QUARTZ

Service Manual

HTC Proprietary

Confidential Treatment Requested

Rev. A05

HTC Corporation

Engineering Mobility

REVISION CONTROL TABLE

REV	DATE	CONTENTS	DEPT	REVISED	STAGE
AX01	2008/04/14	Fist Draft	PSE	Jason.Cl_Lee	DVT
A01	2008/10/7	Formal release	PSE	Jason.Cl_Lee	PVT
A02	2008/10/29	1. Add tamper evident label. 2. Revise chapter 11.1 LCM and Bezel replacement. 3. Add internal storage content pre-load process. 4. Update chapter 9.1 SPL list for repair	PSE	Jason.Cl_Lee	MV
A03	2008/11/19	1. Add "write engineer ID" in the diagnostic process. 2. Add "Adjust the backlight to lowest" in the power management for idle and sleep current measurement.	PSE	Jason.Cl_Lee	MP
A04	2008/11/26	1. Remove some parts of board level 2.5. 2. Add document no for internal storage pre-load tool. 3. Add the last step of internal storage pre-load process to check the internal storage content. 4. Add chapter 9.3 FRU M/B addition parts location. 5. Add unit water sensitive label location. 6. Update chapter 9.1 SPL for repair.	PSE	Jason.Cl_Lee	MP
A05	2008/12/10	1. Add TV out test in the chapter 4.1 Win CE test item	PSE	Jason.Cl_Lee	MP

Table of Contents

SM-TP001-0704

1. Introduction

▪ This manual provides the technical information to support the service activities of Diamond.

▪ 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 Dissembling 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 dissemble 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.
- Appendix: Additional information.

1.1 Product overview

Features

Target Schedule
- September, 2008

Platform
- Bar type PDA phone form factor
- Microsoft Windows Mobile 6.x professional

Dimension
- 113.5mm(L) x 63.1mm(W) x 13.9mm(T)
- Less than 150g with battery   [TBD]

Processor/Chipset
- Qualcomm ESM 7206A, 528Mhz

Memory
- ROM
  - 256MB
  - 8GB NAND flash (default)
  - 4GB NAND flash (optional)
- RAM: 288 MB DDR (include 32MB memory in the baseband)

LCD Module
- 3.8" WVGA dots resolution
- 64K-color transflective TFT LCD with LED back light
- Resistive touch screen with glass substrate
- Support auto and manual brightness management for power saving

EDGE/GPRS/GSM Function
- Internal antenna
- GSM/GPRS/EDGE tri-band (900/1800/1900 MHz)
  - GSM/GPRS/EDGE
    - ✓ 900: 880-915, 925-960 MHz
    - ✓ 1800: 1710-1785, 1805-1880 MHz
    - ✓ 1900: 1850-1910, 1930-1990 MHz
- Auto band switching
- Audio codec: AMR, EFR, FR, HR
- SMS (MO, MT), concatenated SMS (640 characters)
- Generic 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
  - CPHS (partial support)
- EGPRS Functionality
  - EGPRS class B
  - Multi-slot standard class 12 (10 operator dependent)
  - PBCCH
  - Link Adaptation and Incremental Redundancy
- SIM
  - 1.8/3V of SIM

- SIM Application Tool Kit release 96 complete, 98 class 3, and 99 partial
- Over the Air (OTA) programming
- FDN
- ADN
- Security Pin 1 & 2 control
- EAP-SIM (per customer requirement)

WiMAX Function
- Sequans SQN1130
- IEEE 802.16e Wave2 (mobile WiMAX)
- Frequency range: 2.5 ~ 2.7GHz
- MIMO support (2x1 for dual receivers)
- > 30 Mbps data throughput
- S-OFDM PHY with 512 and 1024-point FFT
- Adaptive QPSK, 16-QAM and 64-QAM modulation
- TDD with configurable UL/DL split
- H-ARQ Cat 1-4
- Fast feedback channel
- Security protocol
  - PKMv2
  - AES
- Advanced QoS features
  - Weighted fair queuing
  - Traffic shaping
  - Congestion management
  - Random early detection
  - Hierarchical QoS
- Sleep and idle mode
- Concurrent voice and data

Standalone GPS (Qualcomm based solution)
- Internal GPS antenna
- Sensitivity : better than -150dBm for outdoor usage
- Support NMEA 0183 version 3.0 or above
- Dynamically allocate parallel channel GPS receiver
- Acquisition time
  - Hot start: Average 5 seconds, Max. 12 seconds TTFF (open sky & static condition)
  - Warm start: Average 35 seconds, Max. 70 seconds TTFF (open sky & static condition)
  - Cold start: Average 40 seconds, Max. 90 seconds TTFF (open sky & static condition)
- Update rate: once/1sec (default)
- GPS Accuracy
  - Position: < 5 meters, 95% typical
  - Velocity: 0.05 meter/sec steady state

Motion G-sensor
- Tri-Axis Accelerometer
- Resolution: 22 milli-g
- Auto screen rotation
  - Auto portrait and landscape mode switch when device orientation change

Proximity sensor
- Auto display off during phone call when close to ear
- Auto turn on display when end call and away from ear

Ambient light sensor
- Environment light condition detecting
- Support linear display backlight level control

FM Radio
- Turing range: 76-90 MHz for Japan and 87.5-108 MHz for the other regions
- FM sensitivity: 8uV @ (S+N)/N=26 dB
- Auto channel search

Digital Camera
- Main camera
  - ♦ 3.2 mega-pixel camera with auto focus
- 2nd camera
  - ♦ Color CMOS VGA camera for video conference

Keyboard/Button/Switch
- Power button
- Volume Up/Down button
- Home button (touch sensitive)
- SEND / Hands-free button (touch sensitive)
  - ♦ Long press during the call: handsfree on/off
- END button (touch sensitive)
- Reset
- Cold boot
  - ♦ 1. Power button + Send button + End button
  - ♦ 2. Reset button + Send button + End button
- Radio Bootloader
  - ♦ Power button + Volume Up button
- CE Bootloader
  - ♦ Power button + Volume Down button

Notification
- One bi-color (green & red) LED for GSM/GPRS/EDGE standby, EDGE/GPRS/GSM message, EDGE/GPRS/GSM network status, notification, and charging status
- Two respective (blue and green) LEDs for Bluetooth/WiFi/WiMAX(only one at a time) notification
- Notification by LED, Sound, Message, Vibration

Audio
- Built-in Microphone
- Receiver
- Loud speaker for Hands-Free supported
- Full duplex
- Audio sampling rate
  - ♦ Recording (uplink): 16-bits with 8KHz, 11KHz, 22KHz, 44KHz
  - ♦ Playback(downlink): 16-bits with 44KHz
- AMR-NB/ AAC/ AAC+/ eAAC+/ WAV/ WMA/ MP3 codec
- Audio Path Routing
  - ♦ Bluetooth
  - ♦ Receiver
  - ♦ Speaker
  - ♦ Headset

Connectivity & Interface
- Bluetooth

- ♦ Compliant with v2.0 with EDR
- ♦ Class 2 transmit power
- ♦ Supported profiles:
  - ✓ GAP (Generic access profile)
  - ✓ SPP (Serial port profile)
  - ✓ OPP (Object push profile)
  - ✓ GOEP (Generic object exchange profile)
  - ✓ ActiveSync-Over-Bluetooth
  - ✓ HSP (Headset profile)
  - ✓ HFP (Handsfree profile)
  - ✓ A2DP (Advanced Audio Distribution profile)
  - ✓ AVRCP (Audio/Video Remote control Profile)
  - ✓ HID (Human interface device profile)
  - ✓ SAP (SIM access profile)
  - ✓ SDAP (Service discovery application profile)
  - ✓ BPP (Basic printing profile)
  - ✓ PAN (Personal area networking profile)
  - ✓ DUN (Dial-up networking profile)
  - ✓ PBAP (Phone book access profile)
- ♦ Co-exist with WiFi
- WiFi
  - ♦ IEEE 802.11b/g compliant
  - ♦ Internal WLAN antenna
  - ♦ Data rate auto fallback for extended range
  - ♦ ELP mode
  - ♦ Security 802.11i and AES
    - ✓ WPA2 authentication – WEP, WPA2, 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
- HTC ExtUSB 11-pin mini-USB
  - ♦ USB 2.0 Client with High Speed
    - ✓ Audio Jack
    - ✓ H2W support
    - ✓ Mass storage profile support
    - ✓ TV/ Video out (combine both video & audio)
- 1.8/3V SIM card slot
- MicroSD card slot (internal w/o removing battery)
- RF connector for testing
- GPS connector for testing

Power
- Battery
  - ♦ Removable and Rechargeable Lithium ion or Lithium-polymer battery, 1,500 mAh
  - ♦ Charging time: 3 hours max, when radio is paging and PDA is in default setting at room temperature
- Battery life   [TBD]
  - ♦ Playing WMV: 8 hours based on NSTL test case

- ♦ Playing WMA: 12 hours based on NSTL test case
- ♦ GSM talk time: 240 mins to 600 mins based on RF power level 5~19
- ♦ VoIP talk time: up to 230 mins based on auto power mode and GSM is paging (WiMAX or WiFi)
- ♦ GSM standby time: 230~510 hours based on MFRF2~MFRF9
- ♦ VoIP standby time: up to 50 hours based on auto power mode and GSM is paging (WiMAX or WiFi)
- AC adaptor
  - ♦ AC input: 100 ~ 240V AC, 50/60 Hz
  - ♦ The device shall be able to detect the AC adapter complied with China adapter standard.
- DC output: 5V and 1A

Stylus
- Lock type mechanism with magnetic attraction design

Lanyard Hole
- A lanyard hole allow user to attach various stylish pendant to the phone.

Accessories
- Inbox
  - ♦ Quick Start Guide
  - ♦ CD (User manual & Sync. software)
  - ♦ Screen Protector
  - ♦ Stylus
  - ♦ Pouch (Carrying Case)
  - ♦ USB Sync Cable (mini-USB/USB shared with Travel Charger)
  - ♦ Standard Battery
  - ♦ Travel Charger (w/ separate main unit and miniUSB-to-USB cable)
  - ♦ 3.5mm adaptor [new]
  - ♦ Wired Stereo Headset (HS S200)
- Optional
  - ♦ 3-in-1 stylus
  - ♦ 3.5 mm audio adaptor cable with earphone, HS U110
  - ♦ 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
  - ♦ Wired Remote Controller with Earphone, RC E100
  - ♦ Car Charger
  - ♦ Car Holder
  - ♦ TV out cable (support composite video, audio left and audio right) [new]
  - ♦ Cradle docking [new]
    - ✓ Support charging
    - ✓ Support PC sync
    - ✓ Support TV out (support video, audio left and audio right)
  - ♦ Bluetooth Remote Controller [new]

- ✓ Communicate with device via HID profile
- ✓ Support forward, backward, play/pause, stop
- ✓ Support volume up/down control

Microsoft Windows Mobile 6.1 Professional Applications
- Microsoft Outlook Mobile
  - ♦ Calendar, Contacts, Messaging (SMS/E-mail), Tasks, Email Set Up Wizard
- Microsoft Internet Explorer Mobile
- Microsoft Media Player Mobile
- Microsoft ActiveSync
- Microsoft Windows Mobile Update
- Microsoft Windows Mobile Marketplace
- Internet Sharing
- Picture & Video
- 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
- Windows Smart Dialing
- Microsoft Remote Desktop Mobile   [optional]
- Microsoft Input Method
  - ♦ Prediction, completion and correction

Windows Mobile Enhancement
- DirectShow filters for WMP
  - ♦ Audio Playback Format: eAAC+ (.aac), AAC+ (.aac), AAC (.aac), AMR-NB (.amr), MPEG-4 (.m4a), MIDI (.mid)
  - ♦ Video Playback Format: H.264 (.mp4/.3gp), H.263 (.3gp), MPEG-4 (.mp4), Motion JPEG (.avi)
  - ♦ H263, MPEG4, H.264: 30fps decoding for WVGA resolution
  - ♦ Video scaling up to full WVGA display
- Pictures & Videos enhancement
  - ♦ Link camera icon to camera & camcorder application
  - ♦ Thumbnail view for video files:
    - ✓ AVI (.avi)
    - ✓ H.263 (.3gp)
    - ✓ MPEG-4 (.mp4)
    - ✓ H.264 (.mp4/.3gp)
- Ring Tone enhancement
  - ♦ MIDI
    - ✓ 40 polyphonic & Standard MIDI format 0 and 1 (SMF) / SP MIDI
  - ♦ Ring Tone support codec (format):

SM-TP001-0704

- ✓ eAAC+ (.aac)/ AAC+ (.aac)/ AAC (.aac)/ AMR-NB (.amr)/ QCP (.qcp)/ MIDI (.mid)/ MP3 (.mp3)/ MPEG4-Audio (.mp4)/ WMA (.wma)/ Wave (.wav)
- Phone Canvas Enhancement

Value Added Applications

- IP based video calling
- (HTC) Camera
  - ♦ Camera Mode
    - ✓ Encoding format: JPEG
    - ✓ Resolution: QXGA 2048x1536,UXGA 1600x1200, SXGA 1280x960, VGA 640x480, QVGA 320x240, QQVGA 160x120
    - ✓ Night Mode
    - ✓ Digital Zooming: at least 8X
  - ♦ Camcorder Mode
    - ✓ 15 fps encoding for VGA resolution
    - ✓ Encoding format
      - ◇ H.263 + AMR-NB
      - ◇ MPEG4 + AMR-NB
    - ✓ Effects: Grayscale, Sepia, Cool, Negative
    - ✓ "Property" adjustment
    - ✓ Camera Album
  - ♦ GeoPhoto
- EZ SIP
- FM Radio
- HTC Home
  - ♦ Today
  - ♦ Favorite contacts
  - ♦ Weather
  - ♦ Program launcher
  - ♦ Sound profiles
- Quick GPS
- Task manager
- Zip
- Connection setup [HTC version]
- TouchFlo / Gesture control interface
- Enlarge start menu
- Comm manager
- SIM manager
- TV out settings
- Wireless modem
- Document viewer – PDF
- J2ME (CLDC 1.1, MIDP 2.0)
- Opera browser
- IMS client
  - ♦ Voice over IP
  - ♦ Video over IP
- STK
- Auto Screen Rotation
  - ♦ To be integrated with G-Sensor
  - ♦ AP to be supported
    - ✓ Document Viewing
    - ✓ Camera

- ✓ Album
- MP3 Trimmer **[HTC branded only]**
- Audio Booster **[HTC branded only]**
- MMS Client **[HTC branded only]**
  - ♦ OMA MMS (v1.2 or above)
- Voice recorder **[HTC branded only]**
- Backup tool **[HTC branded only]**
- Bluetooth (FTP) Explorer **[HTC branded only]**
- Audio Manager **[HTC branded only]**
- YouTube client **[HTC branded only]**
- OMA DRM Engine **[HTC branded only]**
  - ♦ OMA 1.0 / 2.0 when available
  - ♦ Multi-DRM support : MSFT & OMA DRM
- RSS Reader & Podcast **[HTC branded only]**
- Voice speed dial **[HTC branded only]**
- Quick Tour **[HTC branded only]**
- SDK support (per customer requirement)
  - ♦ Camera SDK
  - ♦ Hardware codec SDK
- API support (per customer requirement)
  - ♦ EDGE modem chipset API
  - ♦ GPS chipset API
  - ♦ Motion G-sensor API
- User Interface
  - ♦ Manila Tabs
    - ✓ Home
    - ✓ Programs
    - ✓ People
    - ✓ Messages
    - ✓ Mail
    - ✓ Photos & Videos
    - ✓ Music
    - ✓ Internet
    - ✓ Weather
    - ✓ Settings

Regulatory & Certificate **[TBD]**

- Microsoft Windows Mobile Logo (NTSL)
- USB Certification
- BQB Certification
- CB Certificate/report [International]
- GCF Certification [European Union]
- R&TTE: EMC / EMI, Safety SAR [European Union]

2. Device Disassembling and Assembling Procedure

2.1 Tools List

level	No.	Item	Vendor	P/N
L 1	1	Mini USB DATA interface Cable		
	2	Earphone Headset		
	3	AC Adapter		
	4	WLAN AP		
	5	Micro Memory Card with Diag. test program (need be encoded by HTC)	HTC design	DCT-00062
	6	Micro memory card for ROM code re-flash (must be encoded by HTC)	HTC design	
	7	Micro memory card for internal storage pre-load		
	7	Universal leakage current tester	HTC design	MLT-00001
	8	Battery holder	HTC design	
	9	Unit current consumption test fixture	HTC design	
	10	Power supply		
	11	Current Meter		
	12	Mobile tester		
	13	TV out cable	HTC option parts	73H00274-02M
	14	TV		
L 2	13	Special Made Plastic Stick	HTC special tools	RTT-00006
	14	Hand tools		
	19	Label printer (400 dpi resolution and up)		
L 2.5	18	Lead-free Soldering station		
	19	Air heater		

SM-TP001-0704

2.2 Disassembling procedure

	Tools needed for Assembling and Disassembling process. 1. Lens Cleaning Cloth. 2. Screw Driver T6X40. 3. Flat Plastic Stick. 4. Plastic Tweezers.
	Press the battery cover and push the battery cover as shown photo.
	Use your finger to lift up battery.

