

**Programmes After Market Services
NPM-5 Series Transceivers**

Service Software Instructions

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About Service software

To run the Service Software, the software protection device (PKD-1) has to be connected to the parallel port. TDF-4 box must be connected to PC for flashing purposes.

Note: if this software is to be run on laptops, the power saving feature **MUST** be switched off.

Hardware requirements for Windows 3.11

The recommended minimum hardware standard to run Service Software is any computer which is 386 33 MHz or greater with at least 4 MB of memory and VGA type display (640 x 480). This assumes that only the WinTesla with phone module is active, i.e. other Windows packages are not running in the background.

Hardware requirements for Windows 95/98/NT

The recommended minimum hardware standard to run Service Software is any computer which has Pentium processor, memory 8 MB and meets HW requirements recommended by Microsoft.

Software Environment of the Support Modules

The Service Software user interface is intended for the following environments: Microsoft Windows 3.11 (enhanced mode), Windows 95/98 and Windows NT. For those who are familiar with Windows environment this application will be easy to use. Detailed information about Windows and application usage can be found from the Microsoft Windows Users Guide.

As an ordinary Windows application, the main idea in the user interface is that selections are made with menus, push buttons and shortcut keys.

Selections can be done by using keyboard and/or mouse. There is always a status bar displayed at the bottom of the main window which contains information about current actions.

Installation

Mechanical Connections

Caution: Make sure that you have switched off the PC and the printer before making connections.

Caution: Do not connect the PKD-1 key to the serial port. You may damage your PKD-1 !

Please refer to *service setup* in this chapter for information regarding different flash set-ups.

Attach the dongle PKD-1 to the parallel port 1 (25-pin female D-connector) of the PC. When connecting PKD-1 to the parallel port, be sure that you insert the computer side of the PKD-1 to the PC (male side). If you use a printer on parallel port 1, install the PKD-1 between the PC and your printer cable.

The PKD-1 should not affect devices working with it. If some errors occur (errors in printing are possible) please try printing without the PKD-1. If printing is OK without the PKD-1 please contact your dealer. We will offer you a new PKD-1 in exchange for your old one.

Installing the Service Software on PC Hard Disk

The program is delivered on a diskette and is copy protected with a PKD-1 dongle. It must be present in parallel port when using Service Software.

The program must be installed on the hard disk before use.

Keep the original diskette safe to enable upgrading of the program !

Flash Adapter (FLS-2D)

Installation instructions can be found in the relevant Sales Pack (see *Service Tools* chapter)

.Flash Adapter (FLS-4)

Installation instructions can be found in the relevant Sales Pack (see *Service Tools* chapter).

Flash Prommer (FPS-4)

Installation instructions can be found in the relevant Sales Pack (see *Service Tools* chapter).

First time installation of WinTesla:

Do the following to make a complete WinTesla installation with support for NPM-5:

Insert the WinTesla software diskette into the floppy drive on your computer (i.e. Drive A:)

For Windows 3.1 and 3.11:

Start Windows, type *win* <Enter>

Open the File manager, open Main window and start File manager.

Select the floppy drive and:

Start installation, double-click the *wt_inst.exe* file.

Follow the instructions on the screen. Write down the directory where WinTesla is installed on your hard disk.

When installation has finished remove the WinTesla software disk from your floppy drive.

Insert the Dongle driver diskette into your floppy drive.

Select the floppy drive and:

Start installation, double-click the *dk2wn16.exe* file.

Follow the instructions on the screen.

When installation has finished remove the dongle driver software disk from your floppy drive.

Continue with the support modules installation.

For Windows 95/98 and NT:

Open Microsoft Explorer, Select *Start – Programs – Explorer*

Select the floppy drive and:

Start installation, double-click the *wt_inst.exe* file.

Follow the instructions on the screen. Write down the directory where WinTesla is installed on your hard disk.

When installation has finished remove the WinTesla software disk from your floppy drive.

Insert the Dongle driver diskette into your floppy drive.

Select the floppy drive and:

Start installation, double-click the *dk2wn32.exe* file.

Follow the instructions on the screen.

When installation has finished remove the dongle driver software disk from your floppy drive.

Continue with the support modules installation.

Installation of NPM-5 support modules (WinTesla already installed):

To install the new Service Software Program, follow the steps below:

Insert the new Service software CD-ROM into the CD-ROM drive on of your computer.

For Windows 3.1 and 3.11:

Start Windows, type *win <Enter>* and open the File manager.

Open Main window and start File Manager, select the floppy drive.

Start installation, double-click the *setup.exe* file.

Follow the instructions on the screen.

For Windows 95/98 and NT:

Open Microsoft Explorer, select *Start –Programs– Explorer*

Select the floppy drive.

Start installation, double-click the *setup.exe* file.

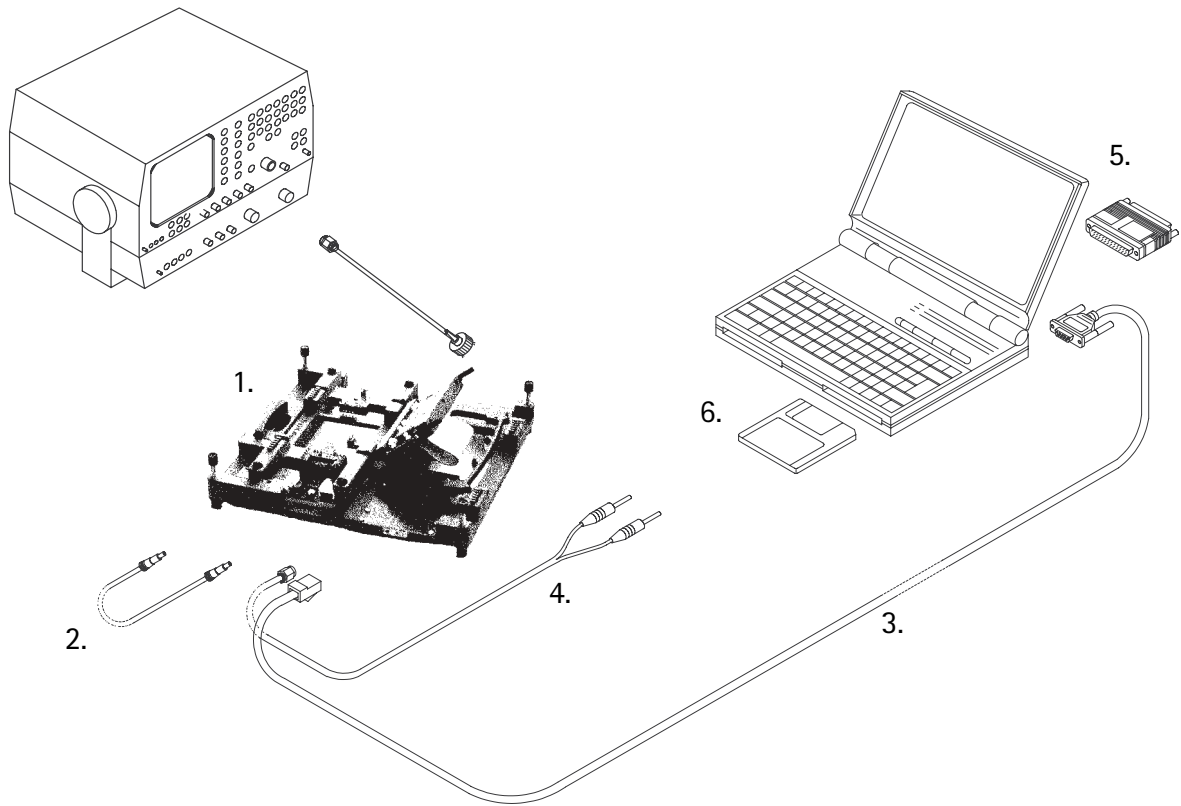
Follow the instructions on the screen.

NPM-5 Service Software Features

For further information regarding each specific feature please refer to the online help included with the support module installation package. The dialogues have buttons marked Help for direct access to the specific area in the online help in which the feature is explained.

