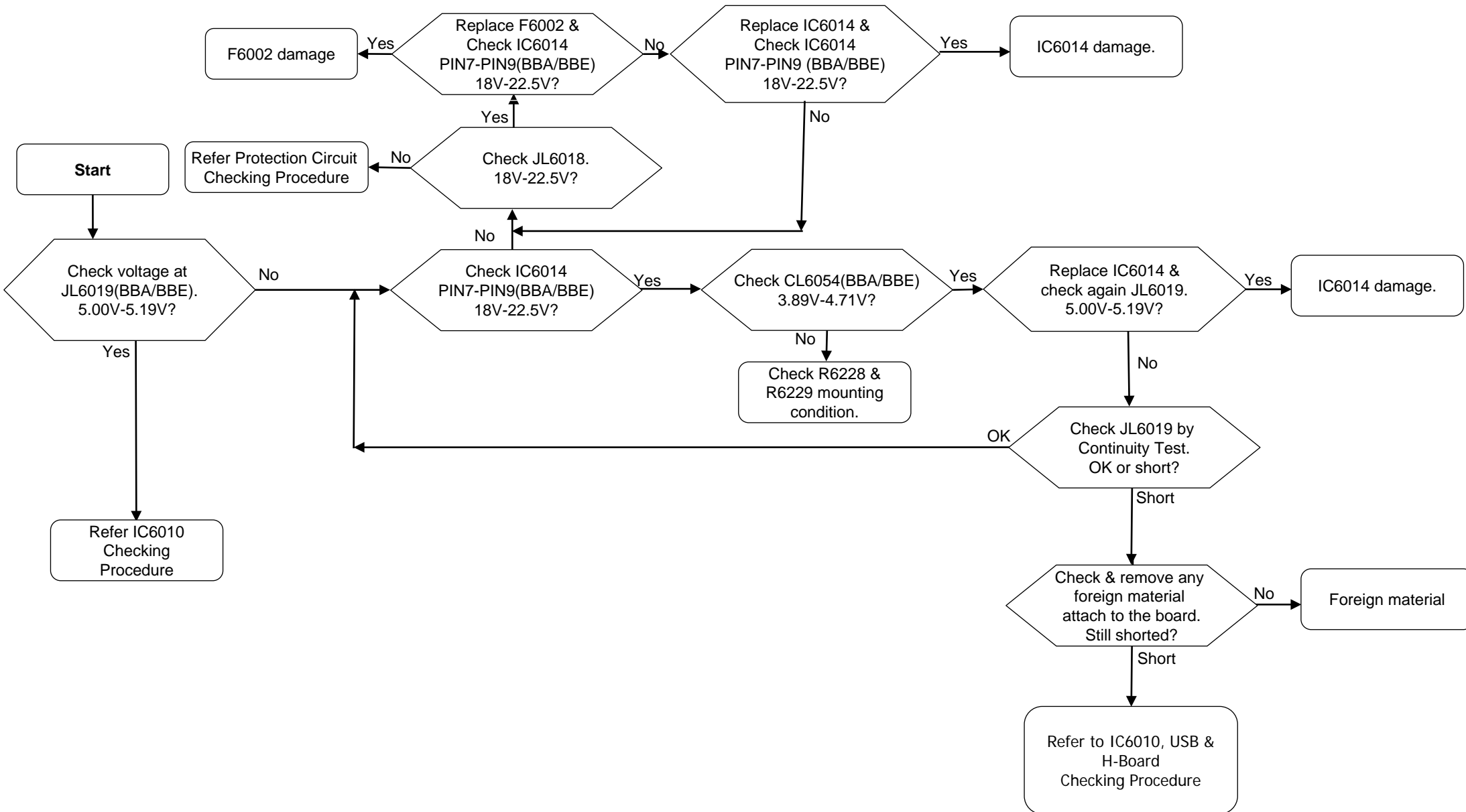


Checking Point - BBA

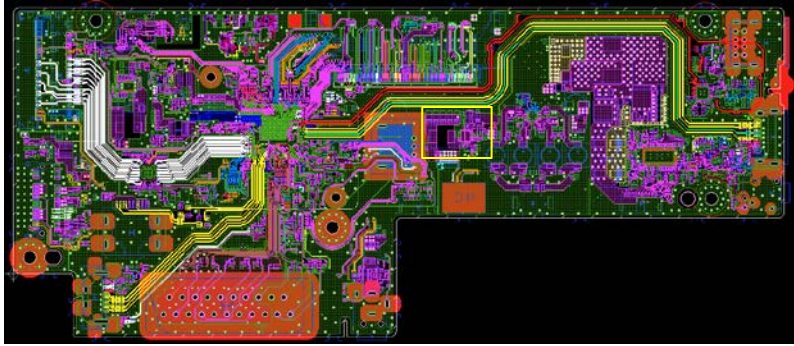
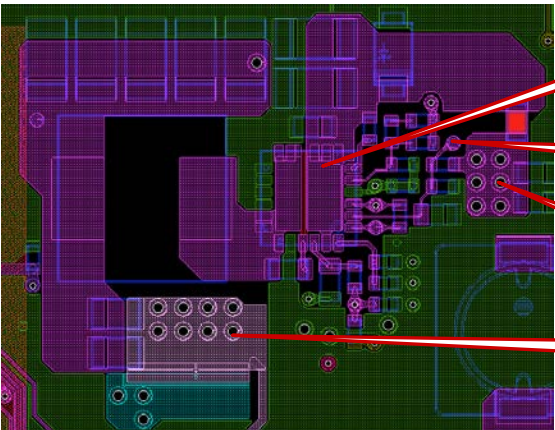
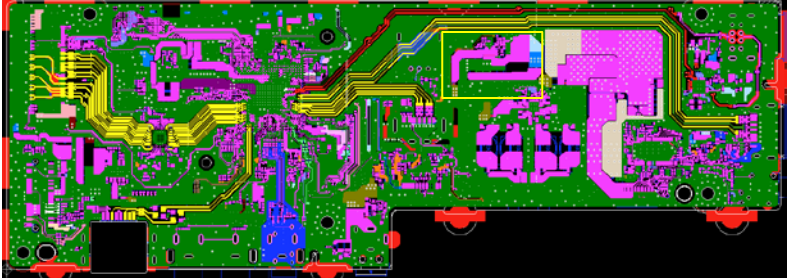
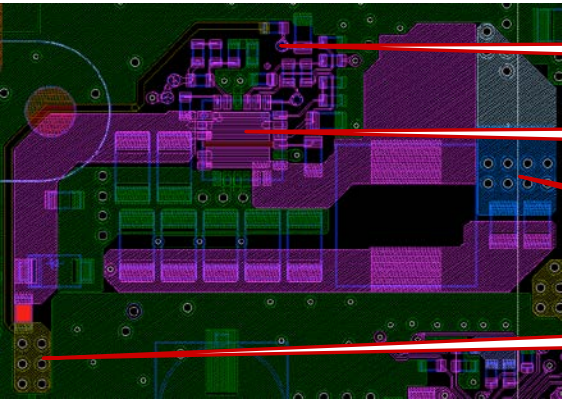


3-2. NO POWER

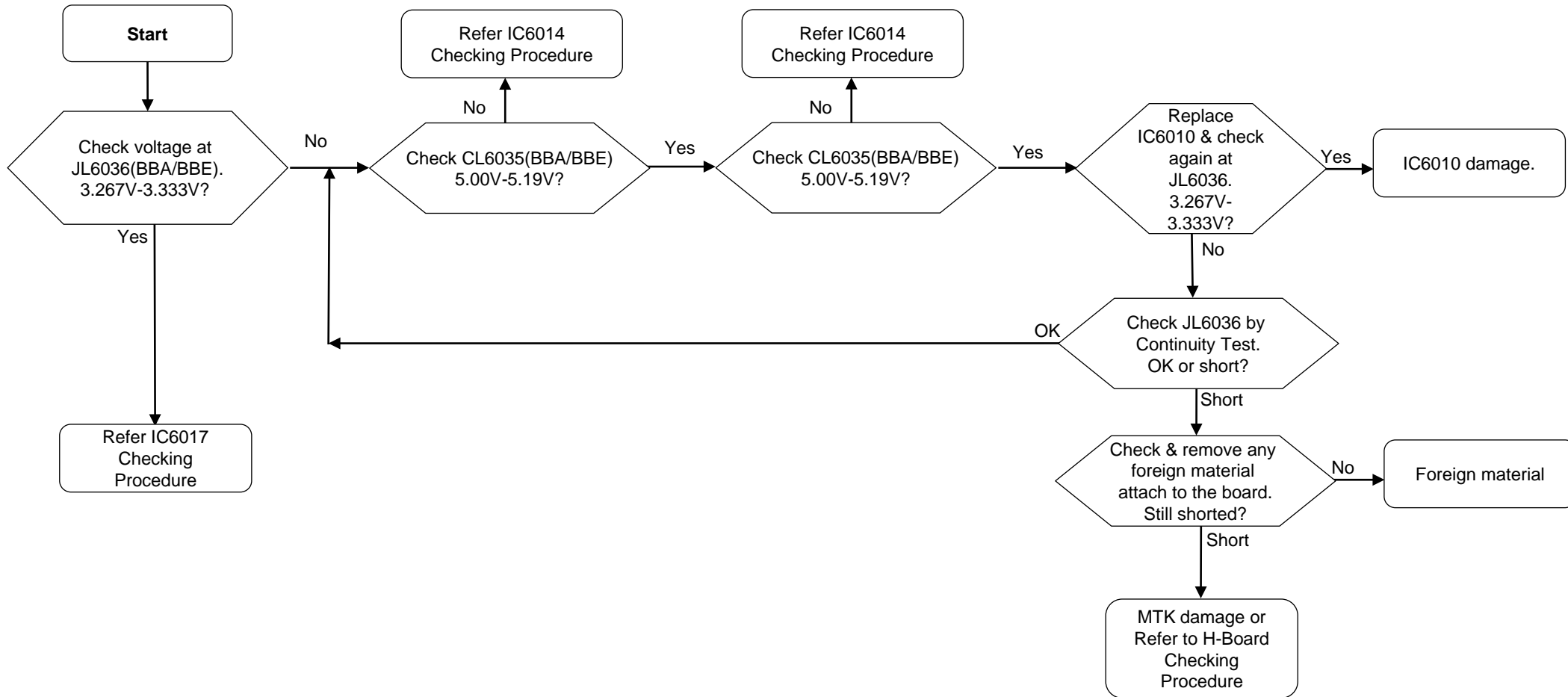
3-2-7. : No Power- IC6014 (5V DDCON) Checking Procedure



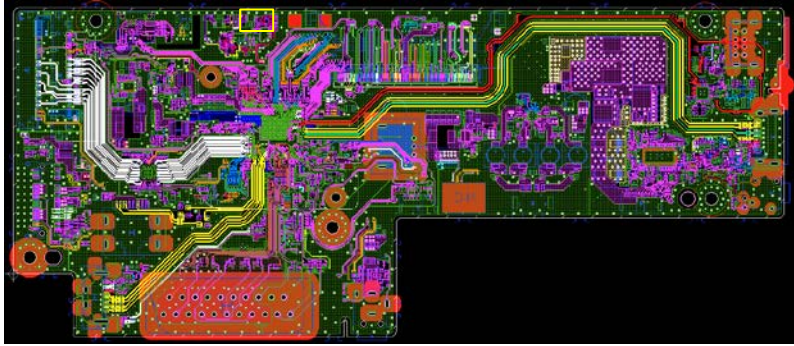
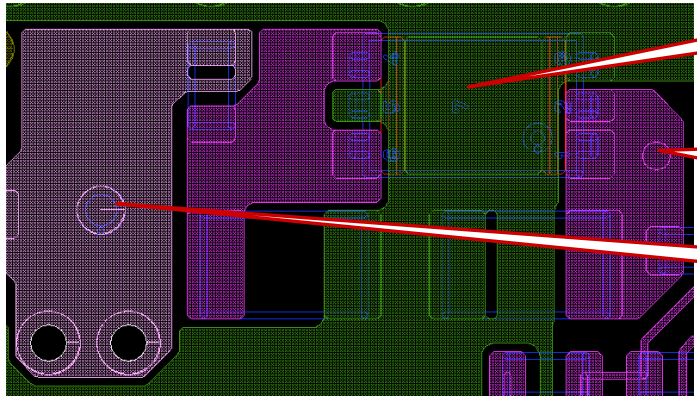
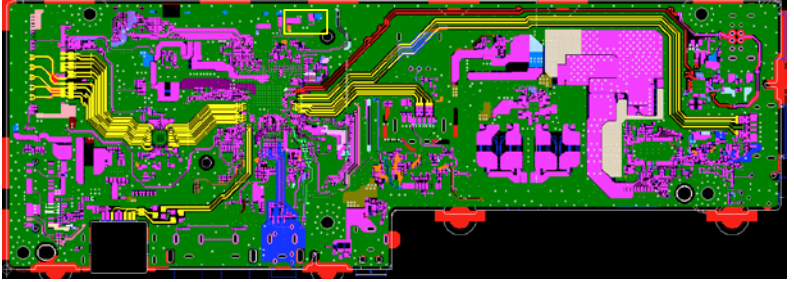
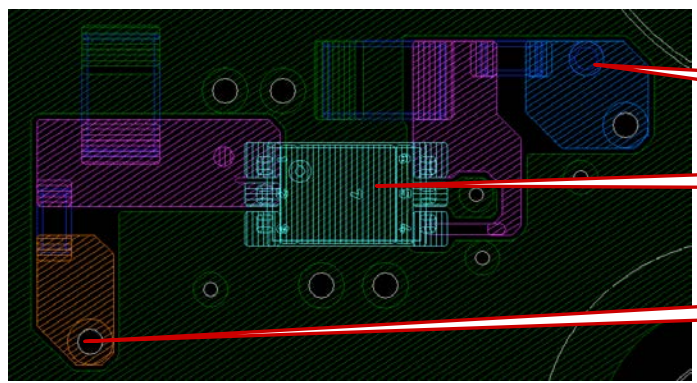
IC6014 Checking Procedure- Checking Point

Board Name	Board PWB (A side)	Detail
BBE (5V)		 <ul style="list-style-type: none"> <li data-bbox="1935 320 2078 379">IC6014 <li data-bbox="1935 459 2078 518">CL6054 <li data-bbox="1935 560 2078 619">JL6018 <li data-bbox="1935 655 2078 715">JL6019
BBA (5V)		 <ul style="list-style-type: none"> <li data-bbox="1989 842 2114 901">CL6054 <li data-bbox="1989 927 2114 986">IC6014 <li data-bbox="1989 1007 2114 1066">JL6019 <li data-bbox="1989 1102 2114 1161">JL6018

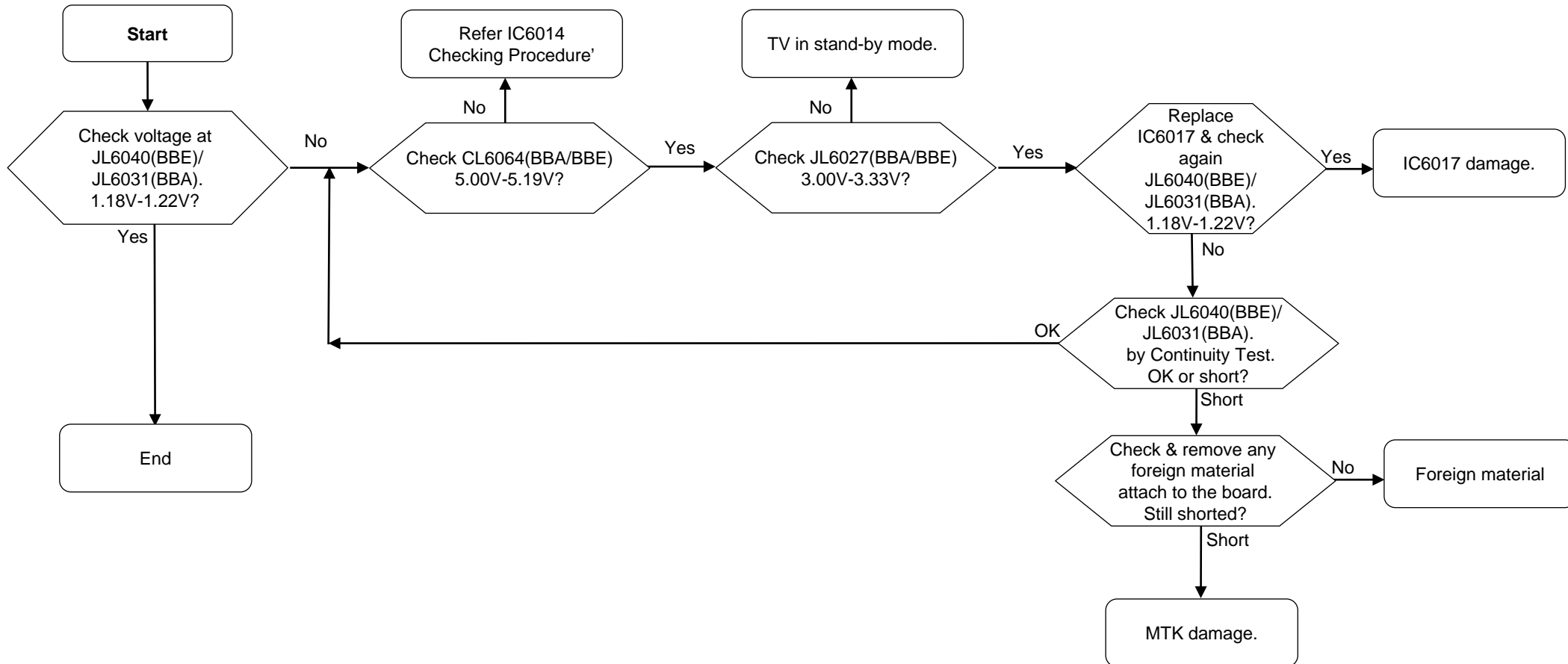
3-2-8. No Power-IC6010 (3.3V_STBY DDCON) Checking Procedure



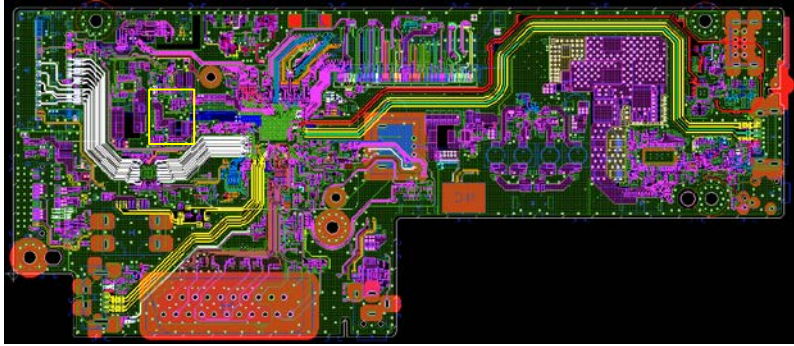
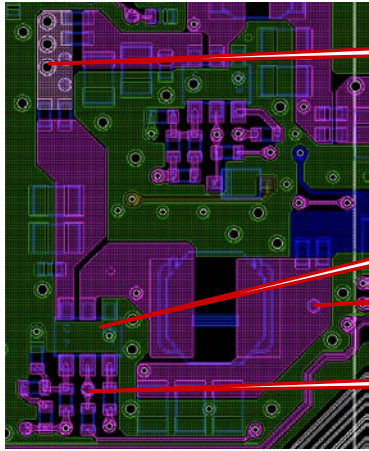
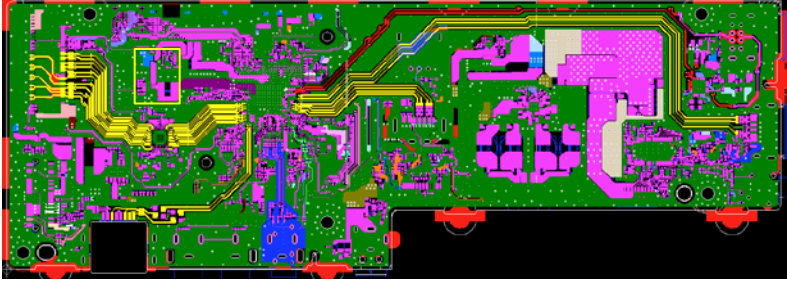
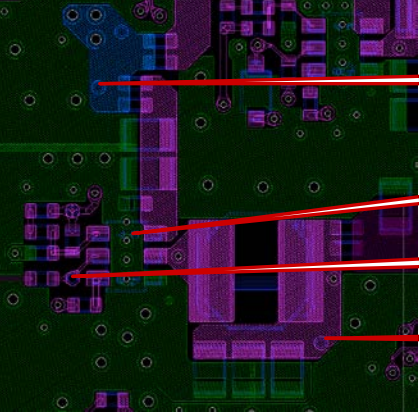
IC6010 Checking Procedure (Checking Point)

Board Name	Board PWB (A side)	Detail
<p>BBE (STBY_3.3V)</p>		 <ul style="list-style-type: none"> <li data-bbox="1928 320 2078 368">IC6010 <li data-bbox="1928 456 2078 504">JL6036 <li data-bbox="1928 560 2078 608">CL6035
<p>BBA (STBY_3.3V)</p>		 <ul style="list-style-type: none"> <li data-bbox="1973 868 2123 916">CL6035 <li data-bbox="1973 971 2123 1019">IC6010 <li data-bbox="1973 1075 2123 1123">JL6036

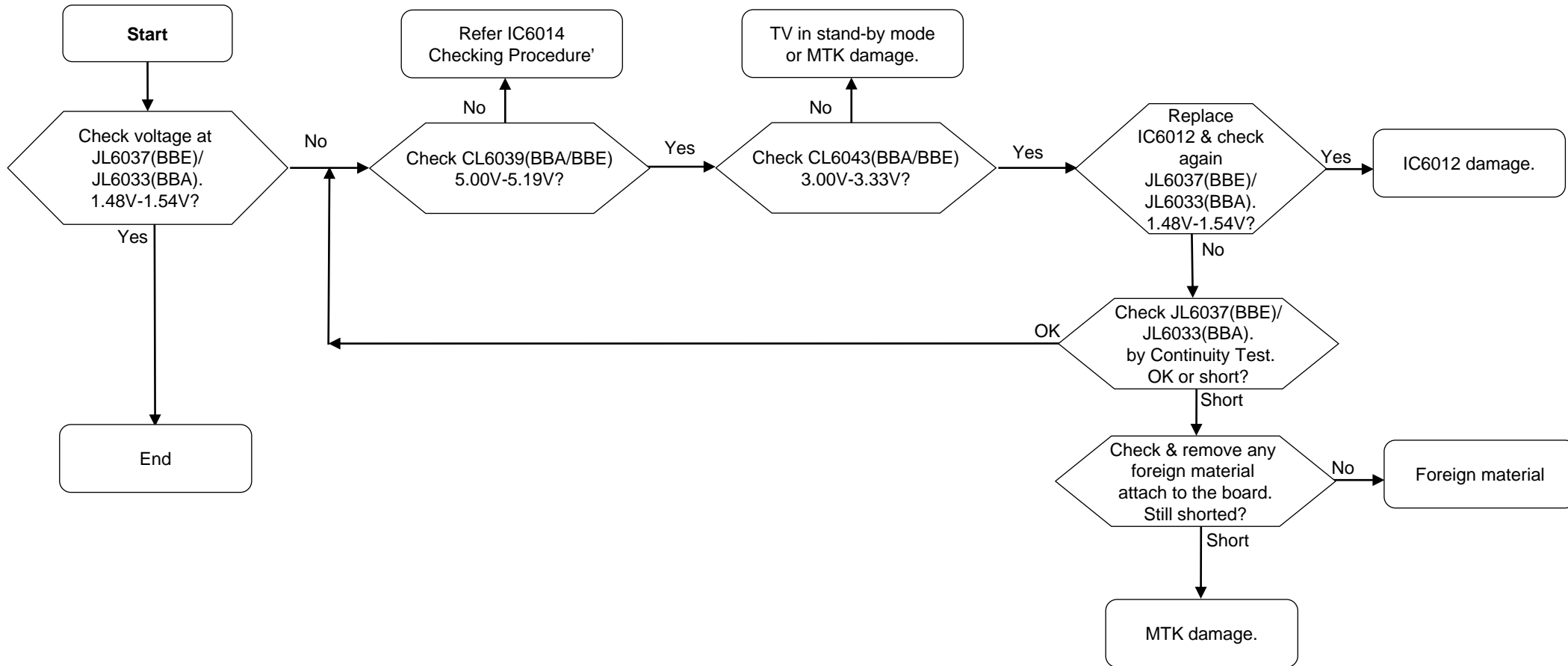
3-2.9. No Power-IC6017(1.2V DDCON) Checking Procedure



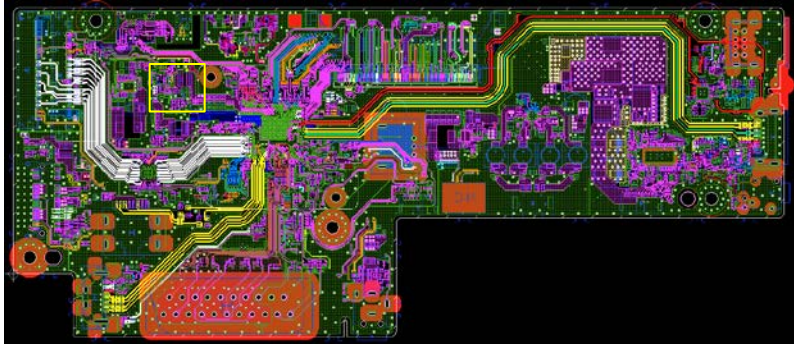
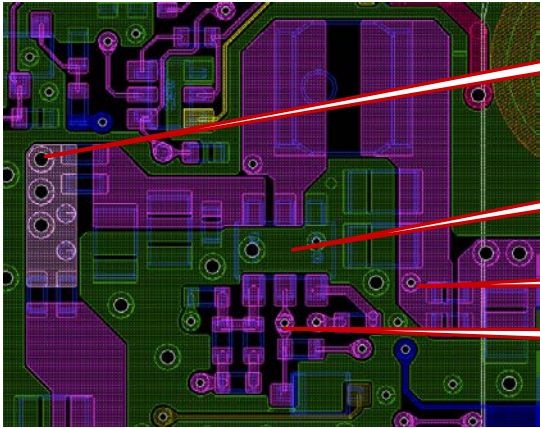
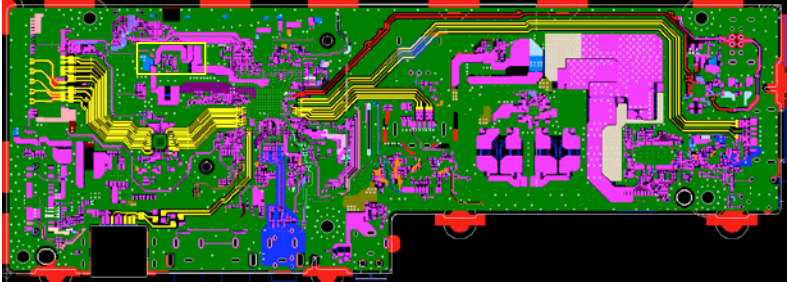
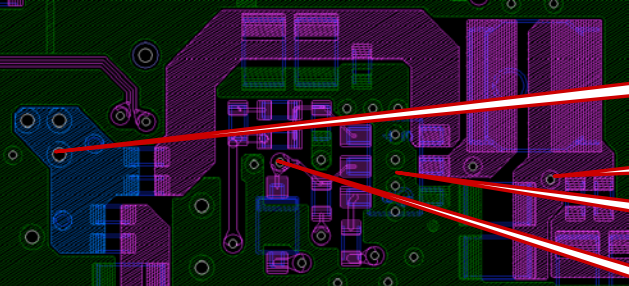
IC6017 Checking Procedure (Checking Point)

Board Name	Board PWB (A side)	Detail
BBE (1.2V)		 <ul style="list-style-type: none"> <li data-bbox="1935 320 2078 379">CL6064 <li data-bbox="1935 459 2078 518">IC6017 <li data-bbox="1935 560 2078 619">JL6040 <li data-bbox="1935 655 2078 715">CL6065
BBA (1.2V)		 <ul style="list-style-type: none"> <li data-bbox="1980 836 2123 895">CL6064 <li data-bbox="1980 927 2123 986">IC6017 <li data-bbox="1980 1018 2123 1077">CL6065 <li data-bbox="1980 1102 2123 1161">JL6031

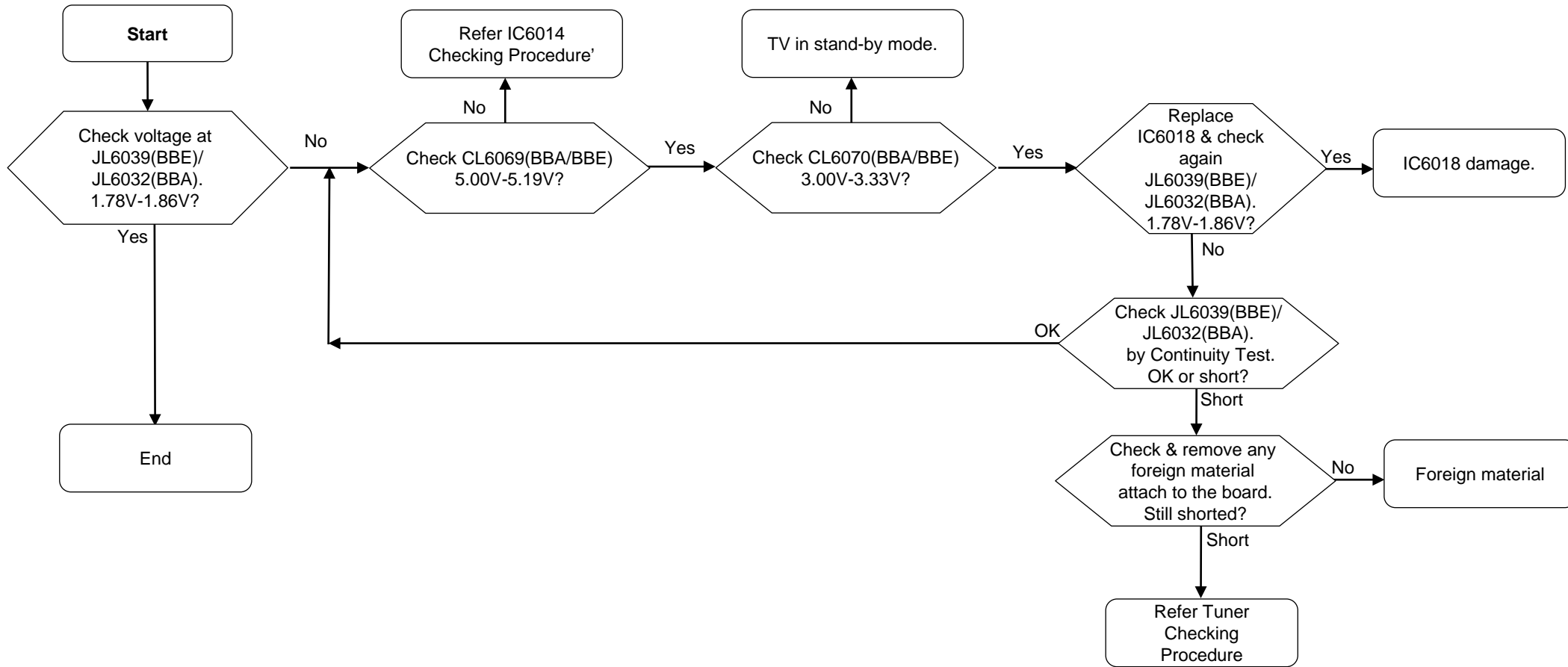
3-2-11. No Power-IC6012(1.5V DDCON) Checking Procedure



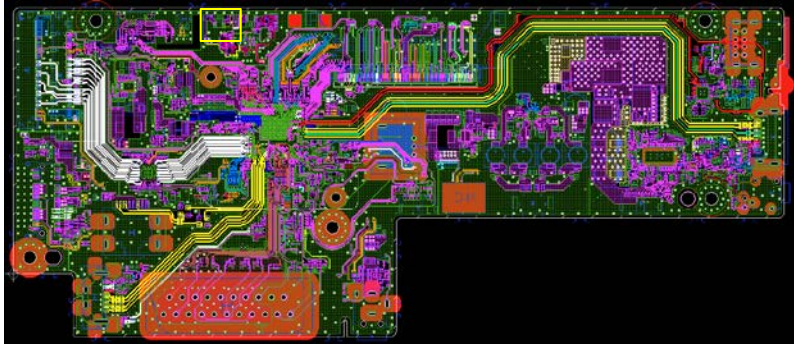
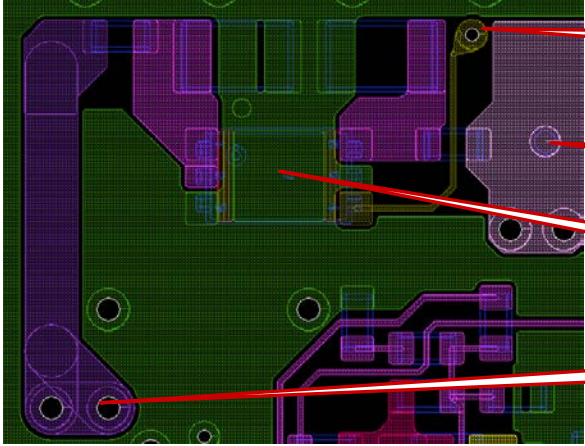
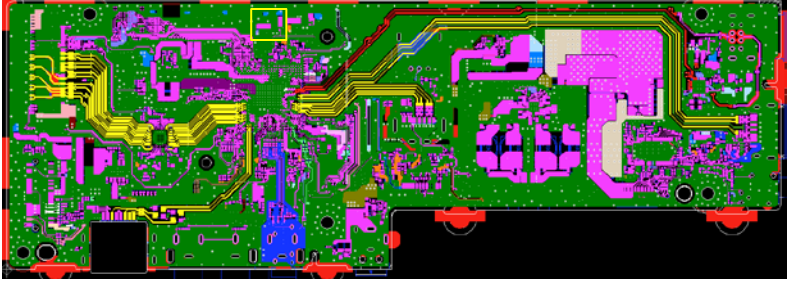
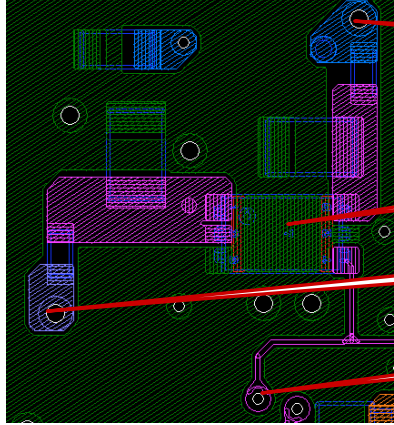
IC6012 Checking Procedure (Checking Point)

Board Name	Board PWB (A side)	Detail
BBE (1.5V)		 <div style="position: absolute; top: 204px; right: 100px;">CL6039</div> <div style="position: absolute; top: 298px; right: 100px;">IC6012</div> <div style="position: absolute; top: 361px; right: 100px;">JL6037</div> <div style="position: absolute; top: 414px; right: 100px;">CL6043</div>
BBA (1.5V)		 <div style="position: absolute; top: 534px; right: 100px;">CL6039</div> <div style="position: absolute; top: 588px; right: 100px;">JL6033</div> <div style="position: absolute; top: 641px; right: 100px;">IC6012</div> <div style="position: absolute; top: 694px; right: 100px;">CL6043</div>

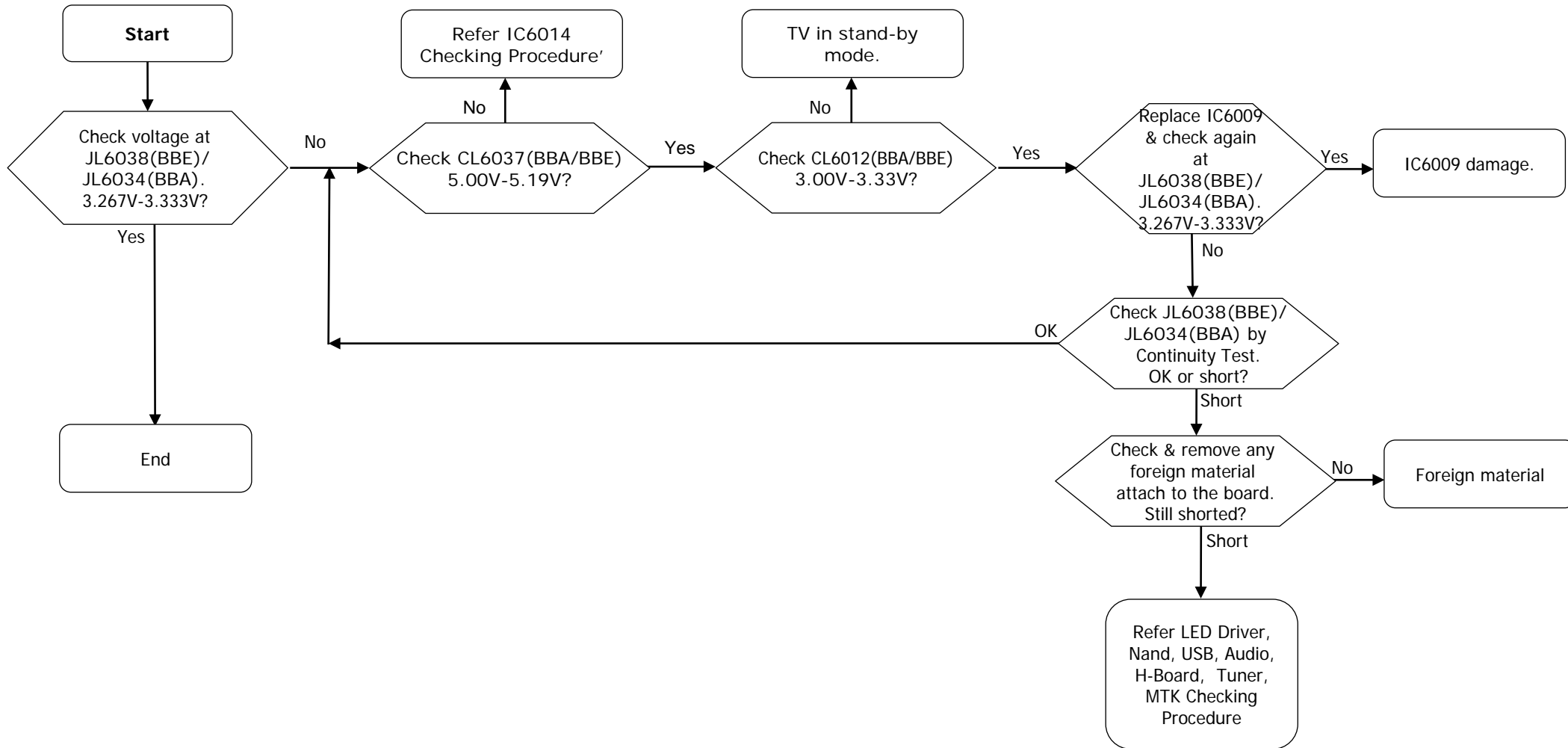
3-2-12. No Power-IC6018(1.8V DDCON) Checking Procedure



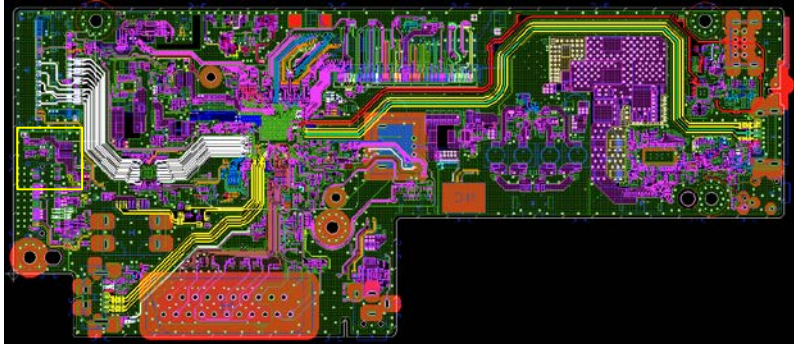
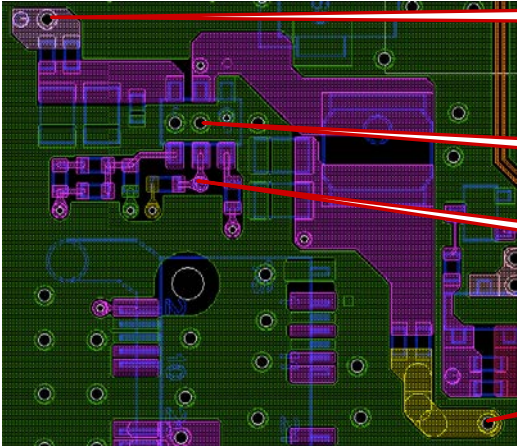
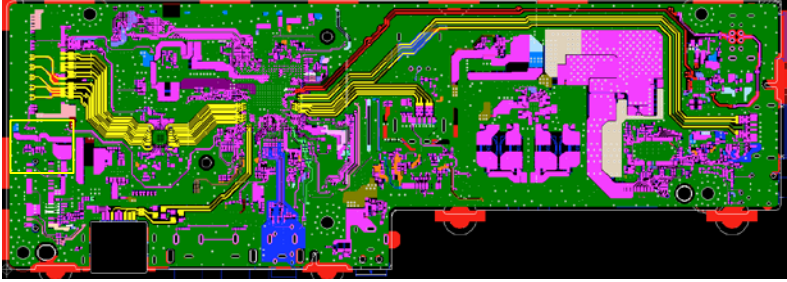
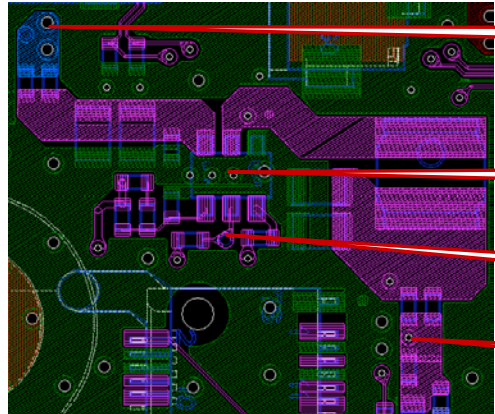
IC6018 Checking Procedure (Checking Point)

Board Name	Board PWB (A side)	Detail
BBE (3.3V)		 <ul style="list-style-type: none"> CL6012 CL6037 IC6009 JL6038
BBA (3.3V)		 <ul style="list-style-type: none"> CL6037 IC6009 JL6034 CL6012

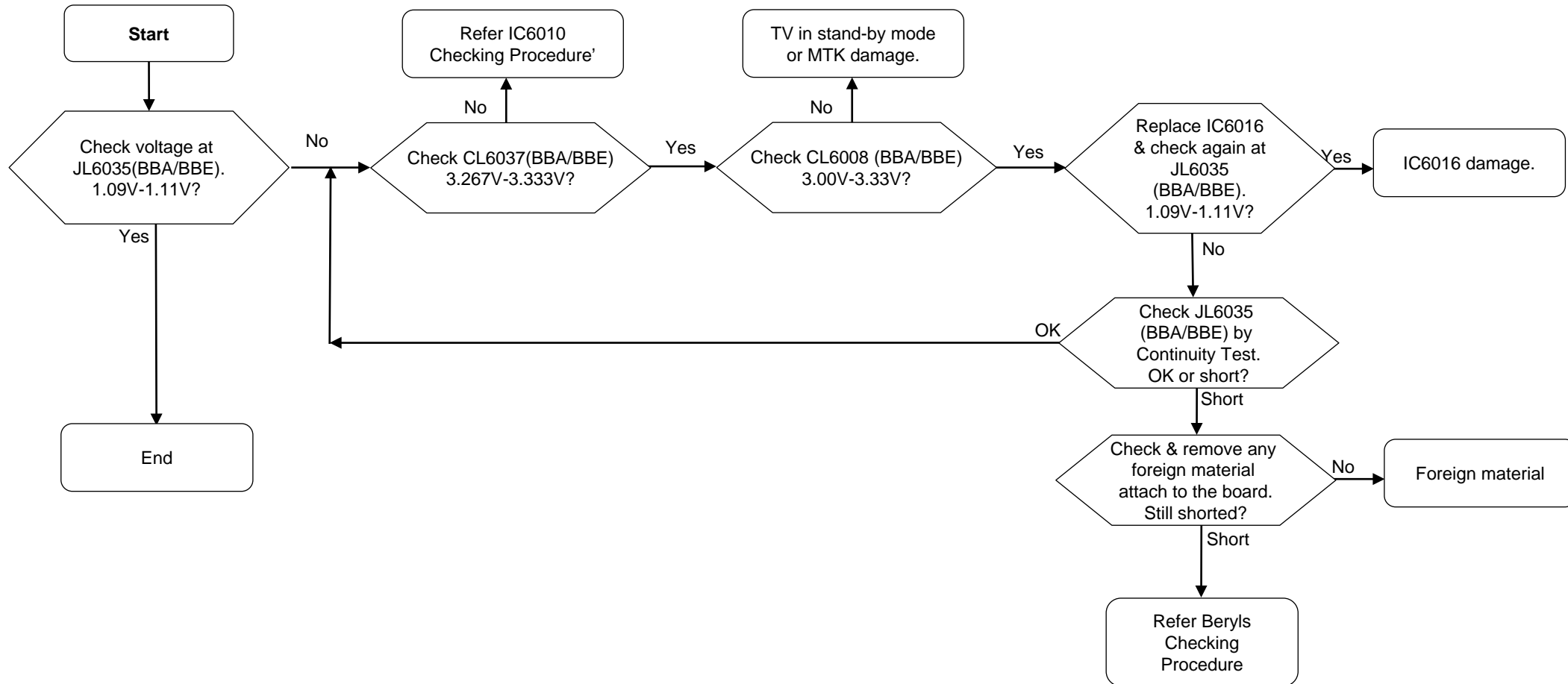
3-2-13. No Power-IC6009(3.3V DDCON) Checking Procedure



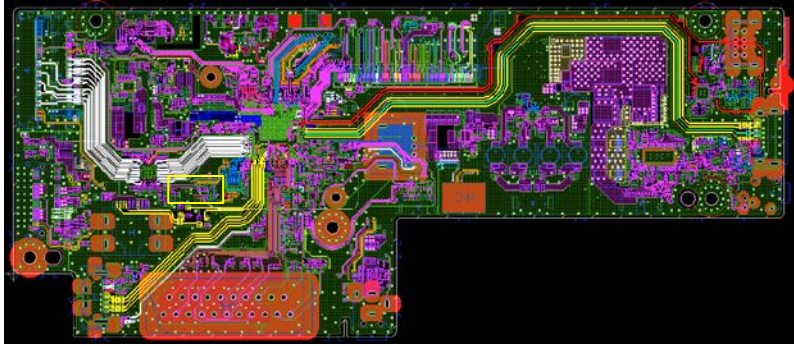
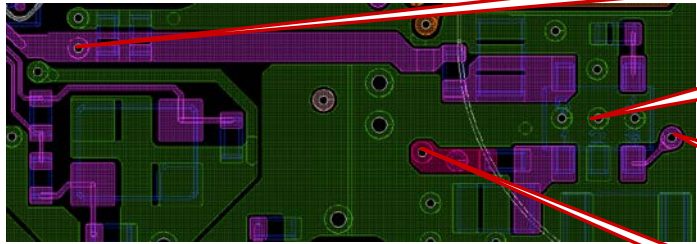
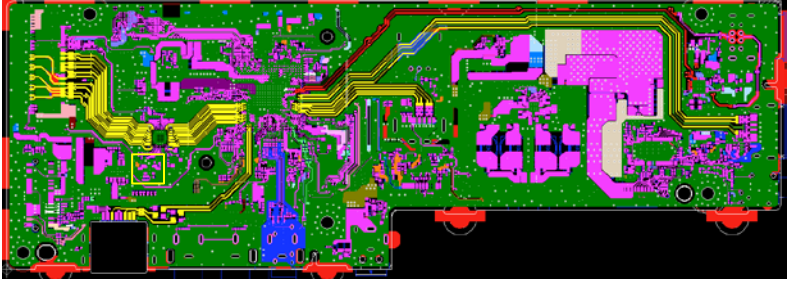
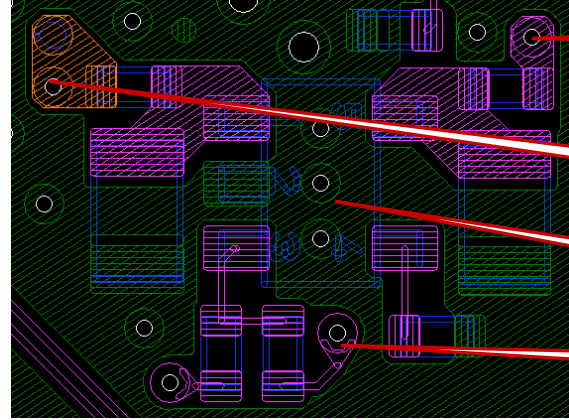
IC6009 Checking Procedure (Checking Point)

Board Name	Board PWB (A side)	Detail
BBE (1.8V)		 <ul style="list-style-type: none"> CL6069 IC6018 CL6070 JL6039
BBA (1.8V)		 <ul style="list-style-type: none"> CL6069 IC6018 CL6070 JL6032

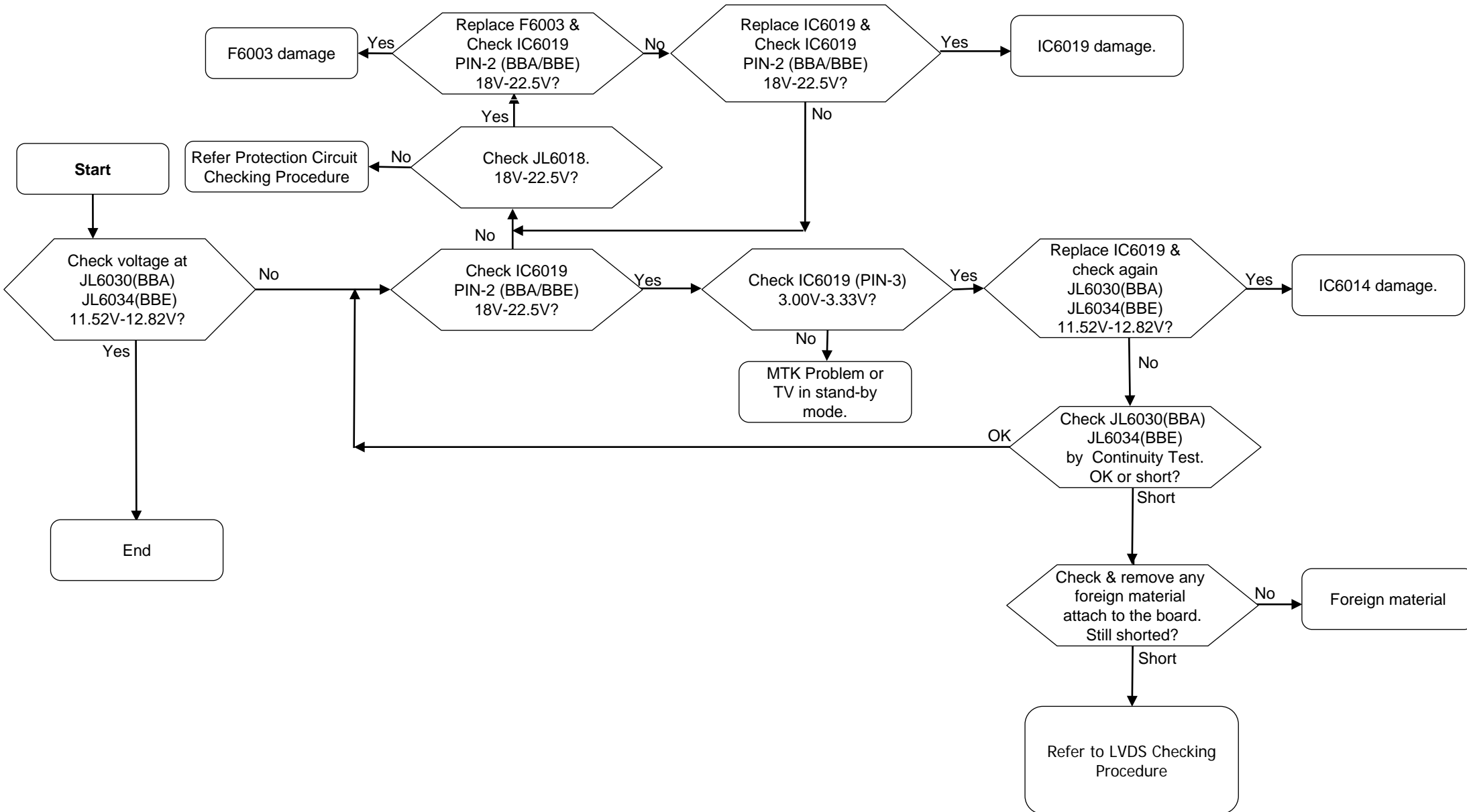
3-2-14. No Power-IC6016(1.1V DDCON) Checking Procedure



