

## 2. Specification

### 2.1 CDMA/LTE General Specification

	CDMA	GPS	LTE FDD B1
Tx Freq. range	824.04 ~ 848.97MHz	-	1920~1980 MHz
Rx Freq. range	869.04 ~ 893.97MHz	1575.42MHz	2110~2170 MHz
Channel Bandwidth	1.23MHz	-	5, 10, 15, 20MHz
Channel Spacing	30KHz	Not Used	180KHz
Number of Channel	832	1	25, 50, 75, 100
Duplex Separation	45MHz	-	190 MHz
Type of Emission	1M27F9W	-	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)
Tx Local Frequency	$F_{Tx} * 1.6666$	-	-
Rx Local Frequency	$F_{Rx} * 2$	-	-
Frequency Stability	$(F_{Rx}-45MHz) \pm 300Hz$	-	-
Operating Temperature	-30 °C ~ +60 °C		-30 °C ~ +60 °C

## 2. Specification

	LTE FDD B2	LTE FDD B3	LTE FDD B4	LTE FDD B5	LTE FDD B7
Tx Freq. range	1850 ~ 1910 MHz	1710 ~ 1785 MHz	1710~1755 MHz	824 ~ 849 MHz	2500~2570 MHz
Rx Freq. range	1930 ~ 1990 MHz	1805 ~ 1880 MHz	2110~2155 MHz	869 ~ 894 MHz	2620~2690 MHz
Channel Bandwidth	1.4, 3, 5, 10, 15, 20 MHz	1.4, 3, 5, 10, 15, 20 MHz	1.4, 3, 5, 10, 15, 20 MHz	1.4, 3, 5, 10 MHz	5, 10,15, 20 MHz
Channel Spacing	180KHz	180KHz	180KHz	180KHz	180KHz
Number of Channel	6, 15, 25, 50, 75, 100	6, 15, 25, 50, 75, 100	6, 15, 25, 50, 75, 100	6, 15, 25, 50	25, 50, 75, 100
Duplex Separation	80 MHz	95 MHz	400 MHz	45 MHz	45 MHz
Type of Emission	1M11G7D (QPSK) 1M11W7D (16QAM) 1M11W7D (64QAM) 2M71G7D (QPSK) 2M71W7D (16QAM) 2M71W7D (64QAM) 4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)	1M11G7D (QPSK) 1M11W7D (16QAM) 1M11W7D (64QAM) 2M71G7D (QPSK) 2M71W7D (16QAM) 2M71W7D (64QAM) 4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)	1M11G7D (QPSK) 1M11W7D (16QAM) 1M11W7D (64QAM) 2M71G7D (QPSK) 2M71W7D (16QAM) 2M71W7D (64QAM) 4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)	1M11G7D (QPSK) 1M11W7D (16QAM) 1M11W7D (64QAM) 2M71G7D (QPSK) 2M71W7D (16QAM) 2M71W7D (64QAM) 4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)
Operating Temperature	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C

## 2. Specification

	LTE FDD B8	LTE FDD B12	LTE FDD B13	LTE FDD B17	LTE FDD B18
Tx Freq. range	880 ~ 915 MHz	699 ~ 716 MHz	777~787 MHz	704 ~ 716 MHz	815 ~ 830 MHz
Rx Freq. range	925 ~ 960 MHz	729 ~ 746 MHz	746~756 MHz	734 ~ 746 MHz	860 ~ 875 MHz
Channel Bandwidth	1.4, 3, 5, 10 MHz	1.4, 3, 5, 10 MHz	5, 10 MHz	5, 10 MHz	5, 10, 15 MHz
Channel Spacing	180KHz	180KHz	180KHz	180KHz	180KHz
Number of Channel	6, 15, 25, 50	25, 50, 75, 100	25, 50	25, 50	25, 50, 75
Duplex Separation	45 MHz	30 MHz	-31 MHz	30 MHz	45 MHz
Type of Emission	1M11G7D (QPSK) 1M11W7D (16QAM) 1M11W7D (64QAM) 2M71G7D (QPSK) 2M71W7D (16QAM) 2M71W7D (64QAM) 4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM)	1M11G7D (QPSK) 1M11W7D (16QAM) 1M11W7D (64QAM) 2M71G7D (QPSK) 2M71W7D (16QAM) 2M71W7D (64QAM) 4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM)	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM)	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM)	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM)
Operating Temperature	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C

## 2. Specification

	LTE FDD B19	LTE FDD B20	LTE FDD B25	LTE FDD B26	LTE FDD B28
Tx Freq. range	830 ~ 845 MHz	832 ~ 862 MHz	1850~1915 MHz	814 ~ 849 MHz	703 ~ 748 MHz
Rx Freq. range	875 ~ 890 MHz	791 ~ 821 MHz	1930~1995 MHz	859 ~ 894 MHz	758 ~ 803 MHz
Channel Bandwidth	5, 10, 15 MHz	5, 10, 15, 20 MHz	1.4, 3, 5, 10, 15, 20 MHz	1.4, 3, 5, 10, 15 MHz	3, 5, 10, 15, 20 MHz
Channel Spacing	180KHz	180KHz	180KHz	180KHz	180KHz
Number of Channel	25, 50, 75	25, 50, 75, 100	6, 15, 25, 50, 75, 100	6, 15, 25, 50, 75	15, 25, 50, 75, 100
Duplex Separation	45 MHz	-41 MHz	80 MHz	45 MHz	55 MHz
Type of Emission	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM)	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)	1M11G7D (QPSK) 1M11W7D (16QAM) 1M11W7D (64QAM) 2M71G7D (QPSK) 2M71W7D (16QAM) 2M71W7D (64QAM) 4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)	1M11G7D (QPSK) 1M11W7D (16QAM) 1M11W7D (64QAM) 2M71G7D (QPSK) 2M71W7D (16QAM) 2M71W7D (64QAM) 4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM)	2M71G7D (QPSK) 2M71W7D (16QAM) 2M71W7D (64QAM) 4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)
Operating Temperature	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C

## 2. Specification

	LTE TDD B34	LTE TDD B38	LTE TDD B39	LTE TDD B40	LTE TDD B41
Tx Freq. range	2010 ~ 2025 MHz	2570 ~ 2620 MHz	1880~1920 MHz	2300 ~ 2400 MHz	2496~ 2690 MHz
Rx Freq. range	2010 ~ 2025 MHz	2570 ~ 2620 MHz	1880~1920 MHz	2300 ~ 2400 MHz	2496~ 2690 MHz
Channel Bandwidth	5, 10,15 MHz	5, 10, 15, 20 MHz	5, 10, 15, 20 MHz	5, 10, 15, 20 MHz	5, 10, 15, 20 MHz
Channel Spacing	180KHz	180KHz	180KHz	180KHz	180KHz
Number of Channel	25, 50, 75	25, 50, 75, 100	25, 50, 75, 100	25, 50, 75, 100	25, 50, 75, 100
Duplex Separation	-	-	-	-	-
Type of Emission	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)	4M50G7D (QPSK) 4M50W7D (16QAM) 4M50W7D (64QAM) 9M00G7D (QPSK) 9M00W7D (16QAM) 9M00W7D (64QAM) 13M5G7D (QPSK) 13M5W7D (16QAM) 13M5W7D (64QAM) 18M0G7D (QPSK) 18M0W7D (16QAM) 18M0W7D (64QAM)
Operating Temperature	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C	-30 °C ~ +60 °C

## 2. Specification

### 2-2. GSM/WCDMA General Specification

	GSM850	EGSM 900	DCS1800	PCS1900	WCDMA 2100	WCDMA 1900	WCDMA 900	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	1852~1907 1932~1987	880~915 925~960	824~849 869~894
ARFCN range	128~251	0~124 & 975~1023	512~885	512~810	UL: 9612~9888 DL: 10562~10838	UL: 9262~9538 DL: 9662~9938	UL: 2712~2863 DL: 2937~3088	UL: 4132~4233 DL: 4357~4458
Tx/Rx spacing	45MHz	45MHz	95MHz	80MHz	190MHz	80MHz	45MHz	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	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	FrameLength: 10ms Slotlength: 0.667ms	FrameLength: 10ms Slotlength: 0.667ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK	QPSK HQPSK	QPSK HQPSK	QPSK HQPSK	QPSK HQPSK
MS Power	33dBm~ 5dBm	33dBm~ 5dBm	30dBm~ 0dBm	30dBm~ 0dBm	24dBm~ -50dBm	24dBm~ -50dBm	24dBm~ -50dBm	24dBm~ -50dBm
Power Class	5pcl ~ 19pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm	-106.7dBm	-106.7dBm	-106.7dBm	-106.7dBm
TDMA Mux	8	8	8	8	8	8	8	8
Cell Radius	35Km	35Km	2Km	2Km	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±3 dBm	17	9±3 dBm	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 CDMA : BC0 2G GSM 850(B5) / 900(B8) / 1800(B3) / 1900(B2) 3G WCDMA : B1 / B2 / B5 / B8 4G(LTE) - FDD : B1 / B2 / B3 / B4 / B5 / B7 / B8 / B12/ B13 /B17 / B18 / B19 / B20 / B25 / B26 / B28 - TDD : B34 / 38 / B39 / B40 / B41 - TD-SCDMA : B34 / B39
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

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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

