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# Polaris

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## Service Manual

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### (Without LCM Disassembly)

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HTC Proprietary

Confidential Treatment Requested

Rev. A03

HTC Corp.

*Engineering Mobility*



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**REVISION CONTROL TABLE**

REV	DATE	CONTENTS	DEPT	REVISED	STAGE
AX01	2007/10/1	Fist Draft	PSE	Duke_Hung	DVT
AX02	2007/11/6	Second Draft	PSE	Duke_Hung	PVT
A01	2007/12/19	First Release	PSE	Duke_Hung	MV
A02	2008/1/31	Second Release	PSE	Duke_Hung	MV
A03	2008/4/3	Update chapter 8 generic labeling plan and change the indicator sticker from 77H00578-00M to 77H00578-01M	PSE	Leo_Wei	MP

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## 1. Introduction

- This manual provides the technical information to support the service activities of this product.
- This document contains highly confidential information, so any or all of this document should not be revealed to any third party.
  - Chapter 1: Introduction-This Chapter is about Products features and basic Product function. After reading this chapter, you will know what feature the product has and basic hardware operation. Also you will know how to perform soft-rest and hard-rest in this chapter.
  - Chapter 2: Device Disassembling and Assembling Procedure- After reading this chapter, you will learn how to disassemble and assemble the product. Also, you will know what tools to use and the torque. Please follow the instruction to disassemble the unit to prevent from damaging the unit.
  - Chapter 3: ROM Re-flash Procedure- After reading this chapter, you will learn how to perform the ROM image re-flesh by using RUU and SD-Card. Also you can find the steps of enter the boot loader mode.
  - Chapter 4: DIAGNOSTIC PROGRAM- After reading this chapter, you will learn
    - How to use the diagnostic program to perform unit function test
    - How to test some functions in Windows Mobile mode (ex. WLAN, Bluetooth, and USB etc...)
  - Chapter 5: Power measurement test- After reading this chapter, you will learn how to use MB leakage test procedure and battery run-down test (Battery Capacity Measurement).
  - Chapter 6: Cosmetic Inspection Criteria- After reading this chapter you will learn the appearance quality inspection criteria, ex. Display, bezel, and housing etc...
  - Chapter 7: Generic Troubleshooting- After reading this chapter, you will learn how to do generic trouble-shooting.
  - Chapter 8: Generic Labeling Plan- In this chapter, you will find generic labels for reference, ex. Regulation label, and battery label etc...
  - Chapter 9: Generic Spare Part List and Photos- In this chapter, you will find Spar parts reference list and photos for repairing, including unit and Board level.
  - Chapter 10: RF Antenna Specification- Reference Spec for RF test.



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## 1.1. Product Features

### Platform

- Consumer centric mobile GPS PDA with Standalone
- GPS, FM Radio, 3 MP camera w/ auto focus and
- UMTS/HSDPA
- Microsoft Windows Mobile 6 Professional

1844.9-1879.9 MHz

◆ 1900: 1850-1910MHz, 1930-1990MHz

◆ 2100: 1920-1980MHz, 2110-2170MHz

### ■ GSM/GPRS/EDGE

◆ 850: 824-849MHz, 869-894MHz

◆ 900: 880-915MHz, 925-960MHz

◆ 1800: 1710-1785MHz, 1805-1880MHz

◆ 1900: 1850-1910MHz, 1930-1990MHz

### Dimension

- 110 mm(L) x 58 mm(W) x 15.5 mm(T)
- 130 g with battery pack

### Processor/Chipset

- Qualcomm MSM 7200, 400Mhz

### ● HSDPA /UMTS

- 3GPP Release 5 compliant

### Memory

- ROM: 256MB NAND
- RAM: 128MB DDR

- UE category 6, 16 QAM, 3.6Mbps peak rate

- Concurrent: DL up to 3.6Mbps and UL up to 384Kbps

- Handover and cell selection between GSM/EDGE and WCDMA

### LCD Module

- 2.8" QVGA dots resolution
- 65K-color TFT LCD with LED back light
- Touch Window design
- BioTouch design
- Anti-glare design to support outdoor usage
- Contrast ratio: 120:1
- Brightness: 150 cd/m<sup>2</sup>
- Sensitive Touch Screen

### ● DTM

- SAIC (Circuit Switch only)

- Equalizer (HSDPA channel only)

- Audio codec: AMR, EFR, FR, HR

- SMS (MO, MT), concatenated SMS (640 characters)

### ■ Supplement services:

- Call holding/waiting/forwarding

- Call barring

- CLI (Calling Line Identity)

- Display own number

- Network selection

- Cell broadcast

- Multi-party conference call

- Spool icon

- Phase 2+ unstructured supplementary service data

- Network Lock

### UMTS/HSDPA /GSM/EDGE Function

- Internal antenna
- Dual mode HSDPA/UMTS (Tri-band
- 850/1900/2100MHz for EU/ Asia/ US and Dual-band
- 1700/2100MHz for Japan) and GSM/GPRS/EDGE
- Quad-band (850/900/1800/1900MHz)
- HSDPA /UMTS
  - ◆ 850: 824-849Mhz, 869-894Mhz
  - ◆ 1700: 1749.9-1784.9MHz,

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- CPHS (partial support)
- EGPRS Functionality
  - EGPRS class B
  - Multi-slot class 10
  - PBCCH
  - Link Adaptation and Incremental Redundancy
- USIM/SIM
  - 1.8/3V of UICC
  - USIM Application at least according to 3GPP TS 31.102
  - SIM Application Tool Kit release 96 complete, 98 class 3, and 99 partial
  - Mega-SIM / EAP
  - Over the Air (OTA) programming
  - FDN
  - ADN
  - Security Pin 1 & 2 control

**Standalone GPS**

- Internal GPS antenna
- Chipset solution
  - QCT MSM7200 with XTRA support
- Sensitivity -145dBm for cold start and -155dBm for tracking
- Support NMEA 0183 version 3.0 or above
- Dynamic parallel channel GPS receiver
- Acquisition time
  - Hot start: 8 seconds, typical TTFF (open sky & static condition)
  - Warm start: 60 seconds, typical TTFF (open sky & static condition)
  - Cold start: 75 seconds, typical TTFF (open sky & static condition)
- Update rate: once/1sec (default)

- GPS Accuracy
  - Position: < 15 meters, 95% typical
  - Velocity: 0.05 meter/sec steady state

**A-GPS**

- E911 Location Information (for device shipped to US)
- Support UE-Based & UE-Assisted A-GPS
- OMA SUPL v1.0 compliance (v2.0 if available)
  - SUPL-RRLC
  - SUPL-RRC (optional)
  - SMS initiated SUPL [QCT not supported]
  - WAP push initiated SUPL
- Standard 3GPP A-GPS compliance
  - 3GPP TS 44.031 (RRLP 5.12)
  - 3GPP TS 25.305 (GSM & UMTS)
- JSR 179 (Location API) support
- Emergency priority override existing A-GPS service
- Performance requirement (A-GPS mode)
  - Tracking sensitivity: -155dBm @ 95% successful rate
  - TTFF (95% successful rate): < 20 seconds
  - 2D Location Error (95% successful rate): < 100 m
  - 3GPP TS 25.171 compliance (Requirement for support of Assisted Global Positioning System)
  - 3GPP 34.171 (Terminal conformance specification, Assisted Global Positioning System)
  - 3GPP TS 34.108 (Common test environments for User Equipment conformance testing)
- Fallback to Standalone mode when no network connection

**FM Radio**

- Turing range: 76Mhz ~ 108Mhz

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- FM sensitivity: 8uV @ (S+N)/N=26dB
- Auto channel search
- RDS/RBDS
  - Integrated RDS/RBDS demodulator in accordance with EN50067
  - RDS/RBDS decoder
- GPS mode (map zoom in/ zoom out)
- Camera/ Camcorder mode (zoom in/ zoom out)
- FM radio mode (preset channel forward/backward)
- Action button w/ LED
- 2 Programmable AP buttons
  - GPS On/Off button (start/end Navigation software at same time)
  - Portal button

**Camera**

- Main camera:
  - Colors CMOS 3 mega-pixel camera with auto focus
  - Preview Mirror
- 2<sup>nd</sup> camera:
  - color CMOS VGA camera

**Button/Switch**

- Power button (position: top)
  - Short Press: System on/off
  - Long Press: Turn off power totally
- Volume Up and Volume Down button (position: top-left)
- Send/Hands-free button (position: front)
  - Long Press during the call: Hands-free On/Off
- End button (position: front)
- Camera button (position: bottom-right)
  - Support two-step function for focus and action
- Voice Command/ Voice Record button (position: left & below volume button)
  - PoC case: (Cingular requirement)
  - VC/ VR case (others)
    - ◆ Short press: Voice Dialer
    - ◆ Long press: Voice Record
- Reset switch
- 360° Track wheel w/ 4-way navigation control
  - 4-way navi support (left/ right/ up/ down)

**Notification**

- One bi-color LED for UMTS/GSM standby, UMTS/GSM message, UMTS/GSM network status, notification, and charging status
- Tri-color respective (blue, amber, and green) LEDs for Bluetooth/ GPS/ WiFi notification
- Vibration for notification
- Notification by sound and message on the display

**Audio**

- Built-in Microphone
- Receiver
- Loud speaker for Hands-Free supported
  - Clear and Loud for navigation voice instruction
- Full duplex
- Audio sampling rate
  - 16-bits with 8KHz, 11KHz, 22KHz, 44.1KHz
- AMR/AAC/WAV/WMA/MP3 codec
- Audio Path Routing for VoIP over WLAN

**Connectivity & Interface**

- Bluetooth TI6350
  - Compliant with v2.0 with EDR
  - Class 2 transmit power
  - Supported profiles:
    - ◆ Generic Access profile

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- ◆ Serial Port profile
- ◆ Headset profile
- ◆ Object Push profile
- ◆ PAN profile
- ◆ Hands-free profile
- ◆ Generic Object Exchange profile
- ◆ A2DP profile
- ◆ AVRCP profile
- ◆ SIM Access profile (v2.0)
- ◆ Service Discovery profile
- ◆ HID profile
- ◆ FTP profile (v1.2)
- ◆ BPP profile
- Co-exist with WiFi
- WiFi (manufacture option)
  - IEEE 802.11b/g compliant
  - Internal WLAN antenna
  - Data rate auto fallback for extended range
  - ELP mode
  - Security 802.11i and AES
    - ◆ WPA authentication – WEP, WPA, PSK, EAP-TLS, PEAP, LEAP, EAP-SIM
    - ◆ Signaling interfaces between the terminal device and the servers: mutually authenticated and encrypted utilizing TLS (RFC 2246) with RC4 encryption with SGA1 used as the message integrity check
  - QoS
    - ◆ 802.11 WME QoS
    - ◆ 802.11e
    - ◆ Fast AP to AP handover
  - or no WiFi SKU
- HTC ExtUSB 11-pin mini-USB with H2W support
  - USB 2.0 with full speed
  - Support Audio jack
  - Support ActiveSync to PC/NB
  - Support Charging capability
  - Support FM Radio signal in
  - Support Wired Remote Controller
- External Micro SD slot (w/ protection cover)
- 1.8/3V USIM/SIM card slot
  - Support MegaSIM (USB interface)
- External GPS antenna connector
- Power**
- Battery
  - Removable and Rechargeable Lithium-ion battery, 1,350mAh
  - Charging time: less than 3 hours (base on Sleep mode at 25°C)
  - RTC: minimum 5 minutes (based on NSTL test case)
- Battery life
  - Playing WMV: 8 hours (base on NSTL test case)
  - Playing WMA: 12 hours (base on NSTL test case)
  - 2G Talk time: 3.8 ~ 7.5 hours
  - 2G Standby time: 245 ~ 435 hours
  - 3G Talk time: 2 ~ 5 hours
  - 3G Standby time: 240 ~ 587 hours
  - Video telephony time: 1.6 ~ 2.8 hours (base on RF power level 0dB~Max.)
  - Push email: 2 days usage (based on 50 email a day)
  - GPS navigation: 5 hours (based on car



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navigation)

- AC adaptor
  - AC input: 100 ~ 240V AC, 50/60 Hz
- DC output: 5V and 1A

**Stylus**

- Retractable stylus with lock type mechanism
- Preferred location: top right corner

**Hanger hole**

- Stylish hanger to wear phone with neck strap as pendant or to attach various phone hangers

**Accessories**

- Quick Start Guide [Inbox]
- CD (User manual & Sync. software) [Inbox]
- Screen Protector [Inbox]
- Stylus [Inbox]
- Travel Charger (AC adapter) [Inbox]
- Pouch (Carrying Case) [Inbox]
- USB Sync Cable (mini-USB/USB) [Inbox]
- Battery with battery cover [Inbox]
- Wired Stereo Headset (HS 168 or HS 200) [Inbox]
- 3-in-1 stylus
- 3.5 mm Audio Adaptor with Microphone plus 3.5mm stereo headset, HS U110
- Wired Remote Controller with Earphone, RC E100
- Mono Bluetooth Headset, BH M100
- Mono Bluetooth Headset, BH M200
- Stereo Bluetooth Headset, BH S100
- Bluetooth Keyboard
- Y-Cable 11 pin to 5pin + 6pin
- Y-Cable 11 pin to 5pin + 3.5 mm Audio Jack
- 4-in-1 multifunction audio cable
- Car Charger
- Car Holder

- External GPS Antenna
- TTY Adapter through 2.5mm audio jack adapter [for US product only]
- DoCoMo Aladdin adaptor (standard type) [inbox]  
Note: For product ship to Docomo only
- DoCoMo Aladdin Adaptor (service usage type) – will only be offered to service maintenance goods and not be offered to end users. Note: For product ship to Docomo only

Note: Below session is for products ship to EU only

**Compatibility Test :**

Below 3<sup>rd</sup> party accessories are required to do the compatibility test for all models.

- Handsfree Carkit : Parrot CK3400LS, Parrot MK6100,
- Parrot Minikit, Audi, BMW & Mercedes incar solutions
- Bluetooth Conference: Parrot Conference
- Bluetooth Speaker: Parrot Boombox
- SanDisk memory cards (including SDHC format)

Note: Only for device with external memory. PM need to describe the memory card type (SD, MiniSD, or MicroSD), and test memory size.

**Microsoft Windows Mobile 6 Professional (PPC)**

**Applications**

- Microsoft Outlook Mobile
  - Messaging (SMS/E-mail), Contacts, Calendar,
- Tasks, Email Set Up Wizard
- Microsoft Internet Explorer Mobile
- Microsoft Media Player Mobile

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- Microsoft ActiveSync
  - Microsoft Windows Mobile Update
  - Microsoft Windows Mobile Marketplace
  - Internet Sharing
  - Pictures & Videos
  - Games
  - File Explorer
  - Device Management
  - Security Enhancement
    - Storage Card Encryption, Device Lock
  - Microsoft Office Mobile
    - Word, Excel & PowerPoint Mobile
  - Microsoft Windows Live!
    - Windows Live Messenger
    - Windows Live Mail (Push Mail)
    - Windows Live Contacts
    - Windows Live Search
    - Windows Live Spaces
    - Microsoft Remote Desktop Mobile
  - Ringtone
    - MIDI
      - ◆ 40 polyphonic & Standard MIDI format 0 and 1 (SMF) / SP MIDI
    - MP3, AAC, AAC+, eAAC+, WMA, WAV and AMRNB
  - DirectShow Filters for WMP - Audio
    - Audio Playback format: AAC, AAC+, eAAC+, MP3, WMA, WAV, AMR-NB/WB
  - DirectShow Filters for WMP - Video
    - Video Playback format: H.263, MPEG4, WMV, Motion JPEG (AVI)
    - Min. 30 fps decoding for H.263 & MPEG4 @ QVGA resolution
    - Video Scale up to VGA
    - Combined Bit Rate: 64Kbps (playback)
  - Picture Enhancement for Pictures & Videos
    - Graphics: JPEG, GIF87a, GIF89a, PNG, WBMP
    - Video Thumbnail Preview: H.263, MPEG4, Motion JPEG (AVI), and WMV
  - 3G-324M Video Telephony
  - ZIP
  - Smart Dialing
  - MMS Client
    - Compliant to MMS 4.0
    - Unified SMS/MMS inbox
  - Java virtual machine (J2ME, CLDC 1.1, MIDP 2.0)
    - JSR 185 JTWI
    - JSR 75 PIM access
    - JSR 179 Location API
    - JSR 184 Mobile 3D Graphics API (TMO only)
  - Voice Dial & Command
- Value Added Applications**
- Camera / Camcorder
    - Camera Mode
      - ◆ Encoding format: JPEG
      - ◆ Resolution: 2048x1536, UXGA 1600x1200, SXGA 1280x1024, VGA 640x480, QVGA 320x240, QQVGA 160x120
      - ◆ Night Mode
      - ◆ Digital Zooming: at least 8X
    - Camcorder Mode
      - ◆ 15 fps encoding for QVGA resolution
      - ◆ Encoding format
        - H.263 + AMR-NB
        - MPEG4 + AMR-NB

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- Speaker Dependent or Independent
- Voice Recorder (AMR format)
- Document Viewer - PDF
- OMA DRM Engine: For all types of files (Pictures, audio, application etc.), and also all types of delivery method (MMS, email etc.)
  - OMA 1.0 / 2.0 (Q4/2007)
  - Multi-DRM support : MSFT & OMA DRM
- SIM Manager
- Comm. Manager
- STK
- TTY/TDD for US Market
- Task Manager
- FM Radio
- Audio Manager
- Ringtone Trimmer
- HTC SIP/VoIP SDK (per customer requirement)
- GPS navigation software
  - Track wheel assisted MAP zooming and zoom out
  - Hybrid solution
    - ◆ On-board solution (e.g. TomTom)
      - MAP preload
      - MAP download
    - ◆ Off-board solution (e.g. Webraska – per customer requirement)
      - Download routing/ POI info

- Navigation through Outlook contact
- Navigation through POI
- Navigation through Photo
- Send location information via SMS
- Send location information via MMS
- Call from POI
- QR Code Scanner (per customer requirement)
- Business Card Scanning
- HTC Streaming Player
- TouchFLO v2.0
- HTC Home
- HTC Launcher
- HTC Album

**Environment**

- Operating temp: 0 ~ 50 ° C
- Storage temp: -20 ~ 60 ° C
- Humidity: 90%RH

**Regulatory**

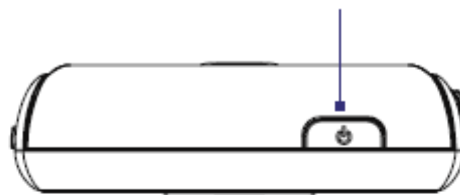
- GCF certification [Operator dependent]
- R&TTE: EMC / EMI, Safety SAR
- WiFi Certification
- FCC Approval
- FCC Hearing Aid Compatibility
- PTCRB Approval
- BQB (Bluetooth Qualification Body) certification
- Windows Mobile Logo (NTSL)
- USB certification

## 1.2. Product overview

### Top panel

#### POWER

Press to turn off the display temporarily. To turn off the power, press and hold for about 5 seconds. For more information, see "Starting Up" in this chapter.



