



Sony Ericsson

Test & Calibration

- electrical -



Xperia™ Mini
ST15i / ST15a/S51SE

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This product is ONLY implemented in SERP II

1 Go/NoGo Testing

This Go/NoGo testing has to be carried out in two ways, with an:

- Antenna Coupler.
- Cable in shield box.

For more information on Antenna Coupler and Cable in shield box testing, refer to 1220-1336: Generic Repair Manual – electrical, section ‘Setup Go/NoGo Test’!

For part no’s on the equipment below, refer to the ‘Tools Catalogue/Matrix’!

1.1 Antenna Coupler

The following equipment has to be used:

- Rohde & Schwartz RF Shield Package
 - Rohde & Schwartz RF Shield Box
 - Rohde & Schwartz RF Coupler
 - Grid Positioning Holder
- RF Test Cable Flexible 1M
- RF Adapter for RF Shield Box
- USIM Card, instrument specific

GSM-850/900/1800/1900

WCDMA-850/900/1900/2100

Put the grid positioning holder with its reference point in position **F8** and place the phone as shown in the adjacent picture.



Go/NoGo Testing

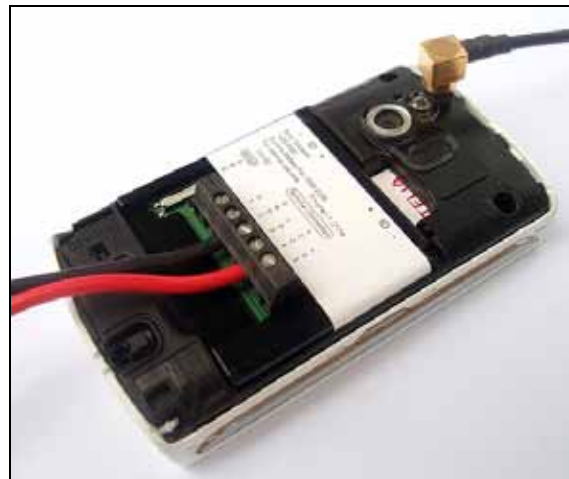
1.2 Direct Line

The following equipment has to be used:

- RF Test Cable Flexible 1M and support sleeve
- A Test Inner Frame (see below)
- USIM Card, instrument specific
- A SIM card and Dummy Battery with external power supply and cables (if not using a fully charged battery)

Connect the RF Probe as shown in the adjacent picture.

To get access to the RF connector on the PBA, refer to 1243-6268: S51SE/ST15 Working Instructions, section 3.1-3.3 and 5.5

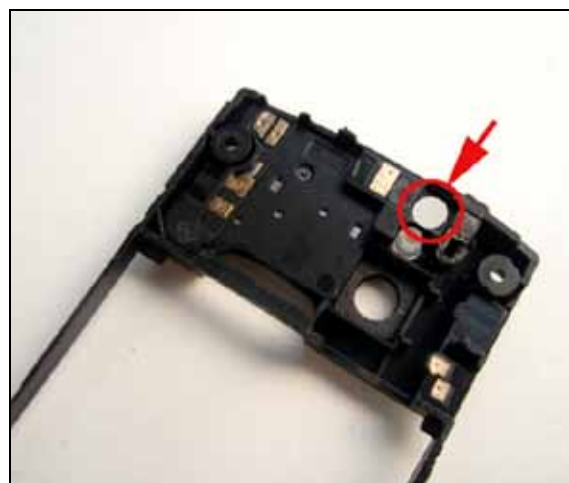


Test Inner Frame

In order to secure the power supply and RF connection during measurement you need to produce a Test Inner Frame.

- Pick an undamaged S51SE/ST15 Inner Frame.
- Drill a 4.6mm hole at the exact pre-marked dip. (Make sure to use a new 4.6mm drill.)
- Check that the hole is aligned with the RF connector.

This fixture may be reused for testing many S51SE /ST15 units.



Go/NoGo Testing

Follow the directions stated in 'Go/NoGo Test Script Parameters' to be found in 1220-1336: Generic Repair Manual – electrical, together with the 'Attenuation Factors' below!

This phone is available as three versions ST15i, ST15a and S51SE including the following bands:

ST15i:

GSM-850/900/1800/1900

WCDMA-900/2100

ST15a:

GSM-850/900/1800/1900

WCDMA-850/1900/2100

S51SE:

GSM-850/900/1800/1900

WCDMA-1700/2100

Go/NoGo Testing

1.3 Attenuation Factors

The attenuation values listed below in 1.3.1 and 1.3.2 are valid only when the equipment listed on the previous pages is being used!

