

# New Product SVC Guide

## [ SM-A320F ]

Instructor : Hweechul Shin



# Notice

This guide is intended solely for the Samsung Electronics internal training and may contain trade secret, industrial technology or privileged and confidential information otherwise protected under applicable law including the Unfair Competition Prevention and Trade Secret Protection Act. Any unauthorized dissemination, distribution, copying or use of the information contained in this guide is strictly prohibited and subject to legal action.

All functionality, features, specifications and other product information provided in this document including, but not limited to, the benefits, design, pricing, components, performance, availability, and capabilities of the product are subject to change without notice or obligation. Samsung reserves the right to make changes to this guide and the product described herein, at anytime, without obligation on Samsung Electronics to provide notification of such change.

# Contents

1. Specification of SM-A320F (Galaxy A3 2017)
2. H/W
  - 2-1. Disassembly & Assembly
  - 2-2. Parts Diagram (Module & ICs)
  - 2-3. Troubleshooting
  - 2-4. R/F Calibration
3. S/W
  - 3-1. S/W Download
  - 3-2. Key Features
4. SVC Technical Information



# Specification

Item	Spec.		
AP Chipset	Vendor	Cores	Speed
	LSI	Octa-core	1.6 Ghz
Memory	RAM	Flash	
	2GB	16GB	
Display	Size	Resolution	Type
	4.7 inch	720 X 1280, HD	Super AMOLED
CAMERA	Resolution (Main/Front)	Auto Focus	Video (Main)
	13MP / 8MP	Contrast AF	1080p @ 60fps
Network	2G/3G	LTE	
	Support	800/850/900/1800/1900/2100/2600	Cat6 (50Mbps UL / 300Mbps DL)
Sensors	Accelerometer, Barometer, Fingerprint, Gyro, Geomagnetic, Hall, RGB Light, Proximity		
	New :		
Connectivity	Bluetooth 4.2, WIFI a/b/g/n/ac, NFC, USB2.0, USB C-type, MST		
Battery & GPS	2,350mAh	A-GPS & GLONASS	
Micro SD & OS	Up to 256GB	Android V6.0 (MM)	
Remark	Back glass Type	Water Resistance : IP68	

# Disassembly & Reassembly



# Disassembly & Reassembly

## Important management points

### Disassembly

**1** Heating condition of back glass disassembly  
 - SOC 68% ↓ : 70°C, 10~20min  
 - SOC 68% ↑ : 60°C, 10~20min



**2** 1) Unscrew 9 Point  
 2) disassemble SIM Tray from device



⚠ Caution  
 1) Be care of scratch

⚠ Caution  
 1) Be care of scratch

**7** Detach All connectors. (7 Point)  
 - Sensor / Battery / OCTA / Power key / Home key / Touch key / Earjack



⚠ Caution  
 1) Be care of connector/cable damage

**8** 1) Detach Main PBA from Front



⚠ Caution  
 1) Be care of PBA damage

### Reassembly

**1** Attach and then Press Home key on Front.



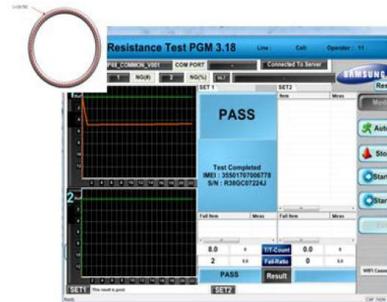
⚠ Caution  
 1) Be care of Homekey FPCB connector  
 2) Be care of press power/time

**2** Attach Battery on Front.



⚠ Caution  
 1) Be care of tilt

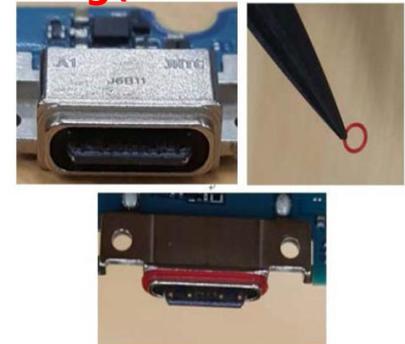
**15** Use O-ring(GH81-14271A) on IF CON Reassemble & Re WRT



⚠ Caution  
 1) Be care of scratch.

