Test Instruction, Mechanical

Applicable for T280

CONTENTS

1   General

This document describes the process used for 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 the Mechanical repair package, all tests must be performed.
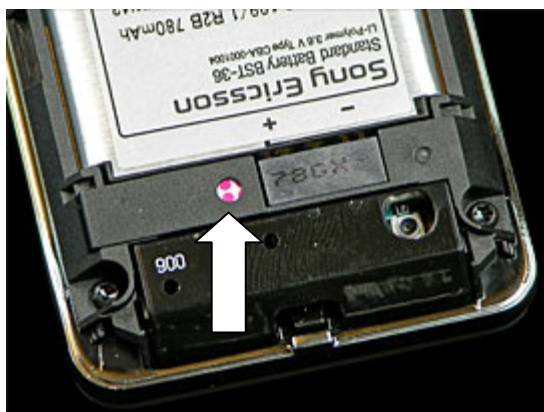
2.1   Test flow

It's acceptable to return the phone to the customer if the unit passes these tests. If there are any failures, the phone must be repaired according to the troubleshooting guide or sent to a higher repair level.

3   Pre-Test Preparations

3.1   Liquid Damage Inspection

Before any tests are performed, an inspection of the liquid intrusion indicator should be made at the location shown. If the liquid intrusion indicator is red, this is an indication of possible liquid exposure. If the liquid intrusion indicator suggests liquid exposure, please consult your local company for additional handling instructions.

The following images show the location of the liquid intrusion indicator.

Location of the Liquid Intrusion Indicator.
(Remove battery cover)

3.2 Software Update

Update the phone with the latest signalling software using EMMA.

3.2.1 Verify Software Version

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

1. Start the phone.
2. Press the following Navigation key and keypad sequence: $\rightarrow * \leftarrow \leftarrow * \leftarrow *$
3. Select "Service Info".
4. Select "Software info".
5. Check the software file revisions on the display. (Contact your line supervisor to determine what the latest SW revision is.)
6. Press "Back" to return to the "Service Info" menu.

3.2.2 Update Software Version

Update the software in the mobile by doing the following:

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 server, follow the instruction and update to latest software.

4 Service Tests

4.1 Required Phone Setup for Service Tests

NOTE! ***It is not necessary to have a SIM card inserted for the Service Tests.***

1. Connect a battery then press the "On/Off" button to start the mobile.
2. The Service menu is entered using the following Navigation key and keypad sequence: → * ← ← * ← *
3. Select "Service Tests" then press the "Select" key.

4.2 Main Display Test

NOTE! ***Minor variations in display brightness and color may occur between phones. There may be tiny bright dots on the display. These are called defective pixels and occur when individual dots have malfunctioned and can not be adjusted. Two defective pixels are deemed acceptable.***

To verify that the display functions:

1. Select "Main Display" from the "Service Tests" menu and press the "Select" key.
2. The words "Main Display" will be splashed in the center of the screen and then the display toggles between different test patterns. Make sure that there are no missing segments and the colors/contrast are OK.
3. Press the "Back" key to return to the Service Tests menu.

4.3 Camera Test

NOTE! ***Minor variations in image appearance may occur between phones. This is nothing uncommon and is not regarded as a defective camera module.***

To verify that the camera functions:

1. Select "Camera" from the "Service Tests" menu and press the "Select" key.
2. Focus on an object as to take a picture. Check that the image quality is OK.

NOTE! ***Picture cannot be taken during this test.***

3. Press the "Back" key to return to the Service Tests menu.

4.4   LED/Illumination Test

To verify that the backlighting of the display and the keypad functions:

1. Select "LED/illumination" from the "Service Tests" menu and press the "Select" key.
2. The words "LED/illumination" will be splashed on the screen.
3. Check that the backlight and the LED's under the keypad and navigation keypad toggle on and off.
4. Press the "OK" key to end the test and return to the Service Tests menu.

4.5   Keyboard Test

To verify that the keyboard and the navigation keypad functions:

1. Select "Keyboard" from the "Service Tests" menu and press the "Select" key.
2. The phrase "Keyboard" will be splashed on the screen.
3. Press all keys on the keypad and navigation keypad. If they are ok a text message will be displayed corresponding to the key pressed. All keys should be tested.
4. If you stop pressing keys the phone will return to the Service Tests menu after a few seconds.

4.6   Vibrating Test

To verify that the vibrator functions:

1. Select "Vibrating" from the "Service Tests" menu and press the "Select" key.
2. The words "Vibrator test. Press any key." will be displayed on the screen.
3. Press any key and verify that the mobile vibrates multiple times.
4. Press the "OK" key to end the test and return to the Service Tests menu.

