
2. Specification

2.1 LTE General Specification

	GPS	LTE FDD B1	LTE FDD B3	LTE FDD B19
Tx Freq. range	-	1920~1980 MHz	1710~1785 MHz	830~845 MHz
Rx Freq. range	1575.42MHz	2110~2170 MHz	1805~1880 MHz	875~890 MHz
Channel Bandwidth	2MHz	5, 10,15, 20 MHz	5, 10,15, 20 MHz	5, 10, 15 MHz
Channel Spacing	Not Used	100KHz	100KHz	100KHz
Number of Channel	1	25, 50, 75, 100	25, 50, 75, 100	25, 50, 75
Duplex Separation	-	90MHz	95MHz	45 MHz
Modulation	-	Uplink DCM : QPSK/16QAM KDDI : QPSK/16QAM/64QAM Downlink DCM : QPSK/16QAM/64QAM/25 6QAM KDDI : QPSK/16QAM/64QAM/25 6QAM	Uplink DCM : QPSK/16QAM KDDI : QPSK/16QAM/64QAM Downlink DCM : QPSK/16QAM/64QAM/25 6QAM KDDI : QPSK/16QAM/64QAM/25 6QAM	Uplink DCM : QPSK/16QAM KDDI : QPSK/16QAM/64QAM Downlink DCM : QPSK/16QAM/64QAM/25 6QAM KDDI : QPSK/16QAM/64QAM/25 6QAM
Rx Local Frequency	$F_{Rx} * 2$	-	-	-
Operating Temperature	-30°C ~ +60°C	-30°C ~ +60°C	-30°C ~ +60°C	-30°C ~ +60°C

2. Specification

	LTE FDD B21	LTE FDD B26	LTE FDD B28	LTE TDD B41
Tx Freq. range	1447.9~1462.9 MHz	814 ~ 849 MHz	703~748 MHz	2496 ~ 2690 MHz
Rx Freq. range	1495.9~1510.9 MHz	859 ~ 894 MHz	758~803 MHz	2496 ~ 2690 MHz
Channel Bandwidth	5, 10, 15 MHz	1.4, 3, 5, 10 MHz	5, 10, 15, 20 MHz	5, 10, 15, 20 MHz
Channel Spacing	100KHz	100Khz	100KHz	100KHz
Number of Channel	25, 50, 75	6, 15, 25, 50, 75	25, 50, 75,100	25, 50, 75,100
Duplex Separation	48 MHz	45 MHz	55 MHz	N/A
Type of Emission	Uplink DCM : QPSK/16QAM KDDI : QPSK/16QAM/64QAM Downlink DCM : QPSK/16QAM/64QAM/256QAM KDDI : QPSK/16QAM/64QAM/256QAM	Uplink DCM : QPSK/16QAM KDDI : QPSK/16QAM/64QAM Downlink DCM : QPSK/16QAM/64QAM/256QAM KDDI : QPSK/16QAM/64QAM/256QAM	Uplink DCM : QPSK/16QAM KDDI : QPSK/16QAM/64QAM Downlink DCM : QPSK/16QAM/64QAM/256QAM KDDI : QPSK/16QAM/64QAM/256QAM	Uplink DCM : QPSK/16QAM KDDI : QPSK/16QAM/64QAM Downlink DCM : QPSK/16QAM/64QAM/256QAM KDDI : QPSK/16QAM/64QAM/256QAM
Operating Temperature	-30°C ~ +60°C	-30°C ~ +60°C	-30°C ~ +60°C	-30°C ~ +60°C

2. Specification

	LTE TDD B42
Tx Freq. range	3400 ~ 3600 MHz
Rx Freq. range	3400 ~ 3600 MHz
Channel Bandwidth	5, 10, 15, 20 MHz
Channel Spacing	100KHz
Number of Channel	25, 50, 75,100
Duplex Separation	N/A
Type of Emission	Uplink DCM : QPSK/16QAM KDDI : QPSK/16QAM/64QAM Downlink DCM : QPSK/16QAM/64QAM/256QAM KDDI : QPSK/16QAM/64QAM/256QAM
Operating Temperature	-30°C ~ +60°C

2. Specification

2-2. GSM/WCDMA General Specification

	GSM850	EGSM 900	DCS1800	PCS1900	WCDMA 2100	WCDMA 850
Freq. Band[MHz] Uplink/ Downlink	824~849 869~894	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990	1922~1977 2112~2167	824~849 869~894
ARFCN range	128~251	0~124 & 975~1023	512~885	512~810	UL: 9612~9888 DL: 10562~10838	UL: 4132~4233 DL: 4357~4458
Tx/Rx spacing	45MHz	45MHz	95MHz	80MHz	190MHz	45MHz
Mod. Bit rate/ Bit Period	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	3.84Mcps	3.84Mcps
Time Slot Period/ Frame Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	FrameLength: 10ms Slotlength: 0.667ms	FrameLength: 10ms Slotlength: 0.667ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK	QPSKHQPSK	QPSKHQPSK
MS Power	33dBm~5dBm	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm	24dBm~ -50dBm	24dBm~ -50dBm
Power Class	5pcl ~ 19pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl	3(max+24dBm)	3(max+24dBm)
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm	-106.7dBm	-106.7dBm
TDMA Mux	8	8	8	8	8	8
Cell Radius	35Km	35Km	2Km	2Km	2Km	2Km

2. Specification

2-3. GSM Tx Power Class

TX Power control level	GSM850	TX Power control level	EGSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
5	33±2 dBm	5	33±2 dBm	0	30±3 dBm	0	30±3 dBm
6	31±2 dBm	6	31±2 dBm	1	28±3 dBm	1	28±3 dBm
7	29±2 dBm	7	29±2 dBm	2	26±3 dBm	2	26±3 dBm
8	27±2 dBm	8	27±2 dBm	3	24±3 dBm	3	24±3 dBm
9	25±2 dBm	9	25±2 dBm	4	22±3 dBm	4	22±3 dBm
10	23±2 dBm	10	23±2 dBm	5	20±3 dBm	5	20±3 dBm
11	21±2 dBm	11	21±2 dBm	6	18±3 dBm	6	18±3 dBm
12	19±2 dBm	12	19±2 dBm	7	16±3 dBm	7	16±3 dBm
13	17±2 dBm	13	17±2 dBm	8	14±3 dBm	8	14±3 dBm
14	15±2 dBm	14	15±2 dBm	9	12±4 dBm	9	12±4 dBm
15	13±2 dBm	15	13±2 dBm	10	10±4 dBm	10	10±4 dBm
16	11±3 dBm	16	11±3 dBm	11	8±4 dBm	11	8±4 dBm
17	9±3dBm	17	9±3dBm	12	6±4 dBm	12	6±4 dBm
18	7±3 dBm	18	7±3 dBm	13	4±4 dBm	13	4±4 dBm
19	5±3 dBm	19	5±3 dBm	14	2±5 dBm	14	2±5 dBm
-	-	-	-	15	0±5 dBm	15	0±5 dBm

3. Operation Instruction and Installation

Main Function

Item	Description
OS	Android V7.1.1
RF	2G GSM 850(B5) / 900(B8) / 1800(B3) / 1900(B2) 3G WCDMA : B1 / B5 / B6 / B19 4G(LTE) - FDD : B1 / B3 / B4 / B5 / B7 / B12/ B13 /B17 / B19 / B21 / B26 / B28 - TDD : B38 / B39 / B40 / B41 / 42
Battery	3,300mAh
Base Band	MSM8998 / 2.35GHz, 1.9GHz
Other RF	GPS, Glonass, BT 4.2, USB 3.1, WIFI 802.11 a/b/g/n/ac (2.4G+5GHz), NFC, MST
Camera	12 MP Rear(wide+tele), Dual Pixel, AF 8.0 MP Front
LCD	6.32" Quad HD, 2960 x 1440, dual edge Super AMOLED
RAM	6GB LPDDR4X + 64GB UFS
Sensor	Accelerometer, Barometer, Fingerprint Sensor, Gyro Sensor, Geomagnetic Sensor, Hall Sensor, HR Sensor, Iris Sensor, Proximity Sensor, RGB Light Sensor, Pressure Sensor
Accessory	Charger : 5V/2A or 9 V/1.67 A Data cable : USB Type-C Earjack : 3.5pi, 4Pin

9. Reference Abbreviate

Reference Abbreviate

- **AAC**: Advanced Audio Coding.
- **AVC** : Advanced Video Coding.
- **BER** : Bit Error Rate
- **BPSK**: Binary Phase Shift Keying
- **CA** : Conditional Access
- **CDM** : Code Division Multiplexing
- **C/I** : Carrier to Interference
- **DMB** : Digital Multimedia Broadcasting
- **EN** : European Standard
- **ES** : Elementary Stream
- **ETSI**: European Telecommunications Standards Institute
- **MPEG**: Moving Picture Experts Group
- **PN** : Pseudo-random Noise
- **PS** : Pilot Symbol
- **QPSK**: Quadrature Phase Shift Keying
- **RS** : Reed-Solomon
- **SI** : Service Information
- **TDM** : Time Division Multiplexing
- **TS** : Transport Stream

1. Safety Precautions

1-1. Repair Precaution

Before attempting any repair or detailed tuning, shield the device from RF noise or static electricity discharges.

Use only demagnetized tools that are specifically designed for small electronic repairs, as most electronic parts are sensitive to electromagnetic forces.

Use only high quality screwdrivers when servicing products. Low quality screwdrivers can easily damage the heads of screws.

Use only conductor wire of the properly gauge and insulation for low resistance, because of the low margin of error of most testing equipment.

We recommend 22-gauge twisted copper wire.

Hand-soldering is not recommended, because printed circuit boards (PCBs) can be easily damaged, even with relatively low heat. Never use a soldering iron with a power rating of more than 100 watts and use only lead-free solder with a melting point below 250°C (482°F).

Prior to disassembling the battery charger for repair, ensure that the AC power is disconnected. Always use the replacement parts that are registered in the SEC system. Third-party replacement parts may not function properly.

1. Safety Precautions

1-2. ESD(Electrostatically Sensitive Devices) Precaution

Many semiconductors and ESDs in electronic devices are particularly sensitive to static discharge and can be easily damaged by it. We recommend protecting these components with conductive anti-static bags when you store or transport them.

Always use an anti-static strap or wristband and remove electrostatic buildup or dissipate static electricity from your body before repairing ESDs.

Ensure that soldering irons have AC adapter with ground wires and that the ground wires are properly connected.

Use only desoldering tools with plastic tips to prevent static discharge.

Properly shield the work environment from accidental electrostatic discharge before opening packages containing ESDs.

The potential for static electricity discharge may be increased in low humidity environments, such as air-conditioned rooms. Increase the airflow to the working area to decrease the chance of accidental static electricity discharges.

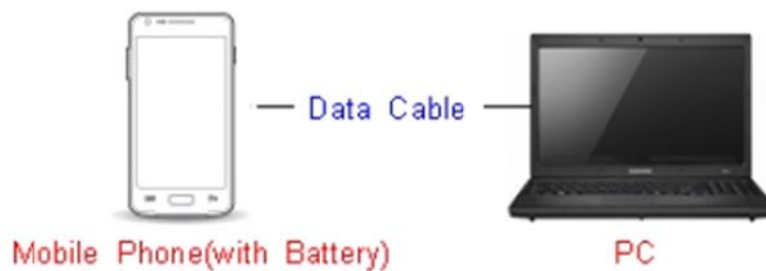
6. Level 1 Repair

6-1. S/W Download

6-1-1. Prepare for S/W Downloading

- Installation program: Downloader Program ([Odin3 v3.12.10.exe](#))
- Mobile Phone
- Data Cable
- Mobile device specific S/W: Binary files

※ Settings

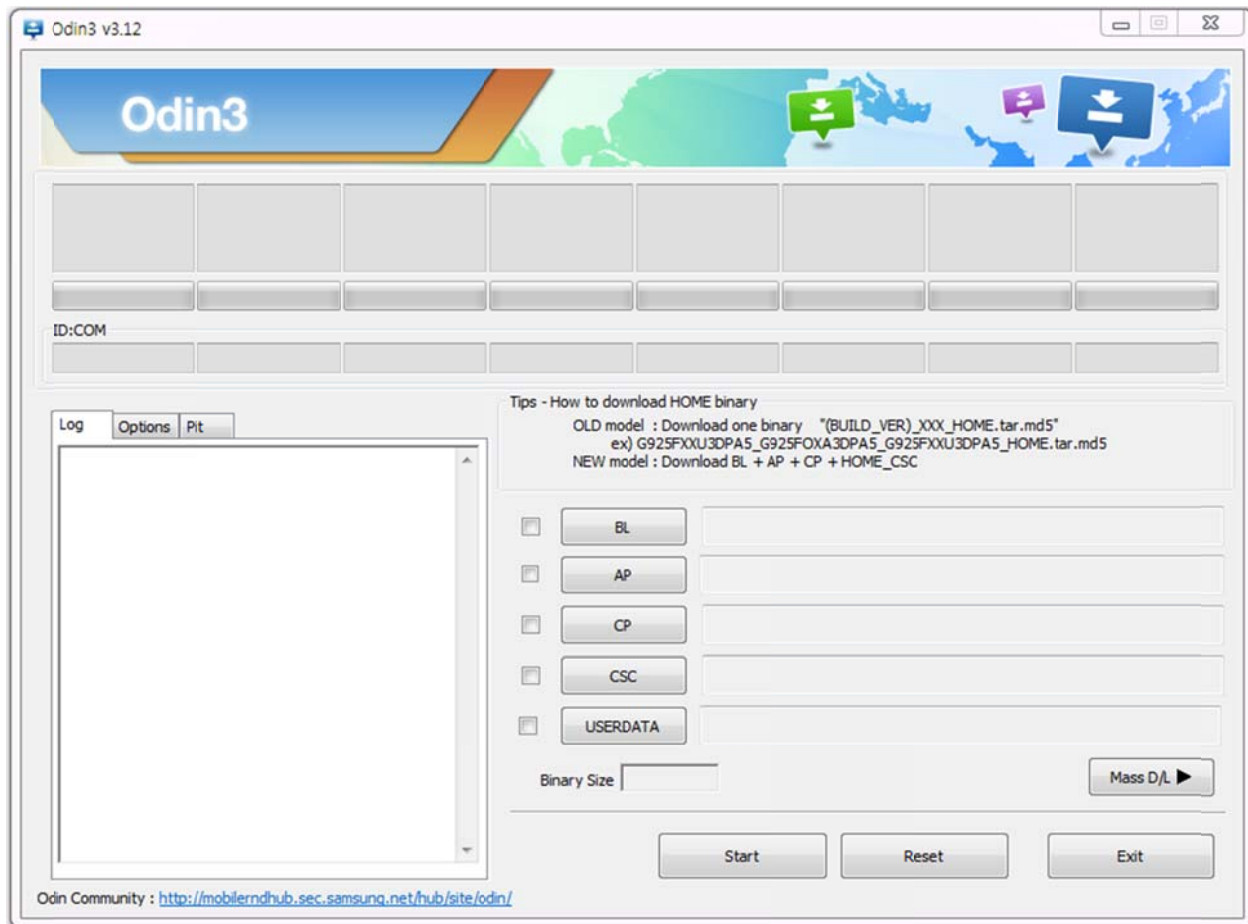


Data Cable : [GH39-01949A](#)

