CCS Technical Documentation NPL-3 Series Transceivers

# **Service Software Instructions**

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CCS Technical	Documentation
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# Quick Guide for Phoenix Service SW Installation



# Phoenix Installation Steps in Brief

DCT-4 generation Test and Service Software is called "Phoenix"

These are the basic steps to install the Phoenix

- Install the Phoenix Service SW
- Install the Data Package for Phoenix (product specific data and flash update package)
- Manage connection settings (depends on the tools you are using)
- Update FPS-8 SW (if you use FPS-8)
- Activate FPS-8
- Update JBV-1 Docking Station SW (only when needed)

The flash update files are delivered with then Phoenix Data Package so unless you want to use certain version of this package, separate installation package is not needed anymore. If you want to use it, it should be installed after connection management, before FPS-8 update.

Please refer to Service Manual and Technical Bulletins for more information concerning phone model specific service tools and equipment setup.

# **Phoenix Service SW**

# **Before Installation**

- Check that a Dongle is attached to the parallel port of your computer.
- Download the installation package (e.g. *phoenix\_service\_sw\_a7\_2003\_9\_2\_3.exe*) to your computer (e.g. C:\TEMP)
- Close all other programs
- Run the application file (e.g. *phoenix\_service\_sw\_a7\_2003\_9\_2\_3.exe*) and follow instructions on the screen
- Administrator rights may be required to be able to install Phoenix depending on the Operating System
- If the dongle driver is installed or updated, you need to reboot your PC before the installation can continue.
- If uninstalling or rebooting is needed at any point, you will be prompted by the Install Shield program.

If at any point during installation you get this message, Dongle is not found and installation can't continue.

Possible reasons may be defective or too old PKD-1Dongle (five digit serial number Dongle when used with FPS-8 Prommer) or that the FLS-4S POS Flash Dongle is defective or power to it is not supplied by external charger.

Check the COM /parallel ports used first! After correcting the problem Installation can be restarted.



## Startup

Run the *phoenix\_service\_sw\_a7\_2003\_9\_2\_3.exe* to start installation.

When you choose "Next" the files needed for installation will be extract	cted. Kindly wait.
🛃 Phoenix Service Software A7 2003.9.2.3 - InstallShield Wizard	×
Location to Save Setup Files Where would you like to save the setup files?	
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.	
Save files in folder:	
C:\Temp\Phoenix	
Change.	
InstallShield	Cancel

If the setup files are already extracted (left in the file system from previous installation) following dialog appears. Always click "Yes to All" to overwrite the existing setup files.

Overwrite Protection
The following file is already on your computer:
c:\windows\TEMP\Phoenix\data1.cab
Do you wish to overwrite this file?
Yes Yes to All <u>No</u> to All <u>Cancel</u>

# **Dongle Driver Installation and Version Check**

If there is no previously installed Dongle driver, installation will take place...



If the Dongle driver is installed and it is older than the latest supported version, the latest version will be installed when you choose "Yes". The latest version is always included in the latest Phoenix installation package.

Update [	DESkey dongle driver 🛛 🕅
⚠	You have an older DESkey driver than recommended. Recommended version is 4.63 and your version is 4.36.
	Click Yes to update DESkey driver or No to keep the old version.
	Yes No

PC needs to be rebooted before installation can continue. Click "Yes" to reboot the PC.

Setup is restarted automatically after reboot.

DESkey	dongle driver updated. 🛛 🕅
⚠	PC needs to be restarted in order to continue the installation.
	Click Yes to reboot the PC now and No to save any unsaved documents and manually restart the PC.
	Yes <u>N</u> o

# **First Time Installation of Phoenix**

After Dongle driver installation / update (if needed) installation continues from this step. Click "Next" in Welcome dialog to continue.

InstallShield Wizard		×
Welcome to the InstallShield Wizard for Phoenix Service Software A		
This program will install Phoenix Service Softwa Supported products:	are A7 2003.9.2.3 on your co	nputer.
NEM-1, NEM-2, NEM-4, NHL-2NA, NHL-4, NH NHM-4NX, NHM-7, NHM-8, NPE-4, NPL-1, NF NPM-10, NSB-8, NSB-9, NSM-9, RH-9.		
InstallShield	< Back. Next >	Cancel

Choose the destination folder, it is recommended to use the default folder **C:\Program-Files\Nokia\Phoenix**.

Choose "Next" to continue. You may choose another location by selecting "Browse" (not recommended)

Choose Destination Location		and the second second
Select folder where Setup will install files.		- Aller
Setup will install Phoenix Service Software A in the	following folder.	
To install to this folder, click Next. To install to a dif another folder.	ferent folder, click Browse	and select
Destination Folder		
C:\Program Files\Nokia\Phoenix		Browse
InstallShield		
	< Back Next >	Cancel

Setup copies the components, please wait.

