



Sony Ericsson

# Test Instructions

- mechanical -



*Xperia™ X10 mini*  
*E10i, E10a*



## CONTENTS

<b>1</b>	<b>Pre-Test Preparations .....</b>	<b>3</b>
1.1	Hardware .....	3
1.1.1	Liquid Intrusion indicator inspection .....	3
1.2	Software.....	4
1.2.1	Software update .....	4
<b>2</b>	<b>Tests .....</b>	<b>5</b>
2.1	Service Test Mode.....	5
2.2	Service Tests.....	6
2.2.1	Keyboard & Switch .....	6
2.2.2	Touch Screen .....	6
2.2.3	Display .....	6
2.2.4	LED/Illumination.....	7
2.2.5	Speaker .....	7
2.2.6	Earphone .....	7
2.2.7	Microphone.....	8
2.2.8	Vibrator .....	8
2.2.9	Camera.....	8
2.2.10	Flash LED .....	9
2.2.11	Bluetooth .....	9
2.2.12	WLAN .....	9
2.2.13	GPS .....	10
2.2.14	Compass.....	10
2.2.15	Accelerometer .....	11
2.2.16	Proximity switch .....	11
2.2.17	Real time clock.....	12
2.2.18	Total call time .....	12
2.2.19	External Memory card.....	12
2.2.20	Security.....	13
2.2.21	FM radio test.....	13
2.2.22	Battery test .....	14
2.2.23	Flip slider counter .....	15
2.2.24	Verify certificates .....	15
2.3	Manual Tests .....	16
2.3.1	SIM .....	16
2.3.2	On/Off key test .....	16
2.3.3	Home key test.....	16
2.3.4	Charging via USB (Charger or Computer) .....	17
2.4	Network Test .....	18
2.4.1	On-the-air call to mobile (no UMTS network available) .....	18
2.4.2	On-the-air call to mobile (UMTS network available).....	18
<b>3</b>	<b>Revision History .....</b>	<b>19</b>

**For general information about test procedures, refer to  
1220-1333: Generic Repair Manual - mechanical**

# 1 Pre-Test Preparations

## 1.1 Hardware

### 1.1.1 Liquid Intrusion indicator inspection

Before starting any tests the liquid intrusion indicator has to be checked.

The indicator is located as shown in this picture after the Battery Cover is removed.

If affected (red color) - handle the phone according to your local directives.

If not affected by liquid, proceed to the 'Pre-Test Preparation' below.



## Pre-Test Preparations











### 1.2 Software

#### 1.2.1 Software update

##### 1.2.1.1 Software version verification

Check the software version of the phone for fault verification, you find latest improvements on the support pages under the support news

<http://www.sonyericsson.com/cws/marketingurlportal?pageid=key.SupportZone.Overview>

- Start up the phone
- **Note: Please make sure the phone is in LOCK mode when pressing these keys to get into the Service menu.**
- Press the Menu key (  ) and Back key (  ) as follows:
- Pressing Key Sequences: Home Back Back Home Back Home Home Back  
(         )
- select 'Service info'
- select 'Software info'
- check the software file revisions and, if needed, update as described below


**For more information, refer to 1220-1333: Generic Repair Manual - mechanical**

##### 1.2.1.2 Software version update

**Mandatory first repair action!**

**Use the Micro USB to USB cable for this purpose!**

Install a fully charged battery, ensure the phone is powered off and proceed as follows:

- Open the Emma application and log in
- Press and keep the Back key (  ) down on the phone, connect the phone to the USB cable and then release the Back key.
- Select the appropriate service and follow the on-screen instructions.
- If Emma application does not find the unit, remove the battery connector and connect dummy battery or a fully charged battery and try again. (If Emma application still does not find the unit, escalate according local agreement (electrical fault).



## 2 Tests

### 2.1 Service Test Mode

**Note: Please make sure the phone is in LOCK mode when pressing these keys to get into the Service menu!**

Start up the phone and enter the service menus:

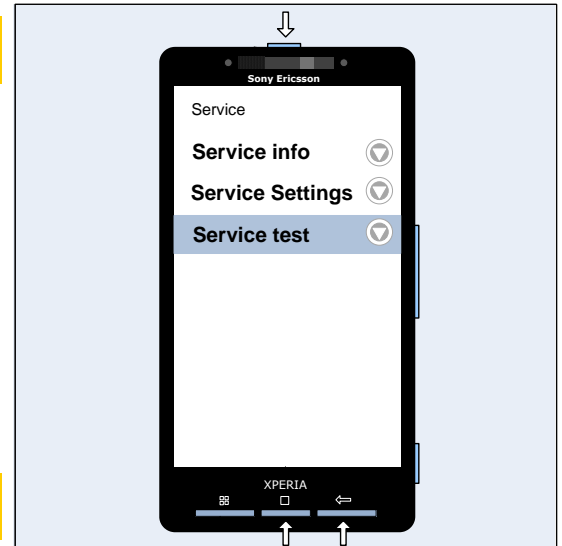
press the Menu key and Back key in the following order:

Home Back Back Home Back Home Home Back

(         )

- select 'Service tests'
- select one of the tests and follow the test instructions as described below
- to stop the test and return to the 'Service tests' menu, press the Back key