### Left panel

#### VOICE COMMAND

- Press to activate or cancel voice recognition. See Chapter 14 for details.
- Press and hold to record a voice note.

#### Volume

During a call or playing music, scroll up or down to adjust the sound volume.



### Right panel

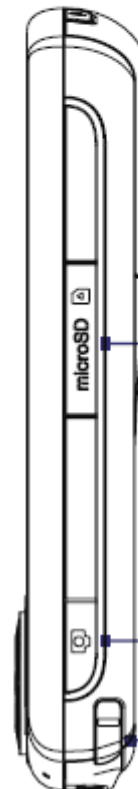
#### microSD Slot

See "Installing a Storage Card" for details.

#### CAMERA

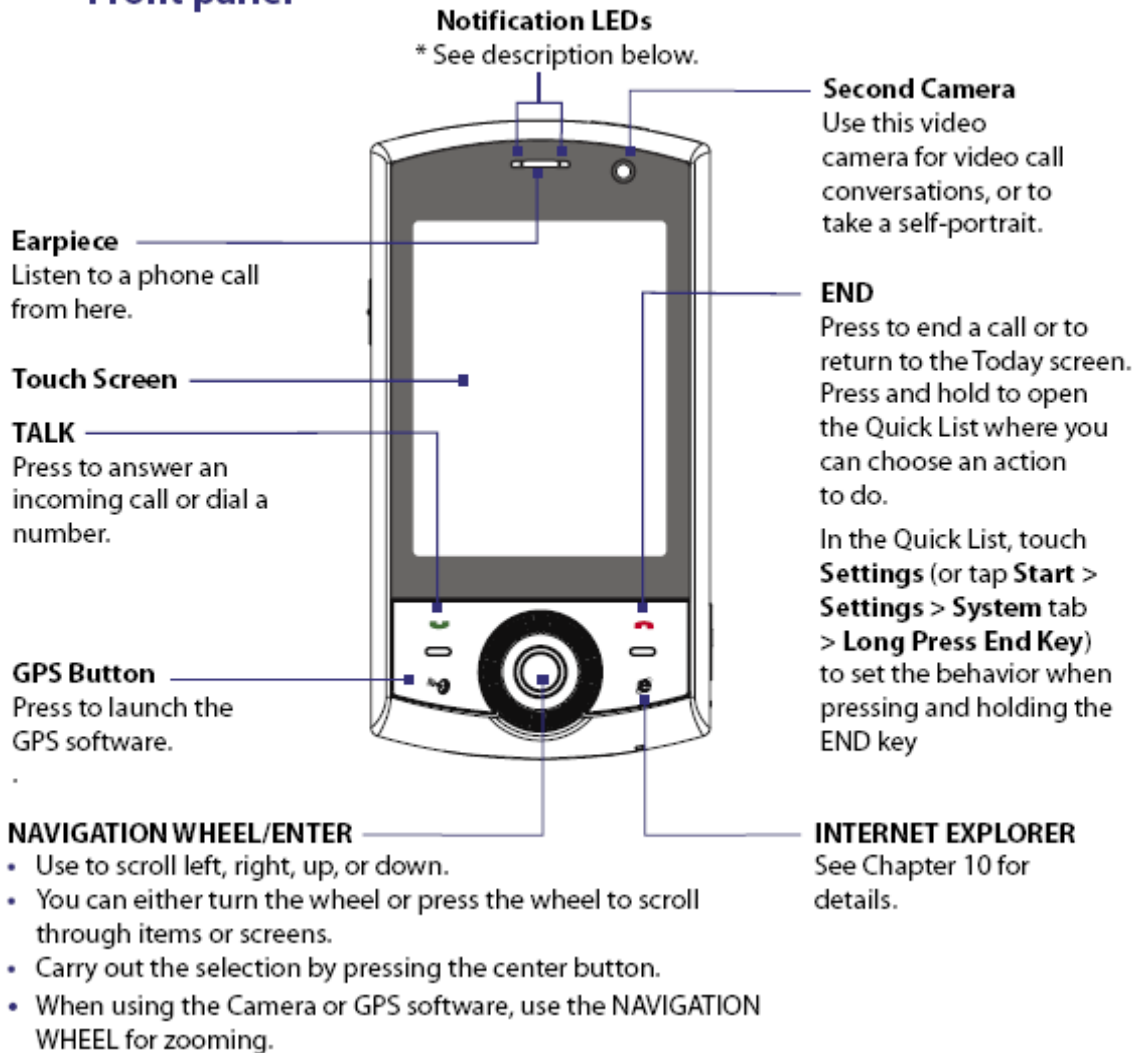
Press to launch the Camera. See Chapter 12 for details.

#### Stylus



● [Front side](#)

**Front panel**



\* Right LED: Shows green and amber lights for HSDPA/UMTS/EDGE/GSM/GPRS standby, message, and network status as well as for notification and battery charging status.

Left LED: Shows a flashing blue light for Bluetooth system notification of powered-up and ready to transmit or receive Bluetooth signals, or a flashing green light for Wi-Fi status. When both Bluetooth and Wi-Fi are enabled, their lights flash alternately. Shows flashing amber light for GPS status.

- [Back side](#)

### Back panel

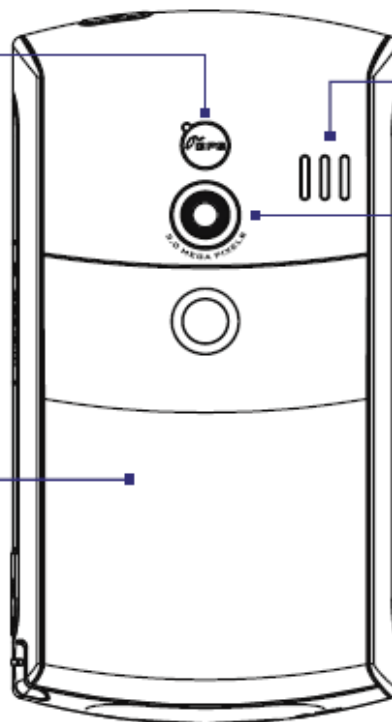
#### GPS Antenna Connector

Peel off the rubber cap and connect an external GPS antenna for better GPS signal reception.

**Note** Use only the external GPS antenna with model number **GA S120**.

#### Back Cover

Slide the back cover downward to remove it.



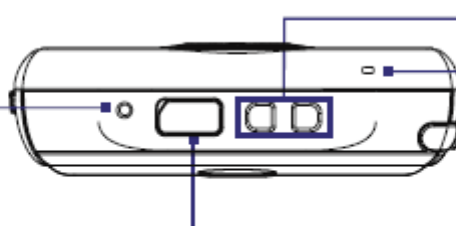
Speaker

**3 Megapixel Camera**  
See Chapter 12 for details.

### Bottom Panel

#### RESET

With the stylus, press the RESET button to soft-reset your device.



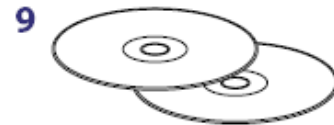
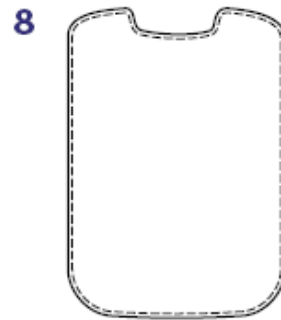
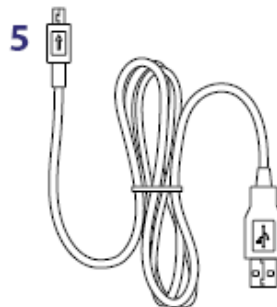
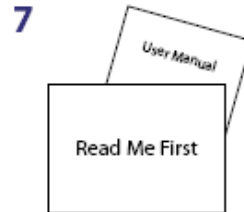
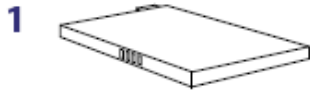
Lanyard/Strap Holder

Microphone

#### Sync Connector/Earphone Jack

Connect the supplied USB cable to synchronize information or plug in the AC adapter to recharge the battery. You can also connect the supplied USB stereo headset for hands-free conversation or for listening to audio media.

● Accessories





No.	Accessory	Function
1	<b>Battery</b>	Insert into the device before turning it on.
2	<b>Screen protector</b>	Stick on the touch screen to prevent scratches.
3	<b>Stereo headset</b>	Provides a volume control slider and a Send/End button. Press the Send/End button to pick up a call or put a call on hold; press and hold the button to end the call.
4	<b>AC adapter</b>	Recharges the battery.
5	<b>USB sync cable</b>	Connects your device to a PC and synchronizes data.
6	<b>Extra stylus</b>	Use to tap items onscreen.
7	<b>User manual and ReadMeFirst</b>	References for using your device.
8	<b>Pouch</b>	Acts as a protective carrying case for your device.
9	<b>Getting Started and Applications discs</b>	Source for additional tools and programs.

1.



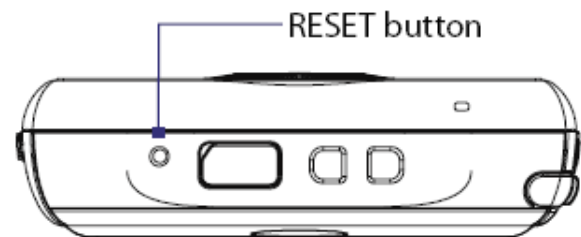
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## Soft reset

Occasionally, you may need to reset your device. A soft (or normal) reset of your device clears all active program memory and shuts down all active programs. This can be useful when your device is running slower than normal, or a program is not performing properly. A soft reset is also necessary after the installation of some programs. If a soft reset is performed when programs are running, unsaved work will be lost.

### To perform a soft reset

Use the stylus to press the RESET button found at the bottom of your device. Your device restarts and displays the Today screen.



## Hard reset

You can also perform a hard reset (also known as a full reset). A hard reset should be performed only if a normal reset does not solve a system problem. After a hard reset, the device is restored to its default settings—the way it was when you first purchased it and turned it on. Any programs you installed, data you entered, and settings you customized on your device will be lost. Only Windows Mobile® software and other pre-installed programs will remain.

**Warning!** Your device will be set back to factory default settings. Please ensure any additional installed programs and/or user data have been backed up before a hard reset is performed.

**Important** If **Encrypt files placed on storage cards** is or was enabled before, then backup all files from the storage card **before** using Clear Storage, performing a hard reset, or updating the ROM system software. Otherwise you will no longer be able to access the encrypted files on the storage card. Use ActiveSync or Windows Mobile Device Center to transfer files between your storage card and computer. After the procedure, copy your files back to the storage card.



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### To perform a hard reset

1. Press and hold the GPS/MESSAGING and INTERNET EXPLORER buttons, and at the same time, use the stylus to press the RESET button at the bottom of your device.
2. Release the RESET button, but continue pressing the GPS/MESSAGING and INTERNET EXPLORER buttons until you see this message on the screen:  

**This operation will delete all your personal data, and reset all settings to manufacturer default. Press Action to restore manufacturer default, or press other keys to cancel.**
3. Release the buttons, and then press ENTER on your device.

### Clear Storage

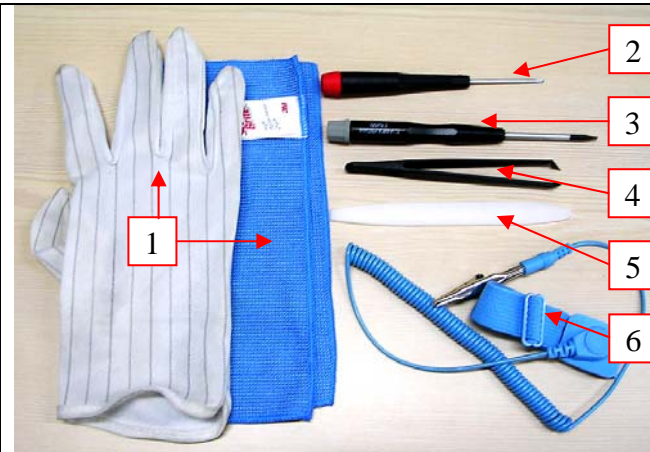
Another way of clearing the device storage and reset all settings back to factory default settings is to use the **Clear Storage** feature. You will lose all your data and files on the device storage when you use Clear Storage, so make sure to do a backup first.

**Important** If **Encrypt files placed on storage cards** is or was enabled before, then backup all files from the storage card **before** using Clear Storage, hard reset or updating the ROM system software. Otherwise you will no longer be able to access the encrypted files on the storage card. Use ActiveSync or Windows Mobile Device Center to transfer files between your storage card and computer. After the procedure, copy your files back to the storage card.

1. Tap **Start > Settings > System tab > Clear Storage**.
2. Enter "**1234**" then tap **Yes**.

## 2. Device Disassembling and Assembling Procedure

### 2.1. Disassembling procedure

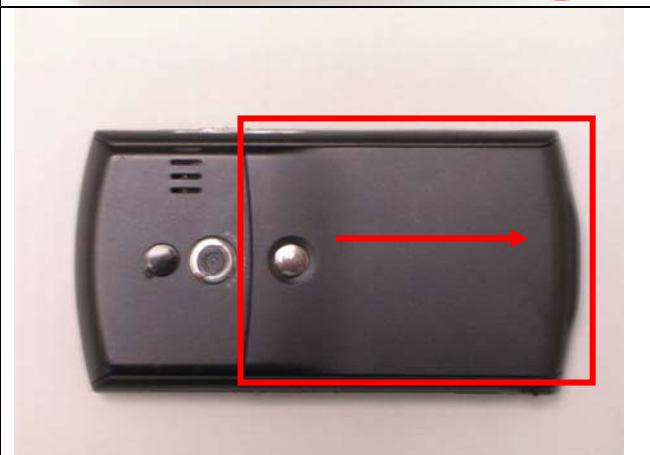


Tools needed for Assembling and Disassembling the device:

1. Glove & Lens Cleaning Tissue.
2. Philip Screw Driver #0.
3. Philip Screw Driver type T6.
4. Plastic type tweezers.
5. Special Made Plastic Stick.
6. ESD bracelet.
7. Air Gun.
8. Clean Environment.



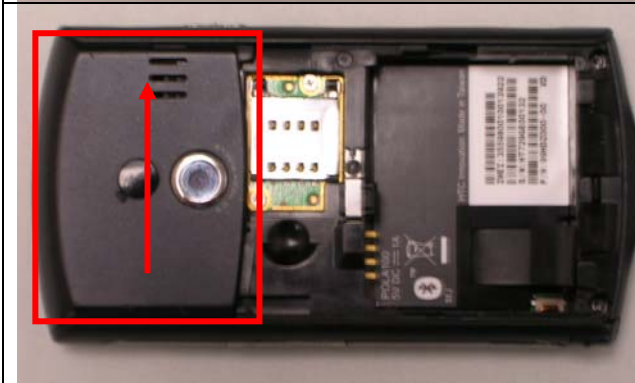
A. Pull out the Stylus.



B. Release the Battery cover.



C. Release the battery.



D. Release the Antenna cover.



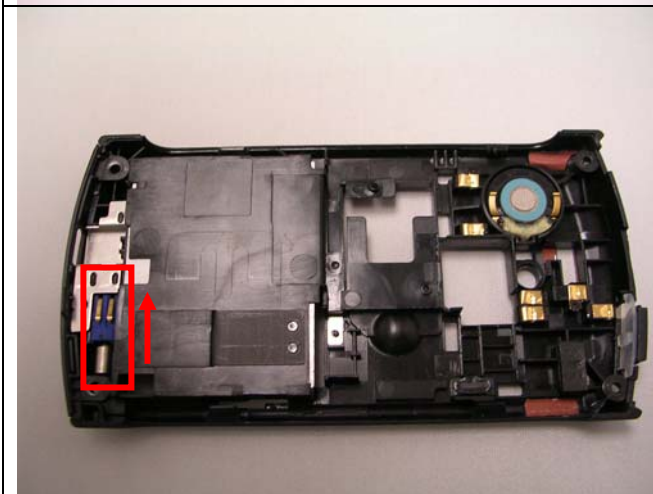
E. Unfasten the 4 screws on the housing.



F. Unfasten the 2 screws on the SIM board.



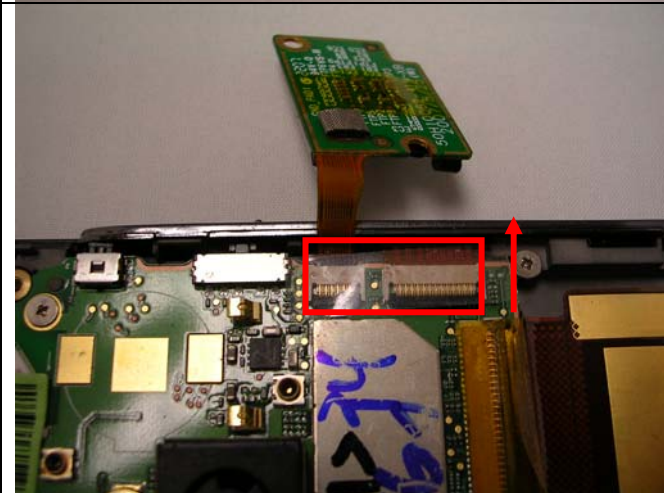
G. Use the plastic stick to release the housing.  
(Note: Don't damage the SIM Board.)