SM-TP001-0704
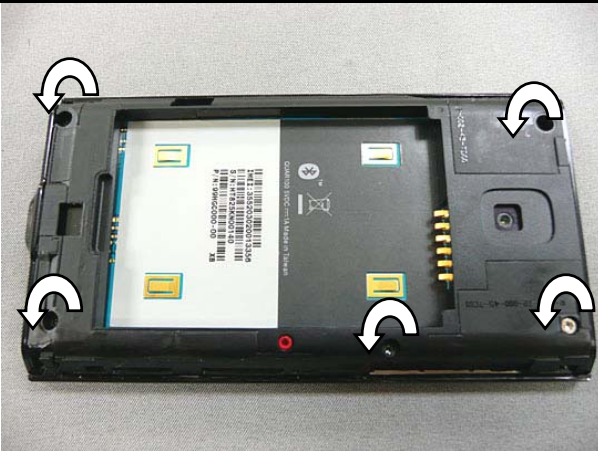
	Use Torx bit no 6 to remove five screws.
	Use Flat Plastic Stick to separate LCM and housing.
	Disconnect vibrator.

SM-TP001-0704

Use flat plastic stick to disconnect LCM connector.
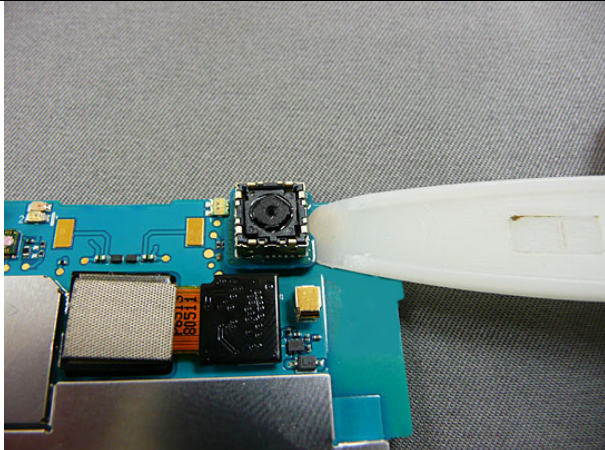
Use flat plastic stick to disconnect 2nd camera.
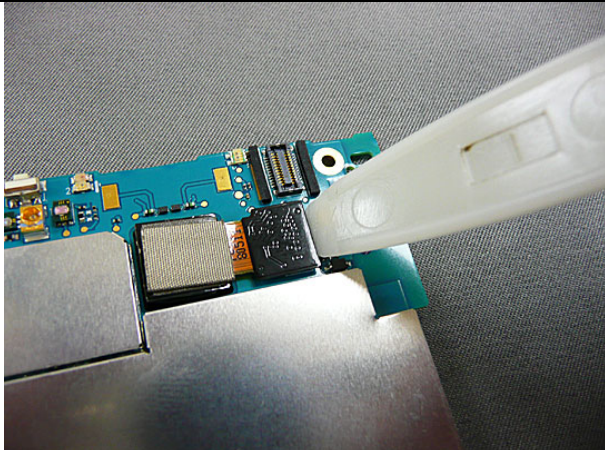
Use flat plastic stick to disconnect main camera.

SM-TP001-0704
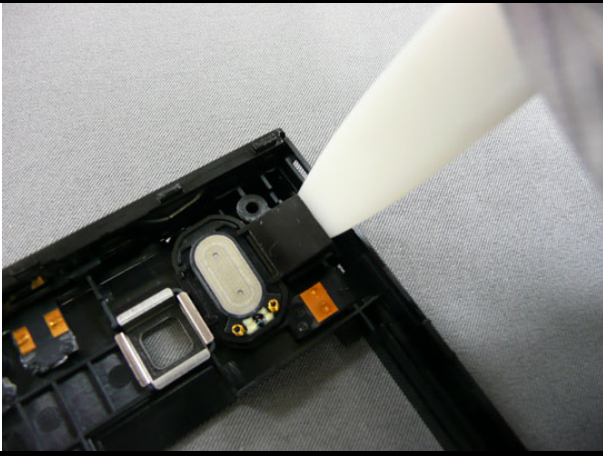
Use flat plastic stick to remove speaker.

Use flat plastic stick to remove receiver.
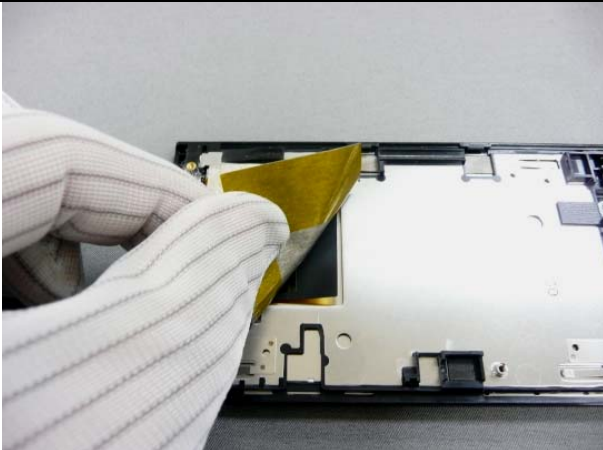
Remove one gasket on the LCM.

SM-TP001-0704

	Place the LCM module into the oven by 60℃ and 5 minutes.
	Press LCM as shown the photo to separate LCM and bezel.
	Lift up the LCM as shown the photo.

SM-TP001-0704

The disassembly process is finished.

SM-TP001-0704

2.3 Assembling procedure

	Tools needed for Assembling and Disassembling process. 1. Lens Cleaning Cloth. 2. Screw Driver T6X40. 3. Flat Plastic Stick. 4. Plastic Tweezers.
	Place LCM into bezel as shown the photo. *For LCM and LCM bezel assembly, please also refer appendix 11.1*
	Stick one EMI gasket on the LCM as shown the photo. EMI gasket P/N: 72H02659-00M
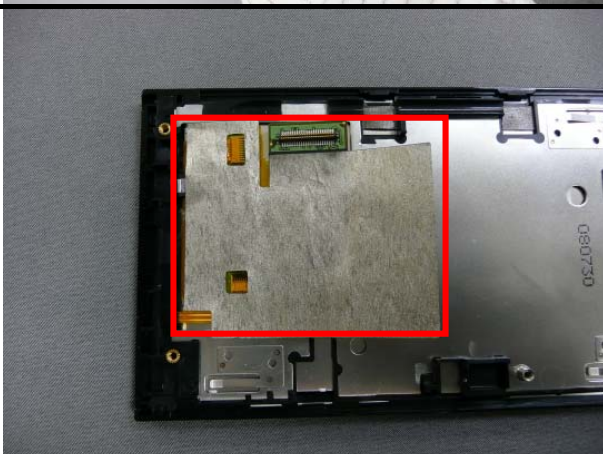
SM-TP001-0704
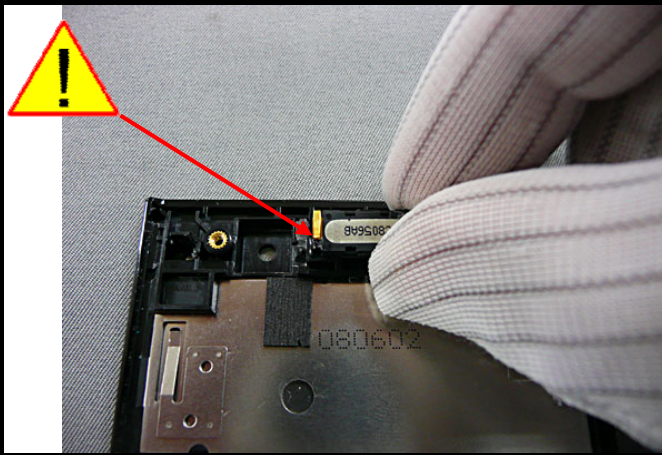
Place receiver on the LCM bezel. The pins of receiver should direct LCM side.

Place speaker into housing.
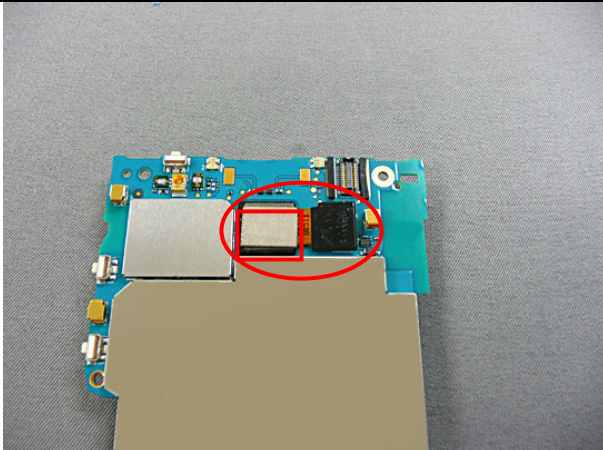
Assemble main camera and then stick one EMI gasket on it.

EMI gasket P/N: 72H02659-00M

SM-TP001-0704
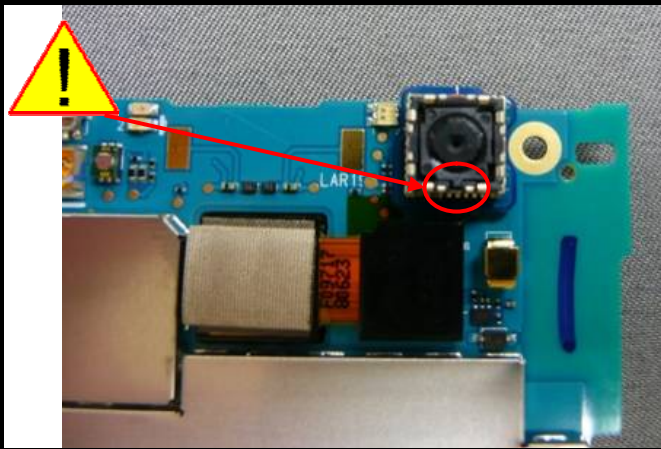
Place 2nd camera on the main board as shown the photo especially the red circle must toward the bottom.

Please replace 2nd camera and daughter BD in the same time if 2nd camera is defective.

For 2nd camera and daughter BD assembly, please refer appendix 11.2

Connect LCM cable and main board.

Place main board on the LCM and then ensure the main board is locked by the two hooks.

SM-TP001-0704

	Remove protector of vibrator tape.
	Connect vibrator with main board and then ensure the cable of vibrator is fixed on the vibrator tape.
	Combine housing with LCM bezel.

SM-TP001-0704

Fasten five screws.
Torque: 1.5±0.05 kg-cm2
72H02643-00M * 1
72H01059-00M * 4

Stick one tamper evident label as shown the photo.
tamper evident label P/N: 77H00460-01M

Place battery into device.

SM-TP001-0704

	Place battery cover.
	Insert stylus into device.
	The assembly process is finished.

SM-TP001-0704

3. ROM Re-flash Procedure

3.1 Internal storage pre-load

Internal storage pre-load-1

1. Download the internal storage content from SDO (GSD-00005788).
   http://htcscm10.htc.com.tw/SDO
2. Download the autorun.exe from SDO (DOC-00049134).
   http://htcscm10.htc.com.tw/SDO
3. Un-zip the image file.
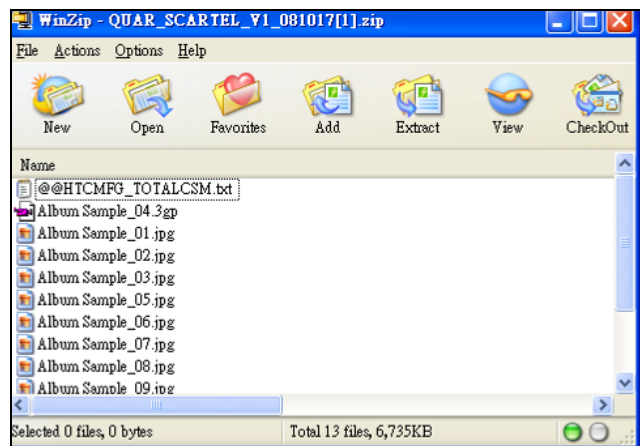
Internal storage pre-load-2

