

Test Instructions

- mechanical -



XperiaTM E-Dual, C1605, C1604

XperiaTM E, C1505, C1504

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SONY

make.believe

Test Instructions (mech)

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

1 Pre-Test Preparations

1.1 Hardware

1.1.1 Water indicator inspection

Before starting any test 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. The latest improvements are found on the support pages under the support news

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

Step 1: Start up the phone;

Note: Make sure the phone is in call setup.

Step 2: Press the following keypad combination: *##7378423#*##;

Step 3: Select 'Service info';

Step 4: Select 'Software info';

Step 5: 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 connector to connect the USB cable for this purpose!

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

Step 1: Open the Emma application and log in.

Step 2: Press and hold the *Volume Down* key down on the phone, connect the phone to the USB cable and then release the *Volume Down* key.

Step 3: Select the appropriate service and follow the on-screen instructions.

2 Tests

2.1 Service Test Mode

Note: Make sure the phone is in call setup when pressing the touching keypads to get into the Service Menu!

Start up the phone and enter the service menus:

Step 1: Press the following keypad combination:

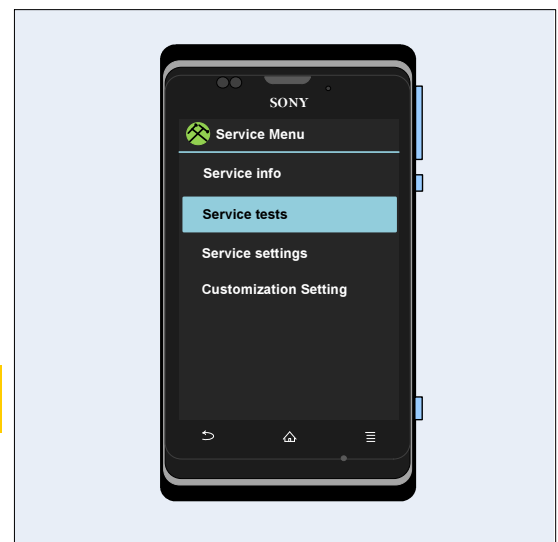
##7378423##;

Step 2: Select *Service tests*;

Step 3: 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 following pictures will show a simplified basic phone for a general visualization of the service tests!

Tests

2.2 Service Tests

2.2.1 Keyboard & Switch

Text Note: The Home Key and On/Off key are not part of the Keyboard test, but are in the Manual tests.

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

Press the following keys:

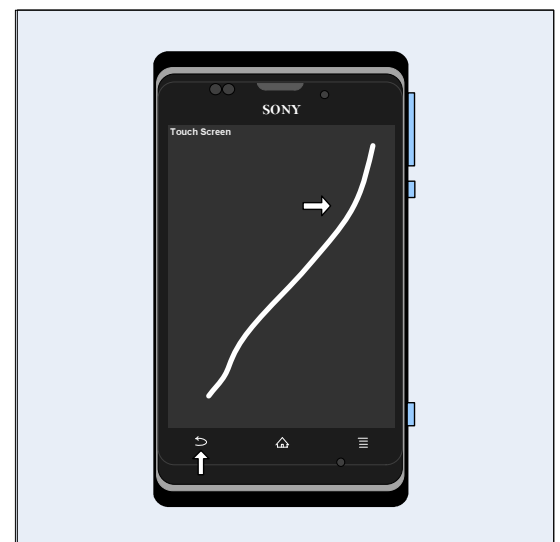
- Back key
- Menu key
- Camera key
- Volume Up key
- Volume Down key



2.2.2 Touch Screen

Move a finger across the touch screen, a line will be drawn as it touches.

Press the Back key to return to the Service Test Menu.



2.2.3 Display

Minor variations in the display's brightness and color may occur between phones.

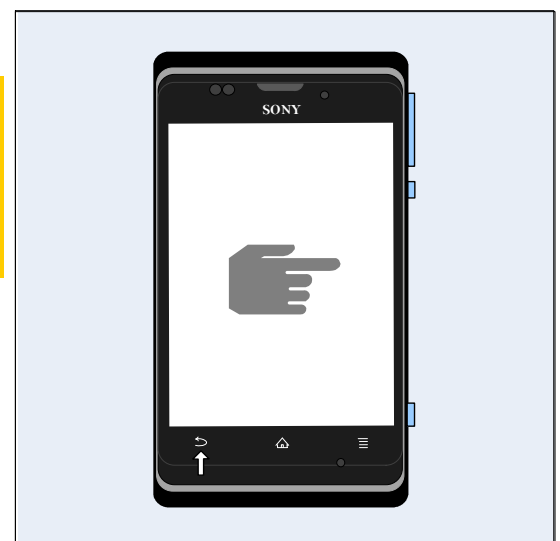
There may be tiny bright dots on the display, called defective pixels and which occur when individual dots have malfunctioned and cannot be adjusted.