# 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.

# 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.

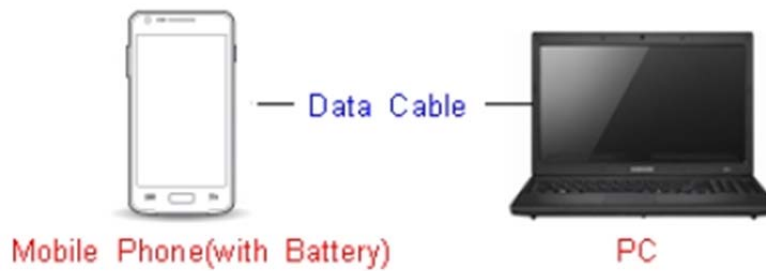
## 6. Level 1 Repair

### 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

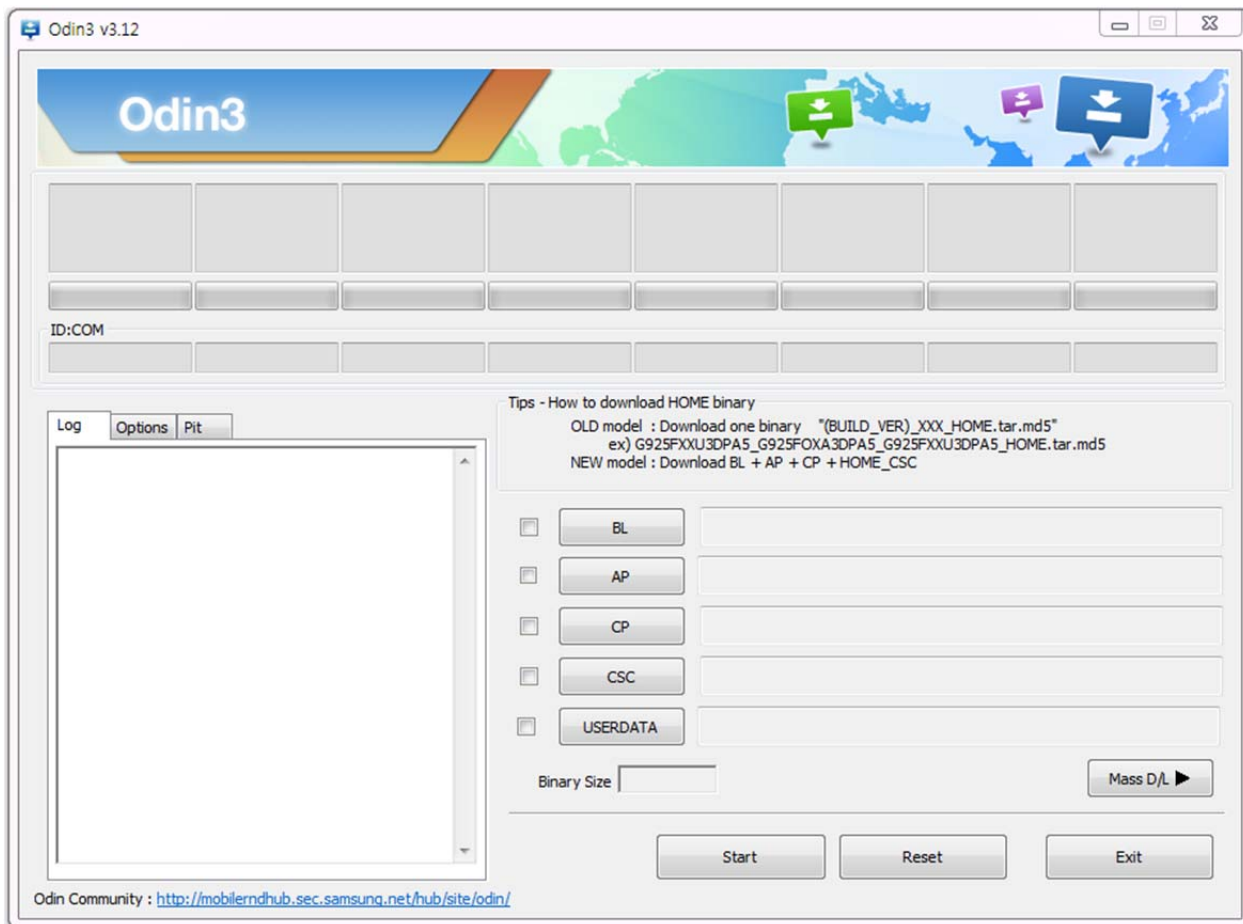


**Data Cable : [GH39-01949A](#)**

## 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**"

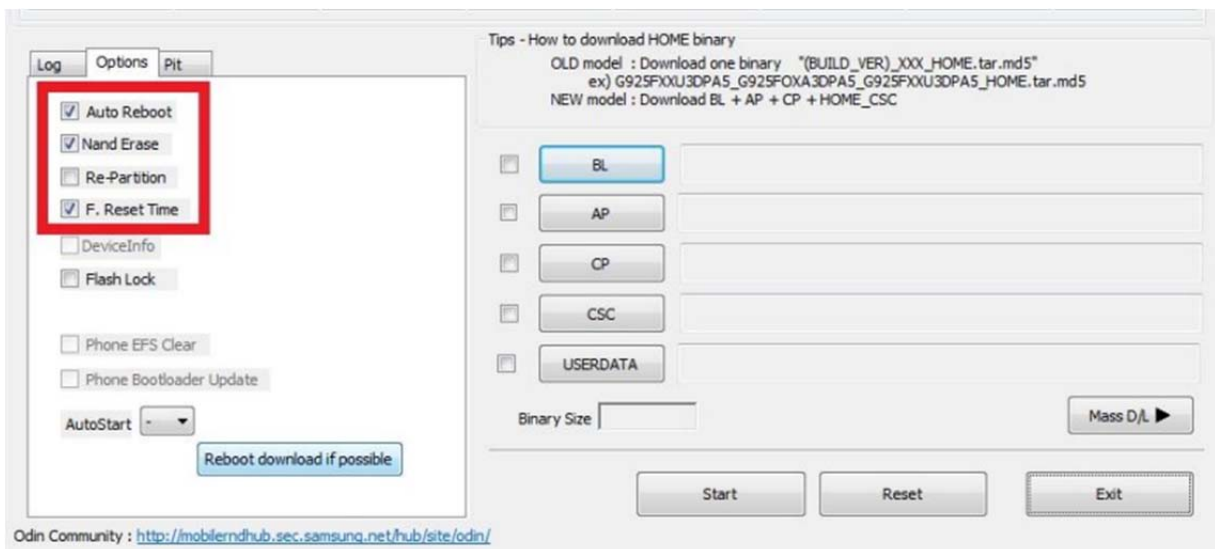
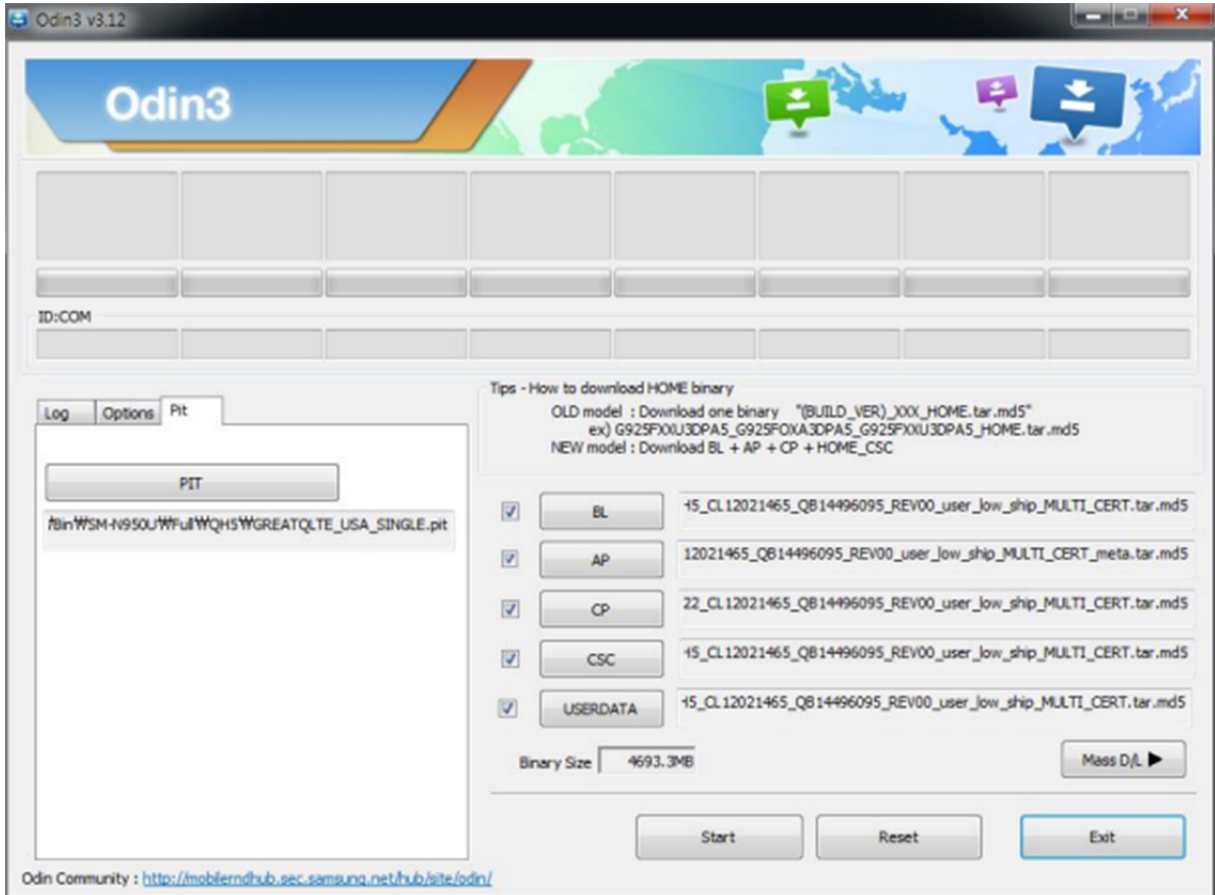


## 6. Level 1 Repair

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

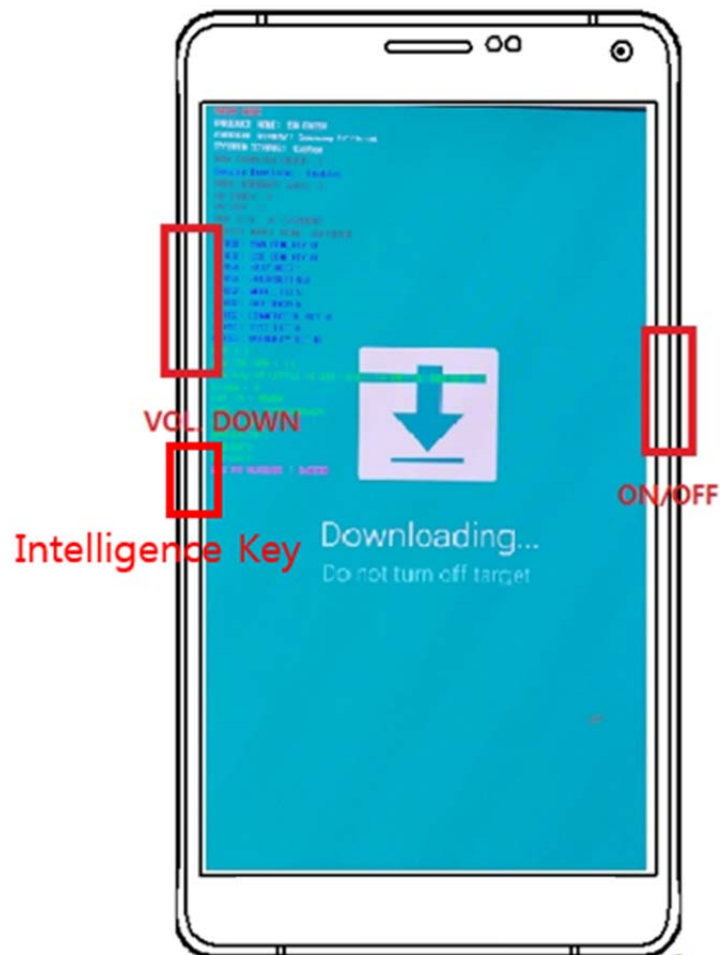
\* Note : "Odin v3.12.10 or above" checks MD5 checksum just after file selection.