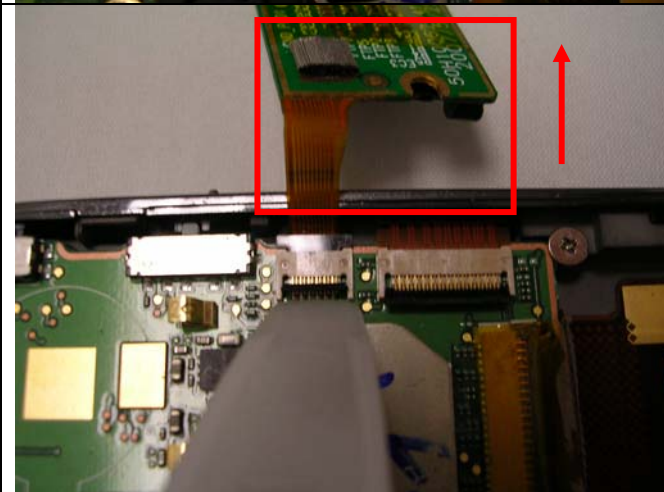
H. Remove the Vibrator.



I. Remove the Speaker.



J. Remove the Mylar on the SIM board connector and LCM connector.  
(Note: The Mylar is reusable.)



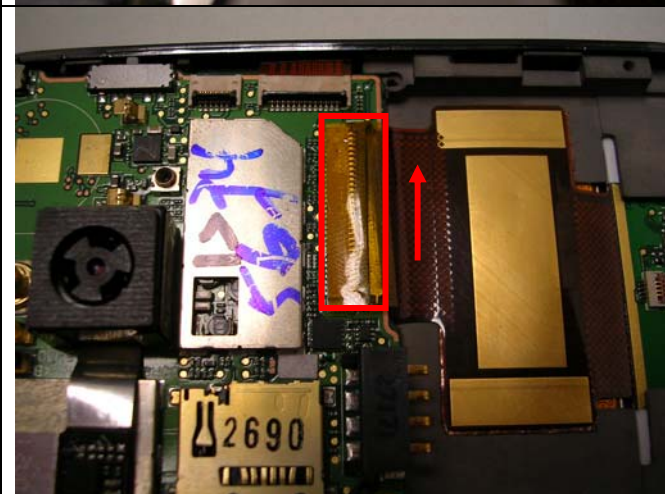
K. Release the SIM Board connector.  
L. Remove the SIM Board.



M. Unfasten the 4 screws on the M/B.



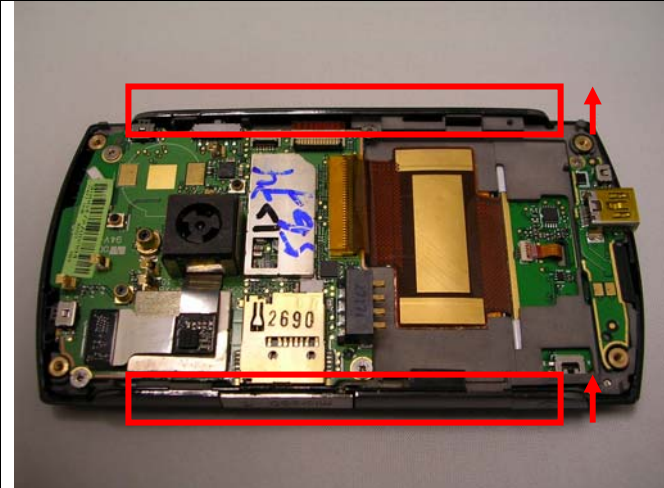
N. Release the LCM connector.



O. Remove the Mylar of Switch Board.  
(Note: The Mylar is reusable.)

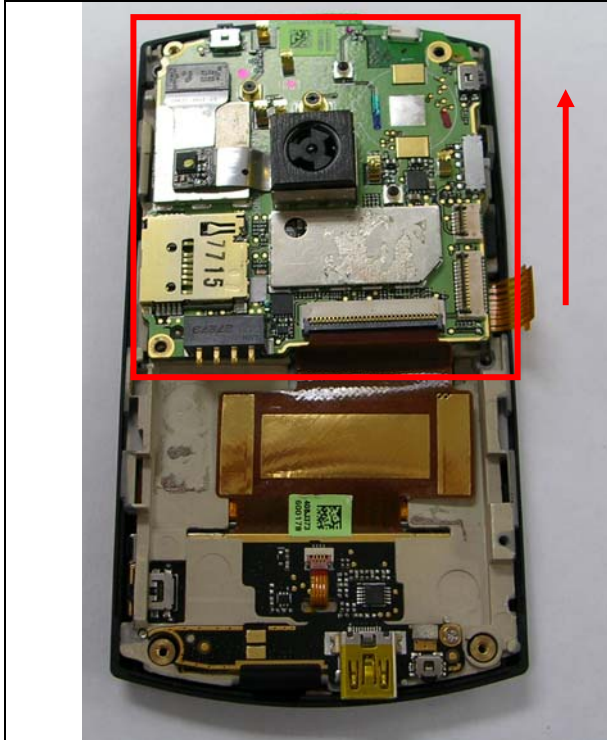


P. Release the Switch Board connector.

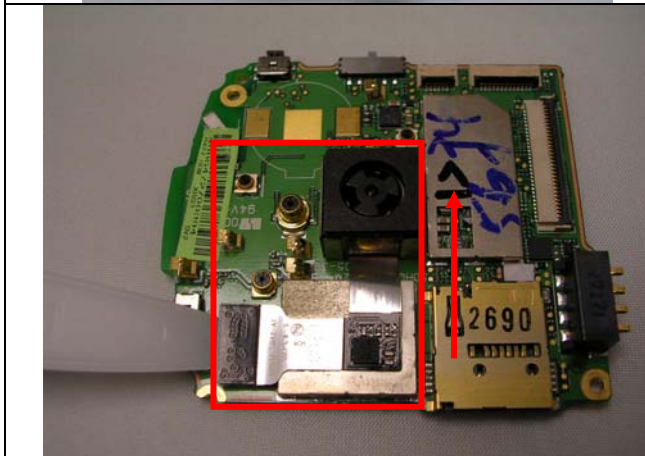


Q. Remove the two side panels.

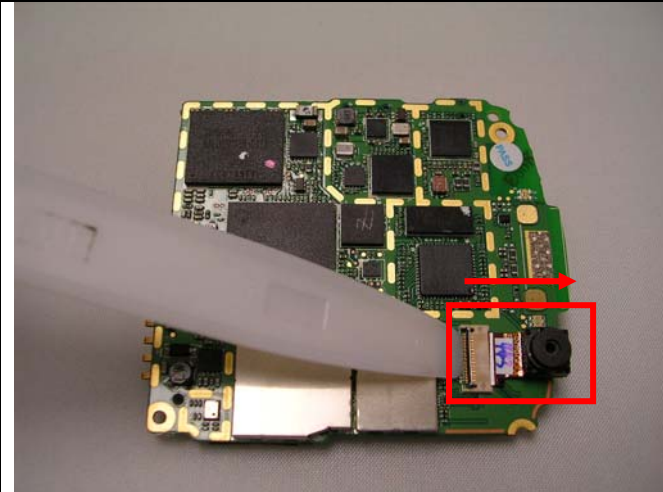




R. Remove the M/B.



S. Remove the Main Camera.



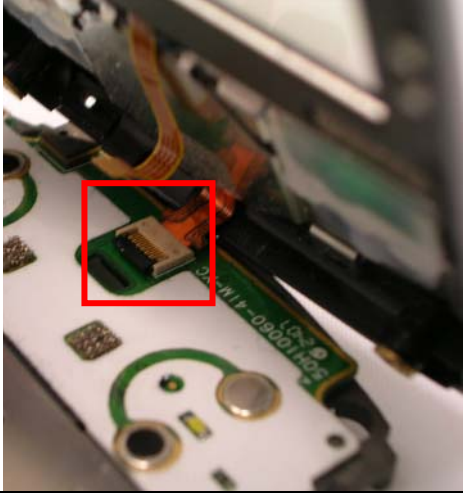
T. Remove the Second Camera.



U. Remove the Touch window FPC.



V. Release the Chassis from the bezel.



- W. Remove the keypad FPC.
- X. Remove the bezel.



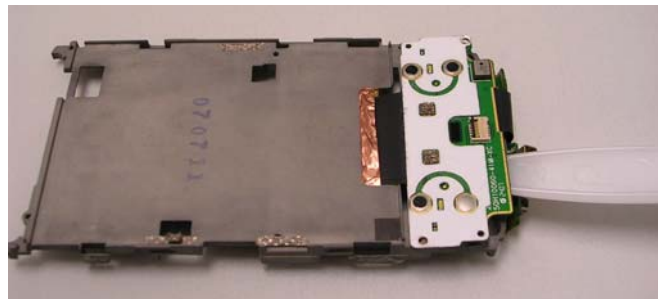
- Y. Remove the Microphone rubber.



Z. Unfasten the 3 screws on the switch board.



AA. Remove the Switch board from the chassis.



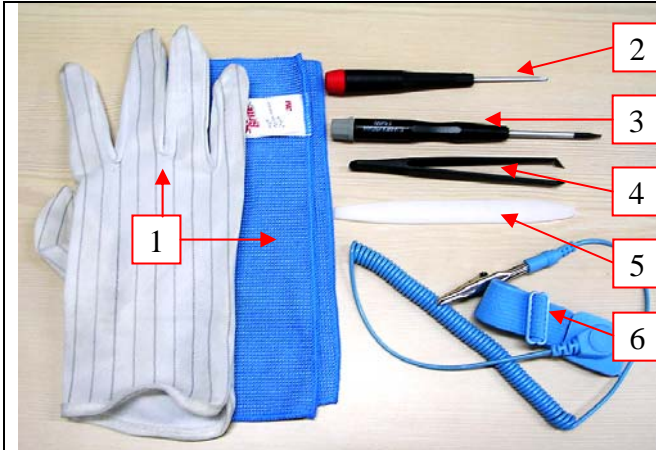
BB. Remove the receiver.



CC. Remove the keypad.

The Disassemble process is done

## 2.2. Assembling procedure



Tools needed for Assembling and Disassembling the device:

1. Glove & Lens Cleaning Tissue.
2. Philip Screw Driver #0.
3. Philip Screw Driver type T6.
4. Plastic type tweezers.
5. Special Made Plastic Stick.
6. ESD bracelet.
7. Air Gun.
8. Clean Environment.



A. Assemble the keypad into the bezel with Touch window.



B. Assemble the Receiver into the bezel.



C. Assemble the Switch Board into the chassis.

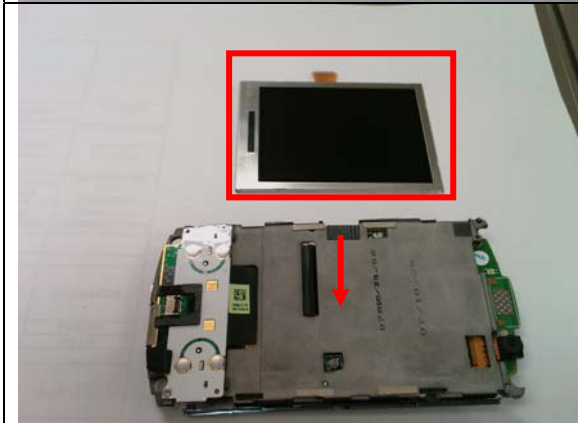


D. Fasten the 3 screws on the chassis.  
(Torque : 0.9+-0.1kgf-cm)





E. Assemble the Microphone rubber.



F. Put the LCM on the Chassis.



G. Connect the keypad FPC into the connector and assemble the Bezel and the Chassis.

**Notice:** Please apply air gun to clean the LCM & casing surface in **CLEAN ENVIRONMENT** , and ensure no dust or particle inside before assemble into bezel.

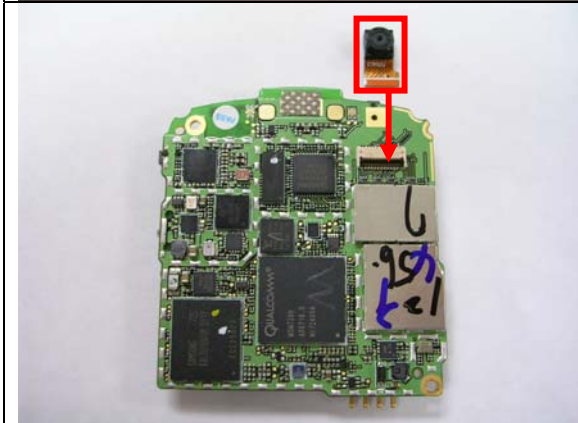




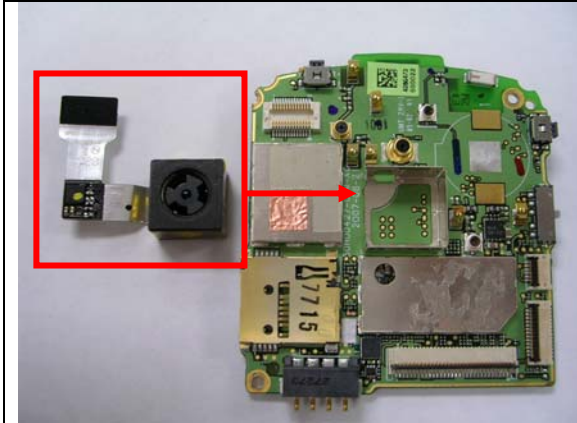
H. Insert the Touch window FPC into the connector and lock it.



I. Assemble the chassis with the bezel.



J. Assemble the Second Camera.



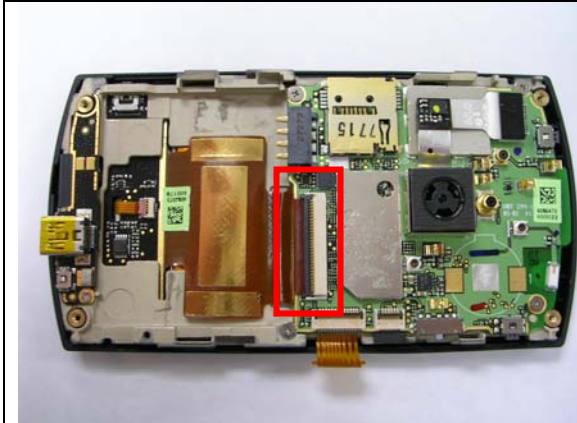
K. Assemble the Main Camera.



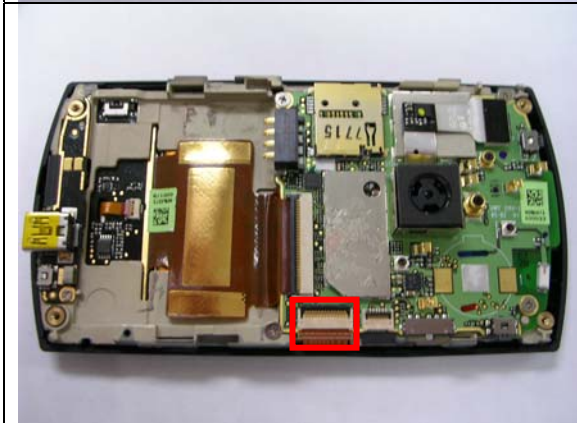
L. Assemble the M/B into the chassis.



M. Fasten the 4 screws on the Main board.  
(Torque : 1.0+0.1kgf-cm)



N. Insert the Switch Board FPC into the connector and lock it.



O. Insert the LCD FPC into the connector and lock it.



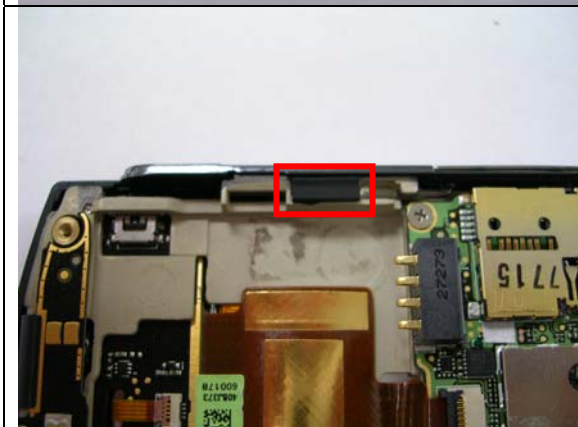
P. Insert the SIM Board FPC into the connector and lock it.

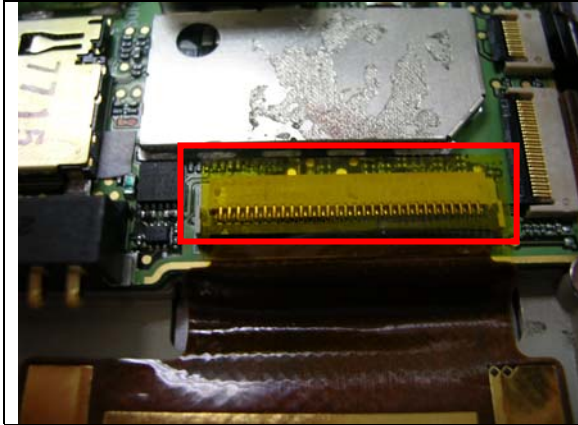


Q. Assemble two side panels.

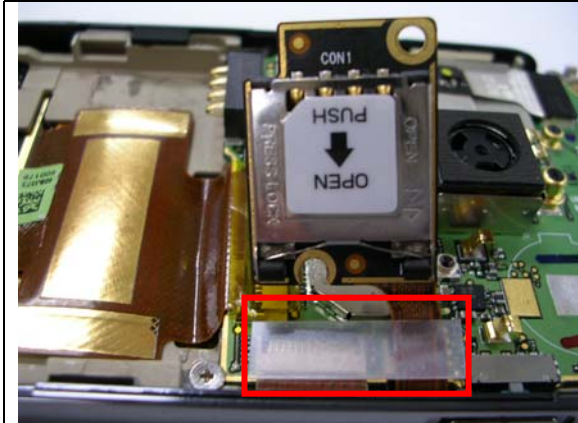


R. Stick the Mylar on the Side panel with SD door.





S. Stick the Mylar on the Switch Board connector.  
(Note: The Mylar is reusable.)



T. Stick the Mylar on the SIM Board connector.  
(Note: The Mylar is reusable.)



U. Assemble the Vibrator into the housing.



V. Assemble the Speaker into the housing.



W. Combine the bezel with the housing.



X. Fasten the 2 screws on the SIM board.  
 (Torque: 0.65+-0.1kgf-cm)



Y. Fasten the 4 screws on the housing.  
(Torque : 1.2+0.1kgf-cm)



Z. Assemble the antenna cover.



AA. Assemble the battery



BB. Assemble the battery cover.



