

SAMSUNG

Mobile Device SM-A137F Common

SERVICE *Manual*

Contents

- Level 2 -

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1. SVC Tech Information

1-1. Calibration Items

- ‘O’ mark items must be calibrated after repairing/replacing each part.

TSP Cal.	-	Force Touch Cal.	-	Optical Finger print Cal.	-
Speaker Cal.	-	Digital Hall IC Cal.	-	TOF Camera Cal.	-
Water Resistance	-	Ranging Sensor Cal	-	UWB Cal	-
Multi Camera Cal.	O	mmWave RF Cal. (Only for USA/Japan)	-		

1-2. Part list which must be changed after reassembly

- No parts must to be changed after reassembly. (Hook Type)

1-3. JIG

- Common Jig : Camera Cal Jig(chart)
- UV protect film Jig : N/A (No protect film)

1-4. WRT Test Information

- It does not support water resistance. The test is not available.

1-5. AOD Setting Information

- It does not support AOD.

2. SVC Model Information

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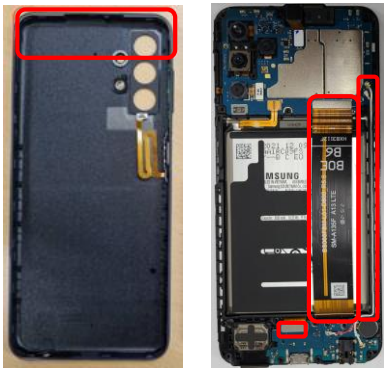
2-1. RAM & Storage size by region

Region	Model Code	Basic	Memory (RAM+ROM)	SIM	NFC	SKU
						Modifier
EUR	SM-A137F_EUR_XX	BSM-A137F/3D3N	3+32	DS	UICC	U
		BSM-A137F/6D4N	4+64	DS	UICC	V
		BSM-A137F/1D4N	4+128	DS	UICC	K
MEA	SM-A137F_MEA_MEA	BSM-A137F/6R4D	4+64	DS	X	G
		BSM-A137F/1R4D	4+128	DS	X	H

2. SVC Model Information

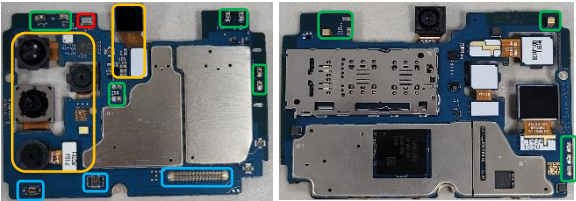
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2-2. Disassembly & Reassembly (Important management points)



When detaching Rear, check if there is any damage to flood prevention sponge at the top of the Rear.
Be careful with C2C FPCB, coaxial cable when assembling and disassembling.

Back-Glass



Check whether Camera Module, MIC module, Connector, Contact are damaged or not.



RCV disassembly hole

When disassembling RCV/MOT/SPK, Insert tweezers to each hole. Be careful not to touch the battery and not to peel the tape.

Do not reuse the RCV/SPK after it has been removed. It must be replaced with a new RCV/SPK.



Be careful with Finger print key Bracket(twist)/FPCB(damage), during assembly and disassembly.

2-3. Disassembly & Reassembly (Battery replacement)

Do not reuse the battery after it has been removed. It must be replaced with a new battery.

* Reusing a removed battery could lead to potential safety hazards

Type	Structure
Display Bracket Battery Inseparable part (Front Assy)	Display and Bracket are inseparable. Battery replacement is required when Front Assy components are defected.

3. Product Function

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3-1. Main Function

Item	Description
OS	Android V12.0 (R)
SM-A137F Network	2G - GSM : 850 / 900 / 1800 / 1900 3G - WCDMA : B1 / B5 / B8 4G - FDD : B1 / B3 / B5 / B7 / B8 / B20 / B28 - TDD : B38 / B40 / B41
Battery	5,000 mAh
Processor	MediaTek MT6769V/CTZA Octa-Core 2GHz, 1.8GHz 64bit
Connectivity	GPS, Glonass, Beidou, Galileo, QZSS, BT5.2, USB 2.0 Type-C, Wi-Fi 802.11 a/b/g/n/ac 2.4G+5GHz, NFC (Only for SM-A137F_EUR)
Camera	Rear Wide : 50MP, AF, F1.8 Ultra Wide : 5MP, FF, F2.2 Bokeh : 2MP, F2.4 Macro : 2MP, F2.4 Front : 8MP, FF, F2.2
Display	6.6" In-Cell Touch LCD PLS, 2408 x 1080 (FHD+)
SM-A137F_EUR RAM	3 / 4 B
SM-A137F_EUR ROM	32 / 64 / 128 GB
SM-A137F_MEA RAM	4 / 6 GB
SM-A137F_MEA ROM	64 / 128 GB
Sensor	Accelerometer, Finger print Sensor, Geomagnetic Sensor, Virtual Light Sensing, Virtual Proximity Sensing

4. Exploded View and Parts List

4-1. Electronical Part List

: Refer to '[01-SM-A137F_Common_Main Part List](#)' file which uploaded separately

4-2. Cellular phone Exploded View

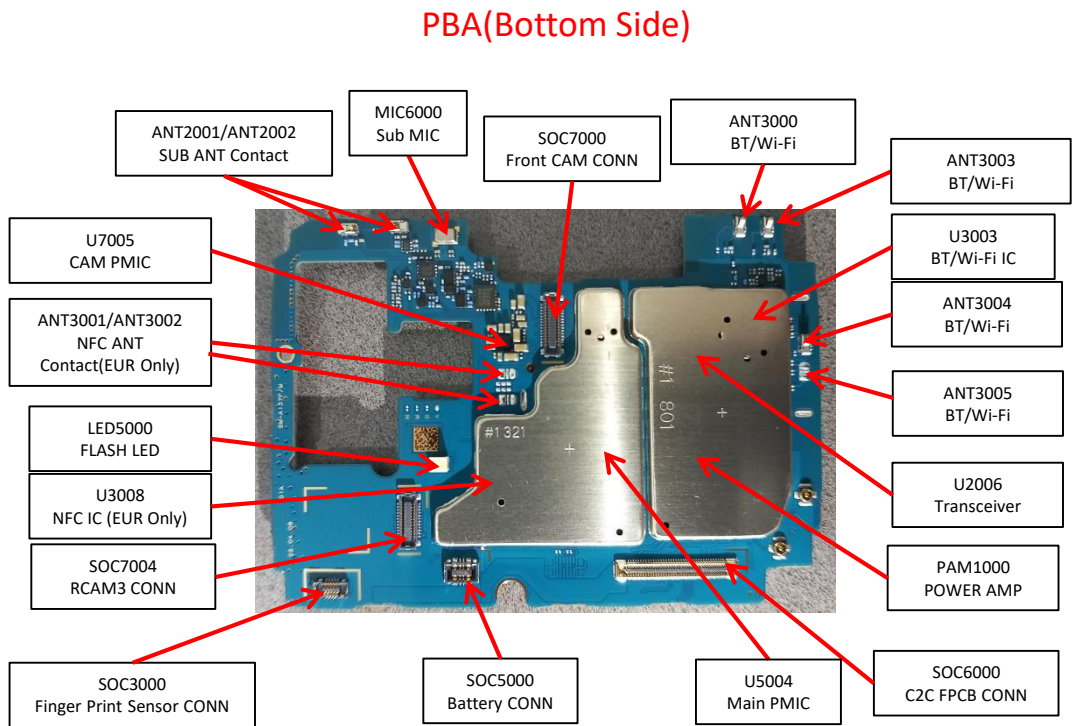
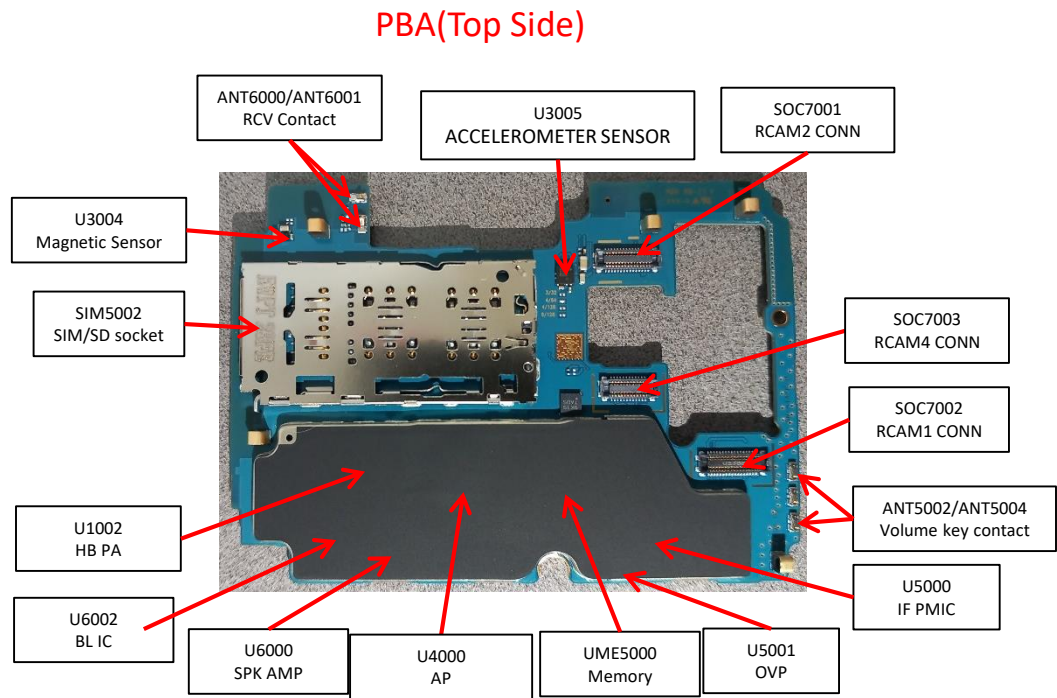
: Refer to '[02-SM-A137F_Common_Exploded View](#)' file which uploaded separately

