SERVICE MANUAL (COMMON)

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(See next page for revision)

GN5UN CHASSIS

Segment : SG

9-888-770-01

LCD TV

SONY

Sony EMCS (M) Sdn. Bhd., SVPM

REVISION HISTORY

Version	Date	Subject
1	2019.04	1. 1st Issue

SONY

MODEL LIST

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

REGION

ASIA AMERICA EUROPE

MODEL

KD-43X7*G	KD-49X7*G	KD-55X7*G	KD-65X7*G
KD-43XG7*	KD-49XG7*	KD-55XG7*	KD-65XG7*

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Please refer Service Manual – Unique for below information :

- Disassembly and Removal Caution
- Wire Dressing
- Circuit Board Location
- Exploded Views and Part Lists

Note: Pictures provided in this manual may have difference from actual sets.

SECTION 1
SAFETY NOTES

1-1. Warnings and Caution

1) CAUTION :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) WARNING!! : 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.

The replaceable fuse could be in the neutral of the mains supply. When replacing the fuse, the mains shall be disconnected for de-energize the phase conductors.

(*Except AC ADAPTOR, Because it does not carry out replacing an internal fuse.)

4) CARRYING THE TV : 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) SAFETY-RELATED COMPONENT WARNING!! : 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.

6) IMPORTANT REMINDER FOR TV MAINBOARD REPLACEMENT :
It is mandatory for service centers to confirm the TV's system information after each repair carried out with Mainboard replacement.

Whenever a TV Main board is replaced, the correct TV Model and Serial number must be reinserted into memory.

This is a MANDATORY procedure that each service center must apply.

Please refer to the chapter of ADJUSTMENT in this service manual to find out how to set the model number and serial number in service mode.

1-2-1. 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.

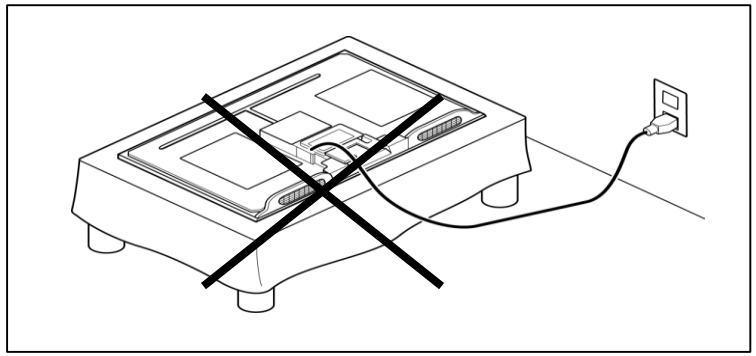
8) Use care when handling the wires or connectors of the inverter circuit.

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. Refer Figure 1 .

Figure 1.



1-2-2. Caution for OLED Panel

1) Handling

When repairing the TV set, be sure you are grounded by using a wrist band.

*Do not press on the panel or frame edge to avoid the risk of electric shock.

*Do not scratch or press on the panel with any sharp objects.

*Do not leave the module in high temperatures or in areas of high humidity for an extended period of time.

*Do not expose the panel to direct sunlight.

*Avoid contact with water. It may cause a short circuit within the module.

*Disconnect the AC power when replacing.

*Always clean the panel with a soft cloth material.

*Use care when handling the wires or connectors. Damaging the wires may cause a short.

*Protect the panel from ESD to avoid damaging the electronic circuit.

*Do not recommend power-on in the conditions which laid face down the panel, in repair activity. Refer Figure 1 .

*When transporting by hand, do not put stress on the panel and the frame around the screen.

Refer to the panel handling chapter of each Service manual, or the "Transporting" information of the Reference Guide of each model for how to hold it.

2) OLED Screen

•Although the OLED screen is made with high-precision technology and 99.99% or more of the pixels are effective, black dots may appear or bright points of light (white, red, blue, or green) may appear constantly on the OLED screen. This is a structural property of the OLED screen and is not a malfunction.

•Do not push or scratch the front filter, or place objects on top of this TV set. The image may be uneven or the OLED screen may be damaged.

•The screen and cabinet get warm when this TV set is in use. This is not a malfunction.

3) Precautions to Protect the Screen from Damage

Image retention

OLED TV's are susceptible to image retention (burn-in) due to the characteristics of the materials used. Image retention may occur if images are displayed in the same location on the screen repeatedly or over extended periods of time. This is not a malfunction of the TV. Avoid displaying images that may cause image retention.

The following are examples of images that may cause image retention:

•Content with black bars either on the top and bottom and/or the left and right sides of the screen. (for example, Letterboxed, 4:3 screen, Standard definition)

•Static images such as photos.

•Video games that might have static content in some part of the screen.

•On-screen menus, program guides, channel logos etc.

•Static content from applications.

•On-screen tickers, such as those used for news and headlines.

To reduce the risk of image retention:
•Fill the screen by changing [Wide mode] to eliminate the black bars. Select [Wide mode] other than [Normal].
•Turn off the OSD (On Screen Display) by pressing the DISPLAY button, and turn off the menus from connected equipment. For details, refer to the instruction manuals for the connected equipment.
•Avoid displaying static images with bright colors (including white), clocks or logos on any portion of the screen.
•Set the picture settings based on the ambient conditions. The Standard Picture is recommended for home use and when viewing content that often displays the station logos, etc.
The TV has following features to help reduce/ prevent image retention.
Press the HOME button, then select [Settings] – [Picture & Display] – [Expert panel settings] – the desired option.

Panel refresh
Panel refresh will automatically run to adjust the uniformity of the TV screen after it has been in use for long periods of time.
Panel refresh can also be performed manually and should only be used if image retention is very noticeable or you see the following message: [Panel refresh did not finish...]

Caution:
•The Panel refresh function may affect the panel. As a reference, perform the Panel refresh only once a year, do not perform it more than once a year as it may affect the usable life of the panel.
•Panel refresh takes about one hour to complete.
•A white line may be displayed on the screen during the Panel refresh, this is not a malfunction of the TV.
•Panel refresh will only work when the room temperature is between 10 ºC and 40 ºC.

Pixel shift
Automatically moves the image on the screen to prevent image retention.

Other feature
The screen brightness is automatically reduced when displaying still images, clocks, bright colors or logos etc.

IMPORTANT REMINDER FOR OLED PANEL REPLACEMENT
When carrying out OLED panel replacement, it is mandatory of a service center to confirm and record Panel ON time & Panel Refresh times.
It is because they are indispensable information in order to clarify responsibility for image retention after panel replacement.
Please refer to the chapter of SELF DIAGNOSIS FUNCTION in this service manual to find out how to confirm the Panel ON time & Panel Refresh times in service mode.

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

(To protect electric shock when customer touch the terminal.)
Leakage current can be measured by V: Voltmeter or oscilloscope (r.m.s. or peak reading)

Stabilized power supply instrument and isolated voltage transformer:
Use too much current capacity and isolated voltage transformer does not need to use stabilized power supply equipment.
Specification of RMS volt meter: Input resistance > 1 Mohm, Input capacitance < 200 pF, Frequency range: 15 Hz – 1MHz . Refer Figure 2.
Isolated type volt -meter (FLUKE 8921A etc *1)
*1 Not use FLUKE 8920A that connected to protective earth by diode
Leakage current of measurement instrument is less than 10μArms when under test equipment AC plug is opened
Set up the following condition and turn on the set. Applied voltage: Nominal input voltage (Description on Nameplate)
Measure the leakage current between one phase conductor and neutral for terminal A and terminal B.
Read rms value, and then calculate to peak value PEAK VALUE =√2 RMS VALUE

Comply with the following requirement
Class II equipment (2-pin plug): for each terminal, the worst value of measurement must not exceed AC 350uA peak).
Note: including AC adaptor, AC adaptor/DC operated unit combination

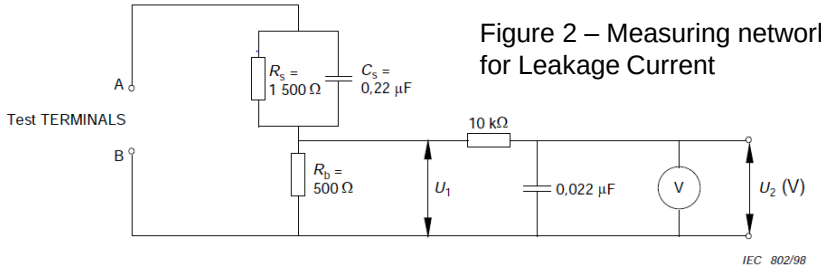


Figure 2 – Measuring network for Leakage Current

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).

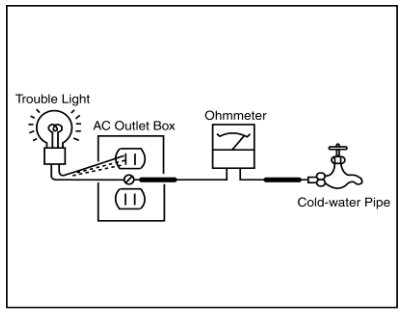


Figure 3. Checking for earth ground.

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

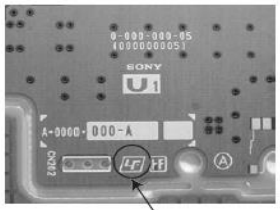


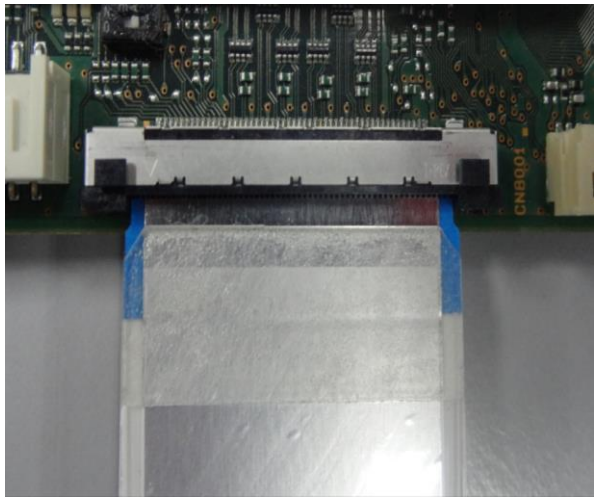
Figure 5: LF logo on circuit board

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.

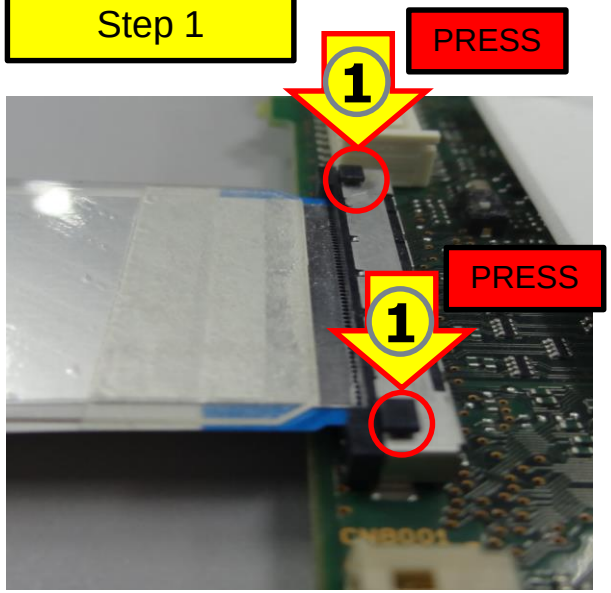
1-8. FFC REPLACEMENT CAUTION

< Application >	Withdrawal of FFC using Non-ZIF (IPEX connector)
< Connector location >	Main board side
< Method >	See as follows
< Caution >	See as follows

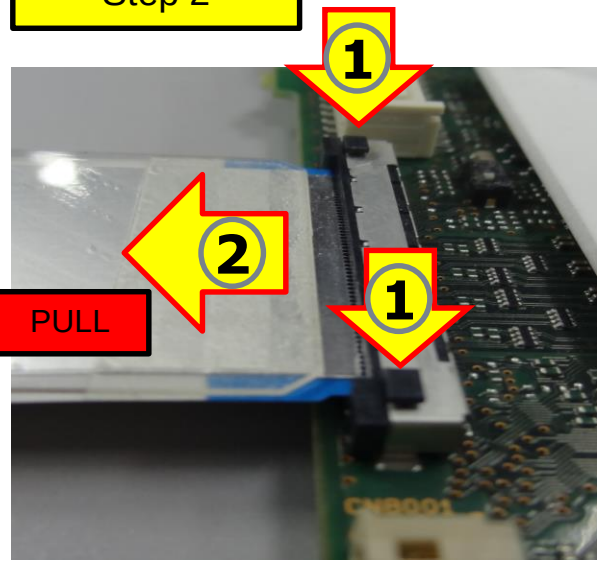
Initial condition



Step 1



Step 2



1 Press the release lock button downward at same time (highlighted in red).

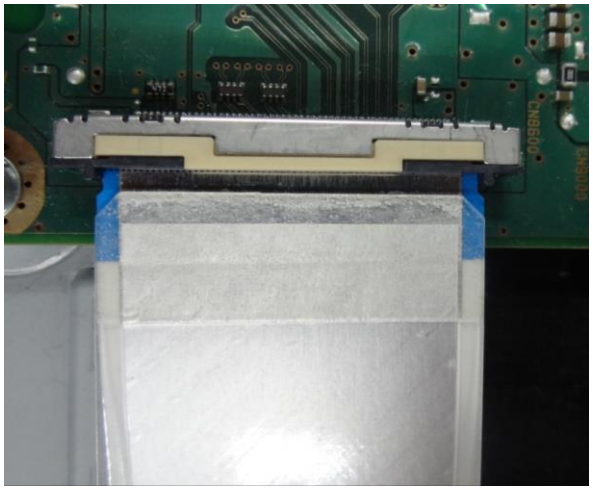
2 Pull FFC in straight direction while pressing both release lock button at the same time.

Note: FFC as in image is only for reference purpose. Actual FFC outlook may vary by each vendor.

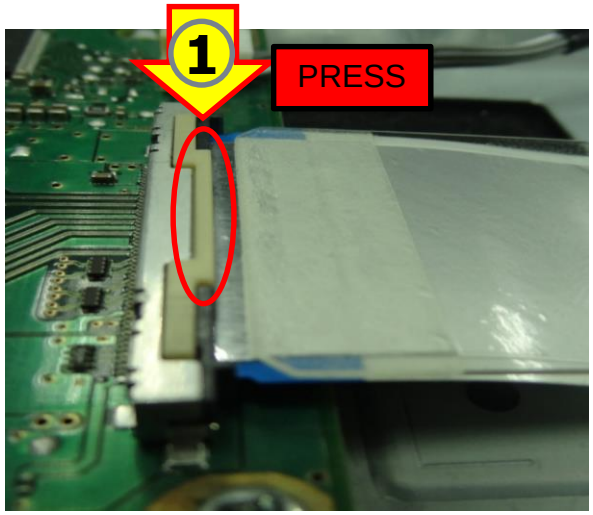
1-8. FFC REPLACEMENT CAUTION

< Application >	Withdrawal of FFC using Non-ZIF (Yamaichi connector)
< Connector location >	Main board side
< Method >	See as follows
< Caution >	See as follows

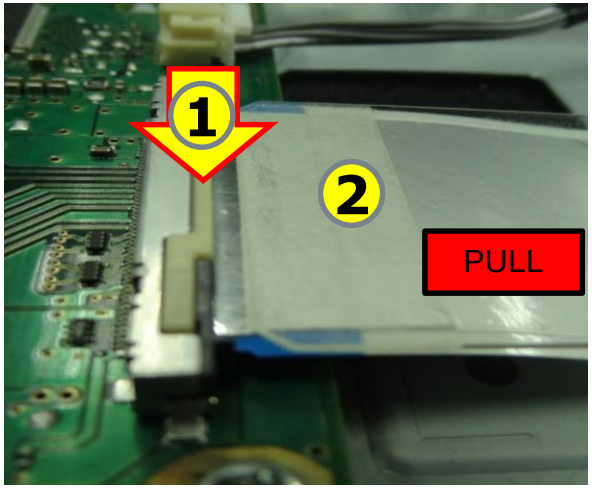
Initial condition



Step 1



Step 2



1 Press the release lock button downward (highlighted in red).

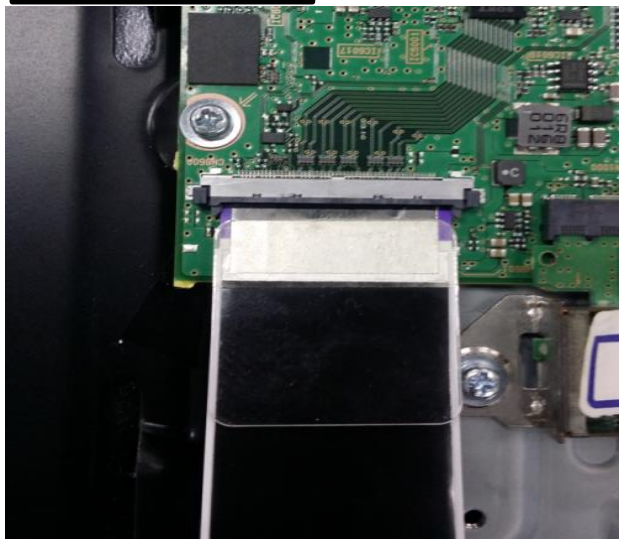
2 Pull FFC in straight direction while pressing release lock button at the same time.

Note: FFC as in image is only for reference purpose. Actual FFC outlook may vary by each vendor.

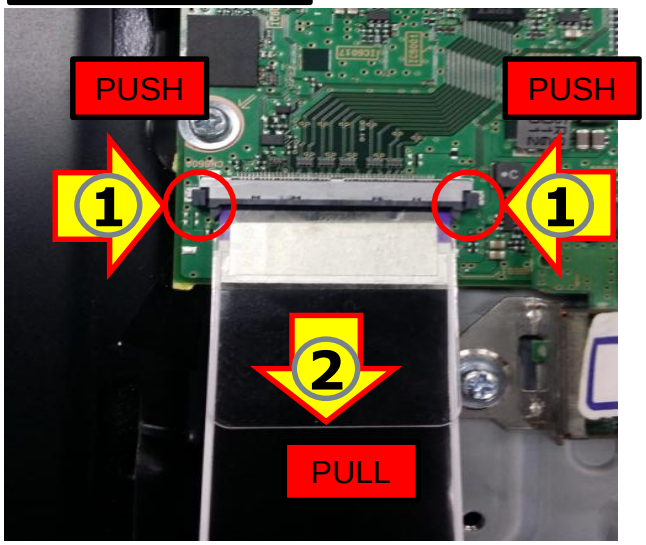
1-8. FFC REPLACEMENT CAUTION

< Application >	Withdrawal of FFC using Non-ZIF (Molex connector)
< Connector location >	Main board side
< Method >	See as follows
< Caution >	See as follows

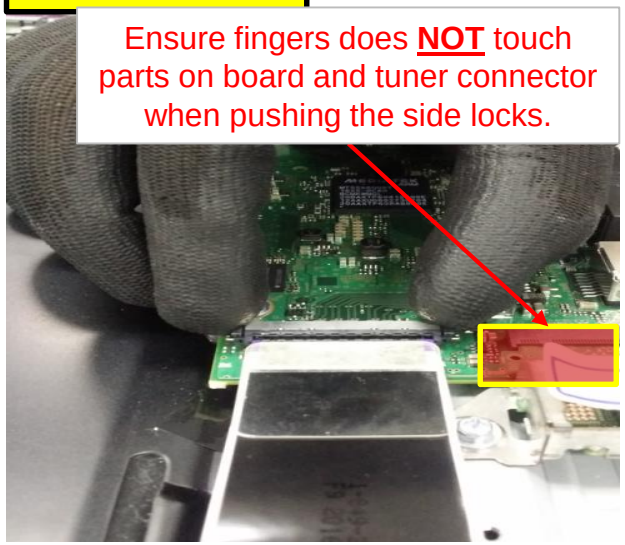
Initial condition



Step 1 & 2



Caution



1. Push the side-release lock buttons inward (highlighted in red).
2. Pull-out FFC in straight direction while pushing side-release lock buttons at the same time.

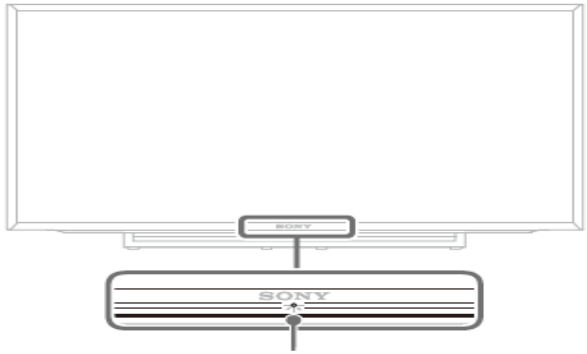
Note: FFC as in image is only for reference purpose. Actual FFC outlook may vary by each vendor.

SECTION 2
SELF DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the Smart Core Red LED will automatically begin to flash.
The number of times the LED flashes translates to a probable source of the problem.
A definition of the Smart Core Red LED flash indicators is listed in the instruction manual for the user's knowledge and reference.
If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

DIAGNOSTIC TEST INDICATORS

When an error occurs, the Smart Core Red LED will flash a set number of times to indicate the possible cause of the problem.
If there is more than one error, the LED will identify the first of the problem areas.
Result for all of the following diagnostic items are displayed on screen.
If the screen displays a "0", no error has occurred .



LED Indicator

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

Amber = Red + Green

Status	LED Colour	Remarks
Power Off (AC Off and *1)	**OFF**	*1 power switch off (by Side Key)
Power On	White	
Standby (by remote control off and Side Key off)	**OFF**	
Picture Off	White	
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
Software Updating failure	Amber / Red Blinking	Blinking:1 sec Amber/ 1sec Red

Failure LED Display

The Number of Standby LED (RED blinking)	Error Detection	Error Location
2	Main Power Error	AC Adaptor or Power Supply Unit
3	Audio Error	Main Board
4	Panel Power Error	Main Board
5	Panel I2C Communication Error	Main Board or Source Board
6	Backlight Error	Main Board

Tuner Demod Error do not go to Safety Shutdown and do not have RED blinking.

Error Detection	Symptoms	Error Location
Tuner Demod Error	Cannot tune Digital RF/ Analog RF	Main Board/Tuner Module

SECTION 3
TROUBLESHOOTING

Triage Chart

CHASSIS: SG 43/49/55/65

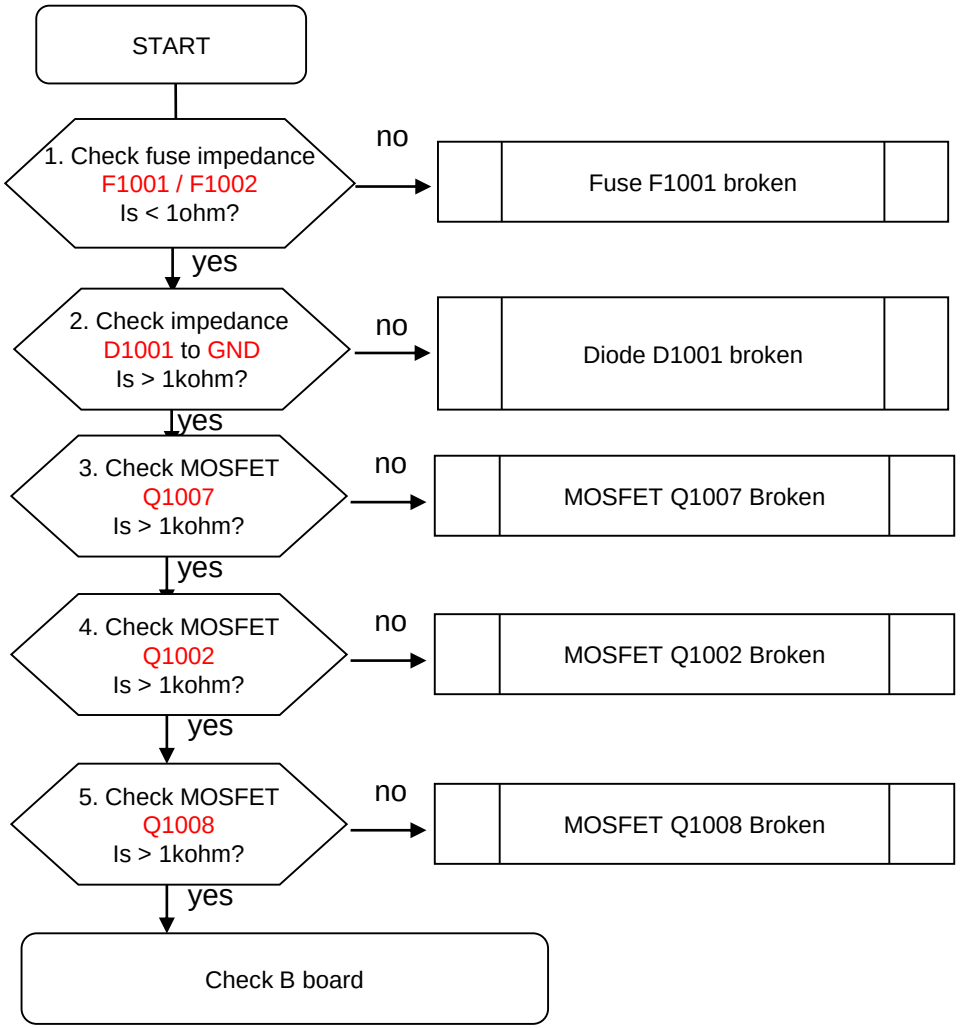
Before you make the service call…

1. Confirm the symptom from the customer.
2. Select that symptom from the chart.
3. Bring all the boards and cables listed for that symptom.
4. Follow the troubleshooting charts in the technical guides to isolate the board.
5. Chart Colour Code

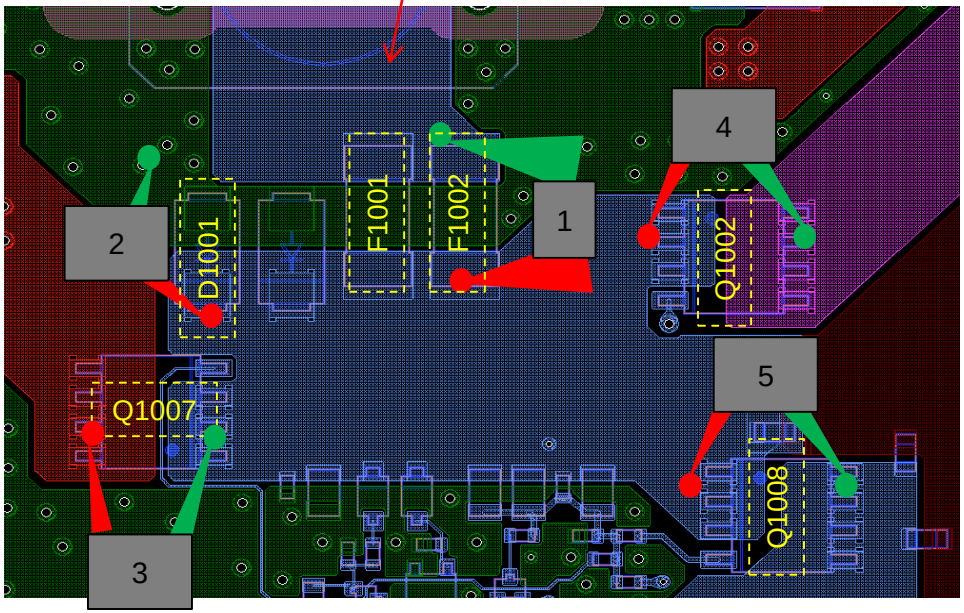
RED DOT: Most likely defective part
BLUE TRIANGLE: Secondary possible defective part
BLACK TEXT: Board that may correct the symptom

Reference	Symptoms - Shutdown. Power LED blinking red diagnostics sequences					No Power	Video - missing or distorted			Remote	Network	Audio	Smart Core
	2	3	4	5	6	No White Power LED & does not reponse to remote (Dead Set)	Stationary colored lines or dots	No video One of Inputs	No video all Inputs	No Remote	Wireless can't connect	No Audio	Smart Core no LED (Set is still alive)
B* Board	▲	●	▲	▲	▲	▲	▲	●	●	▲	▲	●	▲
G* Board	●	▲	●		●	●						▲	
H* Board										●			●
Speaker		▲										●	
Wifi Module											●		
LD* Board	●		●		●	▲							
VBO FFC				▲			▲		▲				
Tcon/Source Board			▲	●			▲		▲				
LCD Panel			▲	●	▲		●		▲				

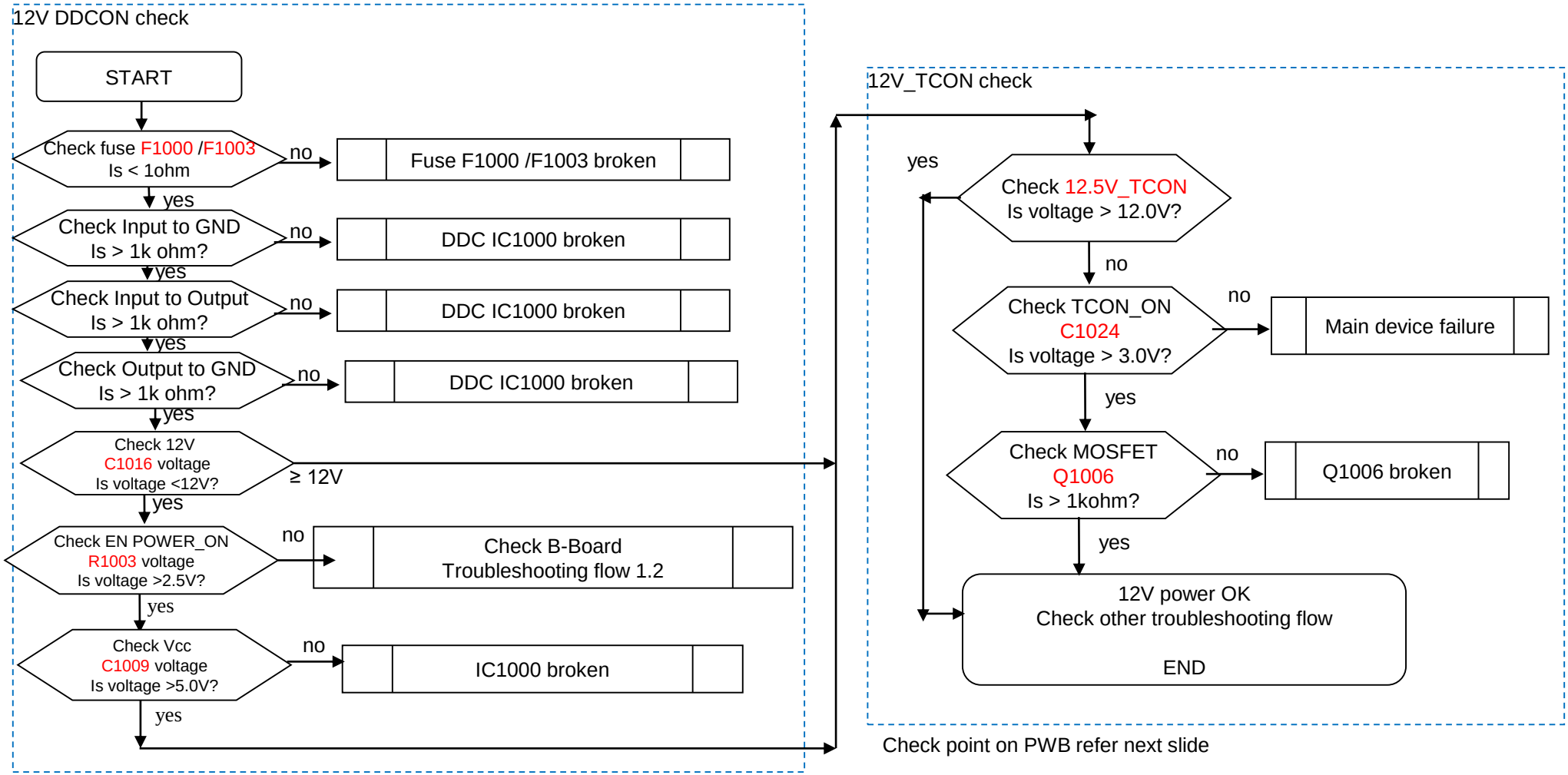
1.1 : No power - LD board



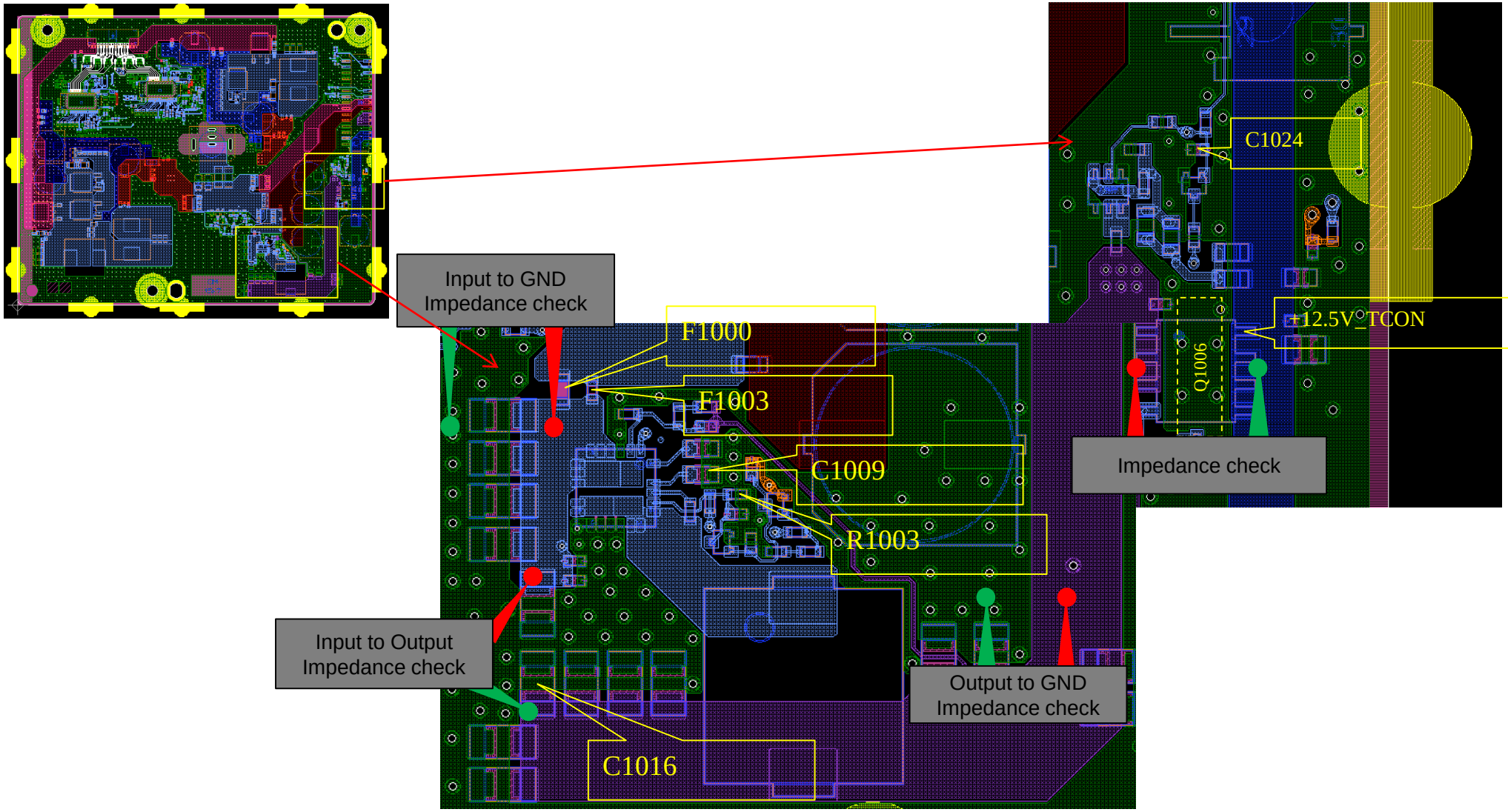
LD board



1.1 : No power - LD board

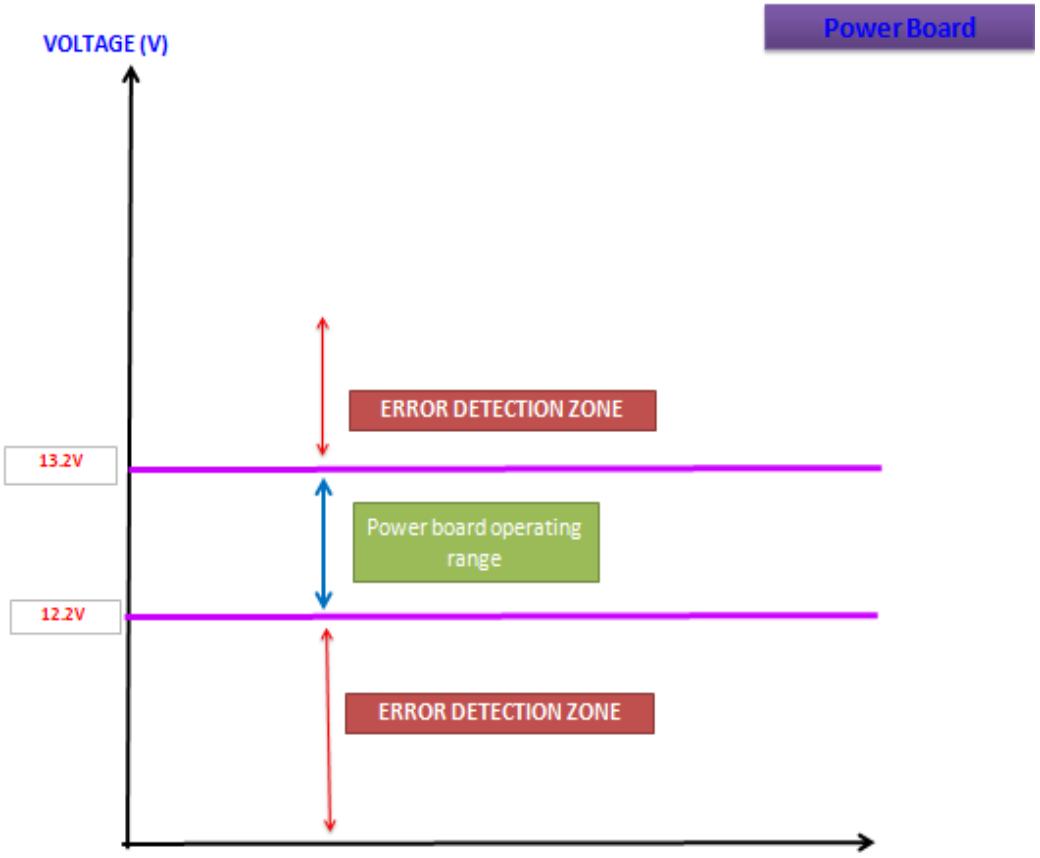


1.1 : No power - LD board

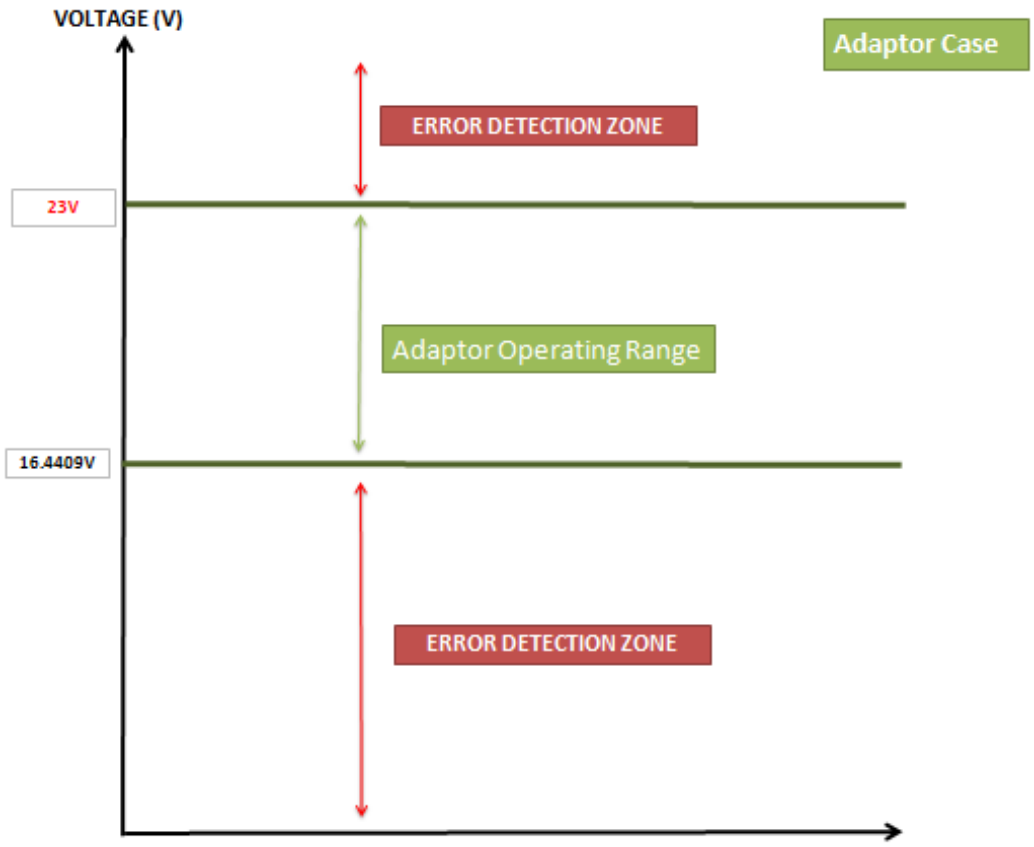


2.0 : LED Blinking: 2x (Main power Error - Operating Chart)

BB9（G* Board model）

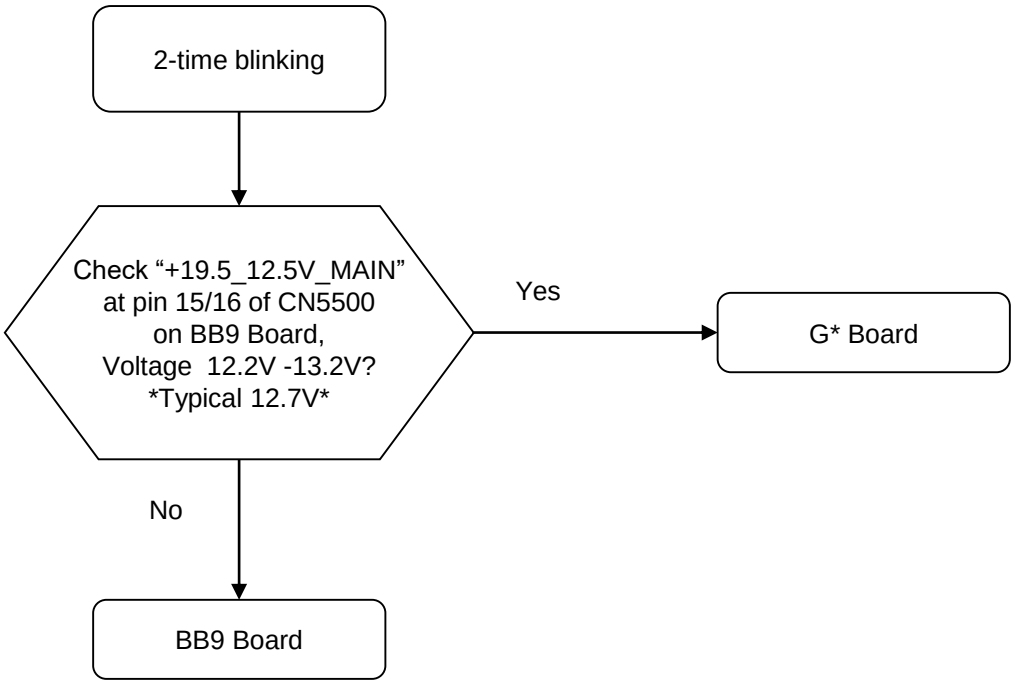


BB9（AC adapter model）

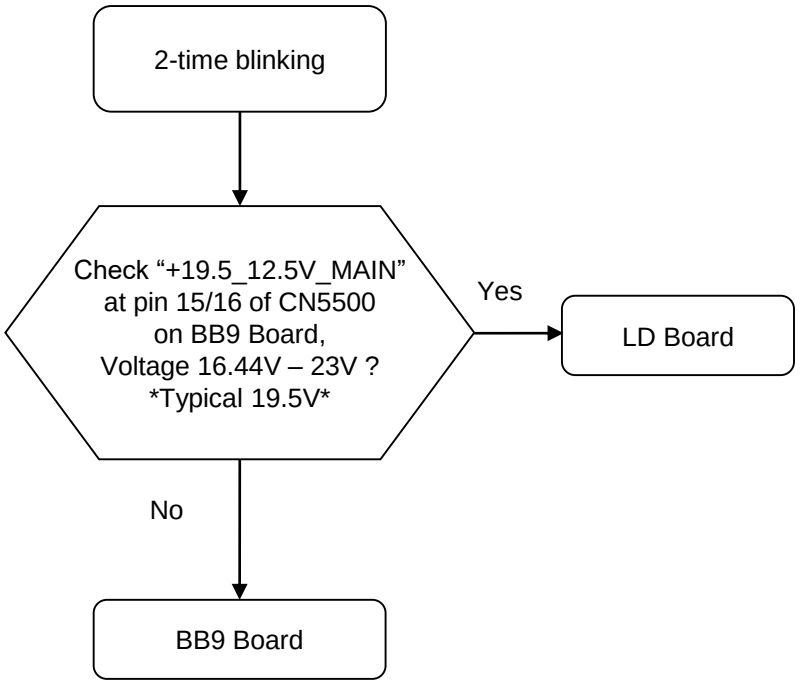


2.0 : LED Blinking: 2x (Main power Error)

BB9（G* Board model）

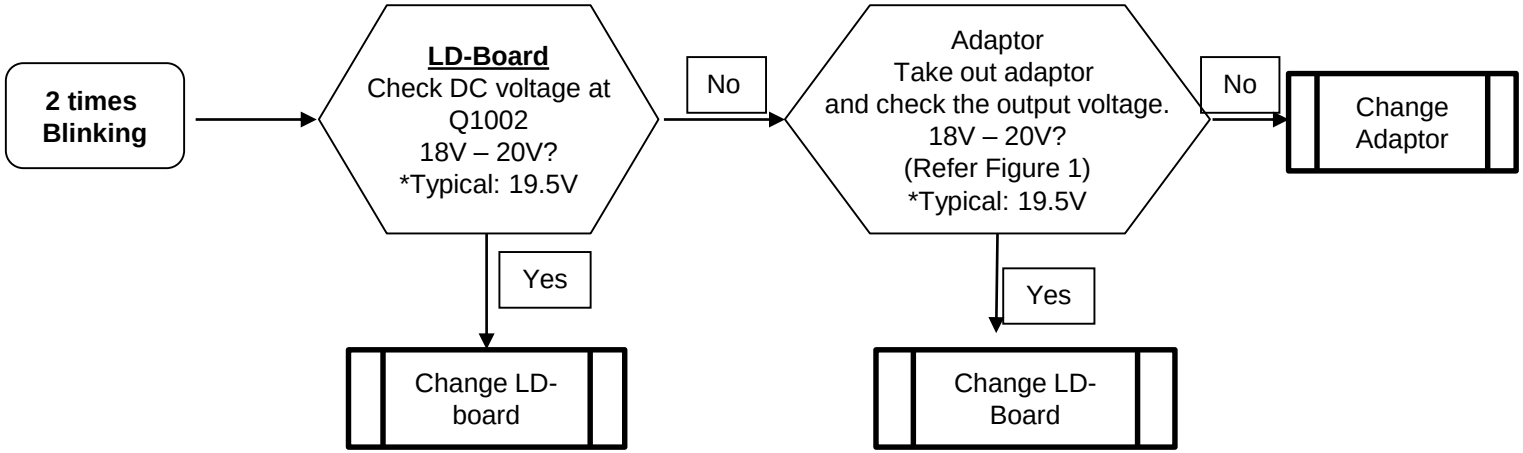


BB9（AC adapter model）



2.1 : 2x Blinking – Main Power Error

LD Board



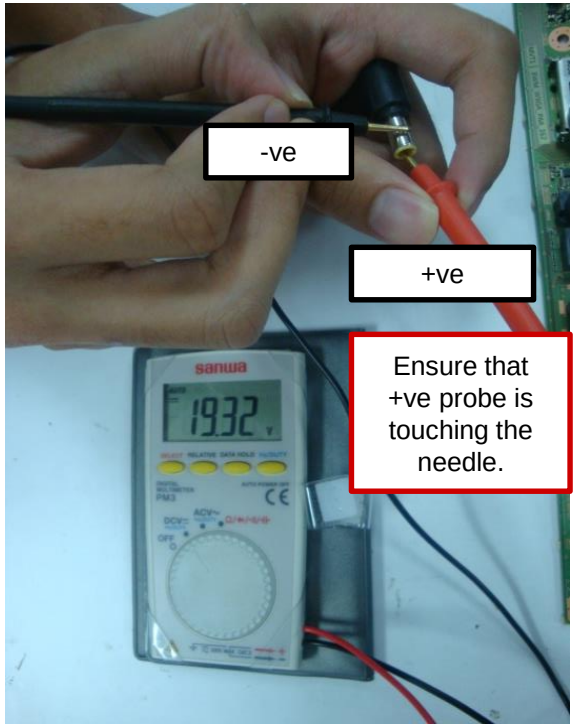
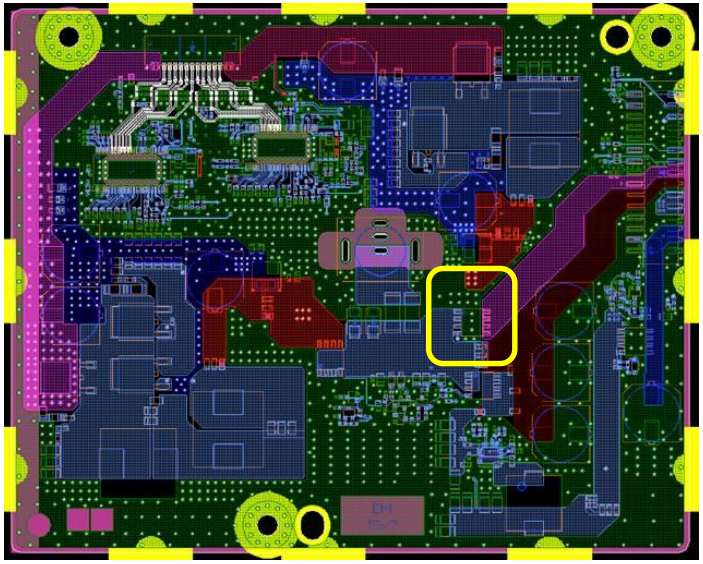
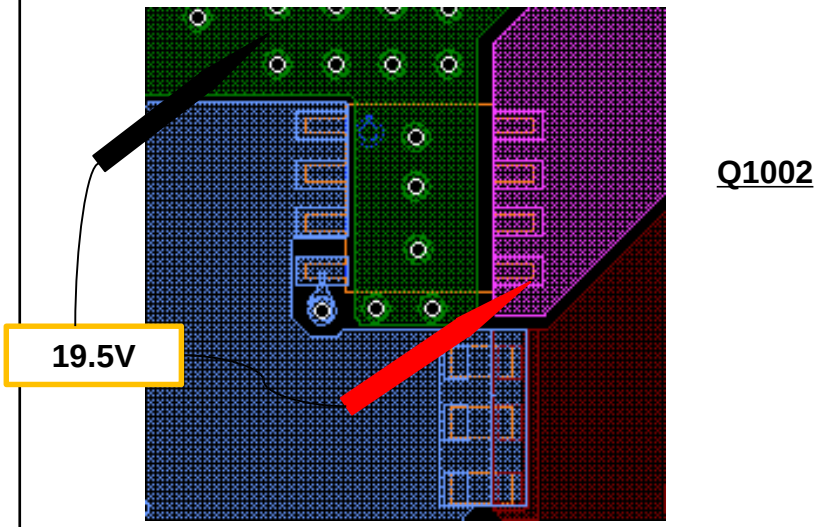


Figure 1: How to check adaptor's output voltage.

2.1 : 2x Blinking – Main Power Error

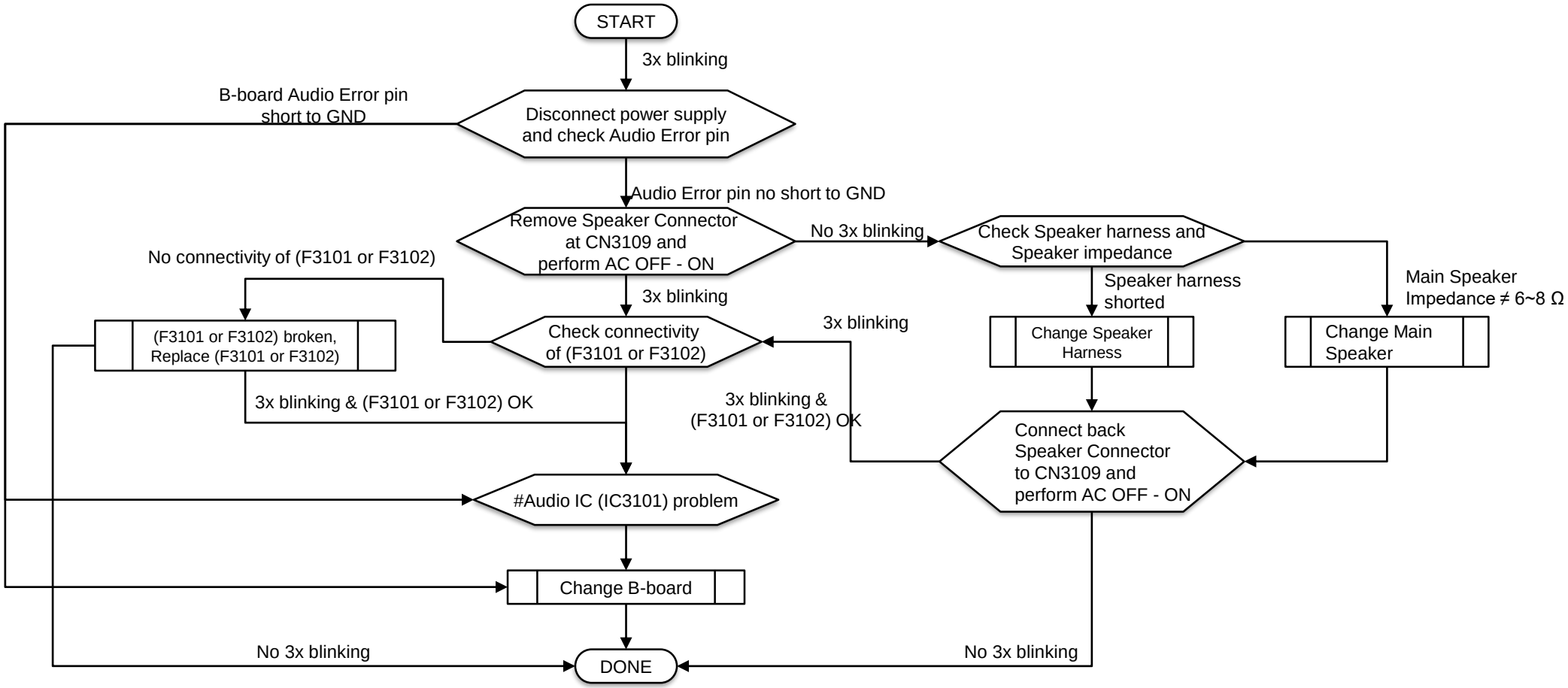
Check point LD1

Board Name	Board PWB (A side)	Detail
LD1 (Q1002)		

2.2 : 3x Blinking – Audio Error

B Board

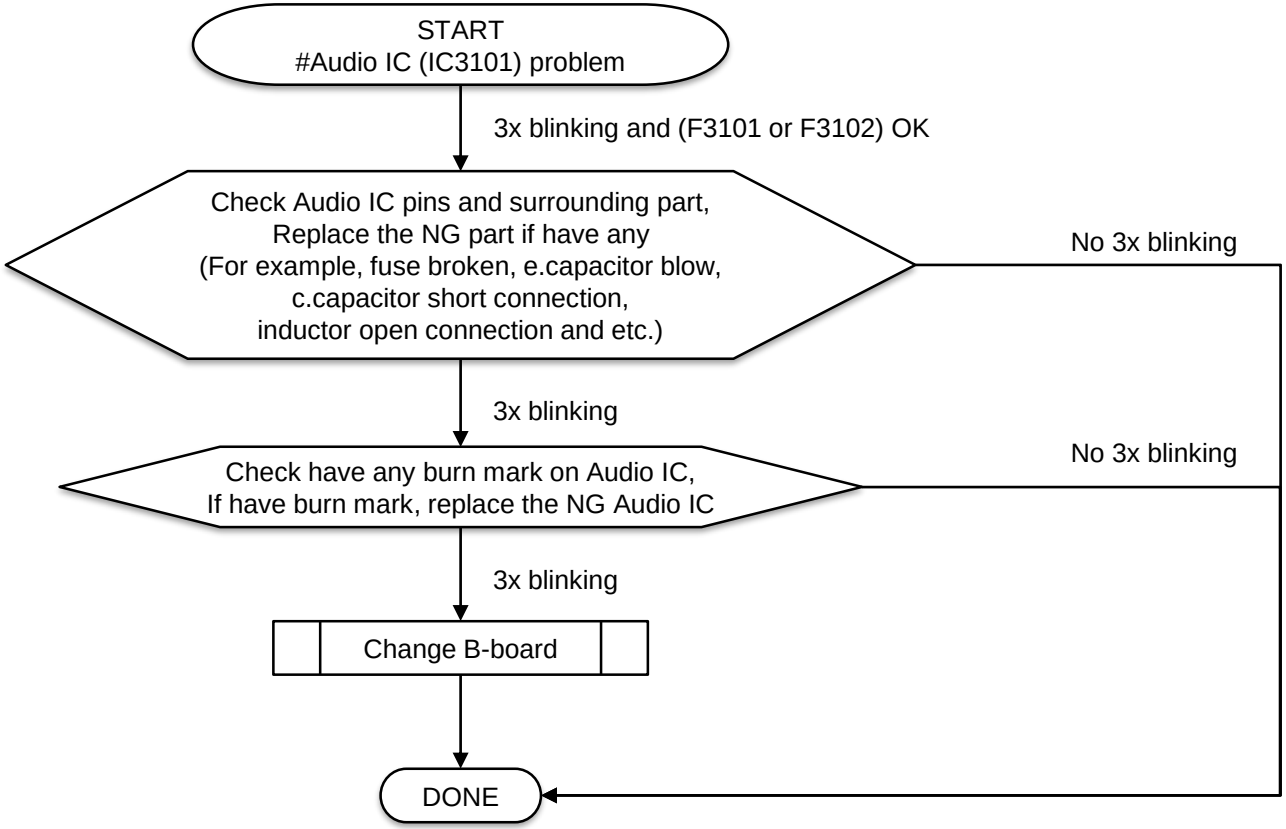
Important Note :
TV must be power OFF condition before plug or unplug any of the FFC/FPC/wire/cable from the board. -> This is to prevent possibility circuit damage happen.