Two defective pixels are considered to be acceptable.

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

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

Press the Back key to return to the Service Test Menu.



Tests: Service Tests

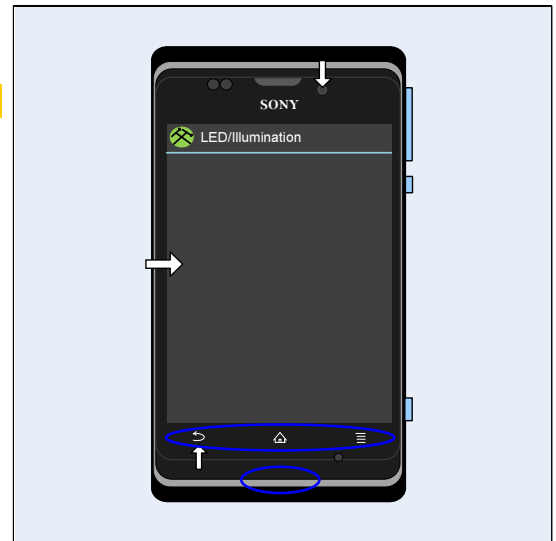
2.2.4 LED/Illumination

Note: Please un-plug USB connection during this test.

Check that the:

- RGB LED on top right corner changes, showing three colors in the sequence: Blue, Green, and Red.
- SMS LED changes, showing three colors in the sequence: Blue, Green, and Red.
- Menu, Home and Back key backlight illuminations turn on and off.
- Screen illumination turns on and off.

Press the Back key to return to the Service Test Menu.



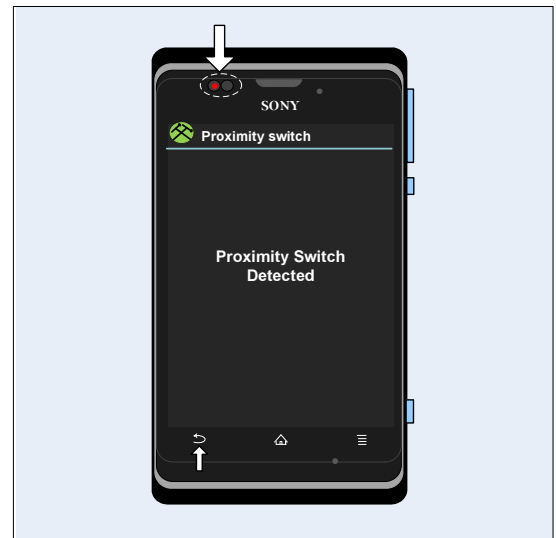
2.2.5 Proximity switch

When entering into the test,

- The screen shows 'Proximity Switch Not detected'.
- The notification LED shows red and flicking.

When covering the proximity switch area (on the left side of the receiver port), the screen will show 'Proximity Switch Detected'.

Press the Back key to return to the Service Test Menu.



2.2.6 Speaker

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

Make sure that the sound from the speaker port on the bottom back side of the phone is emitted loud and clear and that the test includes maximum volume.

Press the Volume Up/Volume Down key to adjust the Loudspeaker volume.

Press the Back key to return to the Service Test Menu.



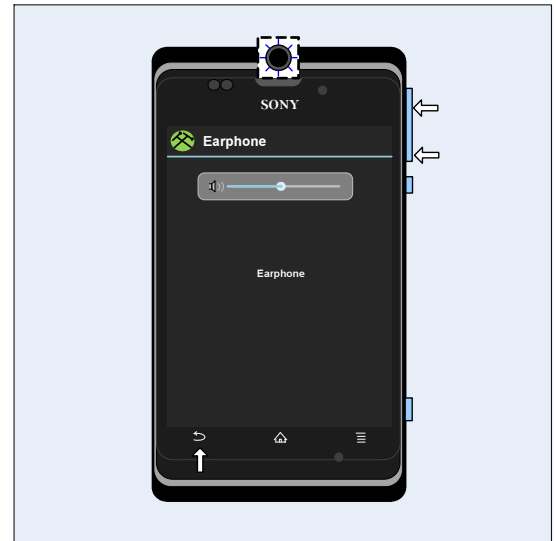
Tests: Service Tests

2.2.7 Earphone

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

Press the Volume Up/Volume Down key to adjust the earphone volume.

Press the Back key to return to the Service Test Menu.

