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## 2. Specification

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### 2-1. GSM General Specification

Item		GSM 850	EGSM 900	DCS1800	PCS1900
Freq. Band[MHz]		824~849	880~915	1710~1785	1850~1910
Uplink/Downlink		869~894	925~960	1805~1880	1930~1990
ARFCN range		128~251	0~124 & 975~1023	512~885	512~810
Tx/Rx spacing		45MHz	45MHz	95MHz	80MHz
Mod. Bit rate/ Bit Period		270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us
Time Slot Period/ Frame Period		576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms
Modulation	GSM/ EGPRS	GMSK/ 8PSK	GMSK/ 8PSK	GMSK/ 8PSK	GMSK/ 8PSK
MS Power		33dBm~5dBm	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm
Power Class		4(GMSK) E2(8PSK)	4(GMSK) E2(8PSK)	1(GMSK) E2(8PSK)	1(GMSK) E2(8PSK)
Sensitivity		-102dBm	-102dBm	-100dBm	-100dBm
TDMA Mux		8	8	8	8

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## 2. Specification

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### 2-2. GSM Tx Power Class

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

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## 2. Specification

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### 2-3. WCDMA General Specification

	WCDMA2100(B1)	WCDMA1900(B2)	WCDMA AWS(B4)	WCDMA850(B5)	WCDMA900(B8)
Freq. Band[MHz] Uplink/Downlink	1920~1980 2110~2170	1850~1910 1930~1990	1710~1755 2110~2155	824~849 869~894	880~915 925~960
ARFCN range	UL: 9612~9888 DL: 10562~10838	UL: 9262~9538 DL: 9662~9938	UL: 1312~1513 DL: 1537~1738	UL: 4132~4233 DL: 4357~4458	UL: 2712~2868 DL: 2937~3088
Tx/Rx spacing	190MHz	80MHz	400MHz	45MHz	45MHz
Mod. Bit rate/ Bit Period	42.2Mbps(DL) 5.42Mbps(UL)	42.2Mbps(DL) 5.42Mbps(UL)	42.2Mbps(DL) 5.42Mbps(UL)	42.2Mbps(DL) 5.42Mbps(UL)	42.2Mbps(DL) 5.42Mbps(UL)
Time Slot Period/ Frame Period	WCDMA 10ms/0.667ms HSPA 2ms/0.667ms	WCDMA 10ms/0.667ms HSPA 2ms/0.667ms	WCDMA 10ms/0.667ms HSPA 2ms/0.667ms	WCDMA 10ms/0.667ms HSPA 2ms/0.667ms	WCDMA 10ms/0.667ms HSPA 2ms/0.667ms
Modulation	QPSK 16QAM 64QAM	QPSK 16QAM 64QAM	QPSK 16QAM 64QAM	QPSK 16QAM 64QAM	QPSK 16QAM 64QAM
MS Power (dBm)	25.7 ~ -49(↓)	25.7 ~ -49(↓)	25.7 ~ -49(↓)	25.7 ~ -49(↓)	25.7 ~ -49(↓)
Power Class	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)
Sensitivity	-106dBm	-104dBm	-106dBm	-104dBm	-103dBm

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## 2. Specification

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### 2-4. WCDMA General Specification

	LTE Band1	LTE Band2	LTE Band3	LTE Band4	LTE Band5	LTE Band7
Freq. Band[MHz] Uplink/Downlink	1920~1980 2110~2170	1850~1910 1930~1990	1710~1785 1805~1880	1710~1755 2110~2155	824~849 869~894	2500~2570 2620~2690
ARFCN range	UL:18000~18599 DL:0~599	UL:18600~19199 DL:600~1199	UL:19200~19949 DL:1200~1949	UL:19950~20399 DL:1950~2399	UL:20400~20649 DL:2400~2649	UL:20750~21449 DL:2750~3449
Tx/Rx spacing (MHz)	190	80	95	400	45	120
Channel Bandwidth (MHz)	5/10/15/20	1.4/3/5/10/15/20	1.4/3/5/10/15/20	1.4/3/5/10/15/20	1.4/3/5/10	5/10/15/20
Modulation	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)
MS Power (dBm)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)
Sensitivity (QPSK, BW 10MHz) (dBm)	-96.3	-94.3	-93.3	-96.3	-94.3	-94.3

## 2. Specification

	LTE Band8	LTE Band12	LTE Band13	LTE Band17	LTE Band18	LTE Band19
Freq. Band[MHz] Uplink/Downlink	880~915 925~960	699~716 729~746	777~787 746~756	704~716 734~746	815~830 860~875	830~845 875~890
ARFCN range	UL:21450~21799 DL:3450~3799	UL:23010~23179 DL:5010~5179	UL:23180~23279 DL:5180~5279	UL:23730~23849 DL:5730~5849	UL:23850~23999 DL:5850~5999	UL:24000~24149 DL:6000~6149
Tx/Rx spacing (MHz)	45	30	-31	30	45	45
Channel Bandwidth (MHz)	1.4/3/5/10	1.4/3/5/10	1.4/3/5/10	5/10	5/10/15	5/10/15
Modulation	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)
MS Power (dBm)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)
Sensitivity (QPSK, BW 10MHz) (dBm)	-93.3	-93.3	-93.3	-93.3	-96.3	-96.3

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## 2. Specification

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	LTE Band20	LTE Band25	LTE Band26	LTE Band28	LTE Band32	LTE Band38
Freq. Band[MHz] Uplink/Downlink	832~862 791~821	1850~1915 1930~1995	814~849 859~894	703~748 758~803	N/A 1452~1496	2570~2620
ARFCN range	UL:24150~24449 DL:6150~6449	UL:26040~26689 DL:8040~8689	UL:26690~27039 DL:8690~9039	UL:27210~27659 DL:9210~9659	DL:9920~10359	UL/DL:37750 ~ 38249
Tx/Rx spacing (MHz)	-41	80	45	55	N/A	0
Channel Bandwidth (MHz)	5/10/15/20	1.4/3/5/10/15/20	1.4/3/5/10/15	3/5/10/15/20	5/10/15/20	5/10/15/20
Modulation	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)
MS Power (dBm)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)
Sensitivity (QPSK, BW 10MHz) (dBm))	-93.3	-92.8	-93.8	-94.8	-96.3	-96.3

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## 2. Specification

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	LTE Band39	LTE Band40	LTE Band41	LTE Band66
Freq. Band[MHz] Uplink/Downlink	1880~1920	2300~2400	2496~2690	1710~1780 2110~2200
ARFCN range	UL/DL:38250 ~ 38649	UL/DL:38650 ~ 39649	UL/DL:39650 ~ 41589	UL:131972~132671 DL:66436~67335
Tx/Rx spacing (MHz)	0	0	0	400
Channel Bandwidth (MHz)	5/10/15/20	5/10/15/20	5/10/15/20	1.4/3/5/10/15/20
Modulation	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)	QPSK,16/64QAM 256QAM(DL only)
MS Power (dBm)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)	25.7~-39(↓)
Sensitivity (QPSK, BW 10MHz) (dBm)	-96.3	-96.3	-94.3	-95.8

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## 2. Specification

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### 2-5. TDSCDMA General Specification

	TDSCDMA2010(A)	TDSCDMA1880(F)
Chip rate	1.28 Mcps	1.28 Mcps
OBW	1.6 MHz	1.6 MHz
Freq. Band[MHz] Uplink/Downlink	2010~2025	1880~1920
ARFCN range	10054~10121	9404~9596
Tx/Rx spacing (MHz)	0	0
MS Power (dBm)	25.7 ~ -48(↓)	25.7 ~ -48(↓)
Power Class	2(max+24dBm)	2(max+24dBm)
Sensitivity (dBm /1.28 MHz)	-107.3	-107.3



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## 3. Operation Instruction and Installation

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### Main Function

Item	Description
OS	Android V7.0(Nougat)
RF	GSM850 / GSM900 / DCS1800 / PCS1900 WCDMA: B1/ B2/ B4/ B5/ B8 TDSCDMA : B34/ B39 LTE: B1/ B2/ B3/ B4/ B5/ B7/ B8/ B12/ B13/ B17/ B18/ B19/ B20/ B25/ B26/ B28/ B32/ B38/ B39/ B40/ B41/ B66
Battery	3500mAh
Base Band	2.3Ghz Quad + 1.7GHz Quad
Other RF	A-GPS, Glonass, BEIDOU, Galileo, BT5.0, USB 3.1 Type-C, WIFI 802.11 a/b/g/n/ac MIMO, NFC,MST
Camera	12MP Dual Pixel A/F, OIS(Main) with LED Flash, 8MP A/F (Front), 5MP (IRIS)
LCD	6.2", WQHD+, 1440x2960
RAM	4GB
Sensor	Accelerometer, Barometer, Fingerprint Sensor, Gyro Sensor, Geomagnetic Sensor, Hall Sensor, HR Sensor, Iris Sensor, Pressure Sensor, Proximity Sensor, RGB Light Sensor
Accessory	Charger: 5V/2A (AFC: 9V/1.67A) Data cable: 2.8pi, 1.2m(Type C/ USB-A) Ear phone: 3.5pi, 4pin

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## 9. Reference Abbreviate

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### 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

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# 1. Safety Precautions

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## 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.

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# 1. Safety Precautions

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## 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.

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## 6. Level 1 Repair

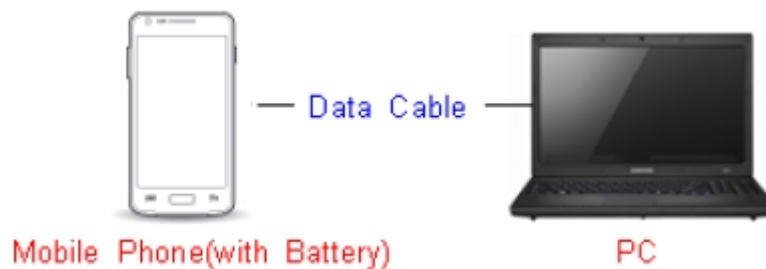
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### 6-1. S/W Download