2.2 : 3x Blinking – Audio Error

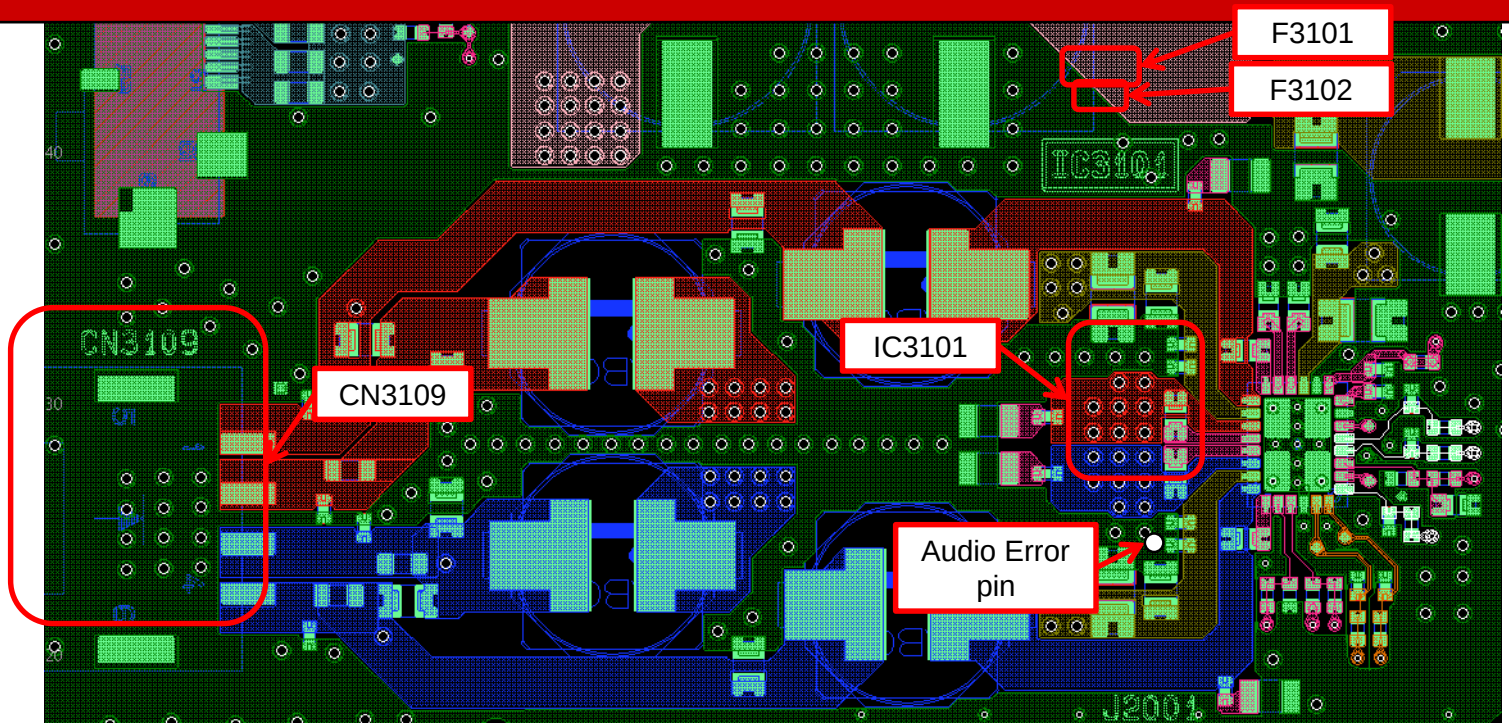
B Board
(#Audio IC (IC3101) problem)

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



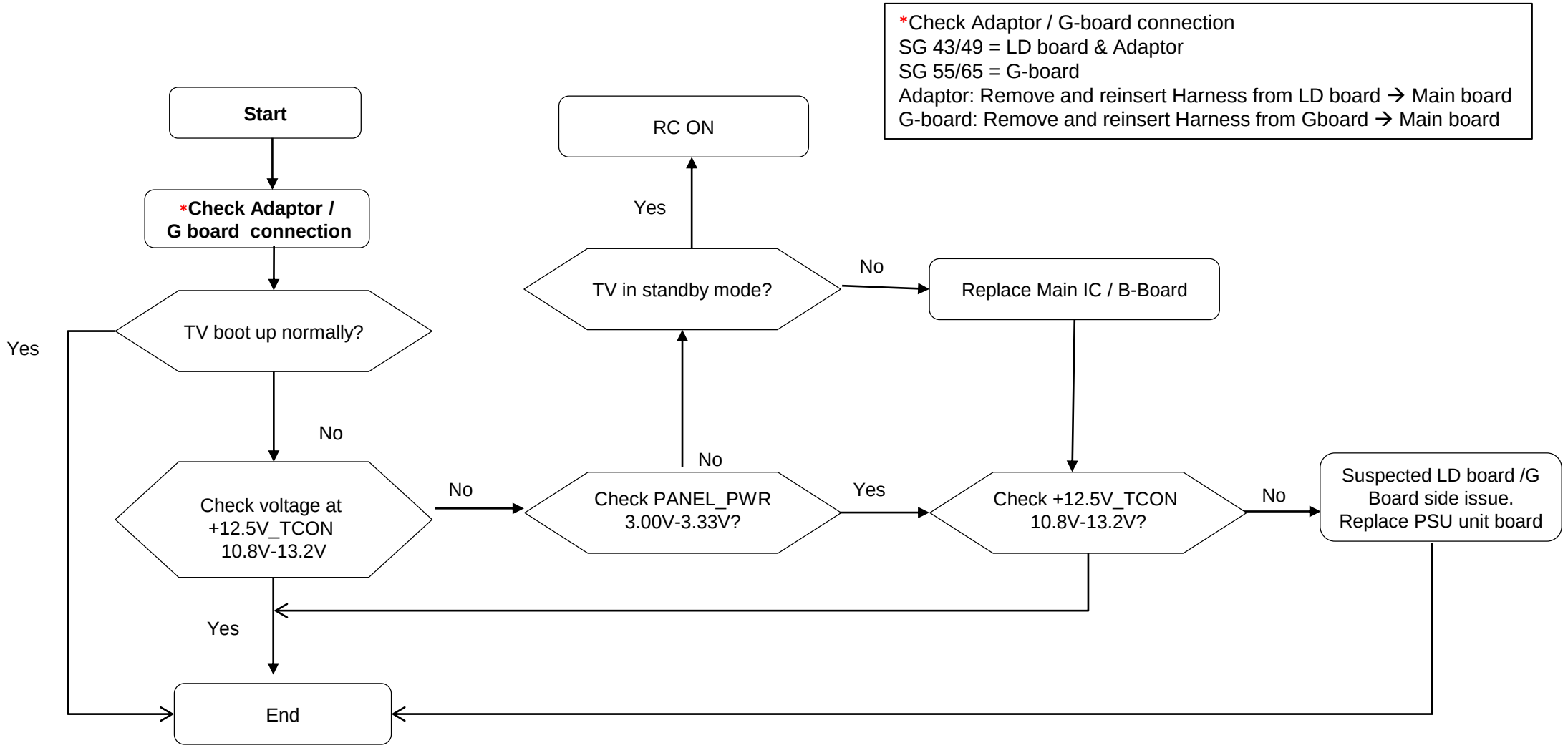
2.2 : 3x Blinking – Audio Error

B Board (Checking Point)

Board PWB (A side)	BB9 (CHL/SG) - Audio Amp circuit
Purpose : Checking Audio Error pin not short to GND Checking fuse condition Change Audio IC if need Audio IC each pin checking, please refer to “Audio No Sound”	

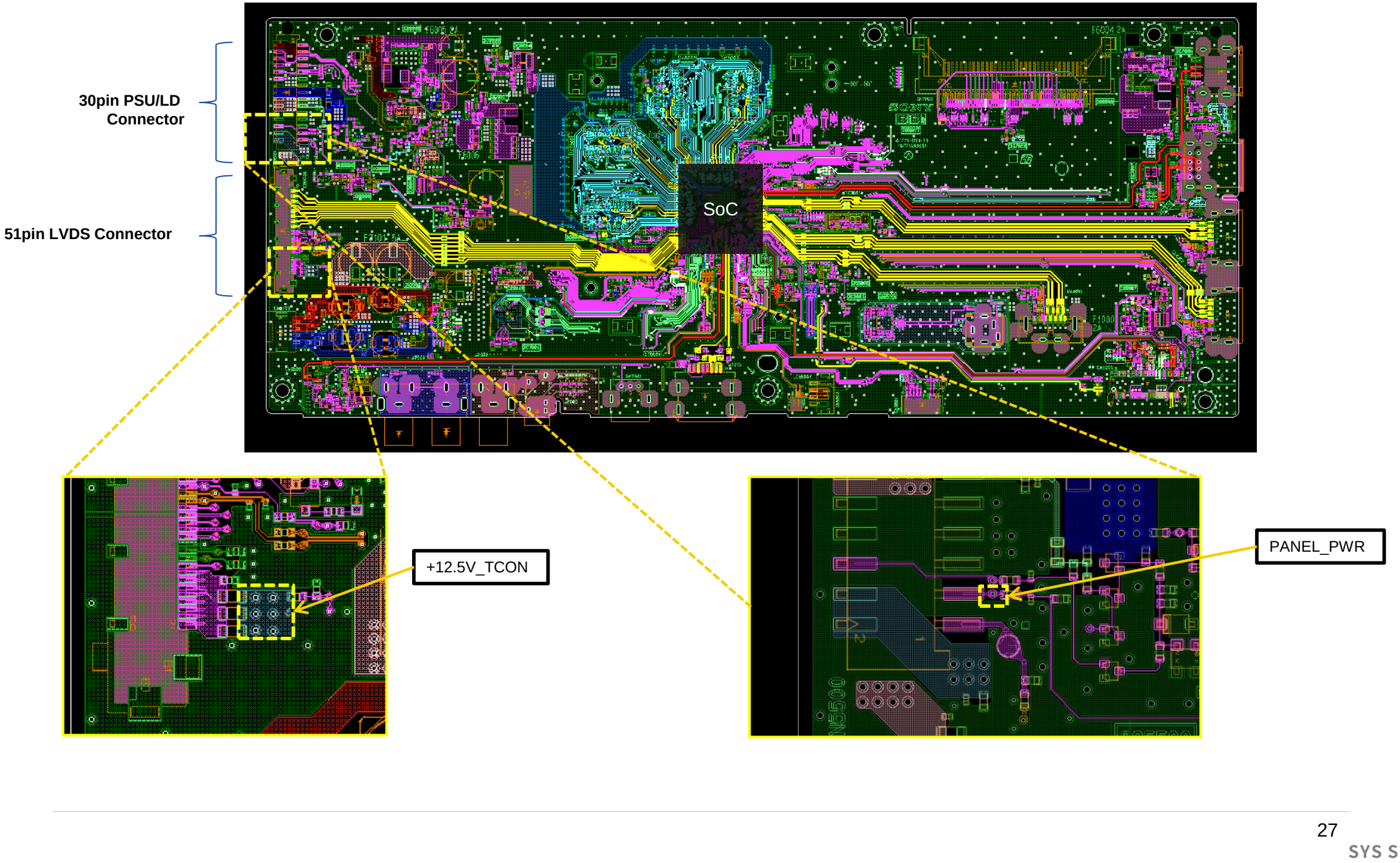
2.3 : 4x Blinking – Panel Power Error

BB9 Board



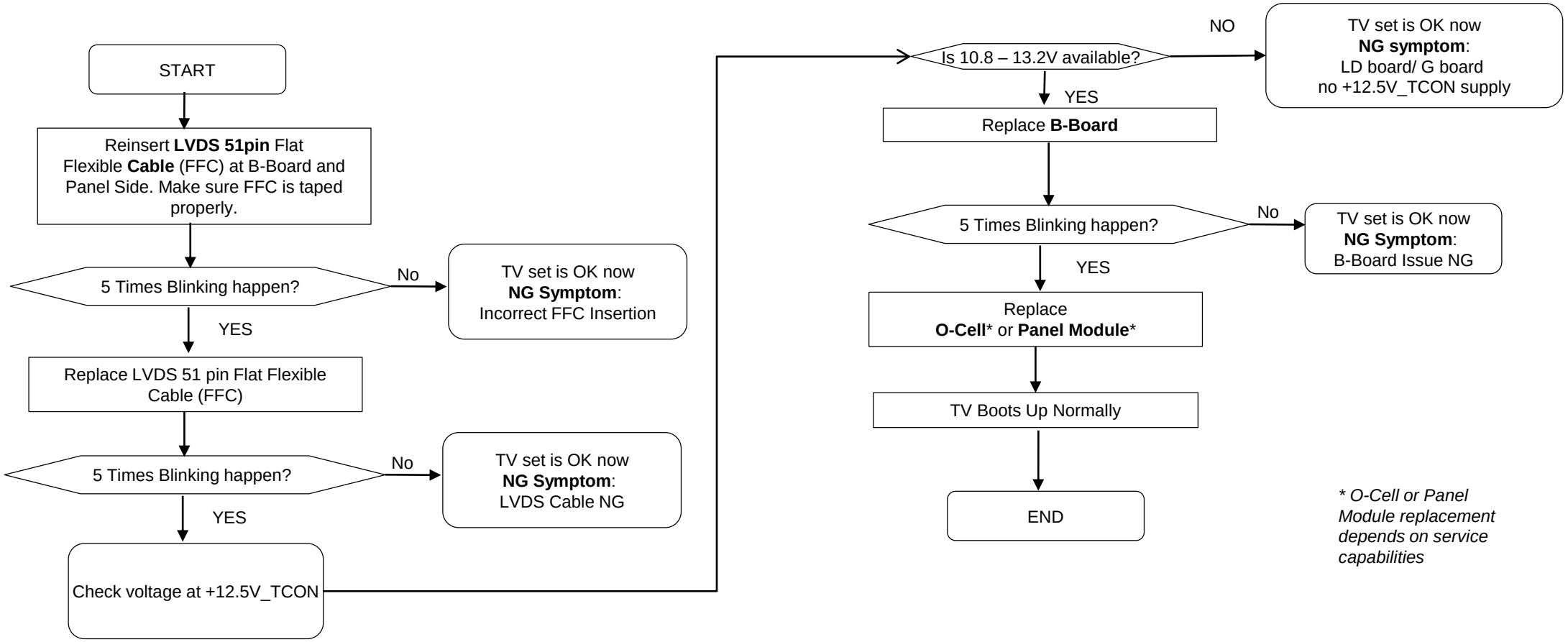
2.3 : 4x Blinking – Panel Power Error

BB9 layout



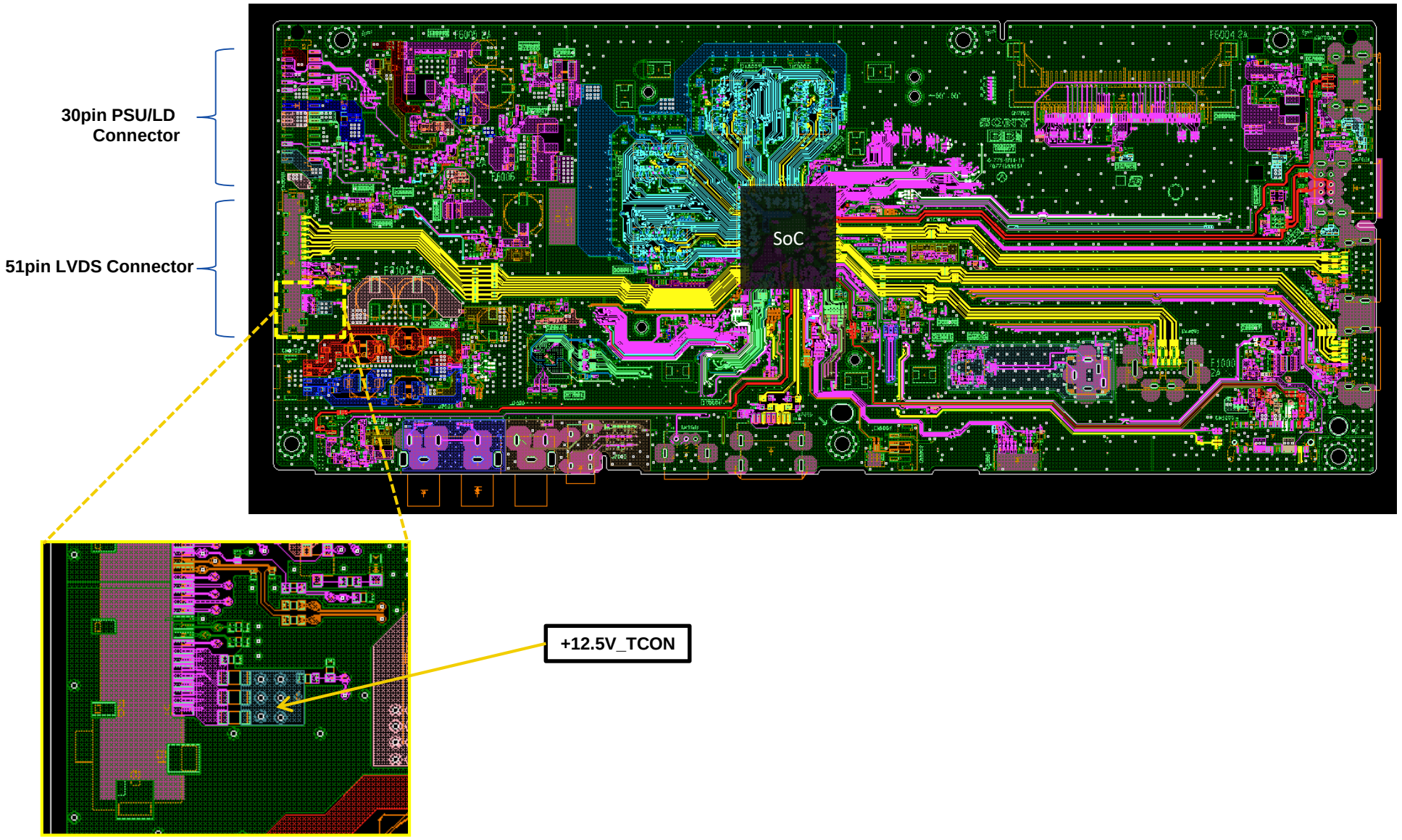
2.4 : 5x Blinking – Panel I2C Error

BB9 Board (General Checking)

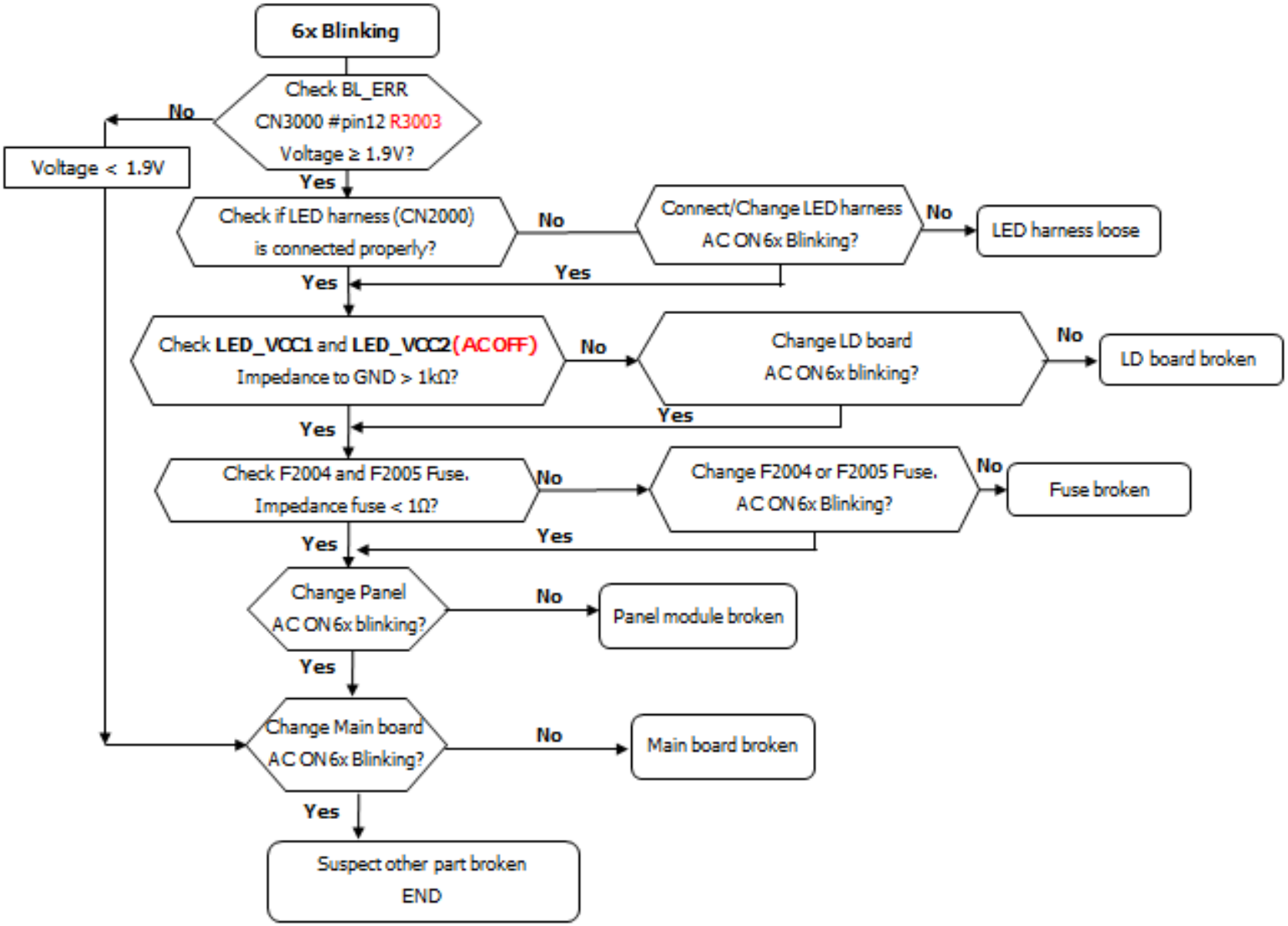


2.4 : 5x Blinking – Panel I2C Error

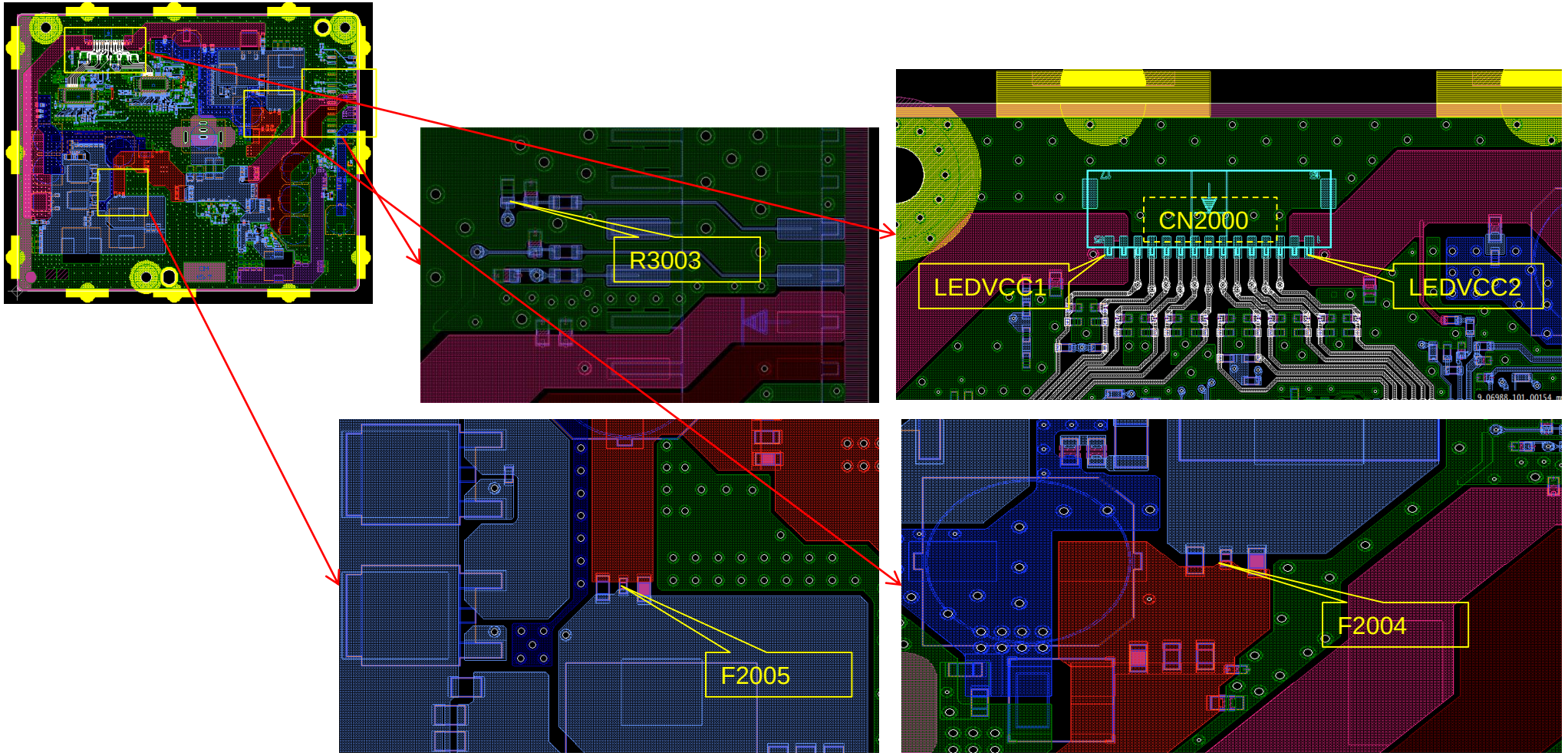
BB9 layout



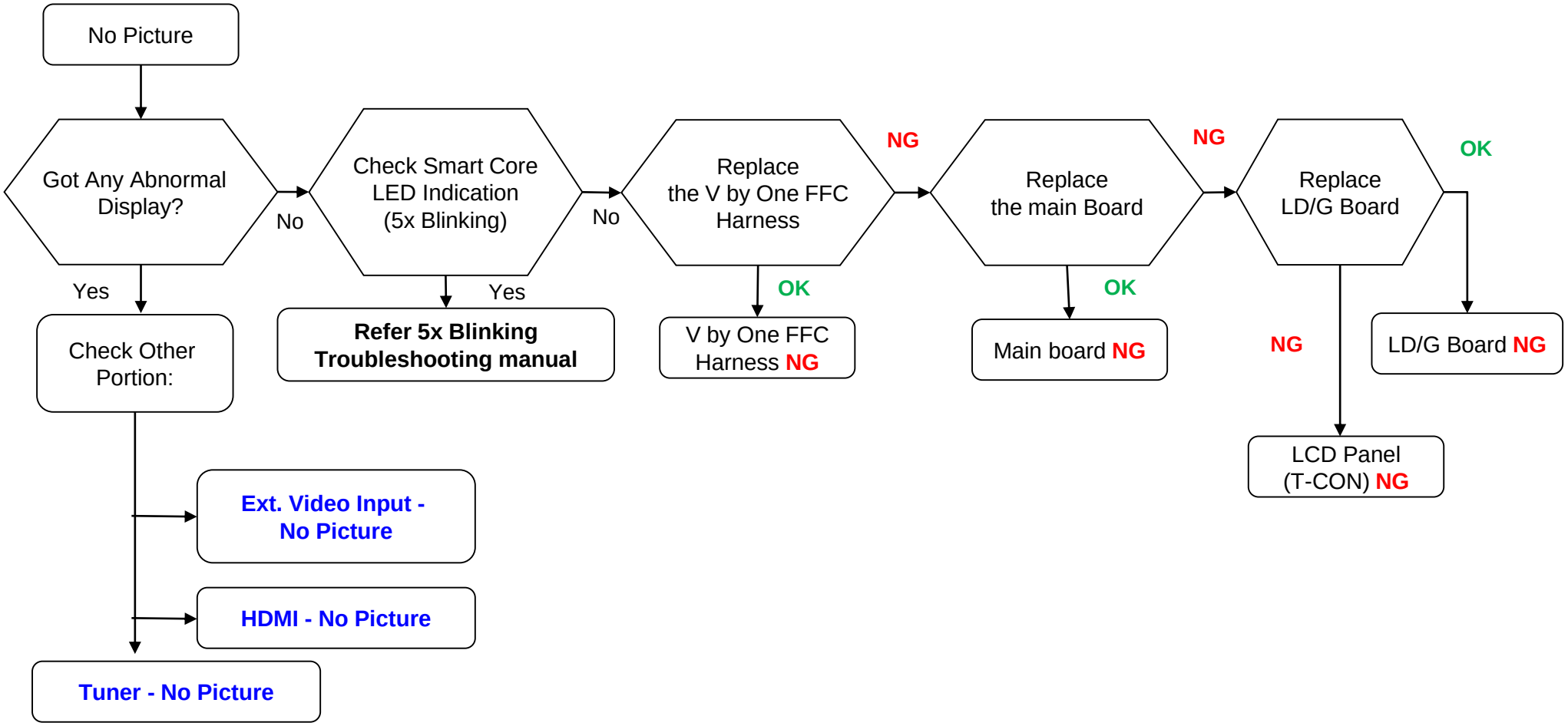
2.5 : 6x Blinking backlight error



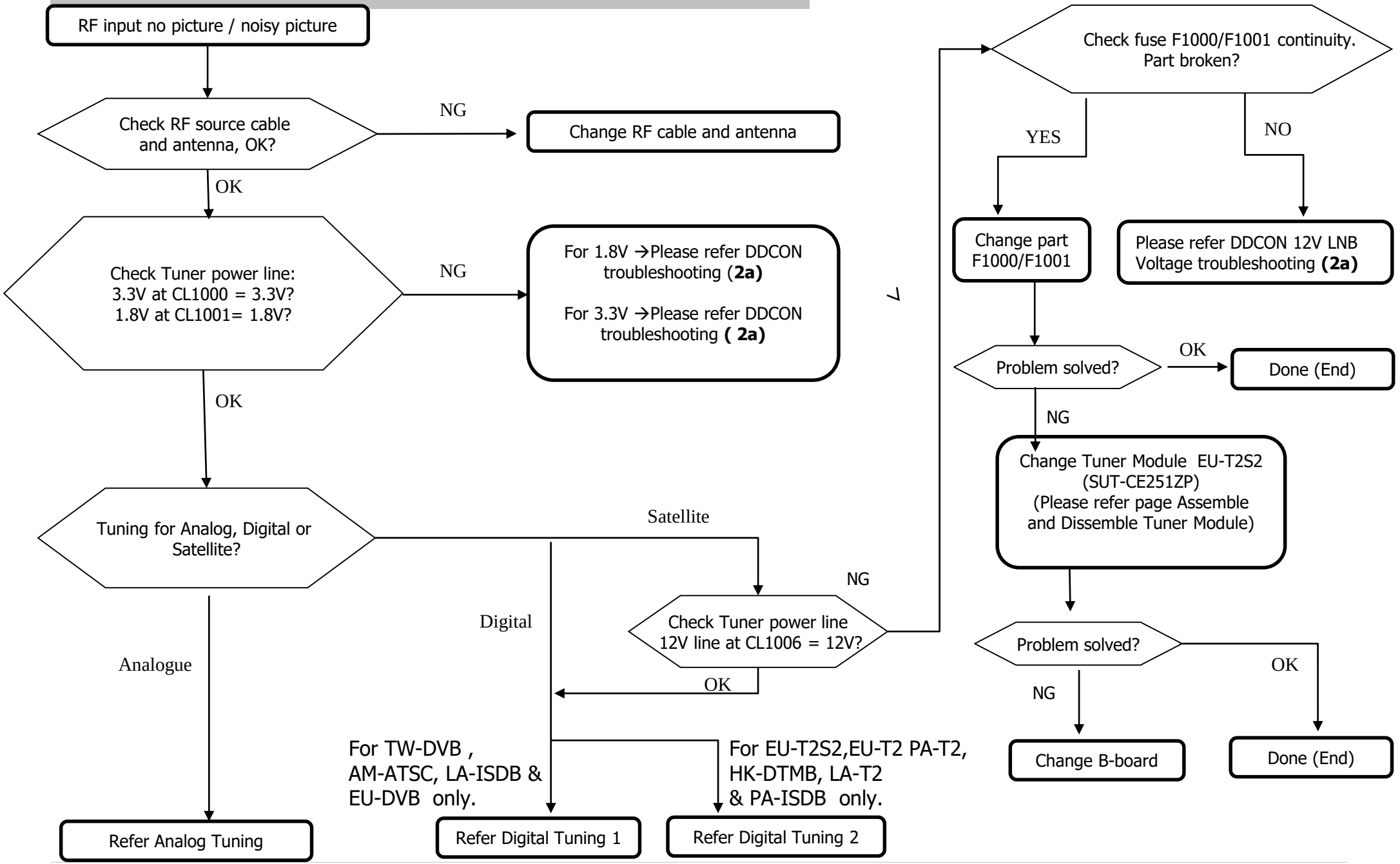
2.5 : 6x Blinking backlight error



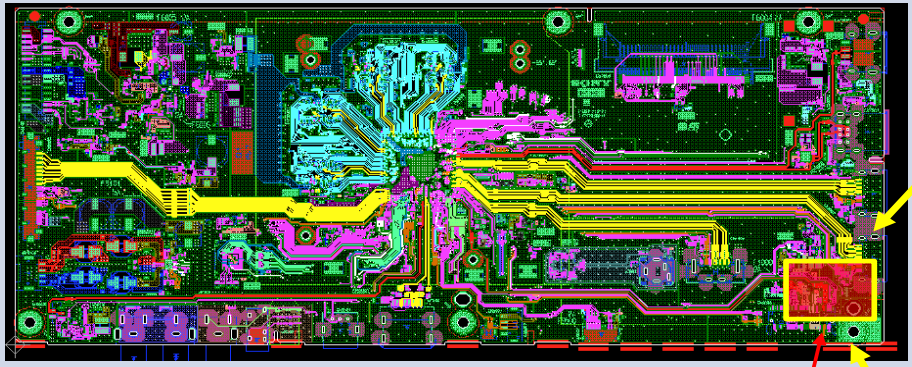
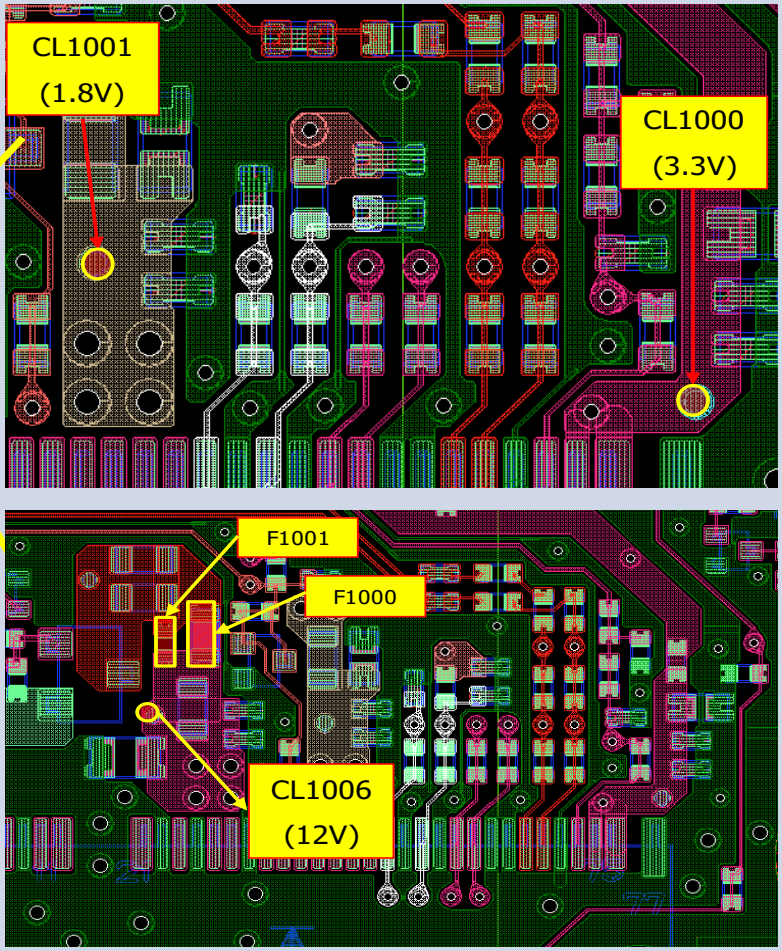
2.6: Blank Screen, Backlight Visible



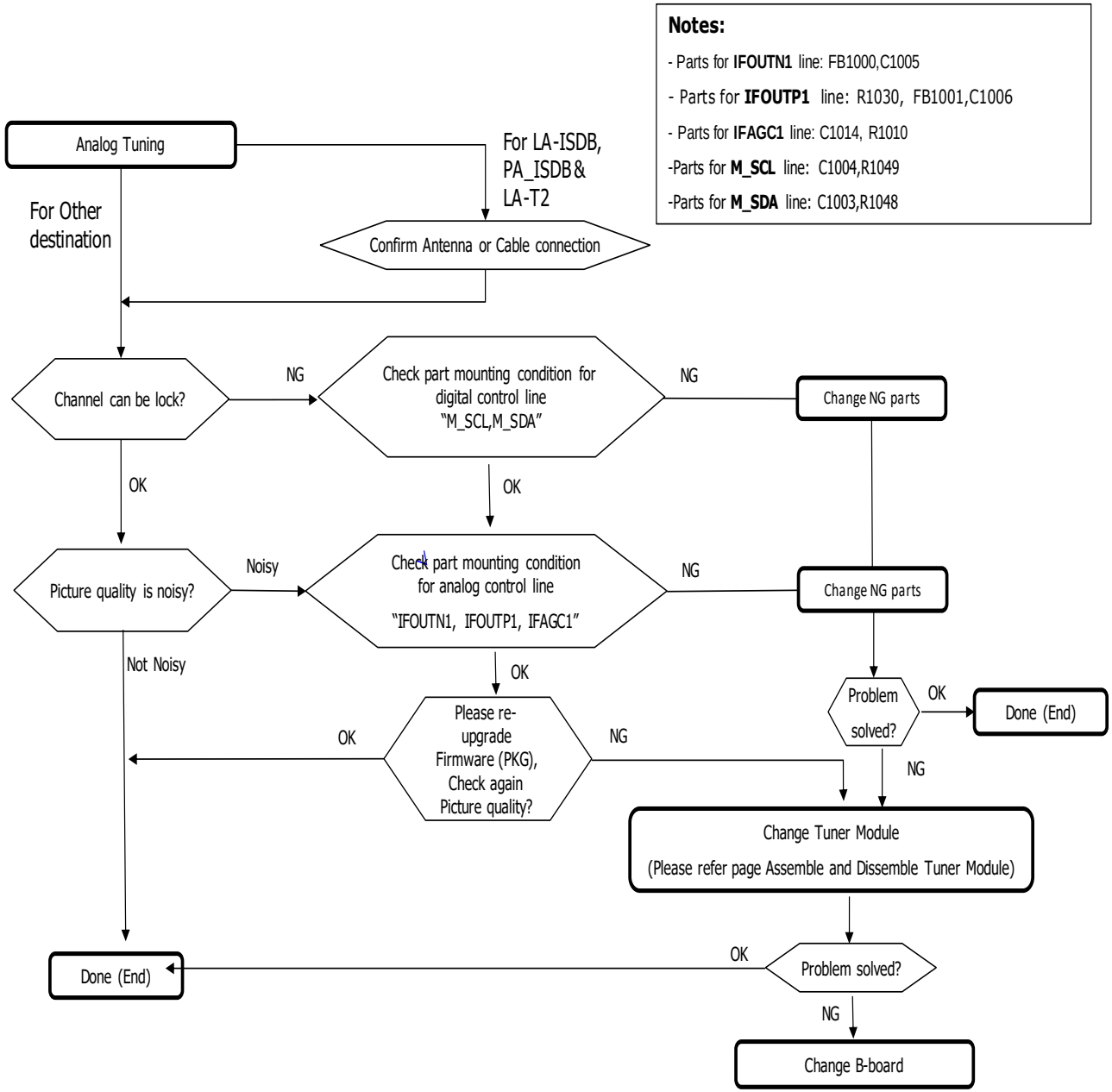
2.6.1 NO PICTURE: TUNER (for Analogue , Digital and Satellite)



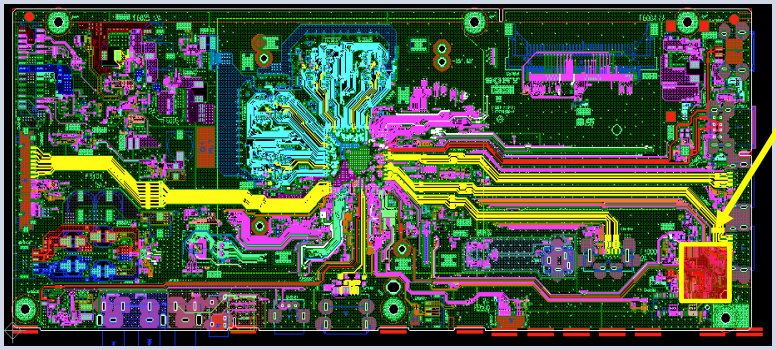
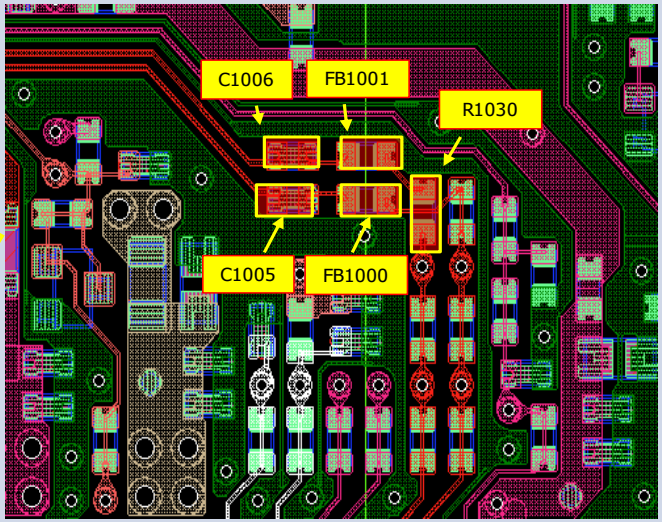
2.6.1 NO PICTURE: TUNER (for Analogue , Digital and Satellite)

Board Name	Board PWB (A side)	Detail
BB9 board (A side) **(3.3V)** CL1000 **(1.8V)** CL1001 **(12V)** CL1006 F1000 F1001	**BB9 board**  	

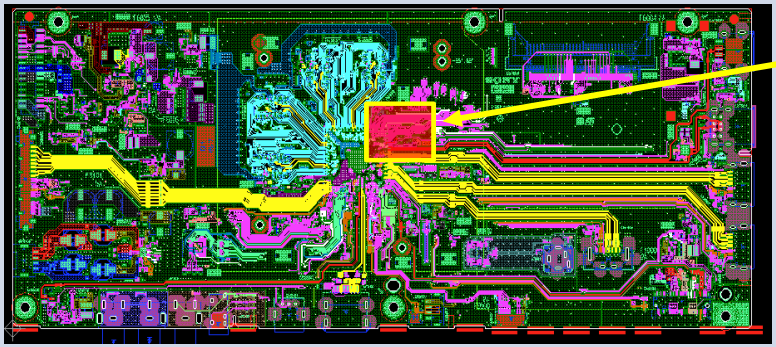
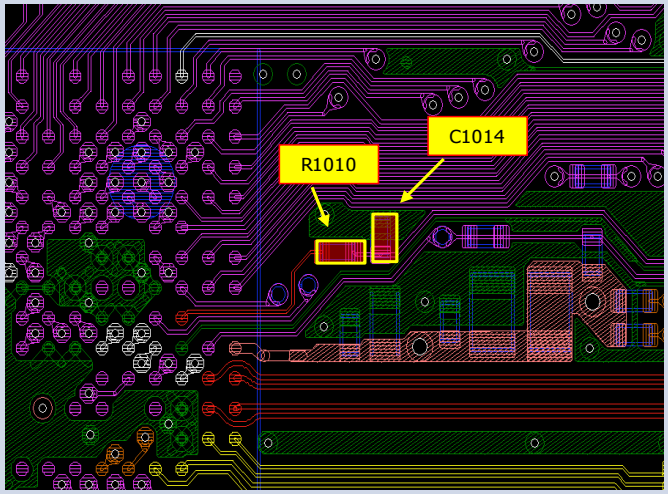
2.6.2 For Analogue Tuning Failed (All destination)



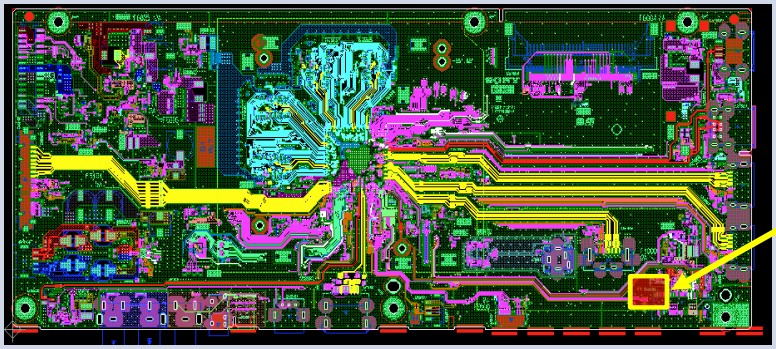
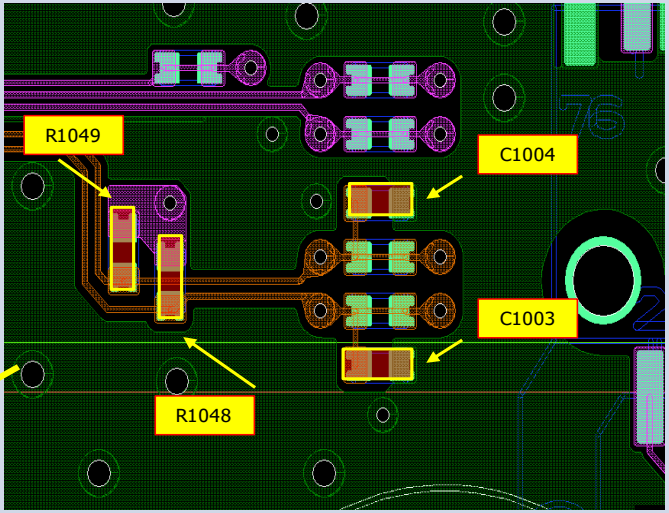
2.6.2 For Analogue Tuning Failed (All destination)

Board Name	Board PWB (A side)	Detail
BB9 board (A side) **(IFOUTN1)** FB1000 C1005 **(IFOUTP1)** R1030 FB1001 C1006		

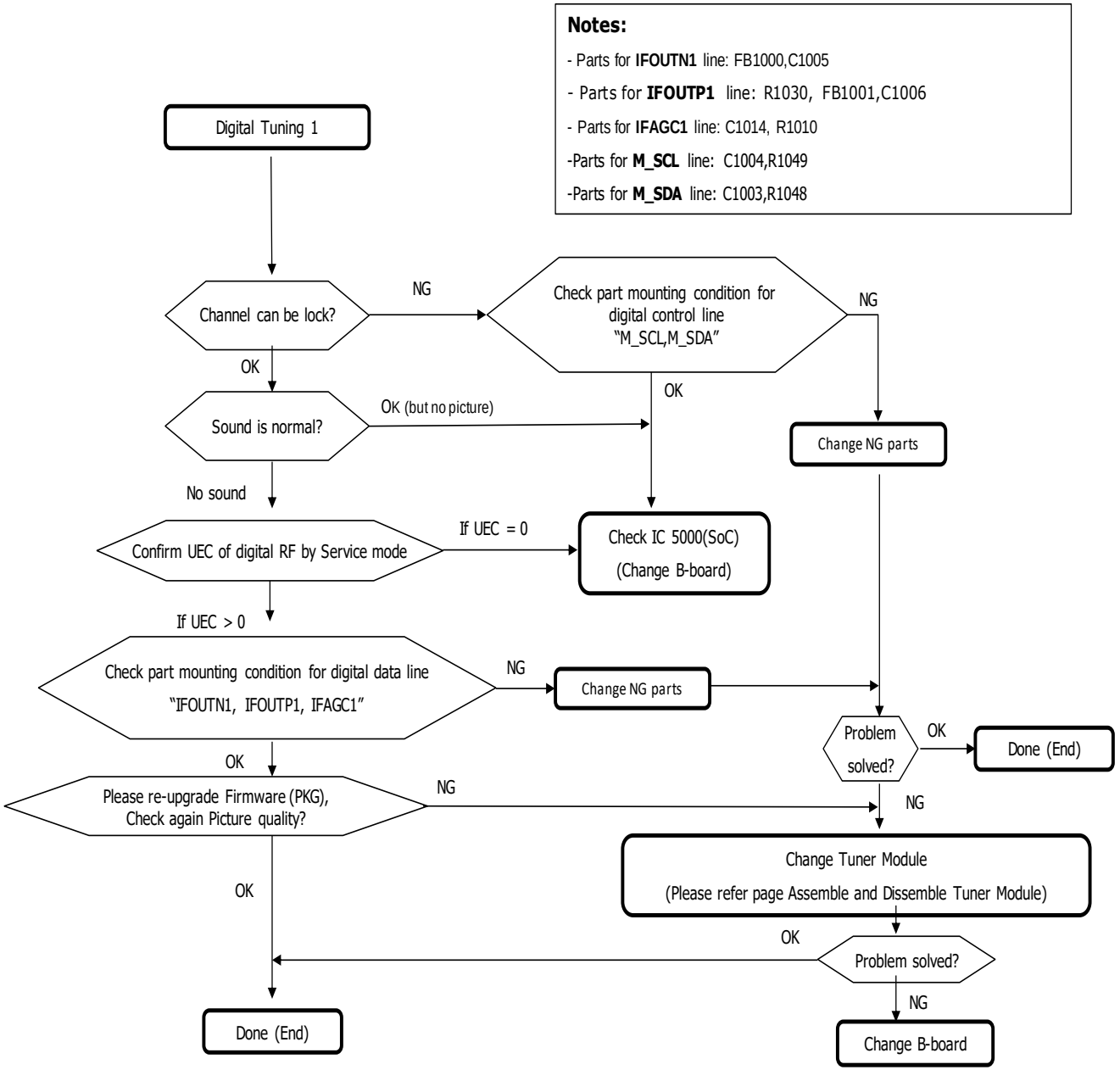
2.6.2 For Analogue Tuning Failed (All destination)

Board Name	Board PWB (A side)	Detail
BB9 board (A side) **(IFAGC1)** C1014 R1010		

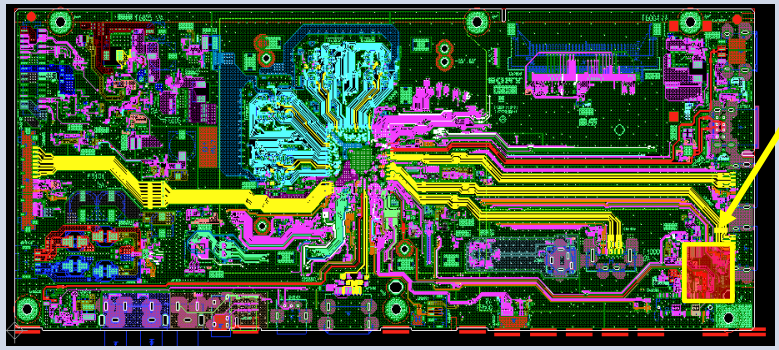
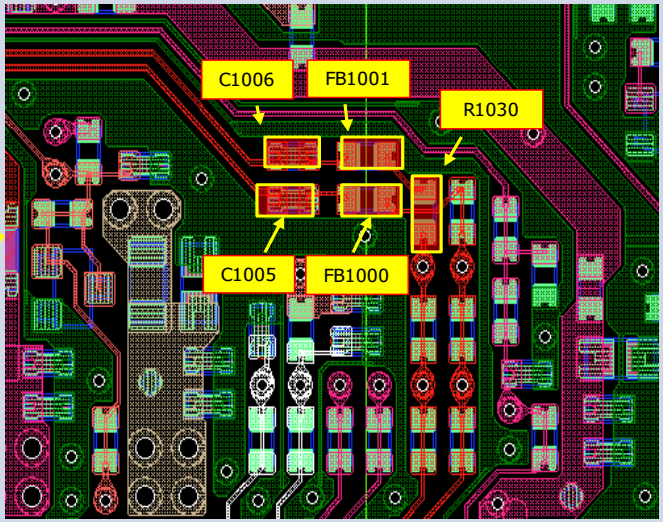
2.6.2 For Analogue Tuning Failed (All destination)

Board Name	Board PWB (A side)	Detail
BB9 board (A side) **(M-SCL)** C1004 R1049 **(M-SDA)** C1003 R1048		

