S100 Smartphone
Service Guide

Service guide files and updates are available on the ACER/CSD web; for more information, please refer to http://csd.acer.com.tw

PRINTED IN TAIWAN

Revision History

Please refer to the table below for the updates made on the **S100** smartphone service guide.

Date	Chapter	Updates

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Conventions

The following conventions are used in this manual:

SCREEN MESSAGES	Denotes actual messages that appear on screen.
NOTE	Gives bits and pieces of additional information related to the current topic.
WARNING	Alerts you to any damage that might result from doing or not doing specific actions.
CAUTION	Gives precautionary measures to avoid possible hardware or software problems.
IMPORTANT	Reminds you to do specific actionsm relevant to the accomplishment of procedures.

Preface

Before using this information and the product it supports, please read the following general information.

1. This Service Guide provides you with all technical information relating to the BASIC CONFIGURATION decided for Acer's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office MAY have decided to extend the functionality of a machine. These LOCALIZED FEATURES will NOT be covered in this generic service guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.
2. Please note WHEN ORDERING FRU PARTS, that you should check the most up-to-date information available on your regional web or channel. If, for whatever reason, a part number change is made, it will not be noted in the printed Service Guide. For ACER-AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

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System Specifications

Features

Below is a brief summary of the smartphone's many features:

Operating System

- Android OS

Processor

- Qualcomm QSD8250, 768MHz

Memory

- 256 MB DDR ROM, 512 MB Flash ROM

Display

- 3.53" WVGA, 16.7 M colors TFT-LCD (Resolution: 480 x 800)

Cover lens

- 110.4 (L) x 54.54 (W) x 0.7(H) mm

Dimensions

- 115 (L) x 64 (W) x 12.75 (H) mm (Camera area:13.5mm)

Communications

- HSDPA / HSUPA / UMTS (2100/1900/900 MHz), 7.2 Mbps DL, 2.0 Mbps UL
- Quad-Bands GSM°G850/900/1800/1900 MHz
- GPRS class / 12 EDGE class 12

Bluetooth

- Bluetooth 2.0 + EDR

Camera

- Main - Built-in 5.0 Mega pixels, Auto Focus CMOS Camera Module

Expansion Options

- MicroSD card slot

Interface/Audio

- Built-in microphone and speaker, external stereo 3.5mm 4-pole headset jack, hand-free mode supported

Interface/Data

- Mini-USB 2.0 Sync

Ergonomic Design

- 1. Capacitive Touch Window
- 2. Button: Home / Search / Back / Menu
- 3. Side Keys: Volume Up
  Volume Down
  Camera
  Power / Standby
  Reset

Power

- DC Adaptor, 5V/1A,

Battery

- Lithium Polymer
- Talk time: 5 hrs(only turn on GSM function and screen)
- Standby: 400 hrs +- 3% (keep RTC data after 168hrs)

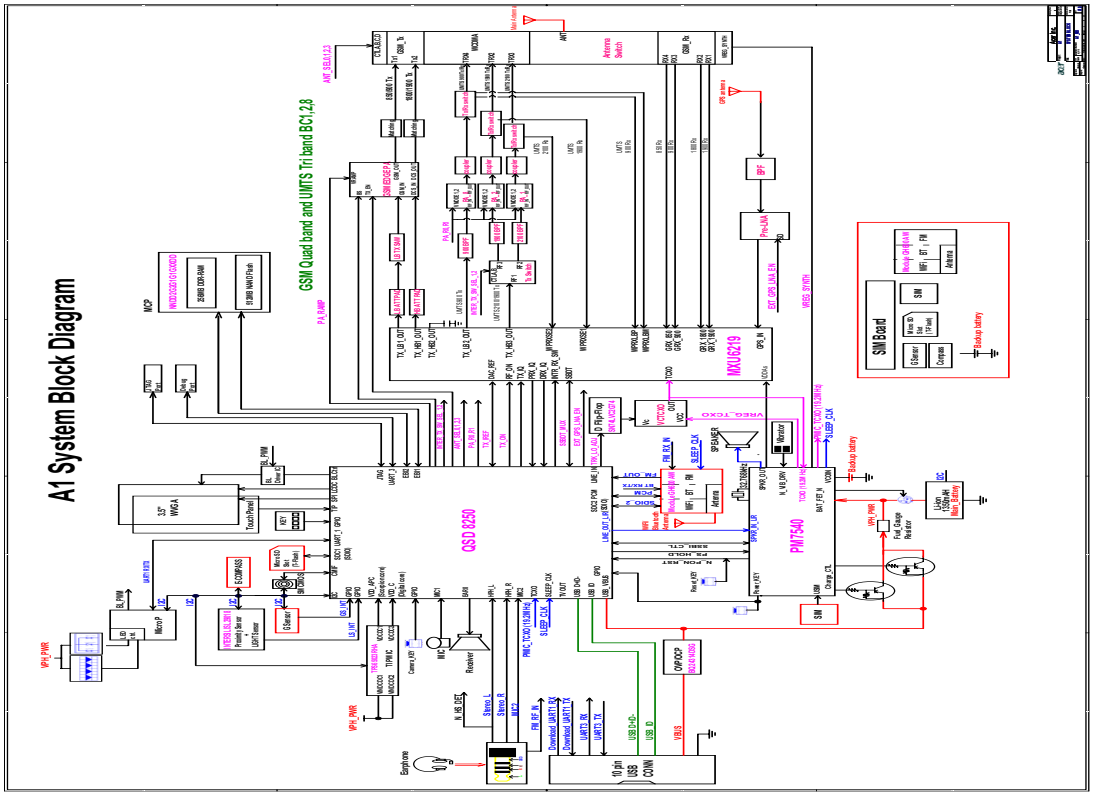
Software (pre-loaded*)

- Pre-load:
  Android 1.6 (Donut)
  Gmail
  Google cloud services sync
  Google Maps
  Google Talk
  Youtube
  Android Market
  Dialer
  Contacts
  Messaging
  Browser
  Calendar
  Gallery / Music / Video
  Calculator
  Email
  Alarm

Acer Exclusive Applications

- Connection Wizard, USB-to-PC, CSD Type
  Acer Settings
  Acer Sync
  Digital Media Server
  Documents To Go
  Nemoplayer
  RoadSync
  Spinlets
  urFooz
  Camera/Camcorder
  Sound Recorder
  Tasks
  Connected Contacts (Facebook/Flicker)
  Codec
  Streaming Engine
  SIM Toolkit
  Device Information

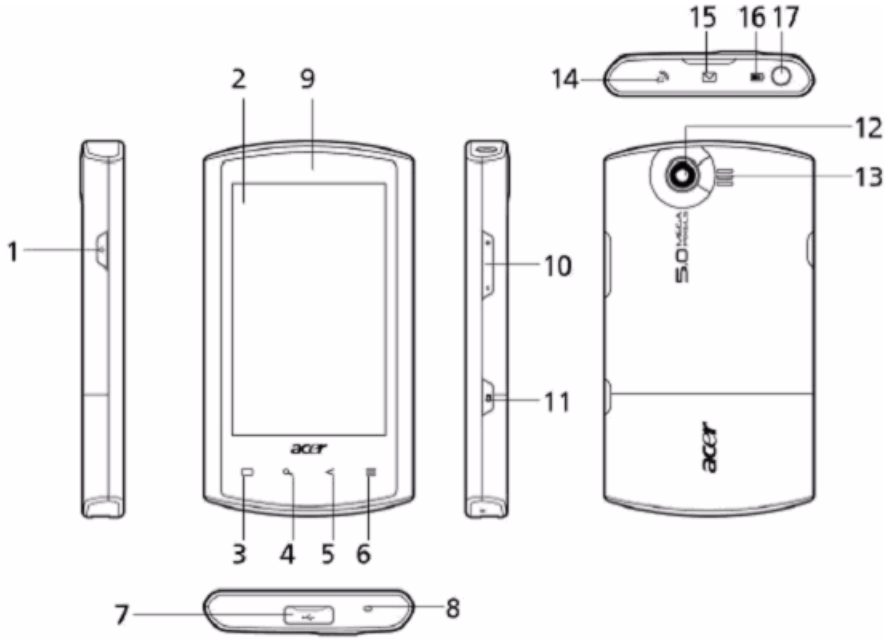
System Block Diagram



Your Acer Smartphone Tour

After examining your smartphone features, let us show you around your new smartphone.

Views



No.	Item	Description
1	Power button	Press to turn the screen on/off or enter sleep mode; press and hold to turn the smartphone off.
2	Touchscreen	3.5-inch, 800 x 480 pixel capacitive Touchscreen to display data, phone content And enter information.
3	Search button	Return to home screen.
4	Search button	Open the Google search function.
5	Back button	Go back one menu step.
6	Menu button	Opens the option menu.
7	Mini USB connector	Connect to a USB cable/charger
8	Microphone	Internal microphone.
9	Phone speaker	Emits audio from your smartphone; suitable for holding to your ear.
10	Volume up / down Button	Increase or decrease the phone volume.
11	Camera button	Activate the camera or take a picture. Press Down halfway to auto-focus.
12	Camera	A 5-megapixel camera for taking high-resolution images.
13	Handsfree speaker	Emits audio from your smartphone; suitable for handsfree use.
14	Call indicator	Indicates an incoming call or missed call.
15	Mail/message indicator	Increases unread mail or other messages.
16	Charge indicator	Indicates battery charge status.

No.	Item	Description
17	3.5 mm headphone jack	Connect to stereo headphones.

Hardware Specifications and Configurations

Processor

Item	Specification
CPU	Apps Micro: Scorpion 768 MHz ; Modem Micro: ARM926 - 256 MHz Apps DSP: QDSP6-600MHz ;Modem DSP: QDSP4-122MHz
CPU package	603-pins
Core Logic	Scorpion core
Modem	WCDMA, GSM, GPRS, EDGE, DTM, HSDPA 7.2 Mbps, HSUPA 2 Mbps
MDDI support	2 hosts , 1 client
UART	
STIO	
Qcamcorder	WVGA (800 x 480), 30fps
Audio/video decoders	
Polyphonic tones	
GPS	MS-assist and MS-based A-GPS and standalone modes
USIM	

3.53" display with in-cell touch panel

Item	Specification
Display resolution (pixels)	480(H) x 800(V)
Supported Colors	16.7 colors

Battery

Item	Specification
Capacity	1350 mAh Li-Poly, rechargeable and replaceable
Environment	Talk time: Up to 5 hours for WCDMA / Up to 6 hours for GSM Standby: 400 hrs (keep RTC data after 168 hrs) Pocket PC usage : 12 hrs (screen off and play MP3 for headset) Temperature (1) Operation: 0C~45C (2) Storage: -30C~70C Protection from overheat, overcharge, over-discharge, over-current, Over-voltage
Battery low	Three Battery levels Fully Charged -When battery level is at 100% and still being charged. Low Battery - When battery level falls below 10% Critical Low - When battery level falls below 3%
Recharge Time	4.0 hours charge from empty to full by AC adapter.

Camera

Item	Specification
Type	• 5M pixels Auto-Focus with flashlight, up to 2592 x 1944 resolution

GPS

Item	Specification
Chipset	QSD8250 + MXU 6219
Firmware	
Channel	12 parallel (20)
Fix time	Reacquisition : less than 1s Hot start : less than 5s Warm start : less than 35s Cold start : less than 40s (TBC)
Accuracy	Position :within 10m for 90% Velocity : 0.1 m/s
A-GPS	Y
Protocol	1. Position :within 10m for 90% 2. Velocity : 0.1 m/s
Antenna	Position :within 10m for 90% Velocity : 0.1 m/s

LED

Item	Specification
	Constant On: On always. Fast Blinking: On for 0.3sec and off for 0.7 sec. Slow Blinking: On for 0.3sec and off for 4.7 sec.
	Mail/Message LED: indicates there are some unread messages. No message or no un-read mail/message: Off. When there are unread mail/message: Slow blinking until the message is read. ** For those undefined notification messages, please use "Slow blinking Message LED" to show the notification. ** The message/mail is considered read when message/mail application is launched and new items are shown.
	Miss calls LED: Indicates there are missing calls. No call or no missed calls: Off When there is incoming call: Fast Blinking until the call is accepted/ cancelled/timed-out/dismissed. When there is a missed call: Slow Blinking until dismissed. ** Miss calls are considered dismissed when miss call list is shown at least once. ** Incoming call has higher priority than miss call: When Miss Call LED is active, and there is an incoming call, LED follows incoming call LED behavior.

Item	Specification
	Battery LED: Indicates the device is currently at FullyCharged, Charging, Low Battery, Critical Low Battery state. When not in charging state, and not in Low/Critical Low Battery State: Off When charging, and battery is fully charged: Constant On. When charging, and battery is being charged: Fast Blinking. When not charging, and battery has reached Low Battery state: Slow Blinking. When not charging, and battery has reached Critical Low Battery state: Fast Blinking. When not charging, and battery level is too low to boot up device, if user tries to power on the device: Fast blinking for 1 second. ** Charging state has higher priority than non-charging state. When in Low or Critical Low Battery state and the device is being charged, LED follows the Charging scenario.

Bluetooth

Item	Specification
Chipset	Module, AW-GH600A, B46 802.11 b/g, BT, FM, AzureWave
Range	10m
Frequency range	2.4-2.4835GHz
Protocol	1. HFP (Hands-Free-Profile) 2. HSP (Head-Set-Profile) 3. A2DP (Advanced Audio Distribution Profile) 4. AVRCP (Audio/Video Remote Control Profile) 5. GAVDP
Antenna performance	**Total Radiated Power (avg) >-3 dBm (to be update at later stage)**
	Efficiency > 40% **PIFA antenna**

System Memory

Item	Specification
Memory embedded	512 MB of Flash ROM , 256 MB of SDRAM
Memory expansion	Micro SD Card slot

SIM

Item	Specification
Micro SD connector SIM connector	Support Micro SD -Push-push type connector
	1. Support 512 MB, 1GB, 2GB, 4GB and 8GB Micro SD memory cards. 2. Shall be able to read Micro SD cards formatted as FAT or FAT32 by the following Windows operating systems: Windows OS/Windows 2000 Professional/ Windows XP Home Edition/ Windows XP Professional/Windows Vista and Android
	1. Support 1.8V and 3.3V 2G- 和信 / 遠傳 / 中華，3G- 遠傳 / 中華 / 台哥大 / 威寶

Software Upgrades

System Requirements

- Microsoft® Windows XP or above
- Latest version of EUU (End-user Upgrade Utility / EUU_xxx.msi)
- Latest version of ActiveSync v4.5 or above
- Tool: USB Cable

NOTE: E-ten releases both EUU and Bin file for an authorized Service Center.

Distributors and agent only receive EUU software.

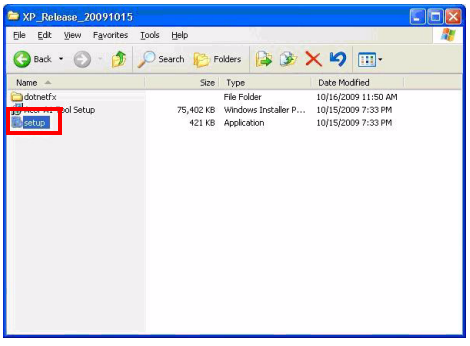
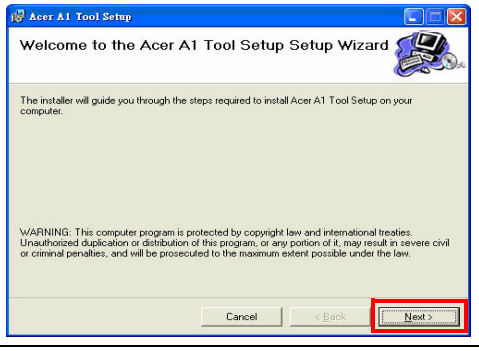
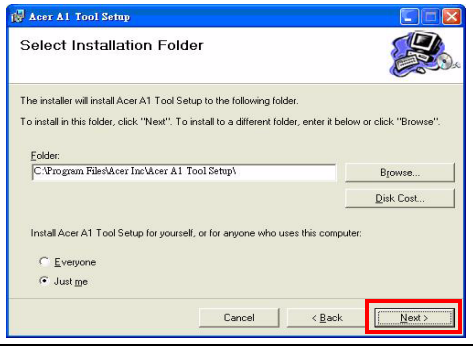
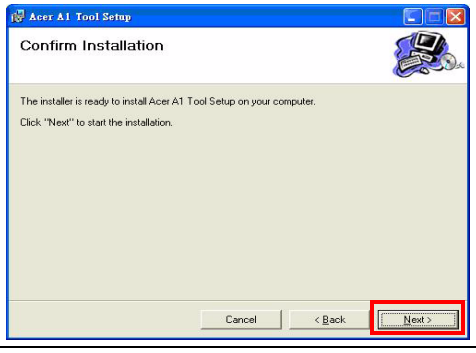
Software Upgrade Procedure

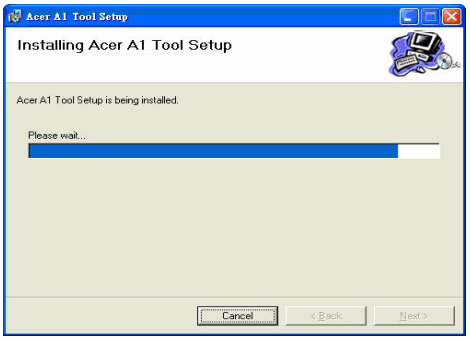
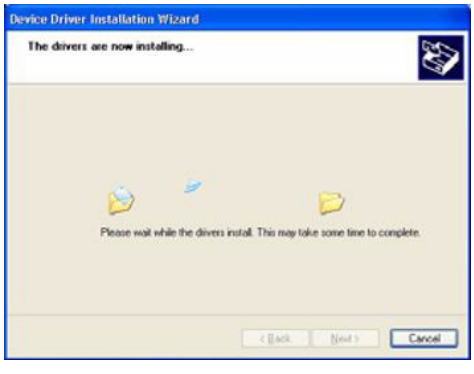
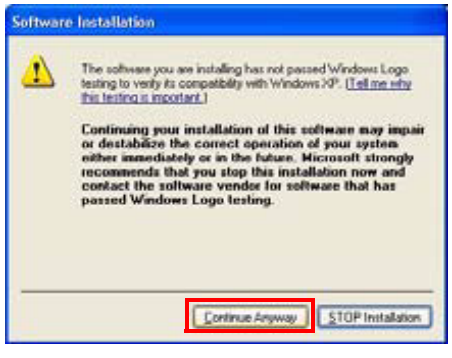
EUU Naming & Update Process