## 6. Level 1 Repair

### 2. Enter into Download Mode

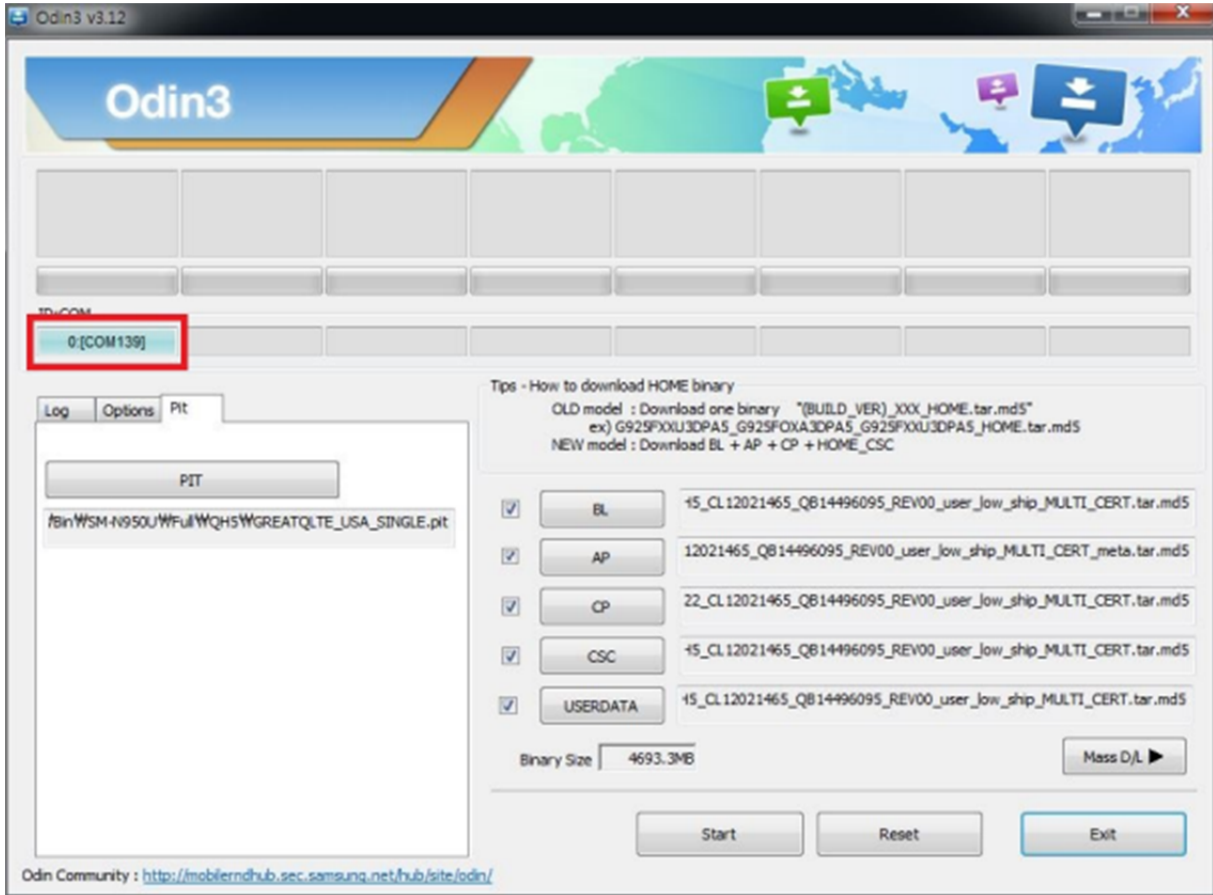
- Enter into Download Mode by pressing Volume Down button, Intelligence button and ON/OFF Button simultaneously followed by pressing Volume up button as a direction of the phone.



## 6. Level 1 Repair

3. Connect the device to PC via Data Cable.

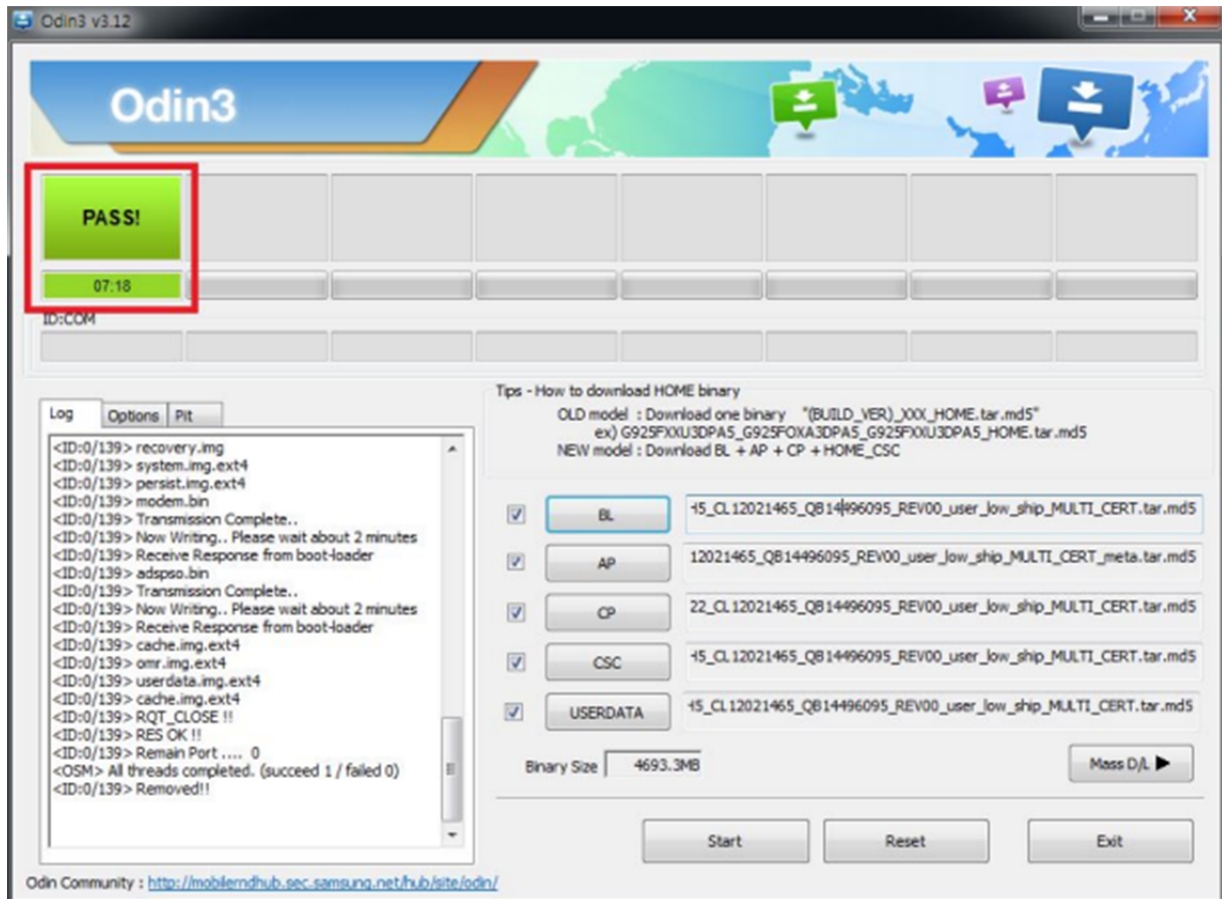
Make sure that the one of communication ports [ID:COM] box is highlighted in sky blue. The device is now connected with the PC and ready to download the binary files in it.





## 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.**

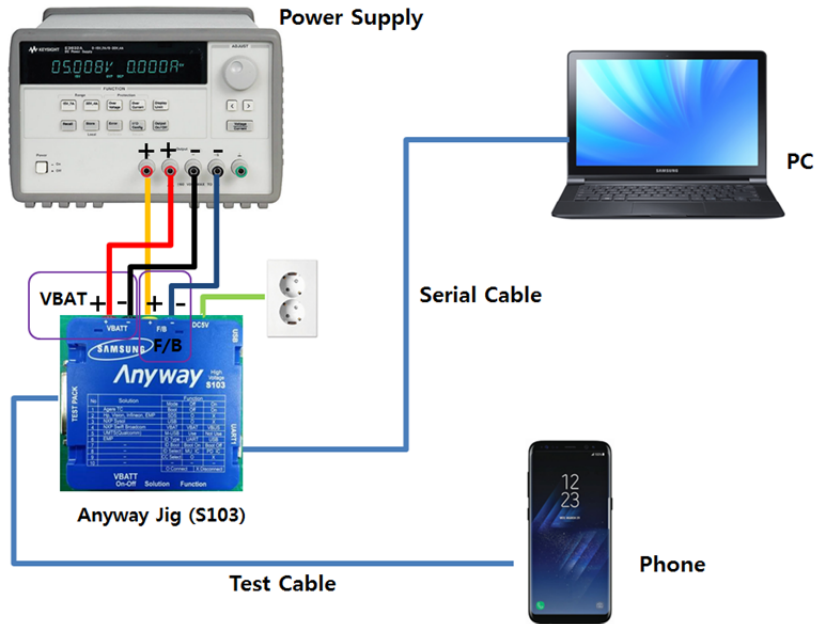
## 6. Level 1 Repair

### 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	<b>DASEUL_SVC_Launcher_v3.0.12</b> or higher -Uploaded on HHPsvc Notice
③ Runtime File	1. <b>DASEUL_IMEI_ALL_Runtime_3.1.316.0_r00464.CAB</b> or higher -Uploaded on HHPsvc Notice 2. Make 'ModelName' folder at the same position with launcher & Runtime file.  DASEUL_IMEI_ALL_Runtime_3.1.322.0_r00473.CAB  DASEUL_Launcher_v4.0.0.exe  SM-N9500_CHINA(CSC)_IMEI_Ver_3.1.318.5.CAB
④ Model File	Copy Model File under the 'Model Name' folder