6. Level 1 Repair

6-1-2. S/W Installation Program (Downloader program)

- Open up the S/W Installation Program by executing the "**Odin3 v3.12.10.exe**"

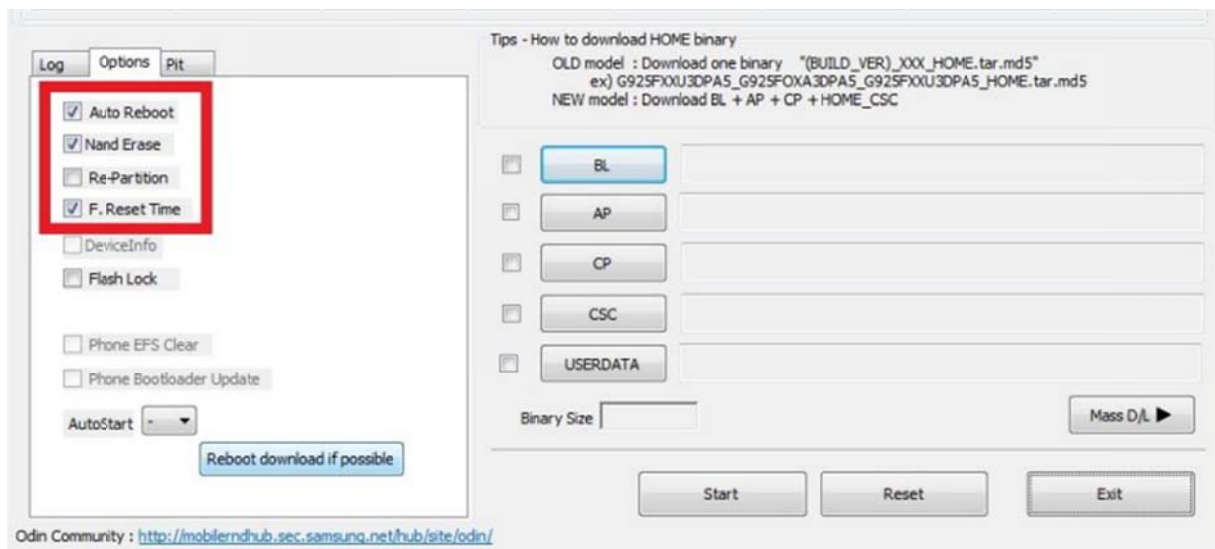
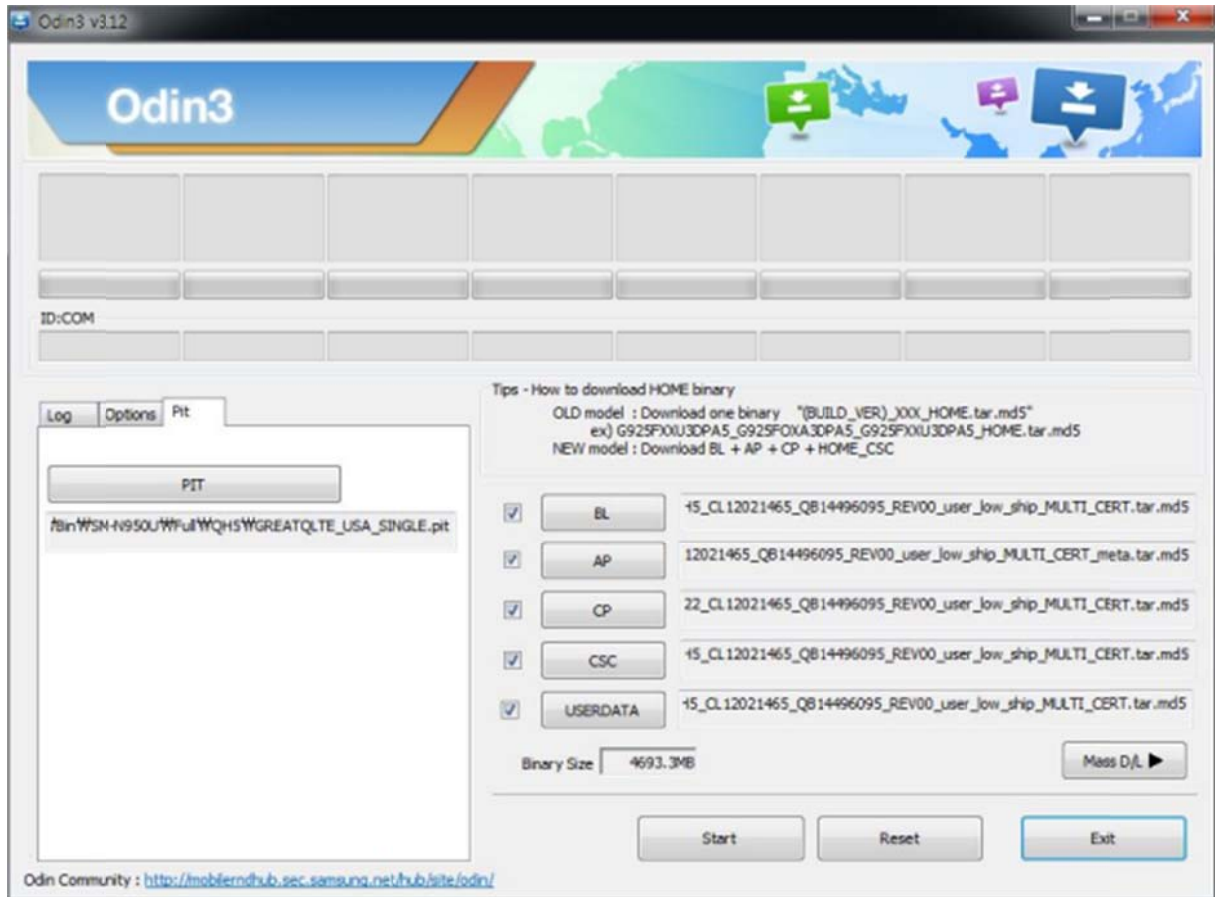


6. Level 1 Repair

1. Enable the check mark by click on the following options,

- Check Auto Reboot, F. Reset Time, Nand Erase
- Check PIT
- Check BOOTLOADER, PDA, PHONE, CSC and USERDATA Files

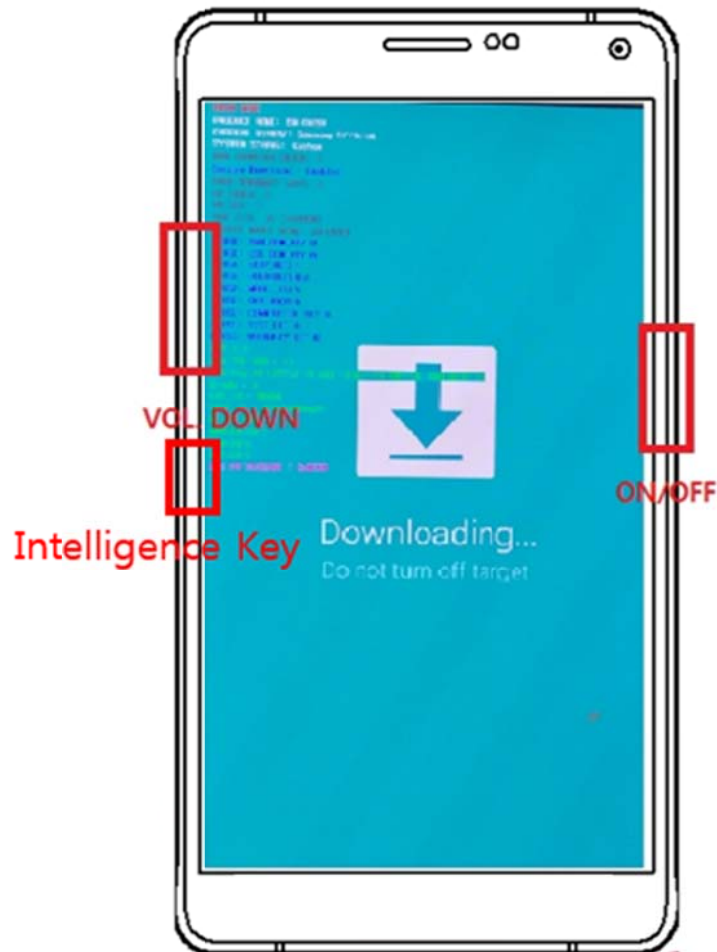
* Note : "Odin v3.12.10 or above" checks MD5 checksum just after file selection.



6. Level 1 Repair

2. Enter into Download Mode

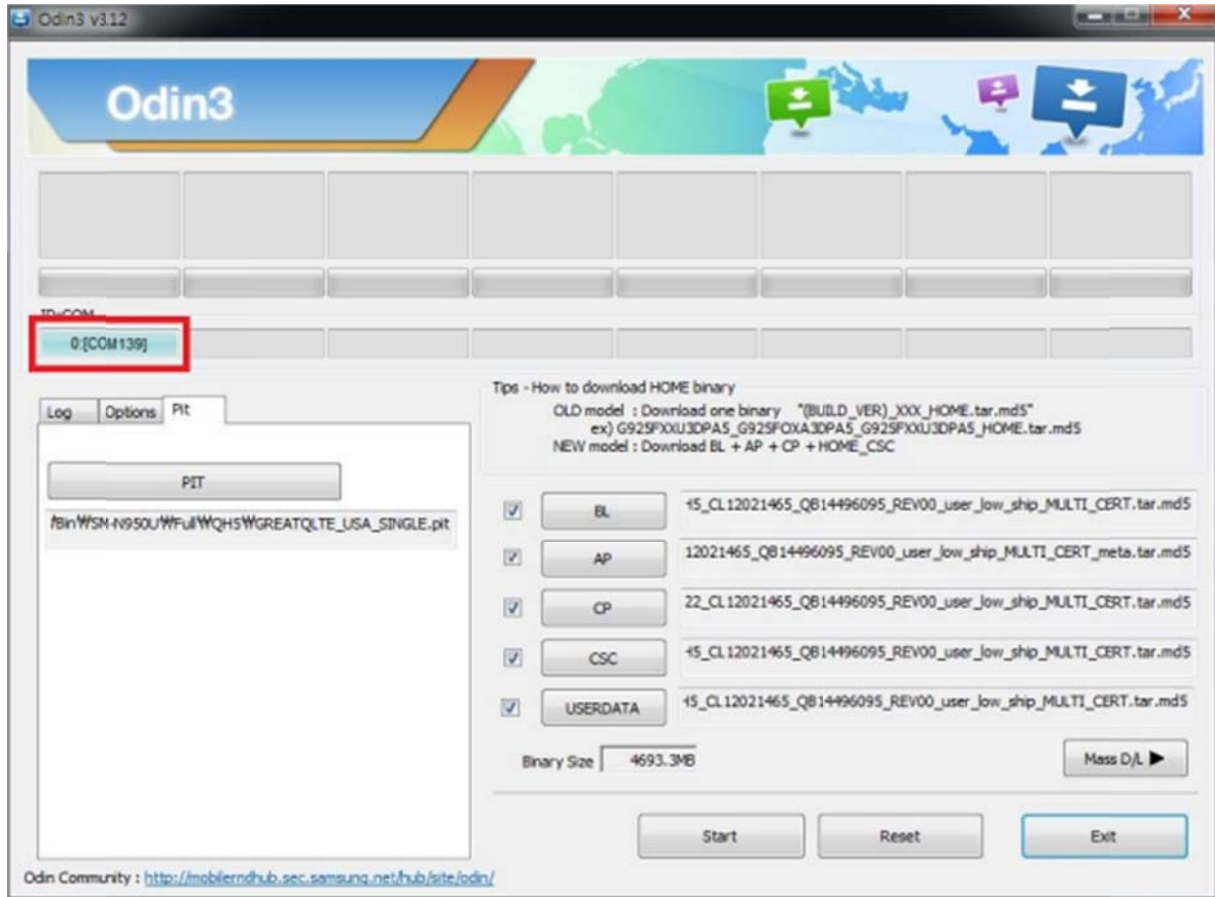
- Enter into Download Mode by pressing Volume Down button, Intelligence button and ON/OFF Button simultaneously followed by pressing Volume up button as a direction of the phone.



