

2. Specification

2-1. GSM General Specification

	GSM850 Phase 1	EGSM 900 Phase 2	DCS1800 Phase 1	PCS1900	WCDMA2100	WCDMA1900	WCDMA900
Freq. Band[MHz] Uplink/Dow nlink	824~849 869~894	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990	1922~197 7 2112~216 7	1852~1907 1932~1987	882~912 927~957
ARFCN range	128~251	0~124 & 975~1023	512~885	512~810	UL:9612~ 9888DL:10 562~1083 8	UL:9262~9 538DL:966 2~9938	UL:2712~2 863DL:293 7~3088
Tx/Rx spacing	45MHz	45MHz	95MHz	80MHz	190MHz	80MHz	45MHz
Mod. Bit rate/ Bit Period	270.833kb ps 3.692us	270.833k bps 3.692us	270.833kb ps 3.692us	270.833kbp s 3.692us	3.84Mcps	3.84Mcps	3.84Mcps
Time Slot Period/Fra me Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	FrameLen gth: 10ms Slotlength : 0.667ms	FrameLen gth: 10ms Slotlength : 0.667ms	FrameLen gth: 10ms Slotlength : 0.667ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK	QPSKHQP SK	QPSKHQP SK	QPSKHQP SK
MS Power	33dBm~5d Bm	33dBm~5 dBm	30dBm~0d Bm	30dBm~0d Bm	24dBm~- 50dBm	24dBm~- 50dBm	24dBm~- 50dBm
Power Class	5pcl ~ 19pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl	3(max+24dB m)	3(max+24dB m)	3(max+24dB m)
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm	-106.7dBm	-106.7dBm	-106.7dBm
TDMA Mux	8	8	8	8	8	8	8
Cell Radius	35Km	35Km	2Km	2Km	2Km	2Km	2Km

2-2. 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. Product Function

Main Function

- Microsoft Windows Mobile 6.1 PPC
- HSDPA 7.2Mbps / HSUPA 5.76Mbps
- 5MP AF Camera / dual Power LED
- 3.7" WVGA 16M AMOLED
- SD (480p) Camcording / Playback
- WMA,WMV,MP3,AAC,AAC+,DivX,XviD
- Accelerometer (3 Axis),Geo Magnetic (3 Axis),Luminance,Proximity Sensor
- Advanced R-Touch,Touchwiz 2.0
- TV Out / DNIE / DNSe / Mic Noise Canceller
- Wi-Fi
- BT2.0
- USB2.0 High Speed

4. Array course control

4-1. Software Adjustments



Test Jig (GH99-36900A)



Test Cable (GH39-01290A)



RF Test Cable (GH39-00985A)



Adapter (GH99-38251A)

4-2. Software Download

1-1. Equipment for Software Download



1-2. Pre-requisite for Download

- ▶ Downloader Program
 - [OCTANS Downloader v1.71](#)
- ▶ USB Driver
 - [PDA : Samsung MITs USB Sync \[Samsung MITs USB Sync.zip\]](#)
 - [Phone : Samsung CDMA Modem \[Samsung CDMA Modem.zip\]](#)
- ▶ Driver Installation

2-1. Driver Installation (PDA)

- ▶ Make sure that you install drivers.
- ▶ [If you installed the latest ActiveSync program, you don't need to install the pda driver. Please install the latest ActiveSync program.](#)

2-2. Driver Installation (Phone)

When you download the phone image, you need the driver of Samsung CDMA Modem.
If you want to download the phone image, install the Samsung CDMA Modem driver.