#### 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

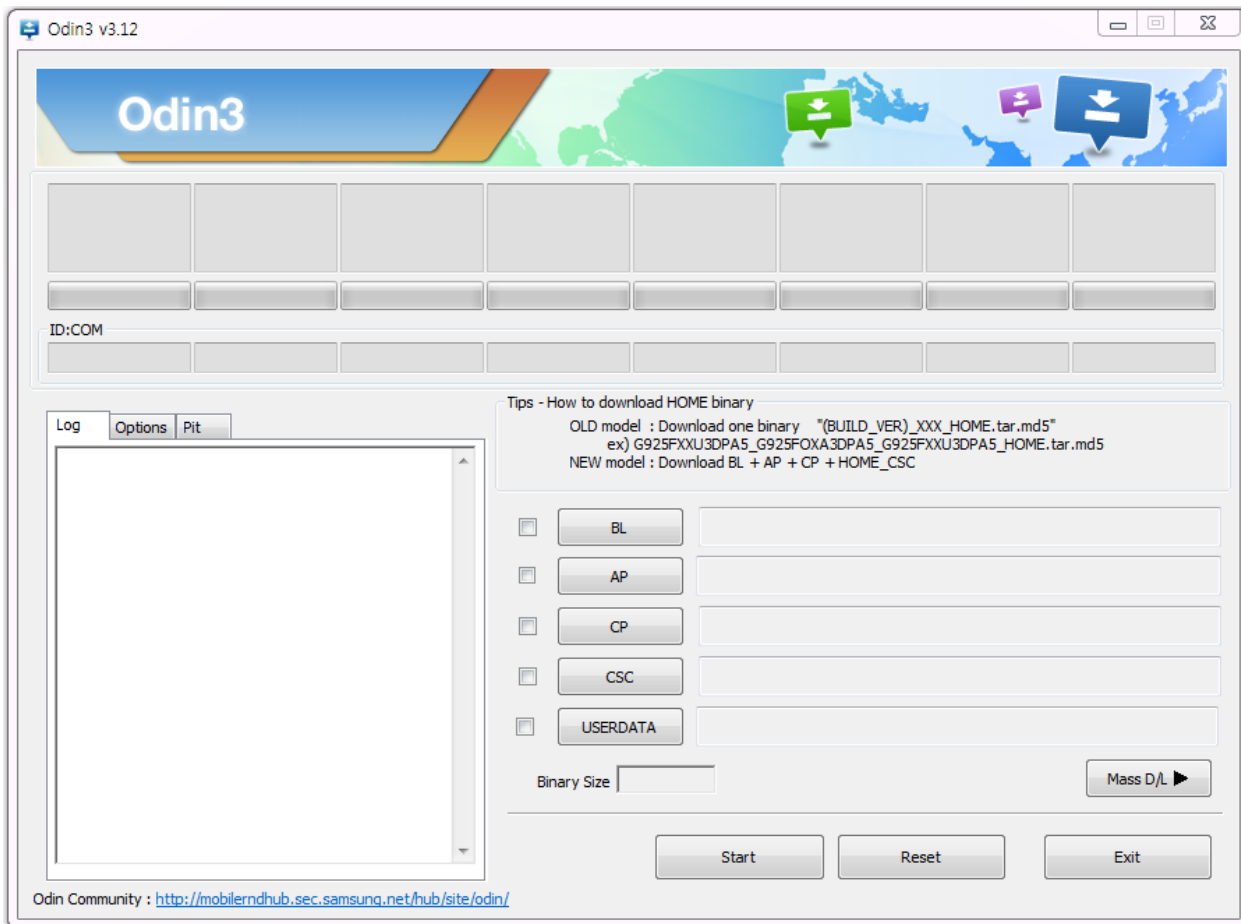


Data Cable : [GH39-01922A](#)

## 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**"

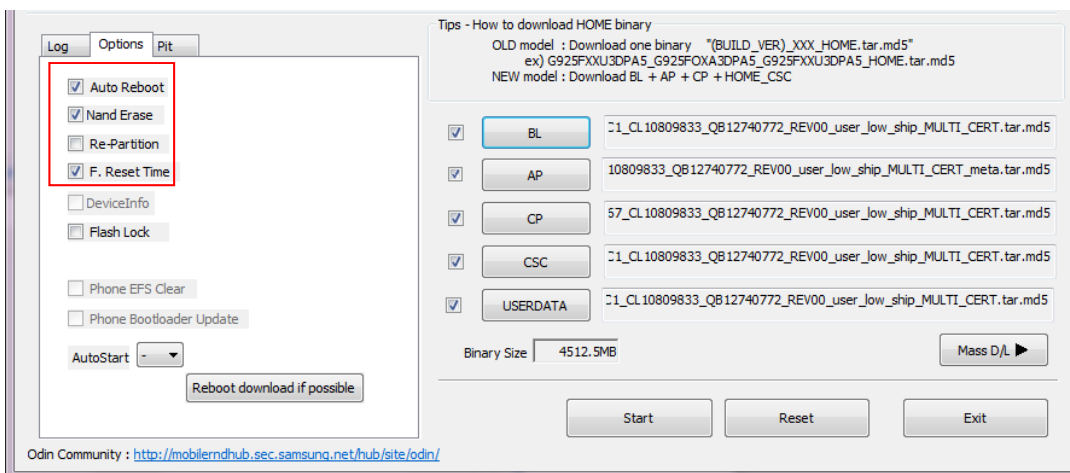
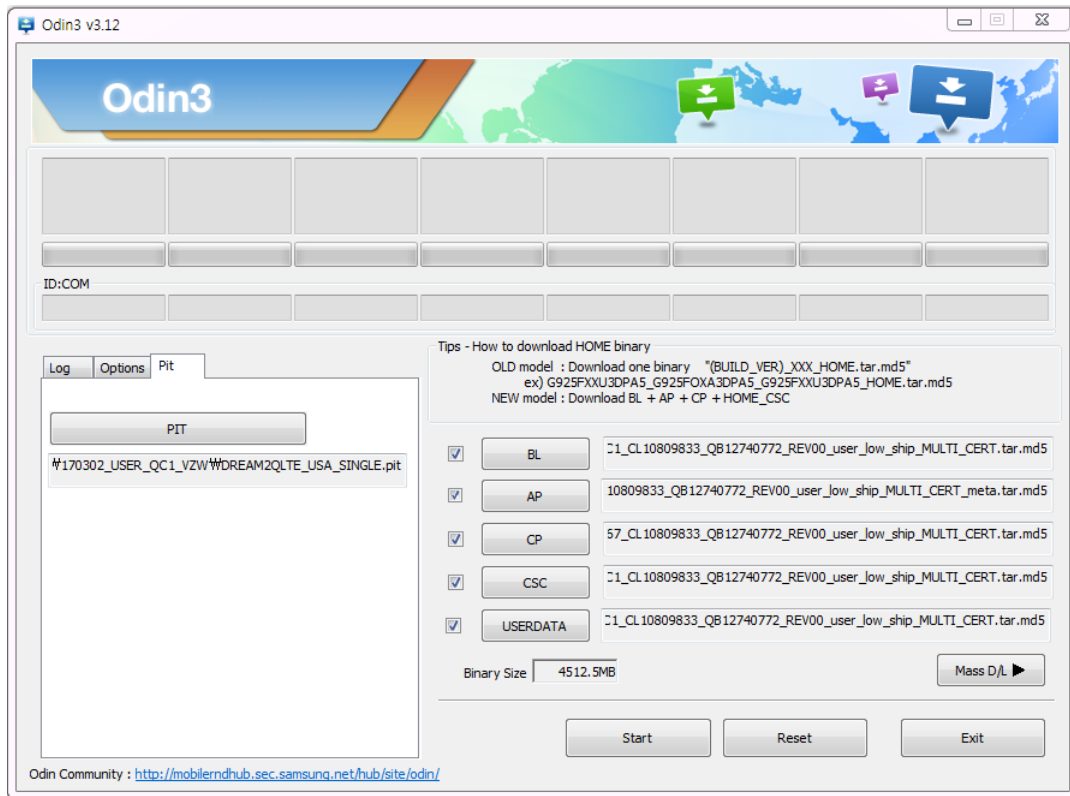


## 6. Level 1 Repair

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.



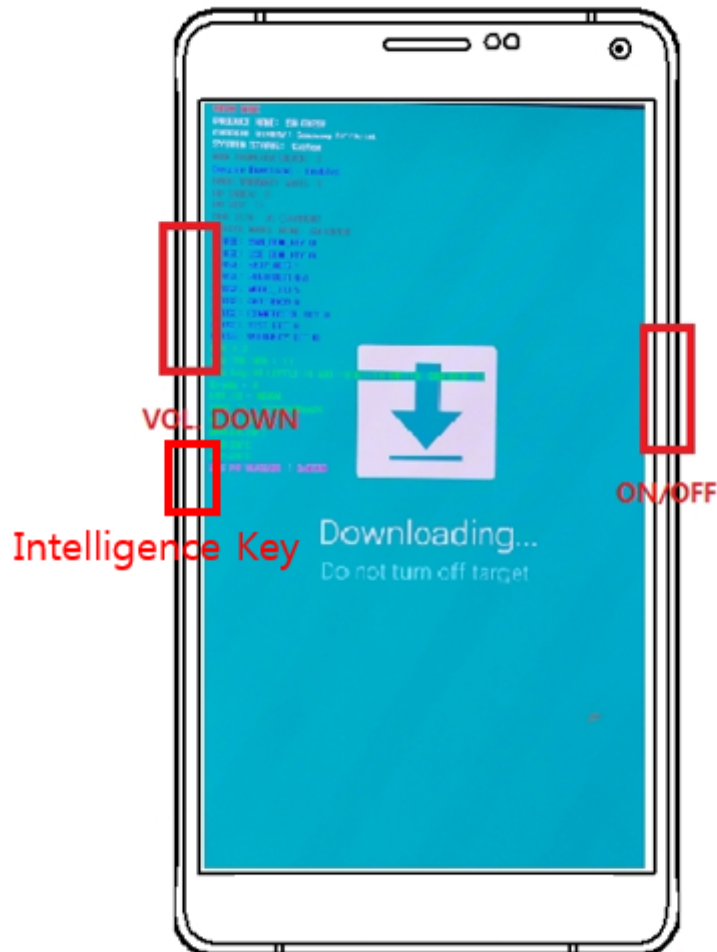
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## 6. Level 1 Repair

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### 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.