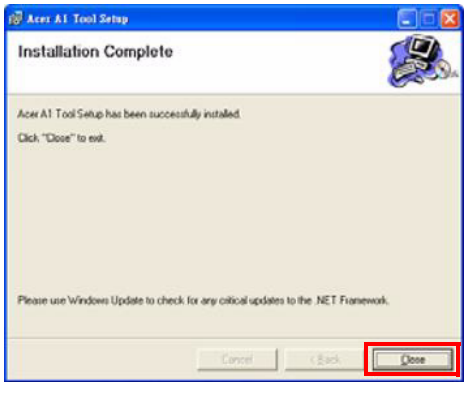
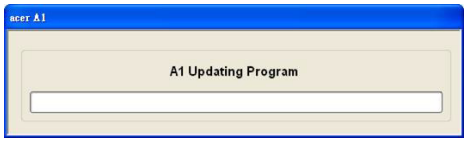
SOP for EUU update (Normal operation items)

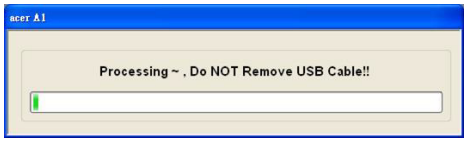
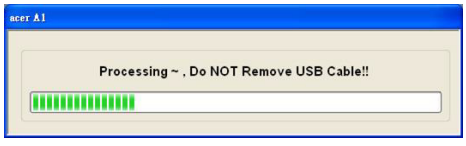
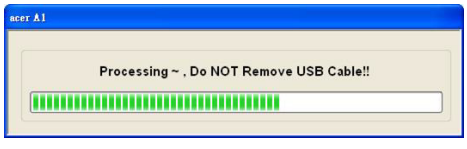
OS Update:

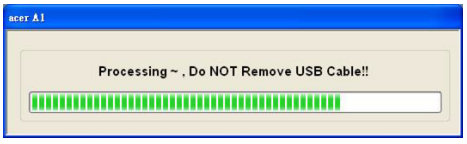
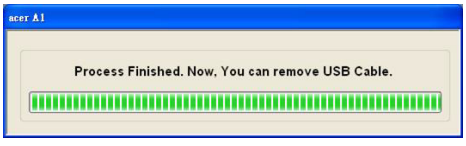
Make sure use PC with XP system (better with service pack2) or Vista for OS updating.
Disable all kind of firewall before OS updating.
Be sure your PC or laptop already installed ActiveSync 4.5 or above version.
Be sure the USB cable is properly connected between PC and C1.
Connect C1 and your PC via USB cable and be sure the ActiveSync is activated with GREEN sign.
If Activesync is hard to connect, you can go start/setting/connection/ **USB to PC** and disable the "advanced network functionality", then Activesync would be easily connecting.
Please backup all necessary data on PC side before OS updating process.
Be sure the power adapter is properly connection during the updating process.
If Micro SD was inserted, please remove Micro SD card.
Run EUU file and following the instructions show on screen to complete OS updating.

From PC	From Device
1. Install driver, .Net framework and Download tool. 	
2 	
3 	
4 	

From PC	From Device
5 	
6 	
7 	
8. There will be 3 driver installation warning messages. We shall always choose "Continue Anyway". 	

From PC	From Device
9 	
10. A message is displayed to indicate user have to boot up the phone and plug USB cable. Besides, some notification messages are also displayed to remind user to obey. 	
11 	
12. Program was started. 	(OS mode)

From PC	From Device
13. Backup QCN file. 	(OS mode)
14. Update AMSS. 	(AMSS Download mode)
15. Update OS 	(Fastboot mode)

From PC	From Device
16. If partition table is different, restoration process will also be executed; otherwise this step will be skipped. 	(OS mode)
17. Finish whole processes. 	(Phone will reboot or restart.)
18. Display Process has finished message. 	

Machine Disassembly and Replacement

This chapter contains step-by-step procedures on how to disassemble and reassemble the smartphone for maintenance and troubleshooting.

IMPORTANT: The use of metal tools during disassembly may damage the casing. Use plastic tools where possible.

IMPORTANT: Cover the work area with a clean, dry, lint-free cloth before placing the smartphone face down.

Disassembly Requirements

To disassemble the smartphone, you need the following tools:

- Wrist grounding strap and conductive mat to prevent electrostatic discharge
- A clean, dry, lint free cloth to prevent damage to the LCD during disassembly
- Plastic pry less than or equal to 0.96 mm thickness
- Tweezers (plastic and metal)

NOTE: The screws for the different components vary in size. During the disassembly process, group the screws with the corresponding components to avoid mismatch when putting back the components.

Related Information

The product previews seen in the disassembly procedures may not represent the final product color or configuration.

General Information

Pre-disassembly Instructions

IMPORTANT: Before proceeding with the disassembly procedure, make sure that you do the following:

1. Turn off the power to the system.
2. Unplug the USB adapter and all other cables from the system.
3. Cover the work area with a clean, dry, lint-free cloth to protect the LCD panel.
4. Place the system on a flat, stable surface.

Disassembly Process

The disassembly process is divided into the following sections:

- External components disassembly
- Main unit disassembly

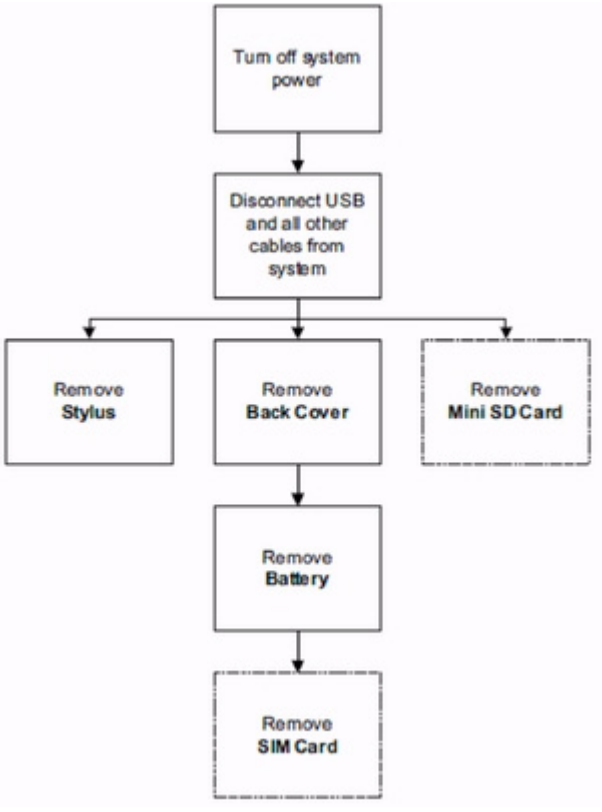
The flowcharts provided in the succeeding disassembly sections illustrate the entire disassembly sequence. Observe the order of the sequence to avoid damage to any of the hardware components.

Main Screw List

Step	Screw	Quantity	Part Number	Torque of screws setting
Upper / lower case	TORX-M1.6*3.5-BLACK- AISI-1018	4	3501635103W	1.0±0.1kgf-cm

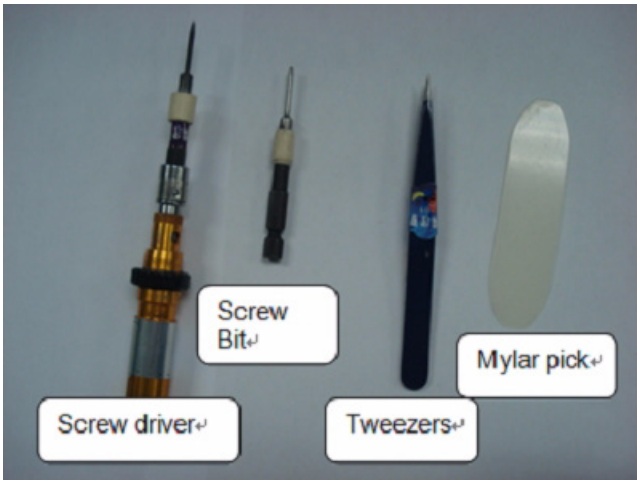
External Module Disassembly Process

External Modules Disassembly Flowchart



NOTE: Items enclosed with broken lines (— - - —) are optional and may not be present.

Needed tools:



Removing the Battery Cover

IMPORTANT: Cover the work area with a clean, dry, lint-free cloth before placing the smartphone face down.

1. Take apart releases the hook.

Removing the Battery

IMPORTANT: The Battery is locked in place; do not force the Battery out of the battery bay before open in the locking mechanism.

2. Hold the indentation of the Battery.

Removing the Memory Card and SIM Card

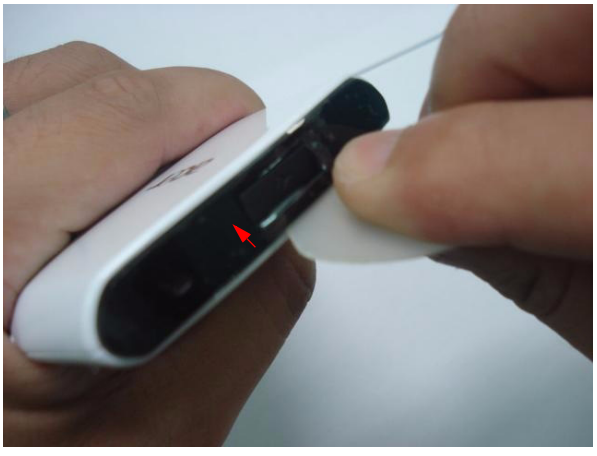
NOTE: The Memory Card and SIM Card are both optional items and may not be present.

1. Gently push and then pull out the Memory Card

2. Gently push and pull out the SIM Card.

3. Rip the Mylar as photo.

4. Take apart releases the hook.

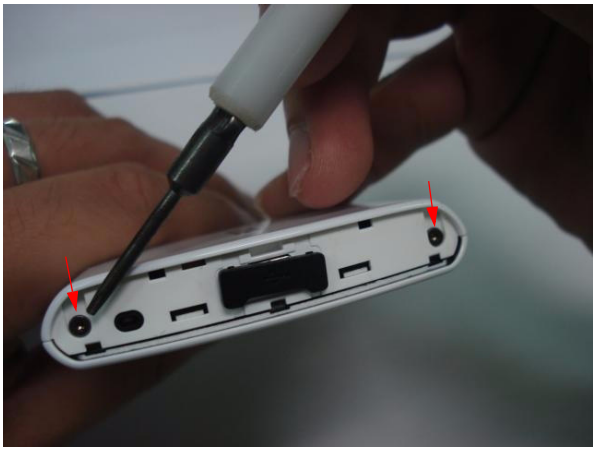


Removing the Low Case

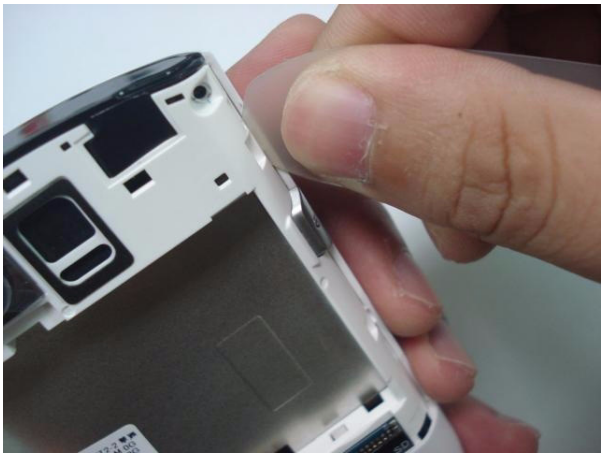
IMPORTANT: Thin tine metal tweezers can be used to remove the screw covers. Take care not to scratch the Lower Cover during removal.

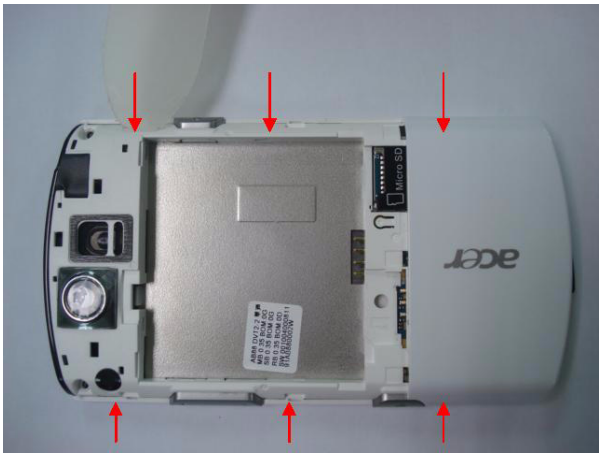
IMPORTANT: Do not force the covers apart to avoid damaging the plastic securing clips.

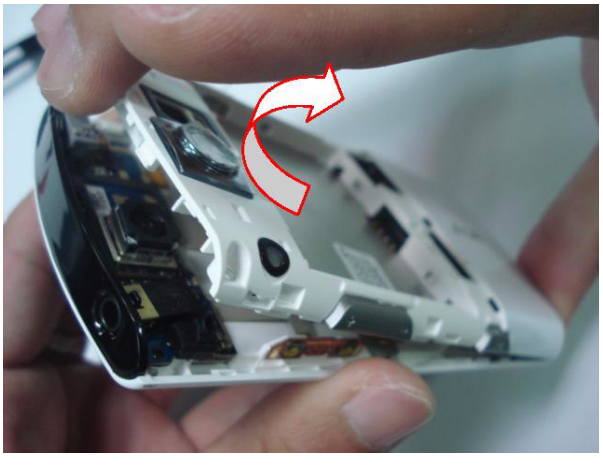
1. Remove the 4 screws highlighted as picture below.



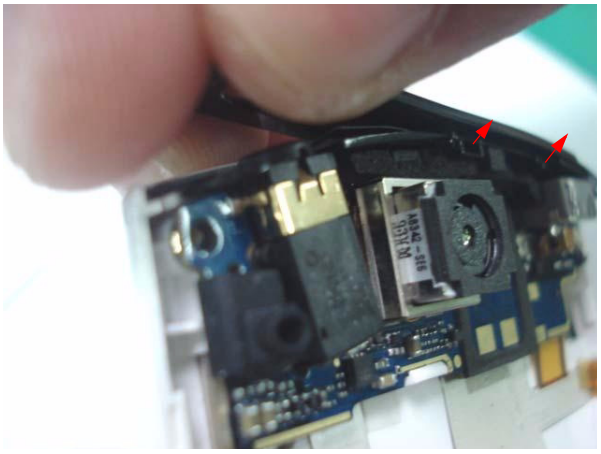
2. Take apart Low case hook as below photo.





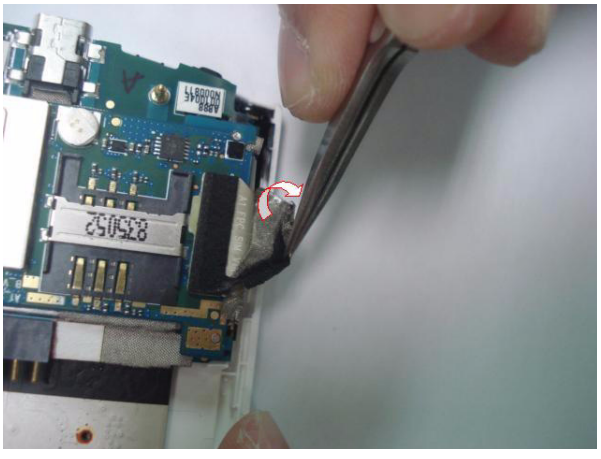


3. Remove the upper lens carefully not to scratch the Lens.

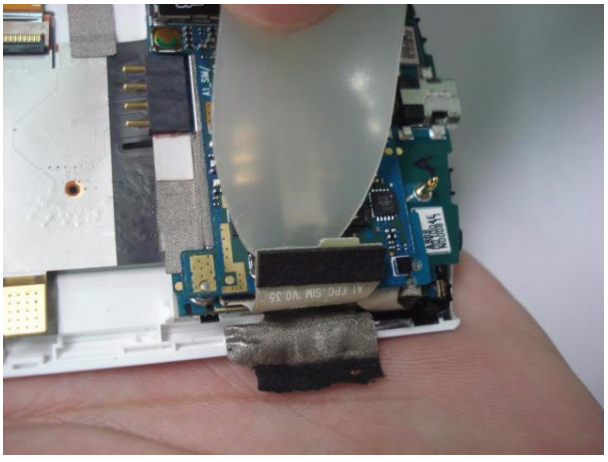


Removing the Main FPC/Board and Sub board of the Upper Case

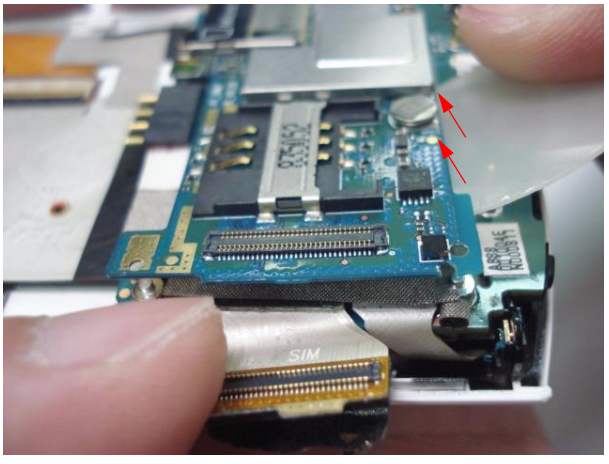
1. Carefully rip the conductive cloth as photo.