**For more information, refer to  
1220-1333: Generic Repair Manual - mechanical**



**The pictures to follow will show a simplified basic phone for a general visualization of the service tests!**

## Tests

### 2.2 Service Tests

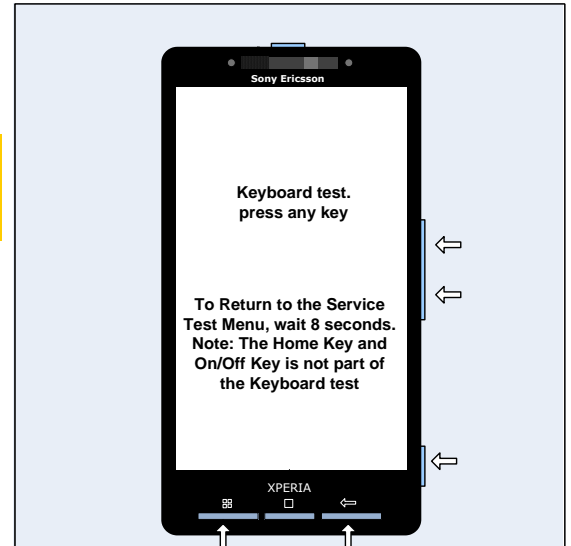
#### 2.2.1 Keyboard & Switch

**Note: The Home Key and On/Off key is not part of the keyboard test, which are in Manual tests.**

**To return to the Service Test Menu, wait 8 seconds.**

Press all keys on the:

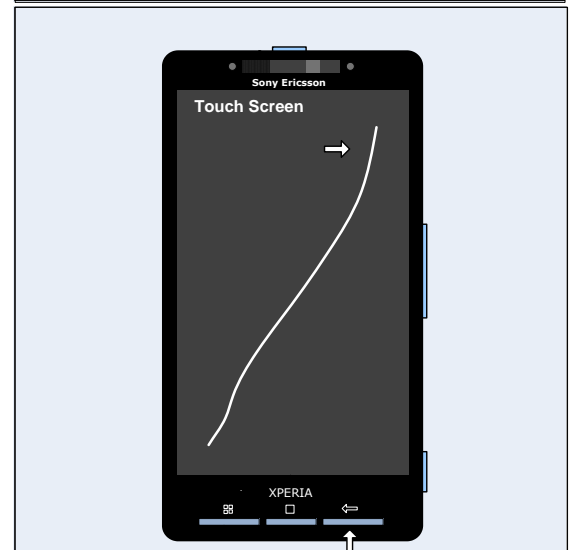
- Menu key
- Back key
- Camera key
- Volume up key
- Volume down key



#### 2.2.2 Touch Screen

Move your finger across the display, a line will be drawn as you touch the display.

Press Back key to return to Service Test Menu.



#### 2.2.3 Display

**Minor variations in display brightness and color may occur between phones.**

**There may be tiny bright dots on the display, so called defective pixels and occur when individual dots have malfunctioned and can not be adjusted.**

**Two defective pixels are considered to be acceptable.**

Touch display using finger, the display will show five test patterns of White, Black, Red, Green, Blue and Rainbow colors on full screen.

Make sure that there are no missing segments and that the colors and contrast are OK.

Press Back key to return to Service Test Menu.





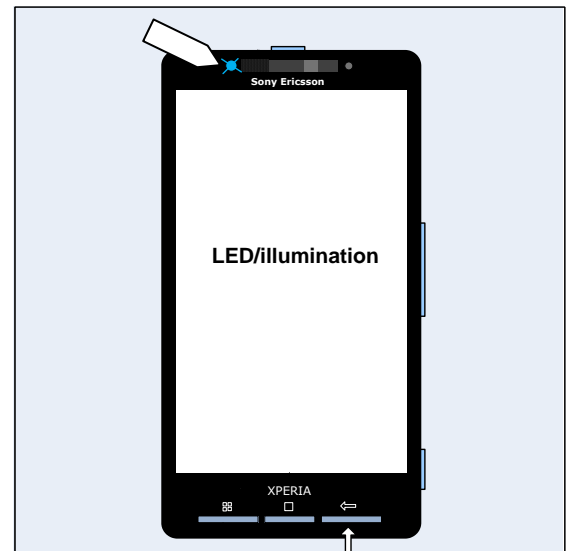
## Tests

### 2.2.4 LED/Illumination

Check that the:

- Display Backlight illumination goes from low to high strength back to low again.
- Notification LED on top right corner is changed, showing four colors in the sequence; Red, Green, Blue, and Off.

Press Back key to return to Service Test Menu.



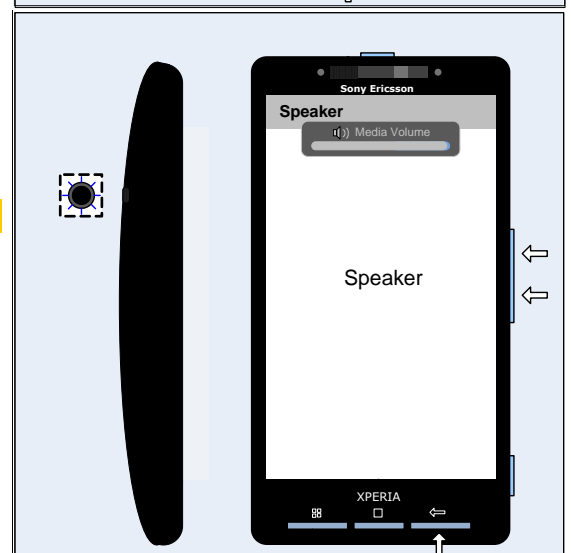
### 2.2.5 Speaker

**Do not hold the phone close to your ear during this test!**

Make sure that the sound from the speaker port on the top of the phone is emitted loud and clear and that the test include maximum volume.