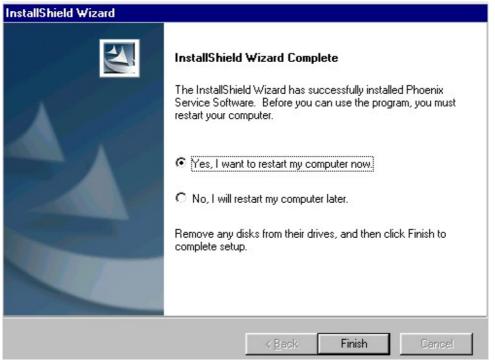
Progress of the setup is shown. Please wait...

InstallShield Wizard	×
Setup Status	
Phoenix Service Software A Setup is performing the requested operations.	
Installing: common files	
15%	
InstallShield	
Instalonelo	Cancel

If restarting of your computer is needed the Install Shield Wizard will tell you about it.

Select "Yes..." to reboot the PC immediately and "No..." to reboot the PC manually.

Note that Phoenix doesn't work, if components are not registered. Click "Finish" to continue.



After the reboot components are registered and Phoenix is ready for use.

If reboot is not needed components are registered after copying them.



If restarting of your computer is not needed, Click "Finish" to exit the setup.

Phoenix is now ready for use.

Now the installation of Phoenix Service SW is ready and it can be used after:

- Installing Phone model specific Phone Data Package for Phoenix
- Configuring the connections
- Updating the Flash Update Package files used with FPS-8\* and FLS-4S\* tools

# **Update Installation of Phoenix**

If you already have the Phoenix Service SW installed on your computer, sooner or later there will be need to update it when new versions are released.

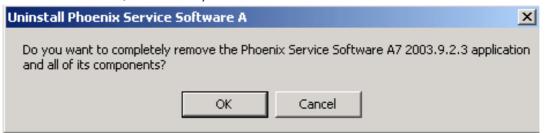
<u>Please note that very often the Phoenix Service SW and the Phone Specific Data Package</u> <u>for Phoenix come in pairs</u>, meaning that certain version of Phoenix can only be used with certain version of Data Package. Always use the latest available versions of both. Instructions can be found in phone model specific Technical Bulletins.

To update the Phoenix you need to take exactly the same steps as when installing it for the first time.

- Download the installation package to your computer hard disk
- Close all other programs
- Run the application file (e.g. *phoenix\_service\_sw\_a7\_2003\_9\_2\_3.exe*)
- Dongle driver version will be checked and if need be, updated
- After reboot installation starts automatically
- Newer version of Phoenix will be installed

When you update the Phoenix from old to new version (e.g. update from 2003\_9\_2\_3 to 2003\_9\_2\_5), the update will take place automatically without uninstallation

If you try update the Phoenix with the same version that you already have you are asked if you want to uninstall the version of Phoenix you have on your PC. Answer "OK" to uninstall Phoenix, "Cancel" if you don't want to uninstall.



If you try to install an older version (e.g. downgrade from 2003\_9\_2\_3 to 2003\_9\_1\_2) installation will be interrupted.

Always follow the instructions on the screen.

# How to Uninstall Phoenix

Uninstallation can be done manually from Windows Control Panel - Add / Remove Programs.

Choose "Phoenix Service Software" and click "Add/Remove".

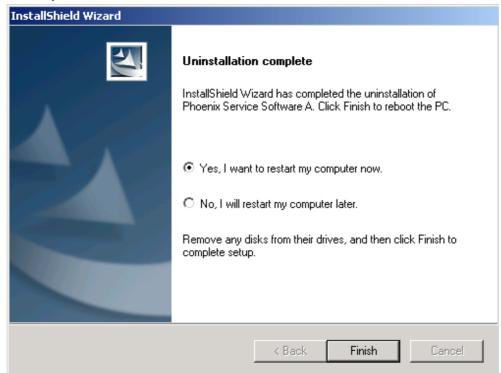
Choose "OK" to uninstall

Uninstall Phoenix Service Software A	×
Do you want to completely remove the Phoer and all of its components?	nix Service Software A7 2003.9.2.3 application
ОК	Cancel

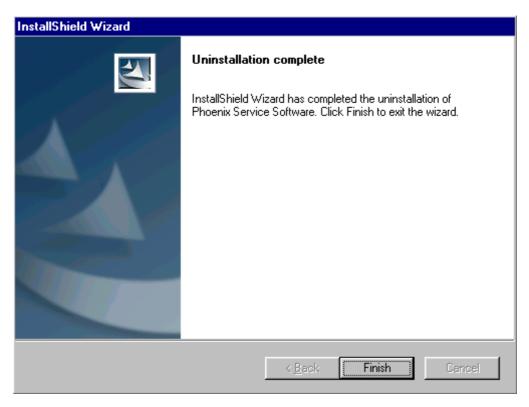
Progress of the uninstallation is shown.

InstallShield Wiz	ard	×
Setup Status		No.
Phoenix Servic	e Software Setup is performing the requested operations.	
Uninstalling: Pr	oduct files	
C:\Program File	es\Nokia\Phoenix\wapbookmarks.dll	
	16%	
InstallShield		
		Cancel

#### You may have to reboot the PC after uninstallation.



If restarting is not needed, the following dialog will appear:



<u>Note!</u> If you have different product packages installed, components are uninstalled only if they are not included in other product packages.