1.3.1 Loss Values – Antenna Coupler

Band	Channel	Attenuation ST15i		Attenuation ST15a		Attenuation S51SE	
		Rx	Tx	Rx	Tx	Rx	Tx
GSM 850	Low	9.00	13.10	10.00	12.40	9.00	13.10
	Mid	9.00	10.20	10.00	11.30	9.00	10.20
	High	9.00	9.30	10.00	11.30	9.00	9.30
GSM 900	Low	12.00	9.10	13.00	11.70	12.00	9.10
	Mid	15.00	8.90	13.00	10.60	15.00	8.90
	High	9.00	11.30	11.00	11.10	9.00	11.30
GSM 1800	Low	6.00	15.50	11.00	20.25	6.00	15.50
	Mid	5.00	11.30	10.00	20.10	5.00	11.30
	High	5.00	7.43	9.00	14.10	5.00	7.43
GSM 1900	Low	4.00	6.80	5.00	6.56	4.00	6.80
	Mid	5.00	4.80	6.00	5.95	5.00	4.80
	High	6.00	4.95	7.00	6.74	6.00	4.95
WCDMA 850 Band 5	Low	-	-	23.00	6.50	-	-
	Mid	-	-	25.00	6.40	-	-
	High	-	-	25.00	5.70	-	-
WCDMA 900 Band 8	Low	19.00	17.40	-	-	-	-
	Mid	20.00	17.10	-	-	-	-
	High	19.00	16.50	-	-	-	-
WCDMA 1700 Band 9	Low	-	-	-	-	3.00	6.77
	Mid	-	-	-	-	5.00	6.52
	High	-	-	-	-	5.00	5.33
WCDMA 1900 Band 2	Low	-	-	13.00	10.30	-	-
	Mid	-	-	14.00	10.80	-	-
	High	-	-	14.00	9.10	-	-
WCDMA 2100 Band 1	Low	19.00	14.20	16.00	13.20	18.00	5.40
	Mid	21.00	12.70	17.00	9.70	19.00	6.10
	High	24.00	9.70	17.30	10.40	19.00	6.50