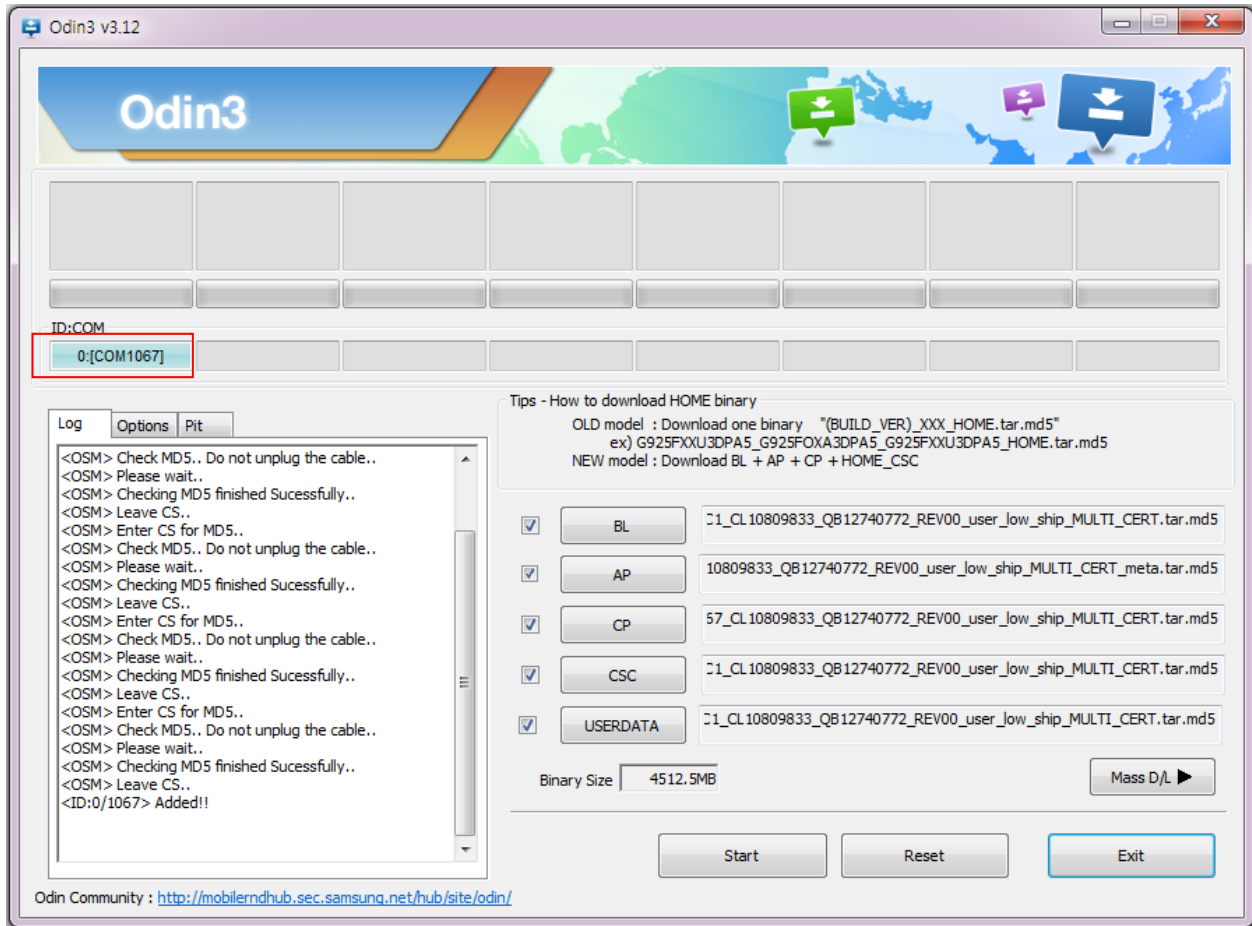




## 6. Level 1 Repair

### 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.

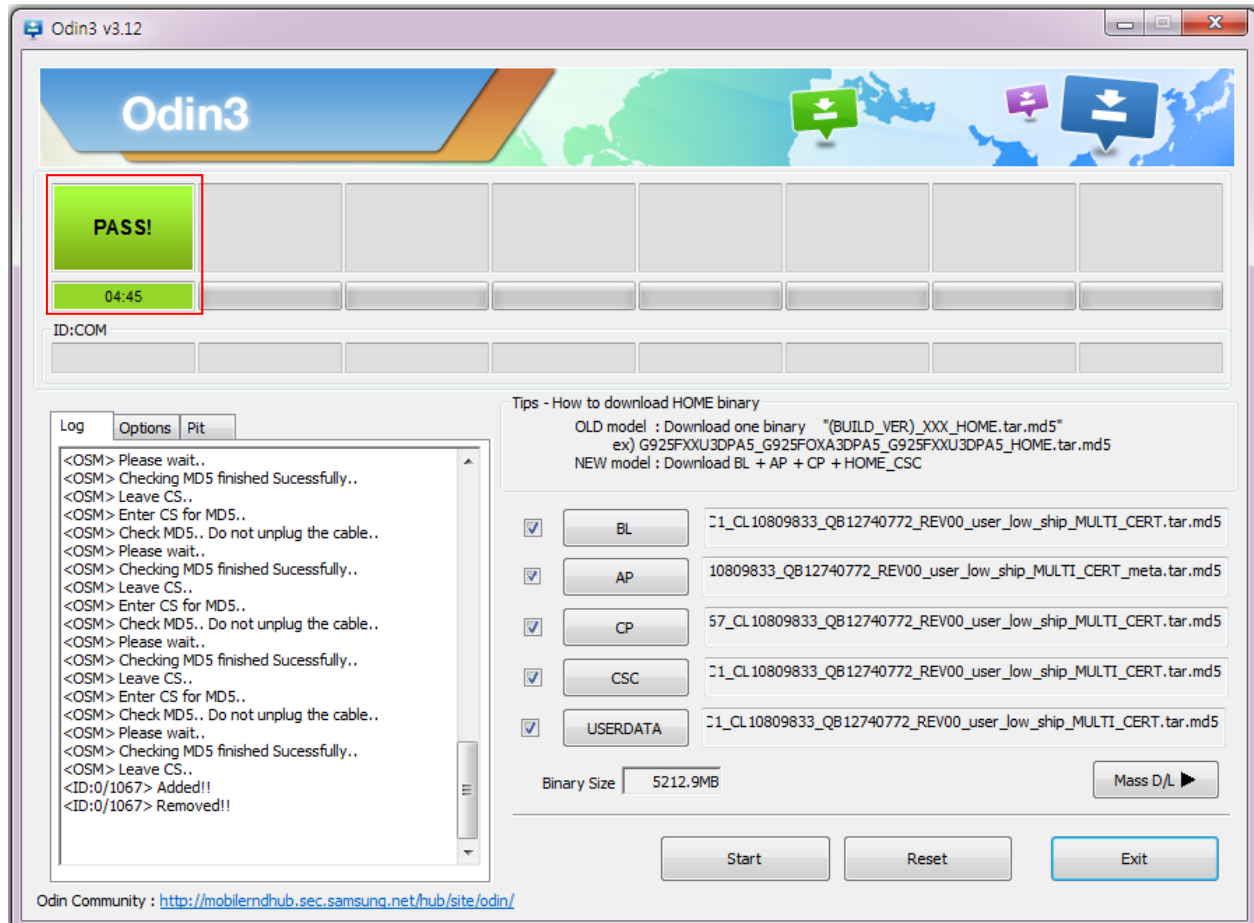


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## 6. Level 1 Repair

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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.**

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## 6. Level 1 Repair

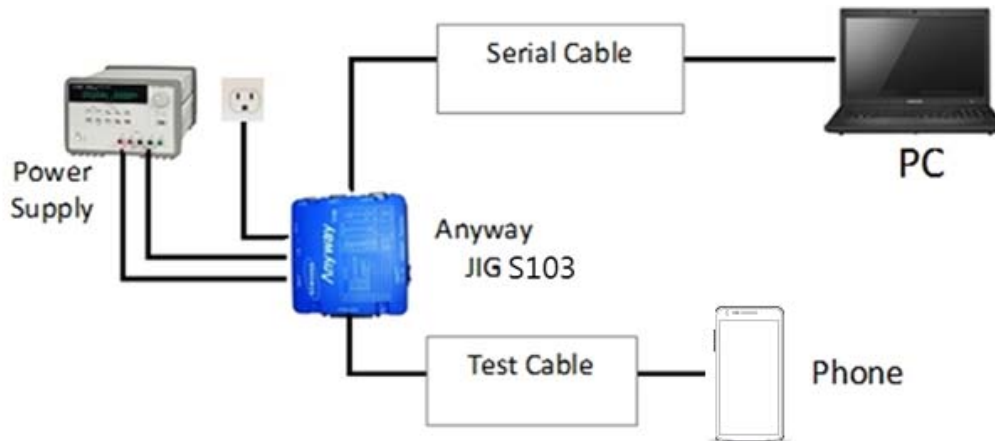
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### 6-2. IMEI writing

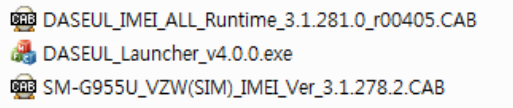
#### 6-2-1. Preparation

- 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	<b>DASEUL_SVC_Launcher_v3.0.12</b> or higher -Uploaded on HHPsvc Notice
③ Runtime File	1. <b>DASEUL_IMEI_ALL_Runtime_3.1.281.0_r00405.CAB</b> 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

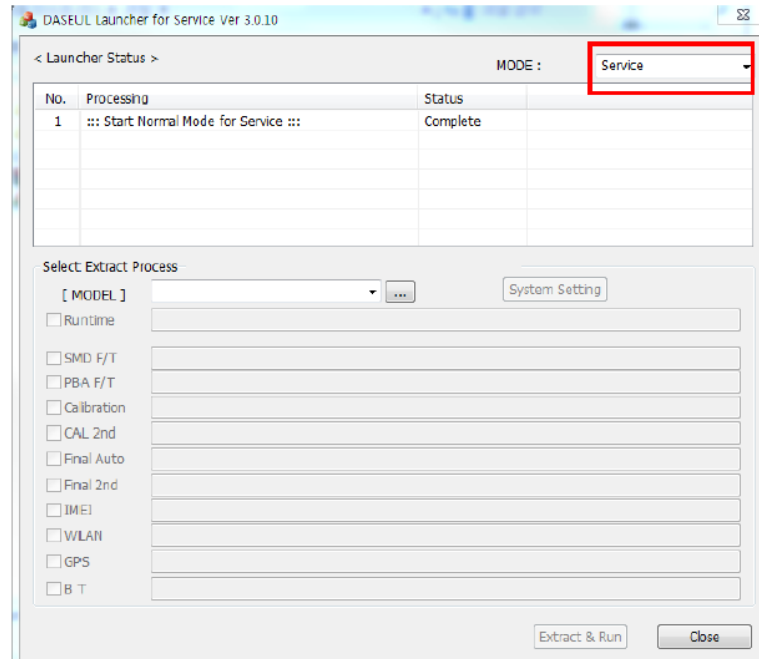
## 6. Level 1 Repair


### 6-2-2 IMEI writing Process

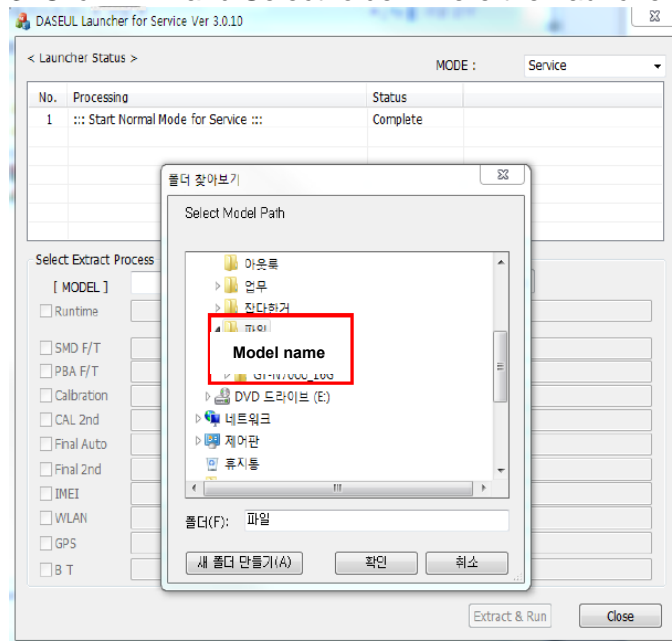
1. Run DASEUL\_SVC\_Launcher\_v3.0.12.exe

