



Test Instruction - Electrical

Applicable for Z550i, Z550c, Z550a, Z558i & Z558c

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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 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. 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

NOTE! For testing the GSM / WCDMA part use instrument Yokogawa VC 230.

3.2.1 GSM part

If all measurements are approved, this will be confirmed. If any faults are discovered, this will be presented either on the screen. Repair the unit according to the Troubleshooting guide or send the phone to higher repair level.

It's possible to do this test either with antenna coupler from Rohde& Schwarz or RF adapter. When using RF adapter a battery eliminator together with a power box can 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 picture (Fig 1).

RF adapter

- Insert a test-SIM and the battery eliminator or a fully charged standard battery. Assemble the RF adapter according to Fig 2 (Z550, Z558). Connect the RF cable between the Test set and the antenna adapter.

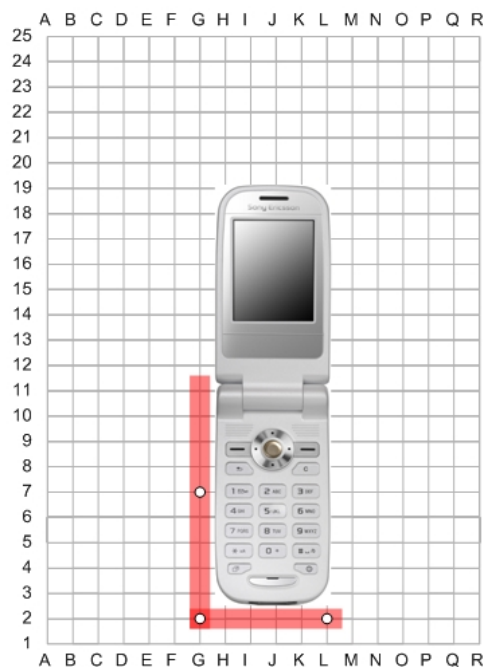


Fig 1a. Z550a

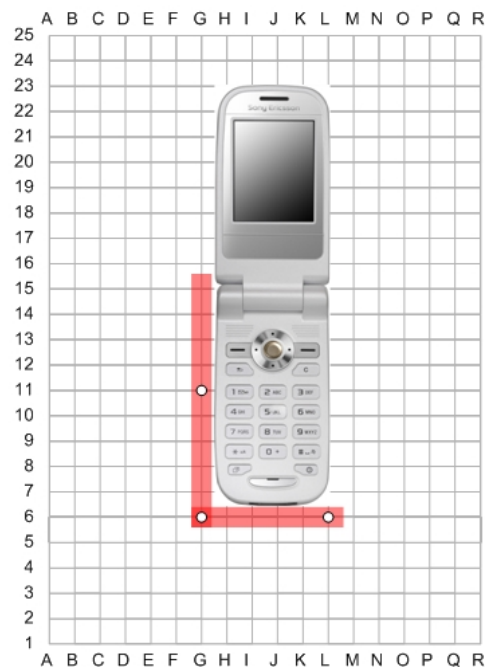


Fig 1b Z550i & c, Z558 i & c

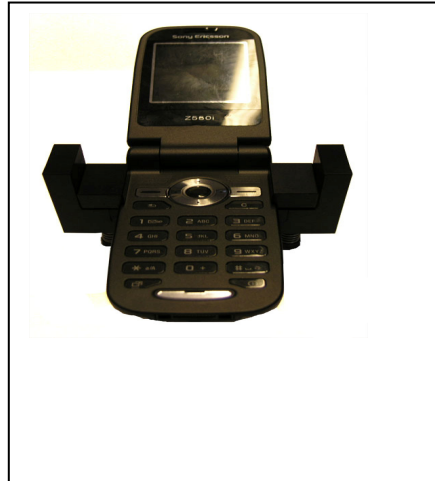


Fig. 2 Z550i,a,c, Z558i,c

1. Start the instrument, and run the correct script for the phone, depending how the measurement will be performed, with coupler or with RF-holder (Hard line).
2. Follow the instructions on the Test instrument during the test.

4 Service Tests

Start up the phone.

NOTE! Remove SIM-card before testing.

Enter "Service Test Mode" by pressing the following navigation-key and keyboard sequence: $\Rightarrow * \Leftarrow \Leftarrow * \Leftarrow *$.
Select "Service tests".

4.1.1 Main Display Test

To verify the display:

1. Select "Display" from the "Service Tests" menu.
2. The display is showing four different test patterns. Make sure that there are no dots missing and that the colours and contrast is OK.
3. Press the " \hookleftarrow " key on the left side to go back to the service tests menu.

4.1.2 Led/illumination Test

To verify that the backlight of the display is OK:

1. Select "LED/illumination" from the "Service Tests" menu.
2. Check that the backlight in the display toggles between normal and bright and that the backlight of the keyboard toggles between on and off.
3. Check also that the LED on the top of the phone toggles between red and green.
4. Press the " \hookleftarrow " key on the left side to go back to the service tests menu.



4.1.3 Keyboard Test

To verify that all the keys are working:

1. Select "Keyboard" from the "Service Tests".
2. Press all keys on the keyboard including the navigation and jog dial key. Press also the buttons at the left, right and top of the phone.
3. Press the "⏮" key twice on the left side to go back to the service tests menu.

4.1.4 Vibrator Test

To verify the vibrator function:

1. Select "Vibrator" from the "Service Tests" menu.
2. Press any key to start the vibrator.
3. Press the "⏮" key on the left side to go back to the service tests menu.

4.1.5 Speaker Test

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

To verify the Speaker and Earphone 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 "⏮" key on the left side to go back to the service tests menu.

4.1.6 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.

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

4.1.7 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.



4.1.8 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.

4.1.9 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.

4.1.10 Total call Time

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.

4.1.11 Memory Stick Test

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

1. Remove the battery cover and insert a memory stick in to the memory stick holder on the 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.
5. Press the "↵" key three times on the left side to go back to the main menu.

4.1.12 FM Radio Test

To verify the function of the FM radio:

1. Install a Portable Hands-Free (PHF) to the system connector.
2. Select "FM radio" from the "Service Tests" menu and press the "Select" key.
3. Using the keypad set the frequency to a known good FM station.
4. While listening to the FM station with the PHF ensure that the sound quality compares to a known good handset.
5. Remove the PHF and press the "OK" key to end the test.



4.1.13 Touch screen Test

To verify the functionality of the touch screen on **Z558i & Z558c Only**

3. .Select "Touch screen" from the "Service Tests" menu.
4. Draw with the supplied pen a simple picture on the screen and check that the picture corresponds to your movements of the pen.
5. Press the "⏮" key on the left side to go back to the service tests menu.

4.1.14 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.

4.1.15 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.

4.1.16 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.



5 Revision History

Rev.	Date	Changes / Comments
A	2006-07-03	First release
B	2006-09-28	Z550a Released
C	2006-10-12	Z558 Released
D	2007-08-08	Chapter 3.2.1 updated