## 6. Level 1 Repair

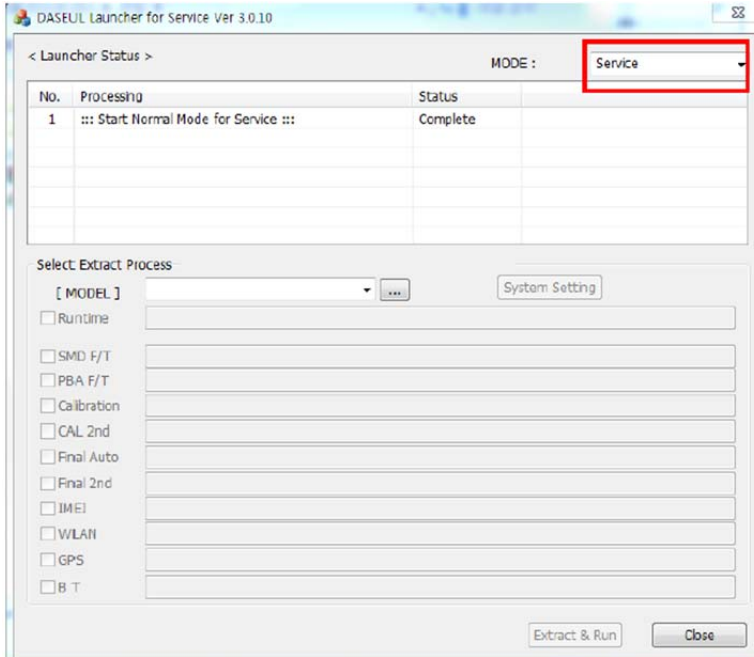
### 6-2-2. IMEI writing Process

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

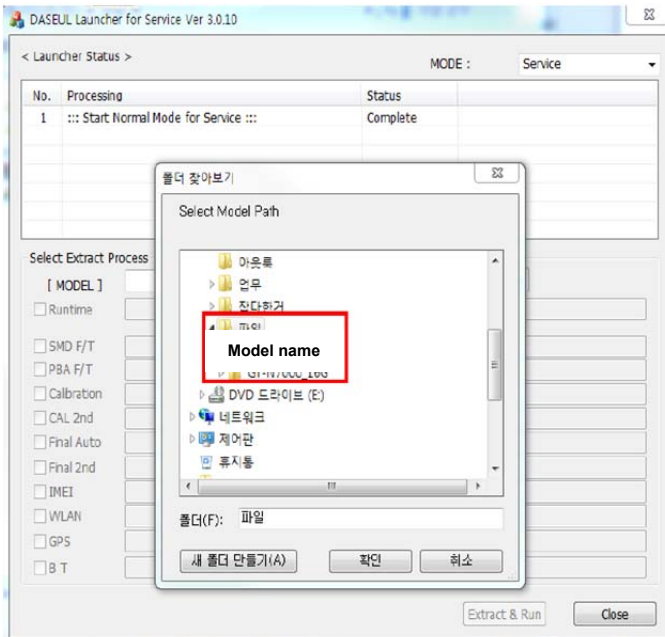


DASEUL\_SVC\_Launcher\_v3.0.12.exe

2. Select Service Mode

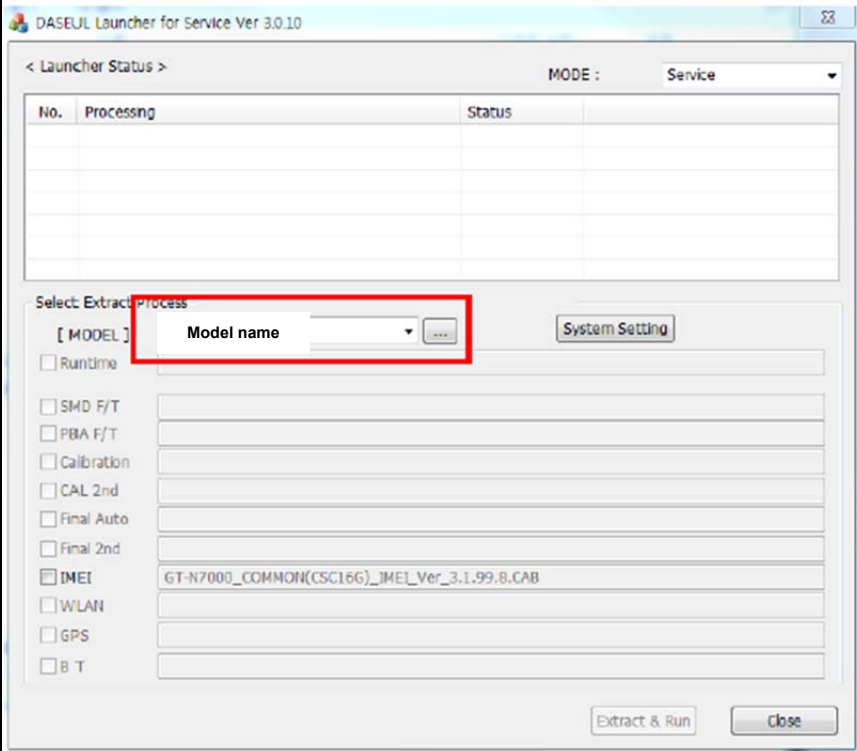


3. Click [ ... ] and Select folder where the Launcher exists



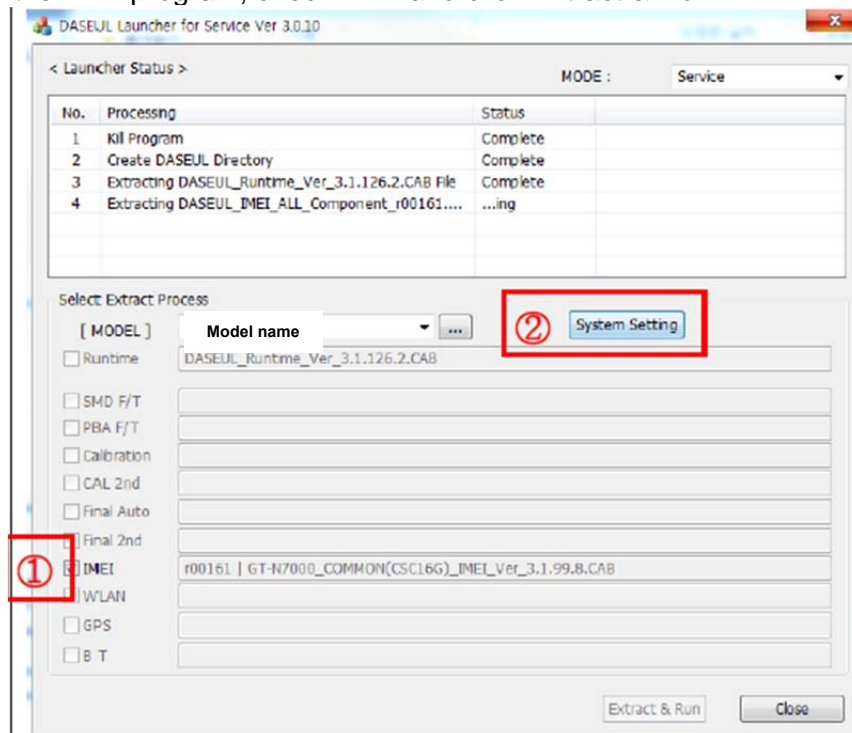
## 6. Level 1 Repair

### 4. Select Model



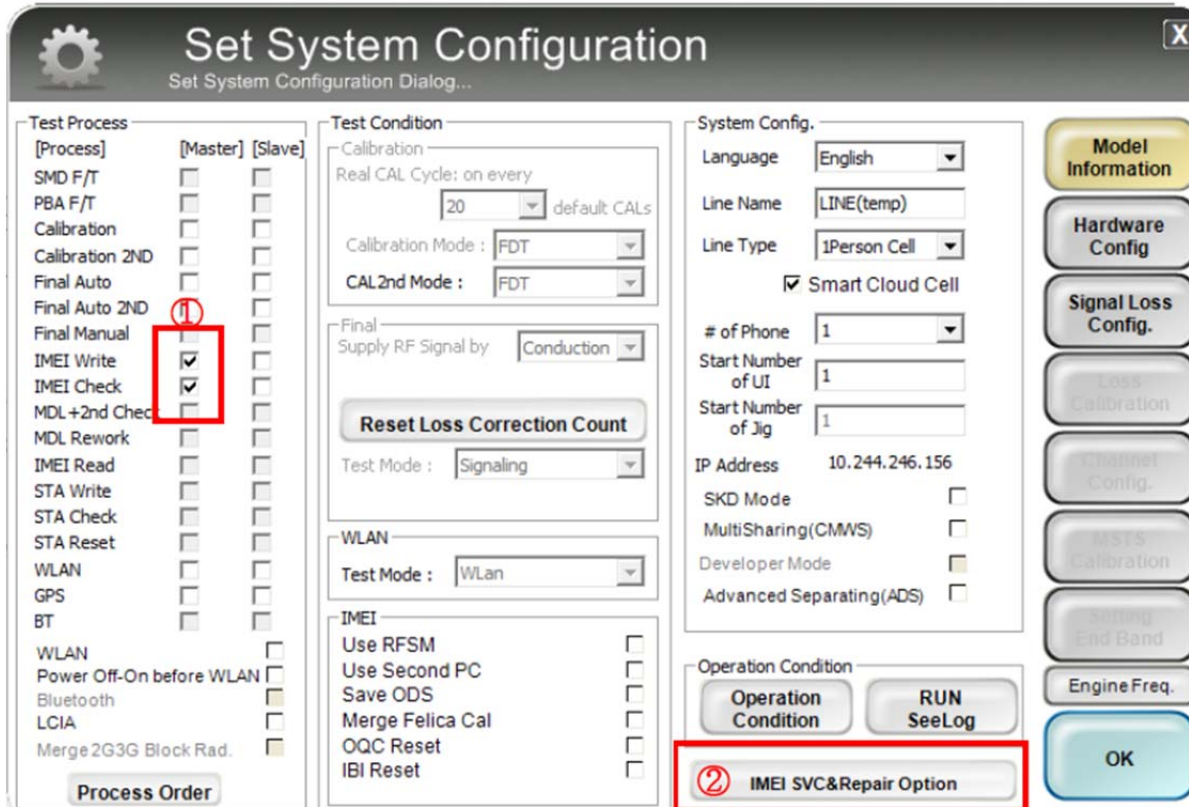
### 5. Check IMEI and click System Setting

※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.



**Set System Configuration**  
Set System Configuration Dialog...

**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 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

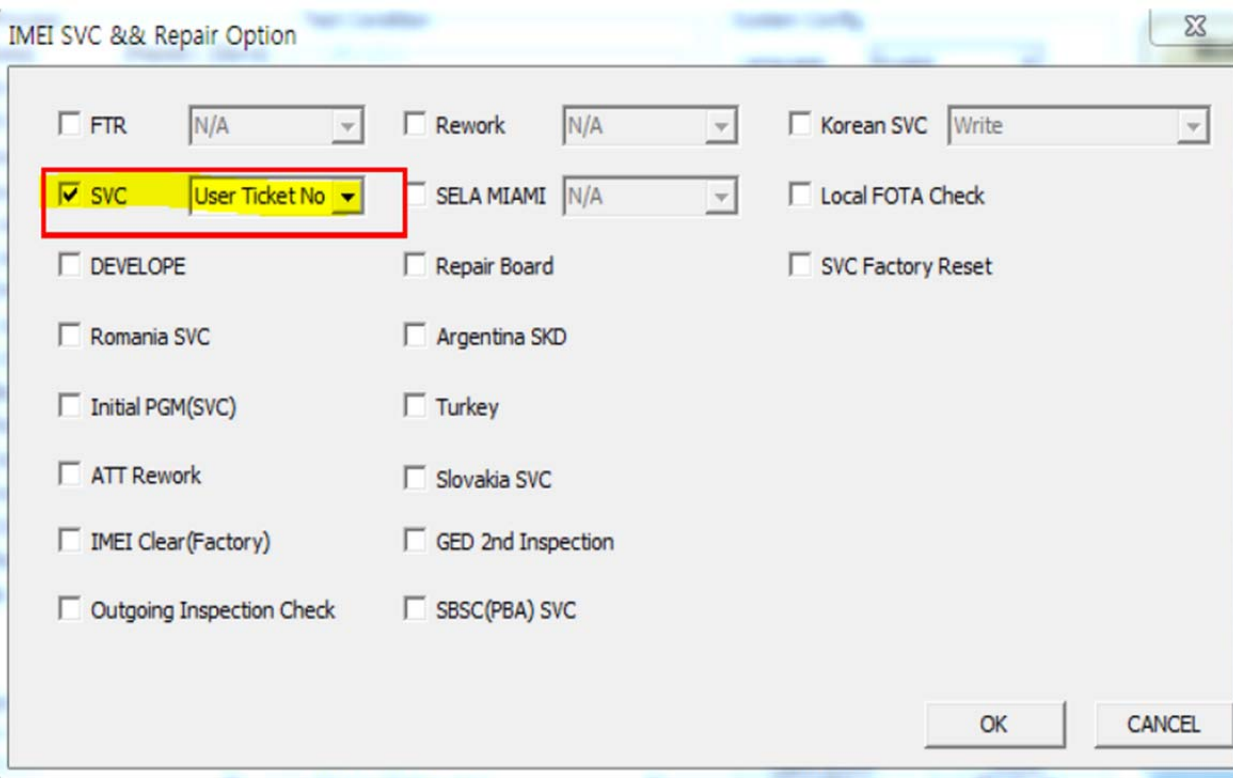
MultiSharing(CMWS)

