



# Test & Calibration

## - electrical -



*Yari*  
*U100a, U100i*



## CONTENTS

<b>1</b>	<b>Go/NoGo Testing .....</b>	<b>3</b>
1.1	Antenna Coupler .....	3
1.2	Direct Line .....	4
1.3	Attenuation Factors .....	5
1.3.1	Loss Values – Antenna Coupler .....	5
1.3.2	Loss Values – Direct Line .....	6
<b>2</b>	<b>SERP Calibration .....</b>	<b>7</b>
2.1	GSM Calibration Setup .....	7
2.2	UMTS & GSM Calibration Setup .....	8
2.3	Calibration Procedure .....	9
2.3.1	Test Program (ITP) Flashing .....	9
2.3.2	Calibration Instructions .....	9
2.3.3	Re-Customization .....	9
<b>3</b>	<b>Revision History .....</b>	<b>10</b>



# 1 Go/NoGo Testing

This Go/NoGo testing can be carried out in two alternative ways, with an:

- Antenna Coupler
- Direct Line

**For more information on Antenna Coupler and Direct Line 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

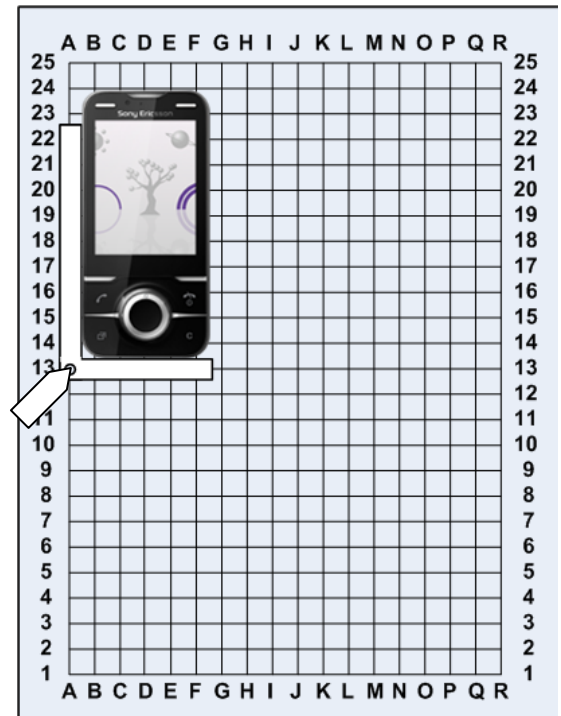
The following equipment has to be used:

- 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

**GSM-850/900/1800/1900**

**WCDMA-850/900/1900/2100**

Put the grid positioning holder with its reference point in position **A13** and place the phone as shown in the adjacent picture.



## Go/NoGo Testing

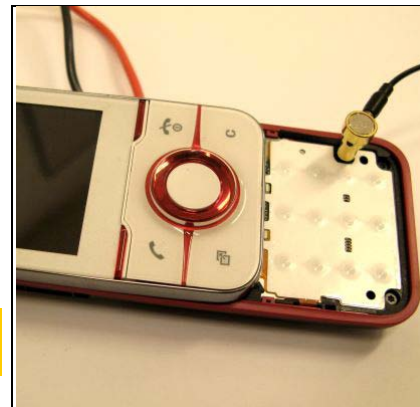
### 1.2 Direct Line

The following equipment has to be used:

- RF Test Cable Flexible 1M
- RF Probe
- 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 1222-7462: U100 Working Instructions, section 4.15!**