Press Volume up/down key to adjust speaker volume.

Press Back key to return to Service Test Menu.



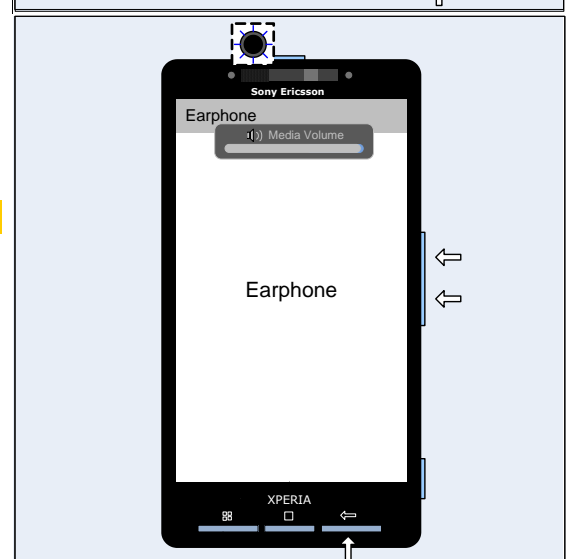
### 2.2.6 Earphone

**Do not hold the phone close to your ear during this test!**

Make sure that the sound from the earphone port on the top of the phone is emitted loud and clear and that the test include maximum volume.

Press Volume up/down key to adjust earphone volume.

Press Back key to return to Service Test Menu.





## Tests

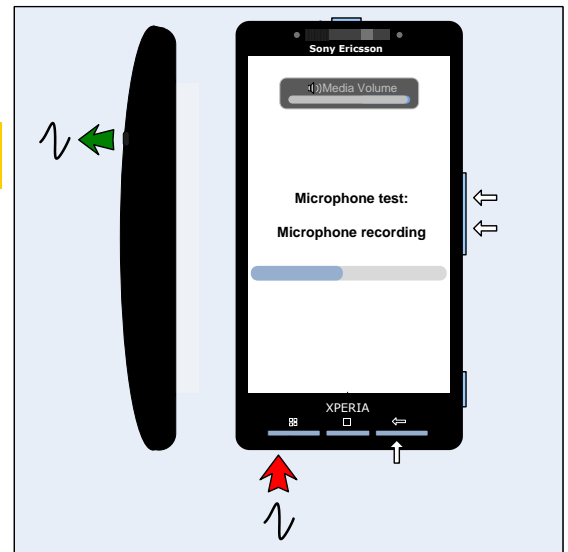
### 2.2.7 Microphone

***The previous test 'Speaker' should have been successfully carried out before doing this test!***

The phone will start to record and after approximately ten seconds the sound is played back through the Speaker. Speak into the microphone during the 'Microphone Recording' phase.

Check the quality by listening to the recording from the speaker during the 'Playing recorded sound' phase at maximum volume.

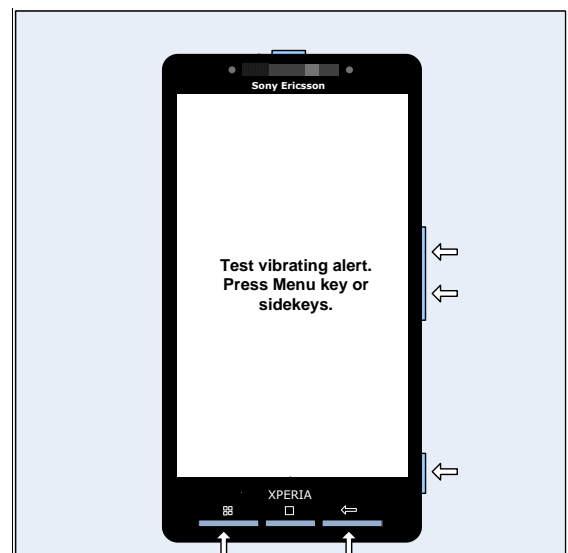
Press Back key to return to Service Test Menu.



### 2.2.8 Vibrator

Press the Menu key or Side keys to start the vibrator test.

Press Back key to return to Service Test Menu.



### 2.2.9 Camera

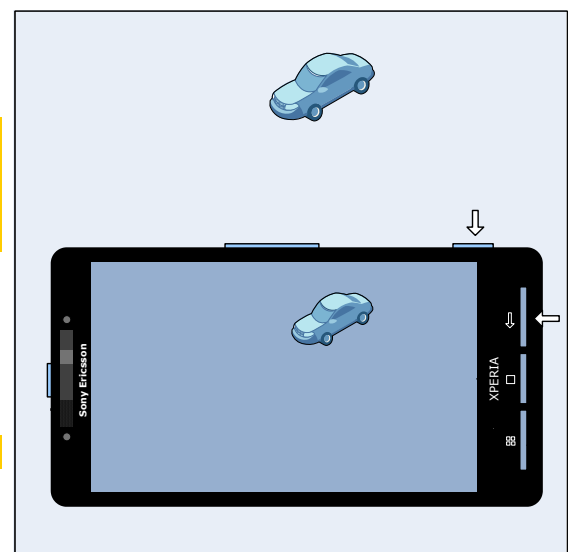
***Minor variations in image appearance may occur between phones, but is not uncommon and should not be regarded as an indication of a defective camera module!***

Aim the camera (located back of the phone) at an object and check the quality of the image shown in the display.