Go/NoGo Testing: Attenuation Factors

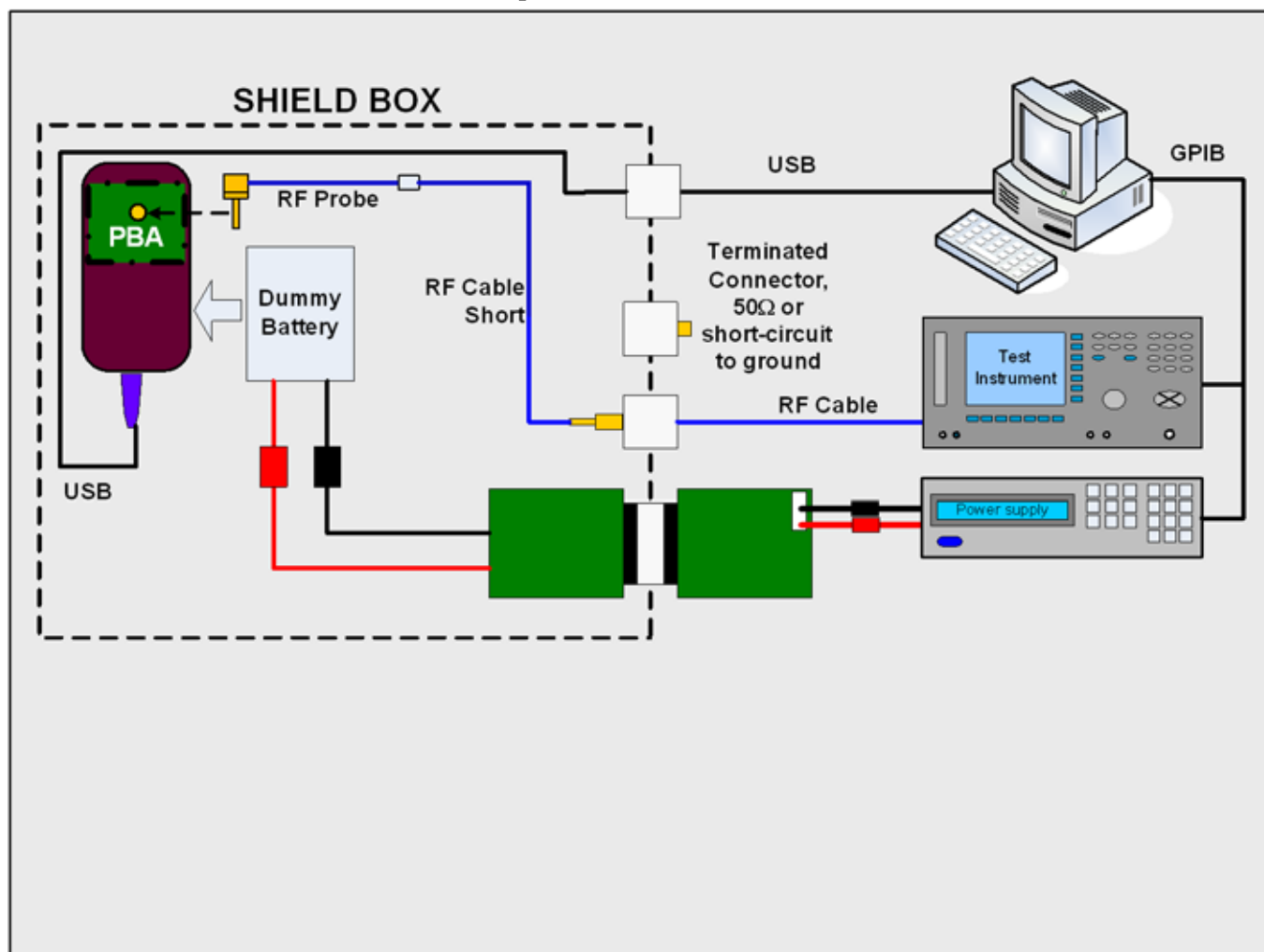
1.3.2 Loss Values – Direct Line

Band	Channel	Attenuation	
		Rx	Tx
GSM 850	All	1.0	1.0
GSM 900	All	1.0	1.0
GSM 1800	All	2.3	2.3
GSM 1900	All	2.3	2.3
WCDMA 850	All	2.5	2.5
WCDMA 900	All	2.5	2.5
WCDMA 1700	All	1.3	1.3
WCDMA 1900	All	1.3	1.3
WCDMA 2100	All	1.3	1.3

2 SERP Calibration

Calibration do not apply for S51SE!

2.1 Calibration Setup



For authorized centers only!

Due to the sensitivity of the phone from outside interference during GSM/WCDMA calibration, a Shield Box and Service Tool Set Interface are required for GSM/WCDMA calibration.

The equipment used to connect the Power supply with the Dummy battery is the same used in SERP I which connects to SEPI. Only power cables are used in this setup.

Connect and set-up in accordance with the picture above!

Connect the RF Probe to the phone's PBA according to the picture in section 1.2!

For part no's on the equipment above, refer to the 'Tools Catalogue/Matrix'!

SERP Calibration

2.2 Calibration Procedure

***A test program must be loaded into the phone before starting the calibration procedure!
After completed calibration the phone must be re-customized with signaling software!***

2.2.1 Test Program (ETS) Flashing

The ETS flashing into the phone is done as follows:

1. Attach a fully charged battery to the phone.
2. Open the Emma application and log in.
3. Check that the phone is powered off.
4. Press and hold the 'Volume' key down and connect the phone to the USB flash cable.
Release the 'Volume down' key when the USB icon appears on the Emma screen.
5. Select the 'ST15 ETS' protocol and follow the on-screen instructions.

The display of the phone will usually become blank when the ETS is installed.

2.2.2 Calibration Instructions

For complete and detailed user instructions, refer to the SERP II User's Manual.

Start the SERP II program by double-clicking on the **SERP II.exe** icon on the desktop:

1. Click on the **Repair Manager Tab** and enter (or scan) the IMEI number of the phone to be calibrated into the **IMEI** box.
2. Select test: **Calibration**, and **Cable in Shield Box** in the Coupler drop down box
3. Check the **Settings tab** verify that the test instrument, GPIB address and the COM port matches the SERP settings.
4. Connect the phone to the test instrument as shown in the *Calibration Setup*.
5. Click on the **Start Test** button in the main window to start the calibration and the phone will automatically power up.
6. Monitor the progress of the calibration by viewing the information presented in the **Result tab**.

If the calibration fails, troubleshoot according to the *1243-6274 ST15 Troubleshooting Guide – electrical*.

2.2.3 Re-Customization

To be able to use the phone after completed calibration the appropriate signaling code for the desired operator has to be reloaded.

If applicable, a Content Refresh has to be done

Refer to *1243-6279 ST15 Customization* for more details on Customization

3 Revision History

Rev.	Date	Changes / Comments
1	2011-AUG-29	Initial release
2	2011-Dec-08	One new commercial model included - S51SE