2. Take apart SIM board BTB connector as photo.

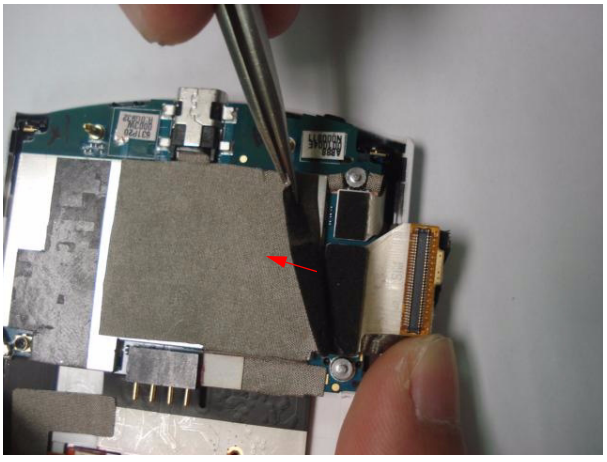


3. Carefully to remove the SIM board as photo

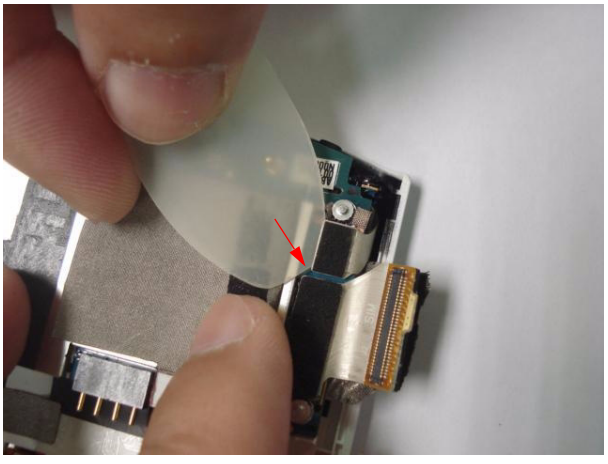


IMPORTANT: Do not to hurt the SIM board.

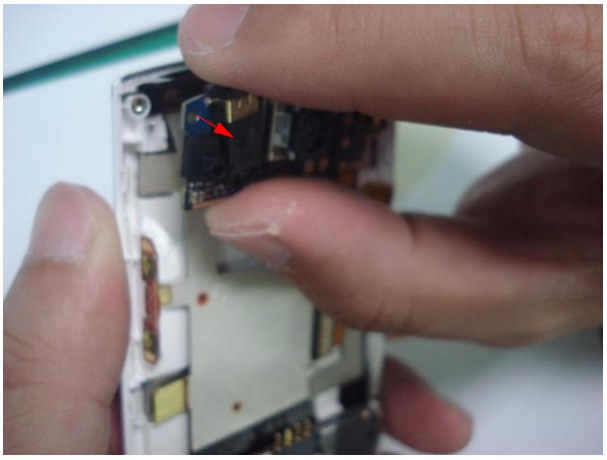
4. Rip the conductive cloth on BTB connector as below.



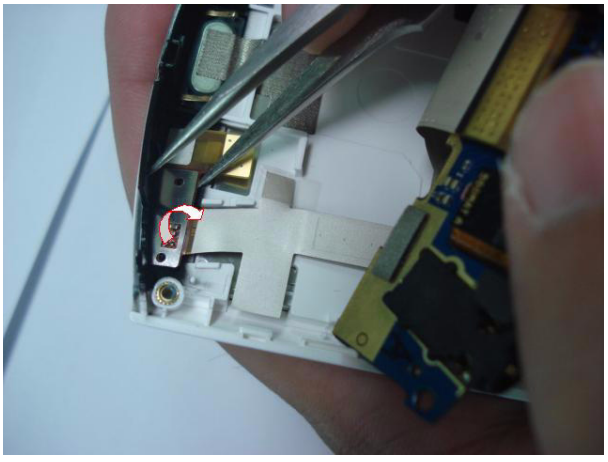
5. Take apart link M/B of BTB connector as below



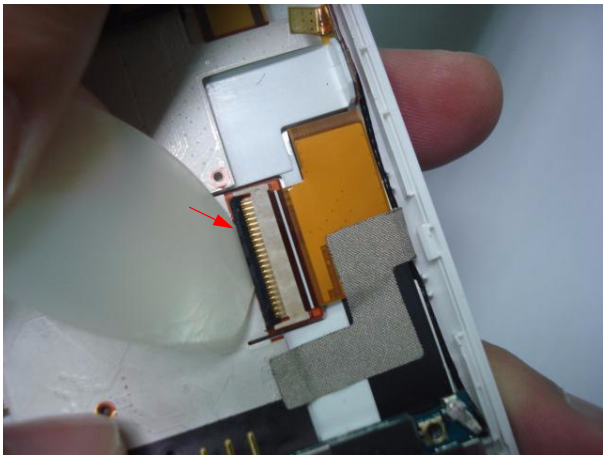
6. Take apart Sub Board in Upper Case hook as photo.



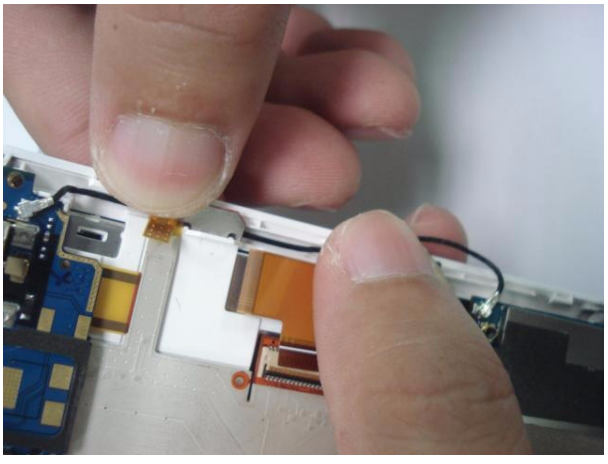
7. Take apart main FPC in Upper Case as below photo.



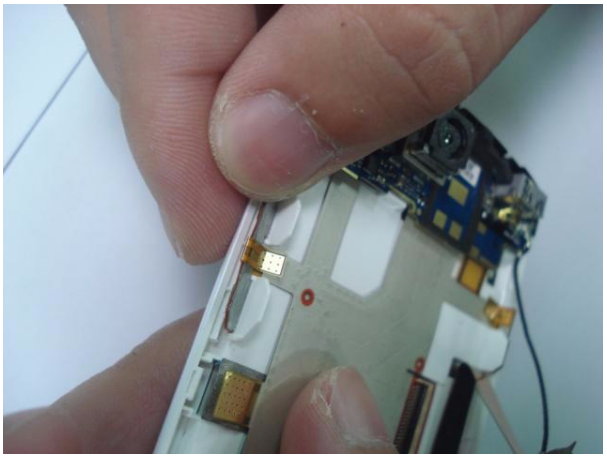
8. Take apart LCM connector in main FPC as photo.



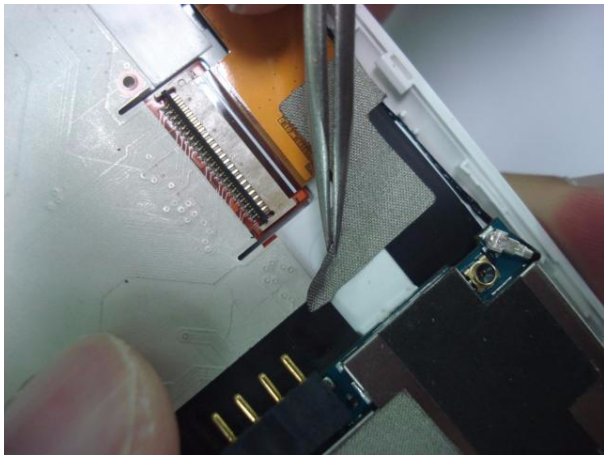
9. Take apart main FPC of power key part as below.



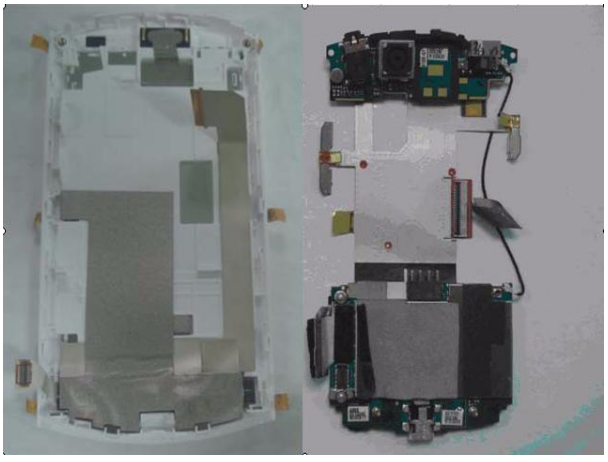
10. Take apart main FPC of volume key part as below.



11. Rip the conductive coloth of Coaxial cable as below.

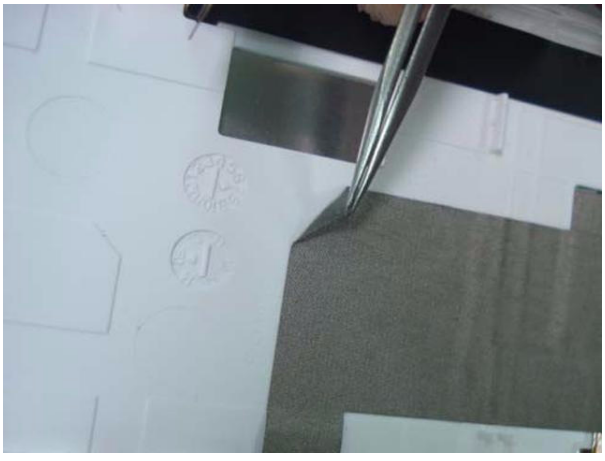


12. Finished to take apart the Main FPC/Board and Sub board with Upper case.

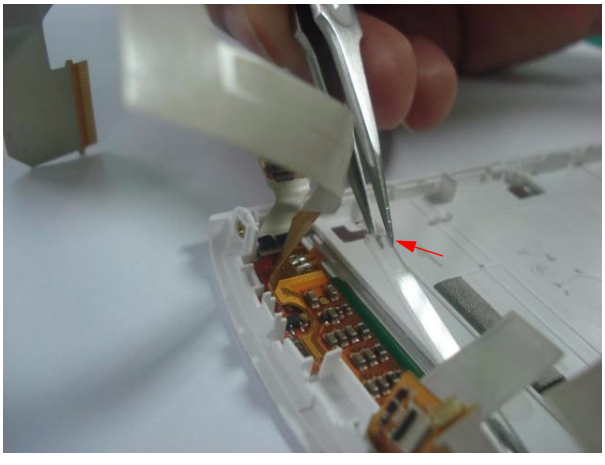


Removing the Upper Case material

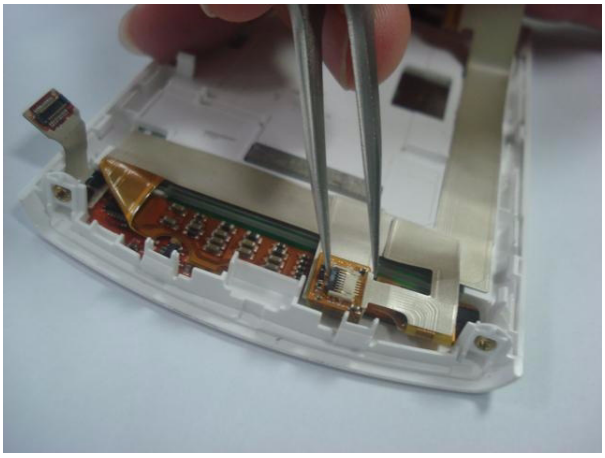
1. Rip the conductive cloth on Upper case as below.



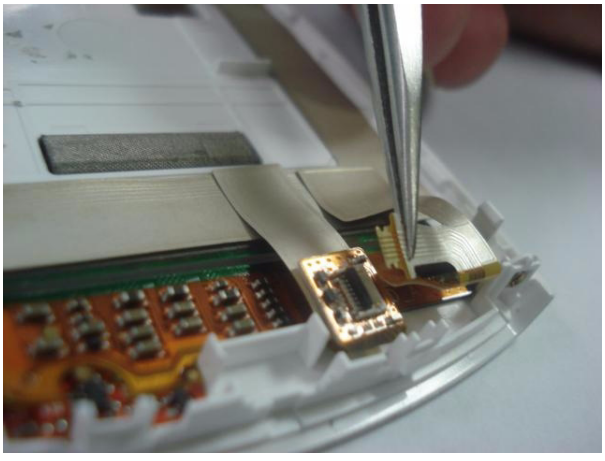
2. Take apart the fixed slice as below.



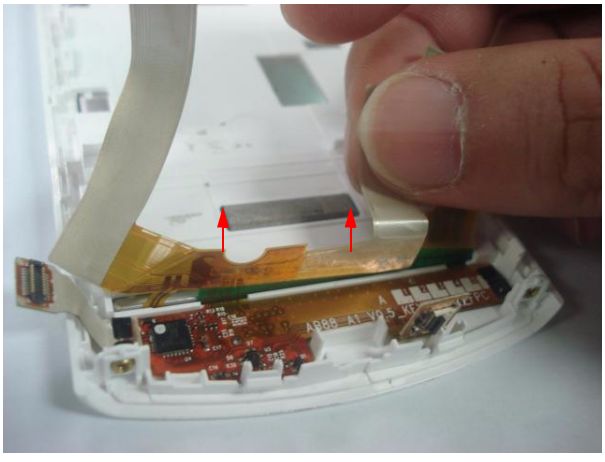
3. Open the ZIF connector with keypad FPC as below photo



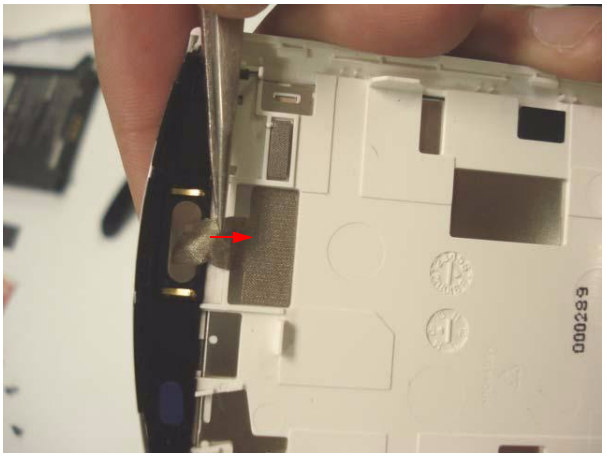
4. Open the contact pin of ZIF connector as below photo.



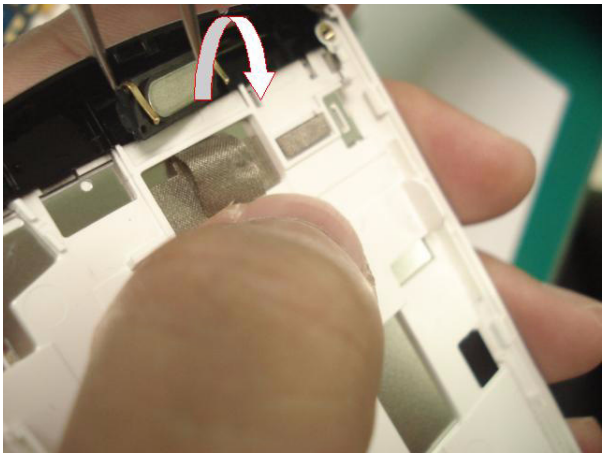
5. Open the contact pin of ZIF connector as below photo.



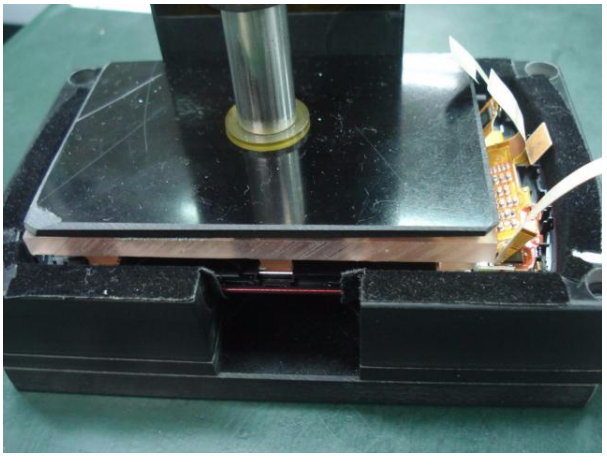
6. Rip the conductive cloth on the receiver as below photo.



7. Take apart receiver material as below.



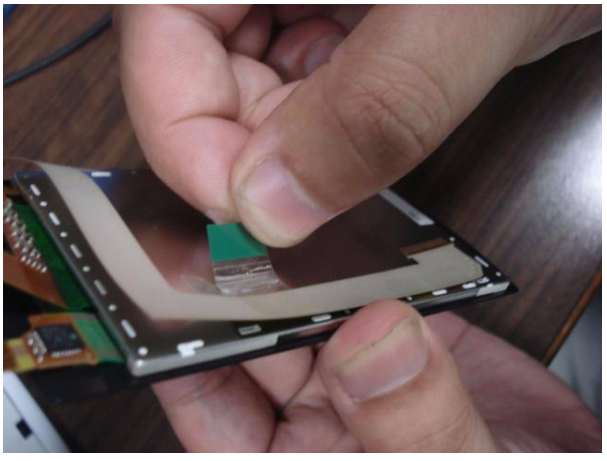
8. Use LCM takes apart fixture separate the LCM module and Upper case.

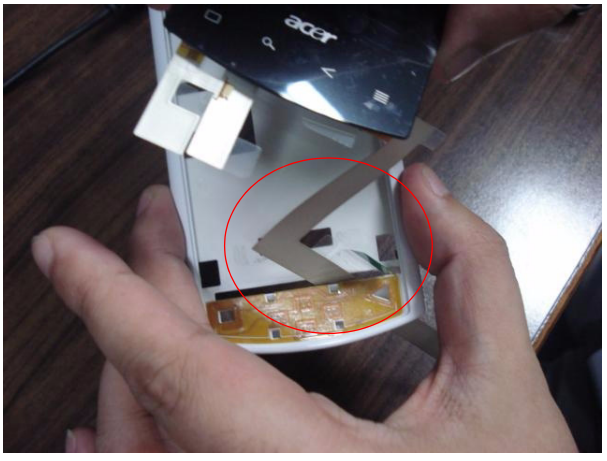


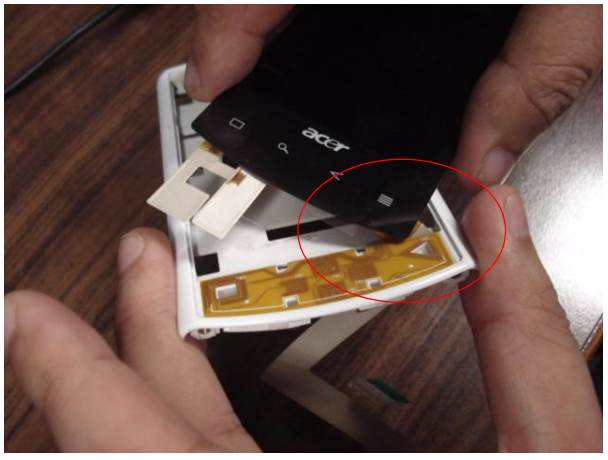
IMPORTANT: Avoid to pressing damage LCM FPC in use LCM fixture.