Service Equipment Setup

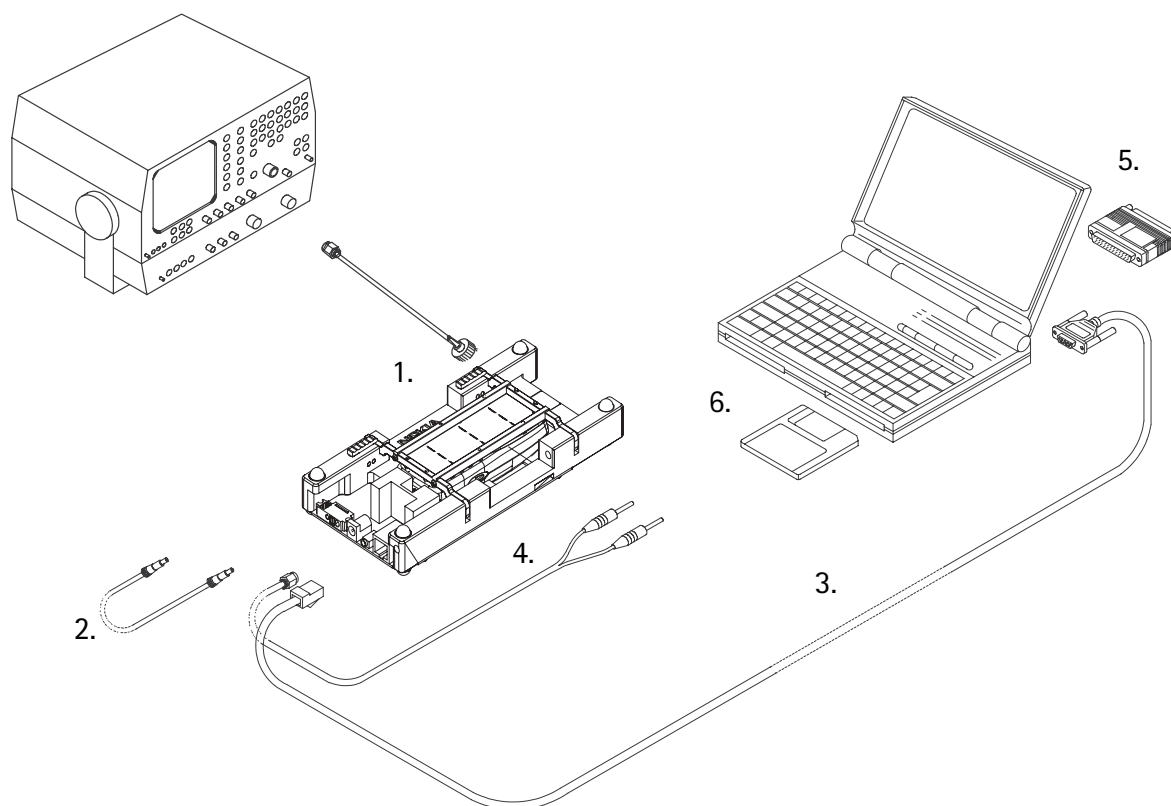
Figure 1: Basic Service Setup



Service accessory:	Type Des	Product code:
1. Module Repair Jig	MJS-64	0770382
2. DC-DC Cable	SCB-3	0730114
3. Service Cable	DAU9-S	0730108
4. DC Power Cable	PCS-1	0730012
5. Software Protection Key	PKD-1	0750018
6. WinTesla Software CD-ROM		0770413

Service Equipment Setup for CMT module

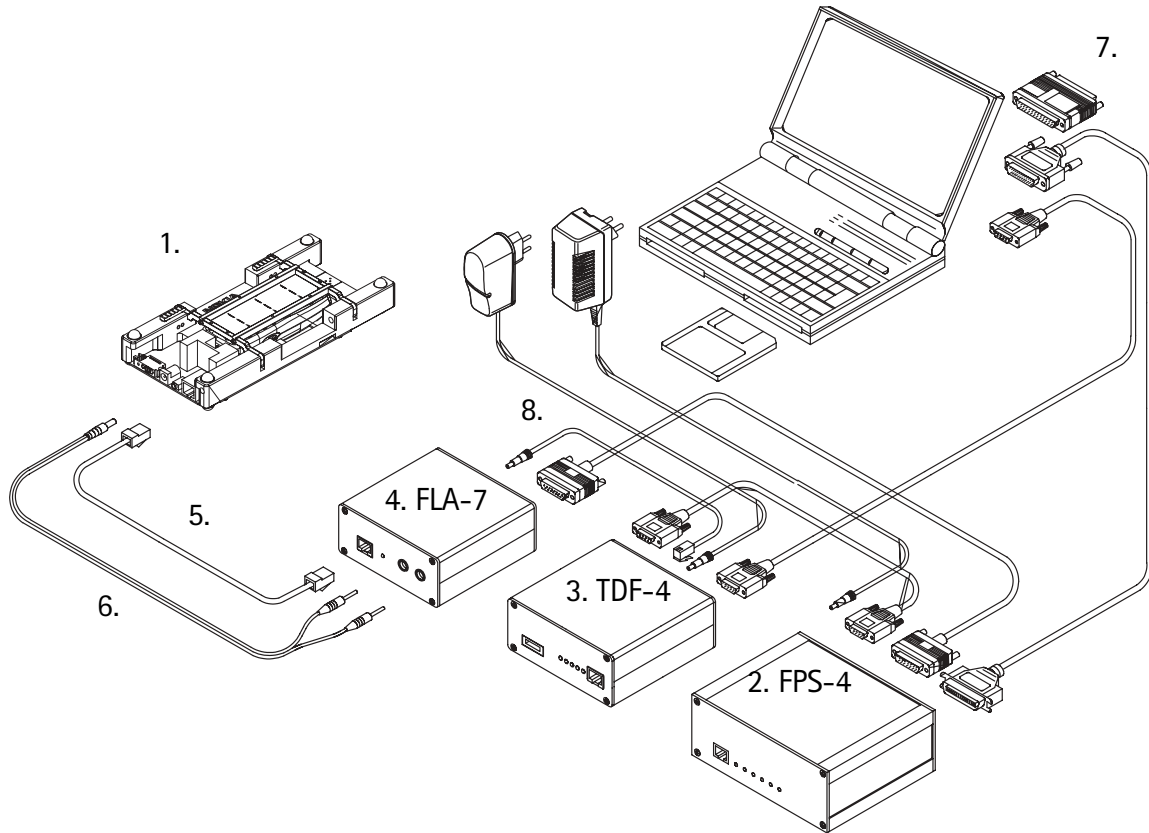
Figure 2: Service Setup for CMT module



Service accessory:	Type Des	Product code:
1. Module Repair Jig	MJS-19	0630260
2. DC-DC Cable	SCB-3	0730114
3. Service Cable	DAU9-S	0730108
4. DC Power Cable	PCS-1	0730012
5. Software Protection Key	PKD-1	0750018
6. WinTesla Software CD-ROM		0770413

Flash Concept Using Repair Jig MJS-19 for CMT module

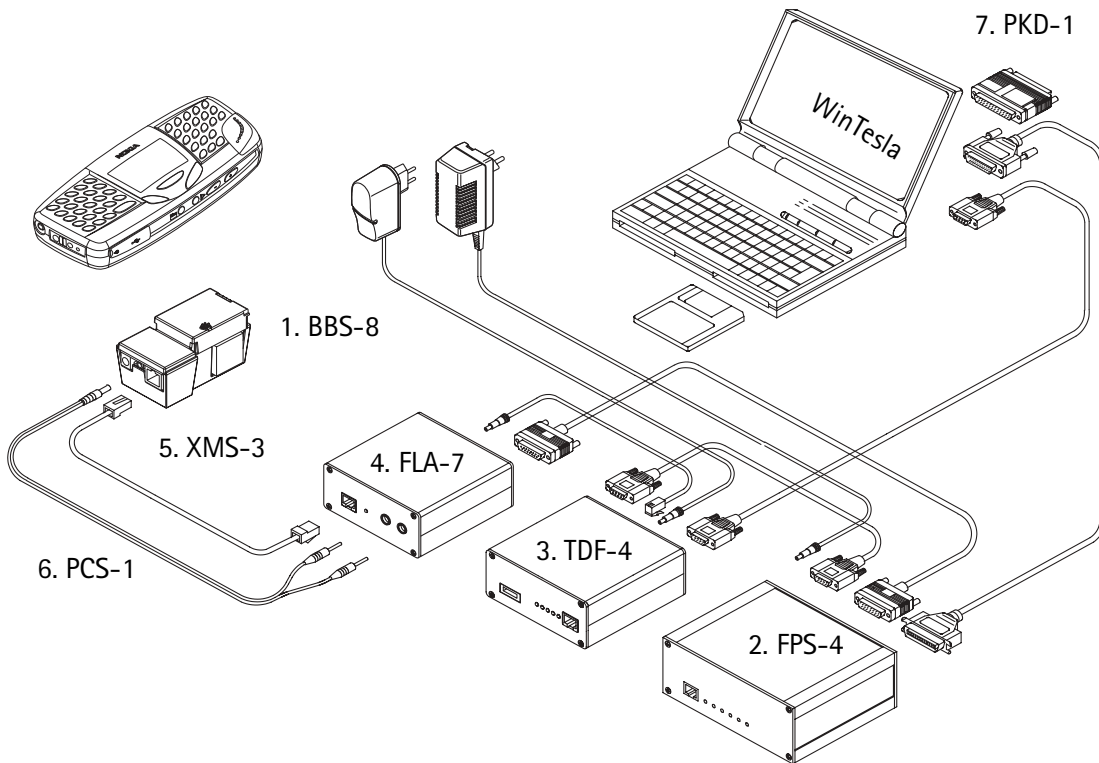
Figure 3: Flashing Setup for CMT



Service accessory:	Type Des	Product code:
1. Service Repair Jig	MJS-19	0630260
2. Flash Prommer Sales Pack	FPS-4	0085095
AC Charger	ACL-3	0680015
D9-D9 Cable	AXS-4,	0730090
S/W Installation CD-ROM		0770413
Printer Cable		0730029
Security Box		
3. Flash Security Box	TDF-4	0770106
4. Flash loading Adapter	FLA-7	0770119
Service Cable	SCH-5	0730098
D15- D15 Cable	AXS-5	0730091
S/W Installation Disk		
5. Service Cable	XMS-3	0730174
6. DC Power Cable for JBU-6	PCS-1	0730012
7. Software Protection Key	PKD-1	0750018
8. DC Cable(TDF4to FLA-7)	PCC-1	0730053