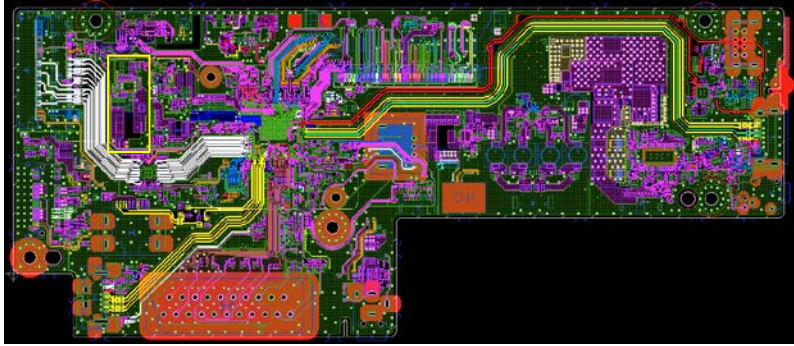
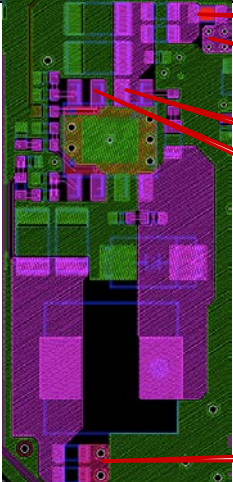
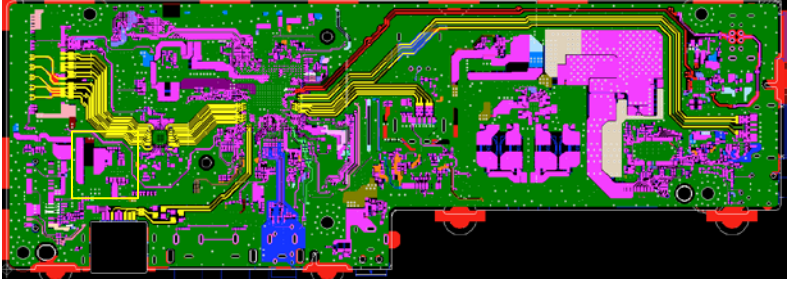
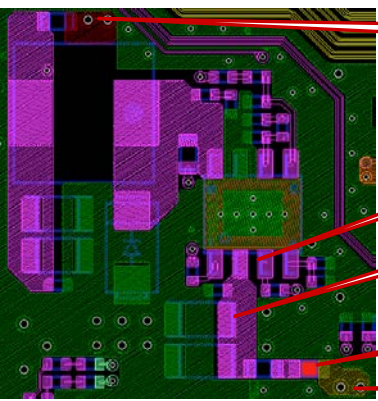
IC6016 Checking Procedure (Checking Point)

Board Name	Board PWB (A side)	Detail
<p>BBE (1.1V)</p>		 <ul style="list-style-type: none"> <li data-bbox="1944 320 2078 379">JL6035 <li data-bbox="1944 427 2078 486">IC6016 <li data-bbox="1944 534 2078 593">CL6008 <li data-bbox="1944 641 2078 700">CL6062
<p>BBA (1.1V)</p>		 <ul style="list-style-type: none"> <li data-bbox="1966 820 2101 879">JL6035 <li data-bbox="1966 963 2101 1023">CL6060 <li data-bbox="1966 1059 2101 1118">IC6016 <li data-bbox="1966 1155 2101 1214">CL6008

3-2-15. No Power-IC6019(12V DDCON) Checking Procedure

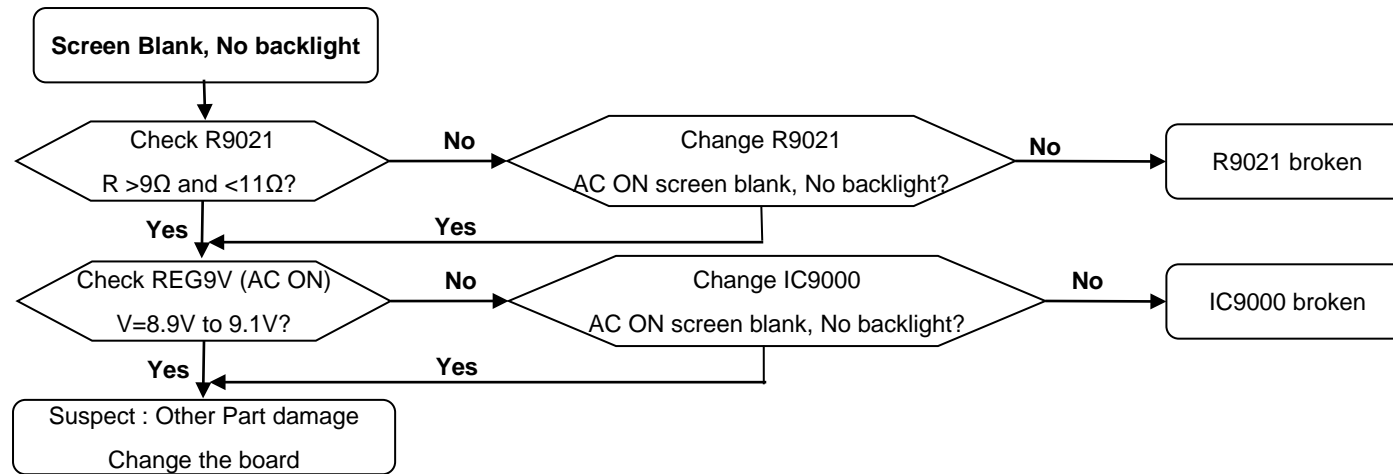


No Power-IC6019 Checking Procedure (Checking Point)

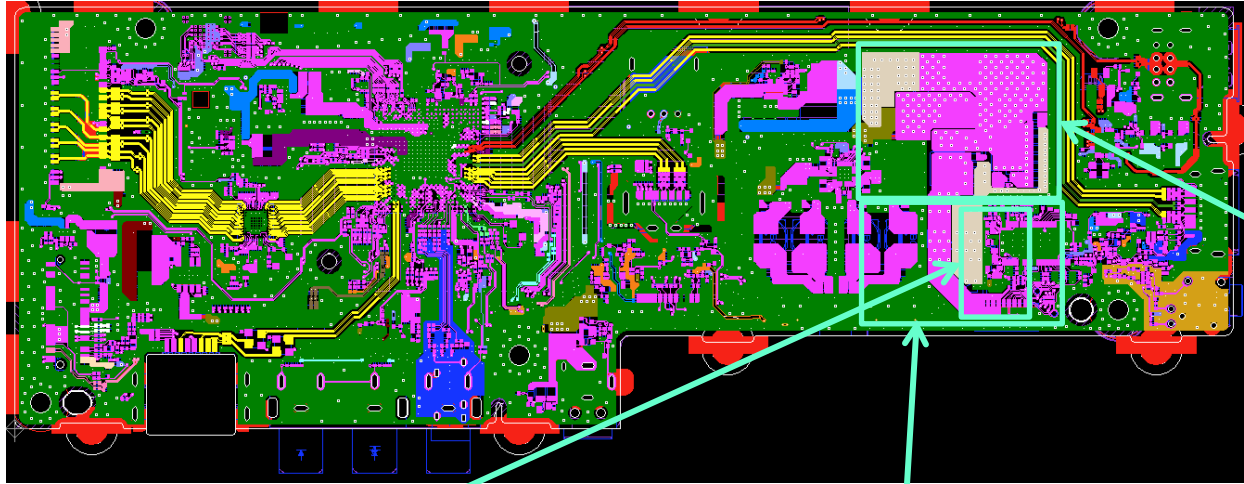
Board Name	Board PWB (A side)	Detail
BBE (12V)		 <ul style="list-style-type: none"> F6003 JL6018 PIN-2 PIN-3 JL6034
BBA (12V)		 <ul style="list-style-type: none"> JL6030 PIN-3 PIN-2 F6003 JL6018

3-3. No Picture

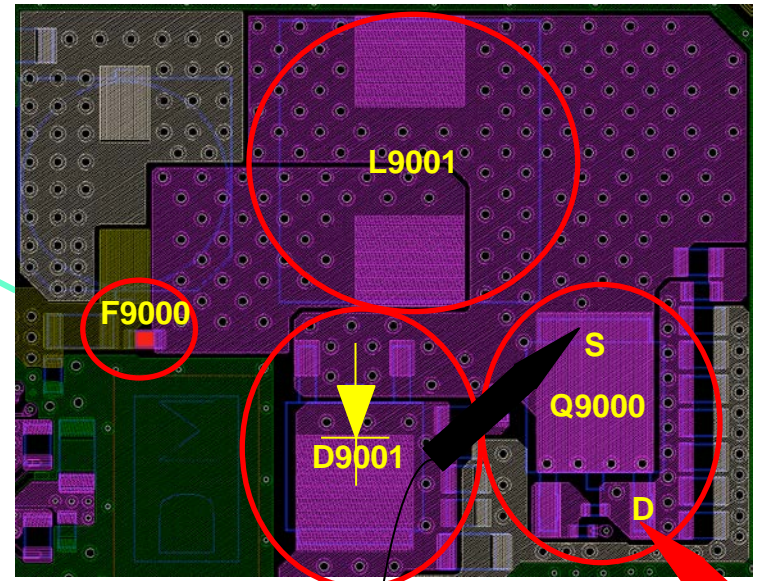
3-3-1. Screen Blank, No Backlight [For QW/QT]



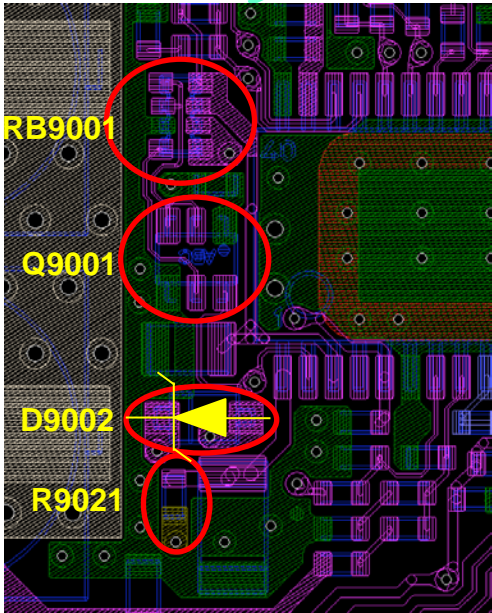
Screen Blank, No Backlight - Checking Point [1/2]-BBA



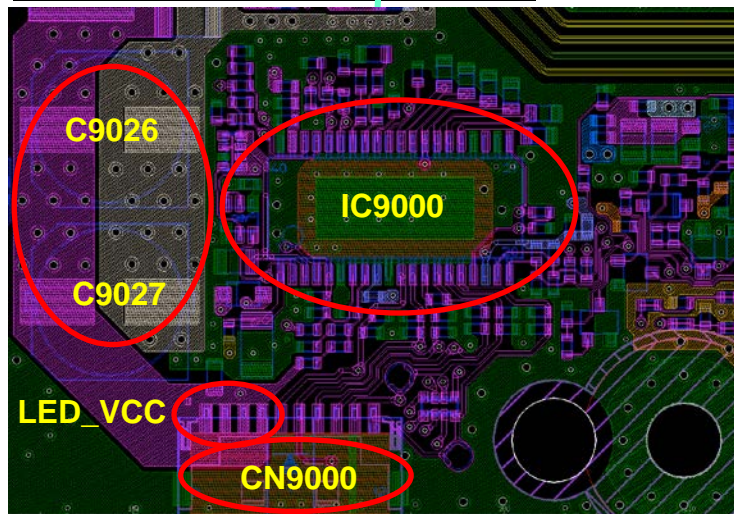
F9000, L9001, D9001, Q9000



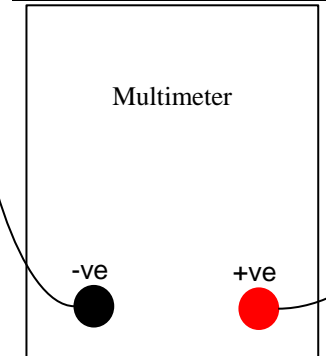
RB9001, Q9001, D9002, R9021



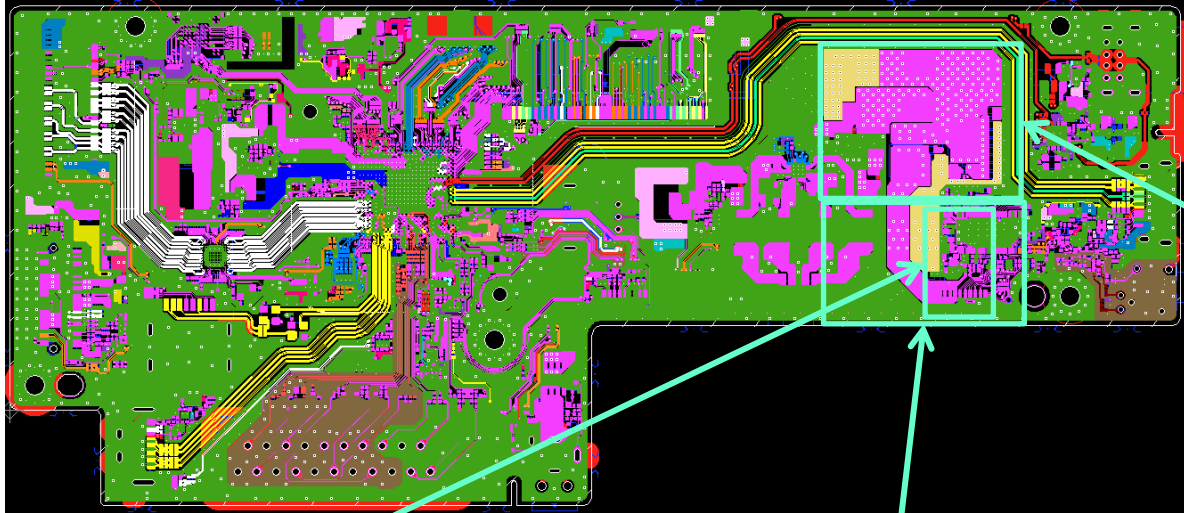
C9026, C9027, CN9000, IC9000, LED_VCC



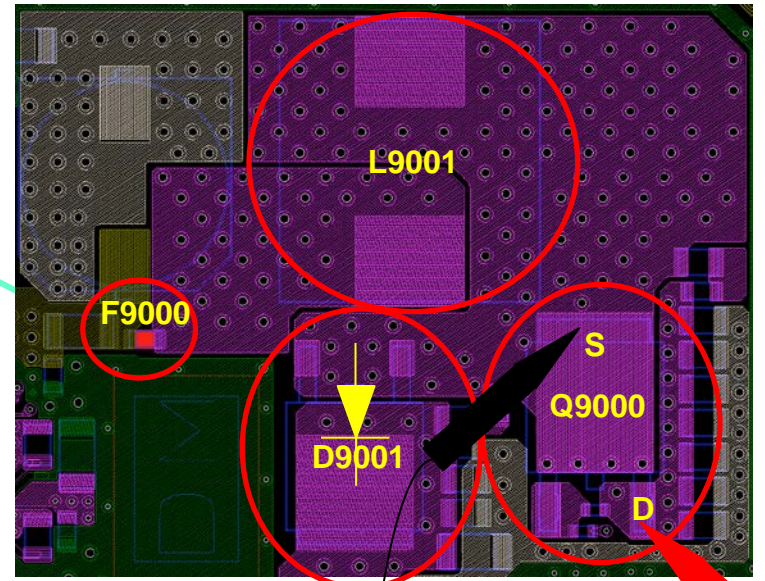
Q9000 RDS Measurement



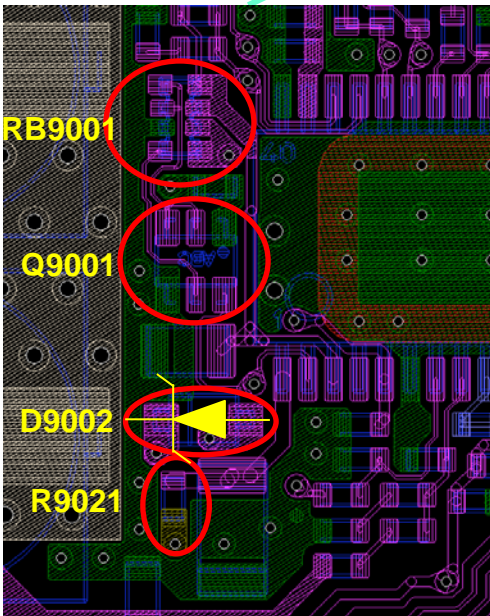
Screen Blank, No Backlight - Checking Point [2/2]-BBE



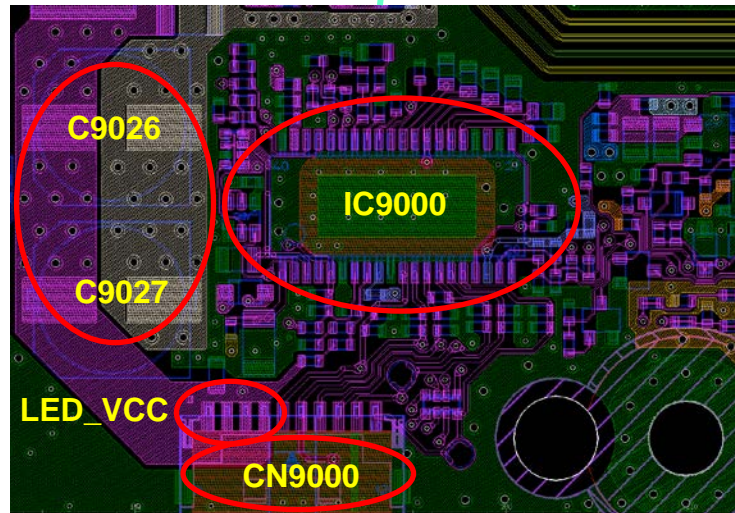
F9000, L9001, D9001, Q9000



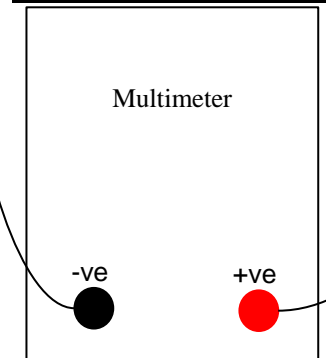
RB9001, Q9001, D9002, R9021



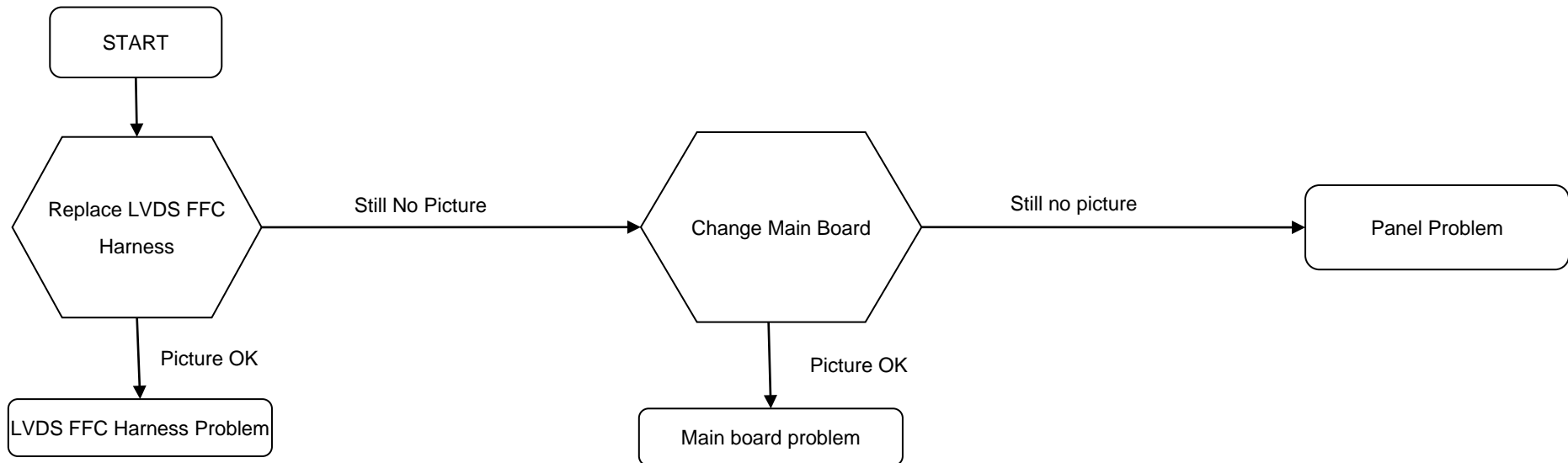
C9026, C9027, CN9000, IC9000, LED_VCC



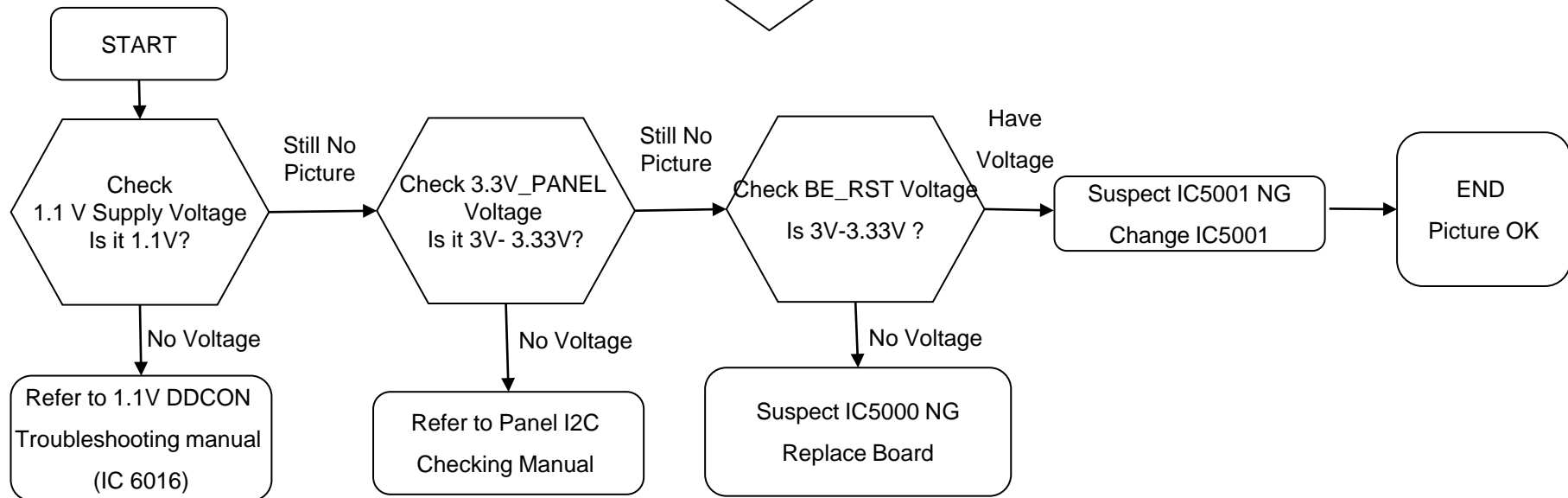
Q9000 RDS Measurement



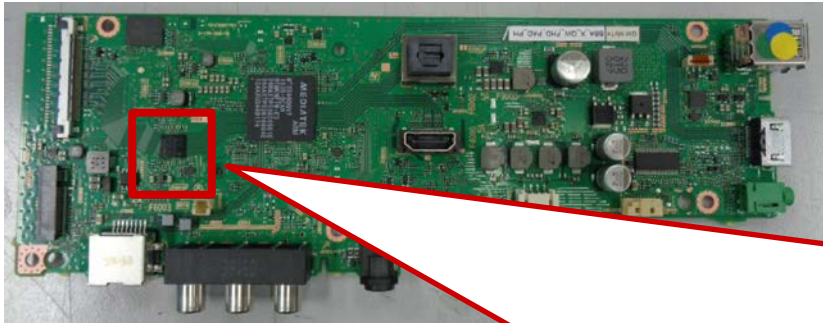
3-3-2. Screen Blank, Backlight visible(General Checking)



Troubleshooting Detail No Picture (Main Board Issue)

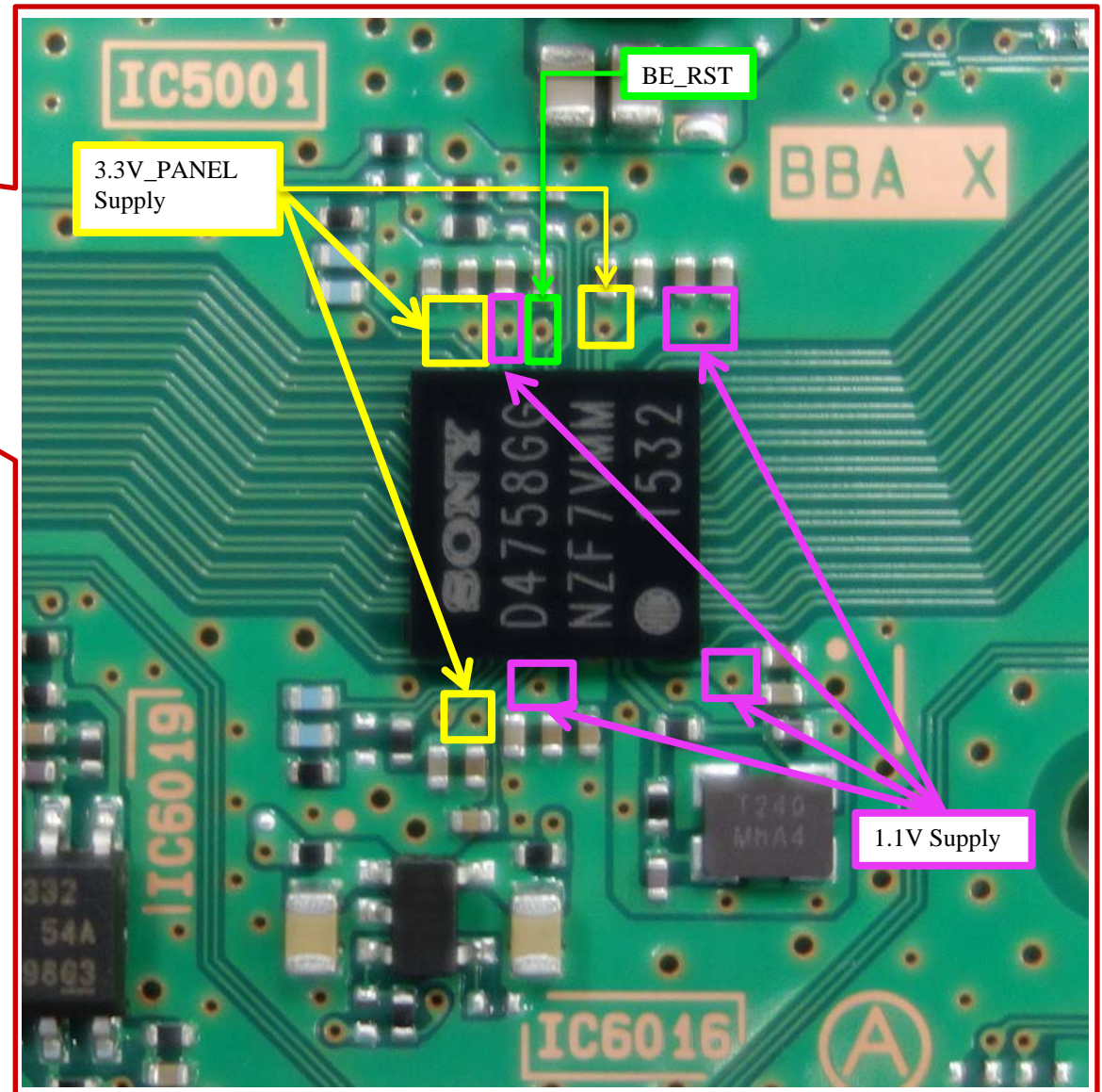


Screen Blank, Backlight visible(Checking Point)-BBA

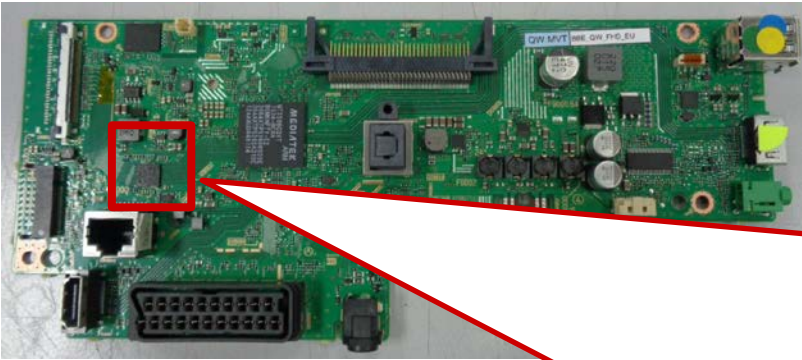


Check Item:

1. Supply voltage
2. Supply voltage impedance

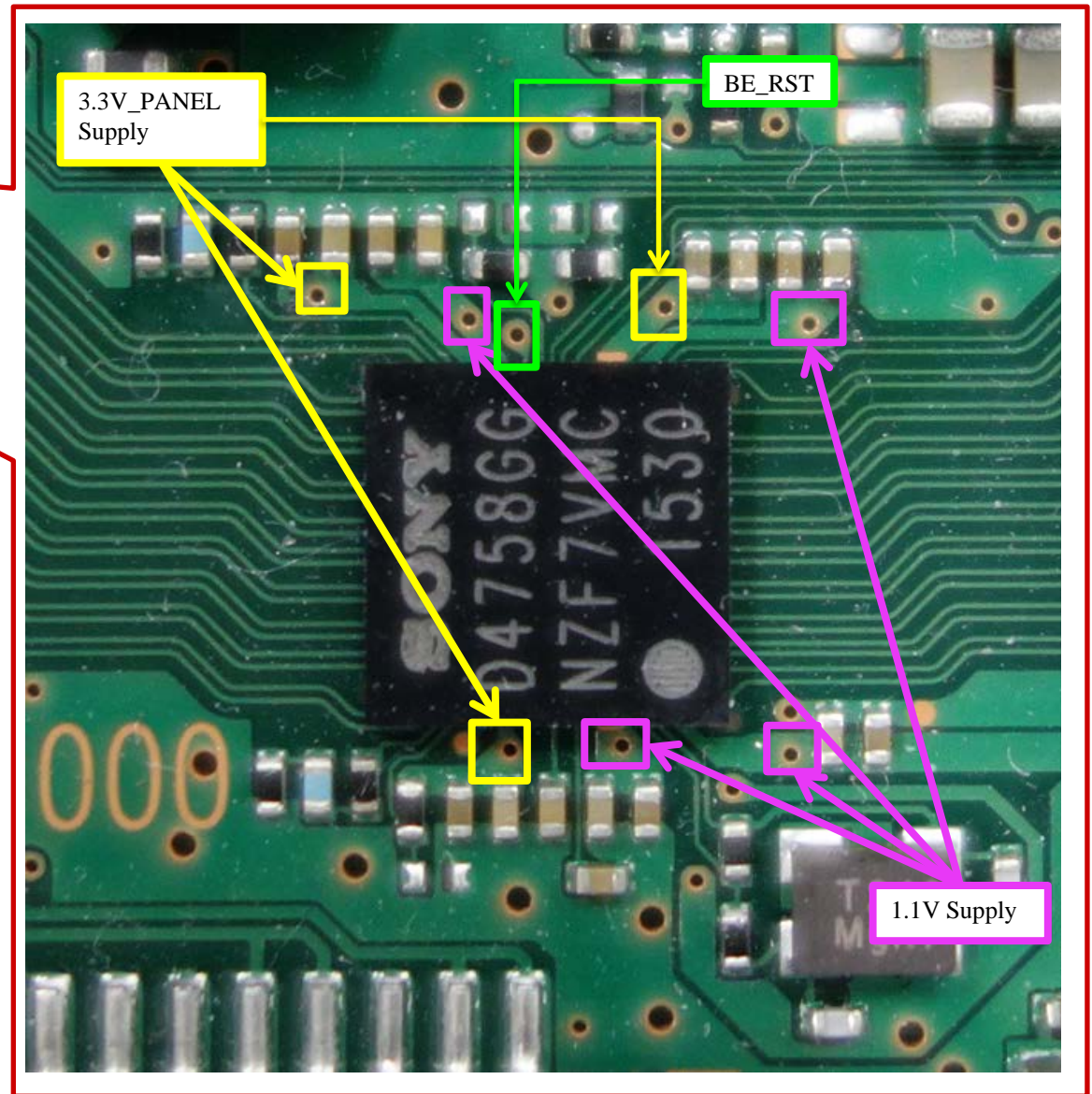


Screen Blank, Backlight visible(Checking Point)-BBE

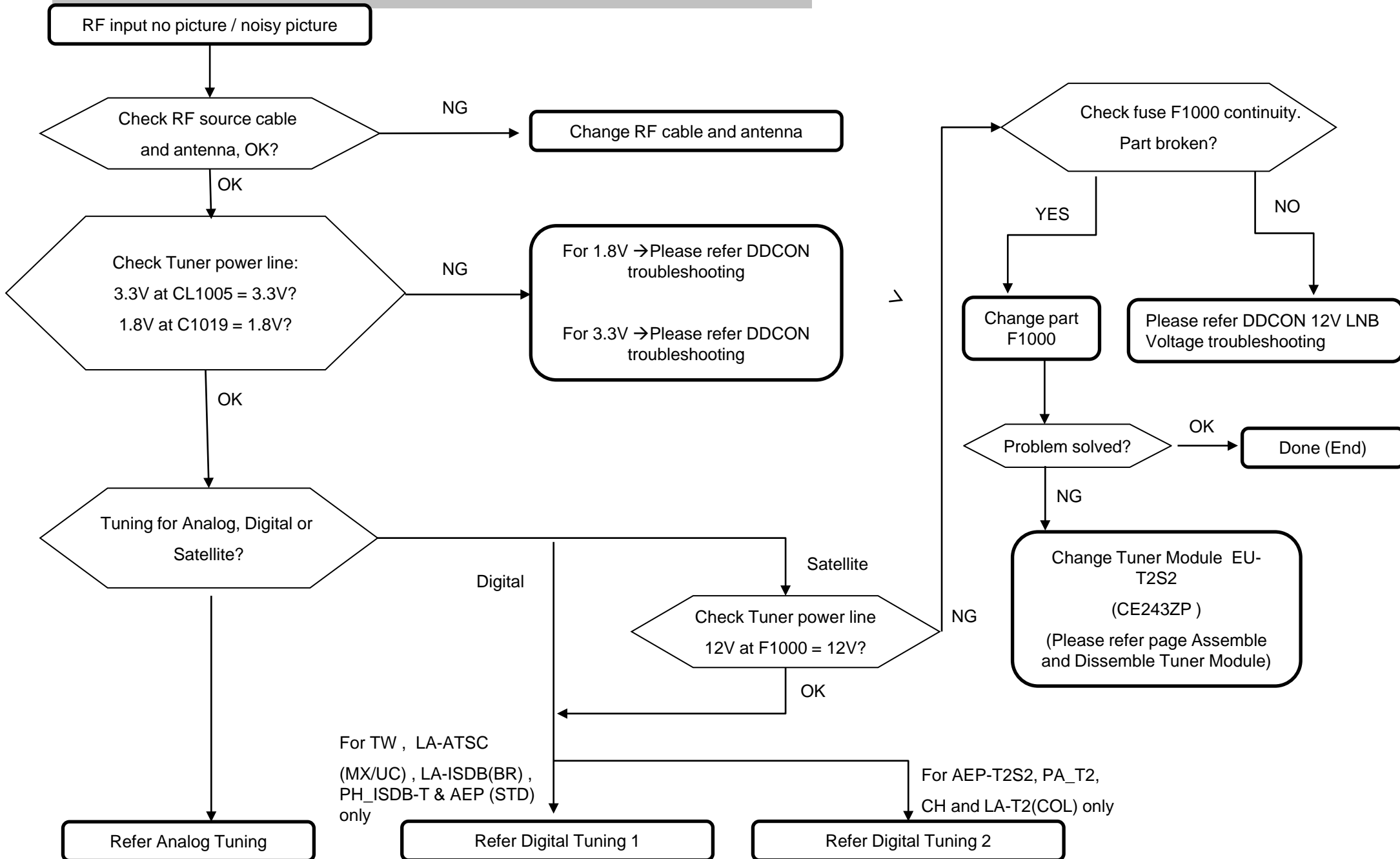


Check Item:

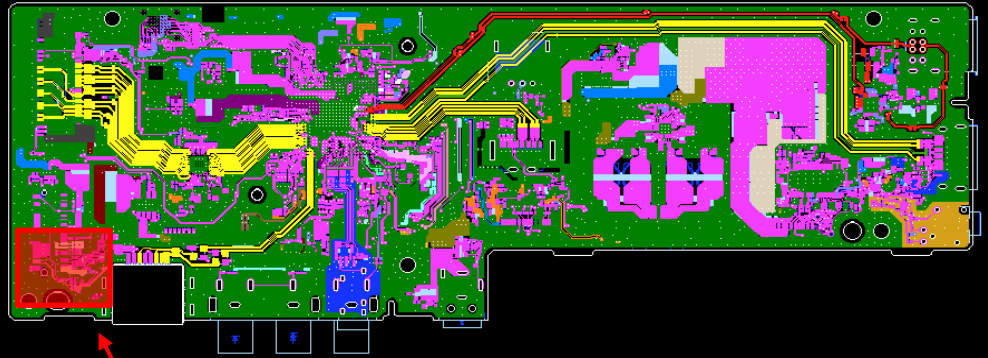
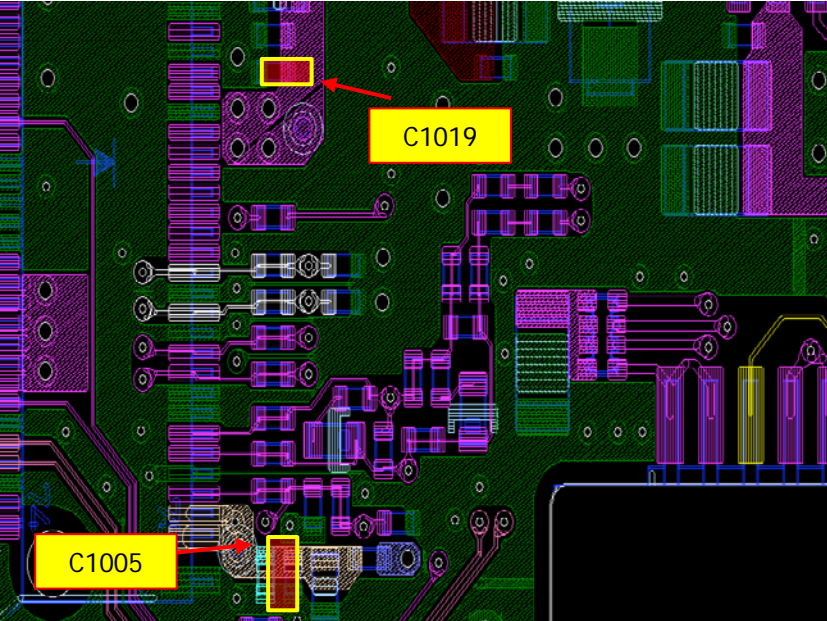
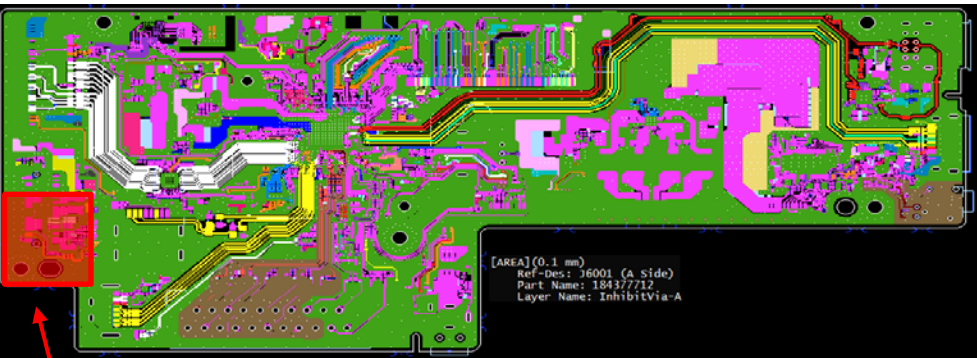
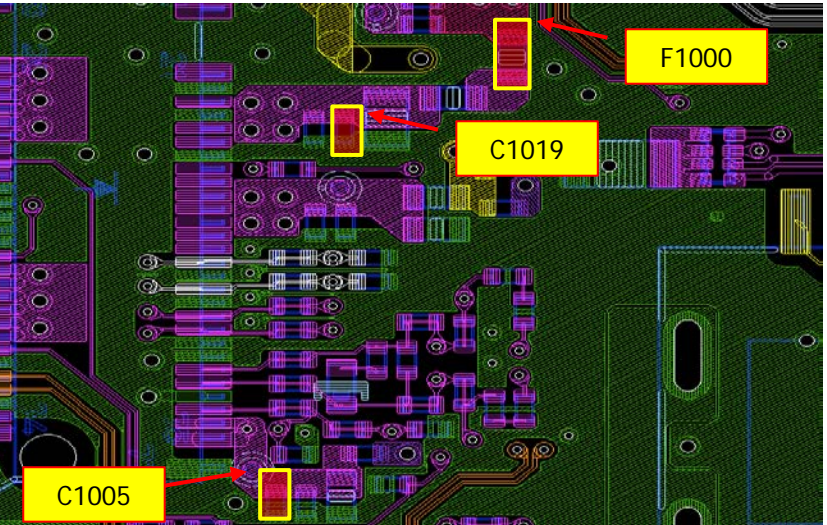
1. Supply voltage
2. Supply voltage impedance



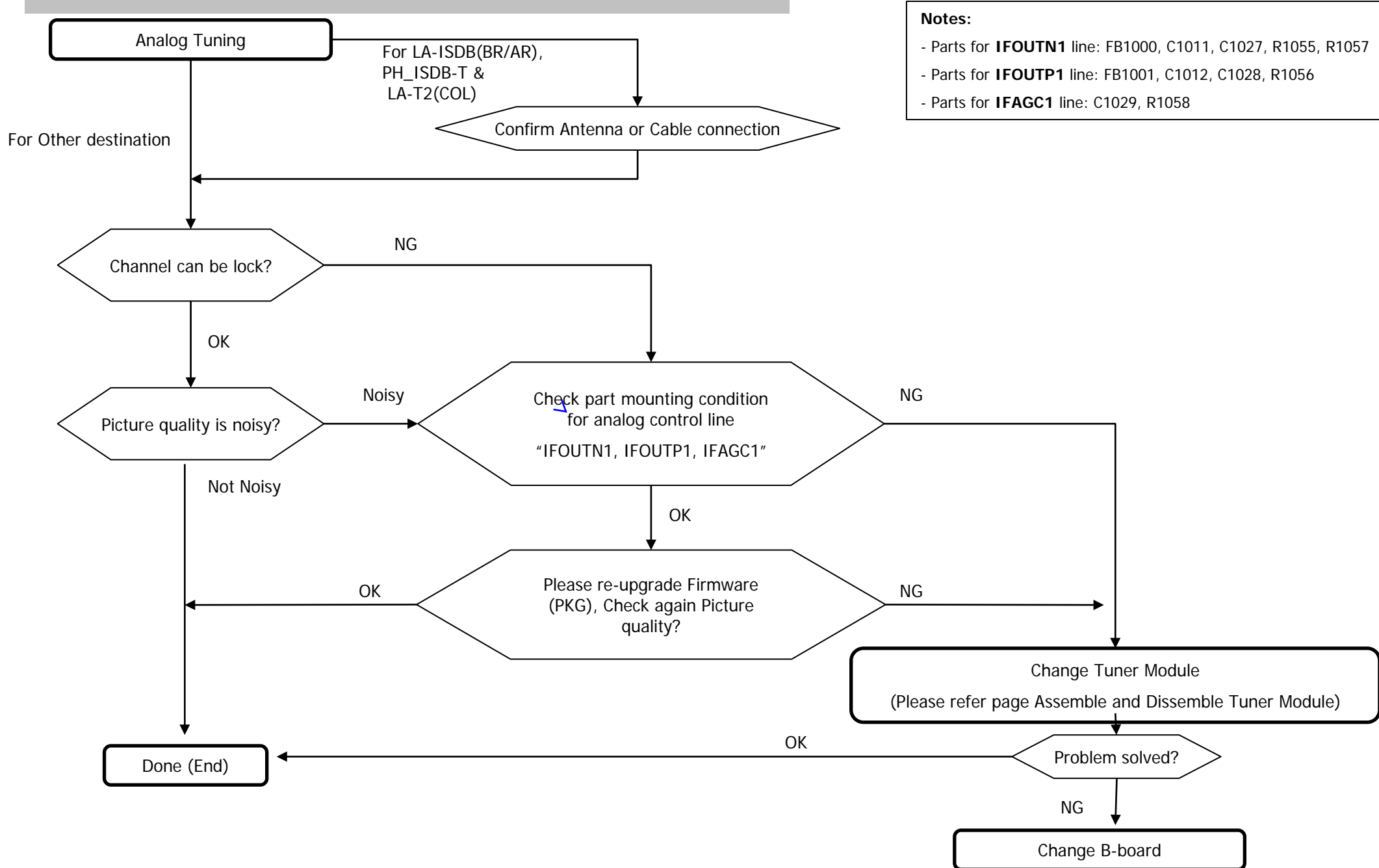
3.3.3 : No Picture: Tuner (for Analogue , Digital and Satellite)



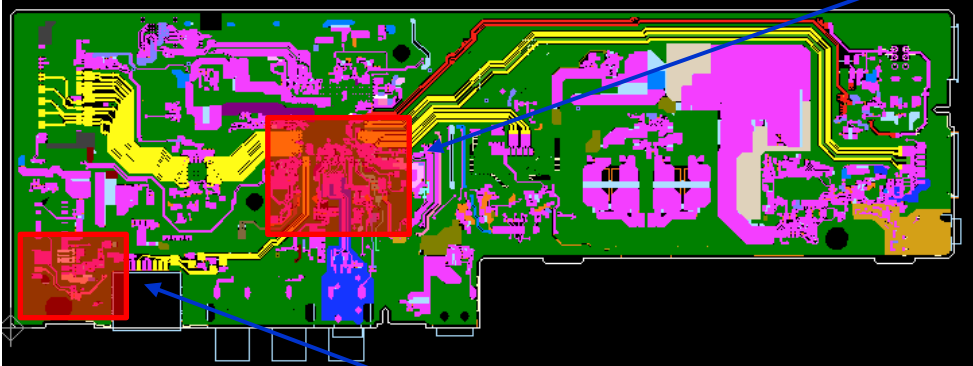
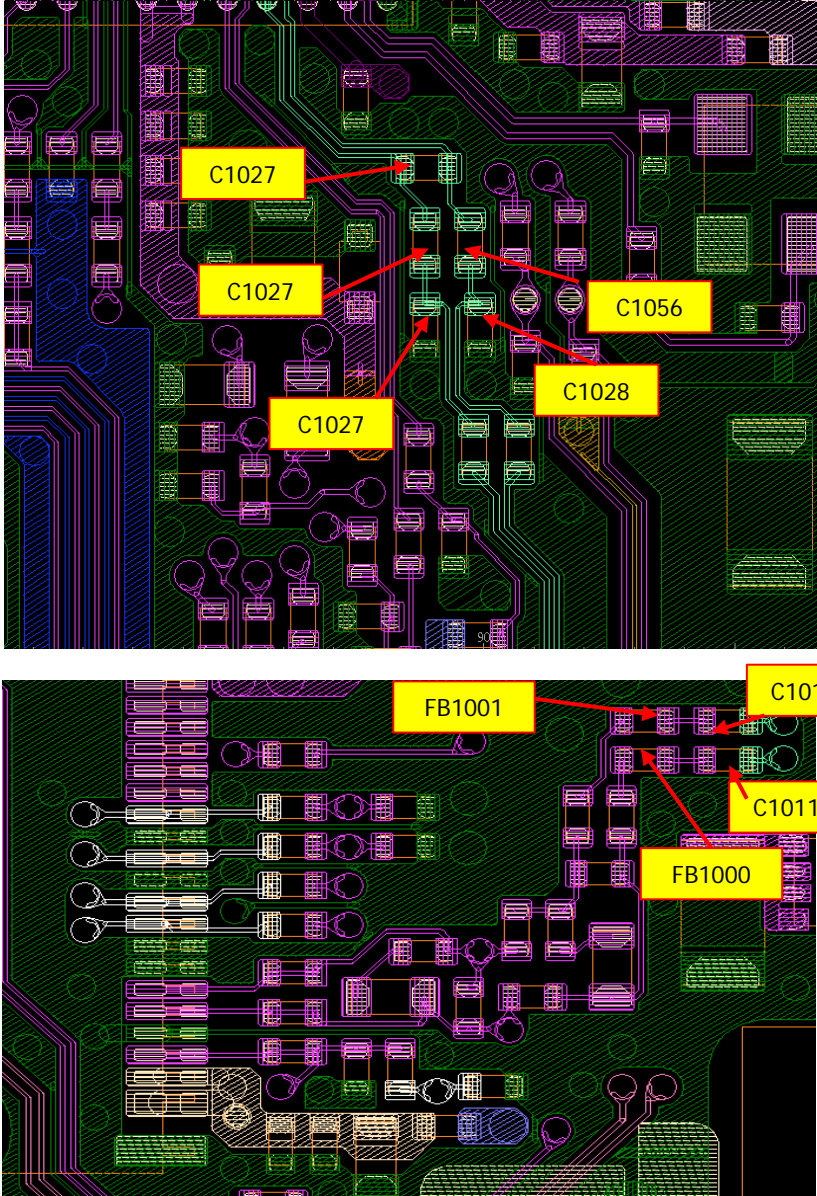
No Picture : Tuner (for Analogue , Digital and Satellite)-Checking Point

Board Name	Board PWB (B side)	Detail
<p>BBA board (A side)</p> <p>(3.3V) C1005</p> <p>(1.8V) C1019</p>	<p>BBA board</p>  <p>Detail</p>	 <p>C1019</p> <p>C1005</p>
<p>BBE board (A side)</p> <p>(3.3V) C1005</p> <p>(1.8V) C1019</p>	<p>BBE board (A side)</p>  <p>Detail</p>	 <p>F1000</p> <p>C1019</p> <p>C1005</p>

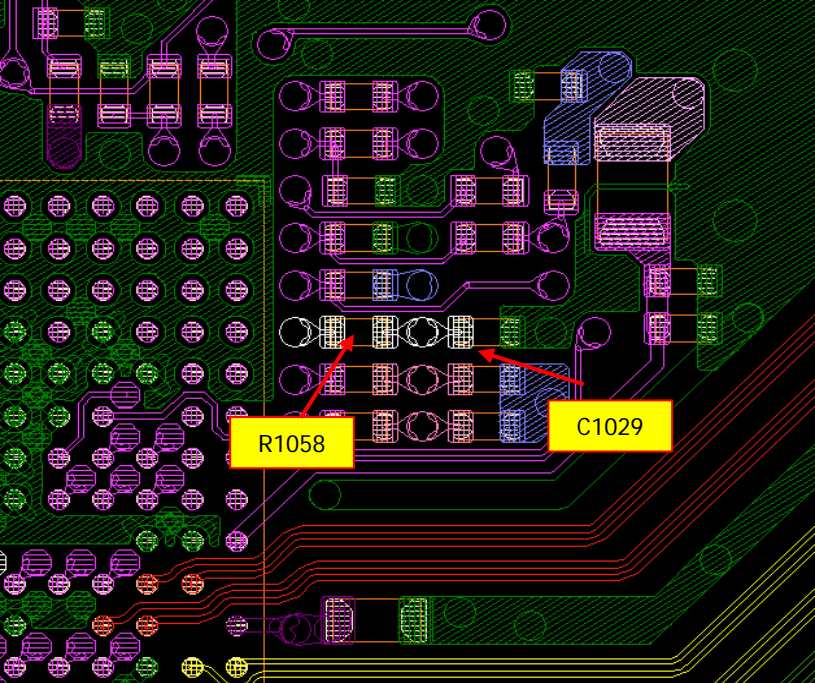
3.3.4 : For Analogue Tuning Failed (All destination)



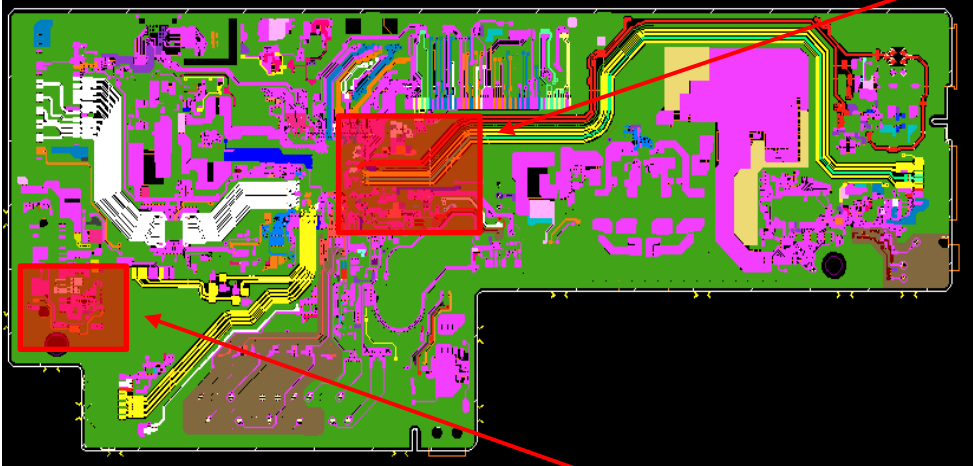
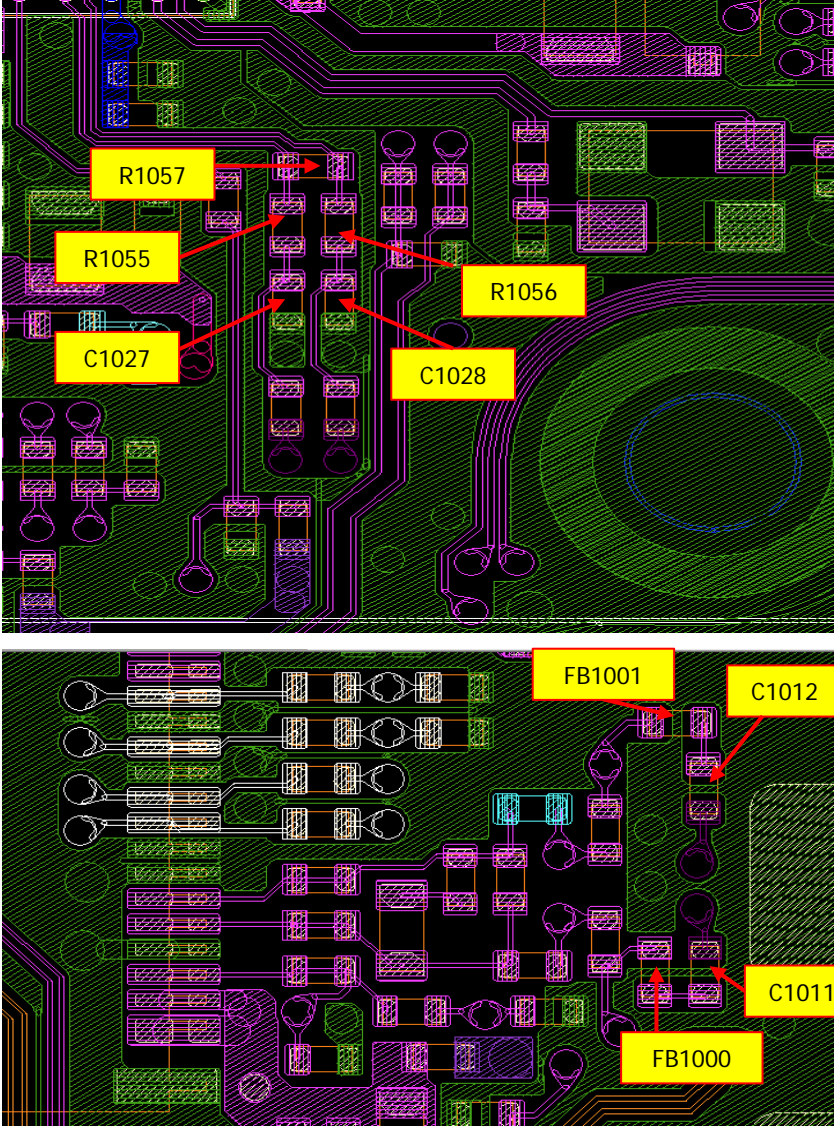
For Analogue Tuning Failed -Checking Point [1/4]

