

Test Instruction, Electrical

Applicable Z780a, Z780i, TM506

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1 General

This document describes the test procedures for the electrical repair package.

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.

There are two options available for performing the GNG test, SERP GNG or a Stand alone GNG. The SERP GNG can be downloaded from CSPN as described in Installation Instructions, Electrical (1211-9592). To perform a Stand alone GNG a test script must be written in accordance with the GO/NO GO Test Script Specification, Electrical (1211-9597) located on CSPN.

2.1 Go/No-Go Test Preparations

2.1.1 RF Probe (Conducted Test Method)

1. Remove the 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. Install the RF Probe to the RF Cable and attach to the mobile according to the picture.



2.1.2 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 handset on the Grid Positioning plate in the coupler as shown with the Reference point at G3. Additional information on the Grid Positioning plate and other supported SEMC handsets that utilize the Grid Positioning plate, is available in "SERPINFO.htm - R&S Grid plate for SERP" which is located on the windows desktop after SERP is installed.



Rohde & Schwarz Coupler with a Grid Positioning plate
Reference point **G3**

2.2 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 setting in the "**RF Connection-GoNogo**" Drop down window is correct. 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.)

2.3 Stand alone GNG

A Stand alone GNG test script must be written in accordance with the GO/NO GO Test Script Specification, Electrical (1211-9597) located on CSPN.

3 Calibration

The Calibration Program in SERP should only be run as directed by the Electrical Troubleshooting Guide or the Electrical Parts List.

NOTE! *A Test Program must be loaded in the handset before performing the calibration routine. After calibration the handsets must be re-customized with signalling SW.*

3.1 Flashing the Test Program (ITP) into the Mobile

Flash the “Z780i,Z780a,TM506 Test Program” software into the mobile by doing the following:

1. Attach a fully charged battery to the mobile.
2. Open the EMMA III application and log in.
3. Ensure the mobile is powered off.
4. While holding the “2” button, connect the mobile to the USB Flash cable. (Once the USB Icon appears in the EMMA III window, you may release the “2” button.)
5. Select the “Z780i,Z780a,TM506 ITP” protocol and follow the on screen instructions.

NOTE! *Under most circumstances, the display on the mobile will be blank when the Test Program is installed.*

3.2 Calibration Instructions

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 the **"Settings"** button in the SERP Window to verify the test instrument, GPIB address and the COM Port matches the SERP settings.
3. Click on the **"Station Setup"** tab and select **"Cable"** or **"Cable in Shield box"** under the **"RF Connection-Calibration"** Drop down window. Click on **"Apply"** and then the **"OK"** button.
4. Enter (or scan) the IMEI number of the mobile to be calibrated into the **"Enter IMEI"** box of the SERP Window and click on the **"Load"** button.
5. In the SERP window, check either the **"GSM Calibration"** or **"WCDMA Calibration"** box that applies.

NOTE! **Due to the sensitivity of the phone from outside interference during WCDMA calibration, a Shield box and Service Tool Test Interface setup are required for WCDMA Calibration. These can be also used for GSM Calibration.**

6. Connect the mobile to the test instrument using the RF Probe (refer to section 2.1.1).
7. Connect the Sony Ericsson Programming Interface Cable to the mobile's system connector.
8. Click on the **"Start Test"** button in the SERP window to start the Calibration routine (mobile will automatically turn on).
9. Monitor the progress of the calibration routine by viewing the information presented in the **"Test Manager"** window.
10. If a calibration routine fails, troubleshoot according to the Z780i,Z780a,TM506 Electrical Troubleshooting Guide.
11. After successful calibration, reinstall the antenna cover plug. Refer to the Working Instruction, Mechanical.