Flash Concept with BBS-8 Service Battery

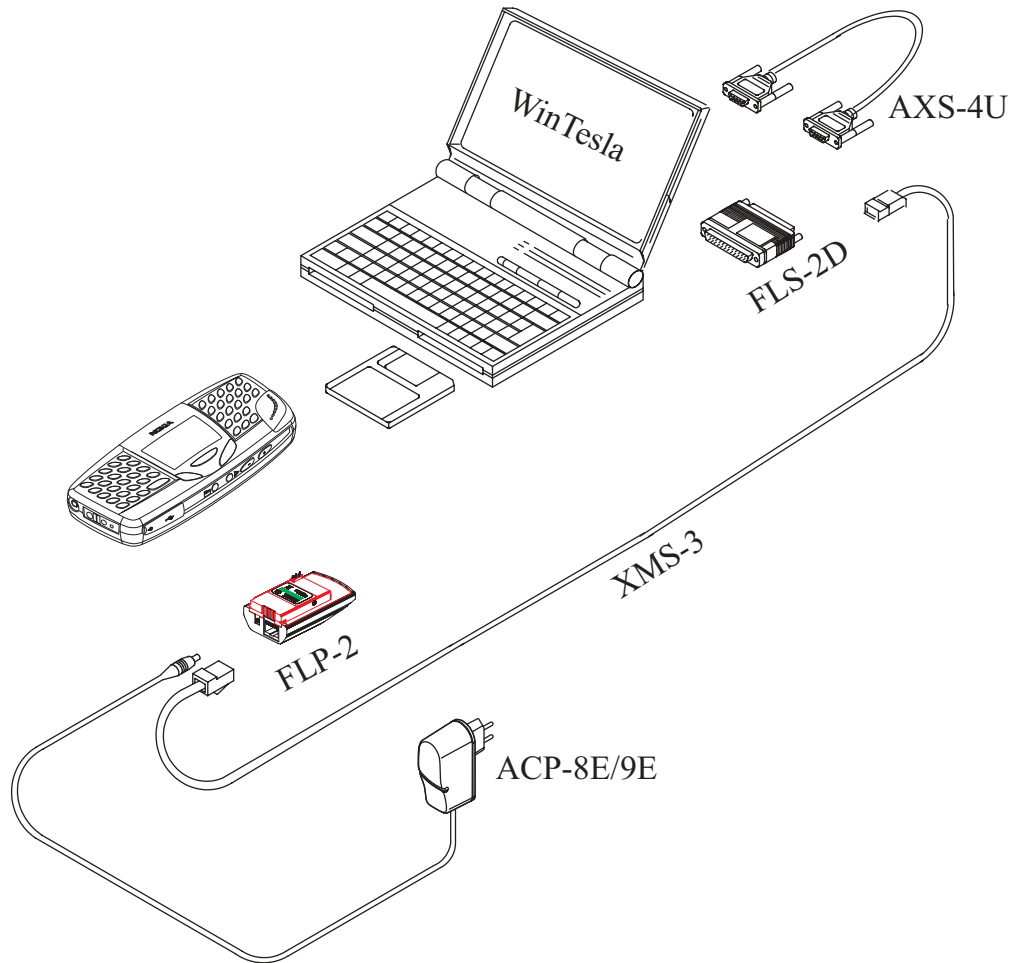
Figure 4: Flashing setup 2



Service accessory:	Type Des	Product code:
1. Flash Loading Adapter	BBS-8	0630261
2. Flash Prommer Sales Pack	FPS-4	0085095
AC Charger	ACL-3	0680015
D9-D9 Cable	AXS-4,	0730090
S/W Installation Disk		
Printer Cable		0730029
3. Flash Security Box	TDF-4	0770106
4. Flash loading Adapter Sales Pack	FLA-7	0770119
Service Cable	SCH-5	0730098
D15- D15 Cable	AXS-5	0730091
S/W Installation Disk		
5. Service Cable	XMS-3	0730174
6. DC Power Cable	PCS-1	0730012
7. Software Protection Key	PKD-1	0750018

Flash Concept POS with FLP-2 and FLS-2D

Figure 5: POS Flashing setup 1

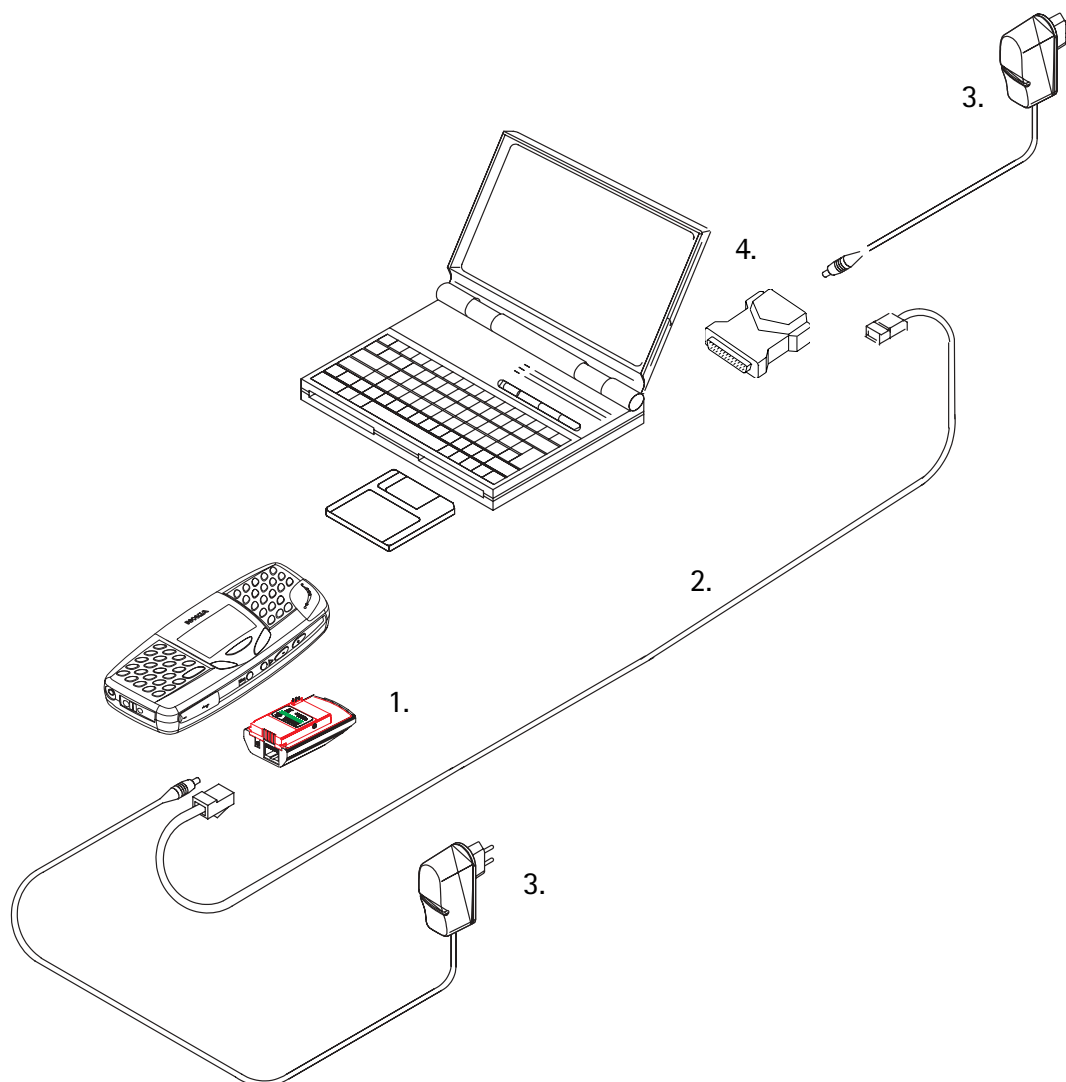


c

Service accessory:	Type Des	Product code:
1. Flash Loading Adapter(incl DC Service Cable) FLP-2	FLP-2	0630262
2. Service Cable	XMS-3	0730174
3. D9-D9 Cable	AXS-4U	0730090
4. Travel Charger	ACP-8E ACP-9E,	0675195 0675149
5. POS Flash Adapter Sales Pack	FLS-2D	0081310 APAC 0081311 EU/AFR POS
6. WinTesla SW CD_RPOM		0770413