# **Data Package for Phoenix (Product Specific)**

# **Before installation**

Product Data Package contains all product specific data to make the Phoenix Service Software and tools usable with a certain phone model.

It also includes the latest version of flash update package for FLS-4S\* and FPS-8\*

- Check that the Dongle is attached to the parallel port of your computer.
- Install Phoenix Service SW
- Download the installation package (e.g. *npl-3\_dp\_v1.0\_sw3.02.exe*) to your computer (e.g. C:\TEMP)
- Close all other programs
- Run the application file (e.g.*npl-3\_dp\_v1.0\_sw3.02.exe*) and follow instructions on the screen

If you already have the Phoenix Service SW installed on your computer, sooner or later there will be need to update it when new versions are released.

<u>Please note that very often the Phoenix Service SW and the Phone Specific Data Package</u> for Phoenix come in pairs, meaning that certain version of Phoenix can only be used with certain version of Data Package. Always use the latest available versions of both. Instructions can be found in phone model specific Technical Bulletins.

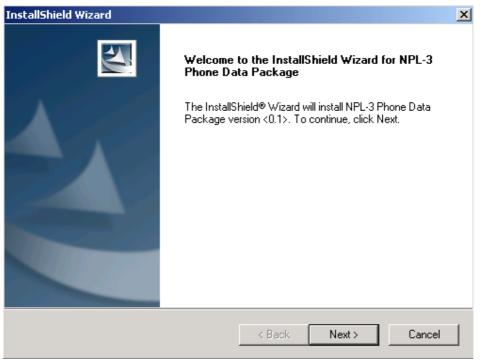
# **Installation of Phoenix Data Package (Product Specific)**

Run the *npl-3\_dp\_v1.0\_sw3.02.exe* to start installation.

When you choose "Next" the files needed for installation will be extracted. Please wait...

🚰 Phone Data Package - InstallShield Wizard	×
Extracting Files The contents of this package are being extracted.	
Please wait while the InstallShield Wizard extracts the files needed to install Phone Data Package on your computer. This may take a few moments.	
Reading contents of package	
InstallShield	

Choose "Next" to continue.



From this view you can see the contents of the Data Package.

#### Read the text carefully.

There should be information about the Phoenix version needed with this data package. Choose "Next".

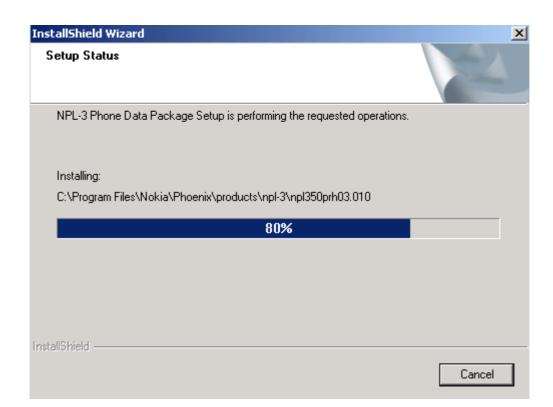
InstallShield Wizard		×
Information Please read the following text.		24
NPL-3 Phone Data Package Installation Note! AMS Phoenix release 04.08.004 or newel Close Phoenix before starting installation of the l Installation package includes - MCU software release + language packages - Flash update package (FPS-8/FLS-4 promme - NPL_3.ini file, that includes - names of flash files	Data Package. (PPM)	▲ 
InstallShield	< Back Next >	Cancel

Confirm location and choose "Next" to continue.

Install Shield checks where the Phoenix application is installed and the directory is shown. Choose "Next" to continue.

InstallShield Wizard			×
Start Copying Files			X
To start installing the files, click Next.			
Current Settings:			
Installation path: C:\Program Files\Nokia\Pho	enix		A
			¥ 1
InstallShield	< <u>B</u> ack	<u>N</u> ext>	Cancel

Phone model specific files will be installed... please wait.



#### Choose "Finish" to complete installation.

InstallShield Wizard	
	InstallShield Wizard Complete The InstallShield Wizard has successfully installed NPL-3 Phone Data Package. Click Finish to exit the wizard.
	< Back <b>Finish</b> Cancel

You now have all phone model specific files installed in your Phoenix Service SW.

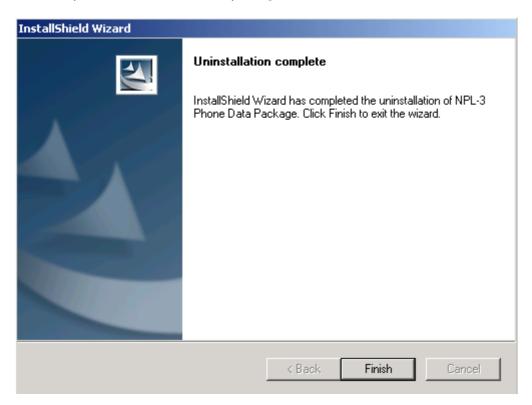
# How to Uninstall Data Package

Uninstallation can also be done manually from Windows Control Panel / Add / Remove Programs/ "NPL-3 Phone Data Package".