4.7   Earphone Test

To verify that the earphone functions:

1. Select "Earphone" from the "Service Tests" menu and press the "Select" key.
2. Adjust the volume with the navigation keys and make sure that the earphone is working properly.
3. Press the "OK" key to go back to the Service Tests menu.

4.8   Speaker Test

WARNING! DO NOT HOLD THE PHONE TO YOUR EAR WHILE PERFORMING THIS TEST.

To verify that the speaker functions:

1. Select "Speaker" from the "Service Tests" menu and press the "Select" key.

2. Adjust the volume with the navigation keys and make sure that the speaker is working properly.

3. Press the "OK" key to go back to the Service Tests menu.

4.9   Real Time Clock Test

This test will verify that the built-in real time clock works.

1. Select "Real Time Clock" from the "Service Tests" menu and press the "Select" key.

2. The words "Real Time Clock Please wait" will be displayed on the screen. After a few seconds you will get information whether the clock is ok or not.

3. After the test results are displayed the test will end and return to the Service Tests menu.

4.10   Total Call Time Test

This test will check the total call time for the phone.

1. Select "Total call time" from the "Service Tests" menu and press the "Select" key.

2. The Total call time is displayed.

3. Press the "OK" key to end the test and return to the Service Tests menu.

4.11   FM Radio Test

This test will verify that the FM Radio is working.

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. Press the "OK" or "Back" key to end the test.

4.12   Microphone Test

This test can only be performed by making an "On the Air Call to Mobile" test. See chapter 5.4

5 Manual Tests

5.1 SIM Test

To verify that the phone can detect a SIM:

1. Insert a SIM card, connect a battery and start the unit.
2. If the SIM is detected the phone will start "Searching" for a signal. If the SIM is not detected the phone will ask you to "Insert SIM card".

5.2 Bluetooth

To verify that the bluetooth is working:

NOTE! **When testing, the distance between the phone being tested and the other Bluetooth device must be 1.5 to 5 meters.**

1. Insert a SIM card, connect a battery and start the unit.
2. Activate the Bluetooth function by entering the menu and selecting**: Settings/ Bluetooth/Turn On**.
3. Set up a Bluetooth link between the mobile and another device. If a link can be established, the Bluetooth module is considered functional.
4. When test is completed, turn off the Bluetooth function and press the "Back" key to exit the Bluetooth menu.

5.3 System Connector

5.3.1 Battery Charger

To verify if the charging of the phone is working:

1. Install a battery into the phone, but do not power on the phone.
2. Connect the Wall Charger to the system connector.
3. Verify that the display shows that the phone is being charged.
4. Remove the Wall Charger from the system connector and verify that the main display no longer shows the phone being charged.

5.3.2 USB Charging

To verify the phone can charge the battery via a USB Port:

NOTE! **Ensure that no USB application is active on the Computer such as PC Suite or EMMA**

1. Install a battery into the phone, but do not power on the phone.
2. Connect a USB Cable from a Computer to the system connector.
3. Verify that a charging icon appears in the display.
4. Remove the USB Cable and verify that the charging icon is no longer displayed.

5.3.3 Portable Hands Free (PHF)

To verify that the portable hands free is working:

1. Insert an operator SIM card, connect a battery and start phone.
2. Insert a PHF that is compatible to the system connector.
3. Make a "On the Air Call Test" according to chapter 5.4 to verify the function of the hands free microphone and the hands free earphone.
4. To verify to volume of the phone adjust the volume up and down with the navigation keys.

5.4 On The Air Call to Mobile

NOTE! **An "On the Air" test can only be performed if the mobile has an activated SIM card properly installed in the mobile and a network signal is available. This test cannot be performed with a Test SIM.**

To verify the radio functions in the phone:

1. Insert an operator SIM card, connect a battery and start phone.
2. Set up a call from a landline phone (PSTN) to the mobile.
3. Check that the ringer is working and that the backlight switches on OK.
4. Answer the phone call.
5. Check that the quality of sound both in the mobile and the landline phone (PSTN) are OK.
6. Adjust the volume up and down using the side volume key and check that the volume in the mobile is altered.
7. End the call. Check that the ending procedure is OK and that the talk time is displayed.

6 Revision History

Rev.	Date	Changes / Comments
1	2008-04-18	First release
2	2008-09-29	Changed EmmaIII to Emma