**16** Remove USB Dispensing on PBA. Insert O-Ring on PBA

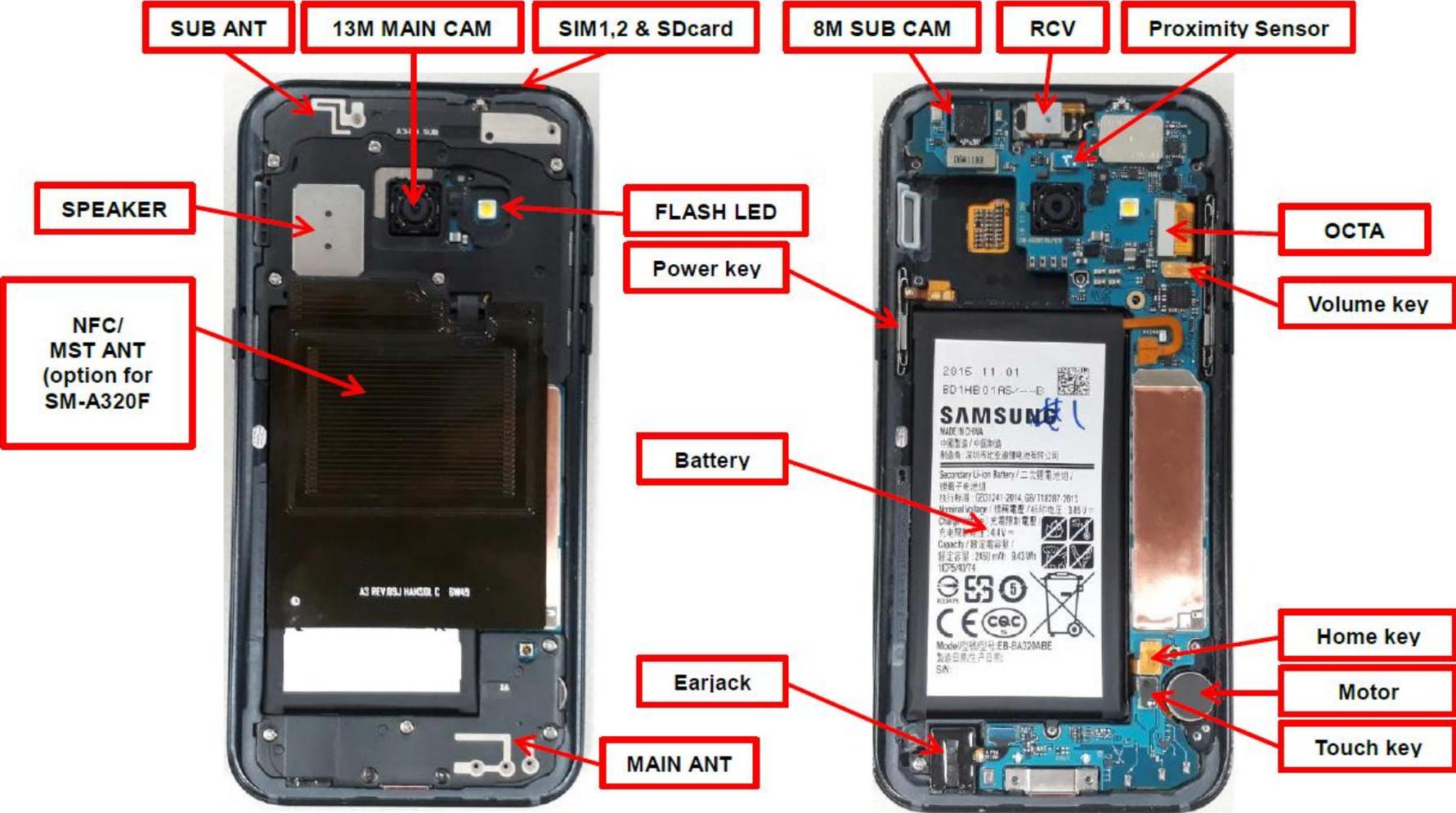
**O-ring(GH81-14271A)**



⚠ Caution  
 1) Be care not to damage the PBA

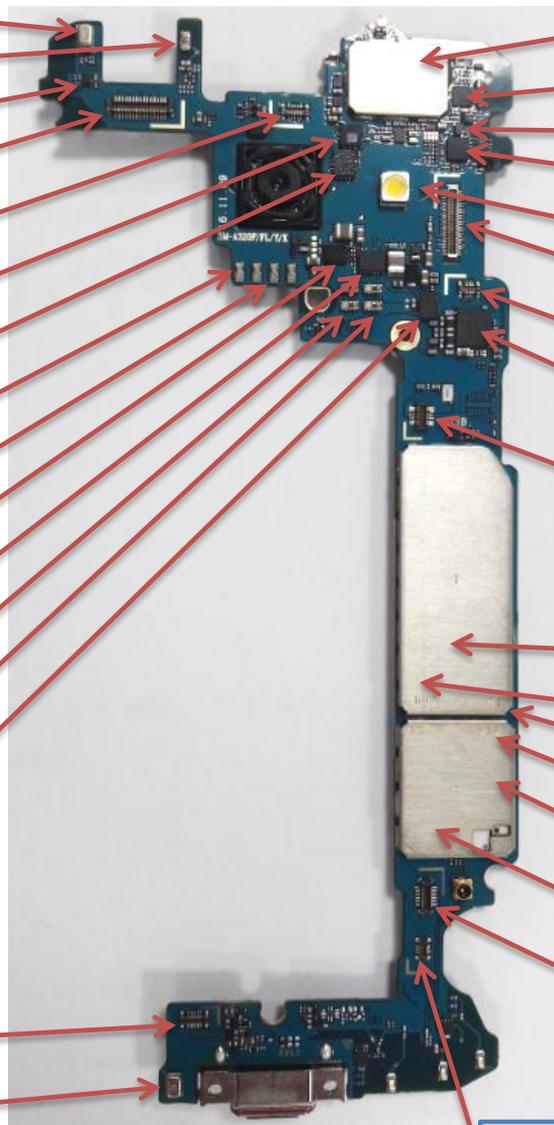
# Parts Layout

## Rear Case



# Parts Layout

## PBA (Top side)



MIC6000  
Sub MIC

ANT2002  
LB Sub ANT contact

U3001  
GPS AMP

U7006  
VT Camera Connector

HDC6000  
Proxy/RGB Connector

U6006  
Pressure Sensor

U7007  
6 Axis Sensor(Gyro & ACC)

ANT6002/6003  
Speaker Contact

ANT5000/5003  
PowerKey Contact

U5000  
Flash Driver IC

U3008  
MST Driver IC

ANT3002/3003  
NFC ANT Contact

ANT3000/3001  
MST ANT Contact

U3008  
MST Driver IC

HDC6002  
Earjack Connector

MIC6001  
Main MIC

U3004 (in Shieldcan)  
BT/WIFI IC

U7008  
WIFI 5G IC

U6009  
Compass Sensor

U6008  
Sensor HUB

LED5000  
Flash IC

HDC7002  
OCTA Connector

HDC5000  
Volume key Connector

U3003  
MST Driver IC

HDC7000  
Battery Connector

U5004 (in Shieldcan)  
PMIC

OSC50000 (in Shieldcan)  
32kHz

U1007 (in Shieldcan)  
APT module

F1004 (in Shieldcan)  
B28 Duplex

U1005 (in Shieldcan)  
FEMid

U1009 (in Shieldcan)  
GSM Quad MMB PA

HDC903  
Finger Sensor Connector

HDC7001  
SUB Touch Connector

- This document cannot be used without Sams

Confidential

# Parts Layout

## PBA (Bottom side)

<b>SIM5000</b> SD_SIM connector
<b>ANT3007</b> WIFI 5G Antenna contact
<b>ANT6001/6002</b> RCV contact
<b>HDC7004</b> 13M camera Connector
<b>U7001</b> HD OCTA DC-DC
<b>U5003</b> IF PMIC
<b>U5002</b> OVP
<b>UCP400</b> AP_CP with POP Memory
<b>UME5000</b> 16GB eMMC
<b>U2002</b> RFIC
<b>U1008</b> HighBand PA
<b>U7002</b> Sub Touch UC
<b>ANT5005/5006</b> Motor contact
<b>OSC3000</b> 26MHz
<b>U6005</b> Hall IC



<b>ANT2000</b> LB Sub ANT contact
<b>ANT2001</b> MB_HB Sub ANT contact)
<b>F2005</b> GPS SAW filter
<b>F2003</b> Diplexer
<b>U2001</b> Diversity LNA

<b>U3006</b> FM IC
<b>IFC5001</b> USB Connector

# Troubleshooting

## No Power

Step	Check point	Result value	Defect point
1	Confirm the defect symptom	-	-
2	 ** Analyse reasons of No-Power using the <b>Power &amp; Current test jig Power test mode.</b>	PASS	Battery, Battery terminal, Physical Key
		Leakage Current fail	Go to the step 2.1
		Power On Current fail	Go to the step 3
2.1	Check the Resistance between JIG Power V_Battery / VPH_PWR/ V_BAT and Ground. (C701,C805)	Normal (Over dozens of KΩ)	Go to the step 5
		Abnormal	Capacitors for ESD protection
3	It's possible to enter the download mode?	Yes	Go to the step 3.1
		No	Go to the step4
3.1	Check if it's rooted.	Rooted	OOW
		Normal	S/W update
4	Try to do the boot recovery.	Pass	Go to the step 3
		Fail	Go to the step 5
5	Check the voltage of C5023(=IFPMIC Output)	C5023 = Power supply voltage	Go to the step 6
		If not the correct value	Replace the U5003(=IFPMIC)
6	Check the voltage of C5006(=PMIC Output)	C5006 = 1.8V	Go to the step 7
		If not the correct value	Replace the U5004(=PMIC)

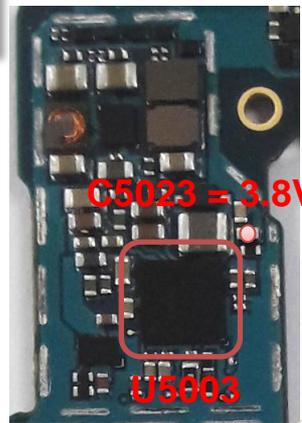
\*\* Usage guide of the Power & Current test jig has been uploaded at GSPN. (Power & Current Tester\_Rev4\_150716.pdf)