6. Level 1 Repair

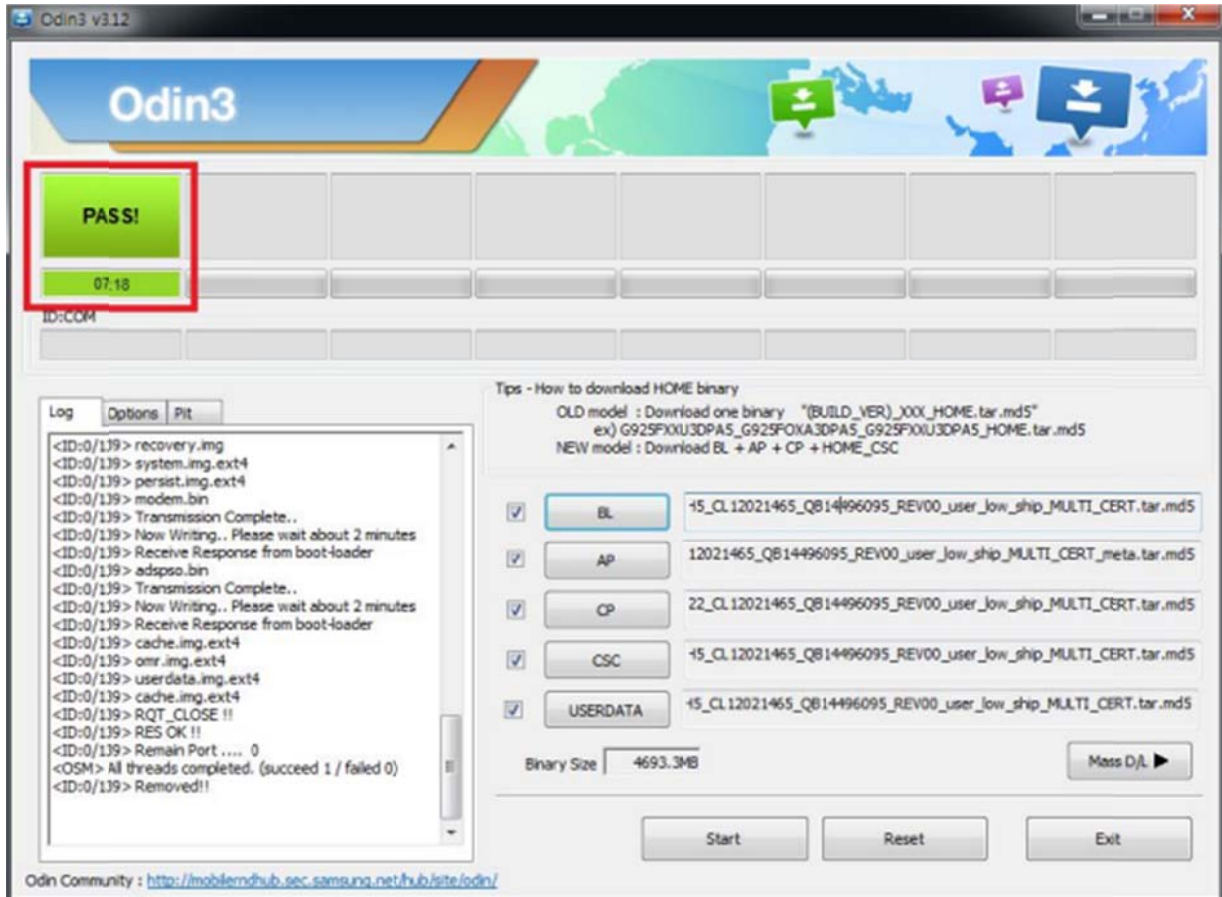
3. Connect the device to PC via Data Cable.

Make sure that the one of communication ports [ID:COM] box is highlighted in sky blue. The device is now connected with the PC and ready to download the binary files in it.



6. Level 1 Repair

4. Start downloading the binary files into the device by clicking Start button on the screen. The green colored "PASS!" sign will appear on the upper-left box if the binary files have been successfully downloaded into the device.



5. Disconnect the device from the Data cable.

6. Once the device boots up, you can check the version of the binary file or name by pressing the following code in sequence; ***#1234#**

You can perform Factory data Reset by Settings → General Management → Reset

※ Caution. Never disconnect during the S/W downloading.

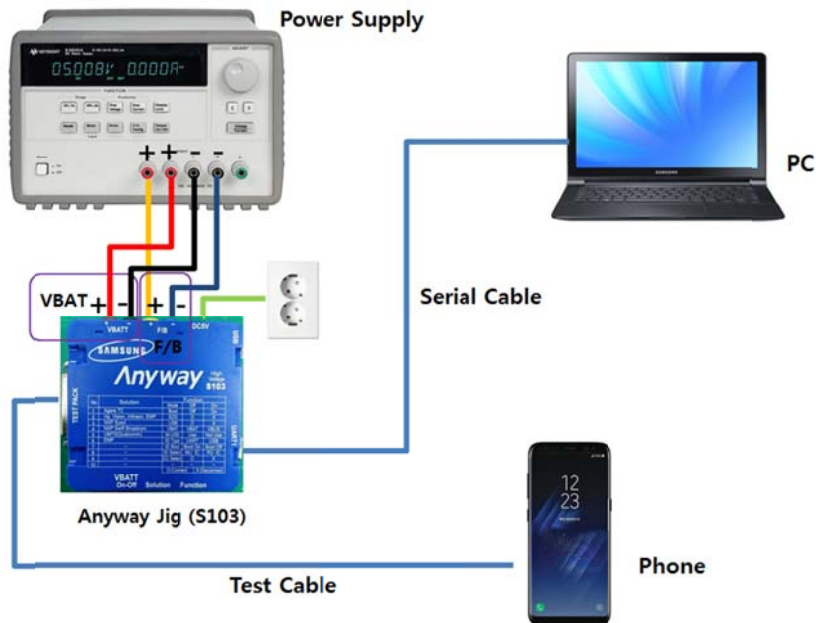
6. Level 1 Repair

6-2. IMEI writing

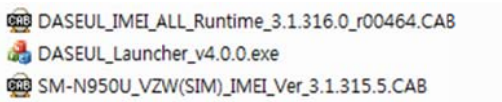
6-2-1. Preparation

- New IMEI writing Program has been released.
- Supported Model : Models which CAB files are uploaded on HHPsvc INI File category, instead of ini file.
- Refer to below IMEI writing procedure.

- H/W



- S/W

① Library Install	To use Daseul, library files should be installed. Refer to SVC Bulletin “(11-82) Daseul (New IMEI writing Program) Library Install guide_rev1.0”
② Launcher	DASEUL_SVC_Launcher_v3.0.12 or higher -Uploaded on HHPsvc Notice
③ Runtime File	1. DASEUL_IMEI_ALL_Runtime_3.1.316.0_r00464.CAB or higher -Uploaded on HHPsvc Notice 2. Make ‘ModelName’ folder at the same position with launcher & Runtime file. 
④ Model File	Copy Model File under the ‘Model Name’ folder

