



# Test Instructions

## - mechanical -



*Satio*  
*U1i, U1a, U\_1*

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

# 1 Pre-Test Preparations

## 1.1 Hardware

### 1.1.1 Liquefied 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 having the battery cover and battery removed.

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

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



## Pre-Test Preparations

### 1.2 Software

#### 1.2.1 Software update

##### 1.2.1.1 Software version verification

Check the software versions of the phone to establish whether a software version update is needed:

- start up the phone and press the Send key (Green) and End key (Red) as follows:
- Note: You may need to do this sequence a couple of times before getting into the Service menu
- Red Green Red Red Green Red
- 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

**Use the DCU-65 USB cable for this purpose!**

**Do not use the SEPI equipment!**

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 "Green"(Send) key down on the phone, connect the phone to the USB cable and release the "Green"(Send)-key
- select the appropriate service and follow the on-screen instructions

#### 1.2.2 Phone lock reset

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 "Green"(Send) key down on the phone, connect the phone to the USB cable and release the "Green"(Send)-key
- when prompted, select the 'U1 Phone Lock Reset' service.
- 'Success' will be displayed on the USB icon when the phone lock code has been reset to '0000'



## 2 Tests

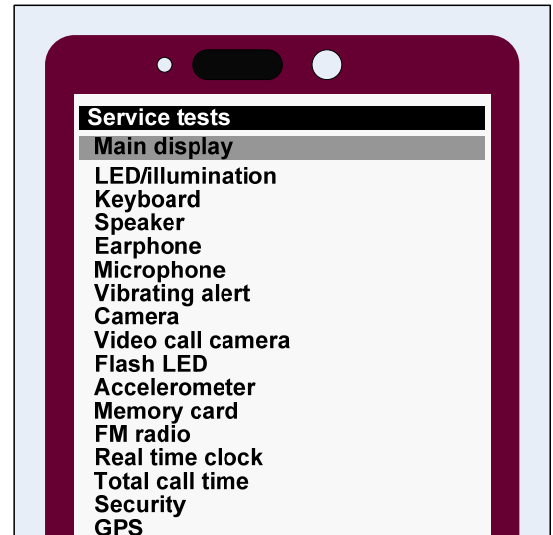
### 2.1 Service Test Mode

**All service tests except Wi-Fi, GPS and Bluetooth can be carried out without a SIM card!**

Start up the phone and enter the service menus:

- press the Send key (Green) and End key (Red) in the order Red Green Red Red Green Red
- 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!**

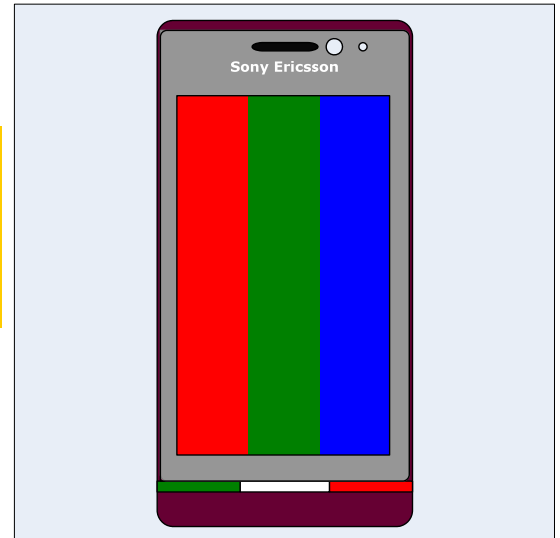
## Tests

### 2.2 Service Tests

#### 2.2.1 Display

**Minor variations in display brightness and colour 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.**

The display will show five test patterns.  
 Make sure that there are no missing segments and that the colours and contrast are OK.



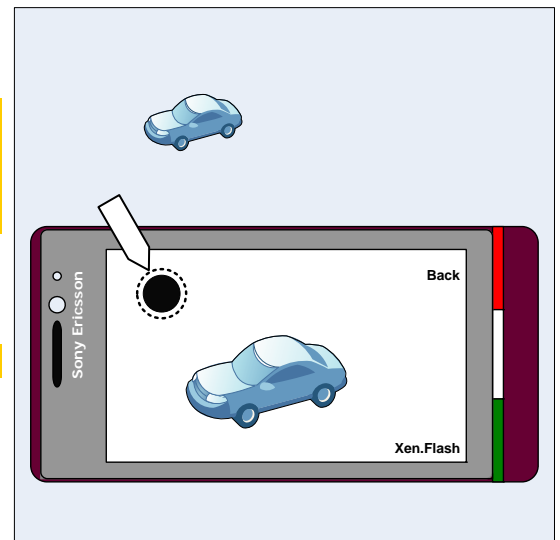
#### 2.2.2 Camera (Xenon Flash)