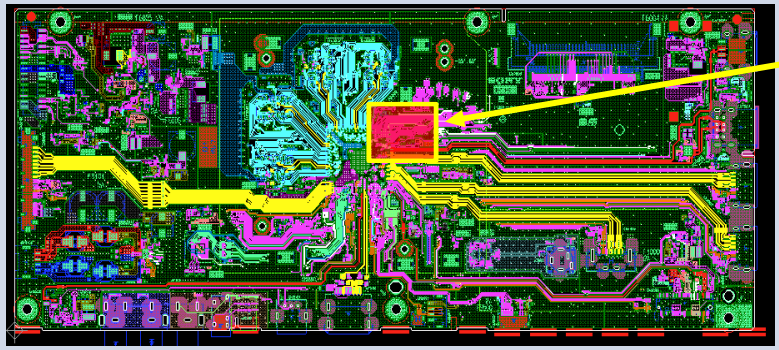
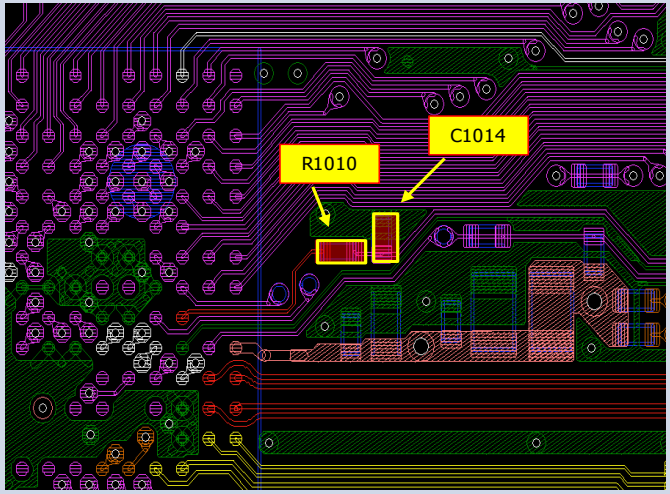
2.6.3 FOR DIGITAL TUNING 1: For TW-DVB , AM-ATSC, LA-ISDB , EU-DVB only



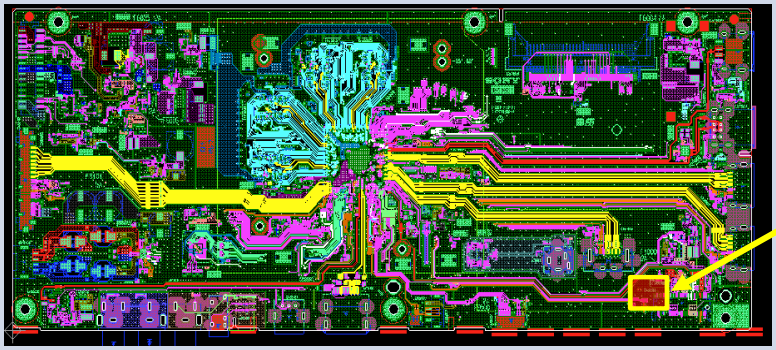
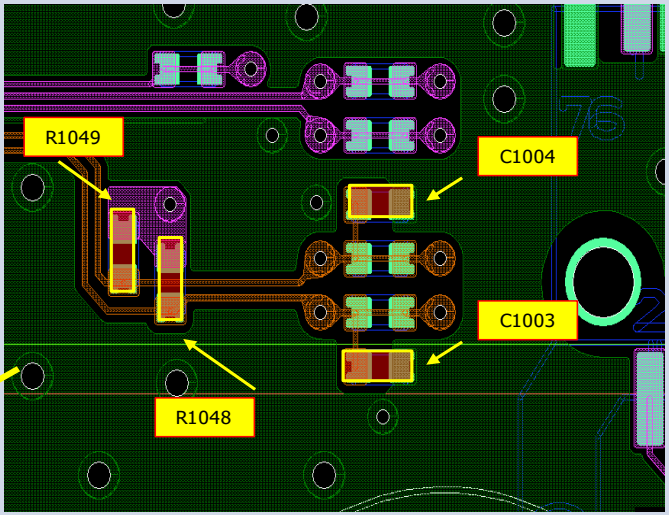
2.6.3 FOR DIGITAL TUNING 1: For TW-DVB , AM-ATSC, LA-ISDB , EU-DVB only

Board Name	Board PWB (A side)	Detail
BB9 board (A side) **(IFOUTN1)** FB1000 C1005 **(IFOUTP1)** R1030 FB1001 C1006		

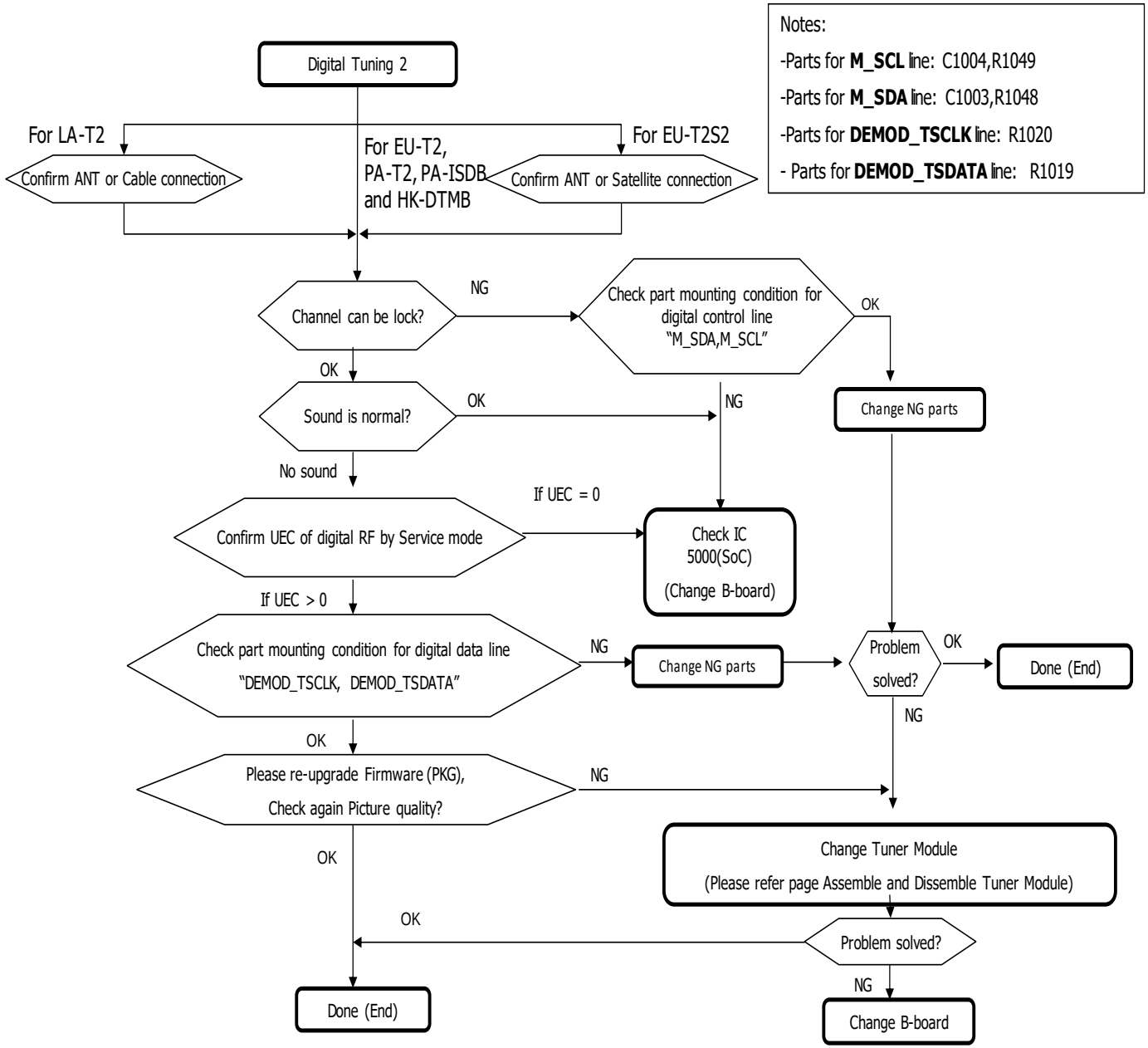
2.6.3 FOR DIGITAL TUNING 1: For TW-DVB , AM-ATSC, LA-ISDB , EU-DVB only

Board Name	Board PWB (A side)	Detail
BB9 board (A side) **(IFAGC1)** C1014 R1010		

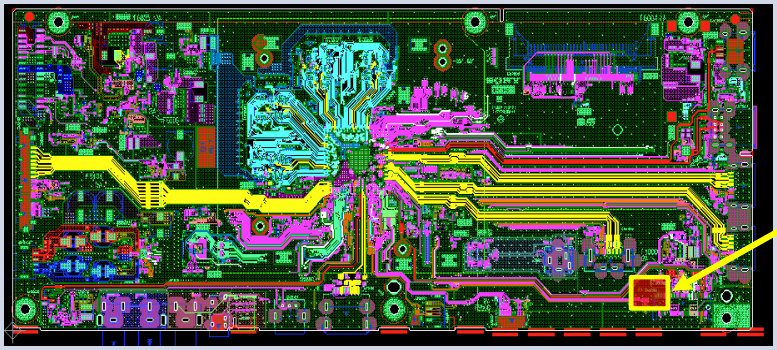
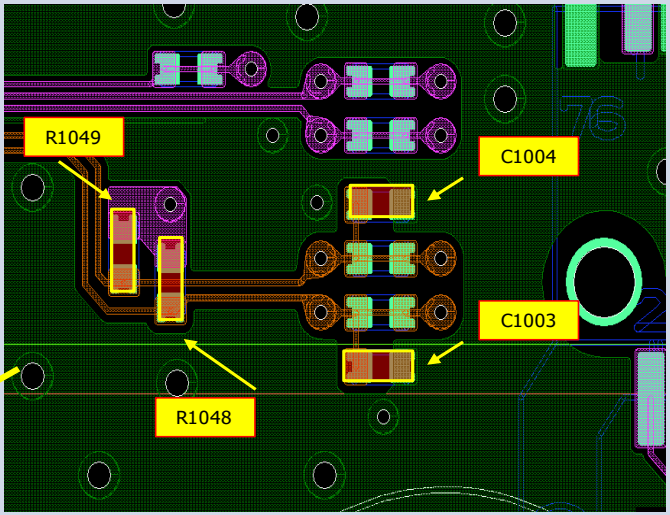
2.6.3 FOR DIGITAL TUNING 1: For TW-DVB , AM-ATSC, LA-ISDB , EU-DVB only

Board Name	Board PWB (A side)	Detail
BB9 board (A side) **(M-SCL)** C1004 R1049 **(M-SDA)** C1003 R1048		

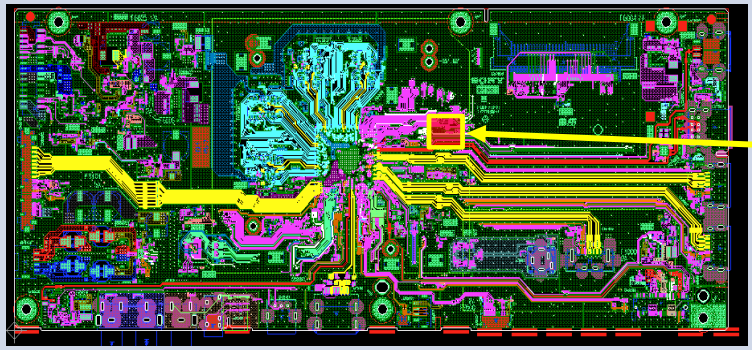
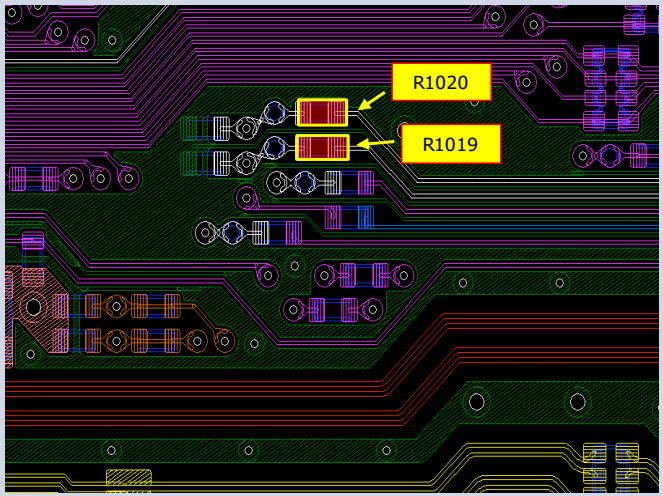
2.6.4 FOR DIGITAL TUNING 2: For EU-T2S2, PA-T2, LA-T2 ,HK-DTMB & PA-ISDB only.



2.6.4 FOR DIGITAL TUNING 2: For EU-T2S2, PA-T2, LA-T2 ,HK-DTMB & PA-ISDB only.

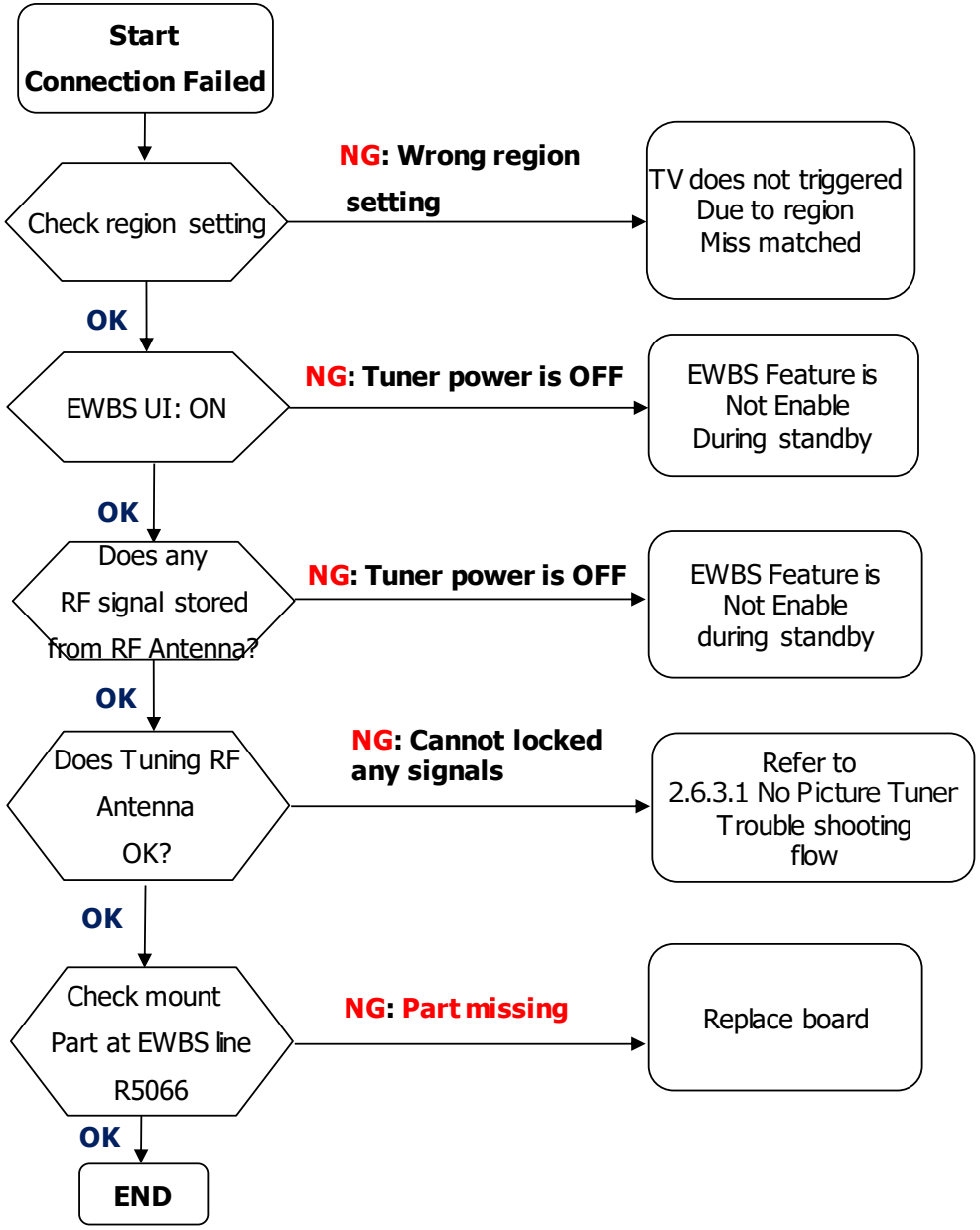
Board Name	Board PWB (A side)	Detail
BB9 board (A side) **(M-SCL)** C1004 R1049 **(M-SDA)** C1003 R1048		

2.6.4 FOR DIGITAL TUNING 2: For EU-T2S2, PA-T2, LA-T2 ,HK-DTMB & PA-ISDB only.

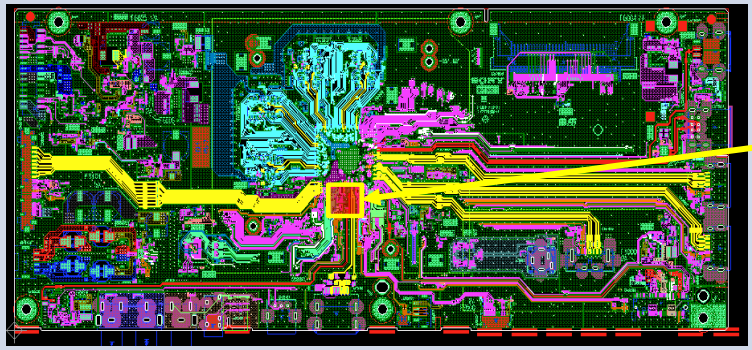
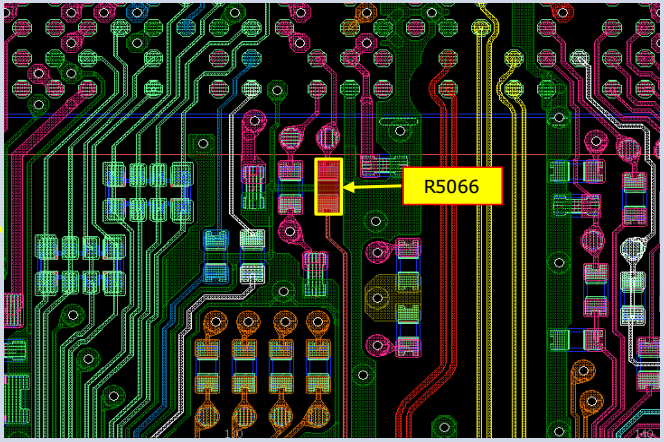
Board Name	Board PWB (A side)	Detail
BB9 board (A side) **(DEMOD_TSCLK)** R1020 **(DEMOD_TSDATA0)** R1019		

2.6.5 EWBS – (for PA-ISDB Only)

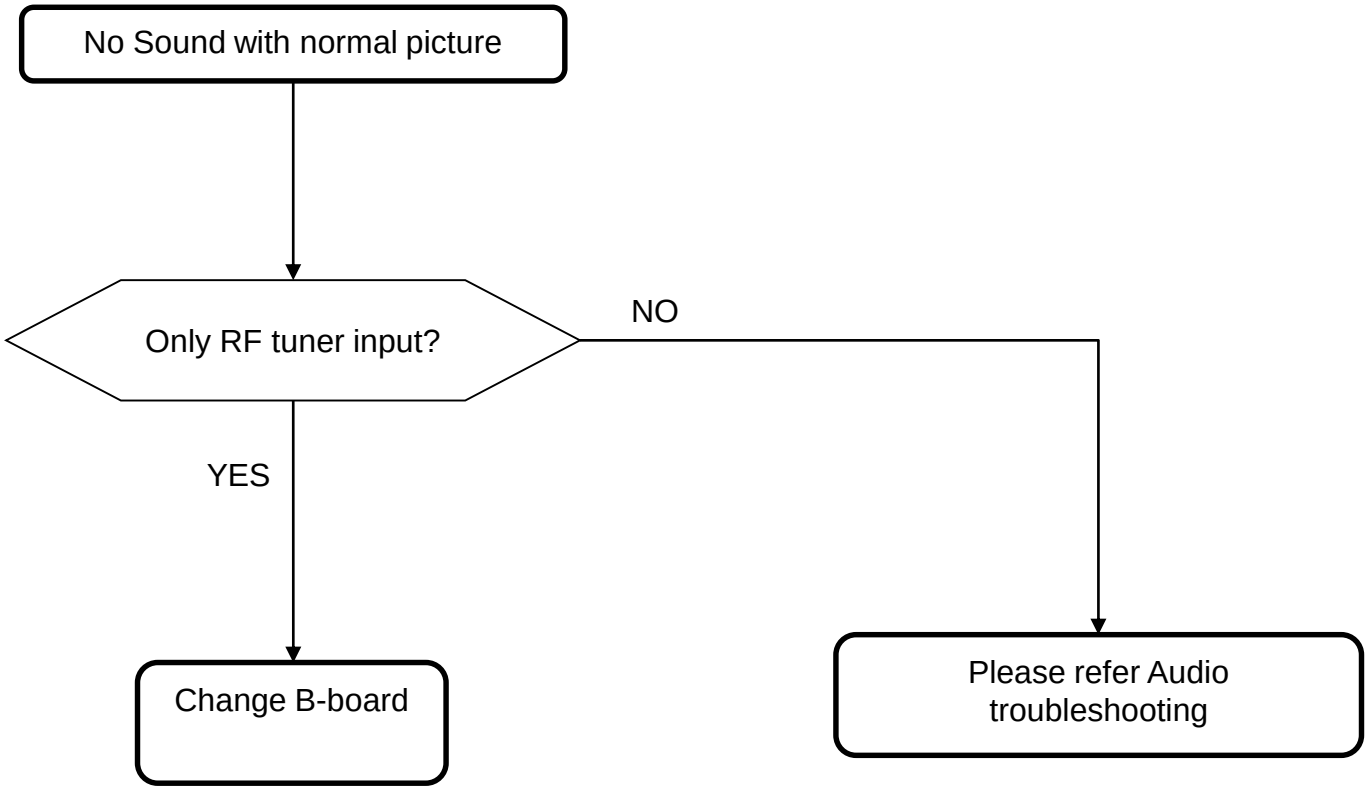
If TV unable to output audible tone /wakeup during standby after received EWBS signal– **General Checking**



2.6.5 EWBS – (for PA-ISDB Only)

Board Name	Board PWB (A side)	Detail
BB9 board (A side) **(EWBS-Tuner_wakeup line)** R5066		

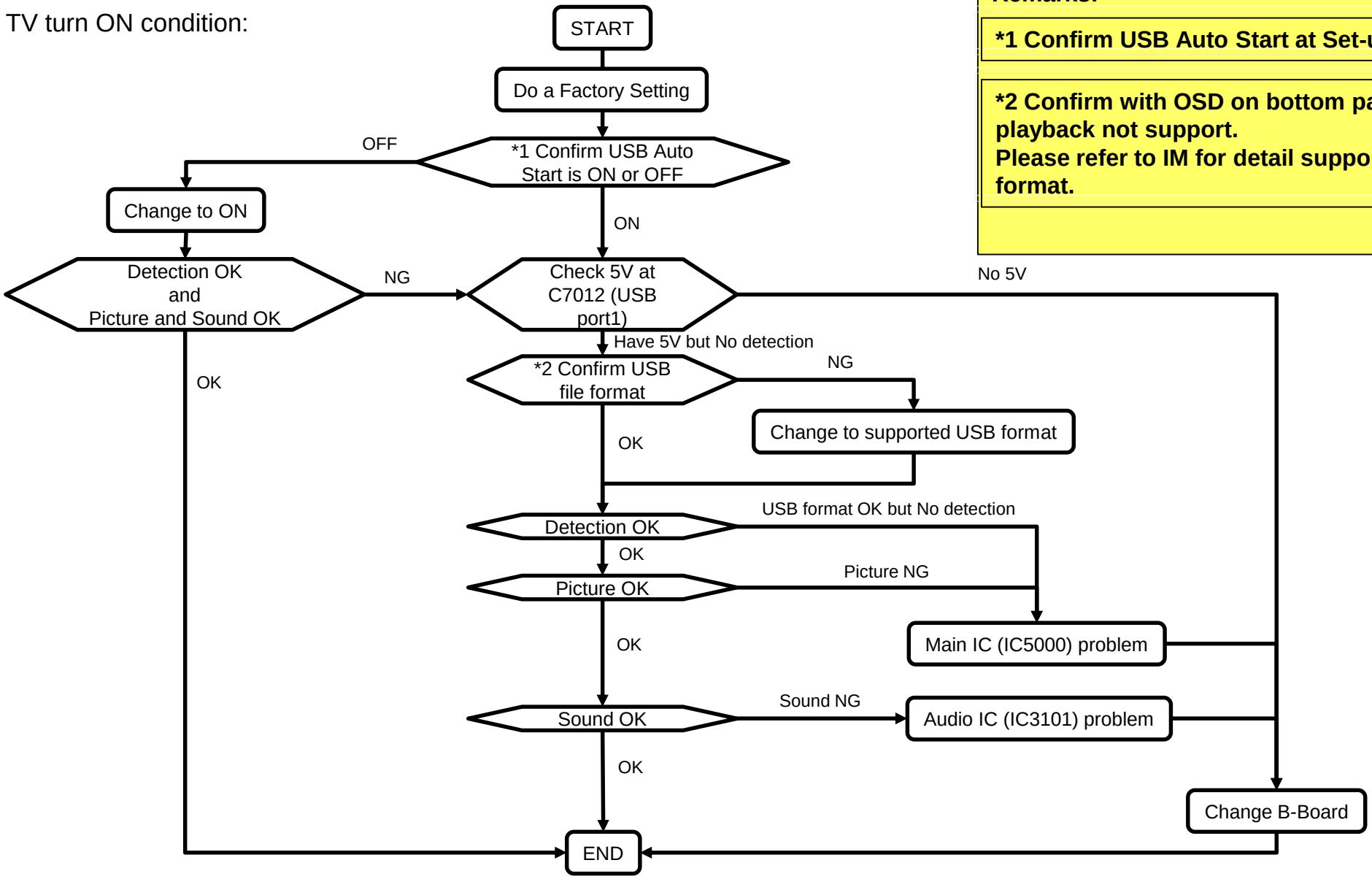
2.6.6 – NO SOUND


No Sound with normal picture
Only RF tuner input?
NO
YES
Change B-board
Please refer Audio troubleshooting

2.6.7 USB Port 1

2.6.7 USB Port 1– No Detection / Cannot Play / No picture / No Sound – General Checking

TV turn ON condition:



Remarks:

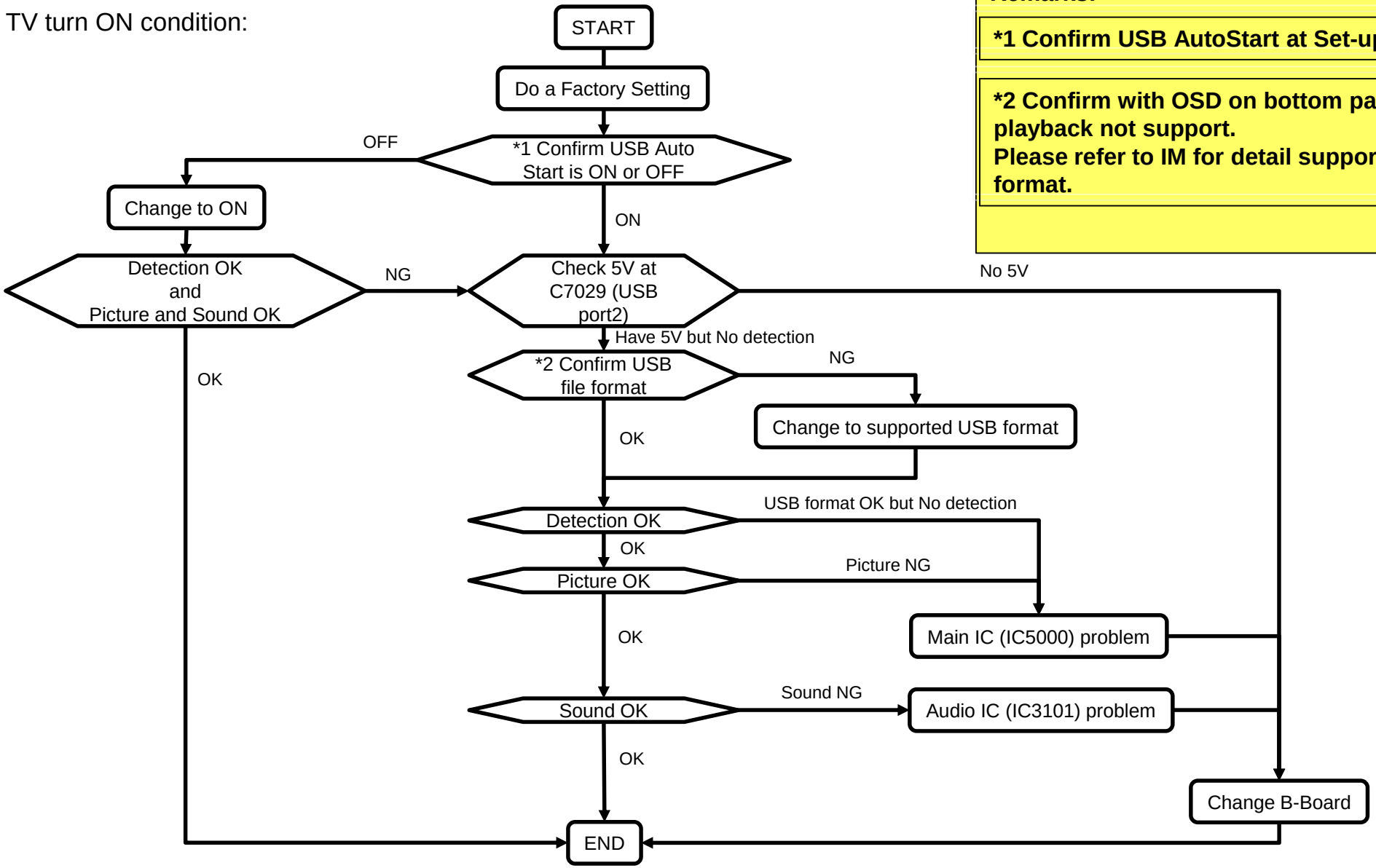
***1 Confirm USB Auto Start at Set-up Menu.**

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

2.6.8 USB Port 2

2.6.8 USB Port 2– No Detection / Cannot Play / No picture / No Sound – General Checking

TV turn ON condition:



Remarks:

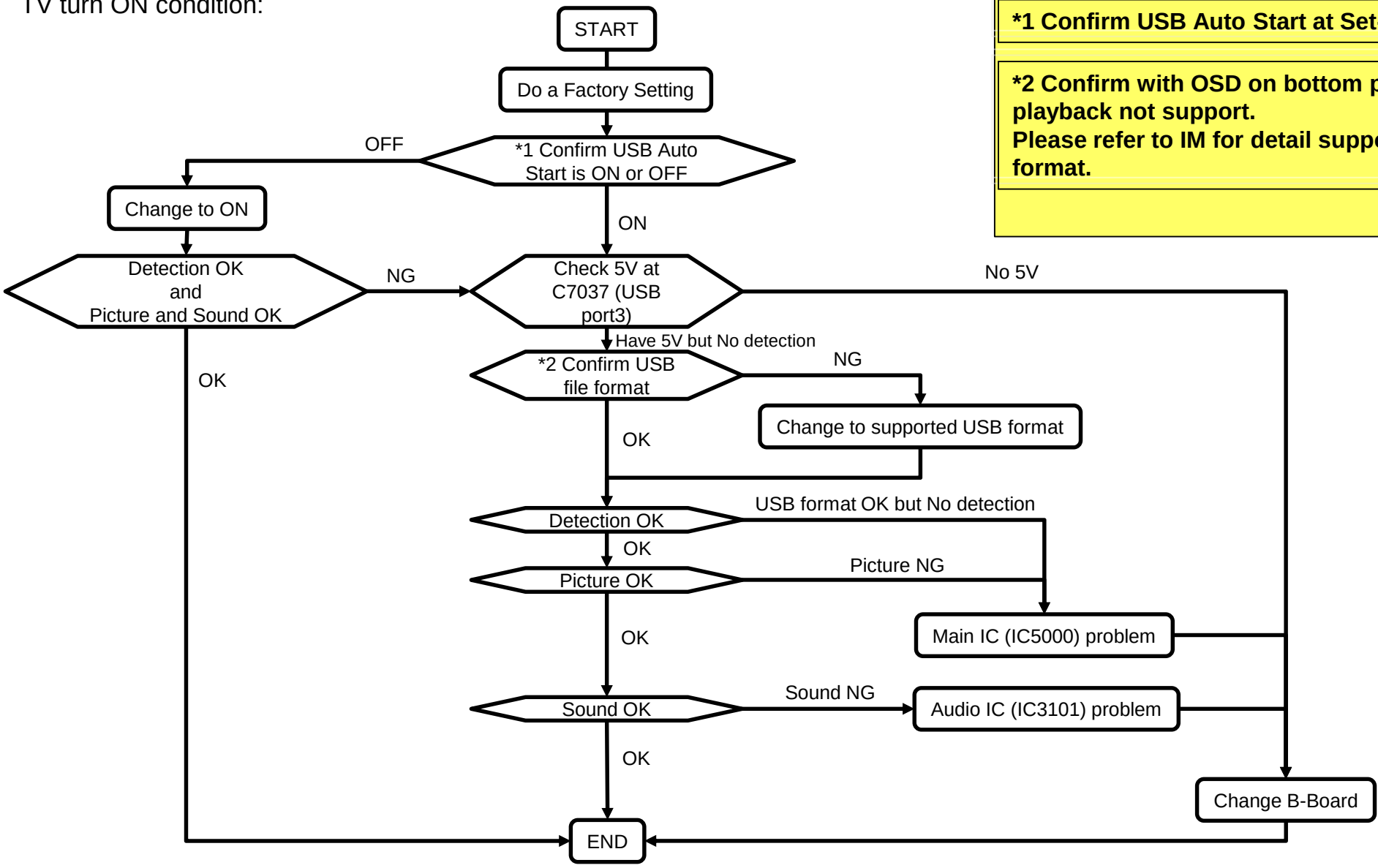
***1 Confirm USB AutoStart at Set-up Menu.**

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

2.6.9 USB Port 2

2.6.9 USB Port 3– No Detection / Cannot Play / No picture / No Sound – General Checking

TV turn ON condition:



Remarks:

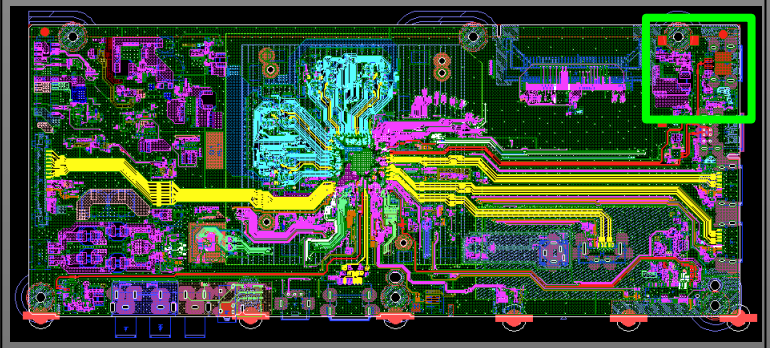
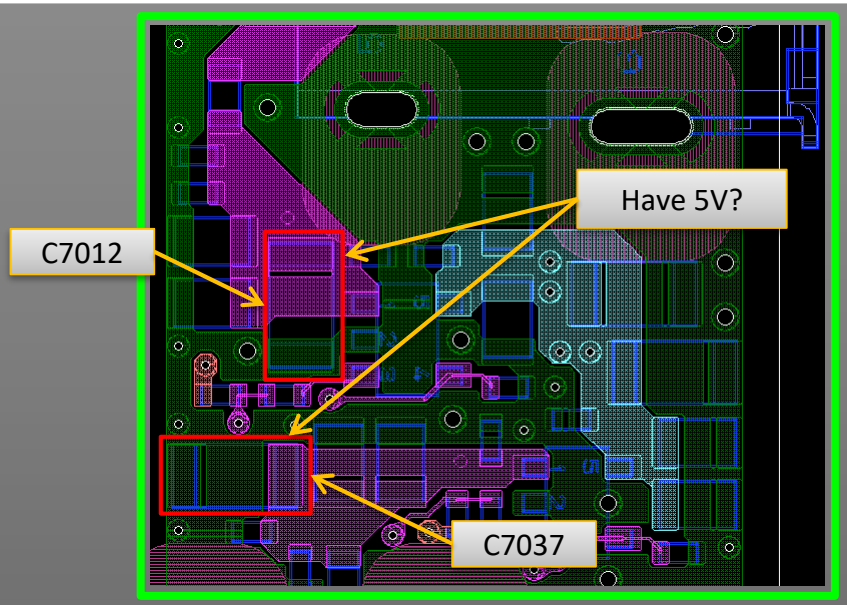
***1 Confirm USB Auto Start at Set-up Menu.**

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

2.6.10 USB Port 1 or 3

2.6.10 USB Port 1 or 3 – No Detection / Cannot Play / No picture / No Sound – Checking Point

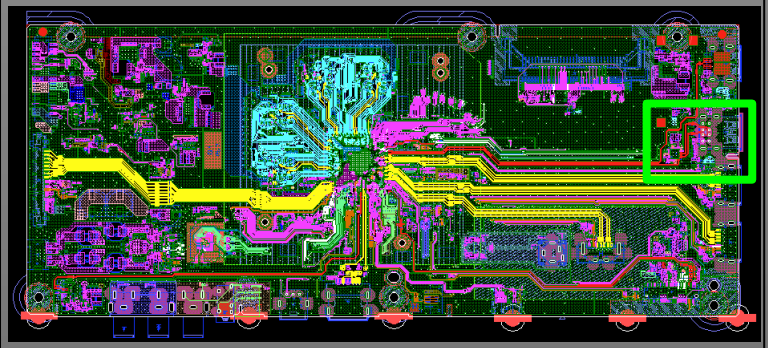
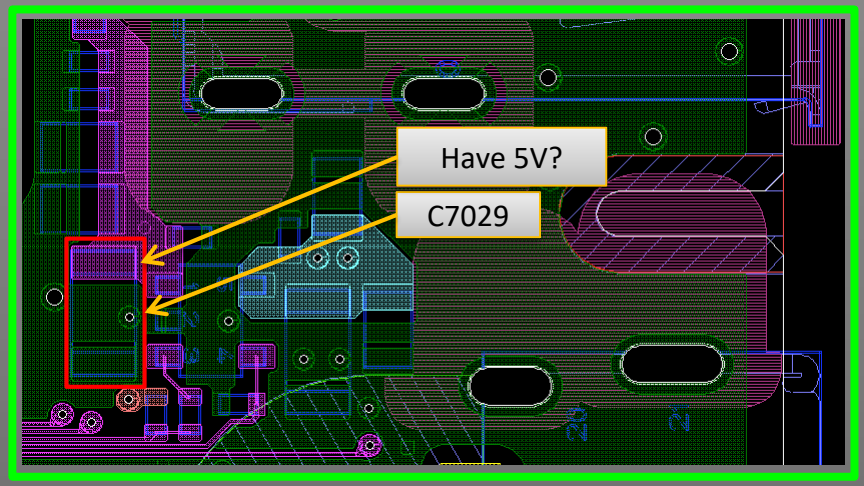
USB (B-board Checking) – Checking 5V Points [USB Port 1 or 3]

Board Name	Board PWB (A side)	Detail
BB9		

2.6.11 USB Port 2

2.6.11 USB Port 2 – No Detection / Cannot Play / No picture / No Sound – Checking Point

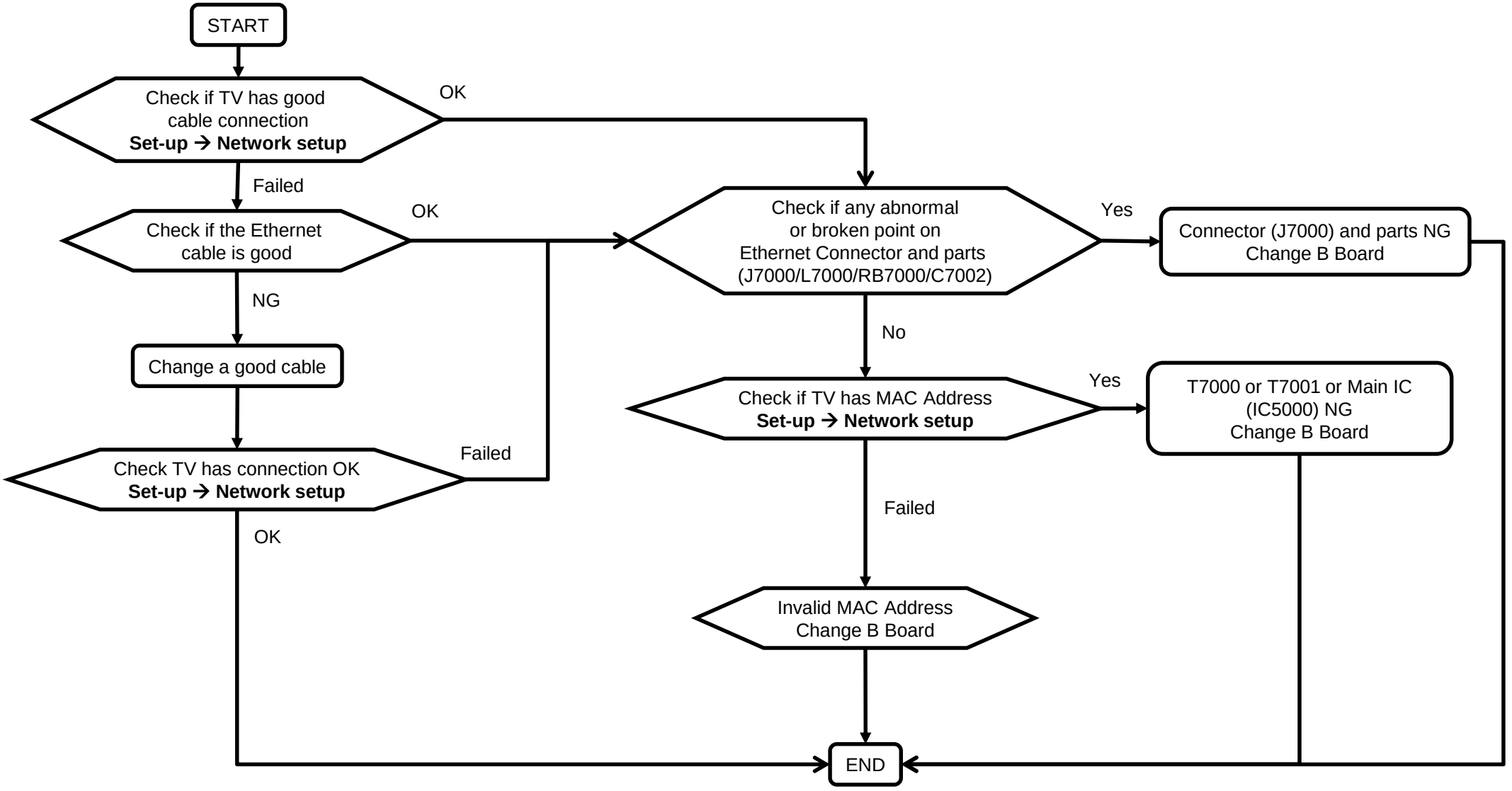
USB (B-board Checking) – Checking 5V Points [USB Port 2]

Board Name	Board PWB (A side)	Detail
BB9		

2.6.12 Ethernet

2.6.12 Ethernet – No Connect – General Checking

TV turn ON condition:

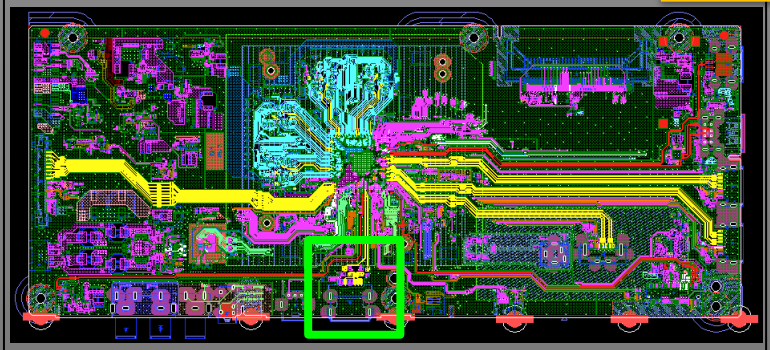


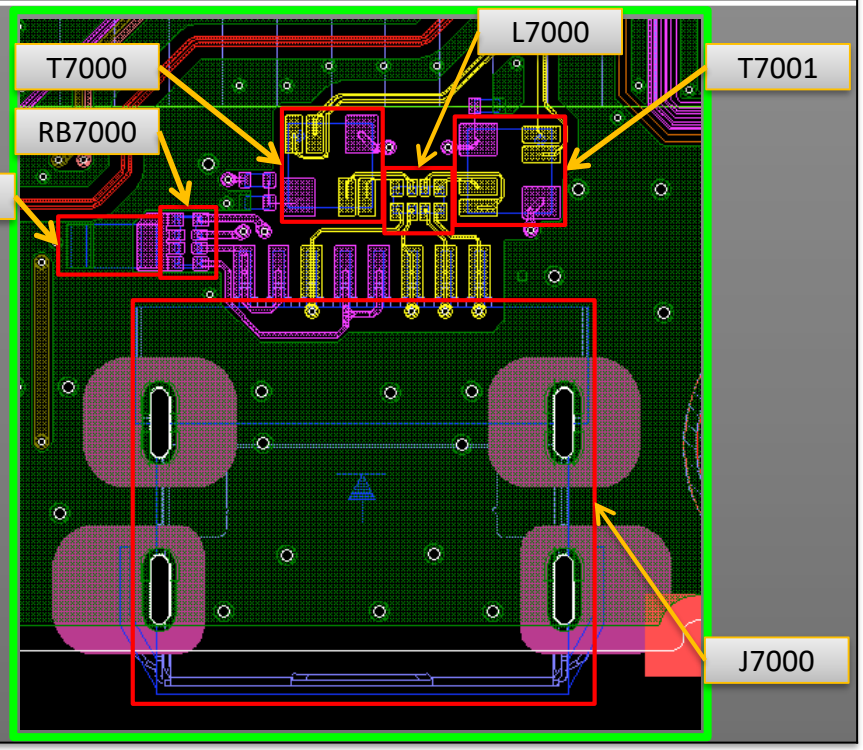
2.6.12 Ethernet

2.6.12 Ethernet – No Connect – Checking Point

Ethernet (B-board Checking) – Checking parts broken or knock off

Board Name	Board PWB (A side)	Detail
BB9	Check any parts broken or knock off?	T7000, L7000, T7001, RB7000, C7002, J7000





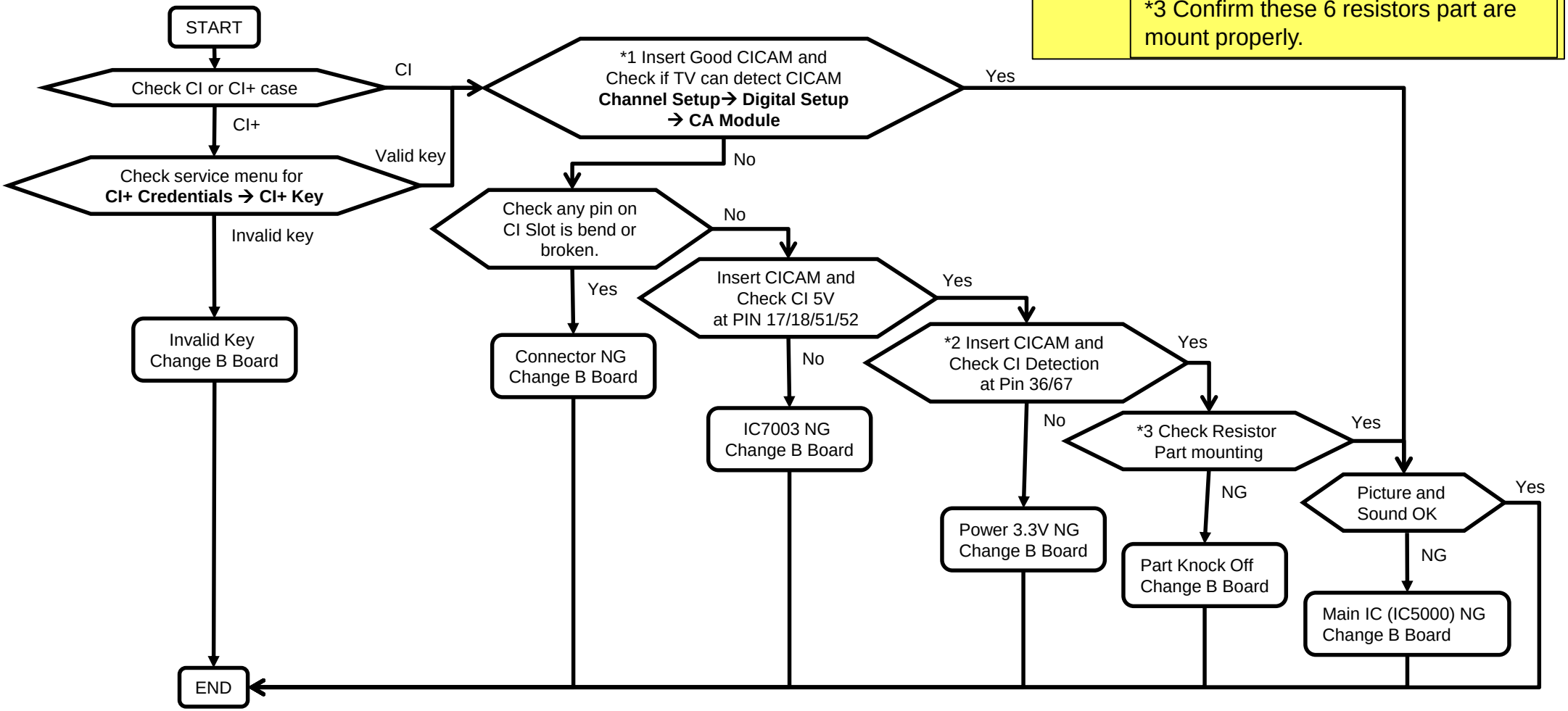
2.6.13 CI Slot

2.6.13 CI Slot – Cannot Play / No picture / No Sound – General Checking

TV turn ON condition:

Remarks:

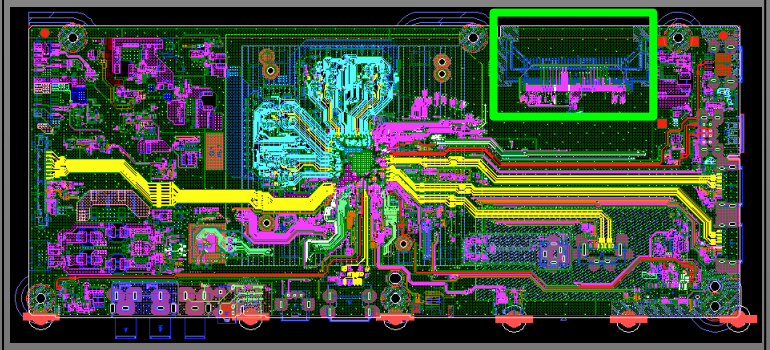
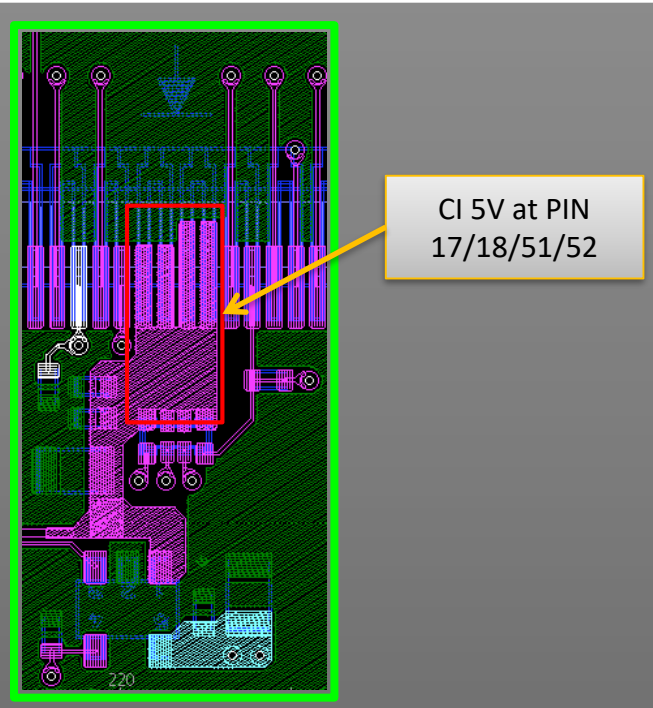
- *1 Important: Please use a known Good CICAM for testing
- *2 Both CI Detection at Pin 36/67 should be 3.3V before CICAM insert and 0v when CICAM inserted.
- *3 Confirm these 6 resistors part are mount properly.



2.6.13 CI Slot

2.6.13 CI Slot – Cannot Play / No picture / No Sound – Checking Point

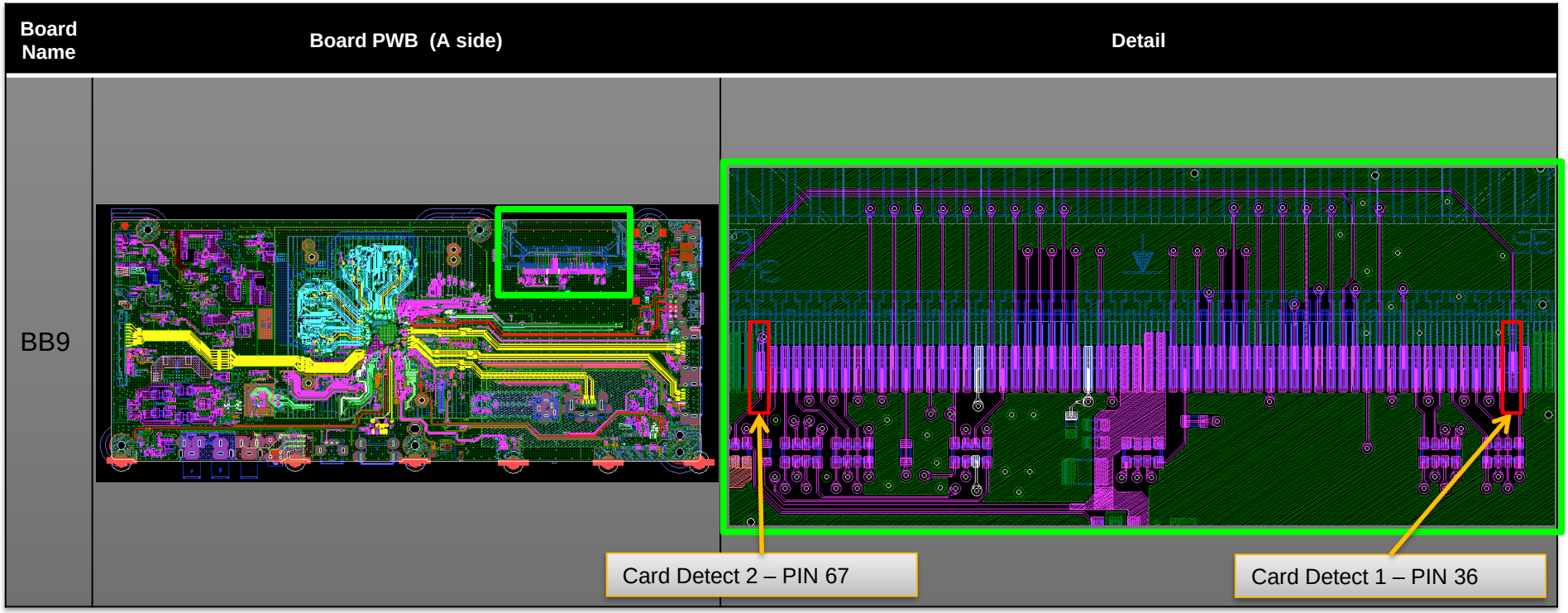
CI Slot (B-board Checking) – Checking 5V Points [1/3]

Board Name	Board PWB (A side)	Detail
BB9		

2.6.13 CI Slot

2.6.13 CI Slot – Cannot Play / No picture / No Sound – Checking Point

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

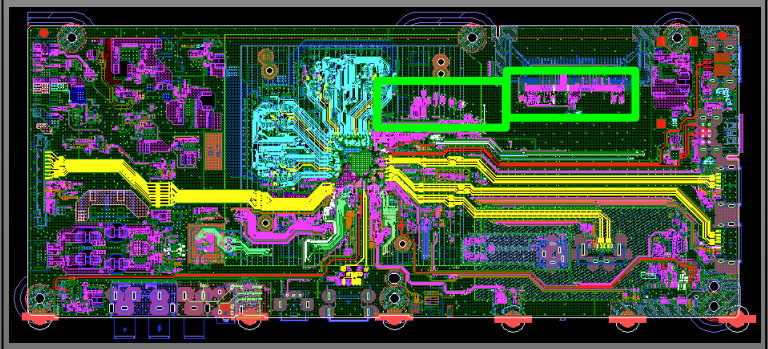
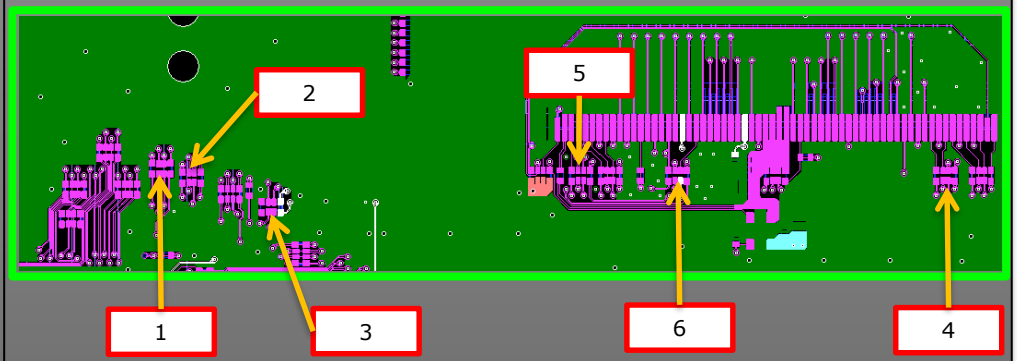


Remark:
Both CI Detection Pin should be 3.3V before CICAM insert and 0v when CICAM inserted.

