



Test Instruction, SP/Mech

Applicable for T226, T230, T238

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1 General

This document describes the process used for flashing software upgrades into the mobile and how to functionally test it. These activities can be performed at the Mechanical Repair level and higher.

All tests must be performed. If the mobile passes these tests without any failures, it is OK to return it to the customer.

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

2 Phone Lock Reset

If the phone lock is on for these models, the use the Phone Lock Reset tool in EMMA II to reset the password to 0000.

The setup for phone lock reset with EMMA II is the same as the setup described in the S.P. / Mechanical setup instructions for flashing. Refer to the specific setup instructions for each phone model to ensure that you have the correct equipment.

NOTE! In order to access Phone Lock Reset, the PC must have a hardlock with the service bit enabled installed on the parallel port.

1. Attach a fully charged battery or battery eliminator to the phone. Make sure the phone is powered off.
2. Connect the phone to the PC using a cable and a programming interface.
3. Access the EMMA II site through CSPN. Click on the Start button for the proper system.
4. Choose Phone Lock Reset and press the Start button. Follow the instructions on the screen.

3 Software Update

Update to the latest signaling software and run the service activities software from EMMA II.

NOTE! The Smart Card Reader needs to be installed before running the EMMA II software.

3.1 Verify Software Version

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

1. Start up the mobile by pressing the “No” key for a few seconds.
2. Press the following joystick and keypad sequence: → * ← ← * ← *
3. Choose “Service Info” and press the “Yes” key.
4. Choose “SW Information” and press the “Yes” key.
5. Check the file revisions on the display.



3.2 Update Software Version

Update the software in the mobile by doing the following:

1. Make sure the mobile's battery is fully charged. Select the correct flash cable according to the equipment list and connect it to the mobile.
2. Turn off the mobile.
3. Connect to the EMMA II server through CSPN, choose application "GSM" and follow the on-screen instructions.

4 Contrast

To check and adjust the contrast:

NOTE! It is necessary to have a SIM card inserted

1. Press the "No" key to start the mobile
2. Using the joystick, select "Settings" in the menu and press the "Yes" key. Then select "Display" from the menu and press the "Yes" key.
3. Scroll down the menu to "Contrast" and then press the "Yes" key.
4. Make sure the contrast setting is set to 0. When finished, press the "No" key until you return to the stand-by screen.
5. Enter the Service Settings menu using the following joystick and keypad sequence: → * ← ← * ← * and select "Service Settings" then press the "Yes" key.
6. Select "Contrast" from the "Service Settings" menu and press the "Yes" key.
7. Adjust contrast with the joystick.
8. Press the "Yes" key to save the chosen setting and exit the Service menu.

5 Service Tests

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

Press the “No” key to start the mobile.

The Service Tests menu is entered using the following joystick and key sequence:

→ * ← ← * ← * and select “Service Tests” then press the “Yes” key.

5.1 Display Test

To verify the display:



1. Select “Display” from the “Service Tests” menu and press the “Yes” key.
2. The display toggles between four different test patterns.
Make sure that there are no dots missing and that the colors and contrast is OK.
3. Press the “Yes” or “No” key to end the test and return to the Service Tests menu.

5.2 LED/Illumination Test

To verify that the display and keypad backlight are OK:

1. Select “LED/Illumination” from the “Service Tests” menu and press the “Yes” key.
2. Check that the display and keypad backlight toggles between on and off.

NOTE! The illumination of the keypad is difficult to see in a normal room lighting environment; therefore, it is necessary to shield the keypad from external light while performing the keypad inspection.

<p>3. Use hands or some other device to form a light shield around the keypad.</p>	
<p>4. Look into the dark area to inspect the keypad. Make sure the backlight toggles between on and off and the brightness is the same for each of the keys.</p>	

5. Press the “Yes” or “No” key to end the test and return to the Service Tests menu.



5.3 Keyboard Test

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

1. Select “Keyboard” from the “Service Tests” menu and press the “Yes” key.
2. Press all keys on the keypad and the side volume key. Tilt the joystick left, right, up, down and depress. If they are ok a text message will be displayed corresponding to the key selected. All keys should be tested.
3. Press the "Yes" or "No" key, and wait for a few seconds to end the test and return to the Service Tests menu.