4. Format the Micro SD card with FAT32.
5. Create a folder named 2577 in the Micro SD card.
6. Copy autorun.exe into 2577 folder.
7. Copy all the files of internal storage content into the 2577 folder as shown the photo.
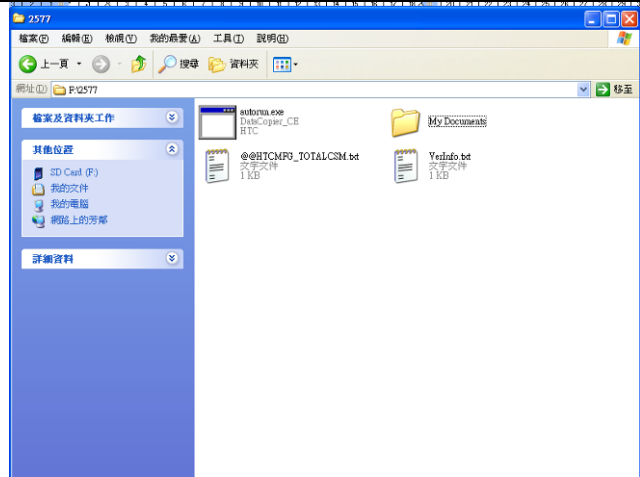
Internal storage pre-load-3	
8. Insert the micro SD into the device and then the device will copy the files to internal storage automatically.	
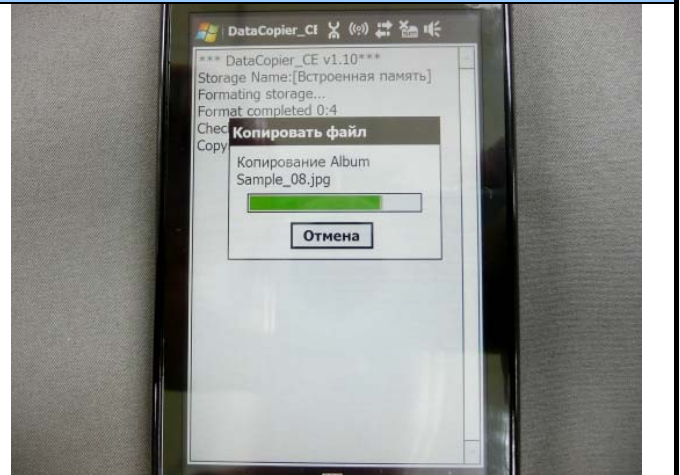
Internal storage pre-load-4	
9. After completing the data copy, the program will compare the checksum value with the checksum file in the micro SD card.	
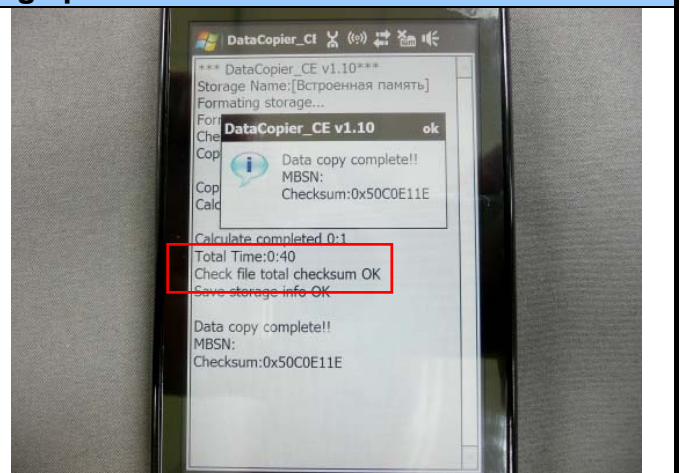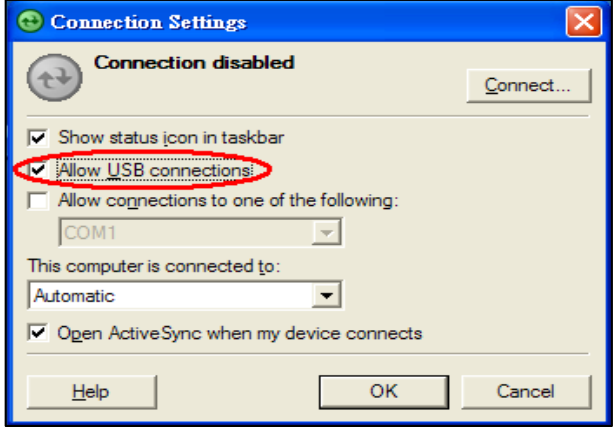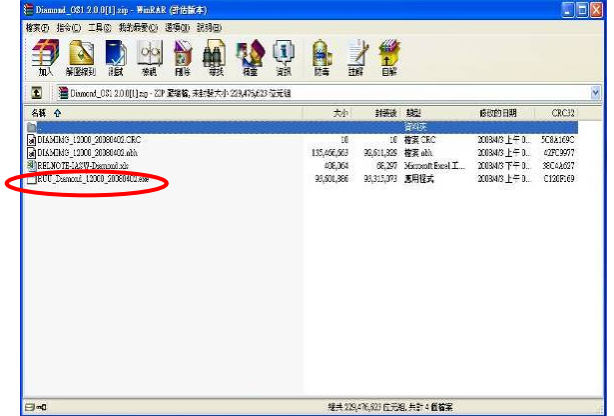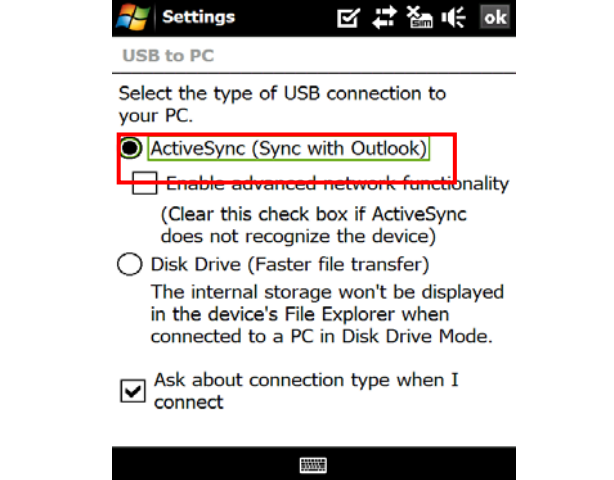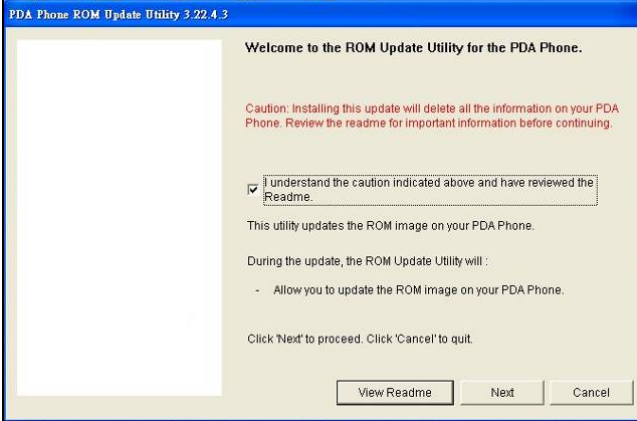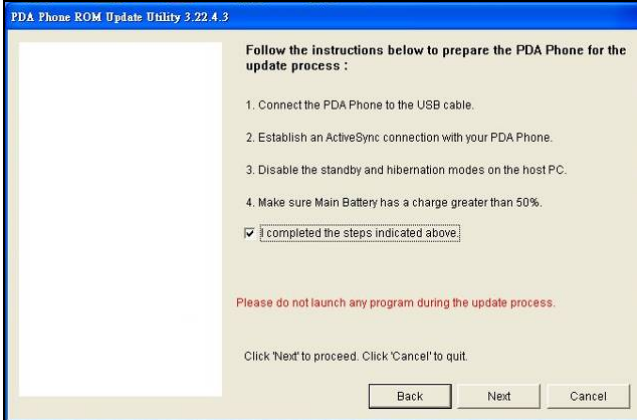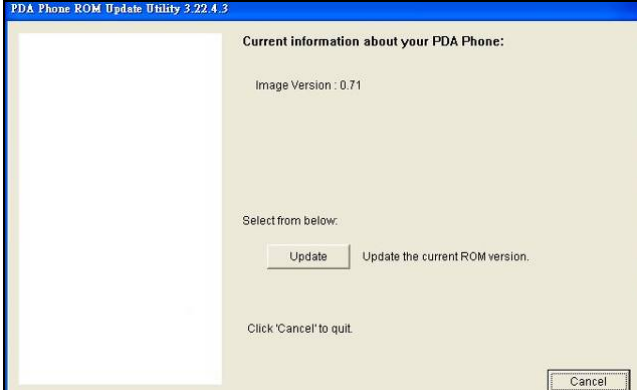
Internal storage pre-load-5	
10. You can also check the internal storage if have the folder as shown the photo.	

SM-TP001-0704
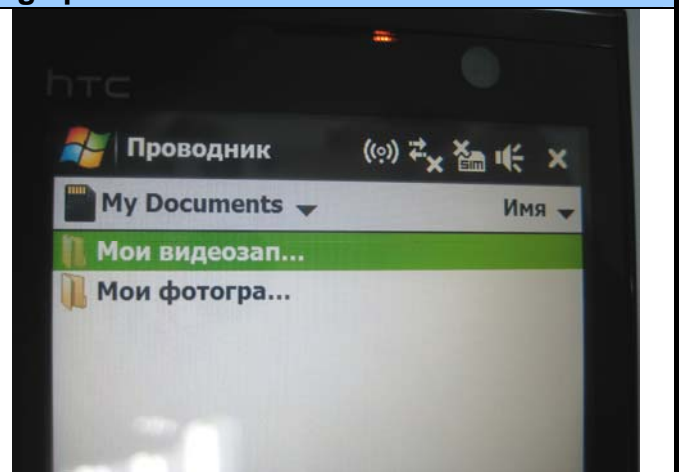
3.2 ROM upgrade thru RUU (Re-flash Upgrade Utility)

Connect device to PC	
1. Setting and allow USB connections in Microsoft ActiveSync. 2. Connect your device and desktop/ or laptop via USB cable. 3. Check the pop-up message from Microsoft ActiveSync when device is synchronized with PC.	

Download OS Image from SDO	
4. Download OS image from SDO. http://htcscm10.htc.com.tw/SDO 5. Un-zip the file and execute RUU program.	

Check the setting of menu	
6. Select the type of USB connection with "ActiveSync" mode in the settings of menu.	

SM-TP001-0704

RUU-1

7. Tap the RUU to execute ROM code re-flash. 8. Read the pop-up message form ROM update utility and select the "I understand…" checkbox. 9. Click "Next" to proceed.	

RUU-2

10. Read the pop-up message form ROM update utility to follow and perform the instructions and select the "I completed…" checkbox. 11. Click "Next" to proceed.	

RUU – 3

12. Current image version confirmation. 13. Click "Update" to proceed	

RUU-4
14. Double verify the ROM revision which you want to update before re-flash procedure. 15. Click "Next" to proceed.
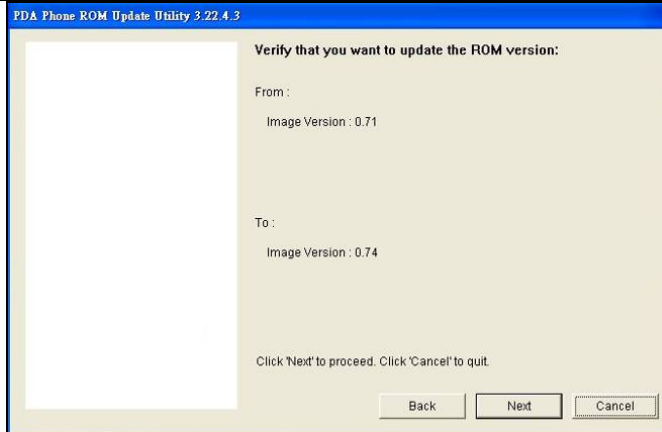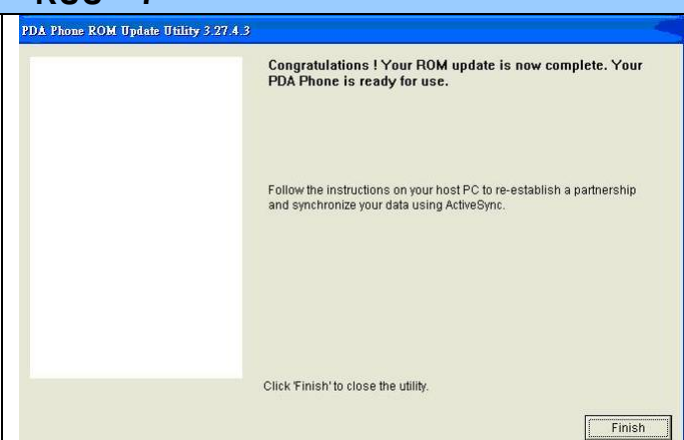
RUU-5
16. Read the information from pop-up message and the OS update procedure will takes 10 minutes long. 17. Click "Next" to proceed.
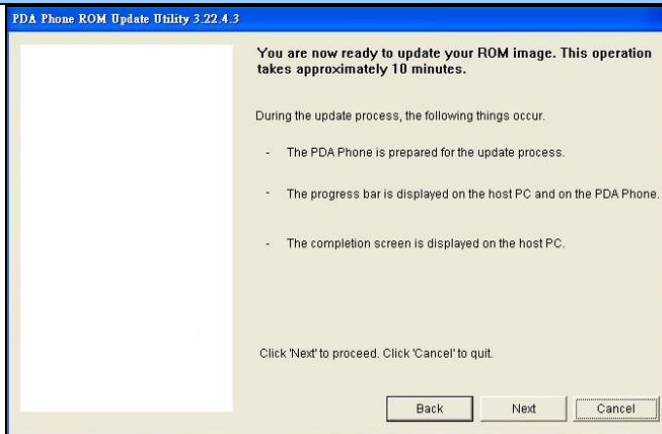
RUU – 6
18. You can see the update progress from your PC and in your device.

SM-TP001-0704

RUU – 7

19. The OS upgrade is finished, click "Finish" to close the utility.	**PDA Phone ROM Update Utility 3.27.4.3** Congratulations ! Your ROM update is now complete. Your PDA Phone is ready for use. Follow the instructions on your host PC to re-establish a partnership and synchronize your data using ActiveSync. Click 'Finish' to close the utility. Finish

SM-TP001-0704

3.3 Rom Image upgrade thru SD card

Download OS Image from SDO	
10. Download OS image from SDO. http://htcscm10.htc.com.tw/SDO 11. Un-zip the image file.	
Format SD card and copy image file to SD card	
12. Format the Micro SD card to FAT32 mode. 13. Copy image file XXX.nbh to the micro SD card and re-name to QUARIMG**.**NBH.	
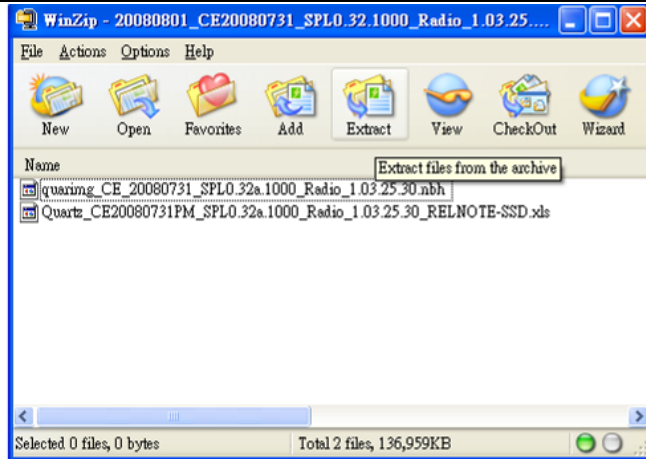
SD Upgrade - 1

14. Turn off the device and insert Micro SD card.
15. Press and hold **Volume down**+ **Power** button to entry boot loader mode.
16. Press **Volume up** button to upgrade procedure.

SD Upgrade - 2

17. After finishing re-flash process, press reset button to re-boot the device.
    [Note]: This process will takes 10 minutes, please don't power off the device.