 DASEUL\_SVC\_Launcher\_v3.0.12.exe

2. Select Service Mode

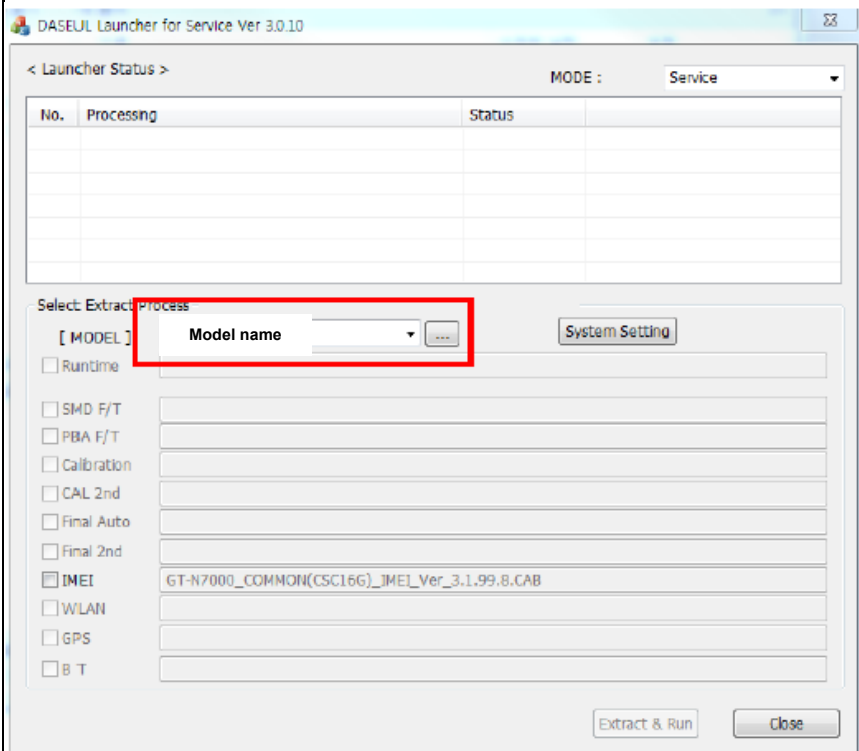


3. Click  and Select folder where the Launcher exists



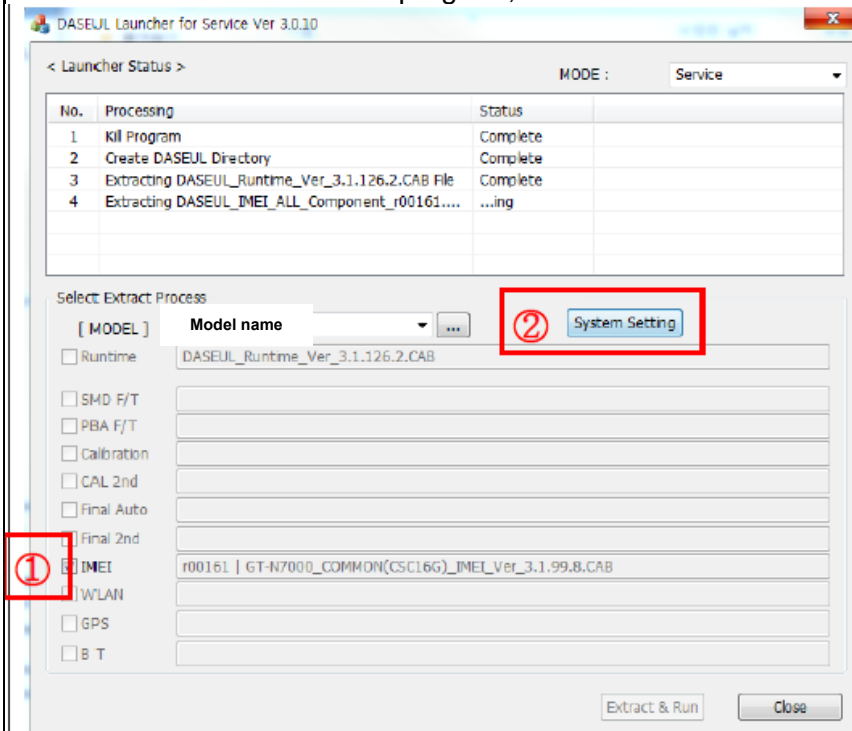
## 6. Level 1 Repair

### 4. Select Model



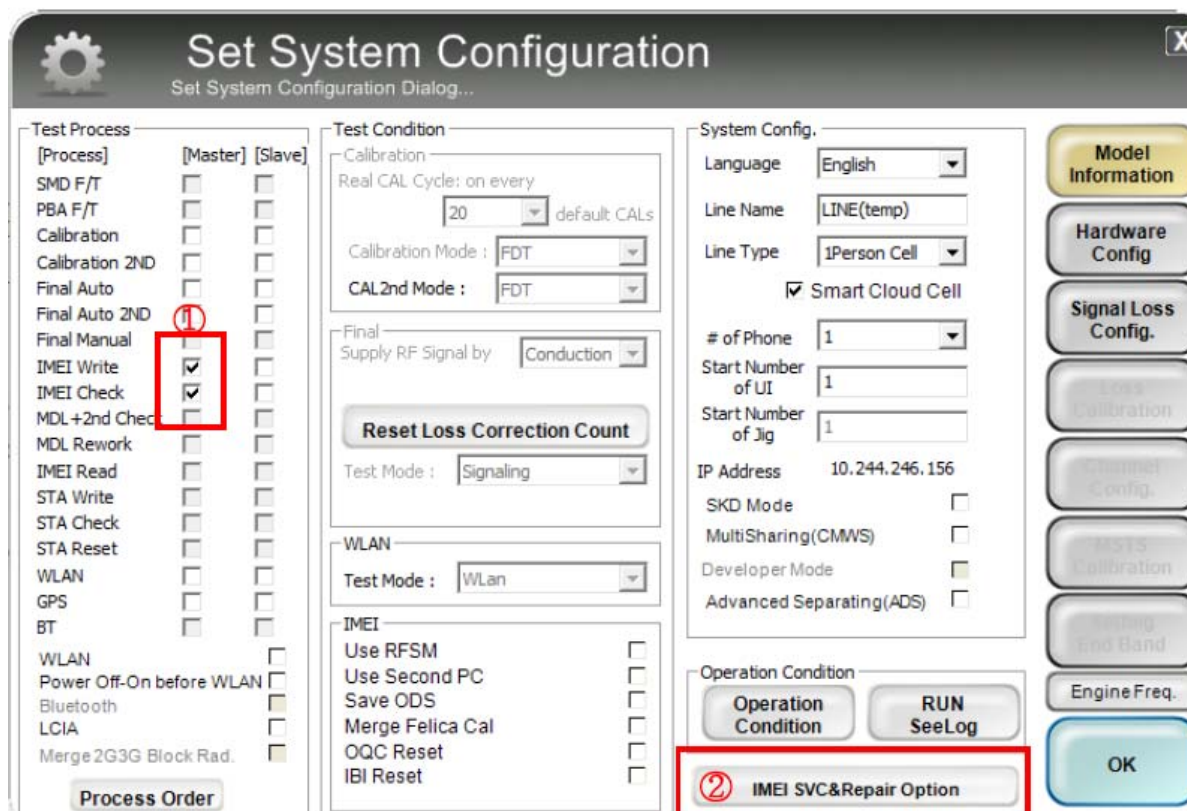
### 5. Check IMEI and click System Setting

※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' with a table of checkboxes for various tests; 'Test Condition' with dropdowns for calibration and RF signal; 'System Config.' with various settings like language, line name, and IP address; and a right sidebar with buttons for different configuration types. A red box highlights the 'IMEI Write' and 'IMEI Check' checkboxes in the 'Test Process' table, 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.

[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"/>

Process Order

Test Condition

Calibration

Real CAL Cycle: on every 20 default CALs

Calibration Mode: FDT

CAL2nd Mode: FDT

Final Supply RF Signal by: Conduction

Reset Loss Correction Count

Test Mode: Signaling

WLAN

Test Mode: WLAN

IMEI

Use RFSM ☐

Use Second PC ☐

Save ODS ☐

Merge Felica Cal ☐

OQC Reset ☐

IBI Reset ☐

System Config.

Language: English

Line Name: LINE(temp)

Line Type: 1Person Cell

☒ Smart Cloud Cell

# of Phone: 1

Start Number of UI: 1

Start Number of Jlg: 1

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.

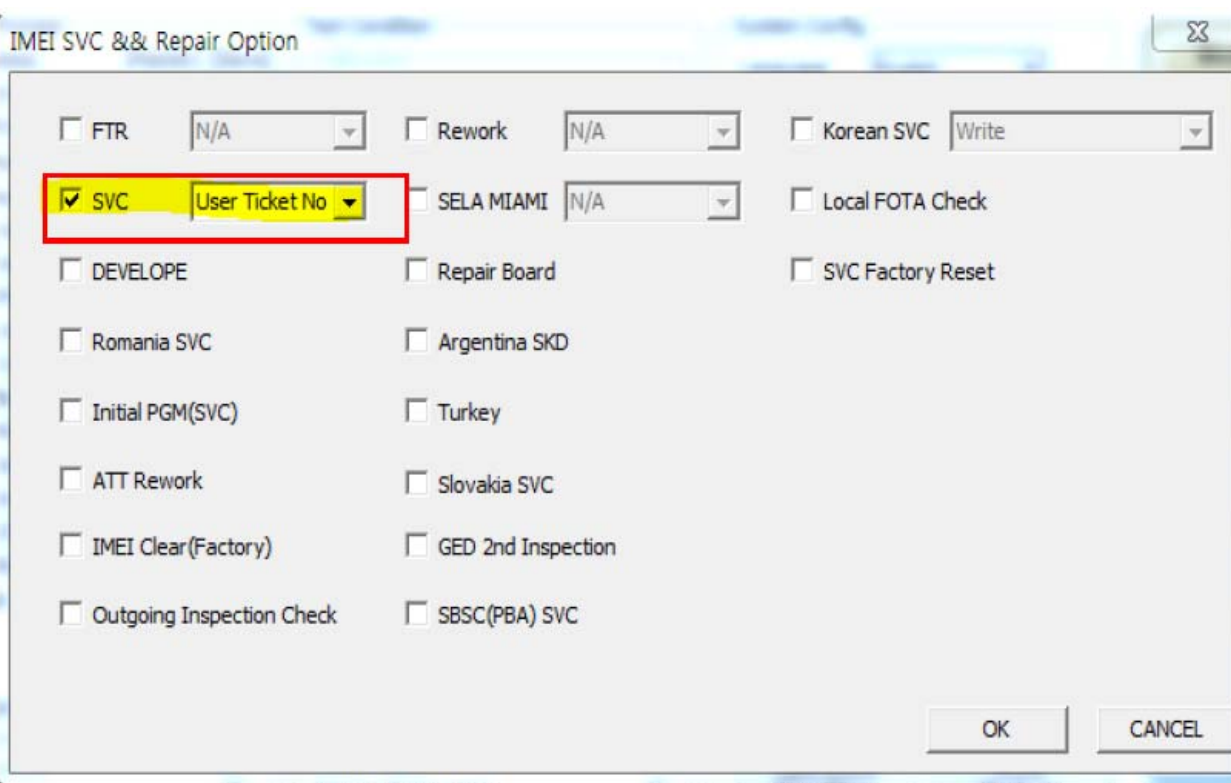
MTS Calibration

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 various checkboxes and dropdown menus for different service options. A red box highlights the 'SVC' checkbox and the 'User Ticket No' dropdown menu, with a circled '1' next to them. The 'OK' and 'CANCEL' buttons are at the bottom right.