If you try to install the same version of Phoenix Data Package that you already have, you are asked if you want to uninstall the version you have on your PC. Answer "OK" to uninstall, "Cancel" if you don't want to uninstall. Older versions of data packages do not need to be uninstalled.



Once the previously installed Data package is uninstalled, choose "Finish".



Run the *npl-3\_dp\_v1.0\_sw3.02.exe* again to continue installation from the beginning.

# How to Manage Connections

Start Phoenix Service SW and Login.



Choose "Manage Connections" From "File" - Menu



Existing connections can be selected, edited, deleted and new ones created by using this dialog.

A connection can be created either manually or by using a Connection Wizard.

To add new connection, choose "Add" and select if you want to create it manually or by using the Wizard.

🕂 Manage Connections	×
Priority list: FPS8 COM1 FBUS FBUS COM1 FBUS COM3 NO CONNECTION	App <u>ly</u> Re <u>v</u> ert <u>A</u> dd <u>E</u> dit <u>R</u> emove
1	

Choose "Next" to continue.

In the ne	ext dialogs you will be asked to select some settings for	the connection
	age Connections	
Priority	list: DNNECTION	Apply Revert
		<u>A</u> dd Delete
	Select mode	×
	Mode Mizard Manual Select mode to use. If your system has a connection wizard installed you can use it to add or modify connection, else you must use manual mode.	
	< <u>B</u> ack <u>N</u> ext > Canc	el Help

#### Manual Settings

A) For FLS-4S POS Flash Device choose following connection settings: Media: FBUS

COM Port: Virtual COM Port used by FLS-4S. Please check this always!

(To check please go to Windows / Control Panel / FLS Virtual Port / Configuration)

B) For FPS-8 Flash Prommer choose following connection settings: Media: FPS-8

Port Num: COM Port where FPS-8 is connected

#### COMBOX\_DEF\_MEDIA: FBUS

Choose "Finish" to complete.

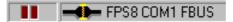
If you use the Wizard, connect the tools and a phone to your PC and the wizard will automatically try to configure the correct connection.

Activate the connection you want to use by clicking it and use up/down arrows to move it on top of the list. Choose "Apply".

The connection is now selected and can be used after closing the "Manage Connections" window.

Priority list:          FBUS COM3       Apply         FPS8 COM1 FBUS       Revert         NO CONNECTION       Add         Add       Delete         Edit       Edit	K Manage Connections	
<u>H</u> elp	Priority list: FBUS COM3 FPS8 COM1 FBUS	Revert <u>A</u> dd <u>D</u> elete <u>E</u> dit

Selected connection will be shown on the right hand bottom corner of the screen.



To use the selected connection, connect the phone to Phoenix with correct service tools, make sure that it is switched on and select "Scan Product".

🌃 Р	hoeni	ж		
<u>F</u> ile	<u>E</u> dit	Product	Flashing	<u>M</u> ainl
<u>1</u>	<u>v</u> ew Pi	ofile		
<u>(</u>	<u>]</u> pen F	rofile		
9 2	<u>ave</u> F	rofile		
9	Save F	rofile <u>A</u> s…		
<u>h</u>	<u>M</u> anag	e Connecti	ons	
9	Scan <u>F</u>	roduct	Ctrl	-R
<u>(</u>	Choose	Product		
(	Close F	Product		

When the Product is found, Phoenix will load product support and when everything is ready, name of the loaded product support module and its version will be shown on the bottom of the screen.

Vph2.14, 28-02-03, NPL-3, (c) NMP.

# How to Update Flash Support Files for FPS-8\* and FLS-4S\*

# **Before Installation**

- Install Phoenix Service SW and Phoenix data package.
- Install the phone model Specific Datapackage for Phoenix
- The flash support files are delivered in the same installation package with Phoenix data package.
- Normally it is enough to install the data package only before updating the FPS-8.
- Separate installation package is for flash support files are available, and the files can be updated according to this instruction.

# Installing the Flash Support Files

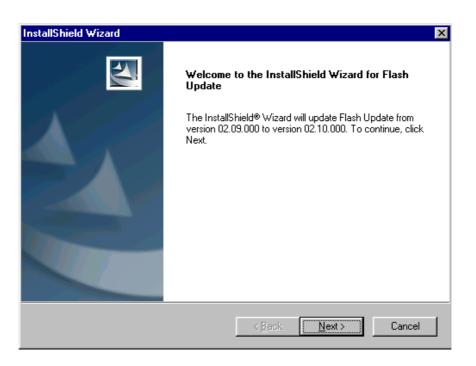
Start by double clicking eg. *flash\_update\_02\_10\_00.exe*. Installation begins.