SM-TP001-0704

4. DIAGNOSTIC PROGRAM

4.1 List of Diagnostic / WinCE Test Items

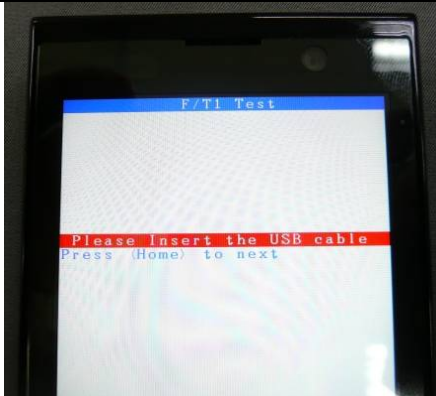| Mode	No	Item	Description	Remark
Diagnostic mode		**Function Test**		
	1	Auto	Auto Regular Tests (Display, B.L, Vibrator, etc…)	
	2	F/T1 Test		
	3	Back Light Test	LCD back light test	
	4	ROM Checksum	Calculate ROM code size	
	5	RAM Test	SDRAM test	
	6	SD Card Test	Micro SD card read / write test	
	7	Key Test	Power, Volume up, Volume down, APP1, App2 and App3.	
	8	Display Test	Pattern display test	
	9	T/P Test	Touch panel calibration	
	10	Vibrator Test	Vibrator on test	
	11	LED Test	Device status LED test	
	12	Read Batt Info	Read battery information	
	13	MoviNand Test	Internal storage read / write test	
	14	G-Sensor Test	Motion G sensor function test	
	15	Read WiMAX MAC	Read WiMAX MAC address	
	16	Read WiMax (SQN1130) ID	Get WiMax ID information	
	17	Get Wlan ID	Get WLAN ID information	
	18	Exit	Exit the function test	
		Run-in Test		
	1	2 Hour	2 Hour Run-in Test/Press Volume-up key.	Option
	2	4 Hours	4 Hours Run-in Test/Press Volume-down key.	Option
	3	8 Hours	8 Hours Run-in Test/Press Phone-on key.	Option
	4	12 Hours	8 Hours Run-in Test/Press Home key	Option
	5	No Limited	No limited Run-in Test/Press Phone-end key.	Option
		Format FAT (Clear Personal information, talk times and format storage)		

SM-TP001-0704

		Device Info		
		Erase MoviNand (Clear internal storage)		
		Write Engineer ID		
Win CE mode	1	Bluetooth Test	Bluetooth Function Test	
	2	USB Test	USB link test (Microsoft ActiveSync)	
	3	Camera Test	Camera Function Test	
	4	WLAN Test	WLAN Function Test	
	5	GPS Test	GPS Function Test	
	6	FM Radio Test	FM Radio Function Test	
	7	Audio Test	All Audio Function Test	
	8	WIMAX Test	WIMAX Function Test	
	9	TV out Test	TV out function Test	

Diagnostic mode

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

How to execute the test program: Press "Home" button at the bottom of touch panel to start each of test items.

<table>
<tr><td colspan="2" align="center">Main Menu/Function Test Menu</td></tr>
<tr>
<td>
1. Turn the device power off and insert Diagnostic SD card into the device.
2. Press and hold Volume down + Power button then enter Diagnostic mode.
3. Using to select the test item and move to next page as well.
4. Select item "Function Test" to find the Function test menu.
</td>
<td></td>
</tr>
<tr><td colspan="2" align="center">Auto Test</td></tr>
<tr>
<td>
1. Press the Action key to start the Auto-test.
2. It will perform the regular tests, please follow the system instruction to do the test.
</td>
<td></td>
</tr>
<tr><td colspan="2" align="center">F/T1 Test</td></tr>
<tr>
<td>
1. Press Volume key to select F / T1 Test on Function test menu.
2. Connect device and computer via USB cable. The device will start to sync
</td>
<td></td>
</tr>
</table>

Back Light Test

2. Press Volume key to select Back Light Test on Function test menu.
3. Press Home icon to switch the LCD backlights level from Level1, Level2, Level3 and Level4.
4. Press Home icon to exit and return to Function test menu.

ROM Checksum Test

1. Press Volume key to select ROM Checksum on function test menu.
2. The Rom Checksum will be displayed on the screen.
3. Press Home icon to exit and return to Function test menu.
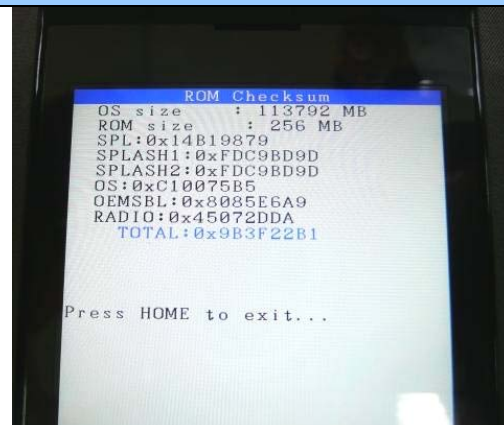
RAM Test

1. Press Volume key to select RAM Test on function test menu.
2. The test result will be displayed on the screen.

SD Card Test

1. Press Volume key to select <u>SD Card Test</u> on function test menu. 2. The test result will be displayed on the screen.	
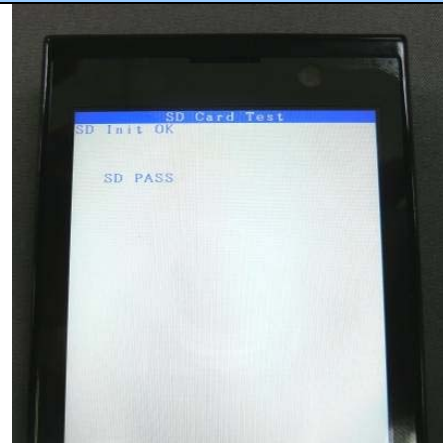
Key Test

1. Press Volume key to select <u>Key Test</u> on function test menu. 2. Follow the instruction on screen to perform the Key/Button test. (Volume Up / Down, App1, App2 and APP3)	

Display Test

1. Press Volume key to select <u>Display Test</u> on Function test menu. 2. After the test pattern is show up, please check the pattern if any un-uniform color or chromatist. 3. Press Home icon to continue the next test pattern.	

T/P Test

Press Volume key to select <u>T/P Test</u> on function test menu.	

Vibrator Test

1. Press Volume key to select <u>Vibrator Test</u> on function test menu. 2. Press Home icon to exit vibrator test.	

LED Test

1. Press Volume key to select <u>LED Test</u> on function test menu. 2. Check LED behavior if correct or not.	

SM-TP001-0704
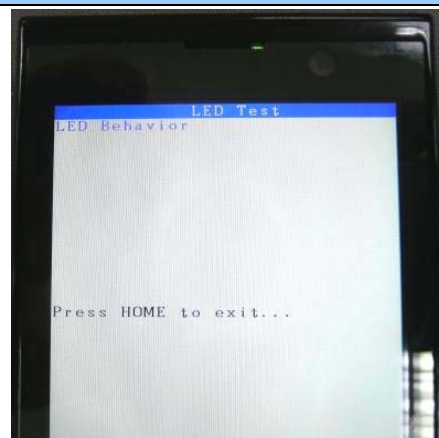
Read Batt Info

1. Press Volume key to select <u>Read Batt Info</u> on function test menu. 2. Press Home icon to exit.	

MoviNand Test

1. Press Volume key to select <u>NoviNand Test</u> on function test menu. 2. The test result will be displayed on the screen.	

G-Sensor Test

1. Press Volume key to select <u>G-Sensor Test</u> on Function test menu. 2. Put the unit on the table with when performing this G sensor testing.	

SM-TP001-0704

Read WiMAX (SQN1130) ID

1. Press Volume key to select <u>Read Wimax (SQN1130) ID</u> on function test menu. 2. Press Home icon to exit.	

Get Wlan ID

1. Press Volume key to select <u>Get Wlan ID</u> on function test menu. 2. Press Home icon to exit.	
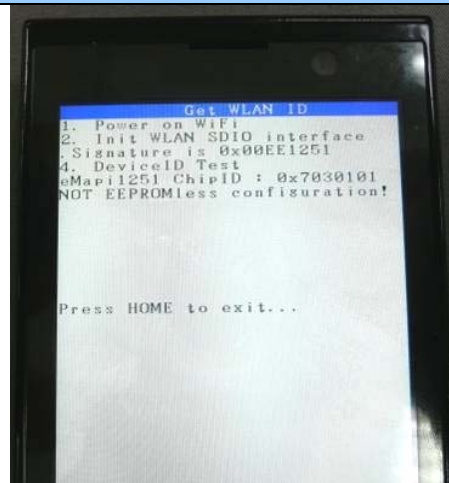
Main Menu/Engineer ID

1. Choose Engineer ID item and then tap Home icon. 2. Choose A1 LCM or A2 LCM to write engineer ID in the main board.	

SM-TP001-0704

WinCE mode Test

Bluetooth Test - 1

1. Tap icon <u>Comm Manager</u> on the Today screen and turn on Bluetooth.
2. Tap the icon "Settings" down-right the corner of the screen and select the "Make this device…." Checkbox.
3. Press Action key (Jog-ball) to go next test pattern.
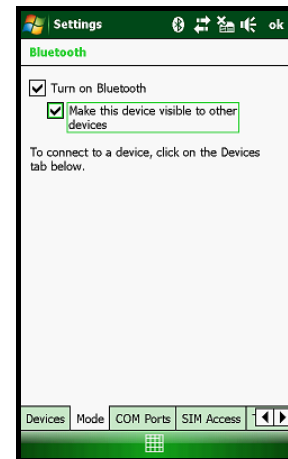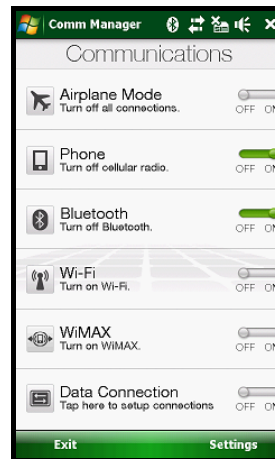
Bluetooth Test-2

4. Tap <u>Start->Settings->Connections-> Beam</u> and select "Receive all…." Checkbox.
5. To create a file, tap Start->Programs ->Notes->New
6. Tap and select the "Beam file…"
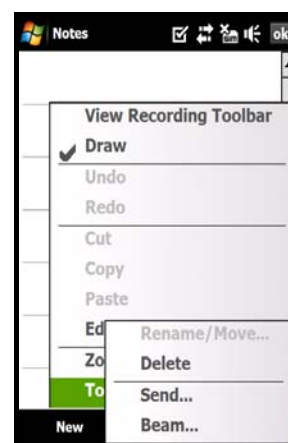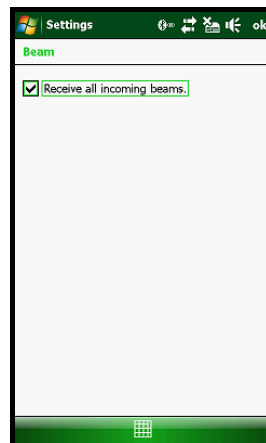
Bluetooth Test-3

7. Once device is searched, tap the device to send the file.
8. Return to Today screen and tap <u>Start->Program->Comm Manager ->Bluetooth</u> to turn off Bluetooth.

SM-TP001-0704
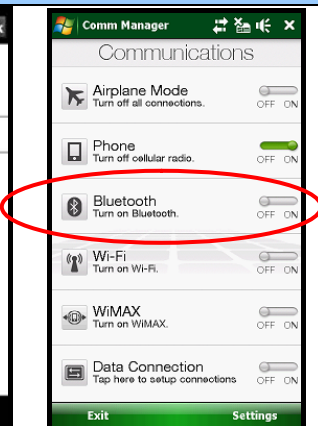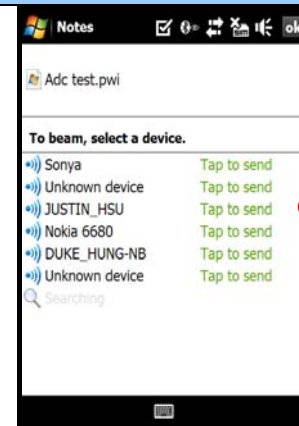
USB Test

1. Start up the Microsoft® ActiveSync®program in the PC.
2. Select ActiveSync in the setting of menu
3. Insert USB cable and connect unit to desktop/ or laptop.
4. The USB to PC icon is appears on the Today screen when your device is connected to your desktop/ or laptop.
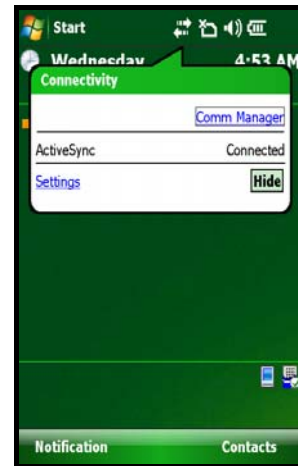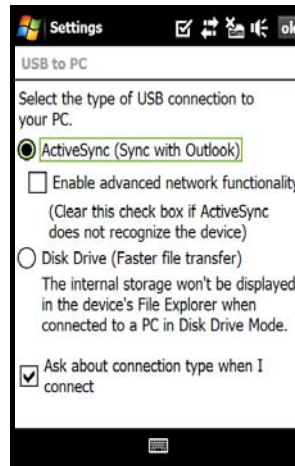
Camera Test

1. Tap Start->Program->Camera or Press Camera button to turn on the Camera.
2. Make sure the device will present and enter the preview display.
3. Check camera pre-view and image quality.

WLAN Test

1. Tap icon Comm Manager on the Today screen and turn on WLAN.
2. Select the hot-spot/ or access point which searchable and appears on screen.
3. Once the hot-spot (access point) is connected, press the IE button and logon Internet.

SM-TP001-0704
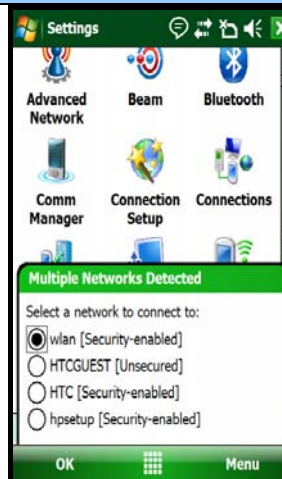
GPS Test

1. Download test program from SDO (DOC-00042190)
   http://htcscm10.htc.com.tw/SDO
2. Setup the COM port to COM4.
3. Place device in GPS receptor coverage area and tap the icon "Open GPS".
4. Check the GPS status as picture shown.
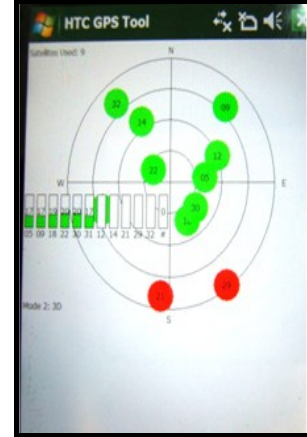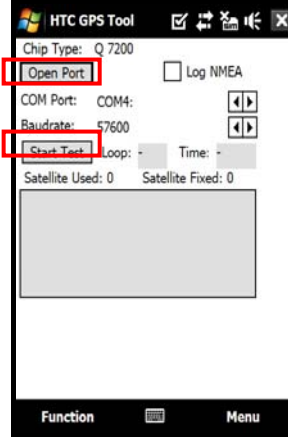
FM Radio Test

1. Insert the headset into the USB connector before doing the testing.
2. Tap icon FM Radio in the programs of the menu.
3. Select the different channels for testing.
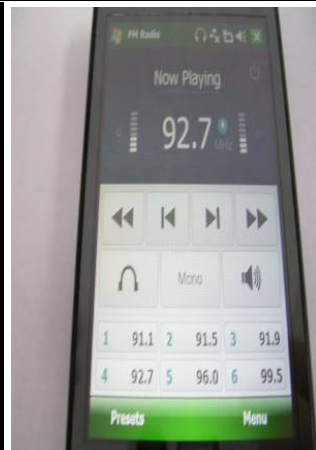
Audio Test-1

1. Download test program from SDO (DOC-00046466)
   http://htcscm10.htc.com.tw/SDO
2. Un-zip the image file.
3. Copy "mfgtest.dll" and "Audio Test.exe" to Micro SD card.
4. Execute "Audio Test" program from internal storage.
5. Choose the each test in the menu of "Tools"

SM-TP001-0704
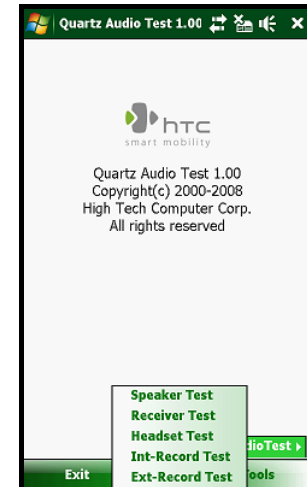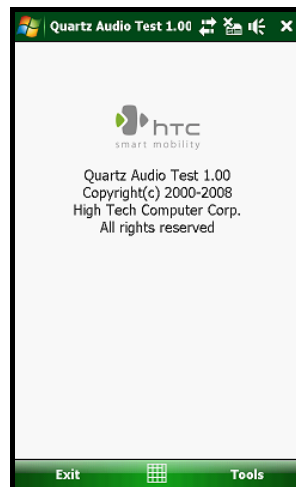
Audio Test-2

6. Select the Speaker Test then press Play button for testing.

Quartz Audio Test 1.00

Speaker Test

Press "Play" button for testing.