2.6.13 CI Slot

2.6.13 CI Slot – Cannot Play / No picture / No Sound – Checking Point

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

Board Name	Board PWB (A side)	Detail
BB9		

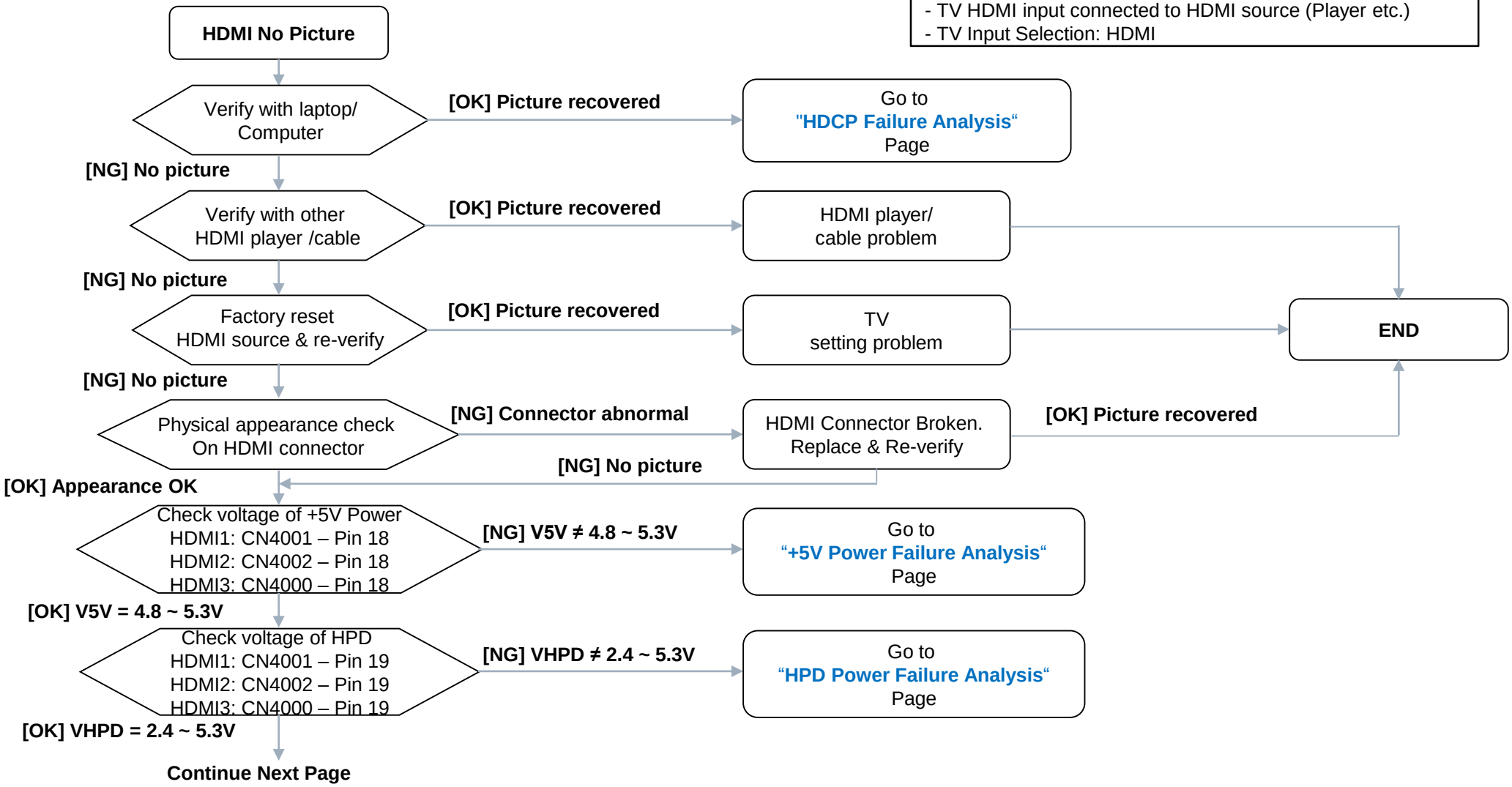
Ref. No.	Location	Ref. No.	Location
RB7003	1	RB7012	6
RB7004	2	RB7020	7
RB7005	3		
RB7010	4		

Remark:
Confirm these 6 resistors part are mount properly or not.

2.6.14 HDMI No Picture

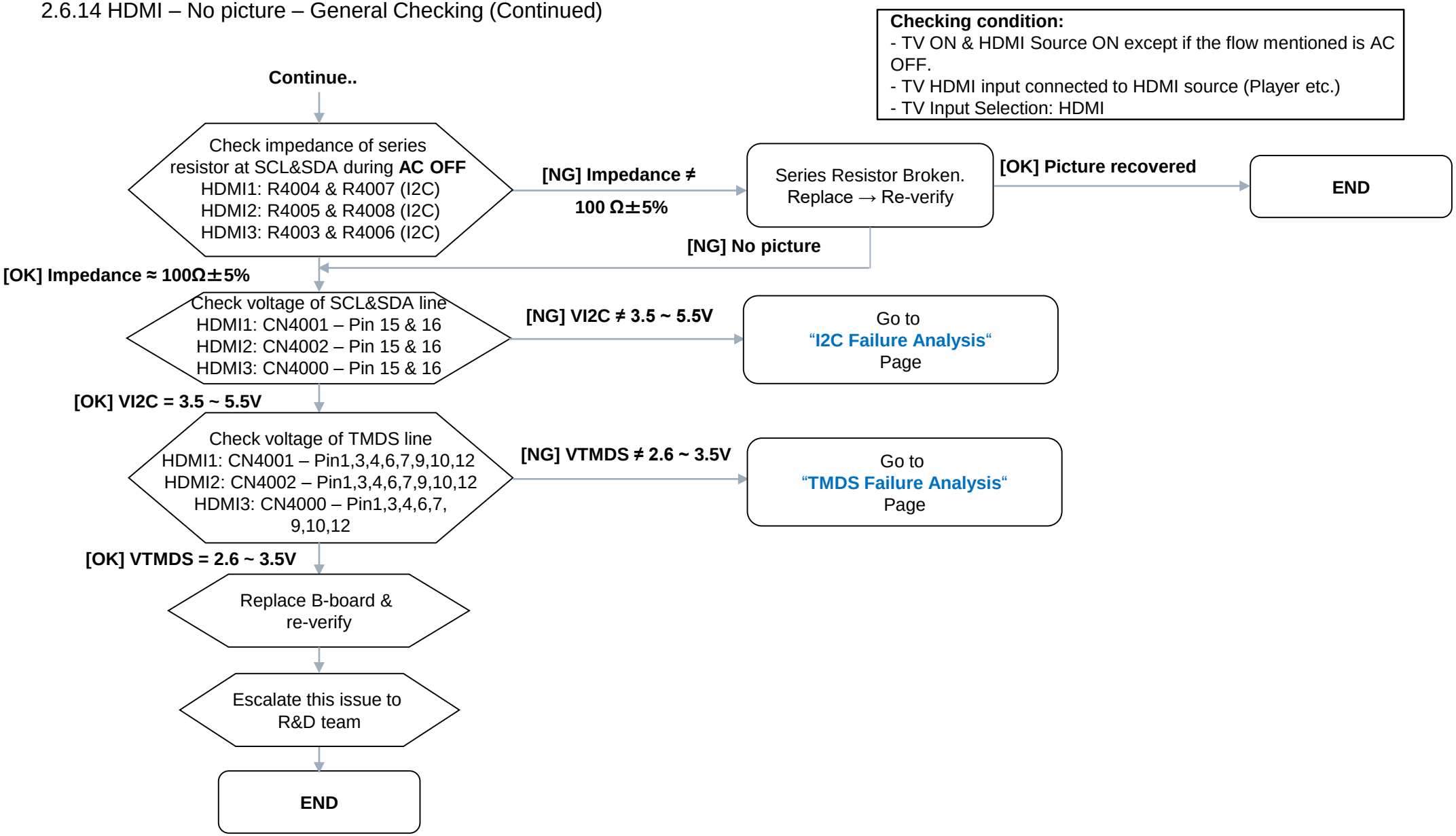
2.6.14 HDMI – No picture – General Checking

Checking condition:
- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source (Player etc.)
- TV Input Selection: HDMI



2.6.14 HDMI No Picture

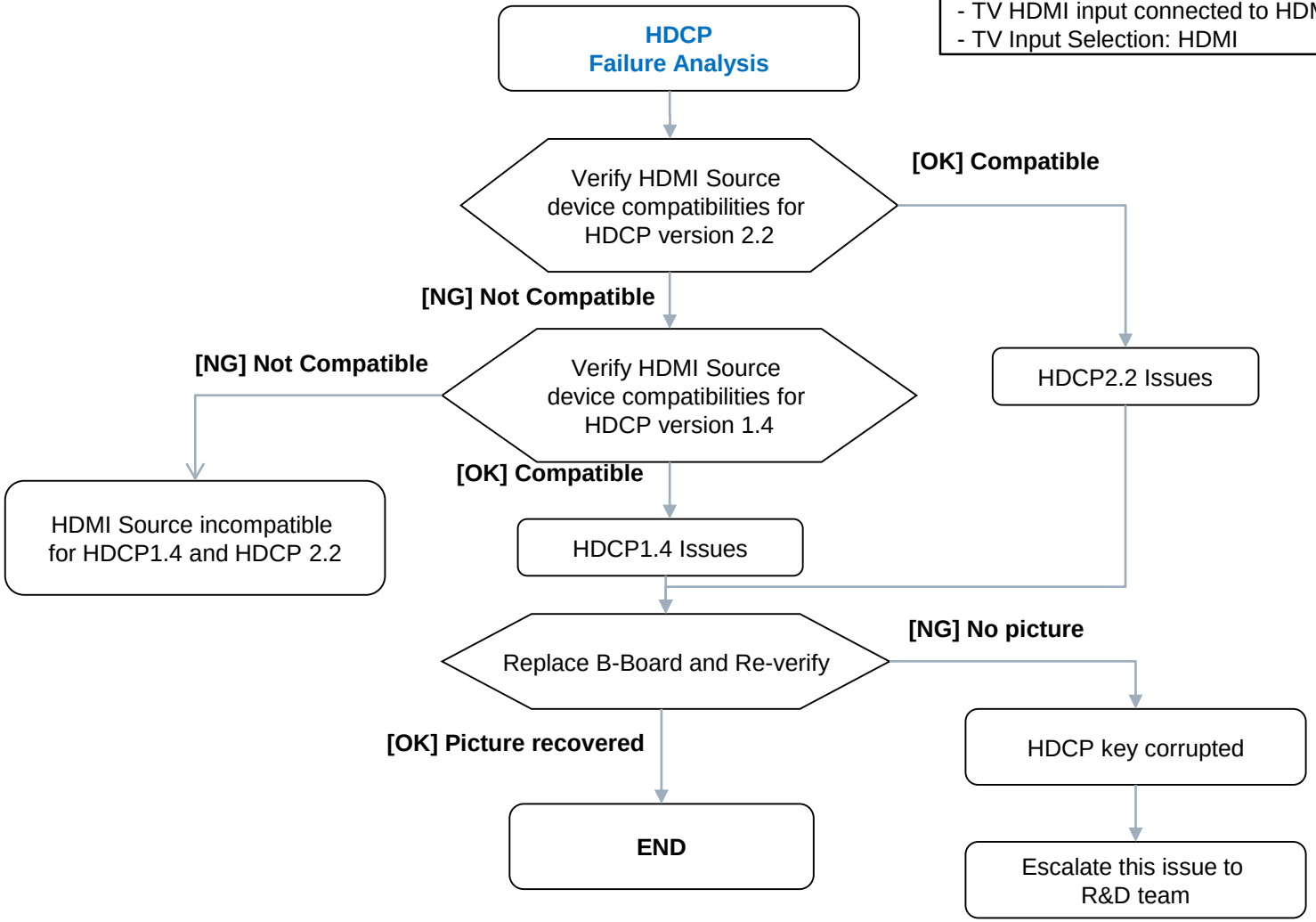
2.6.14 HDMI – No picture – General Checking (Continued)



2.6.14 HDMI No Picture

2.6.14.1 HDCP Failure Analysis

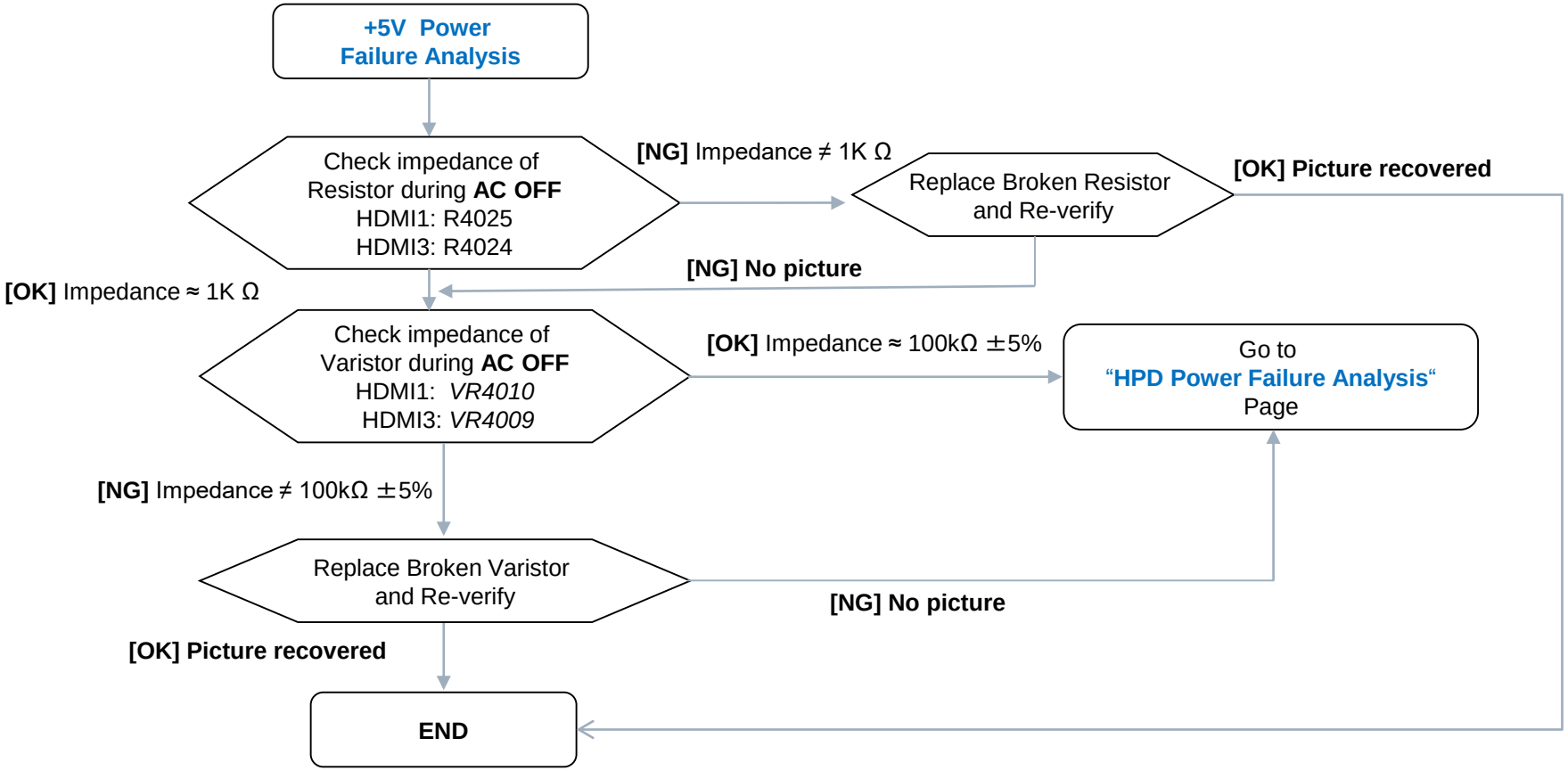
Checking condition:
- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source (Player etc.)
- TV Input Selection: HDMI



2.6.14 HDMI No Picture

2.6.14.2 +5V Power Failure Analysis – HDMI1 and HDMI3

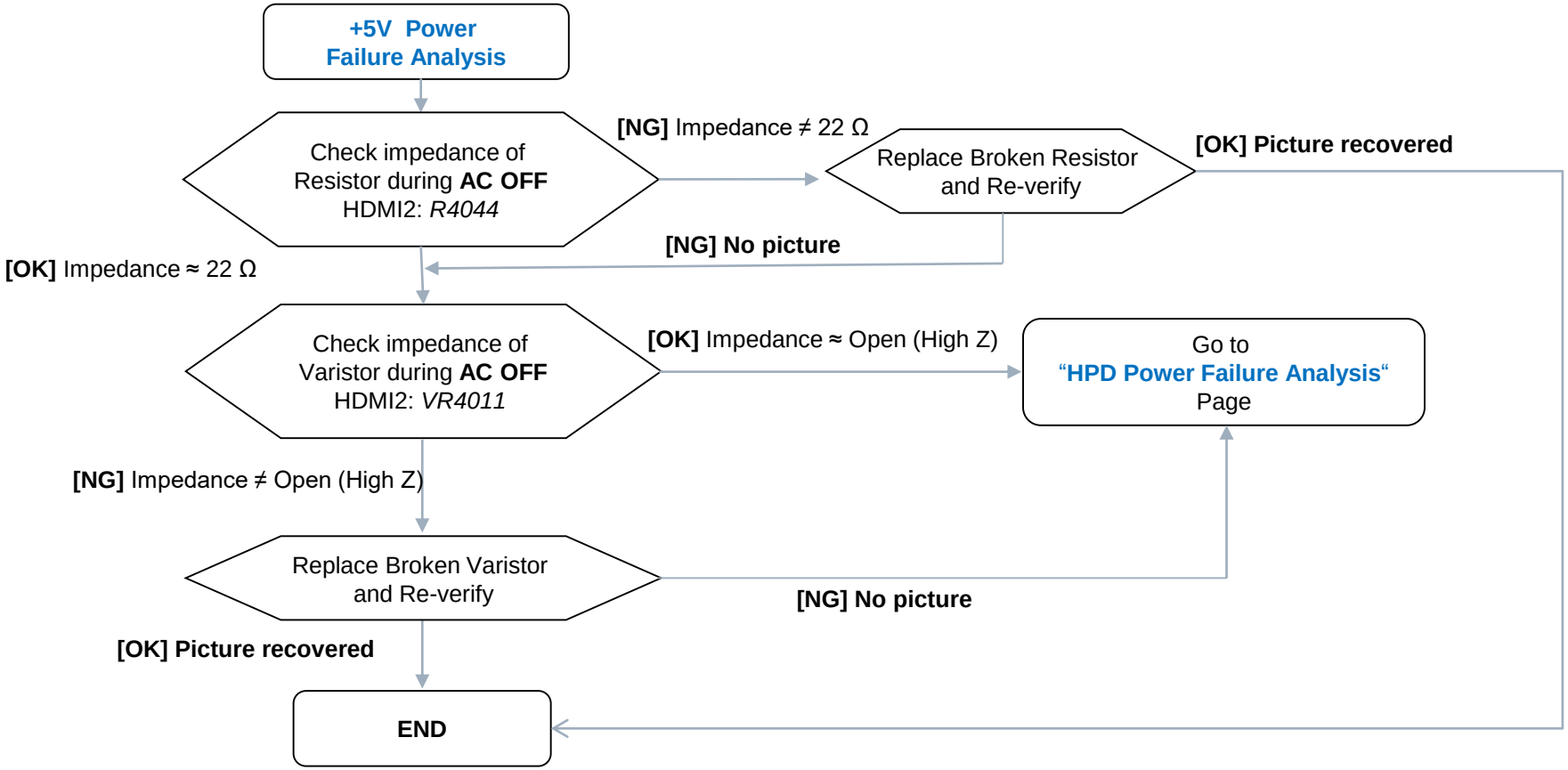
Checking condition:
- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source (Player etc.)
- TV Input Selection: HDMI



2.6.14 HDMI No Picture

2.6.14.2 +5V Power Failure Analysis – HDMI2

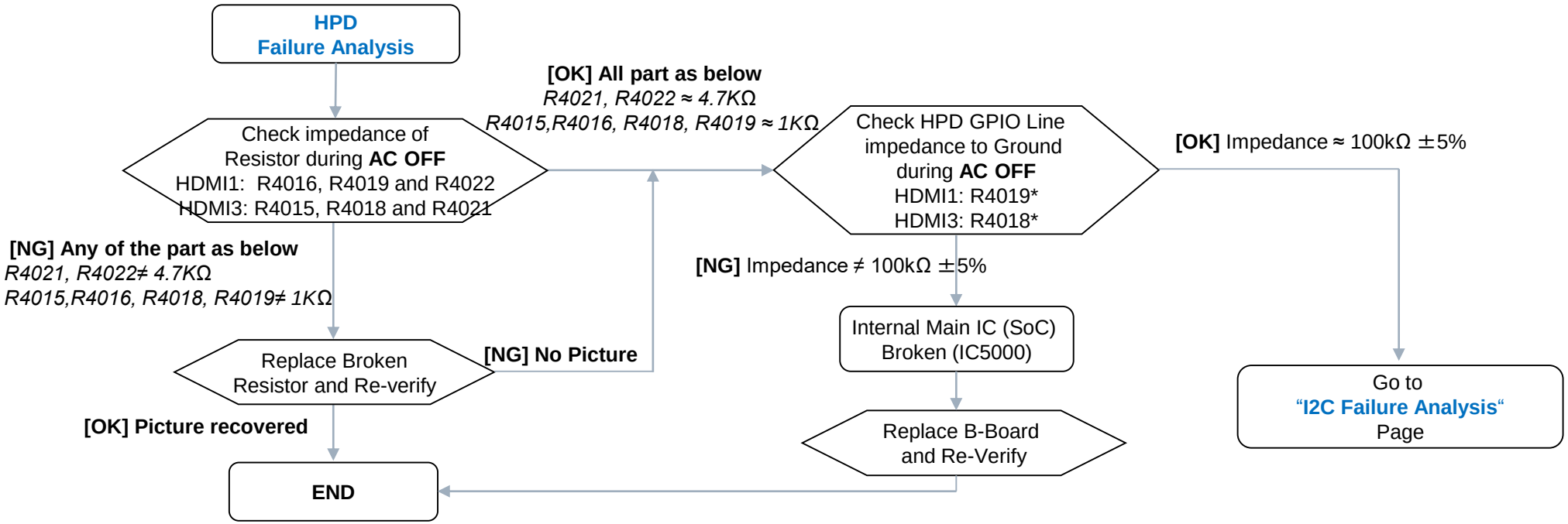
Checking condition:
- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source (Player etc.)
- TV Input Selection: HDMI



2.6.14 HDMI No Picture

2.6.14.3 HPD Failure Analysis – HDMI1 and HDMI3

Checking condition:
- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source (Player etc.)
- TV Input Selection: HDMI

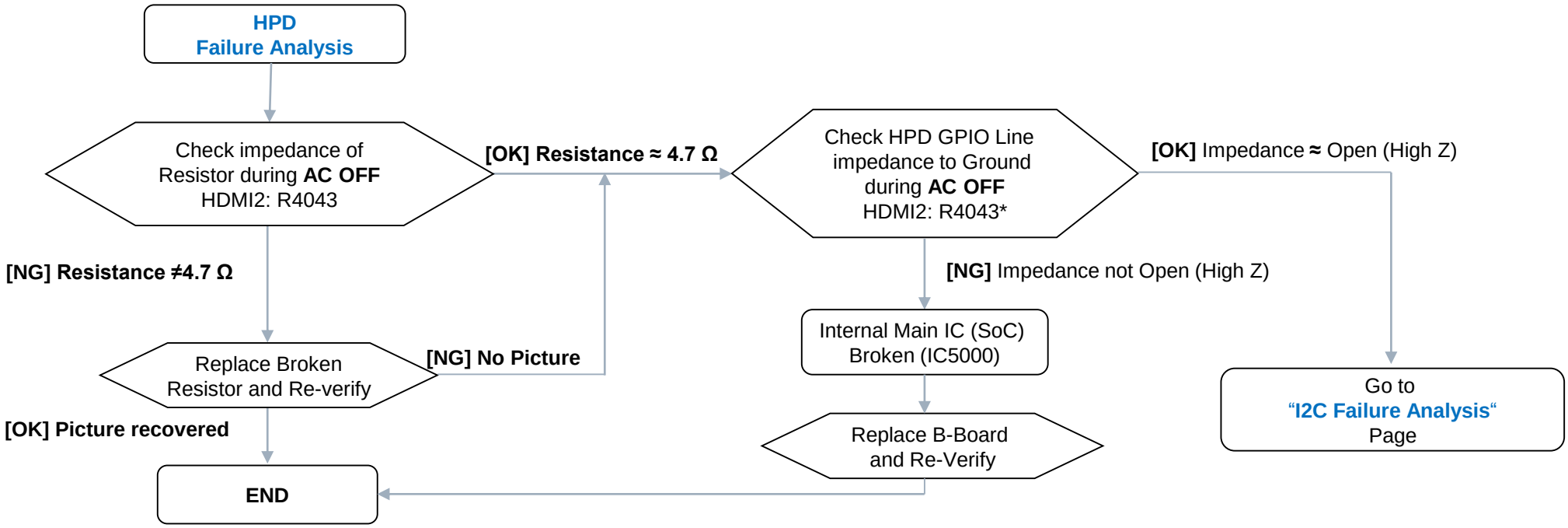


*Please refer page 10 for actual measuring points

2.6.14 HDMI No Picture

2.6.14.3 HPD Failure Analysis – HDMI2

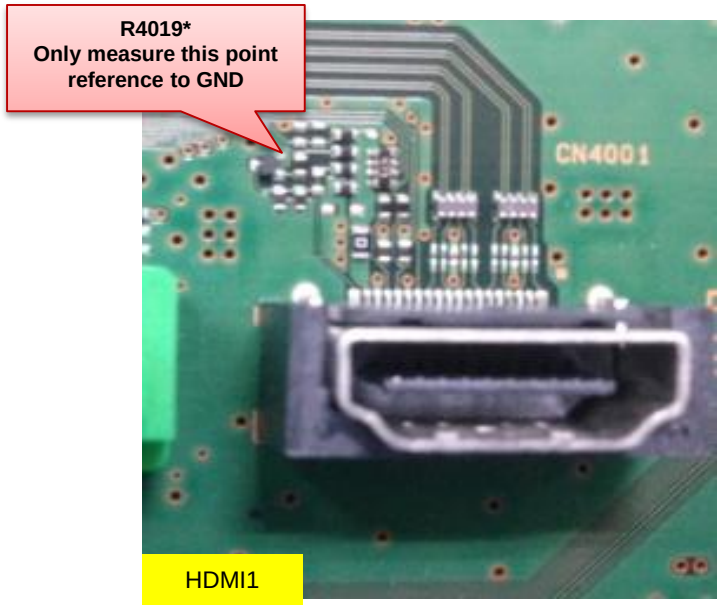
Checking condition:
- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source (Player etc.)
- TV Input Selection: HDMI

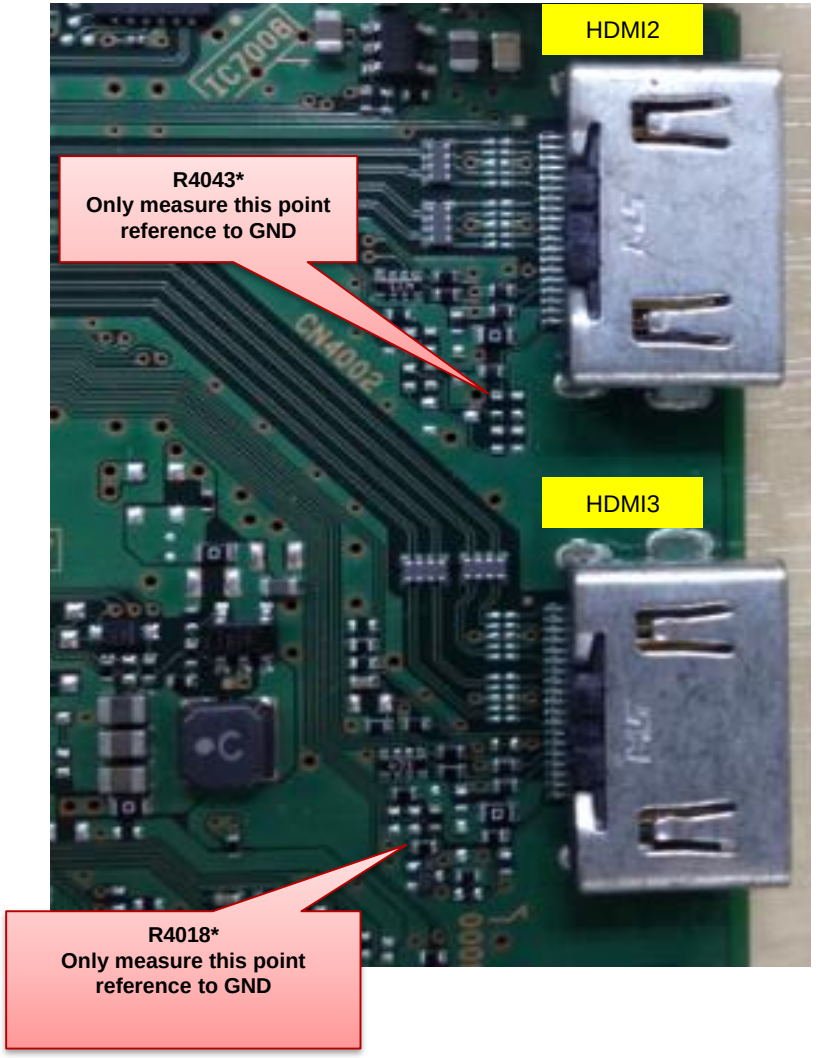


**Please refer page 10 for actual measuring points*

2.6.14 HDMI No Picture

2.6.14.3 HPD Failure Analysis – Measuring point for HPD GPIO line references to ground

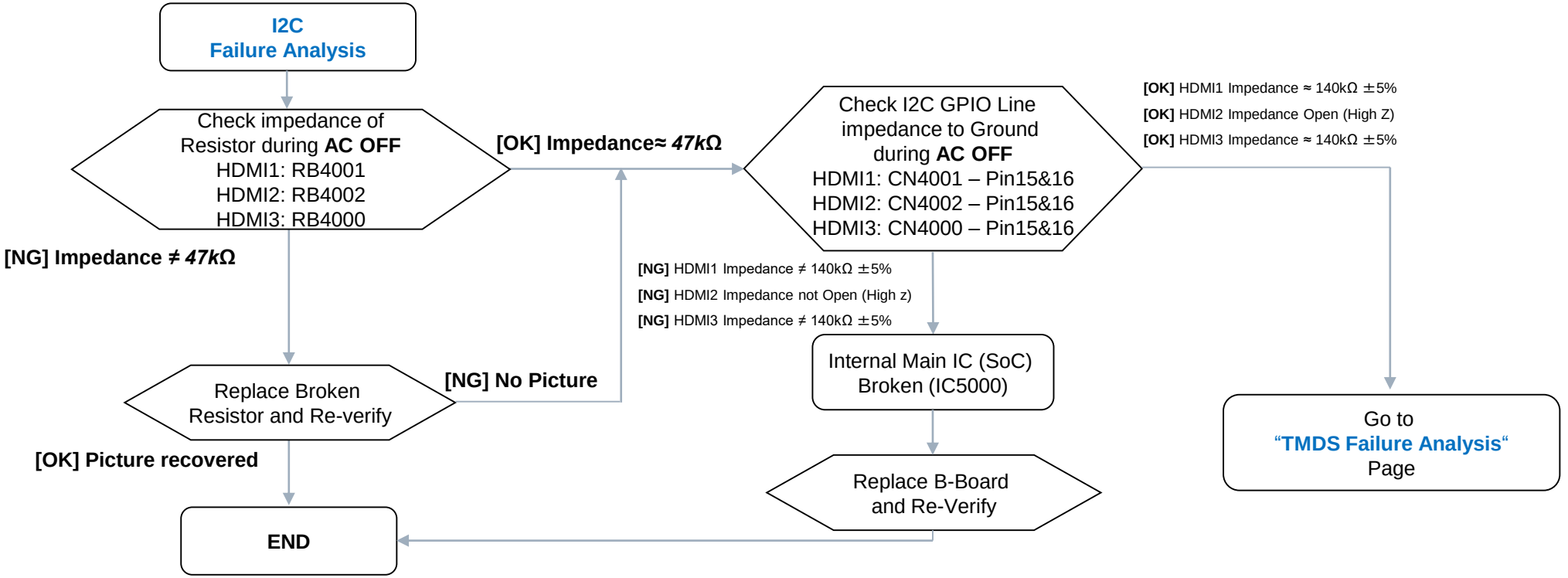




2.6.14 HDMI No Picture

2.6.14.4 I2C Failure Analysis

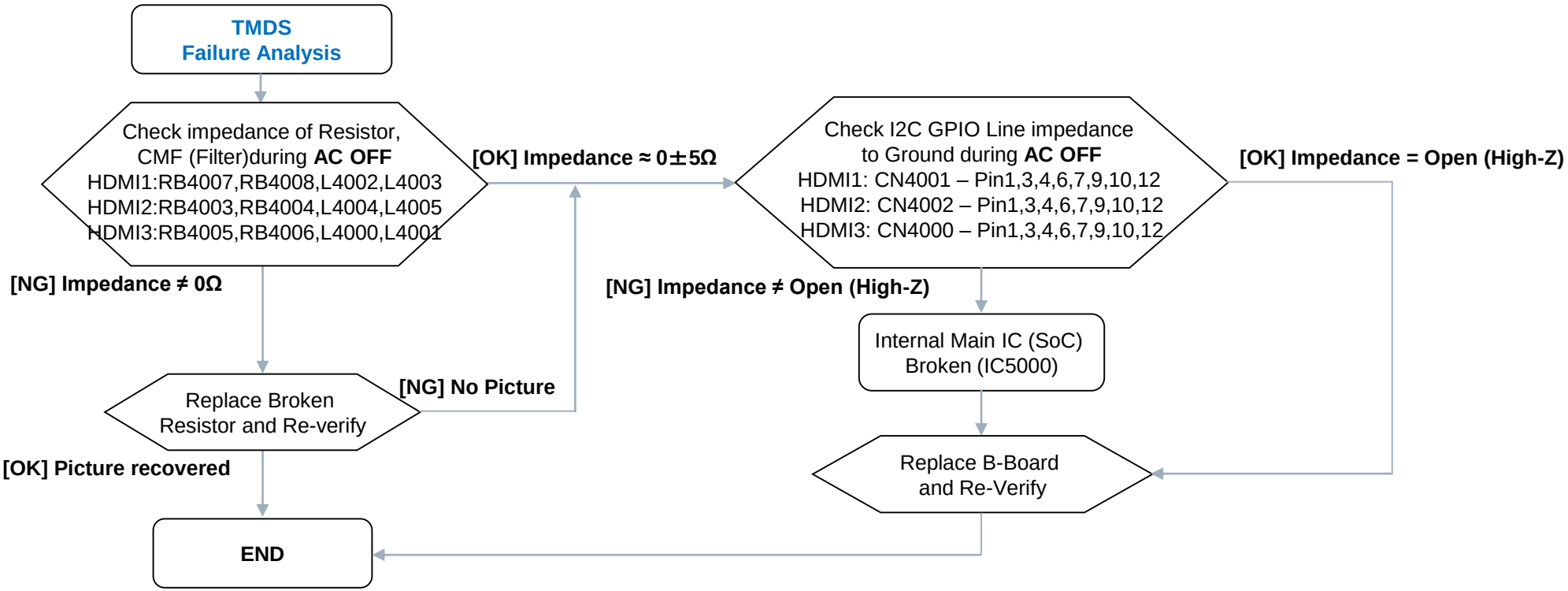
Checking condition:
- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source (Player etc.)
- TV Input Selection: HDMI



2.6.14 HDMI No Picture

2.6.14.5 TMDS Failure Analysis

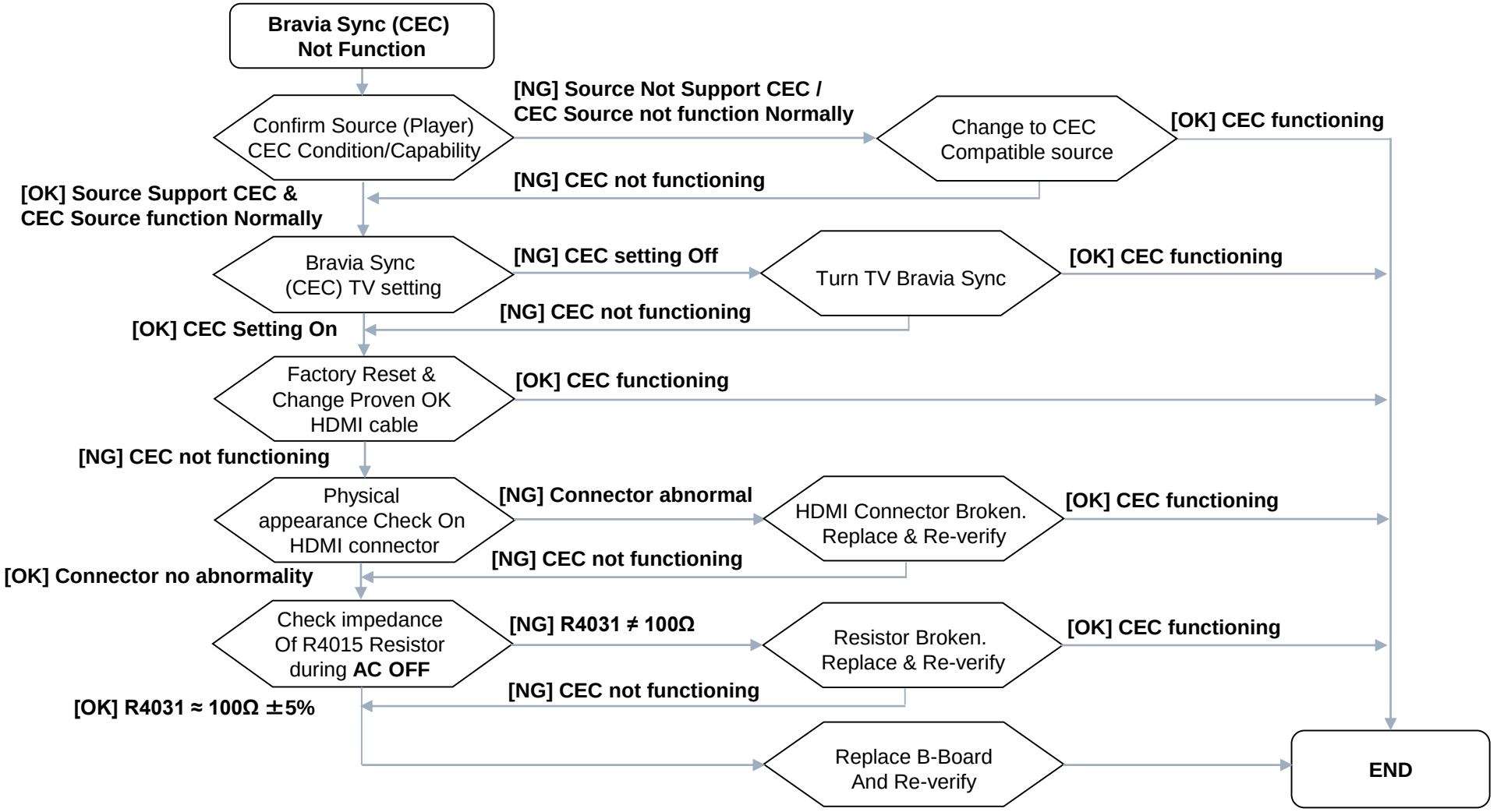
Checking condition:
- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source (Player etc.)
- TV Input Selection: HDMI



2.6.14 HDMI No Picture

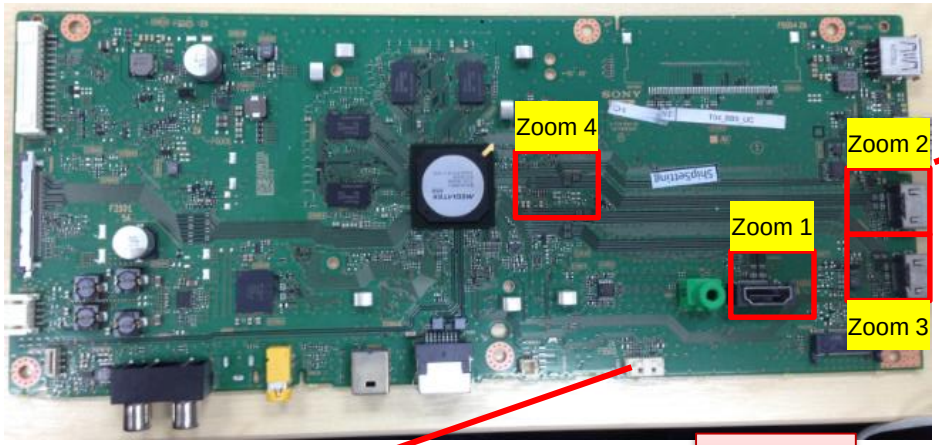
2.6.14.6 HDMI Bravia Sync (CEC) Not function

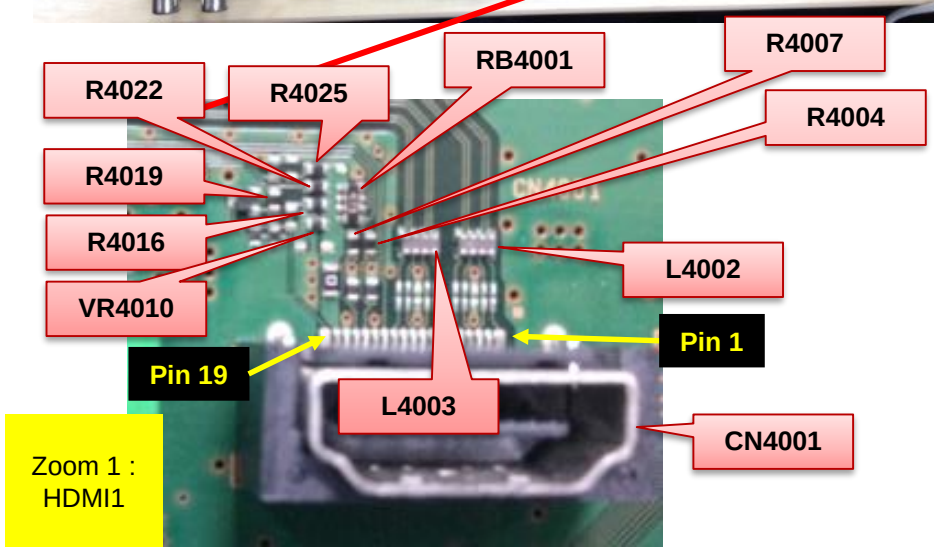
Checking condition:
- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source (Player etc.)
- TV Input Selection: HDMI



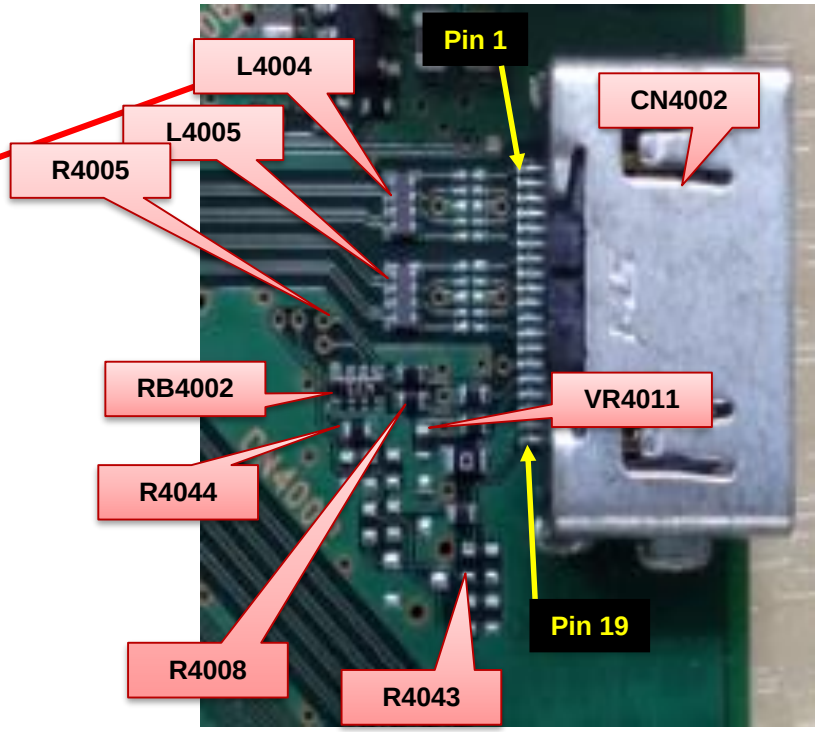
2.6.14 HDMI No Picture

HDMI No picture– Checking Point





Zoom 1 : HDMI1

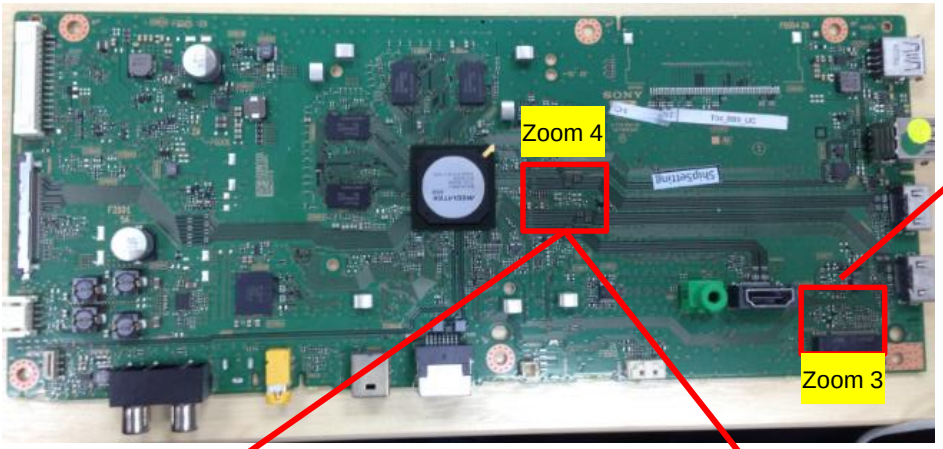


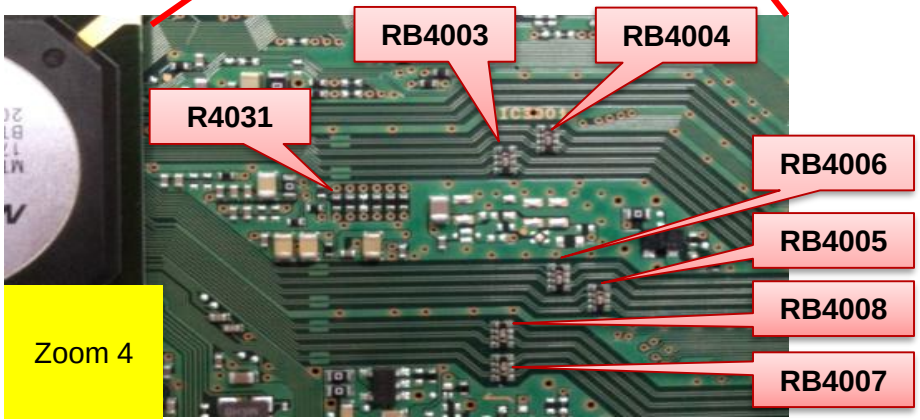
Zoom 2 : HDMI2

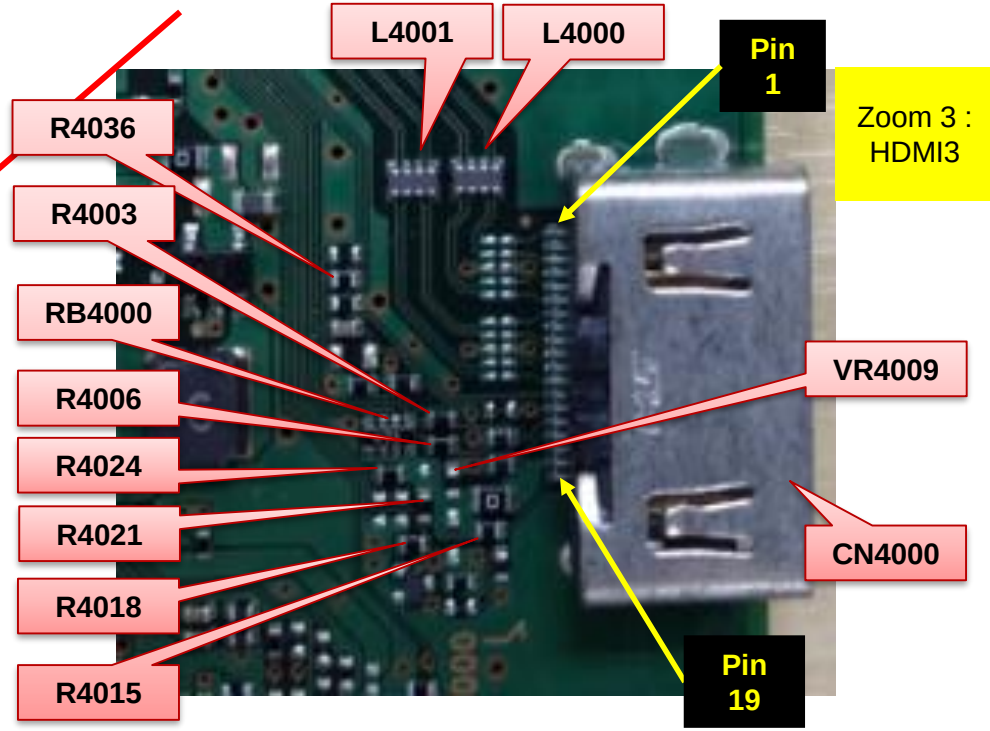
More on the next slide…

2.6.14 HDMI No Picture

HDMI No picture-Checking point (continued)







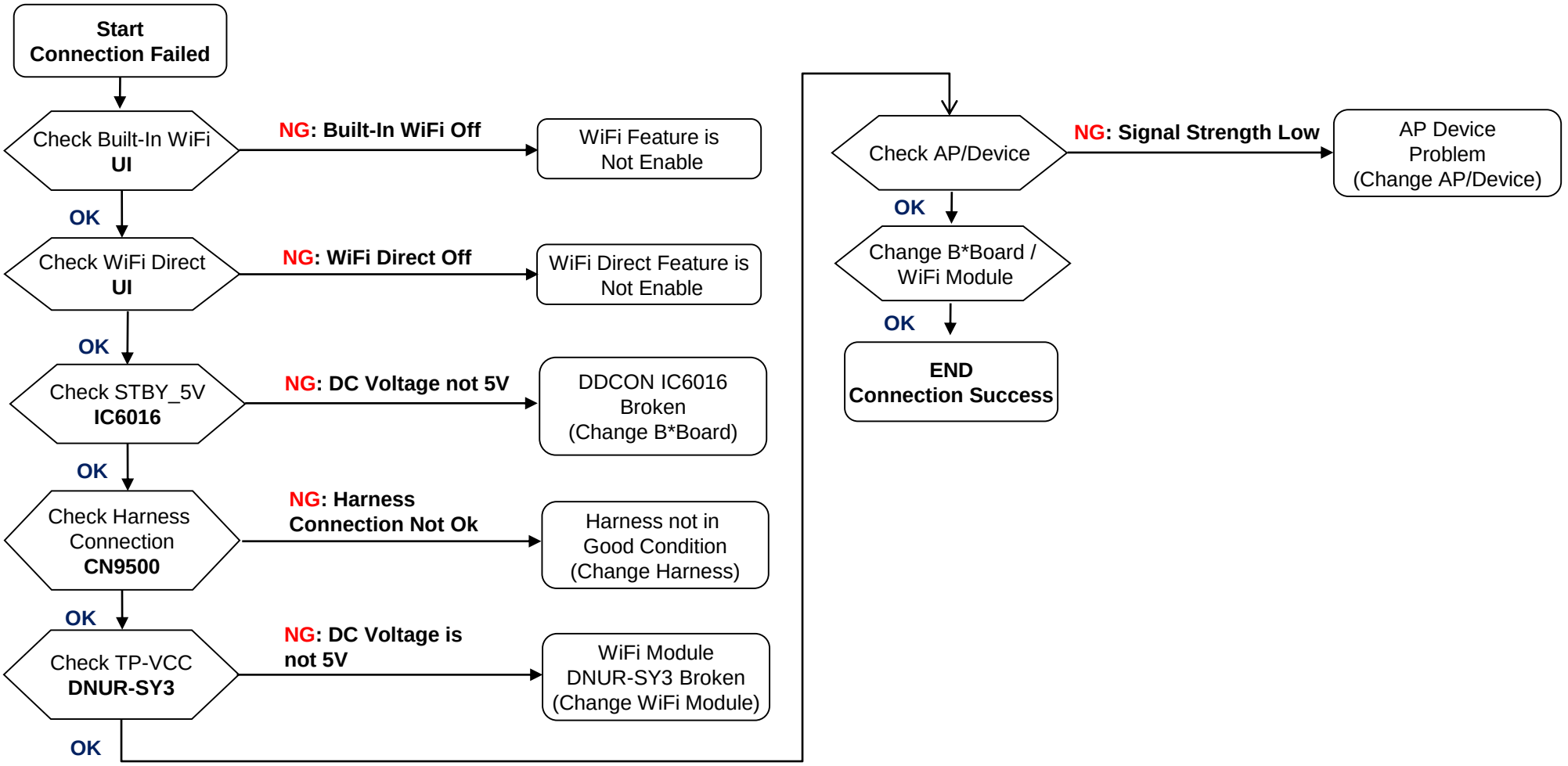
2.6.14 HDMI No Picture

HDMI No picture– Part List

No	Ref No	Part No	Description
1	L4000,L4001, L4002, L4003, L4004, L4005	1-460-795-11	COMMON MODE CHOKE COIL
2	RB4003, RB4004, RB4005, RB4006, RB4007, RB4008	1-257-559-21	CONDUCTOR, NETWORK (1005X4)
3	RB4000, RB4001, RB4002	1-257-548-21	RES, NETWORK 47K (1005X4)
4	R4043	1-220-803-81	RES, CHIP 4.7 (1005)
5	R4044	1-218-933-81	RES, CHIP 22 (1005)
6	R4003, R4004, R4005, R4006, R4007, R4008, R4031	1-218-941-81	RES, CHIP 100 (1005)
7	R4036	1-218-944-81	RES, CHIP 180 (1005)
8	R4015,R4016	1-218-953-81	RES, CHIP 1.0K (1005)
9	R4018,R4019, R4024, R4025	1-250-495-11	RES,METAL FILM CHIP 1.0K(1005)
10	R4021, R4022	1-218-961-81	RES, CHIP 4.7K (1005)
11	VR4009, VR4010, VR4011	1-811-656-11	SURGE ABSORBER