**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.

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

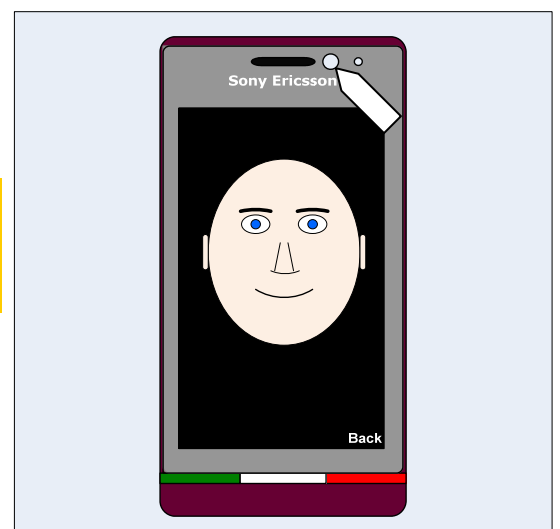
In the Camera test there is also a Xenon Flash test there the Xen.Flash button should be pushed and there should be a flash.



#### 2.2.3 Video call 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!**

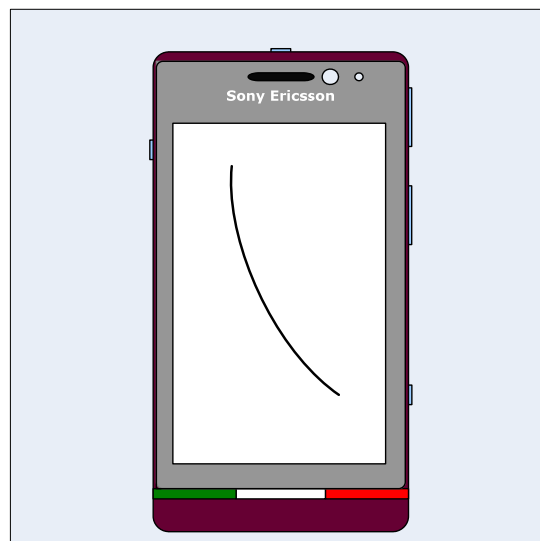
Aim the camera at yourself and check the quality of the image shown in the display.



## Tests: Service Tests

### 2.2.4 Touch screen

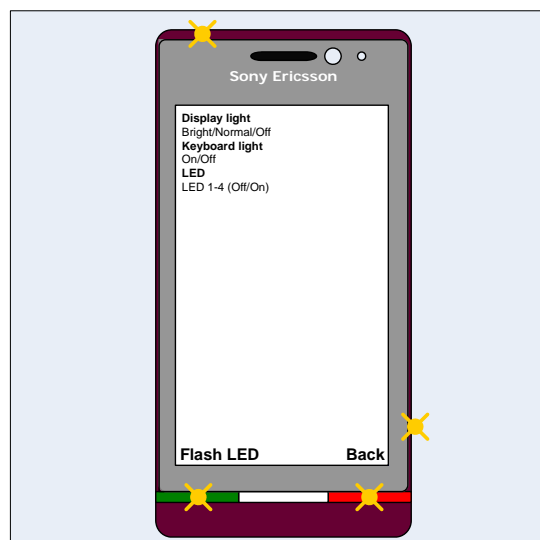
Move your finger across the display, a line will be drawn as you touch the display.



### 2.2.5 Illumination/LED

Check that the:

- **Display Light** is changed in three different sequences Bright/Normal and Off
- **Keyboard light** are turned on and off
- **Led 1-4** (Camera key, On/off key and two Led under the Camera shutter) are turning off and on