Play

Exit

Audio Test-3

7. Select the Receiver Test then press Play button for testing

Quartz Audio Test 1.00

Receiver Test

Press "Play" button for testing.

Play

Exit

Audio Test-4

8. Connect the headset into the USB port before doing the testing
9. Select the Headset Test then press Play button for testing

Quartz Audio Test 1.00

Headset Test

Press "Play" button for testing.

Play

Exit

SM-TP001-0704

Audio Test-5	
10. Select the Int-Rec Test then press the "Record" button for voice recording first 11. Stop the voice record then press "Play" button for internal receiver test	
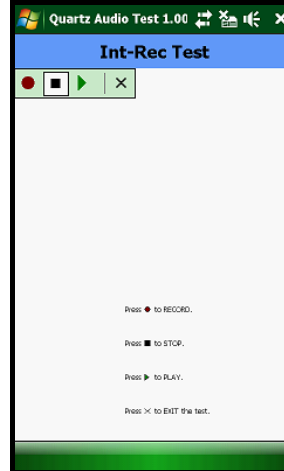
Audio Test-6	
12. Connect the headset into the USB port before doing the testing 13. Select the Ext-Rec Test then press the "Record" button for voice recording first	
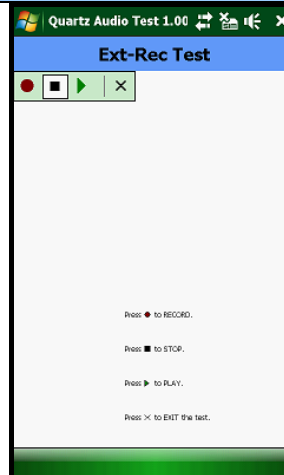
WIMAX Test-1	
1. In Comm Manager, turn on WiMAX function.	

WIMAX Test-2

2. Tap Start > Settings > WiMAX > list tab. 3. Check if device can search WiMAX base station or simulator.	

WIMAX Test-3

4. In Status tab, check if device can receive base station information.	
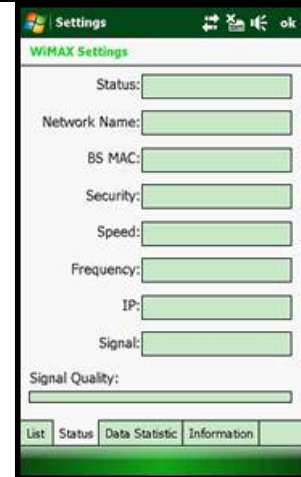
TV out Test

1. Insert TV out cable into the device. 2. The device will detect the TV out cable and then choose the signal type of TV. If device doesn't detect the TV out cable, please tap Start > Setting > System tab > TV out. 3. Connect the TV out cable to TV. 4. Play one video file to check if there are video and audio output on TV	

SM-TP001-0704
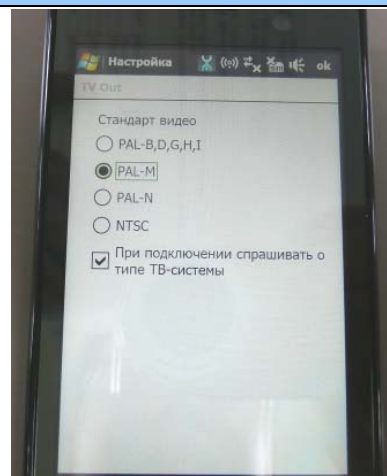
5. Power Measurement Test

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.
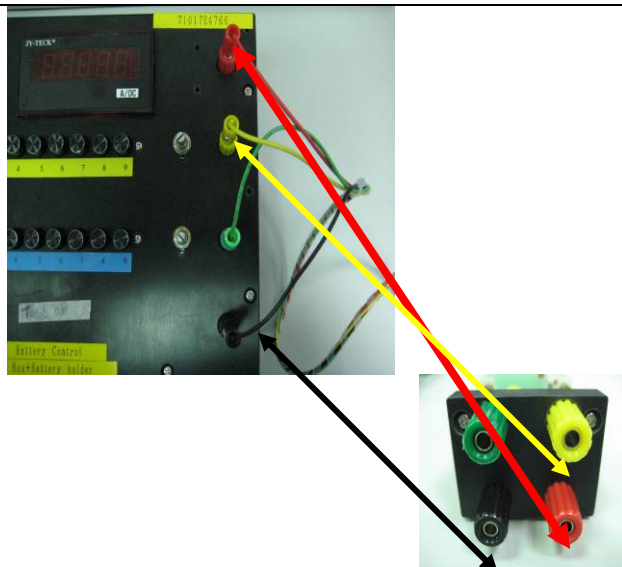
(1) Requirement：

- Control box

| Equipment list	
	1. Control box
	2. 4 colors cable Cable A: Red Cable B: Yellow Cable C: Green Cable D: Black
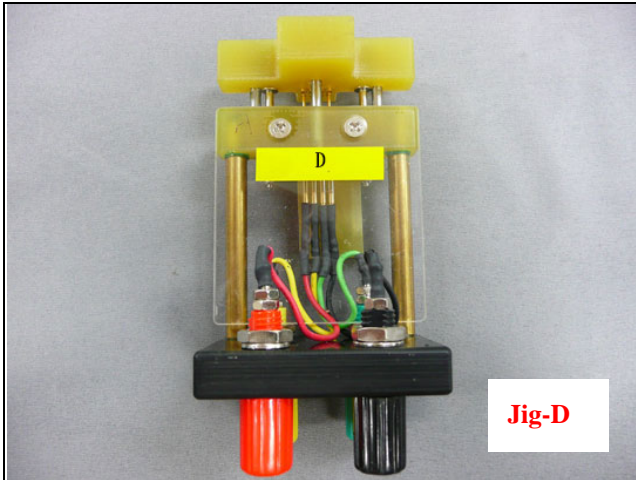
C. types Jig
Jig - D (6 pins-Short)

Jig-D

Equipment set up

1. Connect control box and jig through 3 colors cable with red, black and yellow

2. Set up each button by row A~D according to product specification Following is an setting for QUARTZ

MODEL	JIG TYPE	Button set up matrix			
		A	**B**	**C**	**D**
QUARTZ	D	1	8	0	1

It means, press button A1,B8,C0, D1

SM-TP001-0704
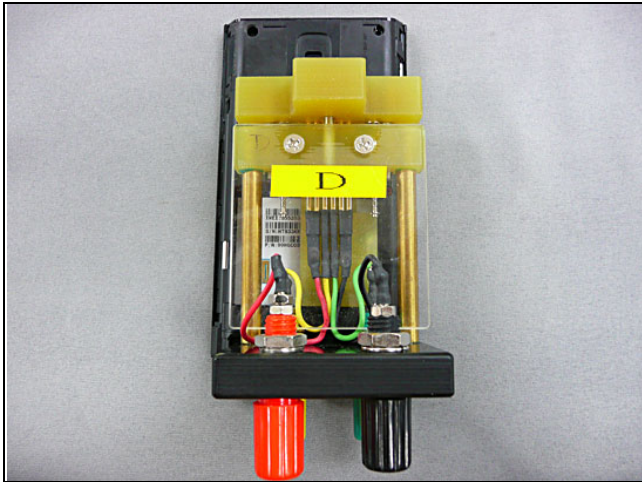
3. Install jig to device
(the photo is for reference only)

Start testing

1. Turn on control box power button
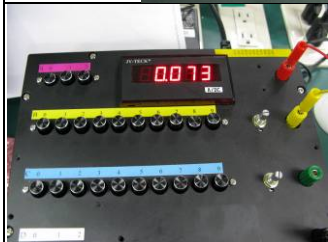
2. Press Power button to turn on the device.

SM-TP001-0704
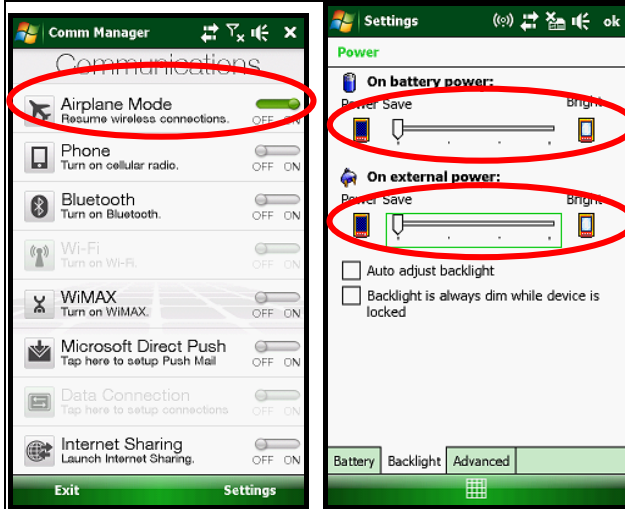
	2. In "main page", Check phone status, Click "Turn on flight mode". Set the unit to : * Flight mode * Make sure all RF function is off (phone, BT, Wifi..) * Adjust the backlight to lowest.
Idle current test	4. Measure Idle mode current. Idle current value must under 64mA, if over the criteria, it means 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 less than 3 mA, if over the criteria, it means M/B failed, please replace M/B for repair.

<div align="center">Conclusion:</div>

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.
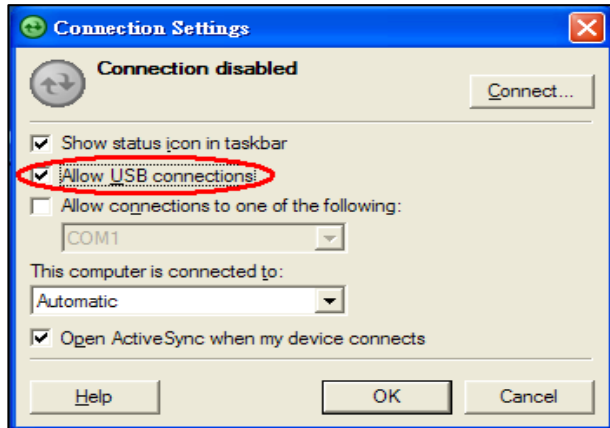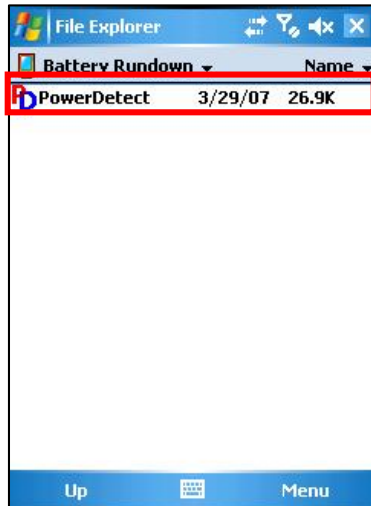
5.2 Battery rundown test procedure

Test Requirement:

-Windows 2000/XP

-USB Cable

-ActiveSync 4.2 above (WINCE 6.0 should use ActiveSync 4.5)
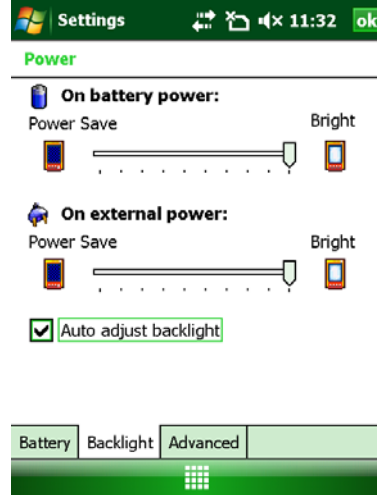
-Master Unit

-Battery in Warranty

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

I. Setting and allow USB connections in Microsoft ActiveSync. II. Connect your device and desktop/ or laptop via USB cable. III. Check the pop-up message from Microsoft ActiveSync when device is synchronized with PC.	**Connection Settings** Connection disabled Connect... ☑ Show status icon in taskbar ☑ Allow USB connections ☐ Allow connections to one of the following: COM1 This computer is connected to: Automatic ☑ Open ActiveSync when my device connects Help · OK · Cancel

Copy the Battery Rundown tool into the device

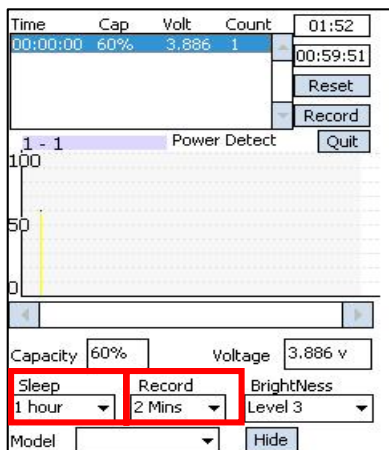|	
IV. Make a folder in the device. V. Copy PowerDetect.exe into the folder.	**File Explorer** Battery Rundown ▾ · Name ▾ PowerDetect 3/29/07 26.9K Up · Menu

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.	
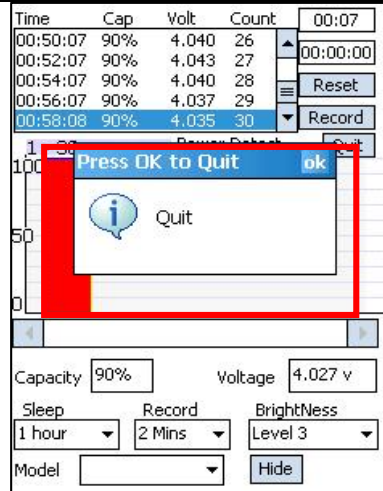
SM-TP001-0704

Battery Rundown-3

VIII. Execute PowerDetect.exe under WinCE	

Battery Rundown-4

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

Battery Rundown-5

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.	
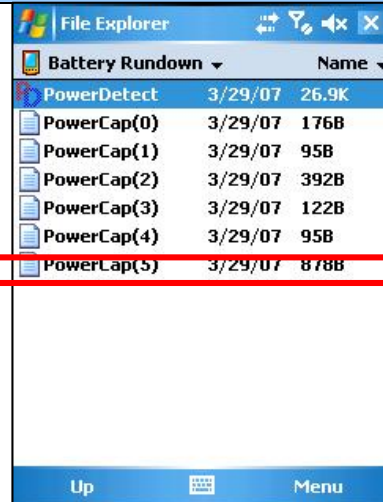
Battery Rundown-6
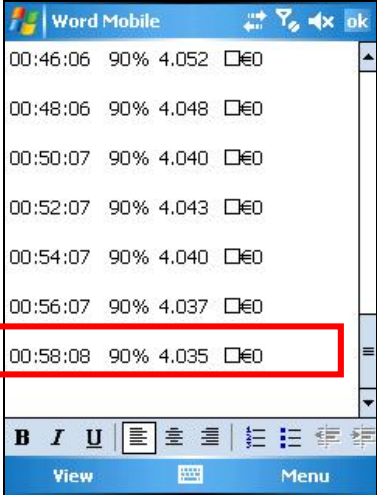
XIV. Test result is generated into the log file as PowerCap(x).	