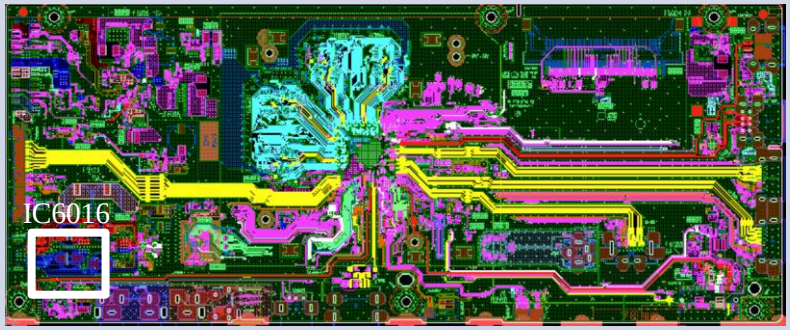
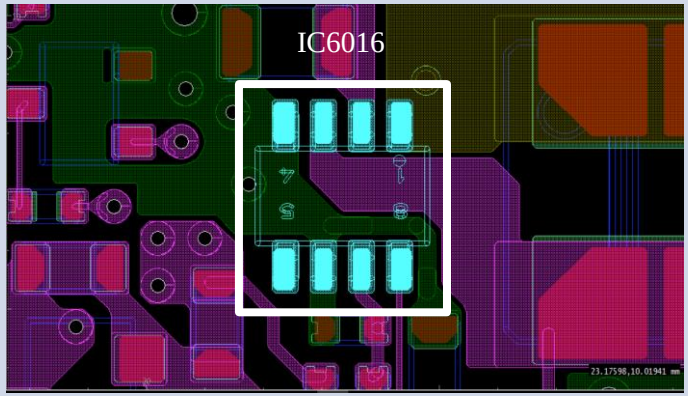
2.6.15 WIFI

2.6.15 WIFI – Cannot search device / Connection Failed – General Checking



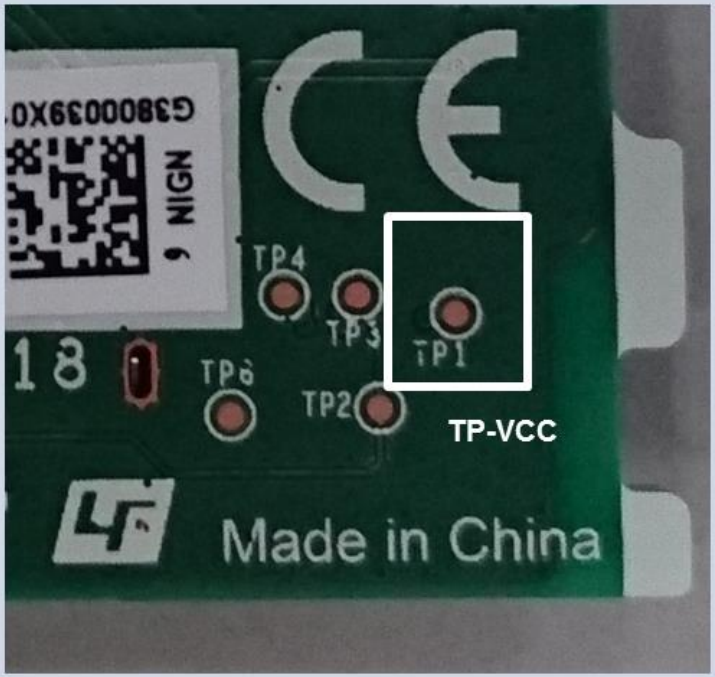
2.6.15 WIFI

2.6.15 WIFI – Cannot search device / Connection Failed – Checking Point

Board Name	Board PWB (A side)	Detail
BB9 (IC6016)		

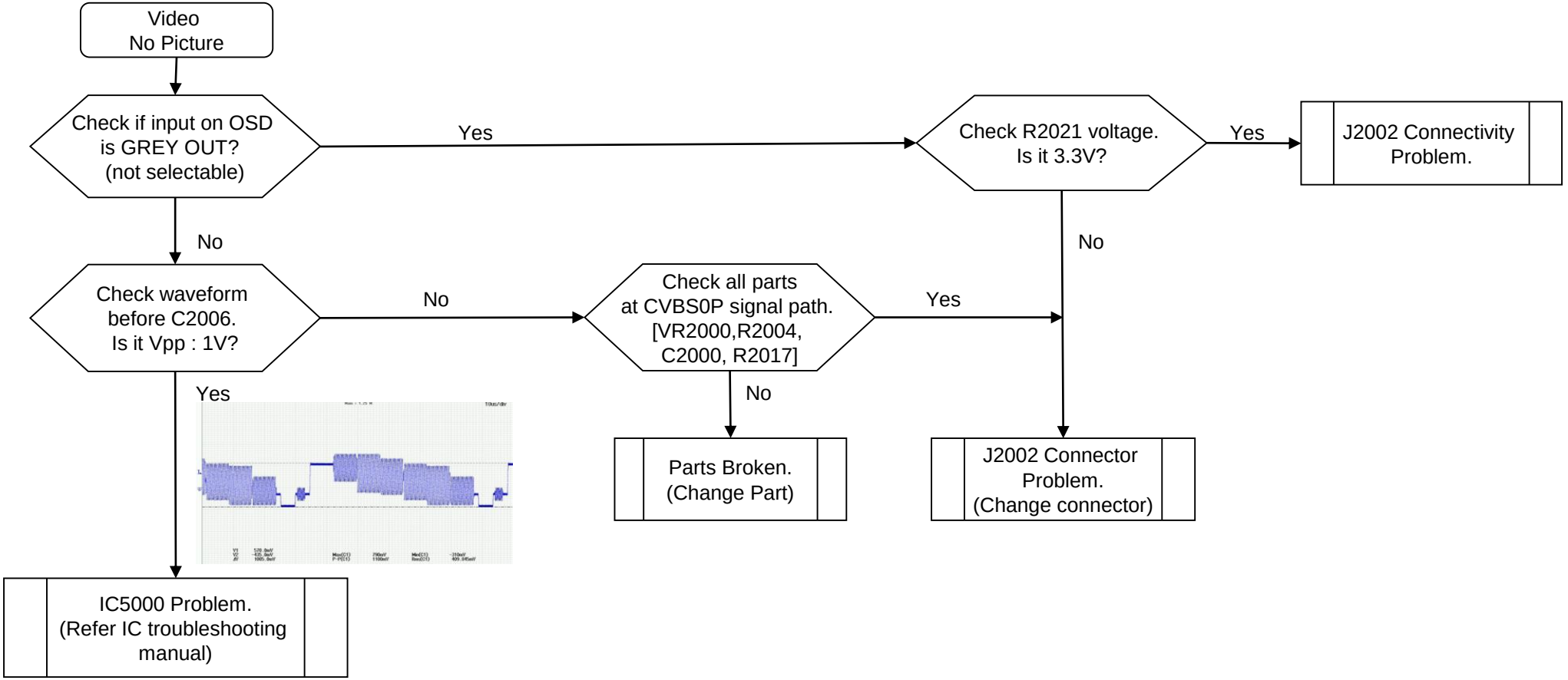
2.6.15 WIFI

2.6.15 WIFI – Cannot search device / Connection Failed – Checking Point

Board Name	Board PWB (B side)	Detail
WiFi Module DNUR-SY3		

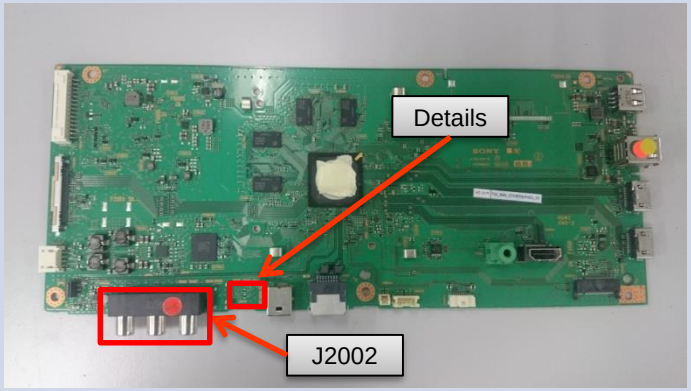
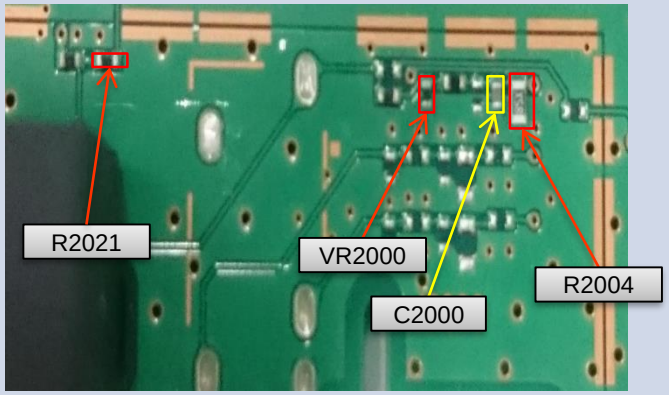
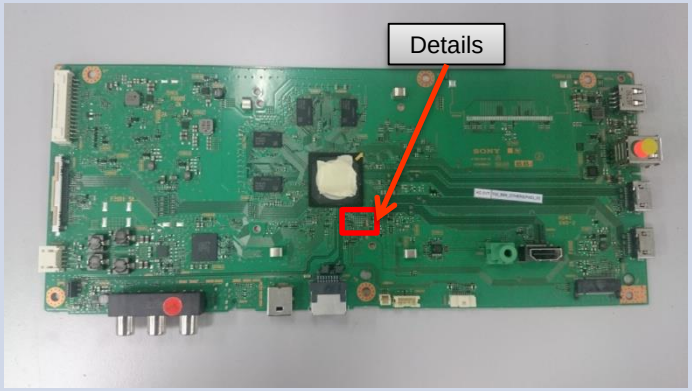
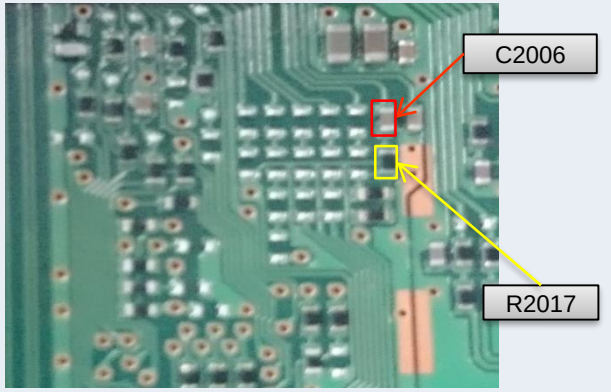
2.6.16 Video Analog Signal Path – No Picture – WW Destination

2.6.16 Video Analog Signal Path – No Picture – General Checking - WW Destination (BB9)



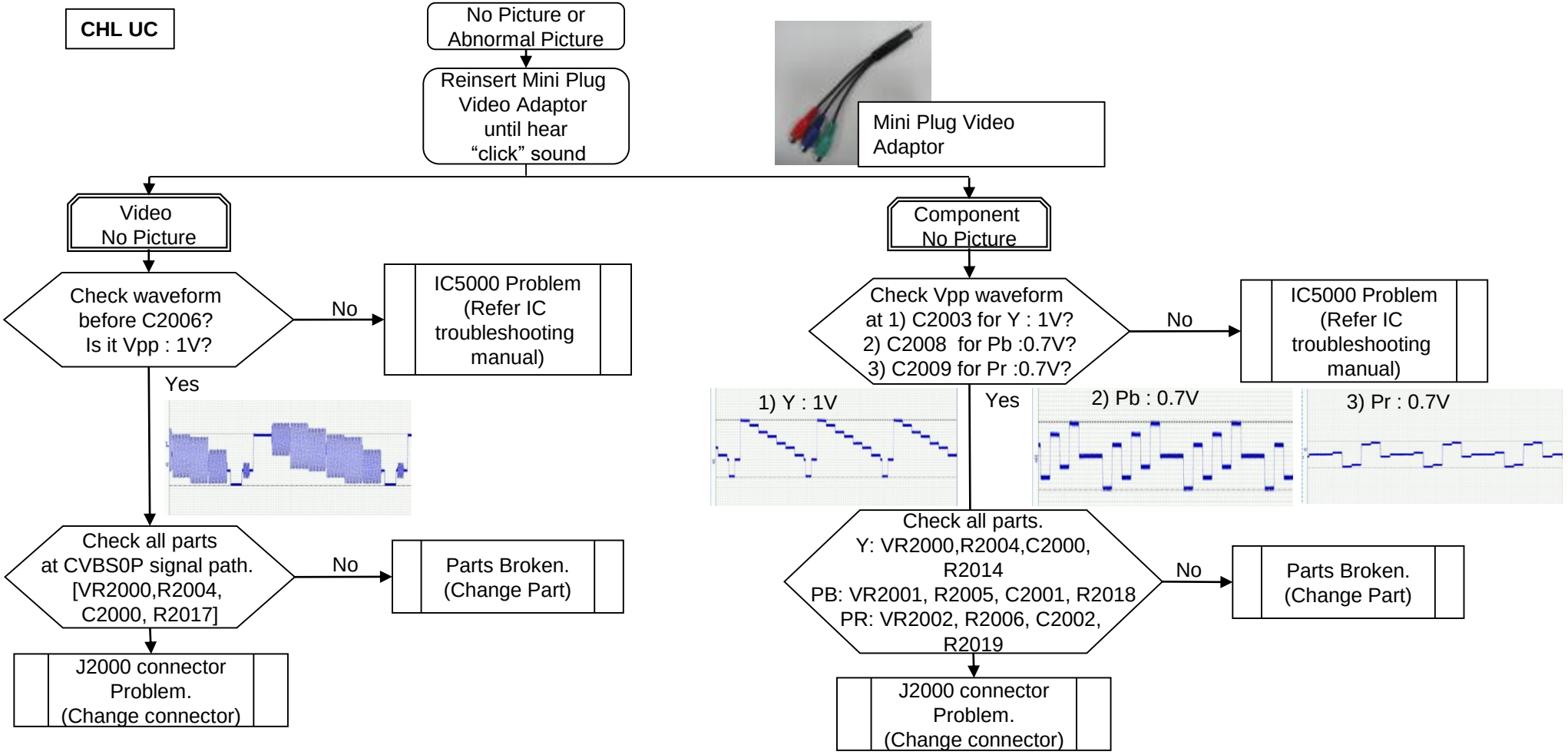
2.6.16 Video Analog Signal Path – No Picture – WW Destination

2.6.16 Video Analog Signal Path – No Picture – Checking Point - WW Destination (BB9)

Board Name	Board PWB (A side)	Details
BB9 (WW) J2002 VR2000 R2021 R2004 C2000		
BB9 (WW) C2006 R2017		

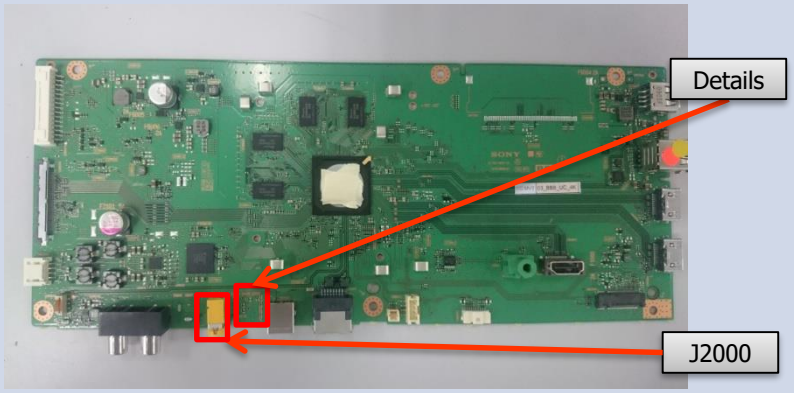
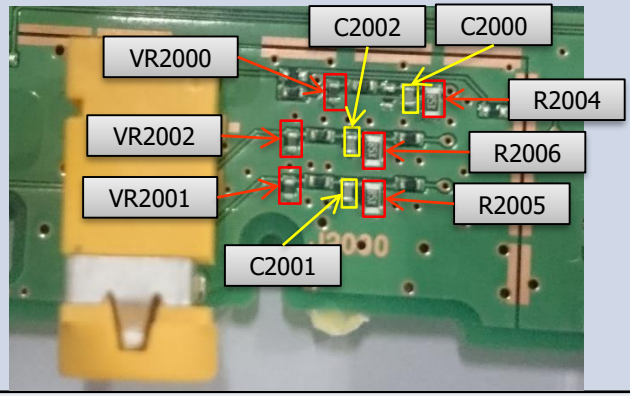
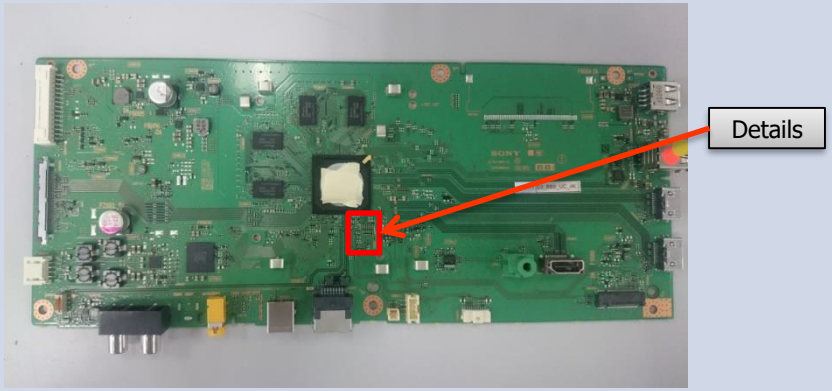
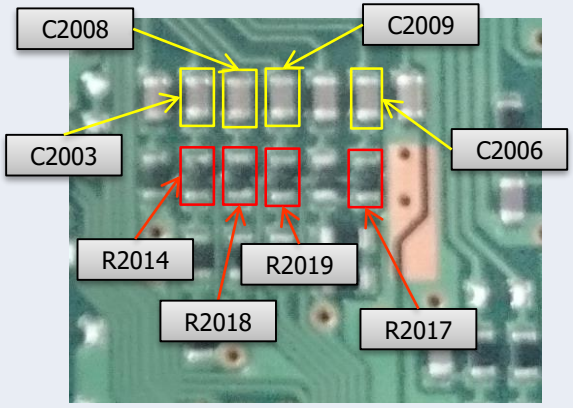
2.6.16 Video Analog Signal Path – No Picture – UC Destination

2.6.16.2 Video Analog Signal Path – No Picture – General Checking - No Picture UC Destination (BB9)



2.6.16 Video Analog Signal Path – No Picture – UC Destination

2.6.16.2 Video Analog Signal Path – No Picture – Checking Point - No Picture UC Destination (BB9)

Board Name	Board PWB (A side)	Details
BB9 (UC) J2000 R2004 R2005 R2006 C2000 C2001 C2002 VR2000 VR2001 VR2002		
BB9 (UC) C2003 C2006 C2008 C2009 R2014 R2017 R2018 R2019		

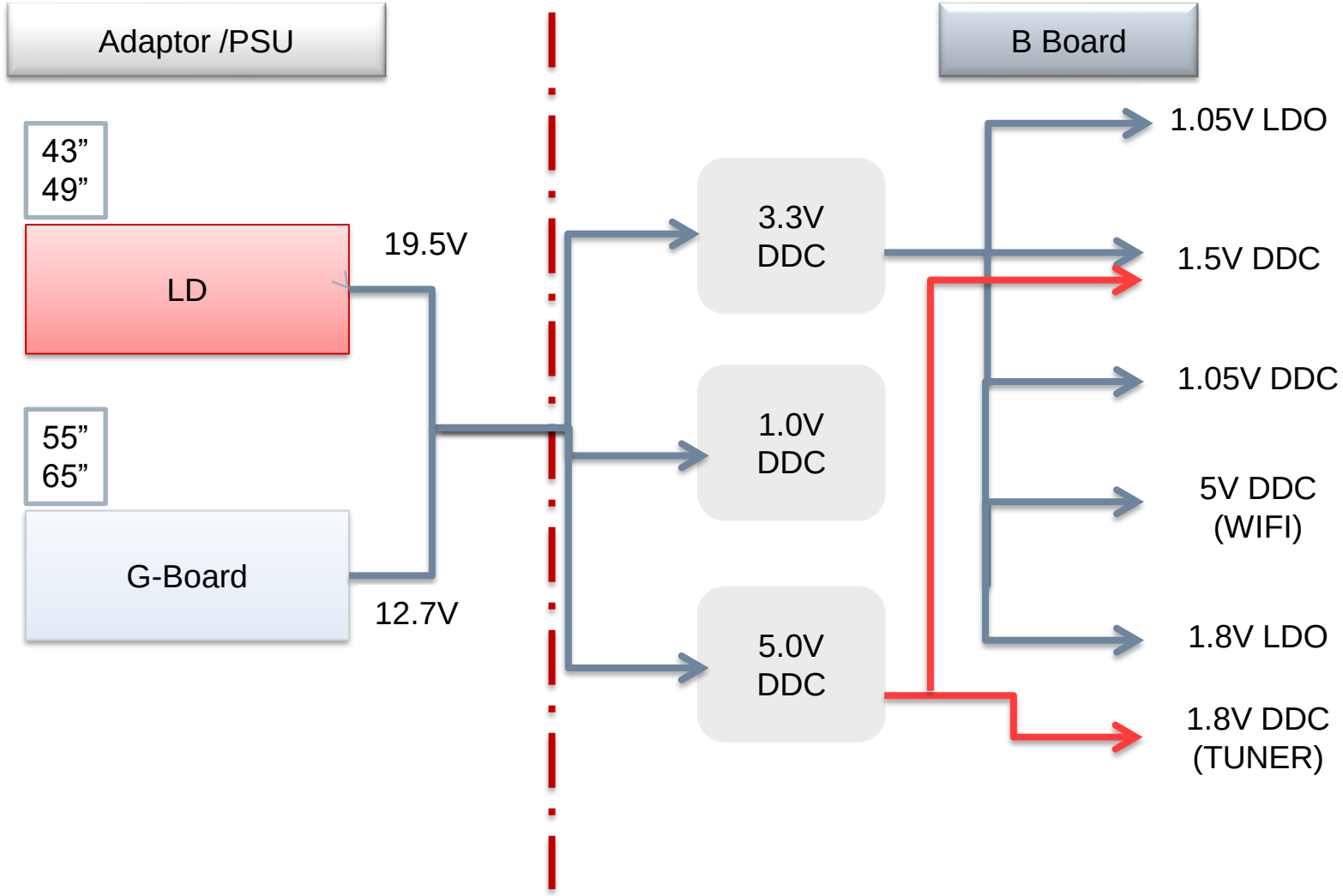
2.7 No Power DDCON/LDO

Reference Points

	IC Ref	Voltage Supply	Fuse	Enable	Output	Input
DDCON	IC6009	5V_DDC_OUT	F6004/ F6007	R6074	C6072	C6066
		5V_Main	-	Q6006(pin2)	Q6007(pin1)	Q6007(pin3)
	IC6010	3.3V_DDC_OUT & STBY	F6005 / F6008	R6089	C6093	C6086
		3.3V_Main	-	Q6008(pin2)	Q6009(pin1)	Q6009(pin3)
	IC6007	1.8V_TU	-	R6162	C6058	C6055
	IC6017	1.0V_M3	F6006 / F6009	R6114	C6146	C6106
	IC6004	1.5V_DDR	-	C6153	C6042	C6040
	IC6014	1.05V_M3_A	-	R6120	C6134	C6130
	IC6016	5V_WIFI	-	R6167	C6141	C6136
LDO	IC6018	1.8V_EMMC	-	IC Pin3	C6125	C6124
	IC6005	1.05V_STBY	-	IC Pin3	C6050	C6049

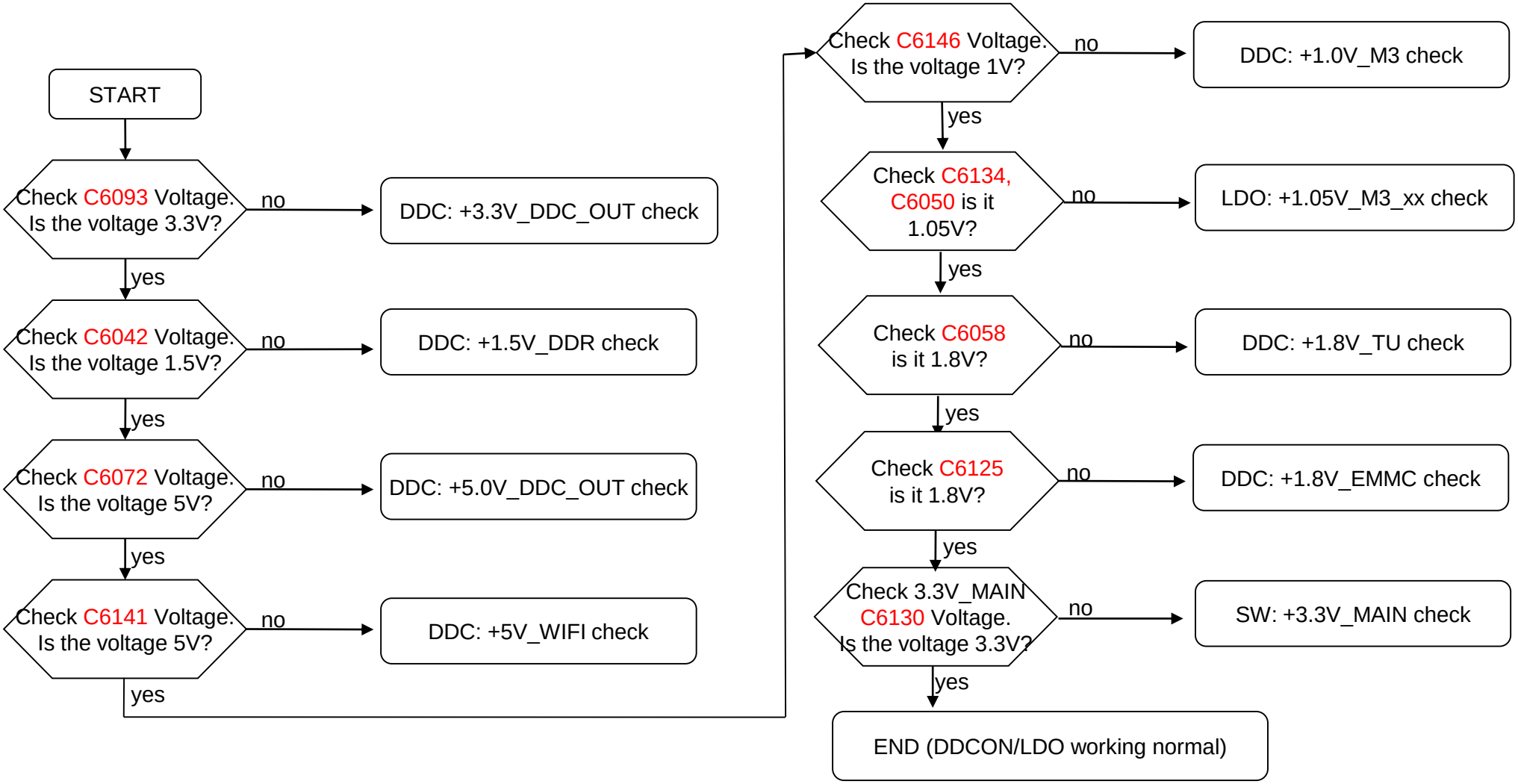
2.7 No Power DDCON/LDO

Block Diagram



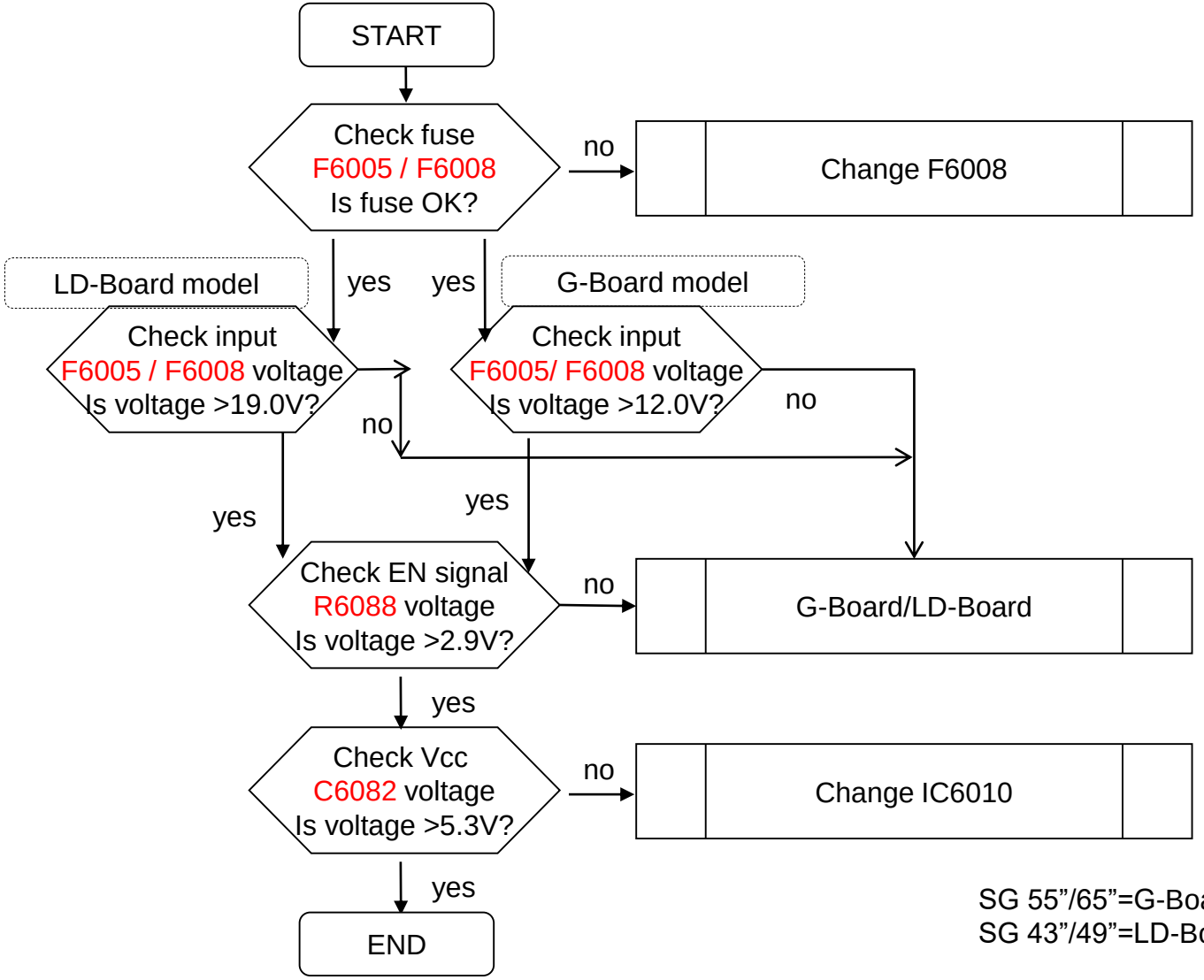
2.7 No Power DDCON/LDO

DC-DC Converter Overall Check



2.7 No Power DDCON/LDO

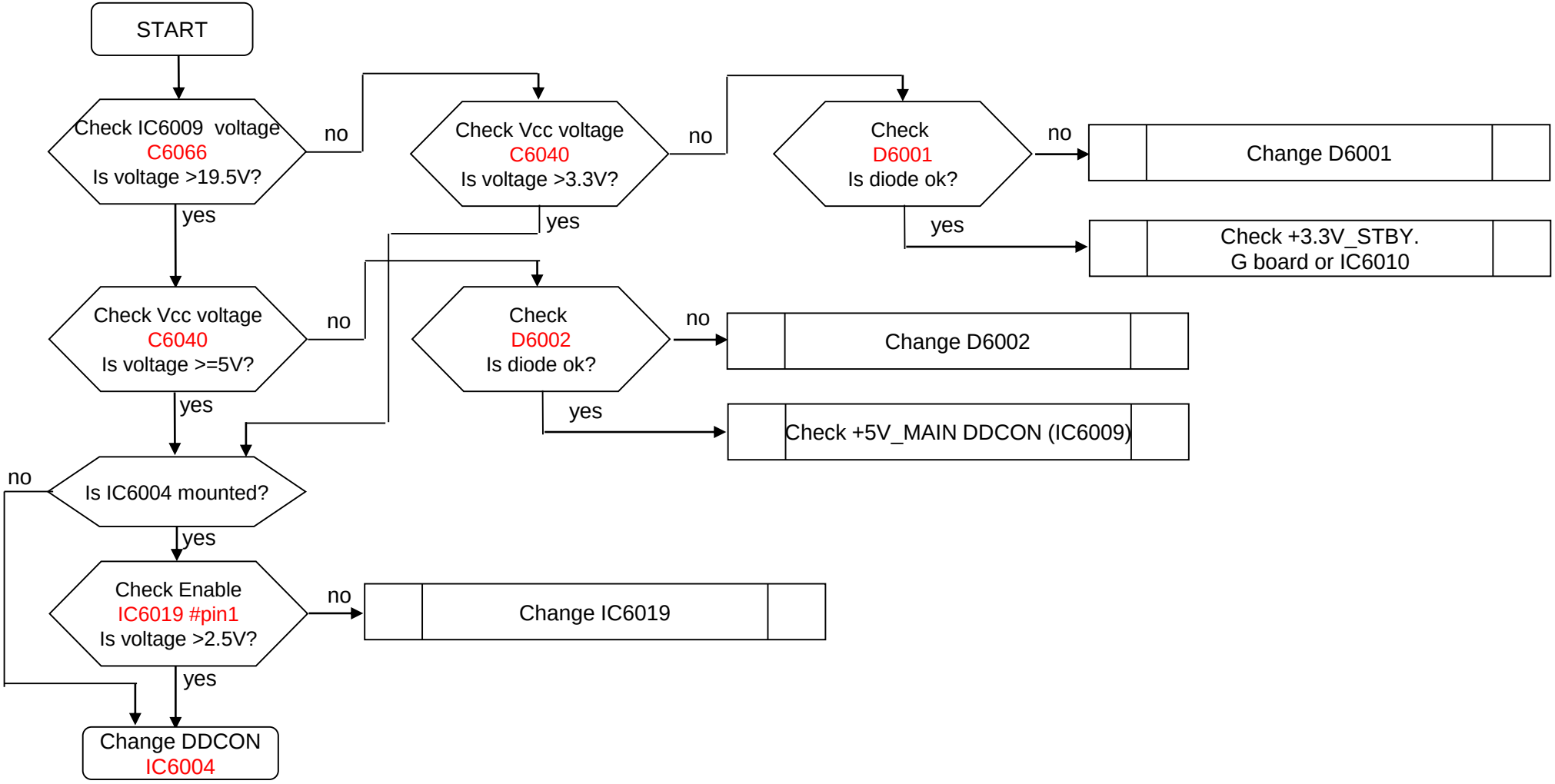
DDC: +3.3V_DDC_OUT check



SG 55”/65”=G-Board model (PSU)
SG 43”/49”=LD-Board model (ADP)

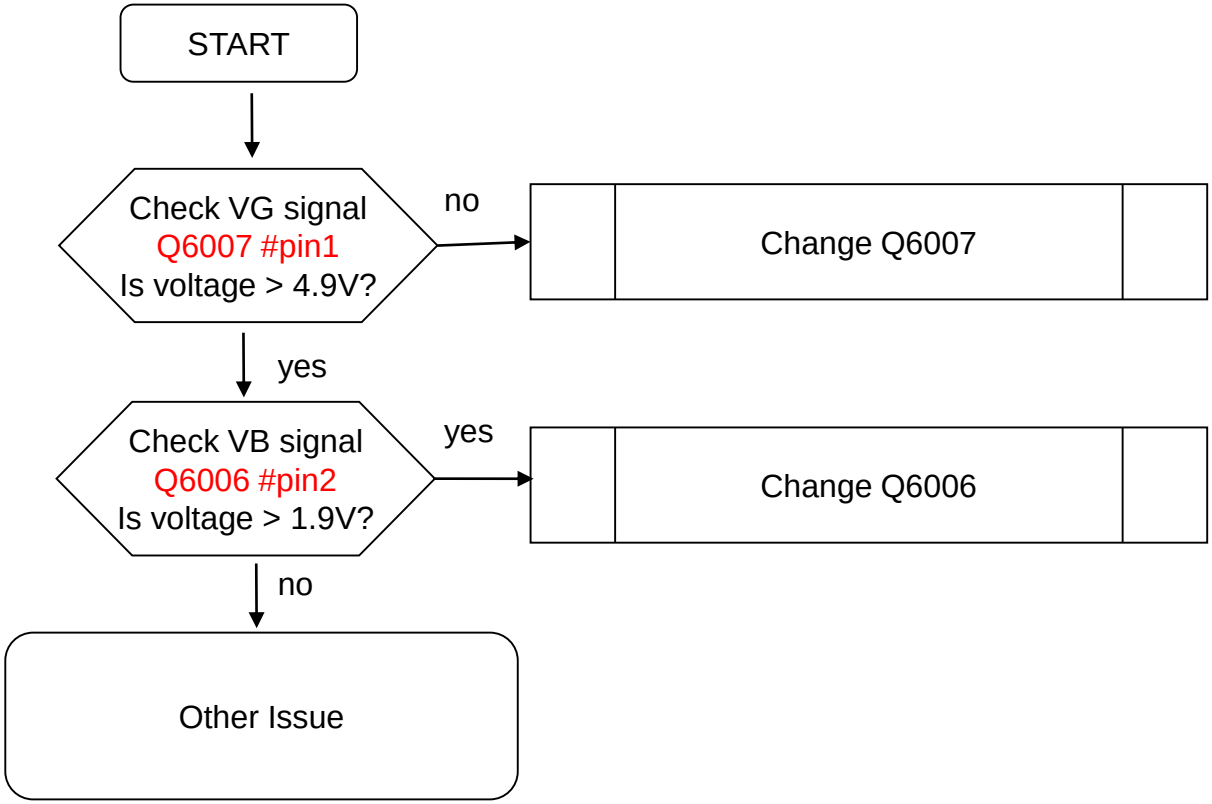
2.7 No Power DDCON/LDO

DDC: +1.5V_DDR check



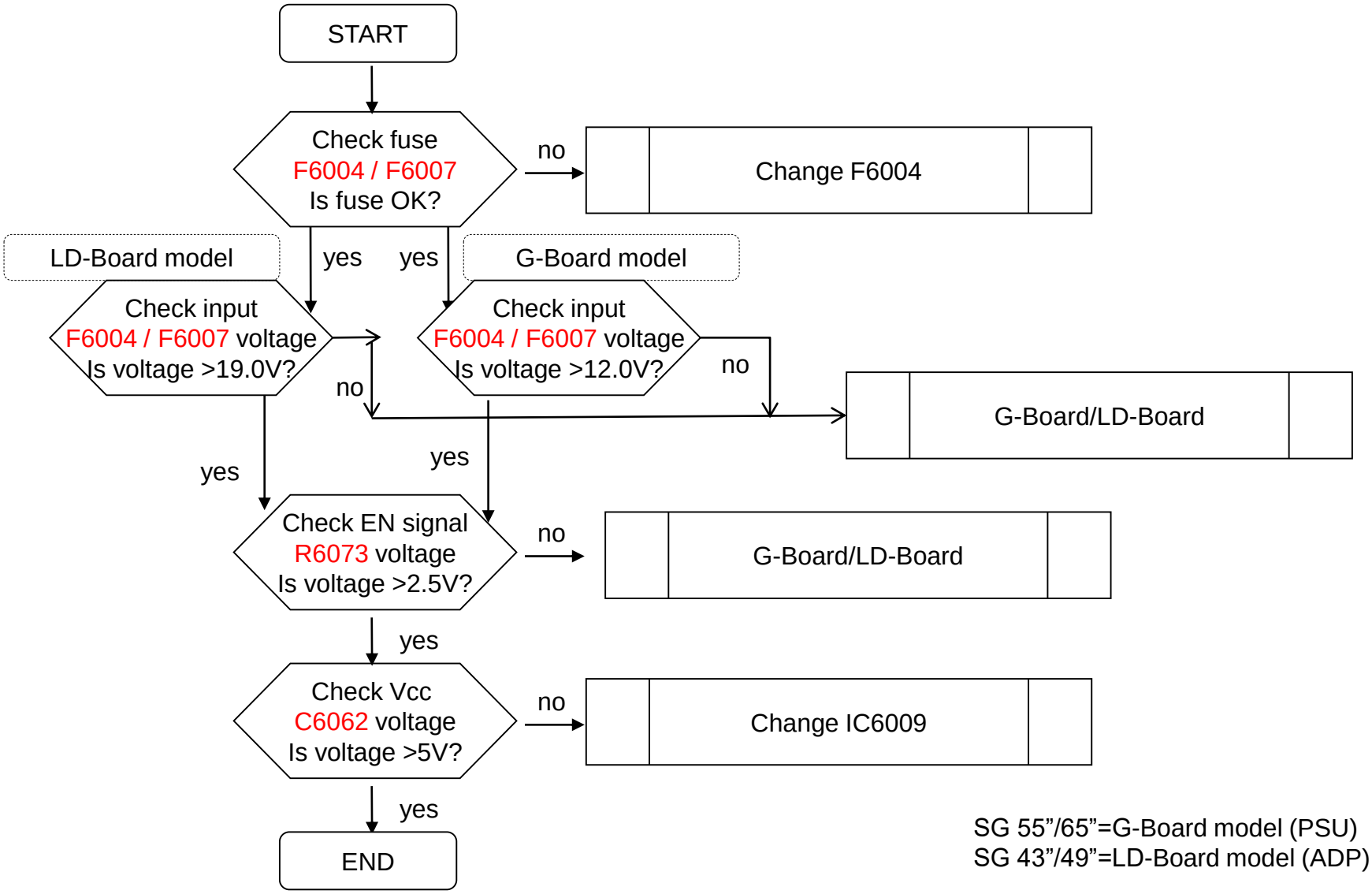
2.7 No Power DDCON/LDO

SW: +5V_MAIN check



2.7 No Power DDCON/LDO

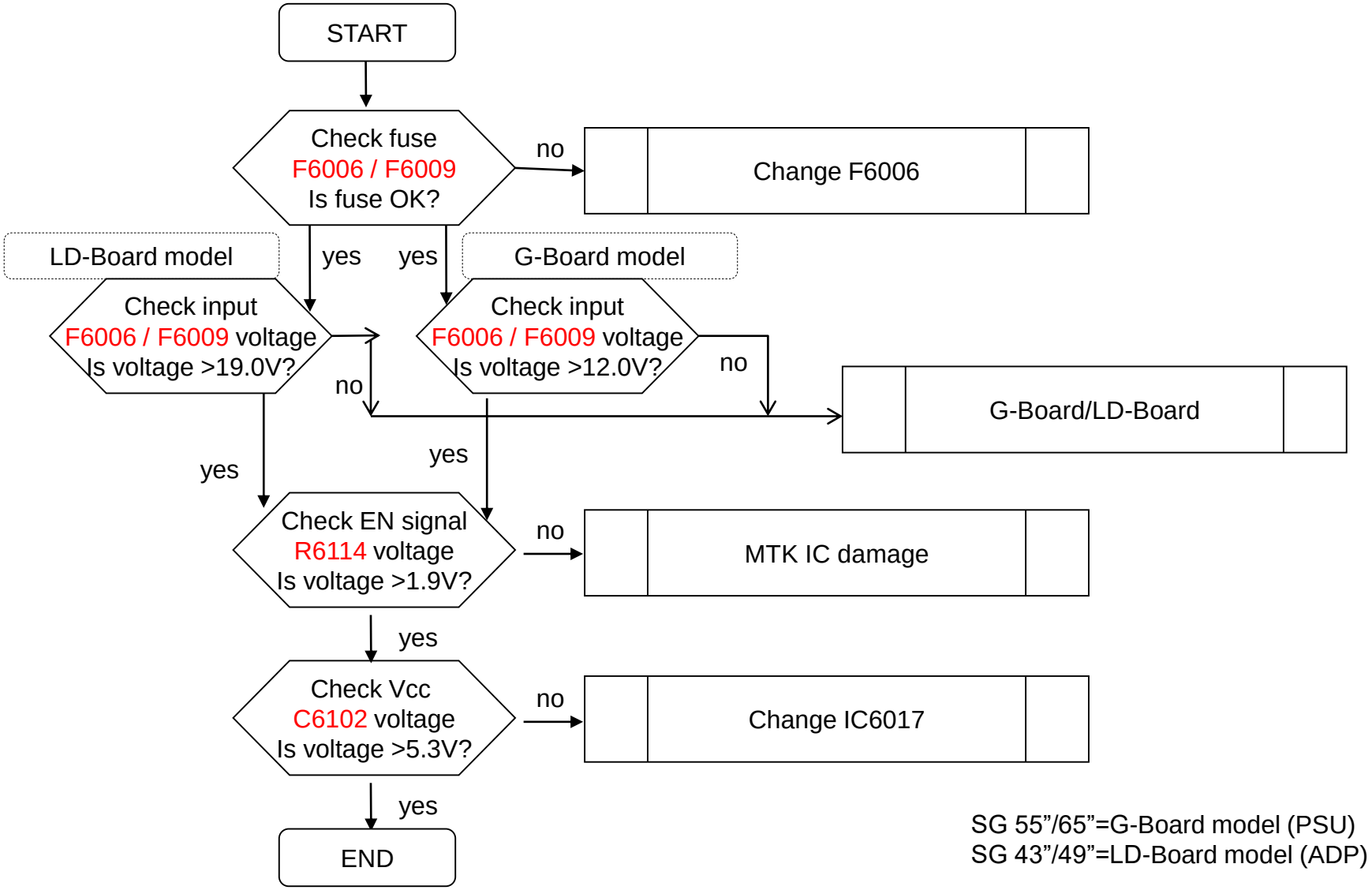
DDC: +5.0V_DDC_OUT check



SG 55”/65”=G-Board model (PSU)
SG 43”/49”=LD-Board model (ADP)

2.7 No Power DDCON/LDO

DDC: +1.0V_M3 check

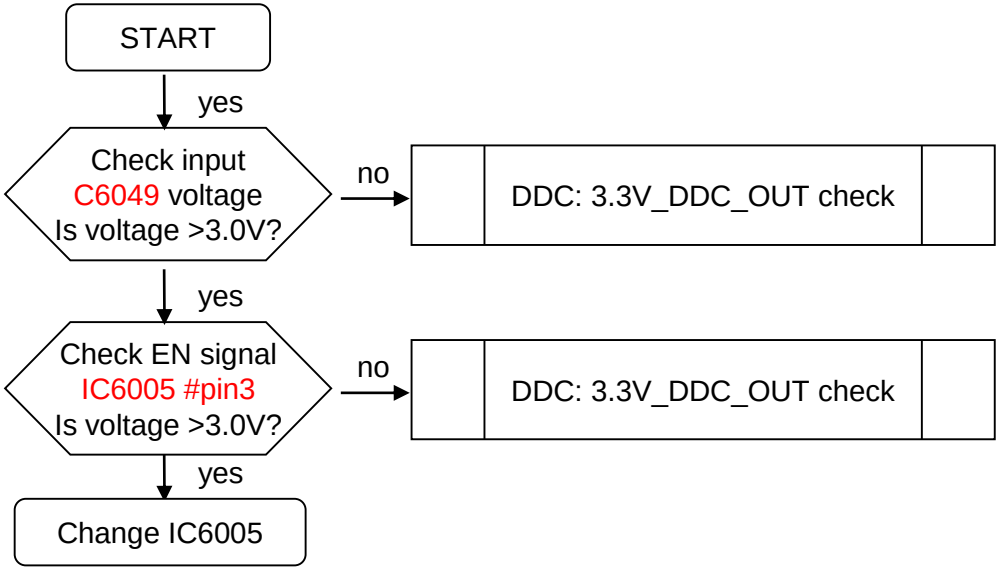


SG 55”/65”=G-Board model (PSU)
SG 43”/49”=LD-Board model (ADP)