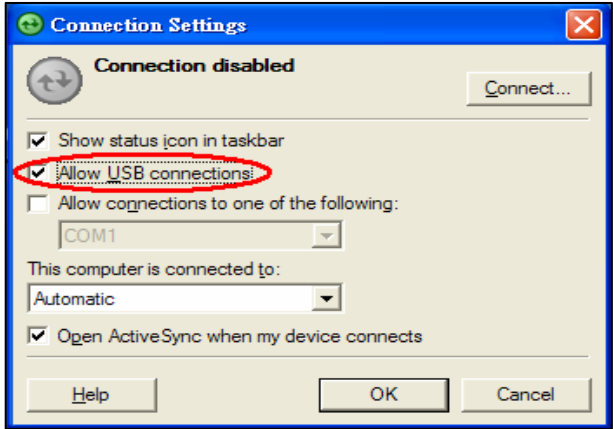
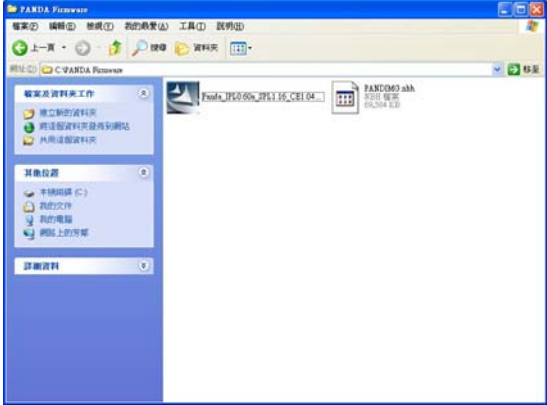
CC. Insert the Stylus.

The Assemble Procedure is Done. You may perform the Function Test or the following process.



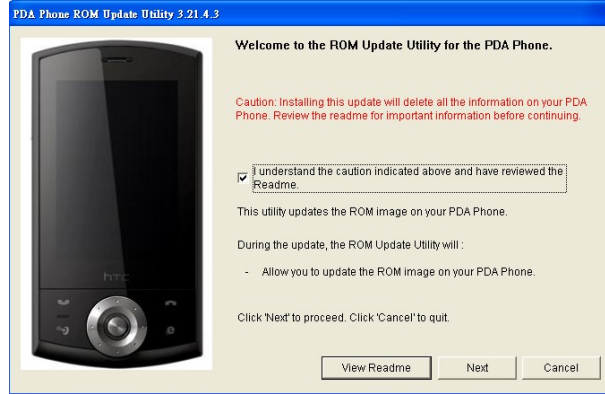
### 3. ROM Re-flash Procedure

#### 3.1. ROM upgrade thru RUU (Re-flash Upgrade Utility)

Connect device to PC	
<ol style="list-style-type: none"> <li>I. Setting and allow USB connections in Microsoft ActiveSync.</li> <li>II. Connect your device and desktop/ or laptop via USB cable.</li> <li>III. Check the pop-up message from Microsoft ActiveSync when device is synchronized with PC.</li> </ol>	
Download ROM Image from SDO	
<ol style="list-style-type: none"> <li>I. Download OS image from SDO. <a href="http://htcscm10.htc.com.tw/SDO">http://htcscm10.htc.com.tw/SDO</a></li> <li>II. Un-zip the file and execute RUU program.</li> </ol>	

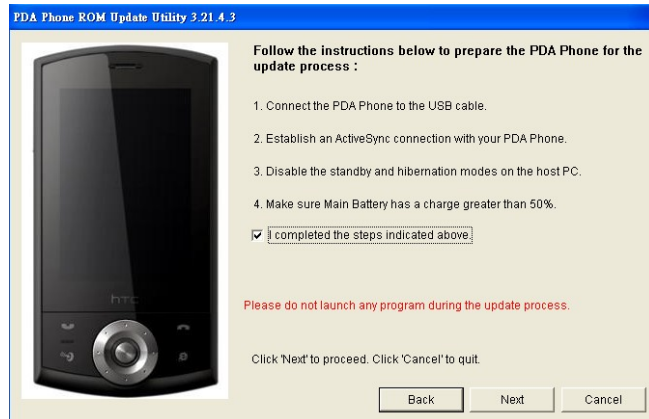
### RUU - 1

- III. Read the pop-up message form ROM update utility and select the "I understand..." checkbox.
- IV. Click "Next" to proceed.



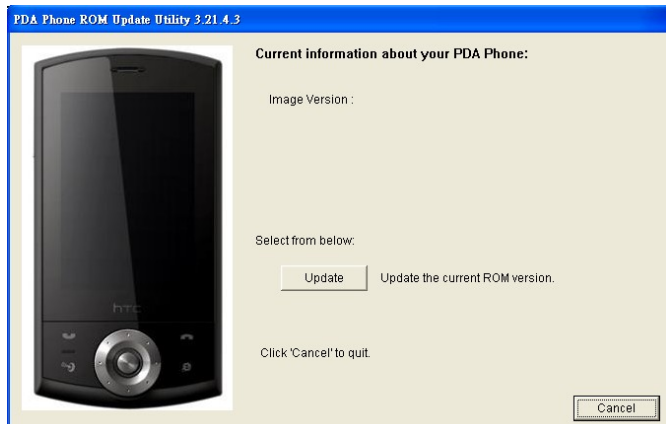
### RUU - 2

- V. Read the pop-up message form ROM update utility to follow and perform the instructions and select the "I completed..." checkbox.
- VI. Click "Next" to proceed.



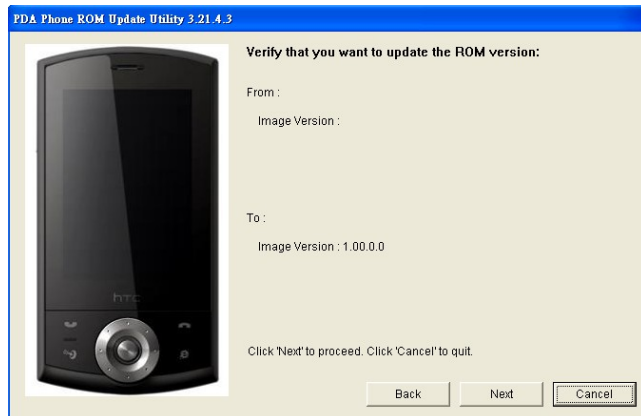
### RUU - 3

- VII. Current image version confirmation.
- VIII. Click "Update" to proceed.



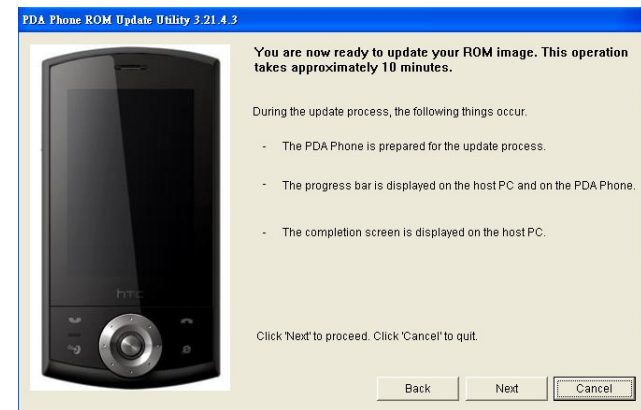
### RUU - 4

- IX. Double verify the ROM revision which you want to update before re-flash procedure.
- X. Click "Next" to proceed.



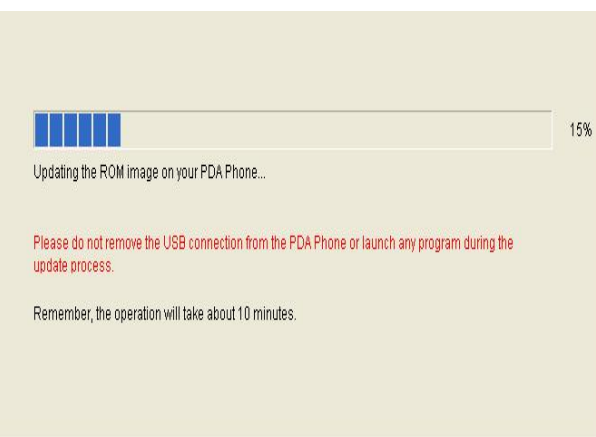
### RUU - 5

- XI. Read the information from pop-up message and the OS update procedure will takes 10 minutes long.
- XII. Click "Next" to proceed.



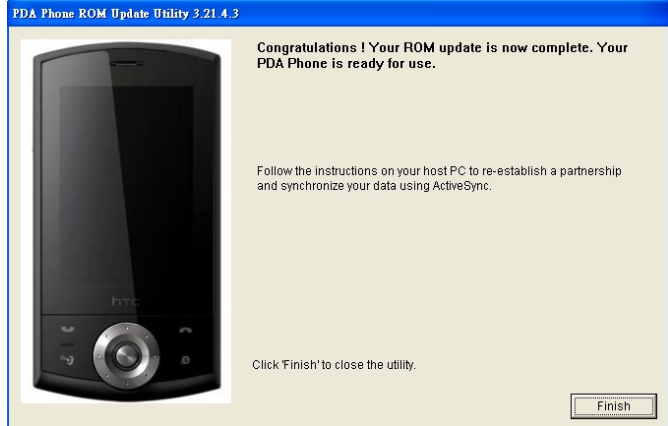
### RUU - 6

- XIII. You can see the update progress from your PC and in your device.



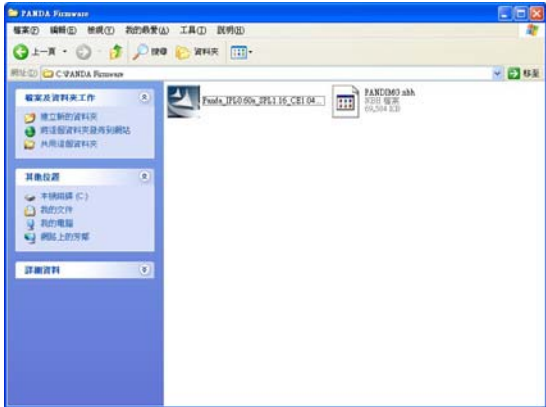

### RUU - 7

XIV. The OS upgrade is finished, click  
"Finish" to close the utility.



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### 3.2. Rom Image upgrade thru SD card

Download ROM Image from SDO	
<p>I. Download ROM image from SDO. <a href="http://htcscm10.htc.com.tw/SDO">http://htcscm10.htc.com.tw/SDO</a></p> <p>II. Un-zip the image file.</p>	
Format SD card and copy image file to SD card	
<p>III. Select file system and format the SD card to FAT32 mode.</p> <p>IV. Copy image file XXX.nbh to the micro SD card and rename to <b>POLAIMG.NBH</b>.</p>	

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### SD Upgrade - 1

- V. Turn the device power off and insert Diagnostic SD card.
- VI. Press and hold **Camera** button, and **Reset** button to entry Boot loader mode.
- VII. Press **Power** button to start upgrade procedure.

POLAIMG.nbh -

RADIO\_V2 -  
BOOTLOADER -  
SPLASH1 -  
OS -

Press power button  
to start update image

Press action button  
to cancel update image

### SD Upgrade - 2

- VIII. Reading source code from SD card.  
**[Note]: This process will takes 10 mins, please don't power off the device.**
- IX. After finish, press **Reset** button to reboot.

POLAIMG.nbh - OK

RADIO\_V2 - OK  
BOOTLOADER - OK  
SPLASH1 - OK  
OS - OK

Update Complete  
UPDATE SUCCESS



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## 4. DIAGNOSTIC PROGRAM

### 4.1. List of Diagnostic / WinCE Test Items

Mode	No	Item	Description	Remark	
Diagnostic	<b>Function Test</b>				
		1	Auto	Auto Regular Tests (Display, B.L, Vibrator, etc...)	
		2	MegaSIM	MegaSim Test	
		3	ROMChecksum Test	Rom size	
		4	SDRAM Test	RAM memory test.	
		5	Display Test	Color bar/R/G/B/Black/White/Gray pattern.	
		6	B. L Test	Front light test (On/Dim/Off).	
		7	LED Test	Red, Green, BT, WL, Key Led	
		8	Vibrator Test	Vibrator on test.	
		9	SD Card Test	SD card Read/Write test.	
		10	Button Test	Record, Capture, App1(Send), App2(IE), Volume up, Volume down, Key up, Key down, Key left, Key right, Key action, Soft1, Soft2, Send, End, Start, OK	
		11	Speaker Test	Speaker out test.	
		12	Receiver Play Test	Receiver out test.	
		13	IntMic Test	Internal MIC record and play to Speaker test.	
	14	ExtMic Test	Internal MIC record and play to Headset test.		
Win CE	<b>Run-in Test</b>				
		1	1 Hour	1 Hour Run-in Test/Press Soft1 key.	Option
		2	2 Hours	2 Hours Run-in Test/Press Soft 2 key.	Option
		3	4 Hours	4 Hours Run-in Test/Press Start key.	Option
		4	8 Hours	8 Hours Run-in Test/Press OK key.	Option
	<b>Format Storage (Personal information, talk times)</b>				
	<b>Device Info</b>				
		1	USB Test	USB link test (Microsoft ActiveSync).	
		2	Camera Test	Camera test.	
		3	Bluetooth Test	Bluetooth test.	
	4	WLAN Test	WLAN test.		

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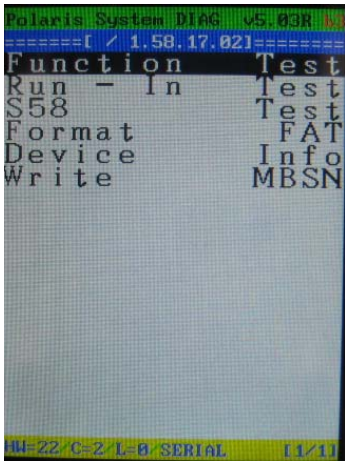
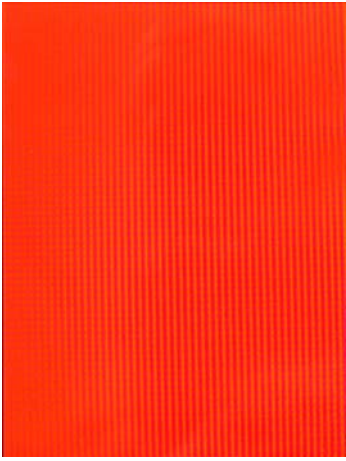
- |             |           |
|-------------|-----------|
| 5 FM Test   | FM Test   |
| 6 GPRS Test | GPRS Test |
| 7 IrDA Test | IrDA Test |

### Test Procedure

How to select test item: Using navigation button -"Up" or "Down" to select the test items

How to execute the test program: Press "Action" button to start each of test items.

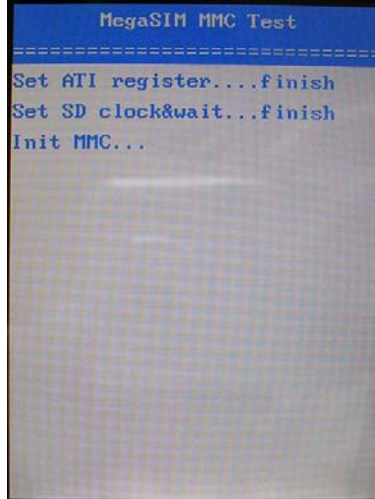
### Diagnostic

Main Menu/Function Test Menu	
<ol style="list-style-type: none"> <li>I. Turn the device power off and insert Diagnostic SD card.</li> <li>II. Press and hold <b>Power + Capture</b> button, including <b>Reset</b> button, and then enter Diagnostic mode.</li> <li>III. Using to select the test item and move to next page as well.</li> <li>IV. Select item "Function Test" to find the Function test menu.</li> </ol>	
Auto Test	
<ol style="list-style-type: none"> <li>I. Press the Action key to start the Auto-test.</li> <li>II. It will perform the regular tests, please follow the system instruction to do the test.</li> </ol>	



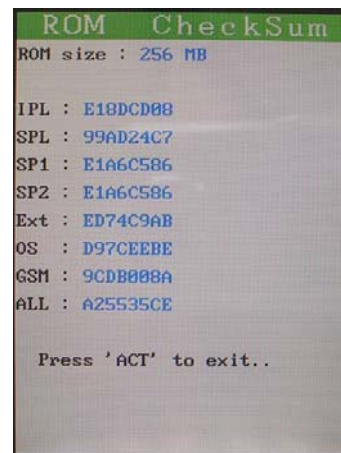
### MegaSIM Test

- III. Press the Action key to start the MegaSIM Test.  
Note. If your unit doesn't support MegaSim, you don't have to perform the test.



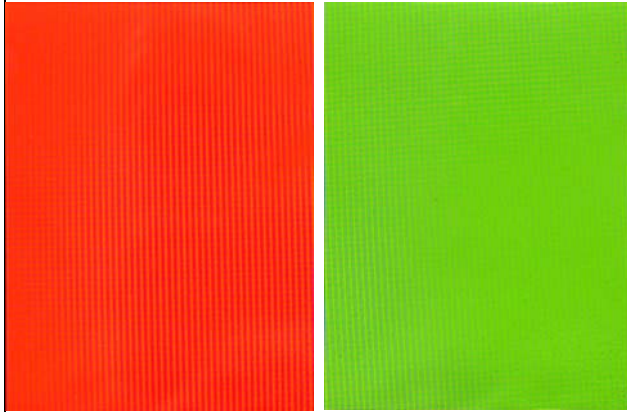
### ROM Checksum Test

- IV. Press Action key to select  
V. The Rom Checksum will be displayed on the screen



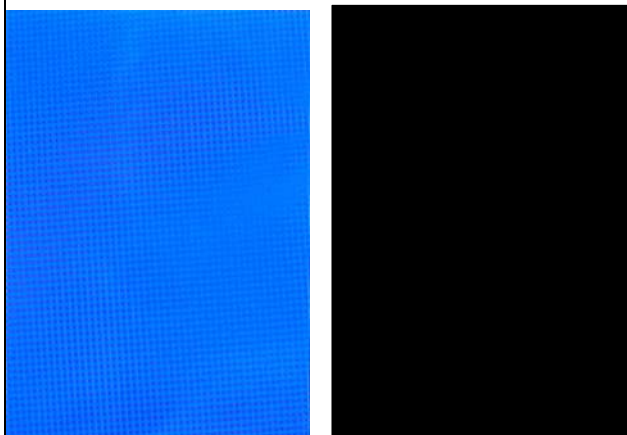
**Display Test (and RED/ GREEN pattern)**

- I. Press Action key to select Display Test on Function test menu.
- II. After the test pattern is show up, please check the pattern if any un-uniform color or chromatist.
- III. Press Action key to continue the next test pattern.