5.4 Buzzer Test

To verify the buzzer function:

1. Select “Buzzer” from the “Service Tests” menu and press the “Yes” key.
2. Tilt the joystick left and right to adjust the volume of the buzzer.
3. Check that the buzzer sounds OK.
4. Press the “Yes” or “No” key to end the test and return to the Service Tests menu.

5.5 Vibrator Test

To verify the vibrator function:

1. Select “Vibrate” from the “Service Tests” menu and press the “Yes” key.
2. Press any key and the vibrator will vibrate 3 times.
3. Press the “Yes” or “No” key to end the test and return to the Service Tests menu.

5.6 Earphone Test

The earphone is tested using DTMF tones.

NOTE! Ensure the “Sounds Volume” is not set to “0” for this test. The “Sounds Volume” setting may be found under Settings/Sounds and Alerts/Sounds Volume.

1. Select “Earphone” from the “Service Tests” menu and press the “Yes” key.
2. Press a numeric key and check that you get a tone in the earphone.
3. Press the “Yes” or “No” key to end the test and return to the Service Tests menu.



5.7 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 and press the “Yes” key.
2. Check that every sound that is going into the microphone can be instantly heard in the earphone.
3. Press the “Yes” or “No” key to end the test and return to the Service Tests menu.

5.8 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 and press the “Yes” key.
After approximately 5 seconds you will get information whether the clock is ok or not.



6 Manual Tests

6.1 On The Air Call To Mobile

NOTE! This series of “On the Air” tests can only be performed if the mobile has an activated SIM card properly installed in the mobile and a network signal is available. This series of test cannot be performed with a Test SIM.

1. Set up a call from a landline phone (PSTN) to the mobile.
2. Answer the mobile call by pressing the "Yes" key.
3. Check that the buzzer is working and that the backlight switches on OK.
4. Also check that the quality of sound both in the mobile and the land-connected phone (PSTN) are OK.
5. Adjust the volume up and down using the side volume key and check that the volume in the mobile is altered.
6. Connect the hands free to the system connector. Ensure the audio is of good quality by speaking and listening in the hands free unit.
7. End the call by pressing the "No" key.
8. Check that the ending procedure is OK and that the speech time is displayed.

6.2 System Connector (Charger)

A charger is used in this test to check the functionality of the System Connector/charging circuit.

1. Connect a battery to the mobile and press the “No” key to start the unit.
2. Connect the charger to the system connector and see if the phone starts to charge. The charging message should be indicated in the display.

6.3 On/Off and SIM Test

This test checks that the mobile powers on and off properly and recognizes the SIM.

1. Insert a test SIM or carrier specific SIM into the mobile and attach a fully charged battery.
2. Power the mobile on by pressing the “No” key.
3. The mobile should power up normally and display the stand-by screen.
4. The mobile **should not** display “Insert SIM”. This is a failure.
5. If the mobile displays “Insert correct SIM card”, the SIM card is not specific to the carrier for this mobile.
6. Power the mobile off by pressing the “No” key and ensure the mobile powers off properly.



7 Microphone Audio Reset, Receiver Audio Reset

NOTE! A **hardlock with the service bit enabled** must be installed on the parallel port of the PC in order to access the T226, T230, or T238 Audio Reset tools on EMMA II.

If the microphone or the receiver (Loudspeaker) is replaced, their respective gain settings must be reset. To reset the gain after the repair is complete, do the following:

1. Attach a fully charged battery to the mobile.
2. Using a PC configured for flashing, as described in the document – Installation Instruction, SP/Mechanical, select the correct flash cable and connect it to the mobile.
3. Ensure the mobile is powered off.
4. Connect to the EMMA II server through CSPN. Choose application “GSM” by clicking on the “Start” button.
5. When applicable, select **Phone Reset** from the drop down box and follow the on-screen instructions.
6. When applicable, select **T2xx MIC Audio Reset** or **T2xx Receiver Audio Reset** from the drop down box and follow the on-screen instructions.

NOTE! The **xx** refers to the different models T226, T230, or T238 specified in this document.

8 Revision History

Rev.	Date	Changes / Comments
A	2003-08-08	First release
B	2003-08-12	Added microphone and receiver audio reset section
C	2003-10-21	Added Phone Lock Reset section.
D	2003-12-05	Added keypad illumination inspection process