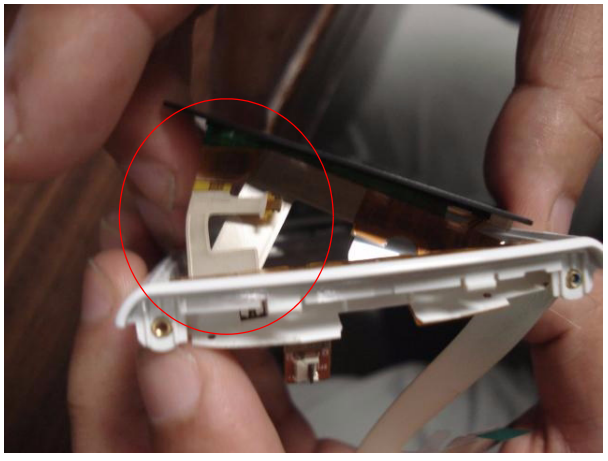
Replacing Internal Module Components

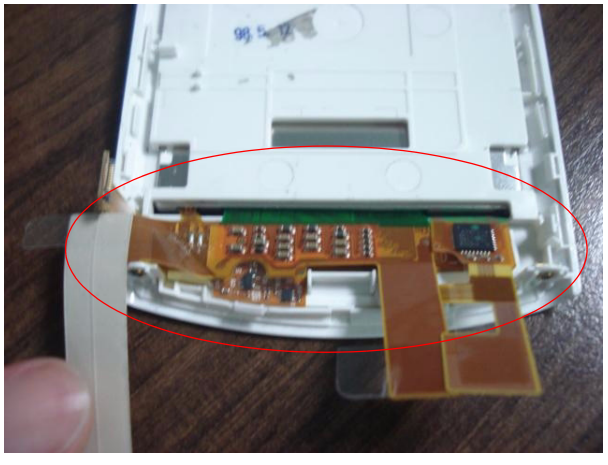
1. Replacing the LCM mudule follow step as below photo





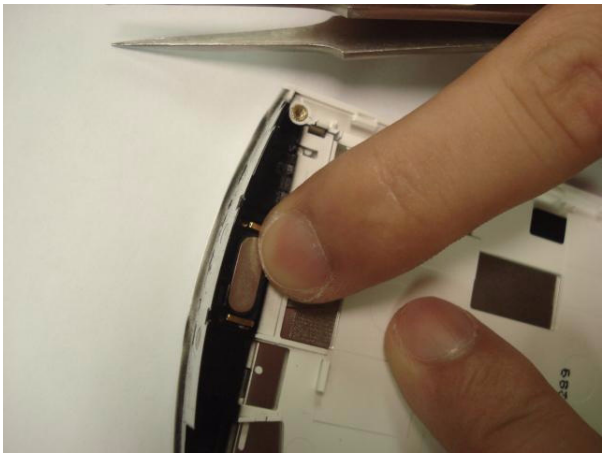


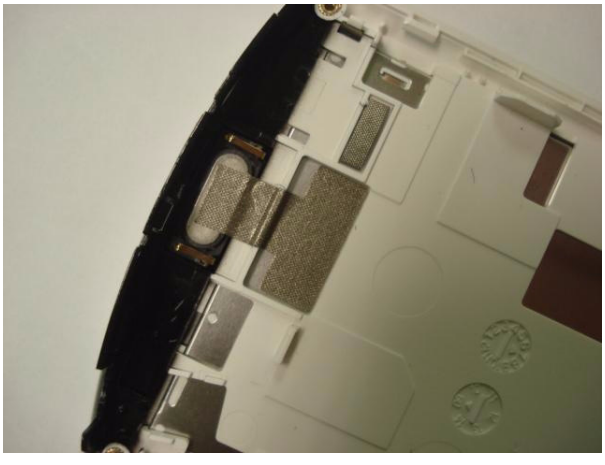




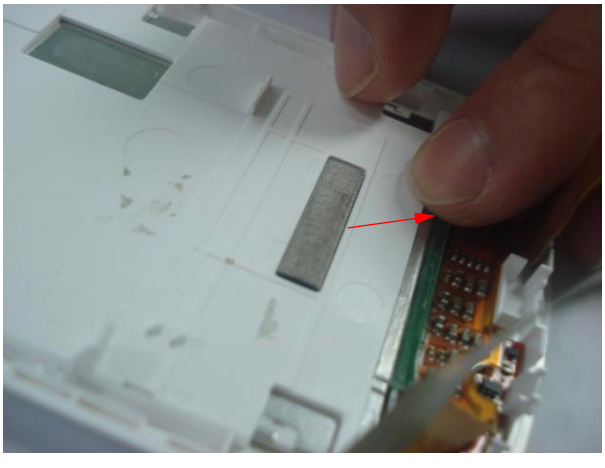
Replacing the Upper case material

1. Insert the receiver and press and then paste conductive cloth.

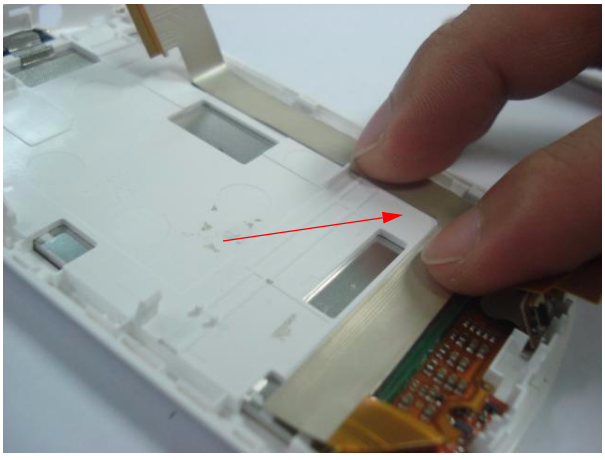




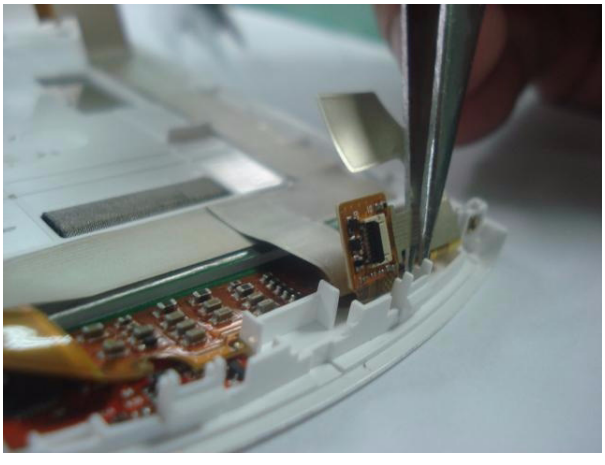
2. Make sure fixed slice in right side.



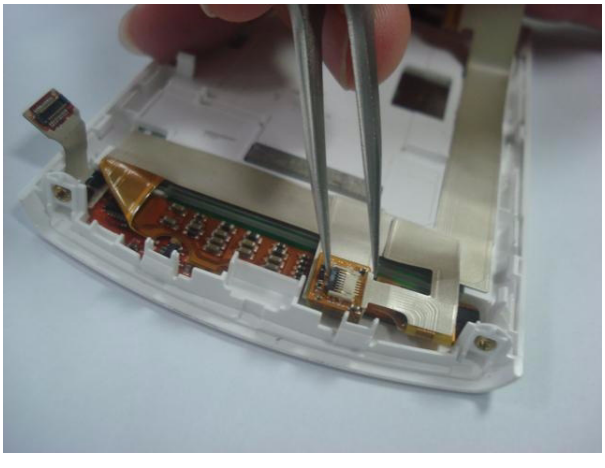
3. Softly paste LCM FPC line up in mark corner.



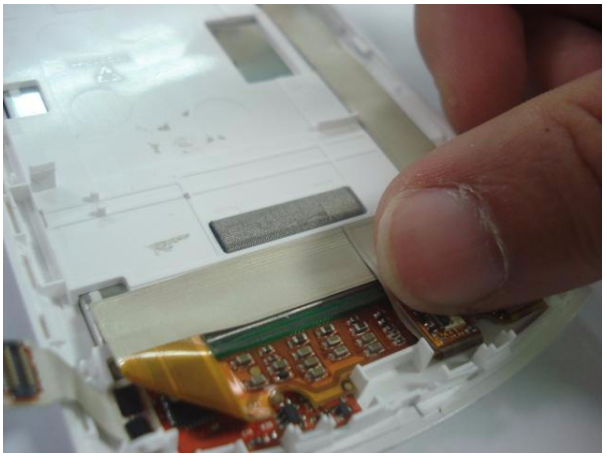
4. Contact pin insert ZIF connector as below.



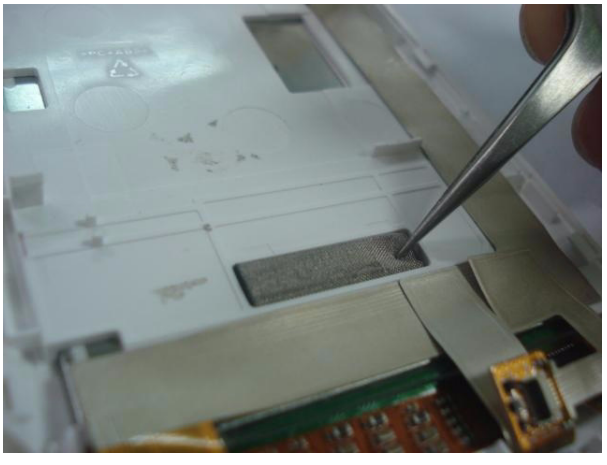
5. Close ZIF connector door as photo.

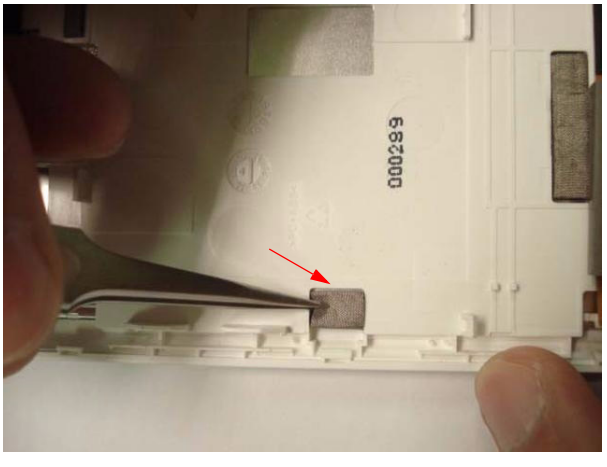


6. Softly press ZIF connector make sure paste on keypad FPC.

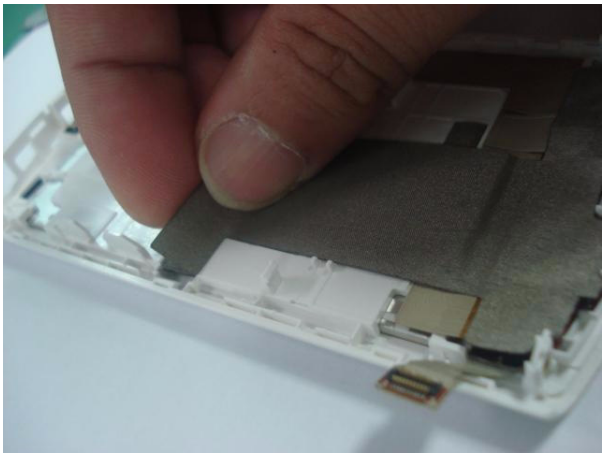


7. Replacing gasket material as below photo.



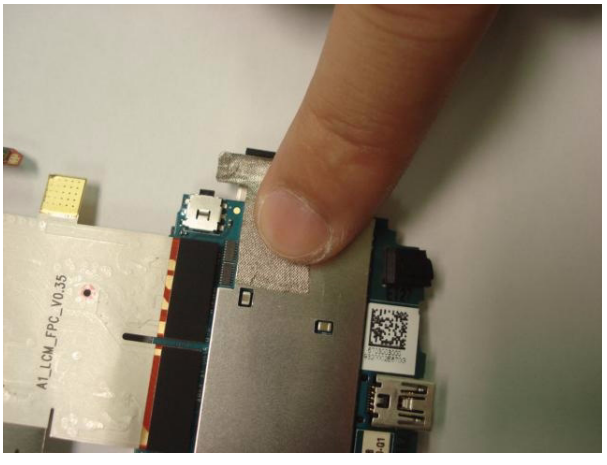


8. Replacing conductive cloth smoothly as photo.

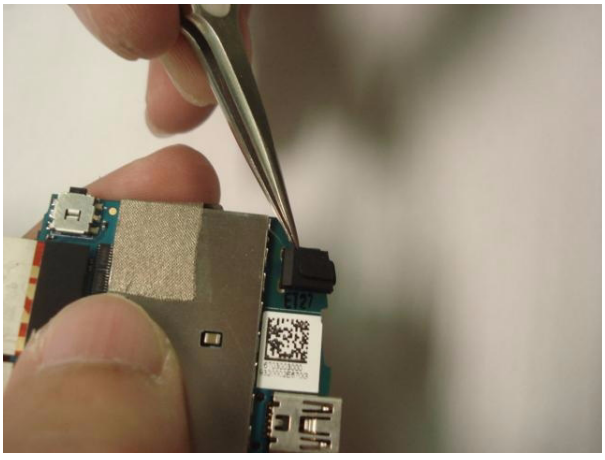


Replacing the Main FPC/Board and Sub Board on the upper case

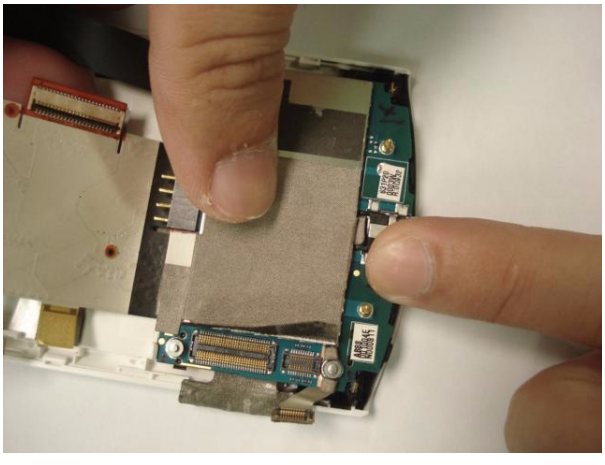
1. Paste the condutive cloth on shielding case as photo



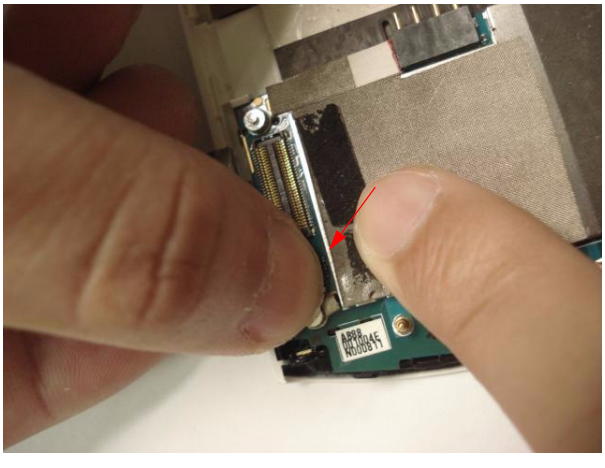
2. Put on the Mic rubber on the MIC as below photo.



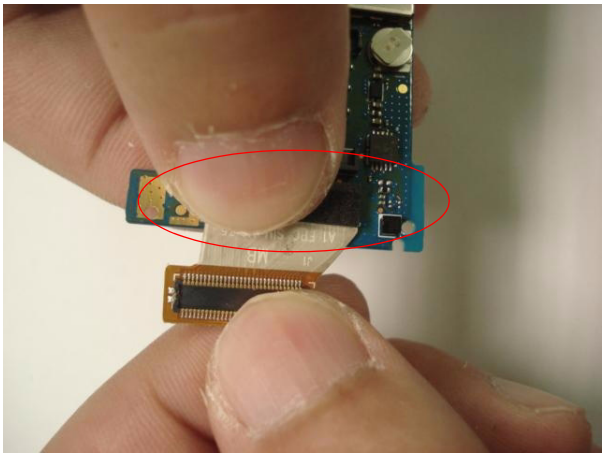
3. Put the Main FPC/Board and Sub Board on the Upper case as below photo.



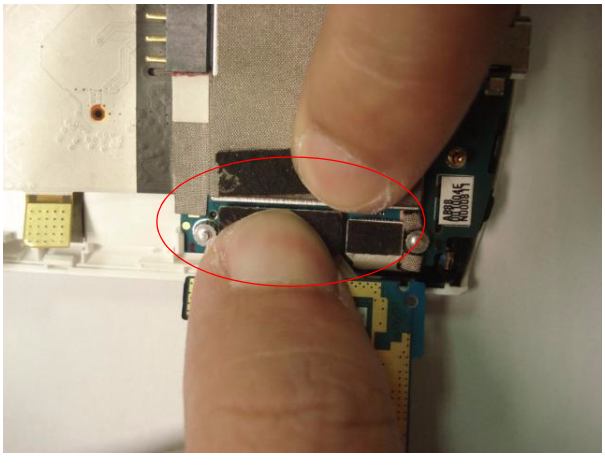
4. Replacing keypad FPC on M/B as below photo.



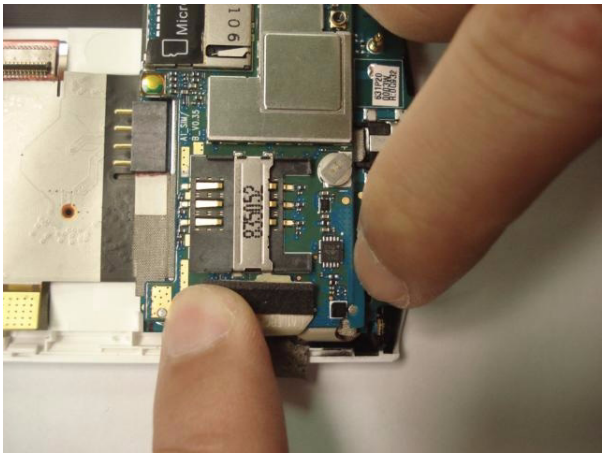
5. Replacing FPC connector with SIM board as below photo.