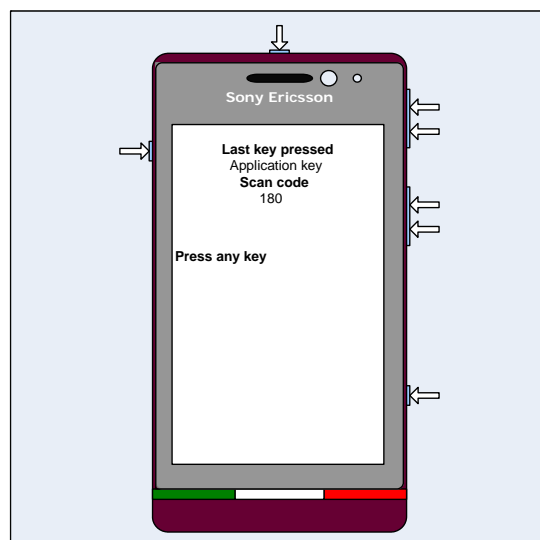


### 2.2.6 Keys

Press all keys on the:

- Keyboard
- side of the phone

Check that each pressure is confirmed in the display under **Last key pressed**.



## Tests: Service Tests

### 2.2.7 Vibrating alert

Press the On key to start the vibrator test and Off key to end the test.



### 2.2.8 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.



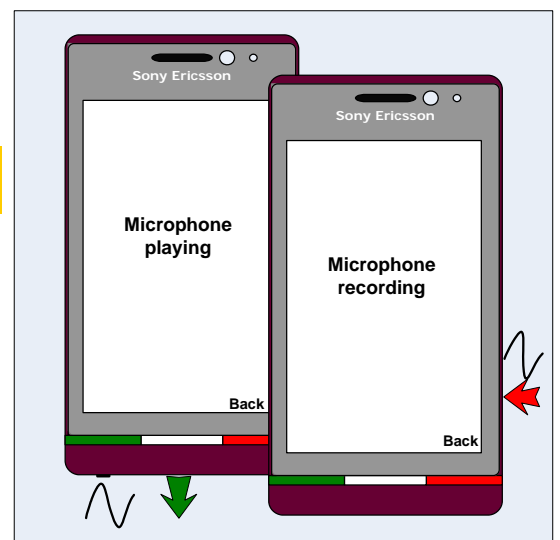
### 2.2.9 Microphone

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

The phone will start to record and after approximately seven 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 'Microphone Playback' phase.

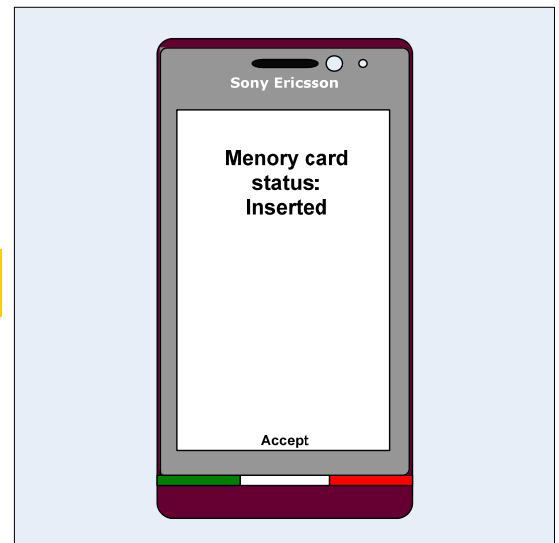


## Tests: Service Tests

### 2.2.10 External Memory card

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

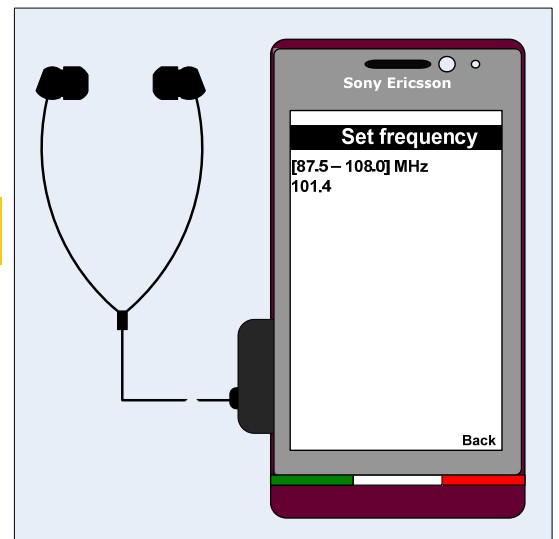
The phone should detect that the memory card is inserted.