InstallShi	ield Wizard	
2	Flash Update Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.	
	Cancel	

If you already have the same Flash Update package files installed, you need to confirm if you want them to be reinstalled.

Uninstall Flash Update	×
Do you want to completely remove the and all of its components?	e Flash Update 02.10.000 application
[OK]	Cancel

#### Choose "Next" to continue installation



It is **highly** recommended to install the files to the default destination folder *C:|Program Files|Nokia|Phoenix*.

Choose "Next" to continue. You may choose another location by selecting "Browse" (not recommended).

InstallShield Wizard	×
<b>Choose Destination Location</b> Select folder where Setup will install files.	
Setup will install Flash Update in the following fo	lder.
To install to this folder, click Next. To install to a another folder.	different folder, click Browse and select
Destination Folder C:\Program Files\Nokia\Phoenix InstallShield	B <u>r</u> owse
	< <u>B</u> ack <u>Next</u> > Cancel

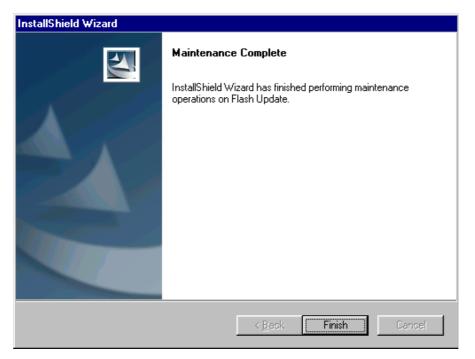
Installation continues...

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Setup Status Flash Update Setup is performing the requested operations. Installing: Flash Update files C: \Program Files\Nokia\Phoenix\Flash\fpga0306.mcs 31%	
Installing: Flash Update files C:\Program Files\Nokia\Phoenix\Flash\fpga0306.mcs 31%	
C:\Program Files\Nokia\Phoenix\Flash\fpga0306.mcs 31% tallShield	
31%	
tallShield	
2000	
Cance	el

Choose "Finish" to complete procedure.

- FLS-4S can be used right after Flash Update Package is installed.
- FPS-8\* must be updated by using Phoenix!



# How to Update The FPS-8\* Flash Prommer SW

Start Phoenix Service Software



Select"FPS-8 / FPS-8C maintenance" from "Flashing" menu.

🌃 Phoenix						
<u>F</u> ile	<u>E</u> dit	<u>P</u> roduct	Flashing	<u>T</u> ools	$\underline{W}{indow}$	<u>H</u> elp
ΙD	Ē		<u>E</u> PS-8	3 Flash		
	_		FPS-8	3 <u>C</u> Flash		
			FPS-8	37 FPS-8	BC <u>M</u> ainter	nance

When new FPS-8 flash update package is installed to computer you will be asked to update the files to your FPS-8 Prommer. Select"Yes" to update files..

Prommer SW Update 🛛 🗙				
There is new prommer software package installed on this computer. Do you want to update prommer?				
Version 02.10.000				
Do not show this dialog again				
Yes No				

Update procedure takes a couple of minutes.

Update D	one	×
•	Prommer SW updated succesfully.	

NOKIA

PS-8 Info		Flash box files				Update
7N	70943	File name	Туре	File ID	Version 🔺	pass
W	SF11 09	u_amd.fia	Algo	1	004.015.000	<u>D</u> elete
	-	u_amd_b.fia	Algo	2	004.015.000	
lash size	16MB	u_cbusb.fia u int b.fia	Algo Algo	3 4	004.015.000 004.015.000	Report
ree Flash (b)	16777216	u_int_0.na	Algo	4	004.015.000	
ice masm (b)	116///216	u st.fia	Algo	5 6	004.015.000	<u>R</u> eset
RAM size	8MB	u_st_i.fia	Algo	7	004.015.000	Help
00444	000000	t1_amd.fia	Algo	8	004.015.000	
ee SRAM (b)	1 10308008	t1_amd_b.fia	Algo	9	004.015.000	
oot sw	B0.09	t1_cbusb.fia	Algo	10	004.015.000	
	, <u>k 0000</u>	t1_intel.fia	Algo	11 12	004.015.000	
PGA	fpga0306.mcs v0	t1_int_b.fia t2_amd.fia	Algo Algo	12	004.015.000	
pplication	A2.10	t2 amd b.fia	Algo	14	004.015.000	- Activation/Deactivatio
pplication		t2 cbusb.fia	Algo	15	004.015.000	
elftest status		1				<u>A</u> ctivate
EST OK	D <u>e</u> tails	Log file write				Deac <u>t</u> ivate
rogress info-						
Getting file info File information						
W ver:SF11						
LASH size:1						
SRAM size:8MB, Serial nbr:70943.						