Flash Concept POS with FLP-2 and FLS-4

Figure 6: POS Flashing setup 2



Service accessory:

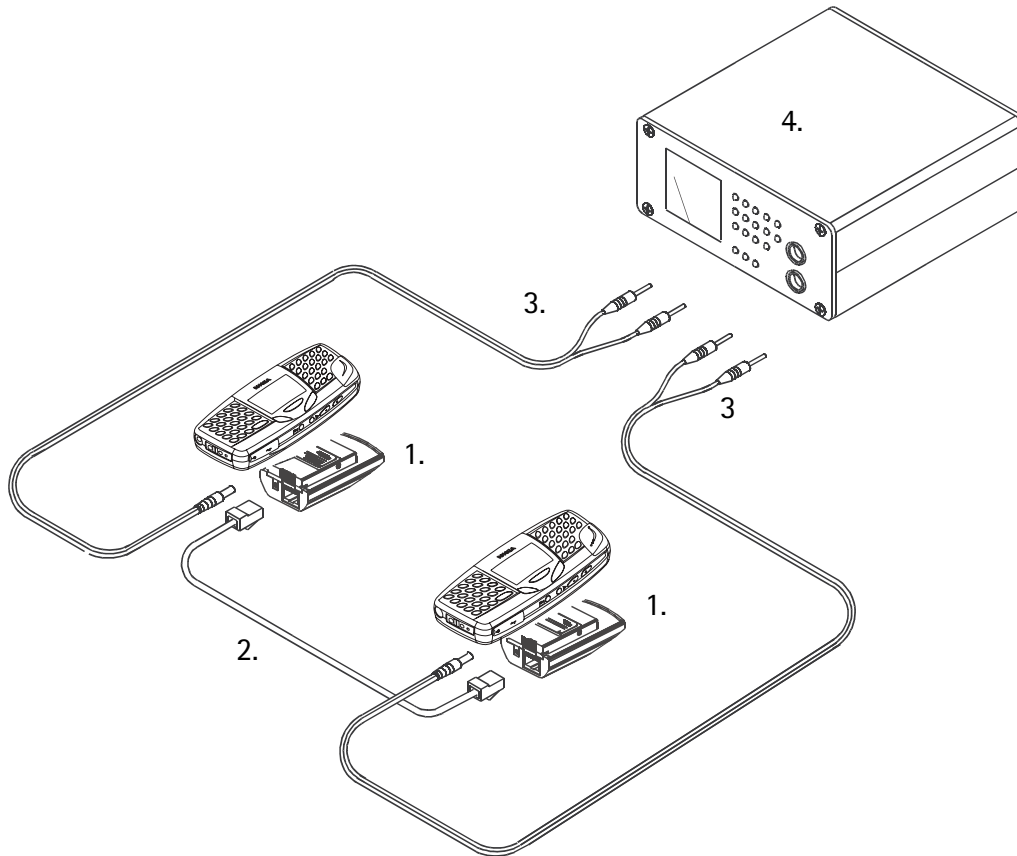
Type Des

Product code:

1. Flash Loading Adapter (inc DC Service Cable)	FLP-2	0630262
2. Travel Charger * 2	ACP-8E	0675195
3. POS Flash Adapter Sales Package	FLS-4 FLS-4	0081481(APAC) 0081483 (EU/AFR)
4. WinTesla SW CD-ROM		0770413

Warranty Transfer Setup

Figure 7: Warranty transfer

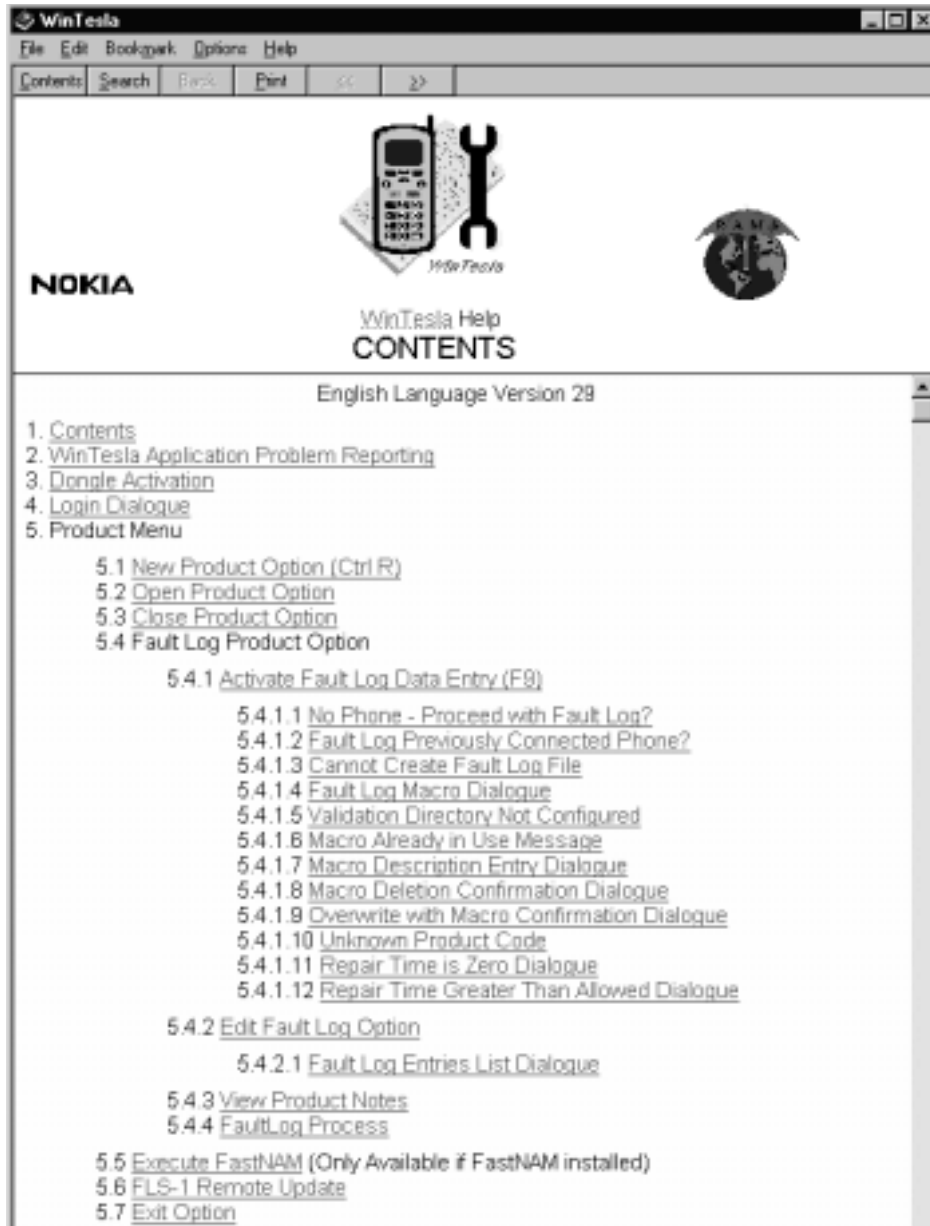


Service accessory:	Type Des	Product code:
1. Flash Loading Adapter(incl. DC Service Cable) FLP-2		0630262
2. Service Cable	XMS-3	0730174
3. DC Power Cable	PCS-1	0730012
4. Power source		

Common User Interface

All WinTesla files share a common interface which are detailed in the WinTesla help files once the software is installed. A typical example is shown in the figure below.

Figure 8: WinTesla interface



Wintesla Tuning

Prior to any tuning the phone should be initialised:

Start WinTesla-Service-Software and

Select Product Alt+p

Open...

NPM-5

Select: Product Alt+p

Initialise Alt+l

Normal ModeF5

What RF to tune after repairs

Different repairs require different tuning. In general it is necessary to determine in which section the repair was done to establish which tunings to perform. To determine if RF tuning is necessary after repair it is important that the functionality of the repaired circuit is understood well. In case the circuit is not fully understood it might be wise to play it safe and do RF tunings in accordance with the table below.

In general repairs in the TX part will require tuning of "TX Power" and "TX I/Q" tuning.

In general repairs in the RX part or PLL will always require "RX Calibration" and in some cases require AM Suppression tuning (Automatic) and RX Filter Calibration (Automatic).

Other parts interfacing to TX, RX or PLL might require tuning, but common sense should be used.

In the table below guidelines for what to tune when can be seen (if it can be ruled out that a component will change RF performance, e.g. the microphone B200 there is no need to do any RF tuning).

Table 1: Required RF tuning

Repairs affecting component number	RX calibration	AM suppression	RX filter calibration	TX power	TX IQ
100-199	Yes				
200-399					Yes
400-499					
500-599	Yes	Yes	Yes	Yes	Yes
600-699				Yes	Yes
Full factory setting	Yes	Yes	Yes	Yes	Yes

RX Calibration

The "RX calibration" is used to determine gain at different gain-settings for front-end and Hagar and needs to be done in both bands, but the calibration only have to be started once, it will automatically proceed to the PCN band after EGSM.