SM-TP001-0704

Battery Rundown-7	
XV. Tag the log file to check the capacity.	
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 area	Class C area	Class D area

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 seconds 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.

SM-TP001-0704

d. The criteria of Newton ring's tinges and measure of area must follow up the worst-case sample.

6.2 Display inspection

Inspection Defects			Accept Level	Level
Electrical Characteristic Defects	Bright Dots	Single	Red+ Green+ Blue $\leqq$ 3, S $\geq$ 5mm.	Minor
		2 adjacent	0	Minor
		3 or more adjacent	0	Minor
	Dark Dots	Single	Total Number $\leqq$ 2, S $\geq$ 5mm.	Minor
		2 adjacent	0	Minor
	Dark or Bright lines		0	Minor
	All Allowable Dots Defects		Total Number $\leqq$ 3, S $\geq$ 5mm.	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 $\leqq$ 0.1 (mm) L $\leqq$ 5 (mm), N $\leqq$ 2 (mm)	Minor
	Lint (linear foreign objects)		0.03 < W $\leqq$ 0.1 (mm) 0.3 < L $\leqq$ 3.0 (mm) N $\leqq$ 5	Minor
	Spots		0.1 < D $\leqq$ 0.3 (mm), N $\leqq$ 4	Minor
	Fish eye on film		0.1 < D $\leqq$ 0.4 (mm), N $\leqq$ 4	Minor
	Breakage on film surface		Not acceptable	Minor
	Total acceptable defect quantity $\leqq$ 10			Minor

6.3 Main unit inspection

GAP & STEP INSPECTION			
DESCRIPTION		ACCEPT CRITERIA	LEVEL
1	GAP BETWEEN ALL GENERIC ME PARTS	< 0.4 MM	MINOR
2	GAP BETWEEN TOUCH WINDOW AND A PARTS	< 0.3 MM	MINOR
3	STEP BETWEEN MATING PARTS	< 0.3 MM	MINOR

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.

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 4.1]. 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 T/P with bezel assembly.

(4) Try with another Main Board.

(5) Replace T/P with bezel 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.

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 T/P with bezel assembly.

(5) Try with another Main Board.

(6) Replace T/P with bezel assembly 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 T/P with bezel assembly.

(4) Try with another Main Board.

(5) Replace T/P with bezel assembly 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‧ 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.

7 · 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.

8 · 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.

9 · 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.

10 · 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.

11 · 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) Replace Main Board if necessary.

(5) Once the defective part has been identified, verify the defective part again whether the symptom could be duplicated with another unit.

## 12 · 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.

13 · WIMAX connection not functioning

(1) Make sure the wireless environment is OK before connecting to WIMAX.

(2) Make sure the wireless connection setting has properly set.

(3) Make a life connection with Internet.

(4) Go into boot loader mode and check CA data checksum is correct or not.

(5) Try to re-flash the ROM code.

(6) Try with another main board if necessary.

12 · GPS not functioning

(1) Make sure the GPS environment is outside of room before connecting to satellite.

(2) Make sure the GPS connection setting has properly set in navigation map.

(3) Try to re-flash the ROM code.

(4) Try with another main board if necessary

(5) Once the defective part has been identified, verify the defective part again whether the symptom could be duplicated with another unit.

12 · Internal storage device not functioning

(1) Make sure the GPS environment is outside of room before connecting to satellite.

(2) Make sure the GPS connection setting has properly set in navigation map.

(3) Try to re-flash the ROM code.

(4) Once the defective part has been identified, verify the defective part again whether the symptom could be duplicated with another unit.

8. Generic Labeling Plan

Agency label

The brand name is shown on Bezel.

HTC P/N: 77H00672-00M

Size: 66.53*44.36mm
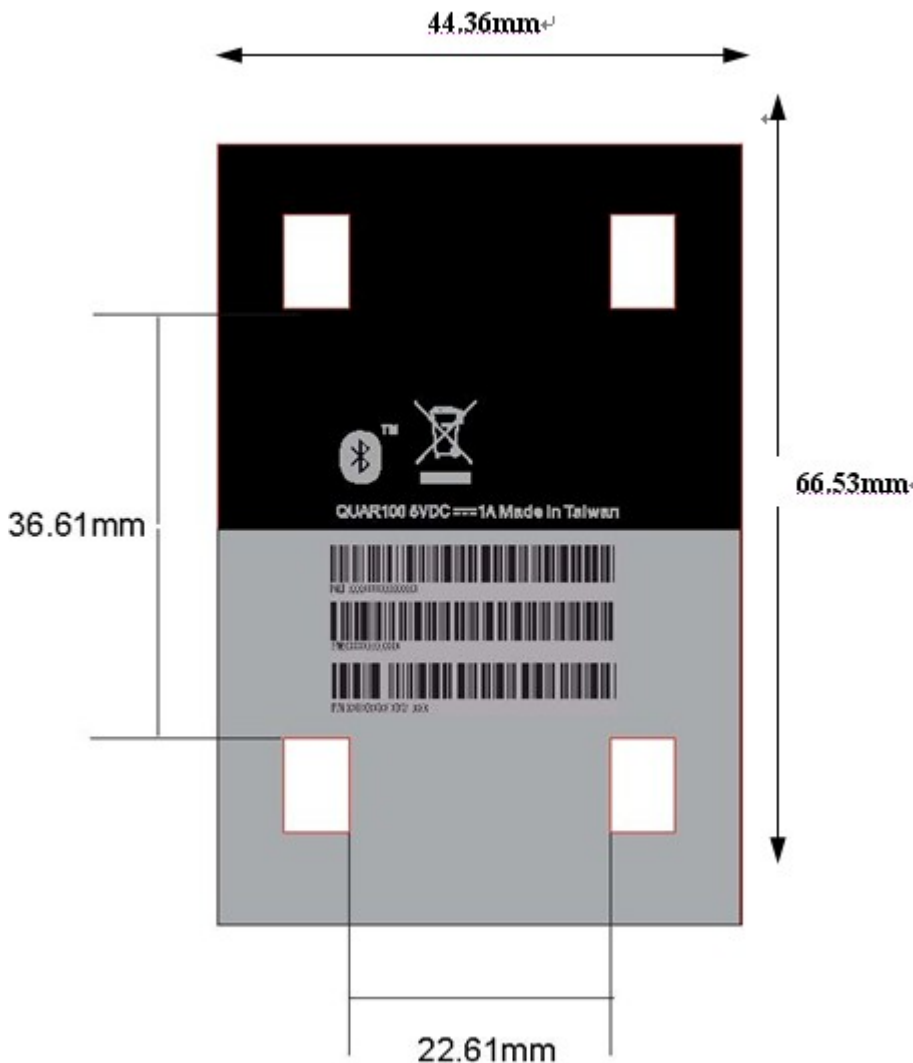
HTC P/N	Description
99HGC000-00	SKU,GENERIC,English-WWE,Quartz,w/o SIM Lock
99HGC000-01	FRU,Main Unit,GENERIC,English-WWE,w/o SIM Lock,QUARTZ

Agency label_QUAR100

The brand name is shown on Bezel.

HTC P/N: 77H00672-01M

Size: 66.53*44.36mm
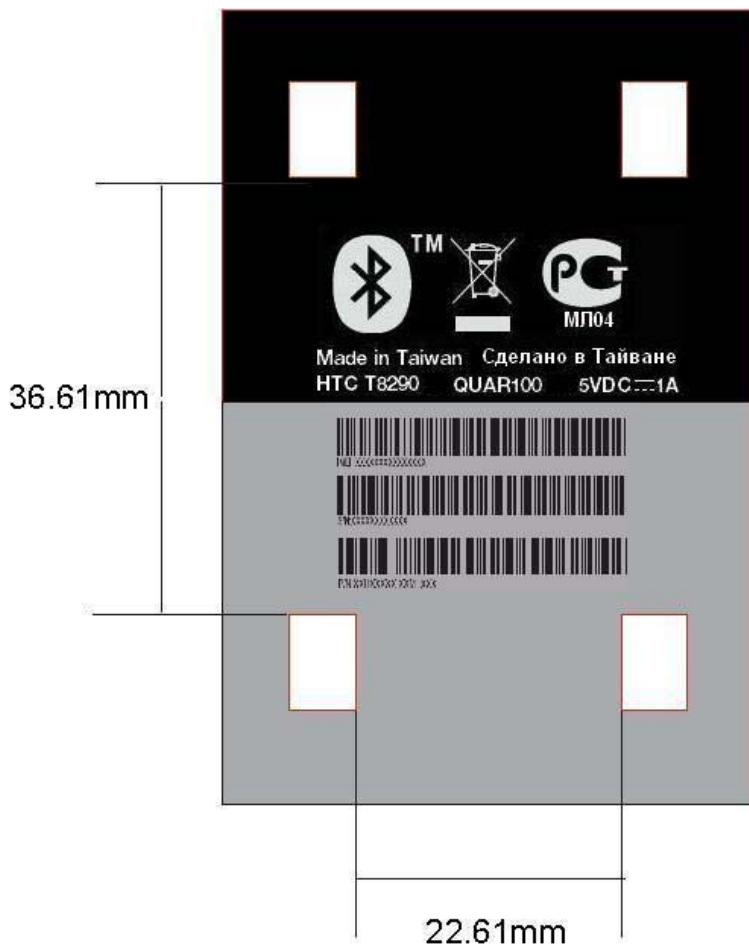
HTC P/N	Description
99HGC001-00	SKU,HTC,Russian,RUS,HTC/Yota co-brand,HTC T8290,Black,w/o SIM Lock,QUARTZ-C9#EMEA
99HGC001-01	FRU,Main Unit,HTC,Russian,RUS,HTC/Yota co-brand,HTC T8290,Black,w/o SIM Lock,QUARTZ-C9#EMEA

Unit label location explanation

Tamper evident label

HTC P/N: 77H00460-01M

Qty: 1

Tamper evident label
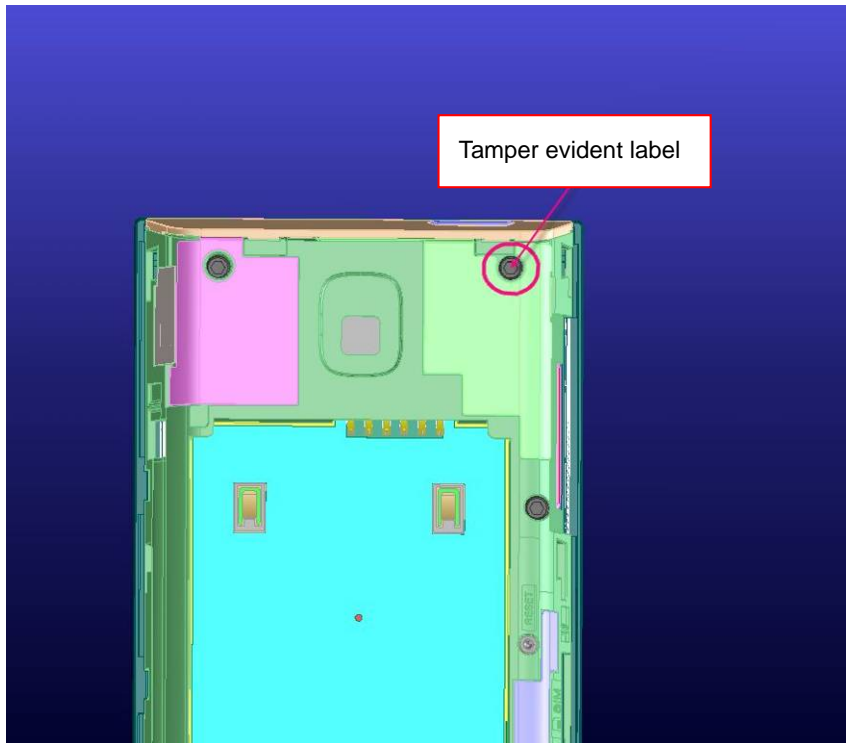
Unit Water sensitive label

HTC P/N: 77H00668-00M

Qty: 2
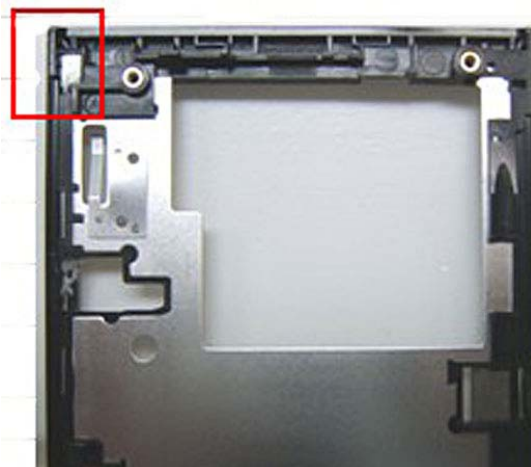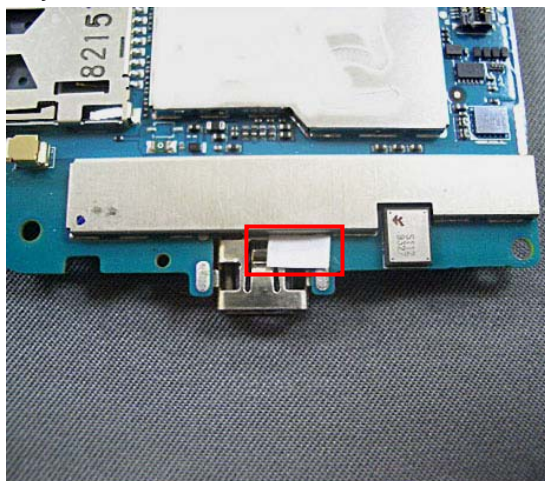
SM-TP001-0704