4-3. Cellular phone Parts list

: Refer to SVC PPL

5. Components Layout

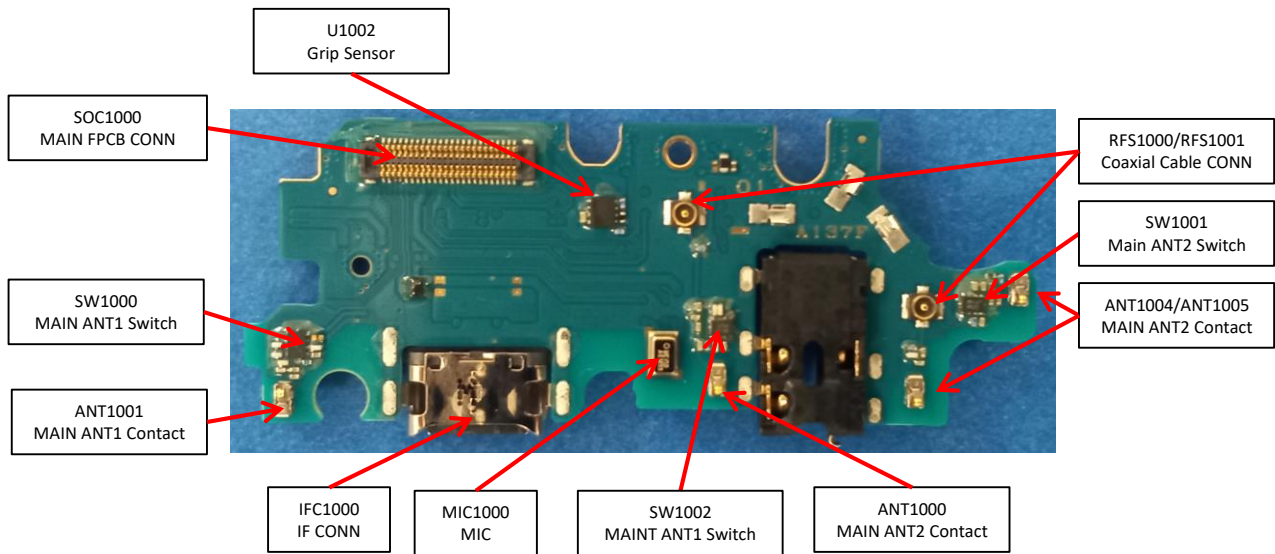
5-1. Components Layout



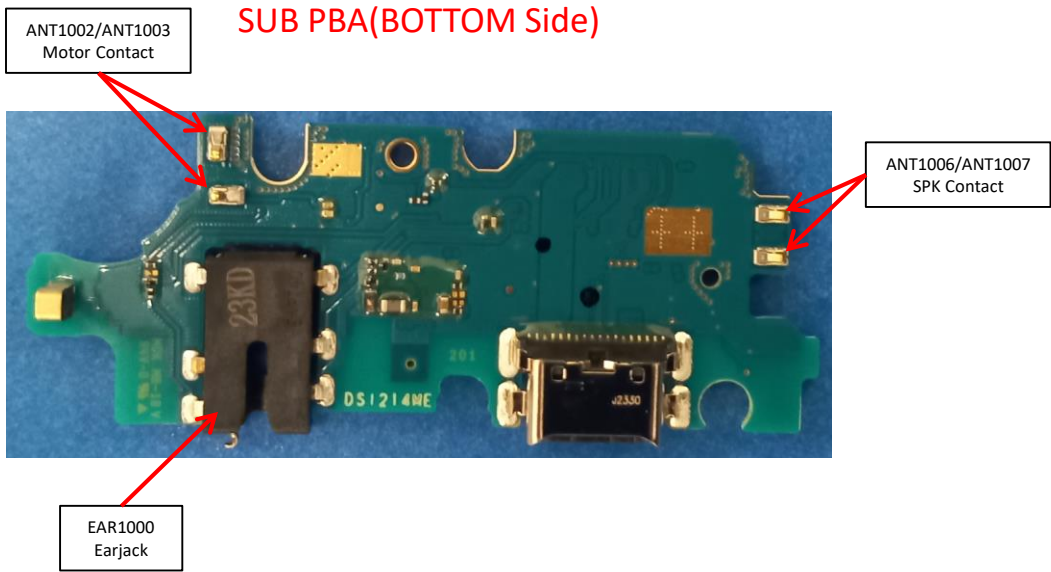
5. Components Layout

5-1. Components Layout

SUB PBA(Top Side)



SUB PBA(BOTTOM Side)



6. Trouble Shooting (L2)

6-1 Display

6-2 Touch

6-3 Power, Charging

6-4 Camera

6-5 Audio

6-6 Sensor

6-7 Connectivity (Wi-Fi, GPS, NFC)

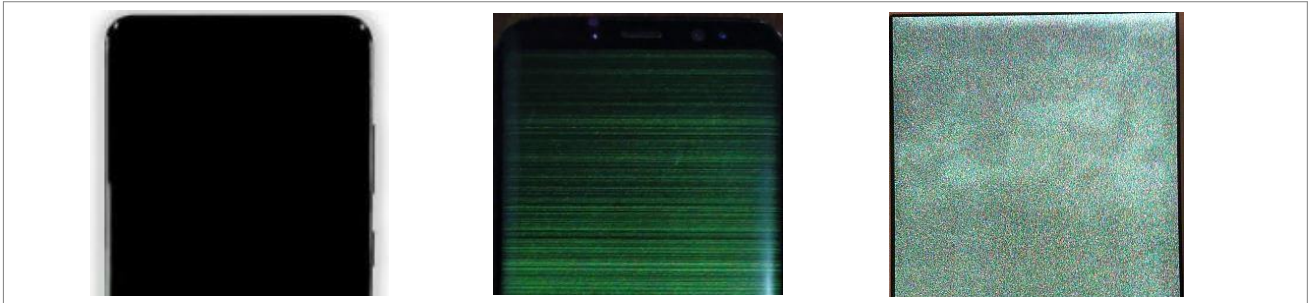
6-8. No SVC

6-9. USIM

6-1. Display

6-1-1. Black Display

- 1) Symptom
- Description : No display after power on. Temporary no display or dimmed display



- 2) Defect Decision Conditions
- Noised images on the screen after turning on

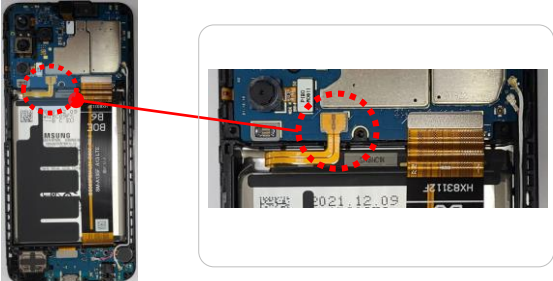
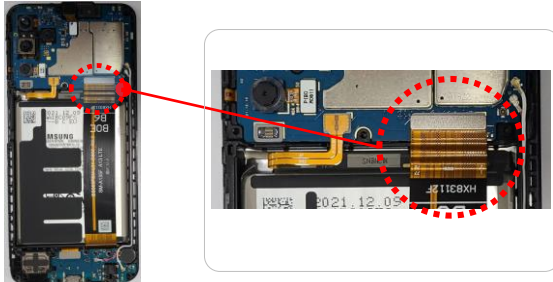
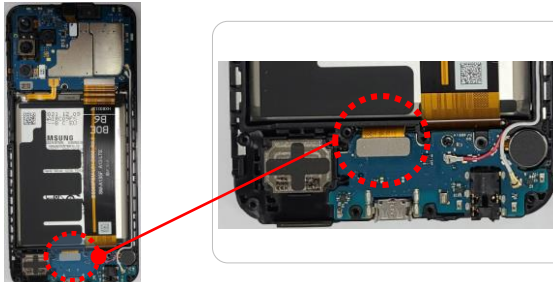
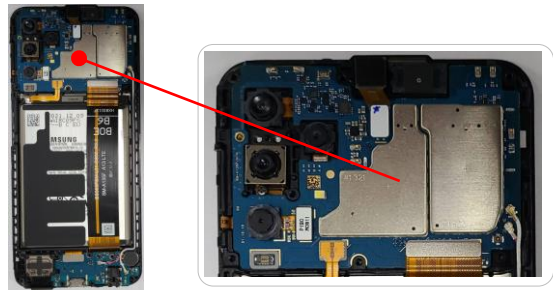
- Check booting sound and no vibration .

- 3) Repair Guide
- **Caution : Disconnect battery connector first when it shows.**

Image	Description
	1. Check the charging notification sound or vibration when connected to charger. - Should be no sound and no vibration. - The device keep 'No display' status.
[Disassemble Jig]	2. Disassemble the device. - Refer to '<u>Disassembly and assembly video guide for Galaxy A13</u>' from the GSPN.
Water indicator tripped USB charging port burnt	3. Check the disassembled device for OOW. - Water damage. - Part burnt. (Charging port, PBA, Battery and others) - Broken traces and others.

6-1. Display

6-1-1. Black Display

Image	Description
	[Attention] 4. Disconnect Battery Connector at first.
	5. Check the 'PBA <=> Display' connector and connect it again when it connected improperly. After that, connect battery connector again and check the display.
	6. Check the SUB connector and connect it again when it connected improperly. After that, connect battery connector again and check the display.
	7. Exchange the display module with new one and check the device.
	8. If the device is working normally after removing the capacitor, exchange it with new capacitor. If not, exchange the PBA.

6-1. Display

6-1-2. Bit defect (Horizontal line) (L2)

- 1) Symptom
- Description : Bit defect(Horizontal line) after power on.



- 2) Defect Decision Conditions
- Description : Even if the screen changes or the device reboots, the bit failure phenomenon remains.

- 3) Repair Guide
- **Caution** : First of all, check if there is any damage of external impact on the device.

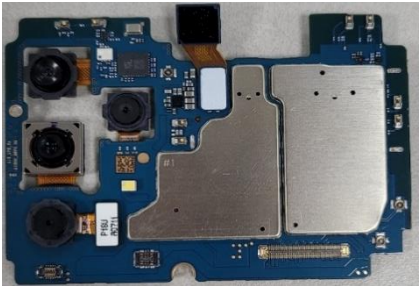
Image	Description
 * Checking external damage of the device	1. Check if there is any damage of external impact on the device. (especially, Front Window)
 [Disassemble Jig]	2. Disassemble the device. - Refer to ' Disassembly and assembly video guide for Galaxy A13 ' from the GSPN.
	3. Exchange the display module with new one and check the device.

6-1-3. Screen overlap / shaking / flicker (L2)

- 1) Symptom
- Description : Screen overlap / shaking / blinking after power on. Temporary symptom or continuous maintenance.



- 2) Defect Decision Conditions
- Description : You can see that symptom when something is changed or something is played on the screen of device. (ex : contents of Youtube[Mosaic Pattern], swap menu block on screen [ICON Crack])
- 3) Repair Guide
- Caution : Disconnect battery connector first when it shows.

Image	Description
 [Disassemble Jig]	1. Disassemble the device. - Refer to '<u>Disassembly and assembly video guide for Galaxy A13</u>' from the GSPN.
	2. Exchange the display module with new one and check the device.
	3. If not, finally, exchange the PBA with new one and check the device.

6-2-1. Abnormal Touch(Ghost touch)

1) Symptom

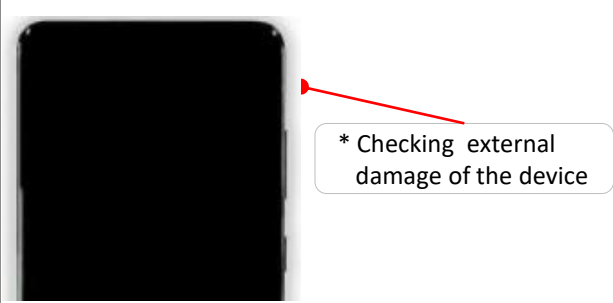
- Description : Abnormal touch(Ghost touch)

2) Defect Decision Conditions

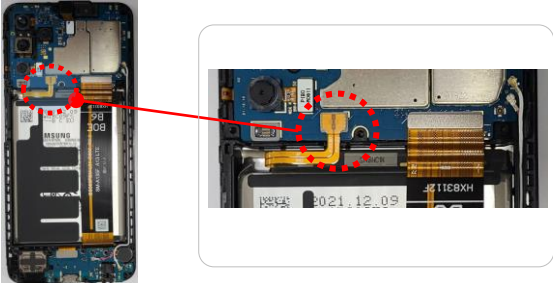
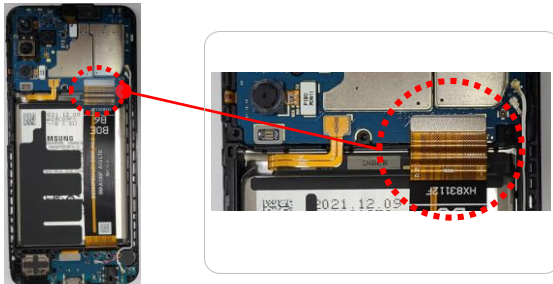
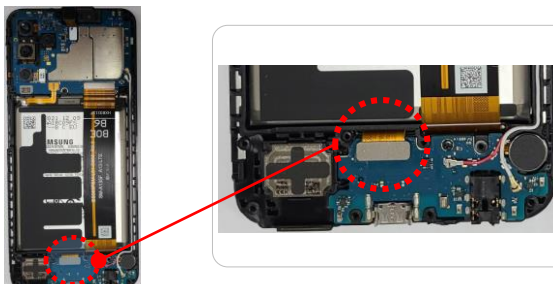
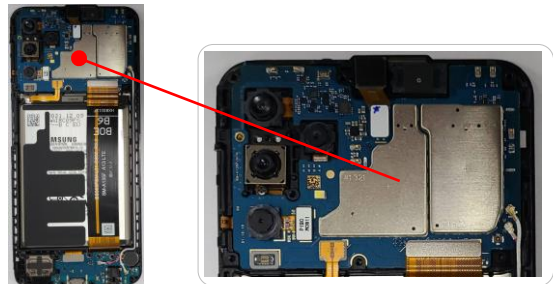
- Description : Abnormal touch(Ghost touch)

3) Repair Guide

- Caution : First of all, check if there is any damage of external impact on the device.

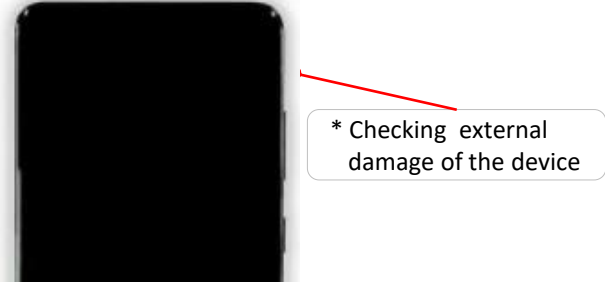
Image	Description
	1. Check if there is any damage of external impact on the device. (especially, Front Window)
	2. Input key string *#2663#, click TSP FW update(General). After that, check the *#0*# tsp test. If the touch test is not work normally, check the next step.
 [Disassemble Jig]	3. Disassemble the device. - Refer to '<u>Disassembly and assembly video guide for Galaxy A13</u>' from the GSPN.