### 2.2.11 FM radio

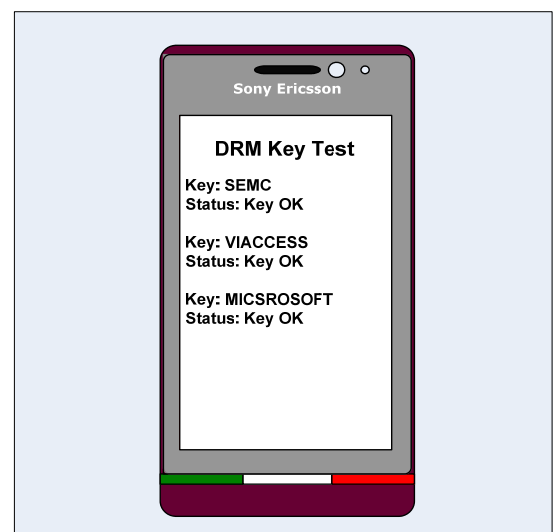
**A Portable Hands-Free (PHF) has to be connected to the system connector prior to this test!**

Use the Touch window to enter the frequency of an FM station known to be good regarding reception.  
Listen to the FM station and verify that the sound quality is as good as can be expected.



### 2.2.12 Security

The DRM keys are shown in the display



## Tests: Service Tests

### 2.2.13 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.



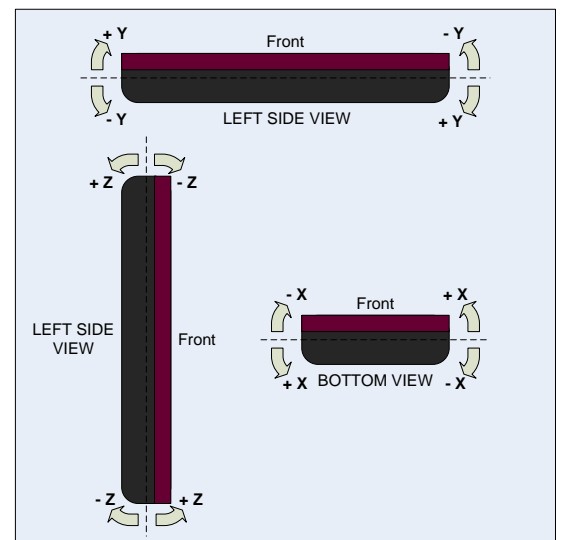
### 2.2.14 Accelerometer

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.

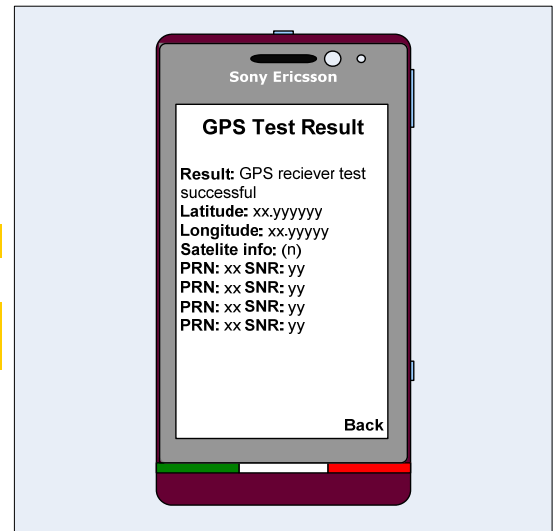


## Tests: Service Tests

### 2.2.15 GPS

**Insert SIM card before performing this test**

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



### 2.2.16 Wi-Fi

**Insert SIM card before performing this test**

The Wi-Fi test automatically detects if there are any WLAN connection. Then press back and you will get if the Wi-Fi is ok or not