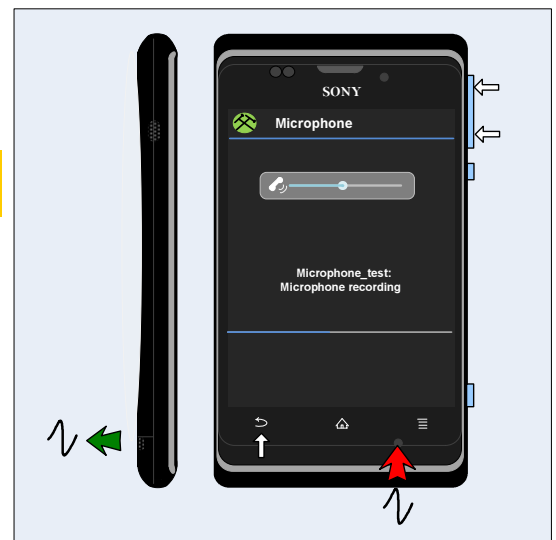


2.2.8 Microphone

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

- Step 1: Enter the test and speak into the microphone for ten seconds during the 'Microphone recording' phase.
- Step 2: Check the quality by listening to the recording from the Loudspeaker during the 'Playing recorded sound' phase with maximum volume.

Press the Back key to return to the Service Test Menu.



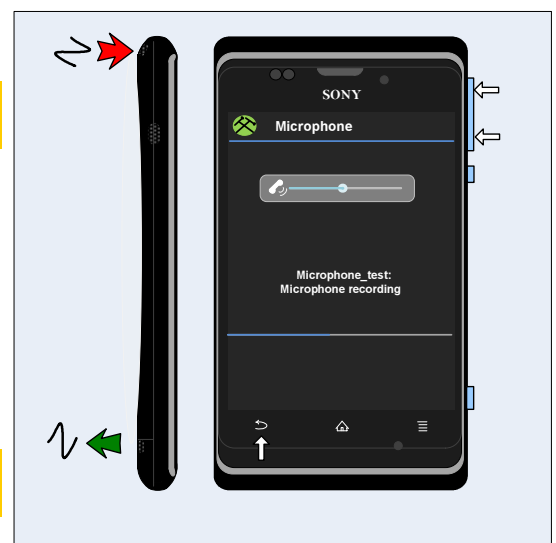
2.2.9 Secondary Microphone

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

- Step 1: Enter the test and speak into the secondary microphone for ten seconds during the 'Microphone recording' phase.
- Step 2: Check the quality by listening to the recording from the Loudspeaker during the 'Playing recorded sound' phase with maximum volume.

Press the Back key to return to the Service Test Menu.

Note: Test case only available on Jelly Bean SW upgrade!



Tests: Service Tests

2.2.10 Vibrator

Enter time to vibrate and press the Menu key or side keys to start the vibrator test.

Press the Back key to stop vibrating and return to the Service Test Menu.



2.2.11 Camera

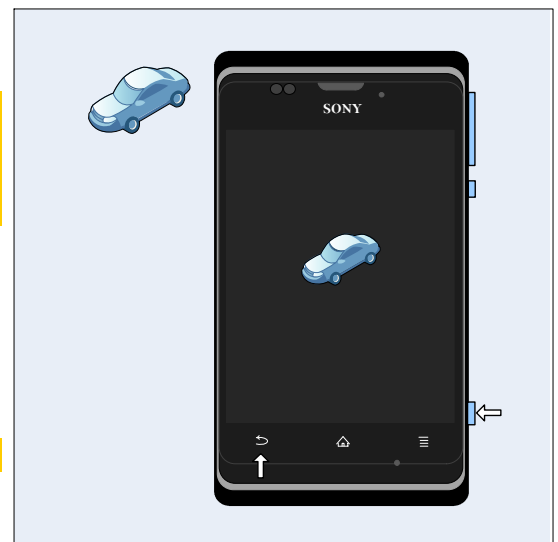
Minor variations in image appearance may occur between phones, but is not uncommon and should not be regarded as an indication of a defective camera module!

Step 1: Aim the camera (located at the back of the phone) at an object and check the quality of the image shown in the display.

Step 2: Touch the screen or press the Camera key to take photos.

Photos are taken but not saved during this test!

Press the Back key to return to the Service Test Menu.



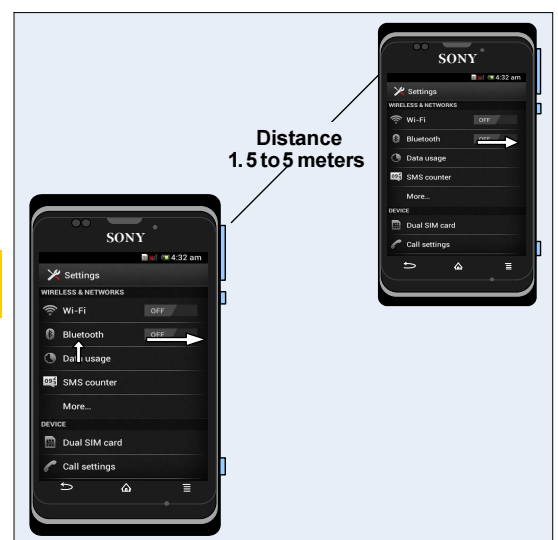
2.2.12 Bluetooth

The Bluetooth test will be done in the following sequences.