6-2-1. Abnormal Touch(Ghost touch)

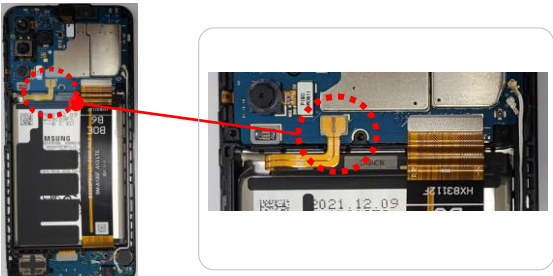
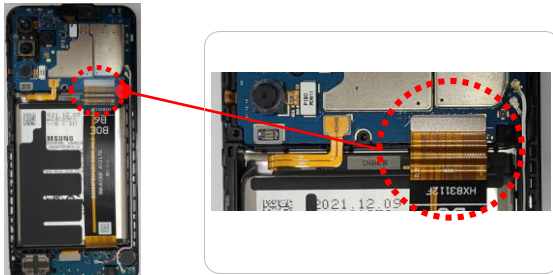
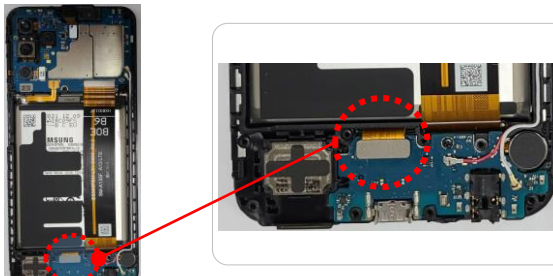
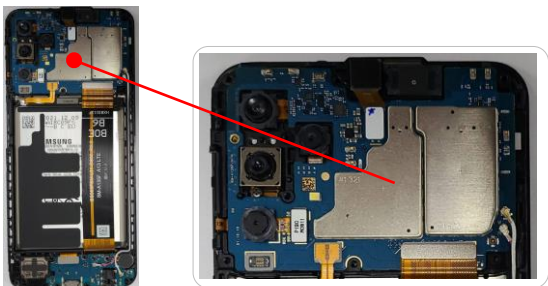
Image	Description
	[Attention] 4. Disconnect Battery Connector at first.
	5. Check the 'PBA ↔ Display' connector and connect it again when it connected improperly. After that, connect battery connector again and check the display.
	6. Check the SUB connector and connect it again when it connected improperly. After that, connect battery connector again and check the display.
	7. Exchange the display module with new one and check the device.
	8. If the device is working normally after removing the capacitor, exchange it with new capacitor. If not, exchange the PBA.

6-2-3. No Touch

- 1) Symptom
 - Description : No touch
- 2) Defect Decision Conditions
 - Description : No Touch
- 3) Repair Guide
 - **Caution : First of all, check if there is any damage of external impact on the device.**

Image	Description
	1. Check if there is any damage of external impact on the device. (especially, Front Window)
 [Disassemble Jig]	2. Disassemble the device. - Refer to ' <u>Disassembly and assembly video guide for Galaxy A13</u> ' from the GSPN.

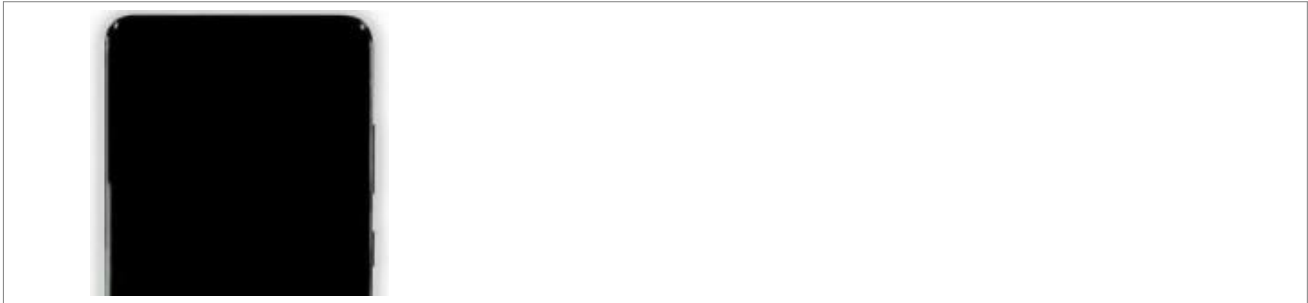
6-2-3. No Touch

Image		Description
		[Attention] 3. Disconnect Battery Connector at first.
		4. Check the 'PBA <=> Display' connector and connect it again when it connected improperly. After that, connect battery connector again and check the display.
		5. Check the SUB connector and connect it again when it connected improperly. After that, connect battery connector again and check the display.
		6. Exchange the display module with new one and check the device.
		7. If the device is working normally after removing the capacitor, exchange it with new capacitor. If not, exchange the PBA.

6-3. Power, Charging

6-3-1. No Power

- 1) Symptom
 - Description : No display & vibration after press power key.



- 2) Defect Decision Conditions
 - Description : The phone no any display & vibration after booting.

- 3) Repair Guide
 - **Caution : Disconnect battery connector first when it shows.**

Image	Description
	1. Check the charging notification sound or vibration when connected to charger. - Should be no sound and no vibration. - The device keep 'No Power' status.
[Disassemble Jig]	2. Disassemble the device. - Refer to '<u>Disassembly and assembly video guide for Galaxy A13</u>' from the GSPN.
Water indicator tripped USB charging port burnt	3. Check the disassembled device for OOW. - Water damage. - Part burnt. (Charging port, PBA, Battery and others) - Broken traces and others.

6-3. Power, Charging

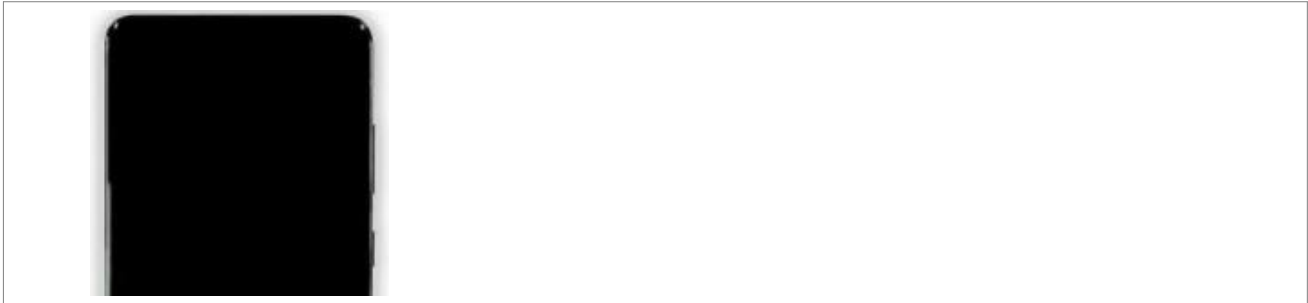
6-3-1. No Power

Image	Description
	1. Check battery voltage at first 1&2 pin : Battery voltage, 7&8 pin : GND (There is no passive material check point outside of shield can) It's normal over 3.5v. If battery voltage is under 3.5v, charge the phone with charger.
	2. Check the 'PBA ↔ Battery' connector(SOC5000) and connect it again when it connected improperly. After that, check to turn on the phone.
	3. Check the 'PBA ↔ Power key ' contact pin(SOC3000) and clean the contact pin/pad when there is a foreign object. After that, check to turn on the phone.
	4. Check the 'PBA ↔ LCD ' connector(SOC6000) and connect it again when it connected improperly. After that, check to turn on the phone.
	5. Exchange the display module with new one and check the device.

6-3. Power, Charging

6-3-2. Reboot during Power on(L2)

- 1) Symptom
 - Description : reboot during power on



- 2) Defect Decision Conditions
 - Description : The phone is rebooting during power on.

- 3) Repair Guide
 - **Caution : Disconnect battery connector first when it shows.**

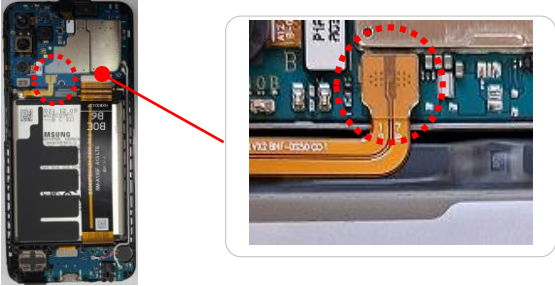
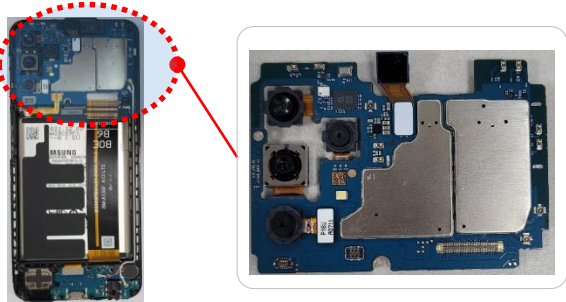
Image	Description
	1. Check power on current with Power Supply and ANYWAY JIG.
	2-1. Push down Anyway Jig switch 7,8 2-2. Power supply set to 4.5v ↑ 2-3. During booting, check current. If the current consumed by the set is not displayed, proceed to step 3.
	3. Disassemble the device. - Refer to ' Disassembly and assembly video guide for Galaxy A13 ' from the GSPN.

[Disassemble Jig]

6-3. Power, Charging

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6-3-2. Reboot during Power on

Image	Description
	4. check the battery connector connection and battery condition.
	5. If not, replace PBA.

6-3. Power, Charging

6-3-3. Sudden Discharge in the idle state (L2)

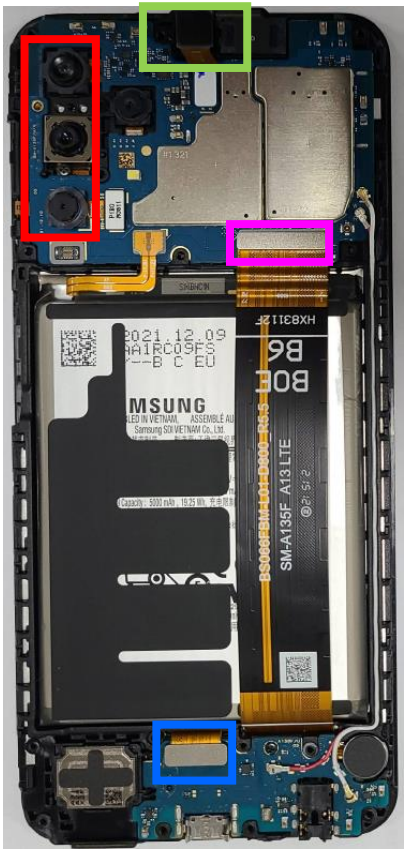
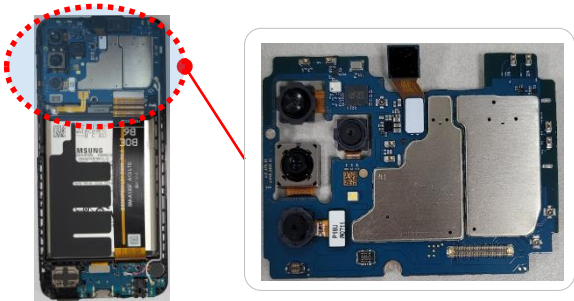
- 1) Symptom
- Description : Battery level decreases rapidly in the idle state.
- 2) Defect Decision Conditions
- Description : Battery level decreases rapidly in the idle state by abnormal current consumption.

3) Repair Guide

Image	Description
	1. Check Power-off leakage current. 1-1. Push down Anyway Jig switch 6,7,8 1-2. Check Power-off leakage current.
	2-1. Check sleep current. . Push down Anyway Jig switch 7,8 . After booting, Check sleep current. 2-2. Check $-1\text{mA} \leq \text{Power-off leakage} \leq 2\text{mA}$ 2-3. Check sleep current $\leq 10\text{mA}$
 [Disassemble Jig]	3. Disassemble the device. - Refer to '<u>Disassembly and assembly video guide for Galaxy A13</u>' from the GSPN.

