

## 2. Specification

### 2-1. GSM 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	270.833kbp s 3.692us	270.833kbp s 3.692us	270.833kbp s 3.692us	270.833kbp s 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	QPSKHQPS K	QPSKHQPS K	QPSKHQPS K	QPSKHQPS K
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

## 2-2. 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±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

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### 3. Operation Instruction and Installation

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#### Main Function

- Android OS: Gingerbread
- HSPA+ 21Mbps / HSUPA 5.7Mbps
- 5MP AF with LED Flash
- 4.2" WVGA SC-TFT LCD (C-Type Touch)
- GPS / BT v3.0 + HS / USB v2.0 OTG / WiFi (802.11 a/b/g/n)
- Sensors: Accelerometer, Electromagnetic, Gyro, Light, Proximity
- Additional :
  - 1.0 GHz Dual Core CPU
  - Application store / Precise Motion UI
  - Seamless Sharing Experience.

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## 6. Level 6 Repair

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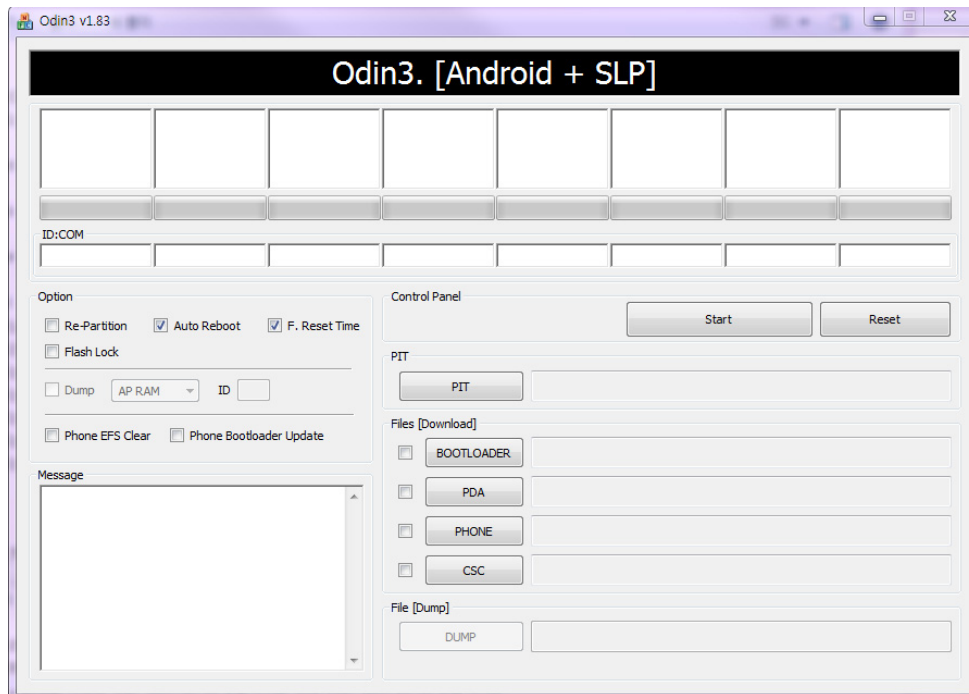
### 6-1. S/W installation

#### 6-1-1. Required items in order to install S/W

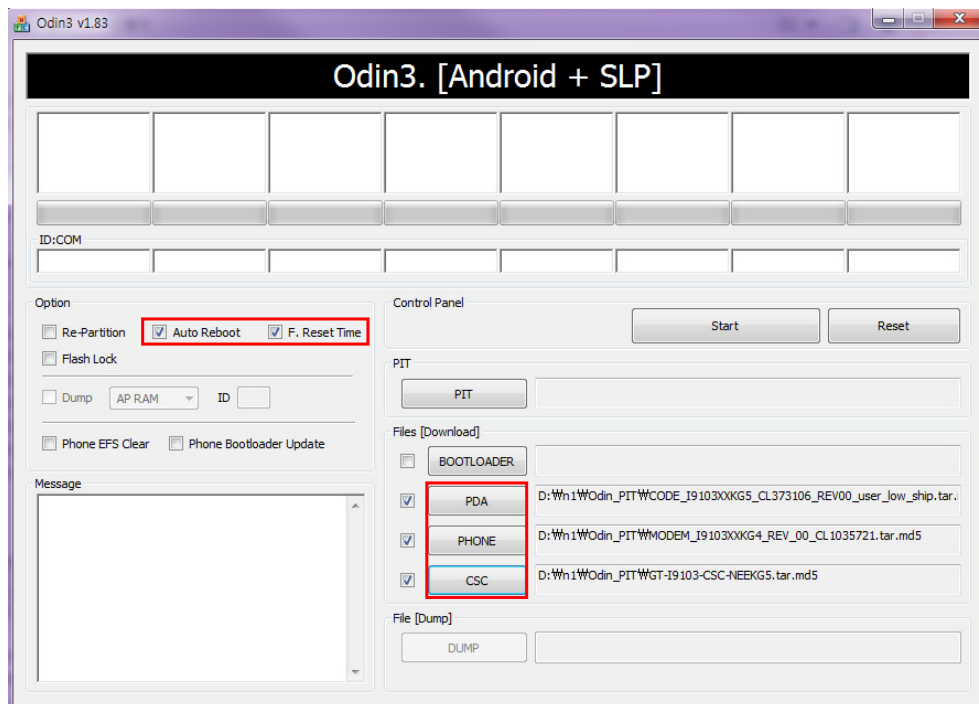
- Installation program: Downloader Program ([Odin3 v1.83.exe](#))
- GT-I9103 Mobile Phone
- Data Cable
- JIG BOX (GH99-36900B)
- JIG Cable (GH39-01339A)
- Adapter (GH99-38251A)
- Serial Cable
- Mobile device specific S/W: Binary files