Select: Product Alt+p

Band b

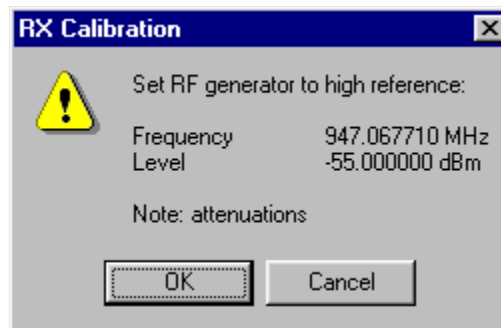
EGSM e

Select: Tuning Alt+t

RX Calibration r

A window will now pop-up:

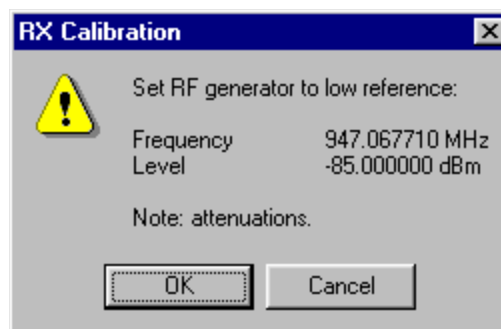
Figure 9: RX calibration window1



Connect an external generator to the phones RF connector and set the generator as the window tells you.

Click OK in the WinTesla window, now a new window pops up:

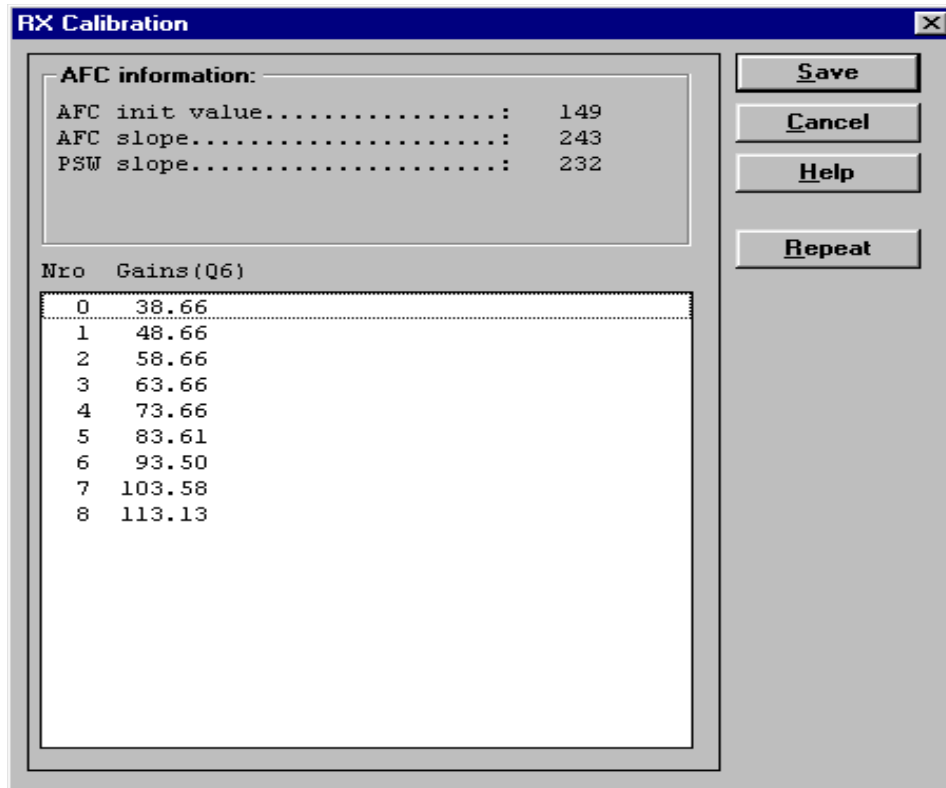
Figure 10: RX calibration window 2



Change the level on the generator as the window tells you.

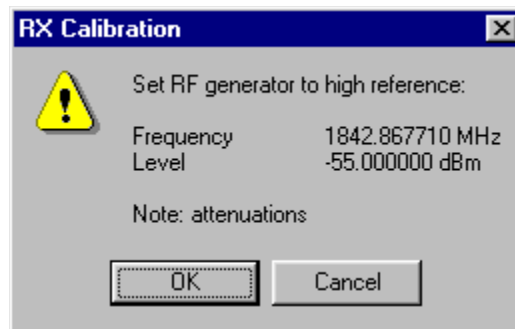
Click OK in the WinTesla window, now a new window pops up

Figure 11: RX calibration window 3



Click Save in the WinTesla window, now a new window pops up:

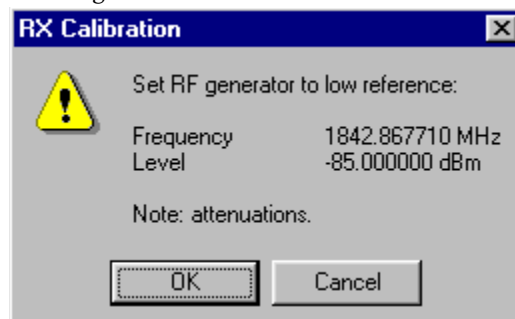
Figure 12: RX calibration window 4



Change the level and frequency on the generator as the window tells you.

Click OK in the WinTesla window, now a new window pops up:

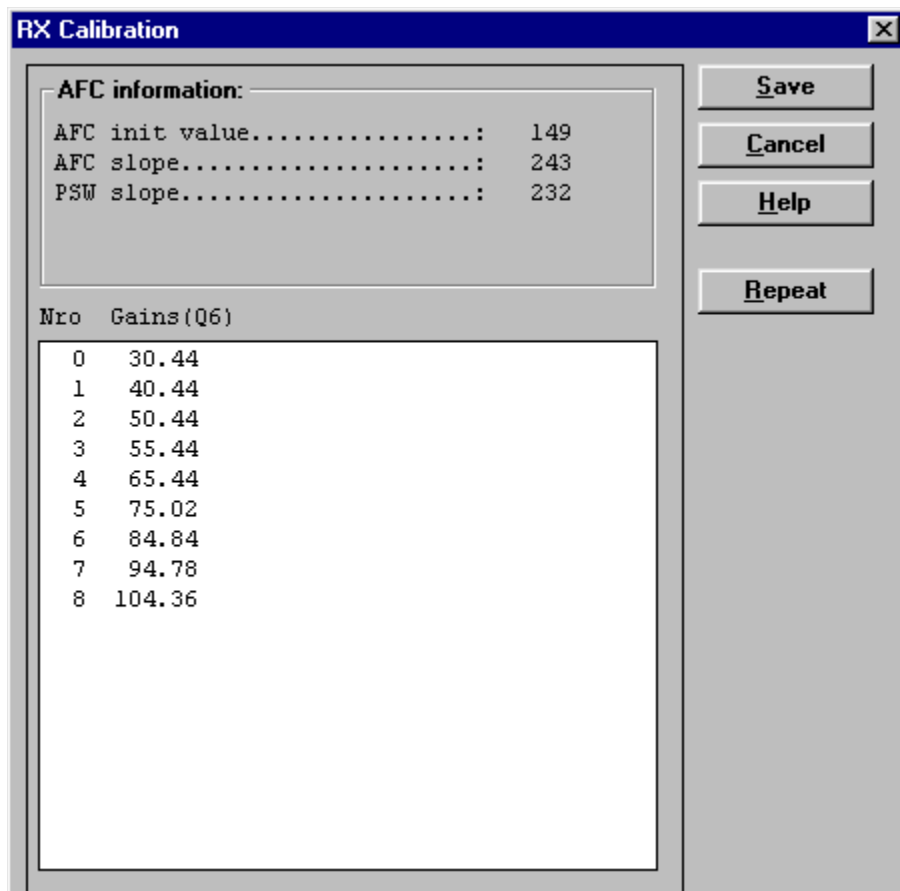
Figure 13: RX calibration window 5



Change the level and frequency on the generator as the window tells you.