# Troubleshooting

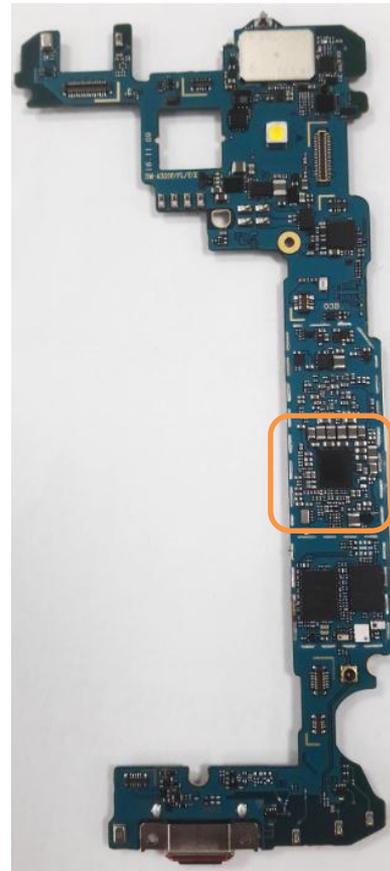
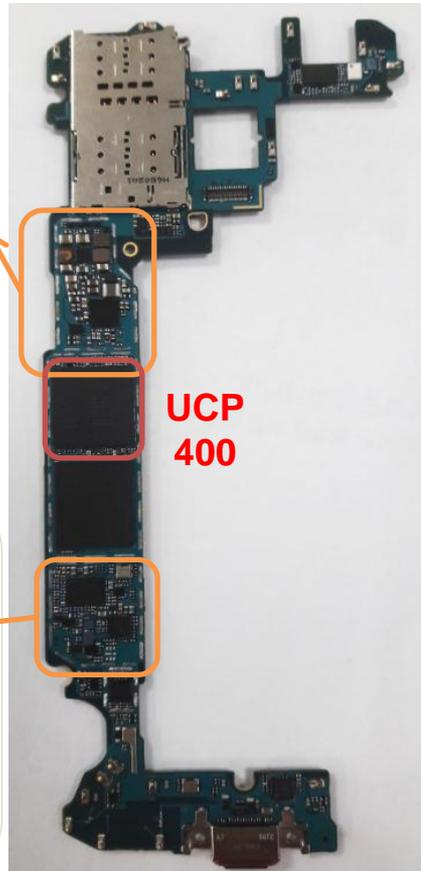
## No Power (cont')

Step	Check point	Result value	Defect point
7	Check the frequency of TCX2000	26MHz	Main chip (UCP400)
		If not the correct value	X-TAL (TCX2000)

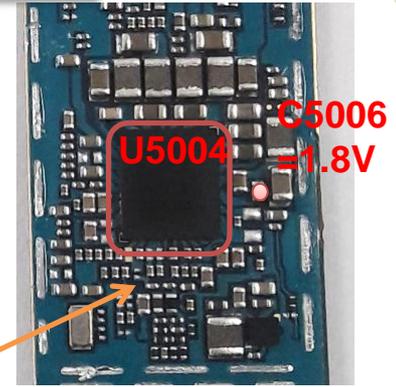
Step5



Step7



Step6



# Troubleshooting

## Power on but no operation (freezing)

Step	Check point	Result value	Defect point
1	Confirm the defect symptom	-	-
2	** Analyse reasons of No-Power using the <b>Power &amp; Current test jig</b> .	PASS	Go to the step 1
		Leakage Current fail	Refer to the No-power Troubleshooting
		Power On Current fail	Go to the step 2.1
2.1	Try to do the boot recovery.	Solved	Boot area in S/W
		Not solved	Go to the step 7
3	It's possible to enter the download mode?	Yes	Go to the step 3.1
		No	Go to the step 4
3.1	Check if it's rooted.	Rooted	OOW
		Normal	Go to the step 4
4	Enter the safe mode, and check if powers up.	Solved	3 <sup>rd</sup> party Apps.
		Not solved	Go to the step 5
5	Perform full reset.	Solved	S/W or 3 <sup>rd</sup> party Apps
		Not solved	Go to the step 6
6	Upgrade software to the latest version.	Solved	S/W
		Not solved	Go to the step 7
7	Check the voltage of C5029, C5026 (eMMC)	C5029 = 1.8V C5026 =2.85V	PBA
		If not the correct value	Replace the eMCP(eMMC)

\*\* Usage guide of the Power & Current test jig has been uploaded at GSPN. (Power & Current Tester\_Rev4\_150716.pdf)

- This document cannot be used without Samsung's Authorization -

Confidential

# Troubleshooting

## No Charging

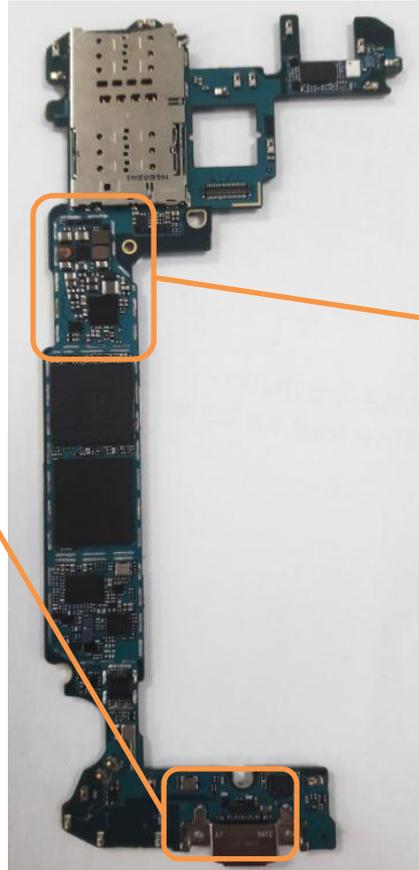
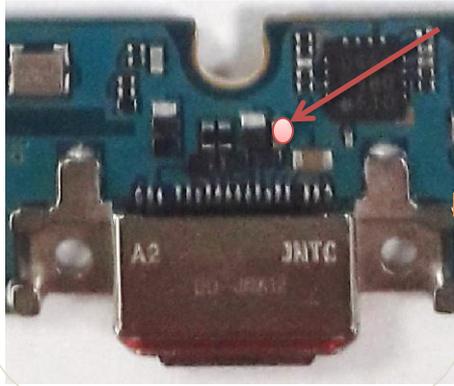
Step	Check point	Result value	Defect point
1	Confirm the defect symptom	-	-
2	Replace a battery.	Solved	Go to the step 2.1
		Not solved	Go to the step 3
2.1	Charge the customer battery during 5min at least.	Solved	Totally discharged battery
		Not solved	Battery
3	** Analyse reasons of No-Charging using the <b>Power &amp; Current test jig Charging test mode</b> with no defect charger. (Test battery voltage should be below 85%)	PASS	Go to the step 4
		FAIL	Go to the step 5
4	** Test a <b>customer's charger</b> using the <b>Power &amp; Current test jig TA test mode</b> .	PASS	Go to the step 1
		FAIL	Customer's Charger
5	Disassemble and check I/F connector visually	Dust	Clean I/F connector
		Damage	Replace I/F connector
		Normal	Go to the step 6
6	Check the voltage of C5085	C5085 = 5V	Go to the step 7
		If not the correct value	may not connected charger
7	Check the voltage of C5052	C5052= 5V	Replace the U5002
		If not the correct value	Replace the U5003

\*\* Usage guide of the Power & Current test jig has been uploaded at GSPN. (Power & Current Tester\_Rev4\_150716.pdf)