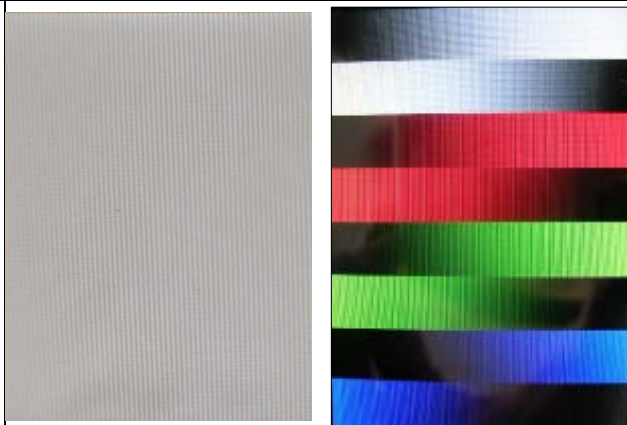
**Display Test (BLUE/ BLACK pattern)**

- V. Press Action key to continue the next test pattern.



**Display Test (WHITE/Color bar pattern)**

- VI. Press Action key to continue the next test pattern.



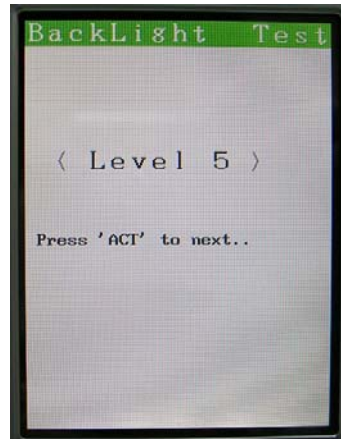
### Display Test (Words pattern)

VII. Press Action key to exit and return to Function test menu.



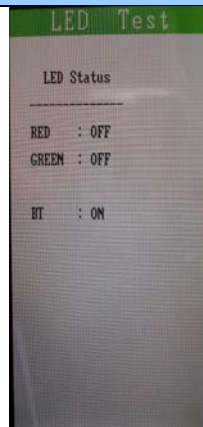
### LCD Back Light Test

I. Press Action key to select B.L Test on Function test menu.  
 II. Press Action key to switch the LCD backlight level from Level 1, Level2, Level3, Level4, Level5 Press Action key to exit and return to Function test menu.



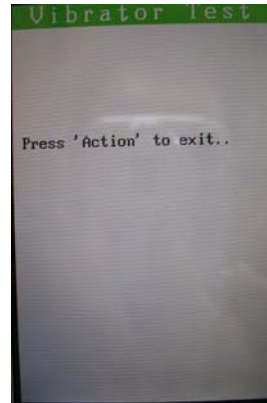
### LED Test

I. Press Action key (Jog-ball) to select LED Test on Function test menu.  
 II. Press Action key (Jog-ball) and follow the instruction on screen to perform the LED inspection test (Red, Green, BT, WLAN, and Keypad).  
 III. Press Action key to exit and return to Function test menu.



**Vibrator Test**

- I. Press Action key to select Vibrator Test on Function test menu.
- II. Press Action key to exit and return to Function test menu.



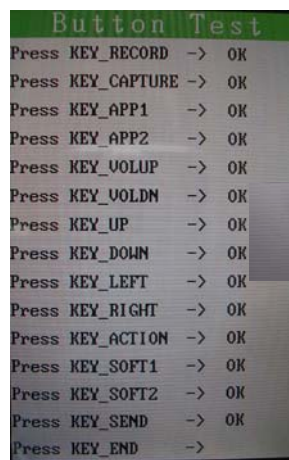
**SD Card Test**

- I. Press Action key to select SD Card Test
- II. If success, press Action key to exit and return to Function test menu.



**Button Test**

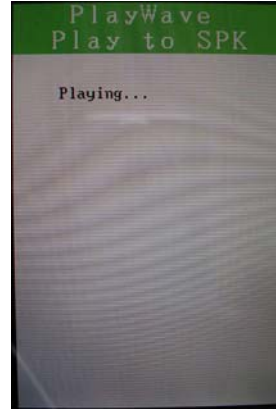
- I. Press Action key to select Button Test on Function test menu.
- II. Follow the instruction on screen to perform the Key/Button test (Record, Capture, App1(Send), App2(IE), Volume up, Volume down, Key up, Key down, Key left, Key right, Key action, Soft1, Soft2, Send, End, Start, OK.).
- III. The screen will return to Function test menu after the test is finished.



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### Speaker Test

- I. Press Action key to select Speaker Test on Function test menu.



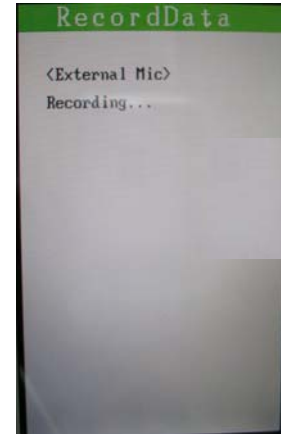
### Receiver Play Test

- I. Press Action key to select Receiver Play Test on Function test menu
- II. The screen will return to Function test menu after the test is finished



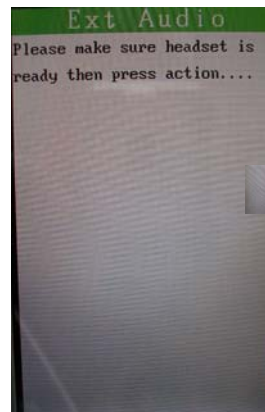
### IntMic Test

- I. Press Action key to select IntMic Test on Function test menu.
- II. After recording and playing , The screen will return to Function test menu



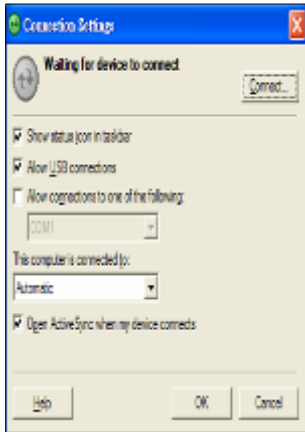

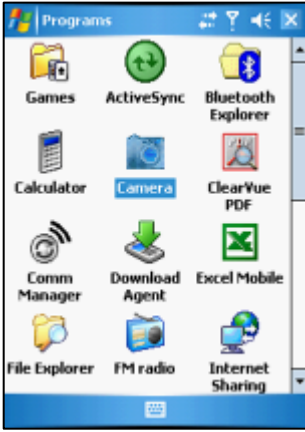





### ExtMic Test

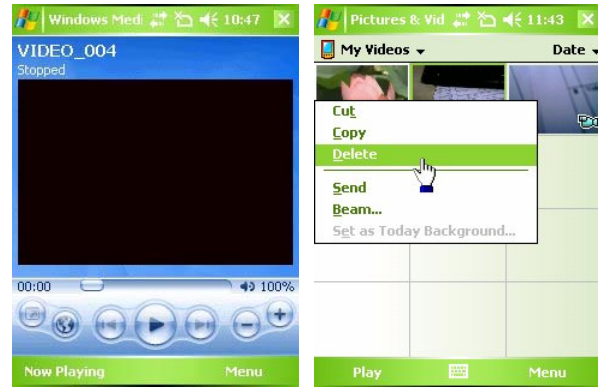
- I. Press Action key to select ExtMic Test on Function test menu.
- II. Please make sure headset is ready then press action.
- III. The screen will return to Function test menu after the test is finished.



**WinCE Test**

USB Test	
<ol style="list-style-type: none"> <li>I. Start up the Microsoft® ActiveSync® program in the PC.</li> <li>II. Insert USB cable and connect unit to desktop/ or laptop.</li> <li>III. The USB to PC icon -&gt; is appears on the Today screen when your device is connected to your desktop/ or laptop.</li> </ol>	 
Camera Test	
<ol style="list-style-type: none"> <li>I. Tap <u>Start-&gt;Program-&gt;Camera</u> or Press Camera button to turn on the Camera.</li> <li>II. Make sure the device will present and enter the preview display.</li> <li>III. Check camera pre-view and image quality.</li> <li>IV. Photo Test:             <ol style="list-style-type: none"> <li>(1). Press Capture key.</li> <li>(2). Press Capture key again.</li> <li>(3). Tap 'Delete' icon on the preview screen, then Yes.</li> </ol> </li> <li>V. Video Recording Test             <ol style="list-style-type: none"> <li>(1). Tap the camera icon until a video icon appears.</li> <li>(2). Press Capture key to start recording a clip.</li> <li>(3). Press Capture key again to stop recording.</li> </ol> </li> </ol>	   

- (4). On the preview screen, tap the 'Magnifier' icon to view the captured video clip.
- (5). Tap X. to close the camera program
- (6). Tap the 'Browser' icon and choose My video.
- (7). Tap and Hold on the clip and select Delete.
- (8). Tap X and then X to exit.



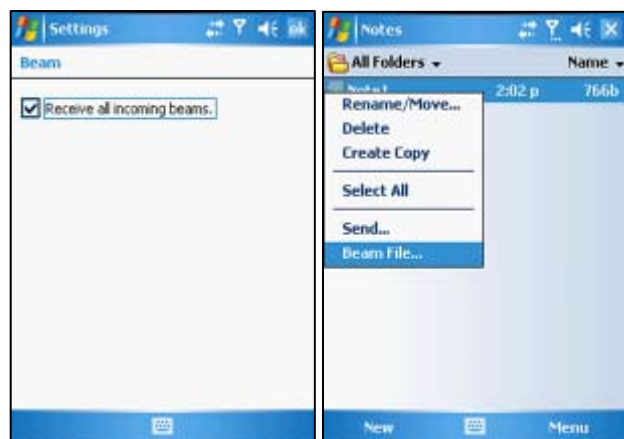
### Bluetooth Test - 1

- I. Tap icon Comm Manager on the Today screen and turn on Bluetooth.
- II. Tap the icon "Settings" down-right the corner of the screen and select the "Make this device...." Checkbox.
- III. Press Action key (Jog-ball) to go next test pattern.



### Bluetooth Test - 2

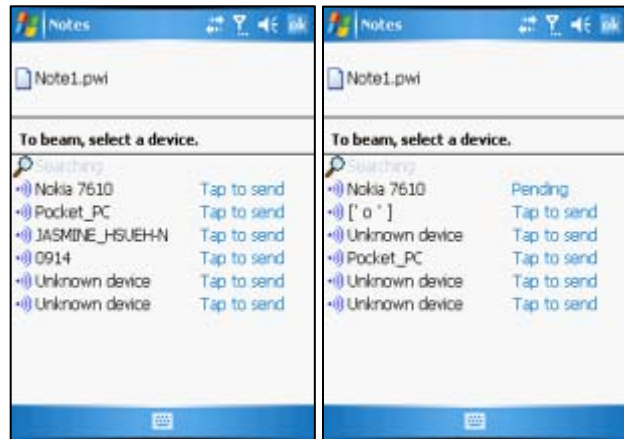
- I. Tap Start->Settings->Connections->Beam and select "Receive all...." Checkbox.
- II. To create a file, tap Start->Programs ->Notes->New.
- III. Tap and select the "Beam file..."





### Bluetooth Test - 3

- IV. Once device is searched, tap the device to send the file.
- V. Return to Today screen and tap Start->Program->Comm Manager ->Bluetooth to turn off Bluetooth.



### WLAN Test

- I. Tap icon Comm Manager on the Today screen and turn on WLAN.
- II. Select the hot-spot/ or access point which searchable and appears on screen.
- III. Key in the Network Key (if needed), then Connect.
- IV. Once the hot-spot (access point) is connected, press the IE button or click the IE icon and logon Internet.



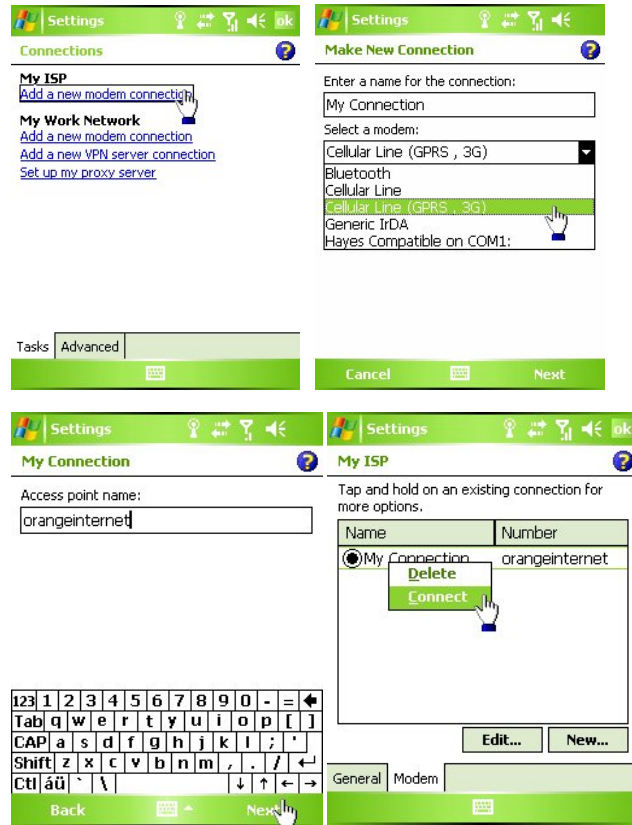
### FM Test

- I. Select Start, Programs, FM Radio.
- II. Plug in earphone.
- III. Tap Menu, then Scan & Save.
- IV. Tap Menu, then Output -> Speaker.
- V. Tap the Speaker icon, and adjust the volume.
- VI. Tap the Power Icon on screen.

- Make sure pop-up message that request earphone to plugin.
- Make sure the channel is changed, and the sound quality is clear.
- Make sure the sound comes from the speaker.
- Check the volume is changed.
- Return to Program screen

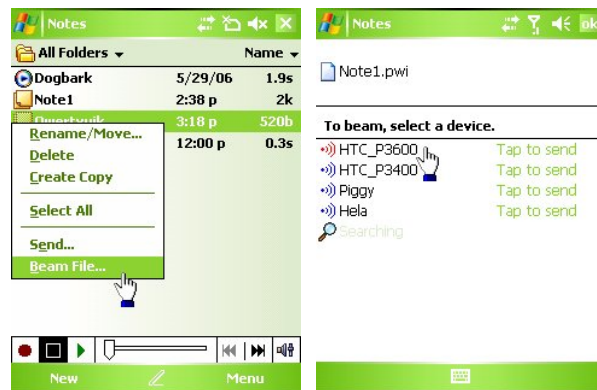
### GPRS Test

- I. Tap Start, Settings, Connections, Connections.
- II. Select 'Add a new modem connection'
- III. Key in random name for the first field, and choose 'Cellular Line (GPRS)' as second field.
- IV. Tap Next, and key in name of the 'access point carrier'.
- V. Tap Next, then key in the GPRS account details, then Finish.
- VI. Tap 'Manage existing connections', then tap and hold on an existing connection. Tap 'Connect'
- VII. Tap Start and select Internet Explorer.
- VIII. On the address bar, key in an address.
- IX. (9). Tap and Hold the 'END' key to disconnect GPRS.



### IrDA Test

- I. Tap Start, Programs, Notes, New. Key in random contents, then tap OK.
- II. Tap and hold for pop-up on the file you want to beam. Select Beam File.
- III. Align IR port with the destination device.
- IV. Tap the device (via IR Port) that you want to beam file.
- V. Tap OK, X to exit.



## 5. Power measurement test

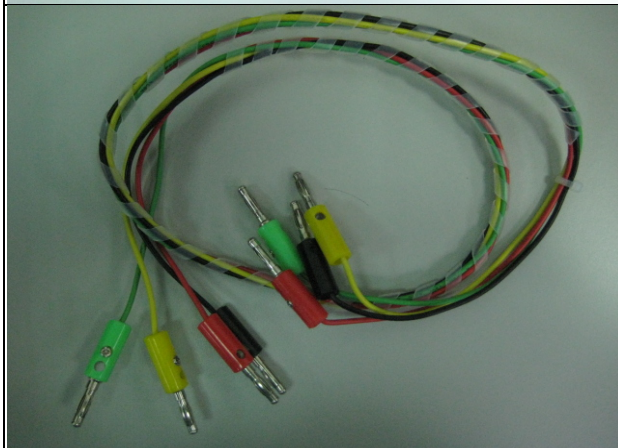
### 5.1. Main board leakage current Test Procedure

This is a quick method to measure if any abnormal leakage current on main board which caused high power consumption compare to GOOD main board.