6-3. Power, Charging

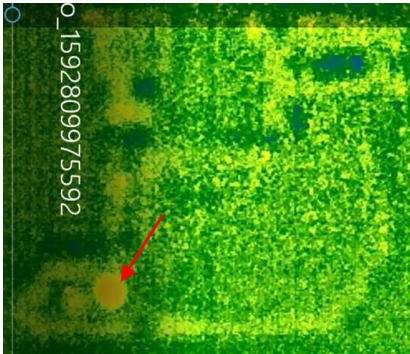
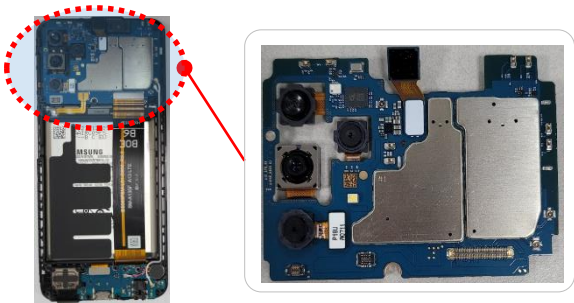
6-3-3. Sudden Discharge in the idle state (L2)

Image	Description
	4-1. If there is a thermal camera, check if there is a hot part and replace the hot part. 4-2. If there isn't a thermal camera OR you can't find a hot part, detach the following parts one by one and recheck the leakage current. (4 Rear CAMs, VT CAM, Con-to-con FPCB, IF Sub FPCB) 4-3. If leakage current goes down by detaching the part, replace the detached part by normal one.
	5. If leakage current doesn't go down OR the hot part can't be replaced, replace the PBA.

6-3. Power, Charging

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6-3-3. Sudden Discharge in the idle state

Image	Description
	6-1. If there is a thermal camera, check if there is a hot part on PCB in the idle state and replace the hot part.
	(Thermal camera sample image) Search where the hotspot appears.
	6-2. If there isn't a thermal camera OR you can't find a hot part OR the hot part can't be replaced, replace the PBA.

6-4-1. Entry Fail(Front Camera) (L2)

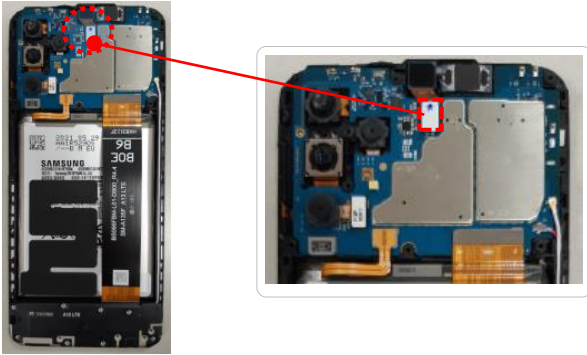
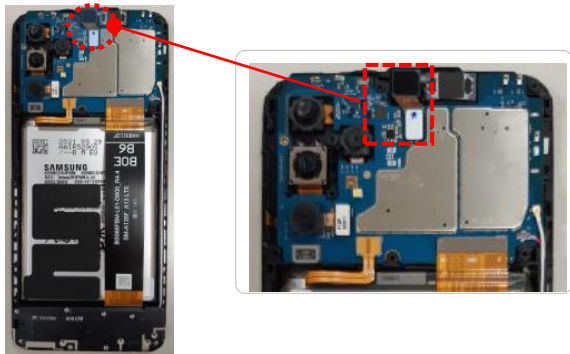
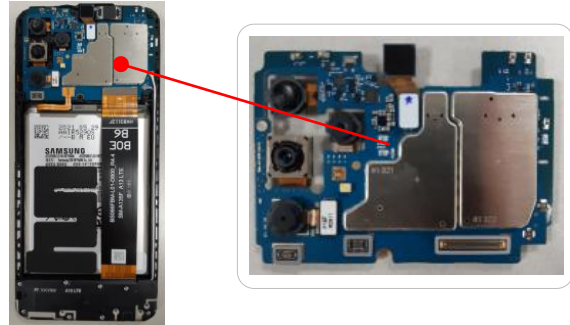
- 1) Symptom
- Description : Black display and can't turn on the front camera



- 2) Defect Decision Conditions
- Description : Black display instead of preview image or return to home screen
- 3) Repair Guide
- Caution : Disconnect battery connector first when it shows.

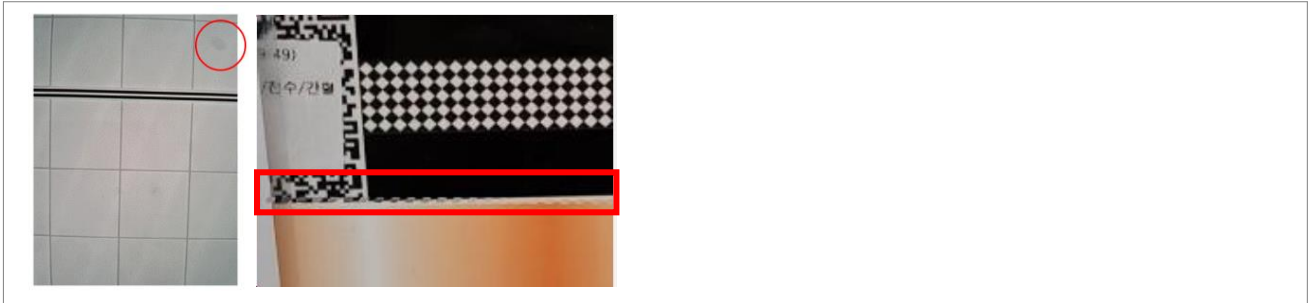
Image	Description
	1. Execute Front Cam test of *#0*#.
[Disassemble Jig]	2. Disassemble the device. - Refer to ' Disassembly and assembly video guide for Galaxy A13 ' from the GSPN.
	[Attention] 3. Disconnect Battery Connector at first.

6-4-1. Entry Fail(Front Camera)

Image	Description
	4. Check if the connector is disengaged at first.
	5. If connector is okay, replace the camera module with new one and check the device. (SOC7000)
	6. If not, finally, exchange the PBA.

6-4-2. Abnormal Preview(Front Camera) (L2)

- 1) Symptom
- Description : Abnormal display of front camera

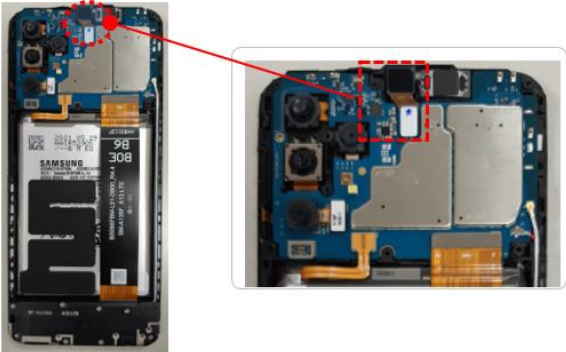


- 2) Defect Decision Conditions
- Description : Blemishes or dots on image

- 3) Repair Guide
- Caution : Disconnect battery connector first when it shows.

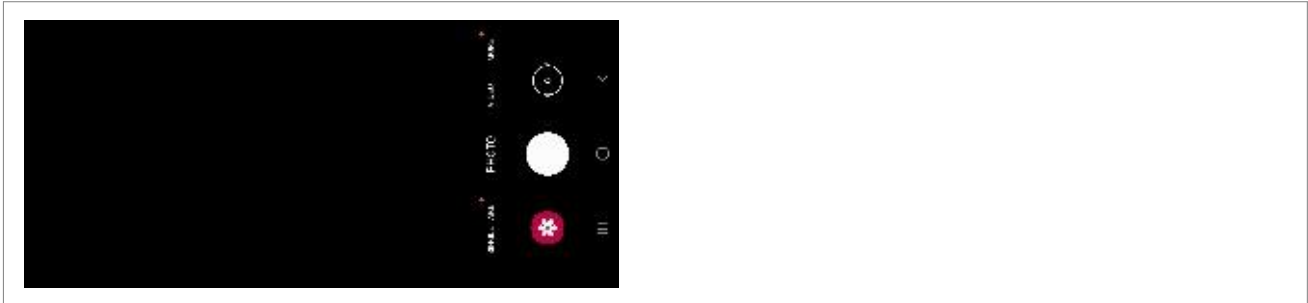
Image	Description
	1. Check the camera hole. - Should be clean and no particle.
[Disassemble Jig]	2. Disassemble the device. - Refer to ' Disassembly and assembly video guide for Galaxy A13 ' from the GSPN.
	[Attention] 3. Disconnect Battery Connector at first.

6-4-2. Abnormal AF(Front Camera)

Image	Description
	4. Replace the camera module with new one and check the device. (SOC7000)

6-4-3. Entry Fail(Rear Camera)

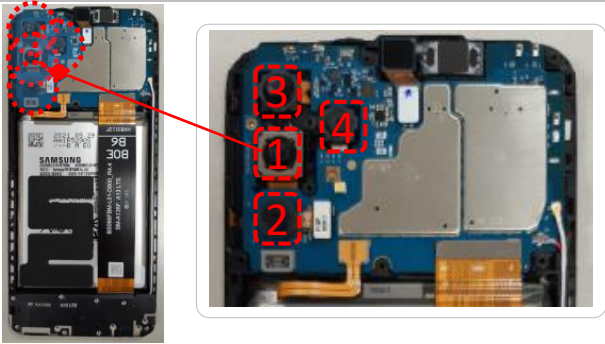
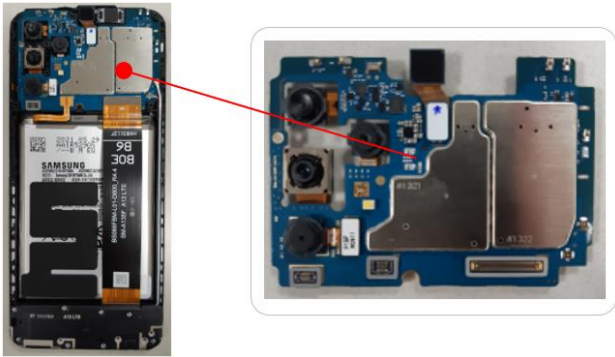
- 1) Symptom
- Description : Black display and can't turn on the rear camera



- 2) Defect Decision Conditions
- Description : Black display instead of preview image or return to home screen
- 3) Repair Guide
- Caution : Disconnect battery connector first when it shows.

Image	Description
	1. Execute Mega cam test of *#0*# to figure out which camera has defect. - Rear1 : Wide camera - Rear2 : Ultra wide camera - Rear3 : Bokeh camera - Rear4 : Macro camera
[Disassemble Jig]	2. Disassemble the device. - Refer to 'Disassembly and assembly video guide for Galaxy A13' from the GSPN.
	[Attention] 3. Disconnect Battery Connector at first.

6-4-3. Entry Fail(Rear Camera)

Image		Description
		4. Check if the connector is disengaged at first. If connector is okay, replace the camera module with new one and check the device. - Rear1 : Wide camera - Rear2 : Bokeh camera - Rear3 : Ultra wide camera - Rear4 : Macro camera
		5. If the device is not working normally with new capacitors, exchange the PBA.