Click OK in the WinTesla window, now a new window pops up:

Figure 14: RX calibration window 6



Click Save in the WinTesla window, RX Calibration is now completed

RX Filter Calibration (Automatic)

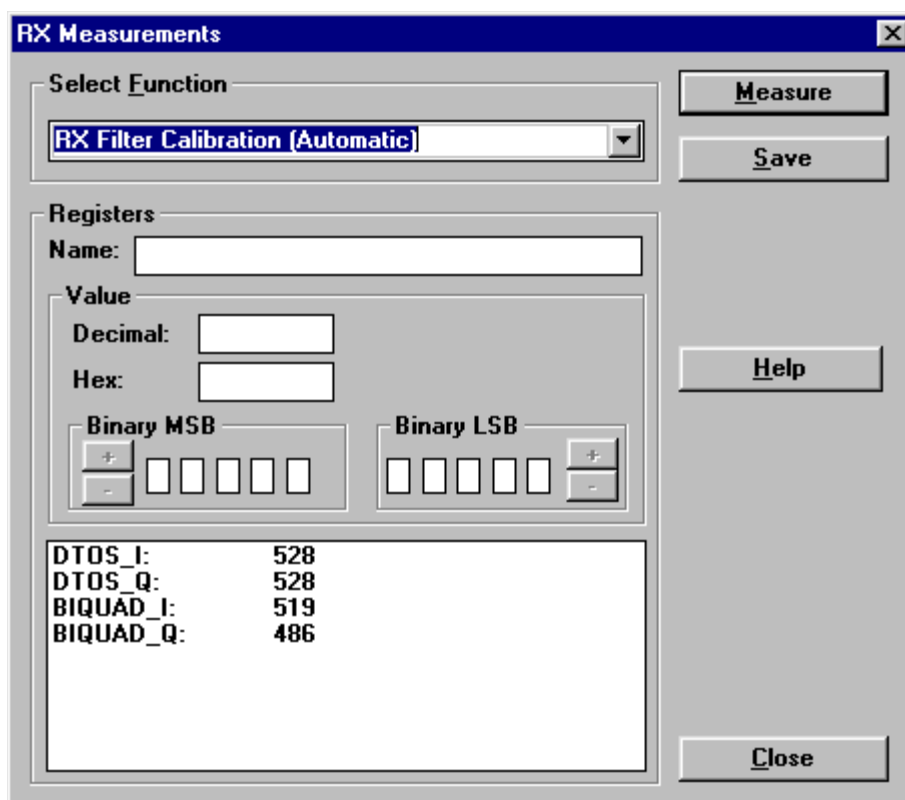
This calibration is calibrating the Baseband filter inside Hagar, for this reason the calibration is not done in both bands.

Select: Tuning Alt+t

RX Measurements

A window now pops up:

Figure 15: Rx filter calibration window 1



In the "Select Function" frame select RX "Filter calibration (Automatic)".

No external signal is needed for this, just click "Measure", wait a few seconds and then click "Save Defaults"

RX filter calibration is now completed and the "RX Measurements" window can be closed by clicking "Close"

RX AM Suppression (Automatic)

This calibration is tuning the AM suppression performance of Hagar mixers and will have to be done in both bands. If flash or Hagar has been replaced or Full Factory settings have been performed RX AM Suppression must be done.

GSM900

Select: Product Alt+p

 Band b

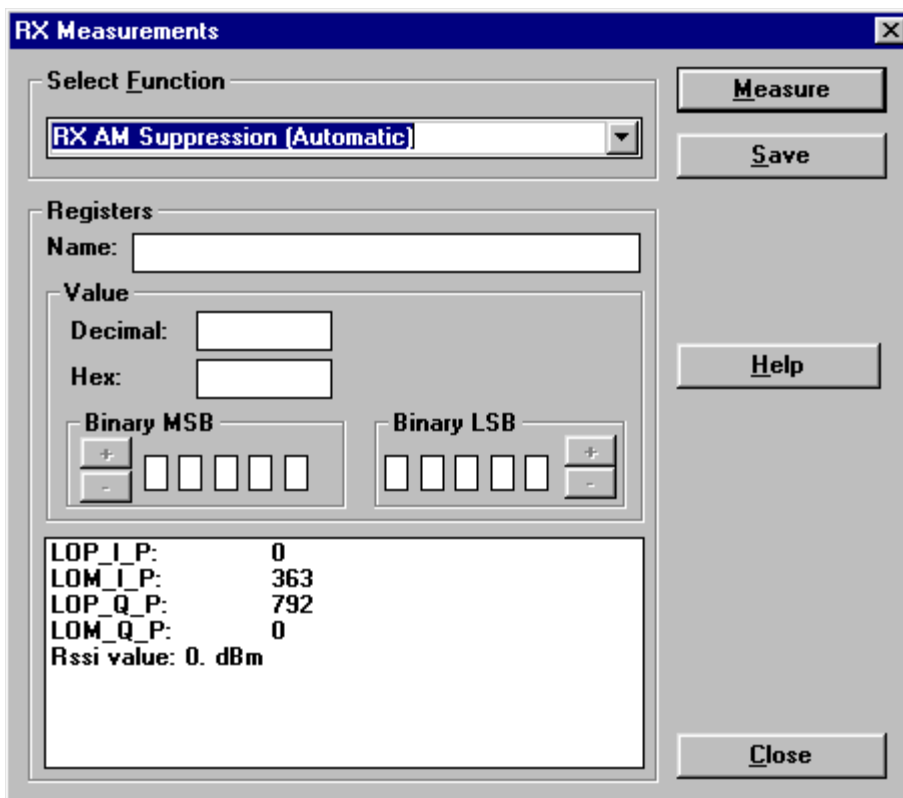
 EGSM e

Select: Tuning Alt+t

 RX Measurements

A window now pops up:

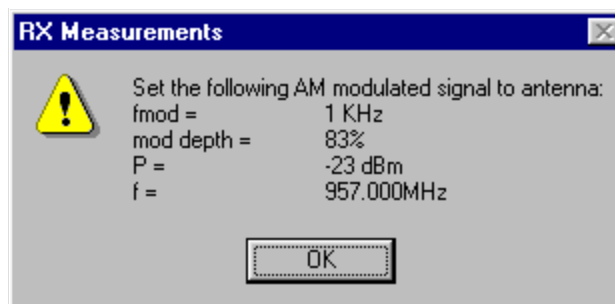
Figure 16: Rx filter calibration window 2



In the "Select Function" frame select RX "RX AM Suppression (Automatic)".

Click Measure, A window now pops-up:

Figure 17: Rx filter calibration window 3



Connect an external generator to the antenna connector of the phone and set-up the generator.

Click OK in the Wintestwindow, the RSSI value is updated in the RX Measurements window.

Click "Save ". The "RX AM suppression tuning" is now completed in GSM900.

PCN

Select: Product Alt+p

Band b

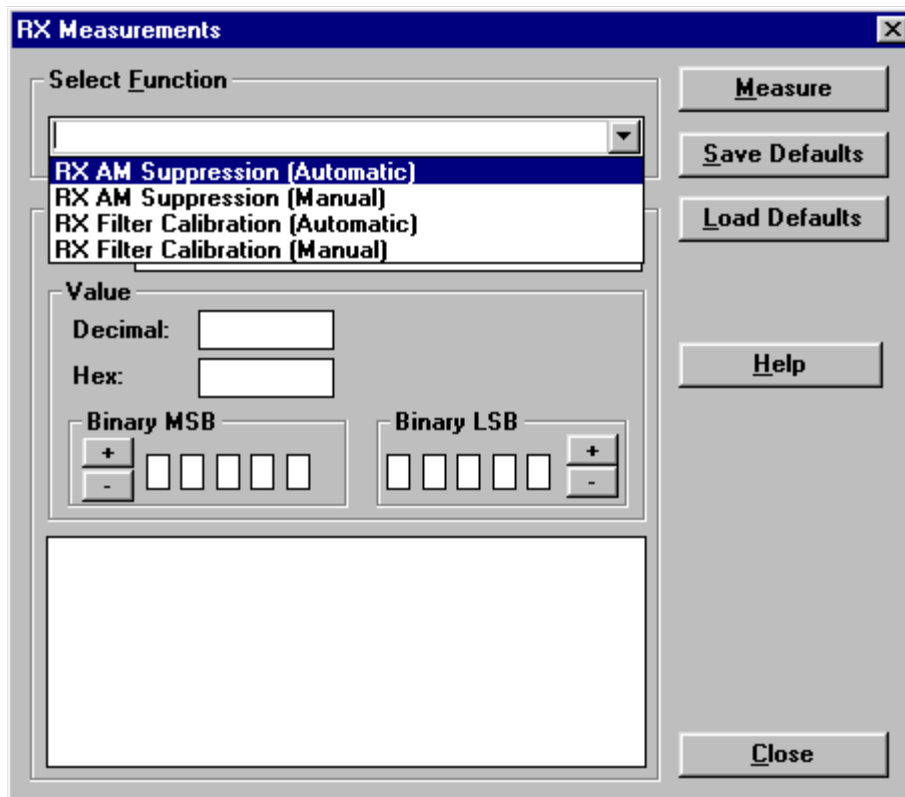
PCN p

Select: Tuning Alt+t

RX Measurements

A window now pops up:

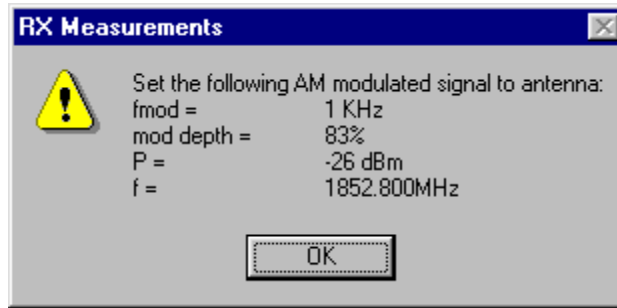
Figure 18: Rx filter calibration window 4



In the "Select Function" frame select RX "RX AM Suppression (Automatic)".