Developer Mode

Advanced Separating(ADS)

**Operation Condition**

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



**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

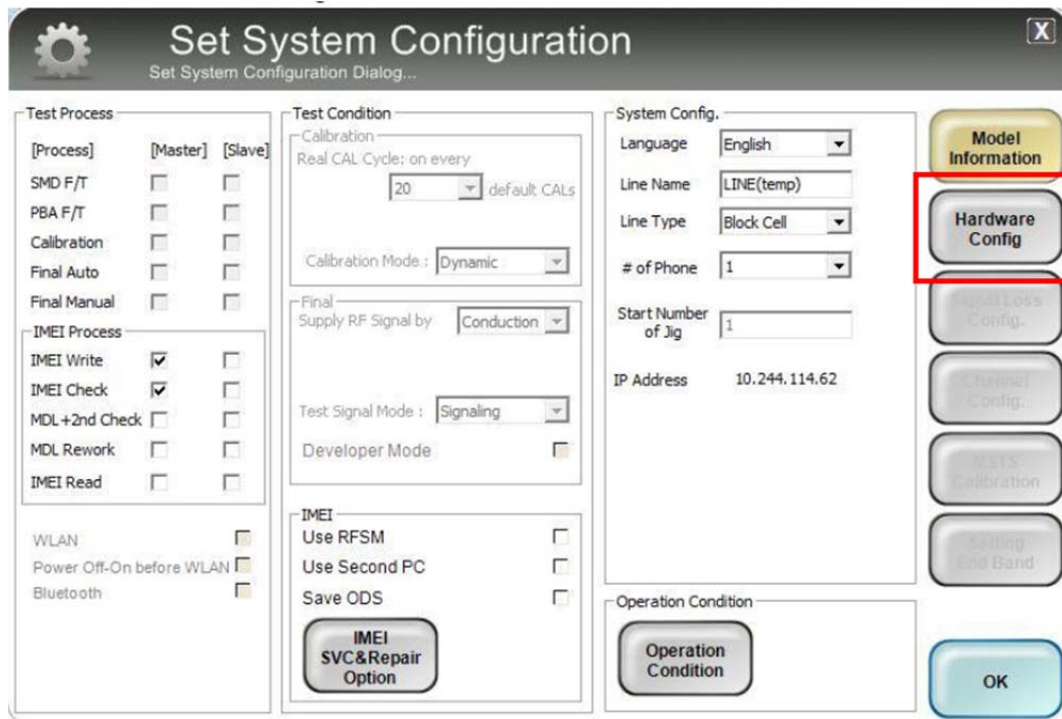
ATT Rework  Slovakia SVC

IMEI Clear(Factory)  GED 2nd Inspection

Outgoing Inspection Check  SBSC(PBA) SVC

## 6. Level 1 Repair

### 8. Click 'Hardware Config'



**Set System Configuration**  
Set System Configuration Dialog...

**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 type="checkbox"/>	<input type="checkbox"/>
Final Auto	<input type="checkbox"/>	<input type="checkbox"/>
Final Manual	<input type="checkbox"/>	<input type="checkbox"/>

**IMEI Process**

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"/>

WLAN   
Power Off-On before WLAN   
Bluetooth

**Test Condition**

Calibration  
Real CAL Cycle: on every  
20 default CALS  
Calibration Mode:

Final Supply RF Signal by:

Test Signal Mode:

Developer Mode

IMEI  
Use RFSM   
Use Second PC   
Save ODS

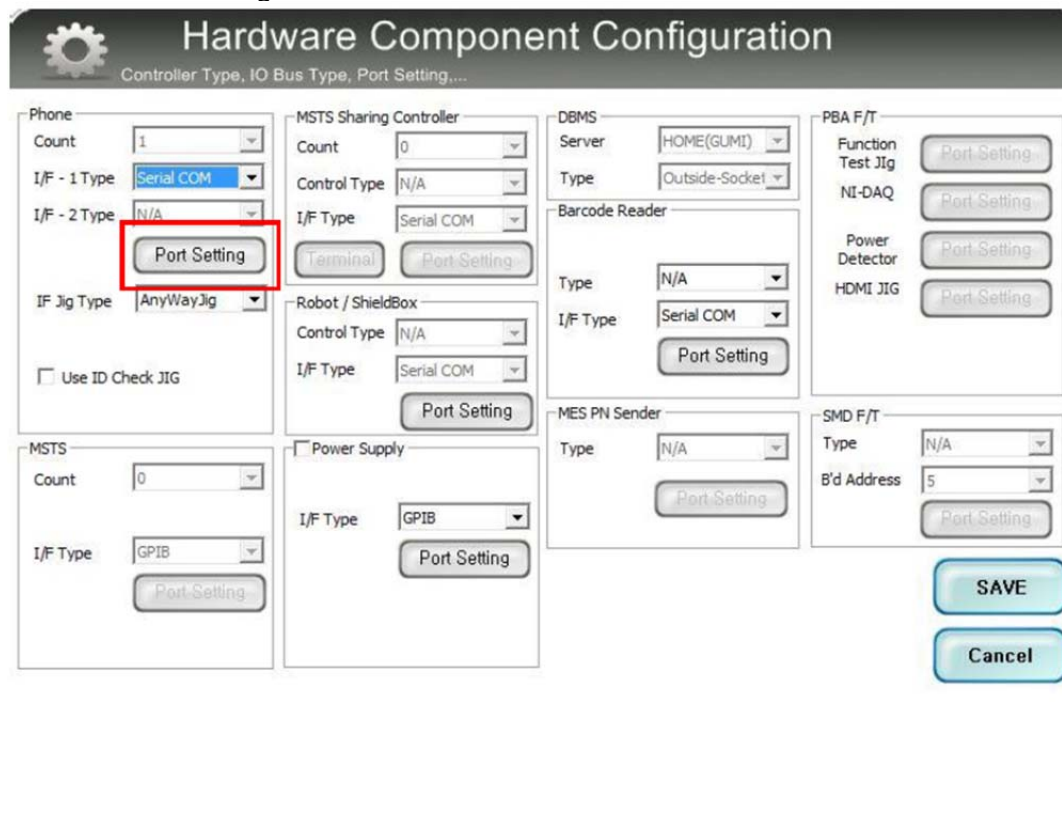
**System Config.**

Language:   
Line Name:   
Line Type:   
# of Phone:   
Start Number of Jig:   
IP Address: 10.244.114.62

**Operation Condition**

Buttons: Model Information, Hardware Config, Signal Loss Config., Terminal Config., MSTS Calibration, Setting End Band, OK, IMEI SVC&Repair Option, Operation Condition.

### 9. Click 'Port Setting'



**Hardware Component Configuration**  
Controller Type, IO Bus Type, Port Setting....

**Phone**

Count:   
I/F - 1 Type:   
I/F - 2 Type:   
IF Jig Type:   
 Use ID Check JIG

**MSTS Sharing Controller**

Count:   
Control Type:   
I/F Type:   
Terminal

**Robot / ShieldBox**

Control Type:   
I/F Type:

**Power Supply**

Power Supply  
I/F Type:

**DBMS**

Server:   
Type:

**Barcode Reader**

Type:   
I/F Type:

**MES PN Sender**

Type:

**PBA F/T**

Function Test Jig   
NI-DAQ   
Power Detector   
HDMI JIG

**MSTS**

Count:   
I/F Type:

**SMD F/T**

Type:   
B'd Address:

Buttons: SAVE, Cancel.

## 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

Operation Condition

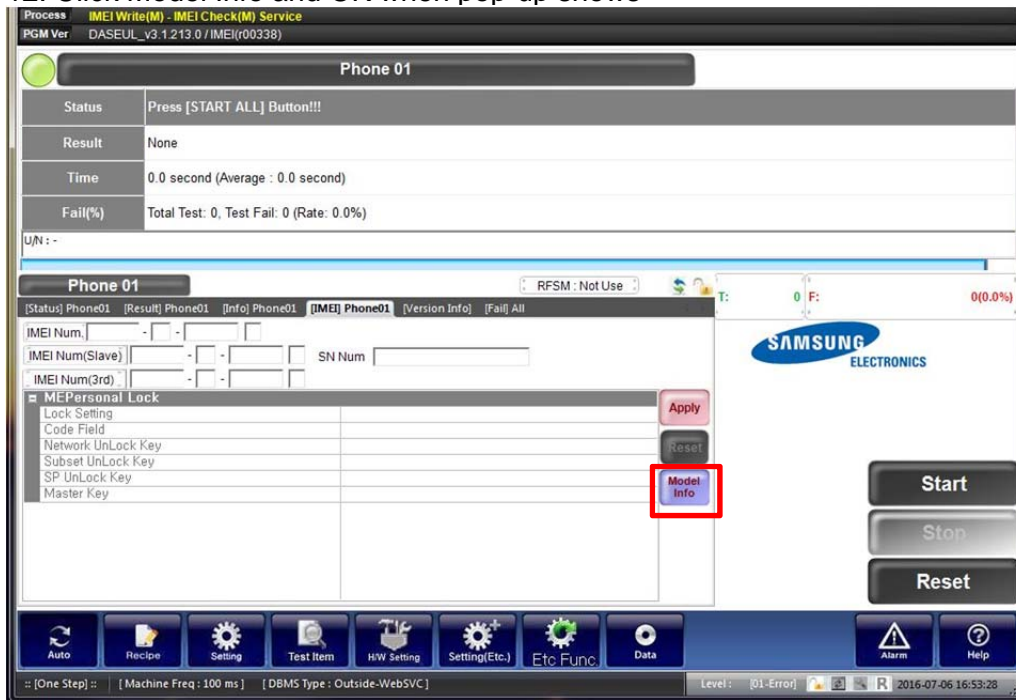
Operation Condition

Model Information  
Hardware Config  
Signal Loss Config  
Channel Config  
RFSS Calibration  
Setting End Band