3.3 Updating the Commercial Software into the Mobile after Calibration

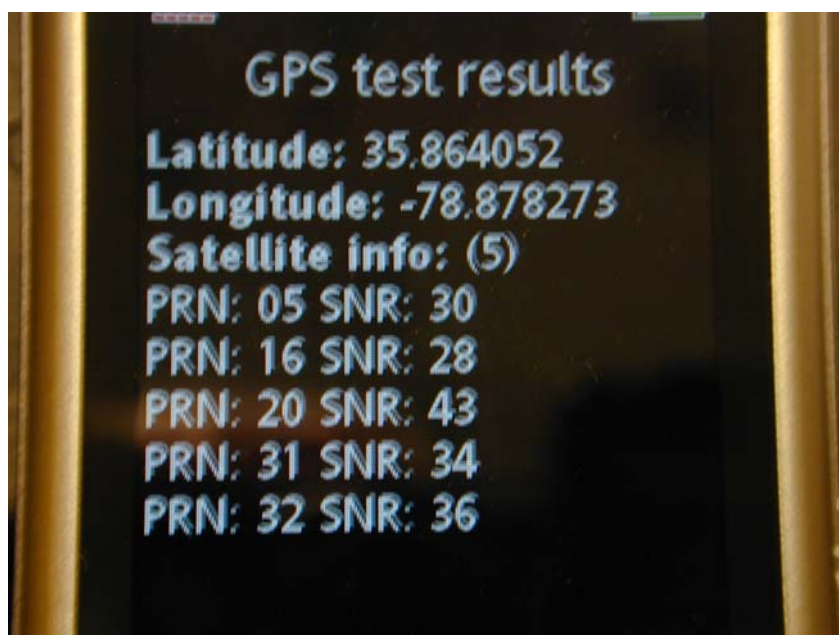
To be able to use the handset after calibration requires going through the Customization process which reloads the appropriate signalling code for the desired operator. Refer to the Z780i,Z780a,TM506 Build Swap Customization Instruction document for further details on the Customization process.

4 GPS Test

4.1 Re-radiating GPS System

1. Make sure the power to the re-radiating system is on.
2. Connect a battery then press the "On/Off" button to start the mobile.
3. Select Normal at the Start Phone menu, if this Menu does not appear proceed to step 3. It is necessary to select normal for the FM Radio test to function.
4. The Service menu is entered using the following Navigation key and keypad sequence: → * ← ← * ← *.
5. Select "Service tests" then press the "Select" key.
6. Select "GPS" from the "Service tests" menu and press the "Select" key.
7. Select "Reset NVRAM" and press the "Select" key.
8. Select Request Position and press the "Select" key.
9. Wait for the screen to display satellite information.

NOTE: The unit must display at least 4 satellites in the "Satellite info:" field, and values must be displayed in the "Latitude" and "Longitude" fields.



4.2 Satellite Signal Simulator System

1. Make sure the power to the simulator system is on.
2. Launch the SimPLEX software application.
3. Use the File, Open menu items to select the Static Scenario.
4. Select the appropriate region for the scenario and click Open.
5. Click Run on the toolbar to start the simulation.
6. Follow steps 2 through 9 from the previous section.

NOTE! If phones continually fail to lock onto the simulator, then go into the user menus of the phone and reset the time and date to match those set in the simulator. Because the phone has an almanac of relative satellite positions, it predicts their behaviour and can fail to lock if the time and date set in the phone don't match those set in the simulator.

4.3 Decreasing Test Time

Up to two minutes may be required for the unit to establish a connection with the satellite signal. In order to make testing more efficient, it is recommended to test several units in series. In other words, start testing one unit, and then while it is trying to establish a connection, start a second unit. Depending on the connection time, three or more units may be under test at the same time.

NOTE! It is important to understand the radiated signal radius coming from the transmitting antenna to make sure all units being tested are within range.

5 Revision History

Rev.	Date	Changes / Comments
1	2008-06-3	First release
2	2008-06-19	Adding photo in page 4.
3	2008-06-24	Using "2" key instead of "C" key in 4.1 chapter.
4	2008-06-25	Adding TM506 project, using new template.
5	2008-11-14	Adding "chapter 4 GPS Test"