Board Name	Board PWB (A side)	Detail
<p>BBA board (A side)</p> <p>(IFOUTN1) FB1000 C1011 C1027 R1055</p> <p>(IFOUTP1) FB1001 C1012 C1028 R1056</p>		

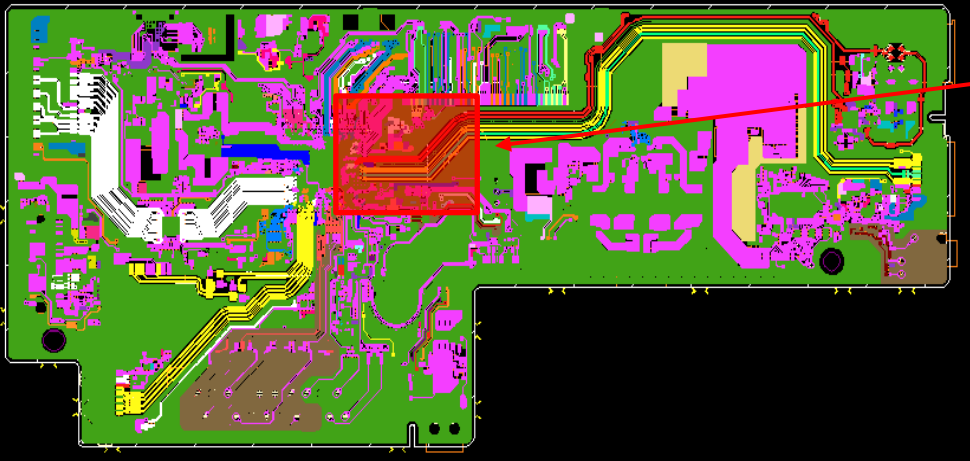
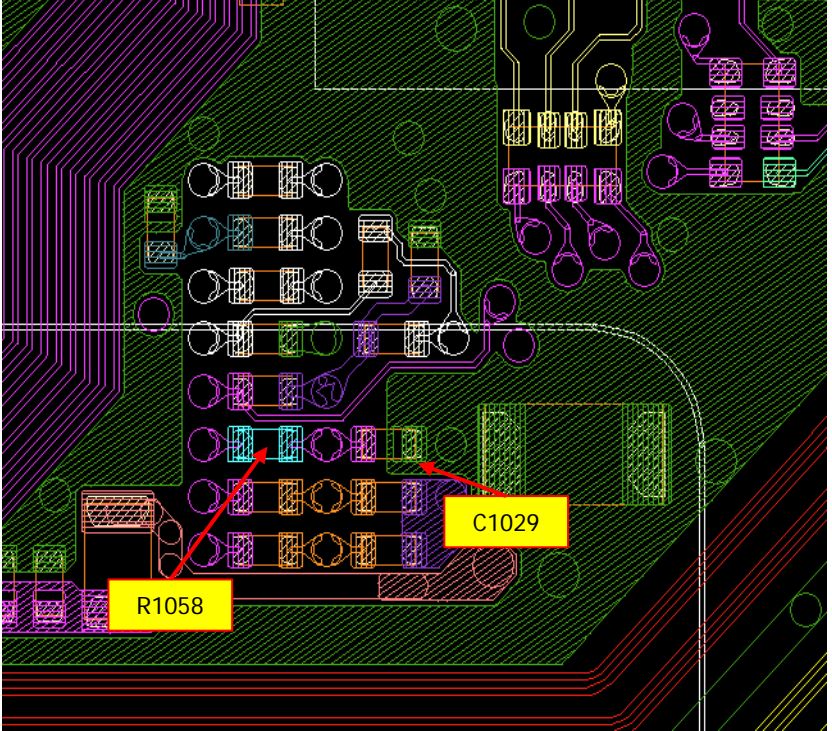
For Analogue Tuning Failed -Checking Point [2/4]

Board Name	Board PWB (A side)	Detail
<p>BBA board (A side)</p> <p>(IFAGC1) C1029 R1058</p>		

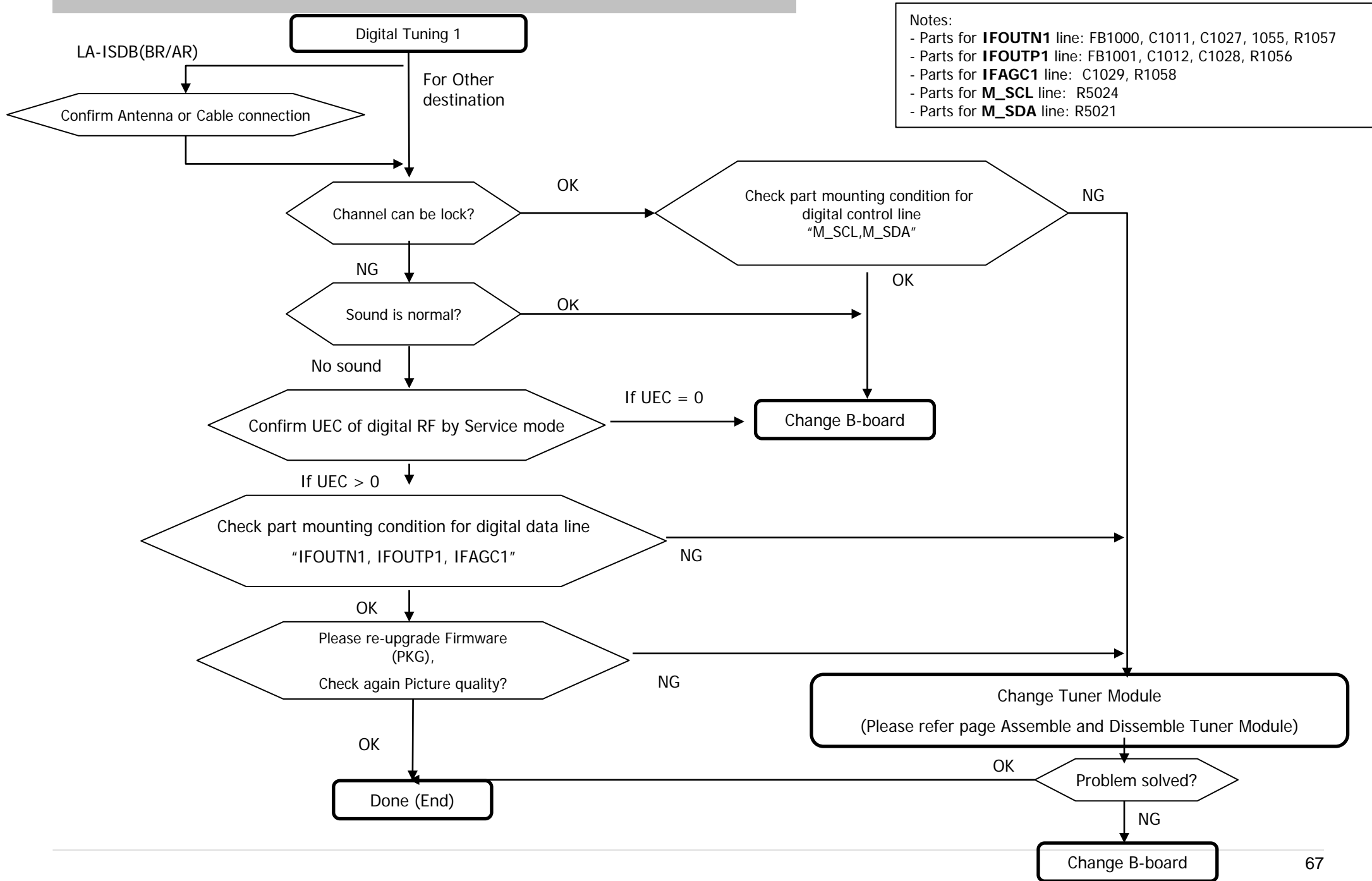
For Analogue Tuning Failed - Checking Point [3/4]

Board Name	Board PWB (A side)	Detail
<p>BBE board (A side)</p> <p>(IFOUTN1) FB1000 C1011 C1027 R1055</p> <p>(IFOUTP1) FB1001 C1012 C1028 R1056</p>		

For Analogue Tuning Failed -Checking Point [4/4]

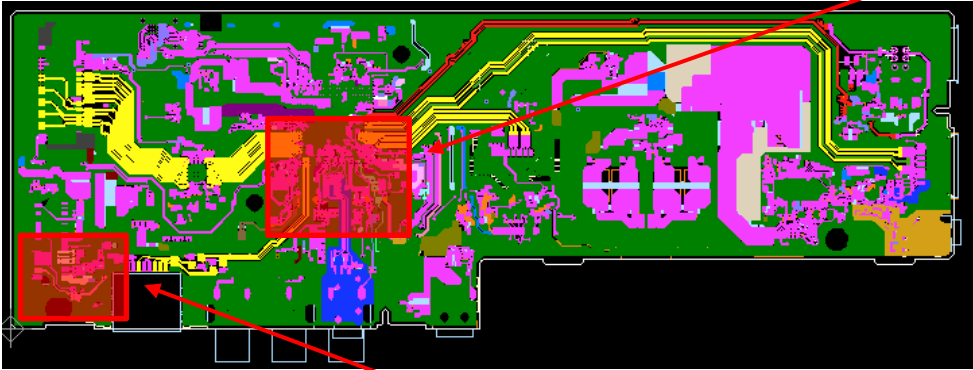
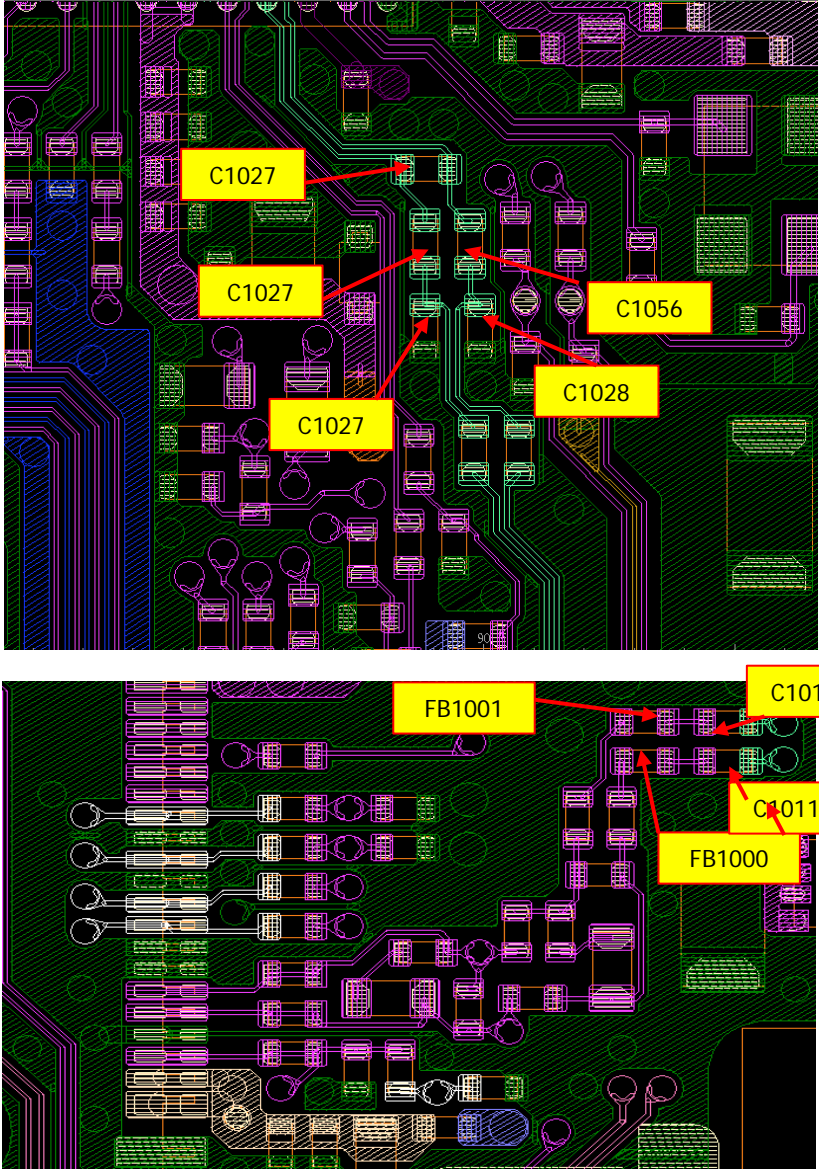
Board Name	Board PWB (A side)	Detail
<p data-bbox="62 284 224 351">BBE board (A side)</p> <p data-bbox="62 391 190 486">(IFAGC1) C1029 R1058</p>		

3-3-5. For Digital Tuning 1: Only for TW , AM-ATSC(MX/UC) , LA-ISDB(BR/AR) , PH_ISDB-T , AEP(STD) .

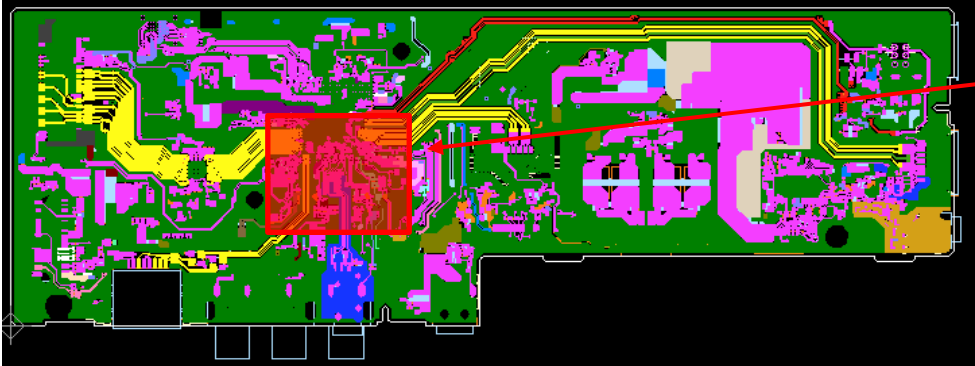
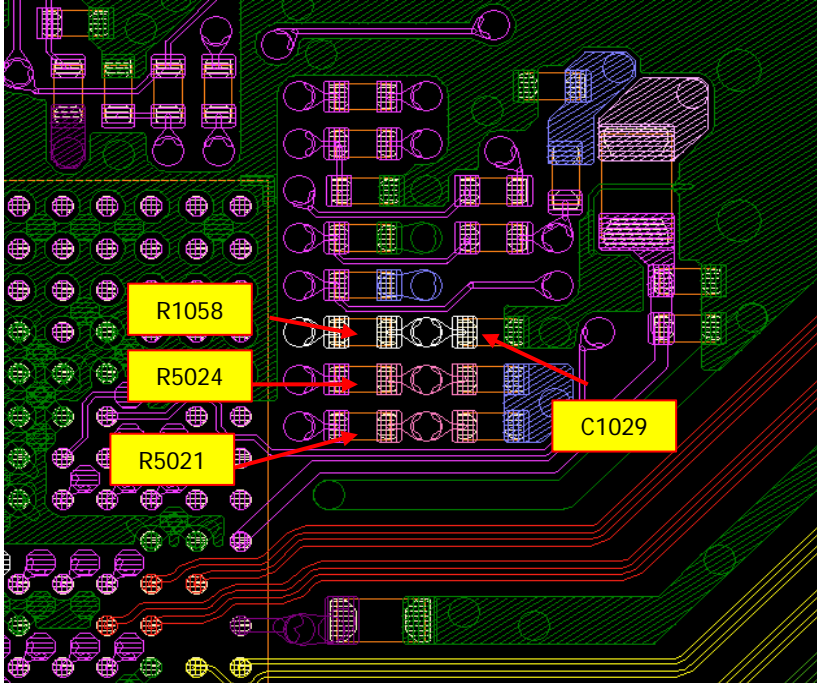


Notes:
 - Parts for **IFOUTN1** line: FB1000, C1011, C1027, 1055, R1057
 - Parts for **IFOUTP1** line: FB1001, C1012, C1028, R1056
 - Parts for **IFAGC1** line: C1029, R1058
 - Parts for **M_SCL** line: R5024
 - Parts for **M_SDA** line: R5021

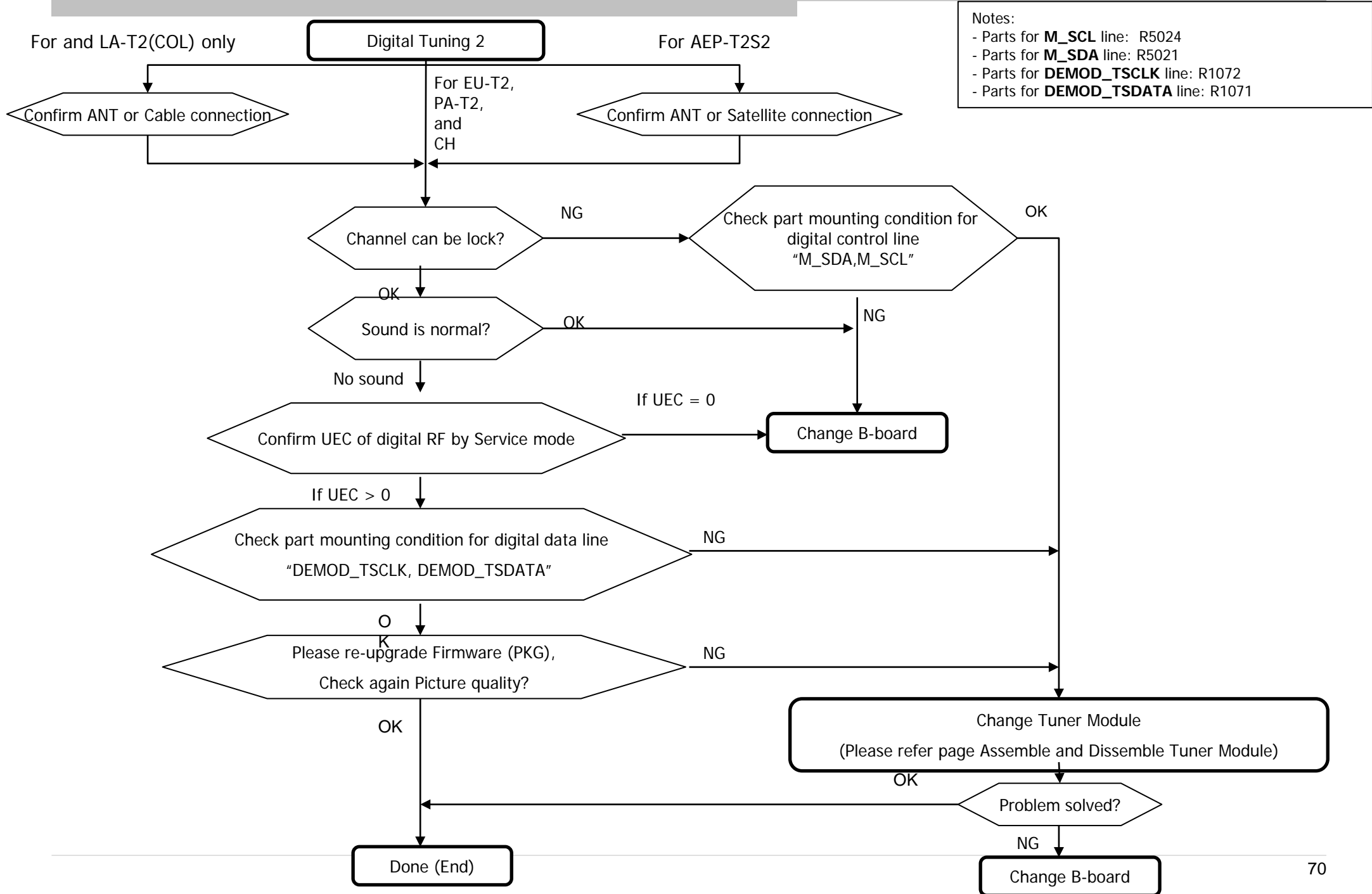
For Digital Tuning 1: Only for TW , AM-ATSC(MX/UC) , LA-ISDB(BR/AR) , PH_ISDB-T , AEP(STD)- Checking Point [1/2]

Board Name	Board PWB (A side)	Detail
<p>BBA board (A side)</p> <p>(IFOUTN1) FB1000 C1011 C1027 R1055</p> <p>(IFOUTP1) FB1001 C1012 C1028 R1056</p>		

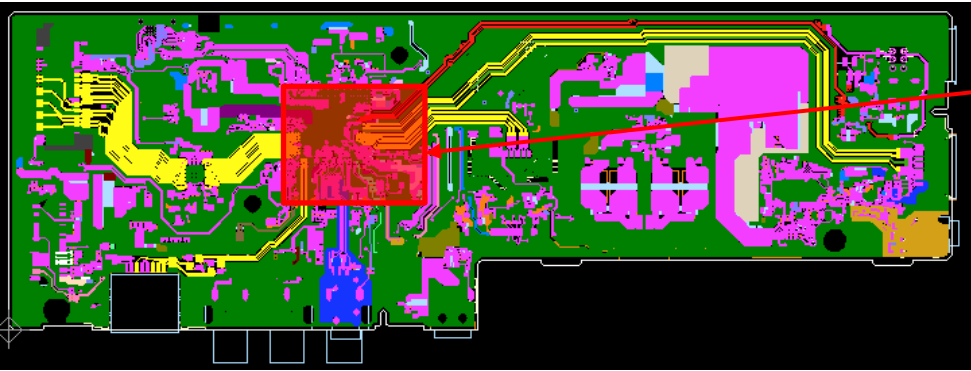
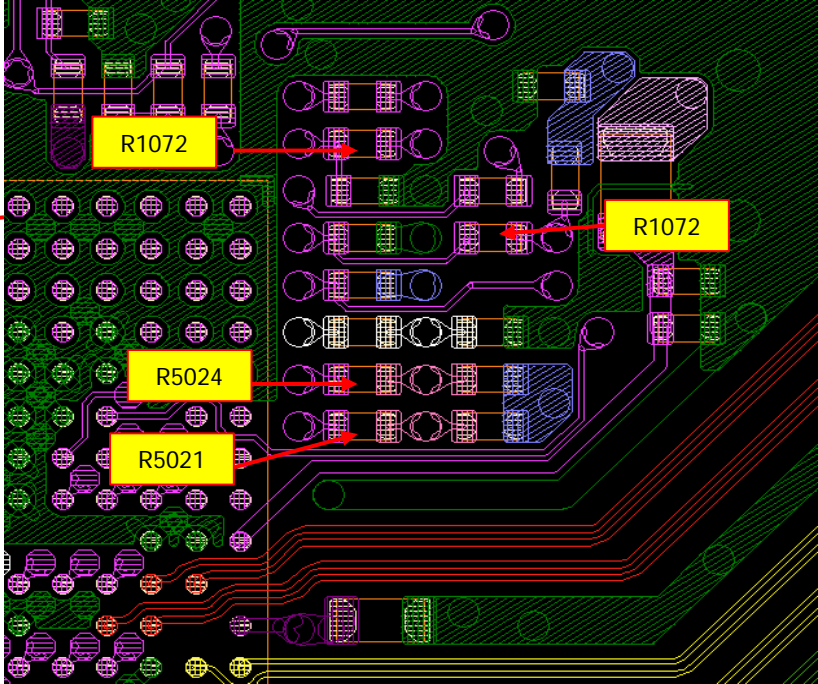
For Digital Tuning 1: Only for TW , AM-ATSC(MX/UC) , LA-ISDB(BR/AR) , PH_ISDB-T , AEP(STD)- Checking Point [2/2]

Board Name	Board PWB (A side)	Detail
<p>BBA board (A side)</p> <p>(IFAGC1) C1029 R1058</p> <p>(M_SCL) R5024</p> <p>(M_SDA) R5021</p>		

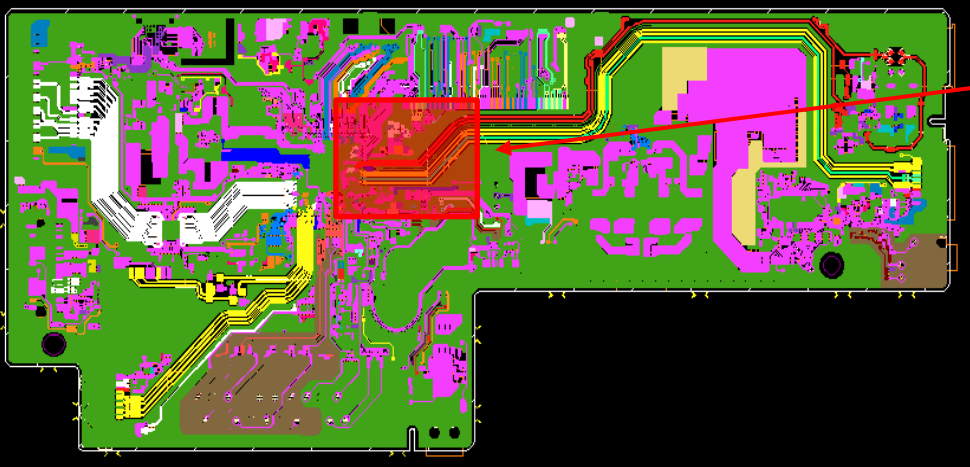
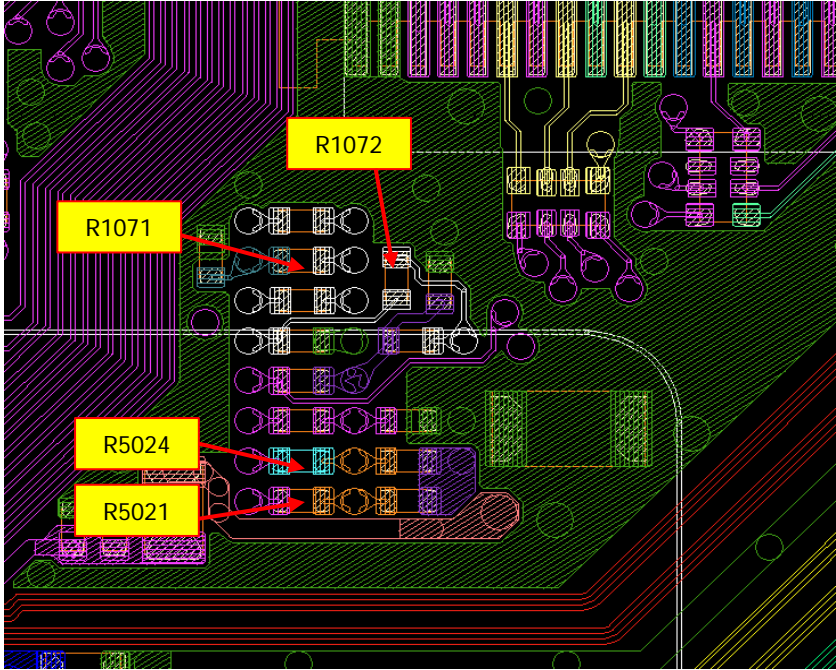
3-3-6. For Digital Tuning 2: AEP-T2S2, EU-T2, PA-T2, CH, and LA-T2(COL).



For Digital Tuning 2: AEP-T2S2, EU-T2, PA-T2, CH, and LA-T2(COL)-Checking Point [1/2]

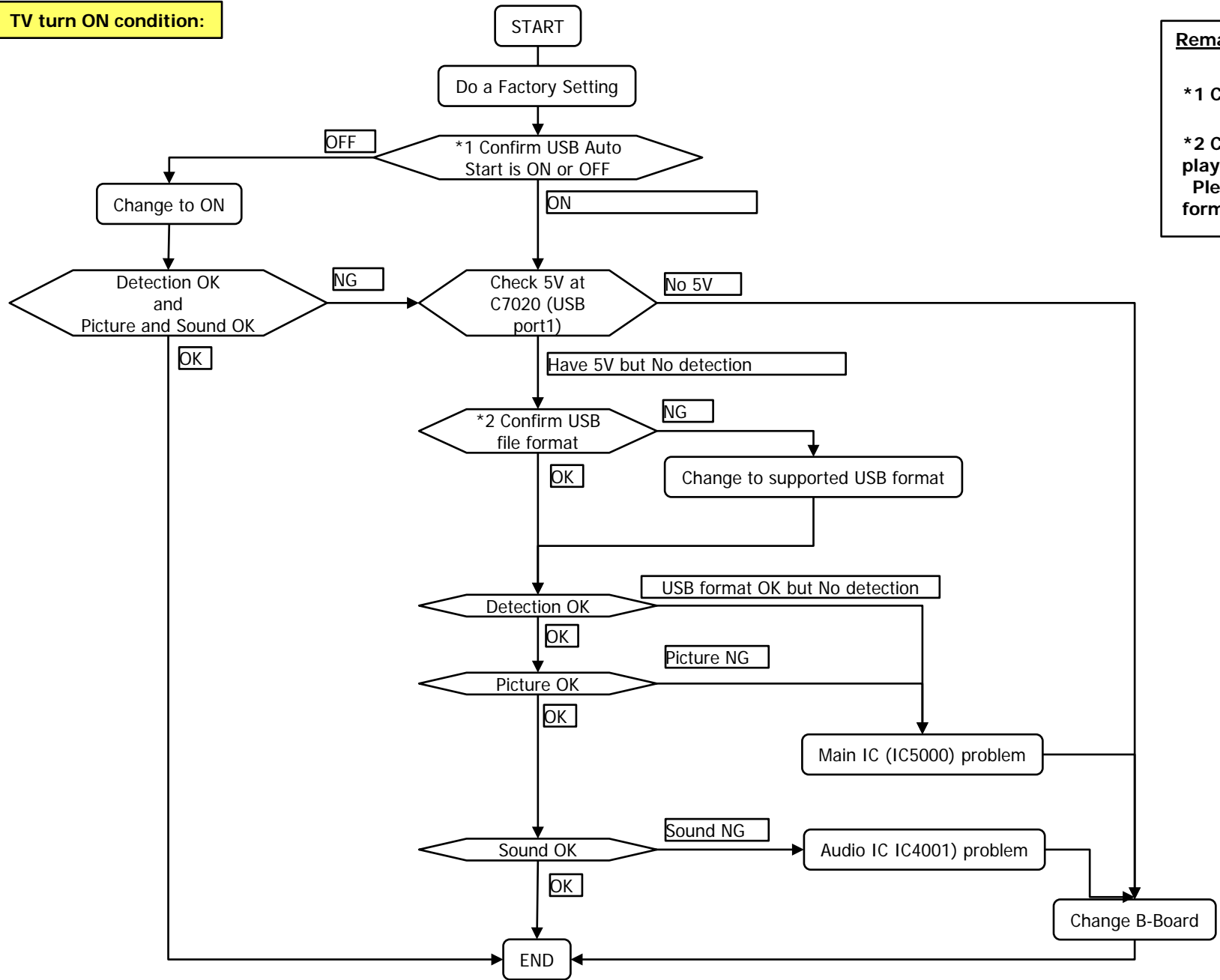
Board Name	Board PWB (A side)	Detail
<p>BBA board (A side)</p> <p>(M_SCL) R5024</p> <p>(M_SDA) R5021</p> <p>(DEMOD_TSCLK) R1072</p> <p>(DEMOD_TSCLK) R1071</p>		

For Digital Tuning 2: AEP-T2S2, EU-T2, PA-T2, CH, and LA-T2(COL)-Checking Point [2/2]

Board Name	Board PWB (A side)	Detail
<p>BBE board (A side)</p> <p>(M_SCL) R5024</p> <p>(M_SDA) R5021</p> <p>(DEMOD_TSCLK) R1072</p> <p>(DEMOD_TSCLK) R1071</p>		

3-3-7. : USB Port1 – No Detection / Cannot Play / No Picture / No Sound

TV turn ON condition:

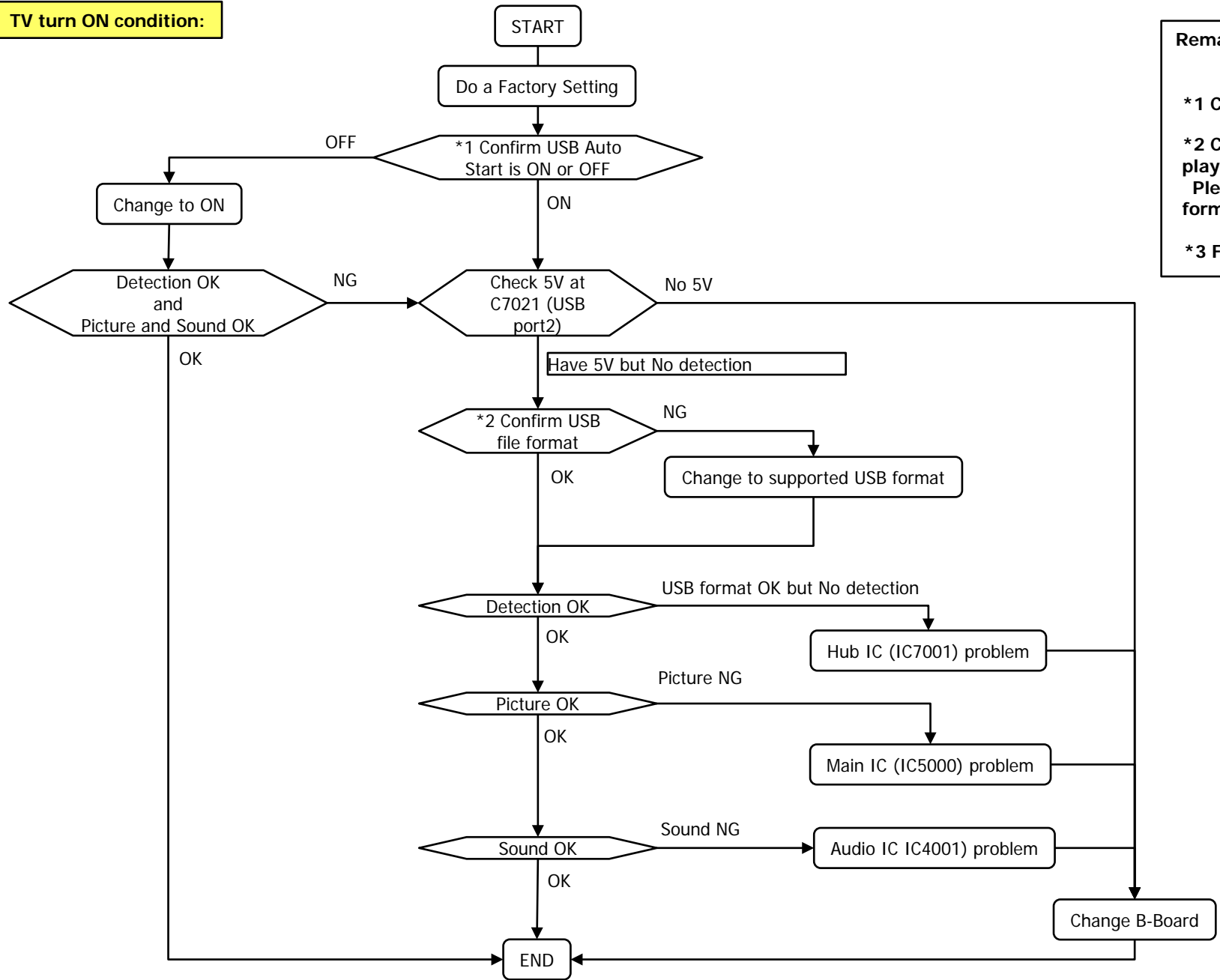


Remarks:

- *1 Confirm USB Auto Start at Set-up Menu.
- *2 Confirm with OSD on bottom panel, if playback not support. Please refer to IM for detail supported USB format.

3-3-8. : USB Port2 – No Detection / Cannot Play / No Picture / No Sound

TV turn ON condition:

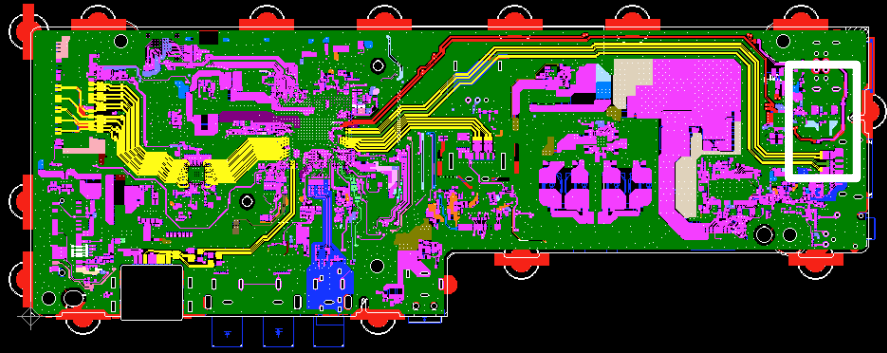
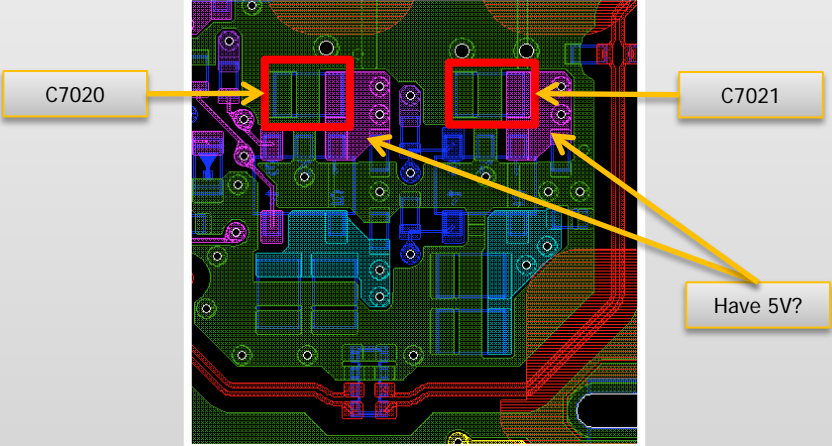
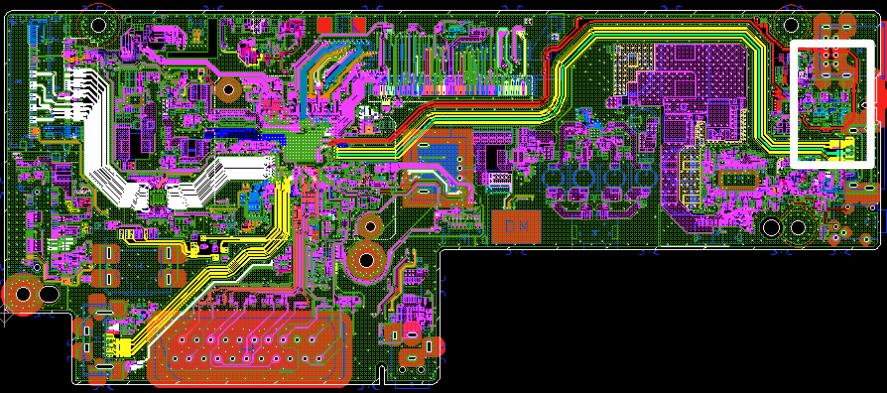
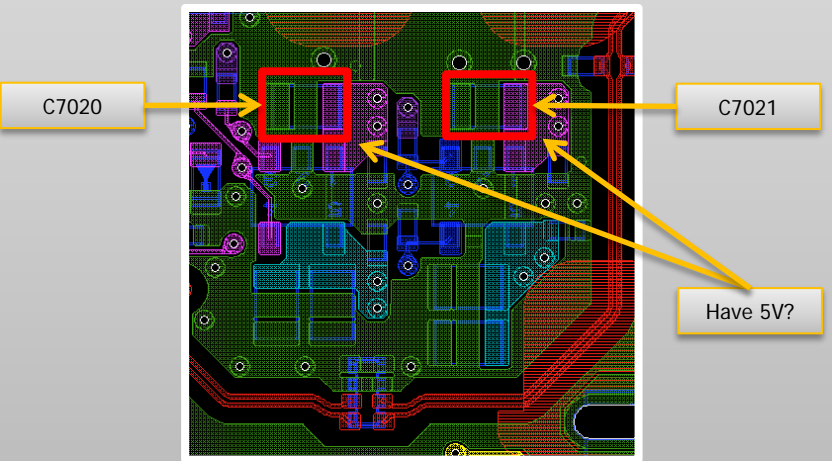


Remarks:

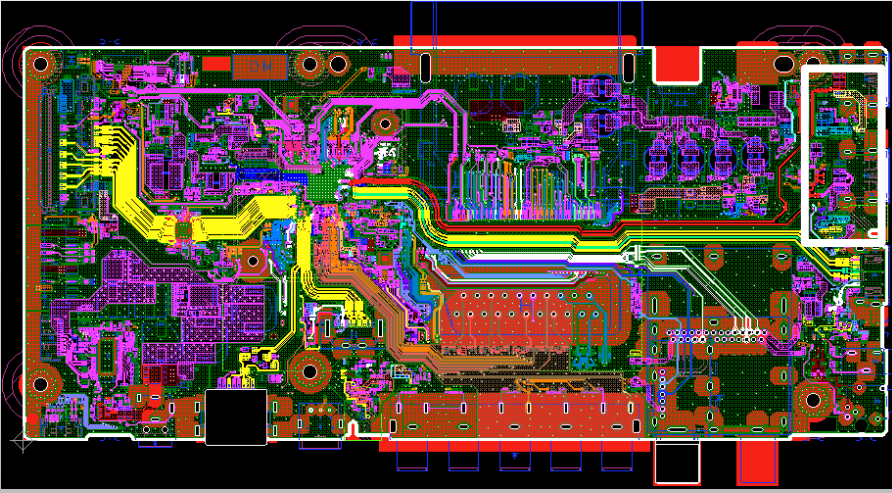
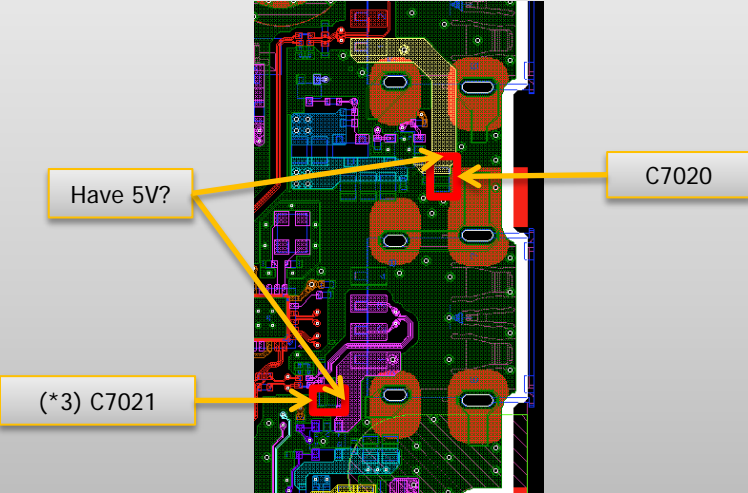
- *1 Confirm USB Auto Start at Set-up Menu.
- *2 Confirm with OSD on bottom panel, if playback not support. Please refer to IM for detail supported USB format.
- *3 For model have USB Port2

SECTION 3 TROUBLESHOOTING

USB (B-board Checking) – Checking 5V Points [1/2]

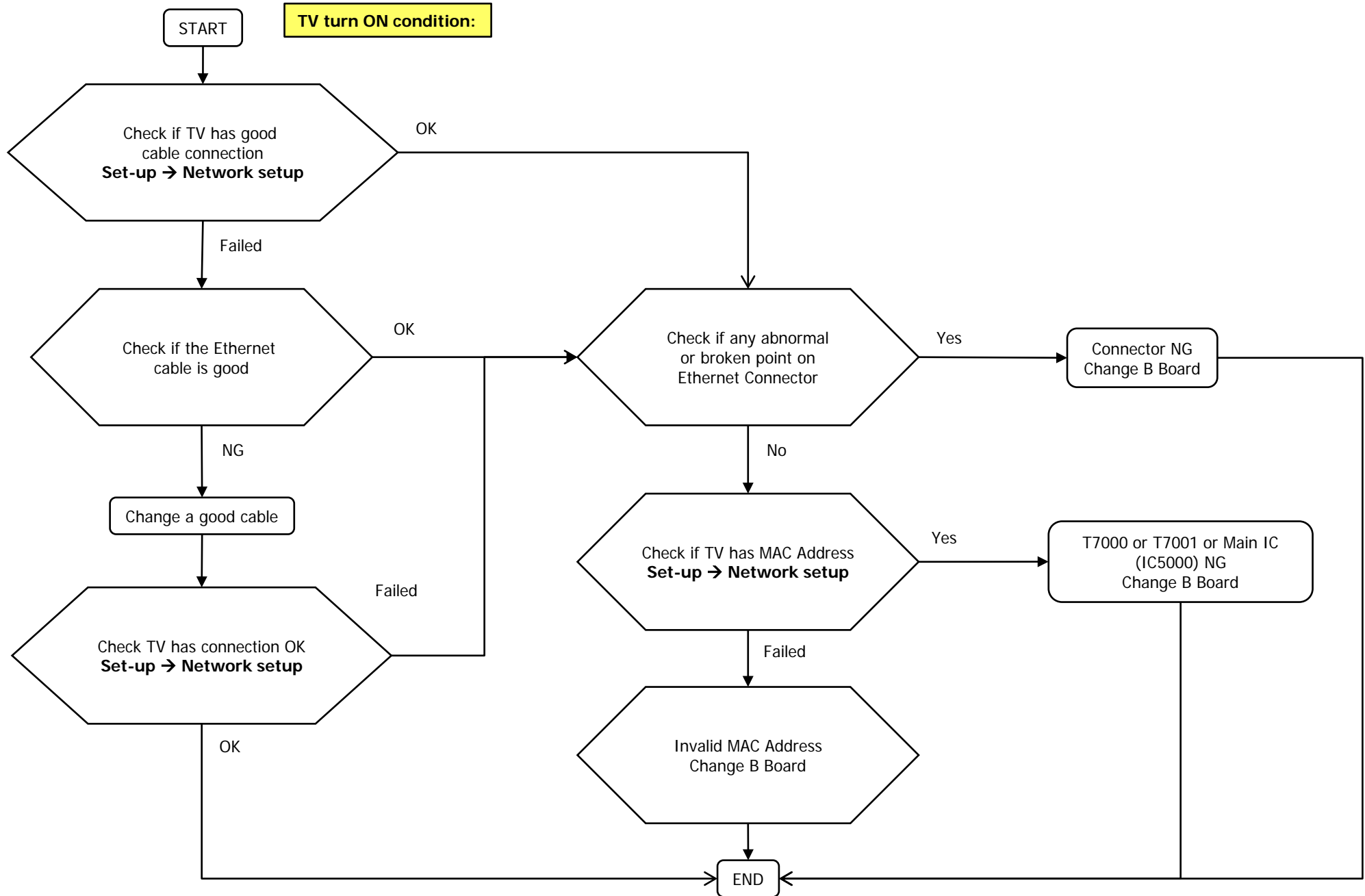
Board Name	Board PWB (A side)	Detail
BBA (QW; QT)		
BBE (QW; QW-L; QT)		

USB (B-board Checking) – Checking 5V Points [2/2]

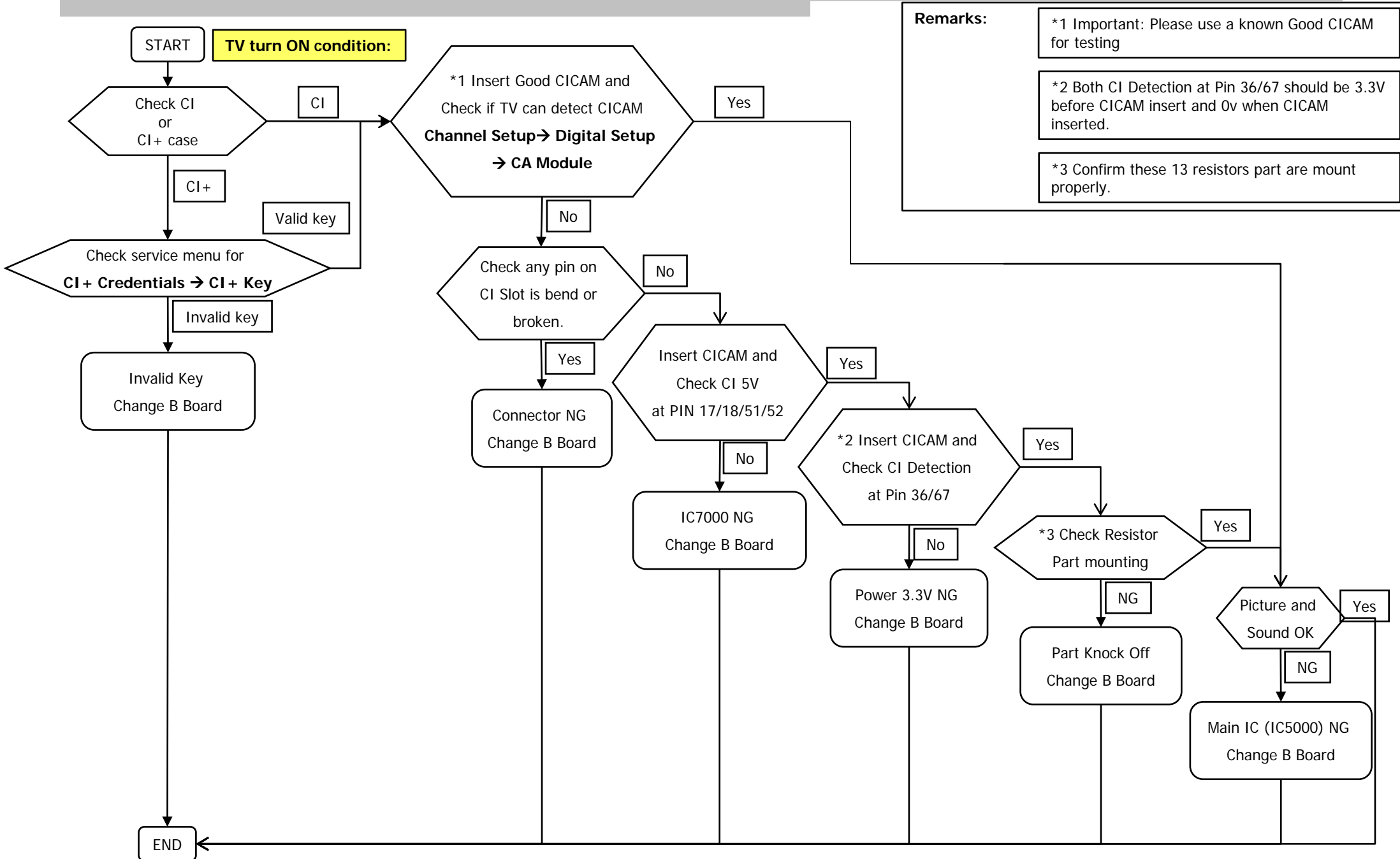
Board Name	Board PWB (A side)	Detail
BB3 (SE3; SE3N)		

Remark:
(*3) For model have USB Port2

3-3-9 : Ethernet – No Connect



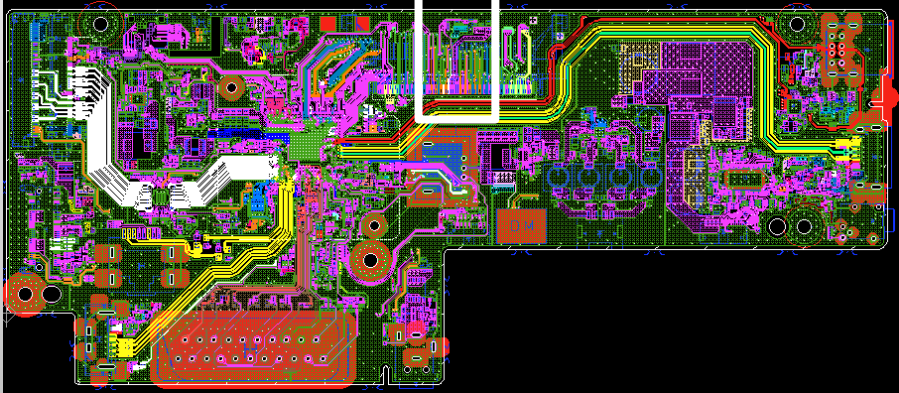
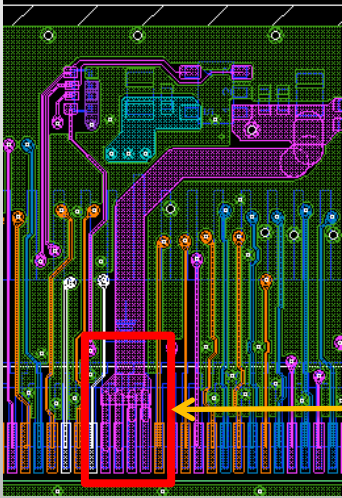
3-3-10 : CI Slot – No Detection / No Picture / No Sound



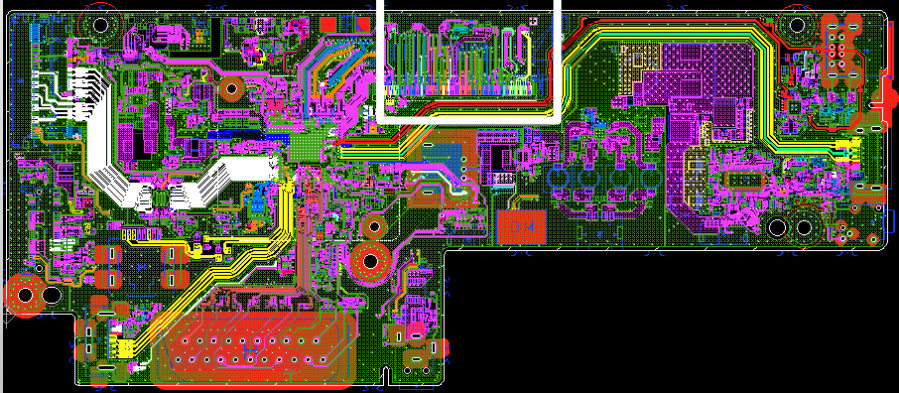
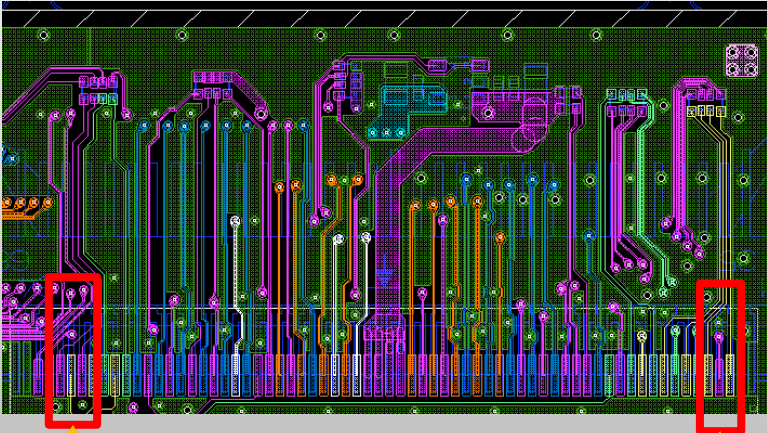
Remarks:

- *1 Important: Please use a known Good CICAM for testing
- *2 Both CI Detection at Pin 36/67 should be 3.3V before CICAM insert and 0v when CICAM inserted.
- *3 Confirm these 13 resistors part are mount properly.