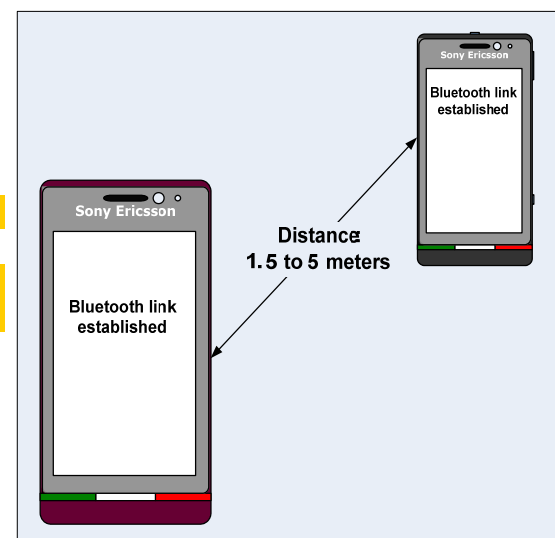


### 2.2.17 Bluetooth

**Insert SIM card before performing this test**

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

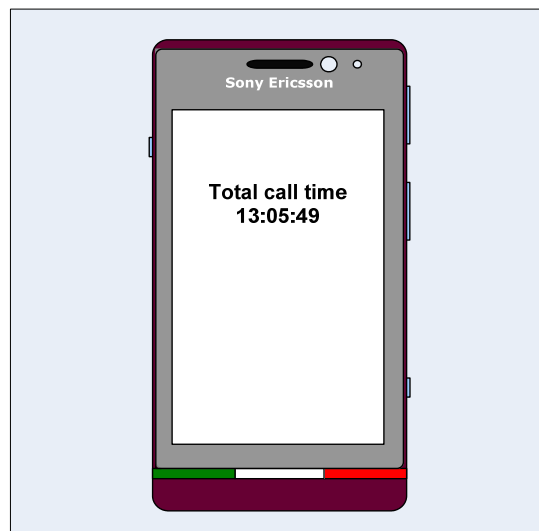
The Bluetooth test display if Bluetooth is ok or not and which devices it has detected.



## Tests: Service Tests

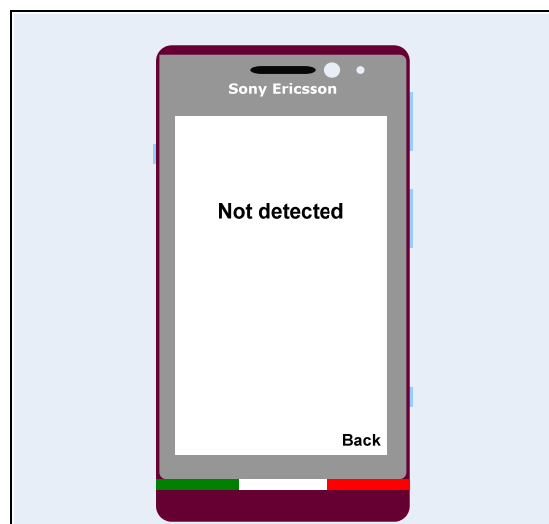
### 2.2.18 Total call time

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



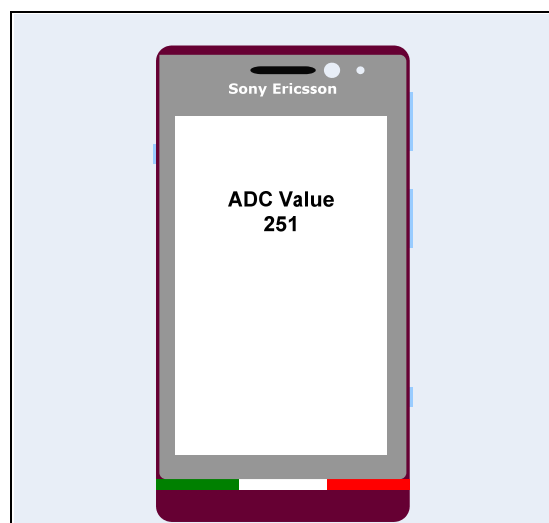
### 2.2.19 Proximity Switch

The Proximity Switch test first say Not detected. But if you take your hand over the left top corner of the phone it should say Detected.



### 2.2.20 Ambient light

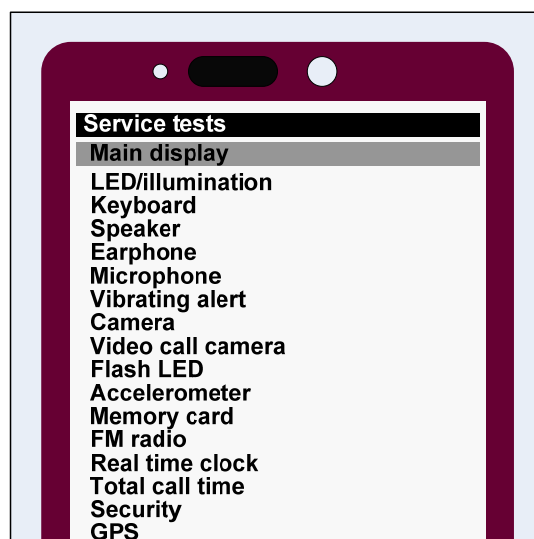
The Ambient light test states a value. Look that the value should be higher when the Window get more light and should decrease when the window gets less light.