Battery label

BATTERY_LI-ION,1500mAh, 3.7V

HTC P/N: 35H00077-13M (DYNAPACK)
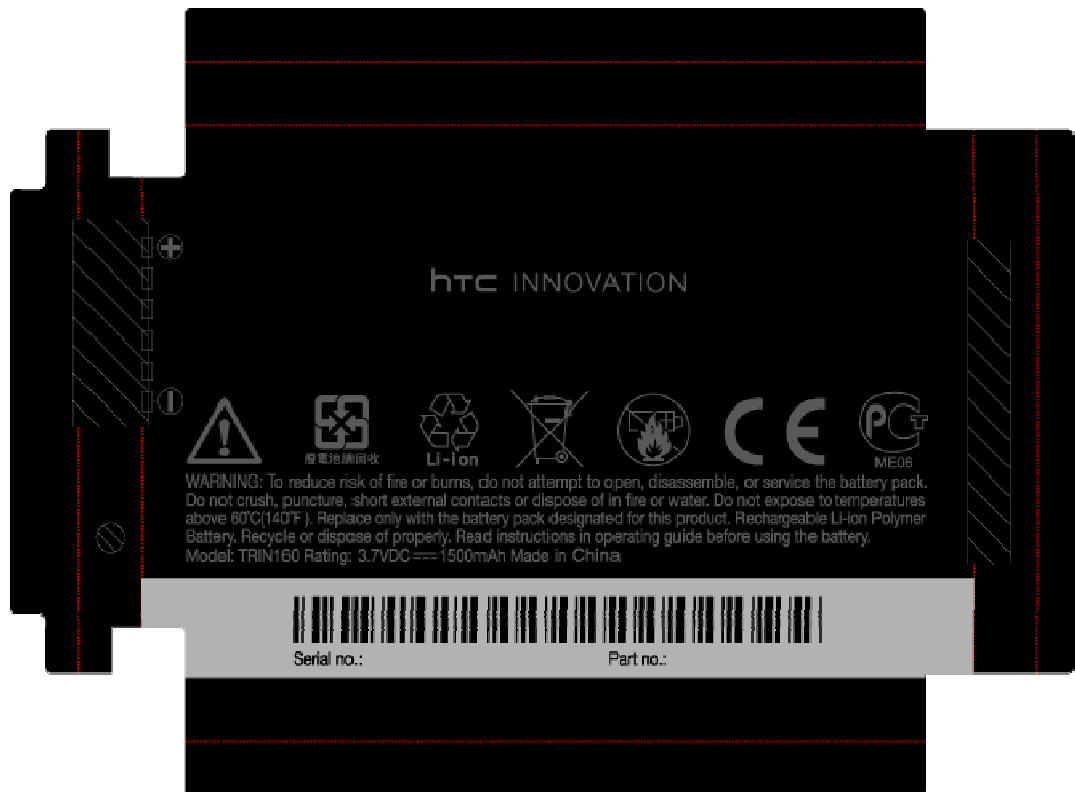
9. Generic Spare Part List and Photos

9.1 SPL for Repair

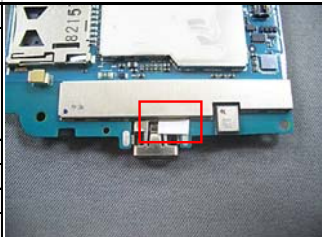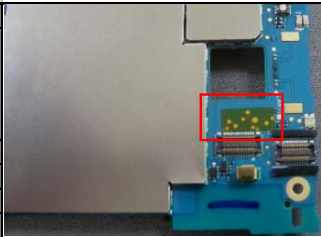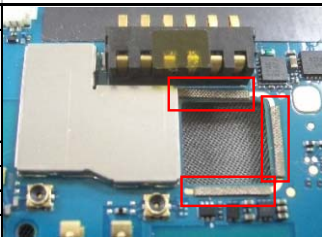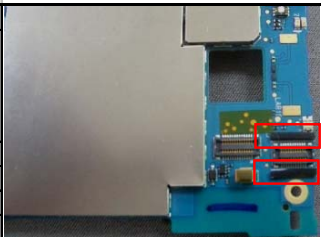| P/N	Description
35H00077-13M	BATTERY_LI-ION,1500mAh,3.7V,SONY Li-Polymer cell 454261,DYNAPACK,DAK520159-02B800L,66.8*44.6*5.15mm,60/-20
36H00632-00M	Receiver,2403 266 00028 ,PHILIPS
36H00748-00M	Vibrator,GE0406BRC3,JNTECH,Quartz
36H00755-00M	Speaker,SBI171029P-BS02B8M,BLUECOM
51H00489-00M	PCBA,2nd Camera Daughter board,QUARTZ
51H40474-00M	PCBA-MAIN BOARD,GSM900,1800,1900/WimaxBC3,QUARTZ
54H00279-00M	Camera Module,PREMIER,CMHT-3A403D,AF,TDK,LARGAN,相互,Micron MI-3130,3.1Mpixel,Micron,19.2*8.9*6.3mm,Raphael
54H00281-00M	Camera Module,FF,Largan,Largan,LITEON,07PC03,APCB,0.3Mpixel,5*5*2.55mm,Raphael
72H01059-00M	Screw,POINT Mechanical,P,1.6*4.5,BZ+NYLOK
72H02643-00M	Screw,M1.6L7,Ni+NYLOK,POINT SCREW,QUARTZ
72H02654-00M	EMI Gasket,Camera,Holder,Quartz
72H02659-00M	EMI Gasket,Camera,Quartz
72H02883-00M	EMI Gasket,U-TEK,41*46*0.05mm,Quartz
72H02898-00M	Conductive Fabric,LCM_2,Quartz
72H02911-00M	Conductive Fabric,LCM,Quartz
74H01195-00M	Stylus Pre-Assy,Quartz
74H01196-00M	Housing Pre-Assy,Quartz
74H01198-00M	Cover Pre-Assy,Battery,Quartz
74H01200-00M	Bezel Pre-Assy,Quartz
76H02703-00M	Tape,Touch_Window,Quartz
76H02704-00M	Tape,Vibrator,Quartz
76H02803-00M	Rubber,2nd_Camera,Quartz
76H03038-00M	Kapton,Camera,Quartz
76H03291-00M	Tape,Touch_Window_2,Quartz
76H03298-00M	Mylar,Gap,Quartz
77H00460-01M	Tamper-Evident Label,VOID wording,black background,3*3mm,MING JYE
77H00668-00M	Water Sensitive Label,MING JYE,4*2.5mm,3M 5558,Diamond
77H00672-01M	Regulation Label,W/PCT MJ04,66.53*44.36mm,HTC T8290,MING JYE,Quartz-EMEA
83H00054-00S	Sub-Assy to 82H,HTC,Subcontractor BOM,部份代工代料,HTC logo w/camera hole,YFO LAM,YFO TW,Sharp LCM

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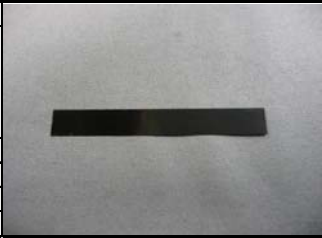
THE PHOTO OF SPL IS GENERIC AND ONLY FOR REFERENCE, THE COLOR AND APPEARANCE MAY BE DIFFERENT FROM THE SHIPPED PARTS, IF YOU WANT TO APPLY THOSE PARTS, PLEASE CONTACT YOUR SERVICE ACCOUNT MANAGER FOR MORE INFORMATION.
AS FOR PICTURE, PLEASE REFER TO THE TABLE AS BELOW.

FOR REFURBISHMENT PARTS, THE TABLE IS FOR YOUR REFERENCE. YOU CAN DO THE REFURBISHMENT ONLY WHEN YOUR SERVICE MODEL IS ALLOWED TO DO IT.

SM-TP001-0704

Part no	74H01198-00M	
Description	Cover Battery	
Q'ty	1	
Refurbishment	YES	
Repair Code	C112	
Return to HTC	NO	

Part no	35H00077-13M	
Description	Battery	
Q'ty	1	
Refurbishment	NO	
Repair Code	B101	
Return to HTC	YES	

Part no	74H01196-00M	
Description	Housing	
Q'ty	1	
Refurbishment	YES	
Repair Code	C102	
Return to HTC	NO	

Part no	54H00279-00M	
Description	Main Camera	
Q'ty	1	
Refurbishment	NO	
Repair Code	G117	
Return to HTC	NO	

Part no	51H40474-00M	
Description	Main board	
Q'ty	1	
Refurbishment	NO	
Repair Code	M001	
Return to HTC	YES	

Part no	36H00632-00M	
Description	Receiver	
Q'ty	1	
Refurbishment	NO	
Repair Code	G103.1	
Return to HTC	NO	

Part no	54H00281-00M	
Description	Camera Module, 0.3Mpixel	
Q'ty	1	
Refurbishment	NO	
Repair Code	G117	
Return to HTC	NO	

Part no	51H00489-00M	
Description	2nd Camera Daughter board	
Q'ty	1	
Refurbishment	NO	
Repair Code	G117	
Return to HTC	NO	

Part no	36H00755-00M	
Description	Speaker	
Q'ty	1	
Refurbishment	NO	
Repair Code	G103	
Return to HTC	NO	

Part no	74H01200-00M	
Description	LCM Bezel	
Q'ty	1	
Refurbishment	YES	
Repair Code	C101.5	
Return to HTC	NO	

Part no	83H00054-00S	
Description	LCM with T/P	
Q'ty	1	
Refurbishment	NO	
Repair Code	L101	
Return to HTC	YES	

Part no	74H01195-00M	
Description	Stylus	
Q'ty	1	
Refurbishment	NO	
Repair Code	G102	
Return to HTC	NO	

SM-TP001-0704

Part no	72H01059-00M		Part no	72H02643-00M	
Description	Screw,POINT Mechanical,P,1.6*4.5		Description	Screw,M1.6L7	
Q'ty	4		Q'ty	1	
Refurbishment	NO		Refurbishment	NO	
Repair Code	N/A		Repair Code	N/A	
Return to HTC	NO		Return to HTC	NO	

Part no	72H02883-00M		Part no	77H00672-01M	
Description	EMI Gasket,U-TEK,41*46*0.05mm		Description	Regulation Label	
Q'ty	1		Q'ty	1	
Refurbishment	Yes		Refurbishment	Yes	
Repair Code	N/A		Repair Code	N/A	
Return to HTC	NO		Return to HTC	NO	

Part no	36H00748-00M		Part no	76H02704-00M	
Description	Vibrator		Description	Tape,Vibrator	
Q'ty	1		Q'ty	1	
Refurbishment	NO		Refurbishment	NO	
Repair Code	G105		Repair Code	NO	
Return to HTC	NO		Return to HTC	NO	

Part no	76H02703-00M		Part no	72H02659-00M	
Description	Tape,Touch_Window		Description	EMI Gasket,Camera	
Q'ty	1		Q'ty	1	
Refurbishment	NO		Refurbishment	NO	
Repair Code	NO		Repair Code	NO	
Return to HTC	NO		Return to HTC	NO	

Part no	77H00460-01M		Part no	72H02911-00M	
Description	Tamper-Evident Label,VOID wording		Description	Conductive Fabric,LCM	
Q'ty	1		Q'ty	2	
Refurbishment	Yes		Refurbishment	NO	
Repair Code	NO		Repair Code	NO	
Return to HTC	NO		Return to HTC	NO	

Part no	76H03291-00M		Part no	72H02898-00M	
Description	Tape,Touch_Window_2		Description	Conductive Fabric,LCM_2	
Q'ty	1		Q'ty	1	
Refurbishment	NO		Refurbishment	NO	
Repair Code	NO		Repair Code	NO	
Return to HTC	NO		Return to HTC	NO	

SM-TP001-0704

Part no	76H03298-00M		Part no	77H00668-00M
Description	Mylar,Gap		Description	Water Sensitive Label
Q'ty	2		Q'ty	1
Refurbishment	NO		Refurbishment	Yes
Repair Code	NO		Repair Code	NO
Return to HTC	NO		Return to HTC	NO

Part no	77H00668-00M		Part no	76H03038-00M
Description	Water Sensitive Label		Description	Kapton,Camera
Q'ty	1		Q'ty	1
Refurbishment	Yes		Refurbishment	NO
Repair Code	NO		Repair Code	NO
Return to HTC	NO		Return to HTC	NO

Part no	72H02654-00M		Part no	76H02803-00M
Description	EMI Gasket,Camera,Holder		Description	Rubber,2nd_Camera
Q'ty	3		Q'ty	2
Refurbishment	NO		Refurbishment	NO
Repair Code	NO		Repair Code	NO
Return to HTC	NO		Return to HTC	NO

SM-TP001-0704

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℃. (The temperature range is 415℃±5℃), 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

SM-TP001-0704

51H40474-XXM PCBA-MAIN BOARD

| Location	P/N	Description	Remark
MAM12	75H00706-00M	Connector SIM Card,9P,1.27Pitch,SPPN08-D0-1000,PROCONN	Side A
MAM13	75H00760-10M	Connector SD Card,11P,1.1pitch,502702-0891,MOLEX,0.5A,10V	Side A
PAC36	16H00012-01M	Gold Cap,0.02F,3.3V,XH311HG IV07E,SEIKO,-78/89%	Side A
MIM1 / MIM2 / MIM3	36H00515-00M	Switch,LS12K2-T,CITIZEN,3.85*2.9*1.55mm	Side A
PAF1	36H00300-00M	Fuse,046702.5,2.5A/32V,LITTLEFUSE,Apache	Side A
AAU1	36H01865-00M	Microphone,KNOWLES,SPM0204LE5-QB,4.72*3.76*1.25mm	Side A
MAM3	75H00766-00M	Connector I/O,11P,0.45Pitch,302-11101-24,ACT,1A,30V	Side B
PAM2	75H00529-00P	Connector Battery,6P,2.5mm,2A,12V,BTR1S-6K2000,ACON	Side B
MAM11	36H00410-00M	Switch,SKRKAEE010,ALPS	Side B