6-4-4. Abnormal AF (Rear Camera)

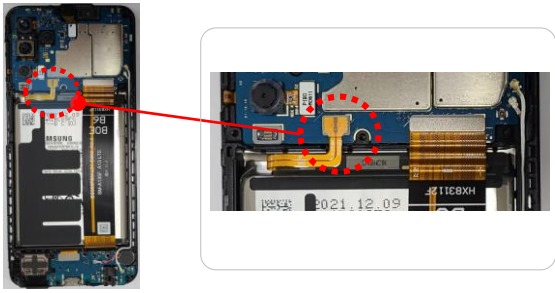
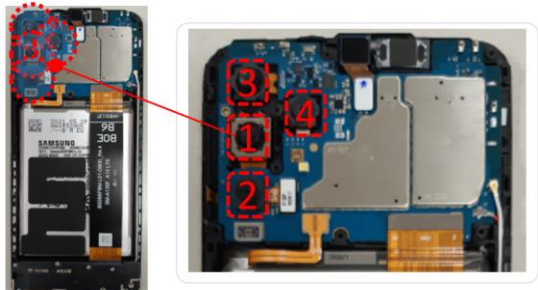
- 1) Symptom
- Description : Out of focus for rear camera



- 2) Defect Decision Conditions
- Description : The image of rear camera is out of focus.
- 3) Repair Guide
- **Caution : Disconnect battery connector first when it shows.**

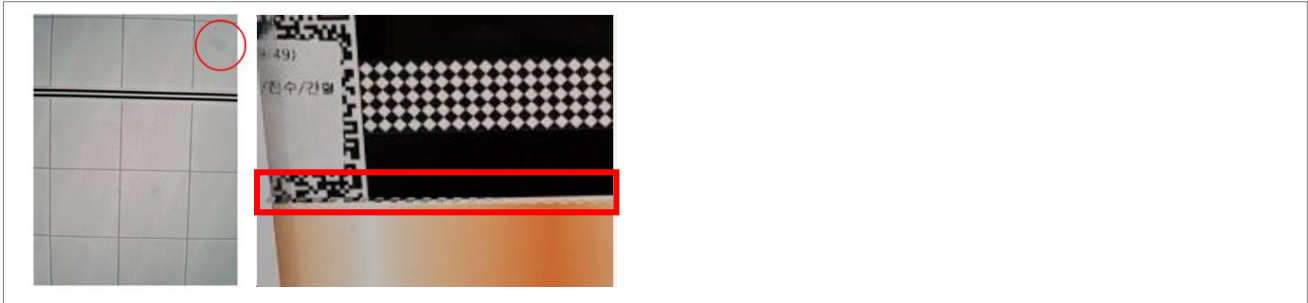
Image	Description
	1. Check the camera deco glass. - Should be clean and no particle.
	2. Execute Mega cam test of *#0*# to figure out which camera has defect. - Rear1 : Wide camera - Rear2 : Ultra wide camera - Rear3 : Bokeh camera - Rear4 : Macro camera
[Disassemble Jig]	3. Disassemble the device. - Refer to 'Disassembly and assembly video guide for Galaxy A13' from the GSPN.

6-4-4. Abnormal AF(Rear Camera)

Image	Description
	[Attention] 4. Disconnect Battery Connector at first.
	5. Replace the camera module with new one and check the device. - Rear1 : Wide camera - Rear2 : Bokeh camera - Rear3 : Ultra wide camera - Rear4 : Macro camera
	6. If the device is not working normally with new resistors, exchange the PBA.

6-4-5. Abnormal Preview(Rear Camera) (L2)

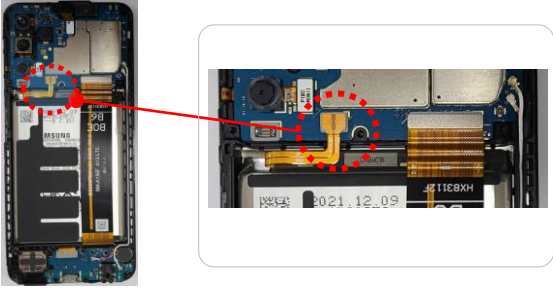
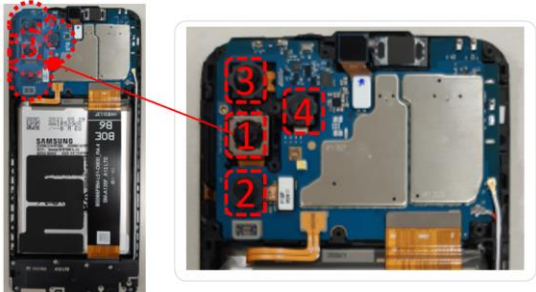
- 1) Symptom
- Description : Abnormal display of rear camera



- 2) Defect Decision Conditions
- Description : Blemishes or dots on image
- 3) Repair Guide
- Caution : Disconnect battery connector first when it shows.

Image	Description
	1. Check the camera deco glass and lens. - Should be clean and no particle.
	2. Execute Mega cam test of *#0*# to figure out which camera has defect. - Rear1 : Wide camera - Rear2 : Ultra wide camera - Rear3 : Bokeh camera - Rear4 : Macro camera
[Disassemble Jig]	3. Disassemble the device. - Refer to 'Disassembly and assembly video guide for Galaxy A13' from the GSPN.

6-4-5. Abnormal Preview(Rear Camera) (L2)

Image	Description
	[Attention] 4. Disconnect Battery Connector at first.
	5. Replace the camera module with new one and check the device. - Rear1 : Wide camera - Rear2 : Bokeh camera - Rear3 : Ultra wide camera - Rear4 : Macro camera

6-5-1. SPK sound abnormal

1) Symptom

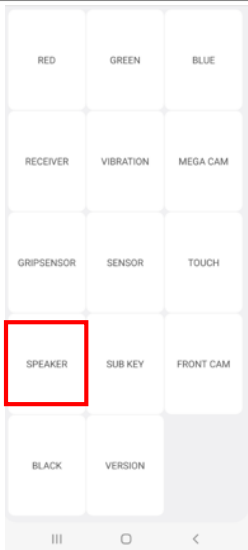
- Description : SPK sound is low/abnormal

2) Defect Decision Conditions

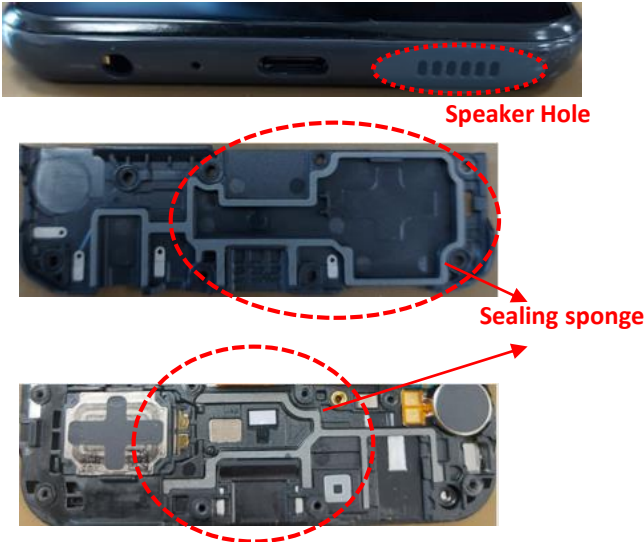
- Description : The phone sounds abnormally

3) Repair Guide

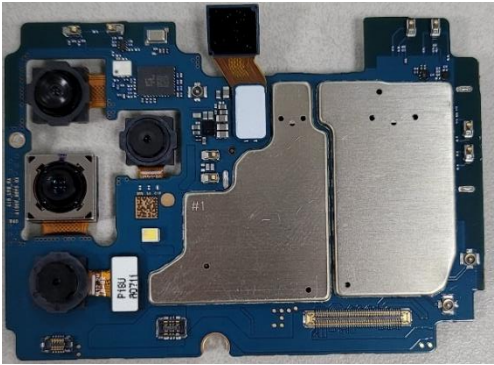
- **Caution : Disconnect battery connector first when it shows.**

Image	Description
	1. Execute Speaker test of *#0*# to figure out.
 [Disassemble Jig]	2. Disassemble the device. - Refer to ' <u>Disassembly and assembly video guide for Galaxy A13</u> ' from the GSPN.

6-5-1. SPK sound abnormal

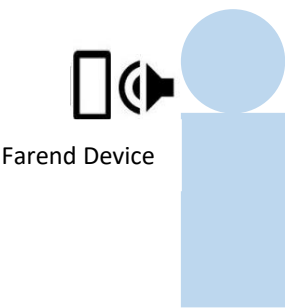
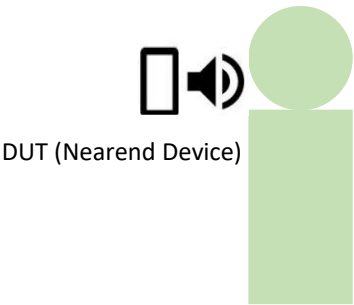
Image	Description
 SPK	Refer to the SPK location.
 Speaker Hole Sealing sponge	3. Check SPK Hole and sealing sponge and if it is ok, change to new SPK module.

6-5-1. SPK sound abnormal

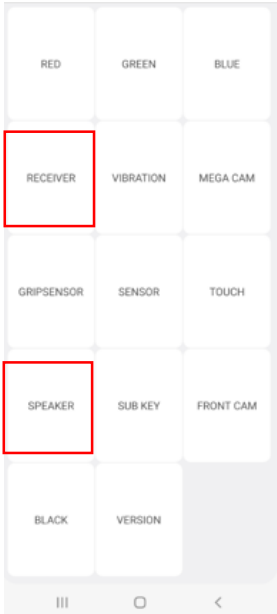
Image	Description
	4. If the device is not working normally after exchanging it, exchange Main PBA .

6-5-2. Rx Voice mute

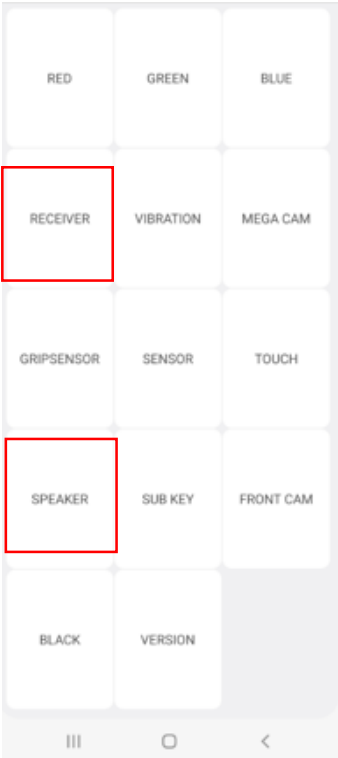
- 1) Symptom
- Description : While calling, Rx voice is mute.
- 2) Defect Decision Conditions
- Description : A person who is calling with a nearend device can't hear Rx voice.



3) Repair Guide

Image	Description
	1. RCV Call Speaker test (Problem in Handset mode) - *#0*# - Select : RECEIVER - Check the problematic receiver. 1-2. SPK Call Speaker test (Problem in Handsfree mode) - *#0*# - Select : SPEAKER - Check the problematic speaker.
 [Disassemble Jig]	If there wasn't no sound from SPK 2. Disassemble the device. - Refer to 'Disassembly and assembly video guide for Galaxy A13' from the GSPN.

6-5-2. Rx Voice mute

Image	Description
RECEIVER   SPEAKER	3. Swap the SPK or RECEIVER modules to the normal samples.
	4. RECEIVER test - *#0*# - Select : RECEIVER - Check the receiver sound 5. SPEAKER test - *#0*# - Select : SPEAKER - Check the speaker sound

6-5-3. Rx Voice swing/low/noise

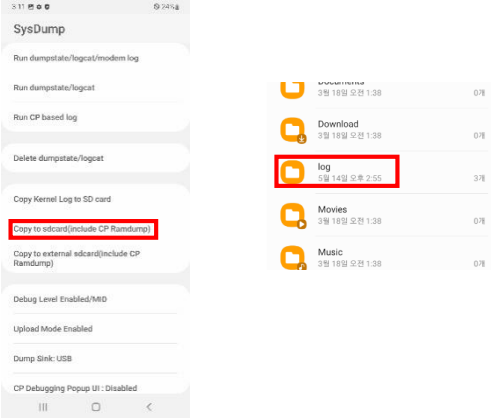
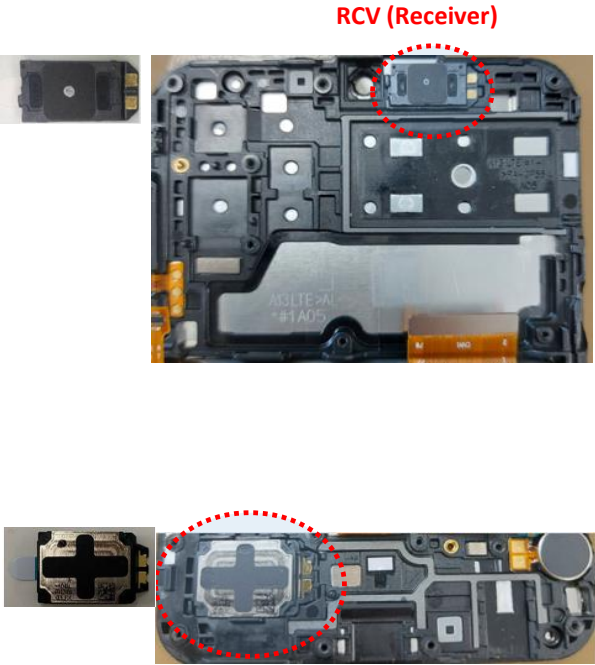
- 1) Symptom
- Description : While calling, Rx voice is swinging, low or noisy.
- 2) Defect Decision Conditions
- Description : A person who is calling with a nearend device can hear something wrong in Rx voice.
(voice is swinging, low or noisy)