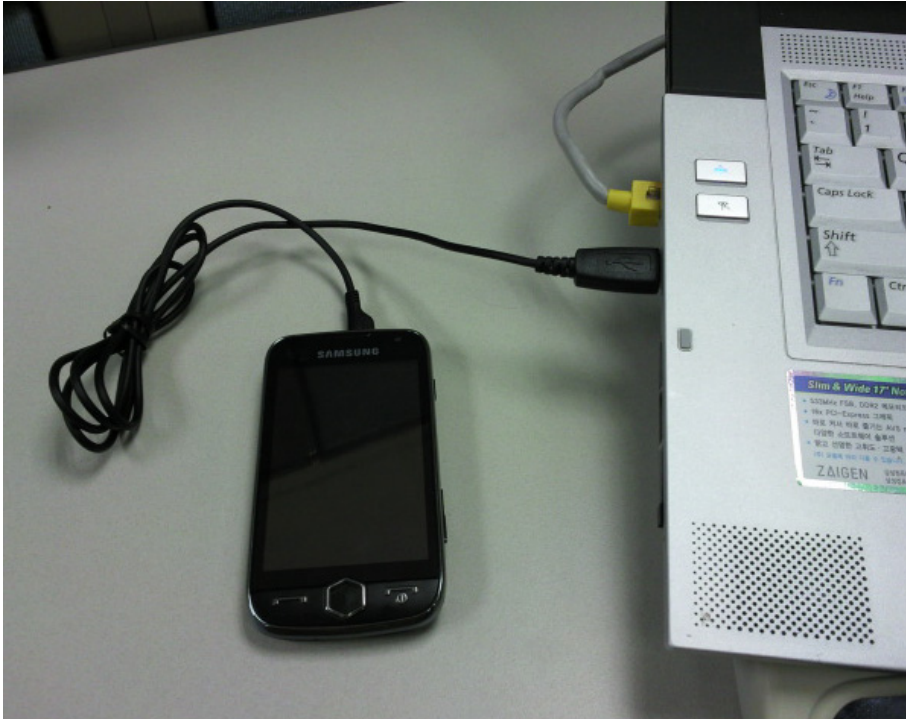
[F After you install the driver of Samsung CDMA Modem, please restart a host computer.](#)

3. Execute the Downloader Program. [OCTANS Downloader v1.71]

4. Check the EBoot,PDA,MultiCSC,MoviNand,Phone.

5. Click the detect.

6. Connect your device to a host computer by using USB DATA Link Cable.



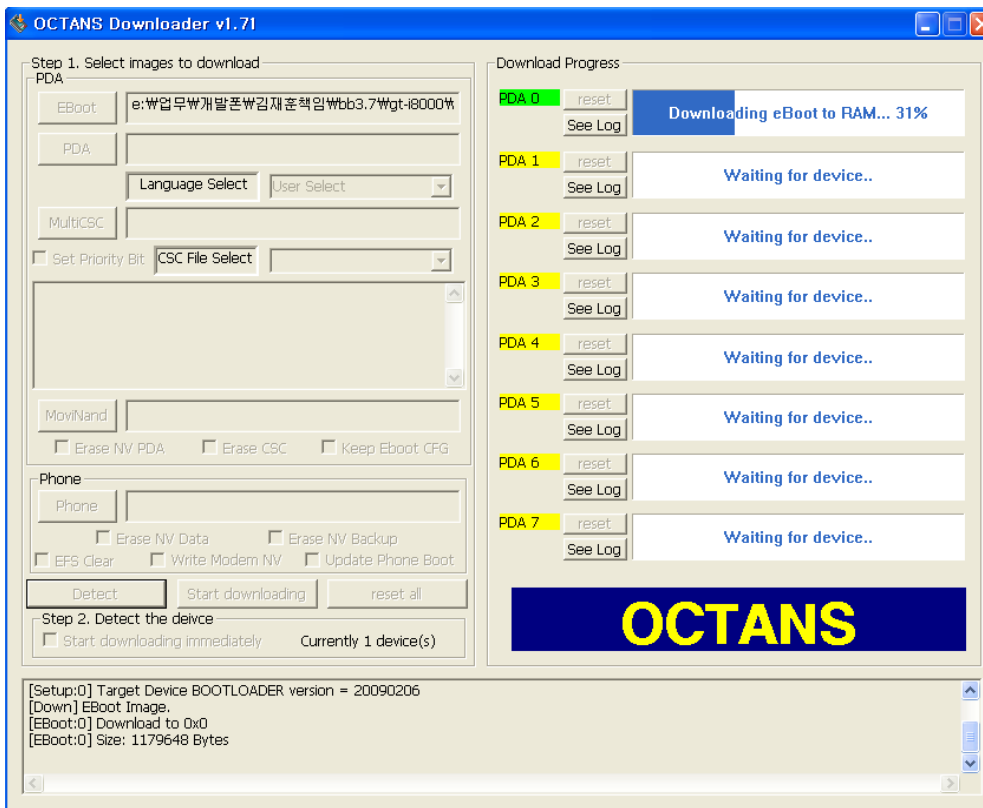
7. Wait until 'START' button is activated.

If 'START' button is not activated, terminate the application and reconnect USB data link cable and retry.