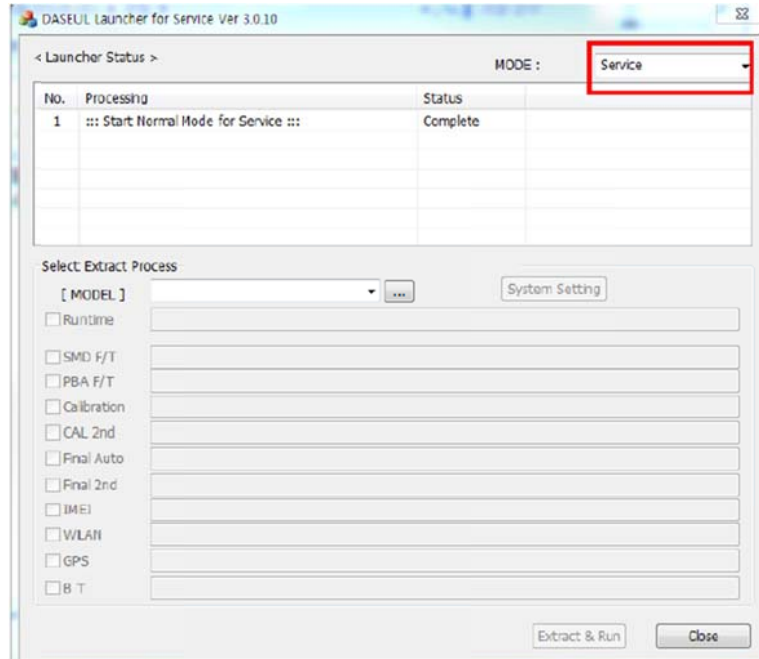
6. Level 1 Repair


6-2-2. IMEI writing Process

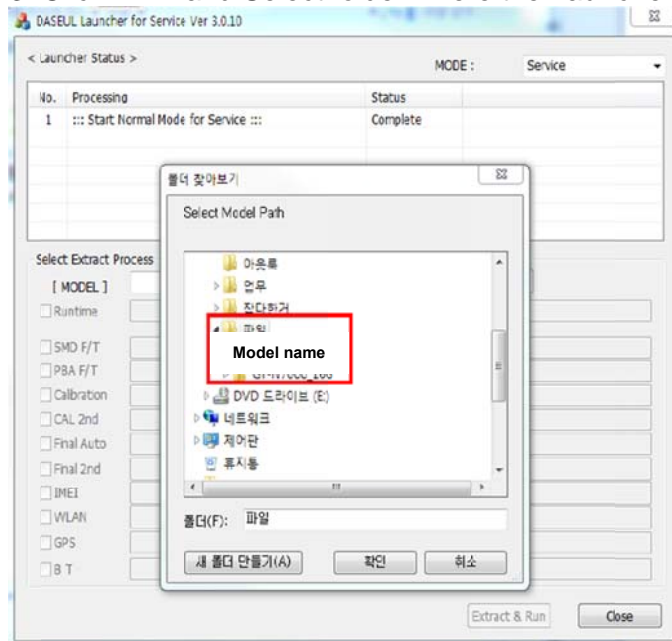
1. Run DASEUL_SVC_Launcher_v3.0.12.exe



2. Select Service Mode

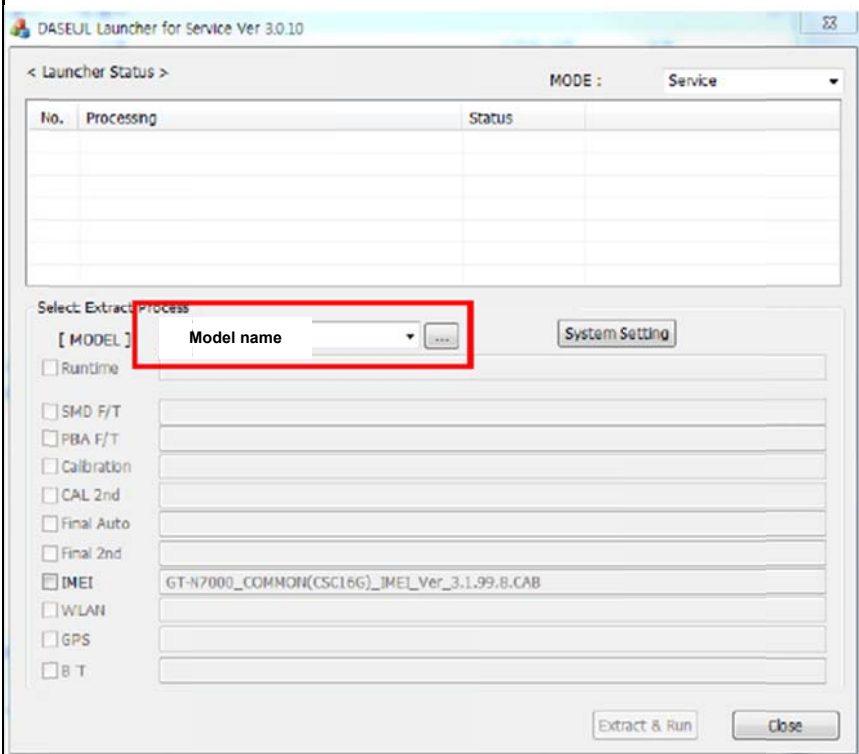


3. Click  and Select folder where the Launcher exists



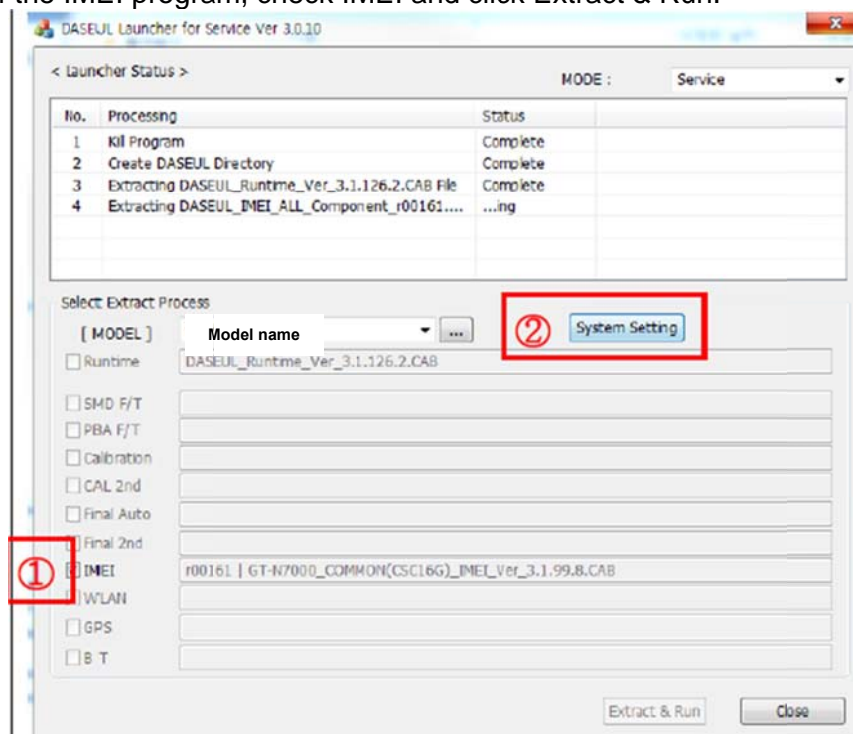
6. Level 1 Repair

4. Select Model



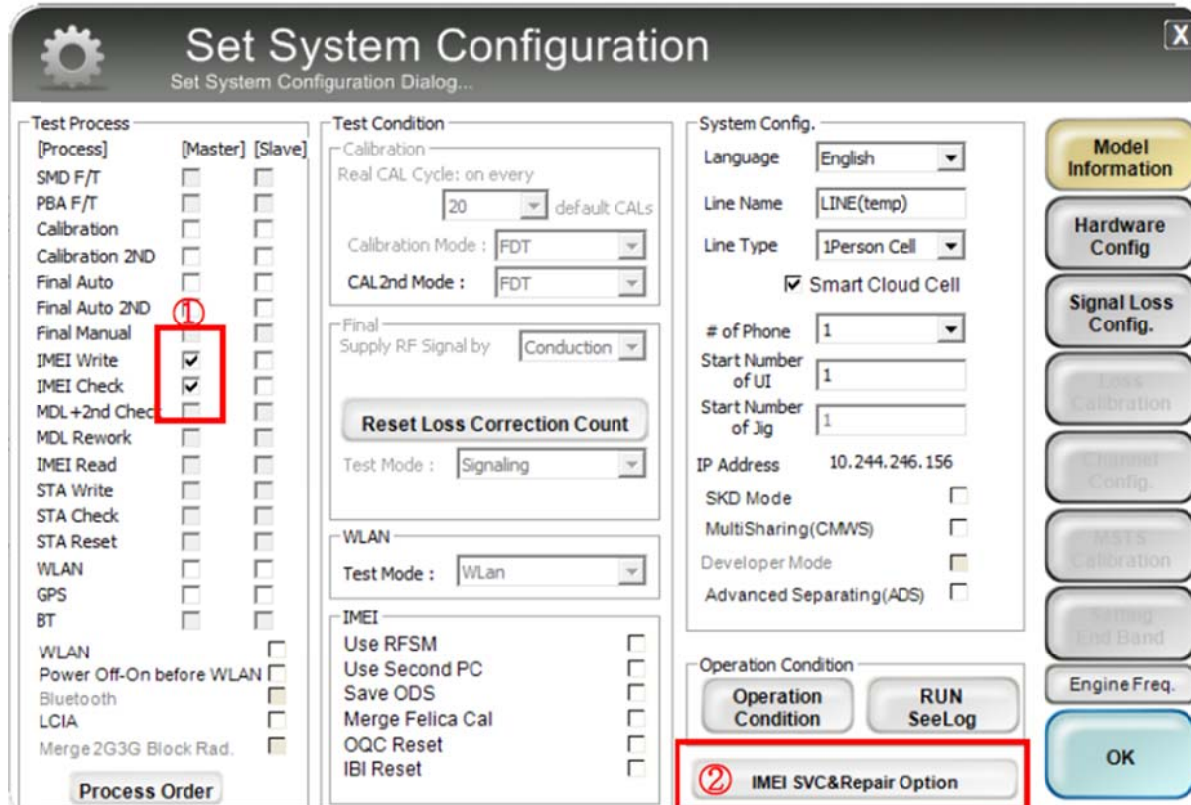
5. Check IMEI and click System Setting

※Once you setup the setting, you don't have to do it again, unless there is change.
From second run of the IMEI program, check IMEI and click Extract & Run.



6. Level 1 Repair

6. Check IMEI Write / IMEI Check and click IMEI SVC & Repair Option.



The 'Set System Configuration' dialog box is shown. It has a title bar with a gear icon and a close button. The main area is divided into several sections: 'Test Process' (a list of checkboxes for various tests), 'Test Condition' (fields for calibration and RF signal), 'System Config.' (fields for language, line name, and other settings), and a right-hand sidebar with buttons for 'Model Information', 'Hardware Config', 'Signal Loss Config.', 'Loss Calibration', 'Channel Config.', 'MSTs Calibration', 'Setting End Band', and 'Engine Freq.'. At the bottom, there are buttons for 'Operation Condition', 'RUN SeeLog', and 'OK'. A red box highlights the 'IMEI Write' and 'IMEI Check' checkboxes in the 'Test Process' section, with a circled '1' next to them. Another red box highlights the 'IMEI SVC&Repair Option' button at the bottom, with a circled '2' next to it.

Test Process	[Master]	[Slave]
SMD F/T	<input type="checkbox"/>	<input type="checkbox"/>
PBA F/T	<input type="checkbox"/>	<input type="checkbox"/>
Calibration	<input type="checkbox"/>	<input type="checkbox"/>
Calibration 2ND	<input type="checkbox"/>	<input type="checkbox"/>
Final Auto	<input type="checkbox"/>	<input type="checkbox"/>
Final Auto 2ND	<input type="checkbox"/>	<input type="checkbox"/>
Final Manual	<input type="checkbox"/>	<input type="checkbox"/>
IMEI Write	<input checked="" type="checkbox"/>	<input type="checkbox"/>
IMEI Check	<input checked="" type="checkbox"/>	<input type="checkbox"/>
MDL+2nd Check	<input type="checkbox"/>	<input type="checkbox"/>
MDL Rework	<input type="checkbox"/>	<input type="checkbox"/>
IMEI Read	<input type="checkbox"/>	<input type="checkbox"/>
STA Write	<input type="checkbox"/>	<input type="checkbox"/>
STA Check	<input type="checkbox"/>	<input type="checkbox"/>
STA Reset	<input type="checkbox"/>	<input type="checkbox"/>
WLAN	<input type="checkbox"/>	<input type="checkbox"/>
GPS	<input type="checkbox"/>	<input type="checkbox"/>
BT	<input type="checkbox"/>	<input type="checkbox"/>
WLAN	<input type="checkbox"/>	<input type="checkbox"/>
Power Off-On before WLAN	<input type="checkbox"/>	<input type="checkbox"/>
Bluetooth	<input type="checkbox"/>	<input type="checkbox"/>
LCIA	<input type="checkbox"/>	<input type="checkbox"/>
Merge 2G3G Block Rad.	<input type="checkbox"/>	<input type="checkbox"/>

Test Condition

Calibration

Real CAL Cycle: on every default CALs

Calibration Mode:

CAL2nd Mode:

Final

Supply RF Signal by:

Reset Loss Correction Count

Test Mode:

WLAN

Test Mode:

IMEI

Use RFSM ☐

Use Second PC ☐

Save ODS ☐

Merge Felica Cal ☐

OQC Reset ☐

IBI Reset ☐

System Config.

Language:

Line Name:

Line Type:

☒ Smart Cloud Cell

of Phone:

Start Number of UI:

Start Number of Jig:

IP Address: 10.244.246.156

SKD Mode ☐

MultiSharing(CMWS) ☐

Developer Mode ☐

Advanced Separating(ADS) ☐

Operation Condition

Operation Condition

IMEI SVC&Repair Option

Model Information

Hardware Config

Signal Loss Config.

Loss Calibration

Channel Config.

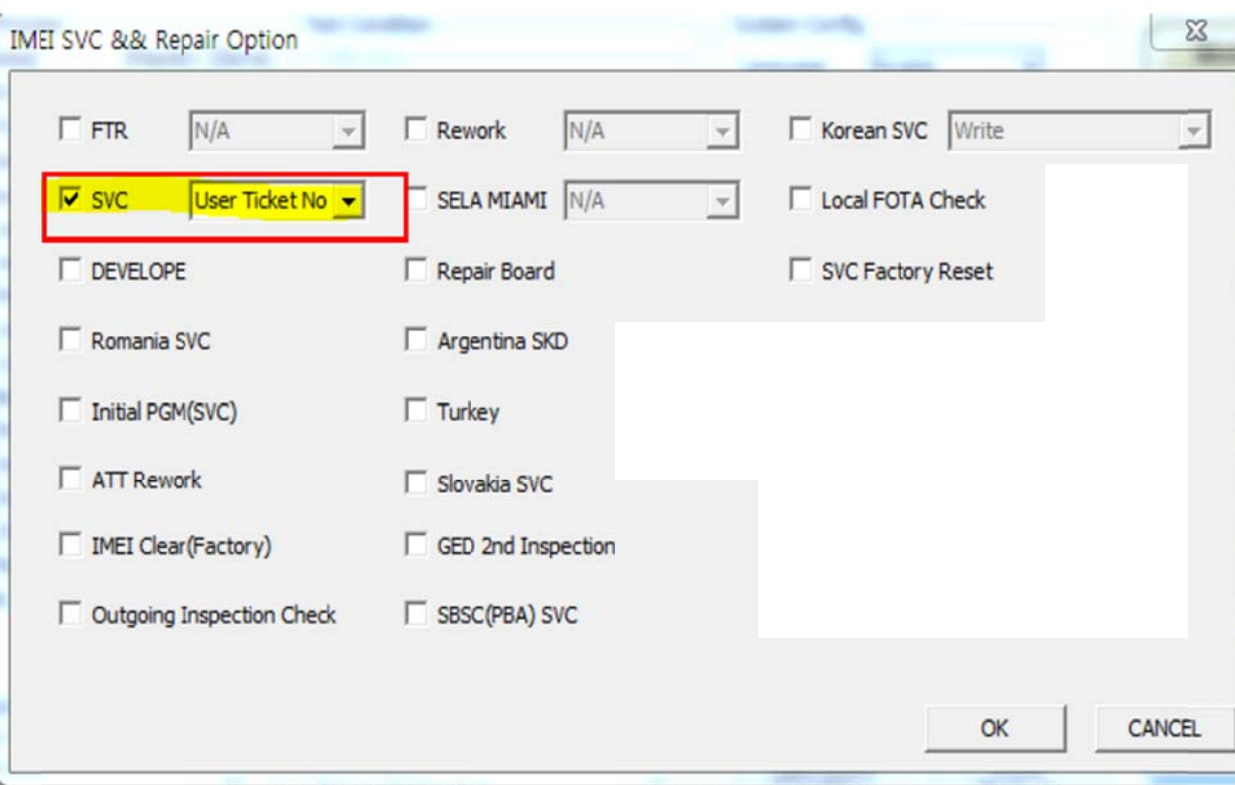
MSTs Calibration

Setting End Band

Engine Freq.

OK

7. Check 'SVC , User Ticket No' and click OK



The 'IMEI SVC && Repair Option' dialog box is shown. It has a title bar with a close button. The main area contains several checkboxes and dropdown menus for various service options. A red box highlights the 'SVC' checkbox and the 'User Ticket No' dropdown menu. At the bottom, there are 'OK' and 'CANCEL' buttons.

IMEI SVC && Repair Option

☐ FTR ☐ Rework ☐ Korean SVC

☒ SVC ☐ SELA MIAMI ☐ Local FOTA Check

☐ DEVELOPE ☐ Repair Board ☐ SVC Factory Reset

☐ Romania SVC ☐ Argentina SKD

☐ Initial PGM(SVC) ☐ Turkey

☐ ATT Rework ☐ Slovakia SVC

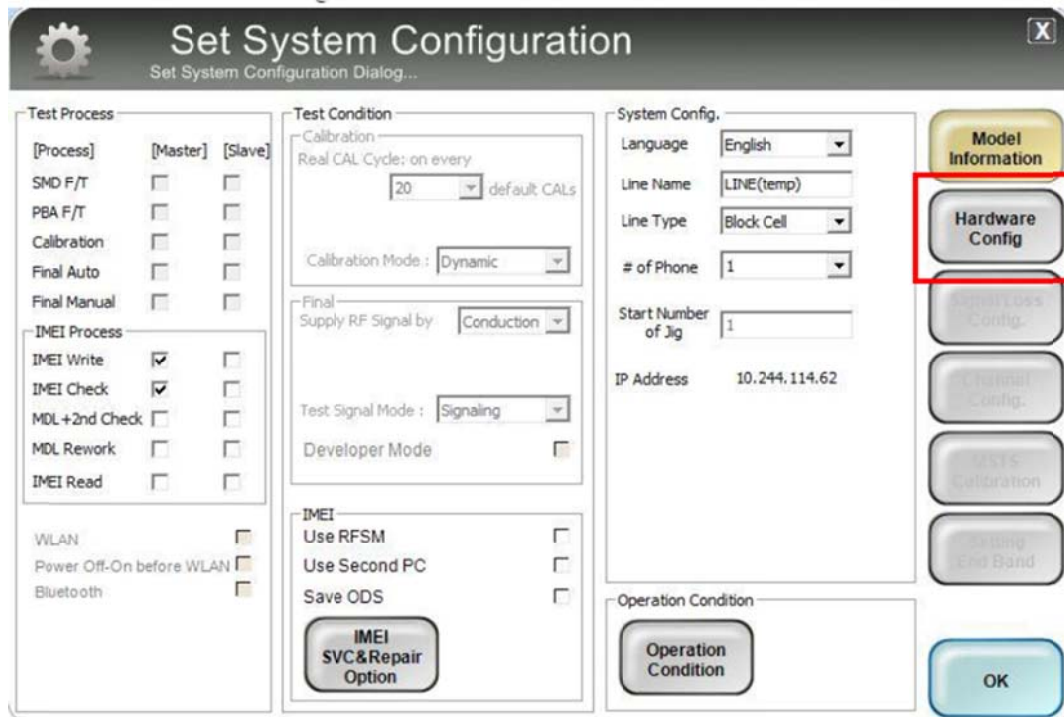
☐ IMEI Clear(Factory) ☐ GED 2nd Inspection