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

Step 1: Press or slide the button of *Bluetooth* on the right side to activate the Bluetooth function.

Step 2: Select *Bluetooth* to search other Bluetooth devices.

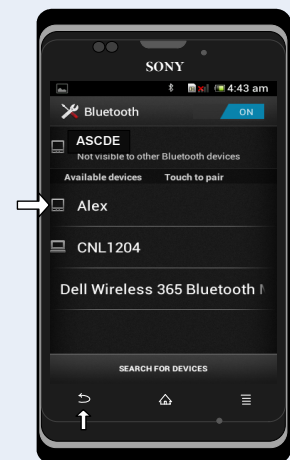


Tests: Service Tests

Step 3: Choose a device to setup a Bluetooth link.

If a link can be established, the Bluetooth function is regarded to be fully functional.

Press the Back key twice to return to the Service Test Menu.



2.2.13 WLAN

Make sure there's a WLAN network before performing this test!

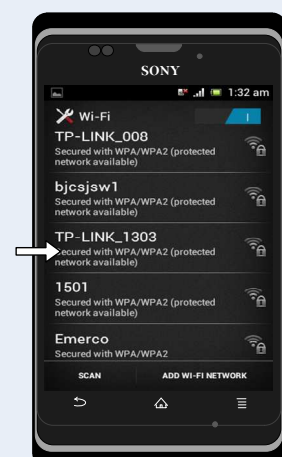
The WLAN test will be done in the following sequences.

Step 1: Press or slide the button of *Wi-Fi* on the right side to active the WLAN function.

Step 2: Select *Wi-Fi* to search available WLAN network.



Step 3: Select the target WLAN network.



Tests: Service Tests

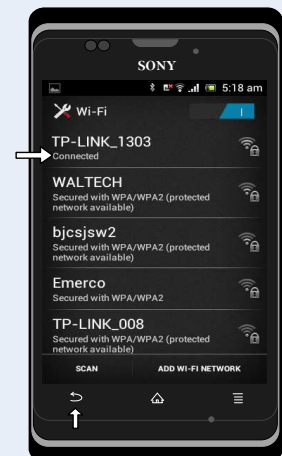
Step 4: Enter the password to get connection with the available Wi-Fi.



Step 5: Select the target Wi-Fi to check the status of connection.

If the phone is able to scan, detect and connect to a network, the WLAN function is regarded to be fully functional.

Press the Back key twice to return to the Service Test Menu.



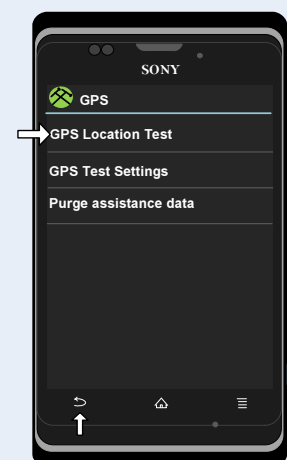
2.2.14 GPS

Select *GPS Location Test* to do the test.

If the positioning time is over 5 minutes and does not get location info, the test is failed.

Press the Back key to return to the Service Test Menu.

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

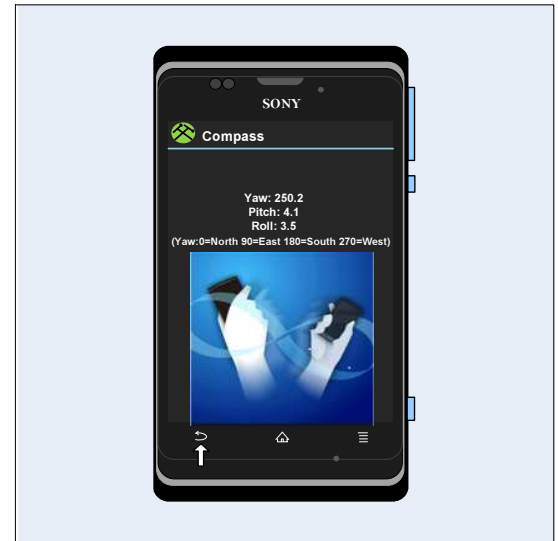


Tests: Service Tests

2.2.15 Compass

Do calibration with hand movements in the track of '∞', and then check the actual direction with measured value.
(Yaw:0=North, 90=East, 180=South, 270=West)

Press the Back key to return to the Service Test Menu.