2.7 No Power DDCON/LDO

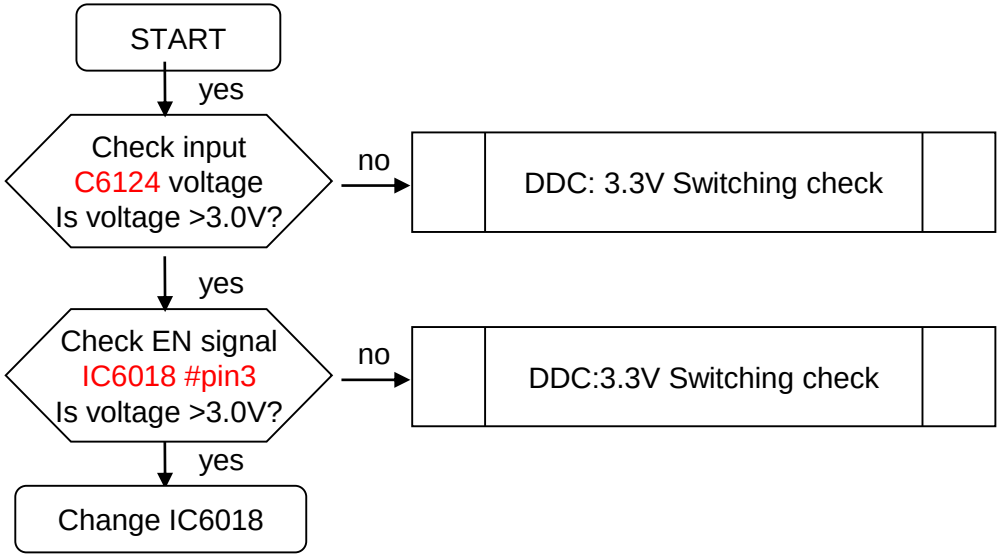
LDO: +1.05V_M3_STBY

+1.05V_M3_STBY



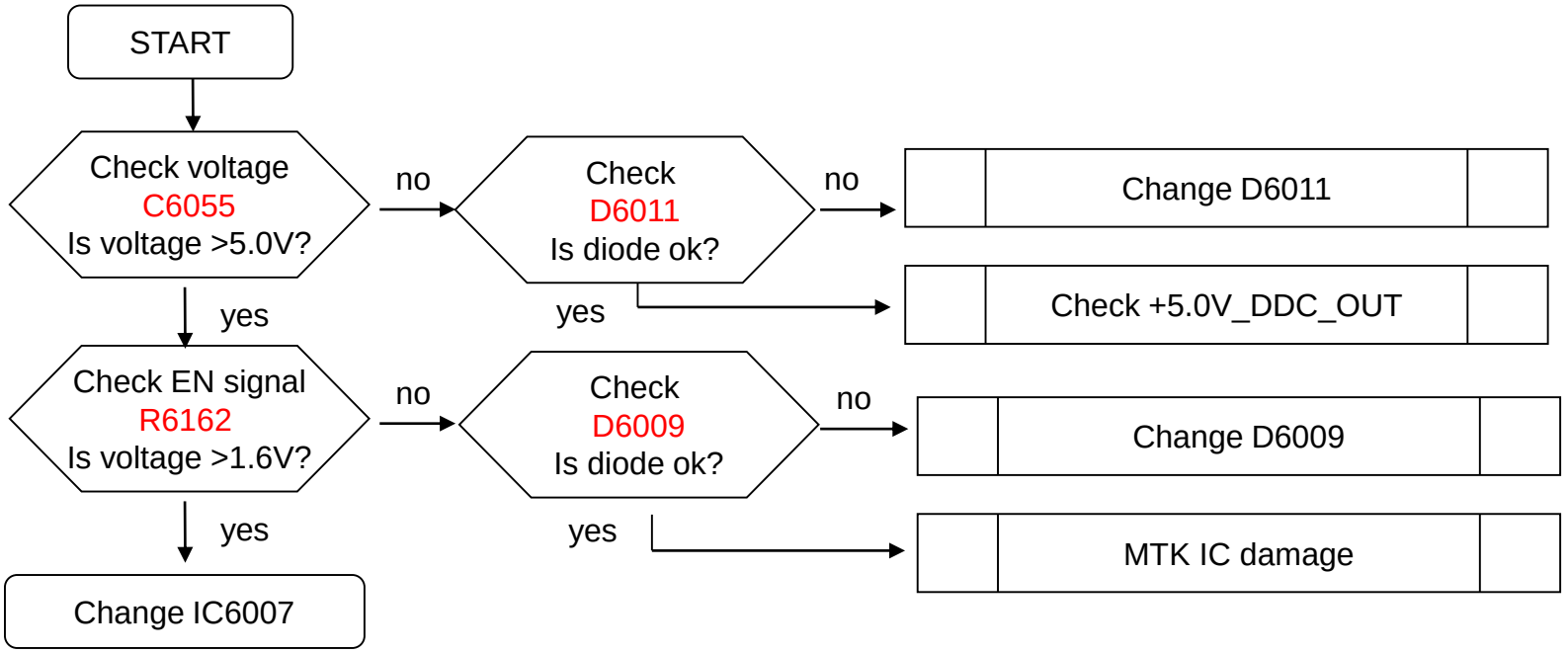
LDO: +1.8V_EMMC

+1.8V_EMMC



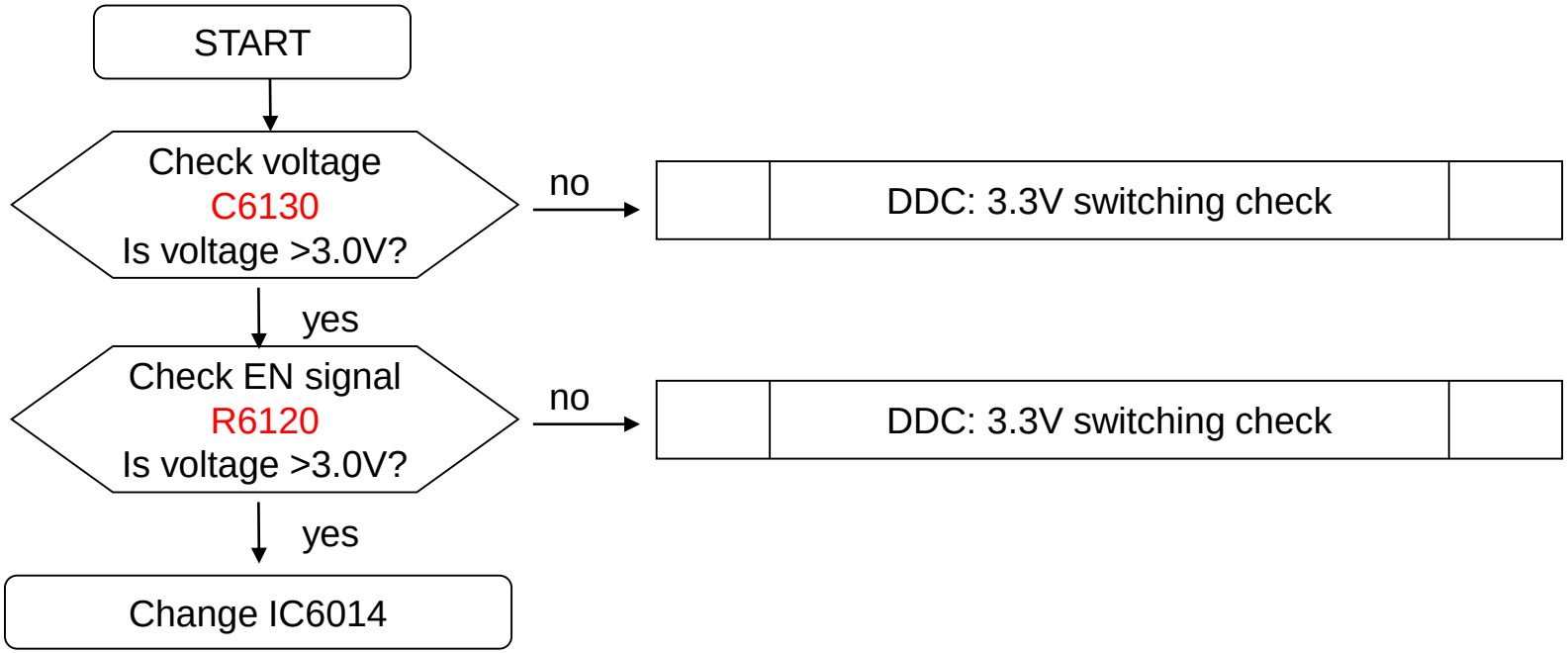
2.7 No Power DDCON/LDO

DDC: + 1.8V_TU check



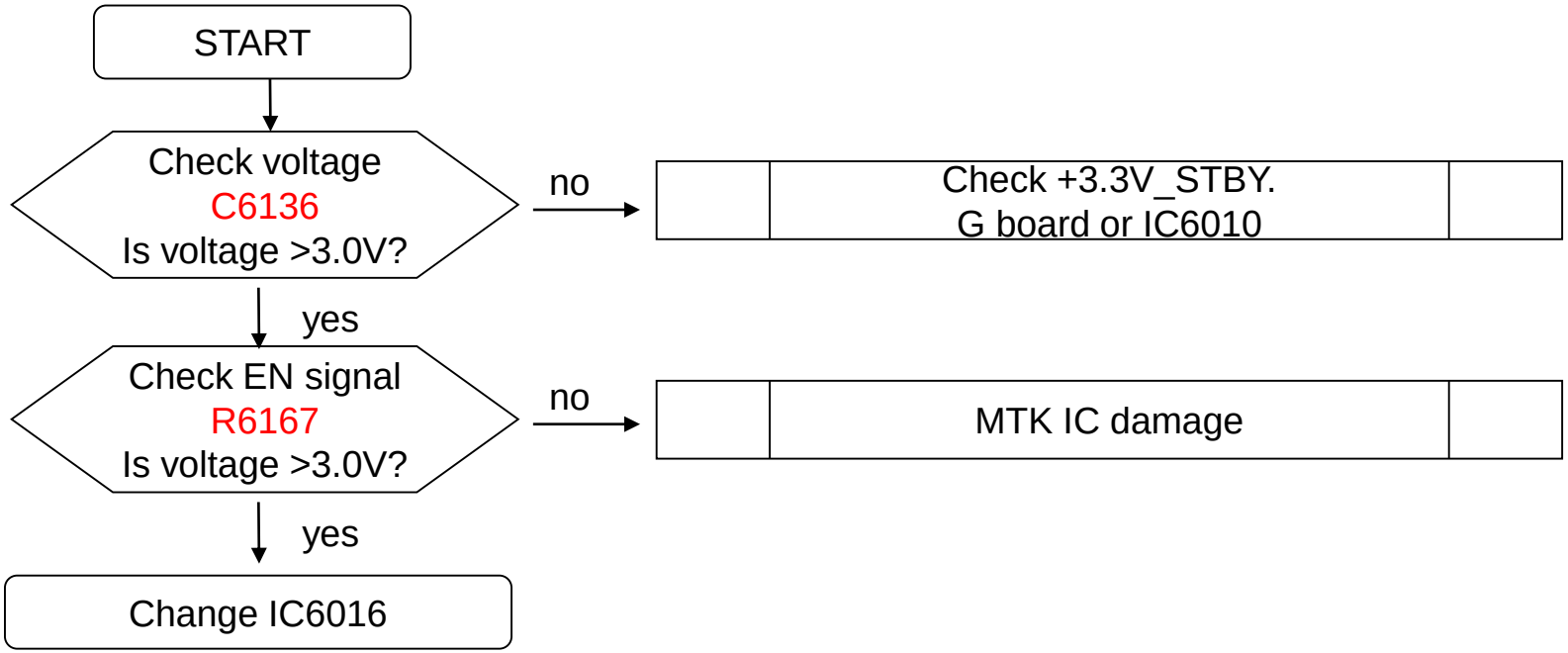
2.7 No Power DDCON/LDO

DDC: 1.05V_M3_A check



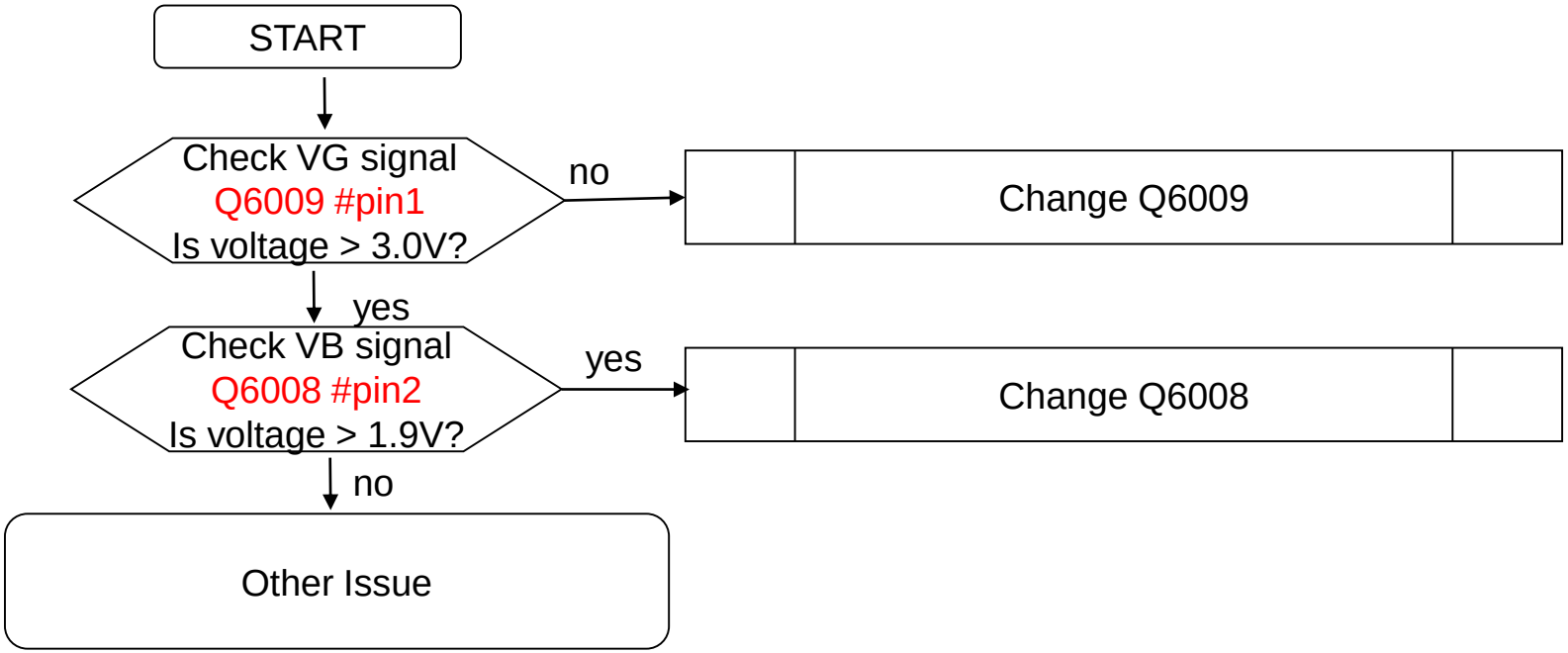
2.7 No Power DDCON/LDO

DDC: 5.0V_WIFI check



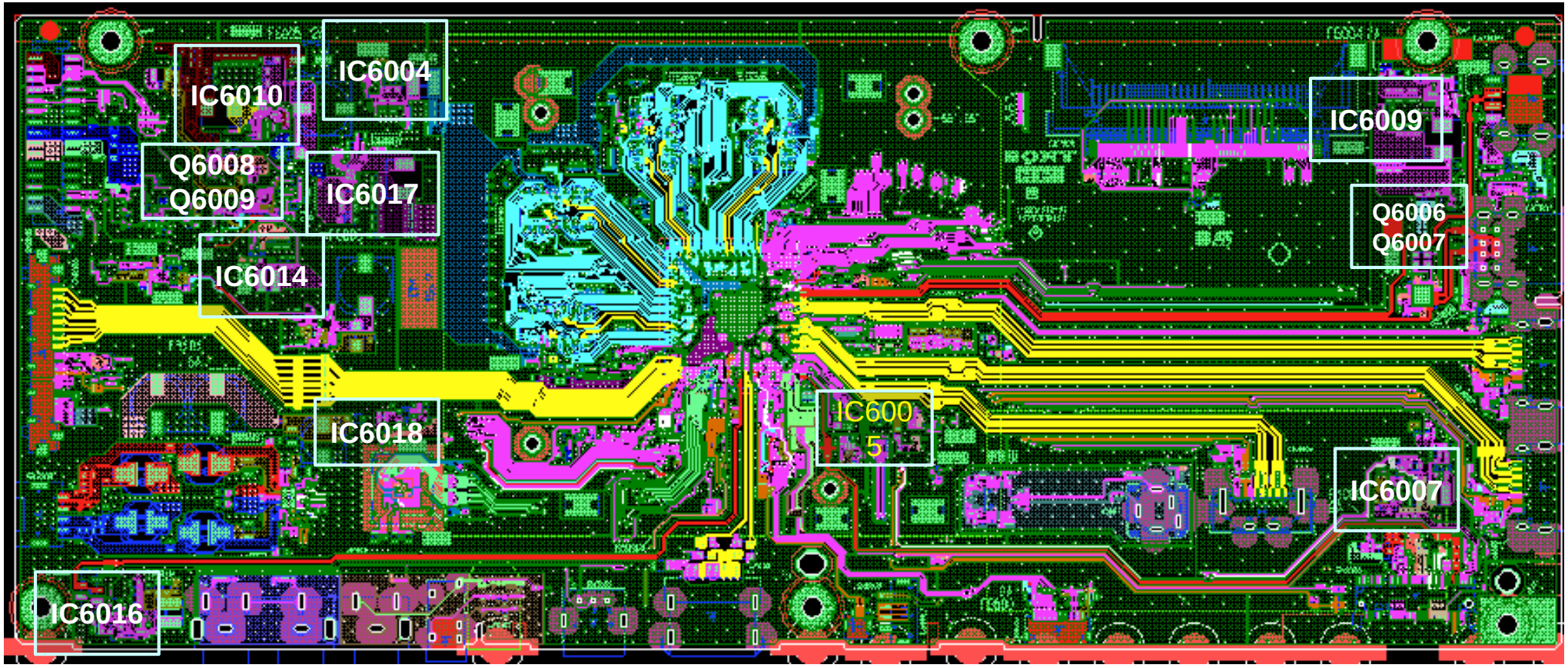
2.7 No Power DDCON/LDO

SW: +3.3V_MAIN check



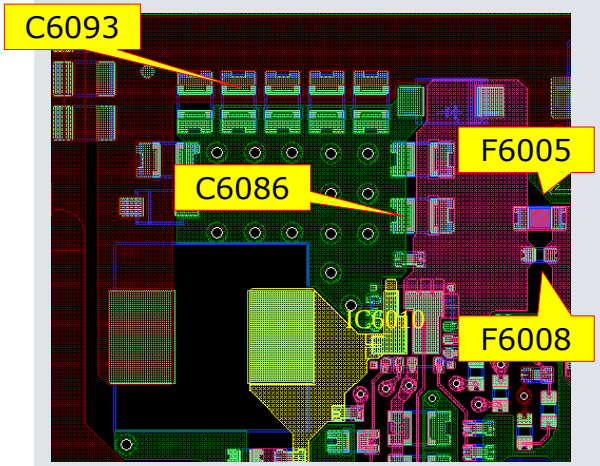
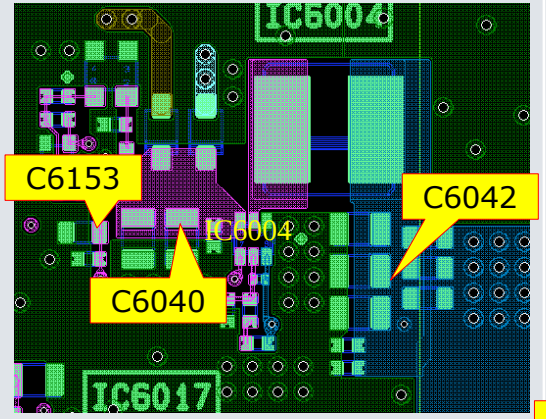
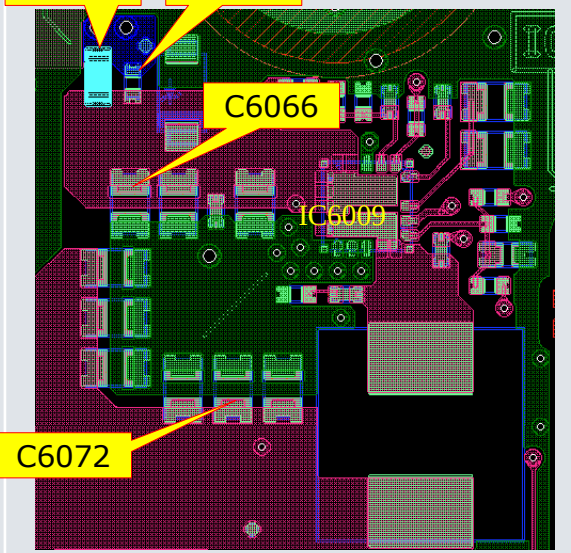
2.7 No Power DDCON/LDO

DDC & LDO Locations



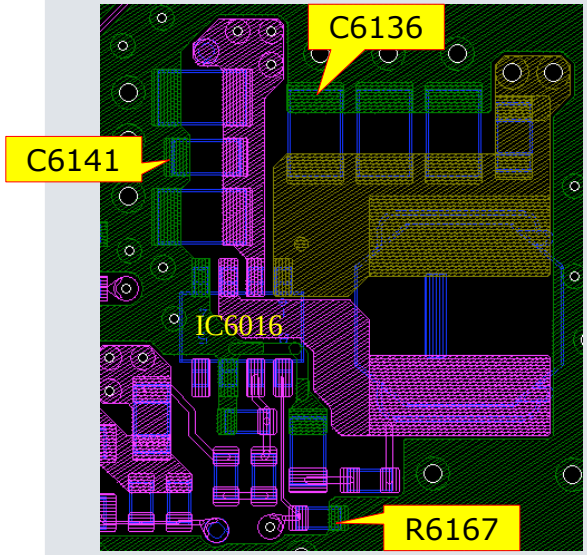
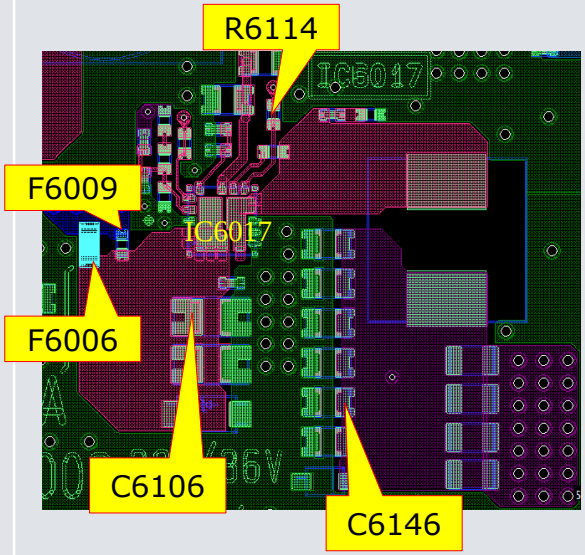
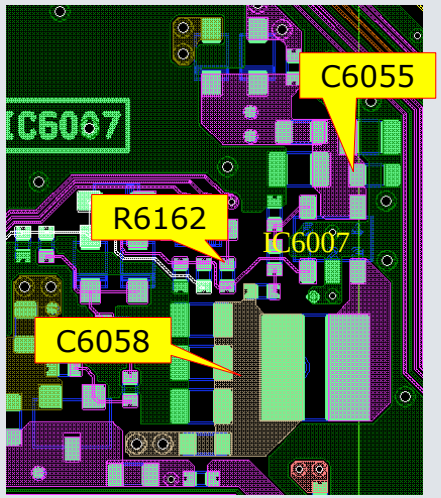
2.7 No Power DDCON/LDO

DDC & LDO Locations

DDC: +3.3V_DDC_OUT	DDC: +1.5V_DDR	DDC: +5.0V_DDC_OUT
		

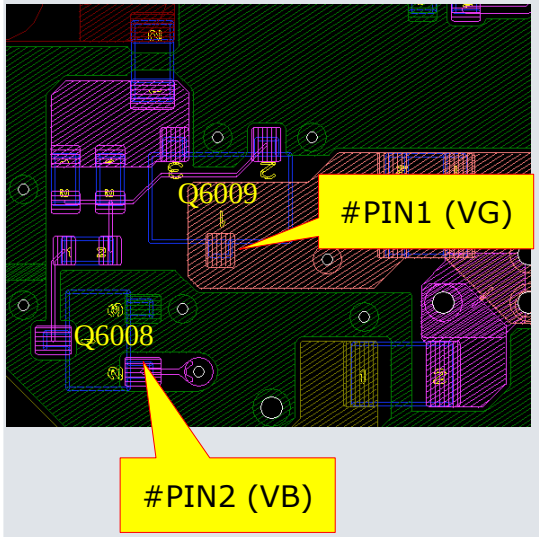
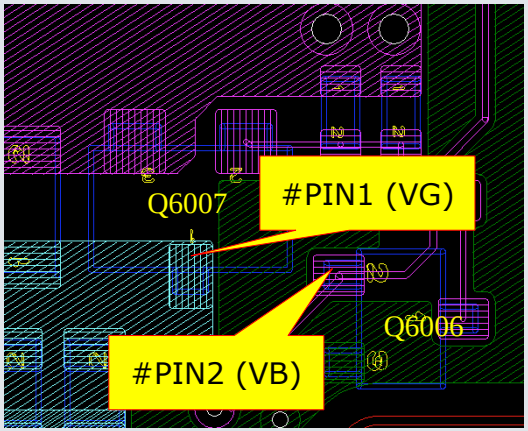
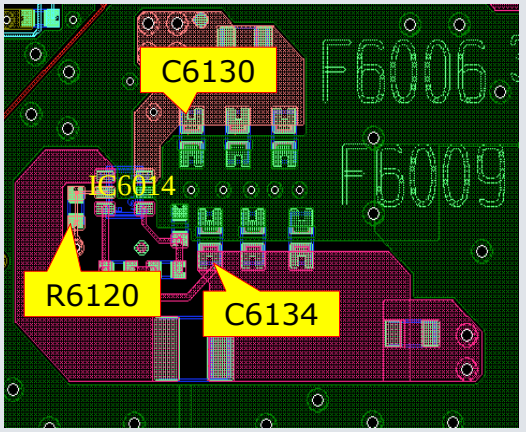
2.7 No Power DDCON/LDO

DDC & LDO Locations

DDC: +5V_WIFI	DDC: +1.0V_M3	DDC: +1.8V_TU
		

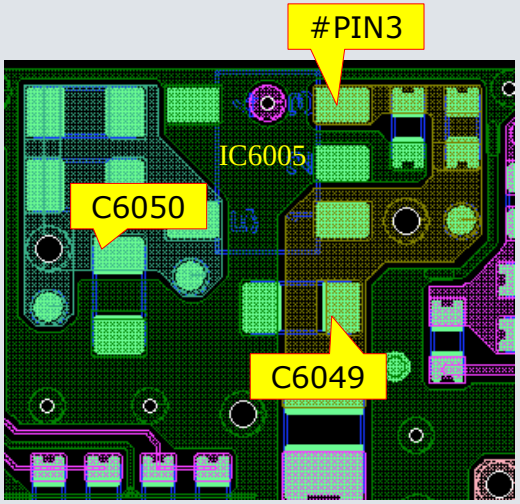
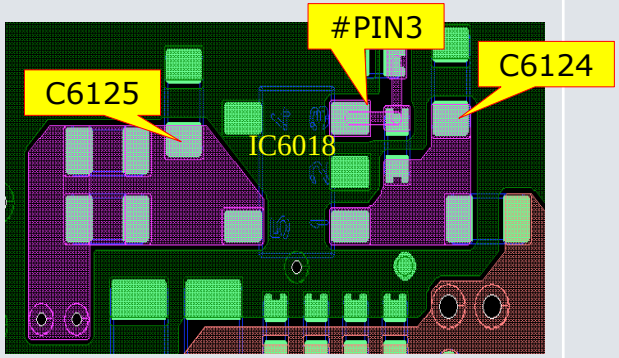
2.7 No Power DDCON/LDO

DDC & LDO Locations

DDC: +3.3V_MAIN	DDC: +5V_MAIN	DDC: +1.05V_M3_A
		

2.7 No Power DDCON/LDO

DDC & LDO Locations

DDC: +1.05V_STBY	DDC: +1.80V_EMMC	
		

2.8.1 Audio D Amp IC Normal Operation Condition

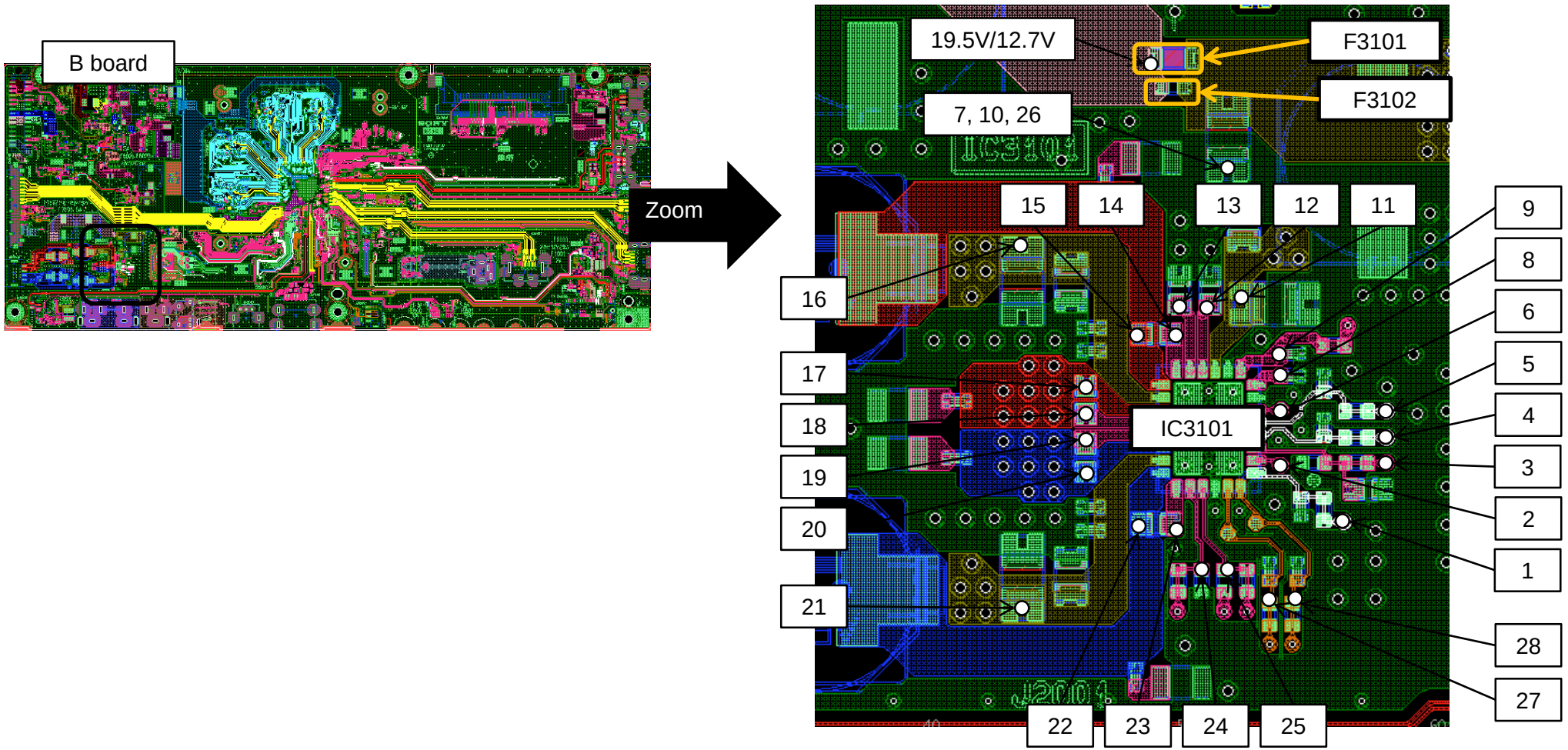
2.8.1 Audio D Amp IC Normal Operation Condition

Label	Name	AC Adapter	PSU board	Common
		Voltage	Voltage	Frequency
1	SDI	3.3Vpp	3.3Vpp	Clock signal
2	SDO	0V	0V	-
3	RESETB	3.3V	3.3V	-
4	LRCK	3.3Vpp	3.3Vpp	48kHz
5	SCLK	3.3Vpp	3.3Vpp	3.07MHz
6	MCLK	0V	0V	-
7	DVSS	0V	0V	-
8	VR_DIG	1.8V	1.8V	-
9	DVDD	3.3V	3.3V	-
10	AVSS	0V	0V	-
11	AVCC	3.3V	3.3V	-
12	GVDD	5V	5V	-
13	VR_ANA	5V	5V	-
14	BSTPR	14.7Vrms	11.4Vrms	-

Label	Name	AC Adapter	PSU board	Common
		Voltage	Voltage	Frequency
15	VOUTPR	9.7Vrms	6.4Vrms	~384kHz
16	PVDDR	19.5V	12.7V	
17	VOUTNR	9.7Vrms	6.4Vrms	~384kHz
18	BSTNR	14.7Vrms	11.4Vrms	-
19	BSTNL	14.7Vrms	11.4Vrms	-
20	VOUTNL	9.7Vrms	6.4Vrms	~384kHz
21	PVDDL	19.5V	12.7V	-
22	VOUTPL	9.7Vrms	6.4Vrms	~384kHz
23	BSTPL	14.7Vrms	11.4Vrms	-
24	PWDNN	3.3V	3.3V	-
25	FAULTB	3.3V	3.3V	-
26	A_SEL	0V	0V	-
27	SDA	3.3Vpp	3.3Vpp	Clock signal
28	SCL	3.3Vpp	3.3Vpp	Clock signal

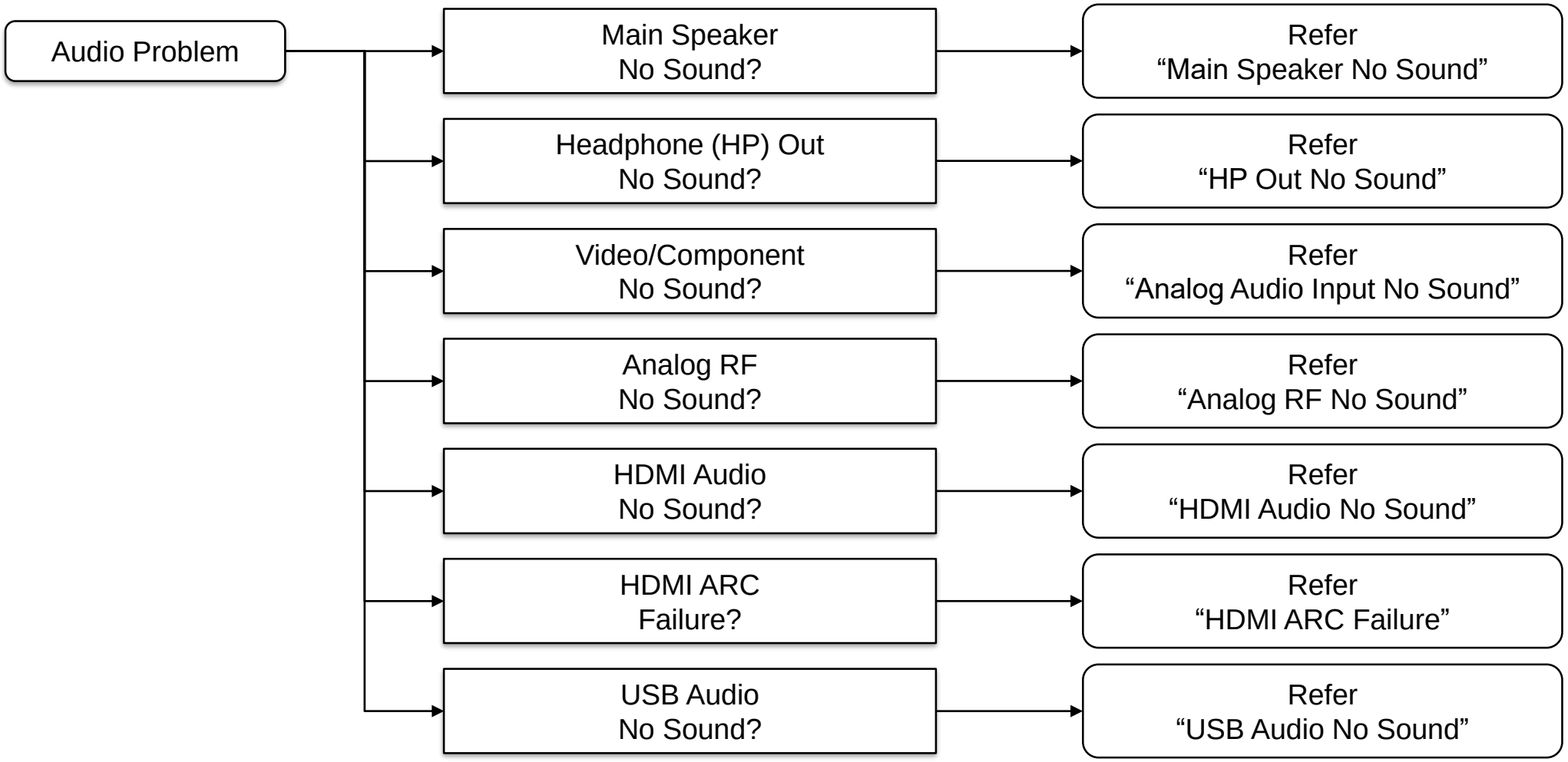
2.8.1 Audio D Amp IC Normal Operation Condition

2.8.1 Audio D Amp IC Normal Operation Condition



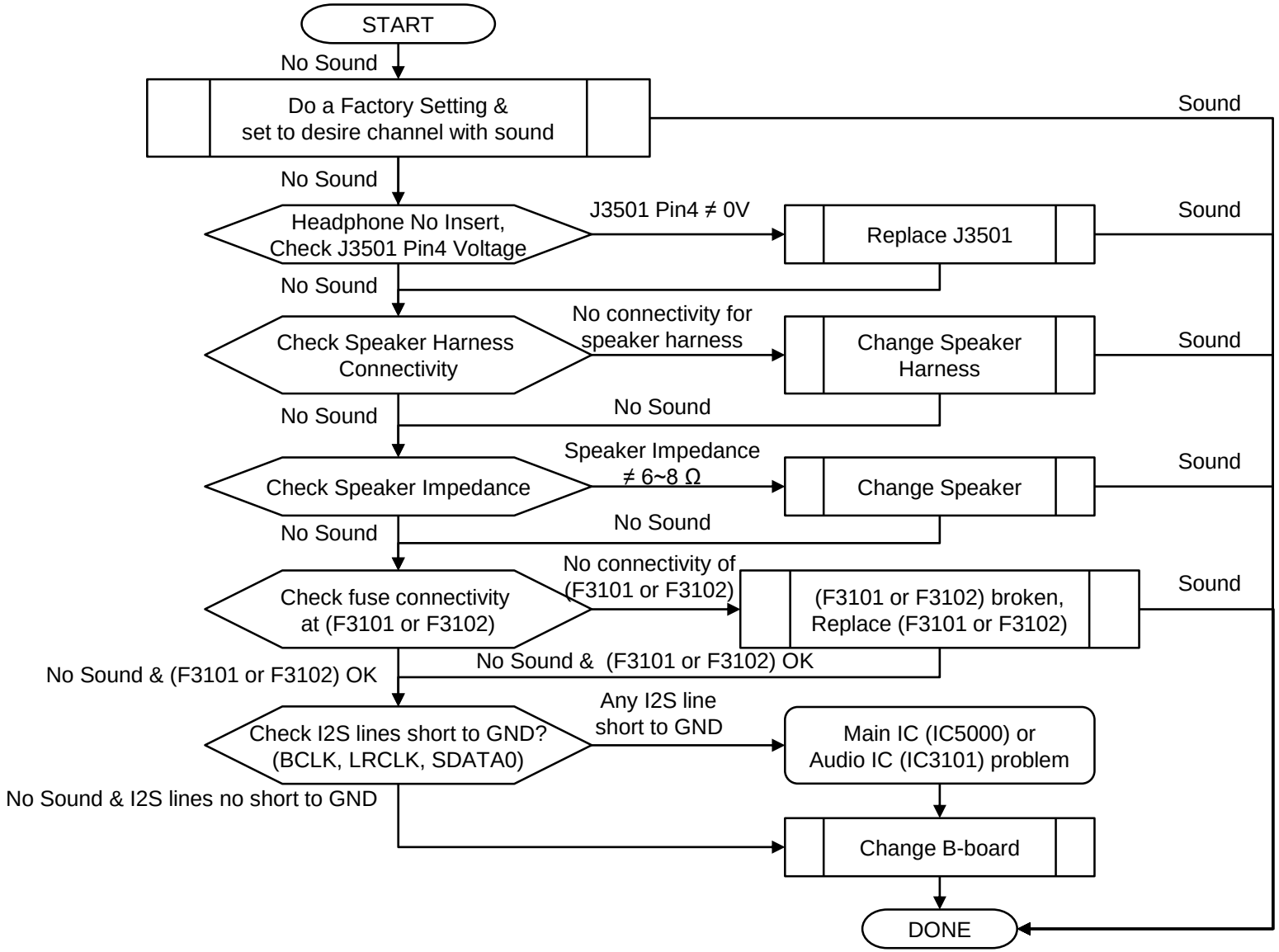
2.8.2 Troubleshooting Detail Audio Problem

2.8.2 Troubleshooting detail audio problem



2.8.2 Troubleshooting Detail Audio Problem

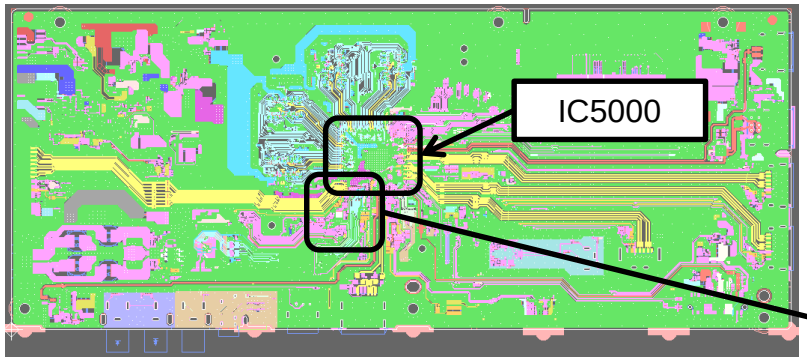
2.8.2.1 Main Speaker No Sound

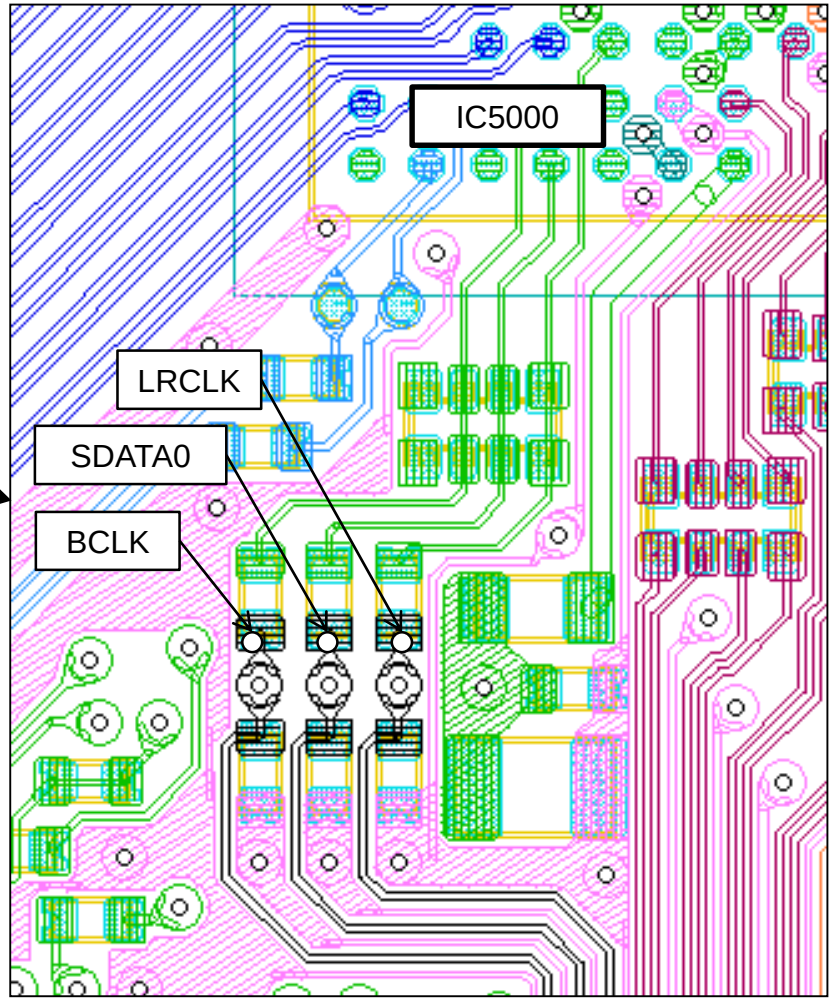


2.8.2 Troubleshooting Detail Audio Problem

2.8.2.1 Main Speaker No Sound

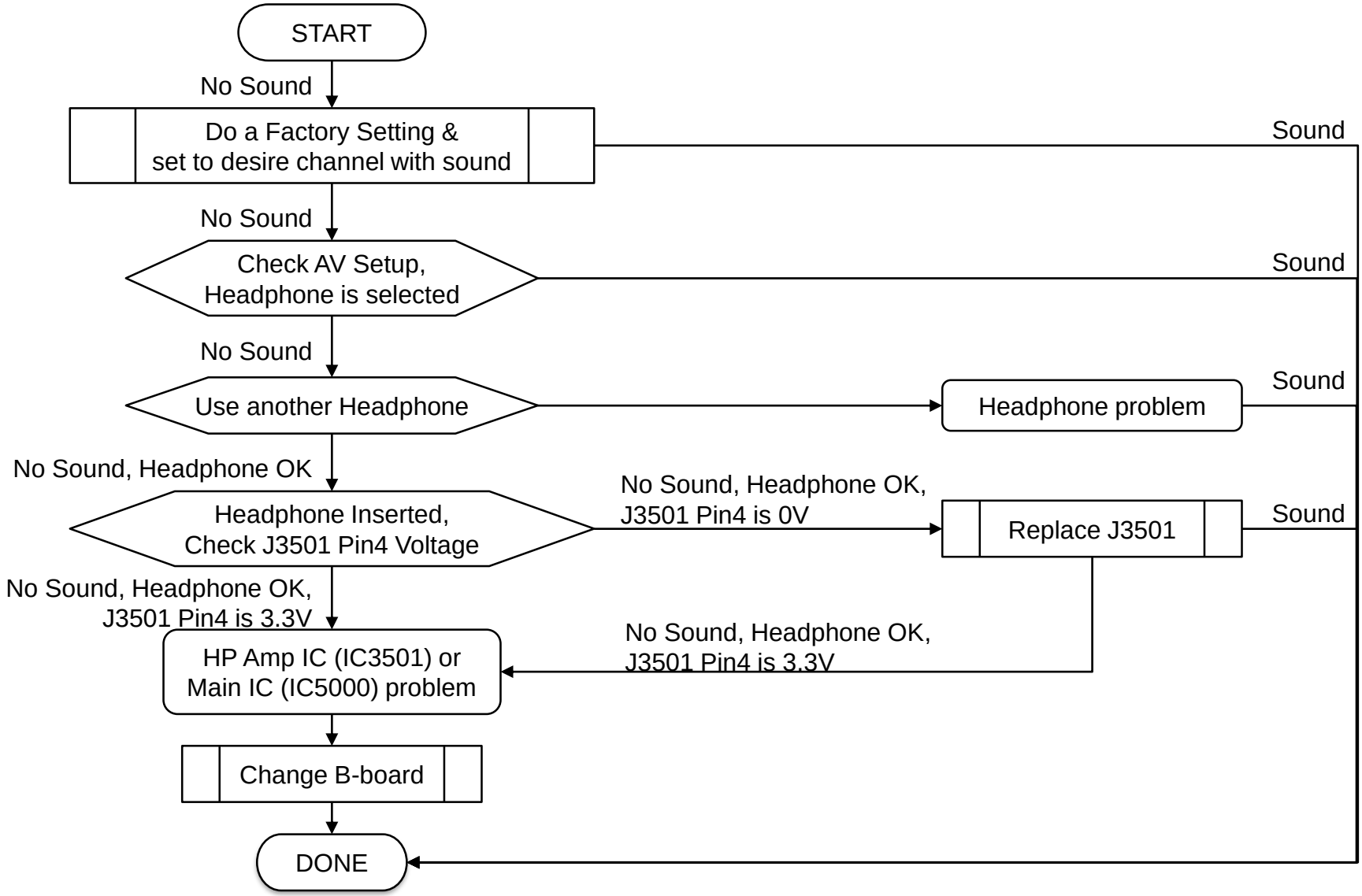
B board





2.8.2 Troubleshooting Detail Audio Problem

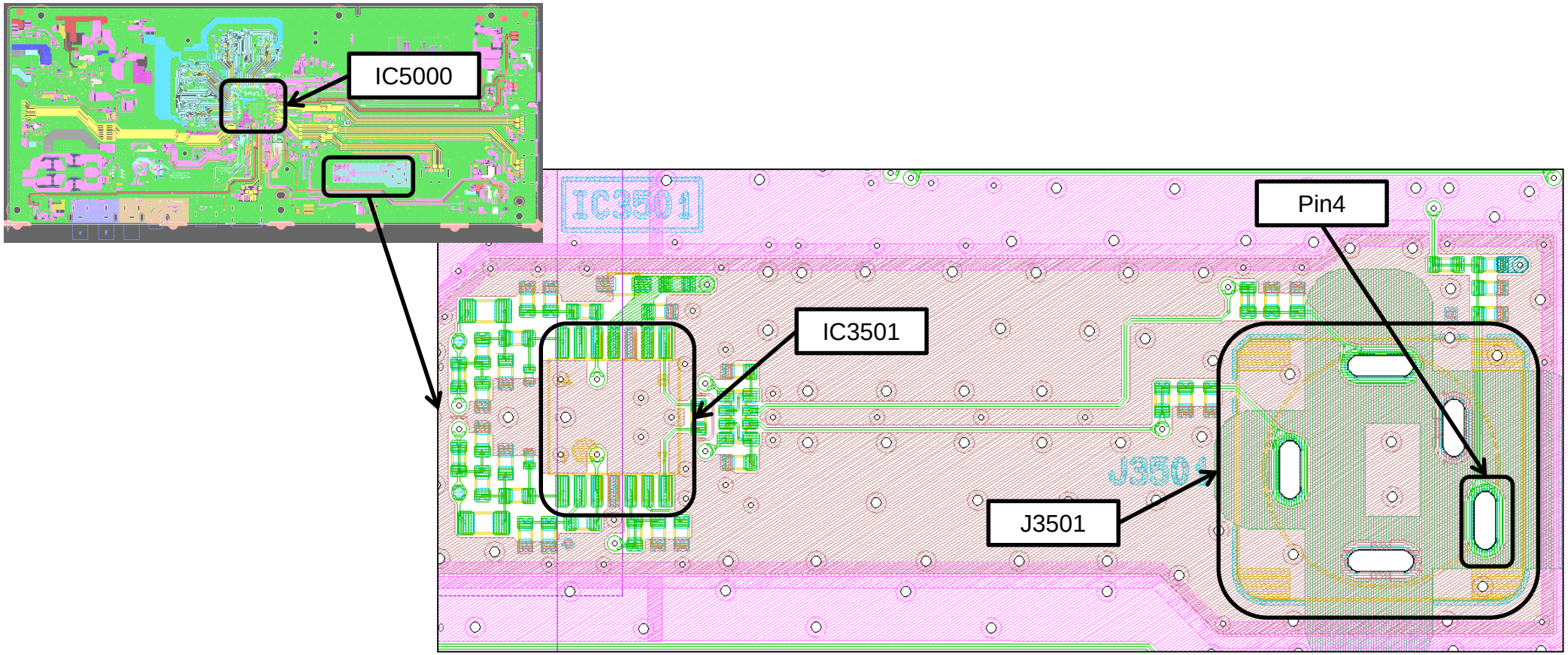
2.8.2.2 Headphone (HP) Out No Sound



2.8.2 Troubleshooting Detail Audio Problem

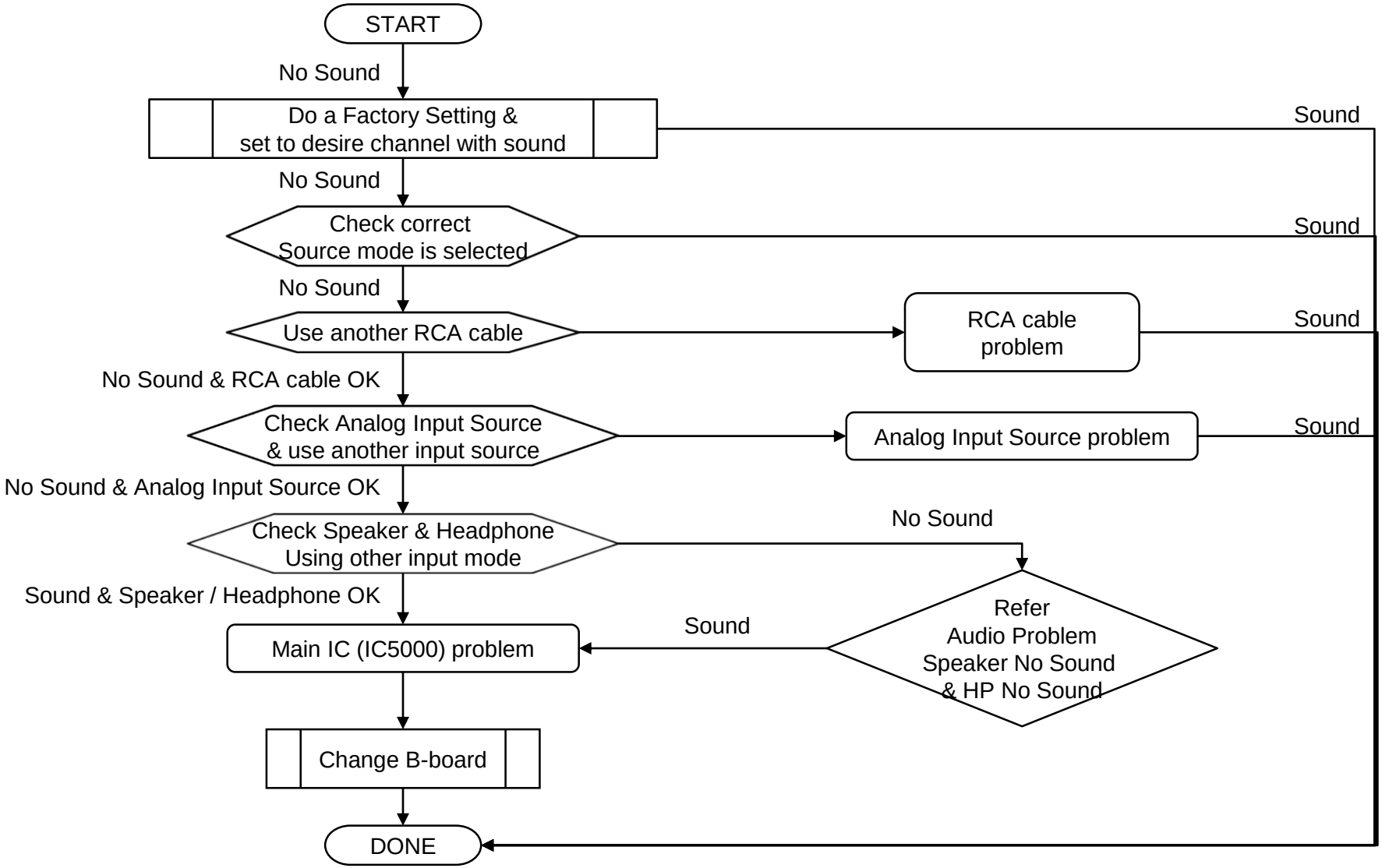
2.8.2.2 Headphone (HP) Out No Sound

B board



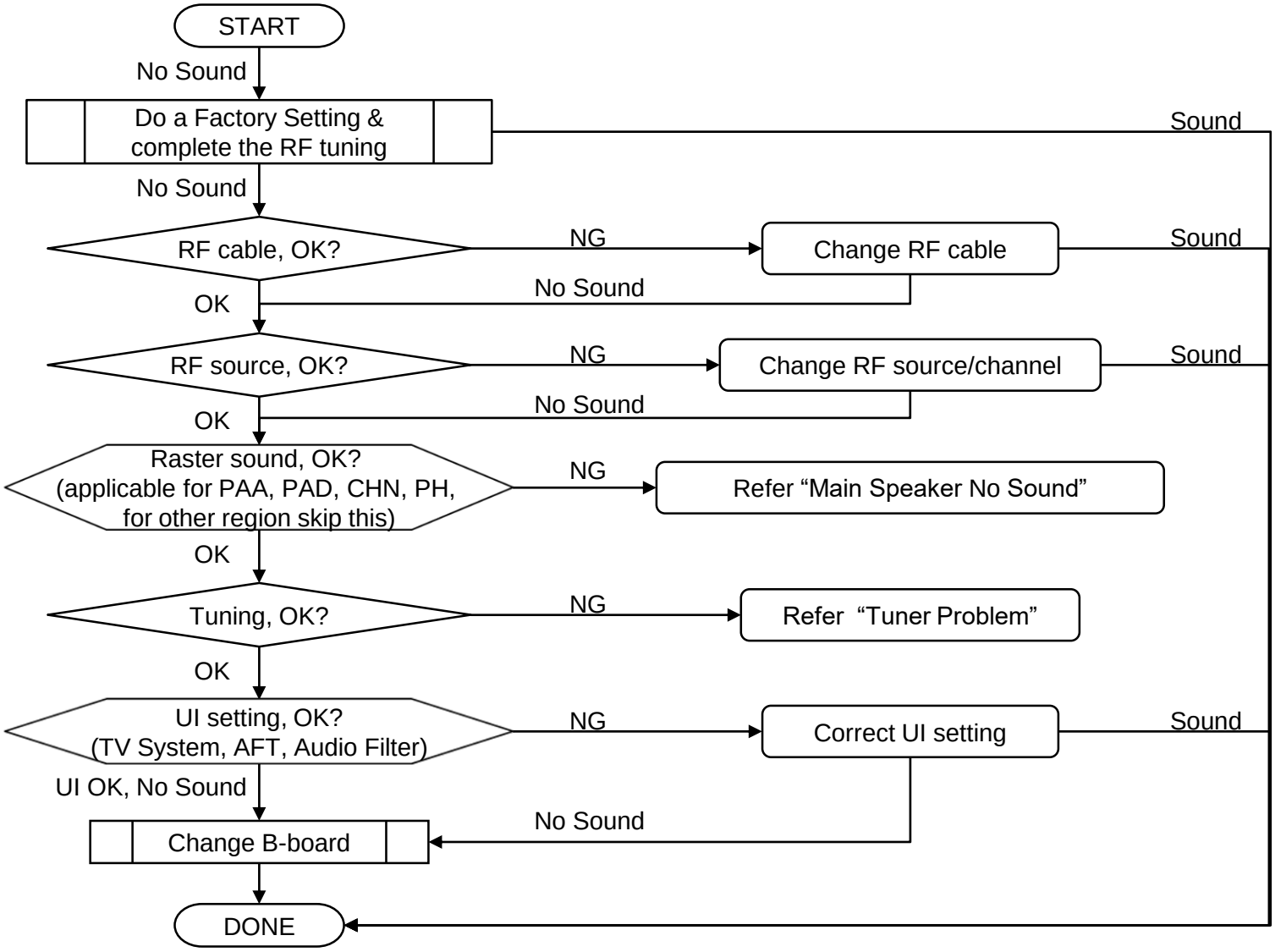
2.8.2 Troubleshooting Detail Audio Problem

2.8.2.3 Analog Audio Input No Sound



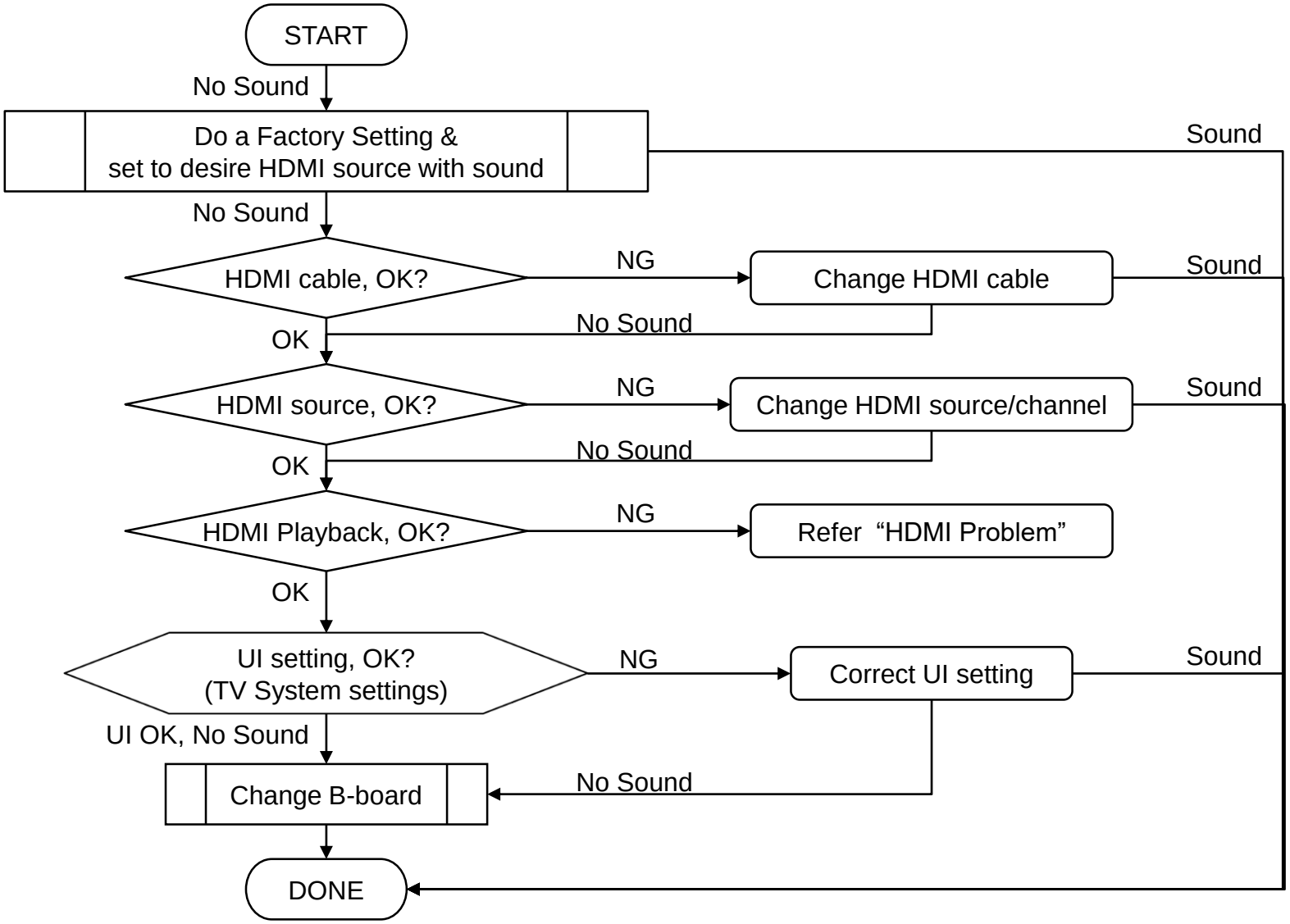
2.8.2 Troubleshooting Detail Audio Problem