☐ Outgoing Inspection Check ☐ SBSC(PBA) SVC

OK CANCEL

6. Level 1 Repair

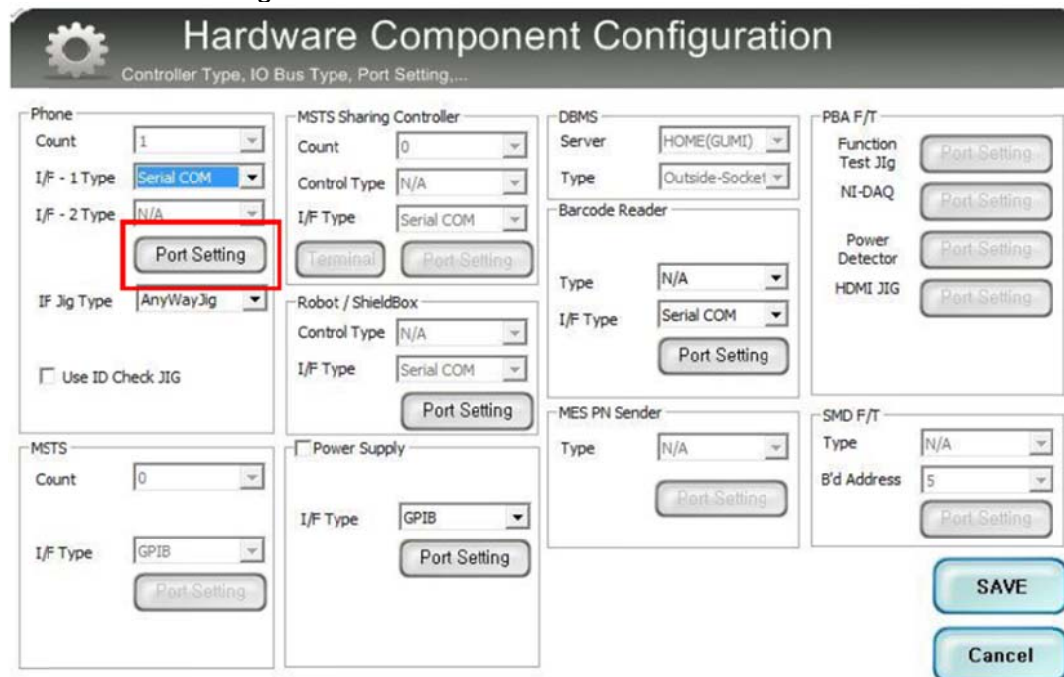
8. Click 'Hardware Config'



The 'Set System Configuration' dialog box is shown. It has a title bar with a gear icon and the text 'Set System Configuration Dialog...'. The dialog is divided into several sections:

- Test Process:** Includes checkboxes for [Process], [Master], and [Slave] for SMD F/T, PBA F/T, Calibration, Final Auto, and Final Manual. Below this is the 'IMEI Process' section with checkboxes for IMEI Write, IMEI Check, MDL+2nd Check, MDL Rework, and IMEI Read.
- Test Condition:** Includes a 'Calibration' section with a 'Real CAL Cycle: on every' dropdown set to '20' and a 'Calibration Mode' dropdown set to 'Dynamic'. Below this is a 'Final' section with a 'Supply RF Signal by' dropdown set to 'Conduction'. There is also a 'Test Signal Mode' dropdown set to 'Signaling' and a 'Developer Mode' checkbox.
- System Config.:** Includes a 'Language' dropdown set to 'English', a 'Line Name' text field with 'LINE(temp)', a 'Line Type' dropdown set to 'Block Cell', a '# of Phone' dropdown set to '1', a 'Start Number of Jig' text field with '1', and an 'IP Address' text field with '10.244.114.62'.
- Model Information:** A vertical sidebar on the right with buttons for 'Model Information', 'Hardware Config' (highlighted with a red box), 'Signal Loss Config.', 'Channel Config.', 'MSTS Calibration', and 'Setting End Band'.
- Operation Condition:** A button at the bottom right.
- IMEI SVC&Repair Option:** A button at the bottom left.
- WLAN:** Checkboxes for 'Power Off-On before WLAN' and 'Bluetooth'.
- Buttons:** 'OK' and 'Operation Condition' buttons are at the bottom.

9. Click 'Port Setting'

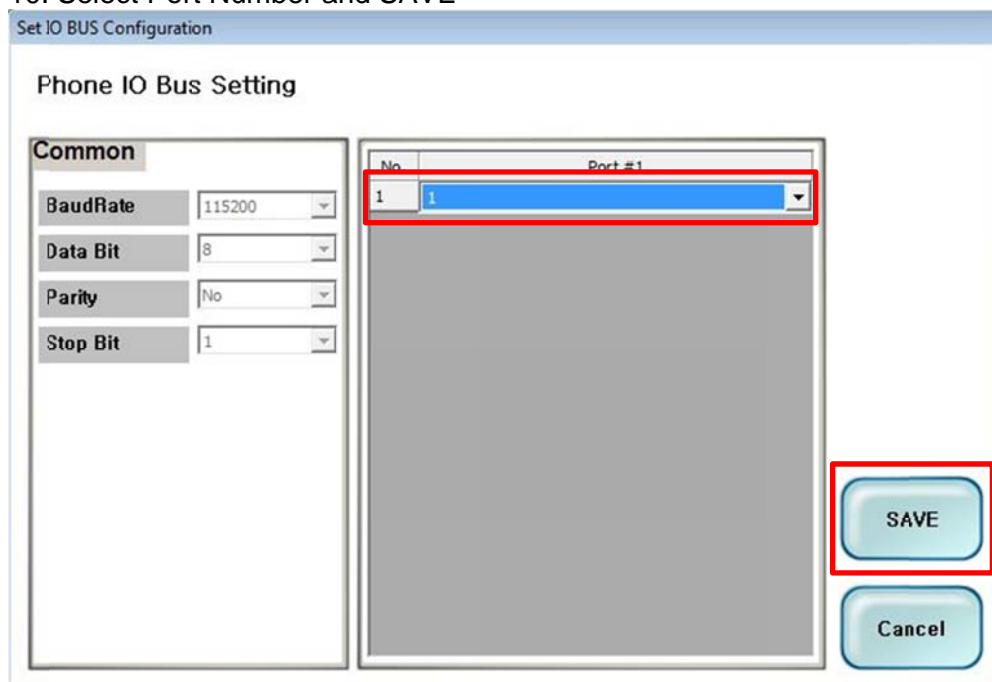


The 'Hardware Component Configuration' dialog box is shown. It has a title bar with a gear icon and the text 'Controller Type, IO Bus Type, Port Setting...'. The dialog is divided into several sections:

- Phone:** Includes a 'Count' dropdown set to '1', an 'I/F - 1 Type' dropdown set to 'Serial COM', an 'I/F - 2 Type' dropdown set to 'N/A' (highlighted with a red box), and an 'IF Jig Type' dropdown set to 'AnyWayJig'. There is also a 'Use ID Check JIG' checkbox.
- MSTS Sharing Controller:** Includes a 'Count' dropdown set to '0', a 'Control Type' dropdown set to 'N/A', and an 'I/F Type' dropdown set to 'Serial COM'. There are 'Terminal' and 'Port Setting' buttons.
- Robot / ShieldBox:** Includes a 'Control Type' dropdown set to 'N/A' and an 'I/F Type' dropdown set to 'Serial COM'. There is a 'Port Setting' button.
- DBMS:** Includes a 'Server' dropdown set to 'HOME(GUMI)' and a 'Type' dropdown set to 'Outside-Socket'.
- Barcode Reader:** Includes a 'Type' dropdown set to 'N/A' and an 'I/F Type' dropdown set to 'Serial COM'. There is a 'Port Setting' button.
- MES PN Sender:** Includes a 'Type' dropdown set to 'N/A'. There is a 'Port Setting' button.
- PBA F/T:** Includes buttons for 'Function Test Jig', 'NI-DAQ', 'Power Detector', and 'HDMI JIG', each with a 'Port Setting' button.
- SMD F/T:** Includes a 'Type' dropdown set to 'N/A' and a 'B'd Address' dropdown set to '5'. There is a 'Port Setting' button.
- MSTS:** Includes a 'Count' dropdown set to '0' and an 'I/F Type' dropdown set to 'GPIOB'. There is a 'Port Setting' button.
- Power Supply:** Includes an 'I/F Type' dropdown set to 'GPIOB'. There is a 'Port Setting' button.
- Buttons:** 'SAVE' and 'Cancel' buttons are at the bottom right.

6. Level 1 Repair

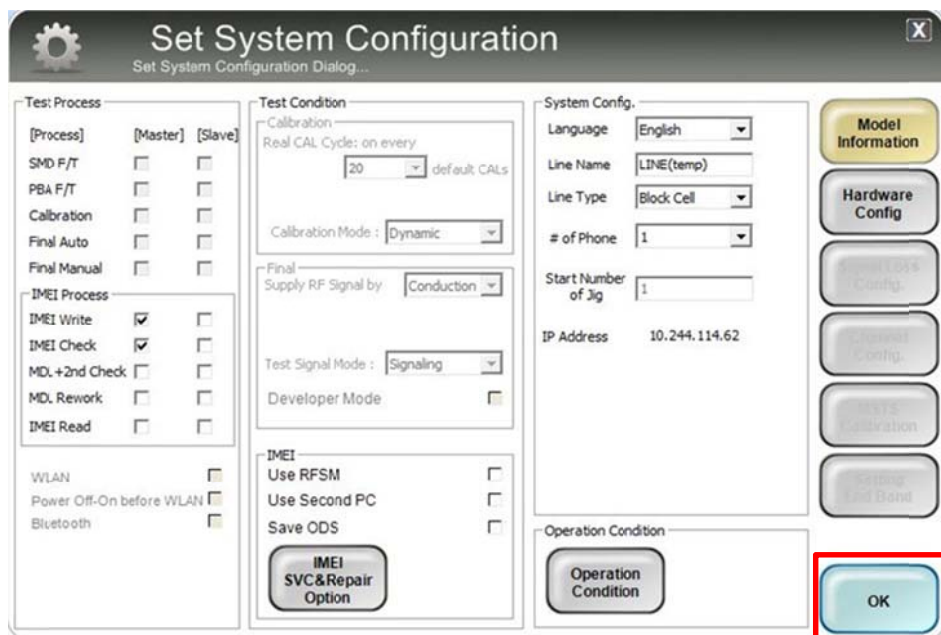
10. Select Port Number and SAVE



The 'Set IO BUS Configuration' dialog box is shown. It has a title bar 'Set IO BUS Configuration' and a subtitle 'Phone IO Bus Setting'. On the left, under the 'Common' tab, there are four settings: BaudRate (115200), Data Bit (8), Parity (No), and Stop Bit (1). On the right, there is a table with two columns: 'No.' and 'Port #1'. The first row of the table is highlighted with a red box, showing '1' in the 'No.' column and '1' in the 'Port #1' column. Below the table, there are two buttons: 'SAVE' and 'Cancel'. The 'SAVE' button is highlighted with a red box.

No.	Port #1
1	1

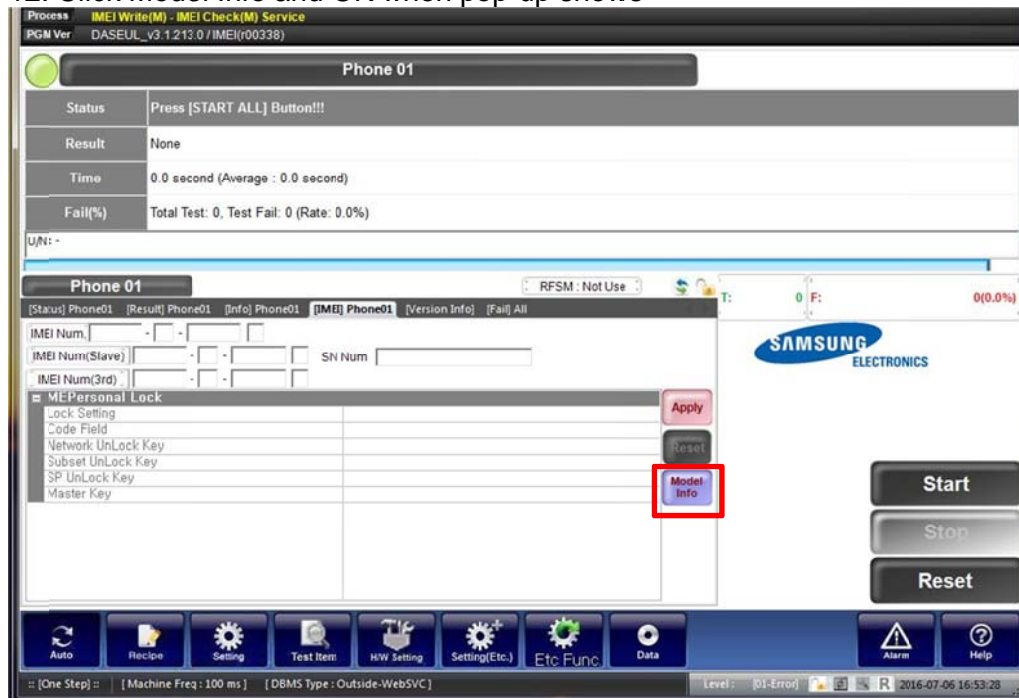
11. Click OK to proceed



The 'Set System Configuration' dialog box is shown. It has a title bar 'Set System Configuration' and a subtitle 'Set System Configuration Dialog...'. The dialog is divided into several sections: 'Test Process' (with checkboxes for [Process], [Master], [Slave], SMD F/T, PBA F/T, Calibration, Final Auto, Final Manual, IMEI Process, IMEI Write, IMEI Check, MDL +2nd Check, MDL Rework, IMEI Read, WLAN, Power Off-On before WLAN, and Bluetooth), 'Test Condition' (with fields for Calibration, Real CAL Cycle, Calibration Mode, Final Supply RF Signal by, Test Signal Mode, and Developer Mode), 'System Config.' (with fields for Language, Line Name, Line Type, # of Phone, Start Number of Jig, and IP Address), and 'Operation Condition' (with checkboxes for Use RFSM, Use Second PC, and Save ODS). On the right side, there is a vertical stack of buttons: 'Model Information', 'Hardware Config', 'Serial I/O's Config.', 'Channel Config.', 'RF Calibration', and 'Setting End Band'. At the bottom right, there is an 'OK' button highlighted with a red box.