2.2.16 Accelerometer

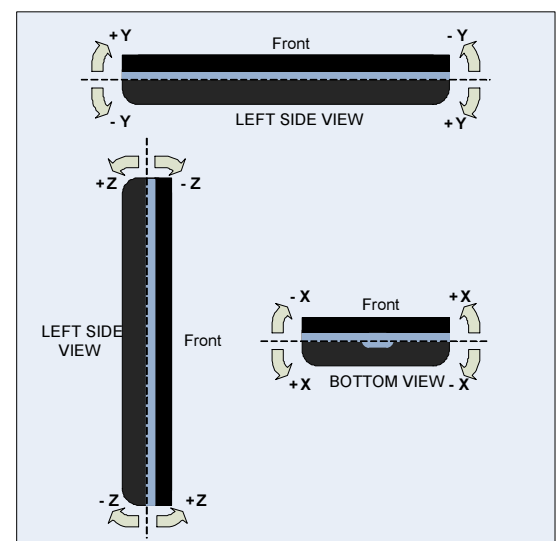
The accelerometer test displays the actual position of the phone as a 3D coordinate X:Y:Z.



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 the Back key to return to the Service Test Menu.

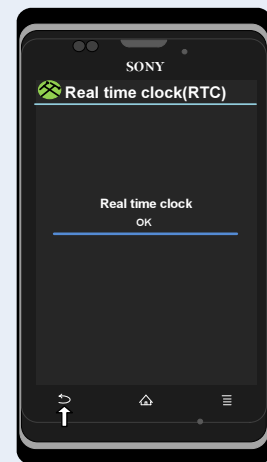


Tests: Service Tests

2.2.17 Real time clock(RTC)

When entering the test, the text 'Real time clock' is displayed, and then a message state whether the test was OK or not.

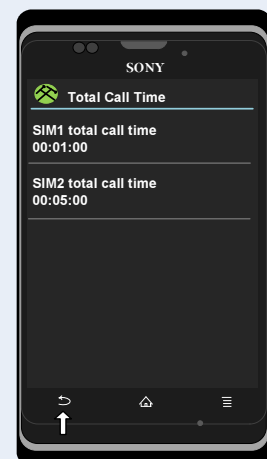
Press the Back key to return to the Service Test Menu.



2.2.18 Total call time

The two SIM cards' time are displayed in the format HH:MM:SS (hours: minutes: seconds).

Press the Back key to return to the Service Test Menu.

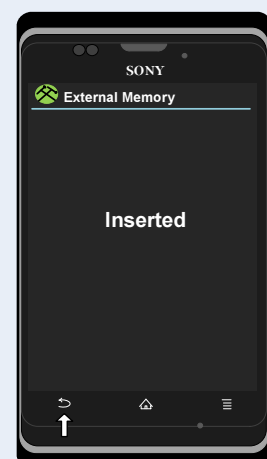


2.2.19 External Memory

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 the Back key to return to the Service Test Menu.

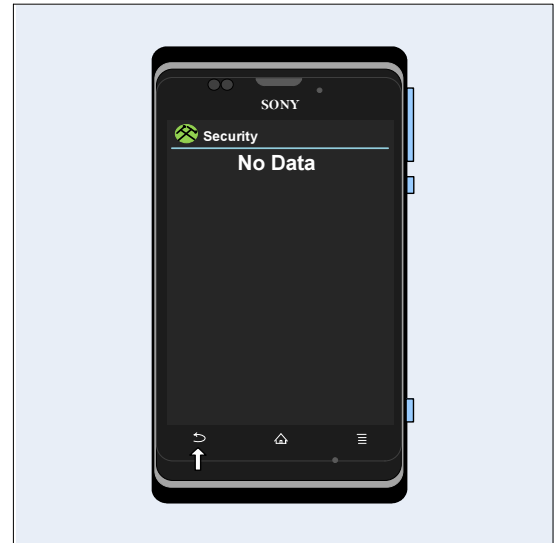


Tests: Service Tests

2.2.20 Security

No data.

Press the Back key to return to the Service Test Menu.



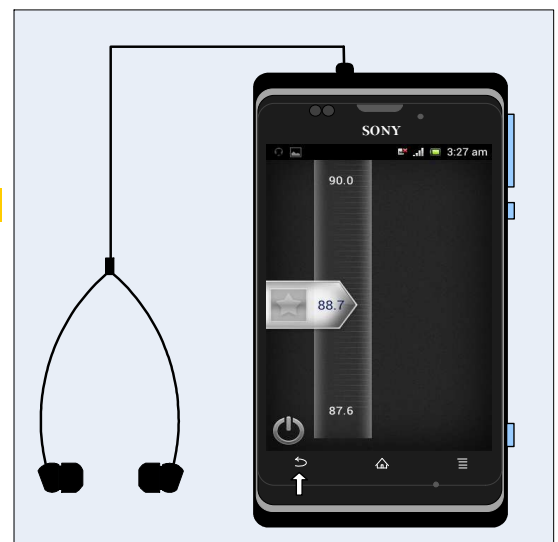
2.2.21 FM Radio

Use a CTIA type headset to do this test!