## 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 one version U100i and U100a, including the following bands:

**U100i:**

GSM-850/900/1800/1900

WCDMA-900/2100

**U100a:**

GSM-850/900/1800/1900

WCDMA-850/1900/2100

## 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			
		U100i		U100a	
		Rx	Tx	Rx	Tx
GSM 850	Low	5.00	7.33	5.00	7.33
	Mid	5.00	7.09	5.00	7.09
	High	5.00	6.53	5.00	6.53
GSM 900	Low	6.00	4.12	6.00	4.12
	Mid	6.00	4.68	6.00	4.68
	High	7.00	5.90	7.00	5.90
GSM 1800	Low	8.00	12.52	8.00	12.52
	Mid	8.00	11.97	8.00	11.97
	High	8.00	9.55	8.00	9.55
GSM 1900	Low	8.00	8.09	8.00	8.09
	Mid	8.00	9.04	8.00	9.04
	High	8.00	10.18	8.00	10.18
WCDMA 850	Low	-	-	5.00	6.47
	Mid	-	-	5.00	6.44
	High	-	-	4.00	5.65
WCDMA 900	Low	6.00	4.64	-	-
	Mid	6.00	4.60	-	-
	High	5.00	4.74	-	-
WCDMA 1900	Low	-	-	9.00	7.82
	Mid	-	-	9.00	8.35
	High	-	-	9.00	8.84
WCDMA 2100	Low	12.00	8.26	12.00	8.26
	Mid	15.00	8.13	15.00	8.13
	High	16.00	8.19	16.00	8.19