2.8.2.4 Analog RF No Sound



2.8.2 Troubleshooting Detail Audio Problem

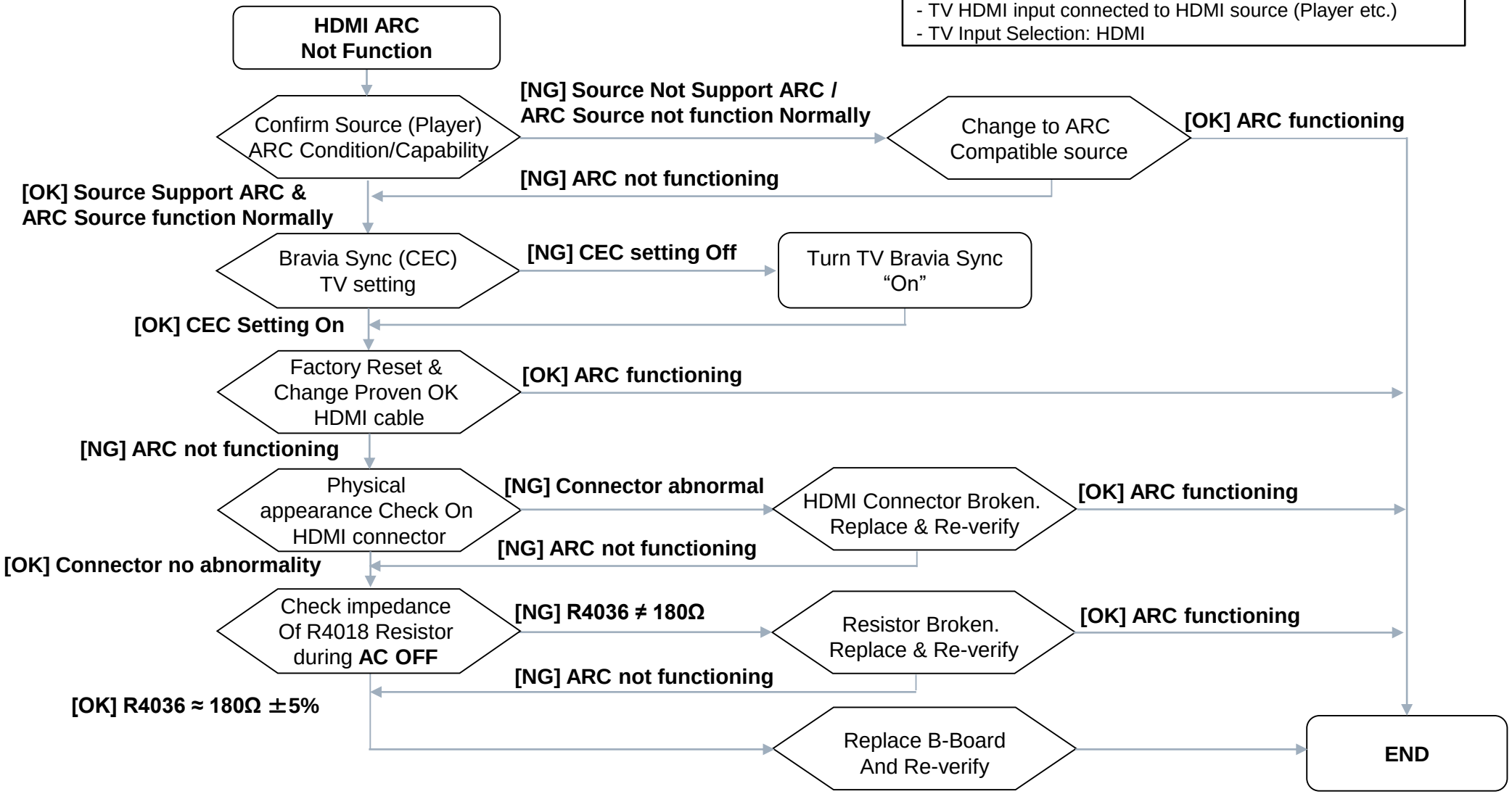
2.8.2.5 HDMI Audio No Sound



2.8.2 Troubleshooting Detail Audio Problem

2.8.2.6 HDMI ARC Failure

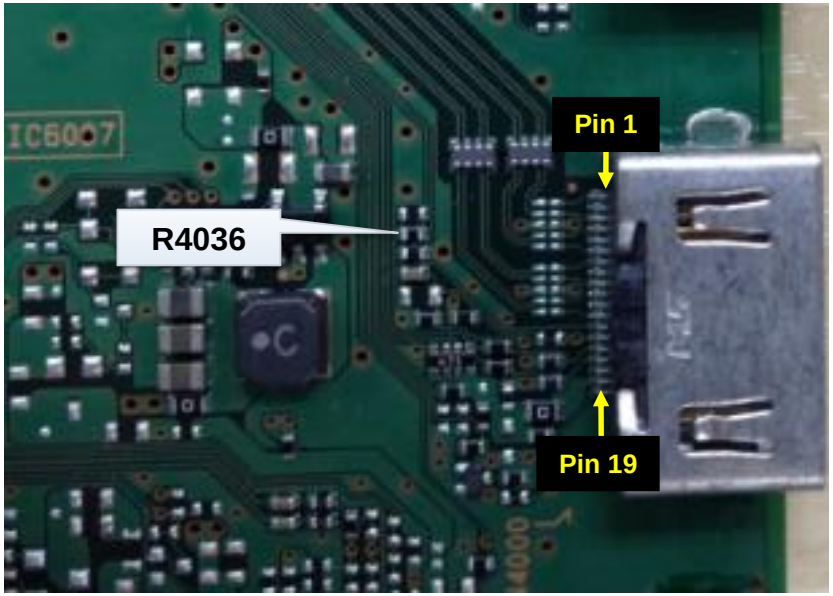
Checking condition:
- TV ON & HDMI Source ON except if the flow mentioned is AC OFF.
- TV HDMI input connected to HDMI source (Player etc.)
- TV Input Selection: HDMI



2.8.2 Troubleshooting Detail Audio Problem

2.8.2.6 HDMI ARC Failure

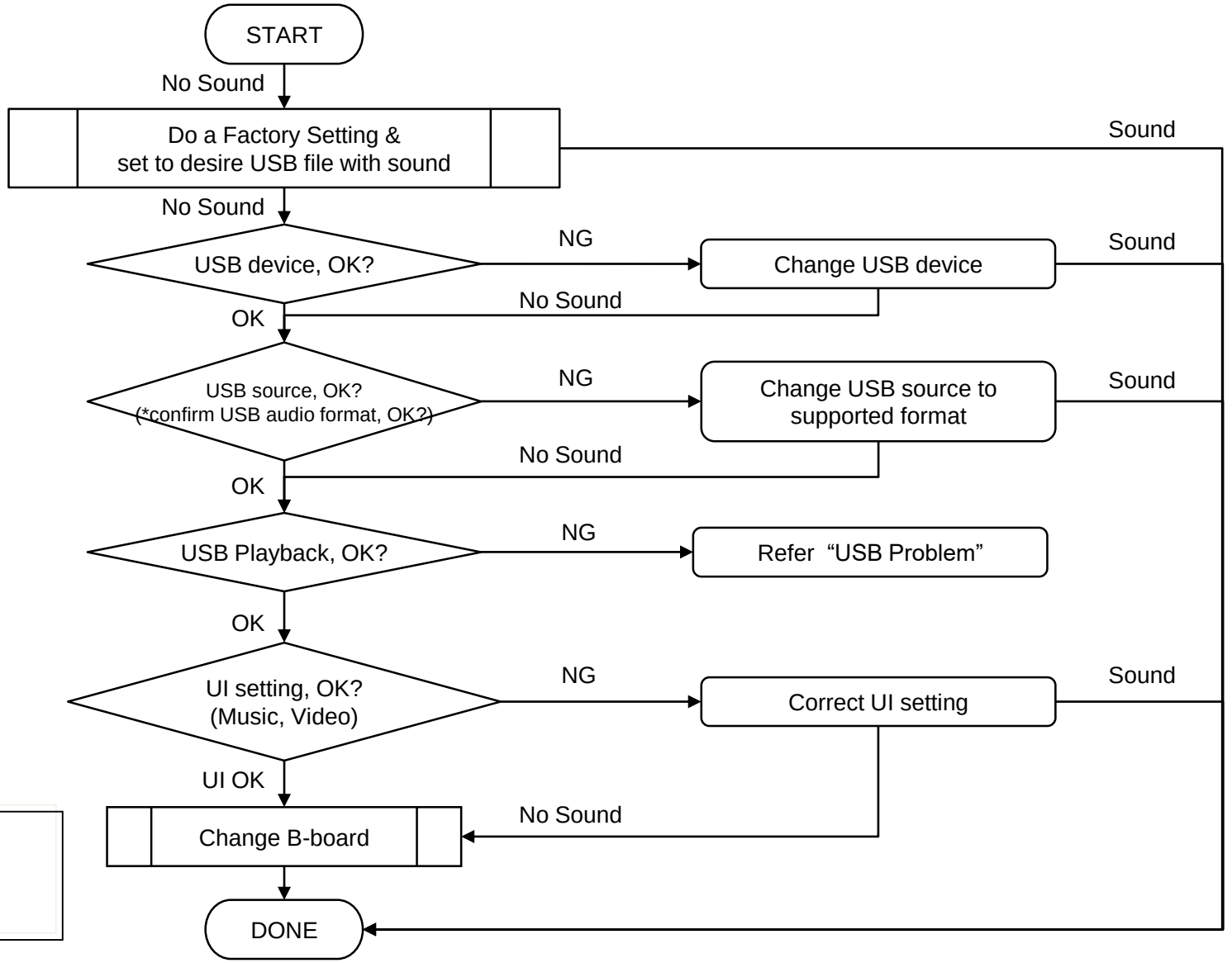
Zoom



No	Ref No	Part No	Description
1	R4036	1-218-944-81	RES, CHIP 180 (1005)

2.8.2 Troubleshooting Detail Audio Problem

2.8.2.7 USB Audio No Sound



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

2.8.2 Troubleshooting Detail Audio Problem

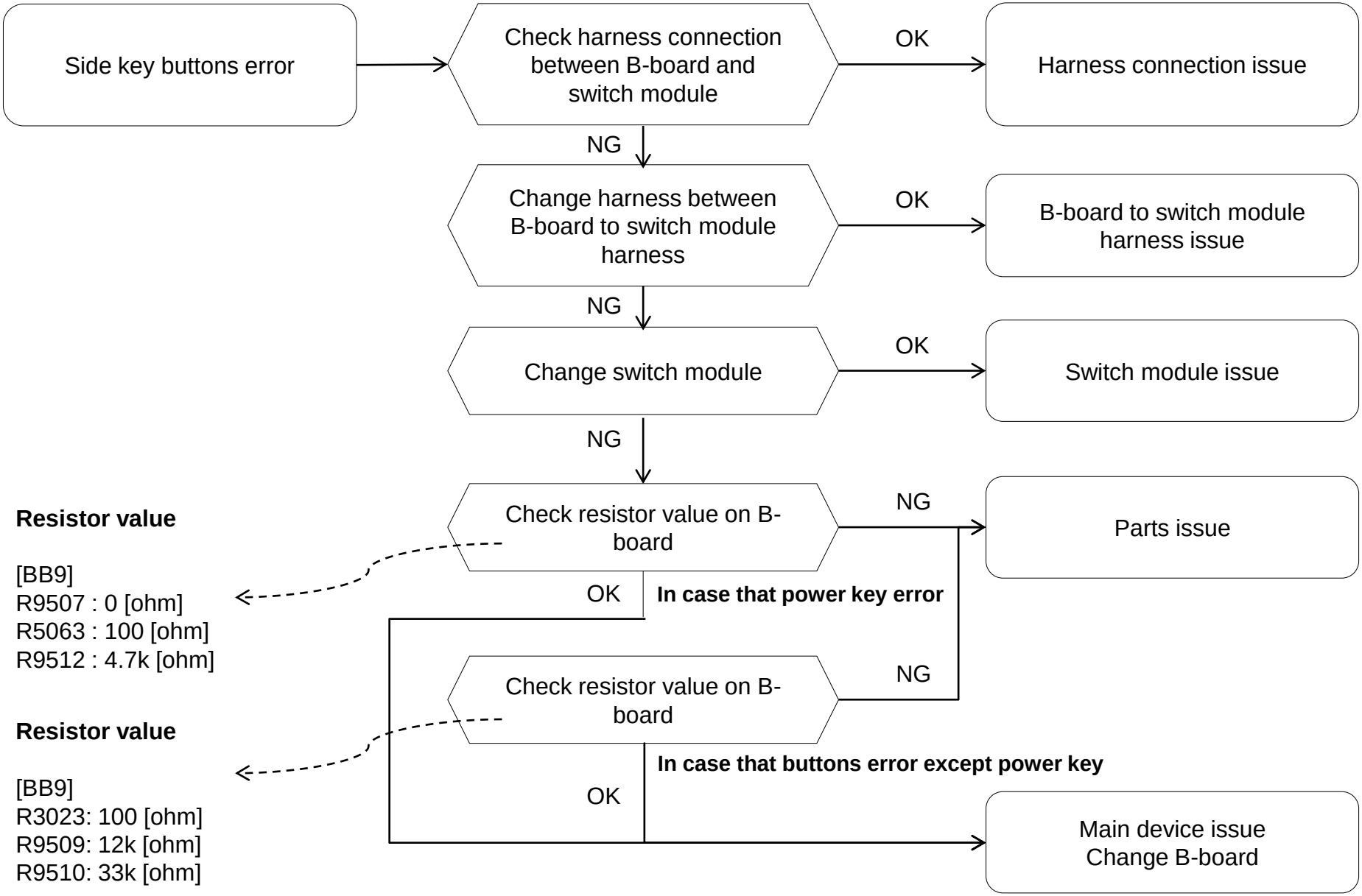
USB Port 1 – No Detection / Cannot Play / No Picture / No Sound

Please refer to “2.6.7 USB Port 1 – No Detection / Cannot Play / No Picture / No Sound”.

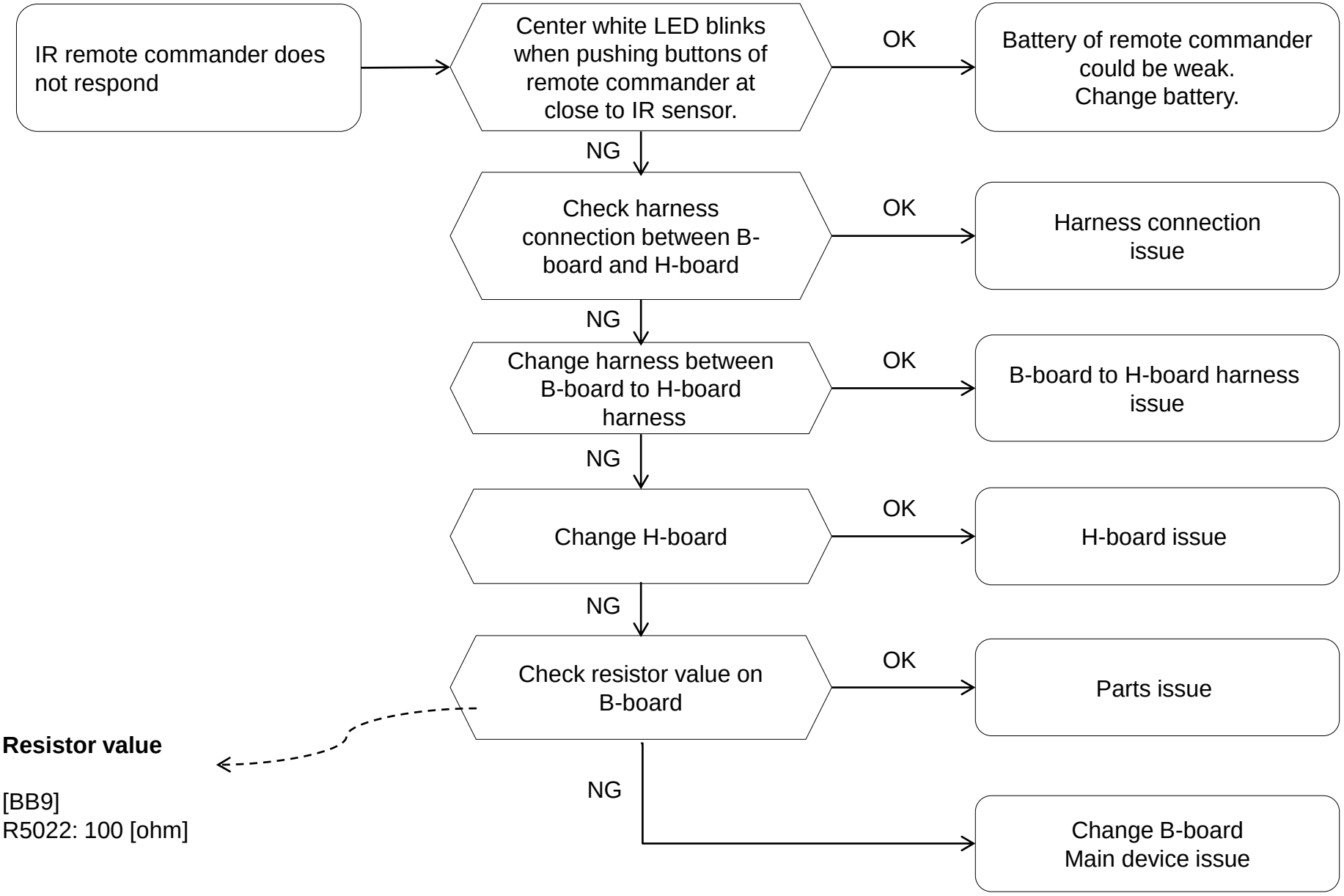
USB Port 2 – No Detection / Cannot Play / No Picture / No Sound

Please refer to “2.6.8 USB Port 2 – No Detection / Cannot Play / No Picture / No Sound”.

2.9 Key Switch Buttons Error



2.10 IR Remote Commander Error



SECTION 4
SERVICE ADJUSTMENT

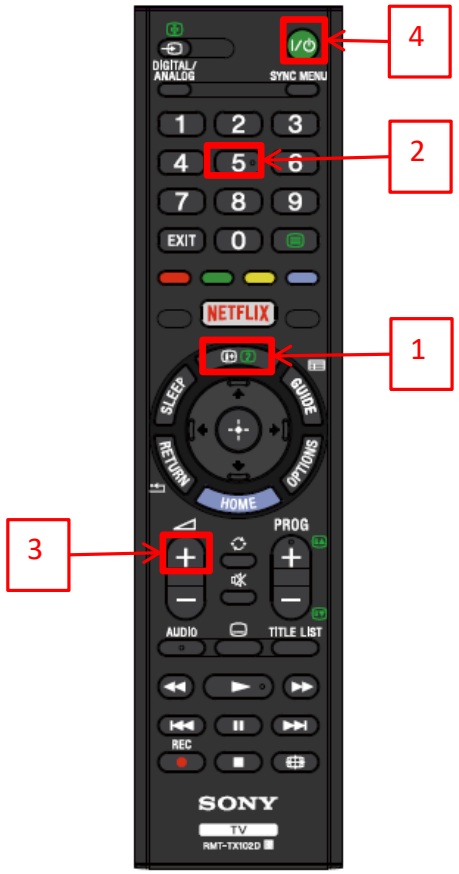
When finished the operation of service mode , please AC Plug OFF/ON the TV set

*If you don't do AC plug OFF/ON, remain the Service Mode App and user can see the Service Mode after RC ON.

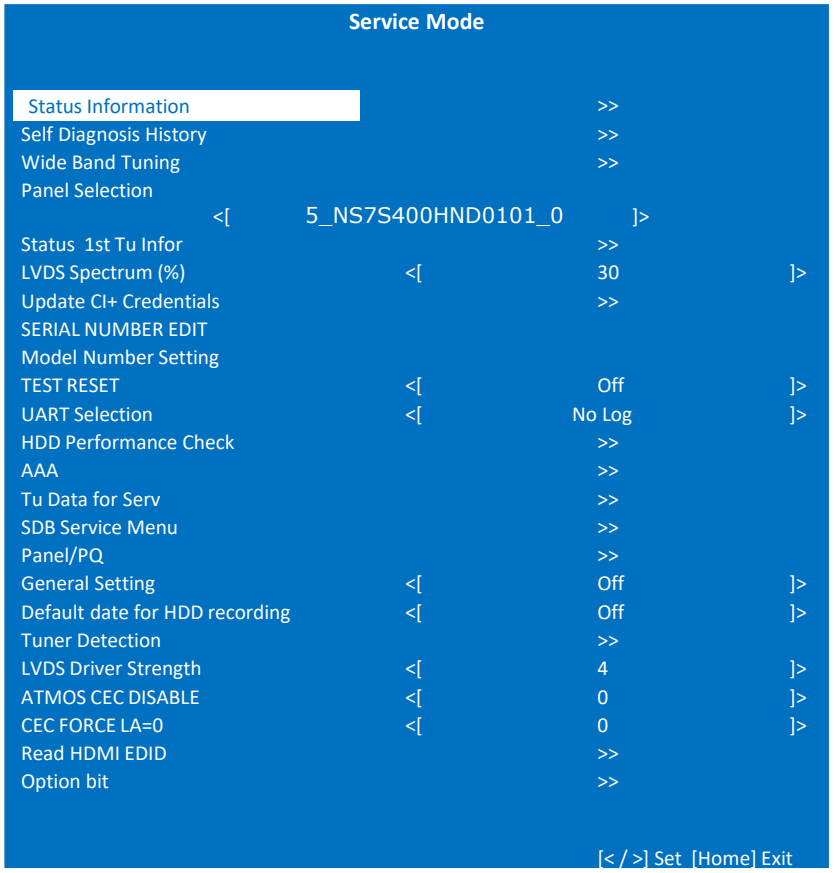
4.1 How to Enter Service Mode

From Standby Mode

1. Go to TV standby condition by remote commander (when TV in On condition, press "Power" once).
2. Press "i+ (info)/Display", "5", "Volume+" then "Power" remote.
3. You can see Service menu on display.



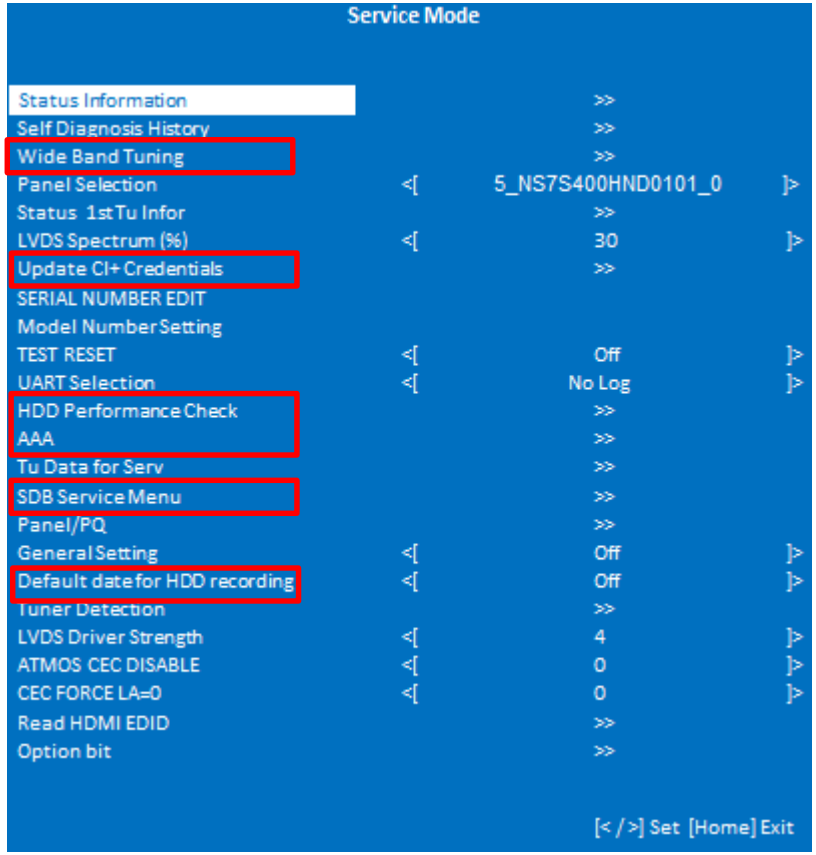
Remote Commander



Service Mode

*Service menu disappears, but the app is working in the background,
If you don't do AC plug OFF/ON, remain the Service Mode App and User can see the Service Mode after RC ON

4.2 Service Mode Unique Items



These items availability depend on TV region

Items	Region/s Available
Wide Band Tuning	UC only
Update CI+ Credentials	EU only
HDD Performance Check	EU&PAD(AUS/NZ only)
AAA	EU&PAD(AUS/NZ only)
SDB Service Menu	Except PAA, CHI/PE/PHI, BR/ARG/ECU
Default Date for HDD Recording	EU&PAD(AUS/NZ only)

4.3 Key Behavior Summary

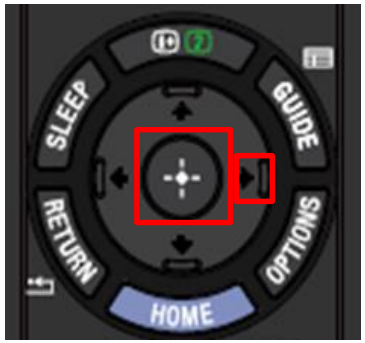
Remote Key	Action
Power	Power off (Stand by Mode)
Menu	Close service menu, Return Previous page.
Enter	Enter next page of focus item, Confirm the change, Return Previous page.
Cursor (Left/Right/Up/Down)	Change focus item, Change option of focus item, Return to previous page
Return	Return to previous page, close service menu

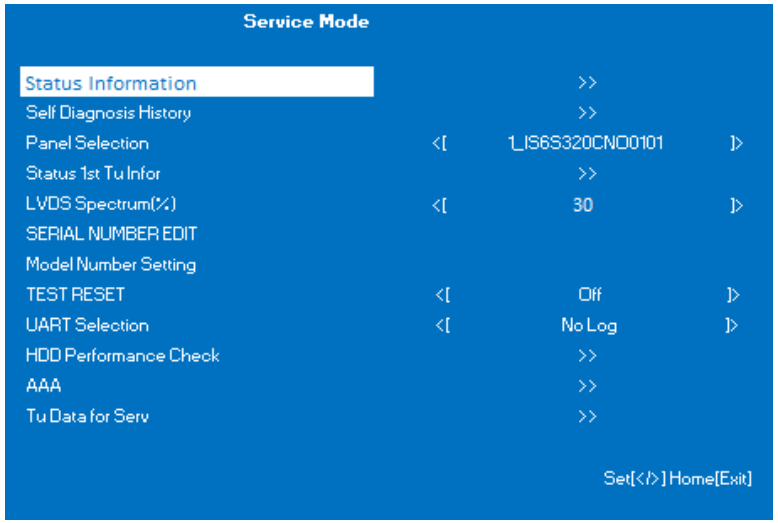
Note:

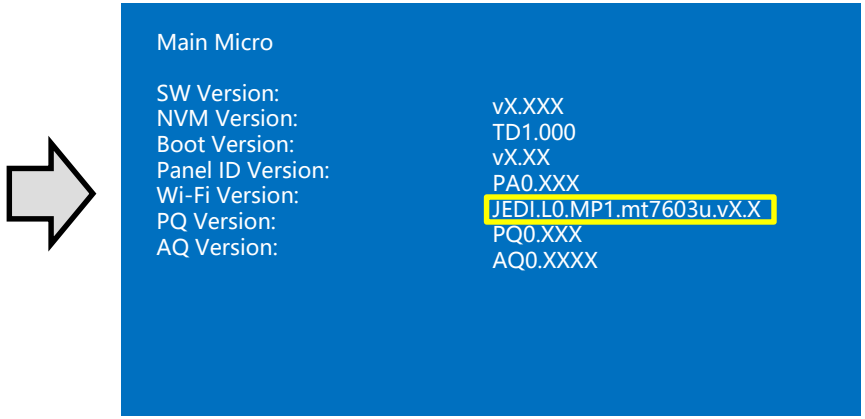
1. For changes made to Service Mode items to take effect:
   i) AC Off/On
2. **To completely exit Service Mode,**
   i) RC Off/On
   ii) AC Off/On

4.4 Software Version

1) Press “Enter” or “→” button to enter “Status Information”

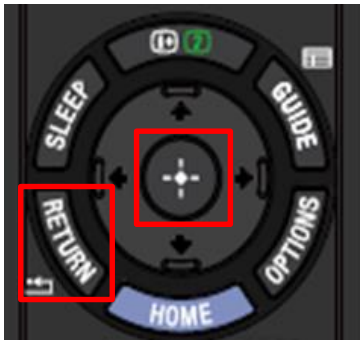






Only available if Wi-Fi set to on

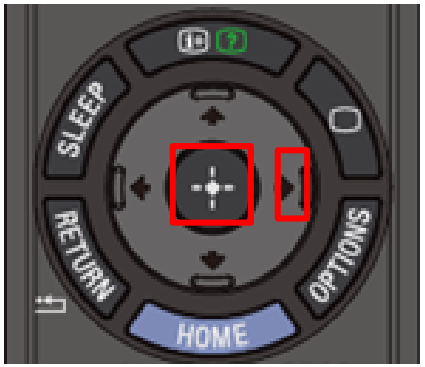
2) Press “Enter” or “Return” button to return to Service Mode

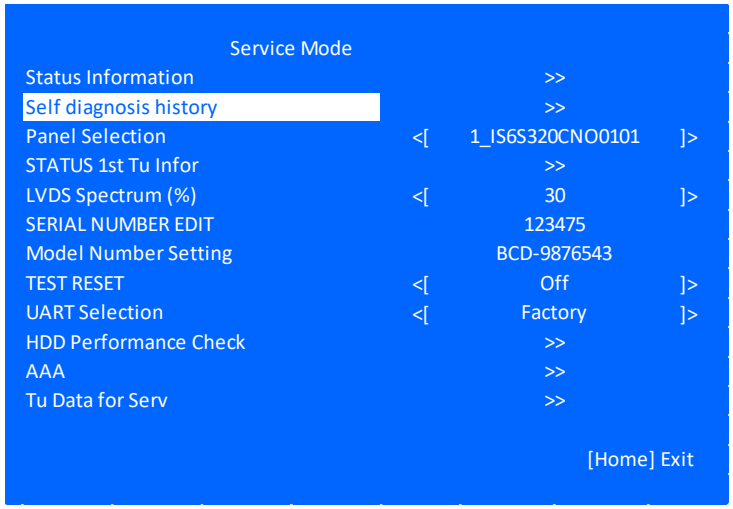


4.5 How to enter Self Check

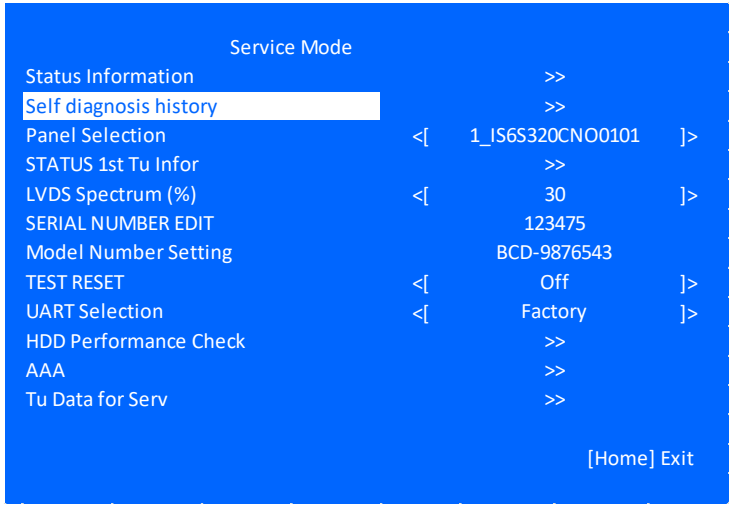
Go to Self diagnosis history through Service Mode

1) In Service Mode, select “Self diagnosis history”, press “Enter” or “→” button to enter Self Check.





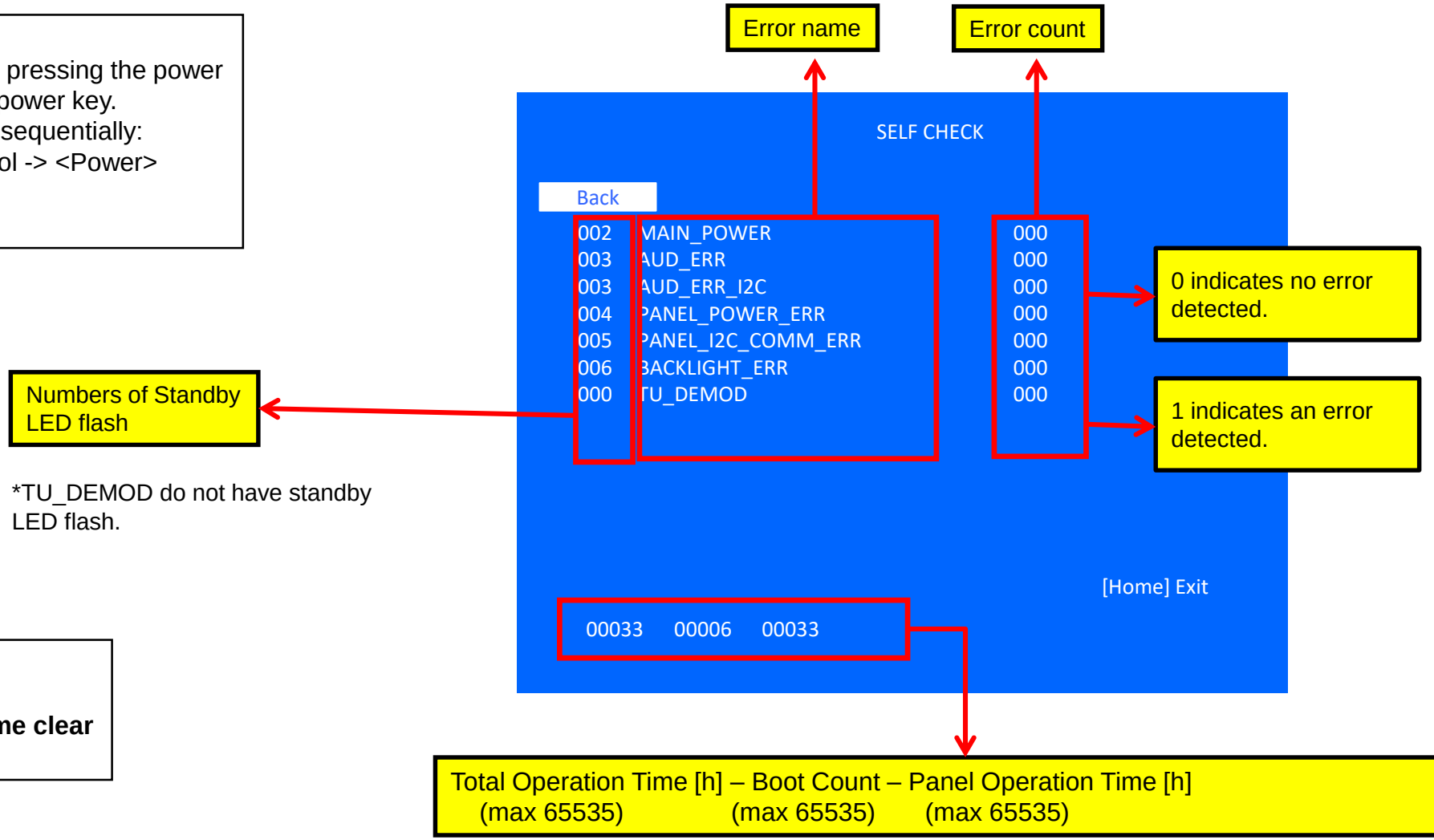
2) Press “Enter” button to back to **Service Mode**.



4.6 Diagnosis Menu Information

Entry
1. Go to Standby by pressing the power button of remote/power key.
2. Push the buttons sequentially:
   <Display> <5> <Vol -> <Power>

Exit
- Power off & on



*TU_DEMOD do not have standby LED flash.

Error history clear
<8> -> <0>
Panel operation time clear
<7> -> <0>

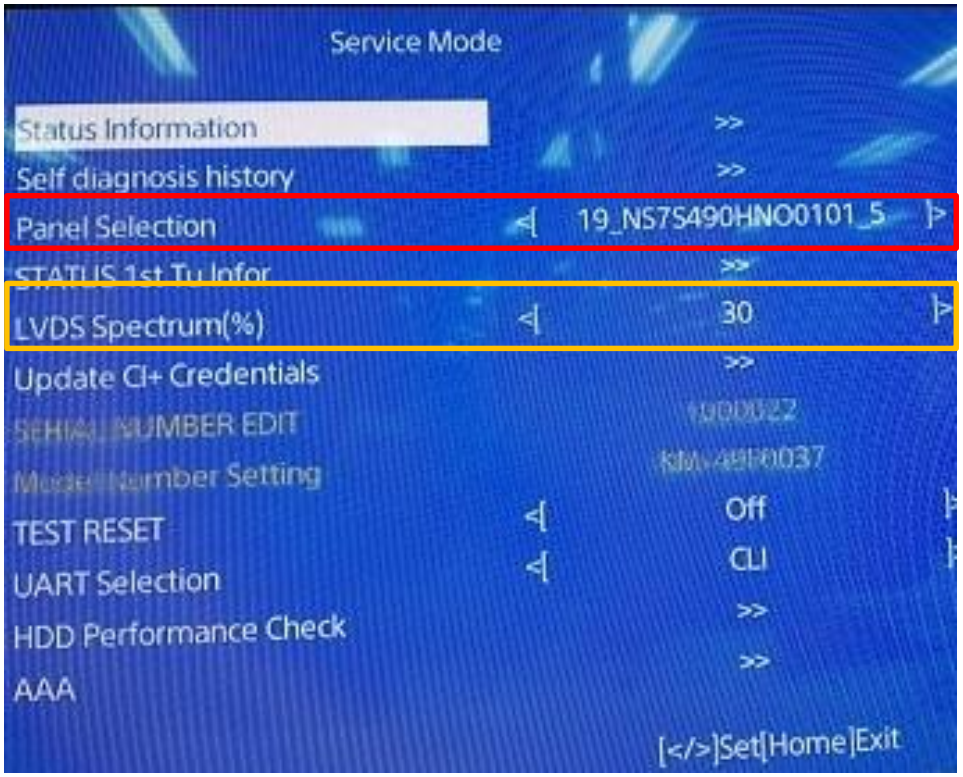
*Total Operation Time and Panel Operation Time is recorded every 1h

4.7 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
3	AUDIO_I2C(M_SDA1/SCL1)	Audio I2C communication failure
4	PANEL12V_MON	Panel 12V Failure
5	PANEL I2C ACK	Panel ID NVM Failure
6	BL_ERR	Backlight Error

4.8 Panel Selection and LVDS Spectrum (%)

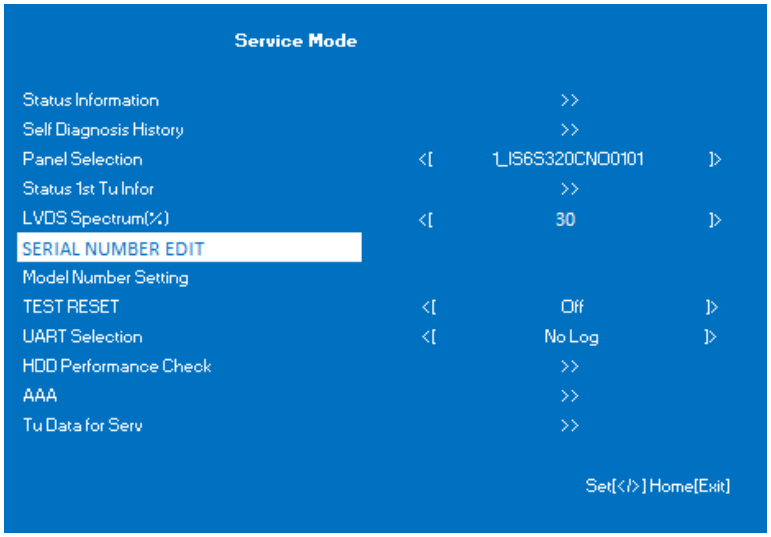
Please refer to the following Table to confirm if **Panel Selection** and **LVDS Spectrum**(%) values are correct.

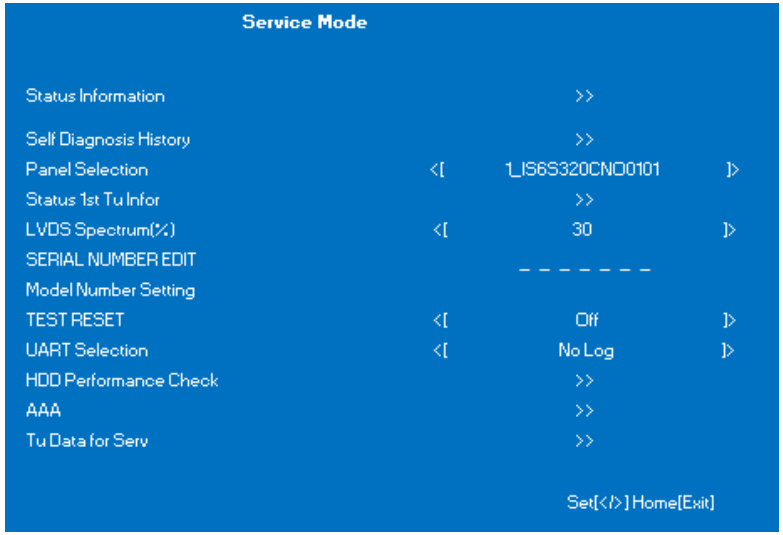


Model	Panel Selection	LVDS spectrum
SG 43	55_YS9S003HNG0101_9	3
SG 49	56_YS9S005HNG0101_9	3
SG 4K Panel Less	1_PNLLESS_4KMTFY17_0	0
SG 55	57_YS9S007CND0101_9	3
SG 65	58_YS9S009CND0101_9	3

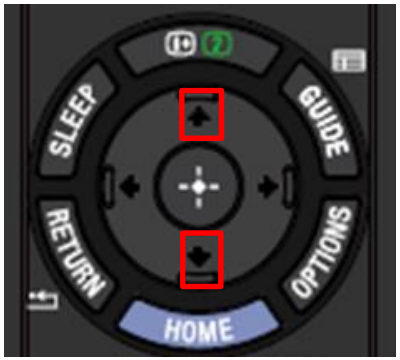
4.9 Serial Number Edit

1) Press "→" button to enter edit mode for Serial Number





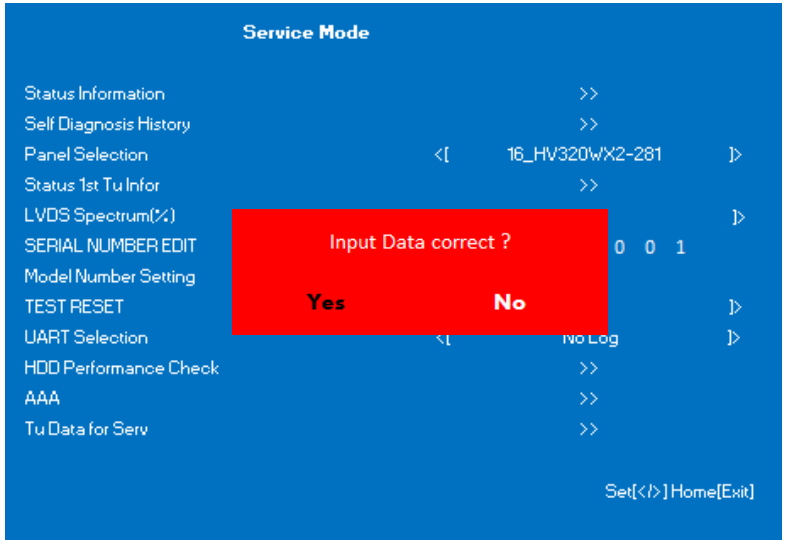
2) Press Up or Down button to change number and "→" button to edit next number



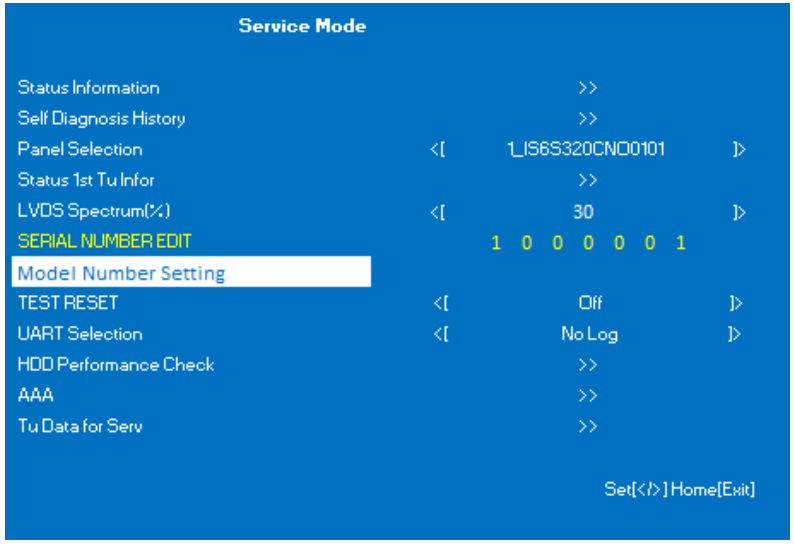
4.9 Serial Number Edit

3) 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.

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



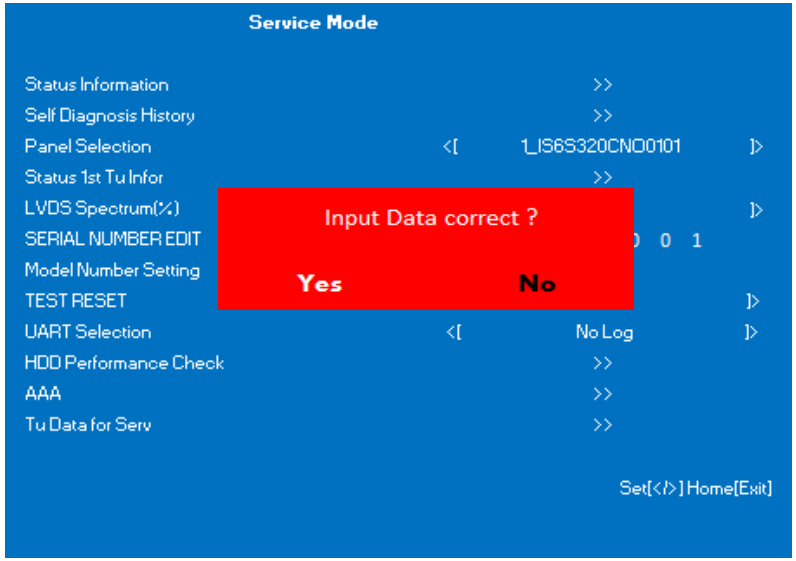
4) If YES is selected, the input data is saved into EEPROM. “SERIAL NUMBER EDIT” is greyed out and the serial number that has been input is displayed. User will not able to select “SERIAL NUMBER EDIT” to edit anymore.



4.9 Serial Number Edit

5) If NO is selected, the input data is not saved into EEPROM. The serial number that has been input is displayed. User still can edit the Serial Number.

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

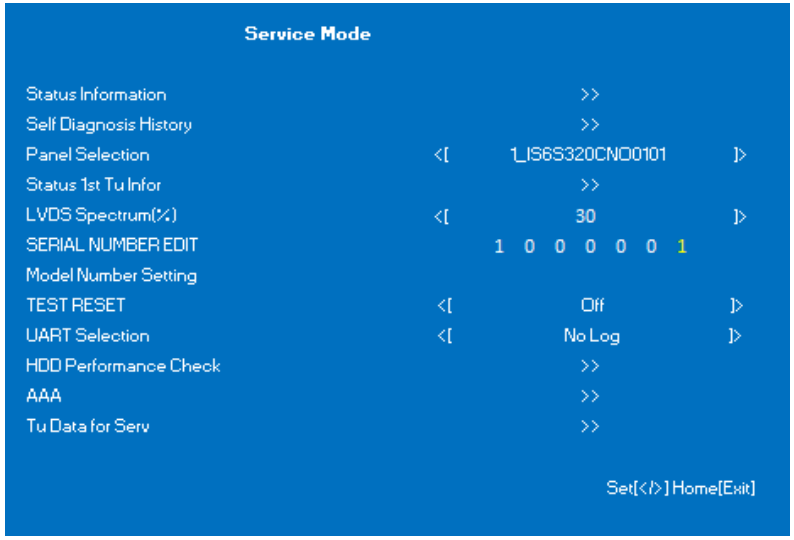


**** Serial Number clear:***

*Serial Number can be set **5 times only**. After limit 5 times, Serial Number cannot be clear & will keep the last Serial Number.*

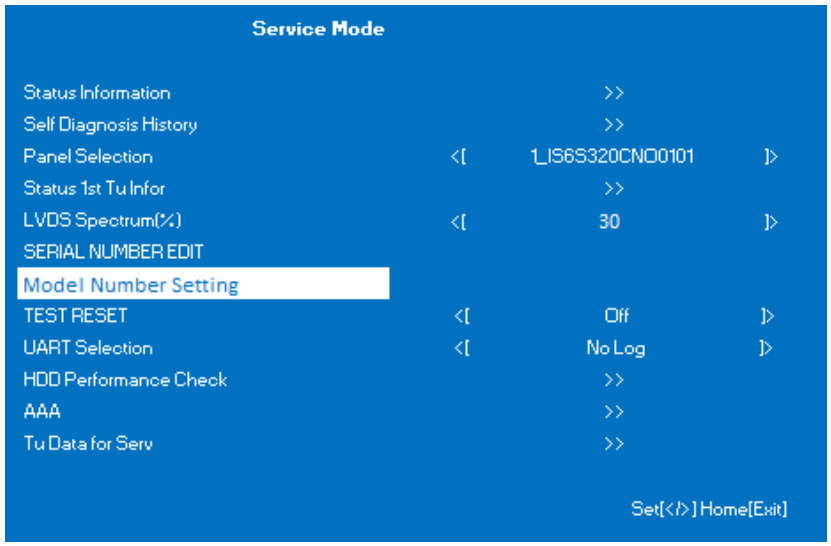
Step:
i) Enter Self diagnosis history >**Self Check**
ii) Press **<6> → <0>**

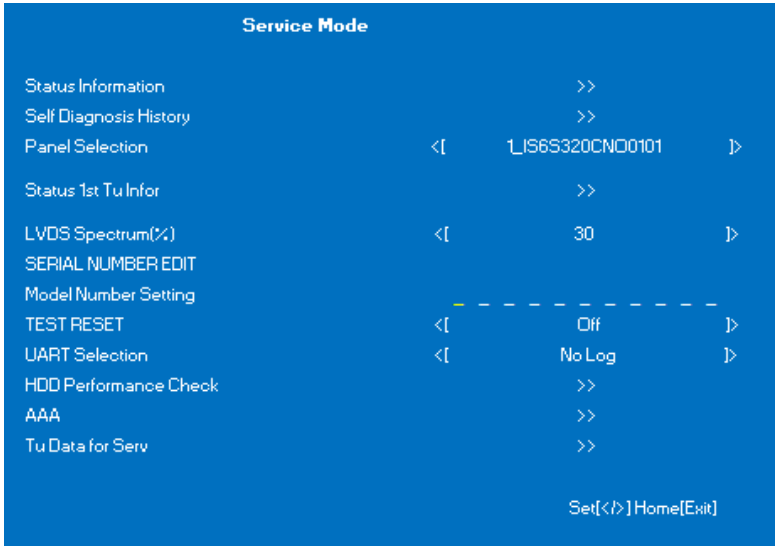
* Warning please don't reset the serial number unnecessarily. Always check the input data is correct before rewrite. When data is clear, it affect both Model number & serial number.



4.10 Model Number Setting

1) Press "→" button to enter edit mode for Model Number



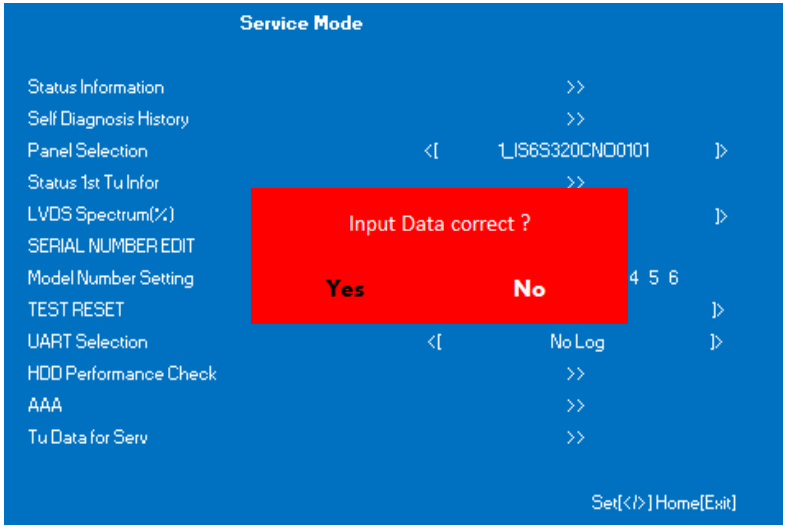


2) Press Up or Down button to select character and "→" to edit next character

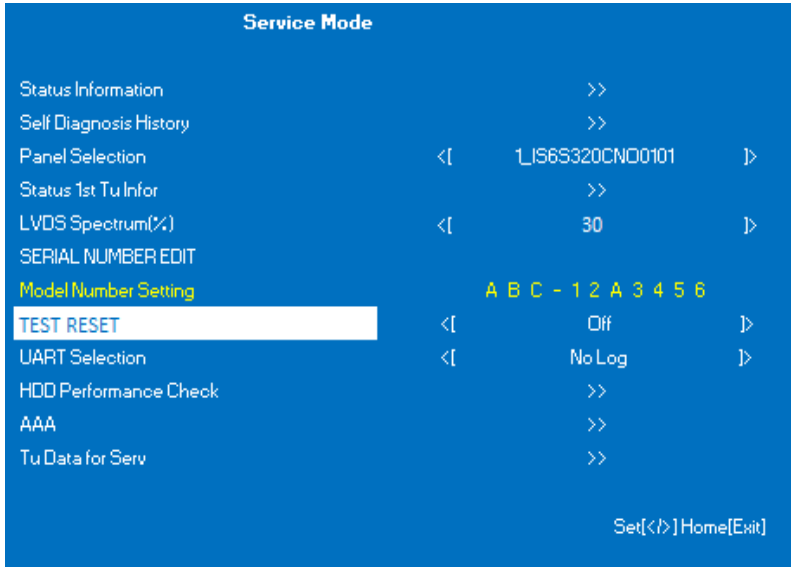
4.10 Model Number Setting

3) 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.

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



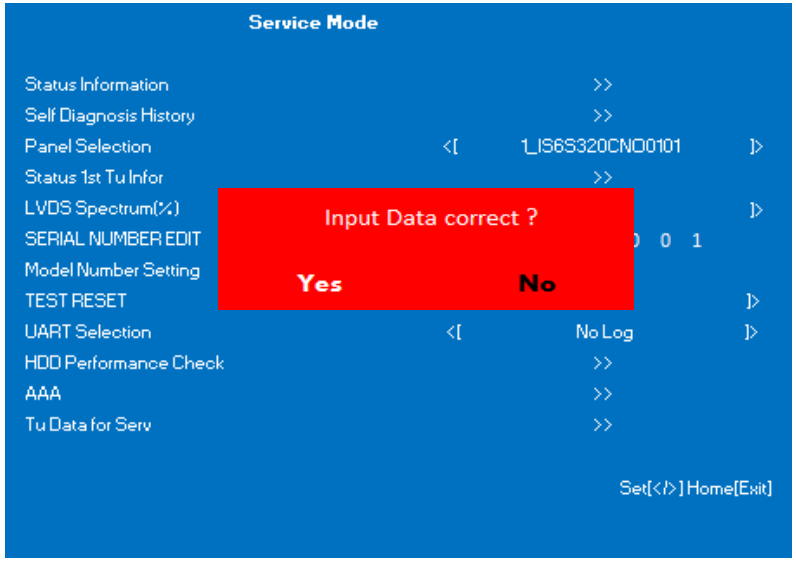
4) If YES is selected, the input data is saved into EEPROM. Model Name EDIT is greyed out and the model name that has been input is displayed. User will not able to edit anymore.



4.9 Serial Number Edit

5) If NO is selected, the input data is not saved into EEPROM. The model name that has been input is displayed. User still can edit the Model Name.

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

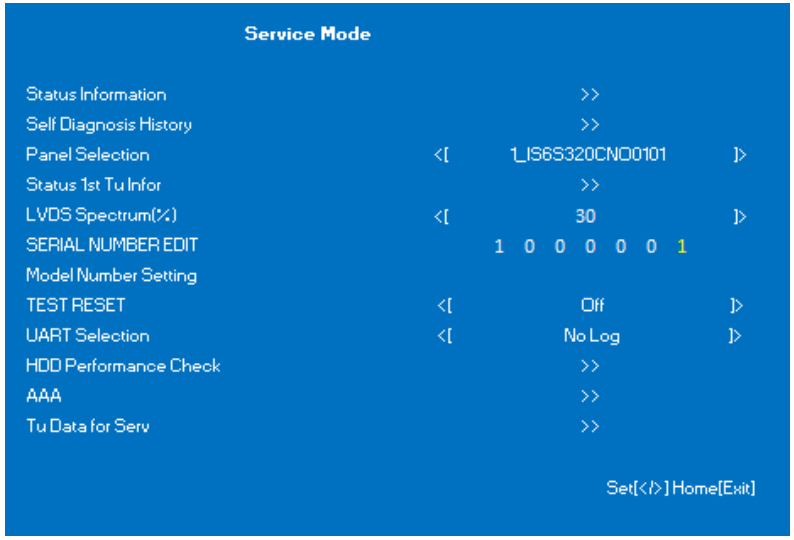


**** Model Number clear:***

Model Number can be set 5 times only. After limit 5 times, Model Number cannot be clear & will keep the last Serial Number.