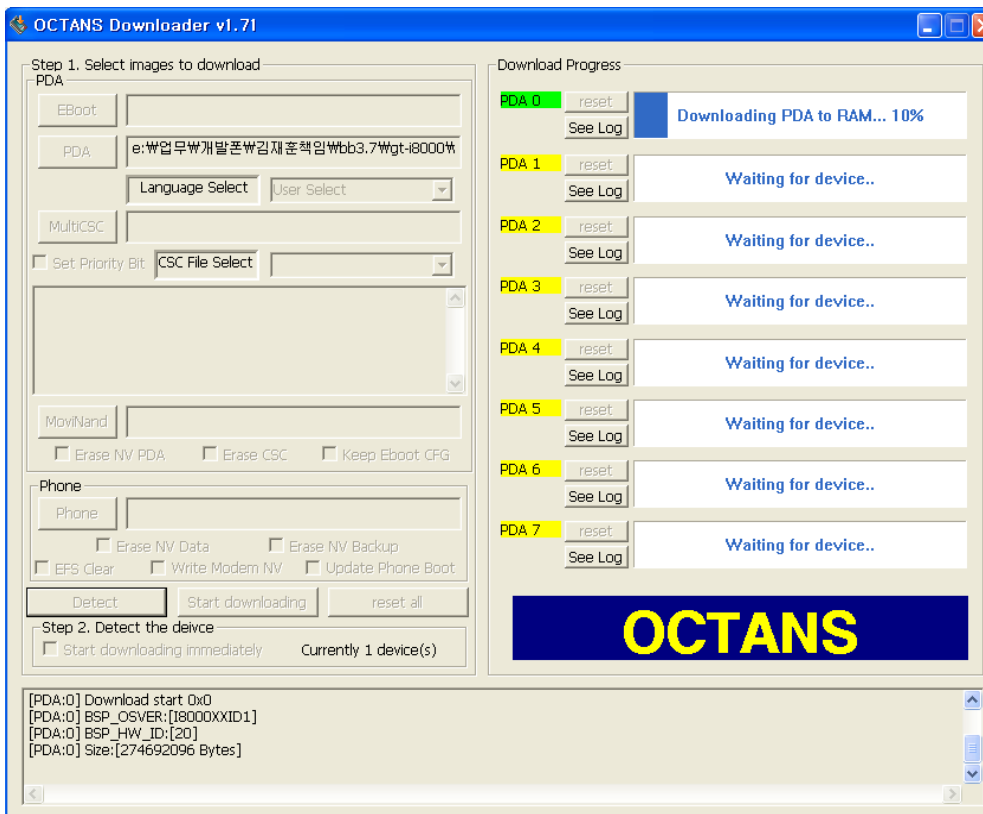
8. Please click "START" button.