# Troubleshooting

Step 5

C5085=5V

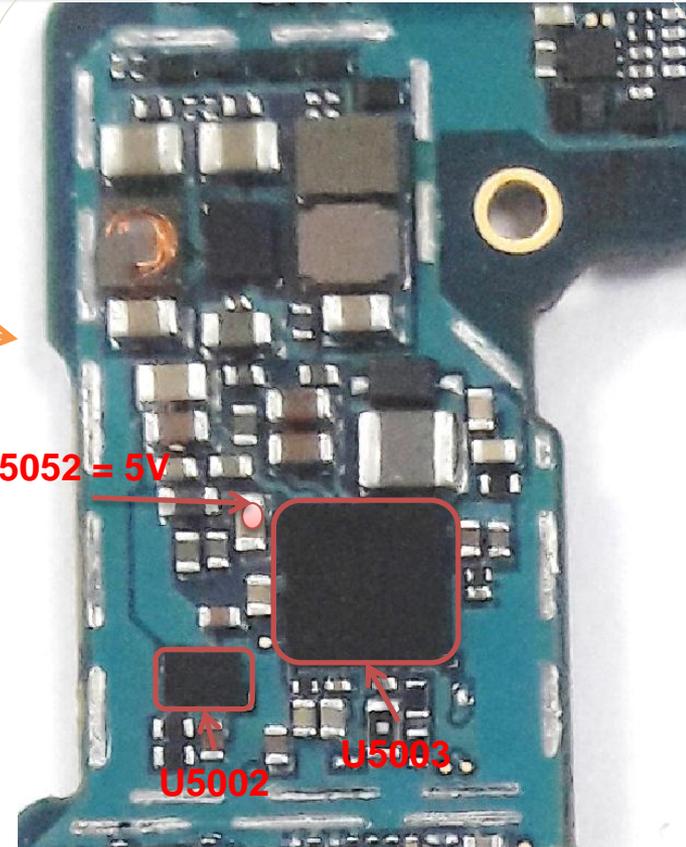


Step 6

C5052 = 5V

U5002

U5003



# Troubleshooting

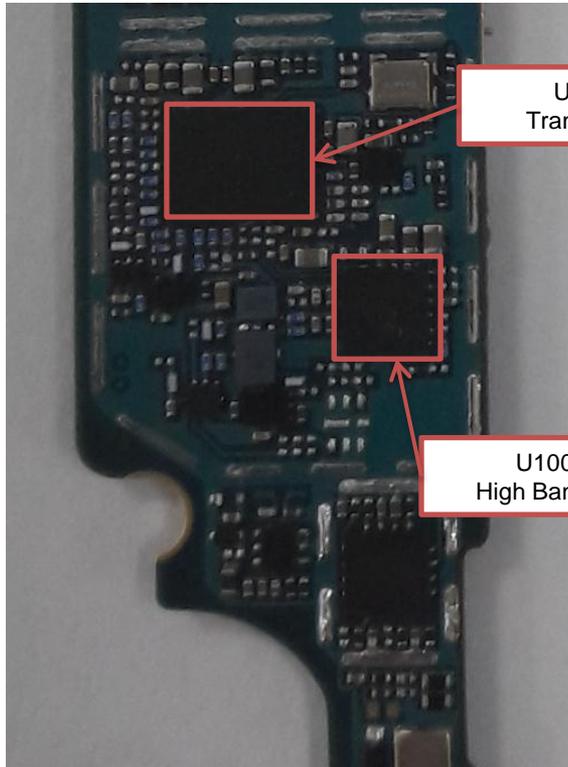
## Call Problem (with RF equipment)

Step	Check point	Result value		Defect point
1	Confirm the defect symptom	-		-
2	RF radiation test	Pass		Network or Settings
		Fail		Go to the next step
3	RF calibration	Pass		Go to the step 4
		Fail		Go to the step 5
4	RF radiation test	Pass		Repaired
		Fail		Except PBA (Coaxial cable, Antenna, Shielding condition)
5	A type of failure	TX	2G	MMMB, Main Femid TRANCEIVER
			3G	MMMB, Main Femid TRANCEIVER
			LTE	MMMB or,B7/B40 PA Main FEM, TRANCEIVER
		RX	2G	Main Femid , TRANCEIVER
			3G	Main Femid , TRANCEIVER
			LTE	Main Femid , TRANCEIVER

# Troubleshooting

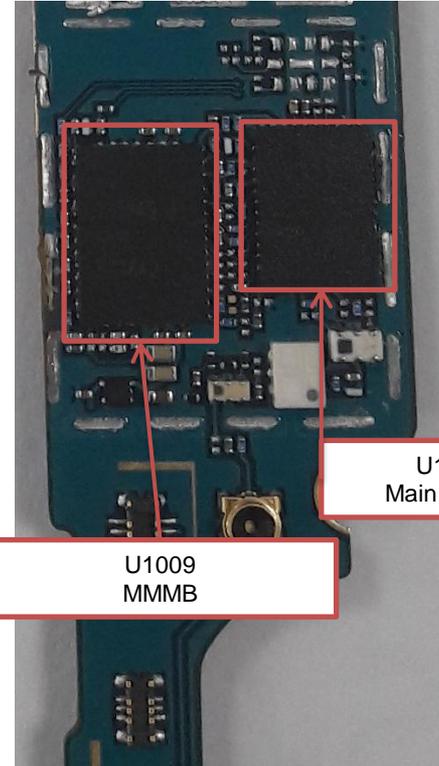
## Call Problem

Step5



U2002  
Transceiver

U1008  
High Band PA



U1009  
MMB

U1005  
Main FEMID

# Troubleshooting

## Call Problem (without RF equipment)

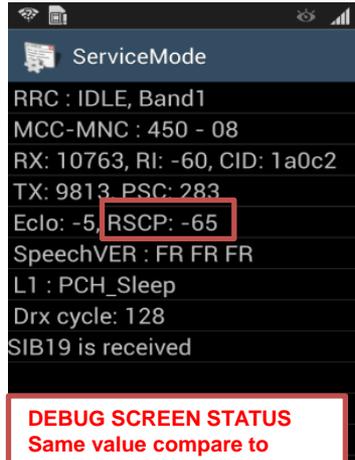
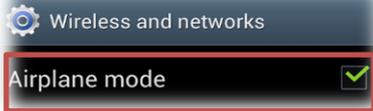
Step	Check point	Result value	Defect point
1	Confirm the defect symptom	-	-
2	Check the settings (airplane mode, Mobile networks)	Abnormal	Settings
		Normal	Go to the next step
3	Check the debug screen *#0011# (Compare to normal device)	Abnormal	Go to the next step
		Normal	Network
4	Check the RF parts except PBA. (Coaxial cable, Antenna, Shielding condition, etc..)	Broken, dust, corrosion	RF parts
		Loose fitting	Connection
		Normal	Go to the next step
5	Check the status visually(crack, missing, Corrosion..etc) of RF components. (compare to normal PBA)  U2002 Transceiver U1005 Main FEMID U1009 MMB PA U1008 High Band PA	Abnormal	RF components.
		Normal	CP(Call Processor) (UCP400) CP PMIC(U5004)

