Test Instruction, Electrical

Applicable for K320 and W200

Contents

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

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

1. Start up the phone.
2. Press the following navigation-key and keyboard sequence: ⇨ ✳ ⇦ ⇦ ✳ ⇦ ✳
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 the phone fulfil the GSM850/EGSM900/GSM 1800/GSM1900 specification. If all measurements are approved, this will be confirmed. If any faults are discovered, this will be presented either on the screen or printed out. It's possible to do this test either with antenna coupler from Rohde&Schwarz or RF adapter. When using RF adapter a dummy battery shall be used.

It's very important that a fully charged battery is used otherwise there is a risk for wrong test results.

Antenna Coupler

- Insert a test-SIM and a fully charged standard battery. Position the phone in the coupler according to the pictures (Fig 1).

RF adapter

- Insert a test-SIM and a dummy battery. Assemble the RF adapter according to Fig 2. Connect the RF cable (RPM 119 855) between the Test set and the antenna adapter.

The picture of the position of the phone will be added later.

Fig. 1 Position of the phone in to the
Rohde&Schwarz holder.

*1 Press the antenna connector gently against the external
antenna connector. Slide the adapter towards the RF-connector
until the adapter is in place.*

3.2.1 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

NOTE!   It is not necessary to have a SIM card inserted.

Start the phone.
The Service Tests menu is entered using the following navigation-key and key sequence:
⇨ ✳ ⇦ ⇦ ✳ ⇦ ✳ and 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 Camera Test

To verify the camera functionality:

1. Select "Camera" from the "Service Tests" menu.

2. The camera function will now starts 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.

3.3.3 LED/Illumination Test

To verify that the backlight and the Top LED are OK:

1. Select "LED/illumination" from the "Service Tests" menu.

2. Check that the backlight on the LCD and the keyboard is toggle between on and off.

3. Check also that the red led in the IrDA-window is toggle between on and off.

4. Press the "Ok" key to go back to the service tests menu.

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3.3.4   Keyboard Test

To verify that the keyboard, the navigation-key and the volume key are OK:

1. Select "Keyboard" from the "Service Tests".

2. Press all keys on the keypad, the camera key on the left side and the menu key on the right side**.** If they are ok, a text feedback is displayed showing the information which key was pressed. All keys should be tested. On/Off key is included in the test.

3. If you stop pressing keys the phone will return to the service menu.

3.3.5   Vibrator Test

To verify the vibrator function:

1. Select "Vibrator" from the "Service Tests" menu.

2. Press any key and the vibrator will vibrate 3 times.

3. Press the "Ok" key to go back to the service tests menu.

3.3.6   Earphone Test

To verify the Earphone function:

1. Select "Earphone" from the "Service Tests" menu.

2. Adjust the volume and make sure that the Earphone is working properly.

3. Press the "Ok" key to go back to the service tests menu.

3.3.7   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 and make sure that the Speaker is working properly.

3. Press the "Ok" key to go back to the service tests menu.

3.3.8 Memory Stick Test (W200 only)

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

1. Insert a memory stick in the memory stick slot on the lower left side 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.

Press the "↺" key three times on the left side to go back to the main menu or once to go back to the service tests menu.

3.3.9 FM-Radio Test (W200 only)

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.

2. 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.

Press the "↺" key three times on the left side to go back to the main menu or once to go back to the service tests menu

3.3.10 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 loud and clear sound.

3. 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 the total call time on the phone.

Press the "↻" key to go back to the service tests menu.

3.4 Manual Tests

3.4.1 On The Air Call to Mobile

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

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 (K320 only)

To verify that the Bluetooth 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 turn it on.

Set up a link between a 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	2006-10-10	First release
B	2007-03-22	W200 phone added
C	2007-06-13	Document updated