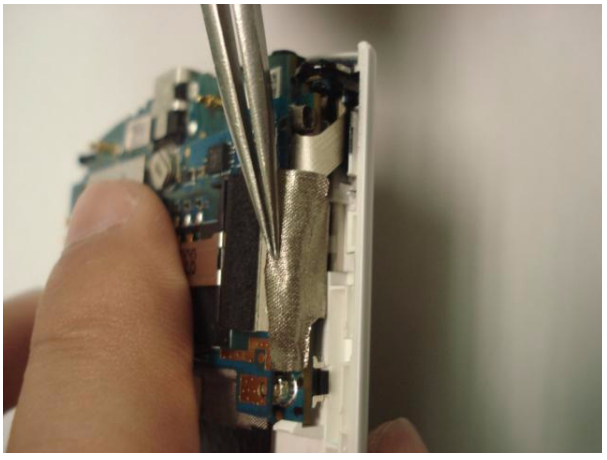
6. Replacing SIM board in Main board as below photo.



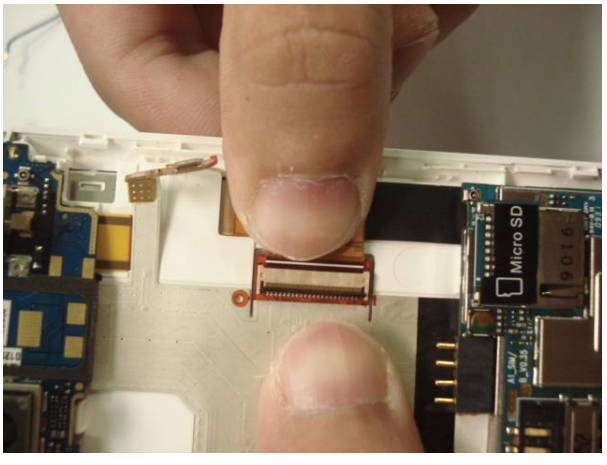
7. SIM board fixed in boss pillar on the M/B as below photo.



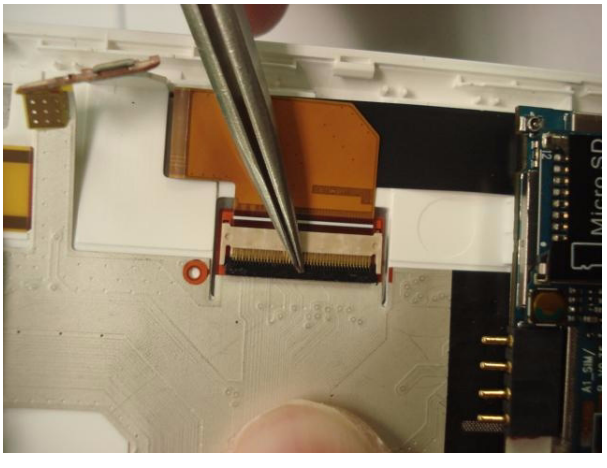
8. Paste the conductive cloth wrap FPC as photo.



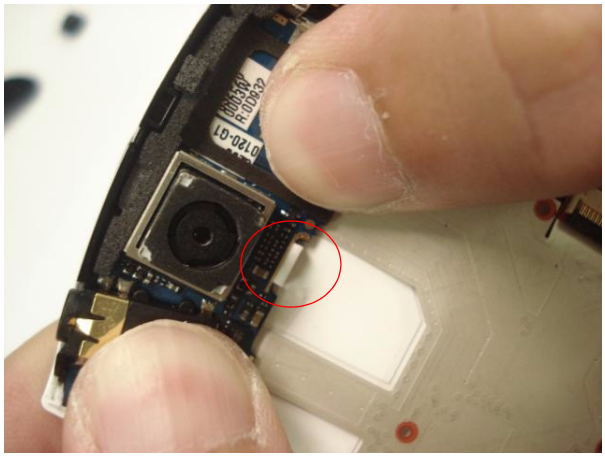
9. Insert LCM FPC into the Main FPC as below photo.

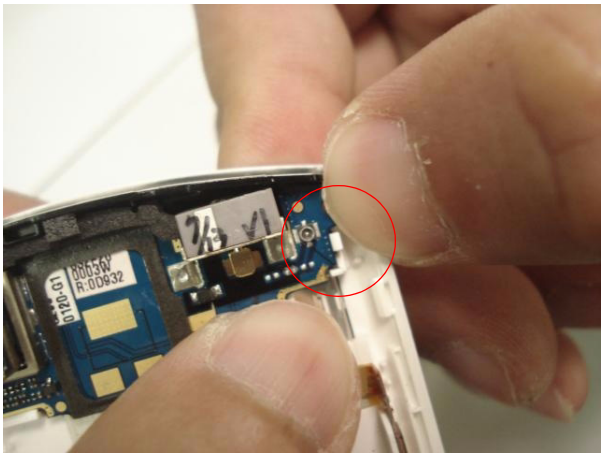


10. Close Main FPC ZIF connector door as below photo.

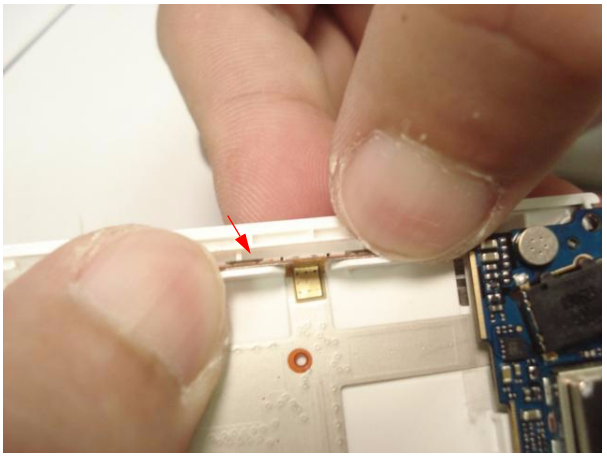


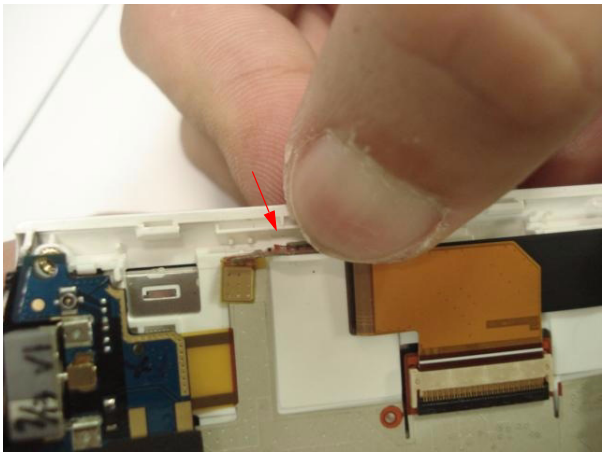
11. Replacing Sub board in the hook on the Upper case.



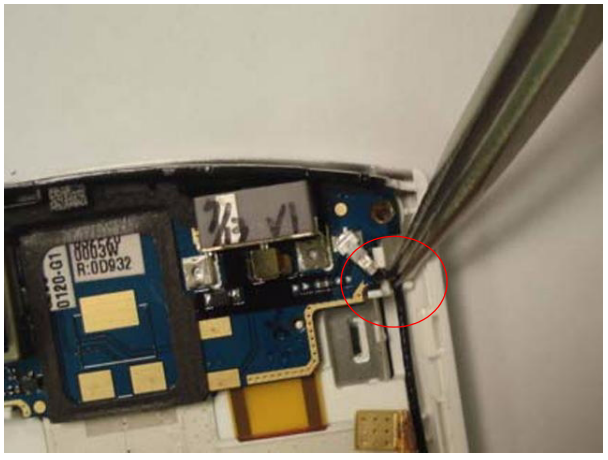


12. Replacing Main FPC of volume key / power key on the Upper case.

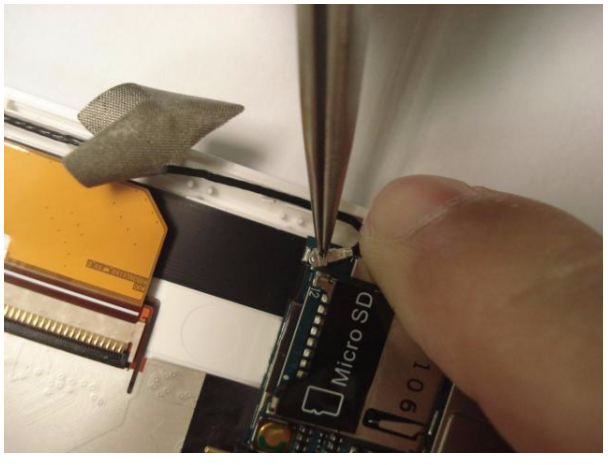




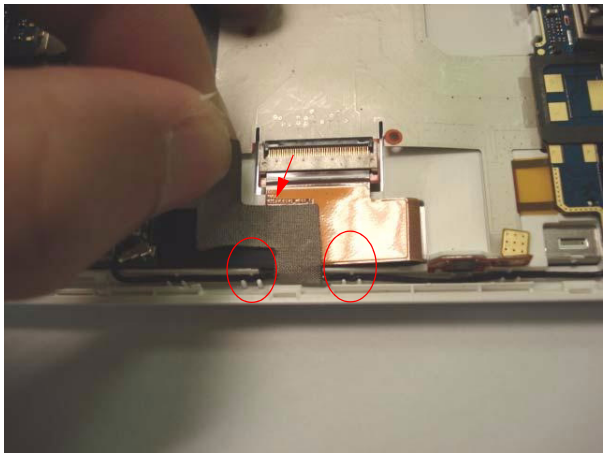
13. Fixed the coaxial cable on the Sub board and line need to fixed in boss pillar as below.



14. Fixed coaxial cable on Main board of RF connector as below.

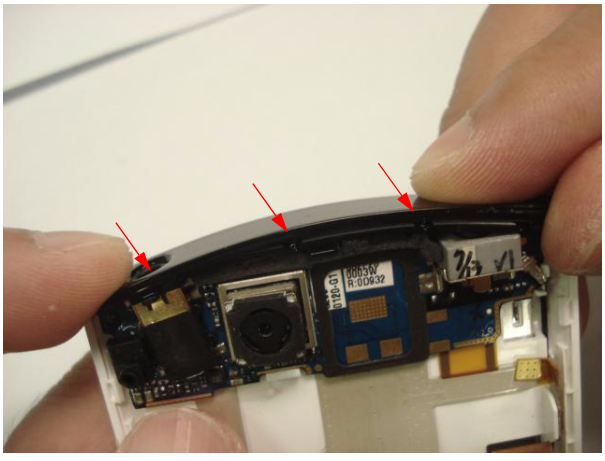


15. Coaxial cable fixed in boss pillar and gasket smoothly paste on the FPC as below.

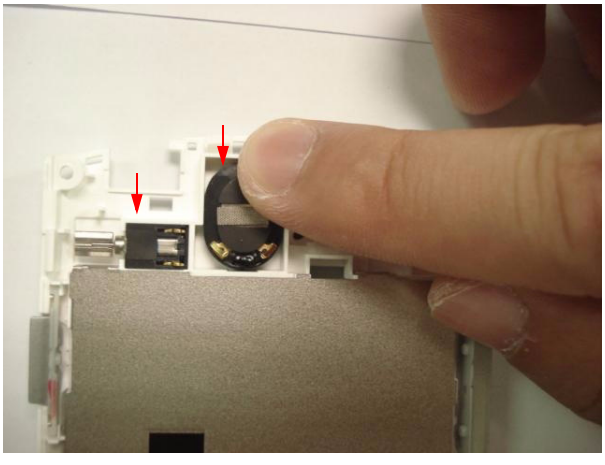


Replacing the Lower Case

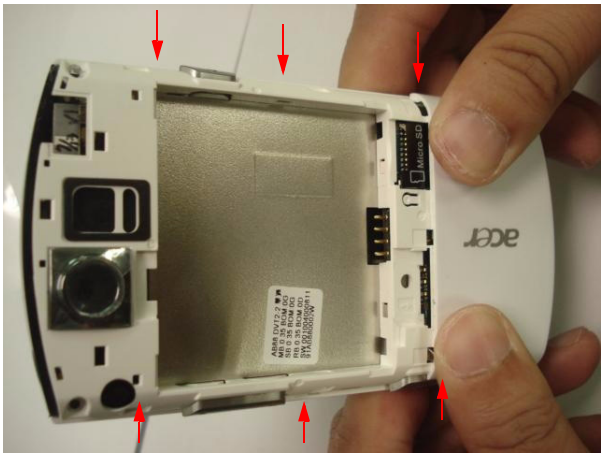
1. Replacing upper Lens as below photo



2. Replacing Speaker and Vibrater on the Lower Case as below.



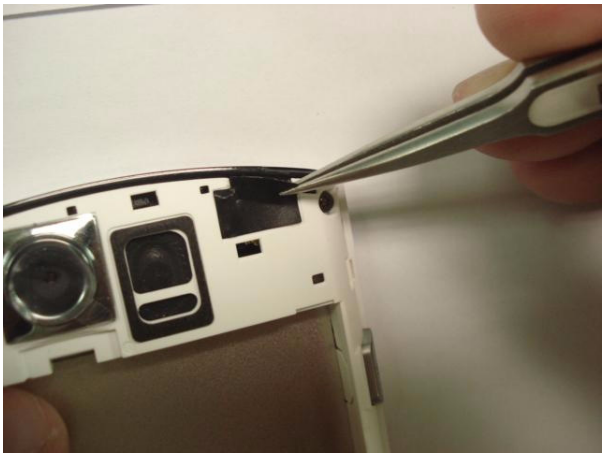
3. Need to check USB connector through Lowercase.
4. Press hook as mark location.



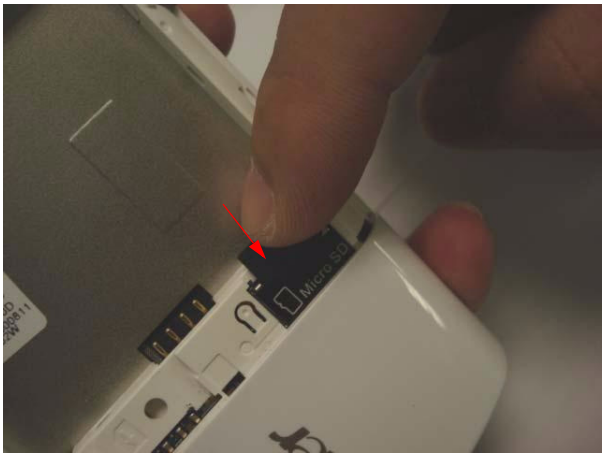
5. Replacing screws as below mark location.

6. Replacing Low Lens as mark direction.

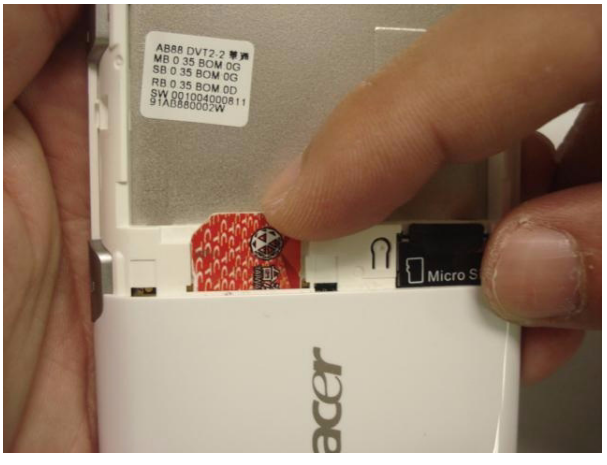
7. Replacing black Mylar on GPS antenna as below.



8. Replacing T-Flash card as mark direction.



9. Replacing SIM card as mark direction.



10. Replacing battery on the back surface as photo.

11. Replacing and press battery cover as mark sign.

Diagnostics and Troubleshooting

How to switch different mode steps

Function	Procedure
Soft-Reset	Use the tip of your stylus to lightly press the Reset button inside the hole on the side of your smartphone.
Download Mode	Hold on "Camera Key" and press "Reset button".
Clean-boot Option	Hold the Volume up and Volume down buttons while pressing reset until the screen shows "Clean Boot".

How to Install Simple Test

Before you begin:

[PC] Install Acer A1 Driver on the PC.

[PC] Unzip Simple Test.rar

[PC] If necessary, edit Install_SimpleTest.bat, modify SimpleServiceVX.X.apk and SimpleTestVX.X.apk to the current released version.

Install Simple Test Steps:

1. [A1] After boot Acer A1 device in OS mode, connect to PC through a USB cable.
2. [A1] Enable USB debugging Settings -> Applications -> Development-> "USB debugging"
3. [PC] Open Simple Test folder.
4. [PC] Double click Install_SimpleTest.bat

If you successfully installed simple test, its icon will be showned on the menu.