# Troubleshooting

## Call Problem

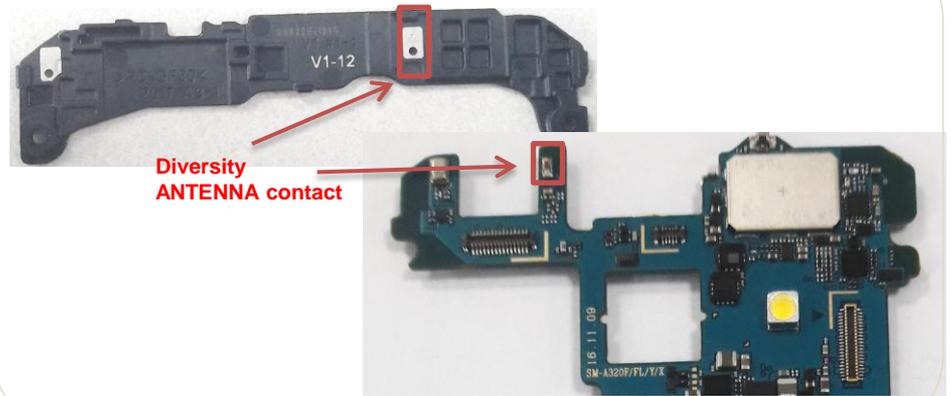
Step2,3

CHECK SETTINGS



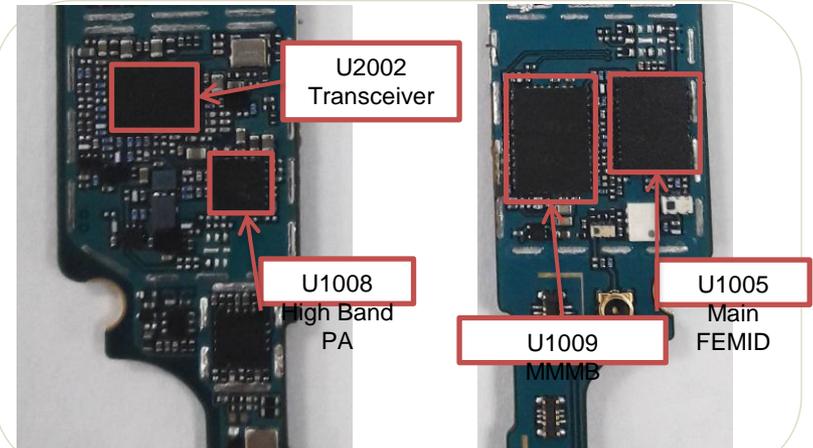
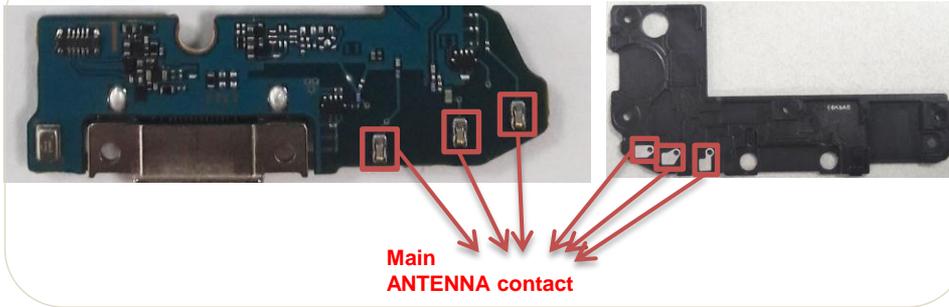
DEBUG SCREEN STATUS  
Same value compare to  
normal device.

Step4



Step5

Step4



# Troubleshooting

## Sound Problem

Step.	Check point	Result value	Defect point
1	Confirm the defect symptom.	-	-
2	*#0*# → speaker	No sound	Go to the next step
		Normal	S/W or Settings
3	Replace the speaker	Solved	speaker
		Not solved	Go to the next step
4	Activate the speaker path. (*#0*# → Speaker)	-	-
5	Check the signal at two of speaker contacts. (Using oscilloscope) Notice : It should be measured when the speaker path is activated on.	Same signal compared with a good PBA	Go to step 6
		No signal	Replace U6001 (Audio amp)
6	Check if the SPK is contacted to ANT6002, ANT6003 well, and assemble the phone again.	Solved	Assembly error
		Not solved	Go to step 3