FPS-8 sw can also be updated by pressing"Update" button and selecting appropriate **fps8upd.ini** file under *C:|Program Files|Nokia|Phoenix*\Flash - directory

Open					? ×
Look jn: 🔂	Flash	-	<u></u>	<u>r</u>	<b>=</b>
fps8upd.in					
File <u>n</u> ame:	fps8upd.ini			<u>O</u> per	1
Files of <u>type</u> :	Ini files (*.ini)		•	Cance	

All files can be loaded separately to FPS-8. To do this, just press right mouse button in Flash box files" window and select file type to be loaded.

More information and help can be found from the "Help" dialog.

# FPS-8 Activation and Deactivation

- Before the FPS-8 can be successfully used for phone programming, it must be first <u>activated.</u>
- If there is a need to send FPS-8 box to somewhere e.g. for repair, box must be first <u>deactivated.</u>

# Activation

Before FPS-8 can be successfully used for phone programming, it must be first activated.

Fill in first "FPS-8 activation request" sheet, in the FPS-8 sales package and follow the instructions in the sheet.

When activation file is received (e.g. 00000.in), copy it to **C:\Program-Files\Nokia\Phoenix\BoxActivation -** Directory on your computer (This directory is created when Phoenix is installed).

Start Phoenix Service Software.

Select "FPS-8 / FPS-8C maintenance" from "Flashing" menu.

🌾 Phoenix						
<u>File E</u> dit <u>P</u> roduct	Flashing Tools Window Help					
0 🖻 🔒	<u>F</u> PS-8 Flash					
, <u> </u>	FPS-8 <u>C</u> Flash					
	FPS-8 / FPS-8C <u>M</u> aintenance					

Select "Activate" from the "FPS8/8C Maintenance" - UI.

FPS-8 Info		Flash box files				
S/N	70943	File name	Туре	File ID	Version 🔺	
HW	SF11 09	u_amd.fia	Algo	1	004.015.000	Delete
1 **	Jar 11_09	u_amd_b.fia	Algo	2	004.015.000	
Flash size	16MB	u_cbusb.fia	Algo	3	004.015.000	Report
		u_int_b.fia	Algo	4	004.015.000	
Free Flash (b)	16777216	u_intel.fia	Algo	5 6	004.015.000	<u>R</u> eset
SRAM size	Ізмв	u_st.fia usti.fia	Algo Algo	ь 7	004.015.000	
	1	u_st_i.na t1_amd.fia	Algo	8	004.015.000	<u>H</u> elp
Free SRAM (b)	8388608	t1 amd b.fia	Algo	9	004.015.000	
	10	t1 cbusb.fia	Algo	10	004.015.000	
Boot sw	B0.09	t1 intel.fia	Algo	11	004.015.000	
	fpga0306.mcs v0		Algo	12	004.015.000	
FPGA	1.5	t2 amd.fia	Algo	13	004.015.000	
Application	A2.10	t2 amd b.fia	Algo	14	004.015.000	-Activation/Deactivation
.pp.iod.iorr	·	t2_cbusb.fia	Algo	15	004.015.000	
Selftest status						<u>A</u> ctivate
TEST OK	D <u>e</u> tails	Log file write				Deactivate
Progress info-						
Getting file inf File informatio						]
HW ver:SF11						
FLASH size:1						
	MB.					

The activation file you saved to *C*:\*ProgramFiles*\*Nokia*\*Phoenix*\*BoxActivation* - directory will be shown (e.g. 00000.in), check that it is correct.

Open			? ×
Look jn: 🔂	BoxActivation	- 🗈 💆	
File <u>n</u> ame:			<u>O</u> pen
Files of <u>type</u> :	Supported files (.in)	•	Cancel

Box will be activated when you choose "Open".

Turn FPS-8 power off and on to complete activation.

# Deactivation

Start Phoenix Service Software.

Select "FPS-8 / FPS-8C maintenance" from "Flashing" menu.

Select "Deactivate" from the "FPS8/8C Maintenance" - UI.

Confirm Deactivation by choosing "Yes", Box will be deactivated.

WARNIN	G WARNING 🛛 🕅
?	Do you really want to deactivate selected card? Card can not be used before activated with a proper activation file again! Deactivate?
	Yes <u>N</u> o

Turn FPS-8 power off and on to complete deactivation.

# JBV-1 Docking Station SW

The JBV-1 Docking Station is a common tool for all DCT-4 generation products. In order to make the JBV-1 usable with different phone models, a phone specific Docking Station Adapter is used for different service functions.

The JBV-1 Docking Station contains Software (Firmware) which can be updated.