CI Slot (B-board Checking) – Checking 5V Points [1/3]

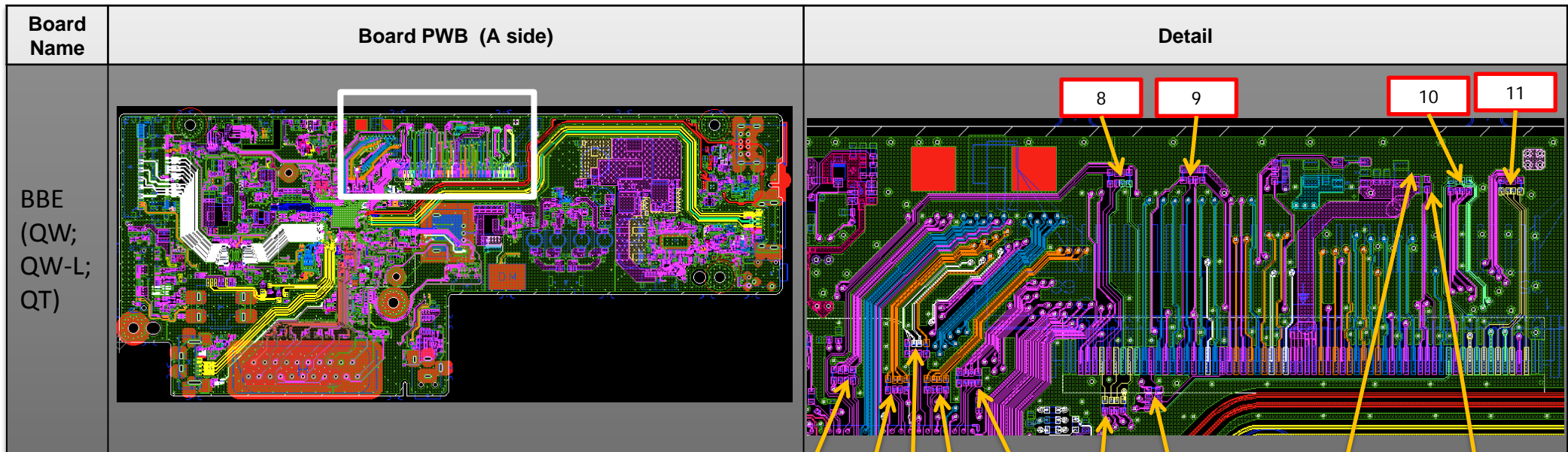
Board Name	Board PWB (A side)	Detail
BBE (QW; QW-L; QT)		 <p data-bbox="1883 687 2141 794">CI 5V at PIN 17/18/51/52</p>

CI slot (B-board Checking) – Checking CI Detection Pin Points [2/3]

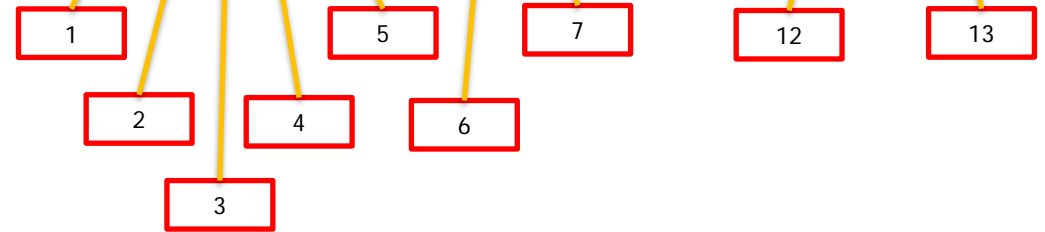
Board Name	Board PWB (A side)	Detail
BBE (QW; QW-L; QT)		 <p data-bbox="1211 863 1585 970">Card Detect 2 – PIN 67</p> <p data-bbox="1812 863 2186 970">Card Detect 1 – PIN 36</p>

Remark:
Both CI Detection Pin should be 3.3V before CICAM insert and 0v when CICAM inserted.

CI slot (B-board Checking) – Checking Resistor Part Mounting Points [3/3]



Ref. No.	Location	Ref. No.	Location
RB7003	1	RB7010	8
RB7002	2	RB7011	9
RB7000	3	RB7008	10
RB7001	4	RB7006	11
RB7004	5	R7000	12
RB7007	6	R7001	13
RB7009	7		



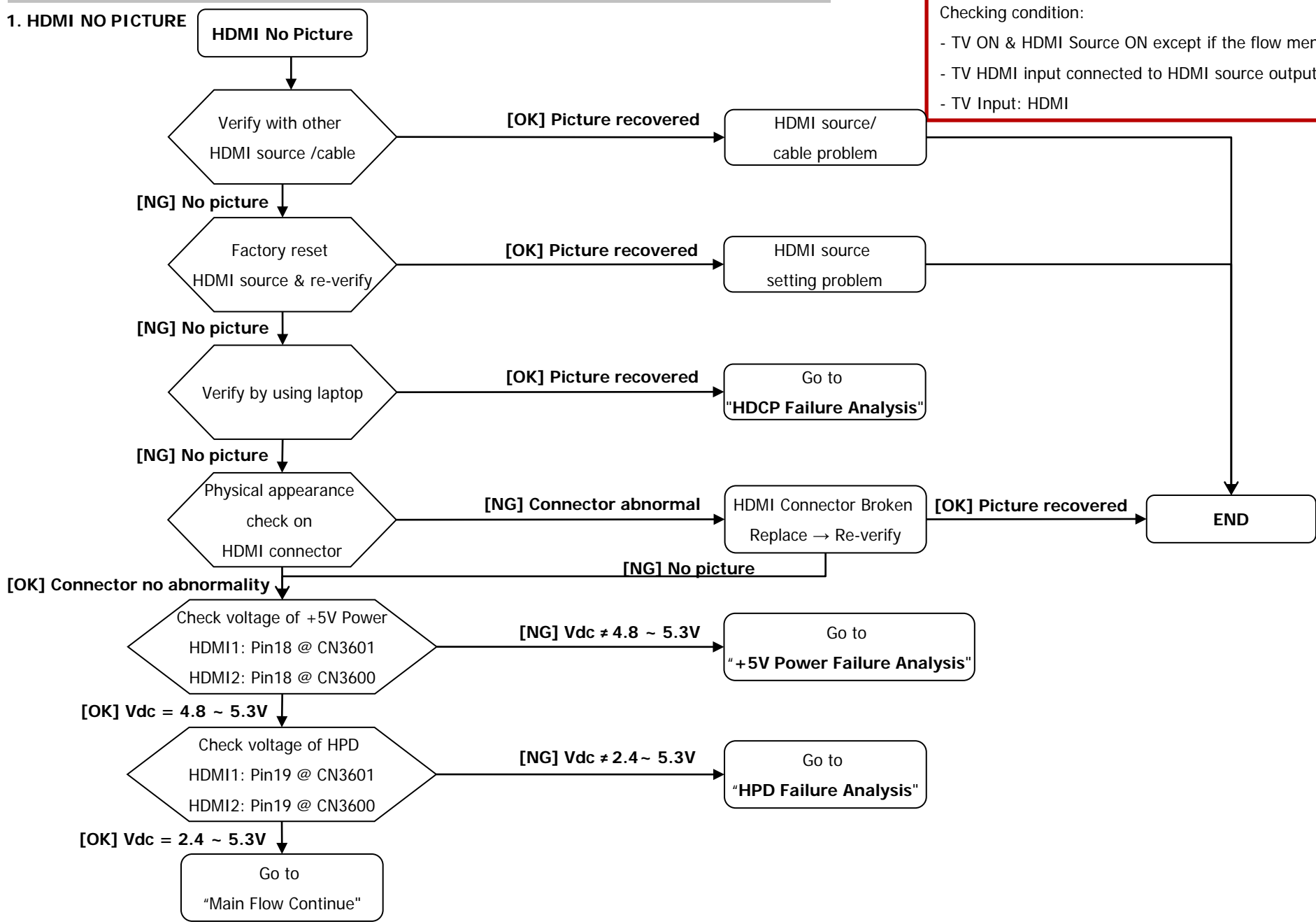
Remark:
 Confirm these 13 resistors part are mount properly or not.

3-3-11. HDMI No Picture (a)

1. HDMI NO PICTURE

Checking condition:

- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source output
- TV Input: HDMI

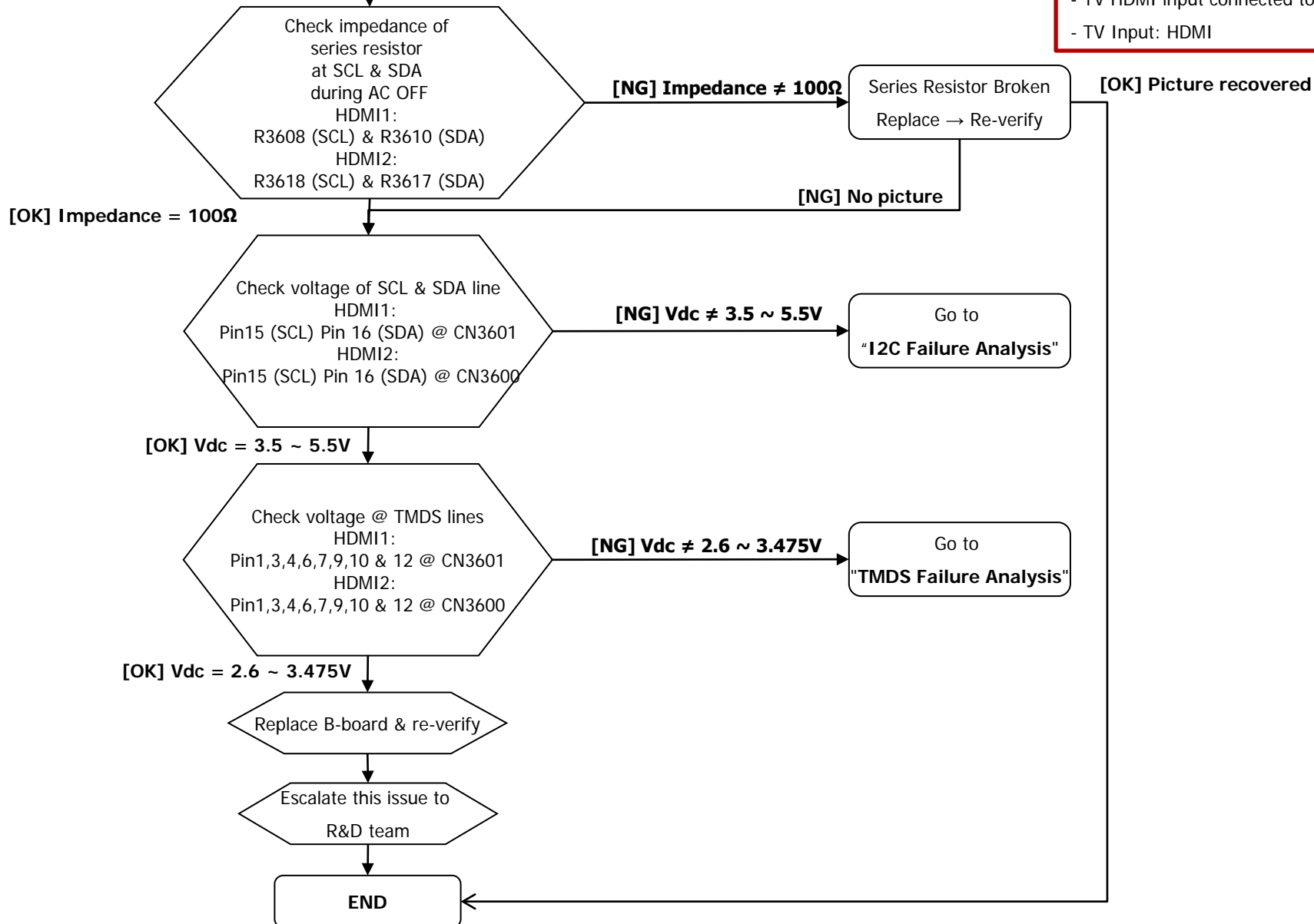


3-3-11. HDMI No Picture – Continue (b)

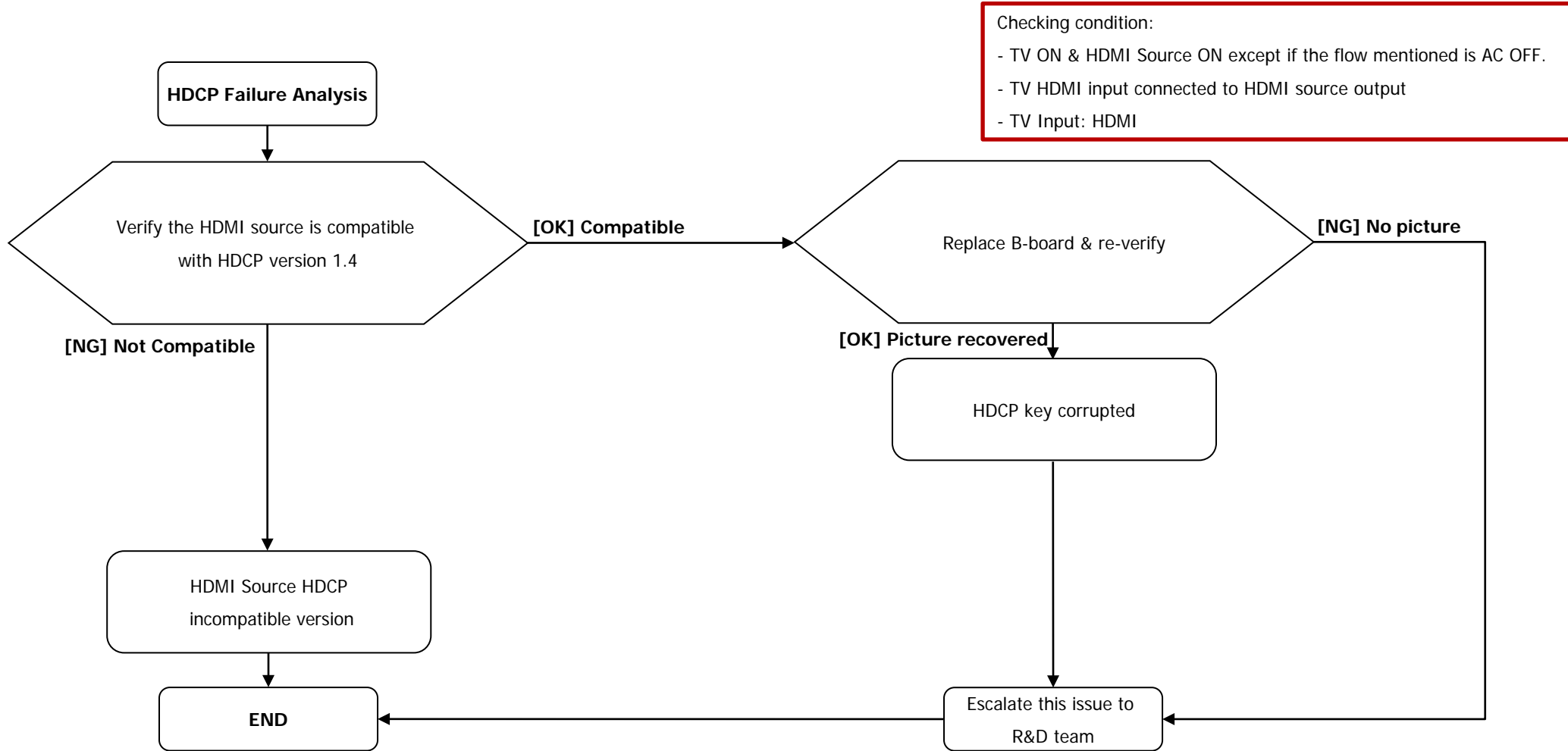
1. HDMI NO PICTURE

Main Flow Continue

Checking condition:
 - TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
 - TV HDMI input connected to HDMI source output
 - TV Input: HDMI

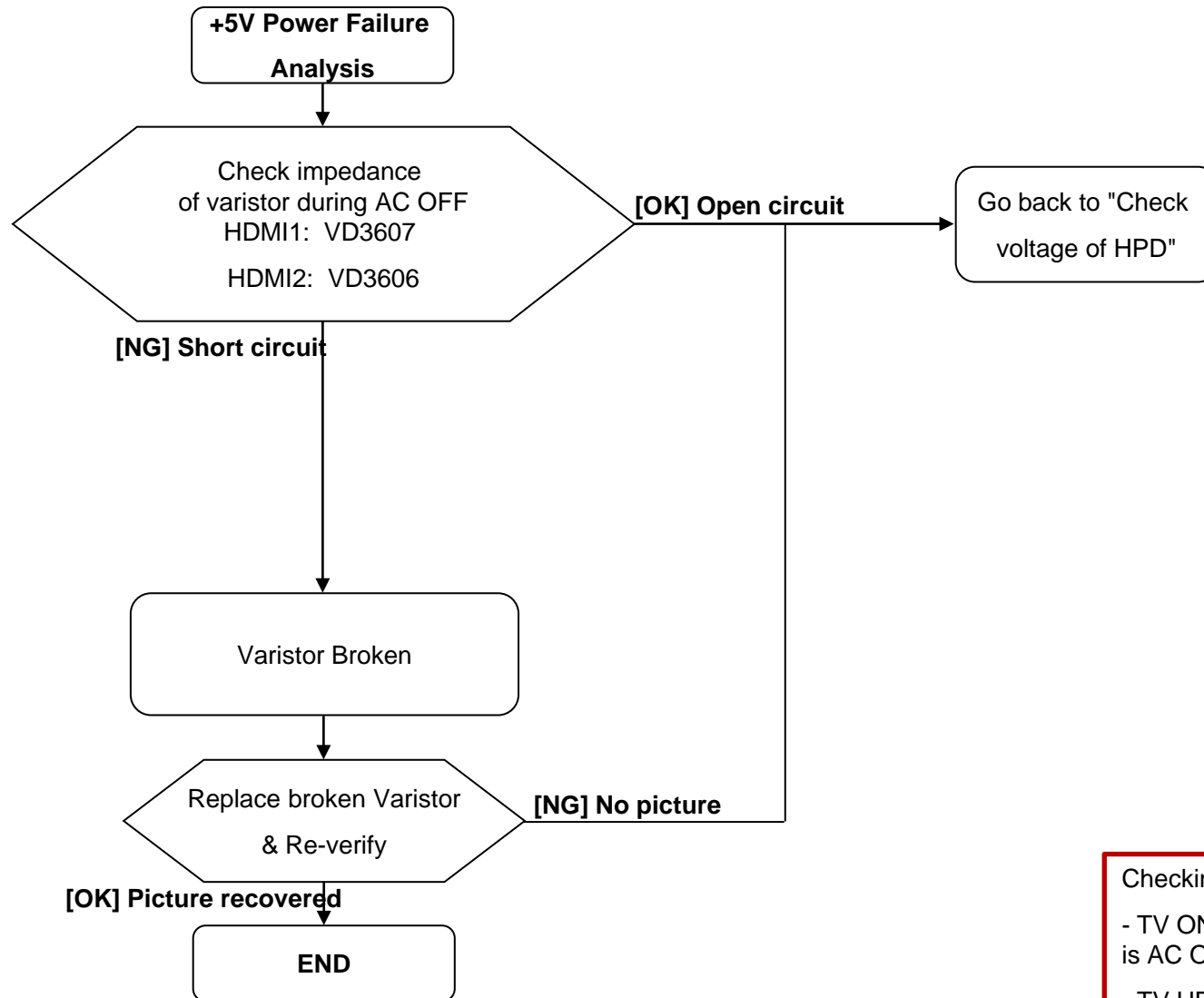


3-3-12. : HDMI No Picture – HDCP Failure Analysis



3-3-13. HDMI No Picture – +5V Power Failure Analysis

1. HDMI NO PICTURE

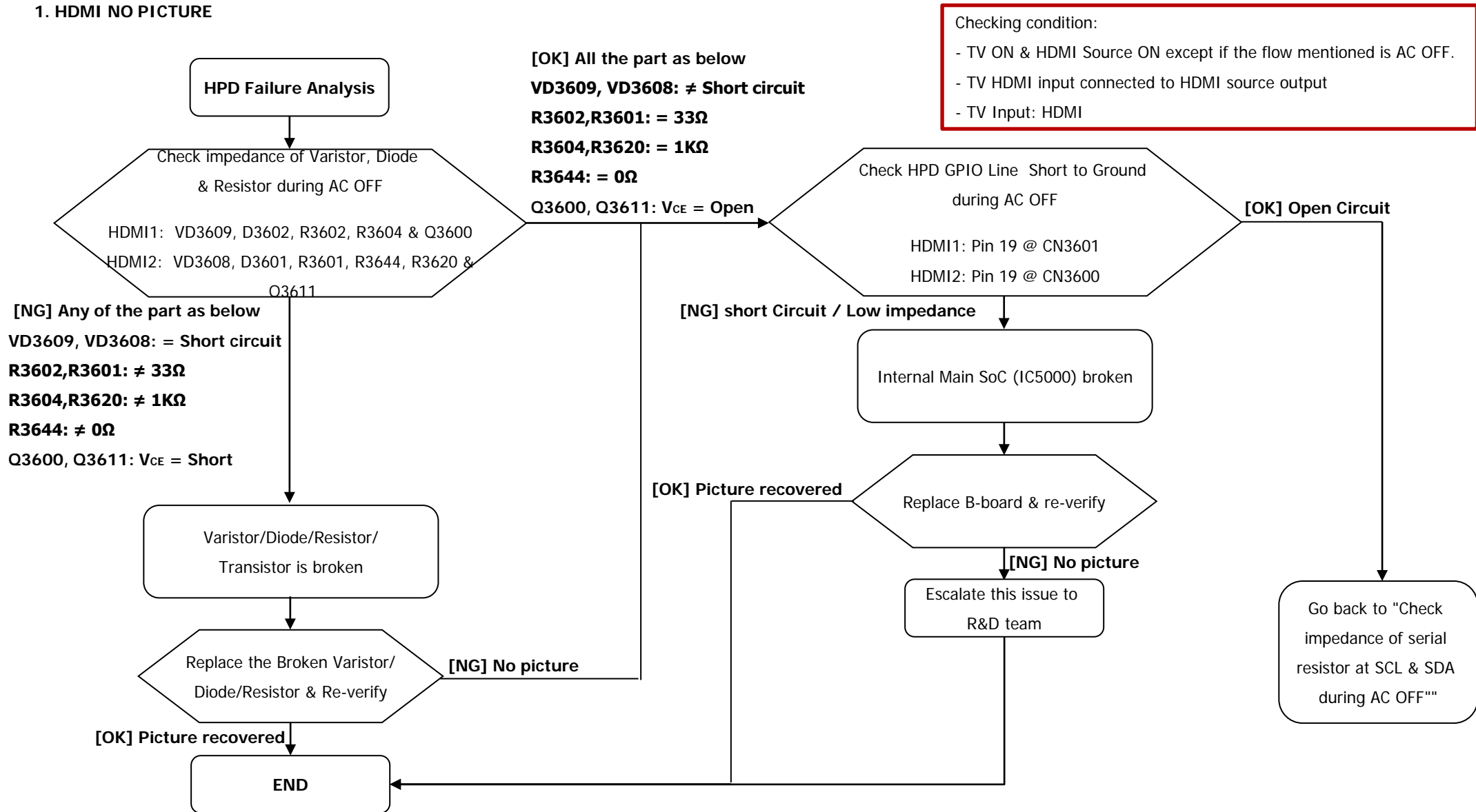


Checking condition:

- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source output
- TV Input: HDMI

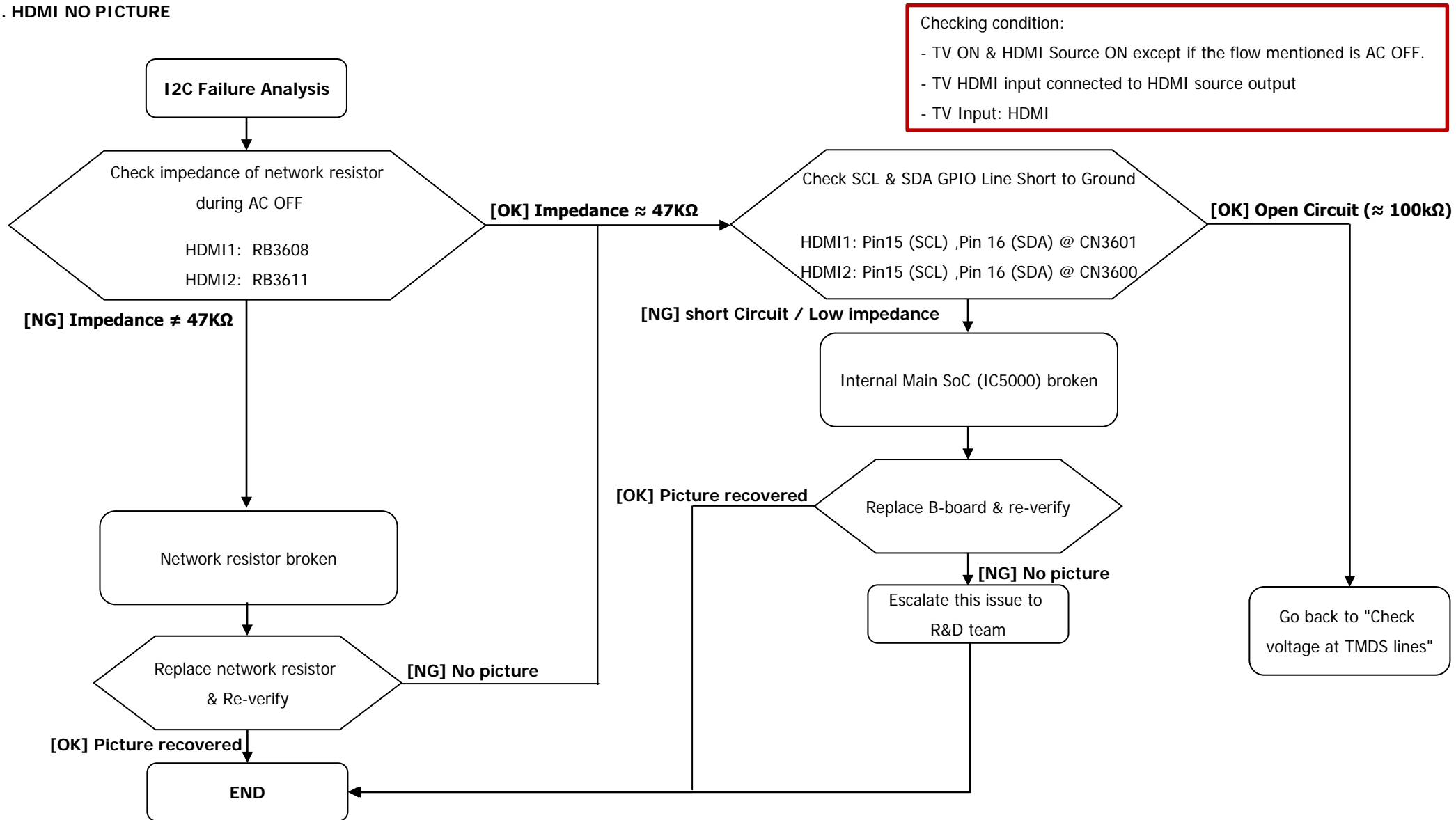
3-3-14 : HDMI No Picture – HPD Failure Analysis

1. HDMI NO PICTURE



3-3-15 : HDMI No Picture – I2C Failure Analysis

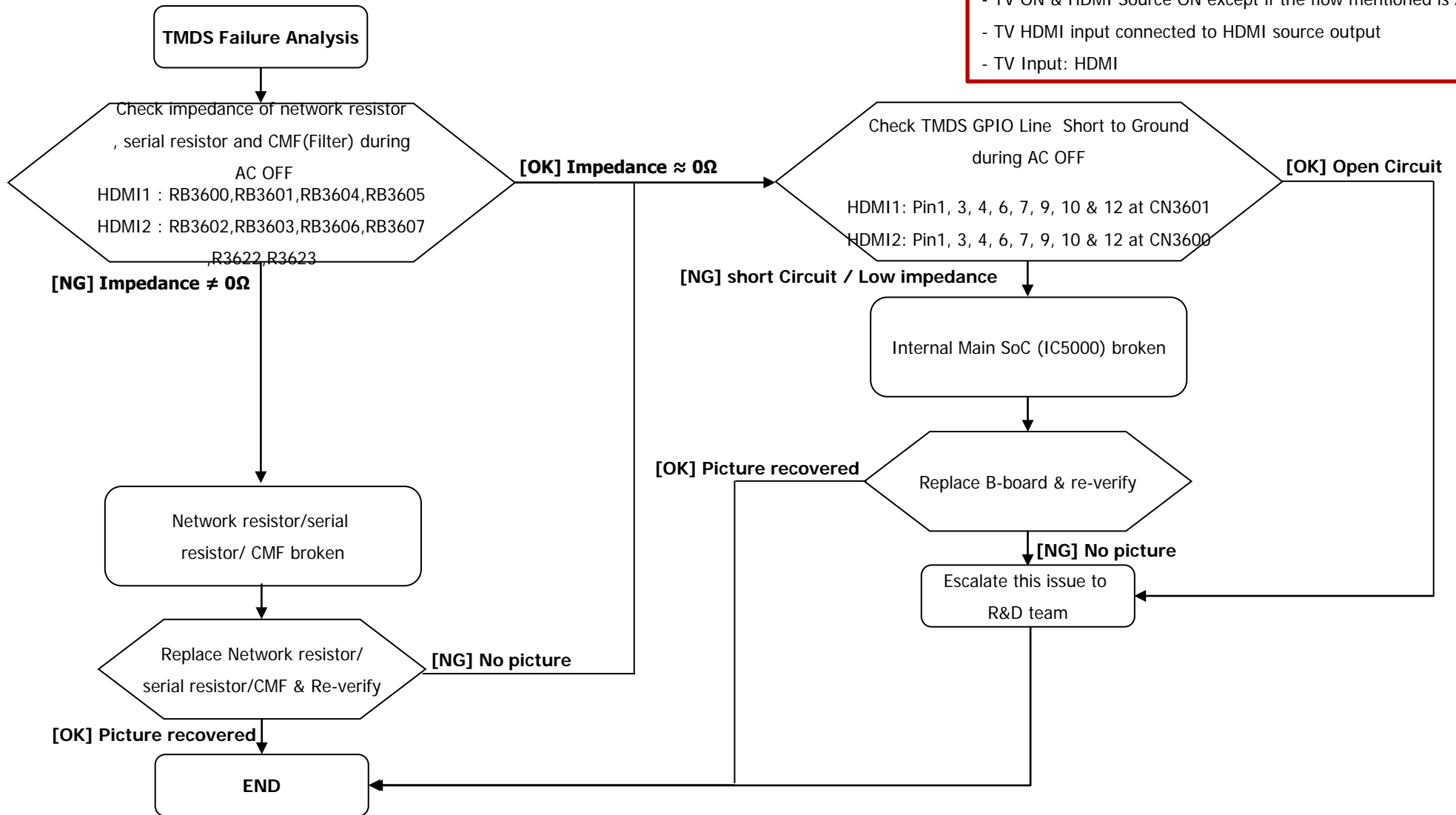
1. HDMI NO PICTURE



3-3-16 : HDMI No Picture – TMD5 Failure Analysis

1. HDMI NO PICTURE

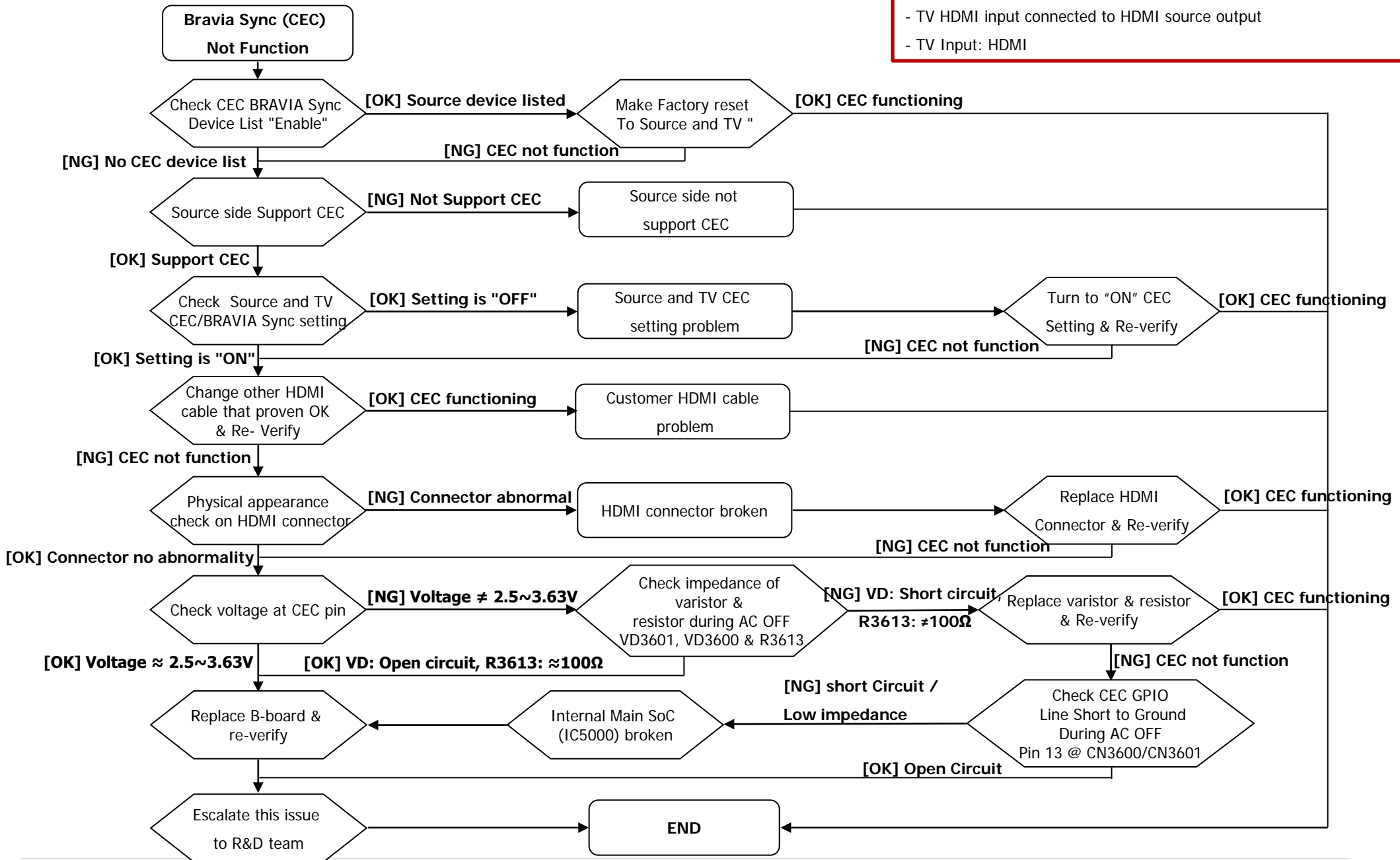
Checking condition:
 - TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
 - TV HDMI input connected to HDMI source output
 - TV Input: HDMI



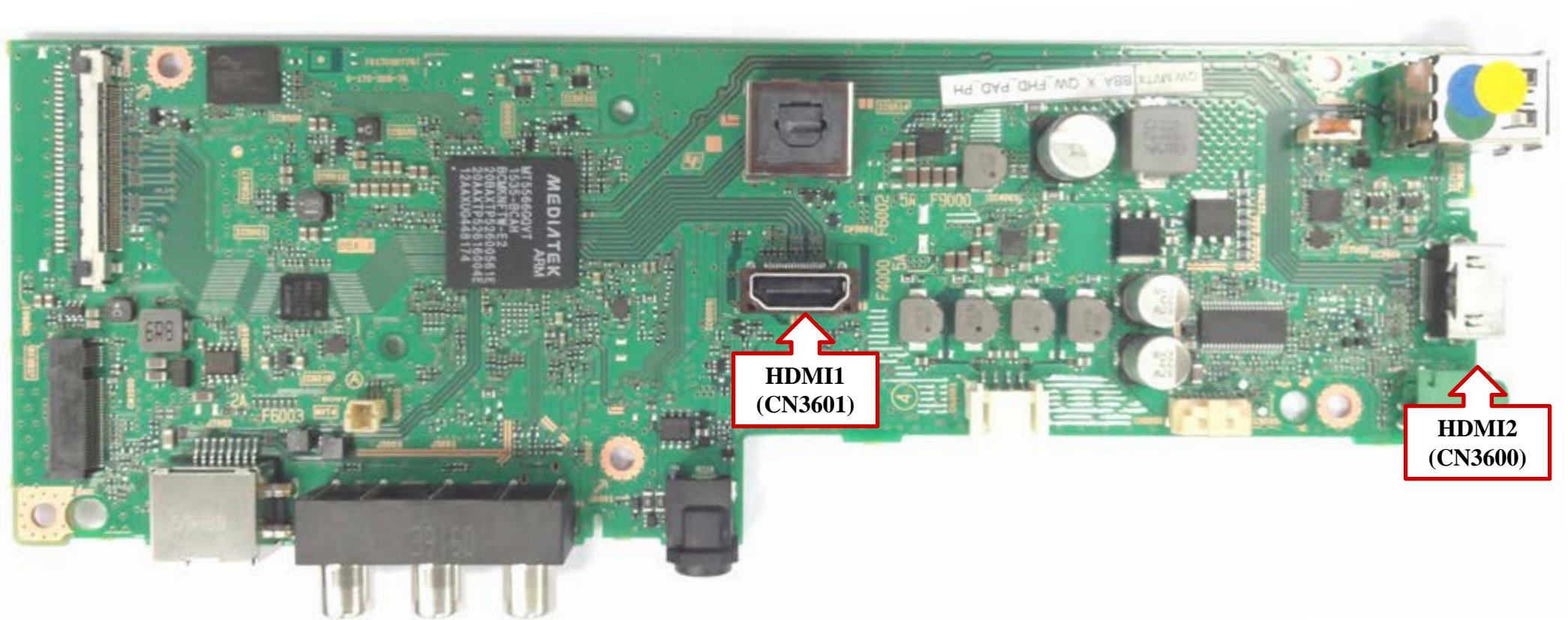
3-3-17 : CEC Not Function- Bravia Sync (CEC) not function- HDMI

Checking condition:

- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source output
- TV Input: HDMI



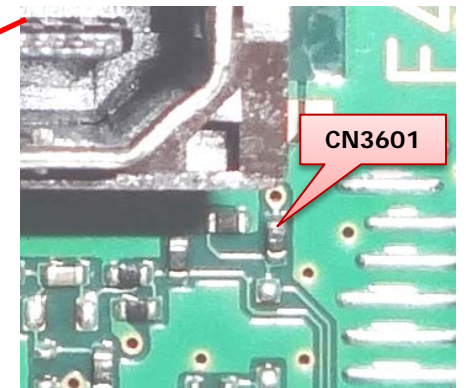
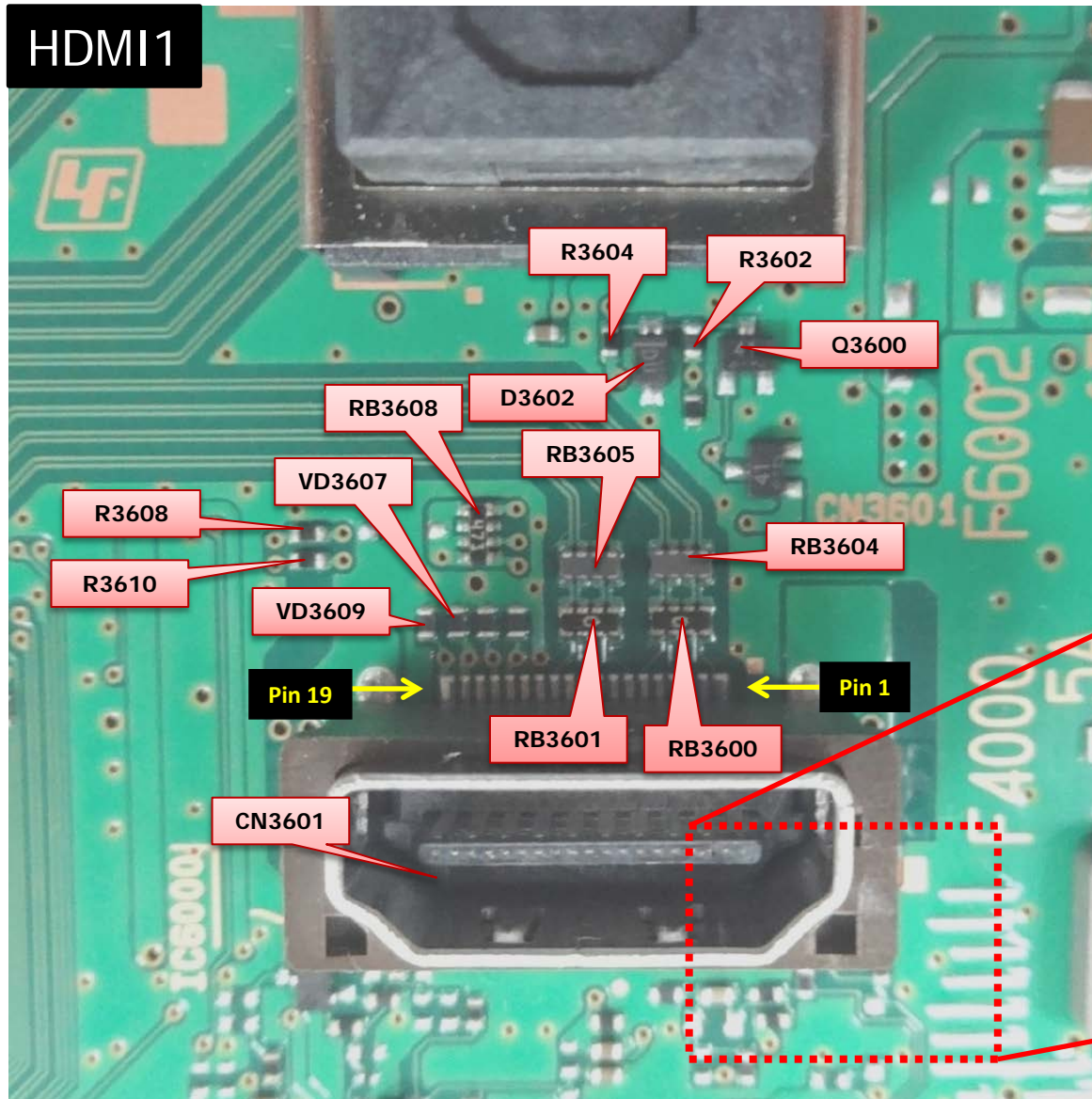
QW – BBA (Side A)



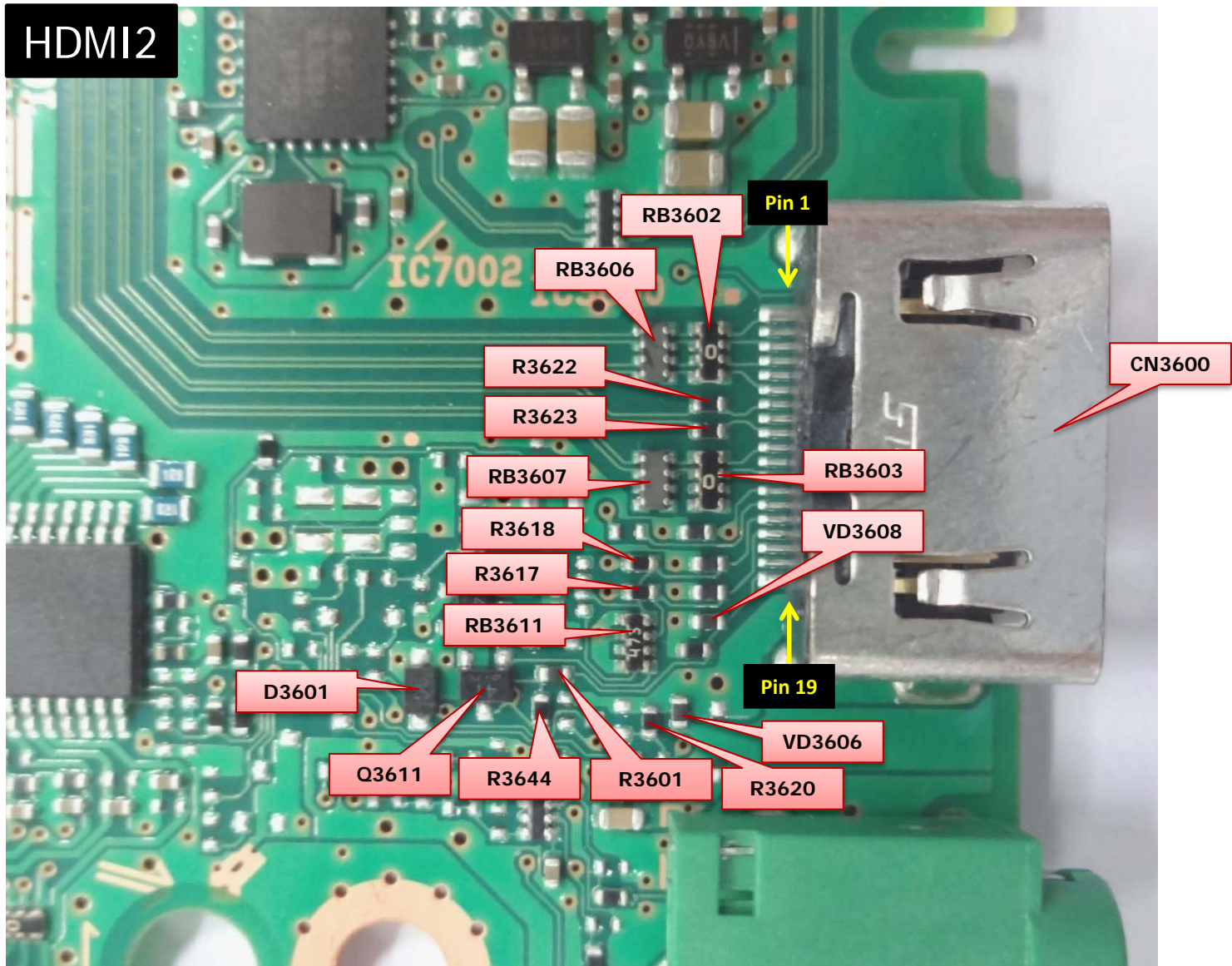
HDMI1
(CN3601)

HDMI2
(CN3600)

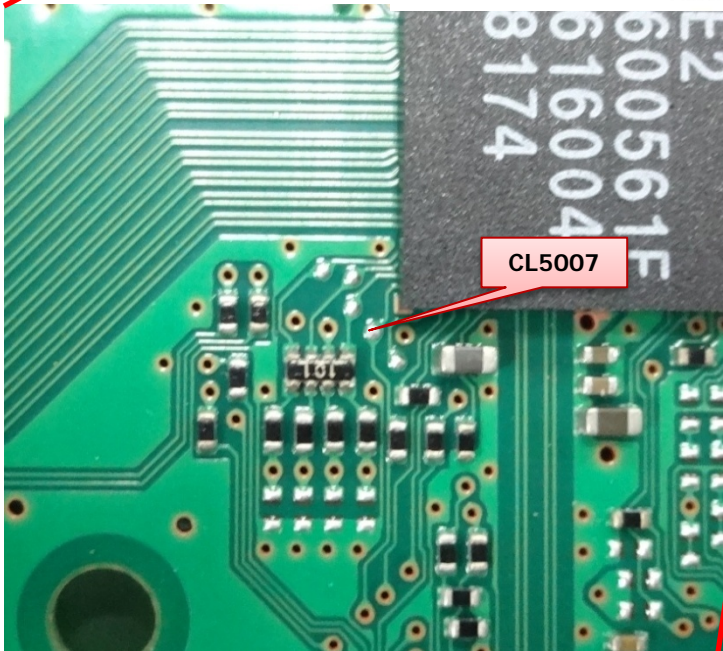
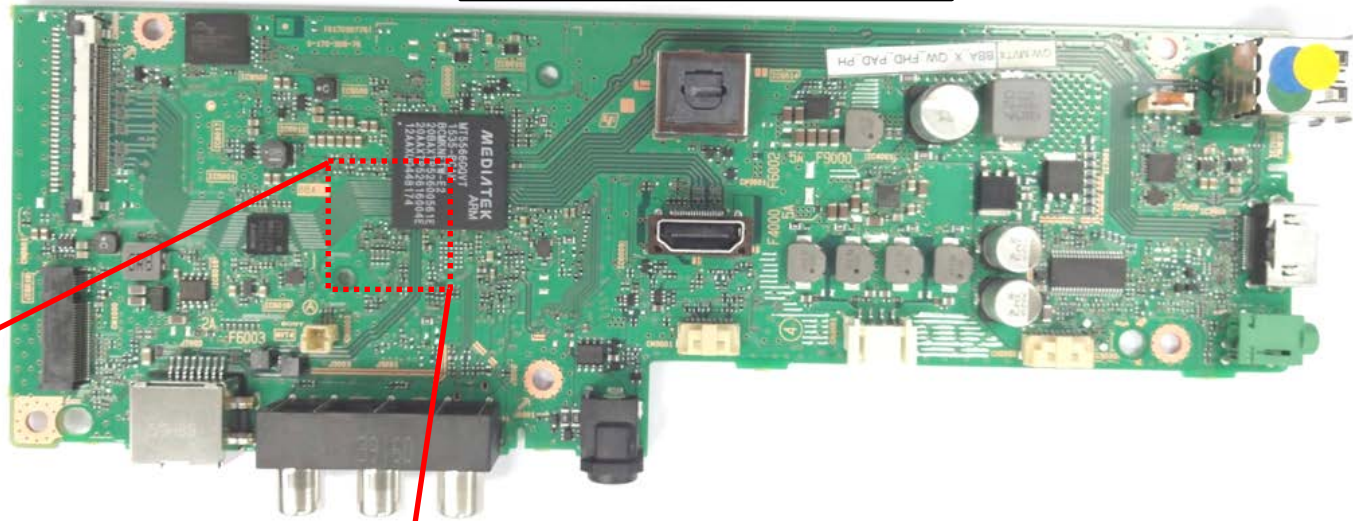
QW – BBA (Side A)



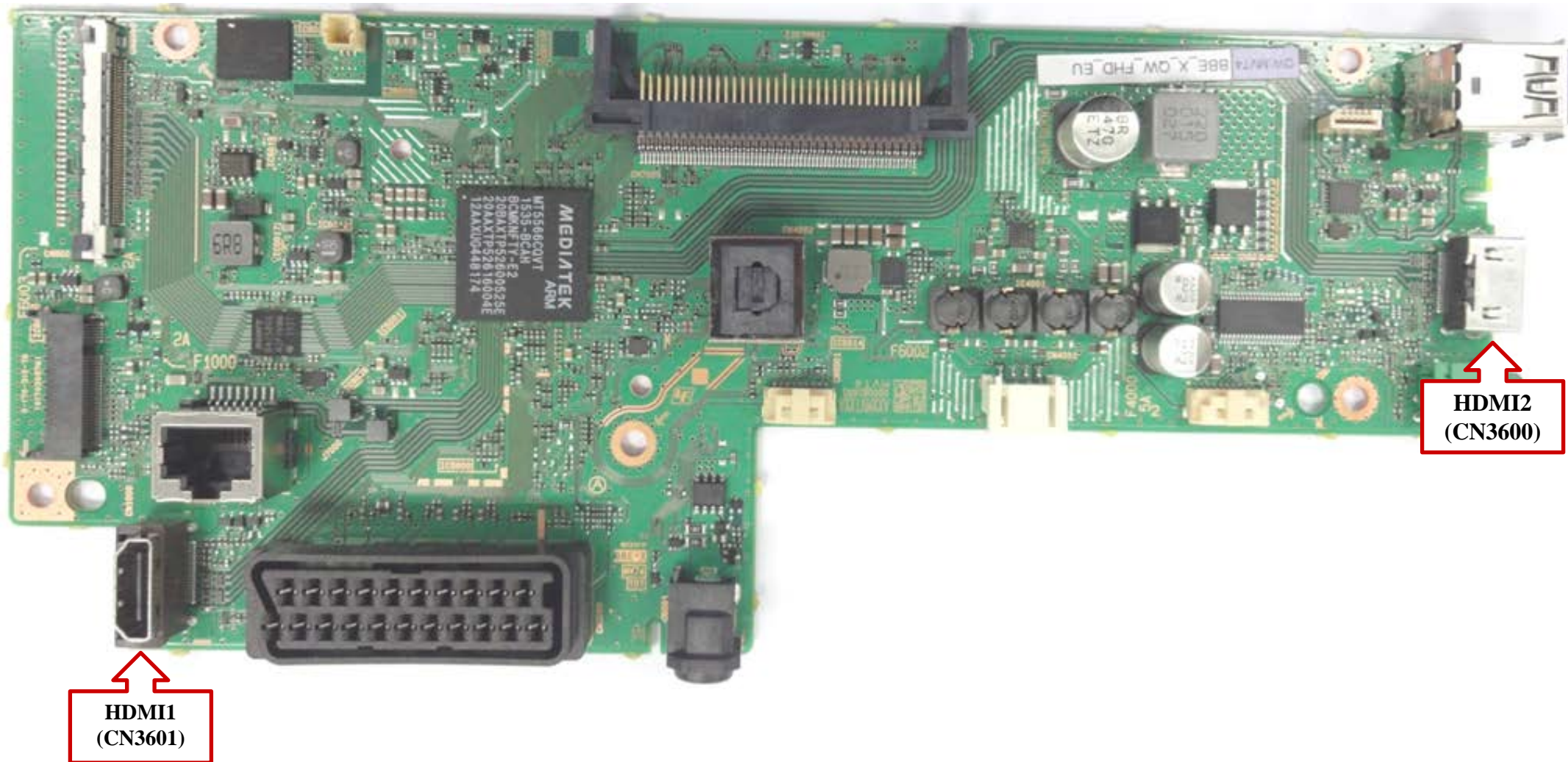
QW – BBA (Side A)