#### Equipment list

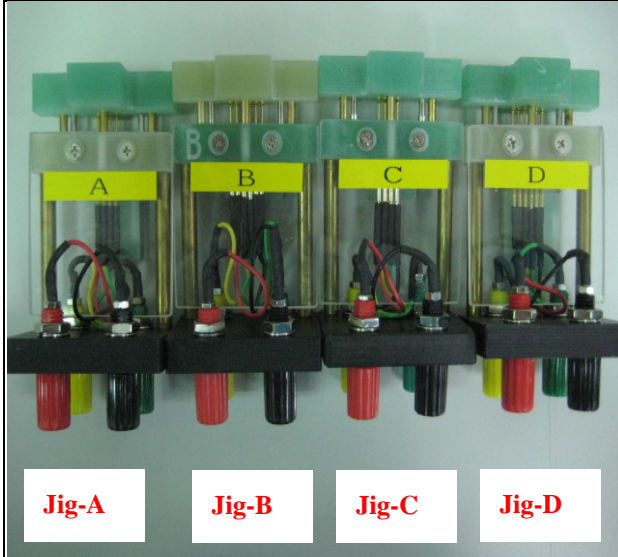


#### 1. Control box



#### 2. 4 colors cable

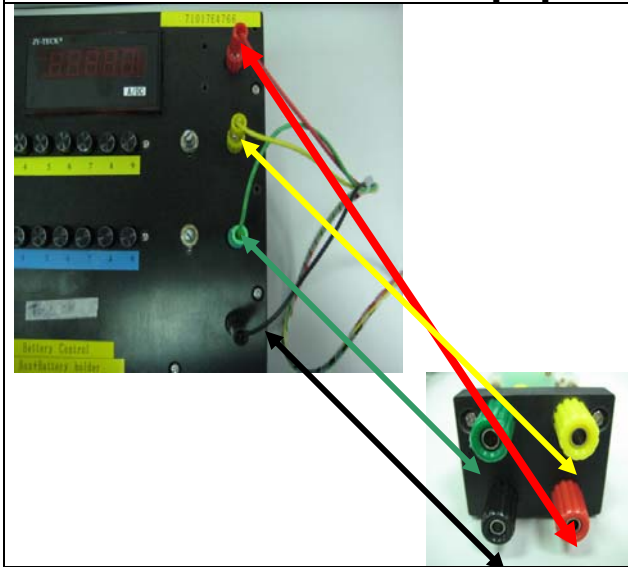
Cable A: Red  
Cable B: Yellow  
Cable C: Green  
Cable D: Black



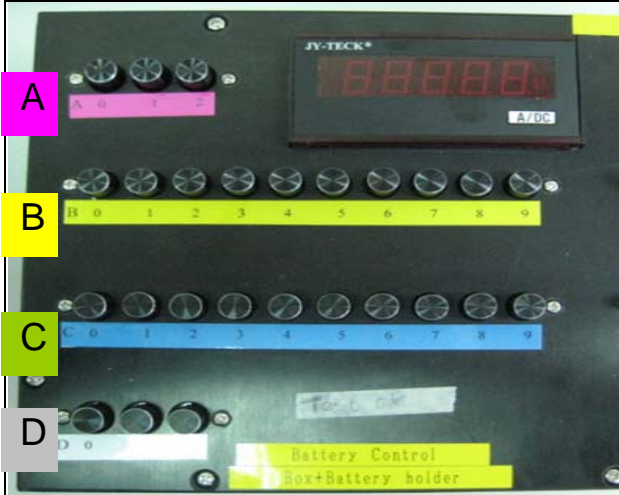
**C. 4 types Jig**

- Jig - A (4 pins-Short)
- Jig - B (6 pins-Long)
- Jig - C (4 pins-Short)
- Jig - D (6 pins-Long)

**Equipment set up**



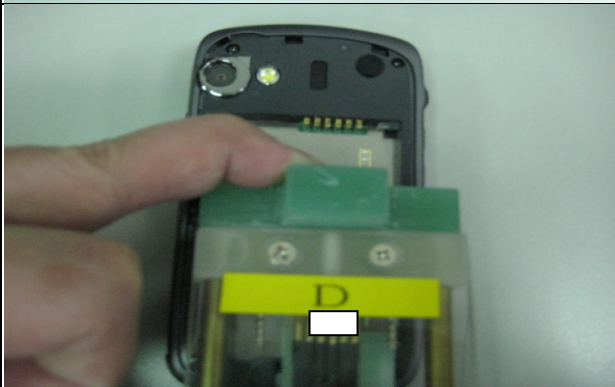
1. Connect control box and jig through 4 colors cable



**2. Set up each button by row A~D according to product specification Following is an example for Polaris**

MADEL	JIG TYPE	Button set up matrix			
		A	B	C	D
Polaris	C	0	8	2	0

**It means, press button A0,B8,C2,D0**



**3. Install jig to device (the photo is for reference only)**

**Start testing**

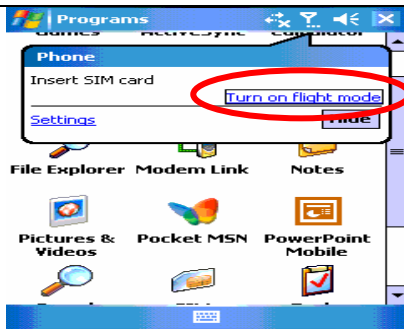


**1. Turn on control box power button**

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2. Press Power button to turn on the Device



3. In "main page", Check phone status, Click "Turn on flight mode"  
Set the unit to :  
\* Flight mode  
\* Make sure all RF function is off (phone, BT, Wifi..)

### Idle current test

4. Measure Idle mode current. Idle current value must under **105mA** (refer to each product Service Manual), if over the criteria, it means M/B failed, please replace M/B for repair.

### Sleep current test

5. After idle current checked, Switch OFF the unit. Unit is turn off and no display. sleep current value must under **3mA** (refer to each product Service Manual), if over the criteria, it means M/B failed, please replace M/B for repair.

Conclusion:

**If current consumption is passed at both of idle and sleep mode, it means M/B is GOOD. If there is any item FAILED at idle or sleep mode, it means M/B is failed, please replace M/B for repair.**

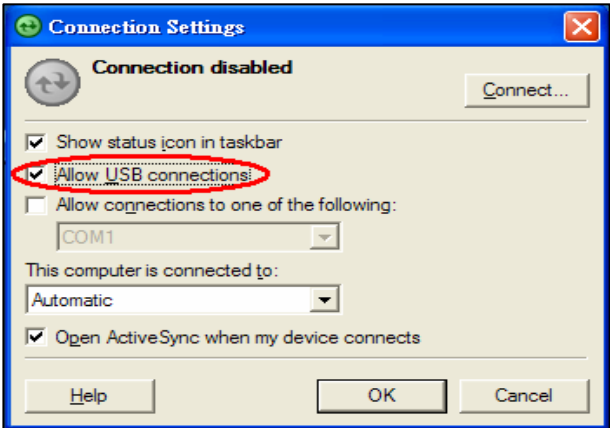
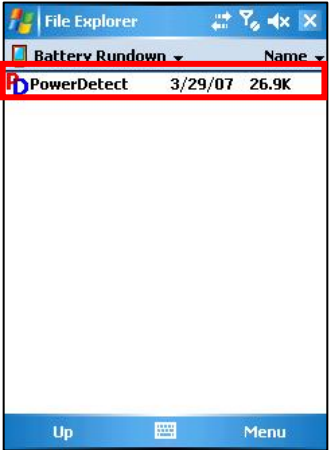
## 5.2. Battery rundown test procedure

### Test Requirement:

- Windows 2000/XP
- USB Cable
- ActiveSync 4.5 above (WINCE 6.0 should use ActiveSync 4.5)
- Master Unit
- Battery in Warrantee

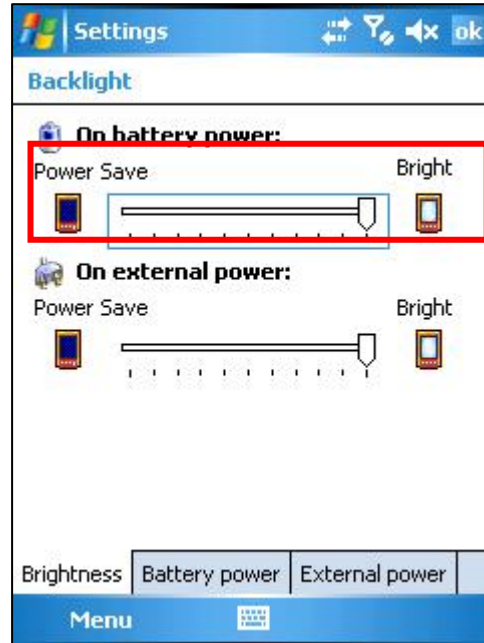
**Caution: Please charge your unit to full capacity for battery (until the green light is displayed) before doing the test.**

### TEST PROCEDURE

Connect device to PC	
<p>I. Setting and allow USB connections in Microsoft ActiveSync.</p> <p>II. Connect your device and desktop/ or laptop via USB cable.</p> <p>III. Check the pop-up message from Microsoft ActiveSync when device is synchronized with PC.</p>	
Copy the Battery Rundown tool into the device	
<p>IV. Make a folder in the device.</p> <p>V. Copy <b>PowerDetect.exe</b> into the folder.</p>	

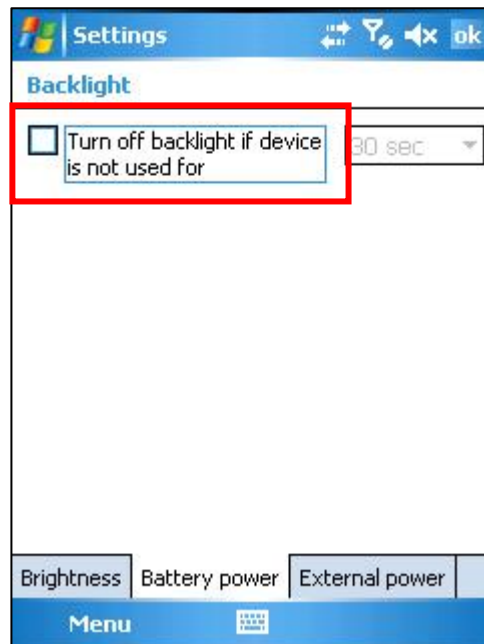
**Battery Rundown-1**

VI. Adjust the Backlight brightness into the maximum level on battery power.



**Battery Rundown-2**

VII. Disable **Turn off backlight if device is not used for** in Battery power.





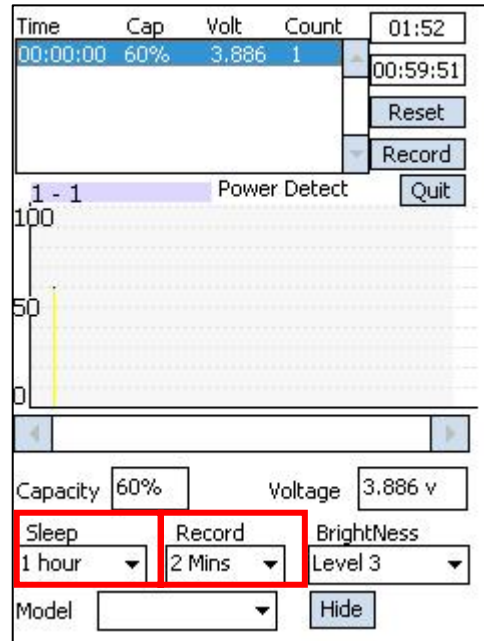
### Battery Rundown-3

VIII. Execute **PowerDetect.exe** under WinCE



### Battery Rundown-3

IX. Set the Sleep as **1hour**  
X. Set the Record as **2Mins**



**Battery Rundown-4**

- XI. After running 1 hour, the test will be finished.
- XII. Press the Power Button to turn on the power.
- XIII. Click ok to quit the program.



Time	Cap	Volt	Count
00:50:07	90%	4.040	26
00:52:07	90%	4.043	27
00:54:07	90%	4.040	28
00:56:07	90%	4.037	29
00:58:08	90%	4.035	30

Capacity: 90% Voltage: 4.027 v

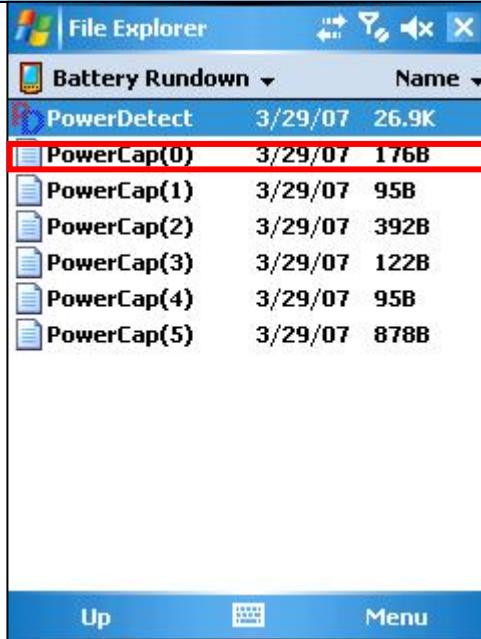
Sleep: 1 hour Record: 2 Mins Brightness: Level 3

Model: [ ] Hide

Press OK to Quit

**Battery Rundown-5**

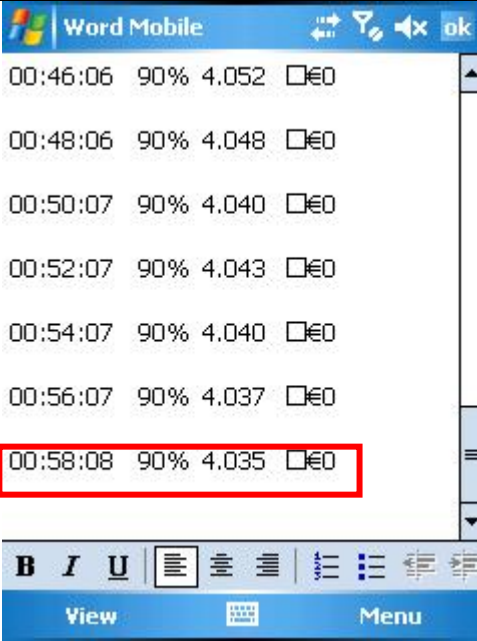
- XIV. Test result is generated into the log file as **PowerCap(x)**.



Name	Date	Size
PowerDetect	3/29/07	26.9K
<b>PowerCap(0)</b>	3/29/07	<b>176B</b>
PowerCap(1)	3/29/07	95B
PowerCap(2)	3/29/07	392B
PowerCap(3)	3/29/07	122B
PowerCap(4)	3/29/07	95B
PowerCap(5)	3/29/07	878B

**Battery Rundown-6**

XV. Tag the log file to check the capacity.



Time	Percentage	Capacity
00:46:06	90%	4.052
00:48:06	90%	4.048
00:50:07	90%	4.040
00:52:07	90%	4.043
00:54:07	90%	4.040
00:56:07	90%	4.037
00:58:08	90%	4.035

**Caution: If the capacity is under 70%,  
Please replace a new battery.**

## 6. Cosmetic Inspection Criteria

### 6.1. Classes definition of inspective area

- Class A area => The front side of main unit involve all buttons and LED lens except LCD.
- Class C area => 4 sides and back views of main unit.
- Class D area => The socket of battery, inner side of battery cover.

Photo of inspection areas

CLASS A					
CLASS C					

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**IT IS GENERIC COSMETIC INSPECTION CRITERIA FOR ALL PRODUCTS IF THERE HAVE ANY CONFLICT WITH THESE GENERIC CRITERIONS; PLEASE FOLLOW THE PRODUCT INSPECTION CRITERIA RESPECTIVELY.**

Description

- **D:** Diameter / **L:** Length / **W:** Width / **N:** Number of defects/ **S:** Distance from dot to dot
- Inspecting distance: 30 ± 5cm / Mechanical inspection angle : 90 degrees /
- LCM inspection angle : 90±15 degrees / Inspection time:5 secs per surface.
- Ambient illumination is to be 500-1100 lux
- The inspection condition of Newton ring:
  - a. Inspection distance: 30cm / Inspection time: 5 sec
  - b. Ambient illumination is to be 500-1000 Lux (Incandescent lamp)
  - c. Inspection should be performed under the condition that LCD screen could reflect the mirror image of lamp.
  - d. The criteria of Newton ring's tinges and measure of area must follow up the worst-case sample.



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## 6.2. Display inspection

Inspection Defects		Accept Level	Level	
Electrical Characteristic Defects	Bright Dots	Single	Red+ Green+ Blue $\leq 3$ , S $\geq 5$ mm.	Minor
		2 adjacent	0	Minor
		3 or more adjacent	0	Minor
	Dark Dots	Single	Total Number $\leq 2$ , S $\geq 5$ mm.	Minor
		2 adjacent	0	Minor
	Dark or Bright lines	0	Minor	
	All Allowable Dots Defects	Total Number $\leq 3$ , S $\geq 5$ mm.	Minor	
Shift and tilt of screen viewed area	The black edge around display area must be detected by front view.	Minor		
Foreign Scratch, Objects or Lint on power off status	Scratch	$0.03 < W \leq 0.1$ (mm) $L \leq 5$ (mm), $N \leq 2$ (mm)	Minor	
	Lint (linear foreign objects)	$0.03 < W \leq 0.1$ (mm) $0.3 < L \leq 3.0$ (mm) $N \leq 5$	Minor	
	Spots	$0.1 < D \leq 0.3$ (mm), $N \leq 4$	Minor	
	Fish eye on film	$0.1 < D \leq 0.4$ (mm), $N \leq 4$	Minor	
	Breakage on film surface	Not acceptable	Minor	
	Total acceptable defect quantity	$\leq 10$	Minor	



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### 6.3. Main unit inspection

#### GAP & STEP INSPECTIONS

Description		Accept Criteria
1.	Gap between ME parts.	$\leq 1.5$ (mm)
2.	Stylus	Stylus assembly protruding, loose, missing, falling and deformed is not allowed.
3.	Others, refer to production release spec	Others, refer to production release spec

#### OTHERS

Scratch		
Description	Accept Criteria	
Class A	Exposure of substrate do not accept Scratch : $L \leq 4\text{mm}$ , $W \leq 0.2\text{mm}$ , $N \leq 2$ , $S \geq 10\text{mm}$	MI
Class C	Label area don't care Exposure of substrate do not accept Scratch : $L \leq 10\text{mm}$ , $W \leq 0.4\text{mm}$ , $N \leq 5$ , $S \geq 5\text{mm}$	MI
Contamination dot/Granule dot/Cave granule		
Description	Accept Criteria	
Class A	$D \leq 0.5\text{mm}$ , $N \leq 2$ , $S \geq 15$ mm (Ignored if $D \leq 0.15\text{mm}$ )	MI
Class C	$D < 0.9\text{mm}$ , $N \leq 4$ , $S \geq 10$ mm	MI
Burr		
Description	Accept Criteria	
Burr.	Don't accept hand scrape	MI
Imprint mark		
Description	Accept Criteria	
Class A	$0.25 \leq \text{diameter} \leq 0.65\text{mm}$ , $N \leq 3$	MI
Bright mark		
Description	Accept Criteria	
Class A	$L \leq 2.5\text{mm}$ , $W \leq 0.25\text{mm}$ , $N \leq 3$	MI
Class C	$L \leq 3.0\text{mm}$ , $W \leq 0.3\text{mm}$ , $N \leq 5$	MI
Lint		
Description	Accept Criteria	
Class A	$L \leq 3\text{mm}$ , $W \leq 0.2\text{mm}$ , $N \leq 2$ , $S \geq 5$ mm	MI
Class C	$L \leq 10\text{mm}$ , $W \leq 0.3$ mm , $N \leq 3$	MI



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## 7. Generic Troubleshooting

### 1 · Main Unit Does Not Respond to Power Button

- (1) Connect the AC adapter, maybe the battery pack is exhaust and wait few minutes for battery recharging.
- (2) Check if battery installed well.
- (3) Check the Power Button whether it's damaged.
- (4) Replace another battery pack.
- (5) Try to start boot-loader mode [refer to section 4.2]. Re-flash ROM if boot loader mode is enabled.
- (6) Check all connectors including LCD FPC to Main Board.
- (7) Replace Main Board if necessary.
- (8) Once the defective part has been identified, verify the defective part again whether the symptom could be duplicated with another unit.