9. When the download is finished, the phone is rebooted automatically.

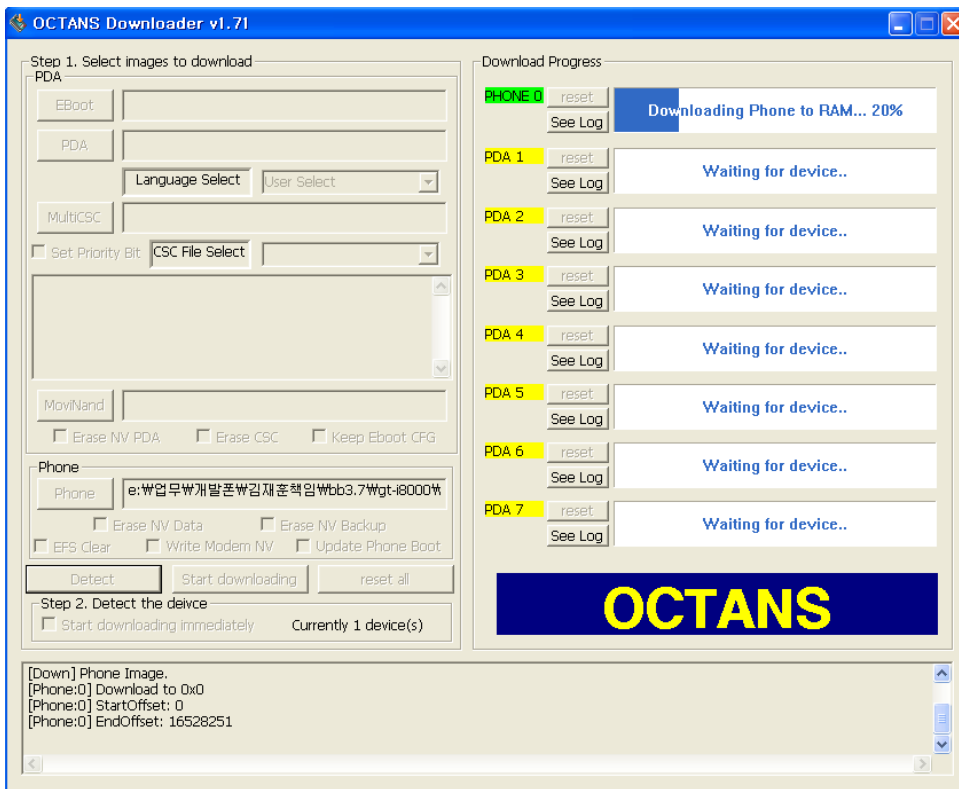
F Download Procedure



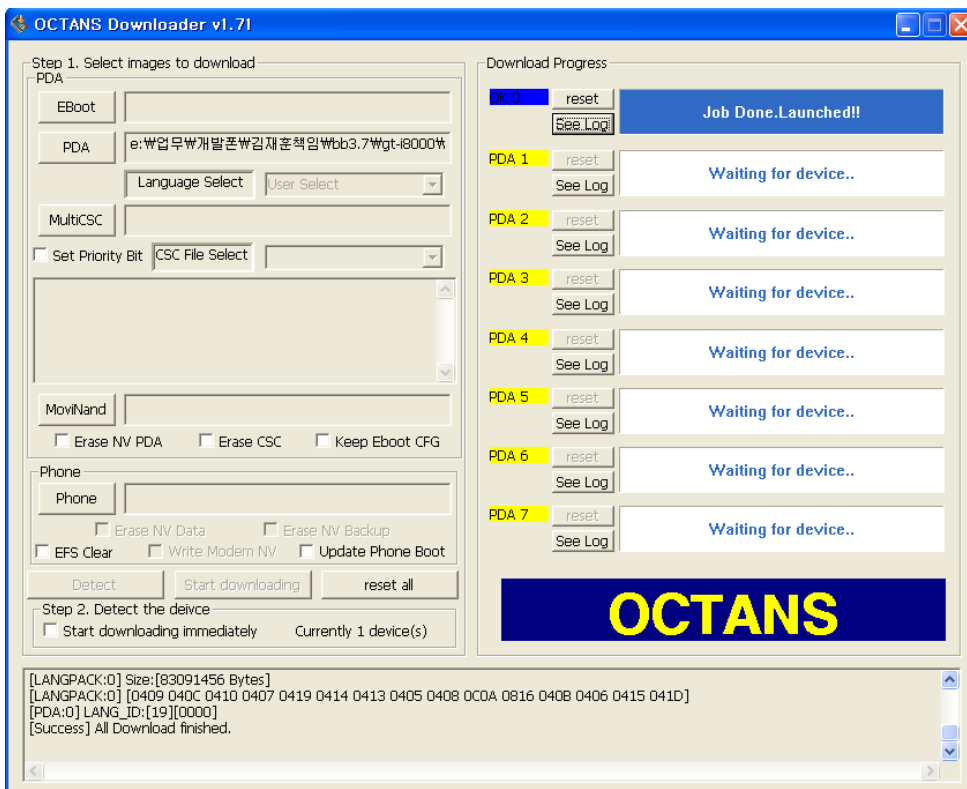
[Downloading EBOOT]



[Downloading PDA]