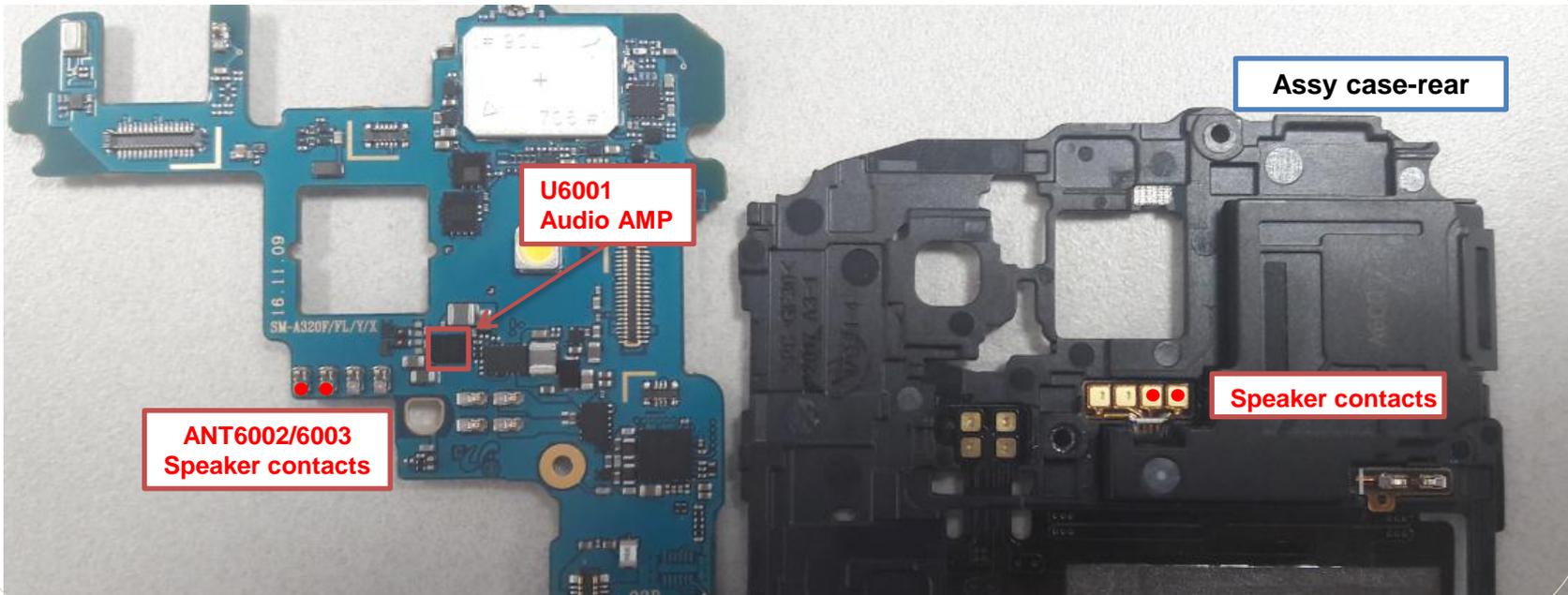
# Troubleshooting

## Sound Problem

Step3

Step6

Step7



# Troubleshooting

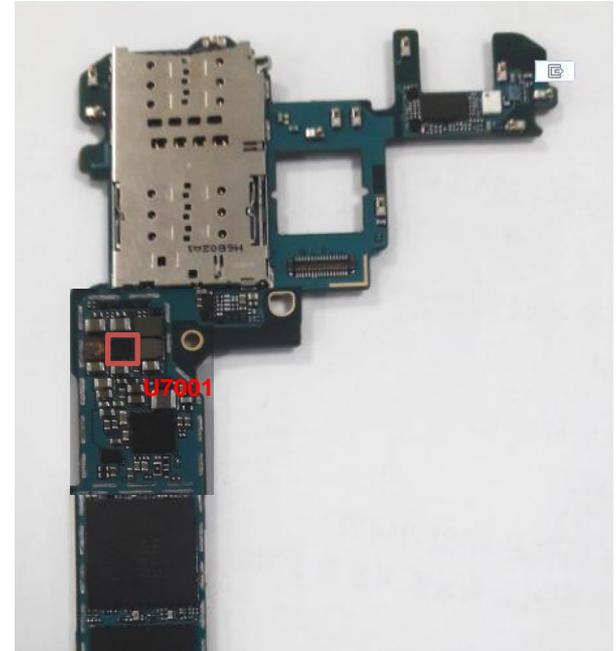
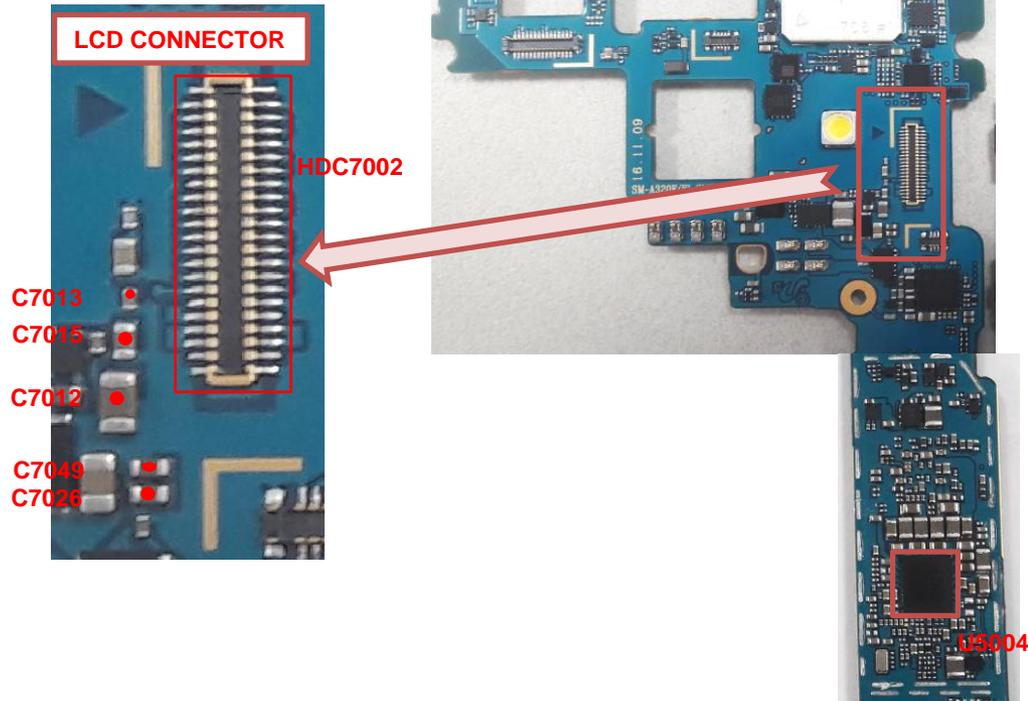
## Display Problem

Step	Check point	Result value	Defect point
1	Confirm the defect symptom	-	-
2	Check the AMOLED connector (HDC7002)	Broken, dust, corrosion	AMOLED connector (HDC7002)
		Loose fitting	Connection
		Normal	Go to the next step
3	Replace the AMOLED	Solved	AMOLED
		Not solved	Go to the next step
4	Connect a AMOLED, and display on with a power supply (power supply voltage : 4.0V)	-	-
5	Check the voltage of C7013 = 3.0V Notice. It should be measured when the display is activated on	If not the correct value	PMIC(U5004)
		C7013=3.0V	Go to the next step
6	Check the voltage of C7015 = 1.5V Notice. It should be measured when the display is activated on	If not the correct value	U5004
		C7015=1.5V	Go to the next step
7	Check the voltage of following chips (C7012,C7026,C7049) Notice. It should be measured when the display is activated on	If not the correct value	U7001
		C7012 = 7.0V C7026 = -1.4 ~ -4.4V C7049 = 4.6V	MAIN CHIP

# Troubleshooting

## Display Problem

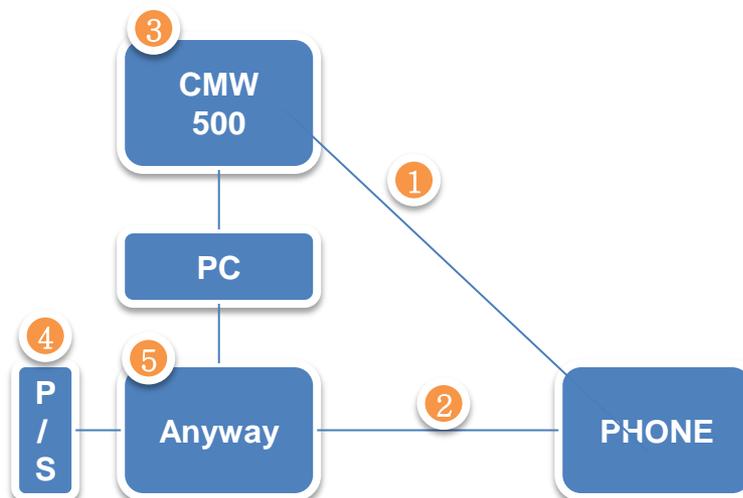
Step 2, 5, 6, 7



# RF Calibration Preparation

Item	Quantity	Code
① RF cable	1	GH81-11962G
② IF cable	1	GH81-11962W
③ RF Equipment	1	CMW500
④ Power Supply	1	E3632A
⑤ Anyway JIG	1	-

Connection Diagram



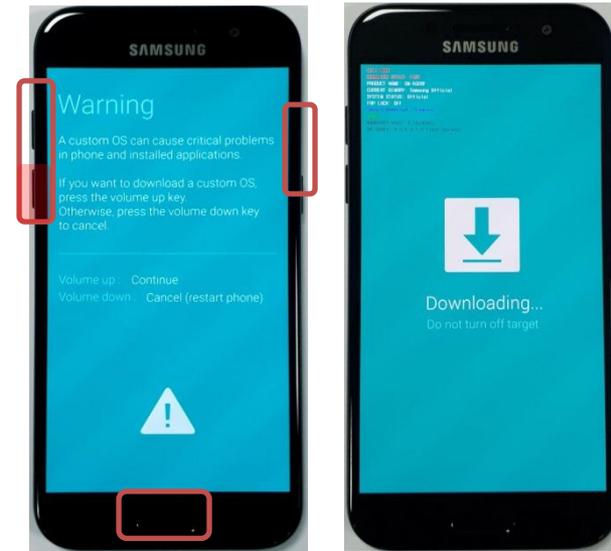
# S/W Update

❌ S/W Update via Fenrir is mandatory.

Below is the way to use Odin for any specific case.