IMEI SVC && Repair Option

☐ FTR N/A ☐ Rework N/A ☐ Korean SVC Write

☒ SVC User Ticket No ☐ SELA MIAMI N/A ☐ Local FOTA Check

☐ DEVELOPE ☐ Repair Board ☐ SVC Factory Reset

☐ Romania SVC ☐ Argentina SKD

☐ Initial PGM(SVC) ☐ Turkey

☐ ATT Rework ☐ Slovakia SVC

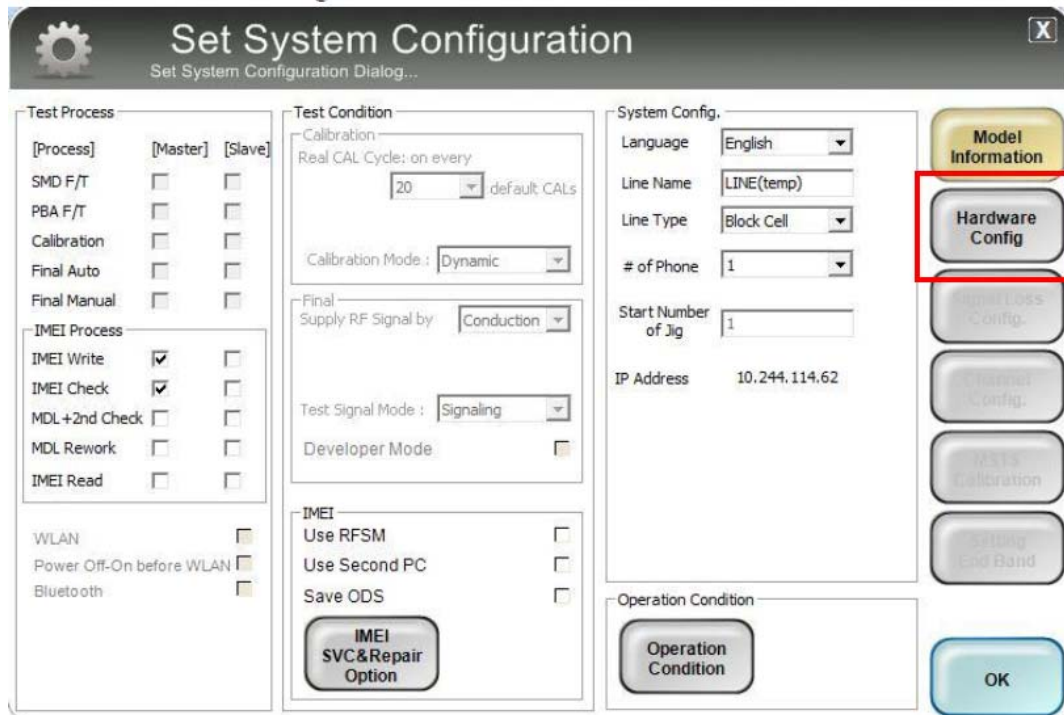
☐ IMEI Clear(Factory) ☐ GED 2nd Inspection

☐ Outgoing Inspection Check ☐ SBSC(PBA) SVC

OK CANCEL

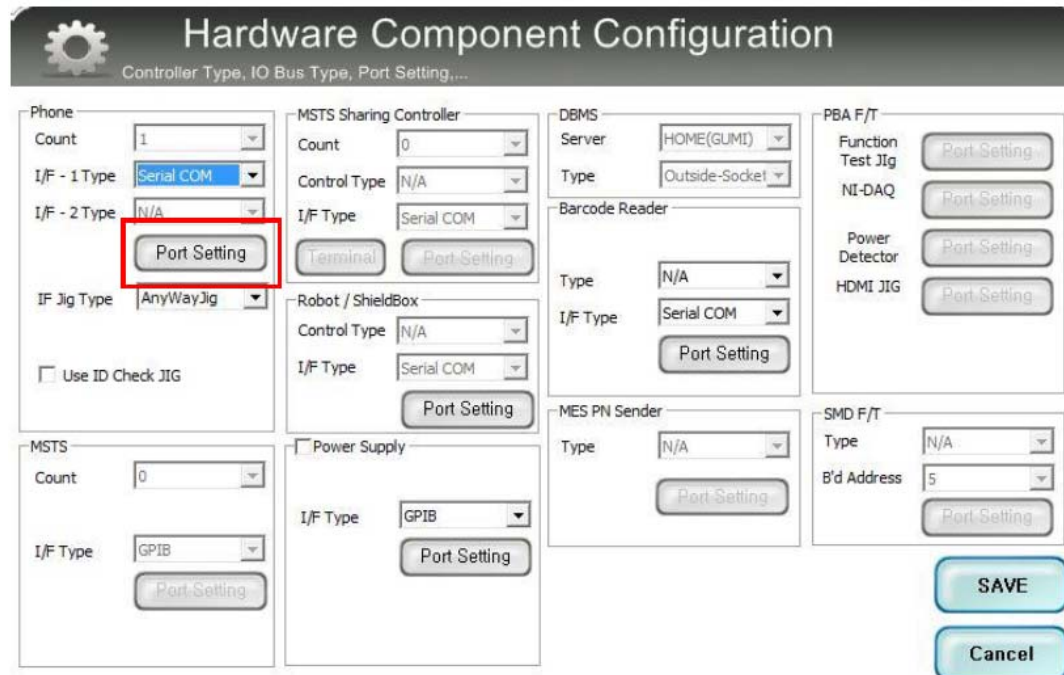
## 6. Level 1 Repair

### 8. Click 'Hardware Config'



The 'Set System Configuration' dialog box is shown. It has a title bar with a gear icon and a close button. The main area is divided into several sections: 'Test Process' with checkboxes for [Process], [Master], and [Slave]; 'Test Condition' with a 'Calibration' section (Real CAL Cycle: on every 20 default CALs, Calibration Mode: Dynamic) and a 'Final' section (Supply RF Signal by: Conduction, Test Signal Mode: Signaling, Developer Mode); 'System Config.' with fields for Language (English), Line Name (LINE(temp)), Line Type (Block Cell), # of Phone (1), Start Number of Jig (1), and IP Address (10.244.114.62); and 'Operation Condition'. On the right side, there is a vertical stack of buttons: 'Model Information', 'Hardware Config' (highlighted with a red box), 'Signal Loss Config.', 'Channel Config.', 'MST Calibration', 'Setting End Band', and 'OK'.

### 9. Click 'Port Setting'



The 'Hardware Component 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: 'Phone' with fields for Count (1), I/F - 1 Type (Serial COM), I/F - 2 Type (N/A), and IF Jig Type (AnyWayJig); 'MSTs Sharing Controller' with fields for Count (0), Control Type (N/A), and I/F Type (Serial COM); 'DBMS' with fields for Server (HOME(GUMI)) and Type (Outside-Socket); 'Barcode Reader' with fields for Type (N/A) and I/F Type (Serial COM); 'MES PN Sender' with fields for Type (N/A) and I/F Type (Serial COM); 'MSTs' with fields for Count (0) and I/F Type (GPIO); 'Power Supply' with fields for I/F Type (GPIO); 'PBA F/T' with fields for Function Test Jig, NI-DAQ, Power Detector, and HDMI JIG; and 'SMD F/T' with fields for Type (N/A) and B'd Address (5). Each section has a 'Port Setting' button. At the bottom right, there are 'SAVE' and 'Cancel' buttons.



## 6. Level 1 Repair

### 10. Select Port Number and SAVE

Set IO BUS Configuration

Phone IO Bus Setting

**Common**

BaudRate: 115200  
Data Bit: 8  
Parity: No  
Stop Bit: 1

No.	Port #1
1	1

SAVE

Cancel

### 11. Click OK to proceed

Set System Configuration

Set System Configuration Dialog...

Test Process

[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 ☐

Bluetooth ☐

Test Condition

Calibration

Real CAL Cycle: on every 20 default CALs

Calibration Mode: Dynamic

Final

Supply RF Signal by: Conduction

Test Signal Mode: Signaling

Developer Mode ☐

IMEI

Use RFSM ☐

Use Second PC ☐

Save ODS ☐

IMEI SVC&Repair Option

System Config.

Language: English

Line Name: LINE(temp)

Line Type: Block Cell

# of Phone: 1

Start Number of Jig: 1

IP Address: 10.244.114.62

Model Information

Hardware Config

Super Leds Config.

Channel Config.

Mass Calibration

Setting End Band

Operation Condition

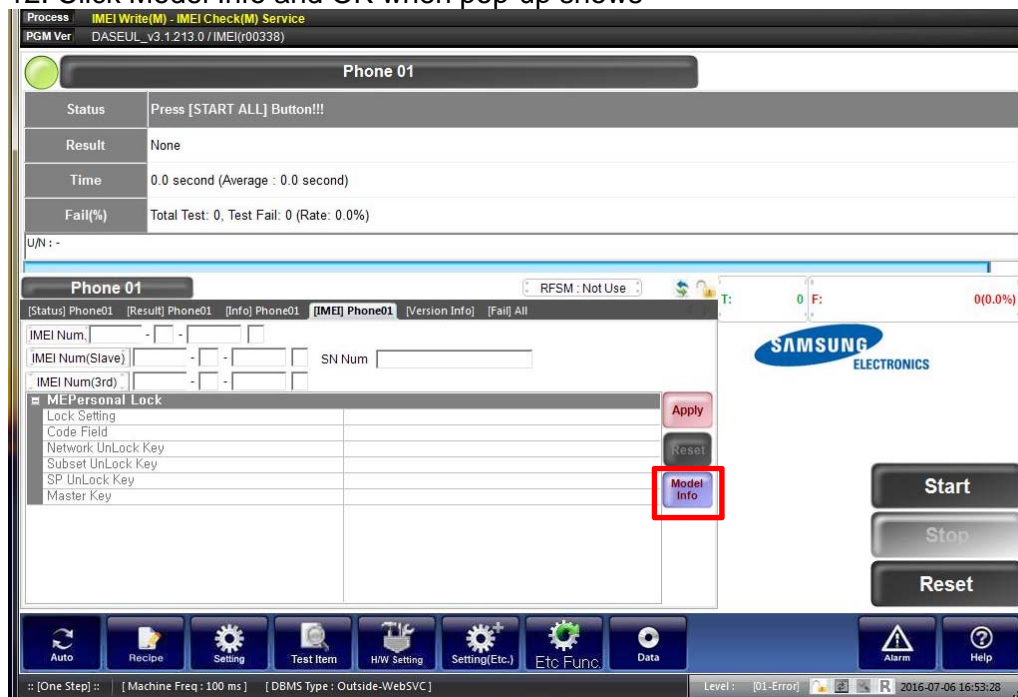
Operation Condition

OK



## 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-G950U]

IMEI Writing Items

Item	Value
CSC	Model SKU 1
PDA	Model SKU 1
Software2	
LPD	
Contents	
DMB	Model SKU
SKU_CODE	
BUYER	VZW
Material_Code	
Boot	
Factory Software	