### 2 · Touch Panel Does Not Respond to Screen Tap

- (1) Check the connection of LCM FPC cable whether is properly connected.
- (2) Try to cold boot the unit then perform screen tap again.
- (3) Try with another LCM.
- (4) Try with another Main Board.
- (5) Replace LCM if necessary
- (6) Replace Main Board if necessary.
- (7) Once the defective part has been identified, verify the defective part again whether the symptom could be duplicated with another unit.

### 3 · Buttons Do Not Respond

- (1) Try to cold boot the unit then tries again.
- (2) Dismantle the unit; check the status of switches on the Main Board and the plastic parts of the Button not responding.
- (3) Try with another Main Board or Front Bezel.
- (4) Replace Main Board or Front Bezel if necessary.
- (5) Once the defective part has been identified, verify the defective part again whether the symptom could be duplicated with another unit.





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#### 4 · Unusual Vertical / Horizontal lines or partial display

- (1) Check the connection of LCM FPC whether is properly connected.
- (2) Try to cold boot the unit then tries again.
- (3) Try to re-flash the ROM code.
- (4) Try with another LCM.
- (5) Try with another Main Board.
- (6) Replace LCM if necessary
- (7) Replace Main Board if necessary.
- (8) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

#### 5 · Back Light Does Not Turn ON/OFF

- (1) Check the connection of LCM FPC whether is properly connected.
- (2) Try to re-flash the ROM code.
- (3) Try with another LCM.
- (4) Try with another Main Board.
- (5) Replace LCM if necessary
- (6) Replace Main Board if necessary.
- (7) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

#### 6 · CF/SD Card cannot be used

- (1) Check whether CF/SD Card is fully inserted to the slot until you hear a click.
- (2) Try to re-flash the ROM code.
- (3) Try with another CF/SD Card.
- (4) Try with another Main Board.
- (5) Replace Main Board if necessary.
- (6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.



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### 7 · PC Connection not possible

- (1) If test result is NFF, it is possible caused by user connect cradle to computer before ActiveSync is installed.
- (2) Check whether "Connection Settings" in the MS ActiveSync is properly set.
- (3) Check whether it connects with other cables or cradle, customer's cable might be damaged.
- (4) Check the external appearance of the connector on the unit whether it is physically damaged.
- (5) Try to re-flash the ROM code.
- (6) Replace Main Board if necessary.
- (7) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

### 8 · Battery Pack does not start

- (1) Make sure the battery cover is closed properly.
- (2) Connect to the AC Adapter and see if it takes charge. Also check AC Adapter condition.
- (3) Check whether AC Adapter is functioning properly.
- (4) Check whether the condition of Battery Charging status is correct.
- (5) Check the appearance of Battery Pack if any abnormal..
- (6) Try with another Battery Pack or Replace Battery Pack if necessary
- (7) Try with another Main Board or Replace Main Board if necessary.
- (8) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

### 9 · Battery discharges quickly even after fully charged

- (1) Make sure the Battery Pack takes fully charge with AC Adapter.
- (2) Check whether the condition of Battery Charging status is correct.
- (3) Dismantle the unit and check the appearance of Battery Pack.
- (4) Try with another Battery Pack or Replace Battery Pack if necessary
- (5) Try with another Main Board or Replace Main Board if necessary.
- (6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.



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### 10 · Battery Pack does not recharge

- (1) Make sure the Battery Pack takes fully charge with AC Adapter.
- (2) Check whether the condition of Battery Charging status is correct. Charge should be done no more than 4 hours.
- (3) Dismantle the unit and check the appearance of Battery Pack.
- (4) Try with another Battery Pack or Replace Battery Pack if necessary
- (5) Try with another Main Board or Replace Main Board if necessary.
- (6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

### 11 · No Sound from Speaker or Distorted sound

- (1) Check "Sound & Notifications" Settings in the unit for Sound Enabling.
- (2) Make sure it's not MUTED.
- (3) Try to re-flash the ROM code.
- (4) Clean up the speaker connection side on MB if there is any contamination.
- (5) Dismantle and Check whether the Speaker is properly installed (Orientation)
- (6) Replace Speaker if necessary.
- (7) Replace Main Board if necessary.
- (8) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

### 12 · No Recorded Sound or Distorted sound

- (1) Check "Sound & Notifications" Settings in the unit for Sound Enabling.
- (2) Make sure it's not MUTED.
- (3) Try to re-flash the ROM code.
- (4) Dismantle and Check whether the Microphone is properly installed.
- (5) Replace Microphone if necessary.
- (6) Replace Main Board if necessary.
- (7) Once the defective part has been identified, verify the defective part again whether the symptom could be duplicated with another unit.



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### 13 · Wireless connection (WLAN/BT) not functioning

- (1) Make sure the wireless environment is OK before connecting to WLAN.
- (2) Make sure the wireless connection setting has properly set.
- (3) Make a life connection with Internet or another device.
- (4) Try to re-flash the ROM code.
- (5) Try with another main board if necessary
- (6) Once the defective part has been identified, verify the defective part again whether the symptom could be duplicated with another unit.



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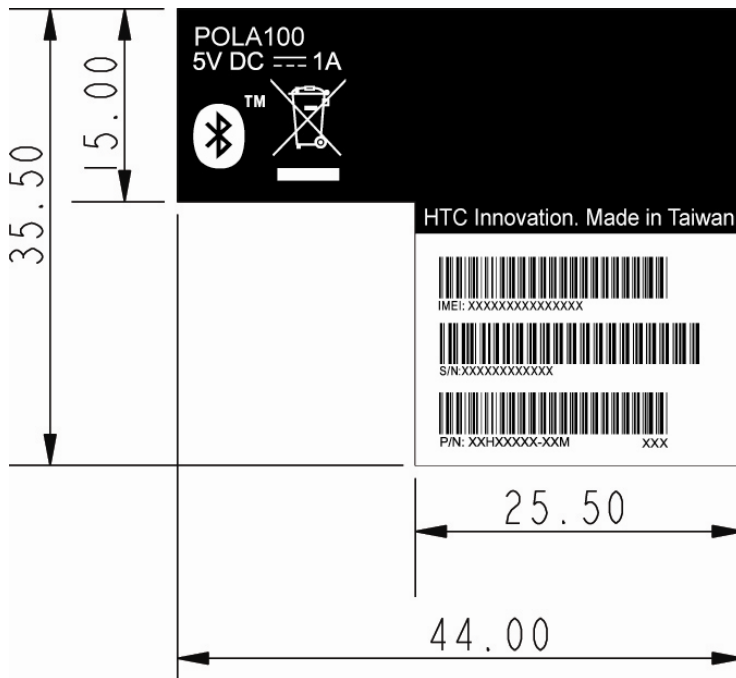
## 8. Generic Labeling Plan

### ■ Main unit

#### ■ *Main unit Regulatory label (on the rear housing of main unit)*

HTC P/N: 77H00522-00M

Size: 44.0 X 35.5mm



## ■ Unit label location explanation

### ■ *Water sensitive label*

Water sensitive label

HTC P/N: 77H00203-00M

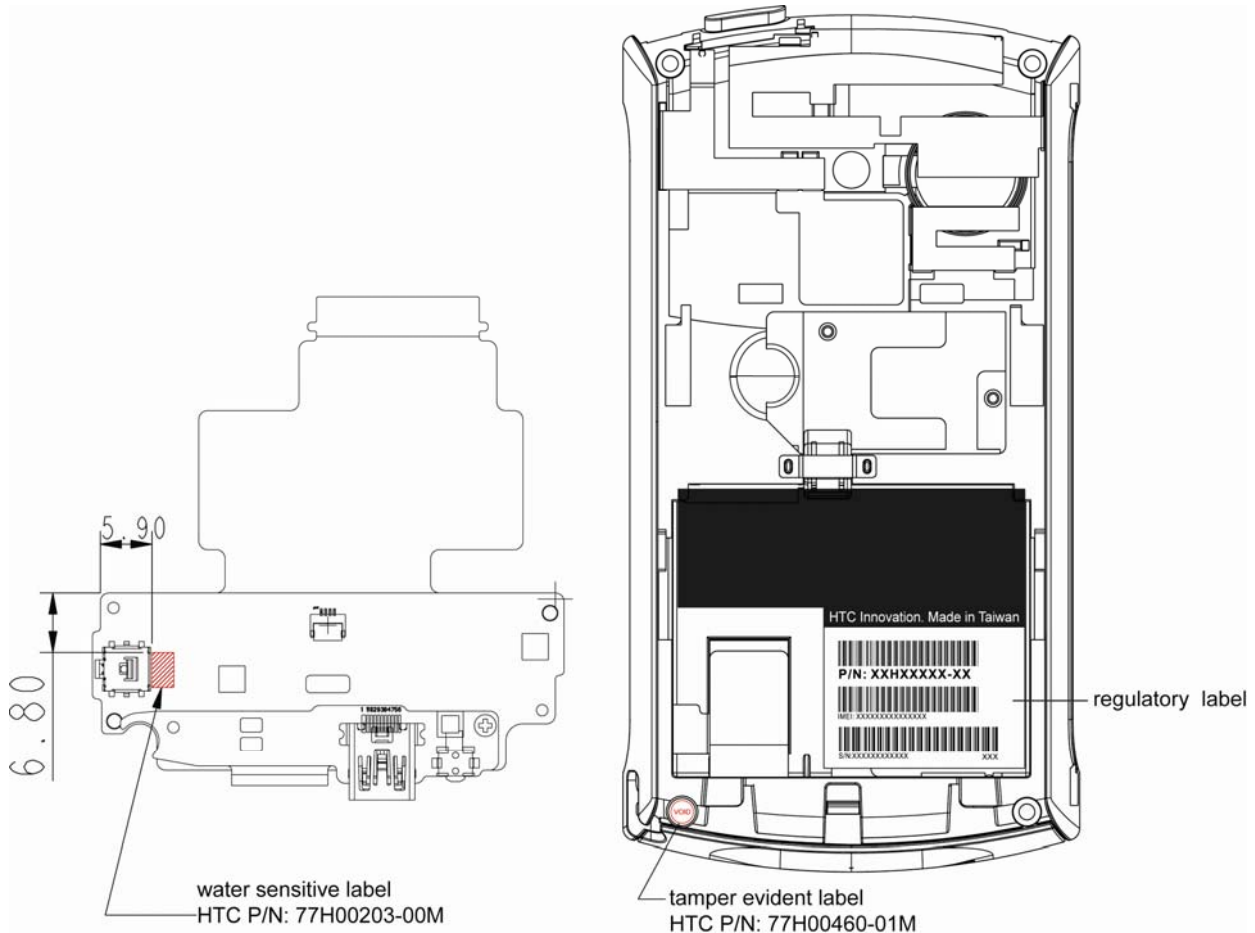
Qty: 1

### ■ *Tamper evident label*

Tamper evident label

HTC P/N: **77H00460-01M**

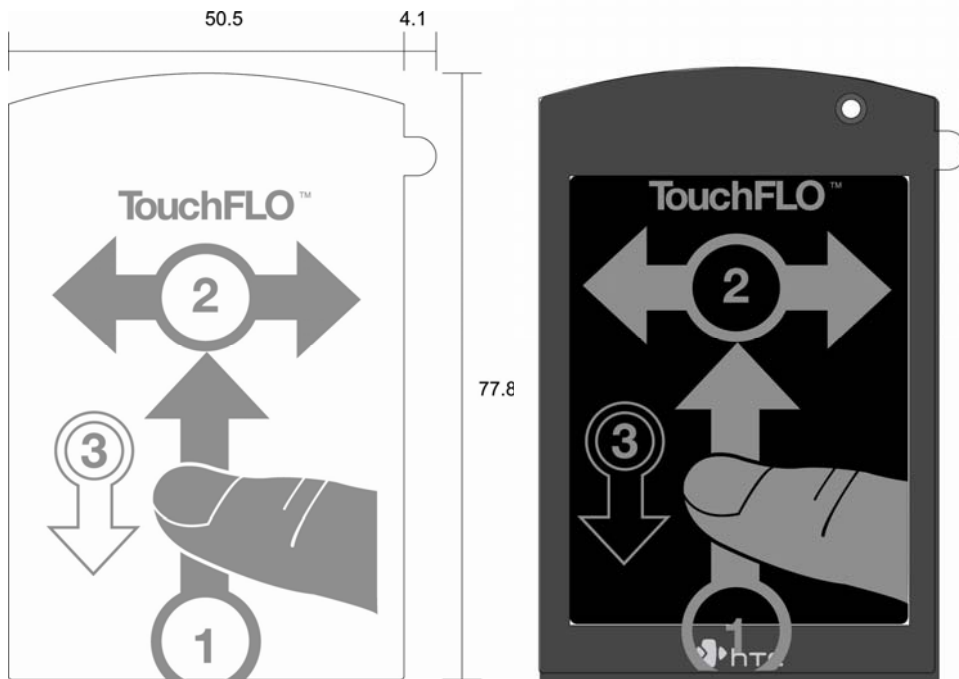
Qty: 1



## ■ Screen Protector

HTC P/N: **76H02089-01M**

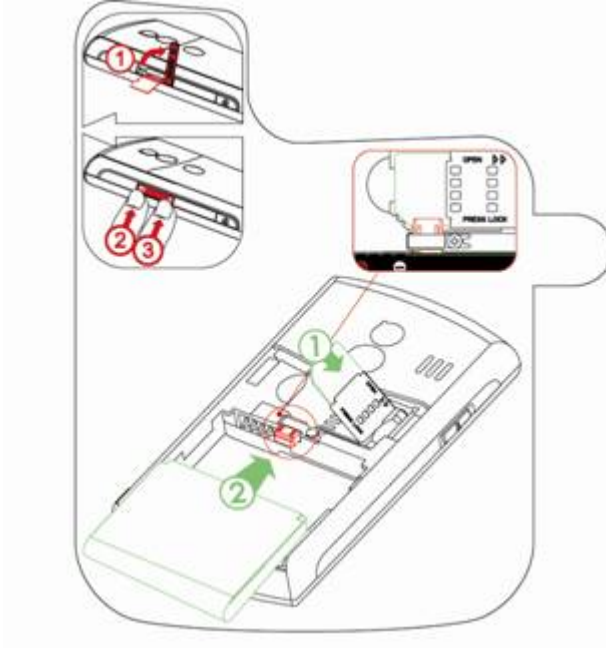
Size: 54.6 X 77.8mm



■ **Indicated sticker on battery cover**

HTC P/N: 77H00578-01M

Size: 52.67 X 48.69mm

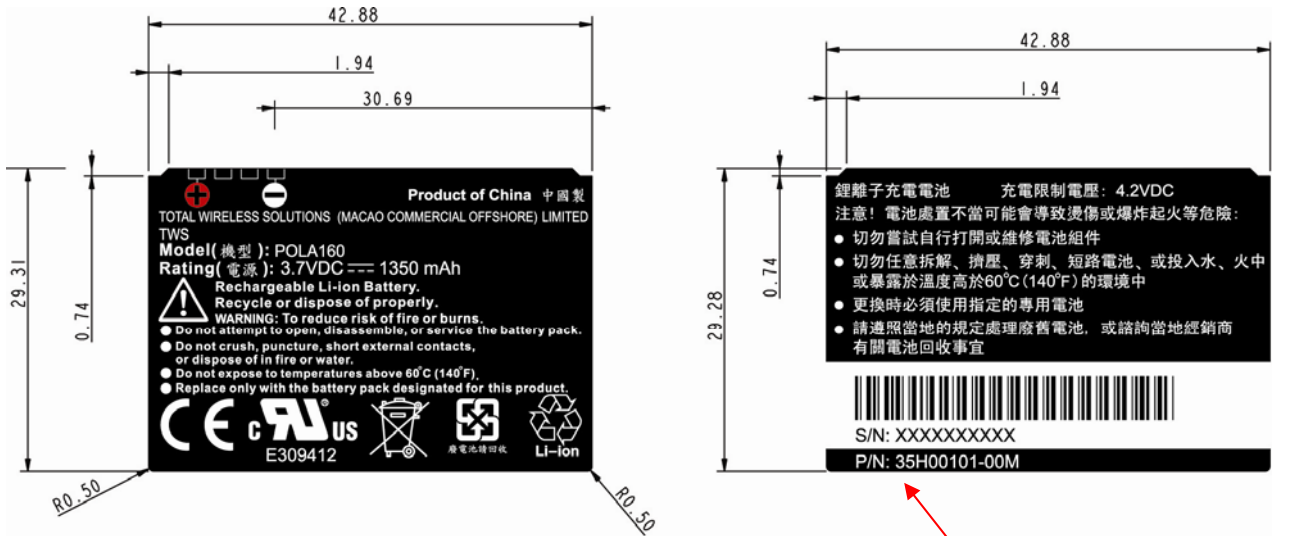




■ **Battery label**

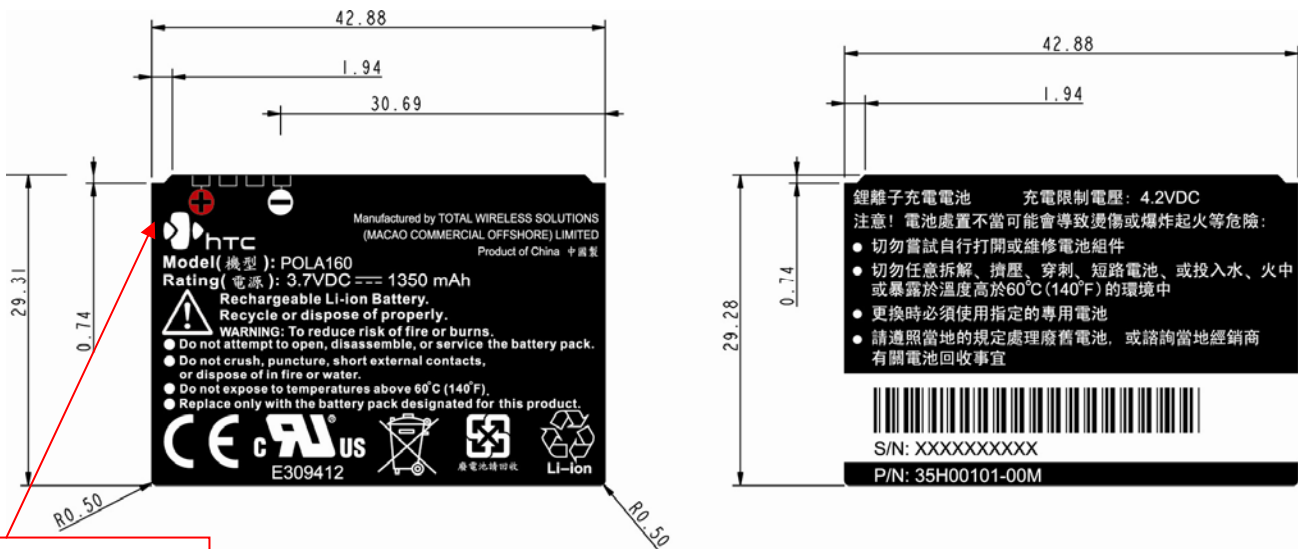
**Battery label-TWS**

HTC P/N: 35H00101-00M



Add HTC P/N

(artwork only, dimension for reference)