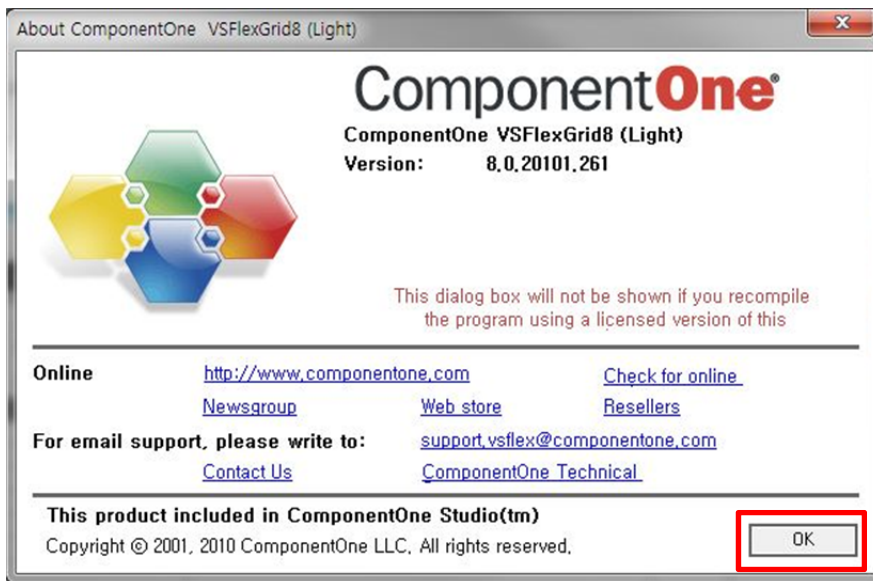
OK

## 6. Level 1 Repair

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



### 13. Click OK

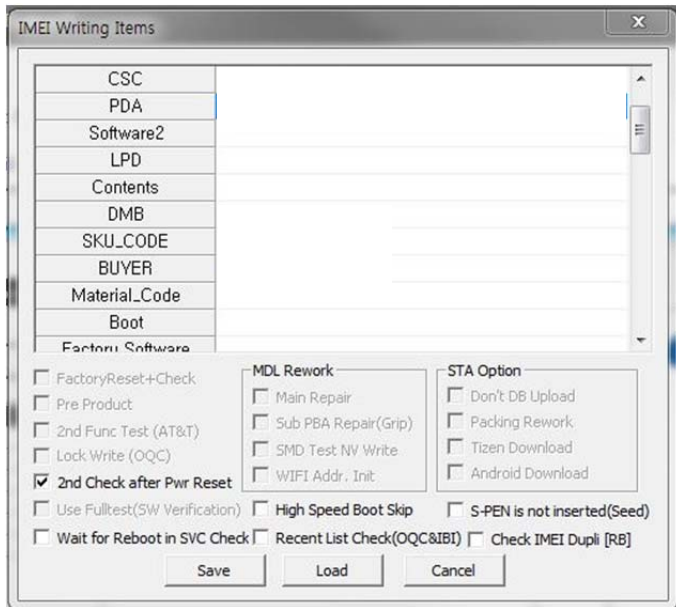




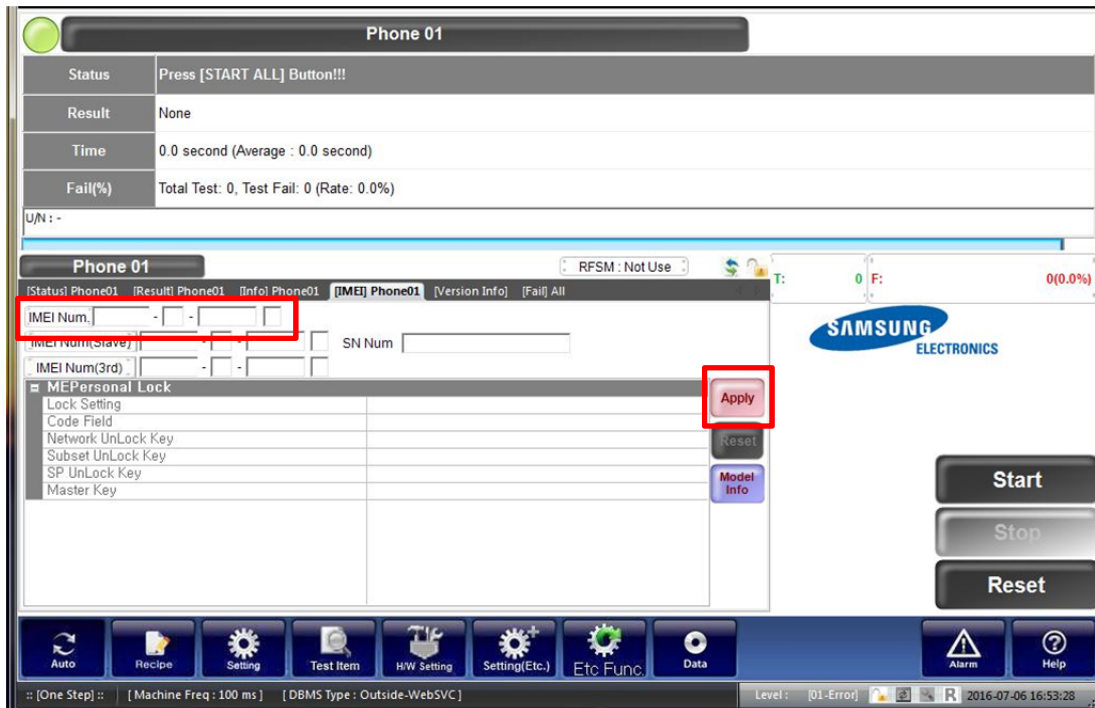
## 6. Level 1 Repair

14. Input SKU\_CODE and BUYER, then click Save button.

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

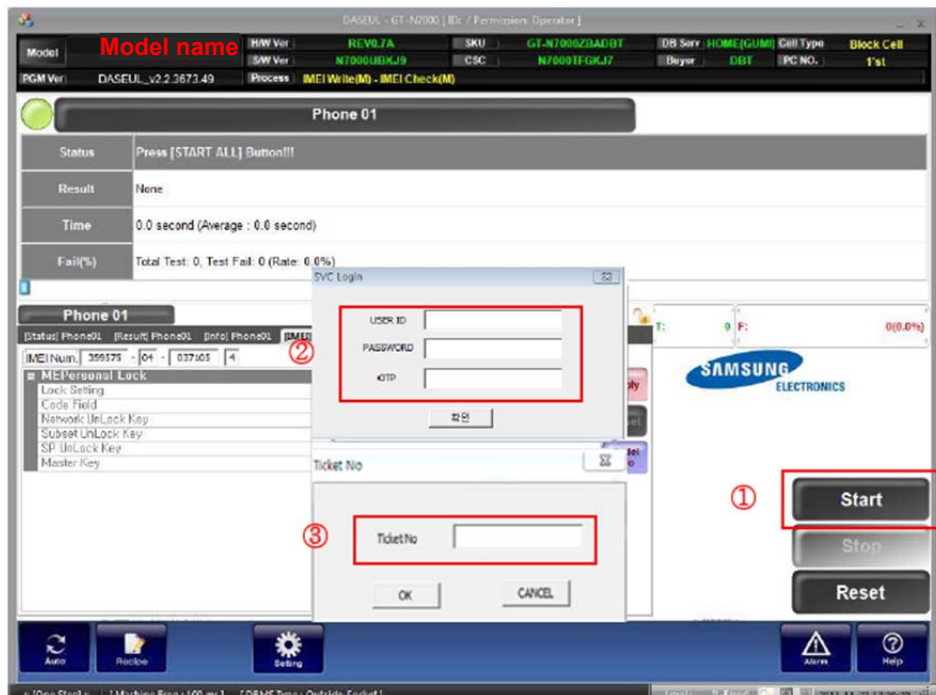


15. Input IMEI Number and click Apply



## 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

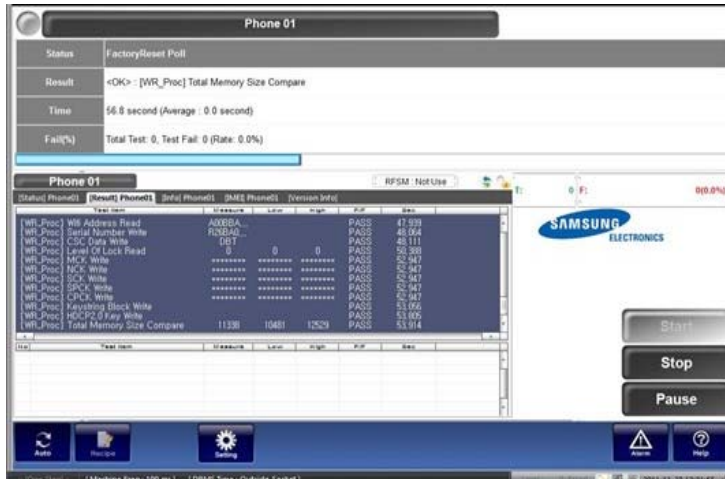


## 6. Level 1 Repair

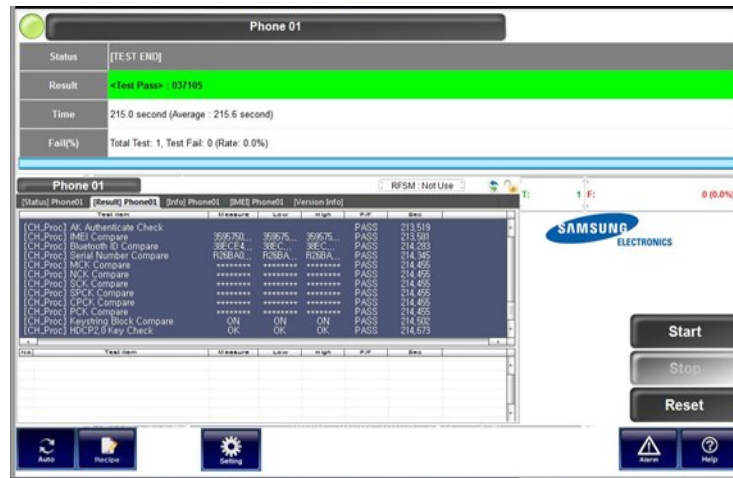
### 17. Connect the phone to Anyway JIG

- ✳ 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