3) Repair Guide

Image	Description
The screenshot shows the 'Loopback Test' menu with four options: 'Start : RCV_1stMic', 'Start : SPK_2ndMic', 'Start : E/P (Please insert Earphone)', and 'Stop'. The 'Start : RCV_1stMic' and 'Start : SPK_2ndMic' options are highlighted with a red dashed box. An 'EXIT' button is at the bottom.	1. RCV loopback test (Problem in Handset mode) - *#0283# - Select : Start : RCV_1stMIC - Do test : say something into a Bottom mic - Should hear the voice clearly through the Top SPK without noise.
The screenshot shows the 'System Audio Debug' menu with various options. The 'ABOX DUMP' option is highlighted with a red box.	1-2. SPK loopback test (Problem in Handsfree mode) - *#0283# - Select : Start : SPK_2ndMIC - Do test : say something into a Top mic - Should hear the voice clearly through the Top, Bottom SPK without noise.
Two screenshots are shown. The left one shows the 'System Audio Debug' menu with 'ABOX DUMP' highlighted. The right one shows the 'ABOX DUMP' settings screen with 'ADM' highlighted.	If it's ok in the loopback test (if the voice was heard clearly from SPK without noise), 2. get dumps while calling. - *#9900# - System Audio Debug → ABOX DUMP - Press ADM off (it will be changed to ADM On) - Press home button and Call test

6-5-3. Rx Voice swing/low/noise

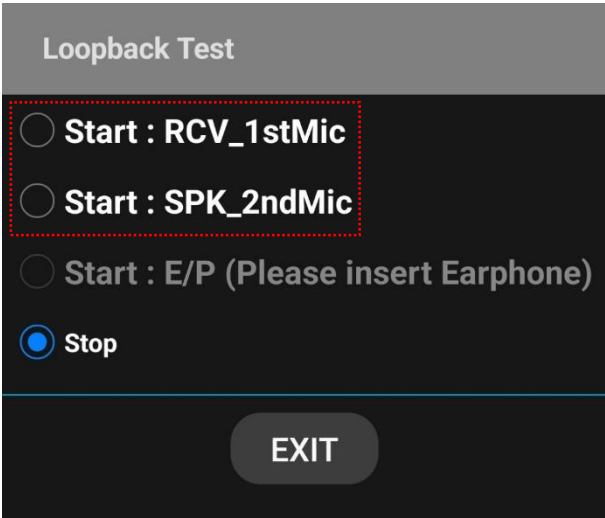
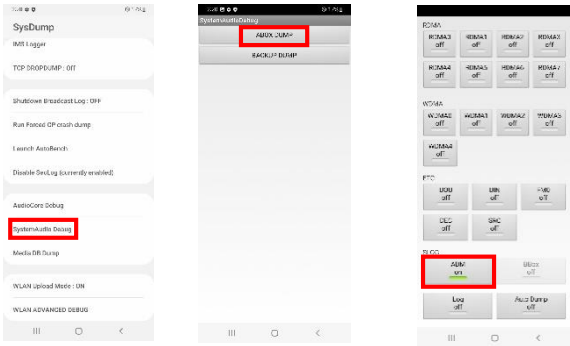
Image	Description
	2-2. get dumps while calling - After finishing test - *#9900# - System Audio Debug → ABOX DUMP - Press ADM On (it will be changed to ADM Off) - Press COPY TO SDCARD - Share log folder
 [Disassemble Jig]	If there was a loopback test problem (if the voice was low or noisy from RCV or SPK), 3. Disassemble the device. - Refer to '<u>Disassembly and assembly video guide for Galaxy A13</u>' from the GSPN.
 RCV (Receiver) SPK (Speaker)	4. Swap the RECEIVER or SPEAKER modules to normal samples. - SPK module damaged. - RCV module damaged

6-5-4. Tx Voice mute/swing/noise

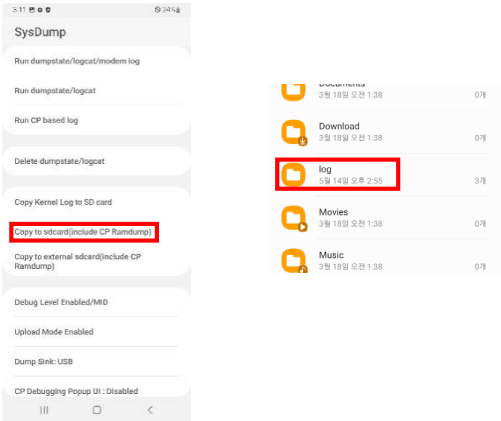
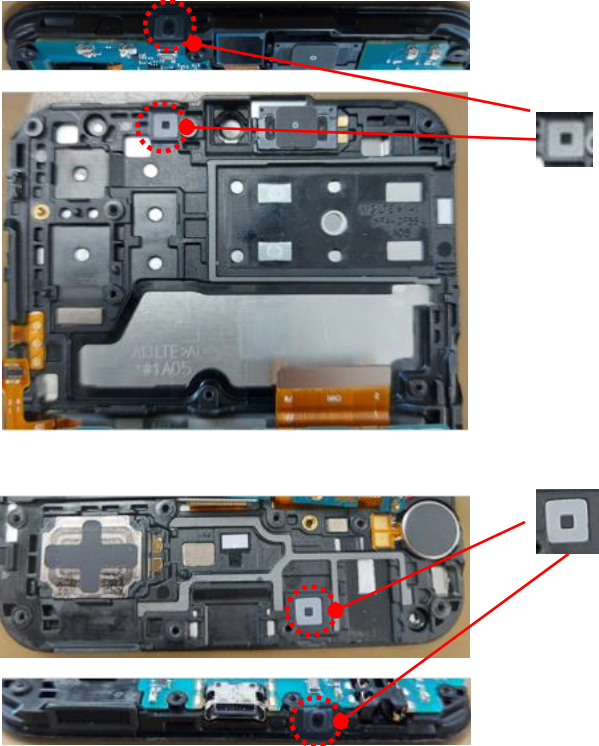
- 1) Symptom
- Description : While calling, Tx voice is Mute.
- 2) Defect Decision Conditions
- Description : A person who is calling with a farend device can't hear Rx voice.



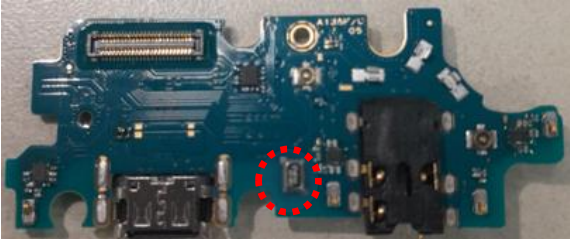
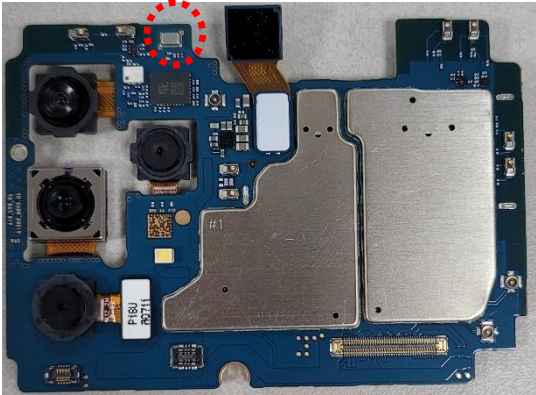
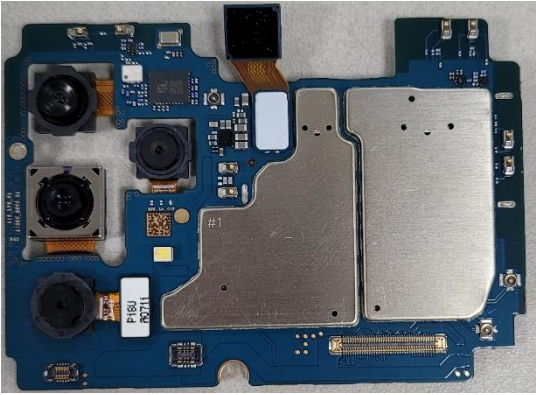
3) Repair Guide

Image	Description
	1. RCV loopback test (Problem in RCV call : Handset mode) - *#0283# - Select : Start : RCV_1stMIC - Should hear the voice clearly through the Top SPK without noise.
	1-2. SPK loopback test (Problem in SPK call : Handsfree mode) - *#0283# - Select : Start : SPK_2ndMIC - Should hear the voice clearly through the Top, Bottom SPK without noise.
	If it's ok in the loopback test (if the voice was heard clearly from SPK without noise), 2. get dumps while calling. - *#9900# - System Audio Debug → ABOX DUMP - Press ADM off (it will be changed to ADM On) - Press home button and Call test

6-5-4. Tx Voice mute/swing/noise

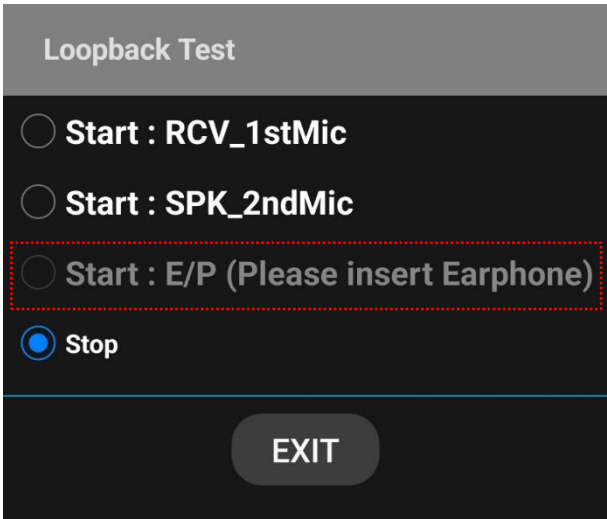
Image	Description
	2-2. get dumps while calling - After finishing test - *#9900# - System Audio Debug → ABOX DUMP - Press ADM On (it will be changed to ADM Off) - Press COPY TO SDCARD - Share log folder
	If there was a loopback test problem (if the voice was mute, low or noisy from SPK) 3. First, you have to check if there is a problem with rubber. If there is no rubber, or if it is torn or blocked, replace it.

6-5-4. Tx Voice mute/swing/noise

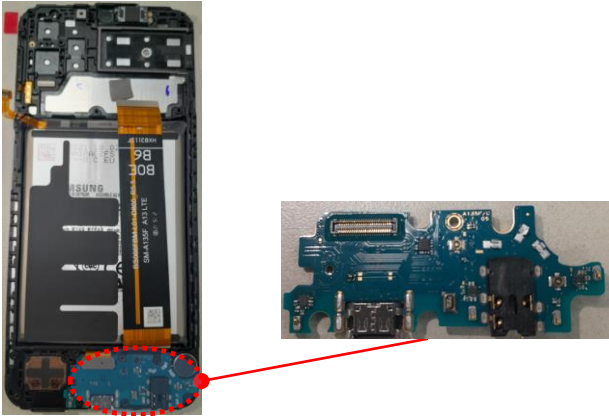
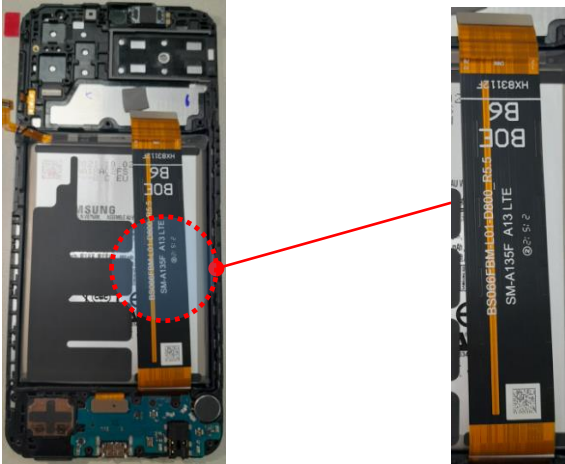
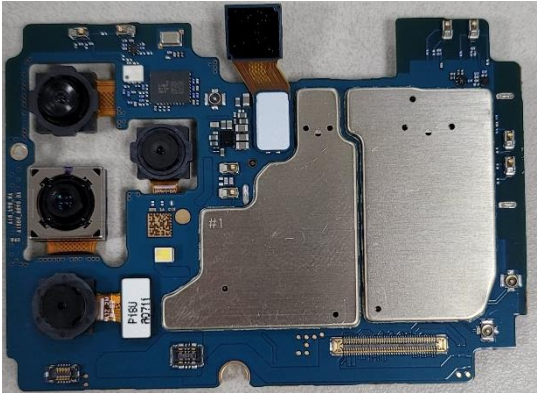
Image	Description
	4. If there is a sound problem in 1st mic, you have to swap MIC1000 or Sub PBA
	5. If there is a sound problem in 2nd mic, you have to swap MIC6000 or Main PBA
	6. if there is no sound in 1st mic or 2nd mic loopback test after swap MIC1000, Sub PBA or MIC6000, it can be AP damaged. swap Main PBA