Press the camera key to preview the photo's quality about auto focus.

***Photos is taken but not saved during this test!***

Press Back key to return to Service Test Menu.



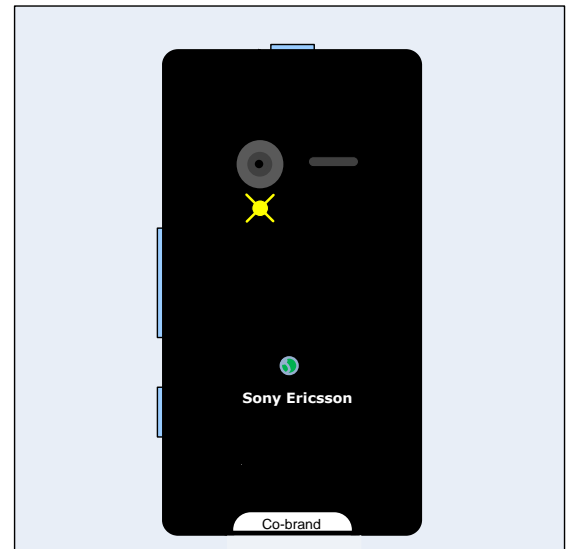


## Tests

### 2.2.10 Flash LED

Check the Flash LED at the back side of phone whether it's turned on.

Press Back key to return to Service Test Menu.



### 2.2.11 Bluetooth

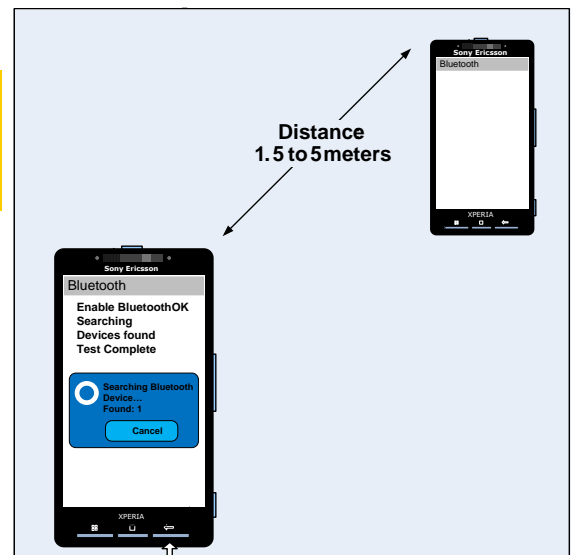
**During this test, the distance between the phone and the target Bluetooth device must be 1.5 to 5 meters!**

**Make sure the target Bluetooth device is enabled and visible always!**

The Bluetooth test will be done in following sequences:

- Step 1: Enable Bluetooth; wait 4-5 seconds, shows OK;
- Step 2: Searching;
- Step 3: Device Found list;
- Step 4: Select the Target Bluetooth Device, and Type PIN code to Pair;
- Step 5: Type the Pairing PIN code on Target Bluetooth Device also, when succeeded, it shows "Test Complete".

Press Back key to return to Service Test Menu.



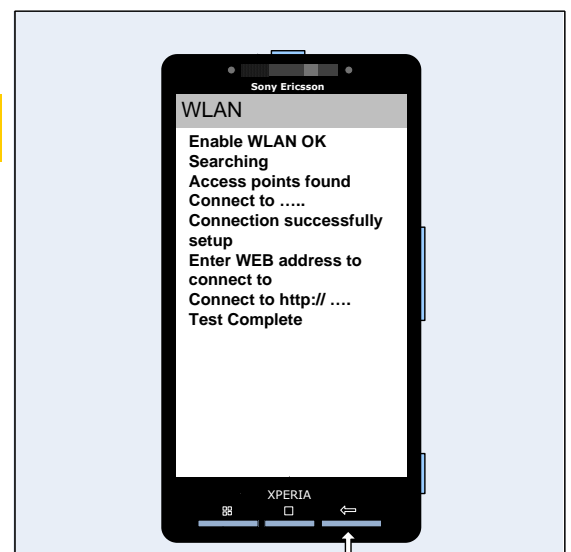
### 2.2.12 WLAN

**Make sure there's WLAN network before performing this test.**

The WLAN test will be done in following sequences:

- Step 1: Enable WLAN; wait 4-5 seconds, shows OK;
- Step 2: Searching;
- Step 3: Access points Found list;
- Step 4: Select the Target WLAN network, and Type Password to get connection;
- Step 5: Enter a web address (ex. google.com)
- Step 6: When Connection succeeded, it shows "Test Complete".

Press Back key to return to Service Test Menu.