Connect a headset and then select the frequency of FM station.

Secure that the reception and sound quality is normal.

Press the Back key to return to the Service Test Menu.



2.2.22 Battery status check

Verify that charging of the battery functions properly.

Step 1: Connect a wall charger or via USB to the system connector.

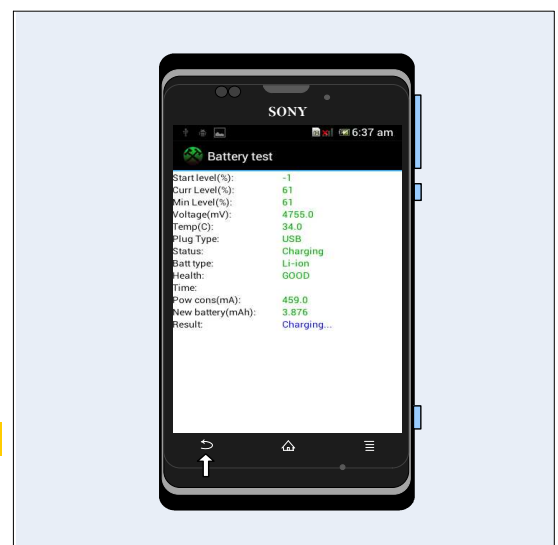
Verify that the display shows the phone is charging and also the info about battery health and level.

Step 2: Remove the charger from the connector.

Verify that the display shows the phone is not charging and also the info about the battery health and level.

Connect a Sony charger (to secure correct result)!

Press the Back key to return to the Service Test Menu.

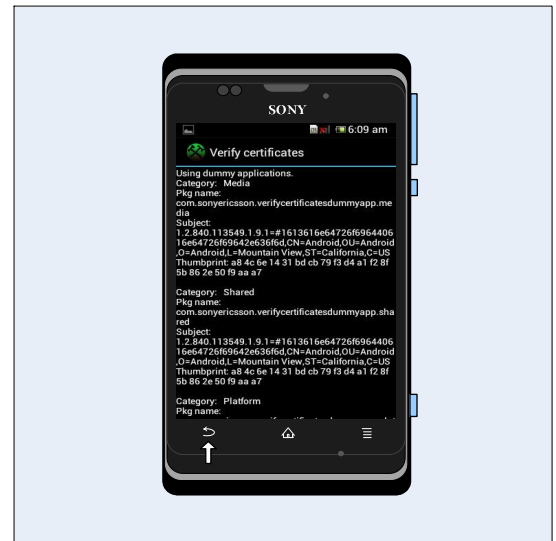


Tests: Service Tests

2.2.23 Verify certificates

When entering the test, four information categories will be shown: Media, Shared, Platform and Application.

Press the Back key to return to the Service Test Menu.



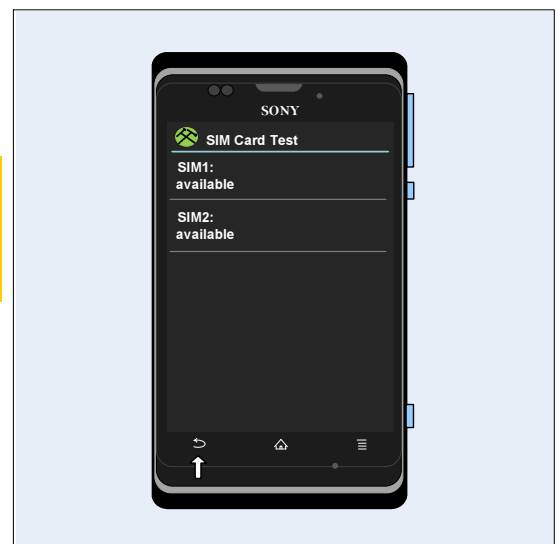
2.2.24 SIM Card Test

E-Dual SIM; Two SIM cards should be inserted in the phone before the start of this test!

E-Single SIM; Only one SIM card available for SIM card test!

The phone should detect that the SIM card or cards are inserted.

Press the Back key to return to the Service Test Menu.

