



Test Instruction - Electrical

Applicable W850 and W830

1	Abstract	2
2	Test Procedure	2
3	Test flow	2
3.1	Software Update	2
3.1.1	Verify Software Version	2
3.1.2	Update Software Version.....	2
3.2	Go/No-Go Test.....	3
3.2.1	GSM and WCDMA part.....	3
3.3	Service Tests.....	5
3.3.1	Main Display Test	5
3.3.2	LED/Illumination Test	5
3.3.3	Keyboard Test.....	5
3.3.4	Speaker Test	6
3.3.5	Earphone Test.....	6
3.3.6	Microphone Test	6
3.3.7	Vibrator Test	6
3.3.8	Camera Test.....	6
3.3.9	Flash LED Test.....	7
3.3.10	Memory stick test.....	7
3.3.11	Real Time Clock Test.....	7
3.3.12	Total Call Time test.....	7
3.3.13	FM Radio Test.....	7
3.4	Manual Tests	8
3.4.1	On The Air Call To Mobile	8
3.4.2	Infrared Test	8
3.4.3	Bluetooth Test	8
3.4.4	System Connector Test	9
4	Revision History.....	10



1 Abstract

This document describes the test procedure for the Electrical repair package.

2 Test Procedure

To verify all components within the Electrical repair package, all tests must be performed.

3 Test flow

If the phone passes these tests without any failures, it is OK to return it to the customer.

If there are any failures, the phone must be repaired according to the troubleshooting guide or sent to a higher repair level.

3.1 Software Update

Update to latest signalling software and run the service activities software from EMMA III.

3.1.1 Verify Software Version

NOTE! Remove the SIM-card before testing.

To verify if the phone needs new software, you have to check the Software Version in the phone. Current Software Versions are checked through the following steps:

1. Start up the phone.
2. Enter the Service Tests Menu by pressing the sequence ➡*⬅⬅*⬅* with the navigate buttons and the * on the keypad.
3. Select Service info.
4. Select SW Information.
5. Check the file revisions on the display.
6. Press OK to return to the Service info menu.

3.1.2 Update Software Version

Update the software in the phone by doing the following steps:

1. Make sure that the phone's battery is fully charged or use a battery eliminator. Connect correct flash cable and interface according to the Installation instruction.
2. Logon to the EMMA III server, and follow the instructions

3.2 Go/No-Go Test

This test verifies that the radio parameters of a mobile fulfil the GSM / WCDMA specifications. A mobile is considered good if all measurements pass. All results will be presented on the screen and can be printed out if a printer is available.

3.2.1 RF Test Fixture (Conducted Test Method)

1. Remove the battery cover and RF plug according to Working Instructions, Mechanical.
2. Insert a test USIM that is compatible with your Test Instrument and install a fully charged standard battery to the mobile.

NOTE! A Battery Eliminator (Dummy Battery) may be used in place of a standard fully charged battery if you use a power supply that meets the requirements that are documented in the Electrical Equipment List.

3. Attach the RF Probe/RF Holder to the mobile according to the pictures.
4. Install the RF Cable to the RF Probe.





3.2.2 RF Coupler (Radiated Test Method)

1. Insert a test USIM that is compatible with your Test Instrument and a fully charged standard battery. It is very important that a standard fully charged battery is used; otherwise, there is a risk for wrong test results.
2. Position the phone in the coupler according to the picture.



3.2.3 SERP GNG

NOTE! For complete and detailed user instructions, see the SERP Users Manual located in the SERPINFO.htm that gets placed on the Desktop after SERP is installed.

1. On a PC with SERP installed, start the SERP program by double clicking on the **"RepairManager.exe"** icon on the desktop.
2. Click on **"Settings"** in the SERP Window and verify that the test instrument and the GPIB address correspond.
3. Click on the **"Station Setup"** tab and verify that the **"cable"** (or the **coupler**) settings are selected under the **"RF Connection-GoNogo"** Drop down window. Click on **"Apply"** and then the **"OK"** button.
4. Enter (or scan) the IMEI number of the mobile to be tested into the **"Enter IMEI"** box in the SERP Window and click on the **"Load"** button. The appropriate phone model will be displayed.
5. In the SERP window, check the **"Final GoNogo Test"** box only. Click on the **"Start Test"** button and follow the instructions. (Power on the phone when the **"Call Connection"** dialog box appears.)



3.3 Service Tests

Power up the phone.

NOTE! Remove the SIM-card before testing.

Enter the Service Tests menu by pressing the sequence ➡*⬅️⬅️*⬅️* with the navigate buttons and the * on the keypad.

Select "Service Tests".

3.3.1 Main Display Test

To verify the display:

1. Select "Main display" from the "Service Tests" menu.
2. The display toggles between four different test patterns.
Make sure that there are no dots missing and that the colours and contrast is OK.
3. Press the "↶" key to go back to the service tests menu.

3.3.2 LED/Illumination Test

To verify that the backlight and the red led are OK:

1. Select "LED/illumination" from the "Service Tests" menu.
2. Check that the backlight in the display and the keyboard is toggle between on and off.
3. Also check that the On/Off-button on the top toggles between red and off.
4. Press the "Ok" key to go back to the service tests menu.