You need the following equipment to be able to update JBV-1 software:

- PC with USB connection
- Operating System supporting USB (Not Win 95 or NT)
- USB Cable (Can be purchased from shops or suppliers providing PC hardware and accessories)
- JBV-1 Docking Station
- External Power Supply 11-16V

## **Before Installation**

- Download *Jbv1\_update.zip* file to your computer (e.g. C:\TEMP) from your download web site.
- Close all other programs
- Follow instructions on the screen

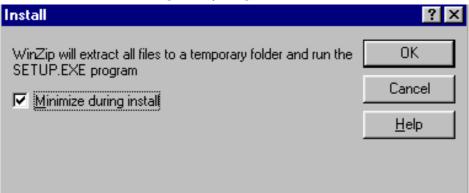
NPL-3

## Installing SW Needed for the JBV-1 SW Update

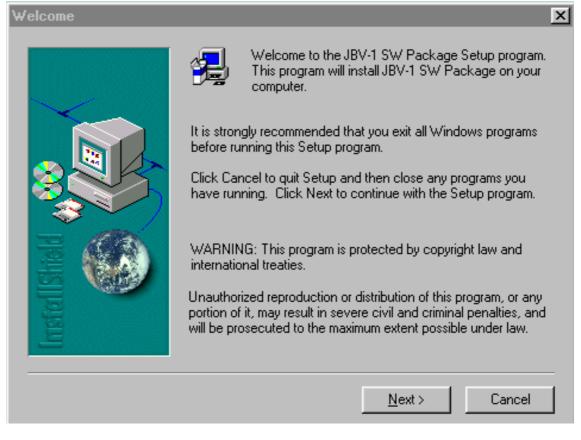
Note: <u>DO NOT</u> CONNECT THE USB CABLE / JBV-1 TO YOUR COMPUTER YET!

Run Jbv1\_update.zip file and start SW Installation by double clicking Setup.exe.

Files needed for JBV-1 Package setup Program will be extracted.



Installation begins, please read the information shown and Choose "Next" to continue.



Use suggested destination folder where JBV-1 SW Package will be installed and choose

"Next" to continue.

**CCS** Technical Documentation

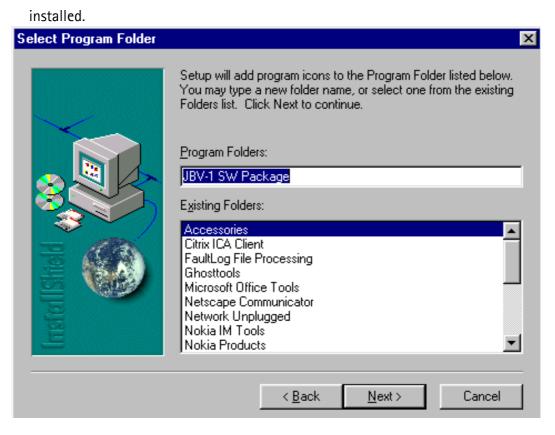
Choose Destination Loc	ation	х
	Setup will install JBV-1 SW Package in the following folder. To install to this folder, click Next. To install to a different folder, click Browse and select another folder. You can choose not to install JBV-1 SW Package by clicking Cancel to exit Setup.	
	Destination Folder C:\\Nokia\JBV-1 SW Package <u>Br</u> owse	J
	< <u>B</u> ack <u>Next</u> > Cancel	

#### Select "Full" Installation and choose "Next" to continue

Select Components		×
	Select full or custom installation	
Irrstel Shield	C Custom	
	< <u>B</u> ack <u>N</u> ext > Cancel	

Program Folder will be created. Choose "Next" to continue, Software files will be





#### After successful installation, choose "Finish" to complete.

Setup Complete	
	Setup has finished installing JBV-1 SW Package. To load the device driver for JBV-1 just plug-in a JBV-1 into USB port. Dialog should appear asking for driver files. Drivers are found at the installation disk and at C:\Program Files\Nokia\JBV-1 SW Package\JBV-1 USB DRIVERS
Iristel Isheld	To finish installation click Finish.
	< <u>B</u> ack. Finish

#### NOW YOU CAN CONNECT THE USB CABLE / JBV-1 TO YOUR COMPUTER!

Connect power to JBV-1 (11-16V DC) from external power supply, then connect USB

Cable between JBV-1 USB connector and PC.

Windows will detect connected USB cable and detect drivers for new HW.

Follow the instructions and allow Windows to search and install the best drivers available. After this procedure the actual JBV-1 SW update can begin.

Add New Hardware Wizard						
Add New Hardware Wiz	This wizard searches for new drivers for: USB Device A device driver is a software program that makes a hardware device work.					
	< Back Next > Cancel					

## Updating the JBV-1 Docking Station Software

Go to folder C:\Program Files\Nokia\JBV-1 SW Package\FIRMWARE UPDATE and start JBV-1 Update SW by double clicking *fwup.exe.* 

JBV-1 Firmware update starts and shows current status of the JBV-1 connected.

If firmware version read from your JBV-1 is not the latest one available, it needs to be updated by choosing "Update Firmware".

🚹 JBV-1 Firmware Update		. 🗆 🗵
Device Status		
JBV-1 Connected		
External powersupply connected		
Firmware version 11		
Serial number 000000240007		
		1
<u>R</u> efresh Status	Update Firmware	

Choose file *JBV1v11.CDE* (example used here is for v 11) and "Open" to update your JBV-1.