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

- Open up the S/W Installation Program by executing the **"Odin3 v1.83.exe"**



1. Enable the check mark by click on the following options,
  - Check Auto Reboot, and F. Reset Time
  - Check PDA, PHONE, and CSC Files



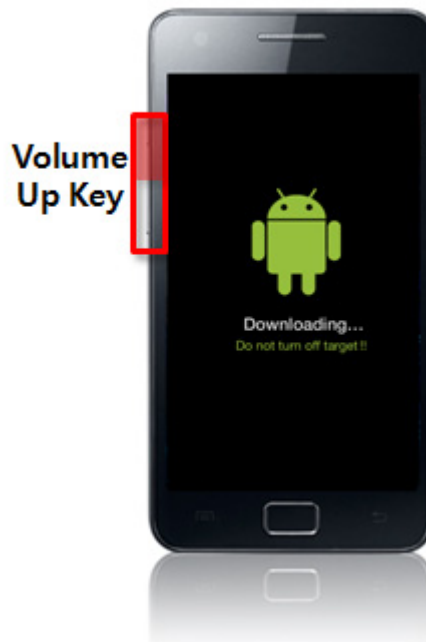
## 2. Enter into Download Mode

- Enter into Download Mode by pressing Volume Down button, OK button, and ON/OFF Button simultaneously.

- After showing Galaxy R logo shortly, the following screen comes up.

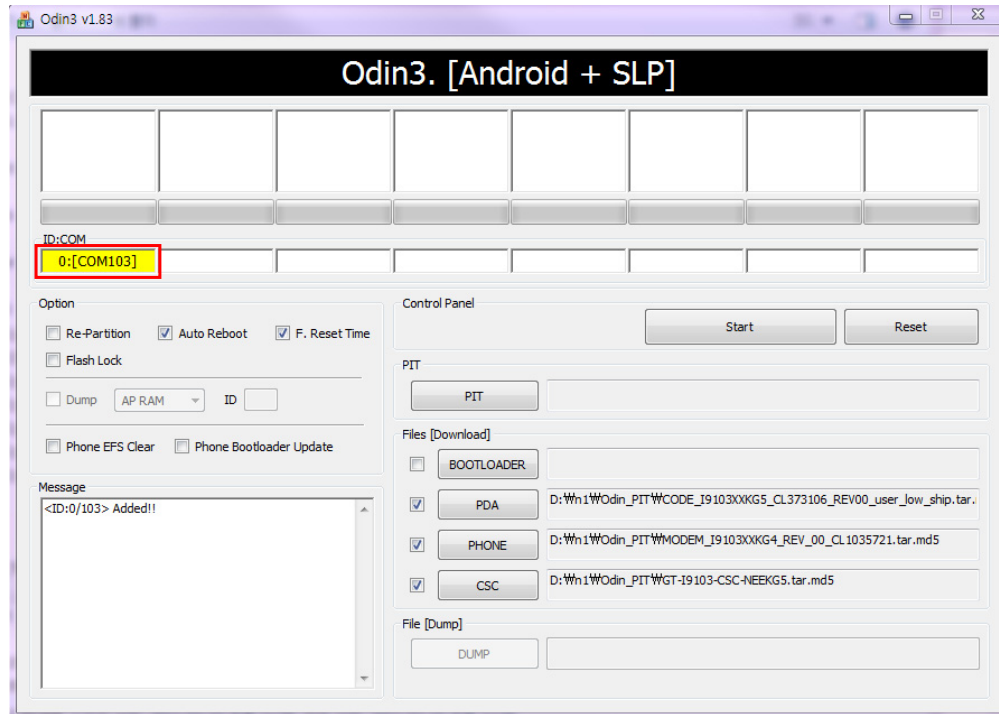


- Press volume up button, then the phone enters download mode.