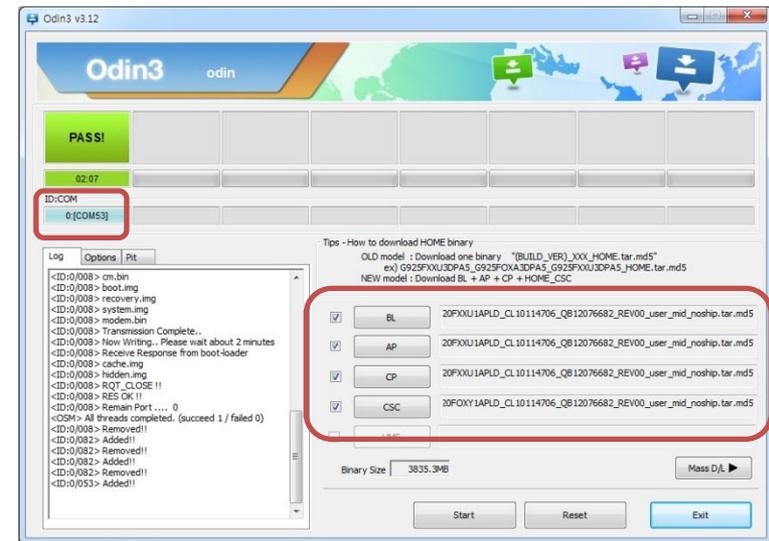
## How to enter the S/W download mode

1. Turn off the device
2. Press 3 buttons simultaneously ( Volume down + Home + Power on)
3. Press volume up button after 'Warning' message.
4. Connect the USB cable after 'Downloading' message.



## How to download S/W

1. Run the Odin and check the device is connected to Odin.
2. Select each 4 S/W files. (BL,AP,CP,CSC)
3. Press the start button in the Odin.
4. Automatically reboot the phone when the downloading is completed.



# New Features

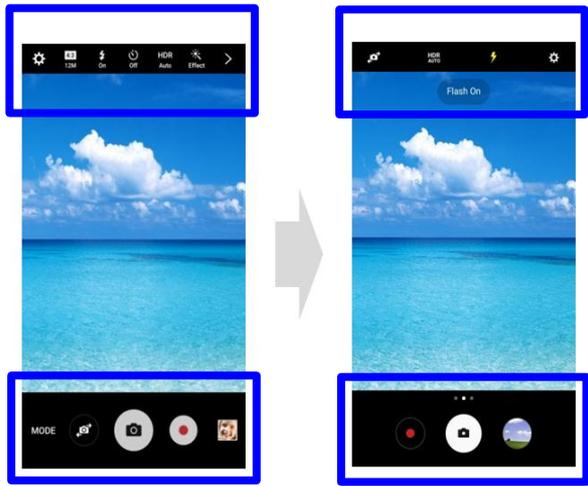
## Camera

### Simple UX & Easy Swipe

- Simplifying Quick Panel Icons, minimizing Pop-up Menu
- Fast mode / effect switching by Swipe

#### Preview

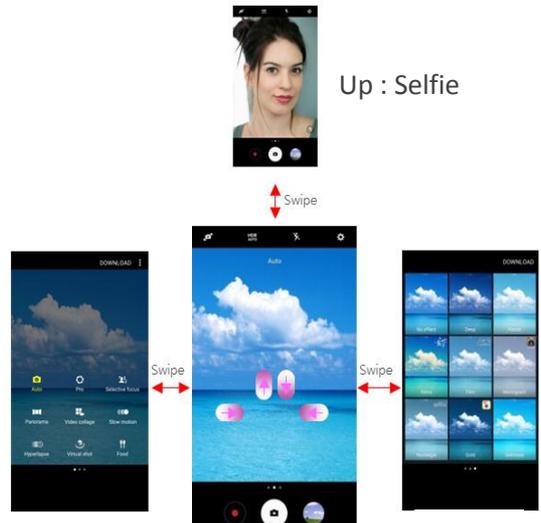
- **Simplifying quick panel**  
Hide icons (picture size / Timer / Effect),  
Minimize pop up



A 2016 : 10 icons      A 2017 : 7 icons

#### Easy Swipe

- **Fast changing by Swipe**



Up : Selfie

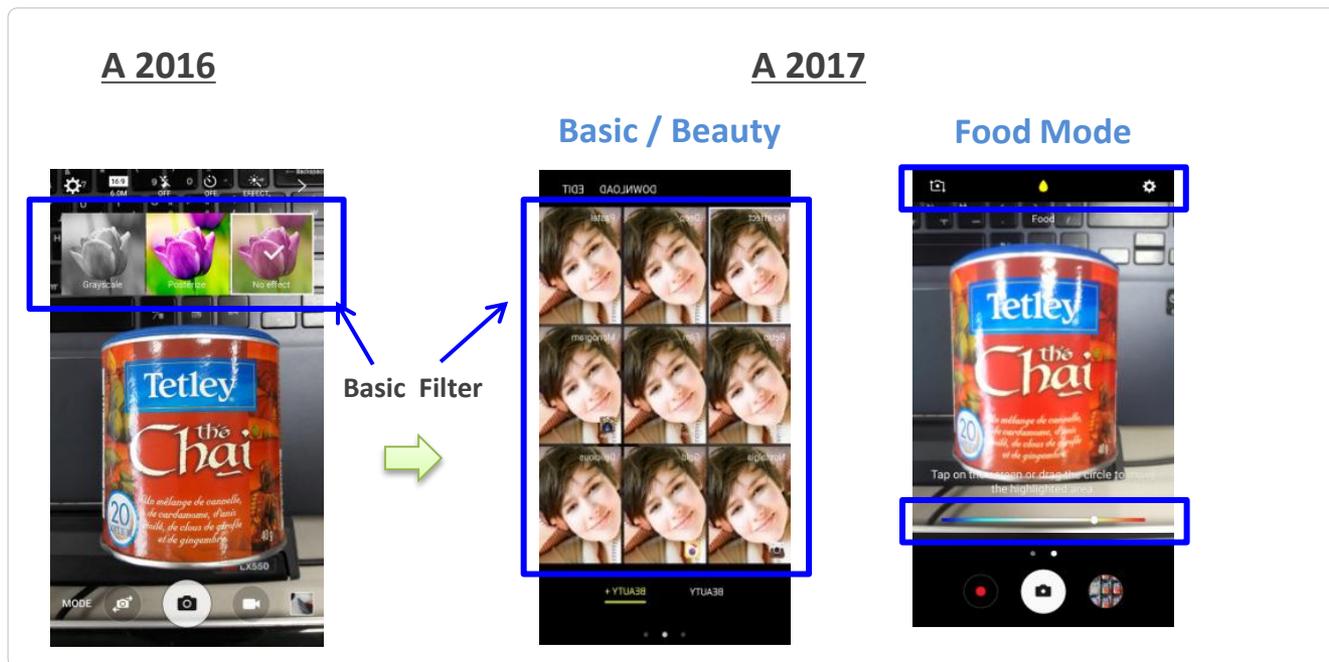
Mode      Auto(Rear)      Effect

# New Features

## Camera

### Effective Filter & Effect

- Enjoy various effect by using "Basic" filter
- Optimize selfie by using "Beauty" filter
- Dedicated colorful "Food" Mode (Rear only)



\* A 2016 : Basic 4 Filters only

\* A 2017 : Categorized 16 Filters (Basic 8, Beauty 8) + Food Mode (rear only)

**Entering Path : Camera → Swipe right : Filter / Camera → Swipe left : mode**

# New Features

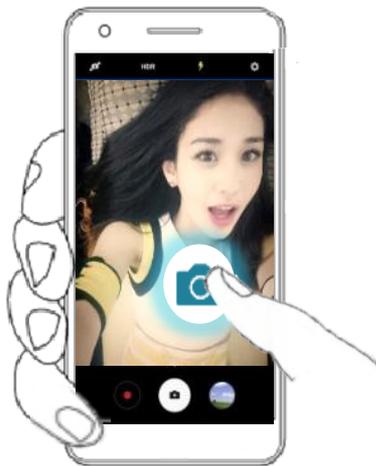
## Camera

### Bright and Easy Selfie

- Optimizing one hand use : better grip & stable picture
- A bright selfie in low-light conditions