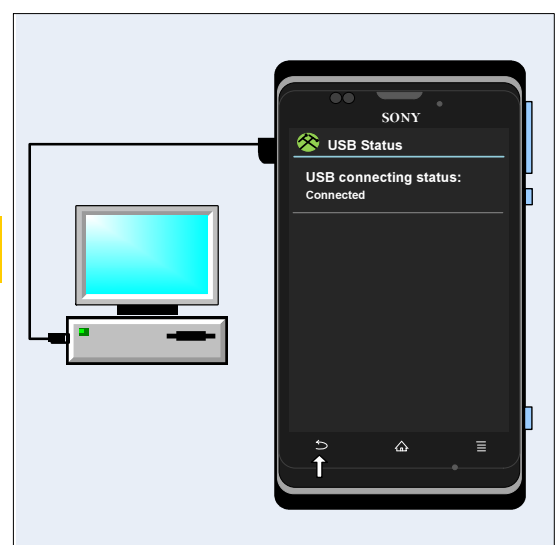


2.2.25 USB Test

A USB cable should be connected with the phone before the start of this test!

The phone should detect that the USB cable is connected.

Press the Back key to return to the Service Test Menu.



Tests

2.3 Manual Tests

2.3.1 SIM

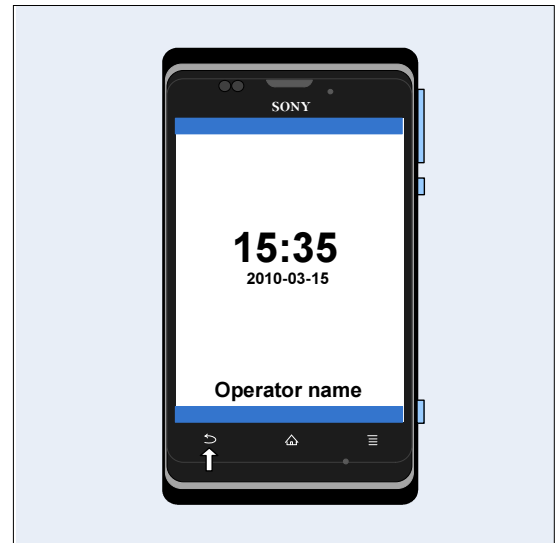
Insert a SIM card, install a battery and start the phone. If the SIM card is detected by the phone, the start-up procedure will continue.

Step 1: Pull down the Status Bar (put finger next to the receiver port and drag down the menu from the Status Bar).

Step 2: Check the SIM card operator name

- If detected, the SIM card operator name will be displayed under unlock slide bar when phone is in Lock status.
- If not detected, the message 'No SIM card | Emergency calls only' will be displayed under unlock slide bar when phone is in Lock status.

Press the Back key to return to the Stand by screen.



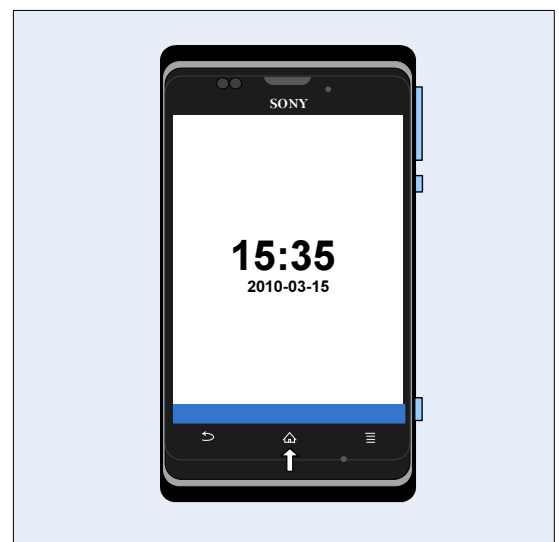
2.3.2 On/Off key test

- Press the On/Off key for a long time to turn the phone on or off.
- Press the On/Off key for 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 during operation, press the Home key the phone will go directly back to the Stand by screen.