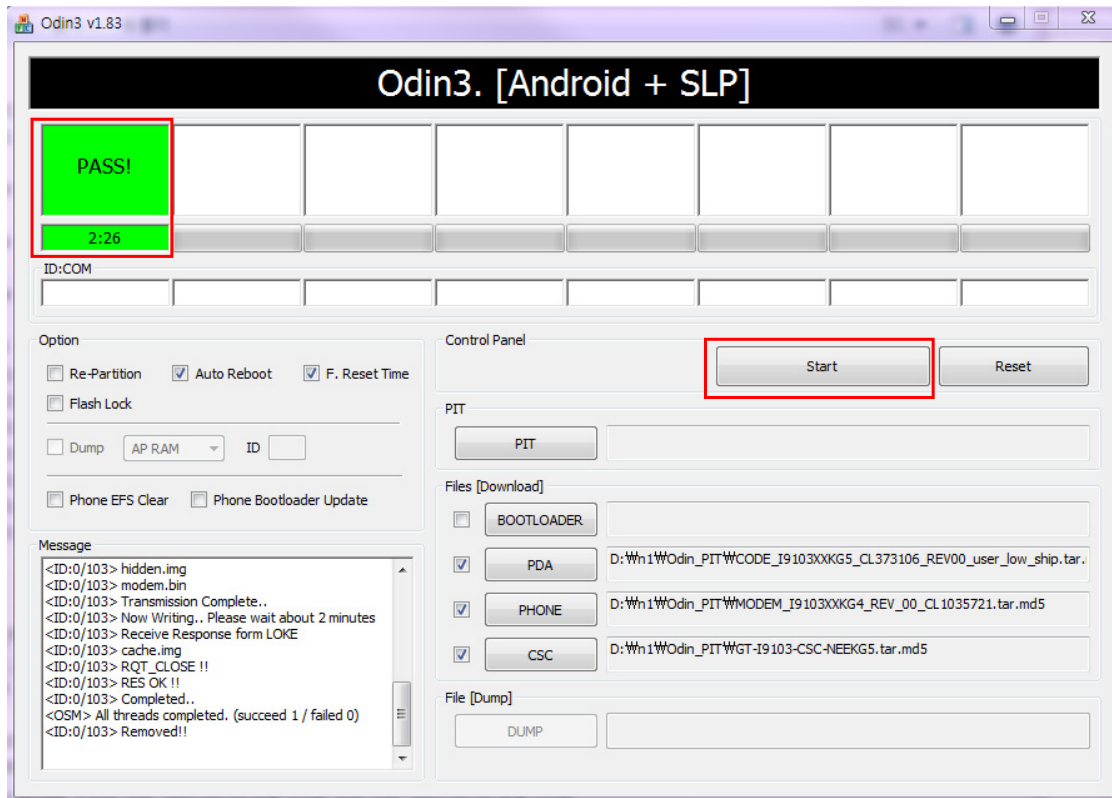


**3. Connect the device to PC via Data Cable.**

Make sure that the one of communication port [ID:COM] box is highlighted in yellow. The device is now connected with the PC and ready to download the binary file into the device.



- 4. Start downloading binary file 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 file has 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 full reset by pressing the following code in sequence;

**\*2767\*3855#**



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## 9. Reference Abbreviate

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### Reference Abbreviate

- AAC: AdvancedAudioCoding.
- AVC: AdvancedVideoCoding.
- BER: BitErrorRate
- BPSK: BinaryPhaseShiftKeying
- CA: ConditionalAccess
- CDM: CodeDivisionMultiplexing
- C/I: CarriertoInterference
- DMB: DigitalMultimediaBroadcasting
- E: EuropeanStandard
- ES: ElementaryStream
- ETSI: EuropeanTelecommunicationsStandardsInstitute
- MPEG: MovingPictureExpertsGroup
- PN: Pseudo-randomNoise
- PS: PilotSymbol
- QPSK: QuadraturePhaseShiftKeying
- RS: Reed-Solomon
- SI: ServiceInformation
- TDM: TimeDivisionMultiplexing
- TS: TransportStream

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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.

## **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.