## 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-N9500\_OPEN\_CALIBRATION\_Ver\_3.1.315.4.CAB)

✳ **It is required to use the latest program.**

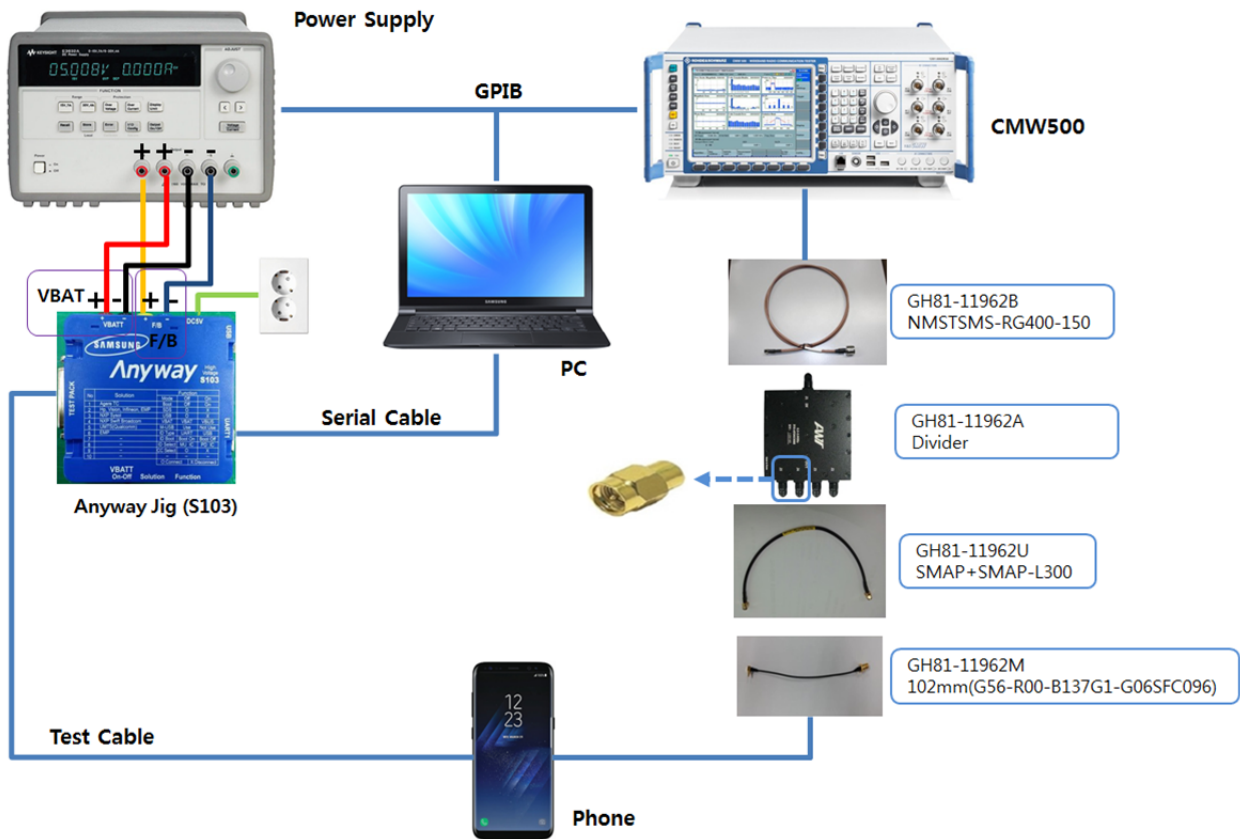
- Mobile Phone
- R&S CMW500
- E3632A Power Supply
- GPIB Cable (2ea)
- JIG BOX(S103)
- Adapter
- UART Serial Cable
- IF Cable (GH81-11962W)

#### ❖ Table of test cables

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

## 6. Level 1 Repair




### ❖ Setting



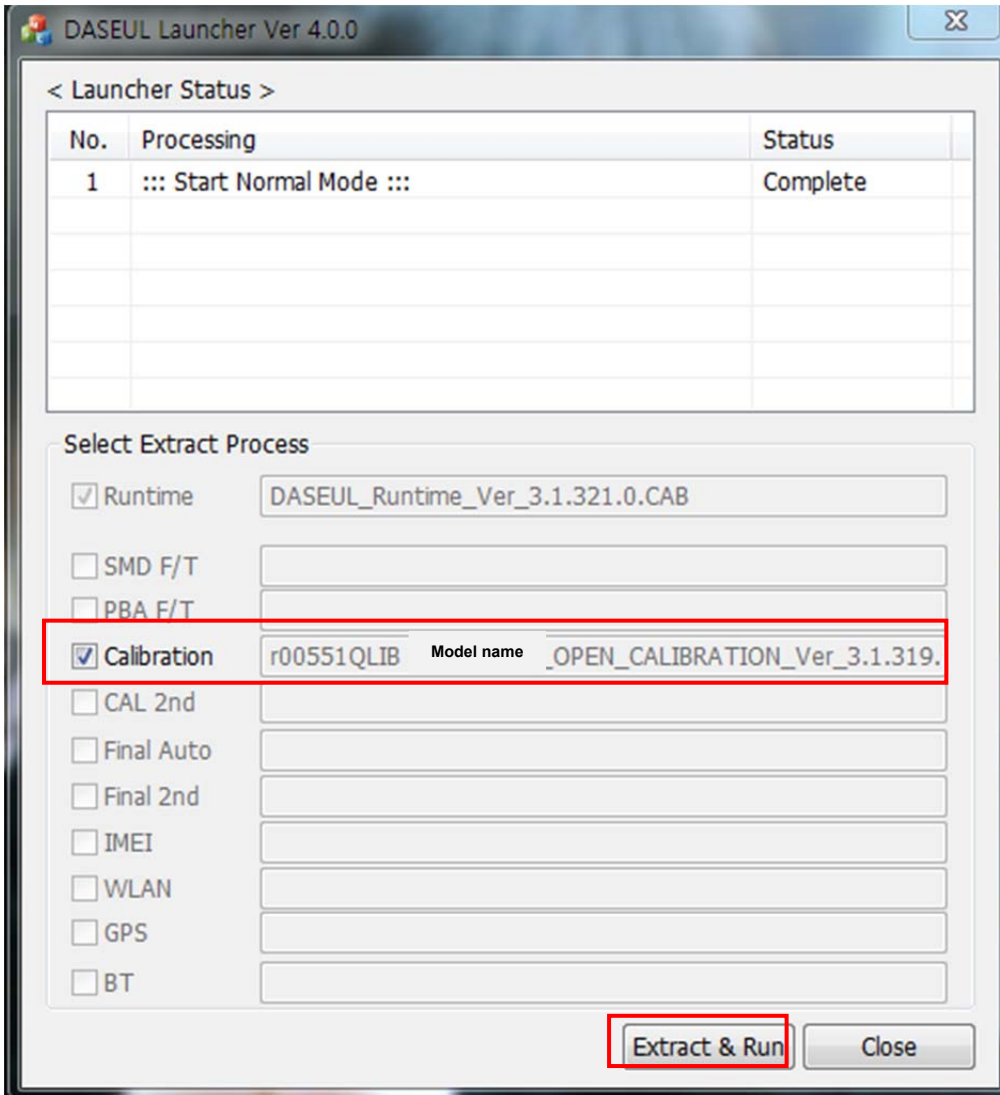
## 6. Level 1 Repair

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

1. Run the RF Calibration Program Launcher, 'DASEUL\_Launcher\_vx.x.xx.exe'.

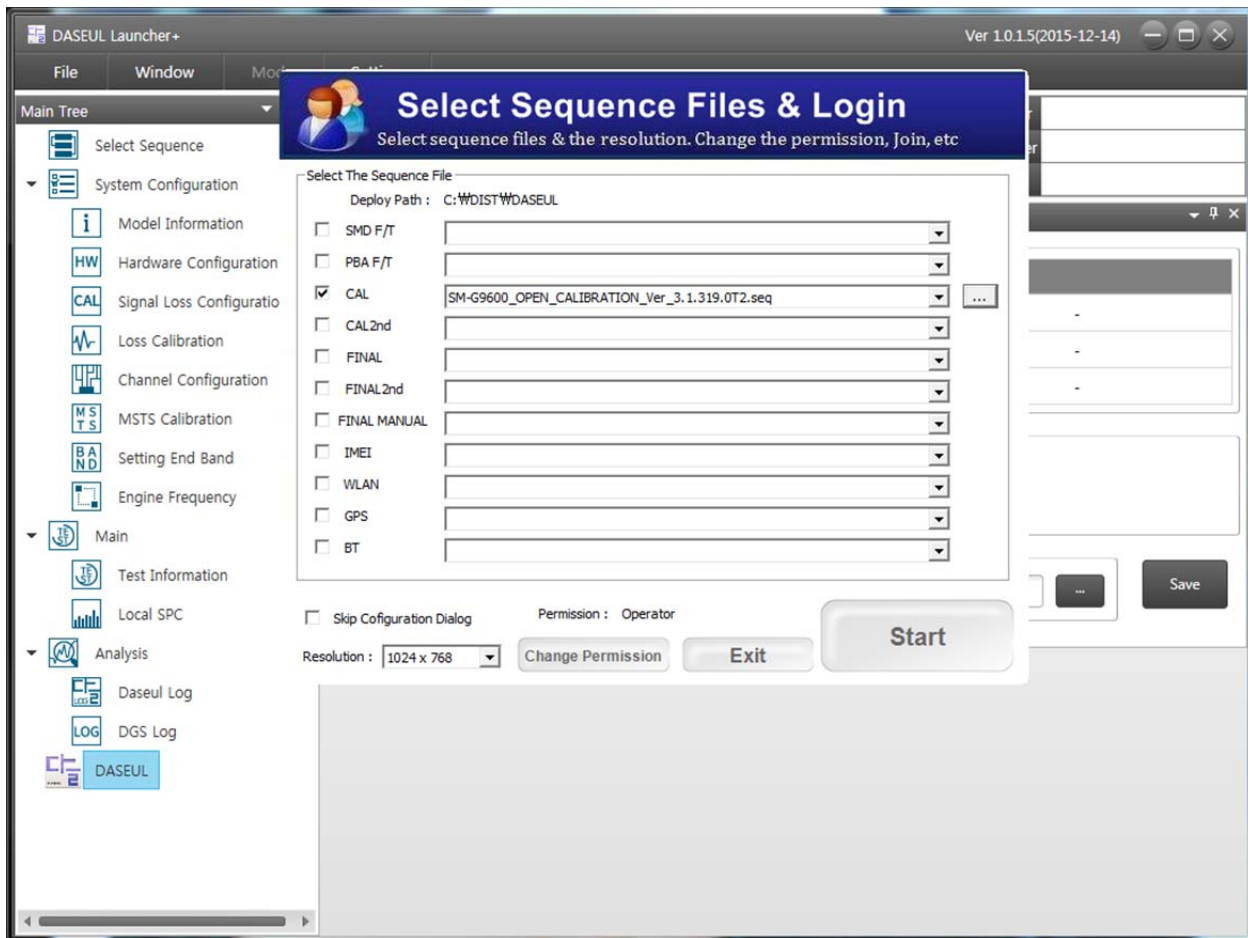
-  DASEUL\_CAL\_ALL\_Runtime\_3.1.316.0\_r00537.CAB
-  DASEUL\_Launcher\_v4.0.0.exe
-  SM-N950U\_OPEN\_CALIBRATION\_Ver\_3.1.315.4.CAB