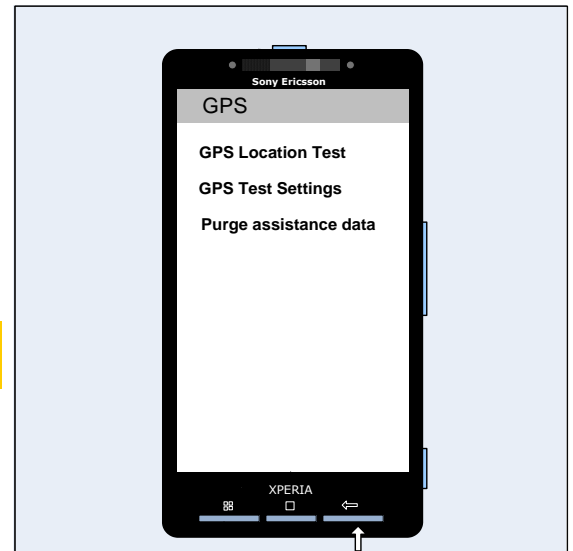
## Tests

### 2.2.13 GPS

Enter GPS Location Test, wait some time to get GPS location data.

Press Back key to return to Service Test Menu.

**For GPS testing, refer to  
1220-1333: Generic Repair Manual - mechanical**



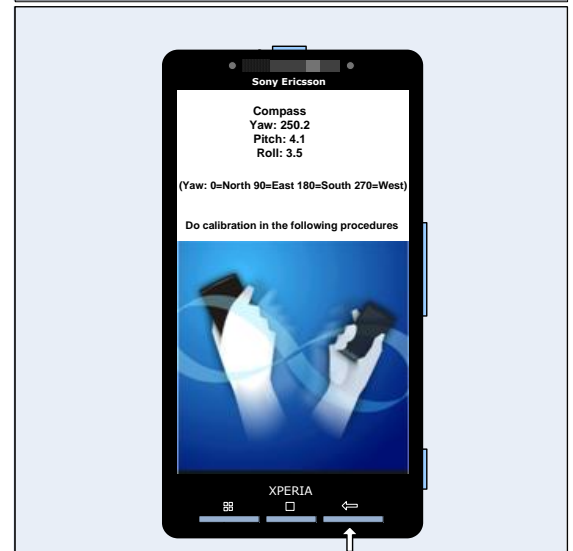
### 2.2.14 Compass

Do calibration with hand movements as shown in the phone, and then check

The actual direction with measured value.

(Yaw:0=North, 90=East, 180=South, 270=West)

Press Back key to return to Service Test Menu.





## Tests

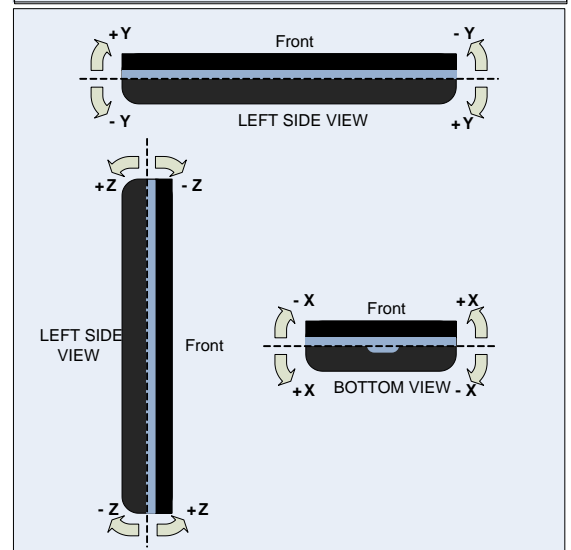
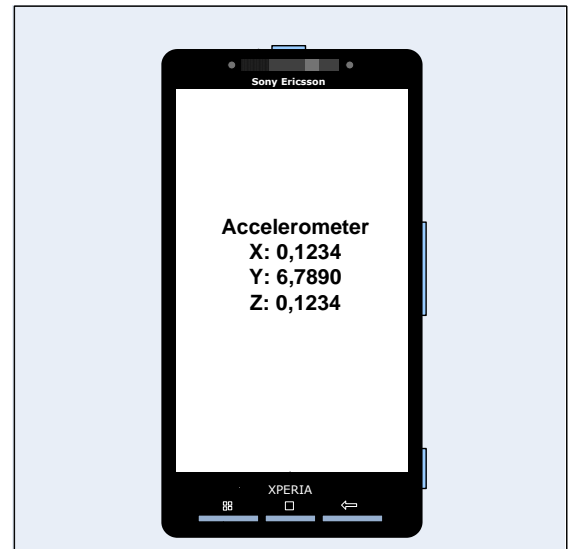
### 2.2.15 Accelerometer

The accelerometer test displays the actual position of the phone as a 3D coordinate X:Y:Z

By tilting the phone in various directions, the X:Y:Z values will change in size and polarity depending on angle and direction as shown in the adjacent picture.

Check by tilting the phone that the X:Y:Z values shown in the display are in accordance with the tilting shown in the picture.

Press Back key to return to Service Test Menu.