Click Measure, A window now pops-up:

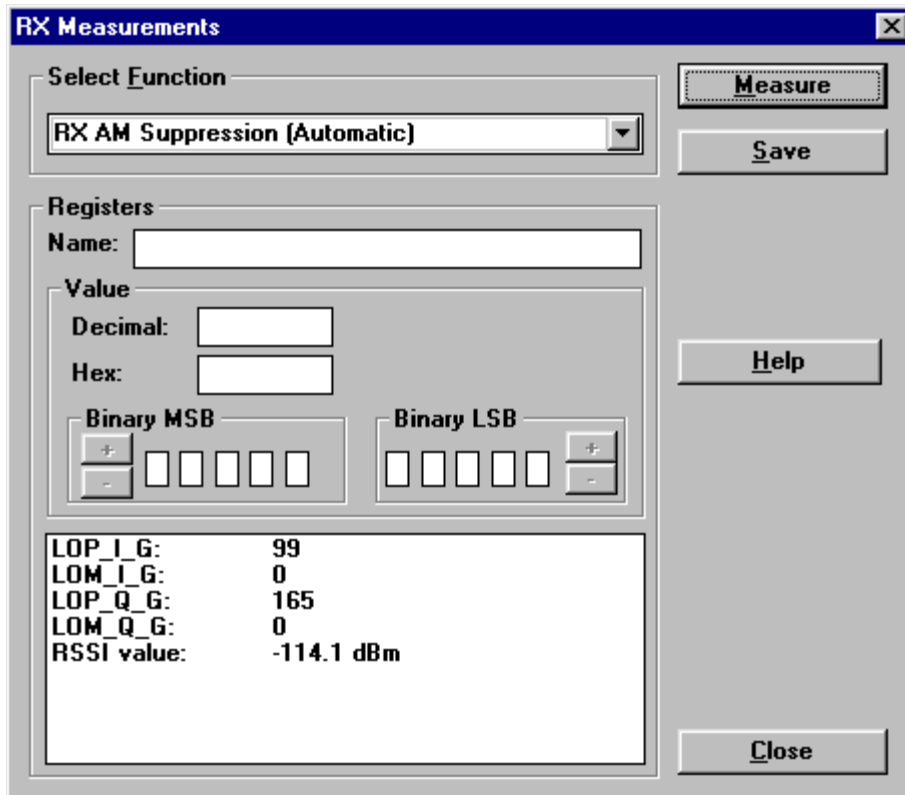
Figure 19: Rx filter calibration window 5



Connect an external generator to the antenna connector of the phone and set-up the generator.

Click OK in the WinTesla window, the RSSI value is updated in the RX Measurements window.

Figure 20: Rx filter calibration window 6



TX Power tuning

This tuning must be done in both bands.

GSM900

Select: Product Alt+p

Band b

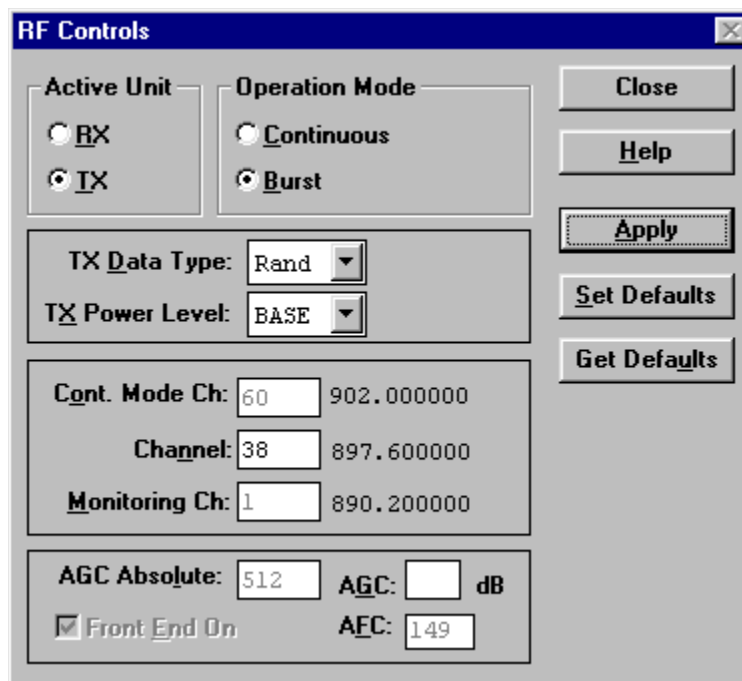
EGSM e

Select: Testing Alt+e

RF Controls r

A window now pops-up:

Figure 21: TX power tuning window 1



Set Active unit to TX

Set TX Data Type: to Rand

Click Apply

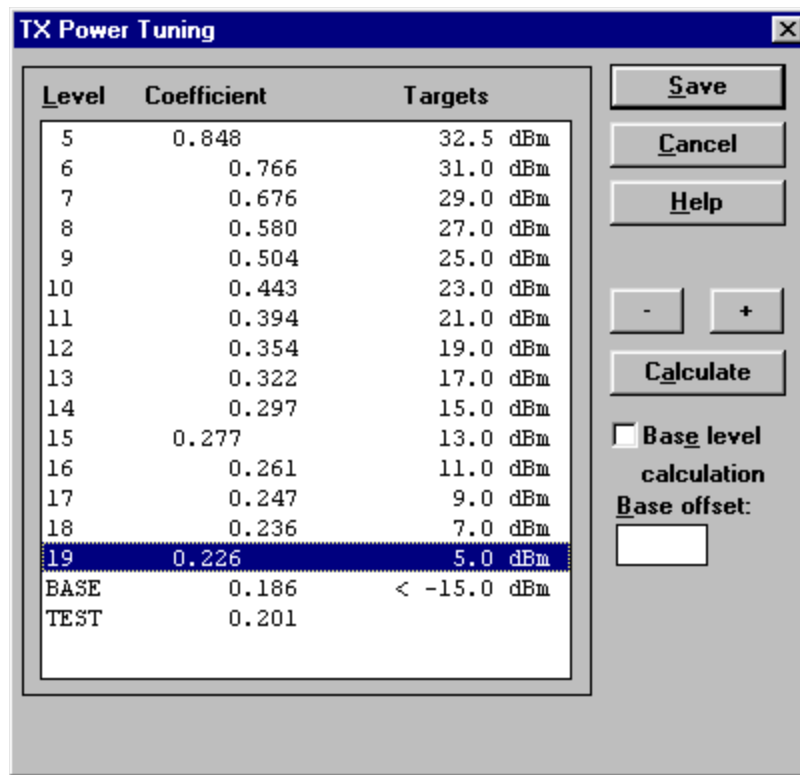
Click Close

Select: Tuning Alt+t

 TX Power... Alt+P

A window now pops up:

Figure 22: TX power tuning window 2



Tune level 19, 15, 5 and Base in accordance with the target values.

Click calculate, check if the other levels match the targets, correct if necessary.

Click Save when all values match the targets.

PCN

Select: Product Alt+p

Band b

PCN p

Select: Testing Alt+e

RF Controls r

A window now pops-up:

Figure 23: PCN TX tuning window 1



Set Active unit to TX

Set TX Data Type: to Rand

Click Apply

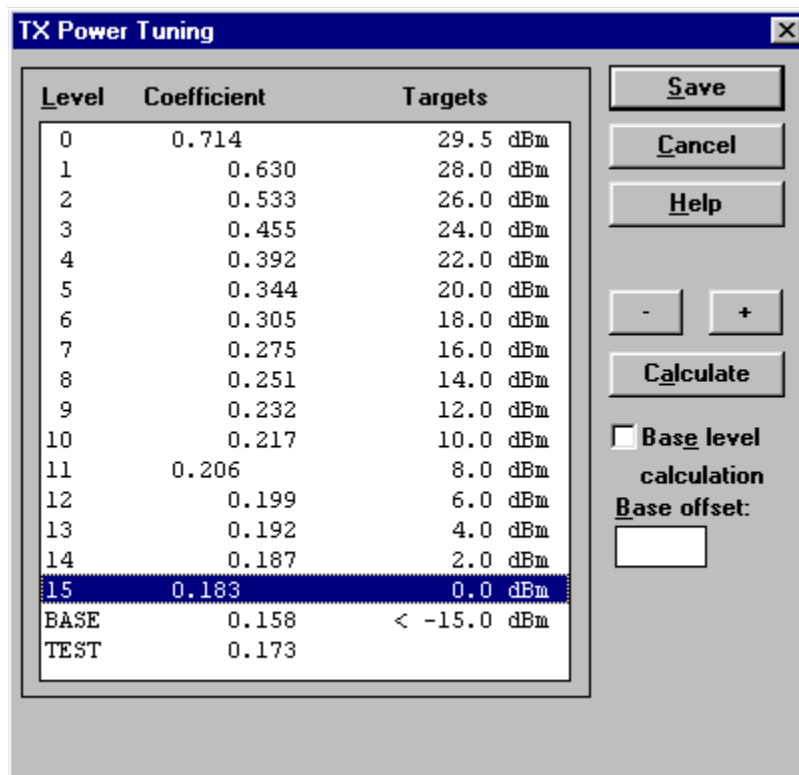
Click Close

Select: Tuning Alt+t

 TX Power... Alt+P

A window now pops-up:

Figure 24: PCN TX power tuning window



Tune level 15, 11, 0 and Base in accordance with the target values.