6-5-5. Earphone sound abnormal (L2)

- 1) Symptom
 - Description : Earphone sound is low/abnormal
- 2) Defect Decision Conditions
 - Description : Earphone sound is ok when you swap new one.
- 3) Repair Guide
 - **Caution : Disconnect battery connector first when it shows.**

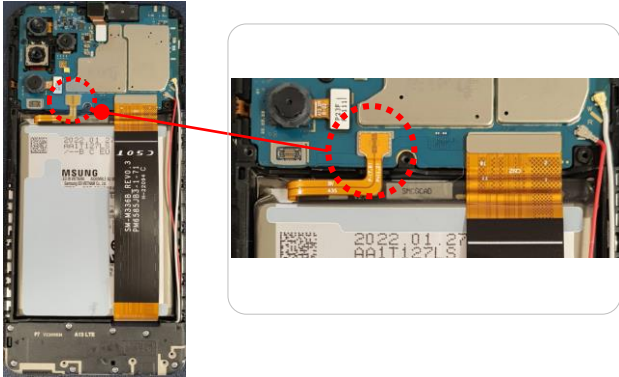
Image	Description
	1. Execute test mode (*#0283#) on call mode and goes to LOOPBACK – Start E/P mode. Check loopback mode is working properly.
 [Disassemble Jig]	2. Disassemble the device. - Refer to '<u>Disassembly and assembly video guide for Galaxy A13</u>' from the GSPN.

6-5-5. Earphone sound abnormal (L2)

Image	Description
	3. Try to swap new Sub PBA and check that is working properly.
	4. Try to check Sub FPCB that is working properly.
	5. If the device is not working normally after exchanging it, exchange Main PBA

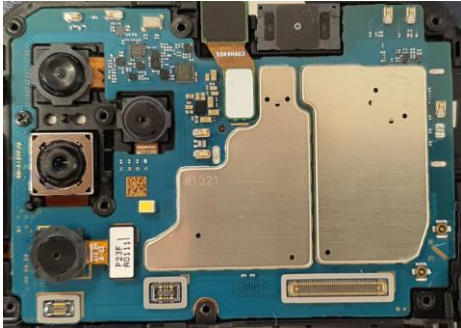
6-6-1. Accelerometer Sensor Problem

- 1) Symptom
- Description : Accelerometer does not work.
- 2) Defect Decision Conditions
- Description : No response.
- 3) Repair Guide
- **Caution : Disconnect battery connector first when it shows.**

Image	Description
 [Disassemble Jig]	1. Disassemble the device. - Refer to '<u>Disassembly and assembly video guide for Galaxy A13</u>' from the GSPN.
	[Attention] 2. Disconnect Battery Connector at first. (SOC5000)

6-6. Sensors

6-6-1. Accelerometer Problem

Image	Description
	3. Exchange the PBA with new one and check the device.

6-6-2. Magnetic Sensor Problem

1) Symptom

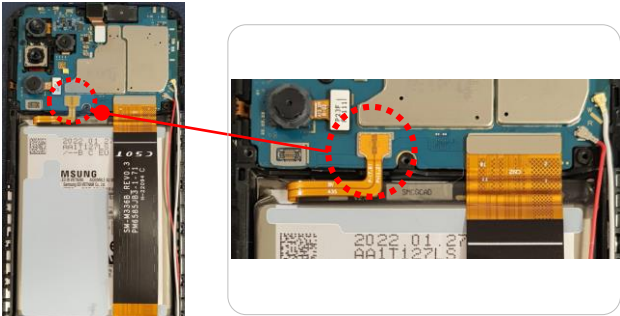
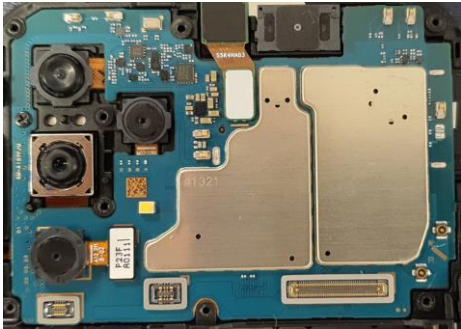
- Description : Magnetic Sensor does not work.

2) Defect Decision Conditions

- Description : No response.

3) Repair Guide

- **Caution : Disconnect battery connector first when it shows.**

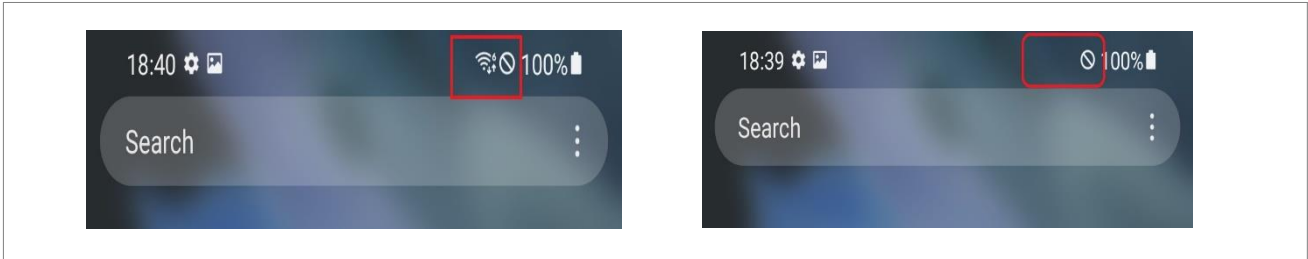
Image	Description
 [Disassemble Jig]	1. Disassemble the device. - Refer to '<u>Disassembly and assembly video guide for Galaxy A13 LTE</u>' from the GSPN.
	[Attention] 2. Disconnect Battery Connector at first. (SOC5000)
	3. Exchange the PBA with new one and check the device.

6-7. Connectivity (Wi-Fi)

6-7-1. Wi-Fi Connection Problem

- 1) Symptom
- Description : Wi-Fi Connection Problem after Wi-Fi On.

No Connection to AP or frequent disconnection



- 2) Defect Decision Conditions
- The phone shows Wi-Fi on without problem after rebooting.

But It won't connect to AP or will be disconnected automatically after connection.

Also, It shows weak Wi-Fi signal bar than normal device.

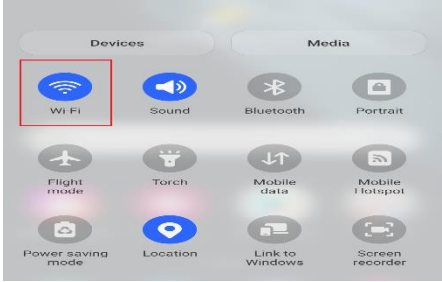
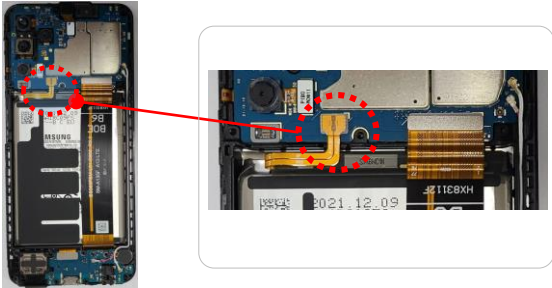
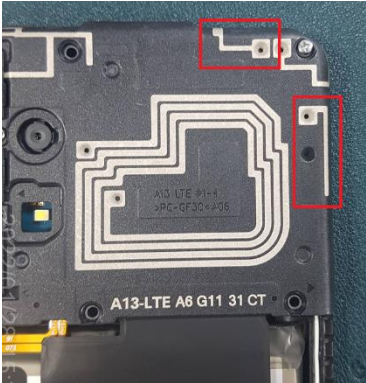
- Setting → Wi-Fi → SCAN : Number of APs is less than normal device when searching AP

- 3) Repair Guide
- **Caution : Disconnect battery connector first when it shows.**

Image	Description
	1. Check the charging notification sound or vibration when connected to charger. - Should be no sound and no vibration. - The device keep 'No Power' status.
[Disassemble Jig]	2. Disassemble the device. - Refer to 'Disassembly and assembly video guide for Galaxy A13' from the GSPN.
Water indicator tripped USB charging port burnt	3. Check the disassembled device for OOW. - Water damage. - Part burnt. (Charging port, PBA, Battery and others) - Broken traces and others.

6-7. Connectivity (Wi-Fi)

6-7-1. Wi-Fi Connection Problem

Image	Description
	4. Check Wi-Fi Function On - Enable Wi-Fi function - If it is ok, turn off the phone
	[Attention] Disconnect Battery Connector before next step
	5. Check the LDS Antenna - Crack on LDS Antenna - Change Rear Assy when you find defects
	6. Check Antenna C-clip is damaged. (ANT3000, ANT3004)

6-7. Connectivity (Wi-Fi)

6-7-1. Wi-Fi Connection Problem

Image	Description
	7. If the device is not working normally with new component, exchange the Main PBA - Crack - Open - Damaged or broken traces and others

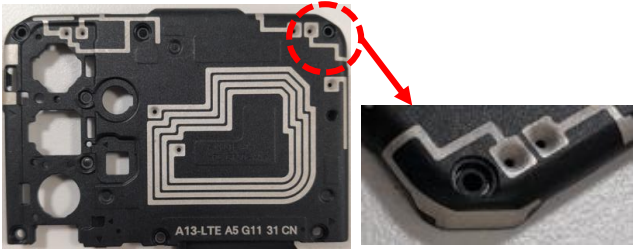
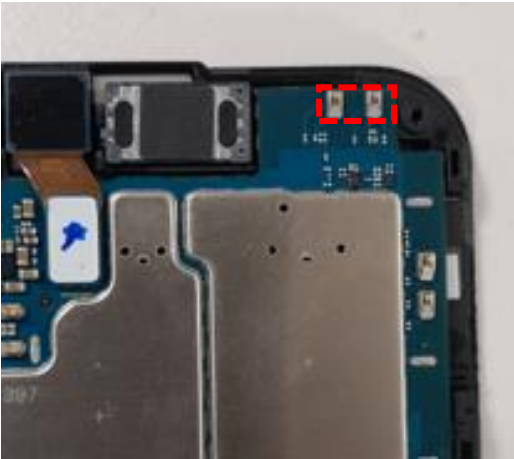
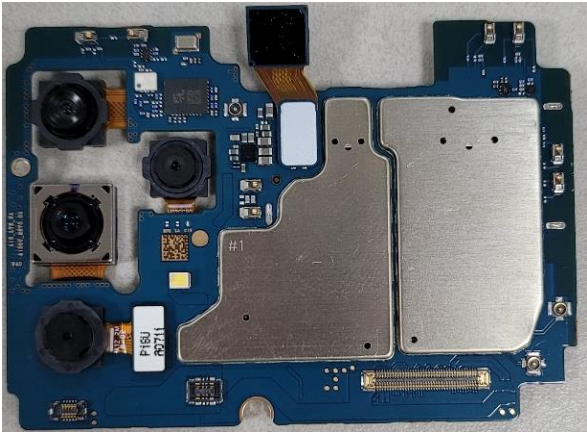
6-7-2. GPS Problem

- 1) Symptom
- Description : Received GPS signal problem after GPS On.
- 2) Defect Decision Conditions
- The phone shows GPS on without problem after rebooting.
- But It won't receive GPS signal after GPS On.
- Also, it shows weak performance than normal device while driving or using map
- 3) Repair Guide
- **Caution : Disconnect battery connector first when it shows.**

Image	Description
	1. Check the charging notification sound or vibration when connected to charger. - Should be no sound and no vibration. - The device keep 'No Power' status.
[Disassemble Jig]	2. Disassemble the device. - Refer to 'Disassembly and assembly video guide for Galaxy A13' from the GSPN.
	3. Check the disassembled device for OOW. - Water damage. - Part burnt. (Charging port, PBA, Battery and others) - Broken traces and others.
	4. Check GPS is working properly - Setting - enable Location function
	[Attention] Disconnect Battery Connector before next step

6-7. Connectivity (GPS)

6-7-2. GPS Problem

Image	Description
	5. Check the LDS GPS - Crack on LDS pattern - Change Rear ant when you find defects
	6. Check Antenna Clip is damaged. (ANT3000, ANT3003)
	7. If the device is not working normally with new component, exchange the Main PBA - Crack - Open - Damaged or broken traces and others

6-7. Connectivity (NFC)

6-7-3. NFC Connection Problem (A137F_EUR only)

1) Symptom

- Description : NFC Connection Problem after NFC On.
No recognition tag or No operation on card mode

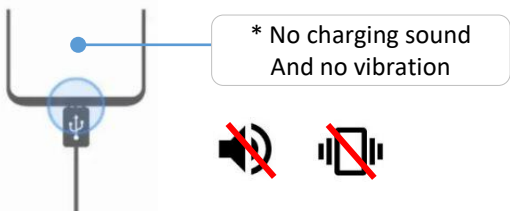
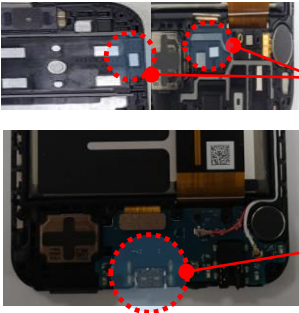


2) Defect Decision Conditions

- The phone shows Wi-Fi on without problem after rebooting.
- But It won't recognize Tag or will be not operated on card mode.

