



Test Instruction, Mechanical

Applicable for Z780i,Z780a,TM506

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1 Abstract

This document describes the process used for flashing software upgrades and how to functionally test the mobile phone.

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

2 Test Procedure

To verify all components within Mechanical repair package all tests must be performed.

2.1 Test flow

It's OK to return the phone to the customer if the unit is passing these steps of testing without any failures. If there are any failures, the phone must be repaired according to the troubleshooting guide or sent to higher repair level.



3 Pre-Test Preparations

3.1.1 Software Update

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

3.1.2 Verify Software Version

Note: Remove SIM-Card before Testing.

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 the phone.
2. Press the following navigation-key and keyboard sequence: ⇒ * ⇐ ⇐ * ⇐ *
3. Select Service info.
4. Select Software info.
5. Check the software file revisions on the display.
6. Press “centre navi” key to return to the Service info menu.

3.1.3 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 Dummy battery and a power supply. Connect correct flash cable and interface according to the Installation instruction.
2. Connect to the Emma III server, choose application “GSM” and follow the instructions.

4 Service Tests

Note: Remove SIM-Card before Testing.

Start the phone.

The Service Tests menu is entered using the following navigation-key and key sequence: $\Rightarrow * \Leftarrow \Leftarrow * \Leftarrow *$ and select "Service Tests".

4.1 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 "centre navi" key to go back to the service tests menu.

4.2 External display Test

To verify the display:

1. Select "External Display" from the "Service Tests" menu, then Close flip.
2. The display toggles between two different test patterns.
Make sure that there are no dots missing and that the colours and contrast is OK.
3. Open flip to go back to the service tests menu.

4.3 LED/Illumination Test

To verify that the backlight and the LEDS 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. Press "centre navi" key to go back to the service tests menu.

4.4 Keyboard Test

To verify that all the keys are working:

1. Select "Keyboard" from the "Service Tests".
2. Press all keys on the keypads and the "Side Up" and "Side Down" keys on the right side and close Flip . 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.

4.5 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 "centre navi" key to go back to the service tests menu.

4.6 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 "centre navi" key to go back to the service tests menu.

4.7 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.
3. The phone will automatically return to the service tests menu when "Microphone Playing" is completed.

4.8 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 "centre navi" key to go back to the service tests menu.

4.9 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 is OK.
3. Press the "right soft-Back" key to go back to the service tests menu



4.10 Memory card test

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

1. Insert a memory card into the memory card holder located on the lower left side of the phone.
2. Select "Memory Card" from the "Service tests" menu.
3. Make sure that the phone will detect the memory card.
4. Remove the memory card from the holder.
5. Press the "centre navi" key to go back to the service tests menu.

4.11 GPS Test

To verify the function of the GPS:

1. Select "GPS" from the "Service Tests" menu and press the "centre navi" key.
2. Select "Request Position" and press the "centre navi" key, then it shows "Request sent", wait several time, then it shows the location parameters;
3. Press "right soft" key ,go back to form menu;
4. Select "Reset NVRAM", press "centre navi" key, then it shows "Receiver NVRAM was reset successfully";
5. Press "centre navi" key and "right soft" key to go back to the service tests menu.

4.12 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 "centre navi" key to go back to the service tests menu.

4.13 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 the "centre navi" key to go back to the service tests menu.

4.14 Security Test

To verify that the Device Key test is working:

1. Select "Security "from the "Service Tests" menu.
2. Select "Device Key test "from the menu, and you will get information regarding Device Key test, make sure the status is "Key OK".

3. Press the “centre navi” key and then press “right soft-back” key to go back to the service tests menu.

5 Manual Tests

5.1 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.

5.2 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.

5.3 System Connector Test

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

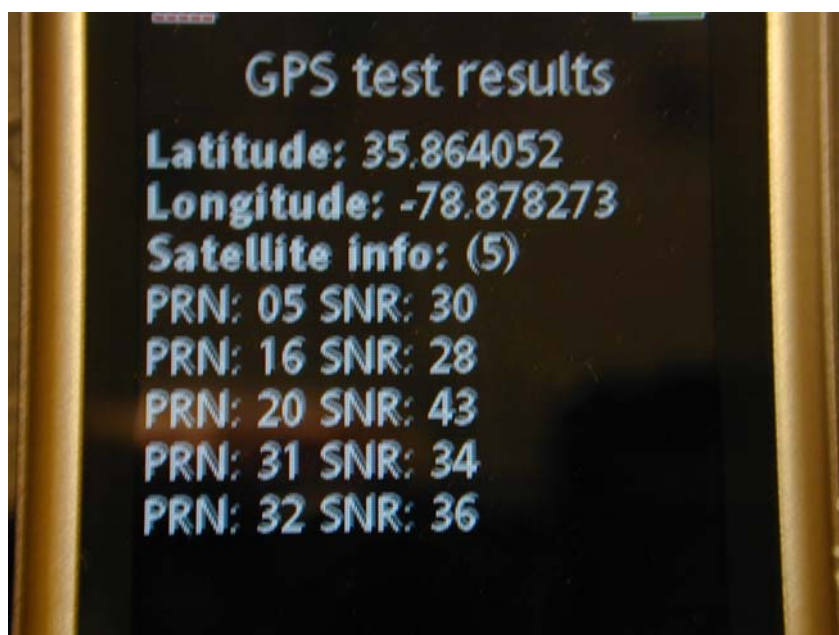
1. Insert a SIM card, connect a battery and start the unit.
2. Connect the Hands free equipment to the system connector and set up a call and listen if you can speak/hear in the hands free set.
3. Connect the charger to the system connector and see if the phone starts to charge and if the charging is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

5.4 GPS Test

5.4.1 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.



5.4.2 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.

5.4.3 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.

6 Revision History

Rev.	Date	Changes / Comments
1	2008-06-2	First release
2	2008-06-13	Adding TM506 project
3	2008-11-14	Update chapter 5.4 GPS test