2. Check the 'Calibration' menu, and select 'Extract & Run'.



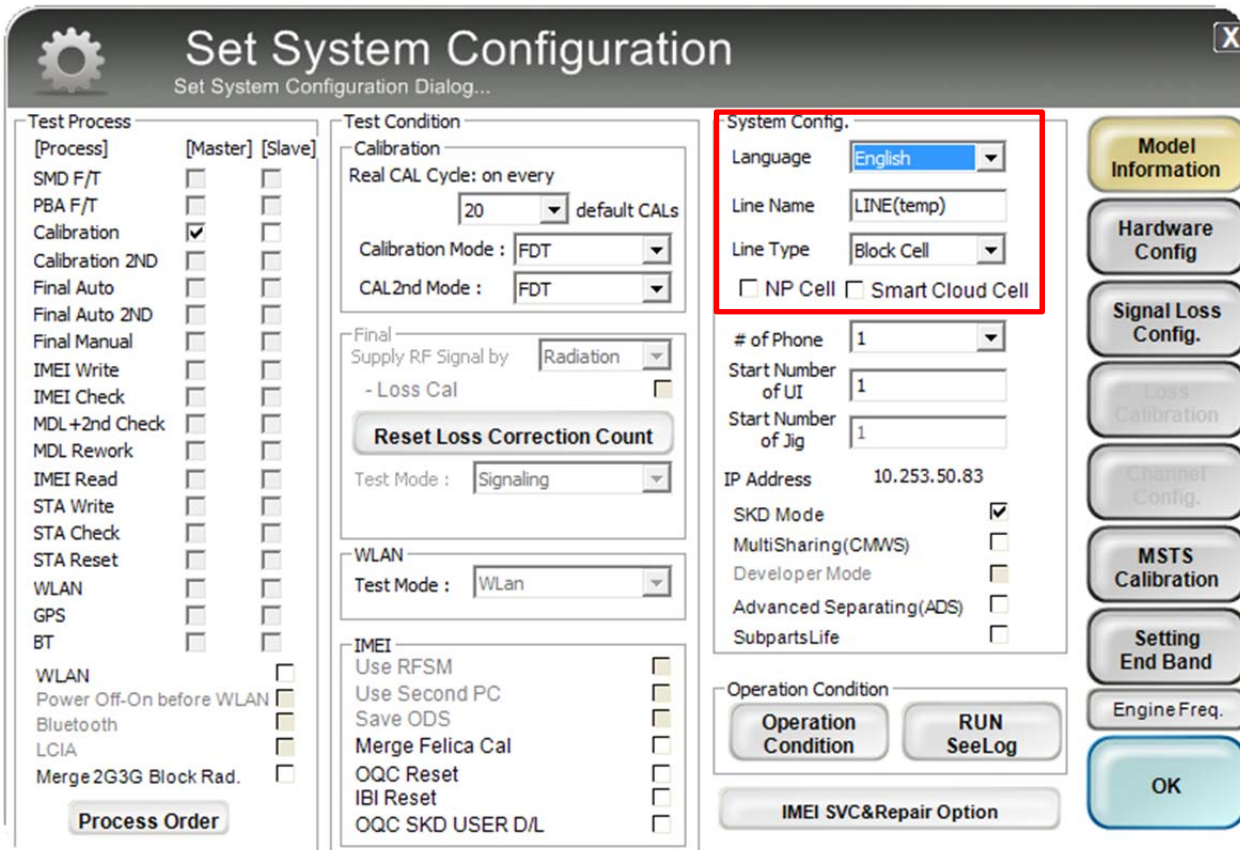
## 6. Level 1 Repair

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'.



**Set System Configuration**  
Set System Configuration Dialog...

**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   
Use Second PC   
Save ODS   
Merge Felica Cal   
OQC Reset   
IBI Reset   
OQC SKD USER DL

**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

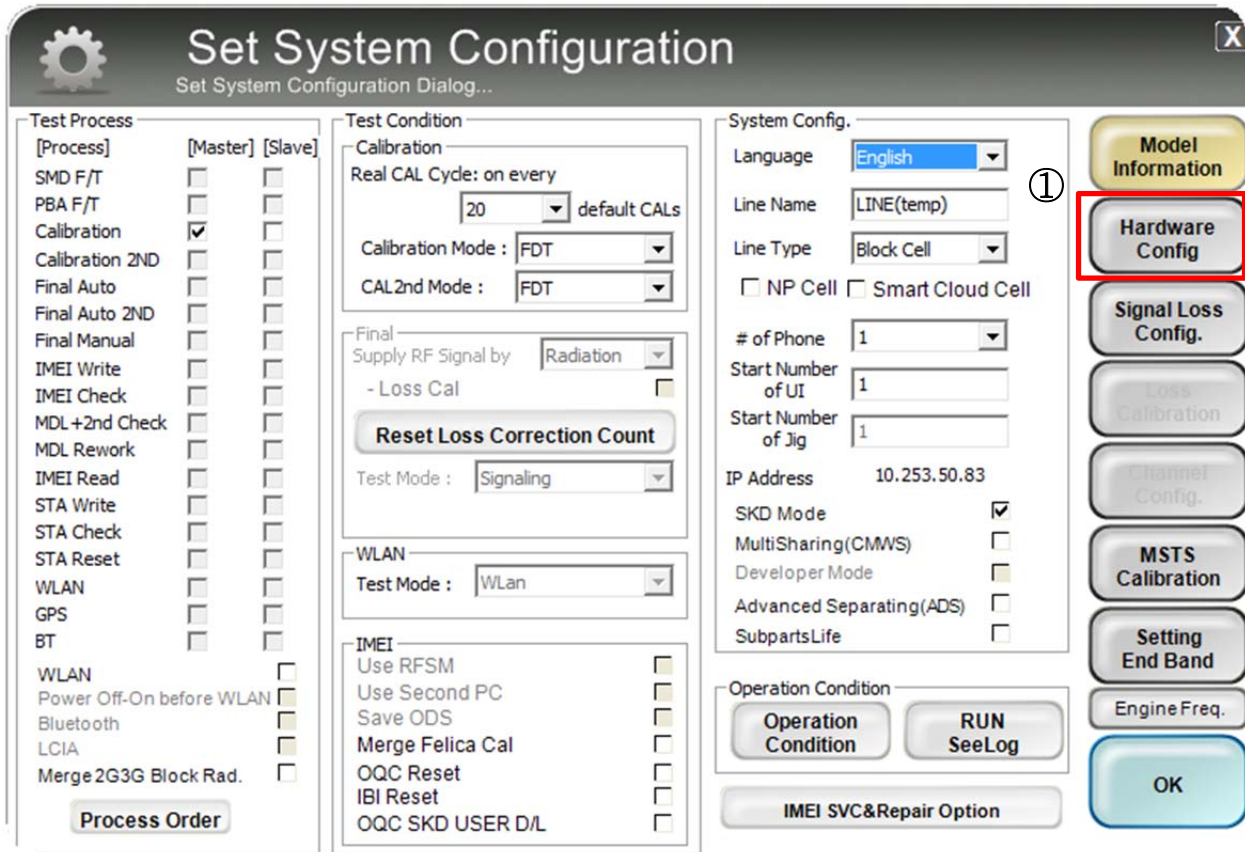
Operation Condition

**Model Information**



## 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)



**Set System Configuration**  
Set System Configuration Dialog...

**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 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

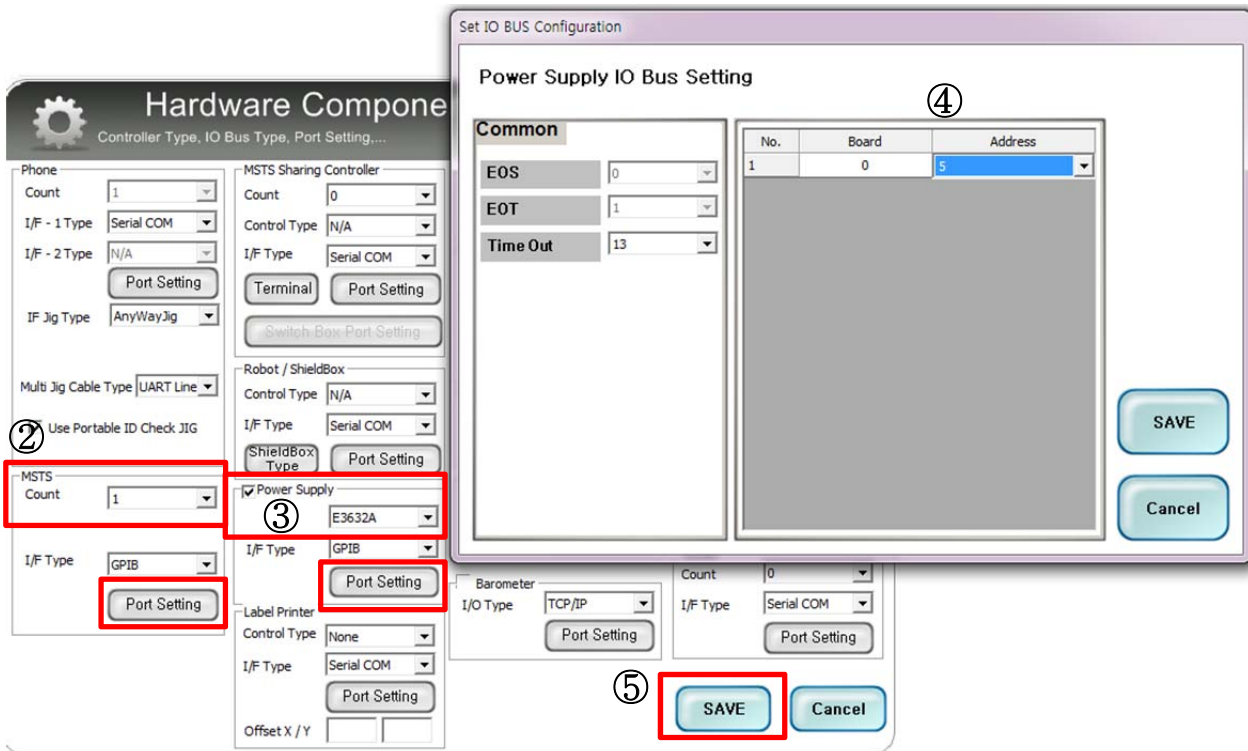
IMEI  
Use RFSM   
Use Second PC   
Save ODS   
Merge Felica Cal   
OQC Reset   
IBI Reset   
OQC SKD USER D/L

**System Config.**

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)   
SubpartsLife

**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



**Hardware Component**  
Controller Type, IO Bus Type, Port Setting,...

Phone  
Count : 1  
I/F - 1 Type : Serial COM  
I/F - 2 Type : N/A  
IF Jig Type : AnyWayJig  
Multi Jig Cable Type : UART Line  
Use Portable ID Check JIG

MSTS  
Count : 1  
I/F Type : GPIB  
Port Setting

MSTS Sharing Controller  
Count : 0  
Control Type : N/A  
I/F Type : Serial COM  
Terminal Port Setting  
Switch Box Port Setting

Robot / ShieldBox  
Control Type : N/A  
I/F Type : Serial COM  
ShieldBox Type Port Setting

Power Supply  
 E3632A  
I/F Type : GPIB  
Port Setting

Label Printer  
Control Type : None  
I/F Type : Serial COM  
Port Setting

Offset X / Y

**Power Supply IO Bus Setting**

Common  
EOS : 0  
EOT : 1  
Time Out : 13

No.	Board	Address
1	0	5

SAVE  
Cancel

SAVE  
Cancel

## 6. Level 1 Repair

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