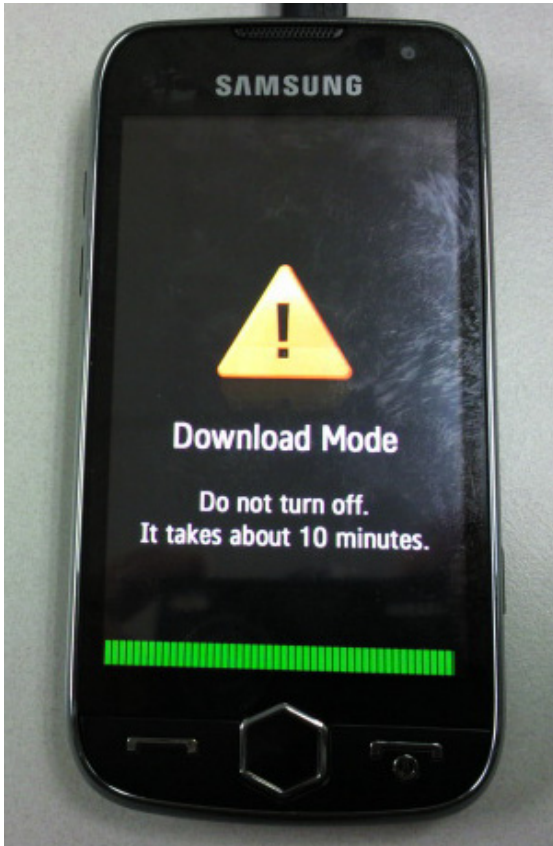


[Downloading PHONE]



[Job Done]

F The Display of your Device



F Trouble Shooting

1. "PDA Device not found" message

F Make sure that your device is connected a host computer by USB DATA Link cable.

2. "Port Open Failed" message or application hang

F After you install "phone USB driver (Samsung CDMA Modem)" at first time, you may see "Port open failed..." message or application hang while downloading a phone image. If so, terminate the application and then try the download again.

F If USB port is changed, at first time you may see "Port open failed..." message or application hang. If so, terminate the application and then try the download again.

F If USB cable to the mobile device is not connected tightly, you may see "Port open failed..." message or application hang. If so, terminate the application and then try the download again..

F If you **always see "port open failed" message or application hang,**

1. When failed application is activated, go to the device manager, remove the SAMSUNG CDMA Modem and SAMSUNG USB Composite Device.
 2. Rename C:\WINDOWS\system32\drivers\Modem.sys to other name. (ex. Modem-.sys)
 3. Go to control panel->program add/remove, and then remove Samsung CDMA Modem driver or Samsung USB driver(MCCI)
 4. Restart your PC.
 5. Install attached SAMSUNG CDMA Modem_4.34
 6. Try the download again.
3. "Write Failed" message

F If battery level is low, use charged battery and try again.

- Reference -

How to deal with the an error in the computer USB port of the computer.

Symptom: Device is not identified after connecting it.

Cause: The device is connected before the previous connection is complete. All devices should be connected one by one. Otherwise, an error may occur in the computer USB port of the computer.

Solution:

Proceed with the following action in order only when the previous action does not work.

- 1) Unplug the USB port from the computer and plug it again.
- 2) Open the Device Manager and remove the USB hub and install it again.



- 3) Reboot the computer.

10. Reference data

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

- Repair in Shield Box, during detailed tuning.
Take specially care of tuning or test, because the specification of cellular phone is sensitive for surrounding interference(RF noise).
- Be careful to use a kind of magnetic object or tool, because performance of parts is damaged by the influence of magnetic force.
- Surely use a standard screwdriver when you disassemble this product, otherwise screw will be worn away.
- Use a thicken twisted wire when you measure level.
A thicken twisted wire has low resistance, therefore error of measurement is few.
- Repair after separate Test Pack and Set because for short danger (for example an overcurrent and furious flames of parts etc) when you repair board in condition of connecting Test Pack and tuning on.
- Take specially care of soldering, because Land of PCB is small and weak in heat.
- Surely tune on/off while using AC power plug, because a repair of battery charger is dangerous when tuning ON/OFF PBA and Connector after disassembling charger.
- Don't use as you pleases after change other material than replacement registered on SEC System.
Otherwise engineer in charge isn't charged with problem that you don't keep this rules.

1-2. ESD(Electrostatically Sensitive Devices) Precaution

Several semiconductor may be damaged easily by static electricity. Such parts are called by ESD (Electrostatically Sensitive Devices), for example IC,BGA chip etc. Read Precaution below.

You can prevent from ESD damage by static electricity.

- Remove static electricity remained your body before you touch semiconductor or parts with semiconductor. There are ways that you touch an earthed place or wear static electricity prevention string on wrist.
- Use earthed soldering steel when you connect or disconnect ESD.
- Use soldering removing tool to break static electricity. , otherwise ESD will be damaged by static electricity.
- Don't unpack until you set up ESD on product. Because most of ESD are packed by box and aluminum plate to have conductive power,they are prevented from static electricity.
- You must maintain electric contact between ESD and place due to be set up until ESD is connected completely to the proper place or a circuit board.