Simple Test Function description (windows AP interface)

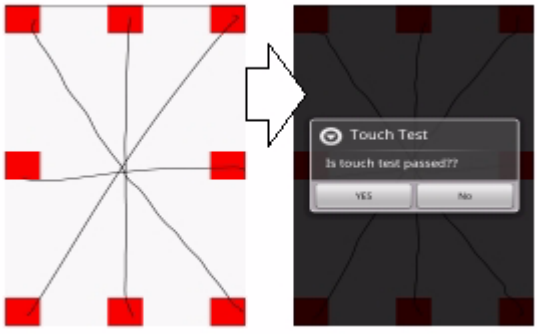
- The main program Simple Test will be installed together with OS.
- Typing “#09#” in the dial panel enters the main program as shown below:

- The main screen features of the Simple Test are described as follow:
  - Each button represents one testing item.
  - Press Camera Key to exit Simple Test.
  - Items that pass the test, are highlighted with green in the main screen while items that fail the test are highlighted with red, as shown below:

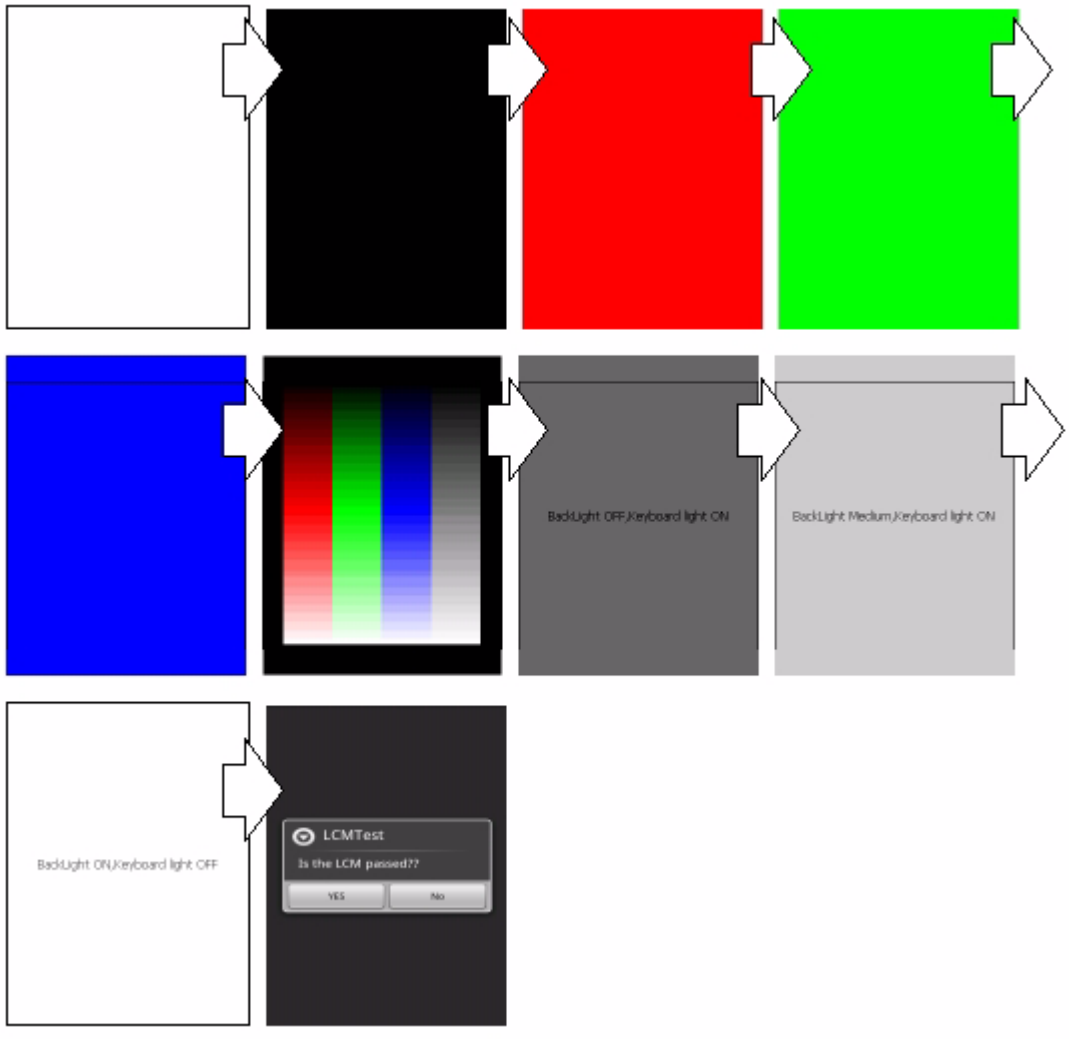
  - If a device has a feature where the device screen is rotated to read the G-sensor status, it should be disabled during the Simple Test.
  - After the Simple Test is initiated, other functions which the physical buttons have cannot be used except for the functions reserved for test purposes or used to exit the test, to prevent the jig from imposing pressure or the operator from accidentally touching the buttons.
- The project name and version should be displayed in the main screen title, such as A1_1.6.
- If the test criterion exits on the SD card, tap the SD testing item to update the criteria on the phone.
- The test criteria are stored in the A1_Simple_Test folder under the root directory.
- The following testing items have their criteria:
  - GPS: Profile GPS_Criteria.txt
  - L-sensor: Profile L_Sensor_Criteria.txt
  - P-sensor: Profile P_Sensor_Criteria.txt
  - Run-In: Profile RunIn_Criteria.txt
  - WIFI: Profile Wifi_Criteria.txt

- WiFi: WiFi connection test.
  - Automatically retrieves the surrounding AP(AP name: TESTAP) for test.
  - Check the RSSI values.
  - The program determines whether the test passes or not by the pass value.
  - Profile: Wifi_Criteria.txt.
  - RSSI Pass Criteria: A value less than -68 is considered pass, such as -68, -67, -50, etc.

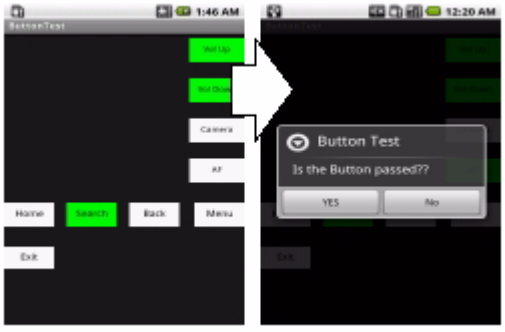
- Touch: Test the touch panel.
  - Use your finger to draw a * shape where the red points are the starting point. If it can be properly displayed, it passes. Otherwise, it fails.
  - Manually determine whether it passes or not.



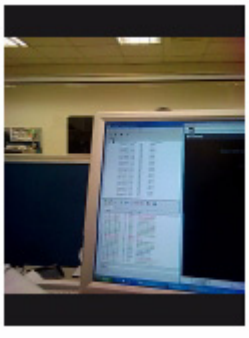
- LCM: Test the screen panel and backlight.
  - Touch the screen to test in the following order: White->black->red->green->blue->color level->backlight complete off->backlight half off->backlight complete on.
  - Manually tap the screen to determine whether it passes or not.



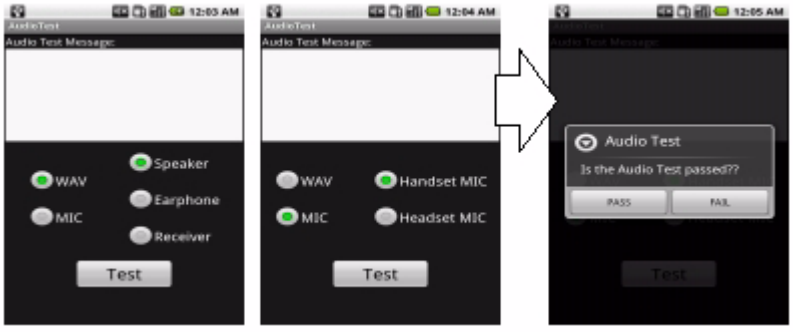
- Button: Test the buttons.
  - The physical button arrangement is displayed on the screen. When you press one key, the icon of the key will be highlighted green if it functions properly. If not, it is highlighted with the default color (white).
  - Button keys include: Vol Up, Vol Down, Camera (full press), AF (half press), Menu, Back, Search, and Home.
  - Power key is not tested.
  - Manually tap the screen to determine whether it passes or not.



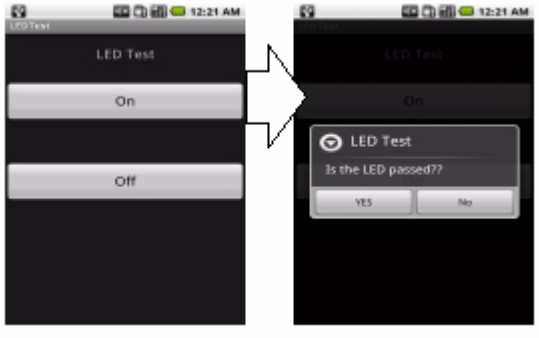
- 5M CAM: Test the camera.
  - Test the preview screen, auto-focus, and shooting.
  - Capture size: Maximum size
  - Support for multi-shooting. (process: After capture, press Back to return to the preview screen; press Back in the preview screen to return to the main shell)
  - If you successfully focus on the subject, a green frame will be displayed. Otherwise, a red one will be displayed.
  - Manually tap the screen to determine whether it passes or not.
  - Press "Back" key to exit.



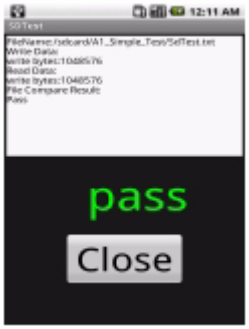
- Audio: Test sounds.
  - When the source is WAV, the audio file is played and output by the amplifier and earphone. When it is MIC, the file is output by the amplifier and headset after a 3-second sound is received by microphone. The output sounds must be clear.
  - The speaker power is 0.5W, 85db, and measured from 5cm default.
  - Manually tap the screen to determine whether it passes or not.



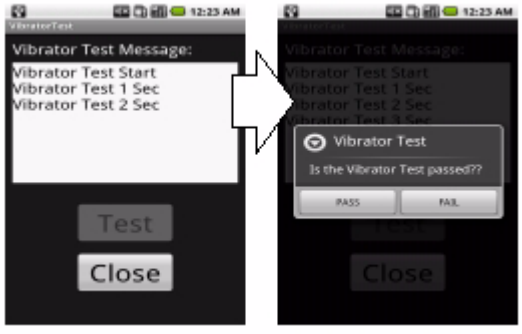
- LED/Key Backlight: Test LED and Key Backlight.
  - Tap the on/off button and check if LED/Key Backlight functions properly.
  - There are 3 LEDs on the top of the phone; Key Backlight is located on the bottom edge.
  - Manually determine whether it passes or not.



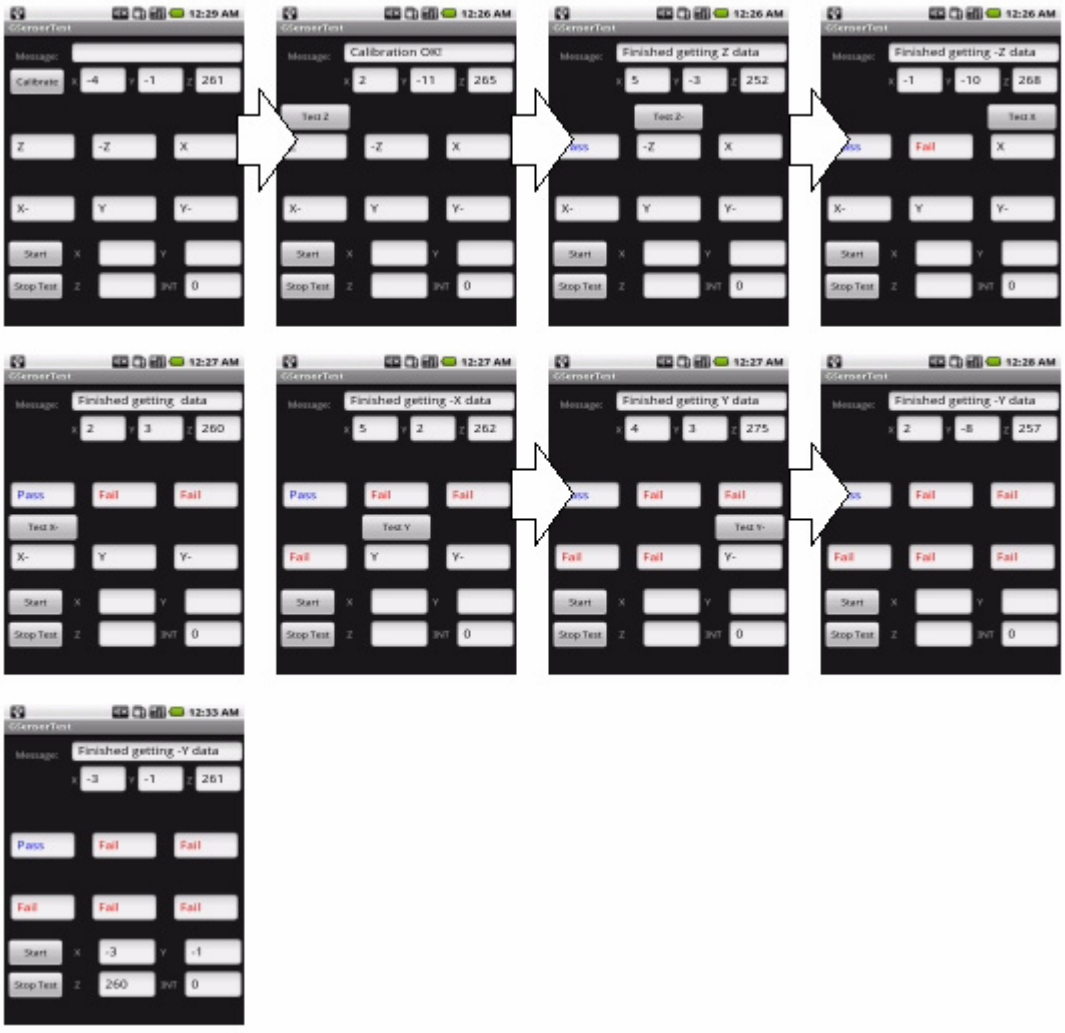
- SD Card: Test access to memory card.
  - Tap Start to run the test and write a file to the memory card. Then read it and compare it against the original to see if it is correct. Repeat the above step again.
  - The program automatically determines whether it passes the test or not.
  - If there are test criteria on the SD card, tap SD to update the criteria on the phone.



- Vibrator: Test the vibration motor.
  - Tap Start to turn the vibration motor on for 3 seconds. The motor must operate properly.
  - The message window shows 3-sec countdown.
  - Manually tap the screen to determine whether it passes or not.



- G sensor:
  - Perform calibration first.
  - Test 6 directions: Z (laid flat face down), -Z (laid flat face up), X (horizontal right), -X (horizontal left), Y (vertical up), -Y (vertical down). The current coordinate values can be collected as well.
  - Press Start button and then shake the device. INT value will change from 0 to 1.
  - Press Stop Test button.
  - Press Camera Key to exit test program. The program automatically determines whether it passes the test or not.
  - Pass Criteria: The measured value should not be 35 more or less than 256. It is considered a pass when falling within this range.



- Proximity sensor:
  - Measure the distance from the target using IR.
  - Perform calibration first and run the test.
  - Place the phone at a position 2.5cm from the measured target and read the ADC value to determine whether it falls within the allowable range.
  - ProfileP_Sensor_Criteria.txt
  - The program automatically determines whether it passes the test or not.
  - Default Pass Criteria:

    1. 500 (Lowest value)

    2. 5000 (Highest value)

    3. 1000 (variation)

    4. 1 (Calibration Lowest value)

    5. 12000 (Calibration Highest value)

    6. 10000 (Minimum differential value)

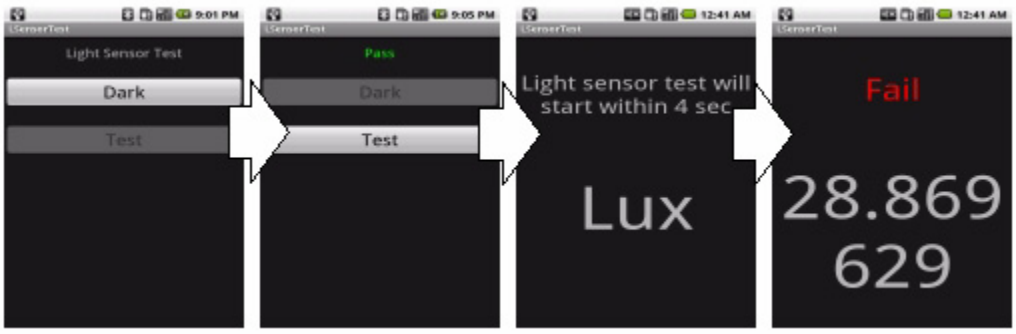
- Light sensor: Light sensor test.
  - Cover L-sensor with your thumb and tap Dark. If it passes the test, proceed with the second test. If it fails the test, it is determined bad without any further tests.
  - Once you tap Test, the phone should be placed into the light box within 5 seconds. 5 seconds later, the phone starts beeping, which represents that the test has begun. Read the LUX value to determine whether it falls within the allowable range.
  - ProfileL_Sensor_Criteria.txt
  - The program automatically determines whether it passes the test or not.
  - Default Pass Criteria:

    1. min: 30 LUX

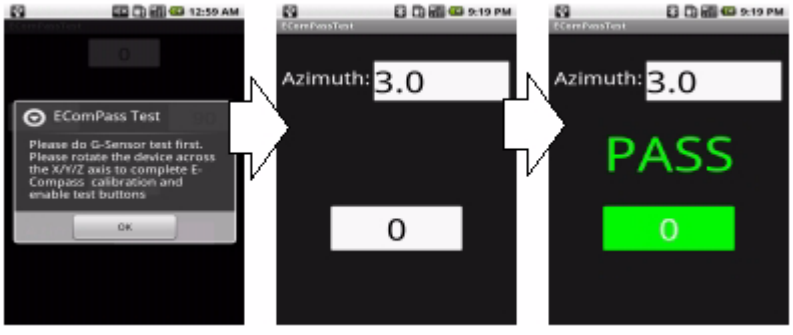
    2. max: 180 LUX

    3. sample number: 5 times

    4. tolerance: 50 LUX (difference between samples)



- eCompass: Electronic compass test.
  - Perform calibration first.
  - As the program indicates, it points to 0 degrees.
  - The measured angle should be less than 10 degrees.
  - The program automatically determines whether it passes the test or not.



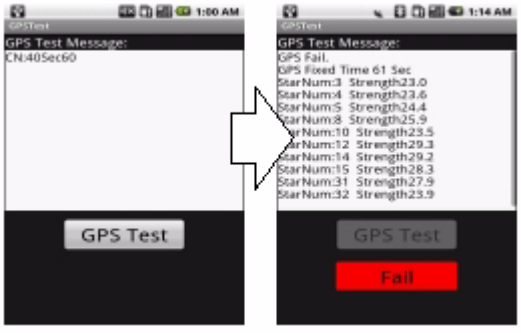
- Idle: Power consumption test.
  - Tap various buttons to enter different modes and connect it to the meter to determine if the power consumption meets the standard.
    - Idle Mode: PDA ON and Phone OFF
    - Suspend Mode: PDA OFF and Phone ON; if it is in Flight Mode, the call function cannot be activated so that Flight Mode should be forced into off when you run this test.
    - Off Mode: Manually press power key to shut it down.