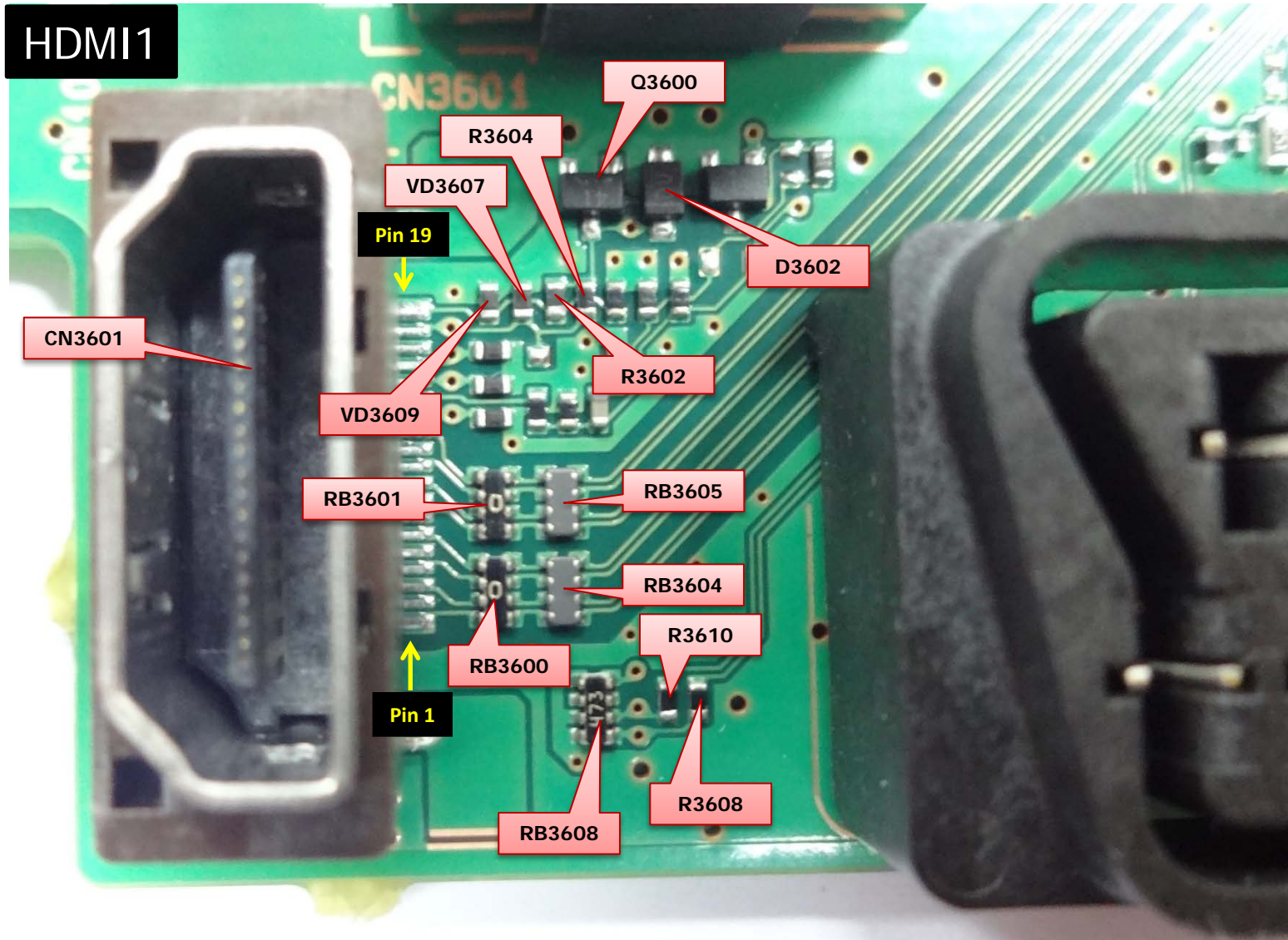
QW – BBA (Side A)



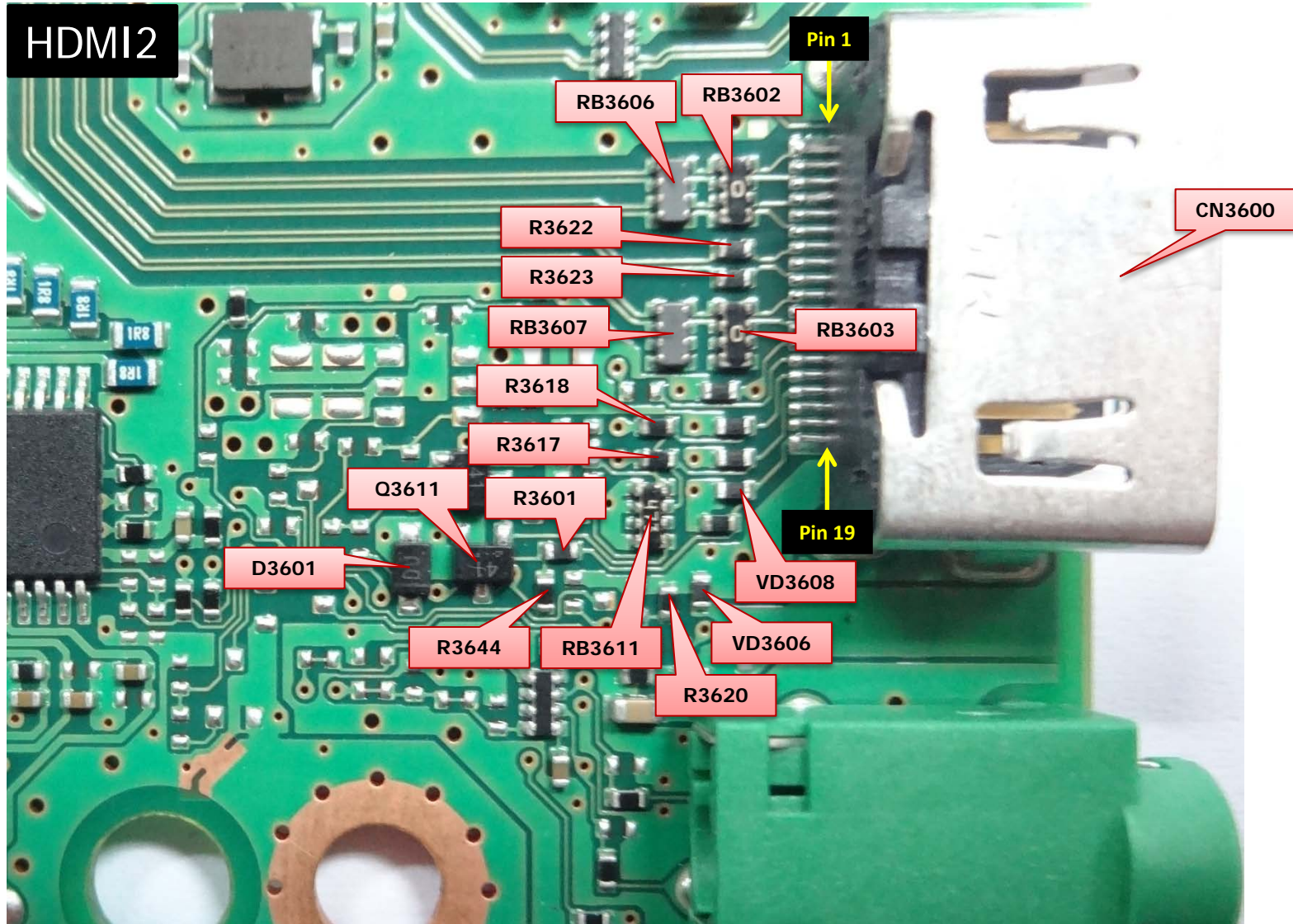
QW – BBE (Side A)



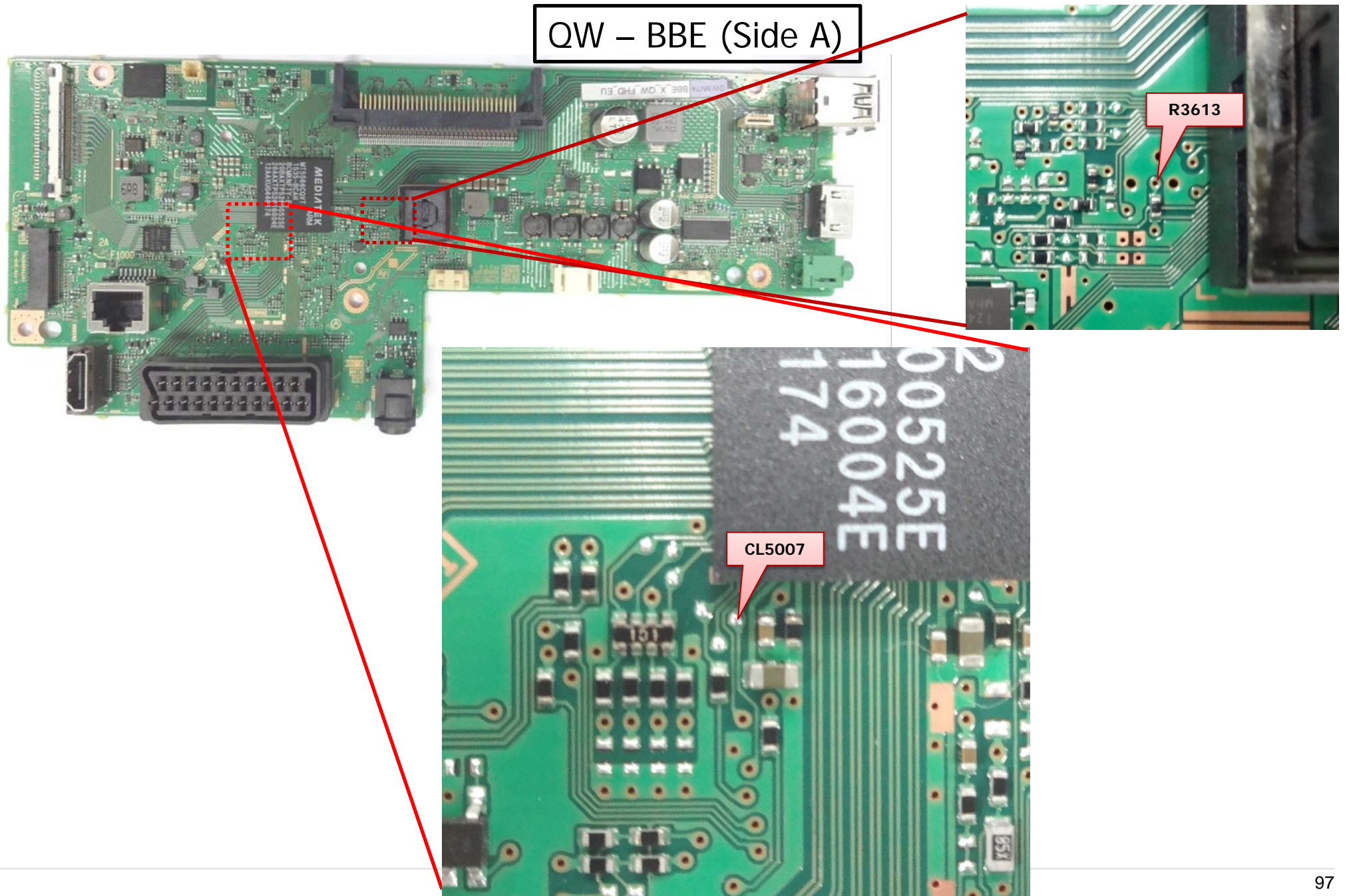
QW – BBE (Side A)



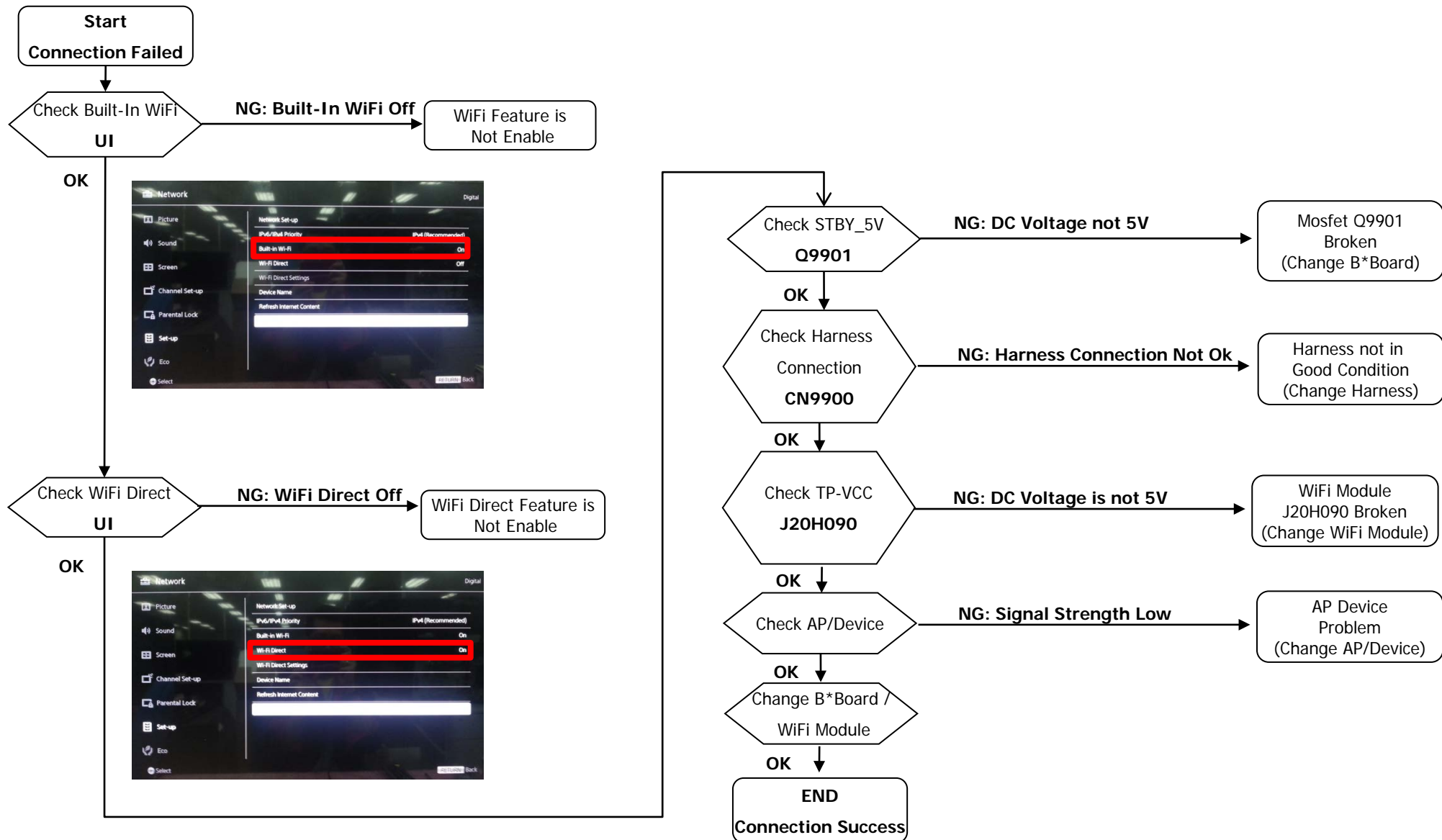
QW – BBE (Side A)



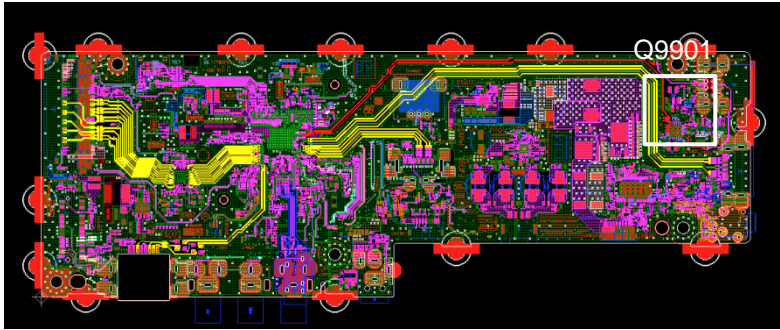
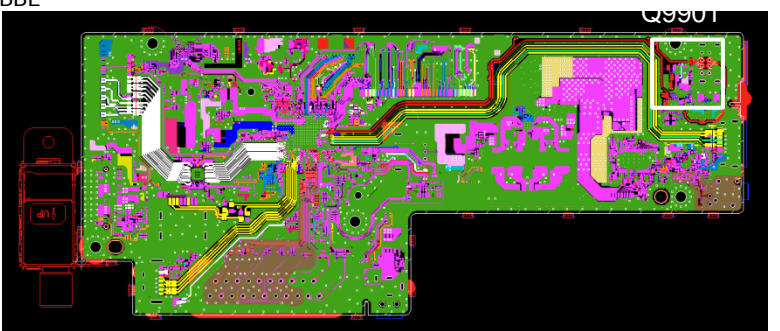
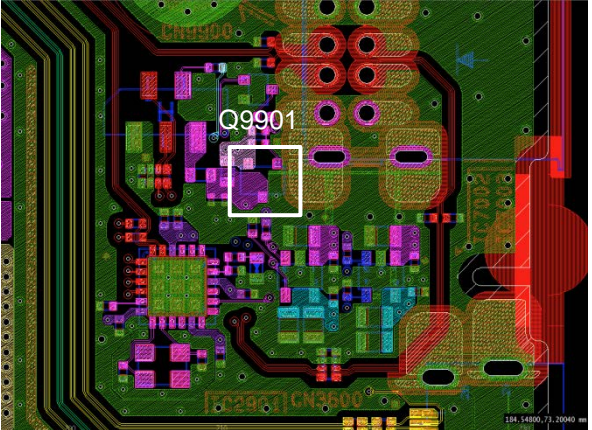
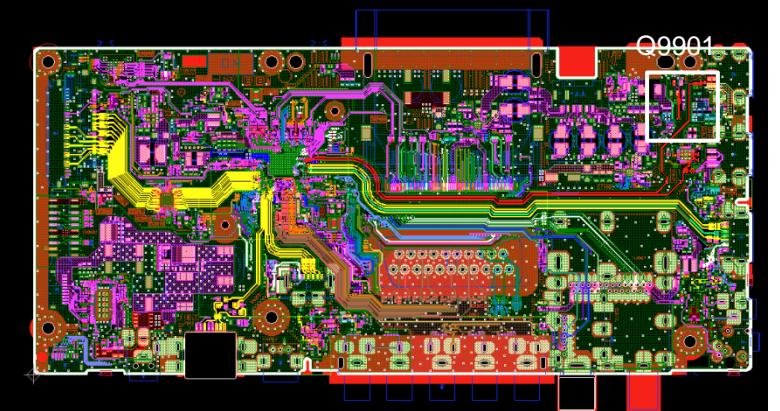
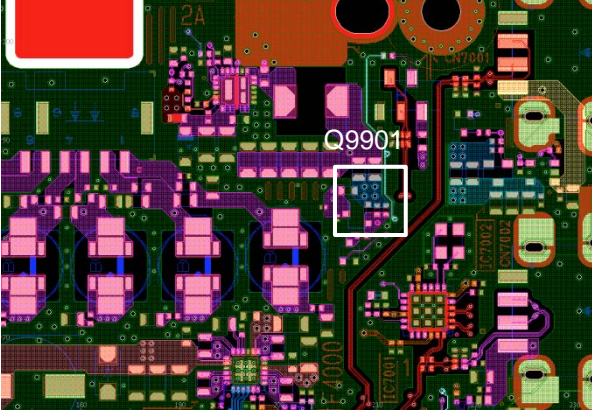
HDMI No Picture- Checking Point[8/8]



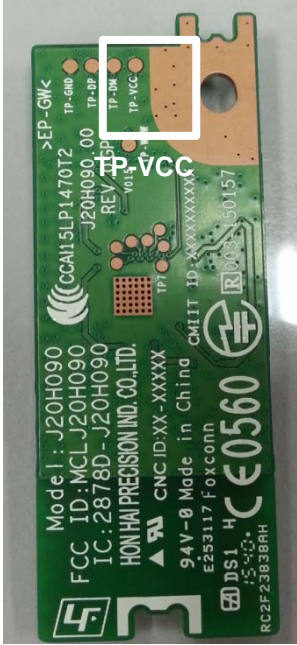
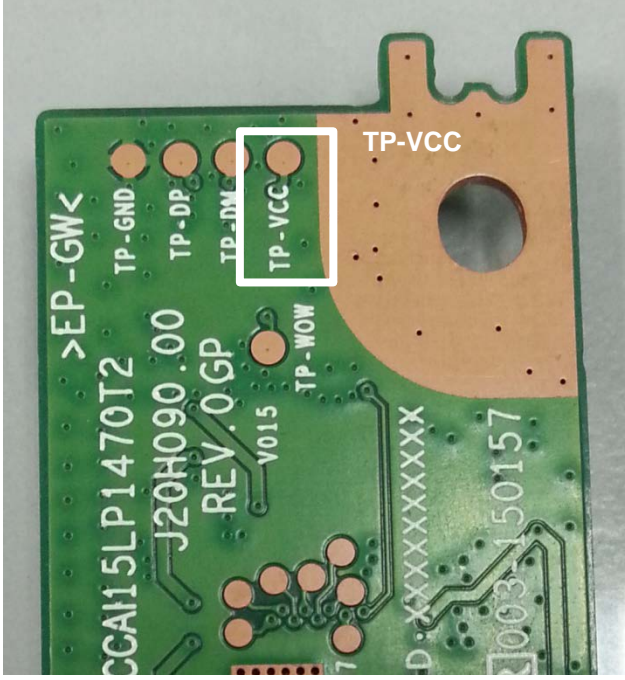
3-3-19. WiFi- Cannot Search Device - Connection Failed



WiFi- Cannot Search Device - Connection Failed – Checking Point [1/2]

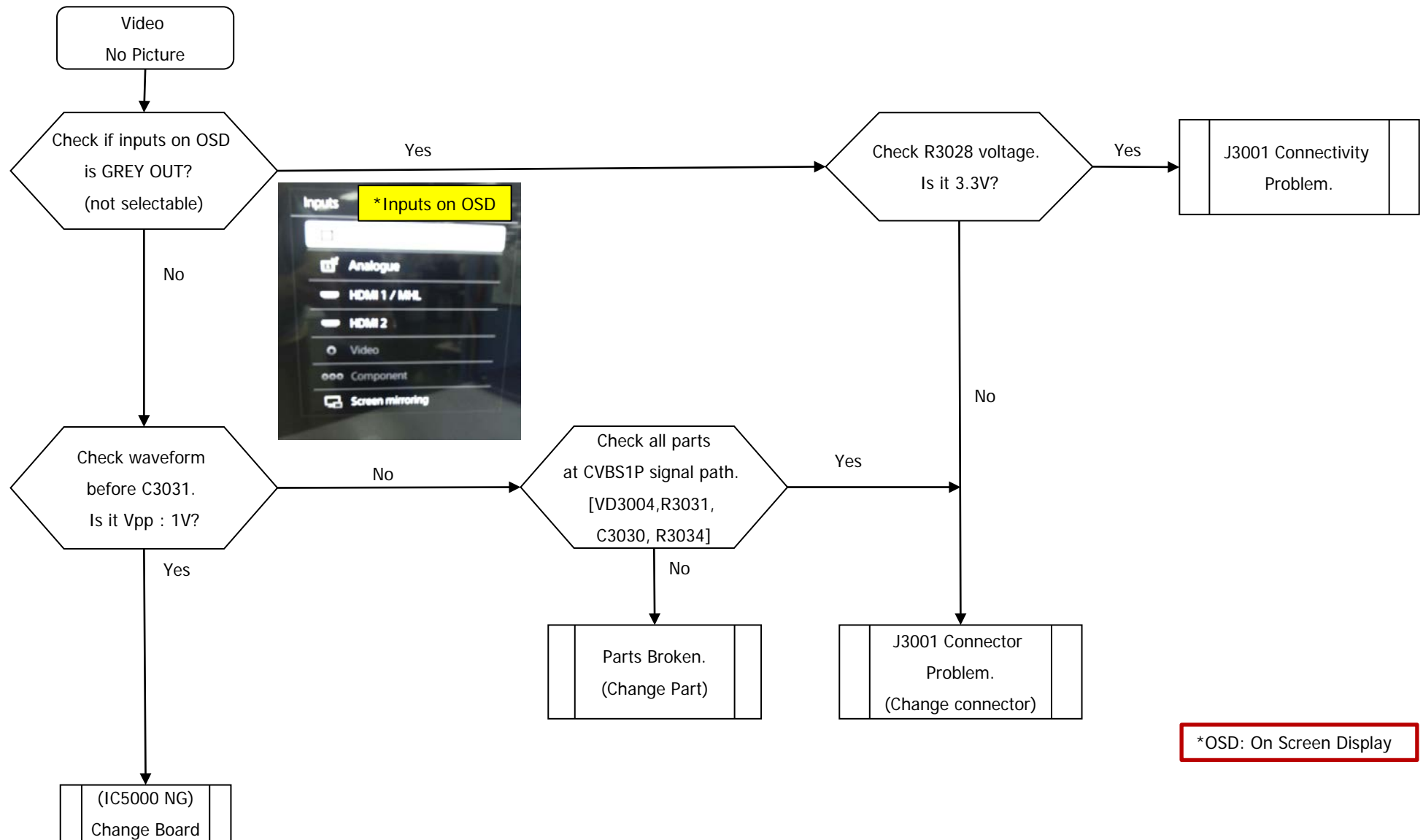
Board Name	Board PWB (A side)	Detail
<p>B*Board (BBA,BBE) Q9901</p>	<p>BBA</p>  <p>BBE</p> 	
<p>B*Board (BB3) Q9901</p>		

WiFi- Cannot Search Device - Connection Failed – Checking Point [2/2]

Board Name	Board PWB (B side)	Detail
<p>WiFi Module J20H090</p>	 <p>Model: J20H090 FCC ID: MCL J20H090 IC: 2878D-J20H090 HONHAI PRECISION IND. CO., LTD. CNC ID: XX-XXXXX 94V-0 Made in China E253117 Foxconn DS1 H CE0560 RC2F23838AH</p>	 <p>TP-VCC</p>

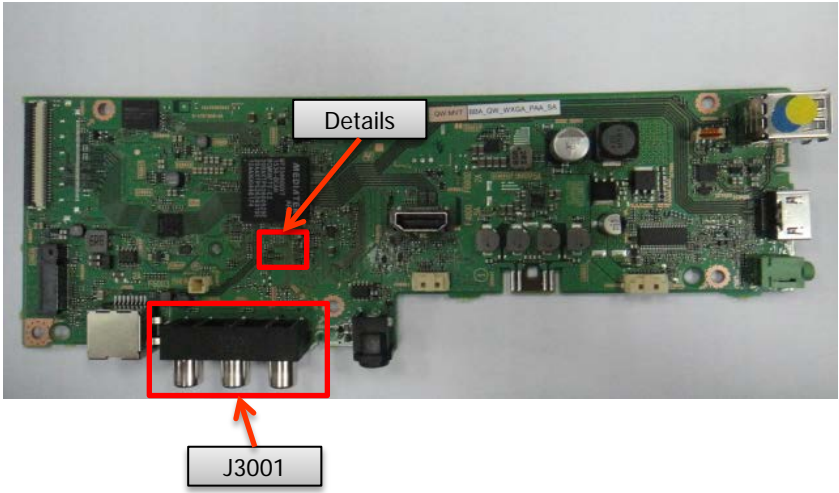
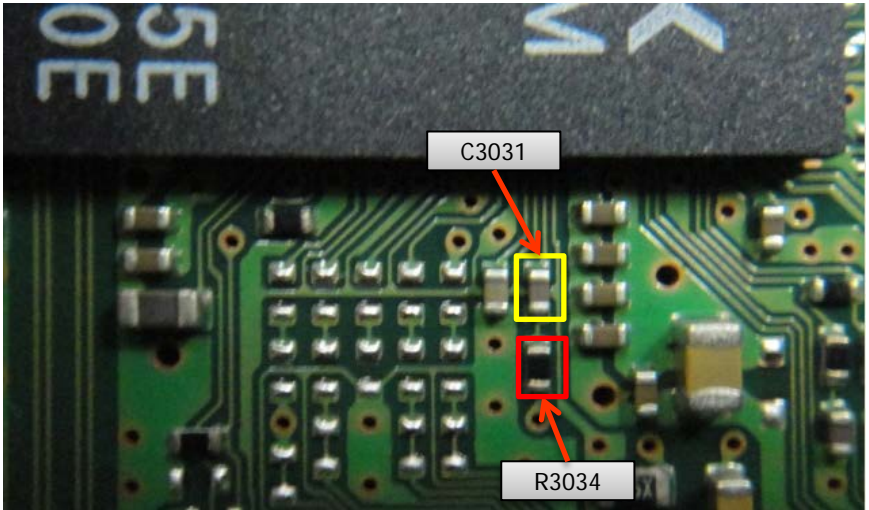
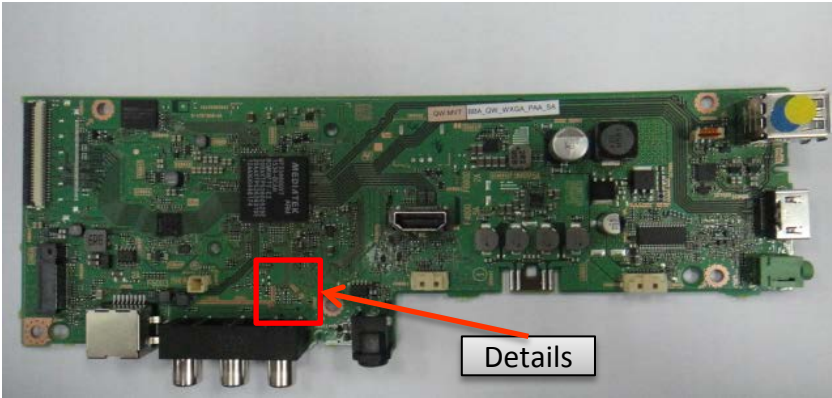
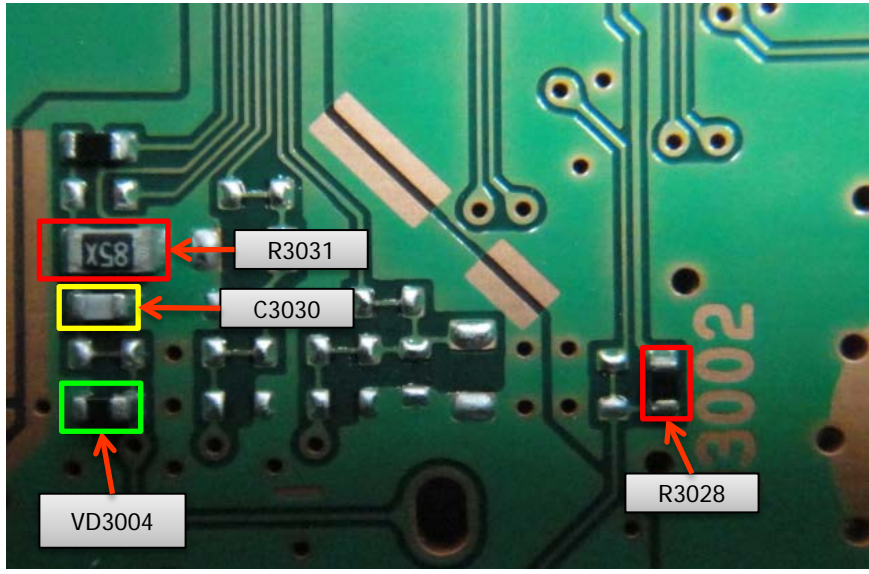
3-3-20: Video Analog Signal Path-No Picture WW Destination (BBA_Others)

Checking condition:
 - TV ON & Video/CVBS/Composite input cable is connected to Video/CVBS/Composite source output.
 - TV UI Display : Video

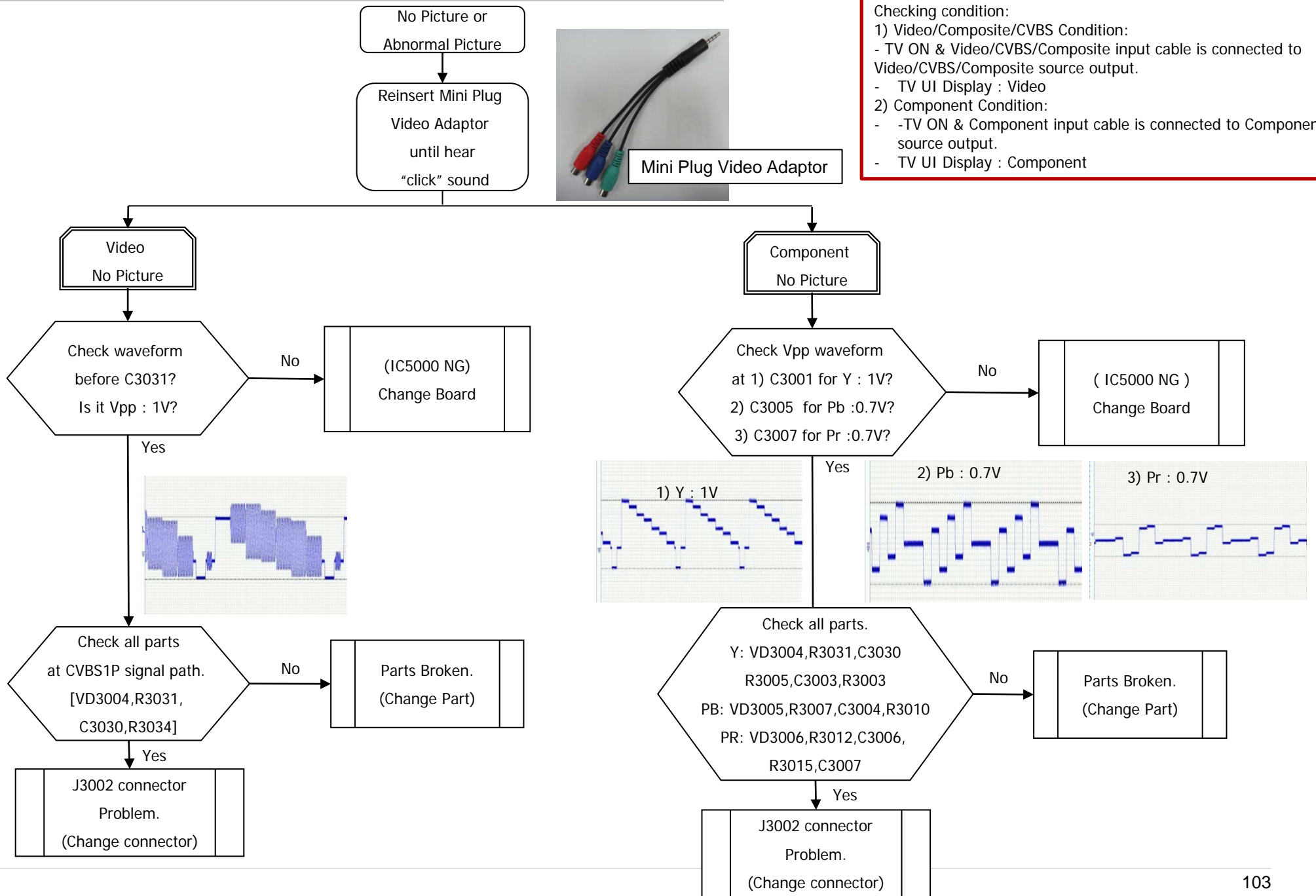


*OSD: On Screen Display

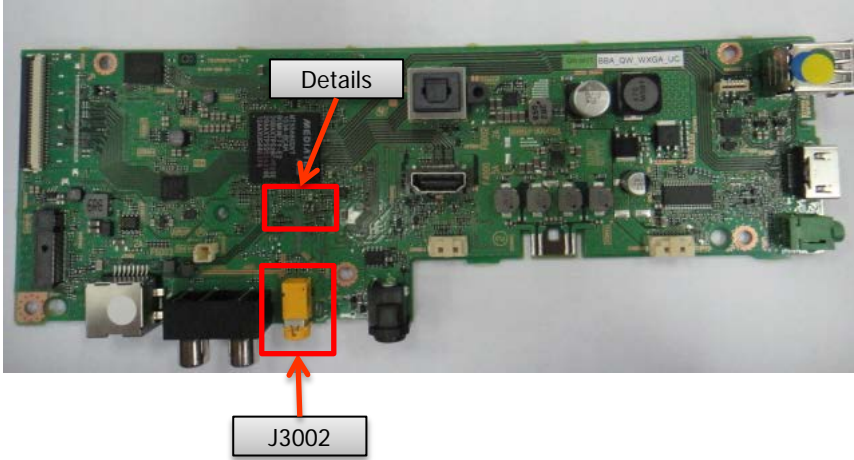
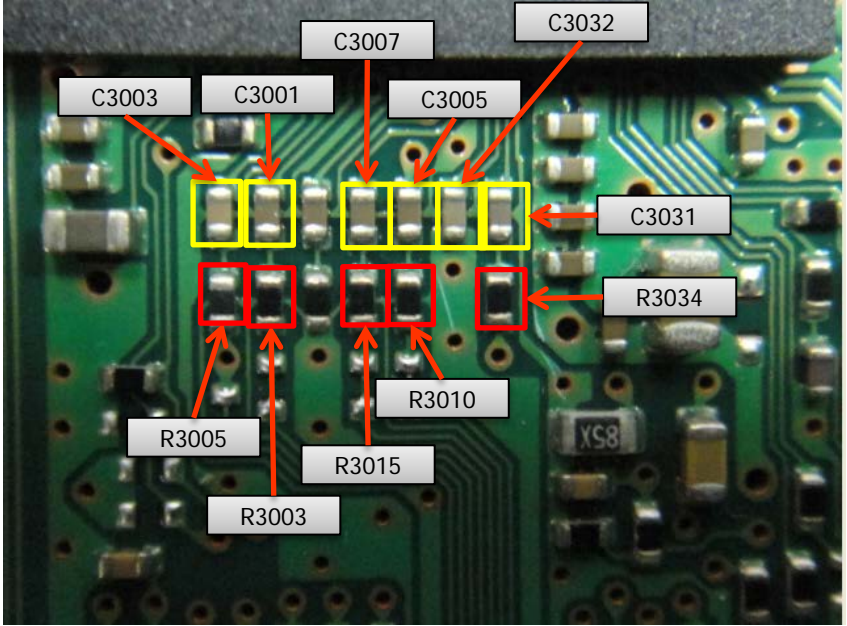

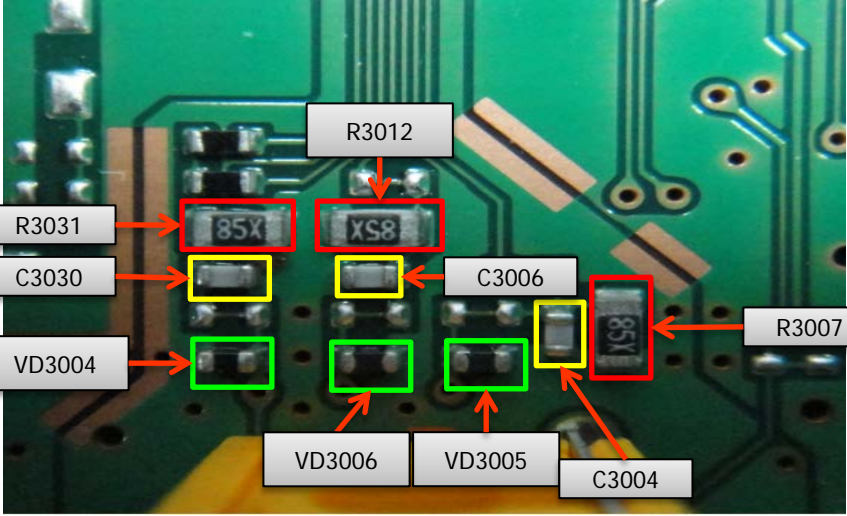
Video Analog Signal Path-No Picture WW Destination (BBA_Others) - Checking Point

Board Name	Board PWB (A side)	Detail
BBA_Others C3031 R3034 J3001		
BBA_Others R3028 VD3004 R3031 C3030		

3-3-21. Video Analog Signal Path - No Picture for BBA_UC Only



Video Analog Signal Path- No Picture for BBA_UC Only – Checking Point

Board Name	Board PWB (A side)	Detail
BBA_UC Only J3002 C3001 R3003 C3005 C3007 R3010 R3015 C3032 C3003 R3005 C3031 R3034		
BBA_UC Only R3031 C3030 VD3004 VD3005 C3004 R3007 VD3006 C3006 R3012		

3-3-21. Video Analog Signal Path – For WW Destination (BBE)

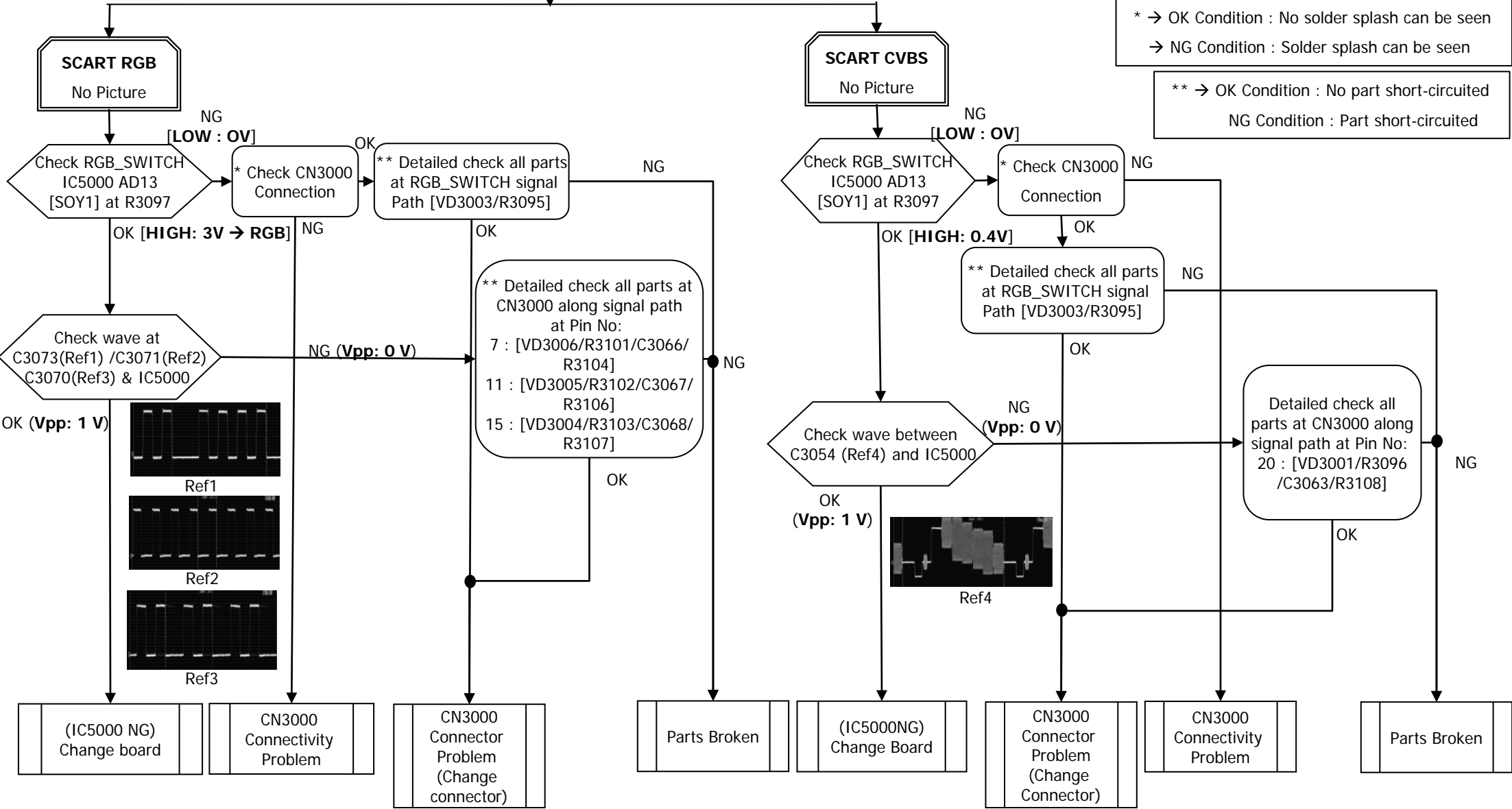
No Picture WW Destination (BBE)

Scart Cable Connected
(No Picture)

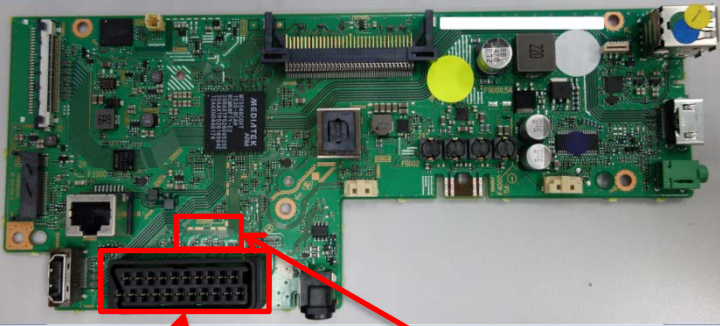
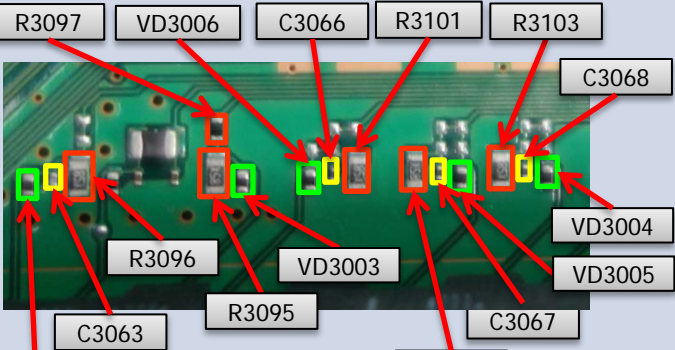
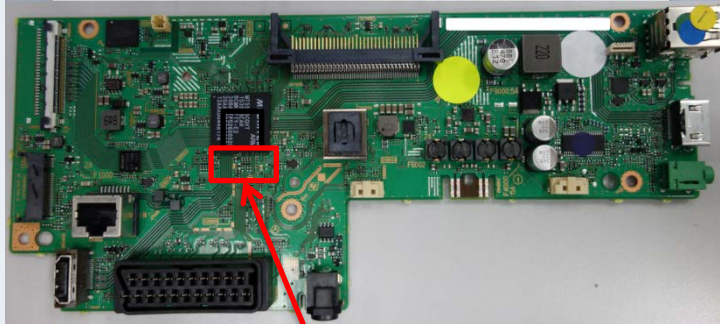
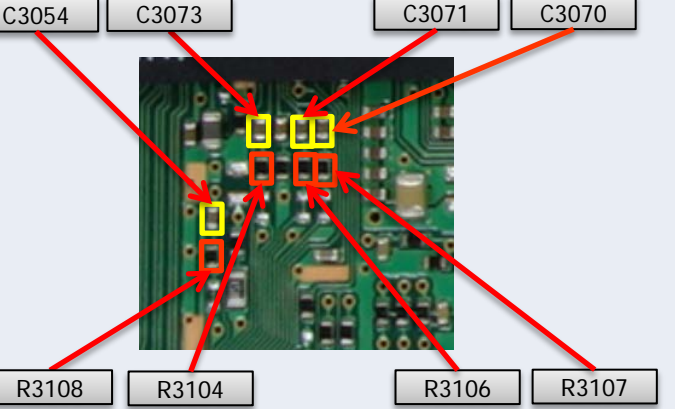
Checking condition:
 - TV ON & Scart input cable is connected to Scart source output.
 - TV UI Display : AV1

* → OK Condition : No solder splash can be seen
 → NG Condition : Solder splash can be seen

** → OK Condition : No part short-circuited
 NG Condition : Part short-circuited



Video Analog Signal Path – For WW Destination (BBE) – Checking Point

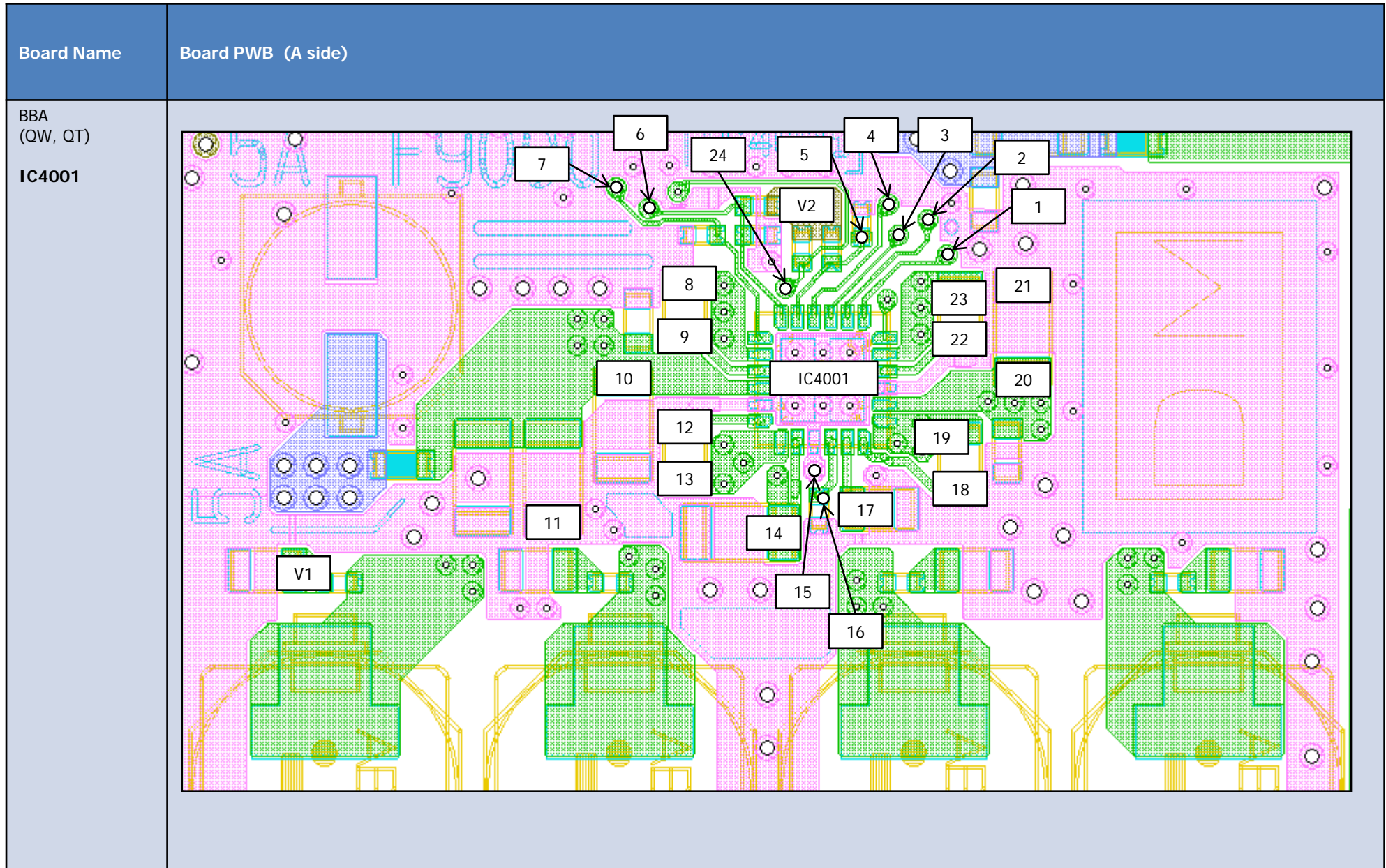
Board Name	Board PWB (A side)	Details
BBE CN3000 R3095 R3096 R3097 R3101 R3102 R3103 C3063 C3066 C3067 C3068 VD3001 VD3003 VD3004 VD3005 VD3006	 <p data-bbox="539 699 663 730">CN3000</p> <p data-bbox="949 703 1061 735">Details</p>	 <p data-bbox="1227 703 1339 735">VD3001</p>
BBE R3104 R3106 R3107 R3108 C3054 C3070 C3071 C3073	 <p data-bbox="680 1225 792 1257">Details</p>	