6. Level 1 Repair

12. Click Model Info and OK when pop-up shows



13. Click OK

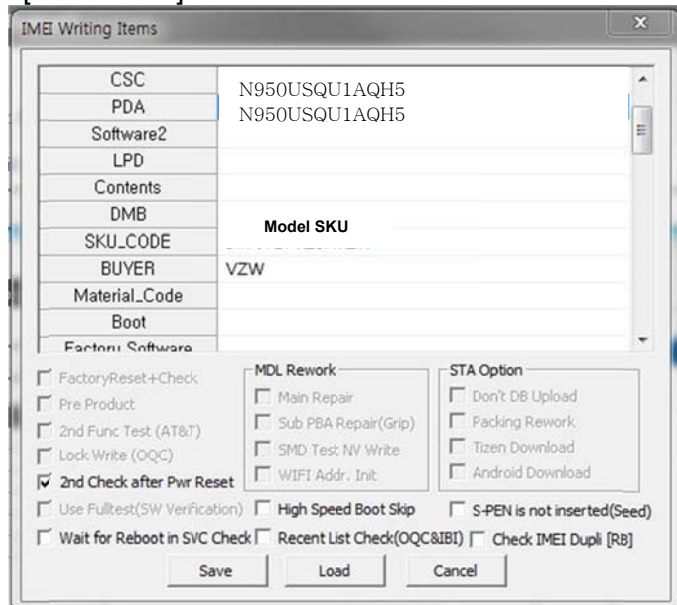


6. Level 1 Repair

14. Input SKU_CODE and BUYER, then click Save button.

※ Refer to HHPsvc→IMEI Review to check SKU Code and buyer

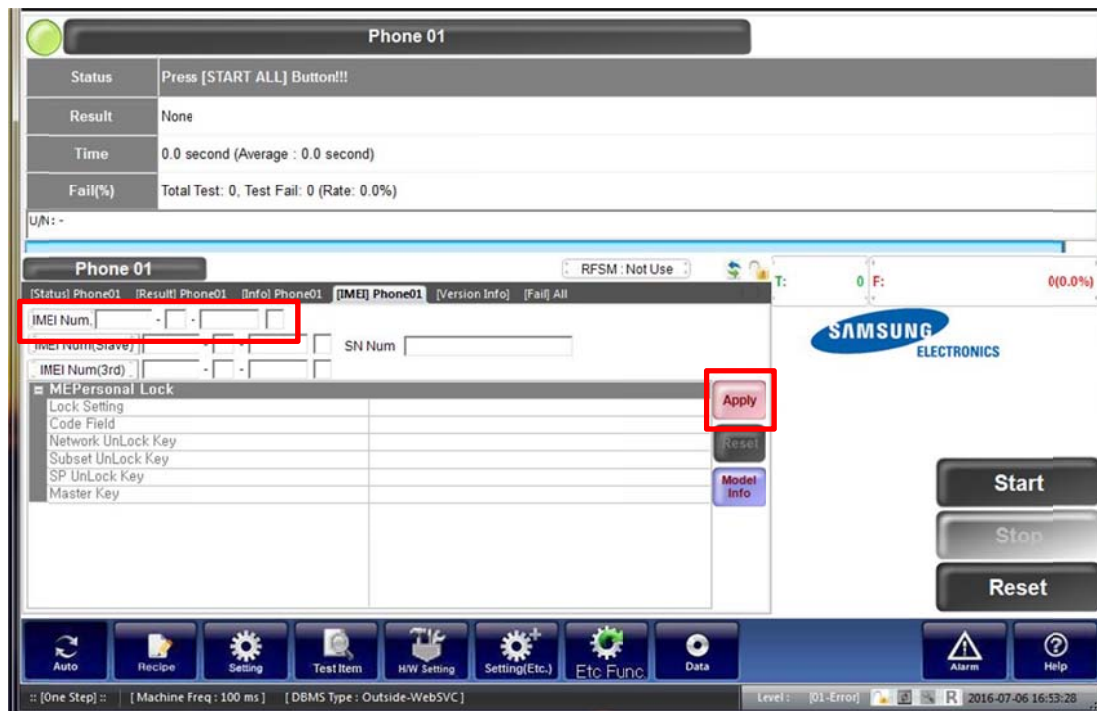
[SM-N950U]



The 'IMEI Writing Items' dialog box is shown. It contains a list of items on the left and their corresponding values on the right. The 'Model SKU' is set to 'VZW'. Below the list, there are several checkboxes for various options, including 'FactoryReset+Check', 'Pre Product', '2nd Func Test (AT&T)', 'Lock Write (OQC)', '2nd Check after Pwr Reset', 'Use Fulltest(SW Verification)', 'Wait for Reboot in SVC Check', 'MDL Rework', 'Main Repair', 'Sub PBA Repair (Grip)', 'SMD Test NV Write', 'WIFI Addr. Init', 'High Speed Boot Skip', 'Recent List Check (OQC&IBI)', 'STA Option', 'Don't DB Upload', 'Packing Rework', 'Tizen Download', 'Android Download', 'S-PEN is not inserted (Seed)', and 'Check IMEI Dupli [RB]'. The 'Save' button is highlighted.

Item	Value
CSC	N950USQU1AQH5
PDA	N950USQU1AQH5
Software2	
LPD	
Contents	
DMB	
SKU_CODE	
BUYER	VZW
Material_Code	
Boot	
Factory Software	

15. Input IMEI Number and click Apply

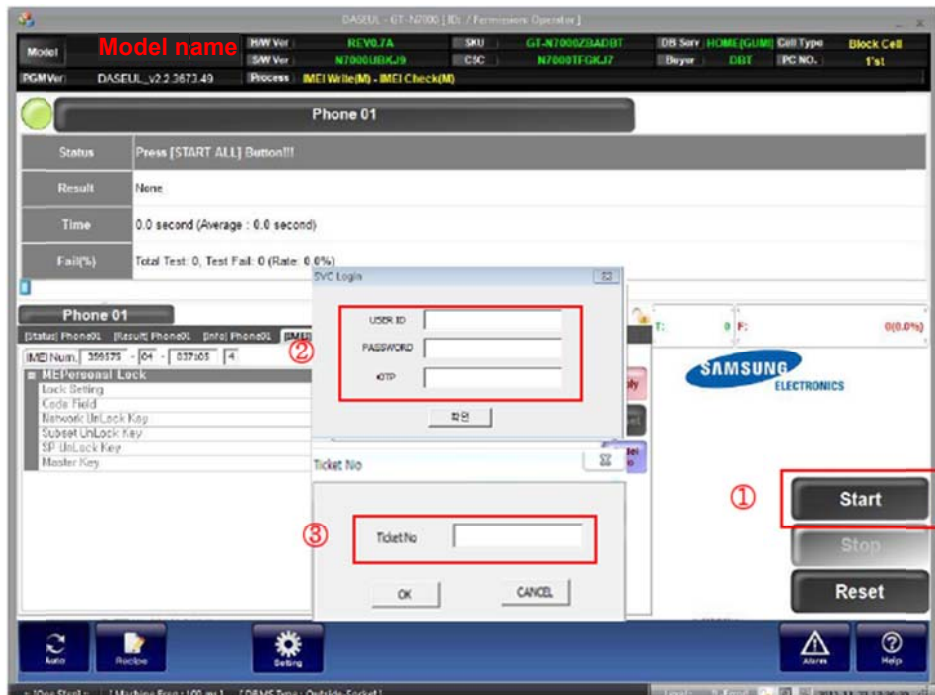


The 'Phone 01' interface is shown. It displays various status and result information. The 'IMEI Num.' field is highlighted with a red box. The 'Apply' button is also highlighted with a red box. The interface includes a 'Status' section with 'Press [START ALL] Button!!!', a 'Result' section with 'None', and a 'Time' section with '0.0 second (Average : 0.0 second)'. The 'Fail(%)' section shows 'Total Test: 0, Test Fail: 0 (Rate: 0.0%)'. The 'U/N:' section is empty. The 'Phone 01' section shows 'RFSM: Not Use' and 'T: 0 F: 0 (0.0%)'. The 'IMEI Num.' field is highlighted with a red box. The 'Apply' button is also highlighted with a red box. The interface includes a 'Status' section with 'Press [START ALL] Button!!!', a 'Result' section with 'None', and a 'Time' section with '0.0 second (Average : 0.0 second)'. The 'Fail(%)' section shows 'Total Test: 0, Test Fail: 0 (Rate: 0.0%)'. The 'U/N:' section is empty. The 'Phone 01' section shows 'RFSM: Not Use' and 'T: 0 F: 0 (0.0%)'. The 'IMEI Num.' field is highlighted with a red box. The 'Apply' button is also highlighted with a red box. The interface includes a 'Status' section with 'Press [START ALL] Button!!!', a 'Result' section with 'None', and a 'Time' section with '0.0 second (Average : 0.0 second)'. The 'Fail(%)' section shows 'Total Test: 0, Test Fail: 0 (Rate: 0.0%)'. The 'U/N:' section is empty. The 'Phone 01' section shows 'RFSM: Not Use' and 'T: 0 F: 0 (0.0%)'. The 'IMEI Num.' field is highlighted with a red box. The 'Apply' button is also highlighted with a red box.

Field	Value
Status	Press [START ALL] Button!!!
Result	None
Time	0.0 second (Average : 0.0 second)
Fail(%)	Total Test: 0, Test Fail: 0 (Rate: 0.0%)
U/N:	

6. Level 1 Repair

16. ① Click Start → ②Input IMEI writing ID and Password & OTP → ③Input Ticket No



※ OTP(One time Password) : OTP is valid for 6 hours.

After that, you can get new OTP by click the “Forgotten your IMEI OTP PW or Create new IMEI OTP PW” button.

☞ OTP Location : GSPN → Knowledge → HHP svc → Home

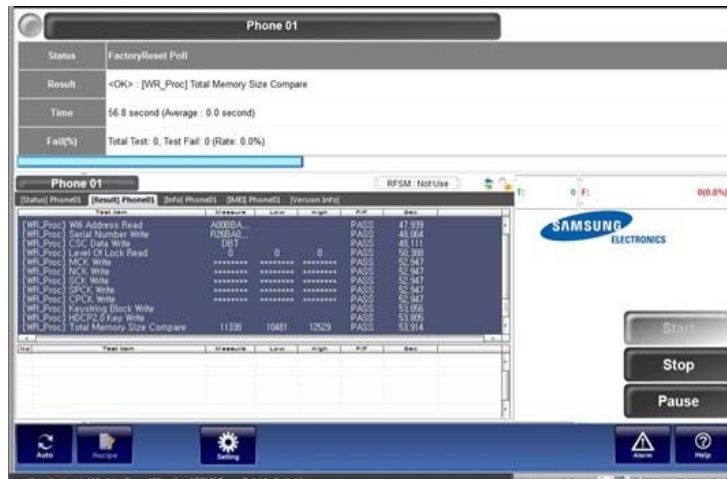


6. Level 1 Repair

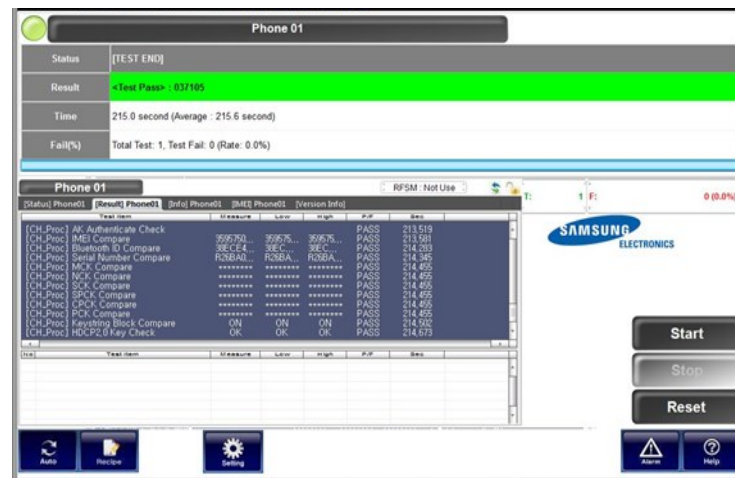
17. Connect the phone to Anyway JIG

- ※ When you connect the phone, the phone should be turned off.
After connecting the phone, the phone will be booted automatically.