Add HTC logo



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## 9. Generic Spare Part List and Photos

### 9.1 SPL for Repair

P/N	Description	Q'ty
35H00101-00M	BATTERY_LI-ION,1350mAh	1
36H00487-00M	Receiver	1
36H00610-00M	Vibrator	1
36H00627-00M	Speaker	1
36H00654-00P	Switch	1
51H00427-00M	PCBA-MAIN BOARD,Mega SIM	1
51H10060-00M	Rigid-Flex Board,Switch Board	1
52H10062-41M	Rigid-Flex Board,Sim Board,Polaris	1
54H00265-00M	Second Camera Module	1
54H00266-00M	Main Camera Module	1
60H00117-00M	TFT-LCD Module	1
72H00570-01M	Screw	3
72H01052-00M	Screw	4
72H02206-00M	EMI Gasket,SW Board-FPC	1
72H02212-00M	Screw	4
72H02213-00M	Screw	2
72H02343-00M	EMI Gasket	2
72H02344-00M	EMI Gasket,Bottom	1
74H00980-00M	Chassis	1
74H00987-00M	Stylus	1
74H00988-00M	Antenna Cover	1
74H00989-00M	Battery and camera mirror Cover	1
74H00990-00M	Keypad	1
74H00991-00M	Side Panel,Right	1
74H00992-00M	Side Panel,Left	1
74H01009-00P	Housing	1
74H01045-00M	2nd camera Lens	1
74H01081-00M	Stylus damper	1
76H00683-00M	Mylar label for SIM connector	1



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76H02131-00M	Microphone Rubber	1
76H02132-00M	Tape,Kapton,SW Board FPC Connector	1
76H02163-00M	ME Gasket,gasket,receiver	1
76H02317-00M	Mylar,kapton,connector	2
76H02319-00M	Mylar,pc,connector	1
76H02339-00M	Adhesive-Double Tape,Mic Rubber	1
76H02389-00M	ME Gasket,SWTICH BOARD	1
76H02390-00M	Tape,Tape,LCD dust solution	1
77H00203-00M	Water Sensitive Label	1
77H00460-01M	Tamper-Evident Label	1
77H00522-00M	Regulation Label	1
80H00647-00	Bezel wTouch window	1


**NOTE:**

**THE PHOTO OF SPL IS GENERIC AND ONLY FOR REFERENCE, THE COLOR AND APPEARANCE MAY BE DIFFERENT FROM THE SHIPPED PARTS, IF YOU WANT TO APPLY THOSE PARTS, PLEASE CONTACT YOUR SERVICE ACCOUNT MANAGER FOR MORE INFORMATION.**


**AS FOR PICTURE, PLEASE REFER TO THE TABLE AS BELOW.**


Part no	35H00101-00M	
Description	BATTERY_LI-ION,1350mAh	
Quantity	1	


Part no	36H00487-00M	
Description	Receiver	
Quantity	1	

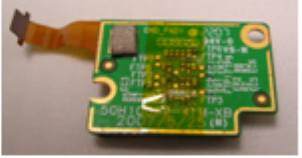
Part no	36H00610-00M	
Description	Vibrator	
Quantity	1	

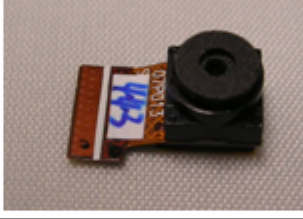
Part no	36H00627-00M	
Description	Speaker	
Quantity	1	

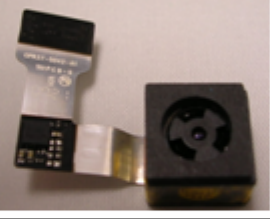
Part no	36H00654-00P	
Description	Switch	
Quantity	1	

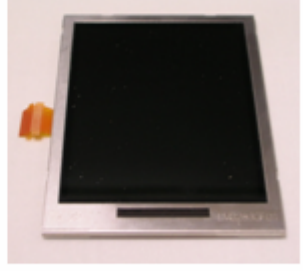
Part no	51H00427-00M	
Description	PCBA-MAIN BOARD, Mega SIM	
Quantity	1	


Part no	51H10060-00M	
Description	Rigid-Flex Board, Switch Board	
Quantity	1	


Part no	52H10062-41M	
Description	Rigid-Flex Board, Sim Board, Polaris	
Quantity	1	

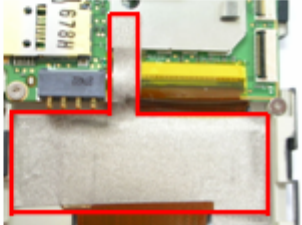
Part no	54H00265-00M	
Description	Second Camera Module	
Quantity	1	


Part no	54H00266-00M	
Description	Main Camera Module	
Quantity	1	


Part no	60H00117-00M	
Description	TFT-LCD Module	
Quantity	1	

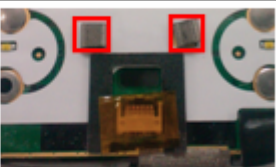
Part no	72H00570-01M	
Description	Screw	
Quantity	3	

Part no	72H01052-00M	
Description	Screw	
Quantity	4	


Part no	72H02206-00M	
Description	EMI Gasket, SW Board-FPC	
Quantity	1	


Part no	72H02213-00M	
Description	Screw	
Quantity	4	

Part no	72H02213-00M	
Description	Screw	
Quantity	2	


Part no	72H02343-00M	
Description	EMI Gasket	
Quantity	2	

Part no	72H02344-00M	
Description	EMI Gasket, Bottom	
Quantity	1	

Part no	74H00980-00M	
Description	Chassis	
Quantity	1	


Part no	74H00987-00M	
Description	Stylus	
Quantity	1	

Part no	74H00988-00M	
Description	Antenna Cover	
Quantity	1	


Part no	74H00989-00M	
Description	Battery and camera mirror Cover	
Quantity	1	


Part no	74H00990-00M	
Description	Keypad	
Quantity	1	


Part no	74H00991-00M	
Description	Side Panel, Right (Within SD door)	
Quantity	1	


Part no	74H00992-00M	
Description	Side Panel, Left (Within camera button)	
Quantity	1	


Part no	74H01009-00P	
Description	Housing	
Quantity	1	

Part no	74H01045-00M	
Description	2nd camera Lens	
Quantity	1	

Part no	74H01081-00M	
Description	Stylus damper	
Quantity	1	

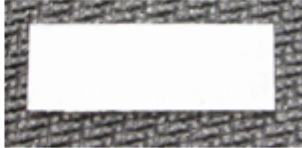
Part no	76H00683-00M	
Description	Mylar label for SIM connector	
Quantity	1	

Part no	76H02131-00M	
Description	Microphone Rubber	
Quantity	1	

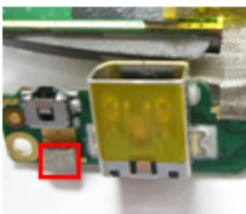
Part no	76H02132-00M	
Description	Tape, Kapton, S W Board FPC Connector	
Quantity	1	

Part no	76H02163-00M	
Description	ME Gasket, receiver	
Quantity	1	

Part no	76H02317-00M	
Description	Mylar, kapton, connector	
Quantity	1	

Part no	76H02319-00M	
Description	Mylar, pc, connector	
Quantity	1	

Part no	76H02339-00M	
Description	Adhesive- Double Tape, Mic Rubber	
Quantity	1	

Part no	76H02389-00M	
Description	ME Gasket, SWTIC H BOARD	
Quantity	1	



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Part no	76H02390-00M	
Description	Tape, Tape, LCD dust solution (Samsung LCD only)	
Quantity	1	

Part no	77H00203-00M	
Description	Water Sensitive Labe	
Quantity	1	

Part no	77H00460-01M	
Description	Tamper-Evident Label	
Quantity	1	

Part no	77H00522-00M	
Description	Regulation Label	
Quantity	1	

Part no	80H00647-00	
Description	Bezel w/Touch window	
Quantity	1	



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## 9.2 Board Level 2.5 Repairs

### ■ Basic Repair Instructions for Component Replacement:

Step 1 Place the solder-proof tape to cover the surrounding area of the components which being replaced.

**Warning : DO NOT overheat the tape and components to avoid the tape melted and the components damaged**

Step 2 Use Heater Gun (HAKO850B, set the temperature between 350°C, Air Speed 3~5) to remove the components.

Step 3 Wait till the temperature cool down before removing the solder-proof tape to avoid other components being removed

Step 4 After the damaged or defective components have been replaced; clear the surroundings for solder and flux residues.

Notice:

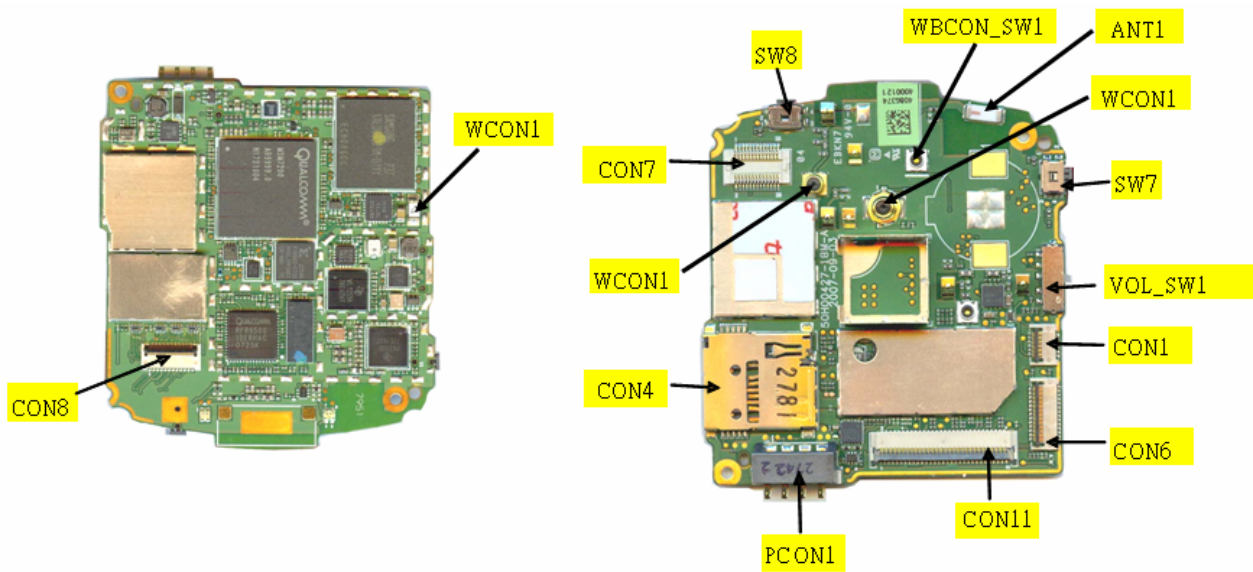
- A. Checking the polarity of CON8, and the position can't be shifted.
- B. Checking the polarity of SW8 · SW7, and it can't be reversed.
- C. All the parts of the PCB should be checked if it is missing or not.
- D. The OP must to wear antistatic wrist band .Don't put boards together and avoid hitting them.
- E. When you solder and repair that the soldering iron ,temperature must be setup 415°C . (The temperature range is 415°C ±5°C),and the solder wire's diameter is 0.4/0.5/0.6mm(SAC 305 (1.1%)
- F. Please be noticed to follow below steps for main board repair which is equipped with **Golden**

#### **Capacitor:**

- 1. When replacing level 2.5 components located around the golden capacitor:
  - I. The temperature of the hot air blower must be under 400°C
  - II. When apply the hot air to the part / component, the heating time must be under 20 seconds (including the time of removing and soldering)
  - III. The temperature of the soldering iron must be under 350°C
  - IV. When apply the solder tip to the part / component, the heating time must be under 5 seconds
  - V. The solder tip must not contact with the golden capacitor
- 2. For BGA replacement: The golden capacitor must be removed before perform pre-heating, heating, soldering and de-soldering process, and then it must be replaced with a new one (please refer to 1.c. and 1.d. steps)
- 3. For main board which failed to pass the function test, the golden capacitor must be replaced with a new one and must follow below soldering criteria: The temperature of the soldering iron must be under 350°C When apply the solder tip to the part / component, the heating time must be under 5 seconds The solder tip must not have a contact with the body of golden capacitor



P/N	Description	Location	Q'ty	Function
36H00187-00M	Chip Antenna,AT5020B2R8HAAT/LF,Advanced Ceramic X,Pb-FREE ,85/-40degC,5.0*2.0*1.1mm	ANT1	1	Antenna
36H00301-00M	Fuse,PTC,1.5A, 6V 0.04 ohm~0.12 ohm,0.08ohm,+/-50%,1206,SMD1206P150TF,POLYTRONICS,85/-40degC,3.5*1.8*1.8mm	PTC1	1	Fuse
36H00620-00M	Switch,SSA-131FHT,MITSUMI,self return,slide,Polaris	VOL_SW1	1	Volume Key
36H10025-00M	SWITCH,BUTTON,EVQPUM02K,MATSUSHITA,Pb FREE	SW7 SW8	2	Record Button Power Button
75H00204-00M	CONNECTOR,B-TO-FPC,FH23-61S-0.3SHAW(05),PITCH=0.6mm,HRS	CON11	1	Switch Board Connector
75H00248-00M	COAXIAL CONNECTOR,RF,WITH SWITCH,SMD,MM8430-2600RA1,MURATA	WBCON_SW1	2	RF Antenna
75H00276-00P	Connector RF,5.8*5.4*3.9,Female,MS-147(06),4pin,HRS	GCON1	1	GPS Antenna
75H00514-00P	Connector RF,Female,4P,MS-162,HIROSE,3.5*3.1*2.5mm	WCON1	1	GSM Antenna
75H00563-00M	Connector SD Card,15P,0.8Pitch,0.5A,3.6V,SCHA2B0301,ALPS	CON4	1	SD Card Connector
75H00710-00M	Connector Others,1000mohm,4P,2.5Pitch,2A,12V,250037MB004G516ZL,SUYIN	PCON1	1	Battery Connector
75H00729-00M	Connector FPC,27P,0.3Pitch,0.2A,50V,DDK,NAFF12-27A-R11B,E	CON6	1	LCM Connector
75H00735-00M	Connector B to B,26P,0.5Pitch,0.5A,60V,AXK5F26347YG,MATSUSHITA	CON7	1	Main Camera Connector
75H00736-00M	Connector FPC,12P,0.3Pitch,0.2A,50V,FF12-12A-R11B,DDK	CON1	1	SIM Board Connector
75H00737-00M	Connector FPC,23P,0.3Pitch,0.2A,50V,FF12-23A-R11B,DDK	CON8	1	Second Camera Connector



## 10. RF Antenna Specification

Items	Test Name	TxLevel	TCH	1st Downlink CellPower	Note
1	Camp @ DCS Band	0	512	-65	BCCH=600
2	BS Originate Call	0	512	-65	
E-GSM 900 ReceiverTest					
3	Fast Bit Error Rate	5	975	-104	
4	Fast Bit Error Rate	5	37	-104	
5	Fast Bit Error Rate	5	124	-104	
E-GSM 900 Ttransmitter Test					
6	Check TX Power	5	975	-104	
7	Check TX Power	5	37	-104	
8	Check TX Power	5	124	-104	
DCS 1800 ReceiverTest					
9	Fast Bit Error Rate	0	512	-104	
10	Fast Bit Error Rate	0	698	-104	
11	Fast Bit Error Rate	0	885	-104	
DCS 1800 Ttransmitter Test					
12	Check TX Power	0	512	-104	
13	Check TX Power	0	698	-104	
14	Check TX Power	0	885	-104	
PCS 1900 ReceiverTest					
15	Fast Bit Error Rate	0	512	-104	
16	Fast Bit Error Rate	0	662	-104	
17	Fast Bit Error Rate	0	810	-104	
PCS 1900 Ttransmitter Test					
18	Check TX Power	0	512	-104	
19	Check TX Power	0	662	-104	
20	Check TX Power	0	810	-104	

Items	Test Name	Power Level	Uplink/Downlink UARFCN	1st Downlink CellPower	Note
1	Camp @ W-CDMA Band I (2100)	3	9613/10563	-60	
2	BS Originate Call	3	9613/10563	-60	
Receiver Test					
3	Bit Error Rate	3	9613/10563	-105	
4	Bit Error Rate	3	9750/10700	-105	
5	Bit Error Rate	3	9887/10837	-105	
Transmitter Test					
6	Check TX_Max Power	3	9613/10563	-60	
7	Check TX_Max Power	3	9750/10700	-60	
8	Check TX_Max Power	3	9887/10837	-60	