3-4. No Sound

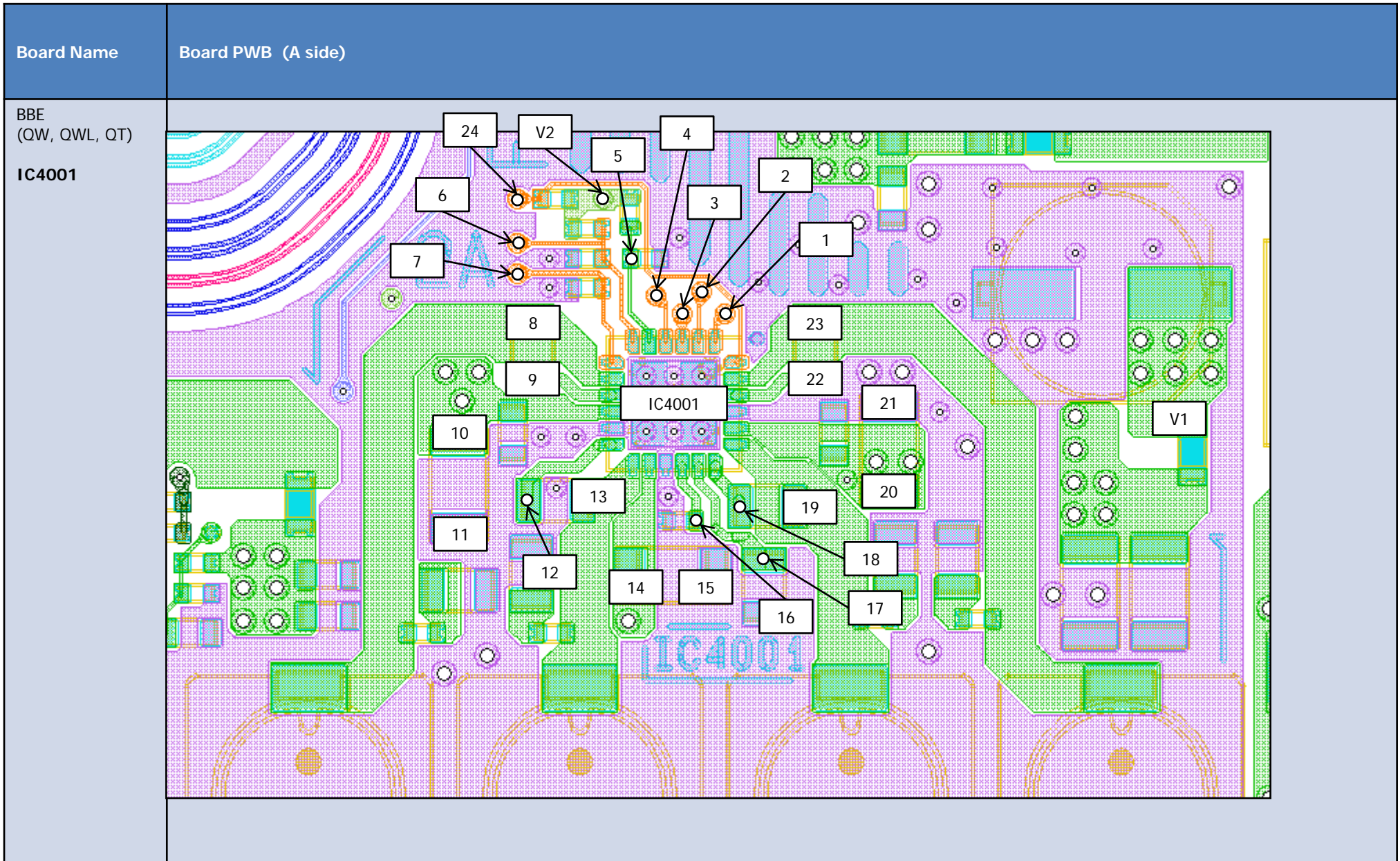
3-4-1. Audio D.Amp IC (IC4001) Normal Operation Condition - BB* board (1)

Label	Name	Normal Operation (Approx.)		Comment if abnormal operation
		Voltage	Frequency	
V1	19.5	19.5V	-	Check connection path between Drain of Q6020 to F4000
V2	3.3	3.3V	-	Check connection path between IC6009 to IC4001
1	MCLK	3.3Vpp	12.288MHz	Check connection path between IC5000 to IC4001
2	SDATA	3.3Vpp	Clock signal	Check connection path between IC5000 to IC4001
3	BCLK	3.3Vpp	3.07MHz	Check connection path between IC5000 to IC4001
4	LRCK	3.3Vpp	48kHz	Check connection path between IC5000 to IC4001
5	PLIMT	1.3V	-	Check connection path between IC6009 to IC4001
6	RSTX	3.3V	-	Check connection path between IC5000 to IC4001
7	MUTEX	3.3V	-	Check connection path between IC5000 to IC4001
8	OUT1P	9.6Vrms	768kHz	Check connection path between IC4001 pin8 to CN4001 pin1
9	BSP1P	14Vrms	-	Check connection between IC4001 pin 8 and pin 9
10	VCCP1	19.5V	-	Check connection path between Q6020 to IC4001
11	GNDP1	0V	-	-
12	BSP1N	14Vrms	-	Check connection between IC4001 pin 12 and pin 11
13	OUT1N	9.6Vrms	768kHz	Check connection path between IC4001 pin13 to CN4001 pin2
14	VCCA	19.5V	-	Check connection path between Q6020 to IC4001
15	GND A	0V	-	-
16	REGD	5.0V	-	Check connection path between C4066 to GND
17	REGG	5.7V	-	Check connection path between C4067 to GND
18	BSP2P	14Vrms	-	Check connection between IC4001 pin 18 and pin 19
19	OUT2P	9.6Vrms	768kHz	Check connection path between IC4001 pin19 to CN4001 pin3
20	VCCP2	19.5V	-	Check connection path between Q6020 to IC4001
21	GNDP2	0V	-	-
22	BSP2N	14Vrms	-	Check connection between IC4001 pin 23 and pin 22
23	OUT2N	9.6Vrms	768kHz	Check connection path between IC4001 pin23 to CN4001 pin4
24	ERROR	3.3V	-	Check connection path between IC5000 to IC4001

Audio D.Amp IC (IC4001) Normal Operation Condition - BBA board (Checking Point)

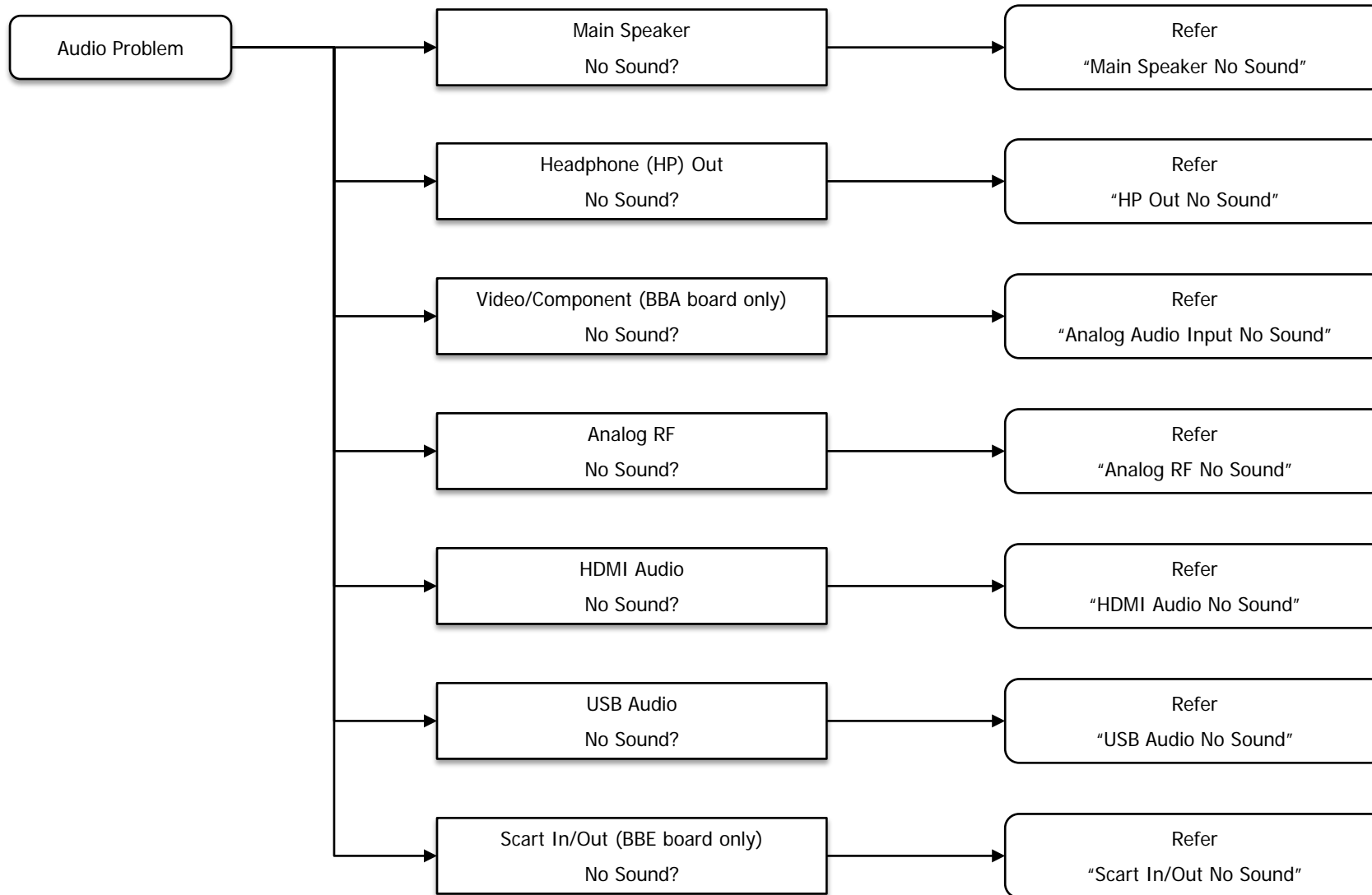


Audio D.Amp IC (IC4001) Normal Operation Condition - BBE board (Checking Point)

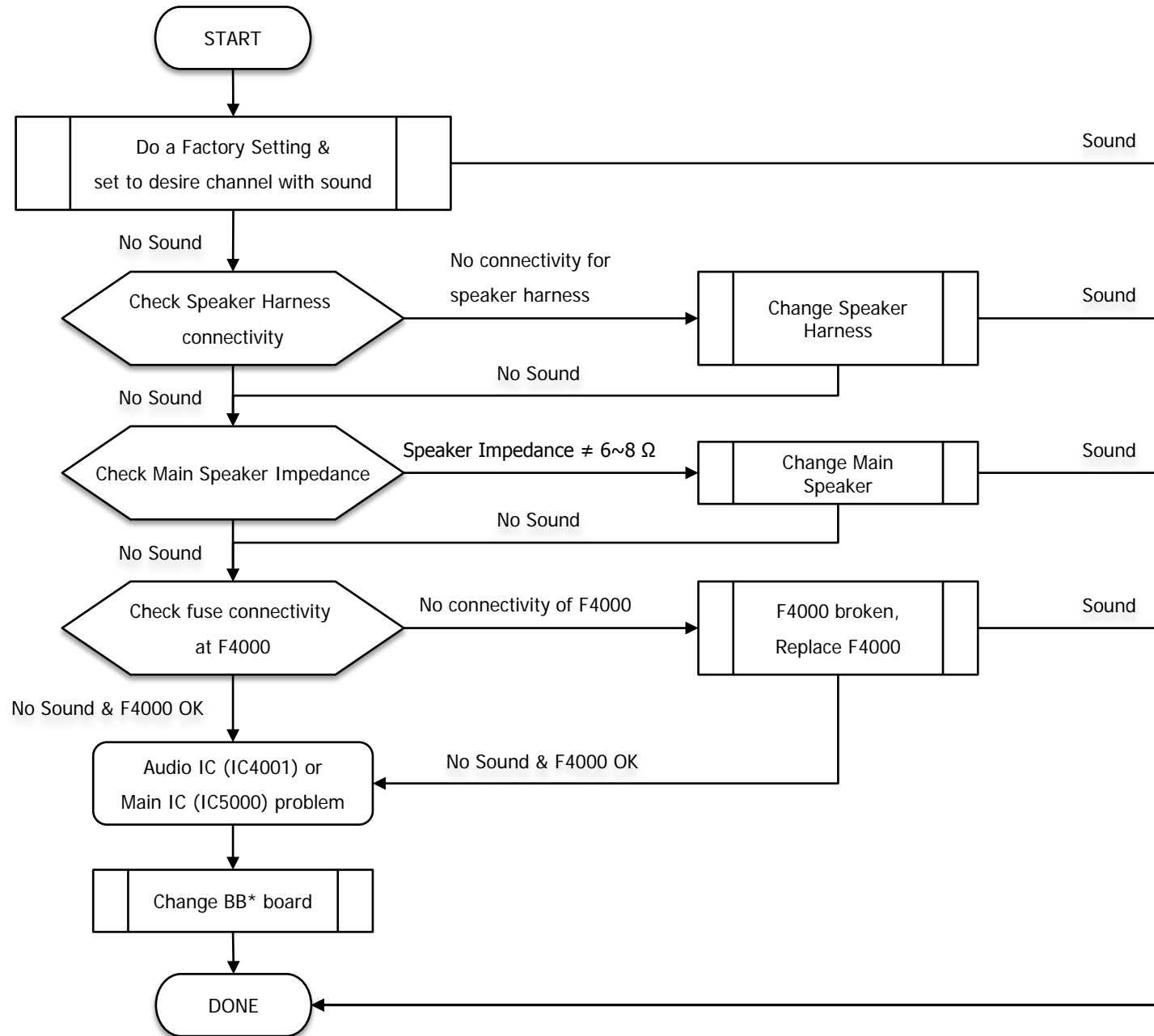


3-4. No Sound

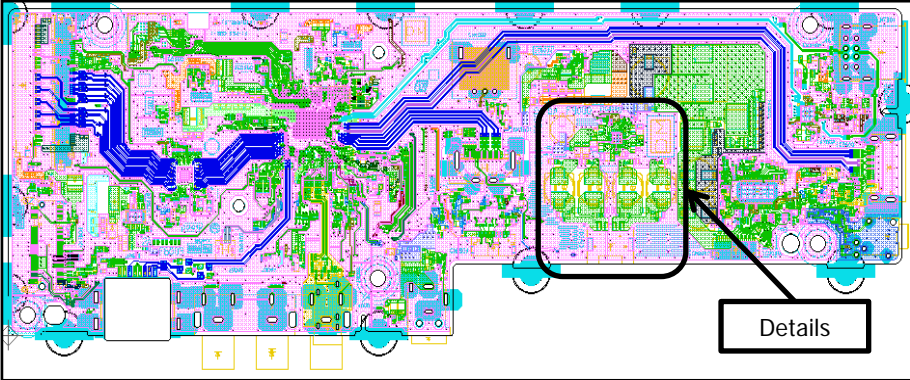
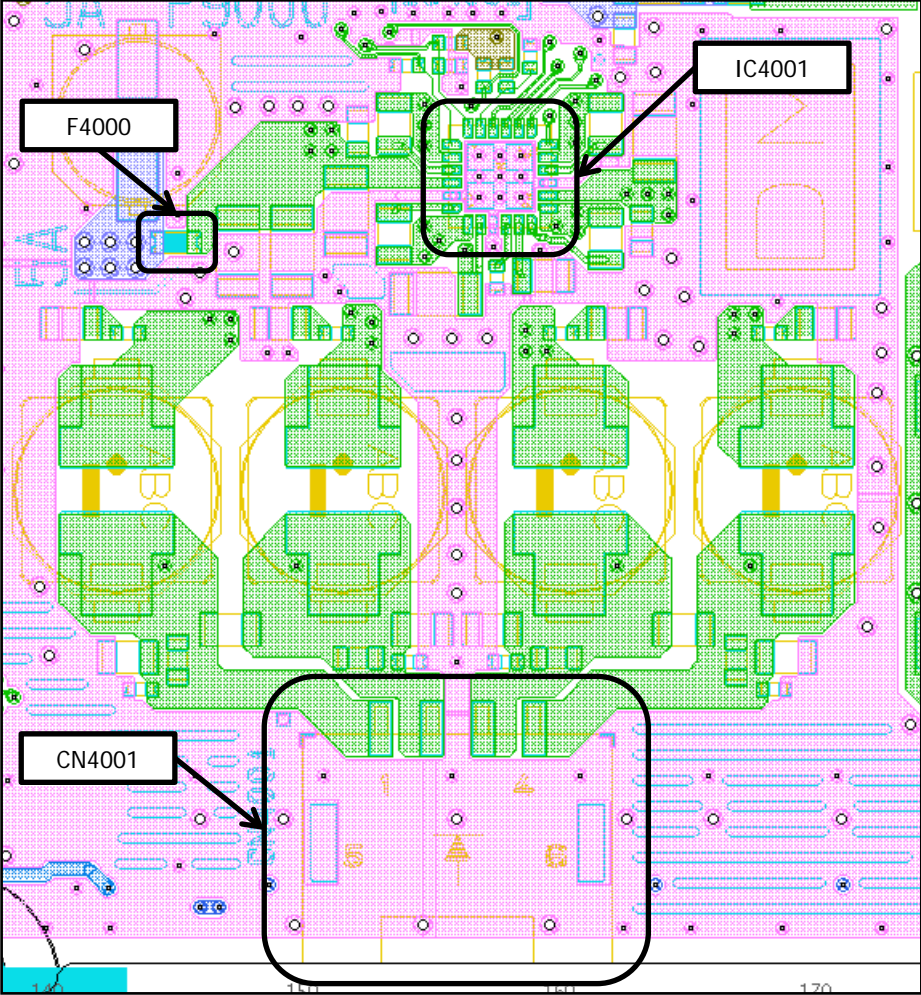
3-4-2 . Troubleshooting Detail Audio Problem Audio Problem (B board)



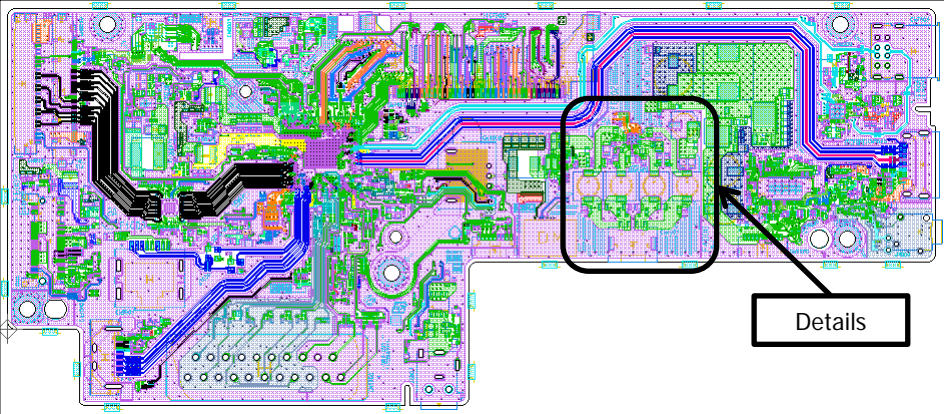
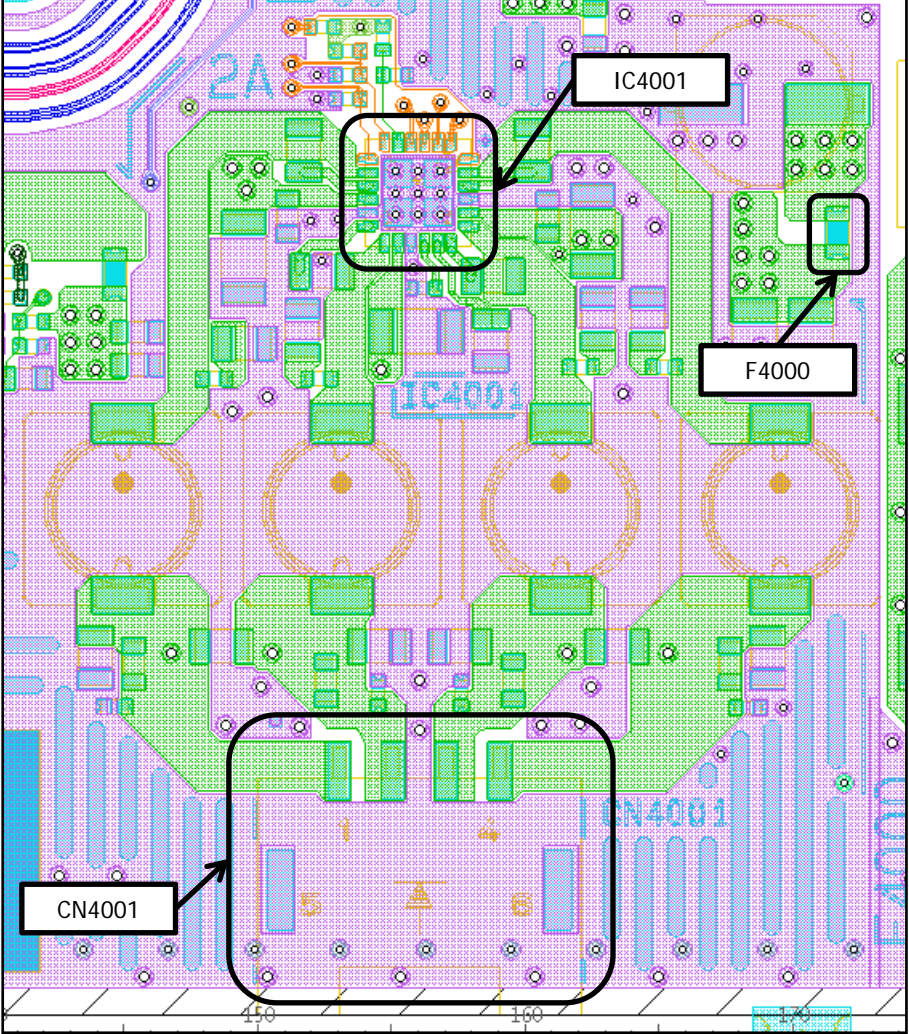
3-4-3. Audio Problem - Main Speaker No Sound (1)



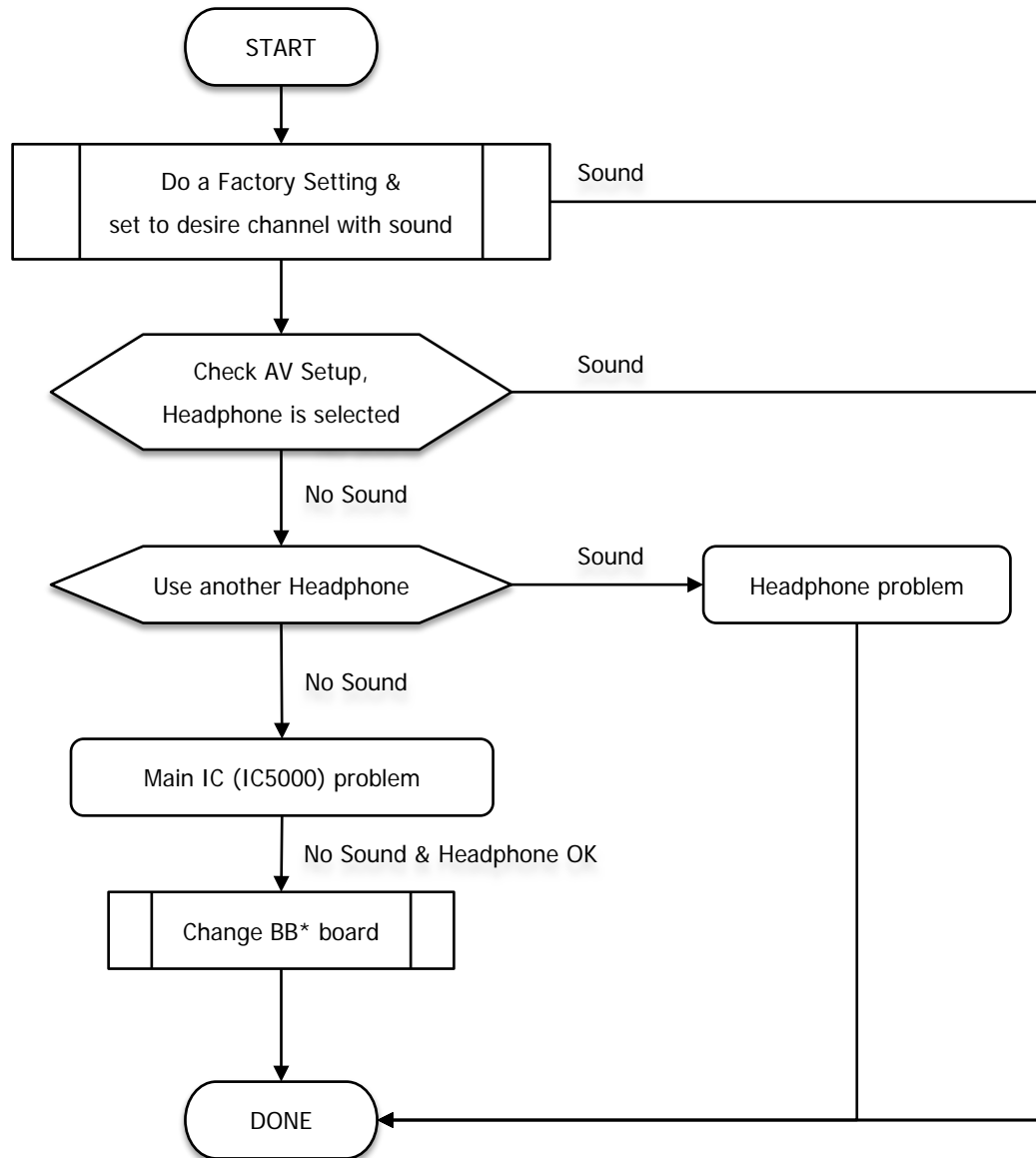
Audio Problem - Main Speaker No Sound (Checking Point)- BBA

Board Name	Board PWB (A side)	Details
BBA (QW, QT) IC4001 F4000 CN4001	 <p>The diagram shows the A-side of the Board PWB. It features a complex layout of traces in blue, green, and purple. A central area is highlighted with a black rounded rectangle, and an arrow labeled "Details" points to a larger view of this area on the right.</p>	 <p>This detailed view shows three specific components highlighted with black rounded rectangles and arrows:</p> <ul style="list-style-type: none">F4000: A component located in the upper left quadrant.IC4001: A large integrated circuit located in the upper right quadrant.CN4001: A component located in the lower right quadrant, near the bottom edge.

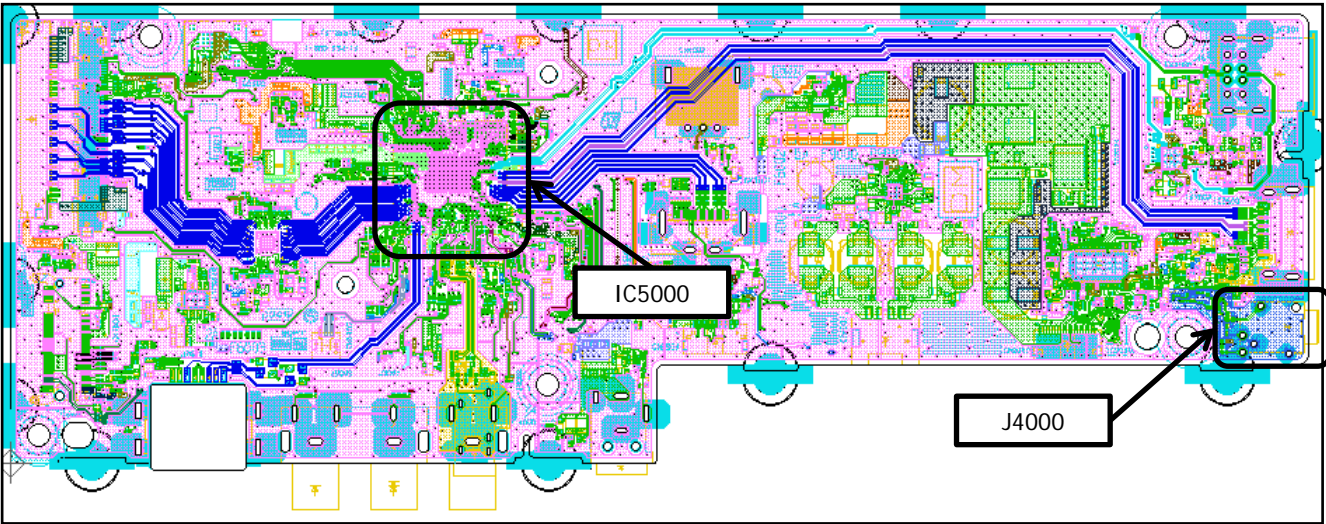
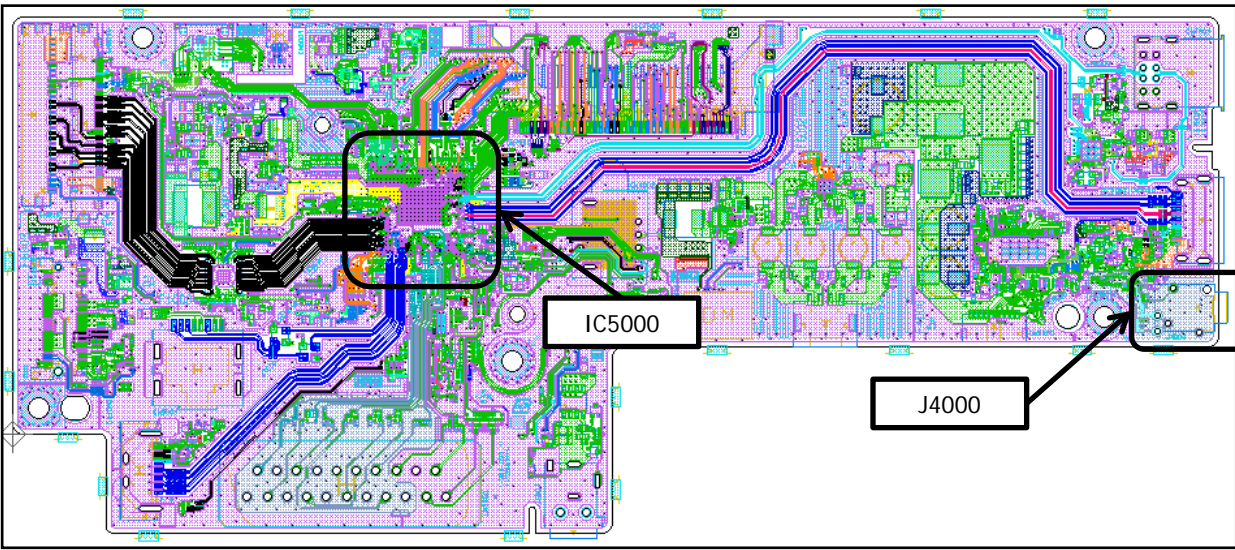
Audio Problem - Main Speaker No Sound (Checking Point)- BBE

Board Name	Board PWB (A side)	Details
<p>BBE (QW, QWL, QT)</p> <p>IC4001 F4000 CN4001</p>		

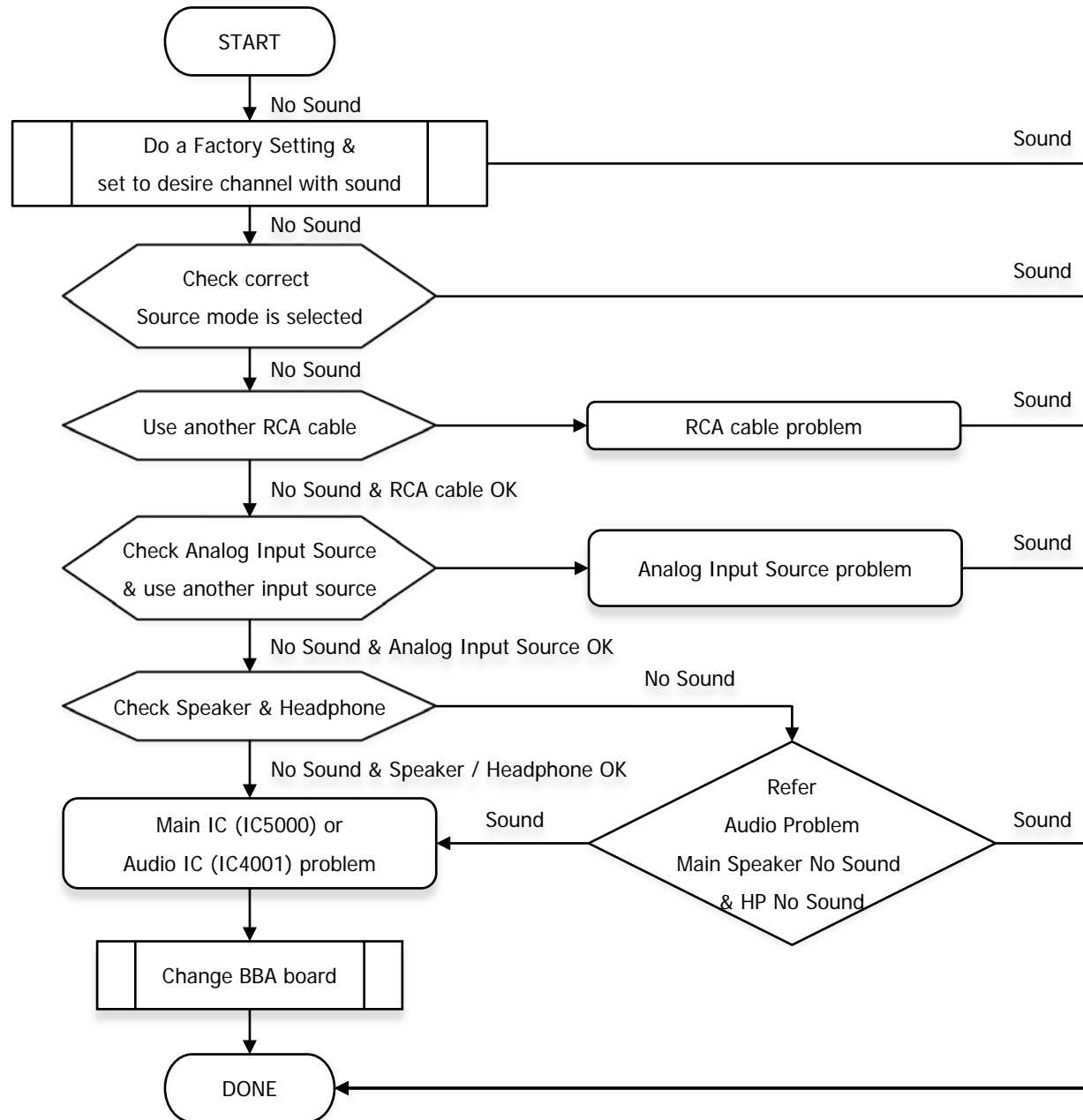
3-4-4. Audio Problem - Headphone (HP) Out No Sound



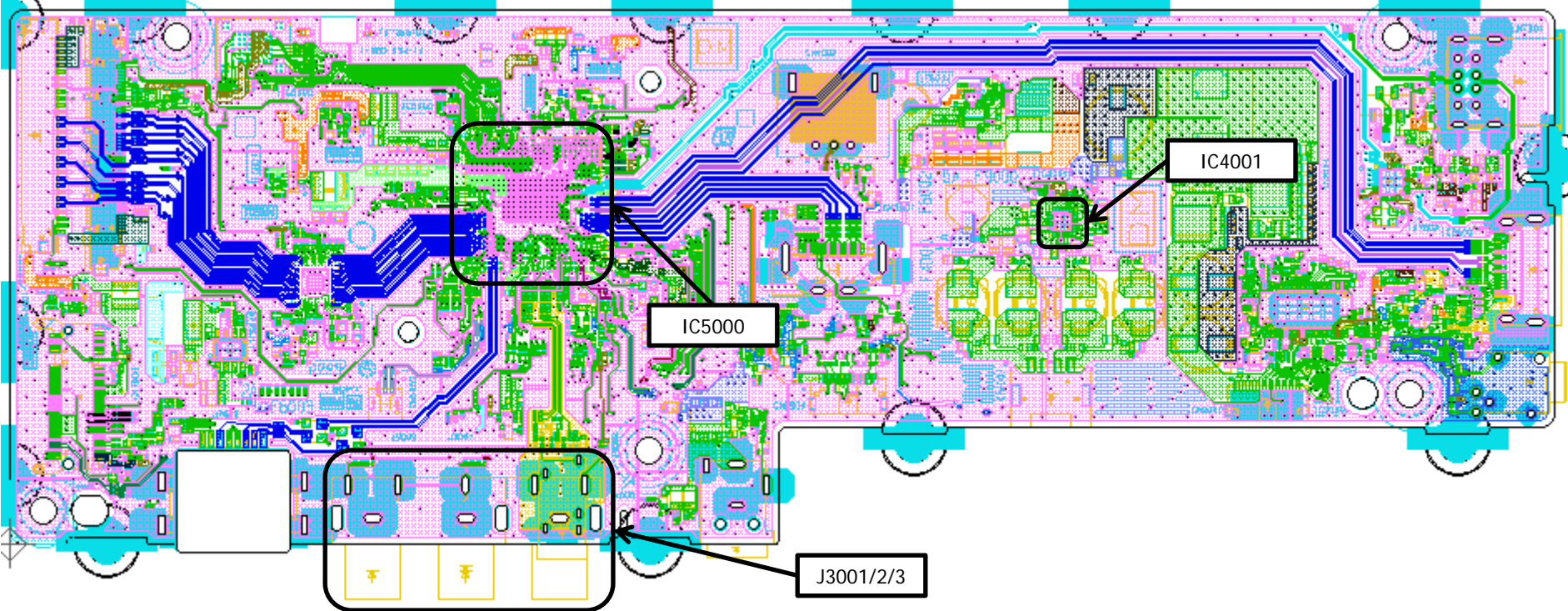
Audio Problem - Headphone (HP) Out No Sound (Checking Point)

Board Name	Board PWB (A side)
<p>BBA (QW, QT)</p> <p>IC5000 J4000</p>	 <p>The image shows the A-side PCB layout for the BBA board. It features a central IC5000 component and a J4000 component. A black box highlights a specific area on the IC5000 chip, and another black box highlights the J4000 component. Arrows point from labels 'IC5000' and 'J4000' to their respective locations on the board. The board is populated with various components, including capacitors, resistors, and other integrated circuits, all connected by a complex network of traces.</p>
<p>BBE (QW, QWL, QT)</p> <p>IC5000 J4000</p>	 <p>The image shows the A-side PCB layout for the BBE board. It features a central IC5000 component and a J4000 component. A black box highlights a specific area on the IC5000 chip, and another black box highlights the J4000 component. Arrows point from labels 'IC5000' and 'J4000' to their respective locations on the board. The board is populated with various components, including capacitors, resistors, and other integrated circuits, all connected by a complex network of traces.</p>

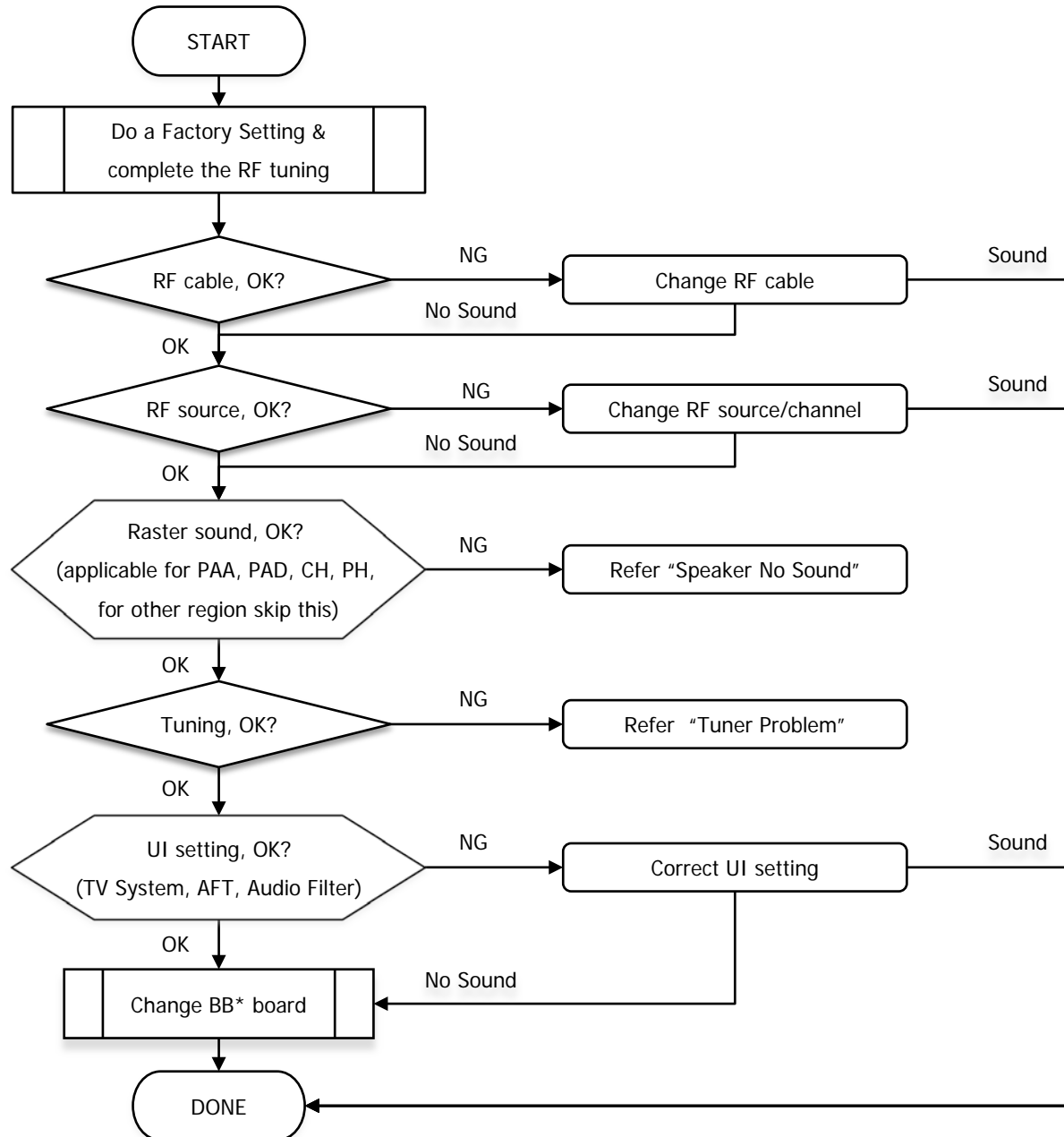
3-4-5. Audio Problem - Analog Audio Input No Sound [BBA board only]



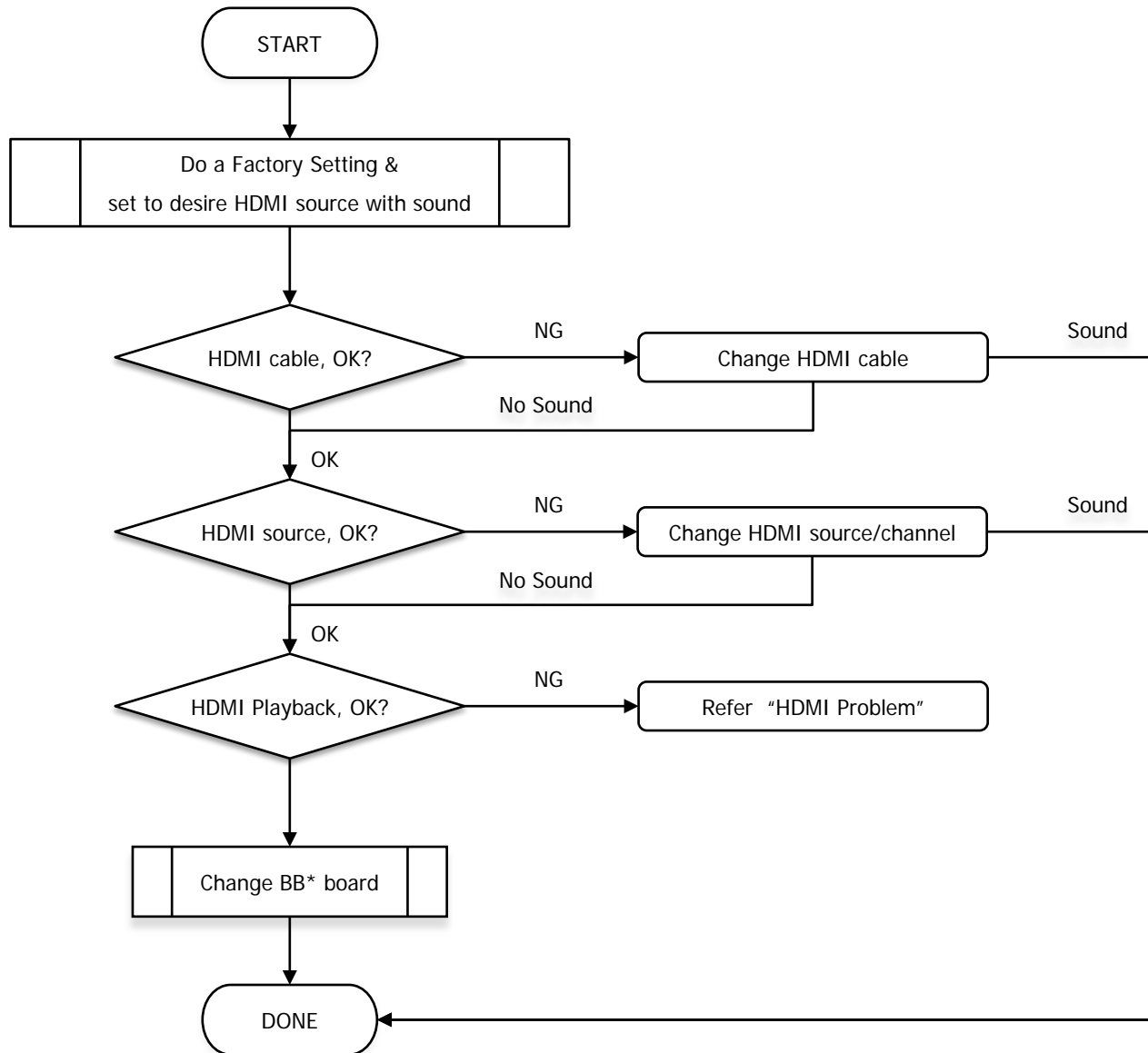
Audio Problem - Analog Audio Input No Sound [BBA board only] (Checking Point)

Board Name	Board PWB (A side)
<p>BBA (QW, QT)</p> <p>IC5000 J3001/2/3</p>	 <p>The diagram shows the A-side of a printed wiring board (PWB) for a BBA (QW, QT) unit. It features a complex layout of traces in blue, green, and purple. Three specific components are highlighted with callout boxes: IC4001 is located in the upper right quadrant; IC5000 is in the center; and J3001/2/3 is a connector strip at the bottom center. The board also includes various other components like capacitors and resistors, and has mounting holes along its perimeter.</p>

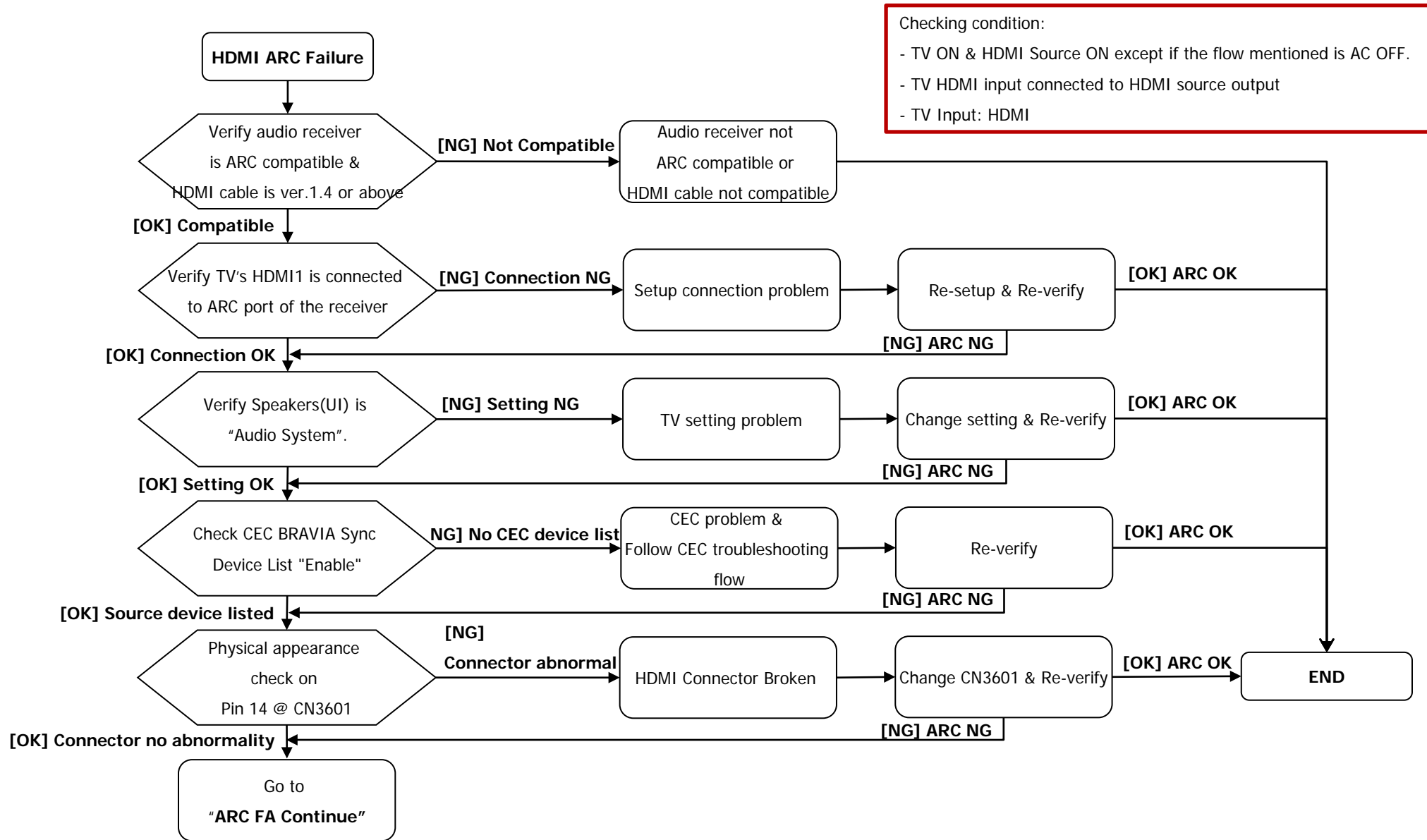
3-4-6. Audio Problem - Analog RF No Sound



3-4-7. Audio Problem - HDMI Audio No Sound



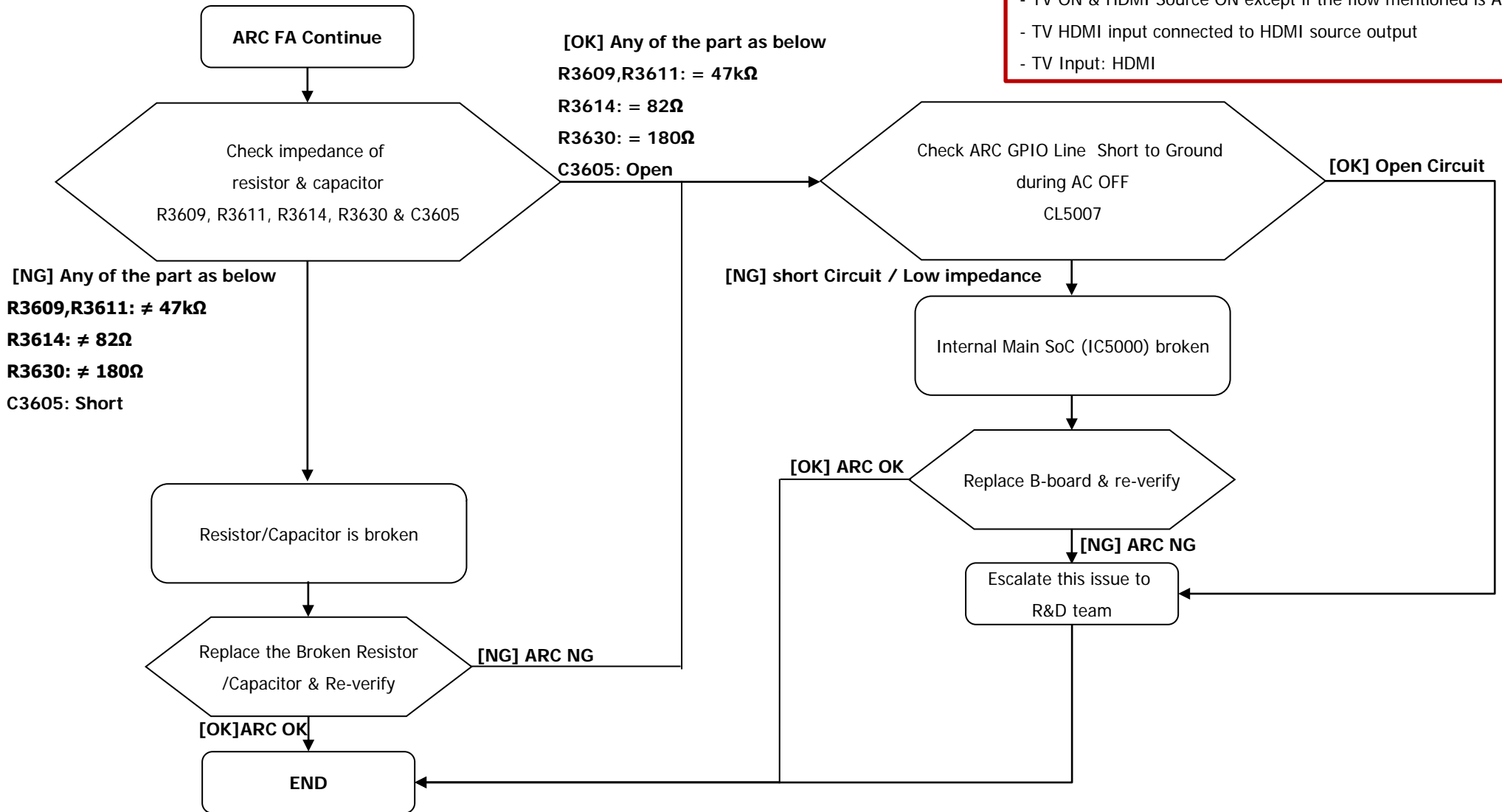
3-4-8. HDMI NO SOUND- HDMI ARC Failure



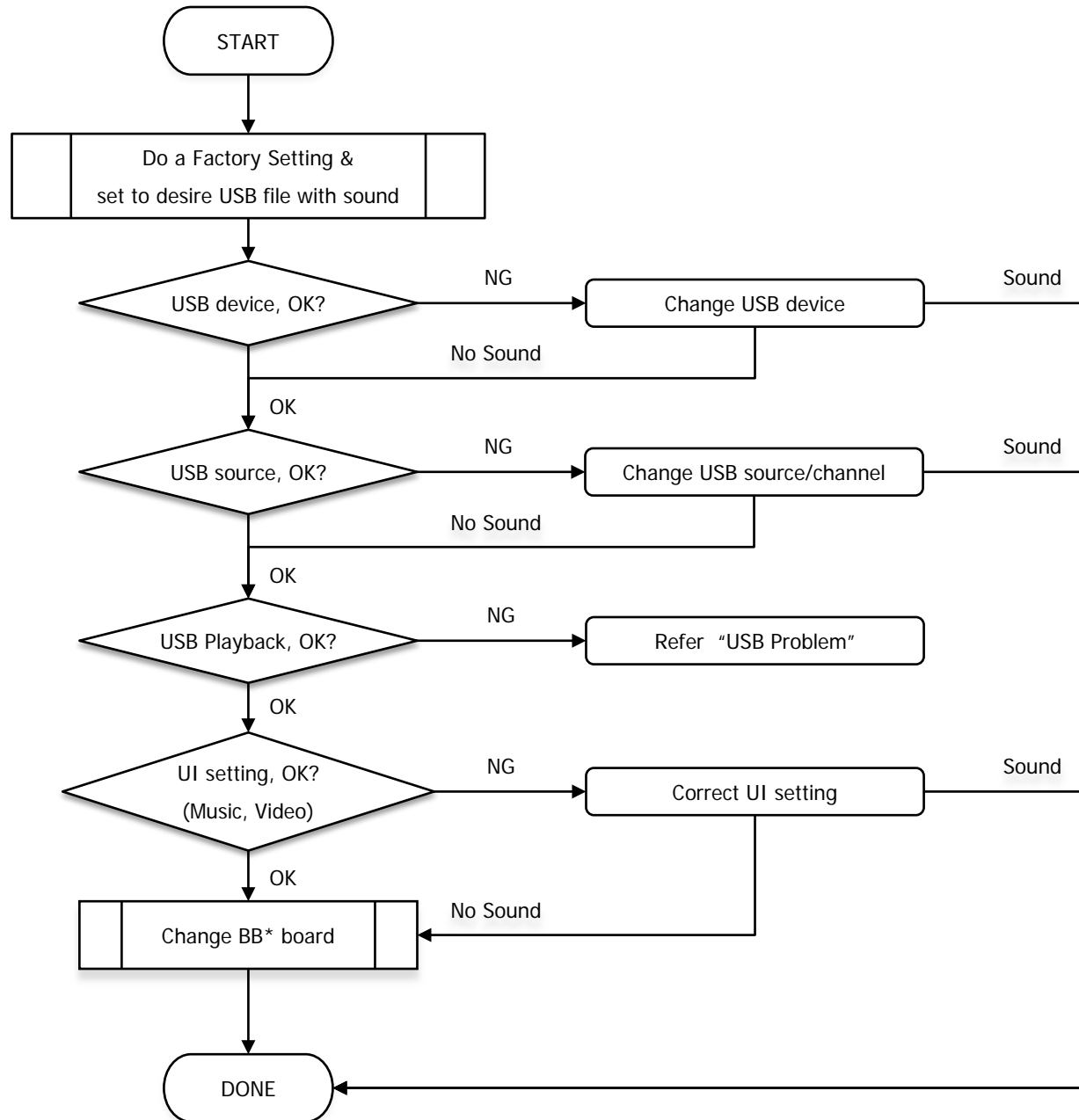
3-4-9. HDMI NO SOUND- HDMI ARC Failure -Continue