### 2.2.16 Proximity switch

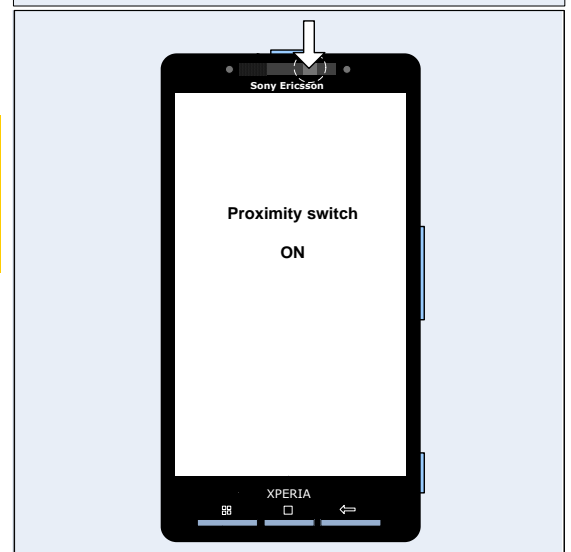
**The previous test 'Speaker' should have been successfully carried out before doing this test!**

**Make sure the phone is not in 'silent mode' before performing this test.**

When entering into the test, the screen shows "Proximity switch OFF" and a tone is emitted.

Once your finger cover the proximity switch area (on the right side of the receiver), the screen will show "Proximity switch ON" with a different type of tone.

Press Back key to return to Service Test Menu.

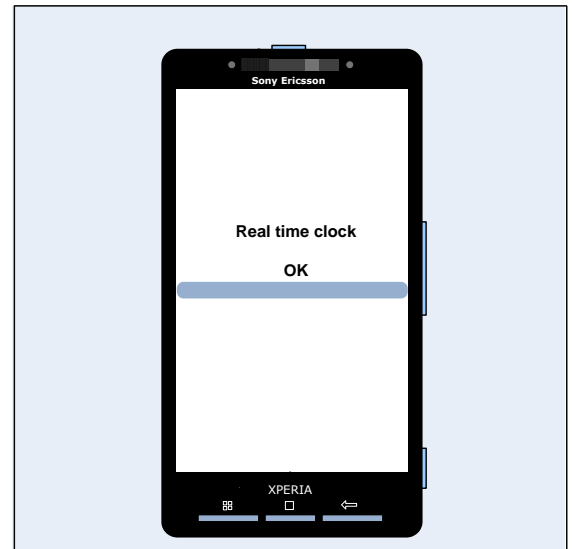


## Tests

### 2.2.17 Real time clock

During the actual test the text 'Real time clock test' is displayed, then followed by a message stating whether the test was OK or not.

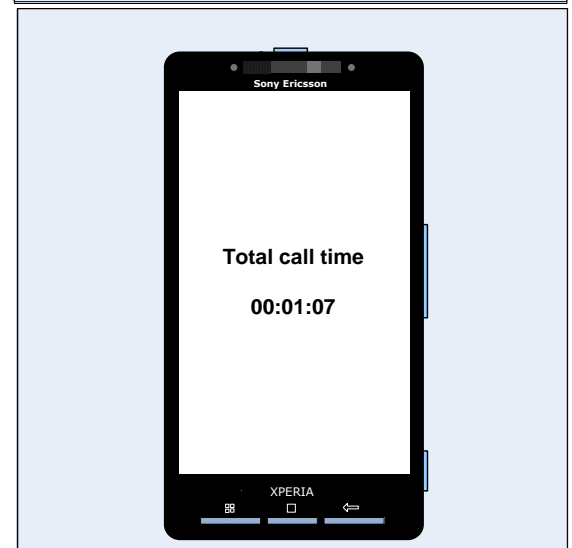
Press Back key to return to Service Test Menu.



### 2.2.18 Total call time

The total call time is displayed in the format HH:MM:SS (hours:minutes:seconds).

Press Back key to return to Service Test Menu.

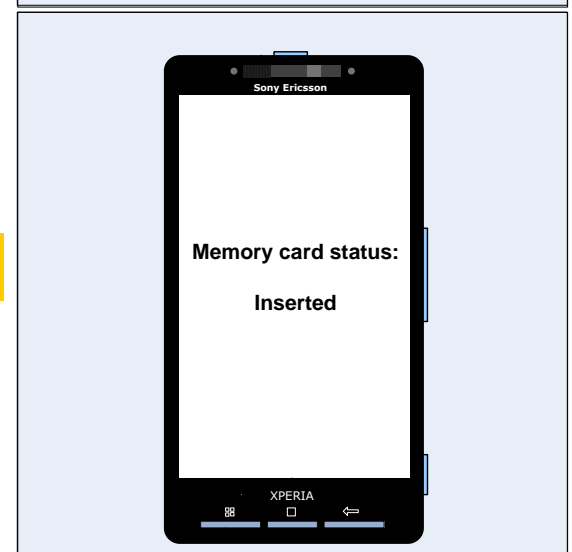


### 2.2.19 External Memory card

***A memory card should be inserted in the phone before the start of this test!***

The phone should detect that the memory card is inserted.

Press Back key to return to Service Test Menu.



## Tests

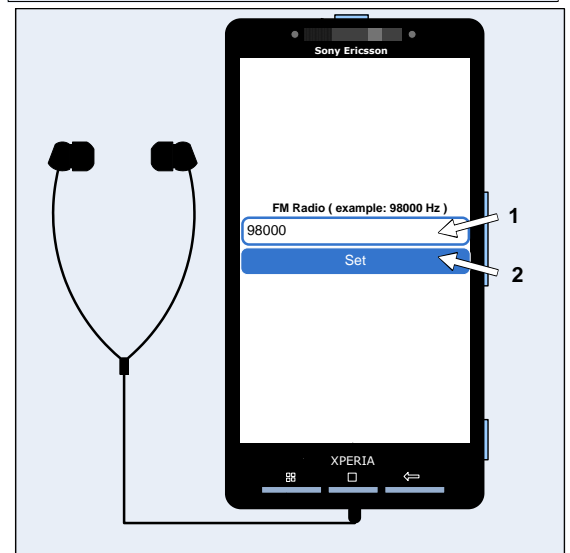
### 2.2.20 Security

The DRM keys are shown in the display.  
 There may be some different content showed based on the different market software versions.  
 Press Back key to return to Service Test Menu.