FactoryReset+Check

☐ Factory Reset+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

STA Option

☐ Don't DB Upload

☐ Packing Rework

☐ Tizen Download

☐ Android Download

☐ High Speed Boot Skip

☐ S-PEN is not inserted(Seed)

☐ Recent List Check(OQC&IBI)

☐ Check IMEI Dupli [RB]

Save Load Cancel

15. Input IMEI Number and click Apply

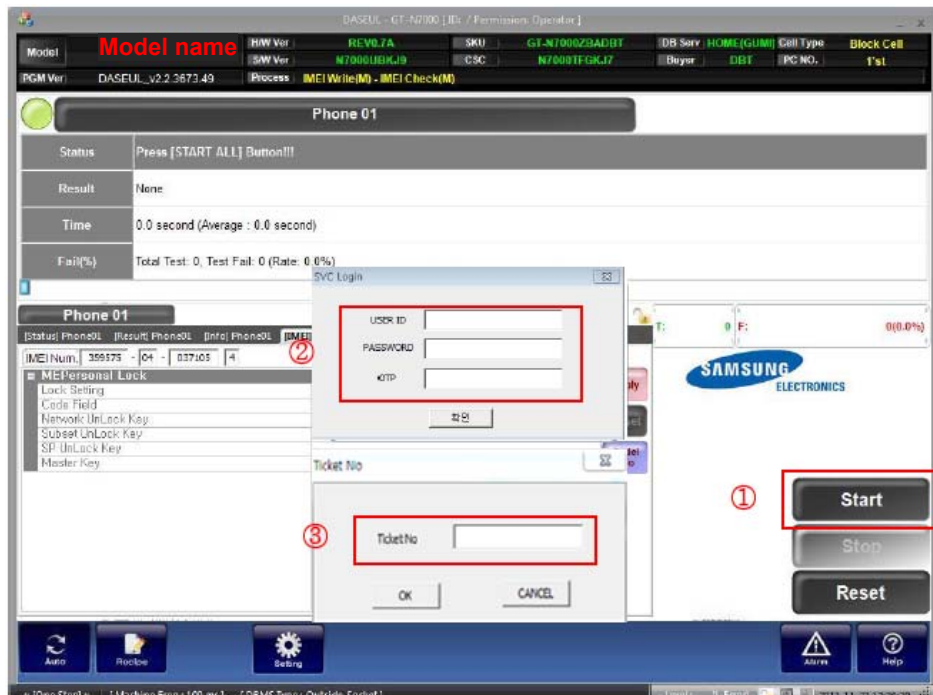
The screenshot displays the Samsung Electronics testing software interface. At the top, a summary section for 'Phone 01' shows the following test results:

- 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%)

Below the summary, the 'Phone 01' tab is selected in a tabbed interface. The 'IMEI' sub-tab is active, showing input fields for IMEI numbers and SN number. A red box highlights the 'Apply' button next to the 'IMEI Num.' field. The interface also includes a 'MEPersonal Lock' section with various lock settings and a toolbar at the bottom for navigation and settings. The status bar at the bottom indicates the current level is '[01-Error]' and the date/time is '2016-07-06 16:53:28'.

## 6. Level 1 Repair

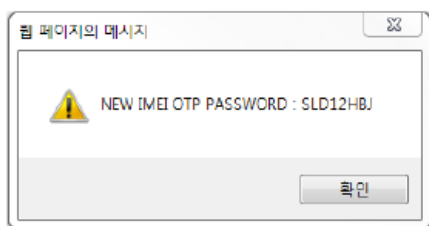
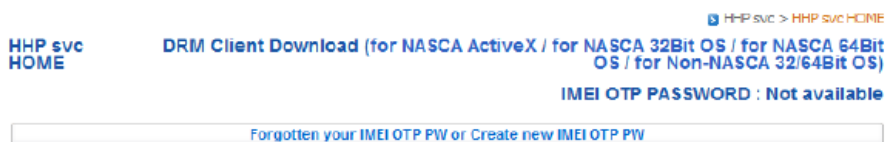
16. ① Click Start → ② Input IMEI writing ID and Password & OTP → ③ Input Ticket No



※ 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

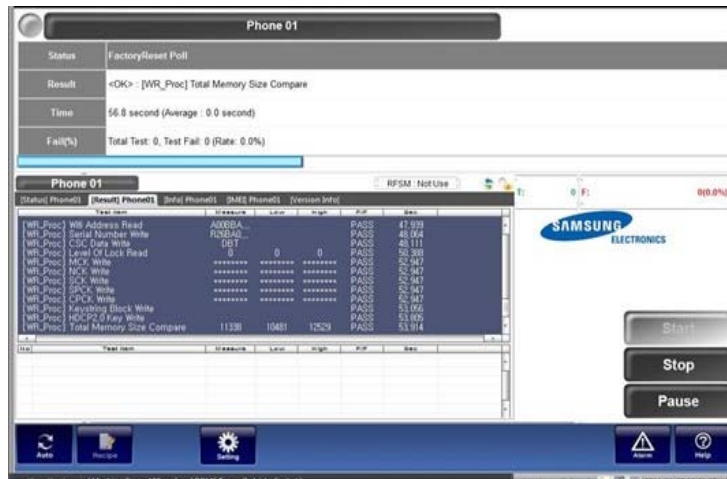


## 6. Level 1 Repair

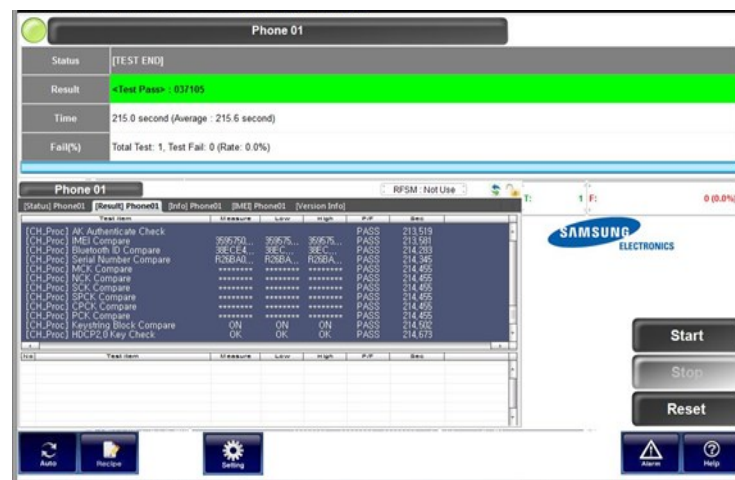
### 17. Connect the phone to Anyway JIG

- ※ 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



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## 6. Level 1 Repair

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### 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\_3.1.281.0\_r00485.CAB
  - Model File
- : [SM-G955F\\_OPEN\\_CALIBRATION\\_Ver\\_3.1.283.20.CAB](#)

※ It is required to use the latest program.

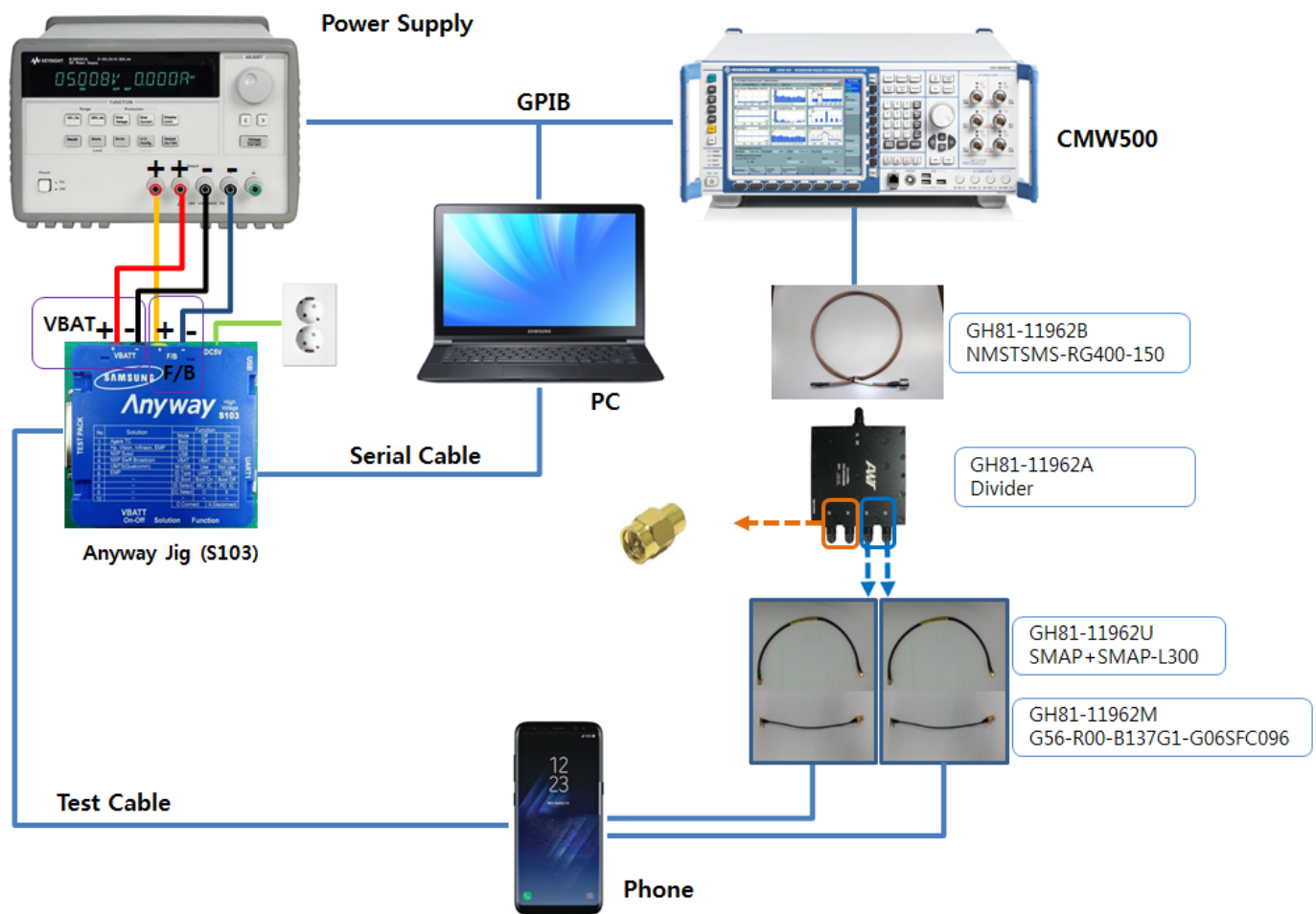
- Mobile Phone
- R&S CMW500
- E3632A Power Supply
- GPIB Cable (2ea)
- JIG BOX (GH81-12520B)
- Adapter (GH81-11888K)
- UART Serial Cable