Step:
i) Enter Self diagnosis history >Self Check
ii) Press <6> □ <0>

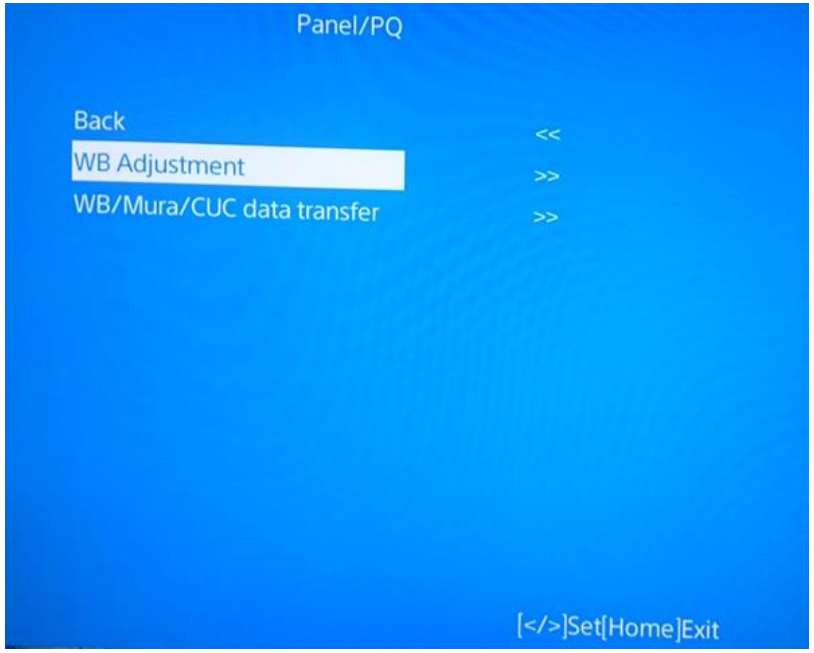
* Warning please don't reset the serial number unnecessarily. Always check the input data is correct before rewrite. When data is clear, it affect both Model number & serial number.



4.11A White Balance Adjustment

Please apply this Action when Main board or panel is replaced.

1) Select “Panel/PQ”. Press “Enter” or “→”
   Select “WB Adjustment”



4.11A White Balance Adjustment

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

→R/G/B Gain setting around High luminance Adjustment
(Default Value 512; Range: 0 ~ 1023)

→R/G/B Offset setting around Low luminance Adjustment
(Default Value 512; Range: 0 ~ 1023)

Remark#1

Whenever these R/G/B Gain & R/G/B Offset values have been set, these values will be applied common to all Picture Mode (Vivid, Standard, Custom) & Color Temperature (Cool, Neutral, Warm, Expert1, Expert2).
After operation is completed, just exit the Service Menu page.

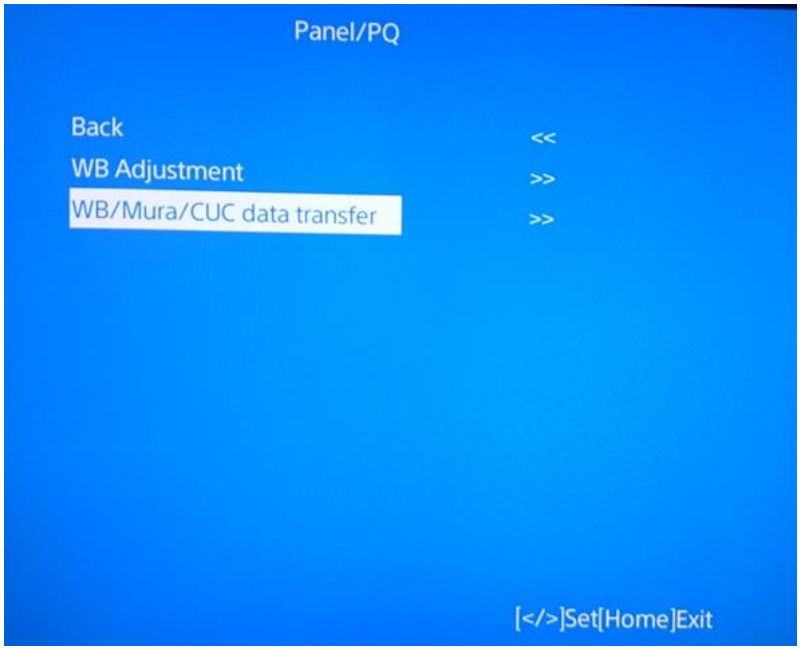
Remark#2

To set these R/G/B Gain & R/G/B Offset values to default, kindly toggle each component to “512”.

4.11B WB/MURA/CUC Data Transfer

Please apply this Action when Main board or panel is replaced.

1) Select “Panel/PQ”. Press “Enter” or “→”
   Select WB/MURA/CUC Data Transfer

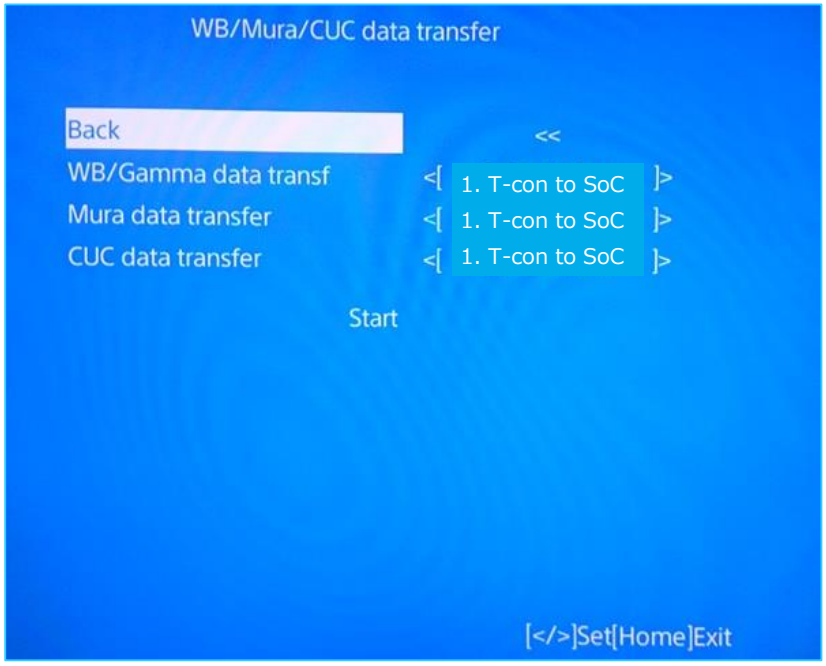


4.11B WB/MURA/CUC Data Transfer

2) (a) Select “WB/Gamma data transf” by pressing “↑” or “↓” on remote commander.

(b) To change the items, press “←” or “→” on remote commander and press “Enter” button.
select “1. T-con to SoC” for each items.

(c) Select “[start]” and press “Enter” button to start transfer.

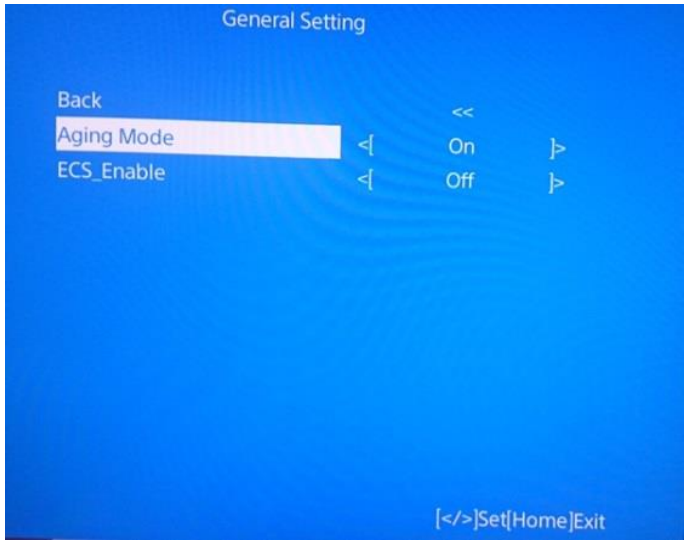


Remark#1
AC OFF/ON TV is required for the data to be reflected and updated into the TV’s NVM.

4.12 Aging Mode

1) Press "→" button to turn on "General Settings"

2) Press "↓" button to select "Aging Mode"



Remark#1
Toggle "→" to select "ON" or Toggle "←" to select "OFF"
Exit Service Mode by pressing "Return" on Remote Commander.

Remark#2
Ensure that there is no Cable (RF, HDMI, etc.) connected to the TV

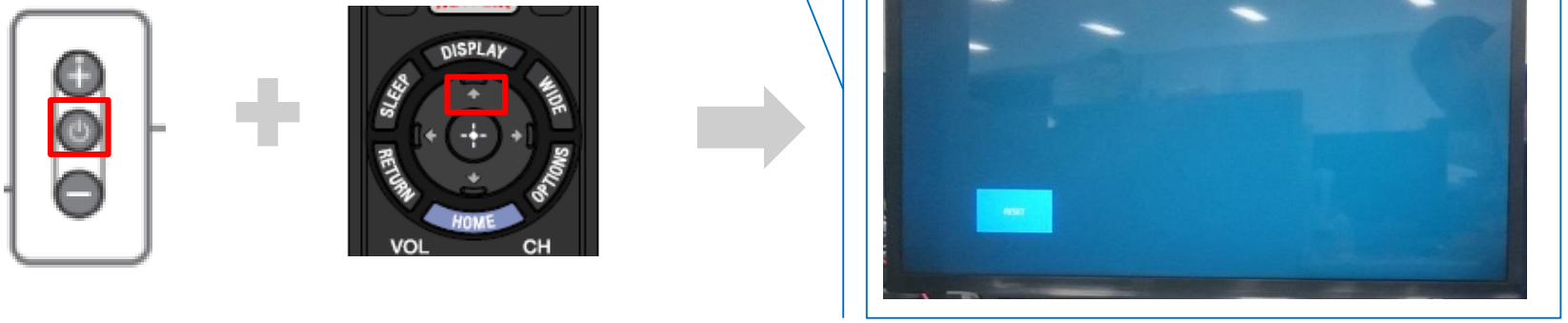
4.12 Aging Mode

Remark#3
Perform Test Reset on TV after turning “OFF” Aging Mode

Test Reset

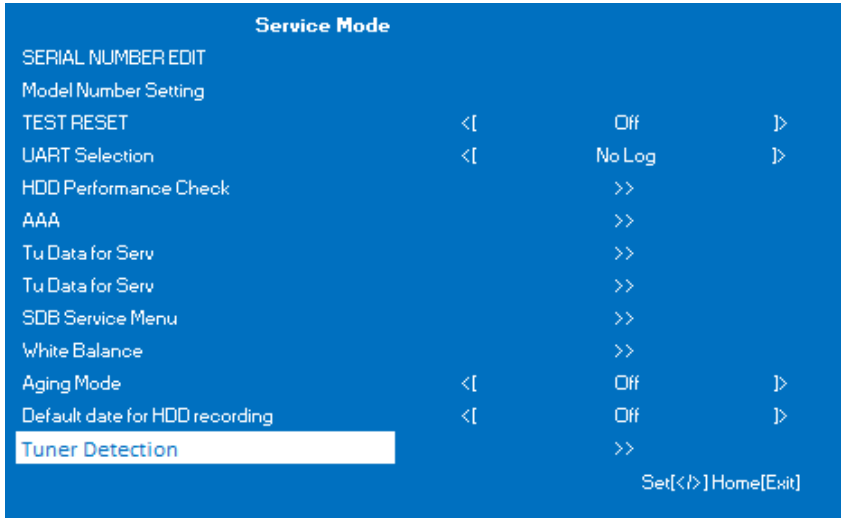
Press <Power> tact key on TV with keep pressing <Up> key on RC

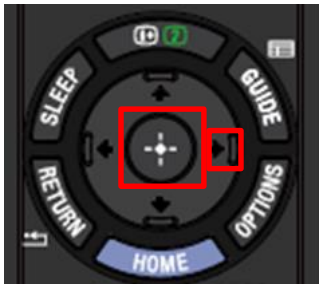
-> Then, displays “RESET” on Screen.

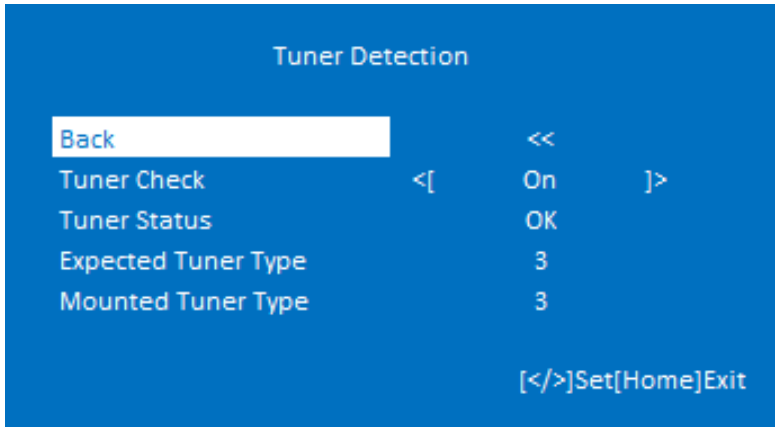


4.13 Tuner Detection

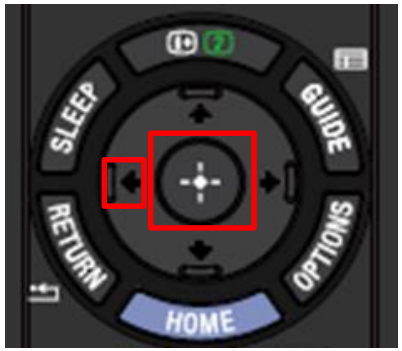
1) Press “Enter” or “→” button to enter Tuner Detection

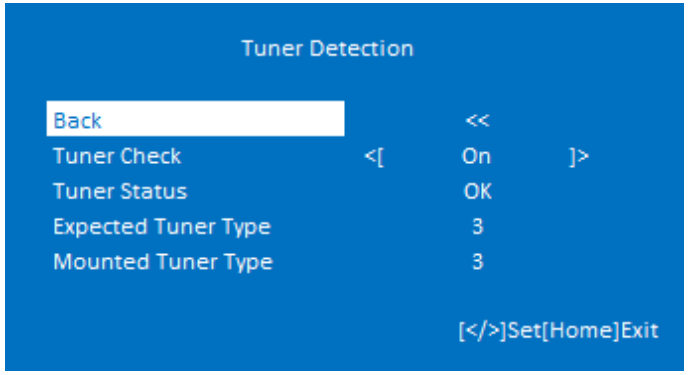


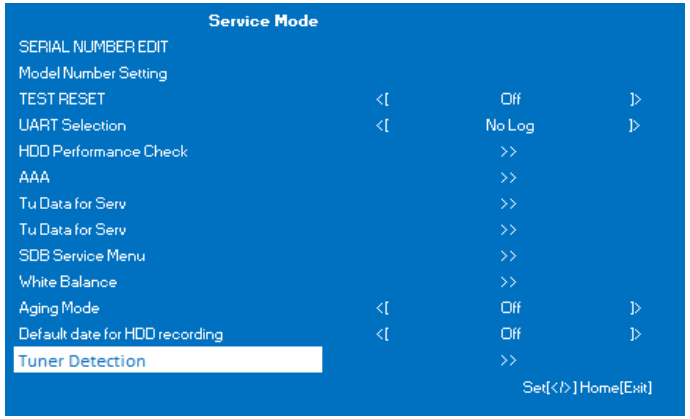




2) Go to “Back” and press “Enter” or “←” button to return to Service Mode







4.13 Tuner Detection

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.

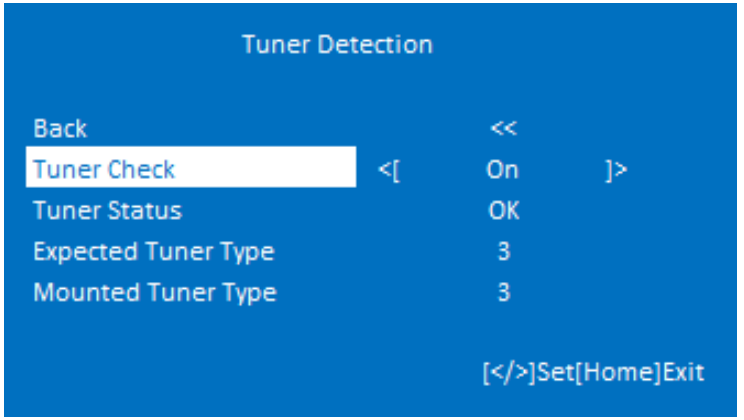
4) “Tuner Status” has **3 values**. **
- “Tuner Status” = **OK**. Tuner module is OK.
- “Tuner Status” = **Incorrect**. Tuner module is not inserted correctly.
- “Tuner Status” = **Wrong Region**. Wrong tuner module is inserted.

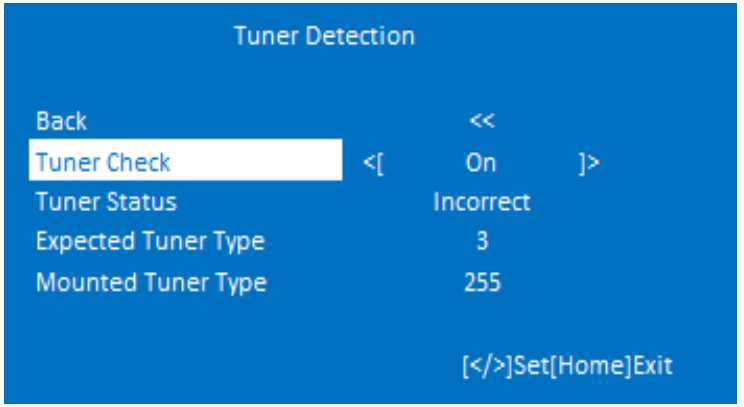
”Tuner Status” will only update if “Tuner Check”=‘On’ and AC Off/On** is already performed.

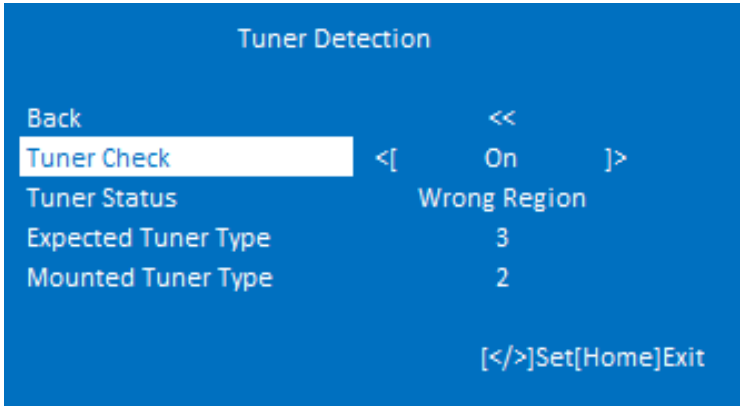
5) “Expected Tuner Type” is the expected tuner module to be inserted to TV.

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	AEP-T2
3 / 5	TW-DVB-- 1 Tuner (If return result is incorrect expected 3, mounted 5: RESULT is OK (SG tuner is 5 for TWN)
4	CH/HK-1Tuner
5	UC/MX- 1 Tuner
6	LA-T2 (Col)/LA-ISDB (BR/AR/EC/Chile/Peru/Urg) - 1 Tuner
10	PAA/ AEP-STD-1Tuner
13	PA-T2-LNA/ PH-ISDB-LNA

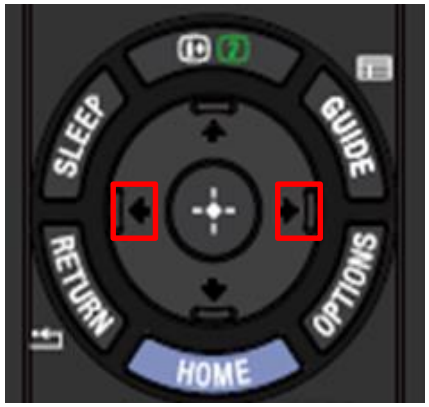






4.14 ATMOS CEC Disable

1) Go to “ATMOS CEC DISABLE” and Press “←” or “→” button to select ‘0’ or ‘A’



ATMOS_CEC_DISABLE (EEPROM 0x30A0)
Data : [0/A] **Default :** 0
Purpose : Data [A] is able to skip Atmos judgment CEC<Report Short Audio Descriptor> that comes from the amplifier, and set Atmos EDID as the service c/m to an amplifier that supports Atmos but it reply NO Atmos.

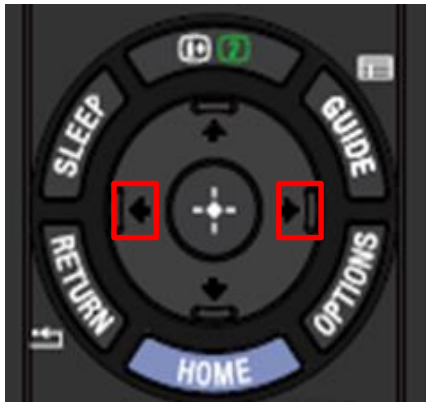
Remarks :
1) This data is not changed by software update or AC off/on, only change from service menu.
2) Need to turn AC off/on after change setting in order algorithm to take effect.

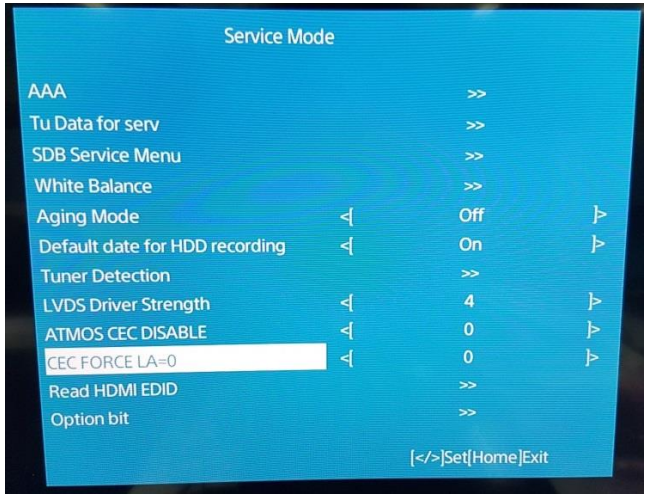
2) After select the option that you wish, press “Home” to confirm the selection.

Option	Execution Effect
0 (default)	The TV checks whether HDMI1(ARC) is connected to an amplifier that support ARC & Atmos or not, and sets either Atmos EDID/ Non Atmos EDID.
A	The TV skip Atmos checking when HDMI1(ARC) is connected to an amplifier that support ARC and set Atmos EDID even when amplifier doesn’t support Atmos.

4.15 CEC Force LA = 0

1) Go to “CEC FORCE LA=0” and Press “←” or “→” button to select ‘0’ or ‘A’





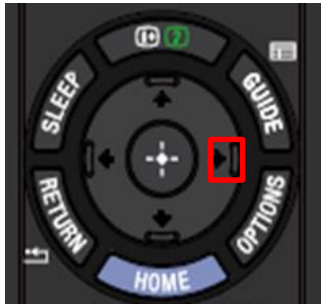
CEC_Force_LA=0
Data : [0/A] Default : 0
Purpose : To avoid CEC conflict for Non CEC compliant device.
Usage: When market claim happen such as Bravia Sync malfunction or no ARC sound happen, due to HDMI device make CEC conflict, then Service side is required to change this service register from “0” to "A"
Remarks :
1) This data is not changed by software update or AC off/on, only change from service menu.
2) Need to turn AC off/on after change setting in order algorithm to take effect.

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

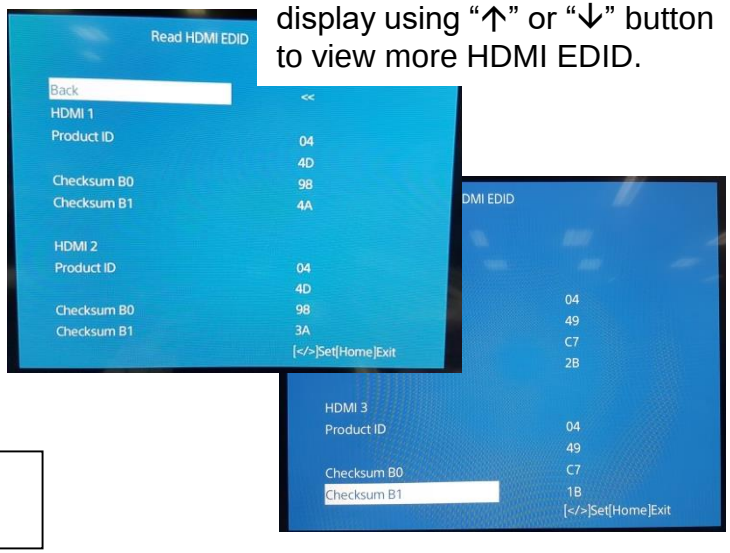
Option	Execution Effect
0 (default)	The TV perform CEC poling.
A	The TV skip CEC poling (Force set TV LA = 0)

4.16 Read HDMI EDID

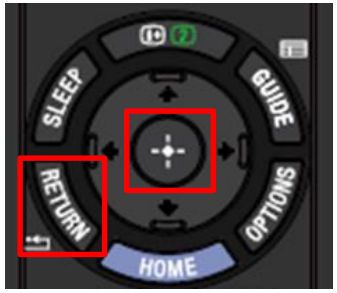
1) Go to “Read HDMI EDID” and Press “→” button to enter “Read HDMI EDID” display



Scroll the “Read HDMI EDID” display using “↑” or “↓” button to view more HDMI EDID.



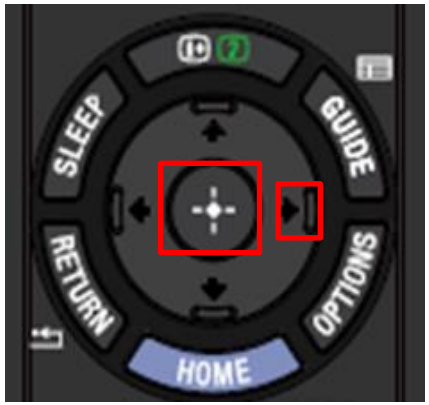
2) Press “Enter” at back selection to return to Service Mode Menu or “Return” button to exit.

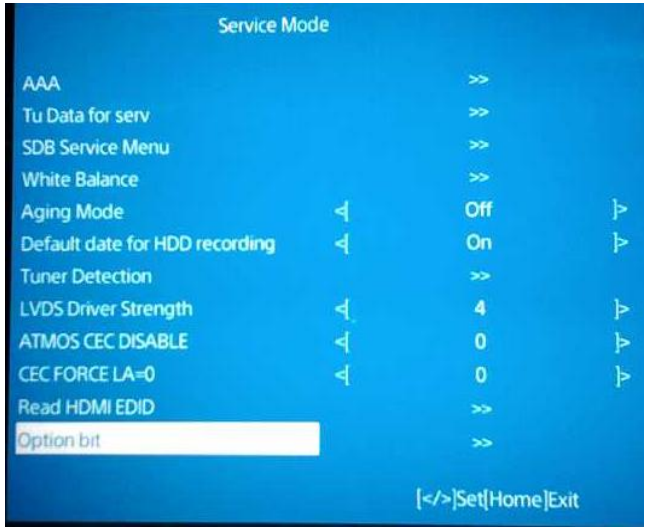


Read_HDMI_EDID
Purpose : To read HDMI EDID data without using any external equipment.
Usage:
1) When market claim happen or product already ship out, Service side and Production side can easily read the EDID without disassembling rear cover.
2) To simplify EDID checking.

4.17 Option Bit

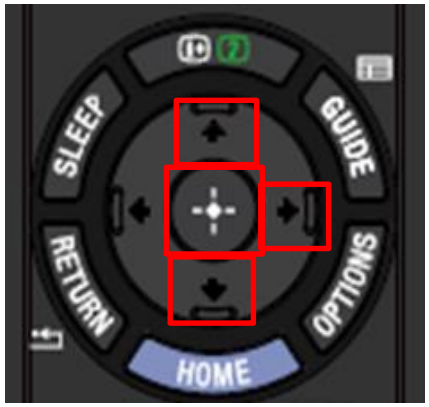
1) Go to “Option bit” and Press “Enter” or “→” button

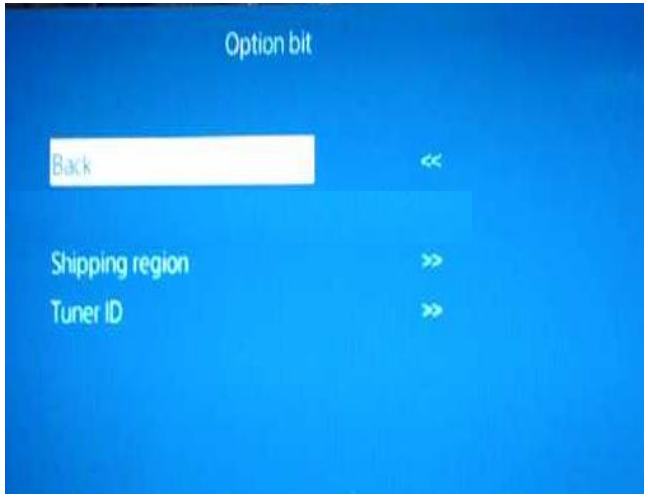




Option	Purpose
Shipping region	To select the Shipping region of the Set. *Please don’t change this setting unless for service board replacement .*
Tuner ID	To select the Tuner type of the Set. *Please don’t change this setting unless for service board replacement .*

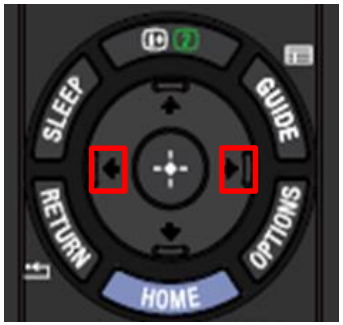
2) Select the option available “Shipping region” or “Tuner ID” by pressing “↑” or “↓”. Then press “>” or “ Enter”.

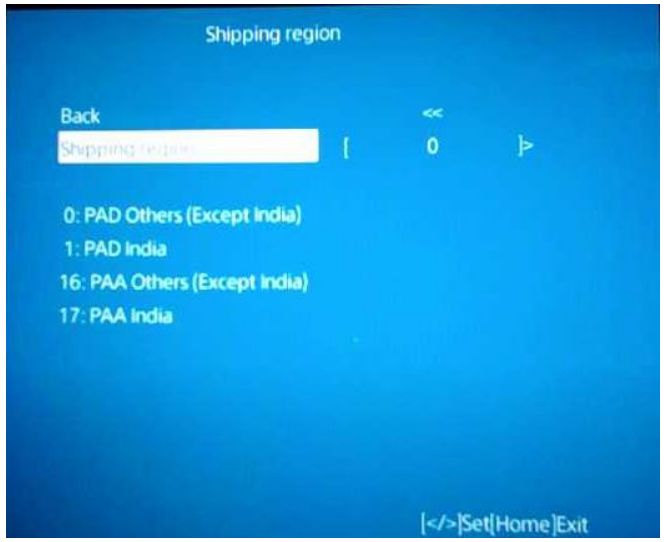




4.17 Option Bit (Shipping Region)

1) Go to “Shipping Region” and Press “→” or “←” button to select *region. (Region availability depends on SW pkg)





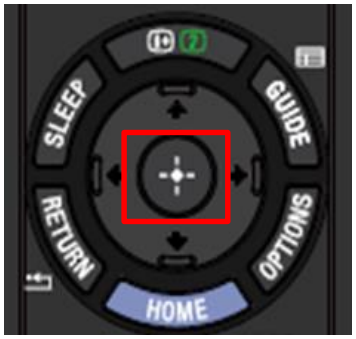
Region	Shipping region	Model
PA	0: PAD Others	KD-**X7000G
		KD-**X7077G
	17: PAA India	KD-**X7002G

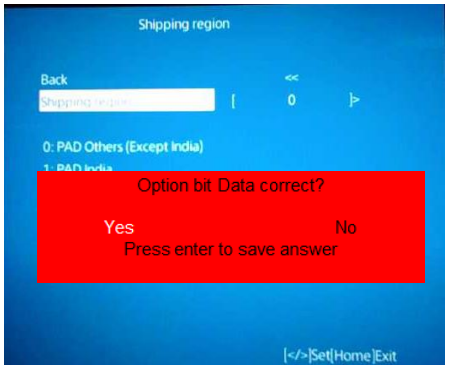
* = Don’t care value

<Important notice>

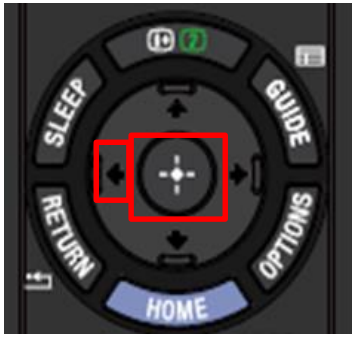
Please make sure correct Shipping region is selected. Shipping region change is only applicable for PA

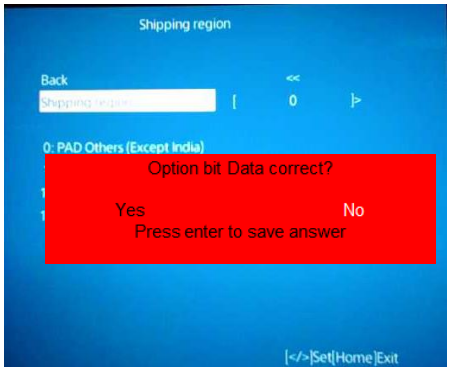
2) Press enter to confirm Region. Pop-up will display





3) Press “<“ to select “Yes” & press “Enter” to confirm.

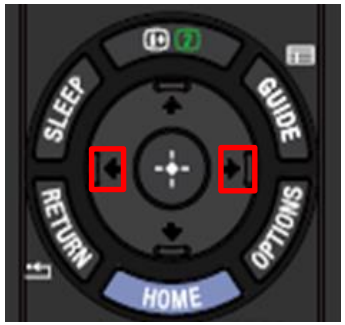




4) Pop-up will display & TV will reboot to reflect the new option bit setting.

4.17 Option Bit (Tuner ID)

1) In Tuner ID service mode, Press "↓" to select "Shipping Region" and Press "→" or "←" button to select *Tuner ID. (availability depends on SW pkg)



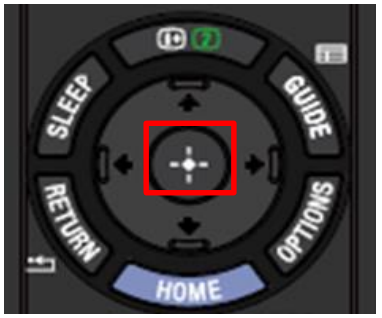
Region	Tuner ID	Model
EU	0: AEP-T2S2	KD-**XG70*4
		KD-**XG70*5
		KD-**XG70*6
		KD-**XG70*7
	1: AEP-T2	KD-**XG70*2
		KD-**XG70*3
	2: AEP-STD	KD-**XG70*0
PA	1: PA-ANA	KD-**X7002G KD-**X7077G
	2: PA-T2-LNA	KD-**X7000G

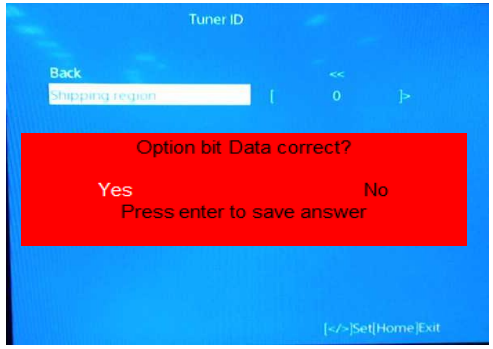
* = Don't care value

<Important notice>

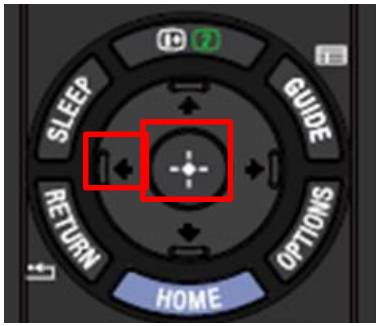
Please make sure to select correct Tuner ID based on Model information. Wrong tuner may cause TV to reboot

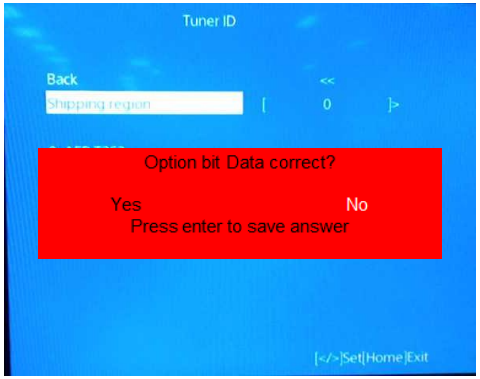
2) Press enter to confirm Tuner ID. Pop-up will display





3) Press "<" to select "Yes" & press "Enter" to confirm.





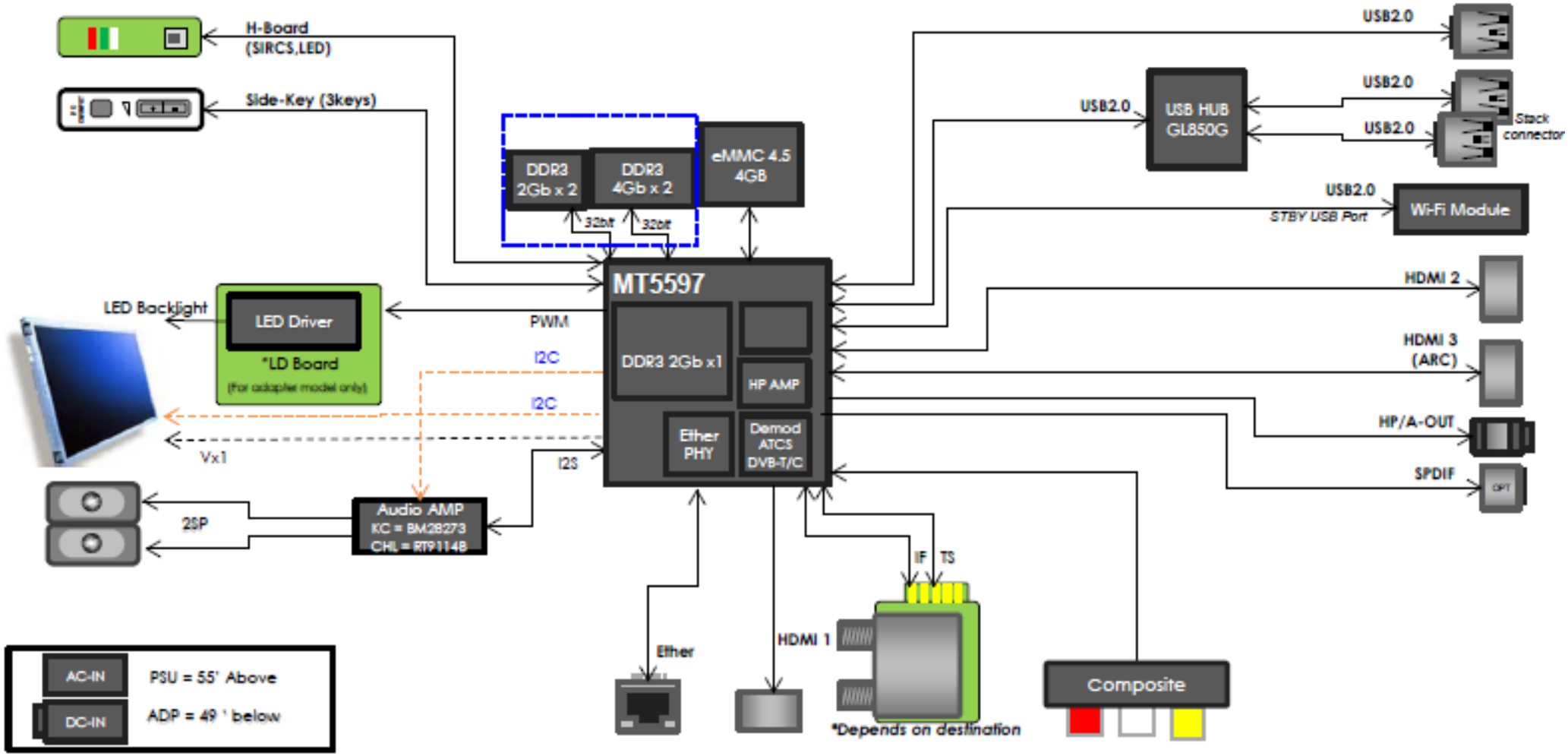
4) Pop-up will display & TV will reboot to reflect the new option bit setting.

SECTION 5
DIAGRAMS

Some control lines are left out.

5.1 SG 43/49/55/65 Block Diagram

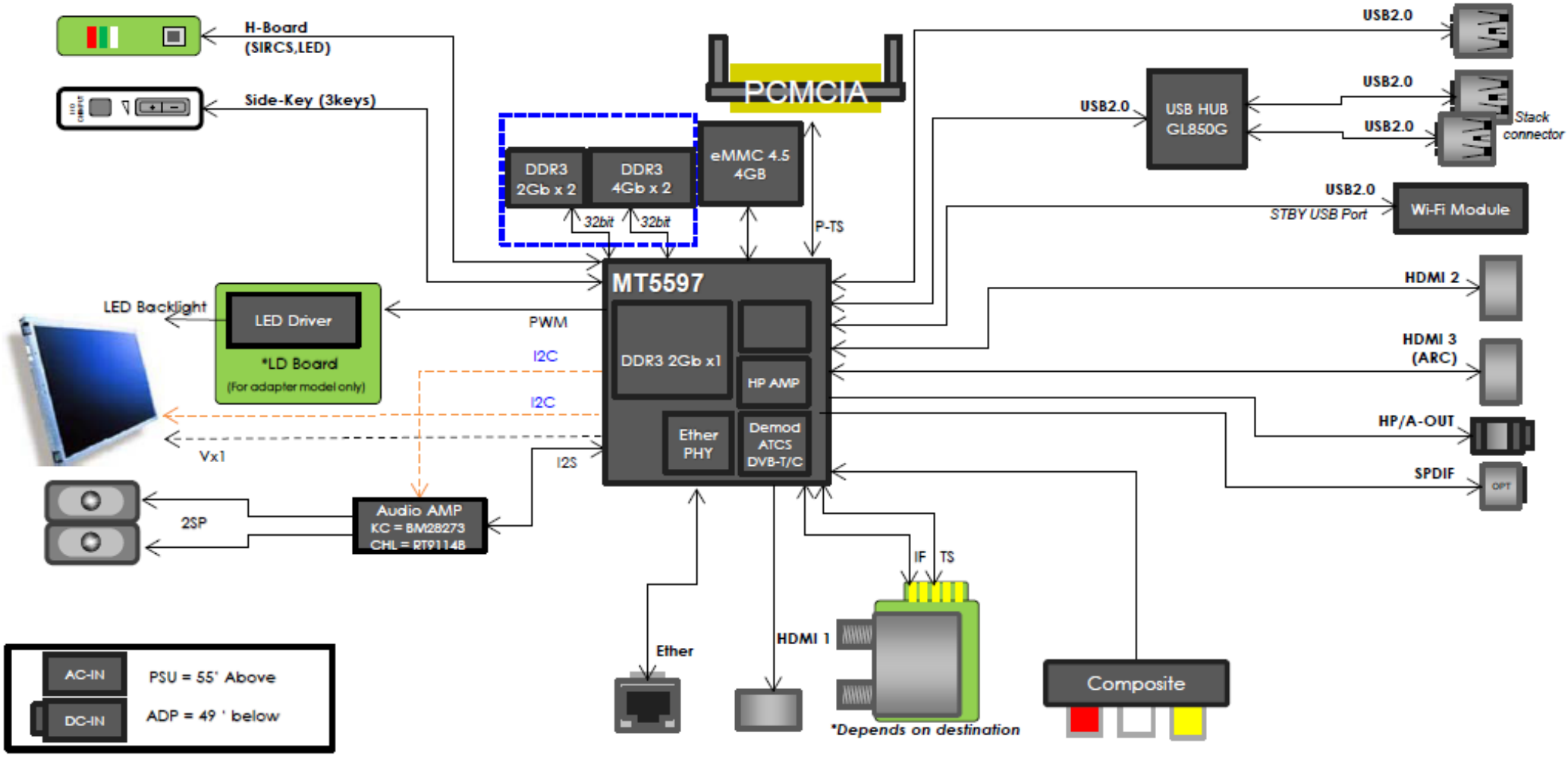
FY19 (SG)-4K (BB9 PWB for COL, BR, PAA, PAD, LA, PH, CH, TW)



Some control lines are left out.

5.1 SG 43/49/55/65 Block Diagram

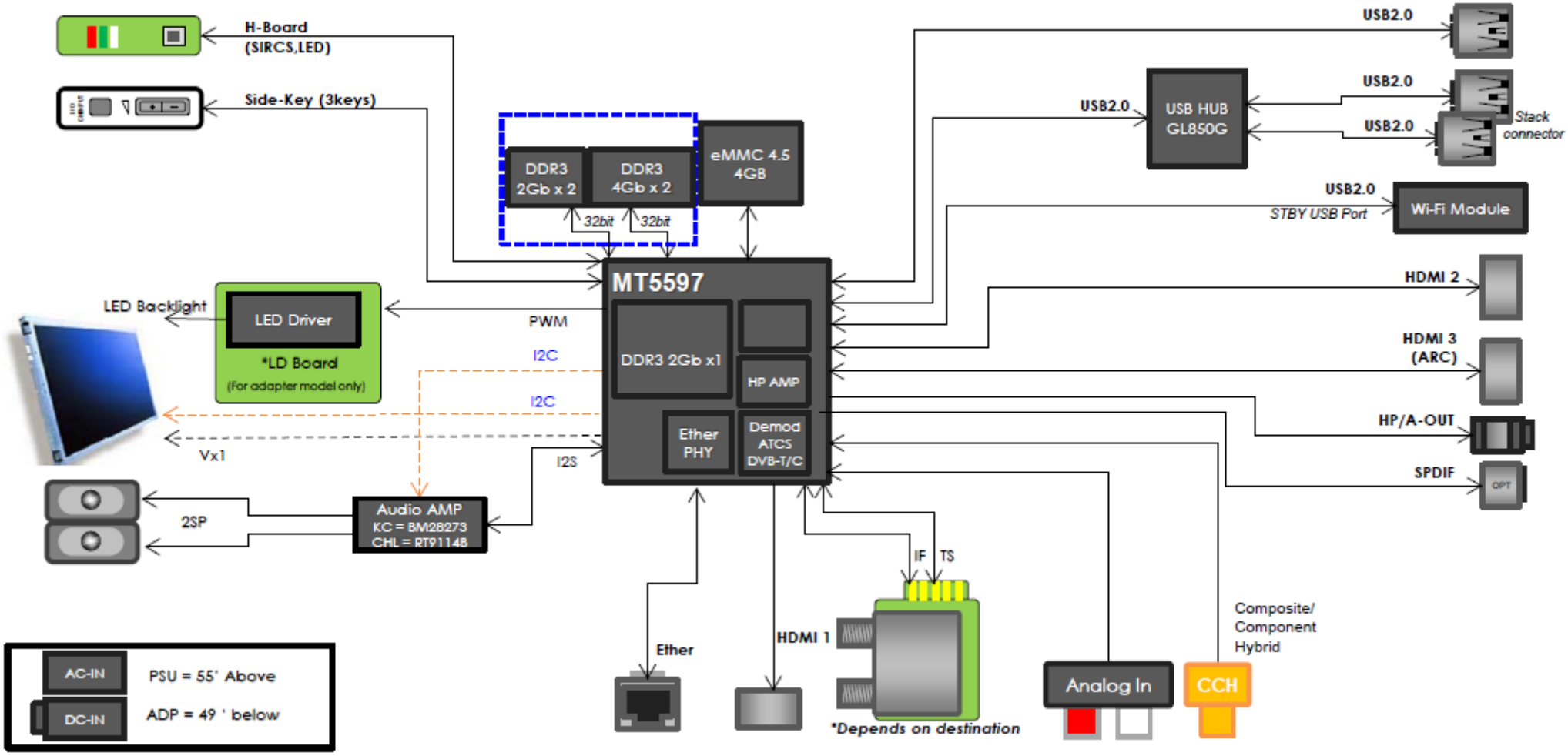
FY19 (SG)-4K (BB9 PWB for EU)



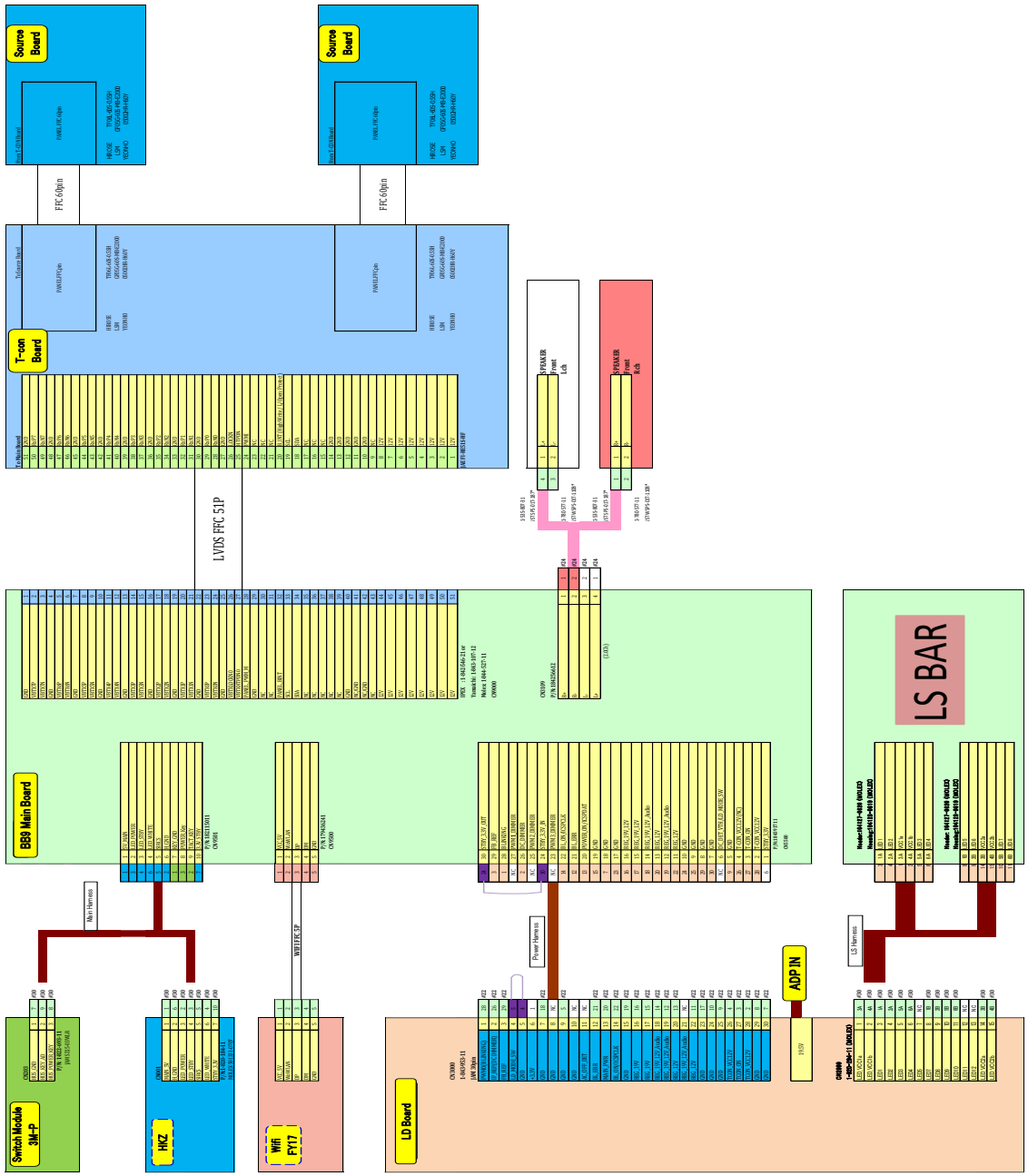
Some control lines are left out.

5.1 SG 43/49/55/65 Block Diagram

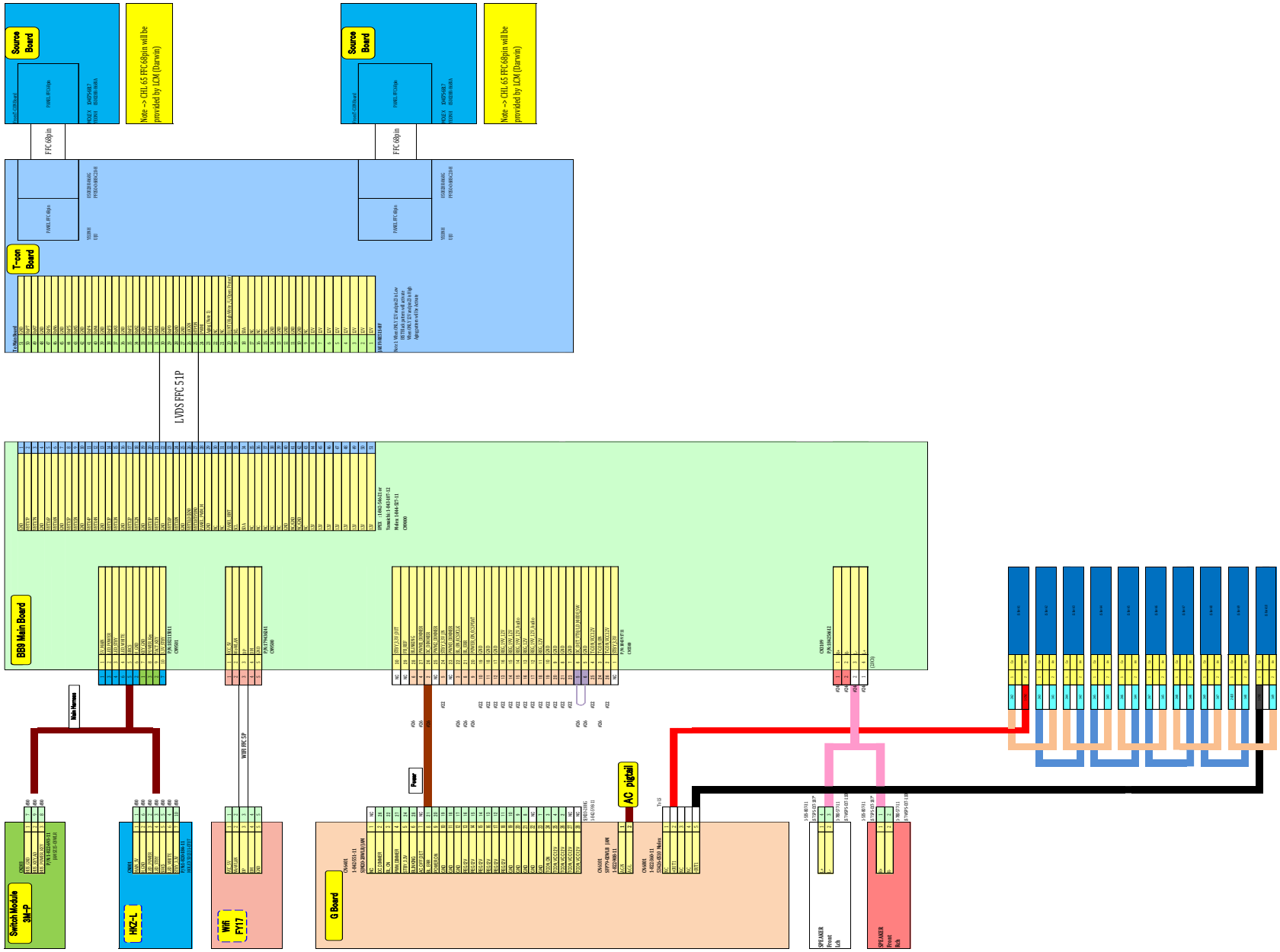
FY19 (SG)-4K (BB9 PWB for UC)



5.2 Connector Diagram
SG 43'/49'



5.2 Connector Diagram
SG 55’



5.2 Connector Diagram
SG 65’