Click calculate, check if the other levels match the targets, correct if necessary.

Click Save when all values match the targets.

TX I/Q Tuning

This tuning must be done in both band

Initial set-up GSM900

Select: Product Alt+p

Band b

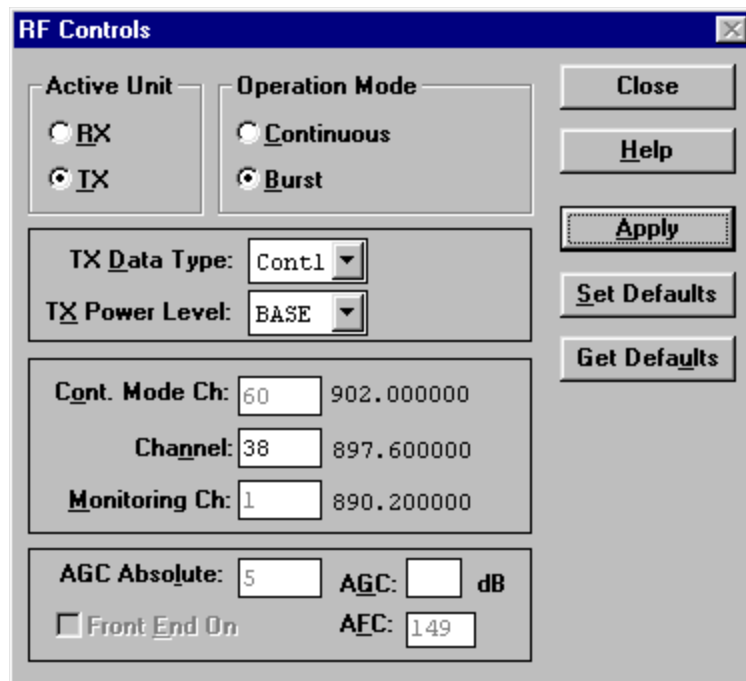
EGSM e

Select: Testing Alt+e

RF Controls r

A window now pops-up:

Figure 25: TX RF controls window



Set Active unit to TX

Set TX Data Type: to Cont1

Click Apply

Click Close

Go through the "Common tuning procedure for GSM900 and PCN" described in

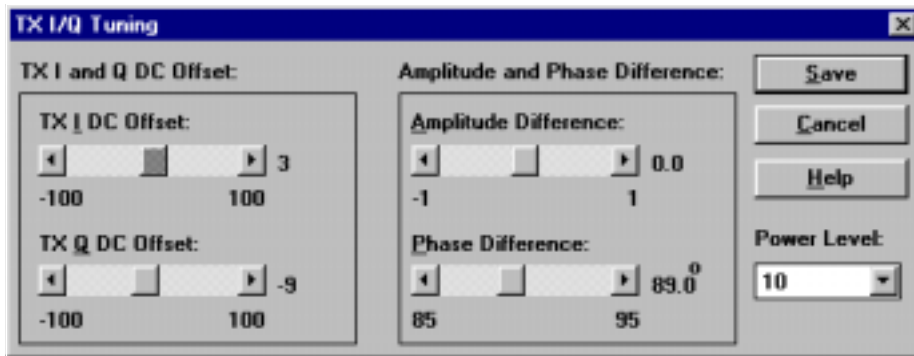
Common tuning procedure for GSM900 and PCN

Select: Tuning Alt+t

 TX I/Q... Alt+q

A window now pops-up:

Figure 26: Common tuning procedure window



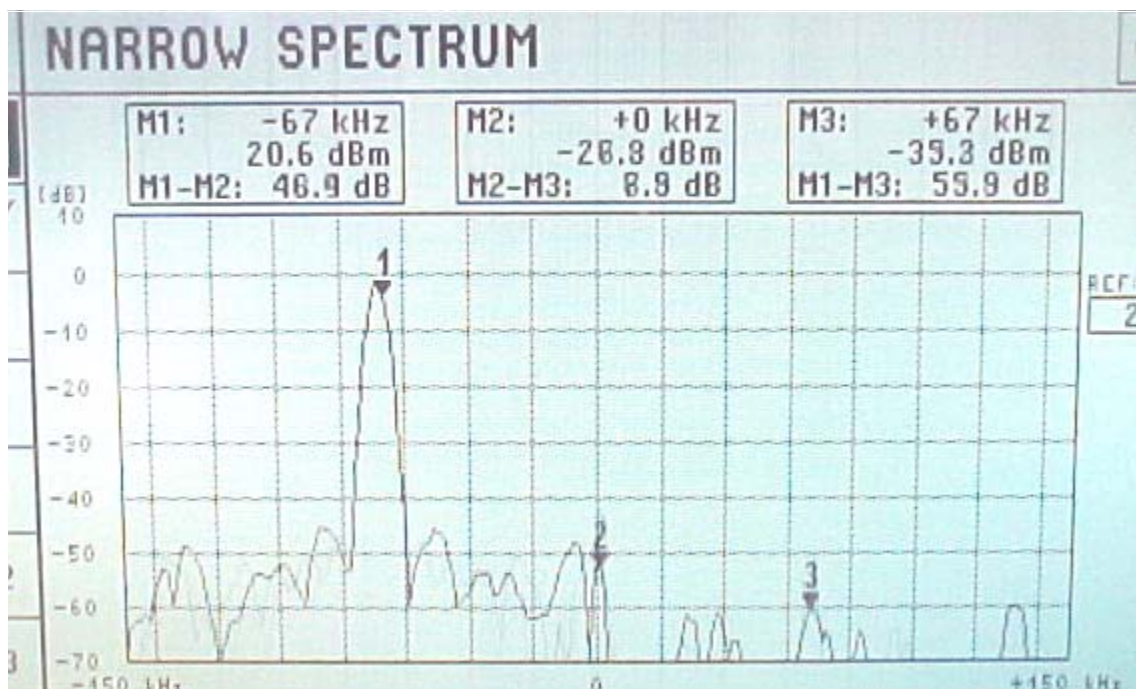
The carrier (M2) and +67kHz (M3) signal should now be tuned to a minimum.

The buttons in the "TX I and Q DC Offset:" will change the level of the carrier.

The buttons in the "Amplitude and Phase Difference:" window will change the level of the +67kHz signal.

When minimum values are reached, click Save.

Figure 27: Narrow spectrum



Initial set-up PCN

Select: Product Alt+p

Band b

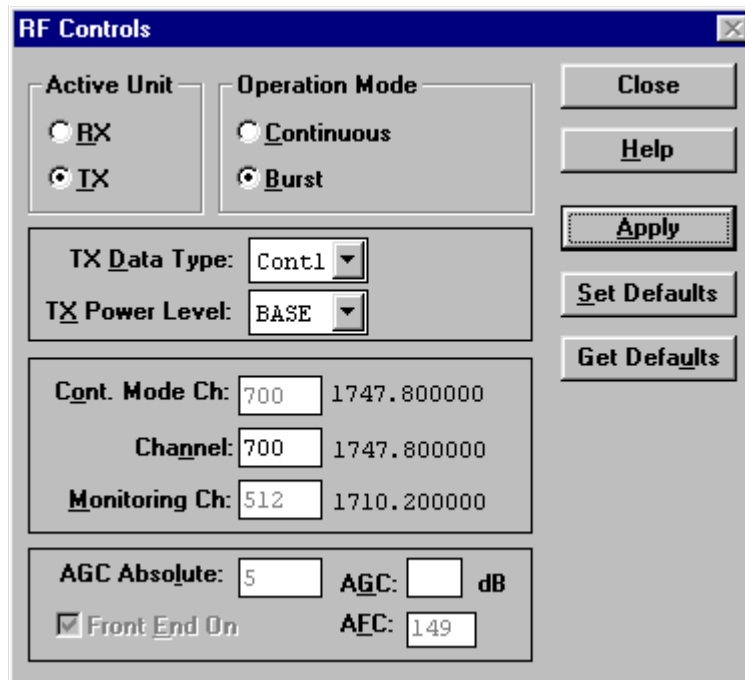
PCN p

Select: Testing Alt+e

RF Controls r

A window now pops-up:

Figure 28: Initial set-up window



Set Active unit to TX

Set TX Data Type: to Cont1

Click Apply

Click Close

Go through the "Common tuning procedure for GSM900 and PCN" described in this document.