18. IMEI Writing Proceeding



19. IMEI Writing Success



6. Level 1 Repair

6-3. RF Calibration

6-3-1. Required items in order to calibrate RF

- Installation program: RF Calibration Program
- DASEUL_Launcher_v4.0.0.exe
- DASEUL_CAL_ALL_Runtime_3.1.316.0_r00537.CAB
- Model File (SM-N950U_OPEN_CALIBRATION_Ver_3.1.315.4.CAB)

※ It is required to use the latest program.

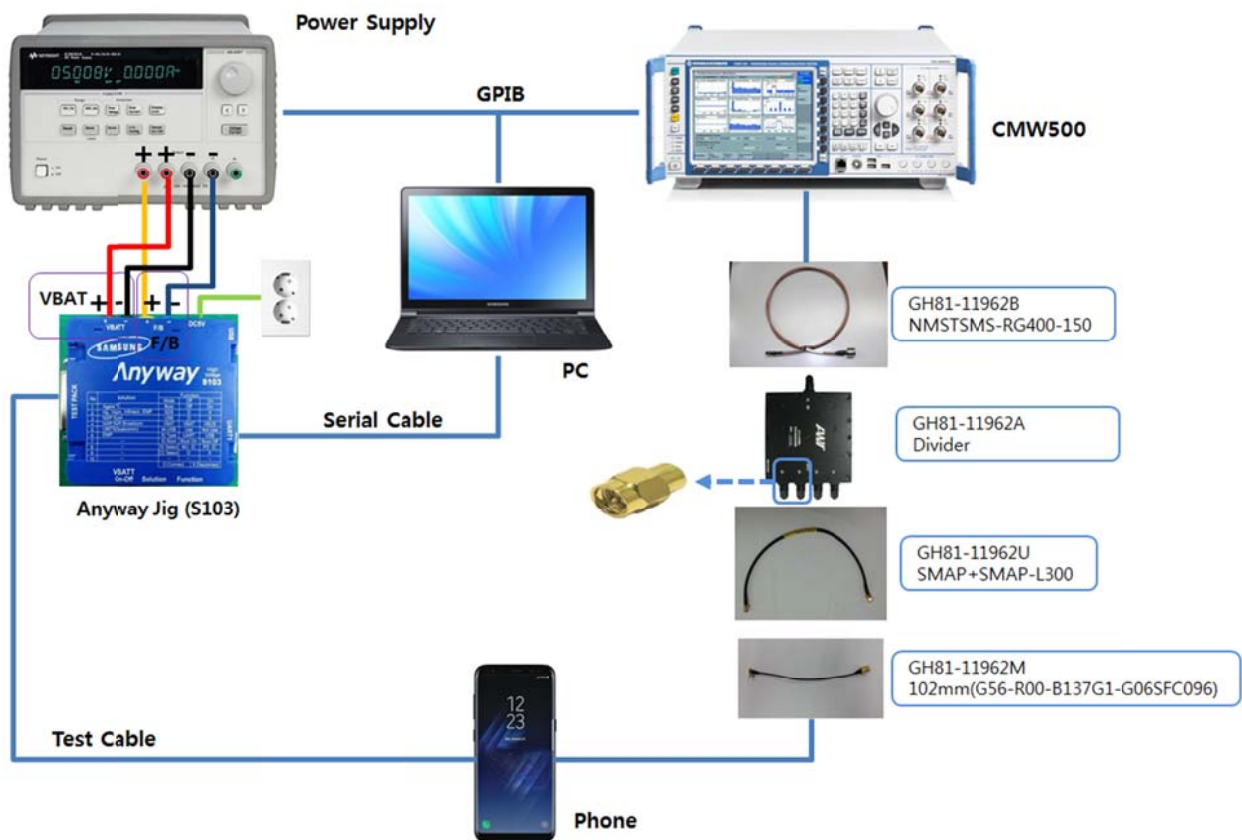
- Mobile Phone
- R&S CMW500
- E3632A Power Supply
- GPIB Cable (2ea)
- JIG BOX(S103)
- Adapter
- UART Serial Cable
- IF Cable (GH81-11962W)

❖ Table of test cables

RF Cable (Manual)	GH81-11962M (2ea)	GH81-11962U (2ea)	
	1.2T, 102mm 	1.2T, 102mm 	
4 Port Divider	GH81-11962A Divider 	GH81-11962B Divider Cable 	GH81-11962E 50Ω terminator 

6. Level 1 Repair




❖ Setting



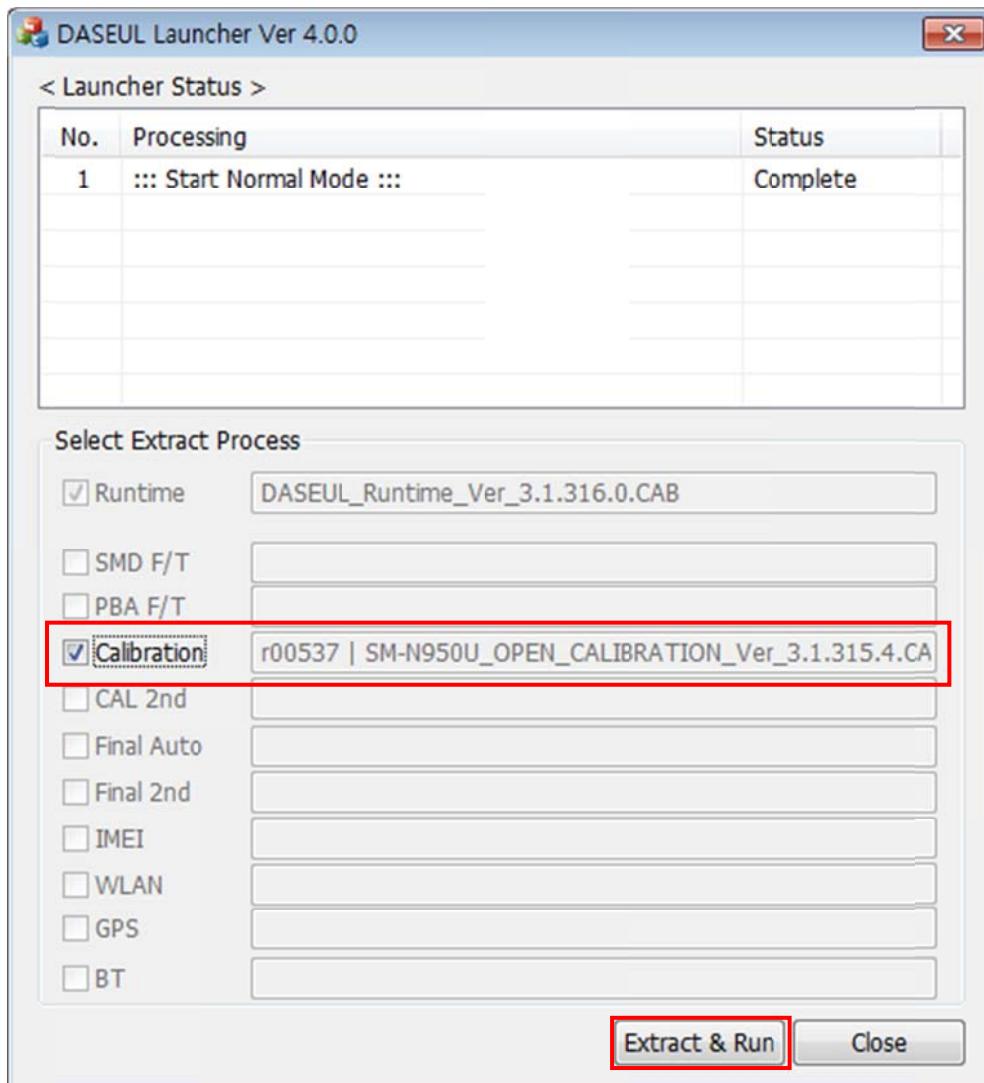
6. Level 1 Repair

6-3-2. RF Calibration Program

1. Run the RF Calibration Program Launcher, '[DASEUL_Launcher_vx.x.xx.exe](#)'.

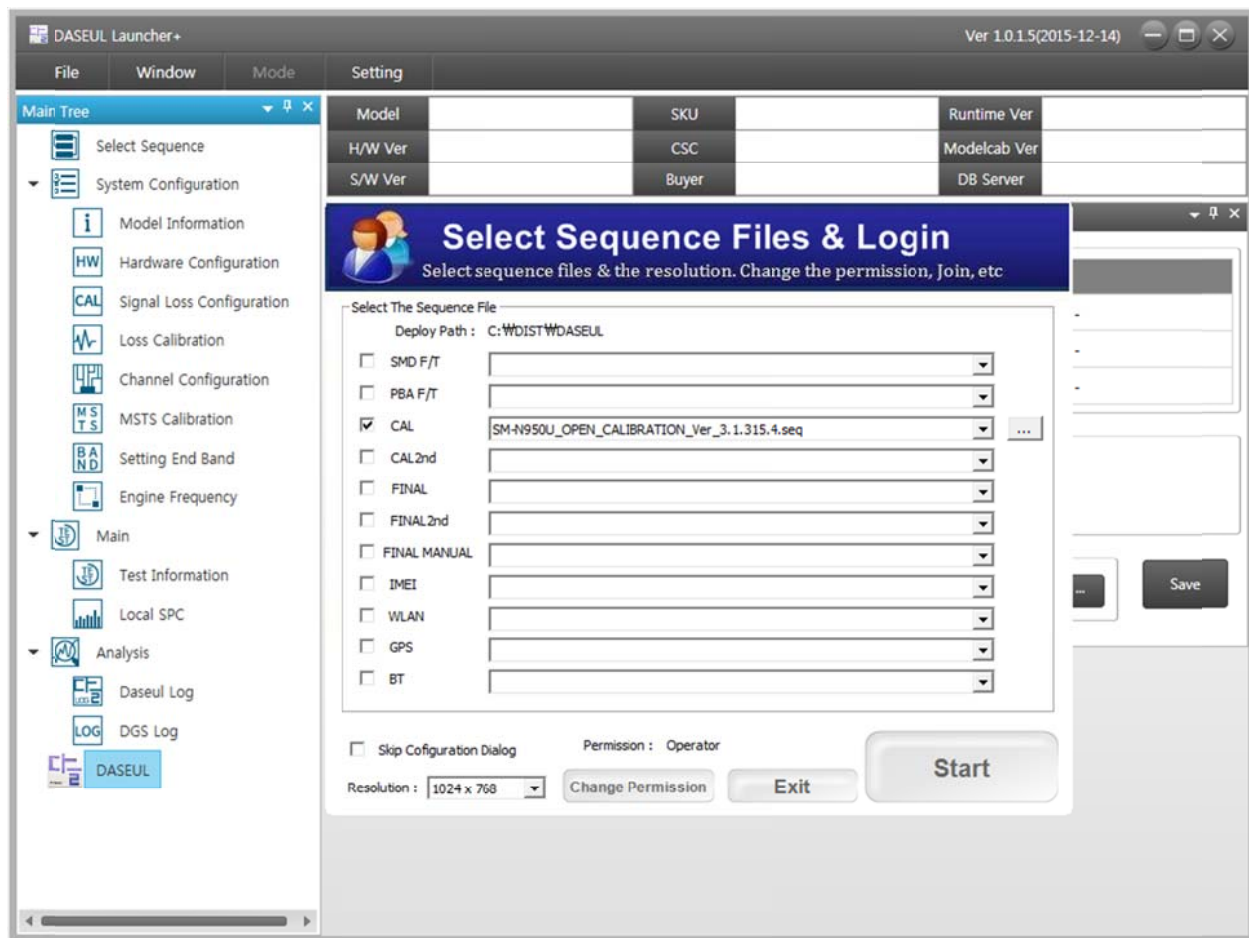
-  DASEUL_CAL_ALL_Runtime_3.1.316.0_r00537.CAB
-  DASEUL_Launcher_v4.0.0.exe
-  SM-N950U_OPEN_CALIBRATION_Ver_3.1.315.4.CAB