### 2.2.21 FM radio test

Verify that the phone can detect a radio station:  
 Connect a headset and then set your local radio station in Hz!  
 Secure that the reception and sound quality is normal.  
 Press Back key to return to Service Test Menu.



## Tests

### 2.2.22 Battery test

The Battery test is intended to verify the condition of the battery when the consumer has complained about charging or standby time. Use this test to verify the condition before replacing the battery.

**Battery test will take several hours.**

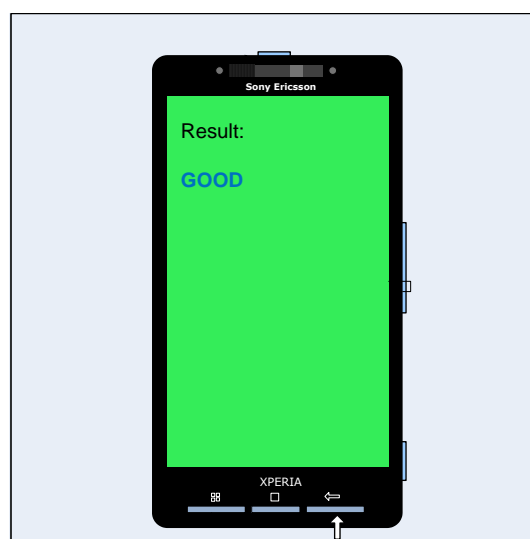
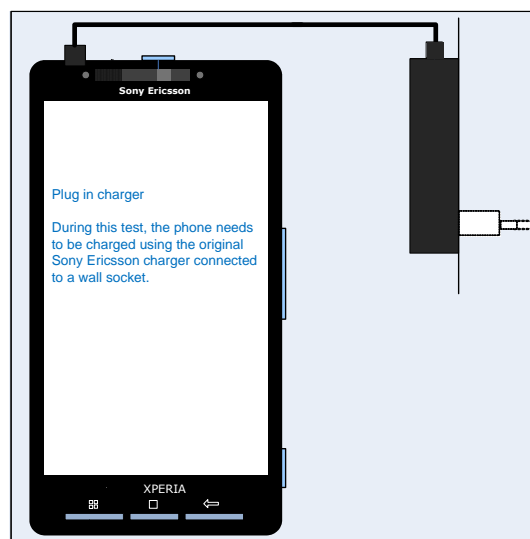
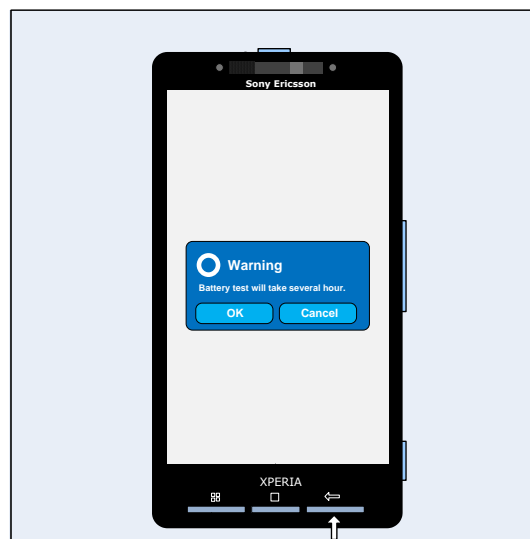
To secure a correct result; charge the phone with an original Sony Ericsson charger by connecting it to a wall socket.

**Do not press any key or touch the display during the Battery test.**

When the test is over, one of the following results will be shown in the display:

- If the battery test passes will the screen show a green backlight and say GOOD.
- If the battery test fails will the screen show a red backlight and say REDUCED CAPACITY.

Press Back key and return to Service Test Menu.



## Tests

### 2.2.23 Flip slider counter

Not Applicable

Press Back key to return to Service Test Menu.



### 2.2.24 Verify certificates

Not Applicable

Press Back key to return to Service Test Menu.

## Tests

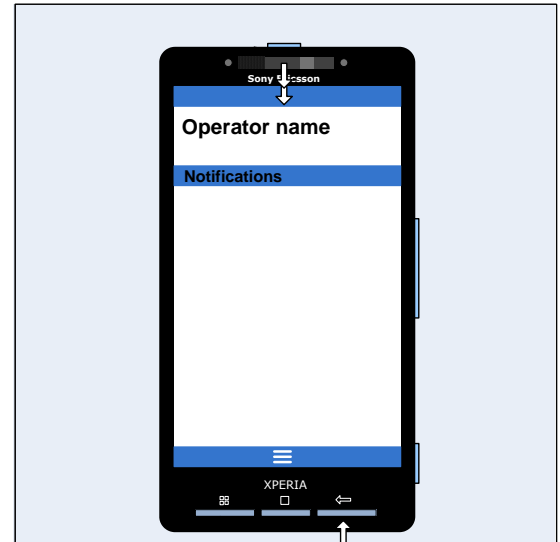
### 2.3 Manual Tests

#### 2.3.1 SIM

Verify that the phone can detect a SIM card:

- Insert a SIM card, install a battery and start the phone
- If the SIM card is detected by the phone, the start-up procedure will continue.  
Pull down the Status Bar (put your finger next to the receiver and drag down the menu from the Status Bar) to see SIM card operator name.
- If not detected, the message '(No Service)' will be displayed instead in the pull down Status Bar.