No Sound – HDMI

Checking condition:
 - TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
 - TV HDMI input connected to HDMI source output
 - TV Input: HDMI

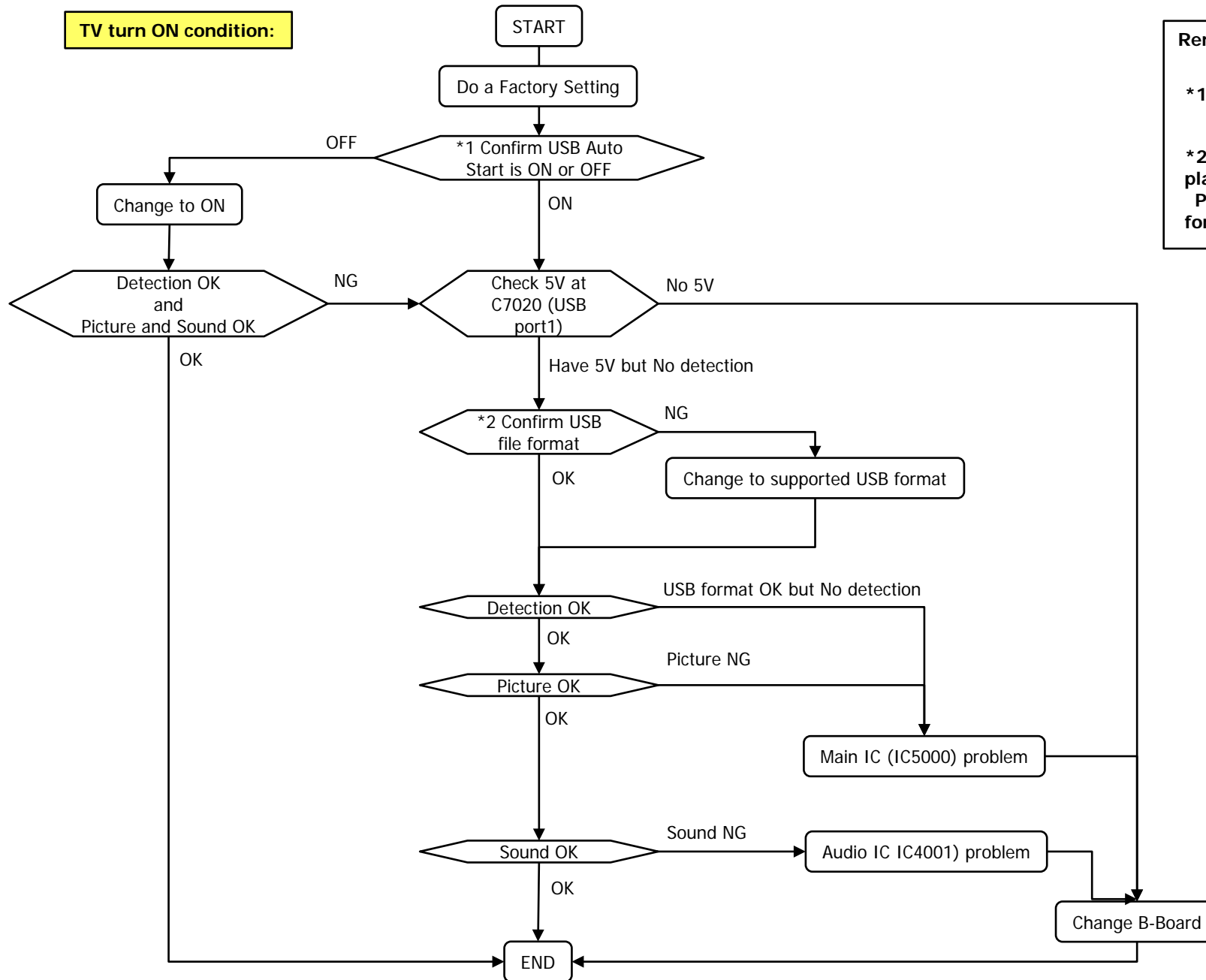


3-4-10. Audio Problem - USB Audio No Sound



3-4-11. USB Port1 – No Detection / Cannot Play / No Picture / No Sound

TV turn ON condition:



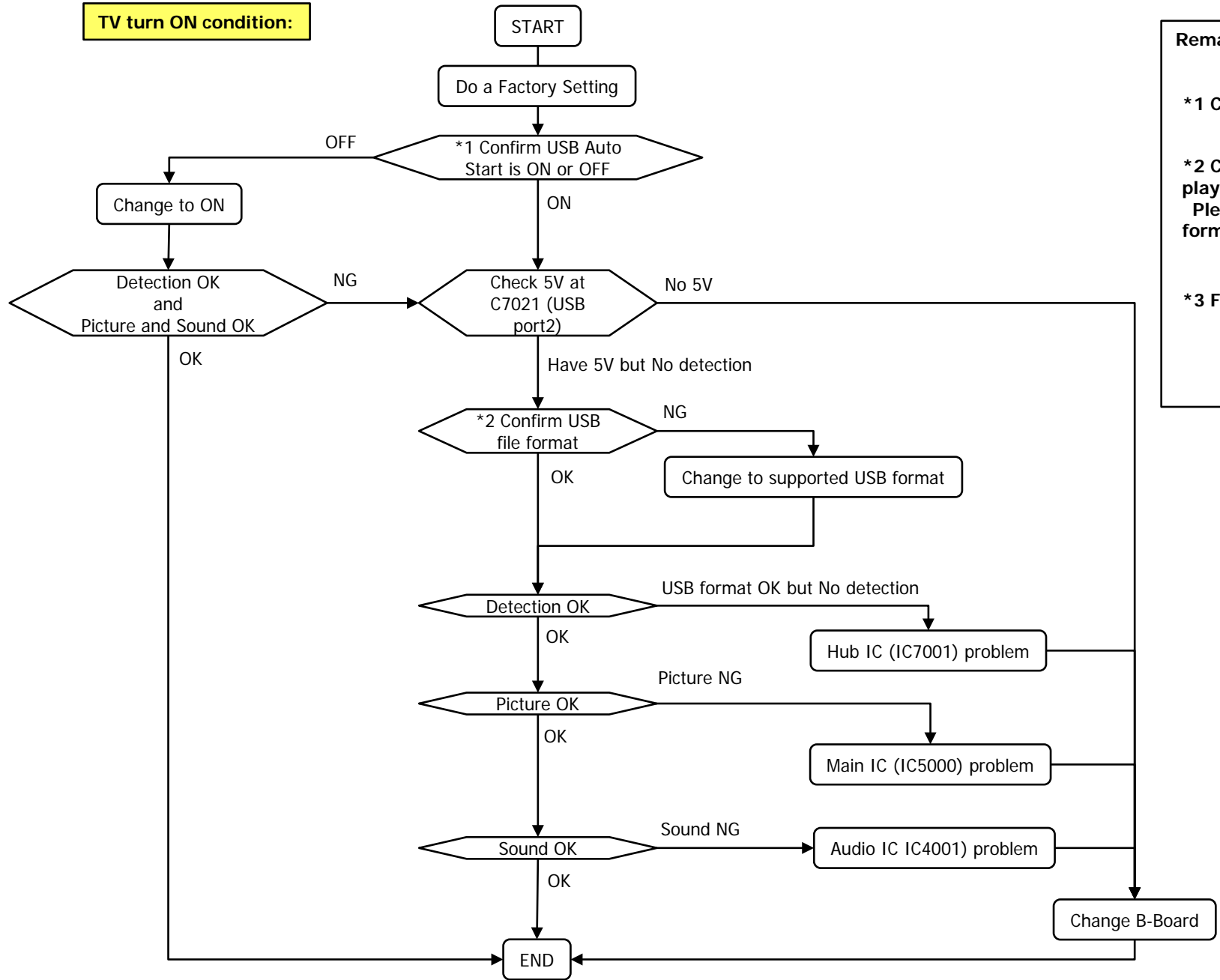
Remarks:

*1 Confirm USB Auto Start at Set-up Menu.

*2 Confirm with OSD on bottom panel, if playback not support.
Please refer to IM for detail supported USB format.

3-4-12. USB Port2 – No Detection / Cannot Play / No Picture / No Sound

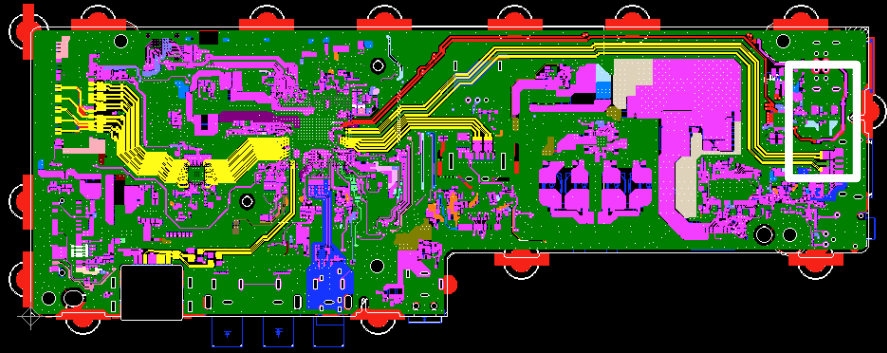
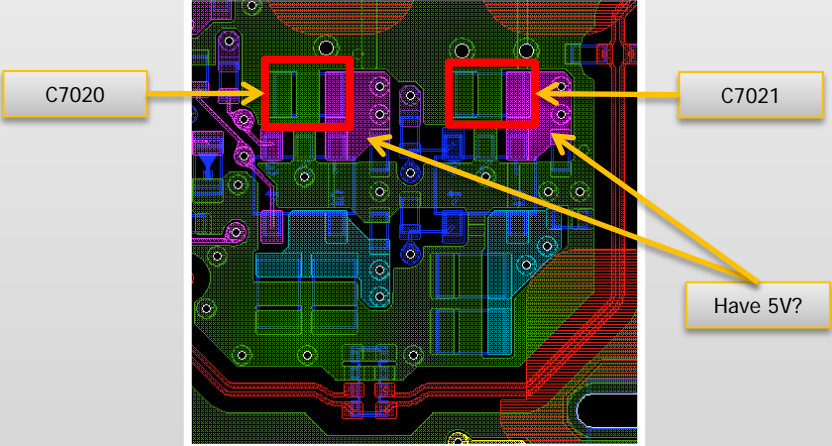
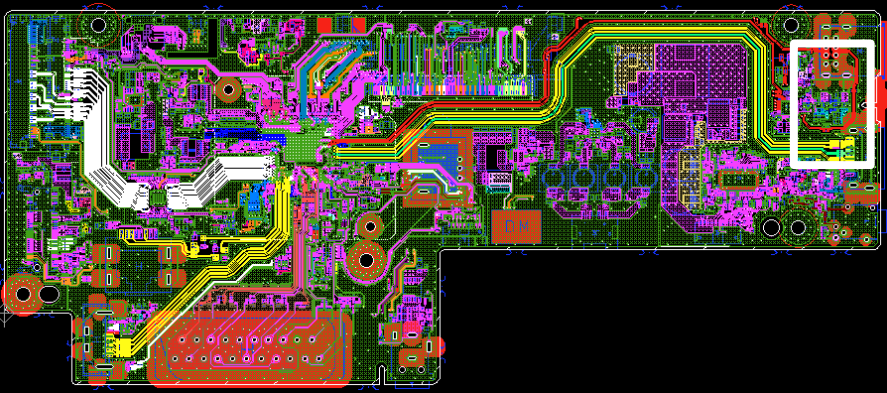
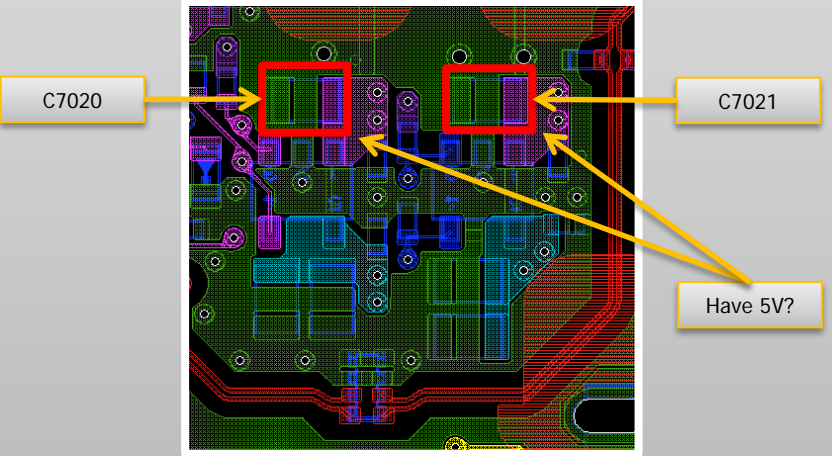
TV turn ON condition:



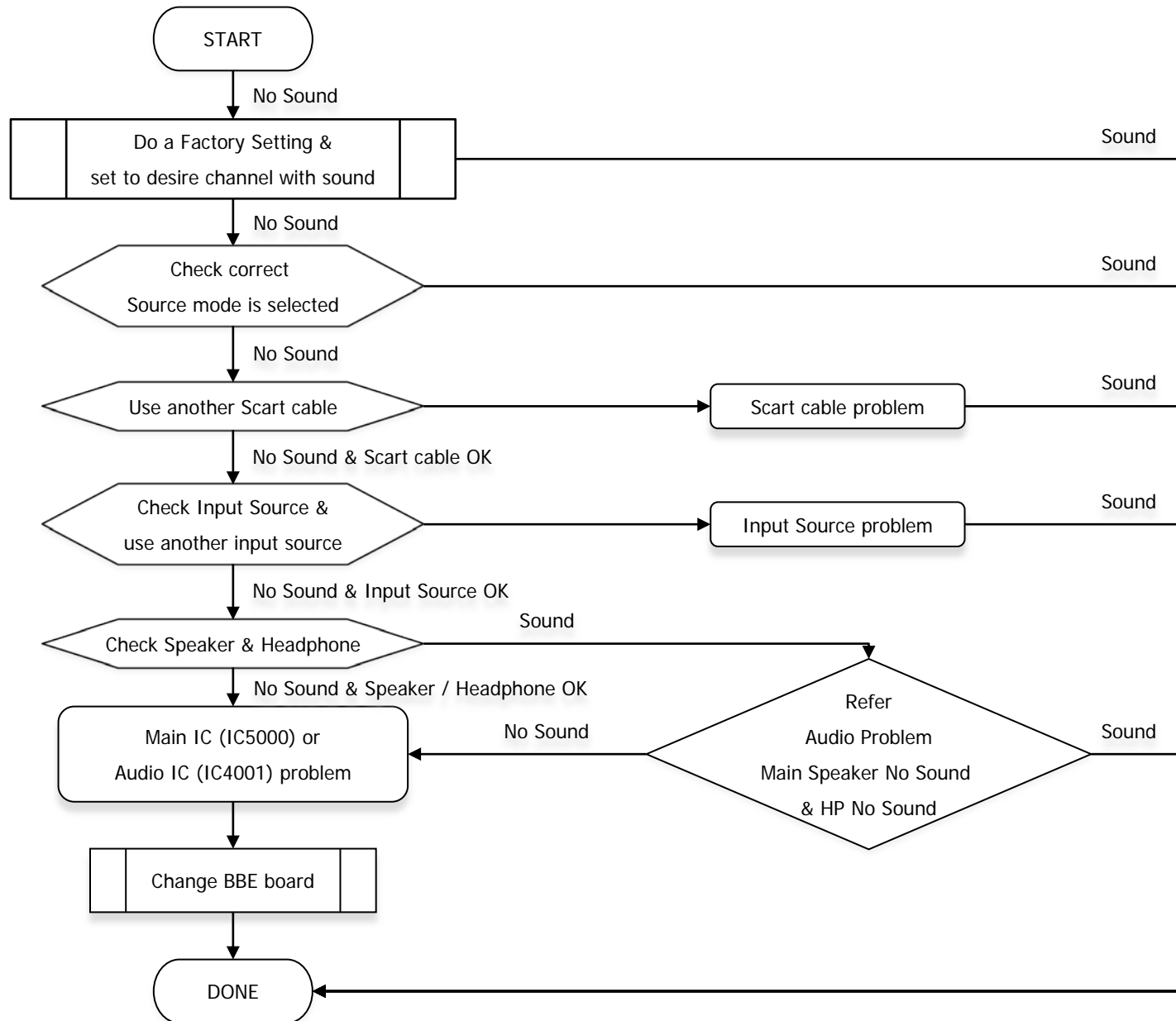
Remarks:

- *1 Confirm USB Auto Start at Set-up Menu.
- *2 Confirm with OSD on bottom panel, if playback not support.
Please refer to IM for detail supported USB format.
- *3 For model have USB Port2

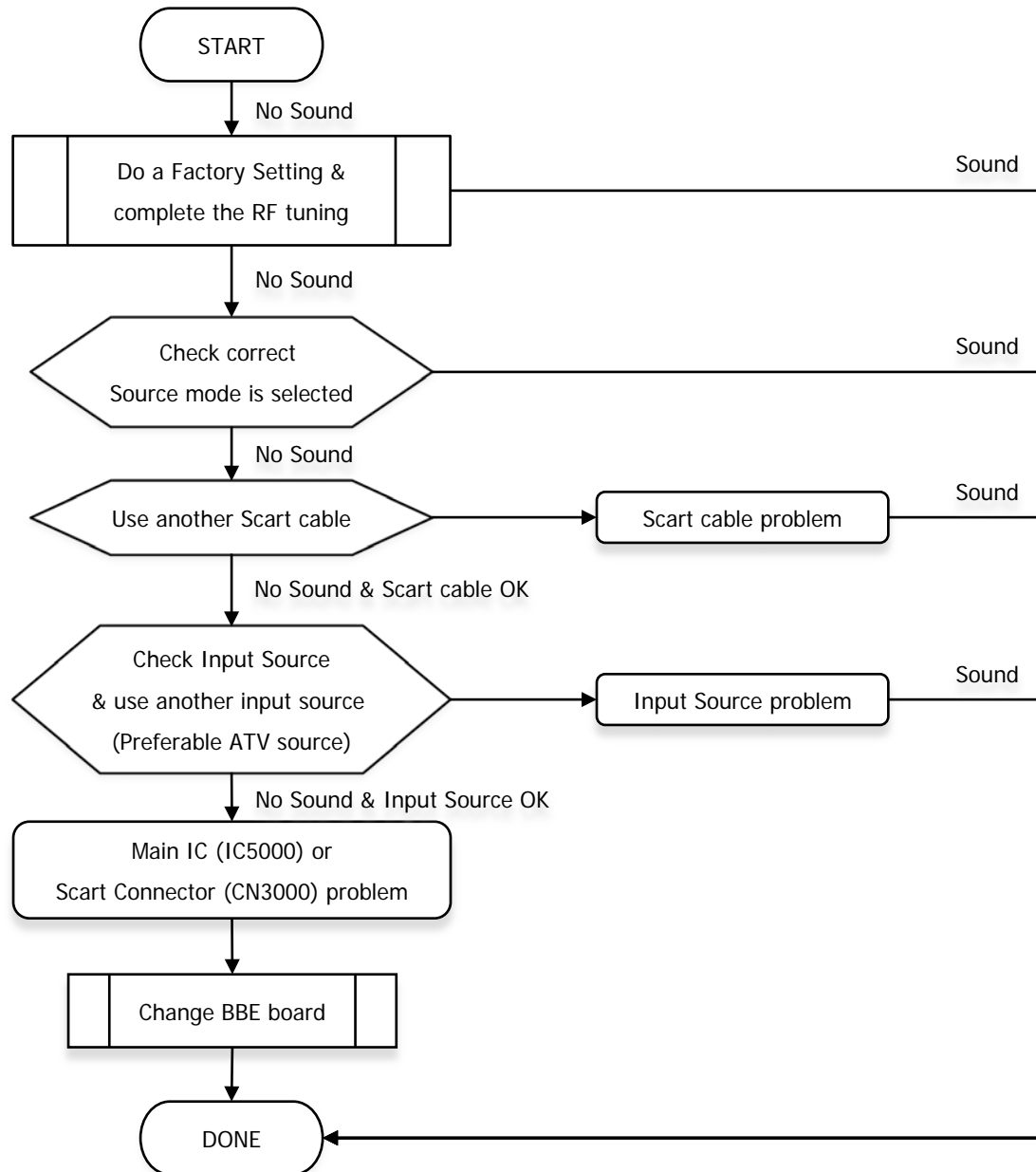
USB (B-board Checking) – Checking 5V Points

Board Name	Board PWB (A side)	Detail
BBA (QW; QT)		 <p>C7020</p> <p>C7021</p> <p>Have 5V?</p>
BBE (QW; QW-L; QT)		 <p>C7020</p> <p>C7021</p> <p>Have 5V?</p>

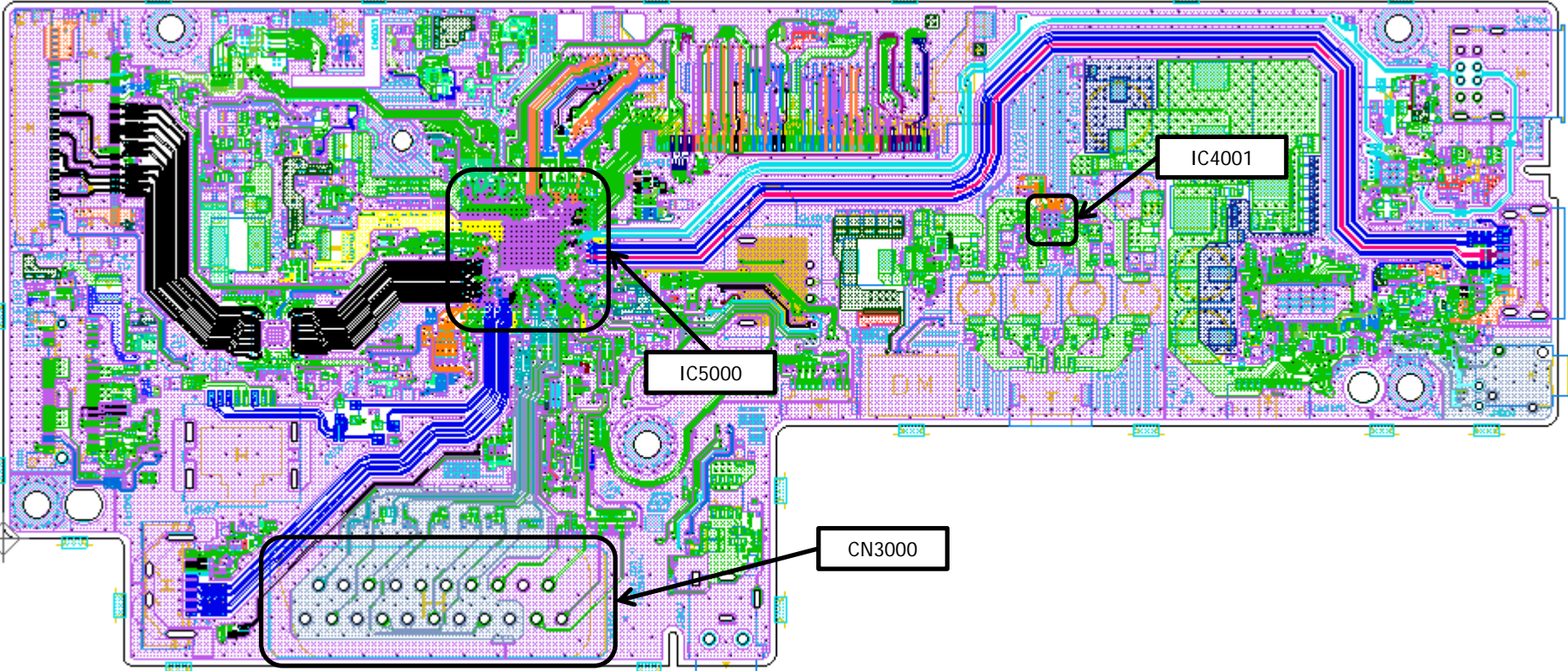
3-4-13. Audio Problem - Scart In No Sound (BBE board only) (1)



3-4-13. Audio Problem - Scart Out No Sound (BBE board only) (2)




Audio Problem - Scart In/Out No Sound (BBE board only) (Checking Point)

Board Name	Board PWB (A side)
BBE (QW, QWL, QT) IC5000 CN3000	 <p>The image shows a detailed PCB layout for the BBE board (A side). The board is populated with various components, including integrated circuits (ICs) and connectors. Three specific components are highlighted with callout boxes:</p> <ul style="list-style-type: none">IC4001: Located in the upper right quadrant of the board.IC5000: Located in the center of the board.CN3000: A connector located at the bottom center of the board. <p>The board features a complex network of traces in various colors (blue, green, red, purple) and several circular vias. The layout is dense and organized, typical of a high-performance audio board.</p>

SECTION 4 SERVICE ADJUSTMENTS

4-1. Accessing Service Mode.

- 1) Go to TV standby condition by remote commander.
- 2) Press "i+ (info)", "5", "Volume +" then "TV power" on remote.
- 3) You can see Service Mode on display.



Remote Commander

Service Mode

Status Information	>>
Self Diagnosis History	>>
Wide Band Tuning	>>
Panel Selection	<[1JIS6S320CND00101]>
Status 1st Tu Infor	>>
LVDS Spectrum(%)	<[30]>
Update CH+ Credentials	>>
SERIAL NUMBER EDIT	>>
Model Number Setting	>>
TEST RESET	<[Off]>
UART Selection	<[No Log]>
HDD Performance Check	>>
AAA	>>
Tu Data for Serv	>>
SDB Service Menu	>>
White Balance	>>
Audio Mode	<[Off]>
Default date for HDD recording	<[Off]>
Tuner Detection	>>
LVDS Driver Strength	<[4]>
ATMOS CEC DISABLE	<[0]>

Set[<>]Home[Exit]

Only Available for UC Region

Only Available for EU Region

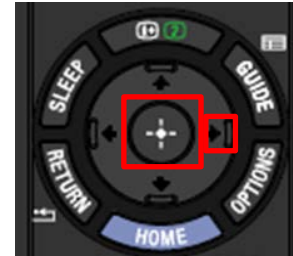
Only Available for EU & PAD(AUS/NZ)

Except PAA, CHI/PE/PHI/BR/ARG/ECU

Service Mode Screen Sample

4-2. Accessing Software Version.

- 1) Press \oplus (Enter) or \blacktriangleright button on Remote to enter Status information.



Remote Commander

Service Mode

Status Information	>>
Self Diagnosis History	>>
Panel Selection	<[1JIS6S320CND00101]>
Status 1st Tu Infor	>>
LVDS Spectrum(%)	<[30]>
SERIAL NUMBER EDIT	>>
Model Number Setting	>>
TEST RESET	<[Off]>
UART Selection	<[No Log]>
HDD Performance Check	>>
AAA	>>
Tu Data for Serv	>>

Set[<>]Home[Exit]

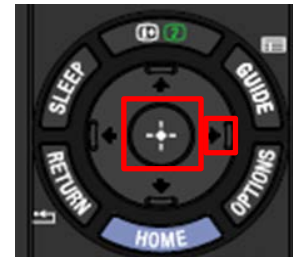
Screen Sample

Main Micro

SW Version:	TM1.000
NVM Version :	TD1.000
Boot Version:	TB1.000
Panel ID Version:	PA0.00X
BE ID Version:	BE0.00X
PQ Version:	PQ1.000
AQ Version:	AQ0.00X
Wi-Fi Version:	X.X.X.X

Only Available for IPTV model

- 2) Press \oplus (Enter) button on Remote to back to Service Mode.



Remote Commander

Service Mode

Status Information	>>
Self Diagnosis History	>>
Panel Selection	<[1JIS6S320CND00101]>
Status 1st Tu Infor	>>
LVDS Spectrum(%)	<[30]>
SERIAL NUMBER EDIT	>>
Model Number Setting	>>
TEST RESET	<[Off]>
UART Selection	<[No Log]>
HDD Performance Check	>>
AAA	>>
Tu Data for Serv	>>

Set[<>]Home[Exit]

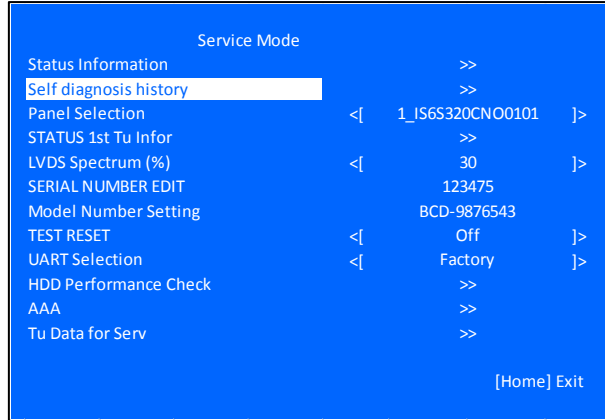
Screen Sample

4-3. Accessing Self Diagnostic History.

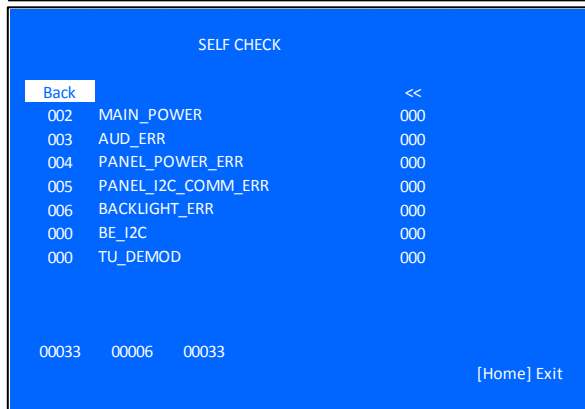
- 1) In Service Mode, select "Self diagnosis history", press **(+)** (Enter) or **➡** button to enter **Self Check**.



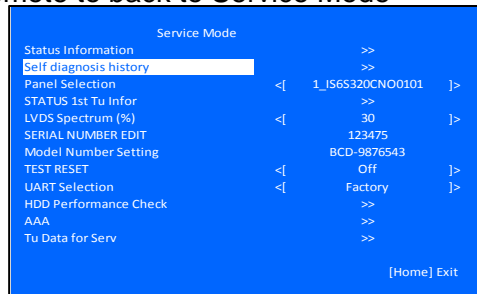
Remote Commander



Screen Sample



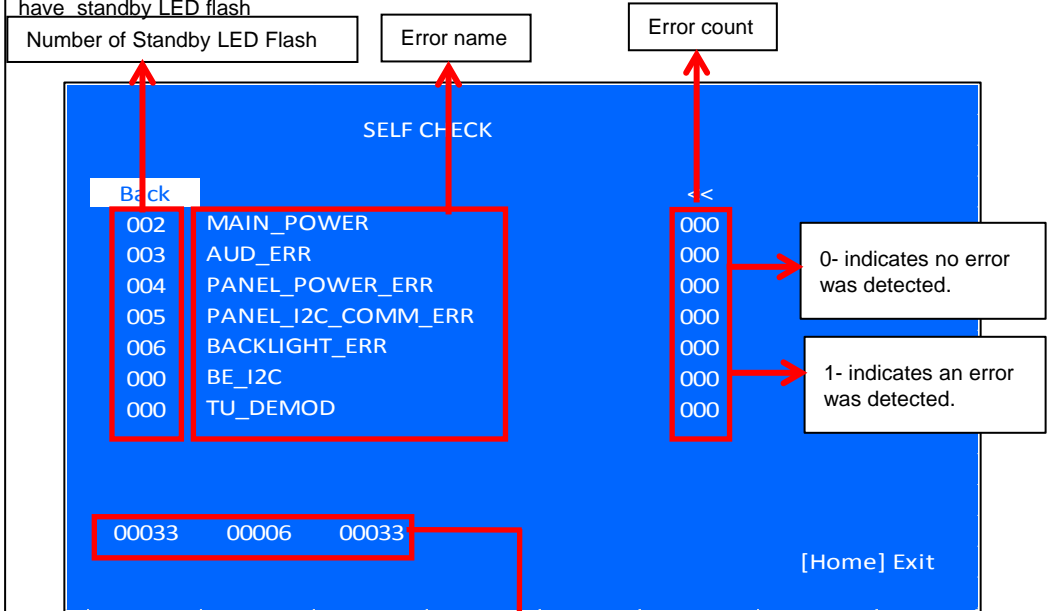
- 2) Press Enter button on Remote to back to Service Mode



4-4. Accessing Self Diagnostic Menu.

- 1) Go to TV standby condition by remote commander.
- 2) Press "i+ (info)", "5", "Volume -" then "TV power" on remote.
- 3) To Exit – Press Power Off & On.

*BE_I2C & TU_DEMOD do not have standby LED flash



Screen Sample

Total Operation Time [h] – Boot Count – Panel Operation Time [h]
 (max 65535) (max 65535) (max 65535)

•Total Operation Time and Panel Operation Time and is recorded every 1 h.

Remote function:

➔Error history clear : <8> -> <0>

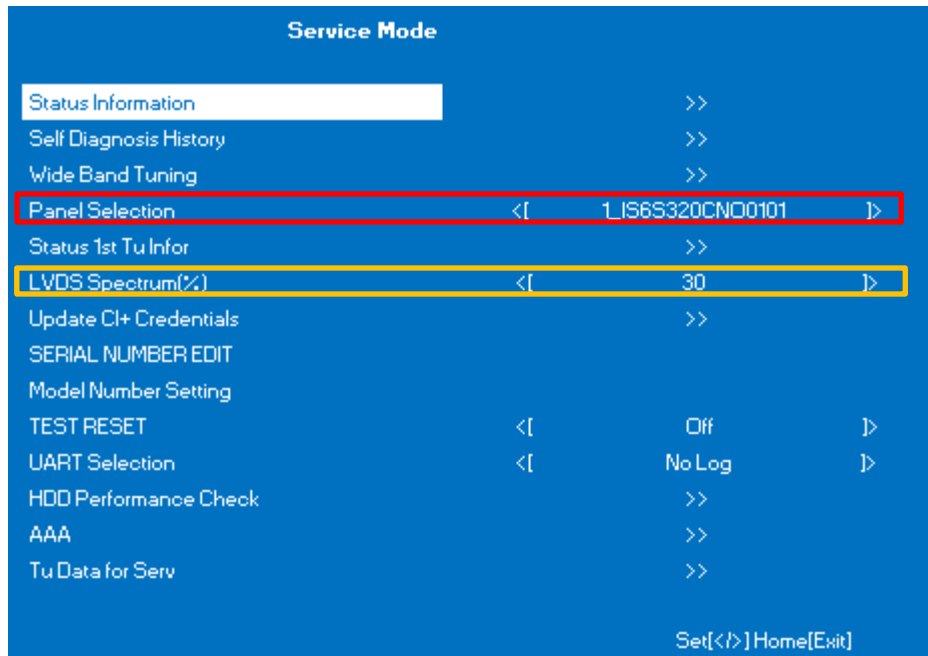
➔Panel operation time clear: <7> -> <0>

Failure Diagnosis By LED

Standby LED Flashing Times	Monitoring Items	Content
2	REG19.5V_MON	REG 19.5V Failure
3	X_AUDIO_MON	Audio Failure
4	PANEL12V_MON	Panel 12V Failure
5	PANEL I2C ACK	Panel ID NVM Failure
6	BL_ERR	Backlight Error

Panel Selection & LVDS Spectrum(%)

Please refer to the following Table to confirm if **Panel Selection** and **LVDS Spectrum(%)** values are correct.



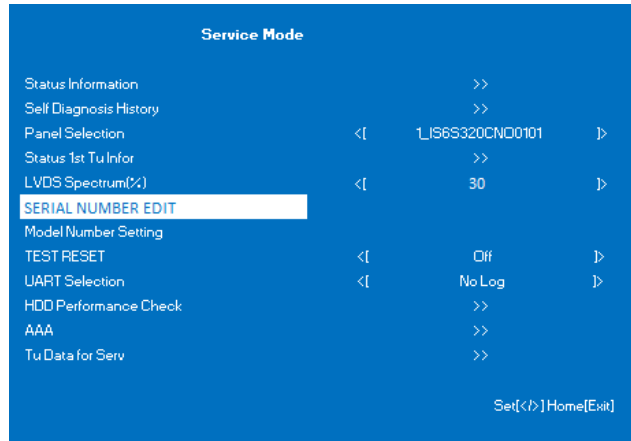
Model	Panel Selection	LVDS Spectrum
QW 32W	1_IS6S320CND0101	30
QW 40F	4_NS5S400CND0101	30
QW 48F	5_NS5S480CND0101	30

4-5. Accessing Serial Number Edit

1) Press **➡** button on Remote to enter edit mode for Serial Number



Remote Commander

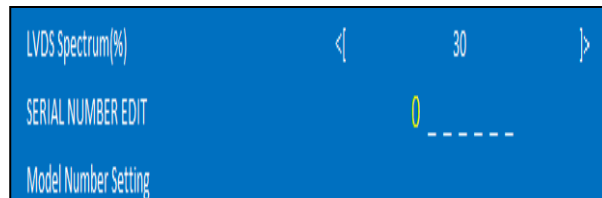


Screen Sample

2) Press **↑** or **↓** button to change number and **➡** button to edit next Number.



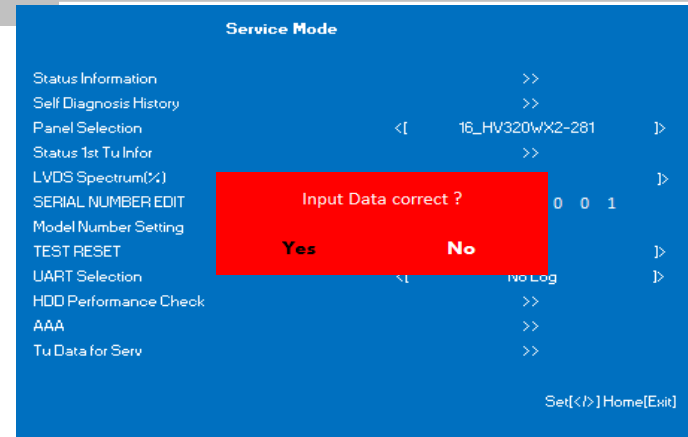
Remote Commander



Screen Sample

3) Serial Number can be set **ONLY ONCE**.

- After user input data , press <Enter>.
- Pop dialog will appear to inform user to confirm data.
- Press **➡** or **➡** button to select YES or NO.
- Select YES if input data is correct.
- Select NO if input data is incorrect.
- Press <Enter> to save answer.

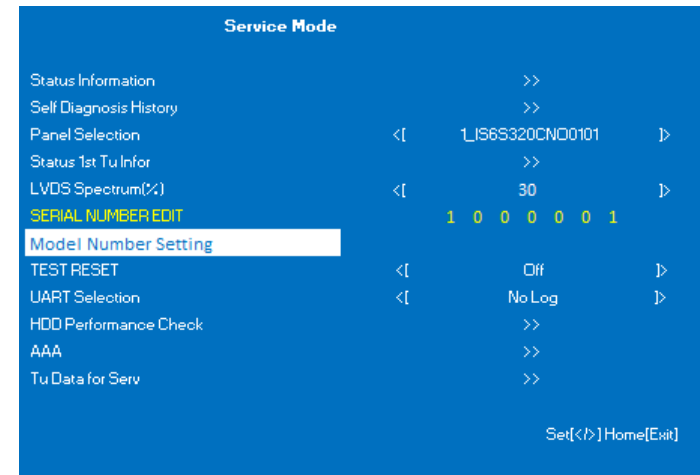


Screen Sample

Note: * The font color of YES is change to black when it is selected.

4) If **YES** is selected, the input data is saved into EEPROM.

- SERIAL NUMBER EDIT is greyed out and the serial number that has been input is displayed.
- User will **not able to edit** anymore.

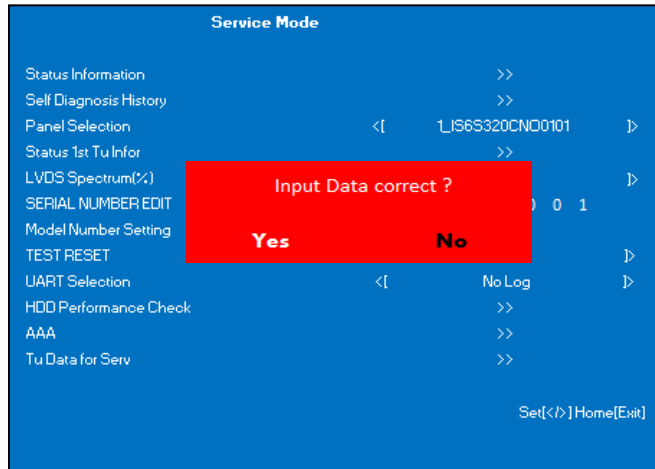


Screen Sample

Note : * The font color of SERIAL NUMBER is change after YES is selected.

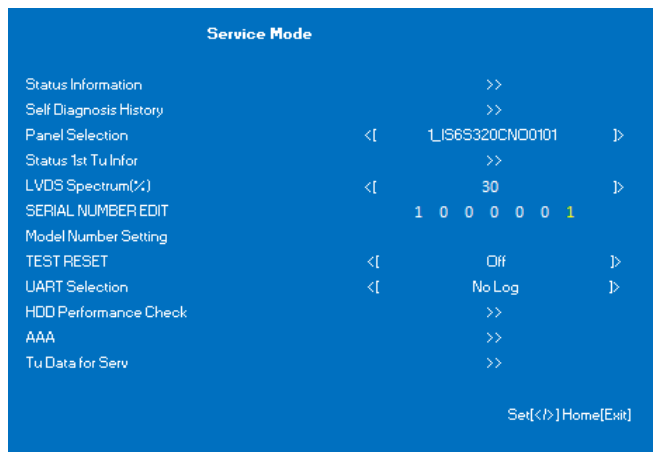
5) If **NO** is selected, the input data is not saved into EEPROM.

- The serial number that has been input is displayed.
- User can still edit the Serial Number.



Screen Sample

Note : * The font color of NO is change to black when it is selected.



Screen Sample

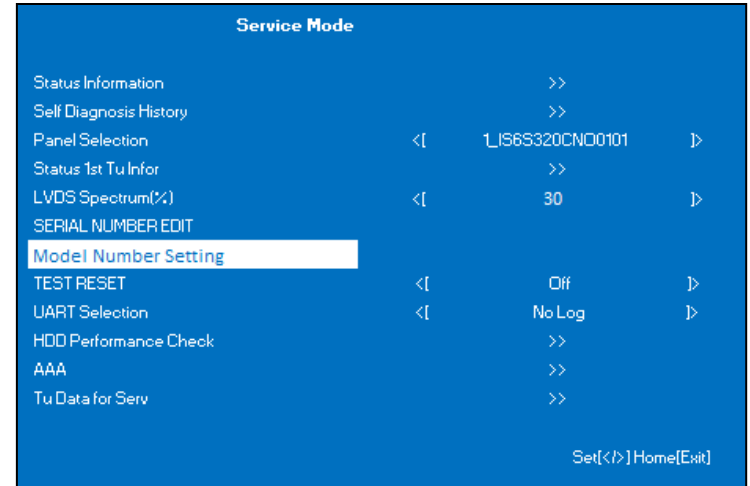
Note : * The font color of SERIAL NUMBER is white after NO is selected.

4-6. Accessing Model Number Setting .

1) Press **➡** button on Remote to edit mode for Model Number.

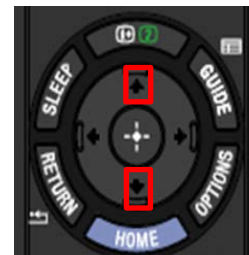


Remote Commander



Screen Sample

2) Press **▲** or **▼** button to change number and **➡** button to edit next Number.



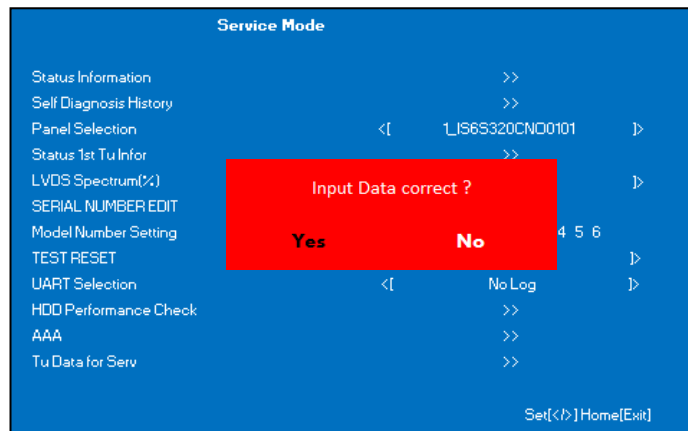
Remote Commander



Screen Sample

3) Model Name can be set **ONLY ONCE**.

- After user input data , press <Enter>.
- Pop dialog will appear to inform user to confirm data.
- Press **➡** or **⬅** button to select YES or NO.
- Select YES if input data is correct.
- Select NO if input data is incorrect.
- Press <Enter> to save answer.

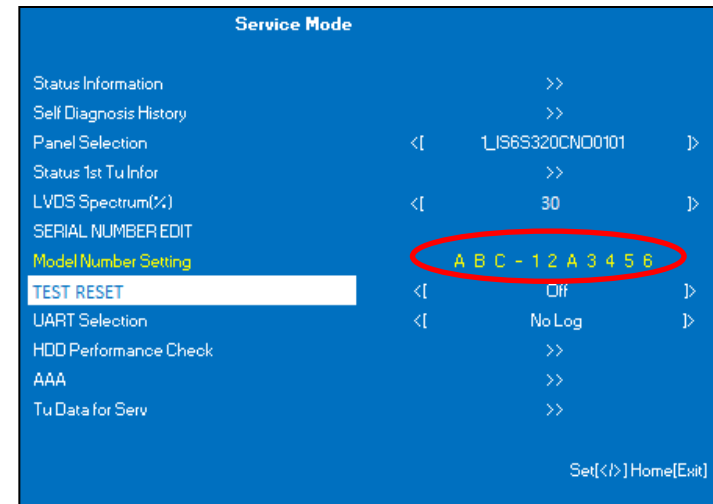


Screen Sample

Note :* The font color of YES is change to black when it is selected.

4) If **YES is selected**, the input data is saved into EEPROM.

- Model Name EDIT is greyed out and the model name that has been input is displayed.
- User **will not able to edit** anymore

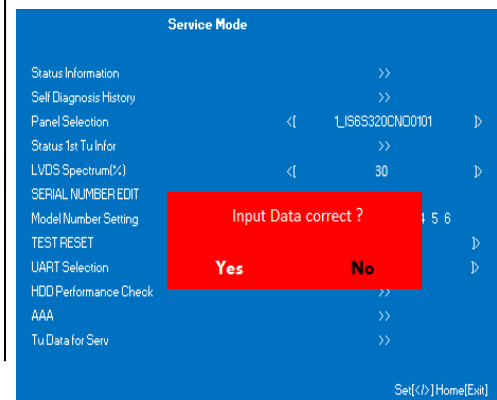


Screen Sample

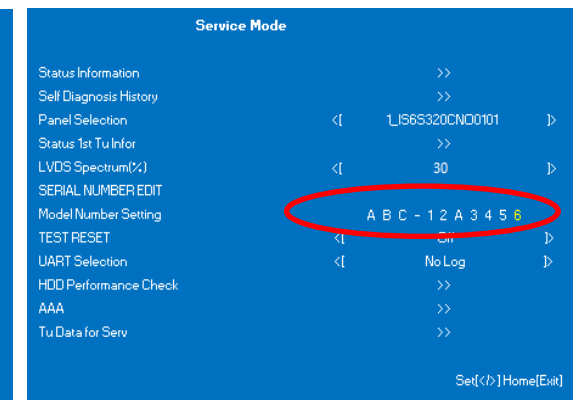
Note : *The font color of MODEL NAME is change after YES is selected.

5) If **NO is selected**, the input data is not saved into EEPROM.

- The model name that has been input is displayed.
- User can still edit the Model Name.



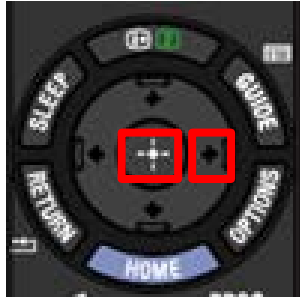
Note :*The font color of NO is change to black when it is selected.



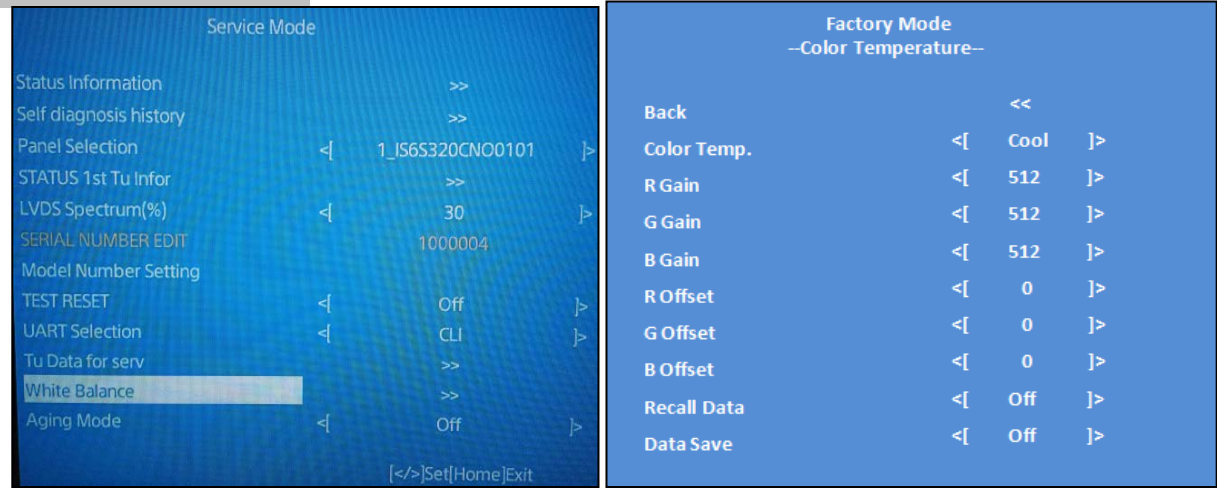
Note :* The font color of MODEL NAME is white after NO is selected.

4-7. White Balance

- 1) Press “Enter” or ➡ button to enter White Balance adjustment.