- RunIn: Run-in test.
  - Perform the run-in test on CPU, memory, audio, and screen simultaneously. The preset time is 12 hours. In the first 9 hours, plug it into the AC adapter. After 9 hours, the AC adapter remains plugged in but power is disconnected until the battery capacity is less than 50%. SD can be used to adjust criteria. The system should operate properly after run-in. The following will be performed during the test:
    - Turn on Wifi, BT, Phone
    - Calculate the π value (testing CPU)
    - Play music (testing CPU/memory/audio)
    - Screen drawing
    - Turn on/off key backlight
    - Memory access (RAM test, repeated allocation and de-allocation, read and write)
    - Flash access test (perform read from and write into flash and random access)
  - The elapsed time should be shown in the screen during the test.
  - Perform discharging 3 hours after the test is finished, and the AC adapter remains plugged in. Due to the program control, charging is not performed and the capacity percentage is shown on the screen.
  - When the capacity drops under 50%, turn off Backlight, BT, and Phone and PASS is shown on the screen while the phone goes into the suspend mode.
  - Press Camera key to exit the run-in test.
  - OP automatically determines whether it passes the test or not.
    - Profile:RunIn_Criteria.txt

  Default testing items: All

  1. Turn on BT
  2. Turn on Phone
  3. Calculate the π value
  4. Play music
  5. Screen drawing
  6. Turn on/off key backlight
  7. Memory access
  8. Flash access test

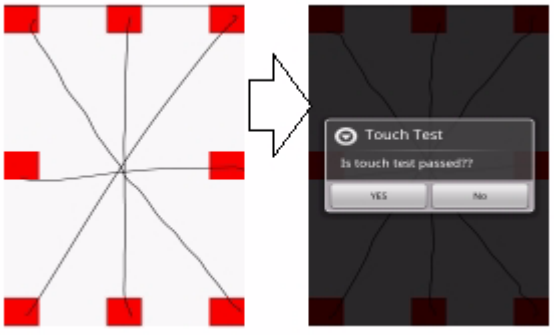
- GPS: GPS test.
  - Press the GPS Go button to start GPS positioning test (cold start).
  - Manually tap the screen to determine whether it passes or not.
  - ProfileGPS_Criteria.txt
  - Pass Criteria:
    1. At least 4 Satellites have a CN value > 40
    2. 3D TTFF < 60 seconds



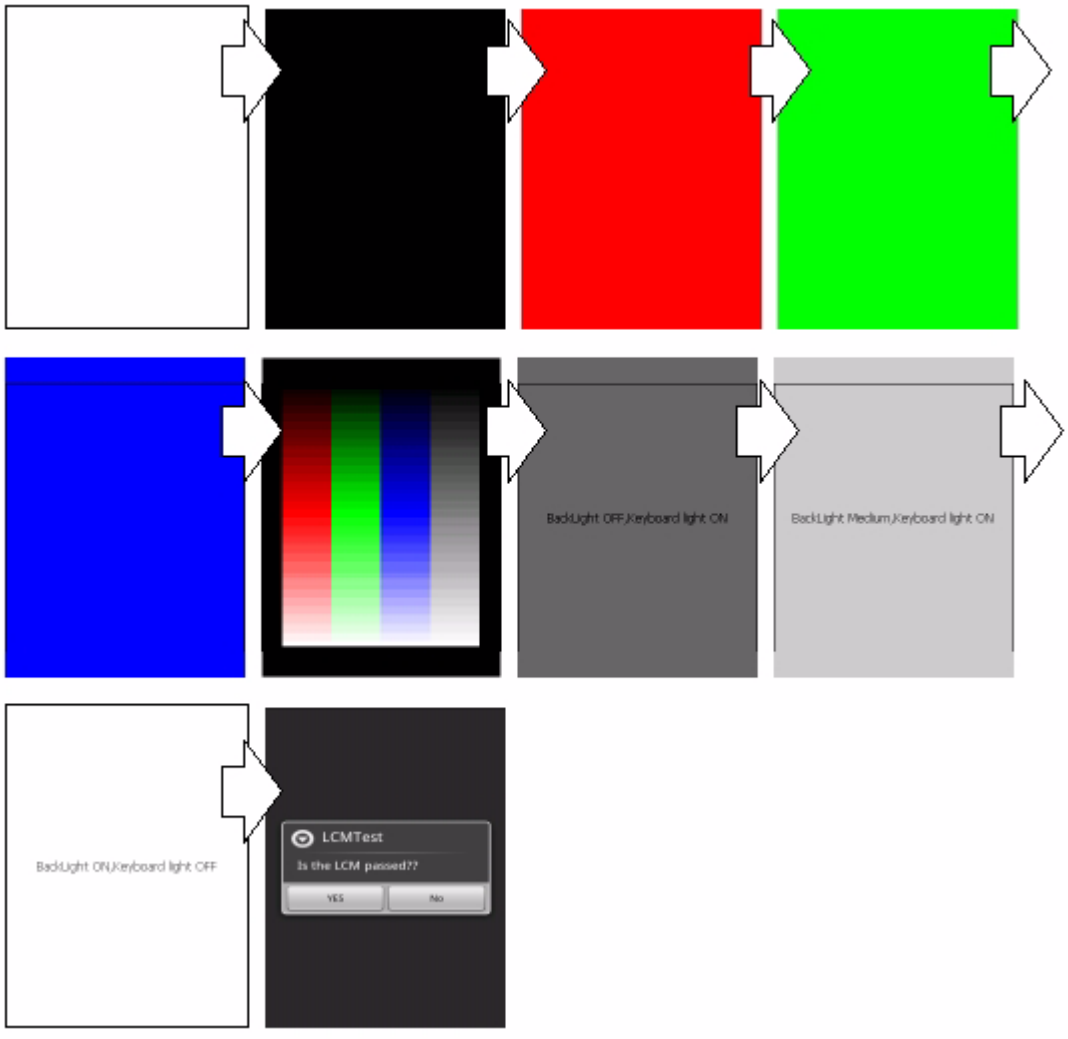
Testing item instructions

- Insert the SD card throughout the Simple Test. The factory side should determine whether the SIM card is inserted or not.
- Exit method: Except for the Button (tapping Exit on the screen), Camera (tapping Back to exit) testing items, the rest of them can be exited using the Camera key.
- WiFi: WiFi connection test.
  - Automatically retrieves the surrounding AP (AP name: TESTAP) for test.
  - Check the RSSI values.
  - The program determines whether the test passes or not by the pass value.
  - RSSI Pass Criteria: A value less than -68 is considered a pass, such as -68, -67, -50, etc.

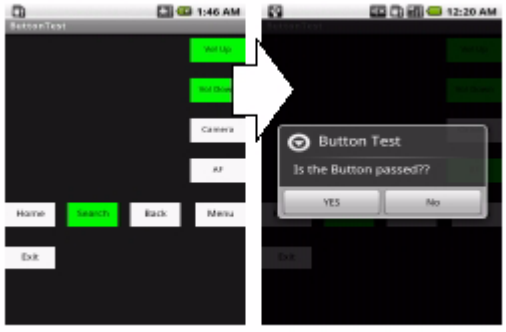
- Touch: Test the touch panel.
  - Use your finger to draw a * shape, as shown in the following figure.
  - The red points are the starting points.
  - Do not draw each stroke too fast; it should take at least 1 second. The drawing trace should be visible.
  - If it can be properly displayed, it passes. Otherwise, if abnormalities are apparent, such as breakdown, shift, no response, etc, it fails.



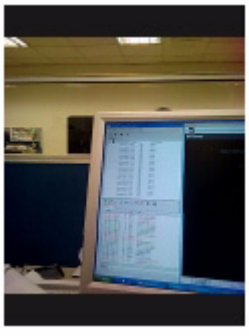
- LCM: Test the screen panel and backlight.
  - Touch the screen to test in the following order: White->black->red->green->blue->color level->backlight complete off->backlight half off->backlight complete on.
  - The screen that is clear with saturated colors is considered passing while any screen with noise, incorrect tones, or any abnormalities is considered failing.
  - Manually tap the screen to determine whether it passes or not.



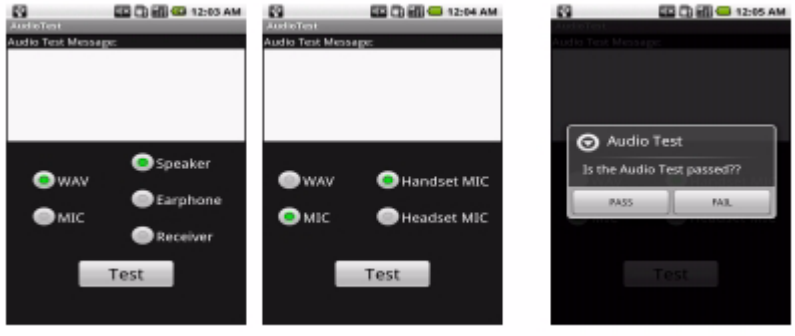
- Button: Test the buttons.
  - The physical button arrangement is displayed on the screen. When you press one key, the icon of the key will be highlighted green if it functions properly. If not, it is highlighted with the default color (white).
  - Button keys include: Vol Up, Vol Down, Camera (full press), AF (half press), Menu, Back, Search, and Home.
  - Power key is not tested.
  - Manually tap the screen to determine whether it passes or not.



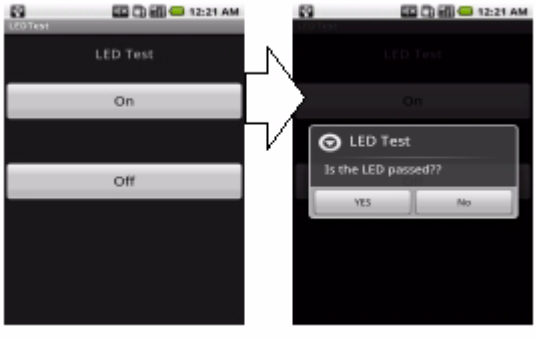
- 5M CAM: Camera test.
  - Test Preview and Capture.
  - Support for multi-shooting.
  - Press the Camera Key to take pictures. A sound can be heard after pictures are taken.
  - The pictures taken will not be stored.
  - Manually tap the screen to determine whether it passes or not.



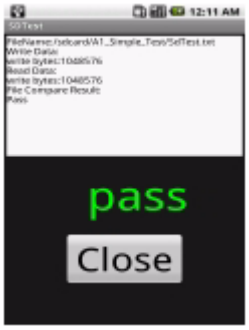
- Audio: sounds.
  - The SD Card should be inserted during the test.
  - Tap WAV as source and Speaker as output. Then tap Test and if the speaker audio output is clear without noise, proceed with the next step. If no sound, crackling, noises or any abnormality occurs, it is considered failing.
  - Tap WAV as source and Earphone as output. Then plug in the earphone and tap Test. If the earphone audio output is clear without noise, proceed with the next step. If no sound, crackling, noises or any abnormality occurs, it is considered failing.
  - Tap WAV as source and Receiver as output. Then tap Test and if the receiver output is clear without noise, proceed with the next step. If no sound, crackling, noises or any abnormality occurs, it is considered failing.
  - Tap MIC as source and Handset MIC as output. Then plug in the headset and tap Test. If the speaker output after 10 sec of receiving sound by microphone is clear without noise, proceed with the next step. If no sound, crackling, noises or any abnormality occurs, it is considered failing.
  - Tap MIC as source and Handset MIC as output. Then plug in the headset and tap Test. If the headset output after 10 sec of receiving sound by microphone is clear without noise, proceed with the next step. If no sound, crackling, noises or any abnormality occurs, it is considered failing.
  - The measurement standard is 5cm.
  - Manually tap the screen to determine whether it passes or not.



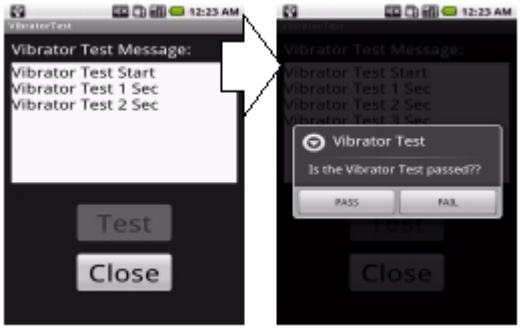
- LED/Key Backlight: Test LED and Key Backlight.
  - Tap the on/off button and check if LED/Key Backlight functions properly.
  - There are 3 LEDs on the top of the phone; Key Backlight is located on the bottom edge.
  - Manually determine whether it passes or not.



- SD Card: Test access to memory card.
  - Insert the SD card to enter OS. Tap Start to perform the test.
  - Pass is shown if the test is successfully finished. Otherwise, Fail is shown.
  - If there are test criteria on the SD card, tap SD to update the criteria on the phone.

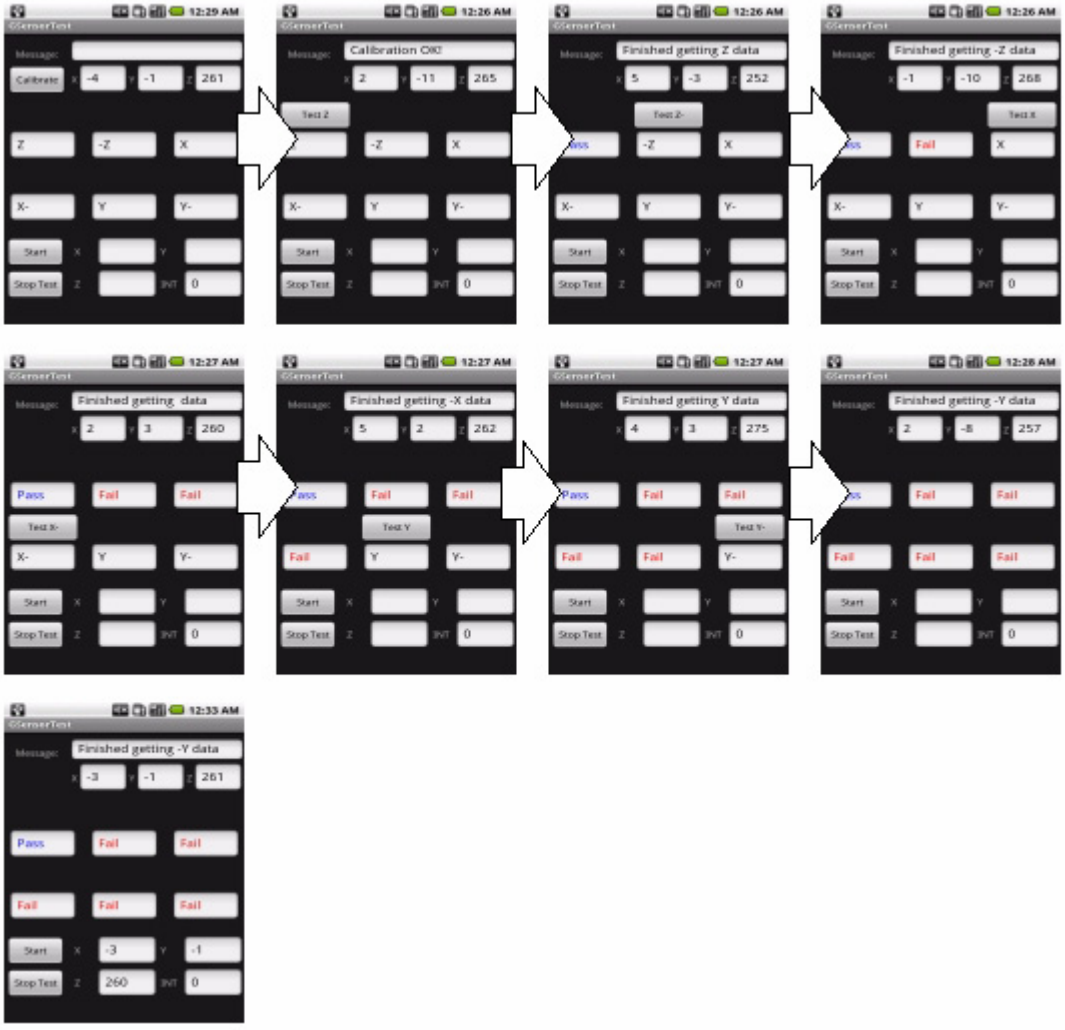


- Vibrator: Test the vibration motor.
  - Tap Start to turn on the vibration motor for 3 seconds.
  - If there is no vibration or abnormal breakdown occurs, it is considered failing. When normal vibration occurs, it is considered passing.
  - Manually tap the screen to determine whether it passes or not.

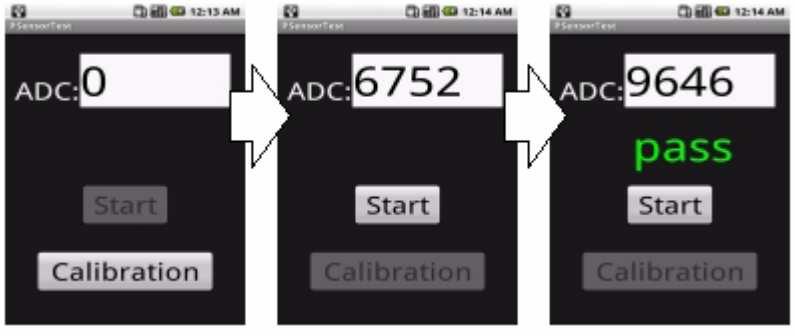


- G sensor:
  - Perform calibration first. The following figure shows:

  - Test 6 directions: Z (laid flat face down), -Z (laid flat face up), X (horizontal right), -X (horizontal left), Y (vertical up), -Y (vertical down). The current coordinate values can be collected as well.
  - The program automatically determines whether it passes the test or not.
  - Pass Criteria: The measured value should not be 35 more or less than 256. It is considered passing when falling within this range.



- Proximity sensor:
  - Measure the distance from the target using IR.
  - Place the phone at a position 2.5cm from the measured target and read the ADC value to determine whether it falls within the allowable range.
  - Perform calibration first and run the test.
  - The program automatically determines whether it passes the test or not.
  - Profile:P_Sensor_Criteria.txt
  - Pass Criteria:
    1. Different min: 500 (the difference between the measured value and Calibration value)
    2. Different max: 5000 (the difference between the measured value and Calibration value)
    3. Tolerance: 1000 (In 3 seconds, each measured difference should not be more than 1000)
    4. Calibration Lowest Value: 1
    5. Calibration Highest Value: 12000
    6. Minimum differential value: 10000 (used during the L-sensor test)
  - Testing steps:
    1. Outside the jig, press Calibration (do not place the object in proximity to sensor at this time) and wait for sounds (the value recorded at this time is A).
    2. Place the phone into the jig and press Start. After sounds (the value recorded at this time is B) occur, press Camera. The green text represents Pass while the red text represents Fail.
       1. Green text appears only if the following conditions are satisfied:
       2. The difference of (B - A) is between 500 (diff min) ~5000 (diff max).
    3. The B value is generated based on the average of ADC values of the proximity sensor within 3 seconds.
    4. In 3 seconds, the difference between each measured value should not be more than 1000 (tolerance).