SM-TP001-0704

SIDE A PHOTO AND COMPONENT LOCATION
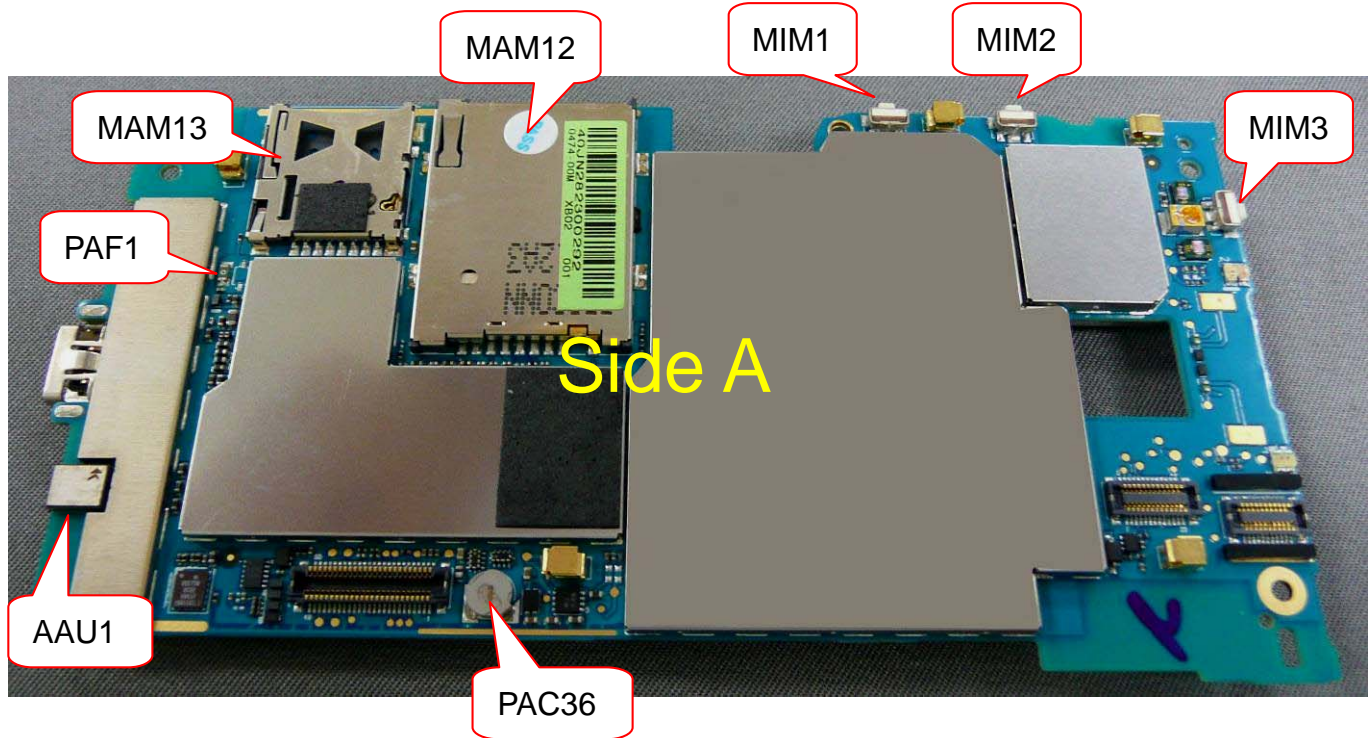
SIDE B PHOTO AND COMPONENT LOCATION

9.3 FRU M/B addition parts location

76H03038-00M

76H02803-00M

72H02654-00M

72H02654-00M

77H00688-00M

SM-TP001-0704
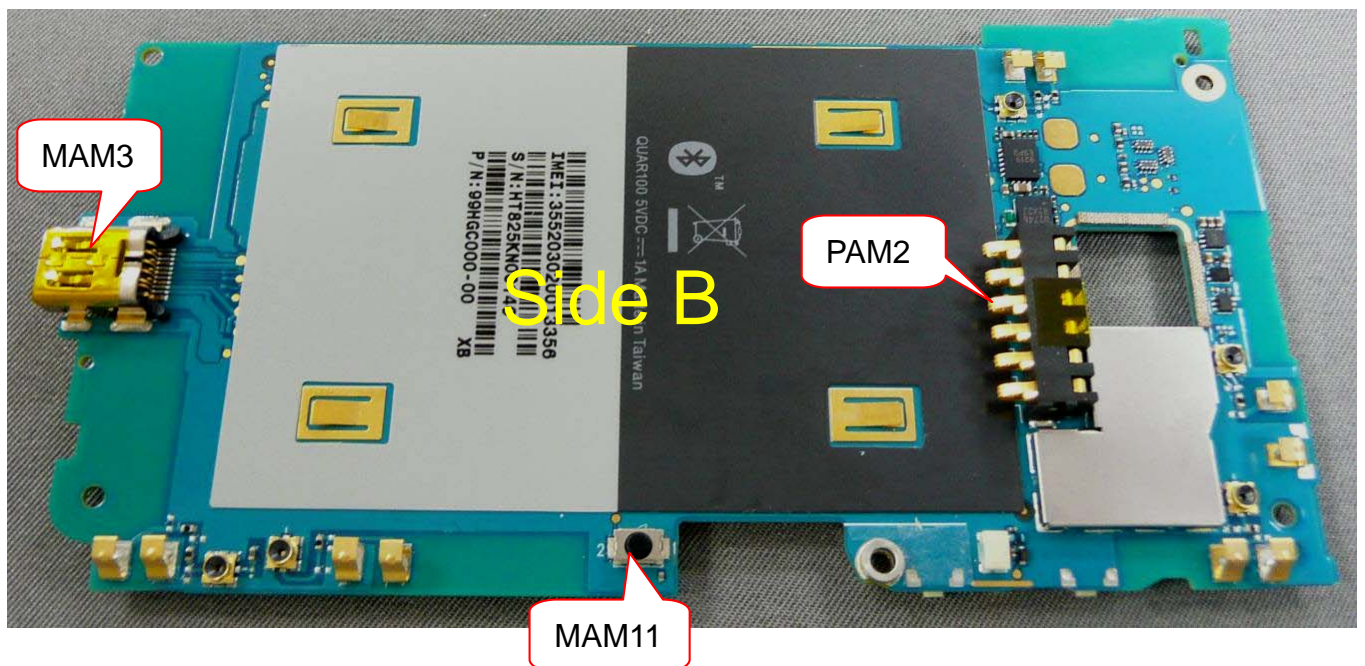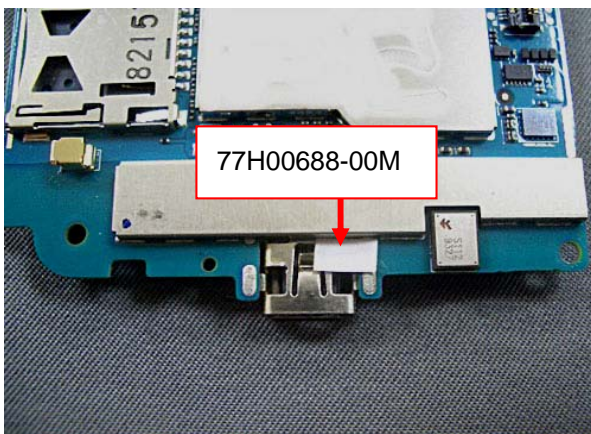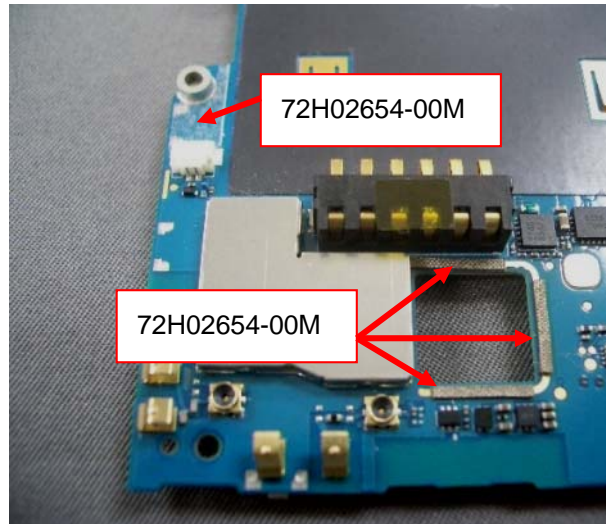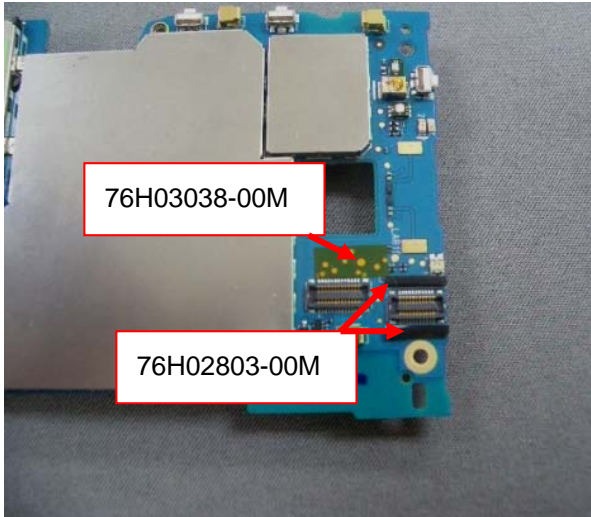
10. RF Antenna Specification

Quartz WiMAX Antenna Test Specification			
Item	Test Name	Channel	Cell Power level	Note

Item	Test Name	Channel	Cell Power level	Note
	Receiver Test		Conducted level:20+/-0.75dBm	
3	Receiver Sensitivity	0		
4	Receiver Sensitivity	368	≦ -85dBm	RX frame:1000
5	Receiver Sensitivity	736		
	Transmitter Test		Conducted level:20+/-0.75dBm	
6	TX Power	0		
7	TX Power	368	EIRP≧14dBm	
8	TX Power	736		

Quartz GSM Antenna Test Specification				
Item	Test Name	TX Level	TCH	1st Downlink cell power	note

Item	Test Name	TX Level	TCH	1st Downlink cell power	note
1	Wait_Signal	0	600	-65	
2	Power_Class	0	600	-65	
PCS 1900 Receiver Test					
3	Fast Bit Error Rate	0	512	-104	
4	Fast Bit Error Rate	0	661	-104	≦ 2 %
5	Fast Bit Error Rate	0	810	-104	
PCS 1900 Transmitter Test					
6	TX Power	0	512	-65	
7	TX Power	0	661	-65	≧ 26 dbm
8	TX Power	0	810	-65	
EGSM 900 Receiver Test (For EU SKU)					
9	Fast Bit Error Rate	5	975	-104	
10	Fast Bit Error Rate	5	37	-104	≦ 2 %
11	Fast Bit Error Rate	5	124	-104	

	DCS 1800 Receiver Test				
21	Fast Bit Error Rate	0	512	-104	
22	Fast Bit Error Rate	0	698	-104	≦ 2 %
23	Fast Bit Error Rate	0	885	-104	
	DCS 1800 Transmitter Test				
24	TX Power	0	512	-65	
25	TX Power	0	698	-65	≧ 26 dbm
26	TX Power	0	885	-65	

SM-TP001-0704

11. Appendix

## 11.1 LCM and LCM bezel replacement

When you just want to replace a new LCM or LCM bezel, please take the steps as below.

	Use flat plastic stick to remove the rest of glue on the LCM bezel and make sure all glue is cleaned completely. ***Be carefully not to scrap LCM bezel.***
	Use flat plastic stick to remove the rest of glue on the LCM and make sure all glue is cleaned completely. ***Be carefully not to scrap LCM.***
	Swap the three conductive fabrics if defective. 72H02911-00M * 2 72H02898-00M * 1

SM-TP001-0704
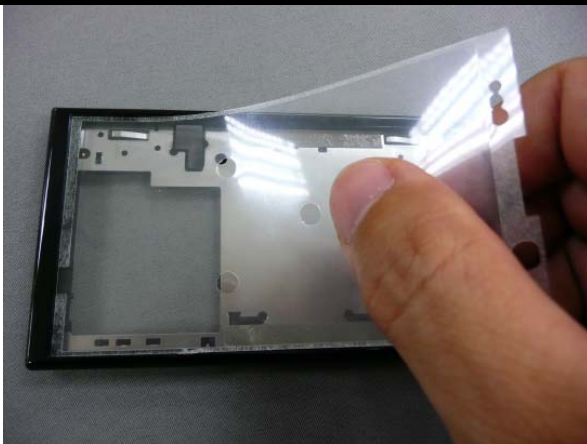
After clean the glue on the LCM bezel, stick one touch window tape on the bezel as shown the photo.

76H02703-00M
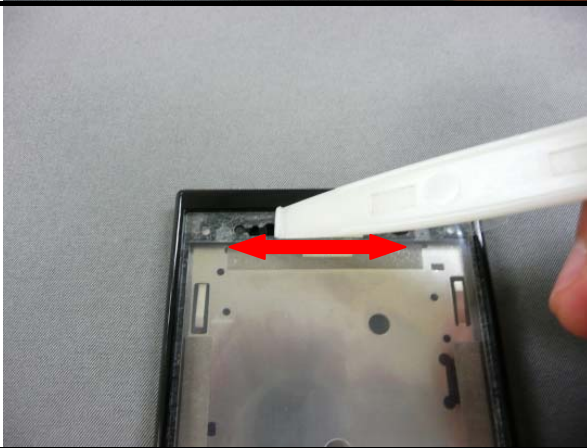
Use plastic stick to press the touch window tap to make sure the tap is well pasted on the bezel.

Stick one 2nd camera tape on the bezel as shown the photo and make sure the tap is well pasted on the bezel.
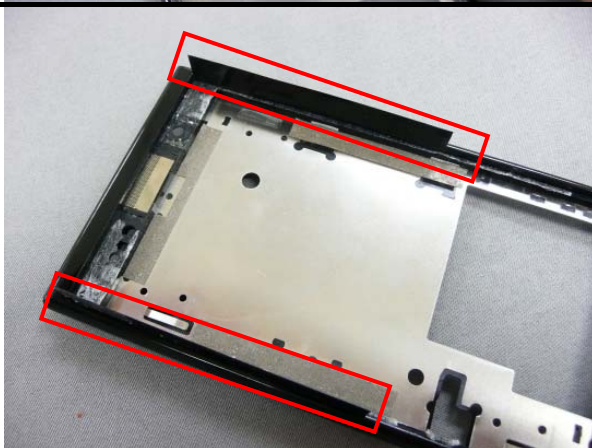
76H03291-00M

Lightly remove the protector of 2nd camera tape.

Lightly remove the protector of touch window tape.

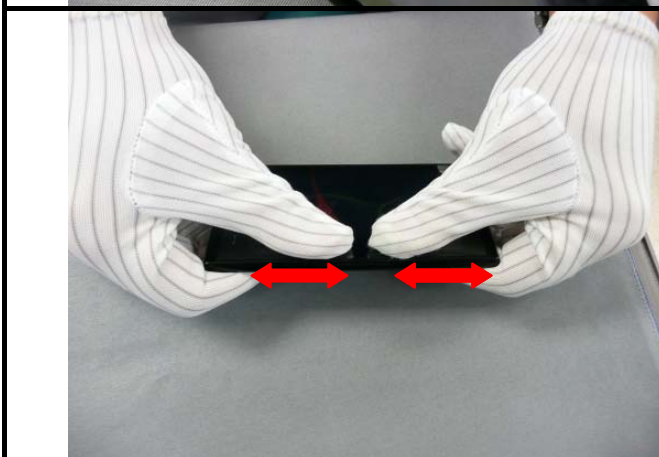Stick two mylar gap at both sides of bezel.

P/N: 76H03298-00M * 2

SM-TP001-0704

Assemble LCM with LCM bezel.
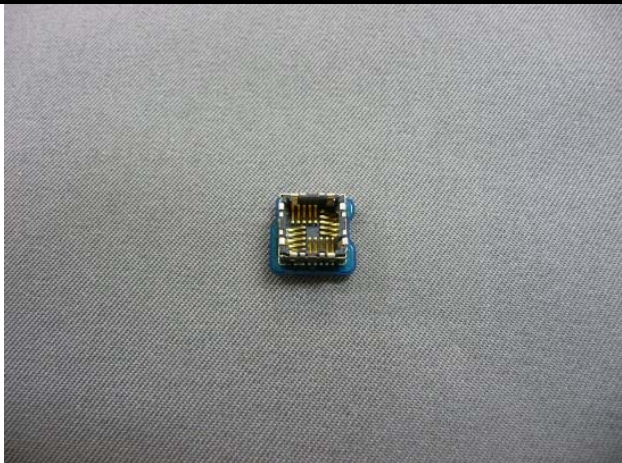

After assembling LCM and LCM bezel, remove the two mylars.

Use your finger to press around LCM to make sure the LCM is well combined the bezel.

SM-TP001-0704

11.22nd camera and daughter board assembly

	Prepare one 2nd camera.
	Prepare one daughter board.
	Use plastic tweezers to place 2nd camera into daughter board and then make sure the 2nd camera is well assembled.

SM-TP001-0704