#### ❖ Table of test cables

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

## 6. Level 1 Repair

### ❖ Setting






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## 6. Level 1 Repair

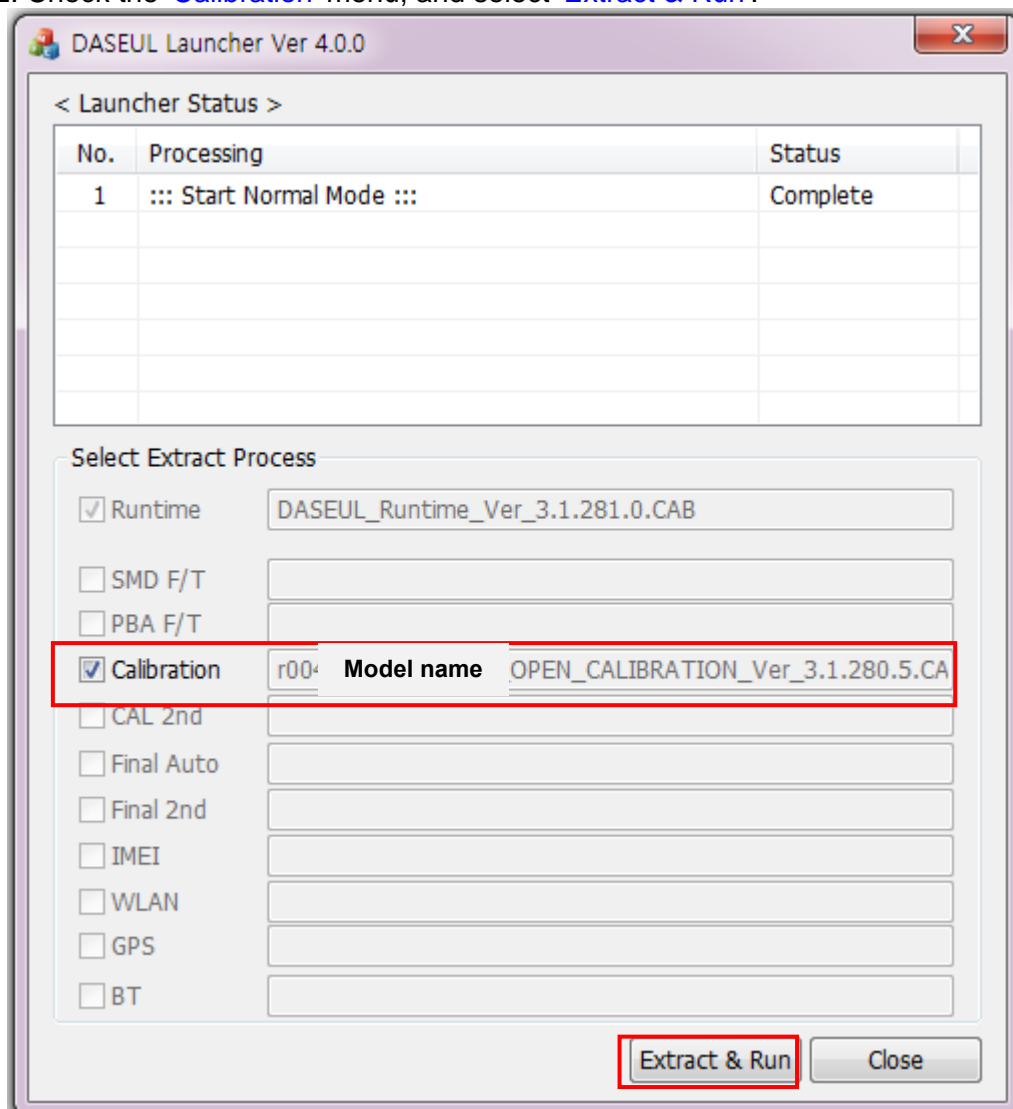
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### 6-3-2. RF Calibration Program

1. Run the RF Calibration Program Launcher, '[DASEUL\\_Launcher\\_vx.x.xx.exe](#)'.

 DASEUL\_CAL\_ALL\_Runtime\_3.1.281.0\_r00485.CAB  
 DASEUL\_Launcher\_v4.0.0.exe  
 SM-G955U\_OPEN\_CALIBRATION\_Ver\_3.1.280.5.CAB

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



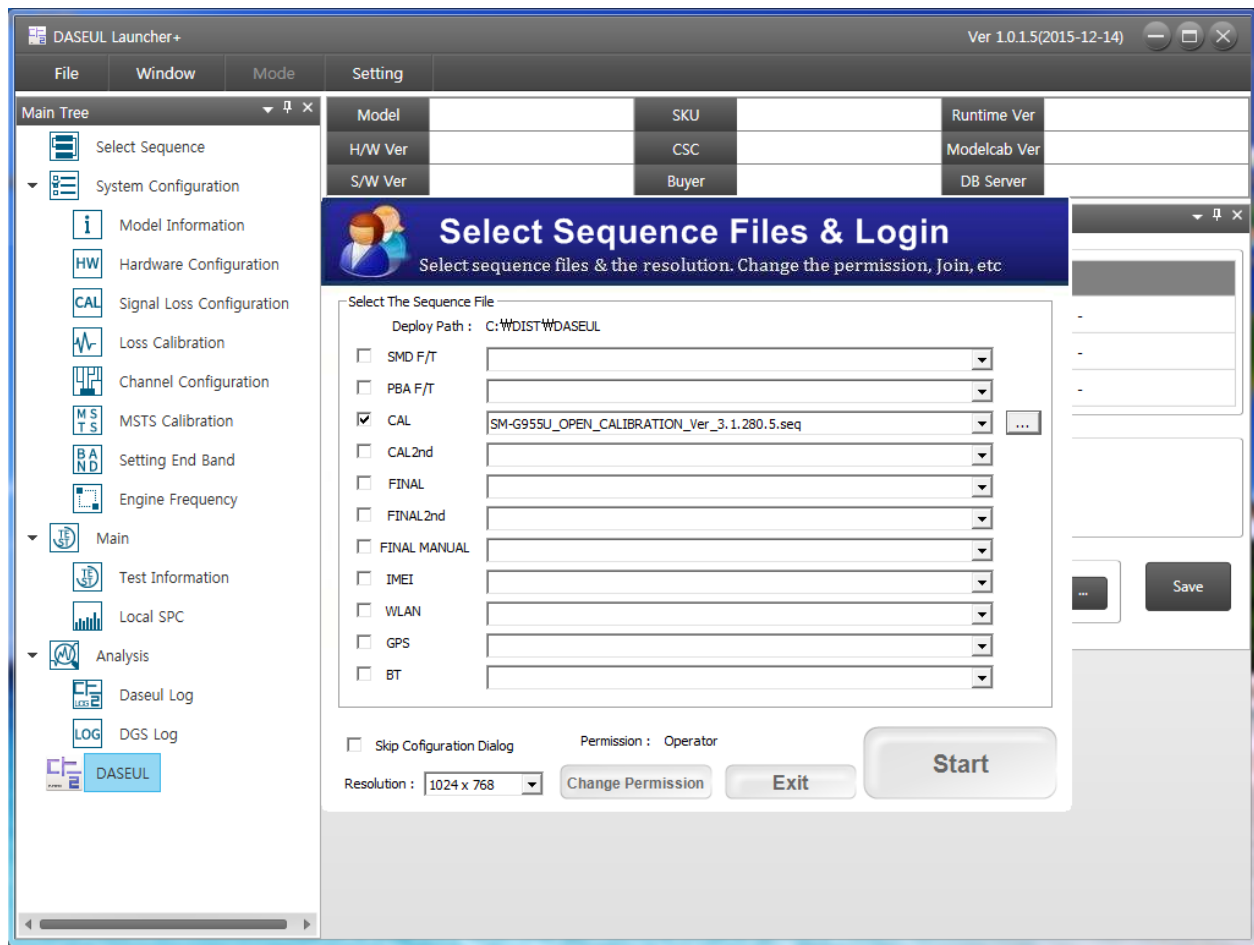


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## 6. Level 1 Repair

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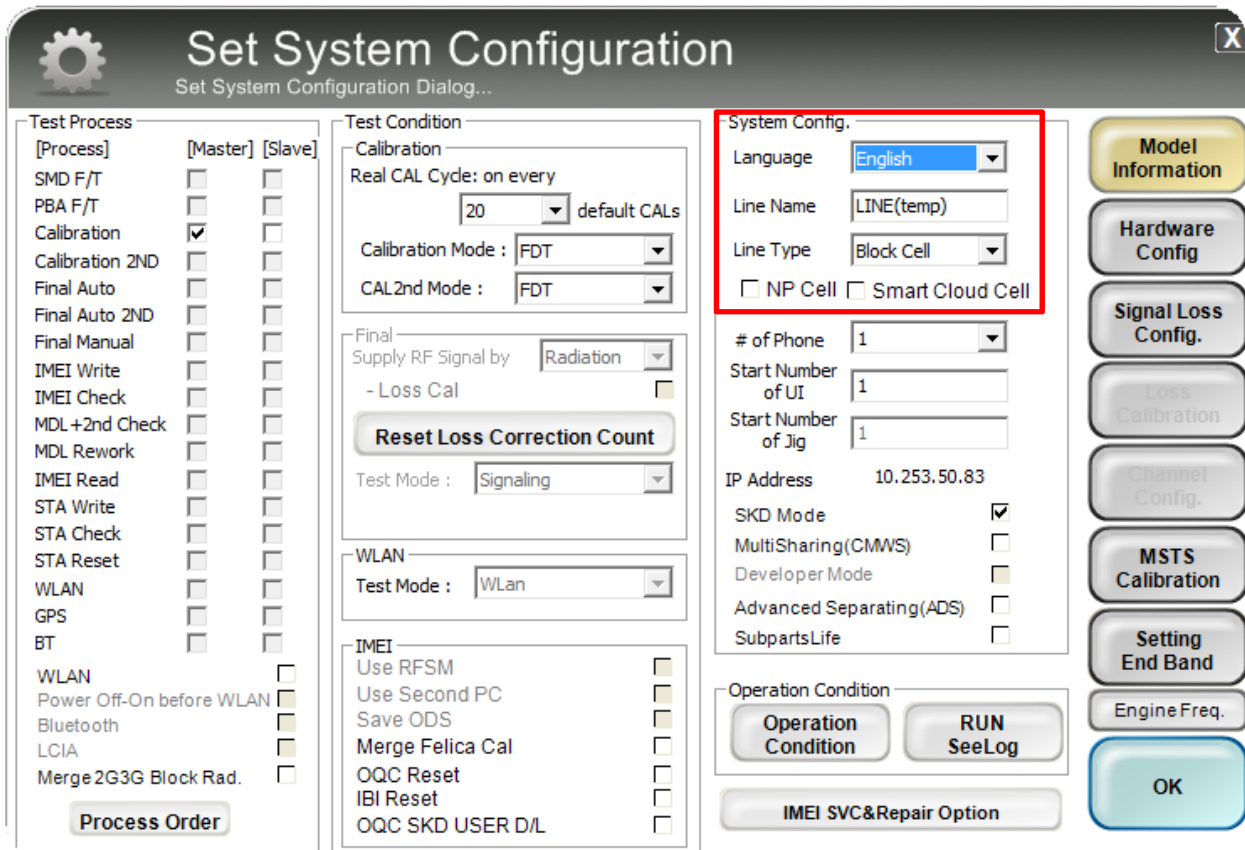
3. Check the 'CAL' and open the [model file](#), then select 'Start' button.