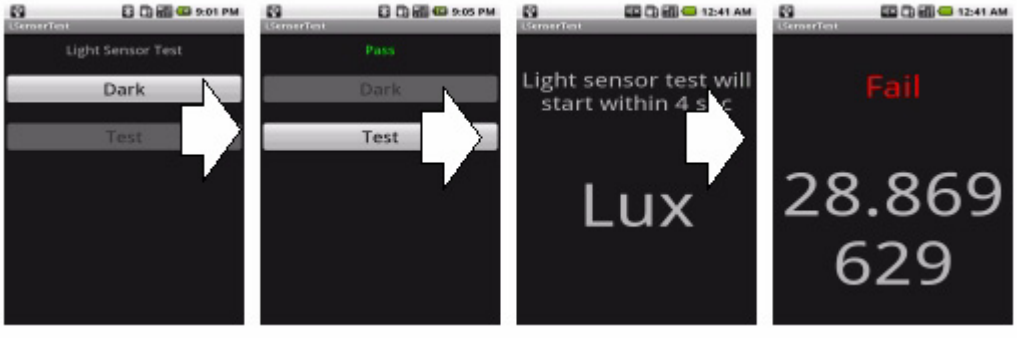
- Light sensor: Light sensor test.
  - Cover L-sensor with your thumb and tap Dark. If it passes the test, proceed with the second test. If it fails the test, it is determined bad without any further tests.
  - Dark mode pass criteria:

- P-sensor's MAX-MIN is not more than the Minimum differential value (defined in P-sensor criteria)
- MAX: The measured value by P-sensor when L-sensor is covered by your thumb.
- MIN: P-sensor Calibration value
- Under Dark conditions, the lux value of L-sensor is not less than 3 lux.
- The text indicating failure is shown: For example, P-sensor fails or L-sensor fails to differentiate which test fails (note: The text “P-sensor fail” may be shown in the L-sensor testing item)

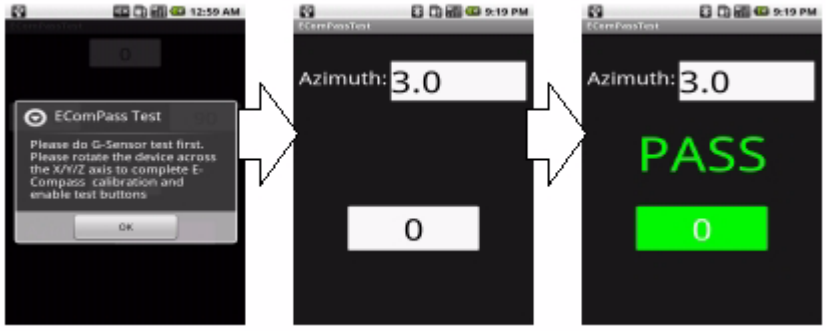
- Once you tap Test, the phone should be placed into the light box within 5 seconds. 5 seconds later, the phone starts beeping, which represents that the test has begun. Read the LUX value to determine whether it falls within the allowable range.
- The program automatically determines whether it passes the test or not.
- Profile: L_Sensor_Criteria.txt
- Default Criteria:
  300
  30
  5
  50
  1200

  The first line is Highest value: 300
  The second line is Lowest value: 30
  The third line is sample number: 5
  The fourth line is variation: 50
  The fifth line is ambient: 1200 (LUX value in the light box)

1. Take a value for sample times. The highest values should not exceed Highest value, the lowest value should not be less than Lowest value, and each variation should not exceed variation.
2. Ambient is used for calibration and is not related to test pass/fail.



- E-Compass: Electronic compass test.
  - Perform calibration first.
  - The phone is placed toward True North and the system determines whether the value read by E-Compass is correct.
  - The measured angle should be less than 10 degrees.



- Idle: Power consumption test.°C
  - Tap various buttons to enter different modes and connect it to the gauge to determine if the power consumption meets the standard.
    - Idle Mode: PDA ON and Phone OFF
    - Suspend Mode: PDA OFF and Phone ON (manually press power key)
    - Off Mode: Manually press power key to shut it down.

- RunIn: Run-in test.
  - Run the phone for 12 hours.
  - Plug in the AC adapter throughout the course.
  - The preset time is 12 hours. In the first 9 hours, charging is performed continuously. After 9 hours, discharging is started until the battery capacity is less than 50% and the phone enters the suspend mode.
  - When RunIn is finished, it is considered a Pass if UI operates. Otherwise, it is considered a Fail.
  - Profile:RunIn_Criteria.txt

    The first line value is RunIn Test time(unit: hour) (ex.12, 24)
    The second line value is whether RunIn Test is performed on Bluetooth or not (ex.1: enable, 0: disable)
    The third line value is whether RunIn Test is performed on WIFI or not (ex.1 : enable, 0 : disable)
    The fourth line value is whether RunIn Test is performed on Audio or not (ex.1 : enable, 0 : disable)
    The fifth line value is whether RunIn Test is performed on KeypadBackLight or not (ex.1 : enable, 0 : disable)
    The sixth line value is whether RunIn Test is performed on Memory or not (ex.1 : enable, 0 : disable)
    The seventh line value is whether RunIn Test is performed on CountPi or not (ex.1 : enable, 0 : disable)
    The eighth line value is whether RunIn Test is performed on Flash or not (ex.1 : enable, 0 : disable)
    The second line value is RunIn Test volume

  - Default criteria:

    12

    1

    1

    1
    0
    0
    0
    0
    7 <= Volume

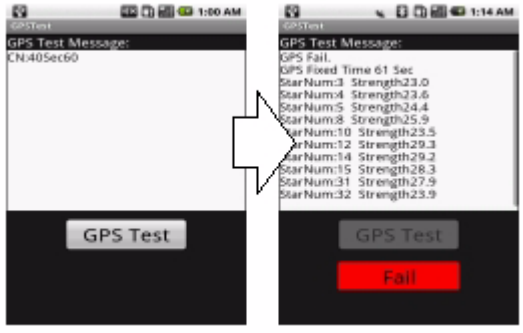
- GPS: GPS test.
  - Press the GPS Go button to start GPS positioning test (cold start).
  - Manually tap the screen to determine whether it passes or not.
  - Profile:GPS_Criteria.txt

    The first line value is the required “standard” strength provided by four satellites in the GPS testing item (ex.38)
    The second line value is whether Fixed Time of the first 3D positioning by GPS falls within the specified seconds for passing the test (ex 60)
    The third value is the number of GPS satellites=>the number required to achieve the standard strength (ex.4)
    The fourth line value is 0 or 1 used to turn on or off 3D Positioning (ex.1 : enable, 0 : disable)
    The fifth line value is 0 or 1 used to turn on or off Retry (ex.1 : enable, 0 : disable)

  - Default criteria:

    38
    60
    4
    1
    0

    The strength CN of 4 satellites should reach 40 and the first 3D positioning be finished within 60 seconds.



Serial Number Definition

The following information describes the serial number details available on the Acer product sticker. To view the serial number, remove the Back Cover and Battery (see “Disassembly Process” on page 17) as shown below:

The following describes the information on the product sticker:

Acer 22 Barcode

Follows Code 128 standard—refer to http://www.adams1.com/pub/russadam/128code.html

Acer_22_Code_SN

PPPPPPPPPPYWWSSSSSMMVV

Code	Description
PPPPPPPPPP	Acer Part Number
YWW	3 digit numeric year and week code
SSSSS	5 character unique hexadecimal code by manufacturer base and reset each week (0-9, A, B, C, D, E, F 16 code)
MM	Manufacturer code
VV	English version code

Acer SNID

YWWddddddMM

Code	Description
YWW	3 digit numeric year and week code (as above)
dddddd	6 digit unique number derived from Acer 22 Code SN (SSSSS) Transfer Rule: S1S2S3S4S5 dddddd = S1 * 164 + S2 * 163 + S3 * 162 + S4 * 16 + S5 For example: 001FD = 000509 (1 * 162 + 15 * 16 + 13)
MM	Manufacturer code (as above)

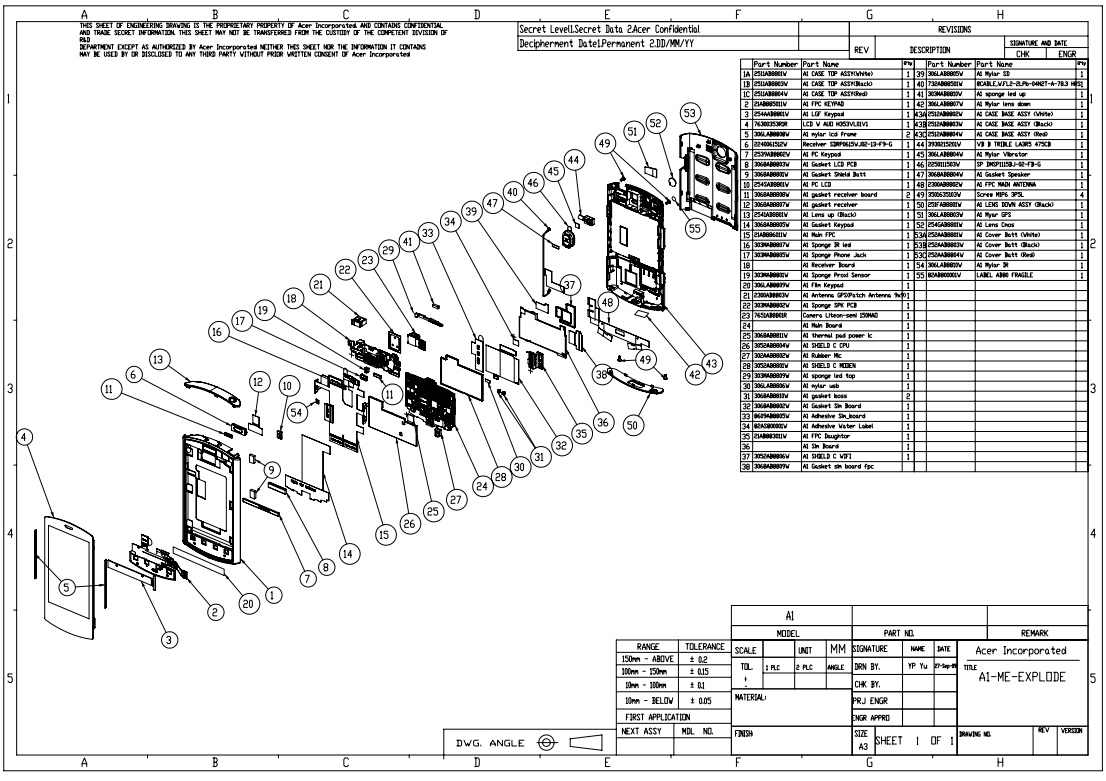
FRU (Field Replaceable Unit) List

This chapter gives you the FRU (Field Replaceable Unit) listing in global configurations of the F900 smartphone. Refer to this chapter whenever ordering for parts to repair or for RMA (Return Merchandise Authorization).

Please note that WHEN ORDERING FRU PARTS, you should check the most up-to-date information available on your regional web or channel. If for whatever reasons a part number change is made, it will not be noted on the printed Service Guide. For ACER AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code from those given in the FRU list of this printed Service Guide. You MUST use the local FRU list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

NOTE: To scrap or to return the defective parts, you should follow the local government ordinance or regulations on how to dispose it properly, or follow the rules set by your regional Acer office on how to return it.

S100 Smartphone Exploded Diagra



Item	Description	Description
253 & 006 & 309 & 310 & 313 & 312 & 308 & 344 & 345 & 335	RF BOARD	60.H470W.005
002	RECEIVER	60.H470W.002
010	SPEAKER	60.H470W.003
011	AUDIOJACK	42.H470W.001
005	VIBRATOR	60.H470W.004
300 & 251 & 323 & 332 & 331 & 339 & 317 & 318 & 324 & 315 & 337 & 338 & 334	MAIN BOARD	MB.H4700.001
252 & 327 & 325	SIM BOARD	55.H470W.001
007	RF CABLE	50.H470W.001
004	RF CABLE	50.H470W.002
003	LCM	LK.03805.001
001	TOUCH PNL	60.H470W.009
008	CAMERA	QM.05M04.002
013	FRAGILE LABEL	47.H470W.008
012	WATERPROOF LABEL	47.H470W.018
329	ANT-ASSY AB80 MAIN LDS QUAD WITH HOLDER	60.H470W.008
303 & 333	UPP-ASSY AB80 SILVER	60.H470W.007
330	LOW-ASSY AB80 BLACK TOP	60.H470W.006
319	RUBBER AB80-RUBBER-MIC	47.H470W.007
302	SPONGE AB80-SRS70P-BTB_14PIN	47.H470W.006
320	SPONGE AB80 SRS48P USB_CONN	47.H470W.011
340	SPONGE AB80 ML24 MID ASSY AUDIOJACK	47.H470W.013
341	SPONGE AB80 ML24 LOW ASSY TOP SPK	47.H470W.014
343	SPONGE AB80 ML24 FLASH FPC	47.H470W.016
314	BACKET AB80-SUS304-VIBRATOR	33.H470W.001
322	BACKET AB80 C5191 CMOS	33.H470W.002
328	MYLAR AB80-MYLAR-SIM/B	47.H470W.009
307	KAPTON AB80-KAPTON-LCM_CHIP	47.H470W.021
321	KAPTON AB80 CAMERA	47.H470W.022
301	KAPTON AB80 TOUCH_PANEL	47.H470W.005
336	KAPTON AB80 SIM BTB	47.H470W.010
306	FILM AB80 D207 LED LEFT	47.H470W.003
305	FILM AB80 D207 LED MID	47.H470W.004
304	FILM AB80 D207 LED RIGHT	47.H470W.002
342	FILM AB80 MYLAR SIM CARD	47.H470W.015
389	SCREW_G TORX-M1.6*3.5-BLACK-AISI1018	86.H470W.001
388	SCREW_G CROSS M1.6*1.75 SIL AISI1018 N	86.H470W.002
386	SCREW_G CROSS M1.6*5 SILVER AISI1018 N	86.H470W.003
387	SCREW_G TORX M1.6*5.5 BLACK AISI1018 N	86.H470W.004

S100 Smartphone Spare Parts List

Spare Parts List

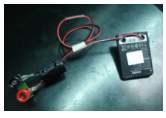
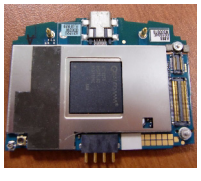
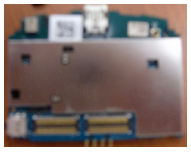
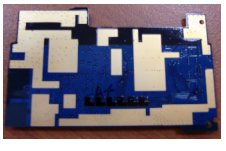
Photo	PARTNAME	Acer P/N
Accessory :		
	F1 & A1 DUMMY BATTERY	6K.H470W.001
	ADAPTOR	AP.0050P.015
	BATTERY	BT.00107.002
	PLUG-CN	AP.0050P.006
	PLUG-EU	AP.0050P.002
	PLUG-UK	AP.0050P.003
	PLUG-AUS	AP.0050P.005
	PLUG-US	AP.0050P.004
	POUCH	XZ.H4800.004
Board :		
 	MB ASSY	MB.H4800.001
	SB ASSY	55.H480W.002
	SB ASSY	55.H480W.001
Cable :		
	RF CABLE	50.H480W.001
	USB CABLE	6K.H460W.003

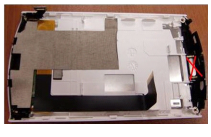
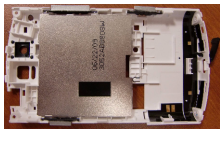
Photo	PARTNAME	Acer P/N
Case / Cover / Bracket Assembly :		
	Antenna GPS	60.H480W.001
	LCD LENS (UP)	42.H480W.001
	LENS ASSY (DOWN)	42.H480W.002
	BAT COV ASY	42.H480W.003
	BAT COV ASY	42.H480W.004
	BAT COV ASY	42.H480W.005
	BATT-COV	42.H480W.006
	BATT-COV	42.H480W.007
	RECEIVER	60.H480W.002
	SPEAKER	60.H480W.003
	VIBRATOR	60.H480W.004
	UPP-ASSY	60.H480W.009
	UPP-ASSY	60.H480W.008
	UPP-ASSY	60.H480W.010
	LOW ASSY	60.H480W.005
	LOW ASSY	60.H480W.006
	LOW ASSY	60.H480W.007
	FPC MAIN ANTENNA	50.H480W.002

Photo	PARTNAME	Acer P/N
	FILM	47.H480W.006
	GASKET	47.H480W.004
	GASKET	47.H480W.005
Miscellaneous :		
	RUBBER MIC	47.H480W.001
	AS80 WATERPROOF LABEL φ 6*4.8mm	47.H470W.008
	SPONGE	47.H480W.002
	SPONGE	47.H480W.003
Camera :		
	CAMERA MODULE	QM.05M04.001
Screw :		
	SCREW_G -M1.6*3.5-BLACK-AISI1018	86.H470W.001

Online Support Information

This section describes online technical support services available to help you repair your Acer device.

If you are a distributor, dealer, ASP or TPM, please refer your technical queries to your local Acer branch office. Acer Branch Offices and Regional Business Units may access our website. However some information sources will require a user i.d. and password. These can be obtained directly from Acer CSD Taiwan.

Acer's Website offers you convenient and valuable support resources whenever you need them.

In the Technical Information section you can download information on all of Acer's products including:

- Service guides for all models
- User's manuals
- Training materials
- Software utilities
- Spare parts lists
- TABs (Technical Announcement Bulletin)

For these purposes, we have included an Acrobat File to facilitate the problem-free downloading of our technical material.

Also contained on this website are:

- Detailed information on Acer's International Traveler's Warranty (ITW)
- Returned material authorization procedures
- An overview of all the support services we offer, accompanied by a list of telephone, fax and email contacts for all your technical queries

We are always looking for ways to optimize and improve our services, so if you have any suggestions or comments, please do not hesitate to communicate these to us.

B

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Removing 19
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Replacing 38
Memory Card
Removing 20
Replacing 46

S

SIM Card
Removing 20
Replacing 46
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