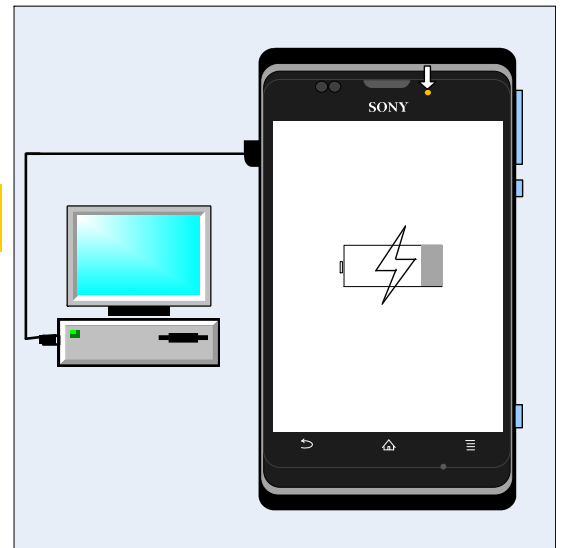
Tests: Service Tests

2.3.4 Charging via USB (Charger or Computer)

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

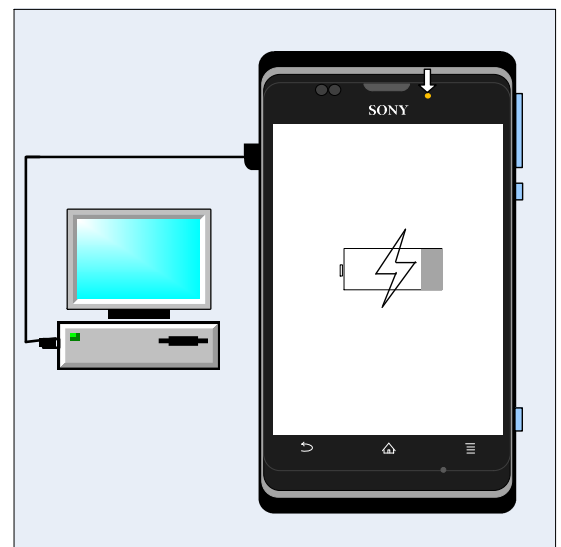
Ensure that no computer application, such as PC Suite or Emma is active!

- Step 1: Insert a battery, but do not start the phone.
 Step 2: Connect a USB cable from a computer or charger to the phone.
 Verify that the phone is being charged by the notification LED and the battery icon is shown in the screen.
 Step 3: Remove the USB cable from the connector.
 Verify that the notification LED and battery icon no longer indicate charging.



The Notification LED color status is depended on battery remaining capacity:

- Red: Battery level is between 1% and 14%;
- Orange: Battery level is between 15% and 89%;
- Green: Battery is between 90% and 100%.



2.3.5 Internal Memory Test

Verify that the internal memory performs properly.

- Step 1: Press Menu key and select *Settings*;
 Step 2: Press *Storage* and check the storage information;



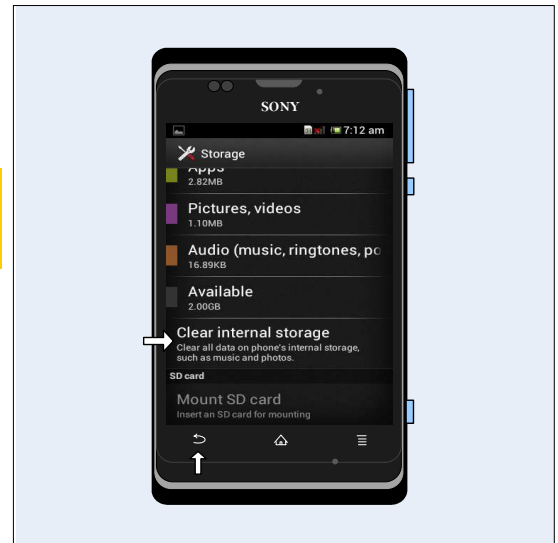
Tests: Service Tests

Step 3: Clear internal storage.

Be careful that all the user data on this storage will be erased completely after selecting 'Clear internal storage'.

Verify that the display shows the total space of the phone is around 2GB.

Press the Back key twice to return to the Stand by screen.



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!

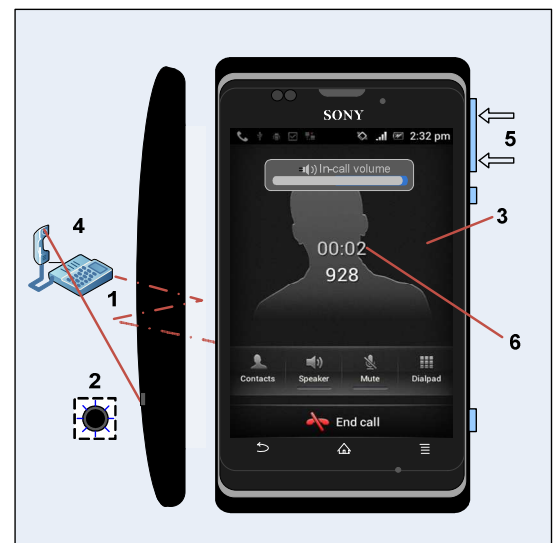
If a UMTS network is available, the network test has to be done separately for GSM and UMTS!

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 the display backlight illumination.
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 properly.



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

GSM

Go to the phone menu and set:

Press Menu key → *Settings* ⇒ *More...* ⇒ *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* ⇒ *More...* ⇒ *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.

2.4.3 Dual SIM On-the-air call to mobile (UMTS network available)

GSM

Go to the phone menu and set:

Press Menu key → *Settings* ⇒ *More...* ⇒ *Mobile Networks* ⇒ *Select SIM card* ⇒ *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* ⇒ *More...* ⇒ *Mobile Networks* ⇒ *Select SIM card* ⇒ *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	2013-Jan-11	Initial release
2	2013-Mar-11	Xperia E, C1504, C1505