2. Check the '[Calibration](#)' menu, and select '[Extract & Run](#)'.



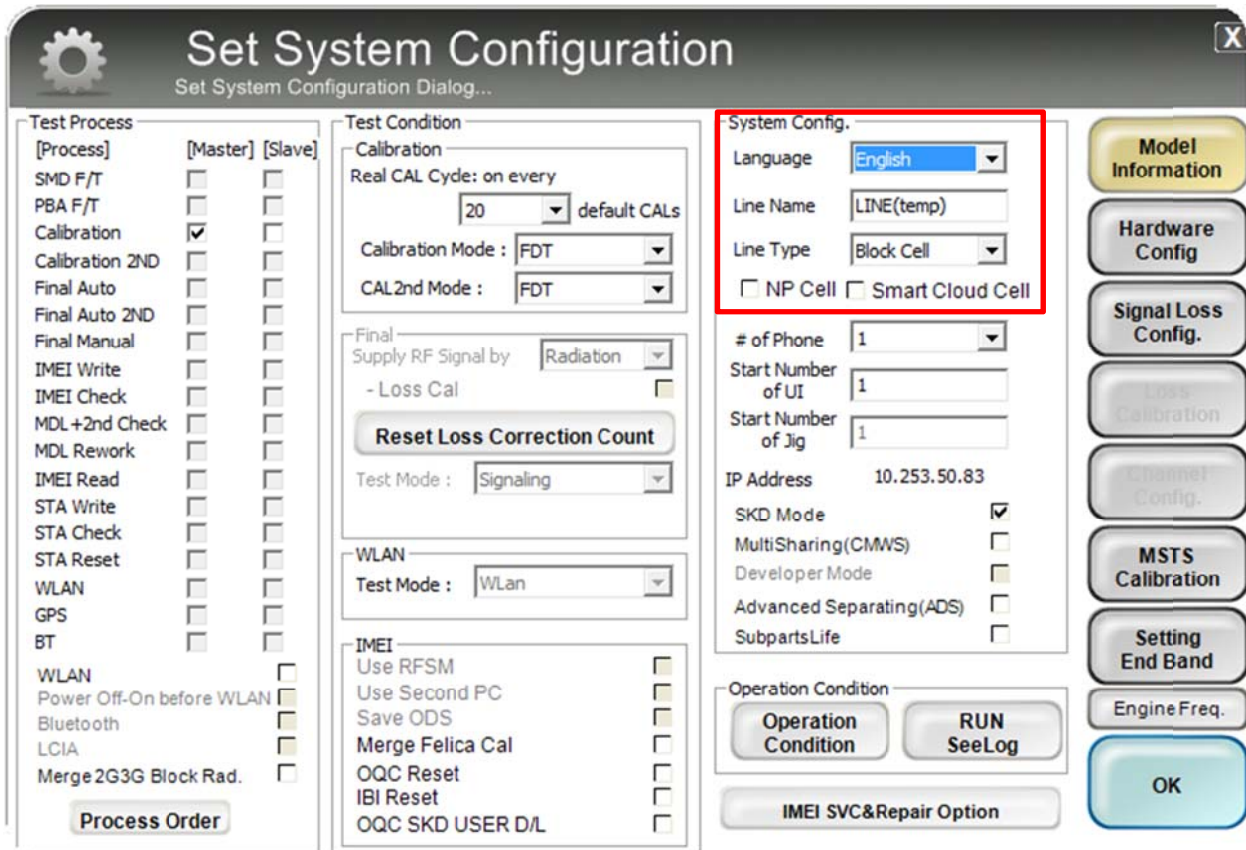
6. Level 1 Repair

3. Check the 'CAL' and open the [model file](#), then select 'Start' button.



6. Level 1 Repair

4. Change the Line Type to 'Block Cell' and disable 'Smart Cloud Cell'.



The image shows a software window titled "Set System Configuration" with a subtitle "Set System Configuration Dialog...". The window is divided into several sections:

- Test Process:** A list of test items with checkboxes for [Process], [Master], and [Slave]. Items include SMD F/T, PBA F/T, Calibration (checked), Calibration 2ND, Final Auto, Final Auto 2ND, Final Manual, IMEI Write, IMEI Check, MDL+2nd Check, MDL Rework, IMEI Read, STA Write, STA Check, STA Reset, WLAN, GPS, BT, and Merge 2G3G Block Rad.
- Test Condition:** Includes Calibration settings (Real CAL Cycle: on every 20, default CALs), Calibration Mode (FDT), CAL2nd Mode (FDT), Final Supply RF Signal by (Radiation), - Loss Cal, a "Reset Loss Correction Count" button, Test Mode (Signaling), WLAN Test Mode (WLAN), and IMEI settings (Use RFSM, Use Second PC, Save ODS, Merge Felica Cal, OQC Reset, IBI Reset, OQC SKD USER D/L).
- System Config. (highlighted with a red box):** Includes Language (English), Line Name (LINE(temp)), Line Type (Block Cell), checkboxes for NP Cell and Smart Cloud Cell (both unchecked), # of Phone (1), Start Number of UI (1), Start Number of Jig (1), IP Address (10.253.50.83), SKD Mode (checked), MultiSharing(CMWS), Developer Mode, Advanced Separating(ADS), and SubpartsLife.
- Operation Condition:** Includes buttons for "Operation Condition", "RUN SeeLog", and "IMEI SVC&Repair Option".
- Model Information:** A vertical stack of buttons on the right side: Model Information, Hardware Config, Signal Loss Config., Loss Calibration, Channel Config., MSTs Calibration, Setting End Band, Engine Freq., and OK.

6. Level 1 Repair

5. Set the GPIB address of MST5(CMW500) and Power Supply(E3632A) to enter 'Hardware Config' and 'Save'. (Check the GPIB address of equipments in advance)

The image shows two screenshots of the service guide software interface. The top screenshot is the 'Set System Configuration' dialog box. The bottom screenshot is the 'Hardware Component' dialog box, which is overlaid on the 'Set System Configuration' dialog.

Set System Configuration Dialog:

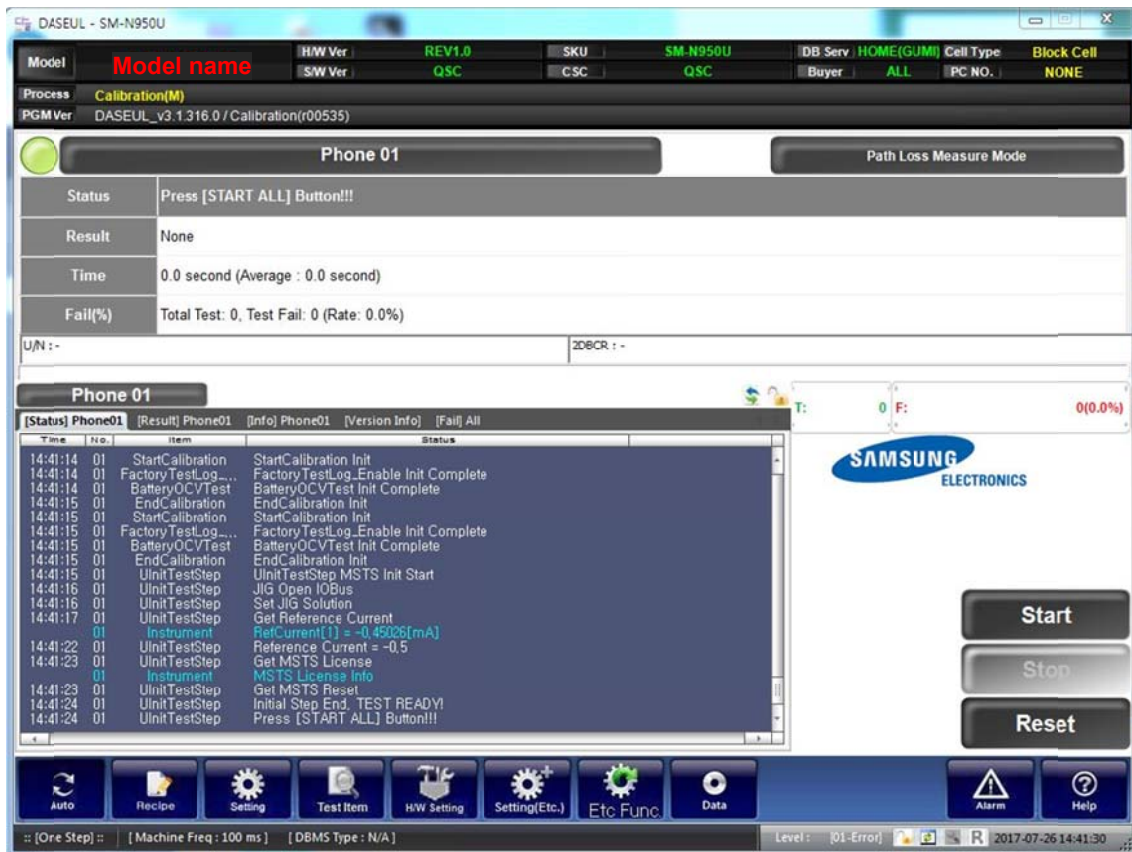
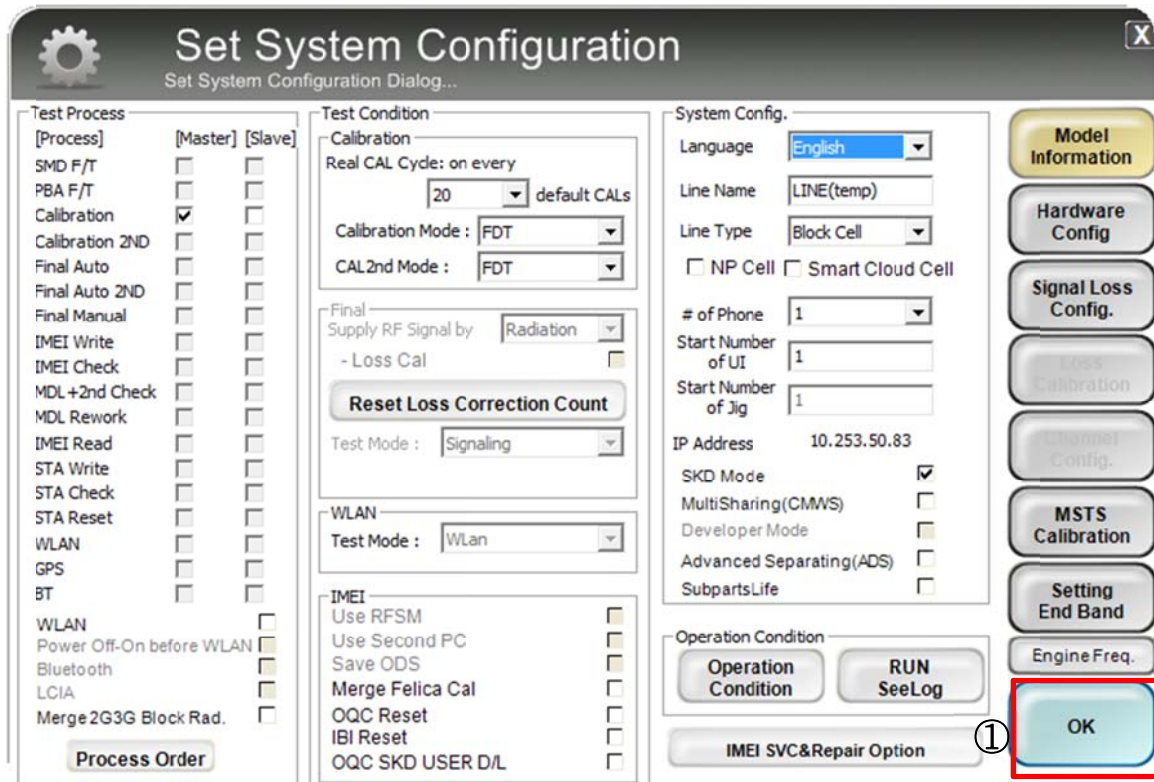
- Test Process:** A list of test processes with checkboxes for [Process], [Master], and [Slave].
- Test Condition:** Includes Calibration (Real CAL Cycle: on every 20, default CALs), Calibration Mode (FDT), CAL2nd Mode (FDT), Final Supply RF Signal by (Radiation), - Loss Cal, Reset Loss Correction Count, Test Mode (Signaling), WLAN Test Mode (Wlan), and IMEI (Use RFSM, Use Second PC, Save ODS, Merge Felica Cal, OQC Reset, IBI Reset, OQC SKD USER D/L).
- System Config.:** Includes Language (English), Line Name (LINE(temp)), Line Type (Block Cell), NP Cell, Smart Cloud Cell, # of Phone (1), Start Number of UI (1), Start Number of Jig (1), IP Address (10.253.50.83), SKD Mode, MultiSharing(CMWS), Developer Mode, Advanced Separating(ADS), and SubpartsLife.
- Operation Condition:** Includes Operation Condition, RUN SeeLog, and IMEI SVC&Repair Option.
- Model Information:** A button labeled 'Model Information'.
- Hardware Config:** A button labeled 'Hardware Config' (circled in red).
- Signal Loss Config.:** A button labeled 'Signal Loss Config.'.
- Loss Calibration:** A button labeled 'Loss Calibration'.
- Channel Config.:** A button labeled 'Channel Config.'.
- MSTS Calibration:** A button labeled 'MSTS Calibration'.
- Setting End Band:** A button labeled 'Setting End Band'.
- Engine Freq.:** A button labeled 'Engine Freq.'.
- OK:** A button labeled 'OK'.

Hardware Component Dialog:

- Phone:** Includes Count (1), I/F - 1 Type (Serial COM), I/F - 2 Type (N/A), IF Jig Type (AnyWayJig), Multi Jig Cable Type (UART Line), and Use Portable ID Check JIG (circled in red).
- MSTS:** Includes Count (1, circled in red), I/F Type (GPIB), and Port Setting (circled in red).
- MSTS Sharing Controller:** Includes Count (0), Control Type (N/A), I/F Type (Serial COM), Terminal, Port Setting, and Switch Box Port Setting.
- Robot / ShieldBox:** Includes Control Type (N/A), I/F Type (Serial COM), ShieldBox Type, and Port Setting.
- Power Supply:** Includes Count (1, circled in red), I/F Type (GPIB, circled in red), and Port Setting (circled in red).
- Label Printer:** Includes Control Type (None), I/F Type (Serial COM), and Port Setting.
- Offset X / Y:** Includes X and Y fields.
- Power Supply IO Bus Setting:** Includes Common (EOS, EOT, Time Out), No., Board, Address (1, 0, 5), and a table with columns No., Board, and Address.
- SAVE:** A button labeled 'SAVE' (circled in red).
- Cancel:** A button labeled 'Cancel'.

6. Level 1 Repair

6. Press 'OK' to start RF Calibration after completing all settings.



Confidential and proprietary-the contents in this service guide subject to change without prior notice

Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.