Press Back key to return.



#### 2.3.2 On/Off key test

Press the On/Off key for a while to turn the phone On or Off.  
Press the On/Off key a short time to enter Sleep mode or to wake it up from Sleep mode.

#### 2.3.3 Home key test

Whatever the phone shows now during operation, Press Home key and then phone will go back to the Home screen directly.

When phone is in Sleep mode, Press Home key and the Phone will light up.



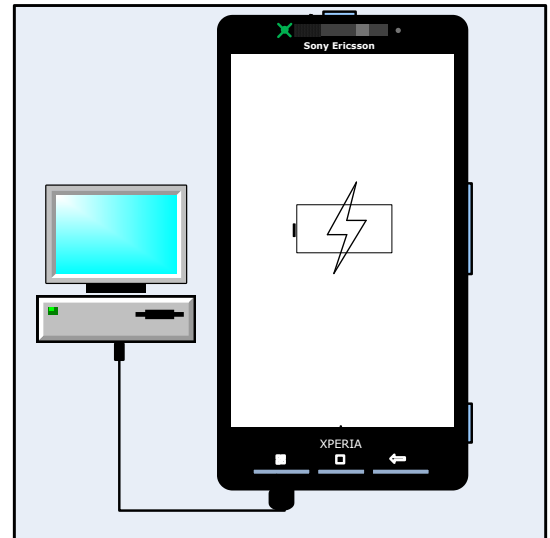
## Tests

### 2.3.4 Charging via USB (Charger or Computer)

Verify that the phone can charge the battery via a USB port:

**Ensure that no computer application, such as PC Suite or Emma, is active!**

- Install the battery connector but do not start the phone.
- Connect a USB cable from a computer or charger to the phone.
- Verify that the phone is being charged by the notification LED and Battery icon in the display.
- Remove the USB cable from the connector and verify that notification LED and Battery icon no longer indicates charging.



## Tests

### 2.4 Network Test

**This test can only be performed if the phone has got an activated SIM/USIM card (no Test SIM/USIM) and an available network signal!**

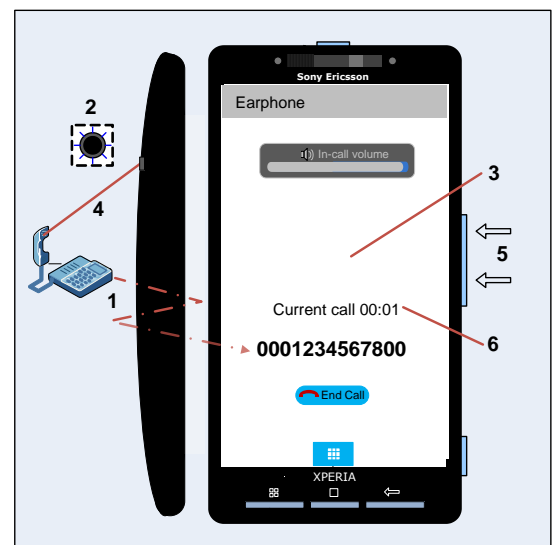
**There are two versions of the test depending on whether a UMTS network is available or not!  
If a UMTS network is available, the network test has to be done separately for GSM and UMTS!**

#### 2.4.1 On-the-air call to mobile (no UMTS network available)

To verify the radio functions (GSM) of the phone, follow the '2.4.1.1 Procedure' below

##### 2.4.1.1 Procedure

1. Set up a call from a landline phone (PSTN)
2. Check that there is a ring signal.
3. Check that the display backlight illuminates.
4. Answer the call and check the sound quality in both phones.
5. Adjust the volume up and down with the side keys and verify that the sound level is altered.
6. End the call and check that the elapsed time is displayed and that the termination is done in a proper way.



#### 2.4.2 On-the-air call to mobile (UMTS network available)

##### GSM

Go to the phone menu and set:

Press Menu key → Settings ⇒ Wireless controls ⇒ Mobile Networks ⇒ Network mode ⇒ GSM only

To verify the radio functions (GSM) of the phone, follow the '2.4.1.1 Procedure' above.

##### UMTS

Go to the phone menu and set:

Press Menu key → Settings ⇒ Wireless controls ⇒ Mobile Networks ⇒ Network mode ⇒ WCDMA only

Switch off the phone and then start it up again to enable search for an available UMTS signal.

Ensure that the UMTS/3G icon now is visible at the top of the display.

To verify the radio functions (UMTS) of the phone, follow the '2.4.1.1 Procedure' above.



### 3 Revision History

Rev.	Date	Changes / Comments
1	2010-05-24	Initial version
2	2010-06-01	Adjustment of the pictures.
3	2010-06-18	Added info about where to find charge level of the battery.
4	2010-09-20	Updated the Battery test and Charging via USB