## Tests: Service Tests

### 2.2.21 Non-applicable tests

***Earphone test not active in RTL sw need to be done manually by call with SIM card.***



## 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
- if not detected, the message 'Insert SIM card' will be displayed

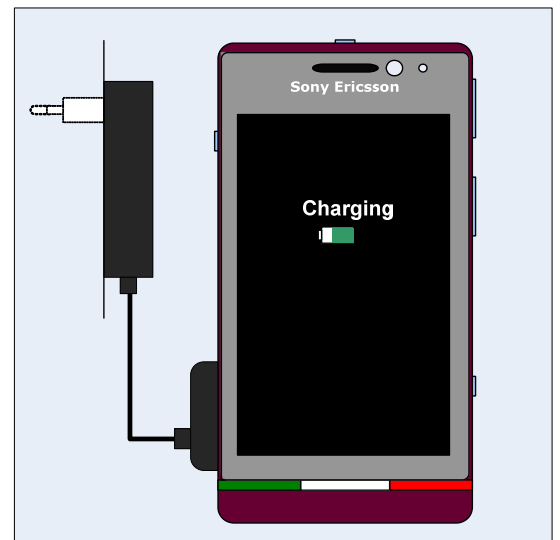


#### 2.3.2 Battery charging

##### 2.3.2.1 Charging by wall charger

Verify that charging of the phone functions properly:

- install a battery but do not start the phone
- connect a wall charger to the system connector
- verify that the display shows that the phone is being charged
- remove the charger from the system connector and verify that the display no longer indicates charging

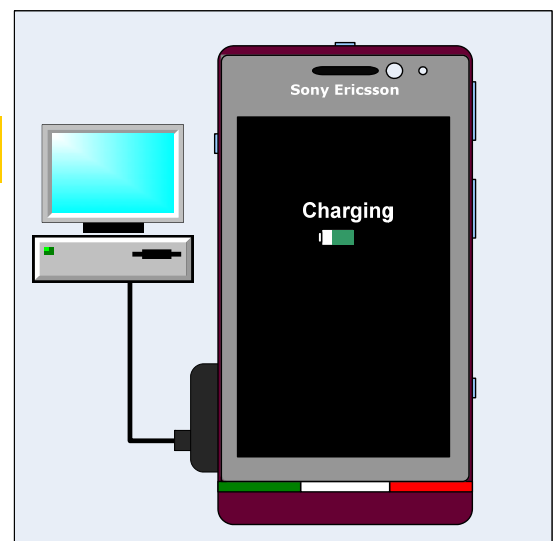


##### 2.3.2.2 Charging via USB

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!**

- check and, if necessary, activate the USB charging by entering the Service menu: Service settings ⇒ Charging on
- install a battery but do not start the phone
- connect a USB cable from a computer to the system connector
- verify that the display shows that the phone is being charged
- remove the USB cable from the system connector and verify that the display 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!**

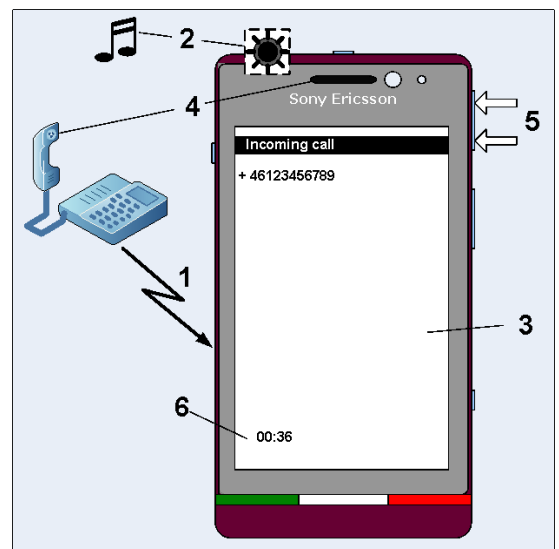
**There are two versions of the test depending on whether a UMTS network is available or not!  
If a UMTS network is available, the network test has to be done separately for GSM and UMTS!**

#### 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 the ring signal goes on
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 key 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:

*Settings* ⇒ *Connectivity* ⇒ *Networks* ⇒ *Network mode* ⇒ *GSM*

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:

*Settings* ⇒ *Connectivity* ⇒ *Networks* ⇒ *Network mode* ⇒ *UMTS*

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	2009-okt-14	Initial release
2	2009-Okt-16	Added Real Time Clock test