## 6. Level 1 Repair

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



The image shows a 'Set System Configuration' dialog box with a title bar and a close button. The dialog is divided into several sections. On the left is a 'Test Process' section with a list of items and checkboxes for 'Master' and 'Slave' modes. The 'Calibration' item is checked in the Master column. Below this is a 'Process Order' button. The main area is divided into three columns. The first column is 'Test Condition', which includes 'Calibration' settings (Real CAL Cycle, Calibration Mode, CAL2nd Mode), 'Final' settings (Supply RF Signal by, - Loss Cal, Reset Loss Correction Count, Test Mode), 'WLAN' settings (Test Mode), and 'IMEI' settings (Use RFSM, Use Second PC, Save ODS, Merge Felica Cal, OQC Reset, IBI Reset, OQC SKD USER D/L). The second column is 'System Config.', which is highlighted with a red box. It includes 'Language' (English), 'Line Name' (LINE(temp)), 'Line Type' (Block Cell), checkboxes for 'NP Cell' and 'Smart Cloud Cell', '# 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'. The third column contains a vertical stack of buttons: 'Model Information', 'Hardware Config', 'Signal Loss Config.', 'Loss Calibration', 'Channel Config.', 'MSTS Calibration', 'Setting End Band', 'Engine Freq.', and 'OK'. At the bottom of the dialog are buttons for 'Operation Condition', 'RUN SeeLog', and 'IMEI SVC&Repair Option'.

**Test Process**

[Process]	[Master]	[Slave]
SMD F/T	<input type="checkbox"/>	<input type="checkbox"/>
PBA F/T	<input type="checkbox"/>	<input type="checkbox"/>
Calibration	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>
IMEI Check	<input 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

- Loss Cal ☐

**Reset Loss Correction Count**

Test Mode :

**WLAN**

Test Mode :

**IMEI**

Use RFSM	<input type="checkbox"/>
Use Second PC	<input type="checkbox"/>
Save ODS	<input type="checkbox"/>
Merge Felica Cal	<input type="checkbox"/>
OQC Reset	<input type="checkbox"/>
IBI Reset	<input type="checkbox"/>
OQC SKD USER D/L	<input type="checkbox"/>

**System Config.**

Language

Line Name

Line Type

☐ NP Cell ☐ Smart Cloud Cell

# of Phone

Start Number of UI

Start Number of Jig

IP Address

SKD Mode ☒

MultiSharing(CMWS) ☐

Developer Mode ☐

Advanced Separating(ADS) ☐

SubpartsLife ☐

**Operation Condition**

**Operation Condition** **RUN SeeLog**

**IMEI SVC&Repair Option**

**Model Information**

**Hardware Config**

**Signal Loss Config.**

**Loss Calibration**

**Channel Config.**

**MSTS Calibration**

**Setting End Band**

**Engine Freq.**

**OK**

## 6. Level 1 Repair

5. Set the GPIB address of MSTs(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 software configuration windows. The top window is titled "Set System Configuration" and the bottom window is titled "Hardware Component".

**Set System Configuration Dialog:**

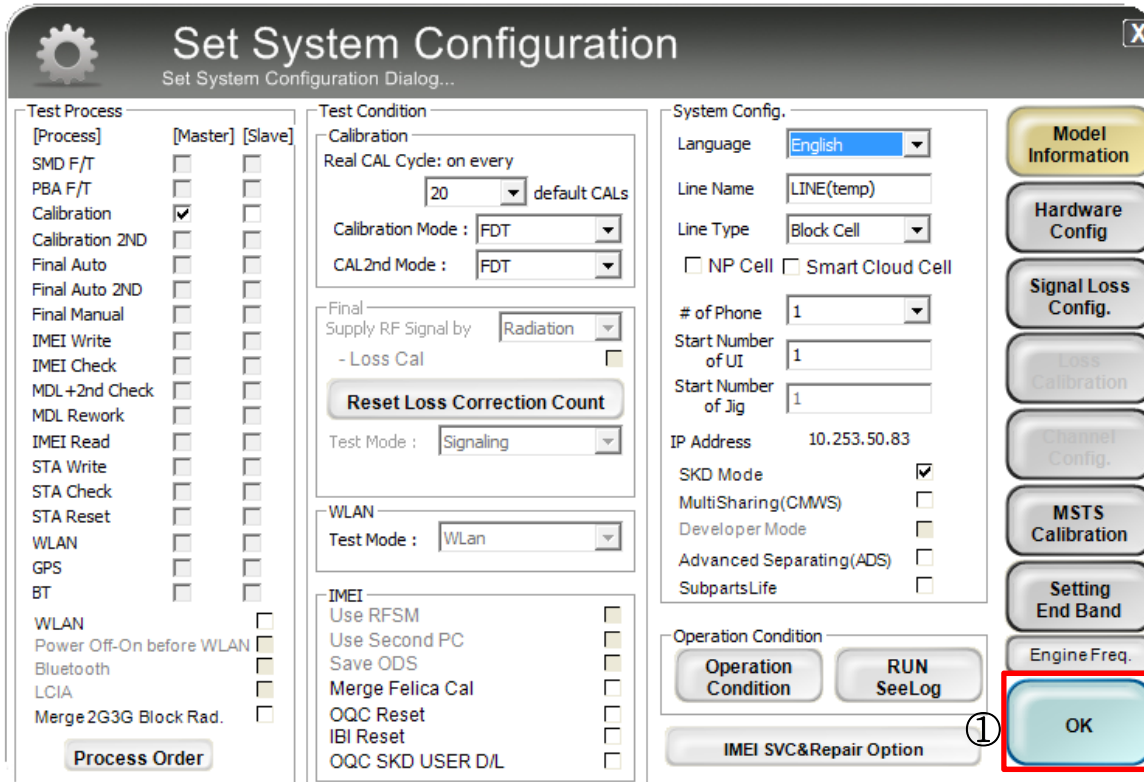
- Test Process:** A list of test processes with checkboxes for [Process], [Master], and [Slave]. "Calibration" is checked under [Process].
- Test Condition:** Includes "Calibration" settings (Real CAL Cycle: on every 20, Calibration Mode: FDT, CAL2nd Mode: FDT) and "WLAN" settings (Test Mode: Wlan).
- System Config.:** Includes "Language" (English), "Line Name" (LINE(temp)), "Line Type" (Block Cell), "# of Phone" (1), "Start Number of UI" (1), "Start Number of Jig" (1), "IP Address" (10.253.50.83), "SKD Mode" (checked), "MultiSharing(CMWS)" (unchecked), "Developer Mode" (unchecked), "Advanced Separating(ADS)" (unchecked), and "SubpartsLife" (unchecked).
- Operation Condition:** Includes "Operation Condition" and "RUN SeeLog" buttons.
- Model Information:** A sidebar on the right with buttons for "Model Information", "Hardware Config" (highlighted with a red box and circled 1), "Signal Loss Config.", "Loss Calibration", "Channel Config.", "MSTS Calibration", "Setting End Band", and "Engine Freq.". The "Hardware Config" button is highlighted with a red box.
- Buttons:** "Process Order", "Reset Loss Correction Count", "IMEI SVC&Repair Option", and "OK".

**Hardware Component Dialog:**

- Phone:** Includes "Count" (1), "I/F - 1 Type" (Serial COM), "I/F - 2 Type" (N/A), "IF Jig Type" (AnyWayJig), and "Multi Jig Cable Type" (UART Line).
- MSTS Sharing Controller:** Includes "Count" (0), "Control Type" (N/A), "I/F Type" (Serial COM), and "Terminal" button.
- Robot / ShieldBox:** Includes "Control Type" (N/A), "I/F Type" (Serial COM), and "ShieldBox Type" button.
- Power Supply:** Includes "Count" (1), "I/F Type" (GPIB), and "Port Setting" button (highlighted with a red box and circled 2).
- Label Printer:** Includes "Control Type" (None), "I/F Type" (Serial COM), and "Port Setting" button.
- Offset X / Y:** Includes "Offset X" and "Offset Y" fields.
- Power Supply IO Bus Setting:** A sub-dialog box (circled 4) with "Common" settings (EOS: 0, EOT: 1, Time Out: 13) and a table for "No.", "Board", and "Address". The table has one row with "No." 1, "Board" 0, and "Address" 5. It includes "SAVE" and "Cancel" buttons.
- Buttons:** "Port Setting", "SAVE", and "Cancel".

## 6. Level 1 Repair

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



The 'Set System Configuration' dialog box is divided into several sections. On the left, the 'Test Process' section lists various tests with checkboxes for 'Master' and 'Slave' modes. The 'Test Condition' section includes 'Calibration' settings (Real CAL Cycle, Calibration Mode, CAL2nd Mode), 'Final' settings (Supply RF Signal by, - Loss Cal, Reset Loss Correction Count), 'Test Mode' (Signaling), 'WLAN' settings (Test Mode), and 'IMEI' settings (Use RFSM, Use Second PC, Save ODS, Merge Felica Cal, OQC Reset, IBI Reset, OQC SKD USER D/L). The 'System Config.' section includes 'Language' (English), 'Line Name' (LINE(temp)), 'Line Type' (Block Cell), 'NP Cell' and 'Smart Cloud Cell' checkboxes, '# 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'. The 'Operation Condition' section has 'Operation Condition' and 'RUN SeeLog' buttons. The 'IMEI SVC&Repair Option' section has a button. On the right, a vertical sidebar contains buttons for 'Model Information', 'Hardware Config', 'Signal Loss Config.', 'Loss Calibration', 'Channel Config.', 'MSTS Calibration', 'Setting End Band', and 'Engine Freq.'. The 'OK' button is highlighted with a red box and a circled '1'.



The 'DASEUL - SM-G955U' interface displays various system information and test results. At the top, it shows 'Model name', 'HW Ver.', 'SW Ver.', 'SKU', 'QSC', 'DB Serv.', 'HOME(GUMI)', 'Cell Type', 'Block Cell', 'Buyer', 'ALL', 'PC NO.', and 'NONE'. Below this, the 'PGM Ver.' is 'DASEUL\_v3.1.281.0 / Calibration(r00485)'. The 'Phone 01' section shows 'Status: Press [START ALL] Button!!!', 'Result: None', 'Time: 0.0 second (Average : 0.0 second)', and 'Fail(%): Total Test: 0, Test Fail: 0 (Rate: 0.0%)'. The 'Phone 01' section also shows a table of test results with columns for 'Time', 'No.', 'Item', and 'Status'. The table lists various test steps and their completion status. On the right, there are buttons for 'Start', 'Stop', and 'Reset'. The bottom status bar shows 'Level: [01-Error]', 'Machine Freq: 100 ms', 'DBMS Type: N/A', and a timestamp '2017-03-02 20:52:17'.