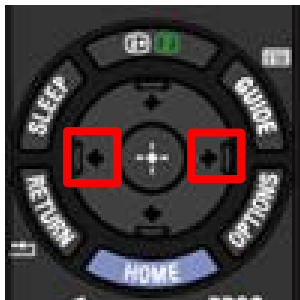


Remote Commander

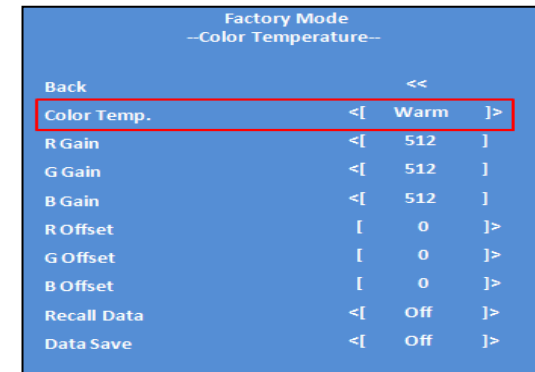
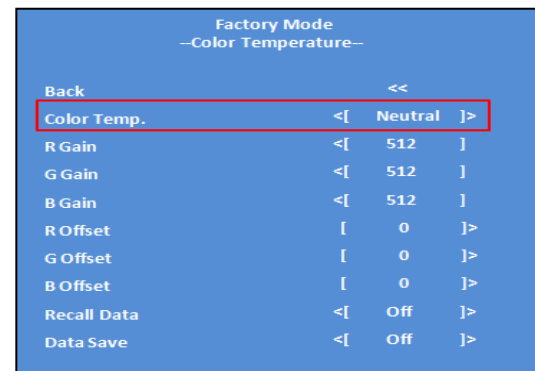
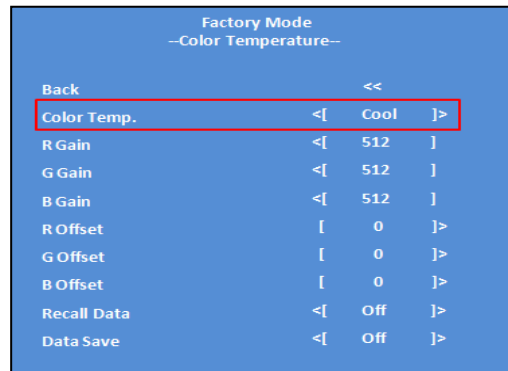


Screen Sample

- 2) Press ➡ or ⬅ button to to change intended Color Temp adjustment.(Cool , Neutral and Warm)

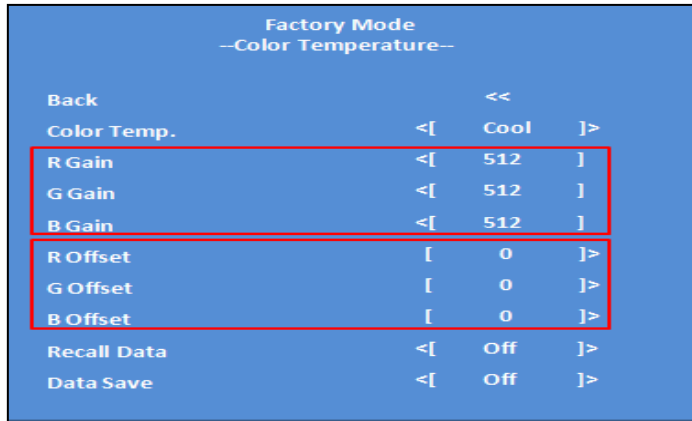


Remote Commander



Screen Sample

3) Start WB adjustment by changing R/G/B Gain & Offset register.

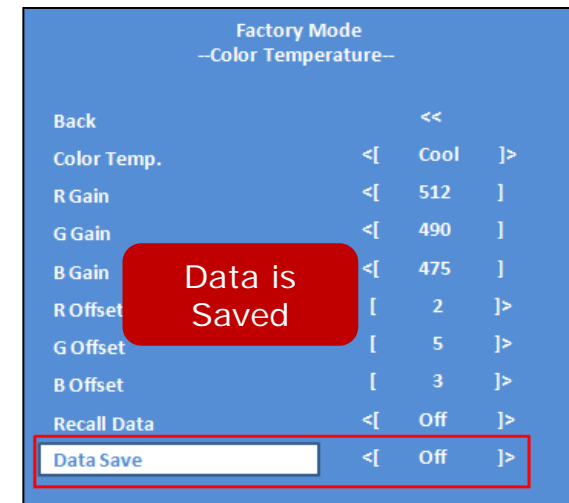
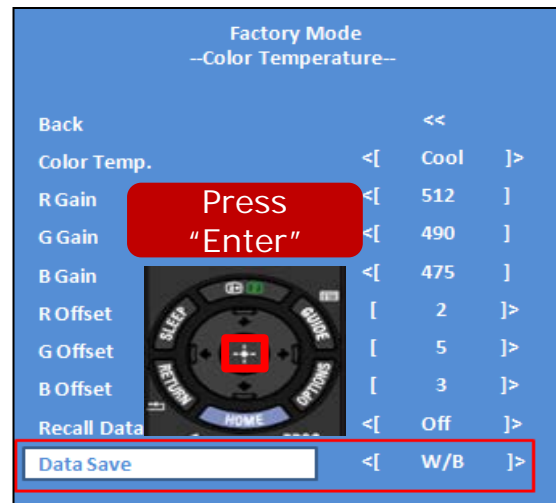
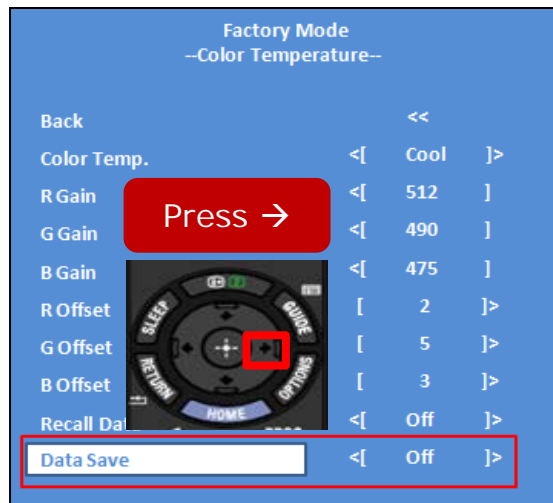


→R/G/B Gain setting around High luminance Adjustment
(Default Value 512)

→R/G/B Offset setting around Low luminance Adjustment
(Default Value 0)

Screen Sample

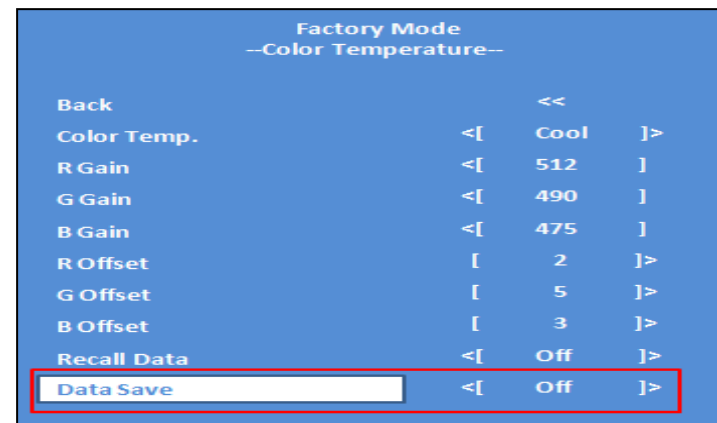
4) After adjustment completed go to Data Save and press “➡” until it shows “W/B” and press enter.



Screen Sample

Remark#1

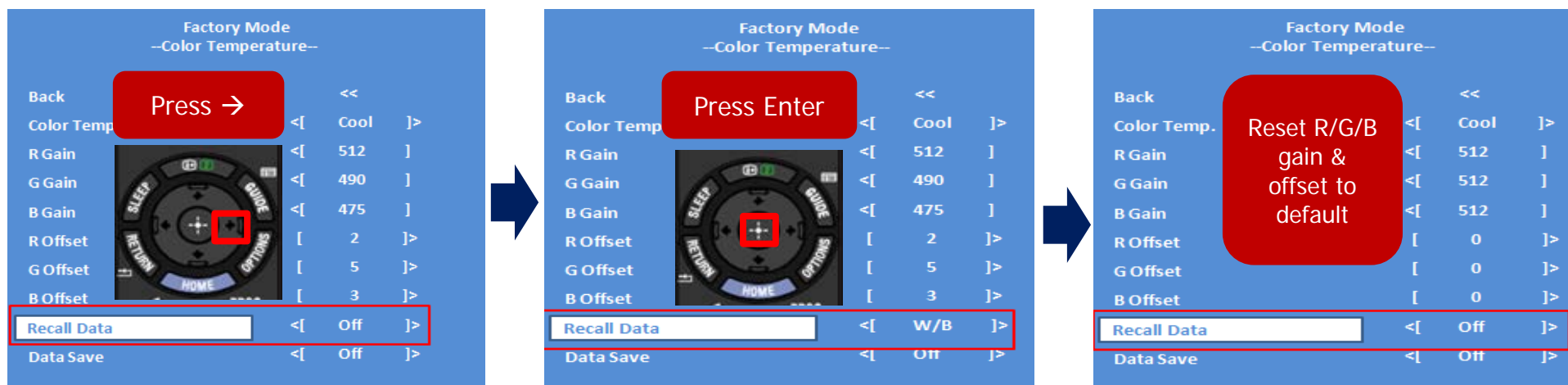
Data Save only will save current Color Temp. adjustment value. For this case only Cool Color Temp. will be saved to TV set. To save Neutral and Warm adjustment we need to change Color Temp. to intended Color temp. adjustment and execute Data Save operation again. After operation completed, just exit the Service Menu page.



Screen Sample

- 5) Recall Data operates 2 processes at the same time.
 - i) Reset current Color temp Data R/G/B Gain & Offset register to default.
 - ii) Return to original WB data

- 6) To perform Recall data, go to Recall Data and press until it shows "W/B" and press enter.



Screen Sample

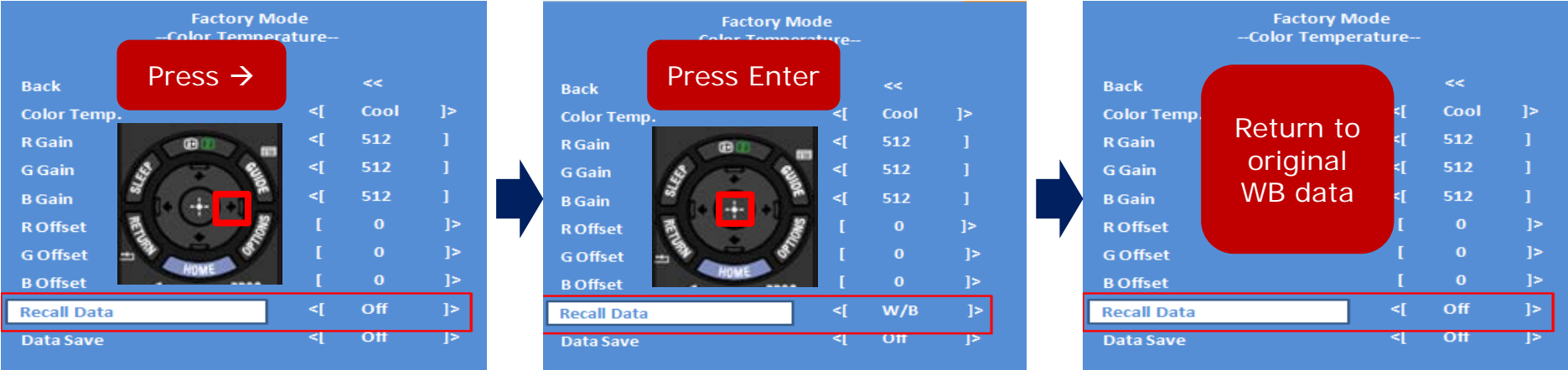
Remark #2:
 Data Recall only will reset current Color Temp. data to default. For this case only Cool Color Temp. will be reset to TV set. To reset Neutral and Warm adjustment we need to change Color Temp. to intended Color temp. and execute Recall Data operation again.
Data Save is needed for every Color Temp. once Recall Data is executed to save the default data

Factory Mode
--Color Temperature--

Back	<<
Color Temp.	<[Cool]>
R Gain	<[512]>
G Gain	<[512]>
B Gain	<[512]>
R Offset	[0]>
G Offset	[0]>
B Offset	[0]>
Recall Data	<[Off]>
Data Save	<[Off]>

Screen Sample

7) To get original WB data if panel or Board is changed, please execute Data recall for each color temp.

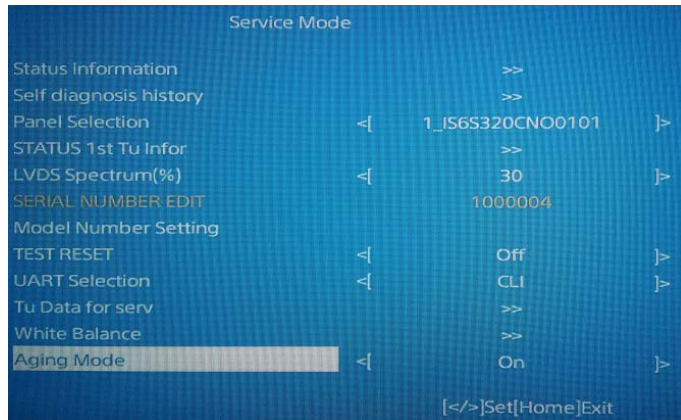


Screen Sample

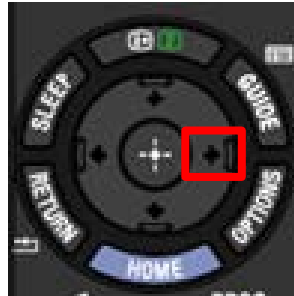
8) AC Off and ON is needed after Recall data.(For function 6(ii)).
 Short time flicker (White pattern changes 3 times) can be observed to verify the Copy Data operation is working.

4-8. Aging Mode

1) Press "➡" button to turn on "Aging Mode"

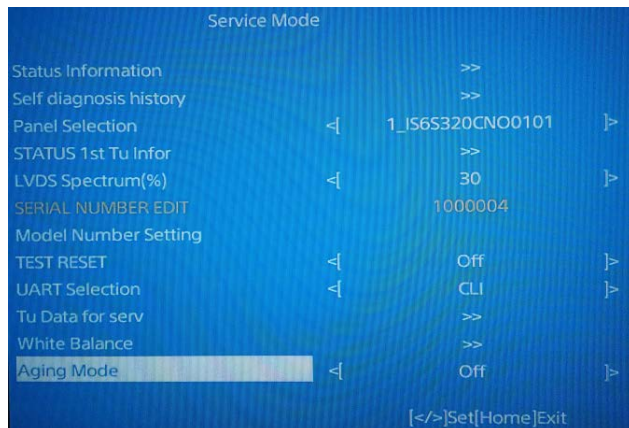


Screen Sample



Remote Commander

2) Press "⬅" button to turn off "Aging Mode"



Screen Sample



Remote Commander

4-9. Tuner Detection (1)

1) Press “Enter” or “➡” button to enter Tuner Detection.

Service Mode

- SERIAL NUMBER EDIT
- Model Number Setting
- TEST RESET <[Off]>
- UART Selection <[No Log]>
- HDD Performance Check >>
- AAA >>
- Tu Data for Serv >>
- Tu Data for Serv >>
- SDB Service Menu >>
- White Balance >>
- Aging Mode <[Off]>
- Default date for HDD recording <[Off]>
- Tuner Detection** >>

Set[</>]Home[Exit]



Tuner Detection

- Back <<
- Tuner Check <[On]>
- Tuner Status OK
- Expected Tuner Type 3
- Mounted Tuner Type 3

[</>]Set[Home]Exit

2) Go to “Return” and press “Enter” or “➡” button to return to Service Mode



Tuner Detection

- Back <<
- Tuner Check <[On]>
- Tuner Status OK
- Expected Tuner Type 3
- Mounted Tuner Type 3

[</>]Set[Home]Exit

Service Mode

- SERIAL NUMBER EDIT
- Model Number Setting
- TEST RESET <[Off]>
- UART Selection <[No Log]>
- HDD Performance Check >>
- AAA >>
- Tu Data for Serv >>
- Tu Data for Serv >>
- SDB Service Menu >>
- White Balance >>
- Aging Mode <[Off]>
- Default date for HDD recording <[Off]>
- Tuner Detection** >>

Set[</>]Home[Exit]

4-9.Tuner Detection (2)

3) Go to “Tuner Check” and press “<” or “>” to enter selection “On” or “Off” *.

- “Tuner Check” = **On** , to execute “Tuner Check” and update “Tuner Status” value.
- “Tuner Check” = **Off** (default value). Always set “Tuner Check” to “Off” after confirm “Tuner Status” value

* Perform AC Off/On for changes to take effect.

4) “Tuner Status” has **3 values**. **

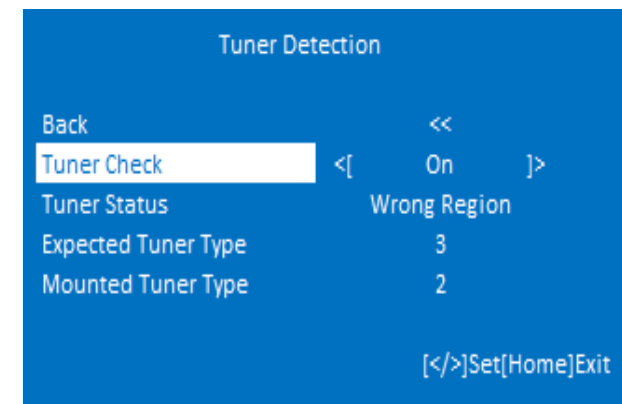
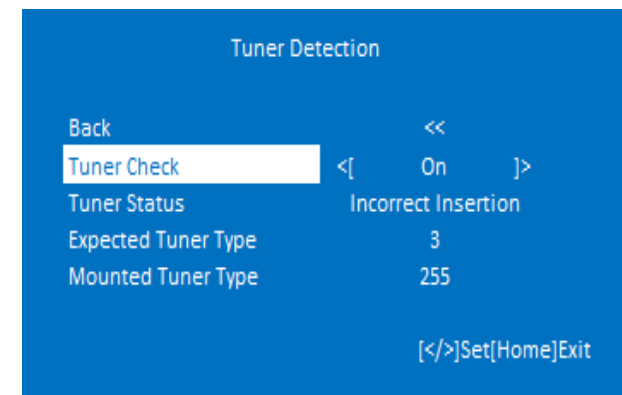
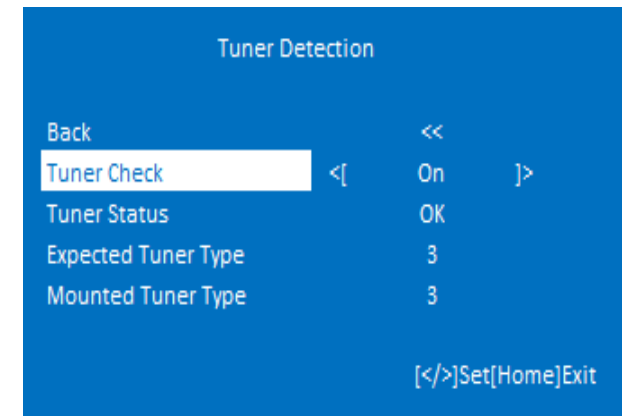
- “Tuner Status” = **OK**. Tuner module is OK.
- “Tuner Status” = **Incorrect Insertion**. Tuner module is not inserted correctly.
- “Tuner Status” = **Wrong Region**. Wrong tuner module is inserted.

***”Tuner Status” will only update if “**Tuner Check**”=‘On’ and **AC Off/On** is already performed.

5) “Expected Tuner Type” is the expected tuner module to be inserted to TV.

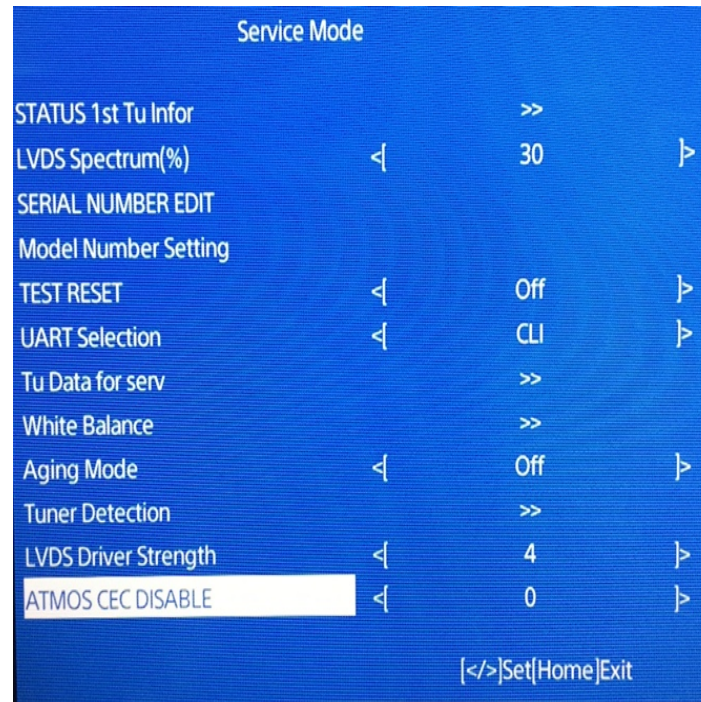
6) “Mounted Tuner Type” is the type of tuner module that is currently inserted to TV

Tuner Type	Tuner Module region
0	AEP T2S2-1Tuner
2	PA T2 /AEP-T2-1Tuner
3	TW, LA-ISDB(Soc)- (BR/AR/EC/Chile/Peru/Urg) - 1 Tuner
4	CH/HK-1Tuner
5	UC/MX, PH-ISDB(Soc) - 1 Tuner
6	LA-T2 (Col) 1 Tuner
10	PAA/ AEP-STD -1Tuner



4-10.ATMOS CEC DISABLE

1) Go to “ATMOS CEC DISABLE” and Press “<” or “>” button to enter Select ‘0’ or ‘A’



ATMOS_CEC_DISABLE (EEPROM 0x30A0)

Data : [0/A] default : 0

Purpose : Data [A] is able to skip Atmos judgment by CEC <Report Short Audio Descriptor> comes from the amplifier, and to set Atmos EDID as the service c/m that a amplifier supports Atmos but it reply NO Atmos.

Remarks : This data is not changed software update or AC-Off-On, only change from service menu.

2) After select the option that you wish, press “Home” to confirm the selection.

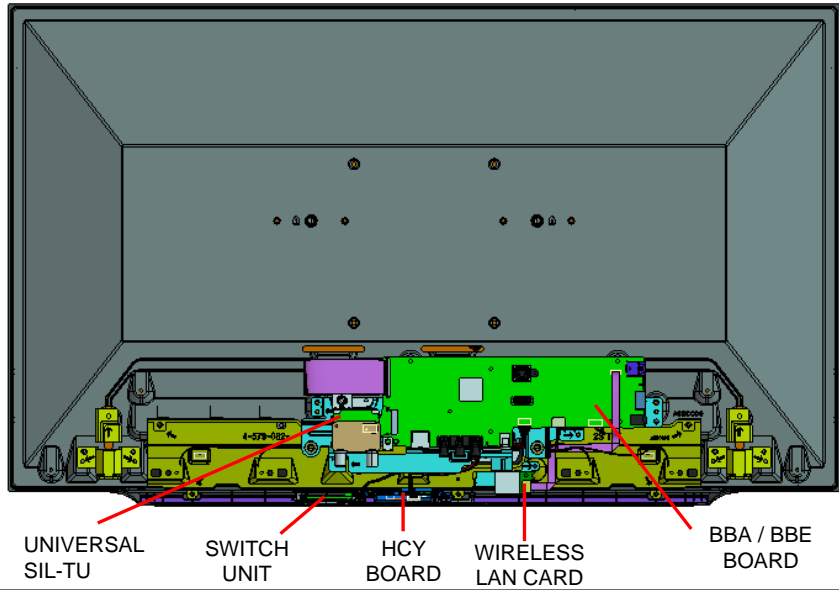


Option	Execution Effect
0 (default)	The TV sets Atmos EDID/ Non Atmos EDID checking whether HDMI1(ARC) is connected to the amplifier that supports ARC & Atmos
A	The TV sets Atmos EDID when HDMI1(ARC) is connected to the amplifier that supports ARC even it doesn't support Atmos.

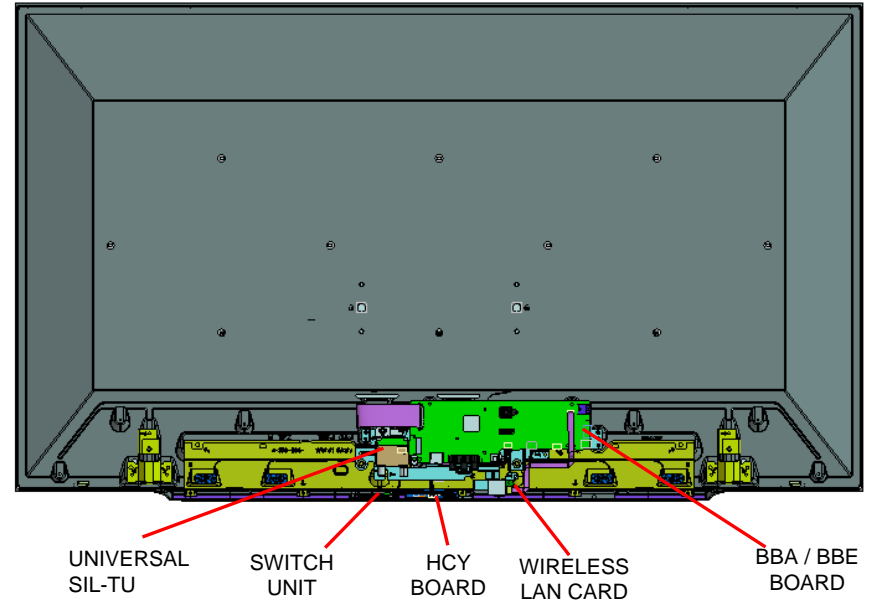
SECTION 5 DIAGRAMS

5-1. CIRCUIT BOARD LOCATION

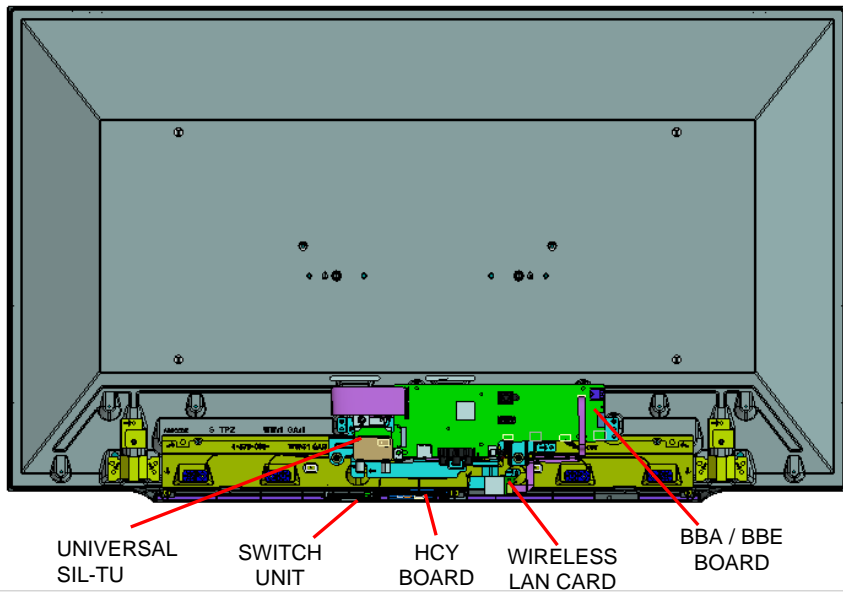
5-1-1. KDL-32W* D



5-1-3. KDL-48W* D

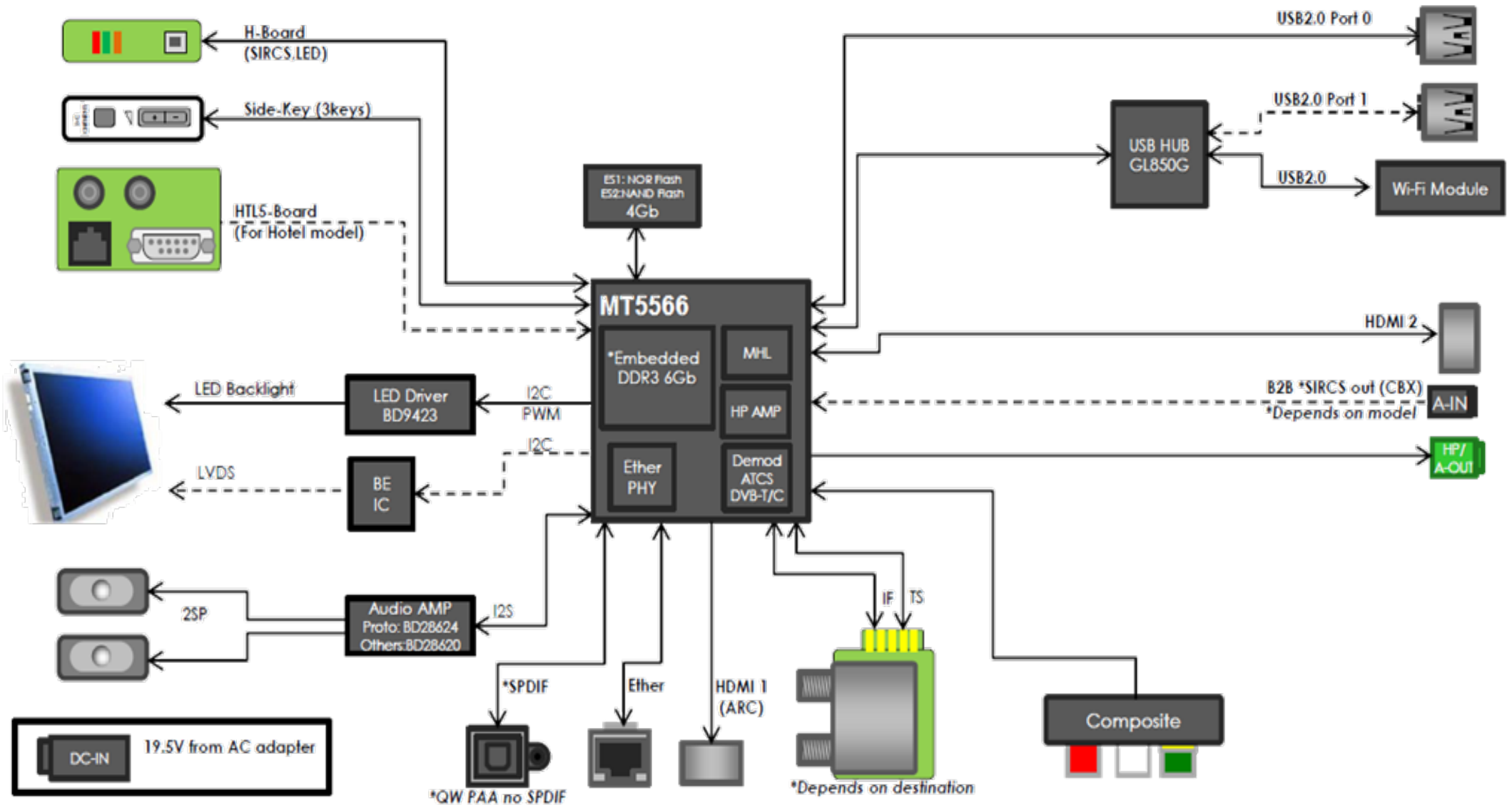


5-1-2. KDL40W*D



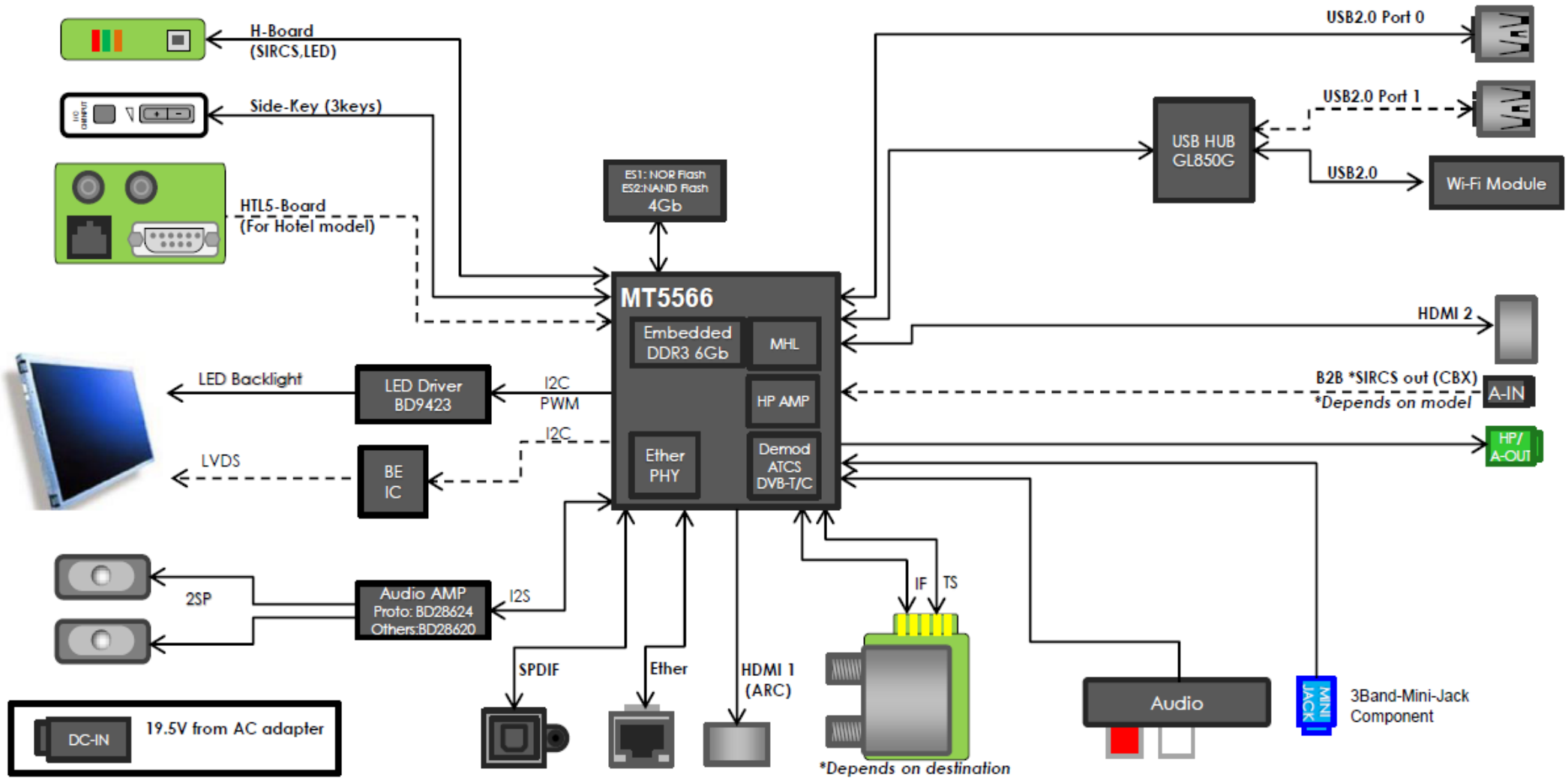
5-2. Block Diagram

5-2-1. (QW)-IPTV (BBA PWB for COL,BR,PAA,PAD,LA,PH,CH,TW)



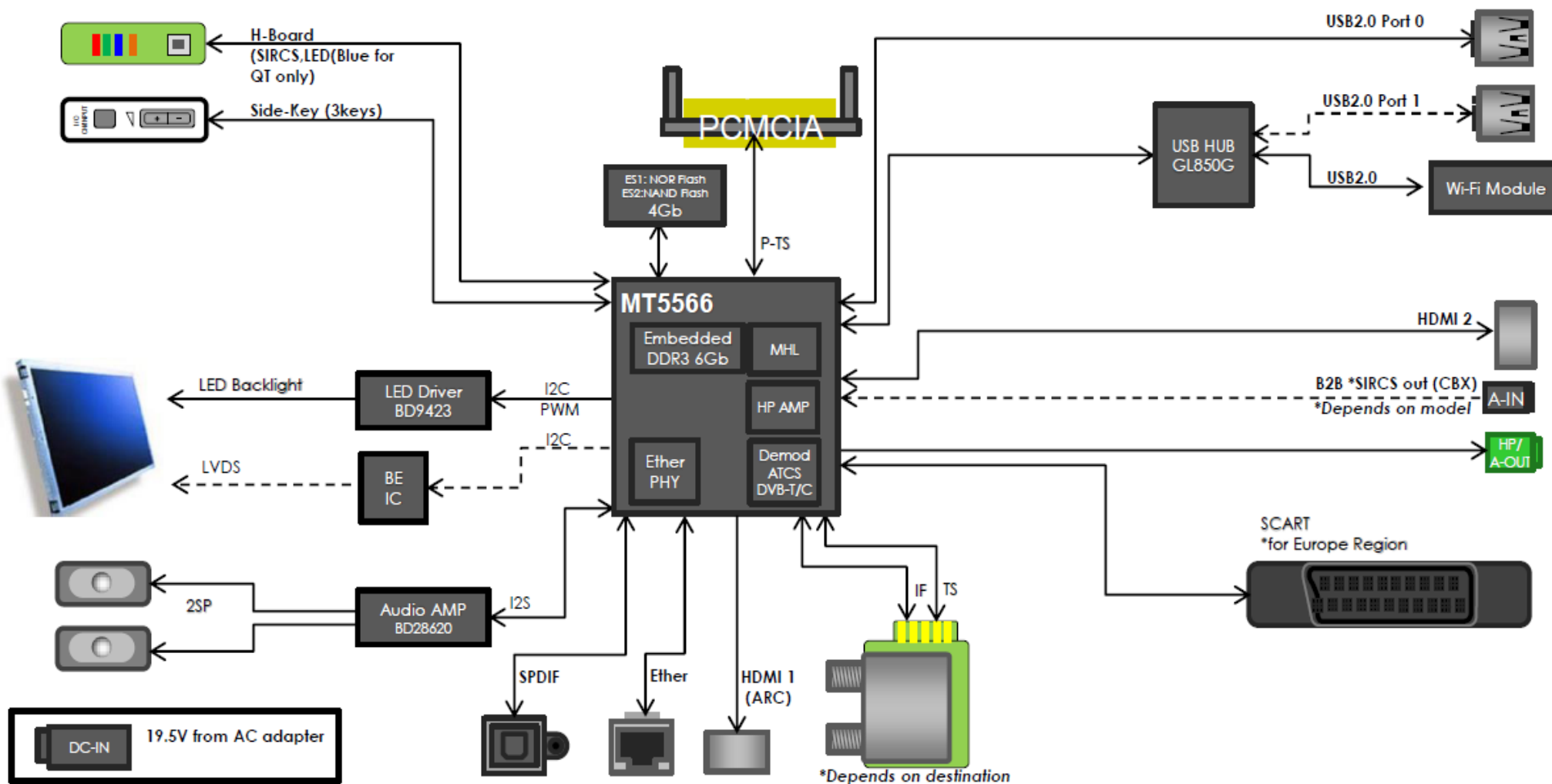
5-2. Block Diagram

5-2-2. (QW)-IPTV (BBA PWB for UC)

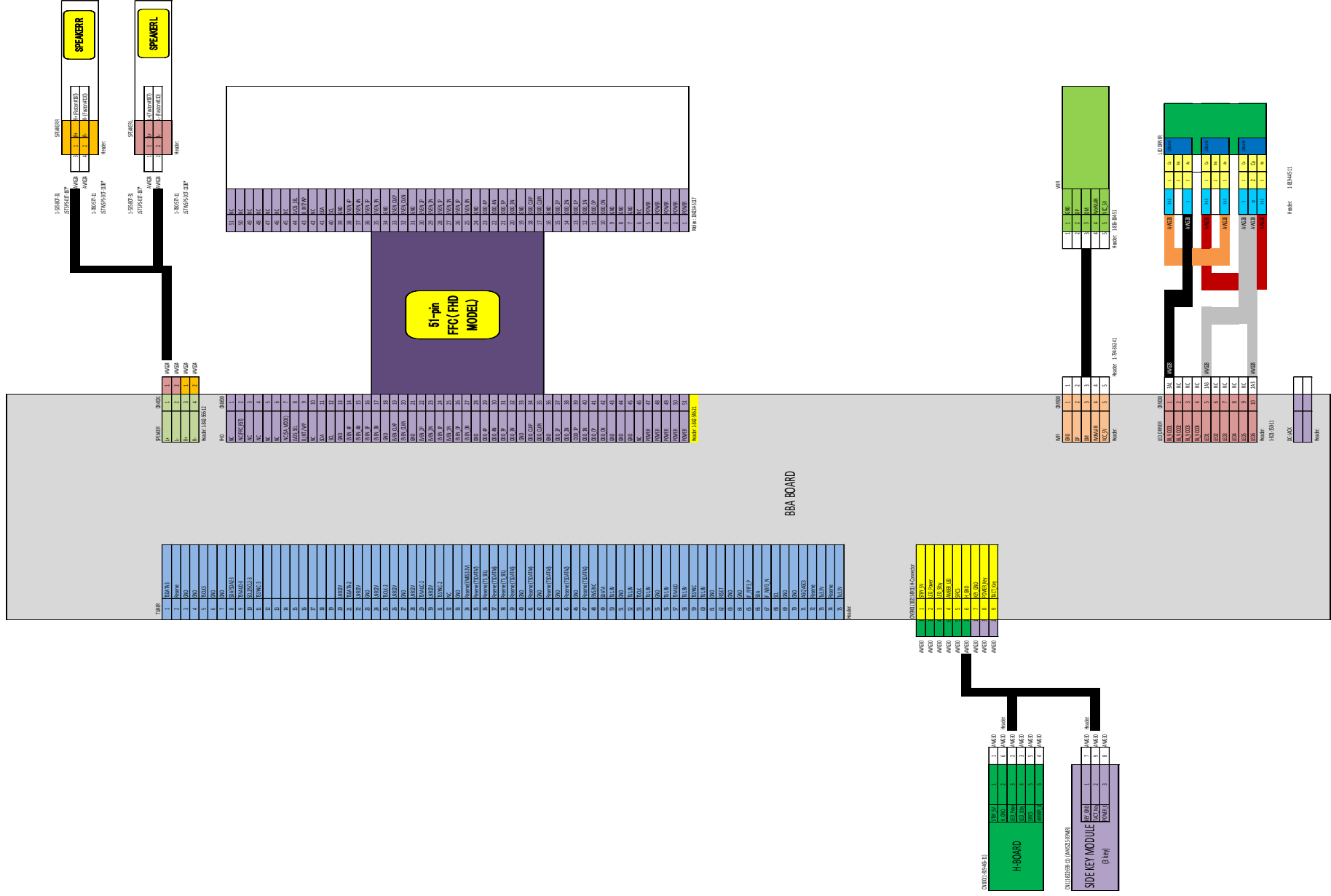


5-2. Block Diagram

5-2-3. (QW,QT)-IPTV (BBE PWB for EU)

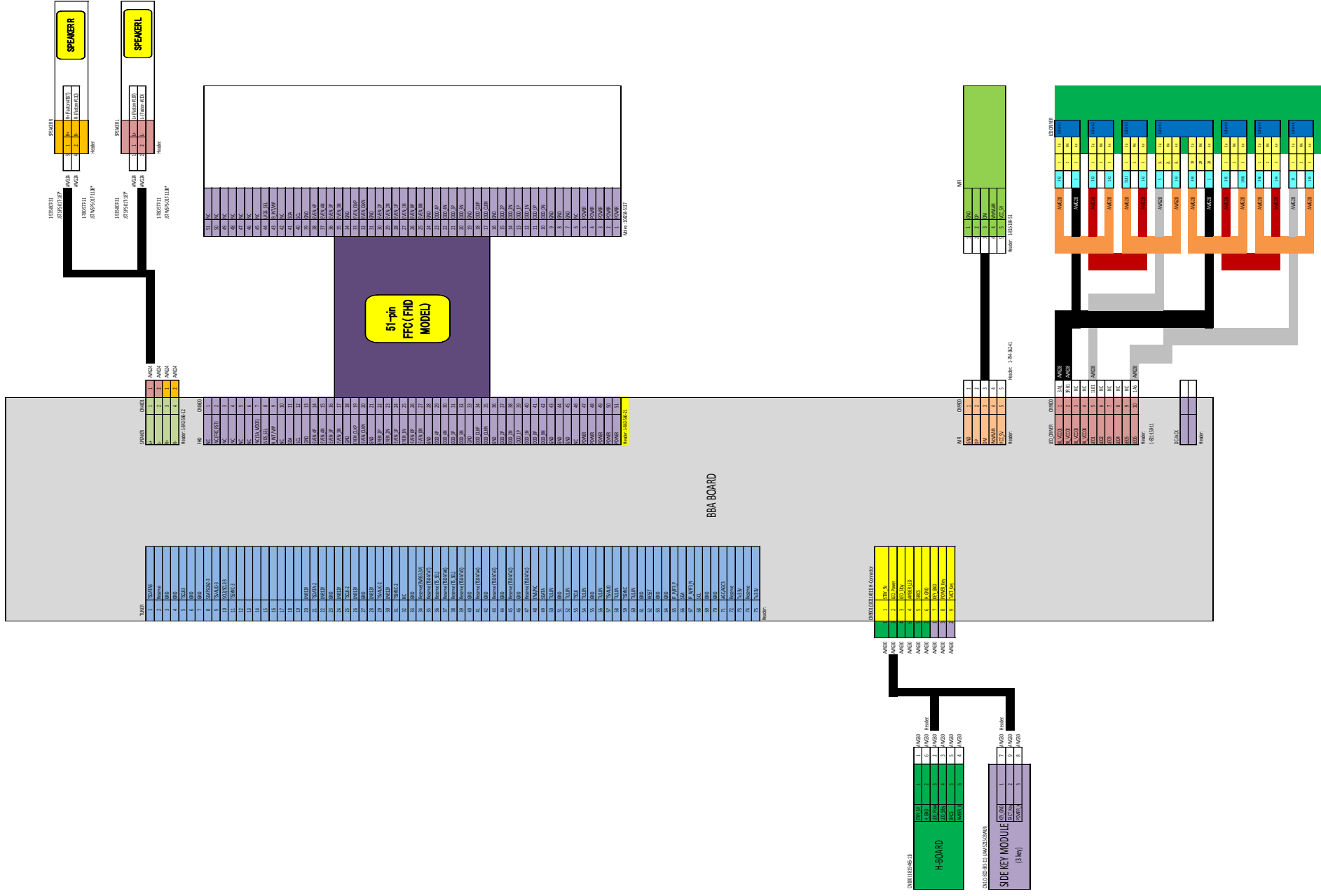


5-3. Connector Diagram
 5-3-2. QW_BBA_FHD_40



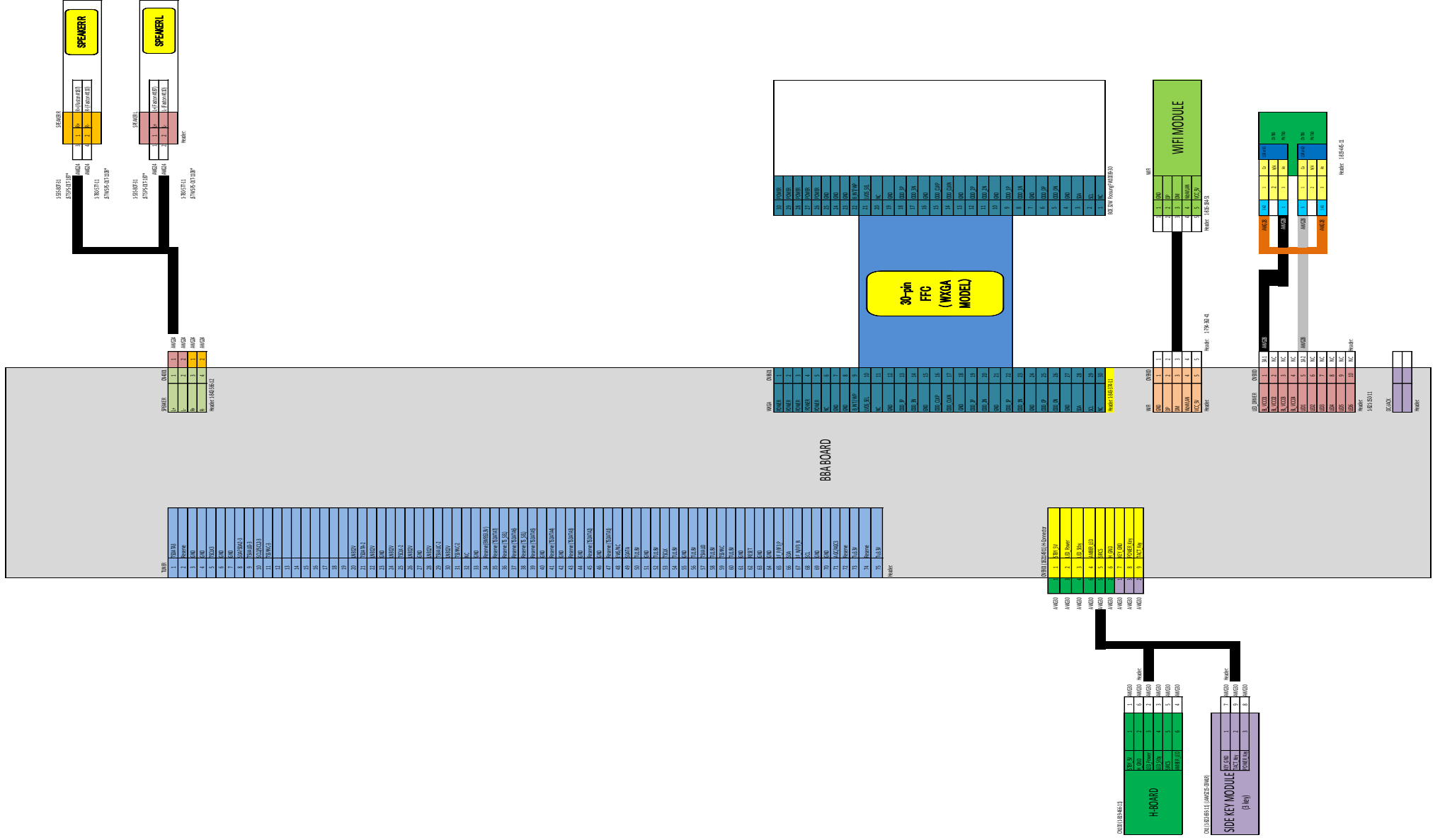
5-3. Connector Diagram

5-3-3. QW_BBA_FHD_48



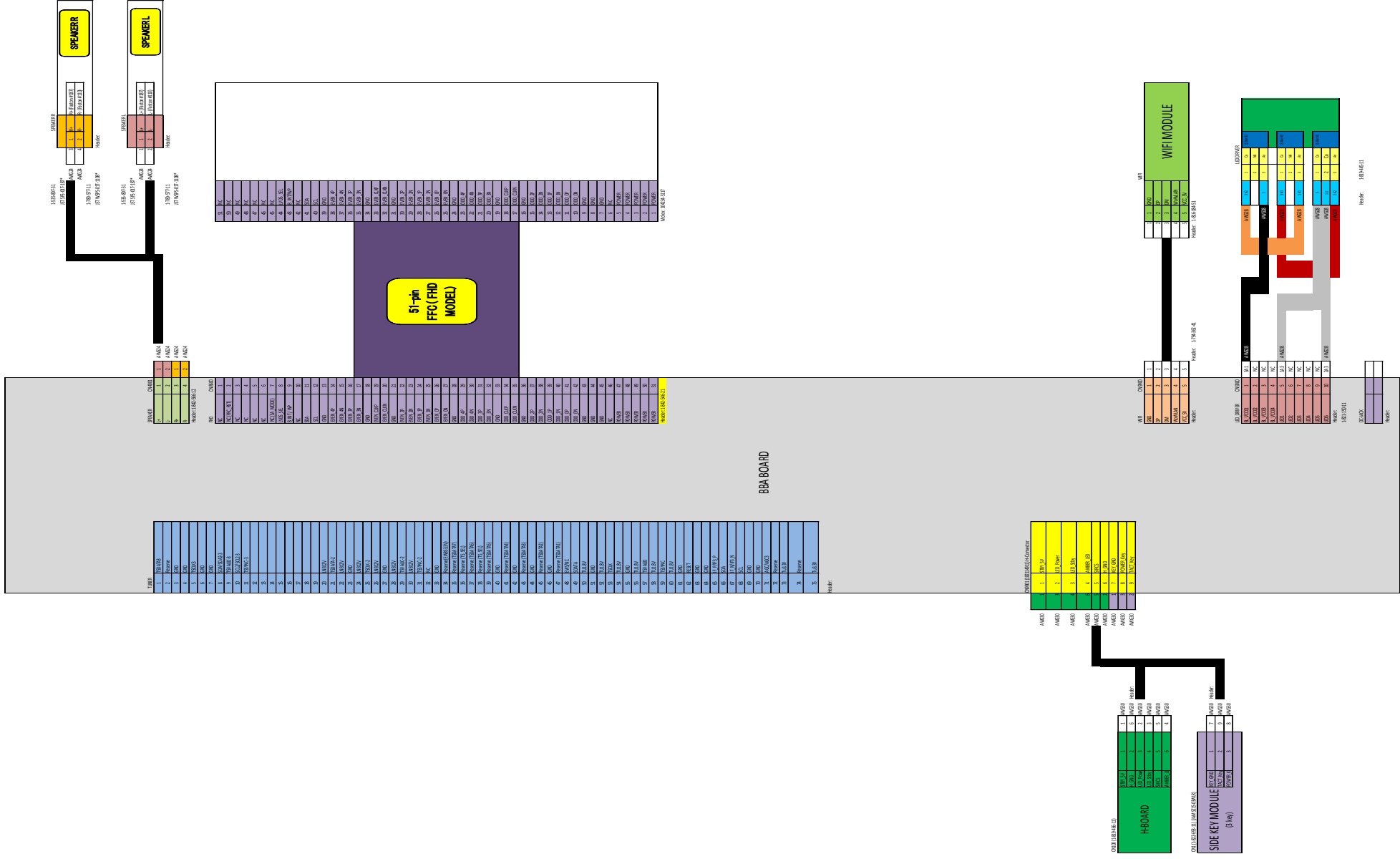
5-3. Connector Diagram

5-3-4. QW_BBE_WXGA (32")



5-3. Connector Diagram

5-3-5. QW_BBE_FHD_40



5-3. Connector Diagram

5-3-6. QW_BBE_FHD_48