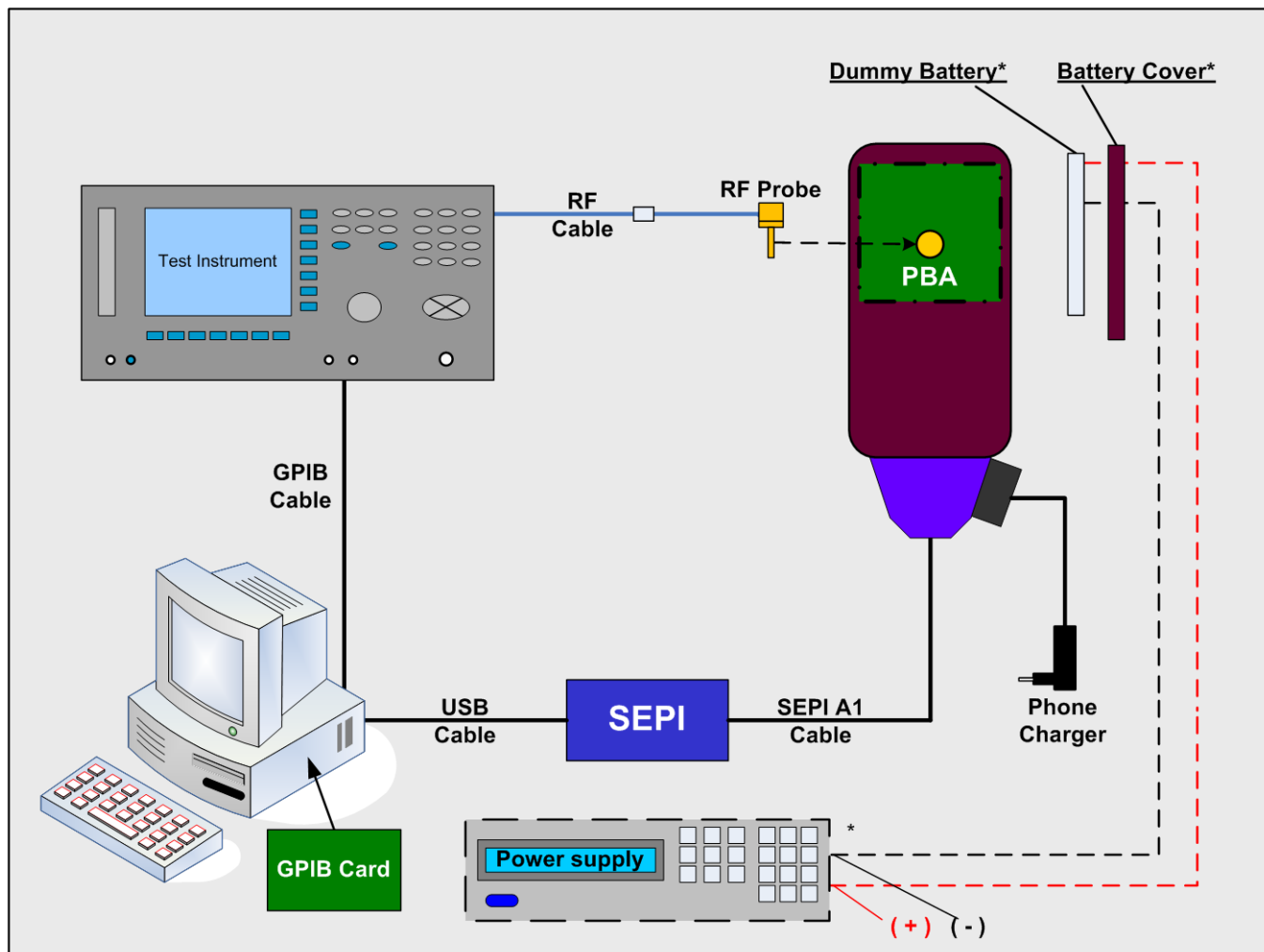
## Go/NoGo Testing: Attenuation Factors

### 1.3.2 Loss Values – Direct Line

Band	Channel	Attenuation	
		Rx	Tx
GSM 850	All	0.8	0.8
GSM 900	All	0.8	0.8
GSM 1800	All	1.3	1.3
GSM 1900	All	1.3	1.3
WCDMA 850	All	1.3	1.3
WCMA 900	All	0.8	0.8
WCDMA 1900	All	1.5	1.5
WCDMA 2100	All	1.5	1.5

## 2 SERP Calibration

## 2.1 GSM Calibration Setup



***For authorized centers only!***  
***This setup for GSM calibration only!***

**Connect and set-up in accordance with the picture above!**  
**Connect the RF Probe to the phone's PBA by following the instructions of section 1.2!**

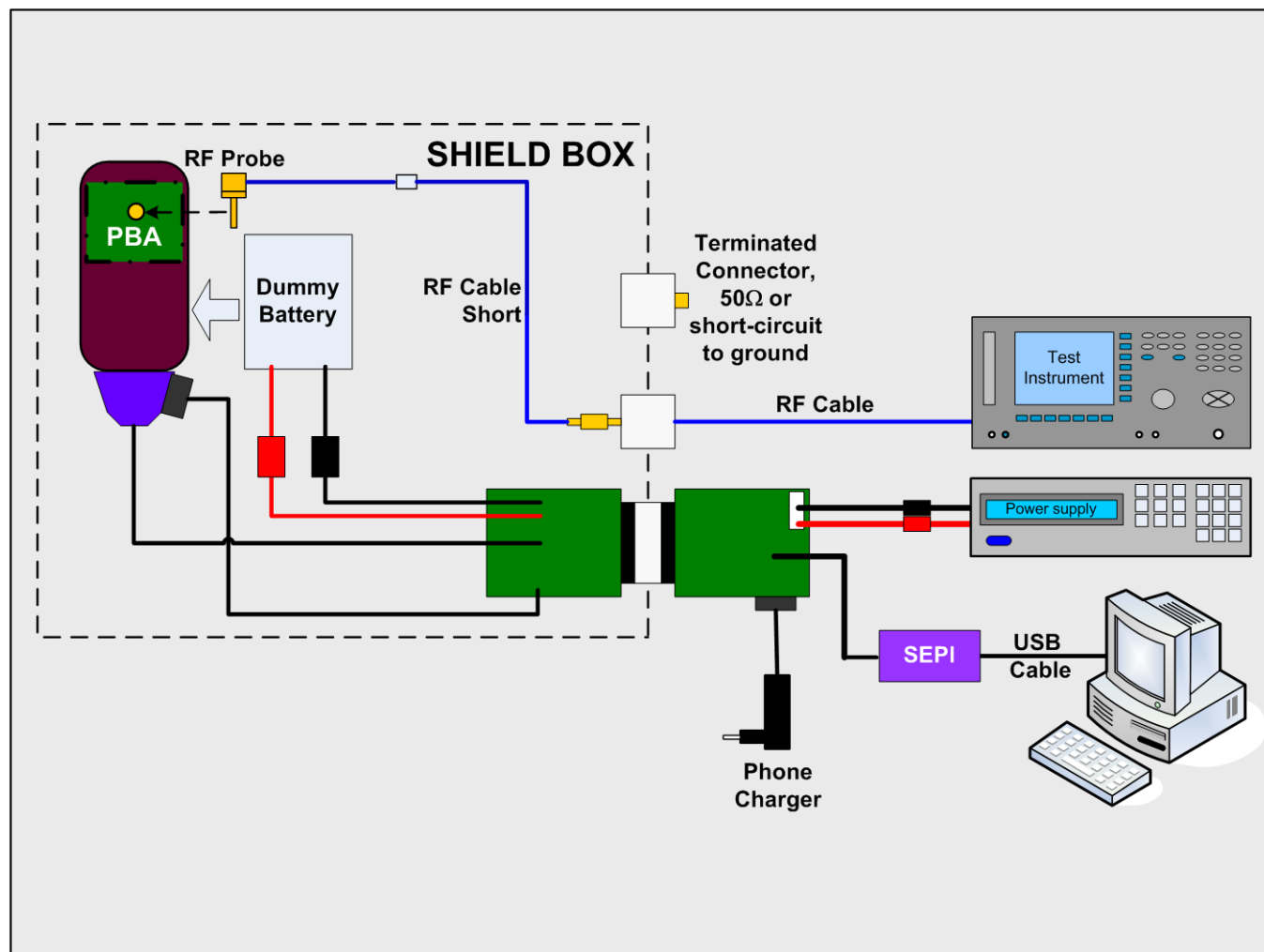
\* The phone can be supplied with power in two different ways by using:

- a fully charged standard battery with the standard battery cover
- a dummy battery, battery cover (if necessary) and an external power supply with output voltage/current set to 3.8VDC/2.0 A

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

## SERP Calibration

### 2.2 UMTS & GSM Calibration Setup



**For authorized centers only!**

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

This equipment can be used for GSM calibration as well.

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

**Connect the RF Probe to the phone's PBA by following the instructions of section 1.2!**

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



## SERP Calibration

### 2.3 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 signalling software!***

#### 2.3.1 Test Program (ITP) Flashing

The ITP 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 'C' key down and connect the phone to the USB flash cable.  
Release the 'C' key when the USB icon appears on the Emma screen.
5. Select the 'U100 ETS' protocol and follow the on-screen instructions.

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

#### 2.3.2 Calibration Instructions

***For complete and detailed user instructions, refer to the SERP User's Manual to be found in the SERPINFO.htm file located on the computer desktop (after installation of SERP).***

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

1. Click on the **Settings** button in the SERP window to verify that the test instrument, GPIB address and the COM port matches the SERP settings.
2. Click on the **Station Setup** tab and select **Cable** or **Cable in Shield Box** under the **RF Connection-Calibration** drop-down window.
3. Click on **Apply** and then the **OK** button.
4. Enter (or scan) the IMEI number of the phone to be calibrated into the **Enter IMEI** box of the SERP window and click on the **Load** button.
5. In the SERP window, check the **GSM Calibration** or **WCDMA Calibration** box, as wanted.
6. Connect the phone to the test instrument as shown in the *Calibration Setup*.
7. Connect the SEPI cable to the system connector of the phone.
8. Click on the **Start Test** button in the SERP window to start the calibration and the phone will automatically power up.
9. Monitor the progress of the calibration by viewing the information presented in the **Test Manager** window.

If the calibration fails, troubleshoot according to the *1222-7467 Troubleshooting Guide – electrical*.

#### 2.3.3 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 *1229-3445 U100 Customization* for more details on Customization.



### 3 Revision History

Rev.	Date	Changes / Comments
1	2009-Nov-16	Initial release
2	2009-Nov-23	Added U100a