#### Floating Shutter

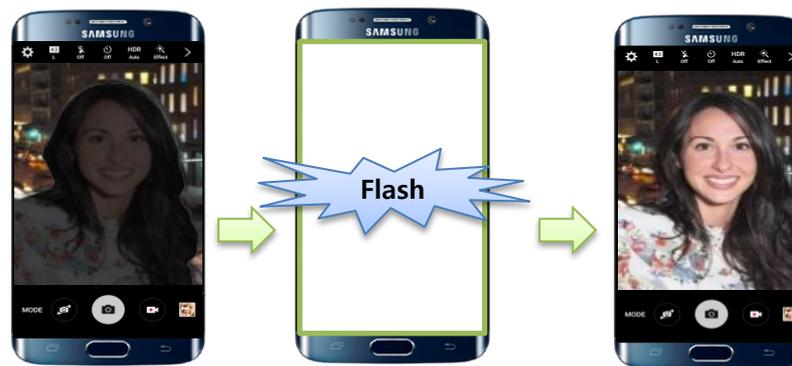
- For better grip & stability  
→ Change Shutter position



※ Support : Front/Rear

#### Selfie Flash

- Use display as a front flash (※ No front flash LED)



Entering Path : Camera → Settings → Floating Camera button

Camera → Quick panel “Lightning” icon

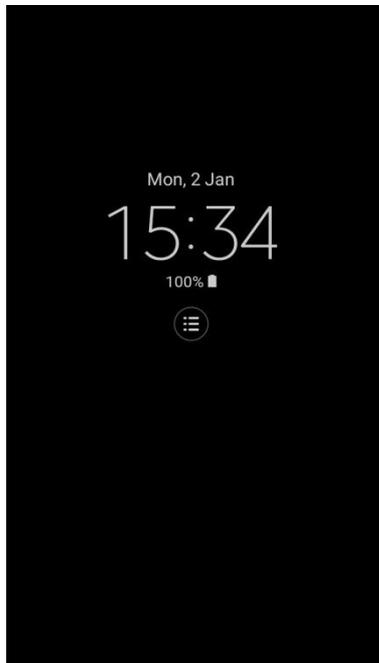
- This document cannot be used without Samsung's Authorization -

Confidential

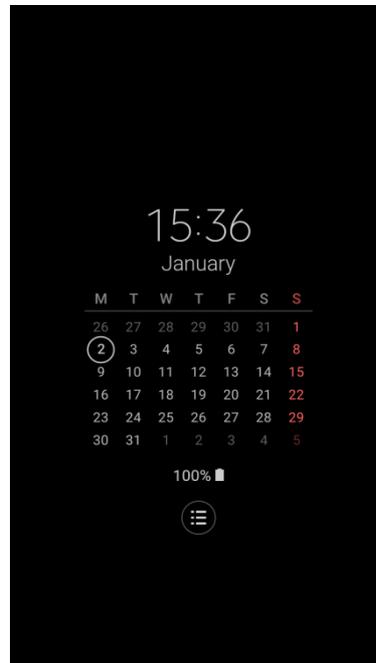
# New Features

## Always On Display

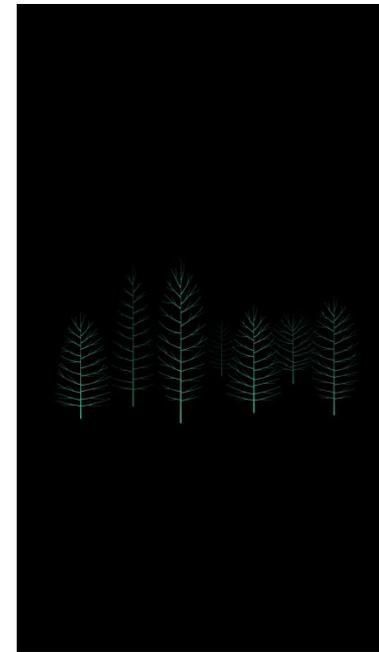
- With Always on Display, you can get information at a glance without waking up your phone.



Clock



Calendar



Image

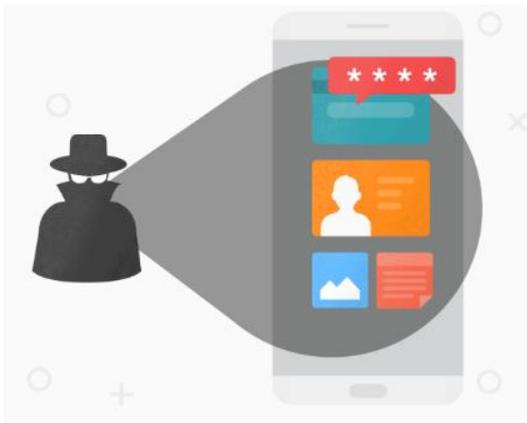
**Entering Path : Apps → Settings → Display → Always On Display**

# Key Features

## Secure Folder

KNOX support for Consumers : Create a secure folder to protect your private content and apps from others.

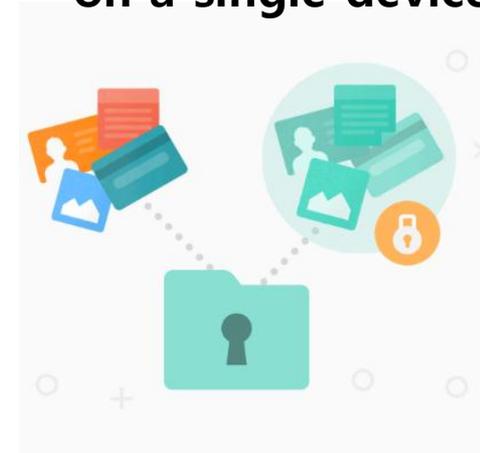
### 1. Protect your data



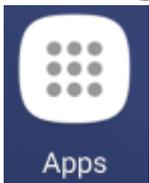
### 2. Lock your apps



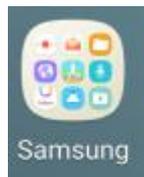
### 3. Use 2 identical apps on a single device



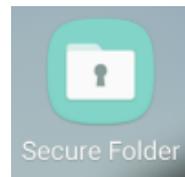
Entering Path :



Apps  
Apps



Samsung Folder  
Settings



Secure Folder  
Lock screen and security → Secure Folder

# SVC Technical Information

## Basic Information

AP Chipset	CP Chipset	IF Cable	RF Cable			RF Divider
	SEC S5E7870	GH81-11962W	GH81-11962G			-
Charger Spec	Charging Current Standard	Type of Structure			Water Resistance	
		Old	New Pocket	Backglass		
Adaptive (5.0 V-1.55A)	700~1600mA	-	-	○	IP68	

## SVC Jig List for SM-A320F

Item	Code	Item	Code
Hot Plate	GH81-12712E	TSP tape Attaching JIG	GH81-11905A
OCTA Disass'y Holder	GH81-12119A	Pressing JIG Body	GH81-11903A
OCTA Disass'y Jig Upper	GH81-12833A	Pressing Pad(for OCTA and Back Glass)	GH81-14371A
Battery Detaching Sheet	GH81-13983A	Pressing Pad(for Battery)	GH81-12694A



Copyright © 2016 Samsung Electronics

This guide is protected under international copyright laws.

No part of this guide may be reproduced, distributed, translated, or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or storing in any information storage and retrieval system, without the prior written permission of Samsung Electronics.