3.3.3 Keyboard Test

To verify that all the keys are working:

1. Select "Keyboard" from the "Service Tests".
2. Press all keys on the keypads, the camera key and up/down keys on the right side and the on/off button on the top. If they are ok a text feedback is displayed showing the information which key was pressed. All keys should be tested.
3. If you stop pressing keys the phone will return to the service test menu.



3.3.4 Speaker Test

Warning! Do NOT hold the phone to your ear while performing this test.

To verify the Speaker function:

1. Select "Speaker" from the "Service Tests" menu.
2. Adjust the volume on the right side of the phone and make sure that the speaker is working properly.
3. Press the "Ok" key to go back to the service tests menu.

3.3.5 Earphone Test

To verify the Earphone function:

1. Select "Earphone" from the "Service Tests" menu.
2. Adjust the volume on the right side of the phone and make sure that the earphone is working properly.
3. Press the "Ok" key to go back to the service tests menu.

3.3.6 Microphone Test

This test is intended to test the microphone. Therefore, the earphone should be tested before this test is entered.

1. Select "Microphone" from the "Service Tests" menu.
2. The phone will start to record and after that the sound is played in the speaker. Make sure that the record sounds have a load and clear sound.
3. Press the "Ok" key to go back to the service tests menu.

3.3.7 Vibrator Test

To verify the vibrator function:

1. Select "Vibrator" from the "Service Tests" menu.
2. Press any key (except the "↵" key) and the vibrator will vibrate 3 times.
3. Press the "Ok" key to go back to the service tests menu.

3.3.8 Camera Test

To verify the camera functionality:

1. Select Camera from the "Service Tests" menu.
2. The camera function will now start and are visible in the display. Make sure that the contrast and light is OK.
3. Press the "↵" key to go back to the service tests menu.



3.3.9 Flash LED Test

To verify that the Flash Led is working:

1. Select "Flash LED" from the "Service tests" menu.
2. Check that the flash led is toggle between on and off.
3. Press the "Ok" key to go back to the service tests menu.

3.3.10 Memory stick test

This test is to verify if the communication to the memory stick is working.

1. Insert a memory stick in to the memory stick holder on the top of the phone.
2. Select "Memory Stick" from the "Service tests" menu.
3. Make sure that the phone will detect the memory stick.
4. Remove the memory stick from the holder.
5. Press the "Ok" key to go back to the service tests menu.

3.3.11 Real Time Clock Test

This test will check if the built in real time clock works.

1. Select "Real time clock" from the "Service Tests" menu.
After approximately 5 seconds you will get information whether the clock is ok or not.
2. Press the "Ok" key to go back to the service tests menu.

3.3.12 Total Call Time test

This test will show you the Total Call Time of the phone.

1. Select "Total Call Time" from the "Service Tests" menu
and you will get information regarding the "Total Call Time" of this phone.
2. Press "Ok" key to return to the service tests menu.

3.3.13 FM Radio Test

This test will check if the inbuilt FM radio is working.
Hands free equipment is used in this test.

1. Select "FM radio" from the "Service Tests" menu.

Connect the hands free equipment to the system connector and tune in a well-known FM-Radio channel. Verify that it's possible to switch between different radio channels and that the sound is clear.



3.4 Manual Tests

3.4.1 On The Air Call To Mobile

To verify the function of the speaker, microphone, polyphonic ring signal and volumes button.

1. Insert an operator SIM card and start the phone.
2. Set up a call from another phone to the mobile phone.
3. Answer the phone call.
4. Check that the polyphonic ring signal is working and that the backlight switches on OK.
5. Also check that the quality of the sound both in the mobile phone and the other phone are OK.
6. Press the volume key up and down and check that the volume in the phone is altered.
7. End the call.
8. Check that the ending procedure is OK and that the speech time is displayed.

3.4.2 Infrared Test

To verify that the Infrared communication is working:

1. Insert a SIM card, connect a battery and start the unit.
2. Activate the function by entering Connectivity/Infrared port and select "10 minutes".
3. Set up an infrared link between an IR device and the phone. The IR-module is placed on the right side of the phone. If a link can be established, the module is considered working.

3.4.3 Bluetooth Test

To verify that the Bluetooth communication is working:

1. Insert a SIM card, connect a battery and start the unit.
2. Activate the Bluetooth function by entering Connectivity/Bluetooth and turn it on.
3. Set up a link between the phone and another Bluetooth compatible device. If a connection can be established the Bluetooth module is considered working.



3.4.4 System Connector Test

Hands free equipment and a charger are used in this test, to check the functionality of the System Connector.

1. Insert a SIM card, connect a battery and start the unit.
2. Connect the Hands free equipment to the system connector and set up a call and listen if you can speak/hear in the hands free set.
3. Connect the charger to the system connector and see if the phone starts to charge and if the charging is indicated in the display.



4 Revision History

Rev.	Date	Changes / Comments
A	2006-09-20	Initial release
B	2006-11-07	Insert picture in chapter 3.2.1
C	2006-11-10	Added support for W830
D	2006-12-04	No changes made on the content
E	2007-02-27	Rework on the document