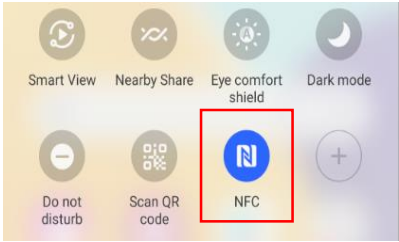
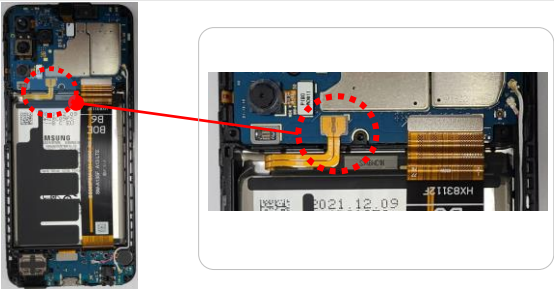
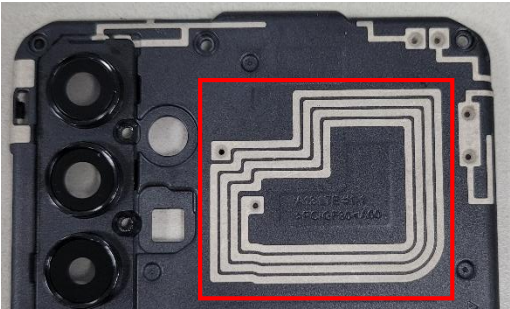
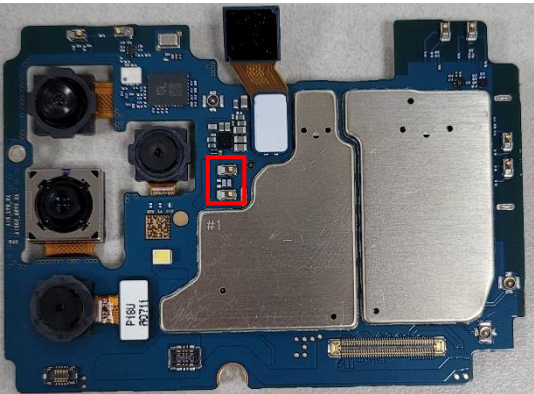
3) Repair Guide

- **Caution : Disconnect battery connector first when it shows.**

Image	Description
	1. Check the charging notification sound or vibration when connected to charger. - Should be no sound and no vibration. - The device keep 'No Power' status.
 [Disassemble Jig]	2. Disassemble the device. - Refer to '<u>Disassembly and assembly video guide for Galaxy A13</u>' from the GSPN.
 Water indicator tripped USB charging port burnt	3. Check the disassembled device for OOW. - Water damage. - Part burnt. (Charging port, PBA, Battery and others) - Broken traces and others.

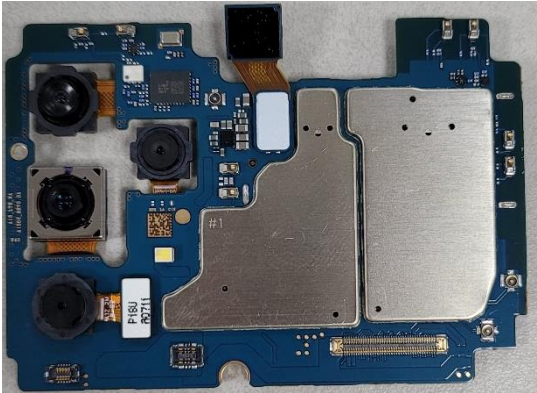
6-7. Connectivity (NFC)

6-7-3. NFC Connection Problem (A137F_EUR only)

Image	Description
	4. Check NFC Function On - Enable Wi-Fi function - If it is ok, turn off the phone
	[Attention] Disconnect Battery Connector before next step
	5. Check the LDS Antenna - Crack on LDS Antenna - Change Rear ANT when you find defects
	6. Check Antenna C-clip is damaged. (ANT3001, ANT3002) - Change C-Clip when you find defects

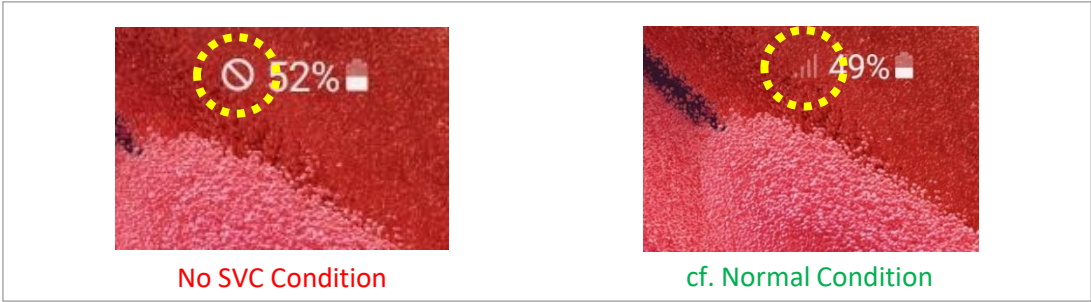
6-7. Connectivity (NFC)

6-7-3. NFC Connection Problem (A137F_EUR only)

Image	Description
	7. If the device is not working normally with new component, exchange the Main PBA - Crack - Open - Damaged or broken traces and others

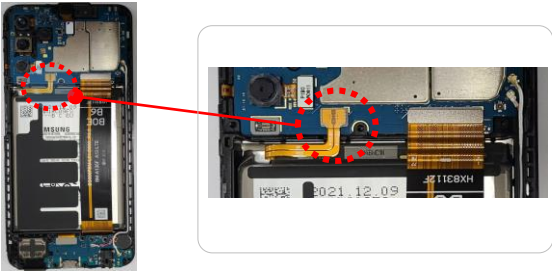
6-8-1. NO SVC

- 1) Symptom
- Description : A prohibition mark shows on the right of the status bar instead of the antenna bars.

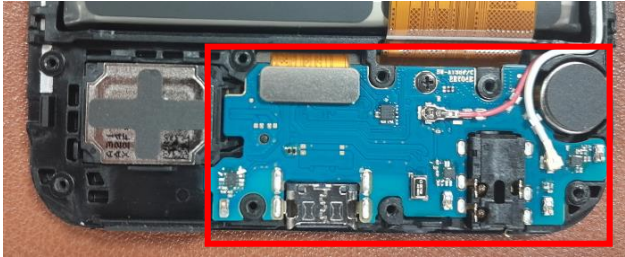
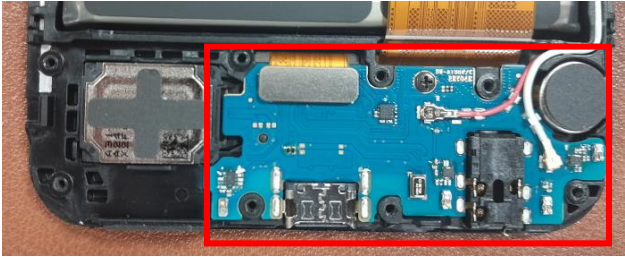


- 2) Defect Decision Conditions
- The phone continues to show this prohibition mark after rebooting or turning on and off airplane mode.
 - Other phones around the phone maintain the normal condition.

- 3) Repair Guide
- **Caution : Disconnect battery connector first when it shows.**

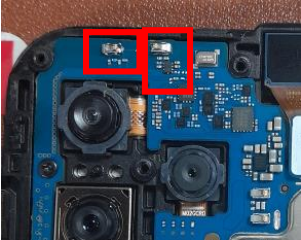
Image	Description
 [Disassemble Jig]	1. Disassemble the device. - Refer to 'Disassembly and assembly video guide for Galaxy A13' from the GSPN.
	[Attention] 2. Disconnect Battery Connector at first. (SOC5000)
	3. Check Antenna Coaxial cable are OK. Also, check cable condition. - Broken traces and others. - Little particles or dust which can disturb connections.

6-8-1. NO SVC

Image	Description
	4. Check Antenna Coaxial cable and FPCB connector are OK. -Disassemble SUB PBA and check bottom surface. Also, check cable and FPCB condition. - Broken traces and others. - Little particles or dust which can disturb connections.
	5-1. Exchange the Coaxial cable with new one and check the device is working normally.
	5-2. If not, exchange the SUB PBA with new one and check the device.

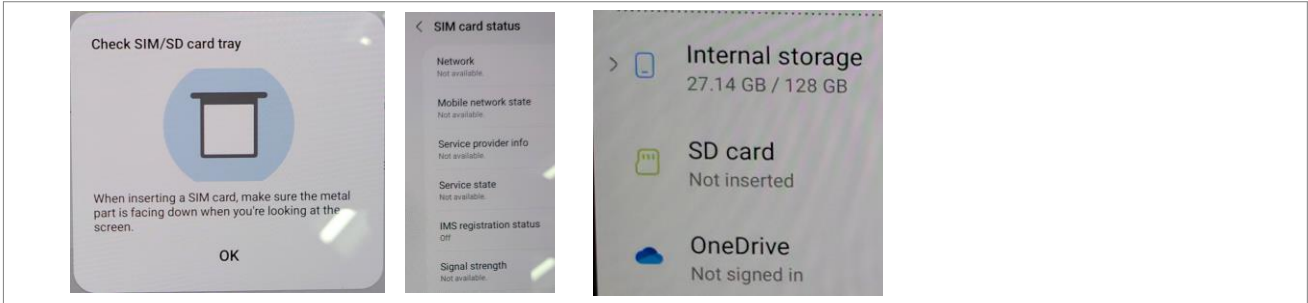
6-8. NO SVC

6-8-1. NO SVC

Image	Description
	6. Check Antenna Clip is damaged. (ANT2001, ANT2002)
 	7. Check Main Antenna is damaged. Check Sub Antenna is damaged.

6-9-1. Abnormal USIM / SD

- 1) Symptom
- Description USIM or SD card is not recognized.



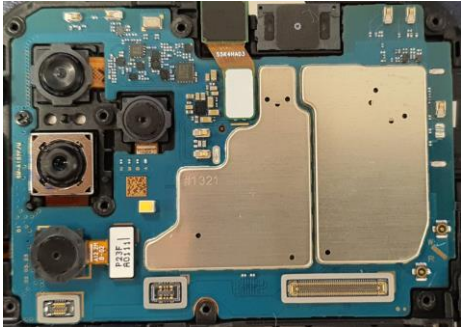
- 2) Defect Decision Conditions
- Description : The changed SIM card or SD card is not recognized.

- 3) Repair Guide
- **Caution : Disconnect battery connector first when it shows.**

Image	Description
	1. Check the USIM Card or SD card - Check if there is any problem using a normal SIM card or SD card.
[Disassemble Jig]	2. Disassemble the device. - Refer to ' Disassembly and assembly video guide for Galaxy A13 ' from the GSPN.
	[Attention] 3. Disconnect Battery Connector at first. (SOC5000)

6-9. USIM / SD Card

6-9-1. Abnormal USIM / SD

Image	Description
	4. If the voltage checked is abnormal, replace the PBA with new one and check the device.

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