Select Firmwa	are File				? ×	I
Look in: 🔁	FIRMWARE UPDATE	 -		Ĕ	<b></b>	
JBV1V11.0	DE					
🛛 🔊 resi2357.co	de					
File <u>n</u> ame:					<u>O</u> pen	
The <u>H</u> ame.						
Files of <u>type</u> :	JBV-1 Firmware File		•		Cancel	
		 			/	8
	<u>R</u> efresh Status	Update	e Firmwa	re		

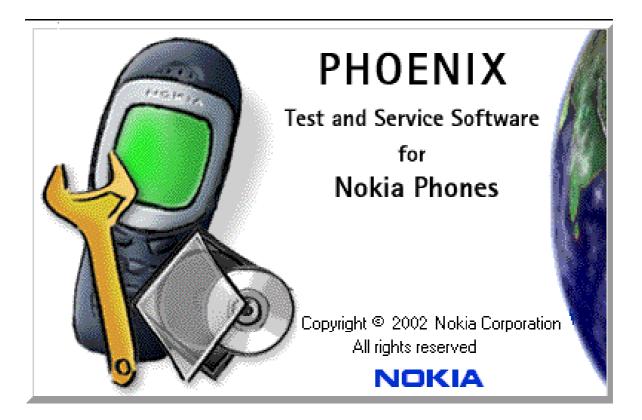
After Successful update, current JBV-1 status will be shown. You have now updated the

software of your JBV-1 docking station and it is ready for use.

	Success		×
	JBV-1 firmware s	uccesfully updat	ed
		OK	
nu JBV-1 Firm	ware Update		
Device Status			
JBV-1 Conne	cted		
	ersupply connected		
Firmware vers			
Serial number	000000240007		
<u>R</u> efre	esh Status	<u>U</u> pdate F	irmware

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# **Receiver tuning:** Quick Guide for Tuning With Phoenix



## **General remarks**

RF tunings must be performed in the same order as shown in this document. The order of the corresponding menu items in the Service SW may be different.

If baseband tunings are needed, they should be completed before the RF tunings.

Avoid unnecessary tuning – factory-tuning values are always the most accurate ones.

NOTE! RF tunings need to be done ONLY if any RF block component is replaced.

Screen shots described in this document may change as the service software is developed.

Kindly refer to the Phoenix help files, the phone model specific service manual and bulletins for help.

# Service Tool Concept for RF Tuning Operations

NOTE! RF tunings need to be done ONLY if any RF block component is replaced.

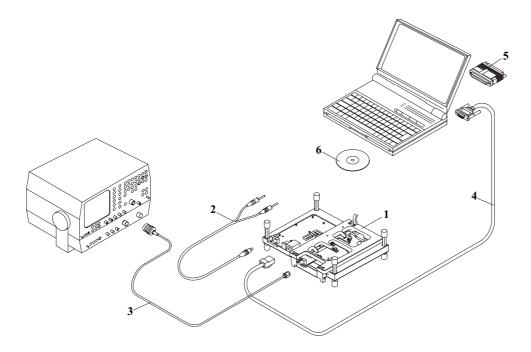
- All RF tuning operations must be carried out in the MJS-38 Module Jig!
- Power to MJS-38 must be supplied from an external DC power supply, <u>not</u> FPS-8 prommer
- MJS-38 input voltages:

Maximum + 5 VDC

Nominal input for RF tunings is +4.2 V DC

Minimum +3V DC

• Remember the cable attenuation when setting required RF levels



#### Figure 1: RF tuning setup

ltem:	Service accessory:	Туре:	Product code:
1	Module jig	MJS-38	0770416
2	DC power cable	PCS-1	0730012
3	Modular cable	XRF-1	0730085
4	Service Mbus cable	DAU-9S	0730108
5	Software protection key	PKD-1	0750018

# NOKIA

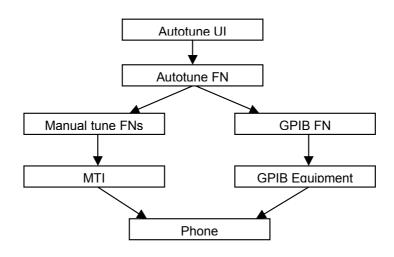
ltem:	Service accessory:	Туре:	Product code:
6	Service SW	CD-ROM	

# Autotuning

Autotune feature is designed to align product's RF part easier and faster. By this autotune component the product is tuned automatically. The user only needs to press '**Tune'** and the product's RF is tuned and results are shown to the user. Component controls all the needed RF equipment (RF generator and TX measuring device) except voltage supplier.

NOTE! Automatic tuning is ALWAYS the primary tuning mode. Manual tuning is not recommended.

Following diagram describes how the Autotune component is located in the TSS architecture:



### Figure 2: Autotune component in TSS architecture

Autotune is a pair of two different components. One is User Interface and the other is FunctioNal. UI does not contain any functionality. MTI takes care of phonet messages.

The Autotune component can be found under Tuning menu:

#### Figure 3: Autotune menu in Phoenix

🌃 Phoenix	
File Edit Product Flashing Testing	Tuning Tools RD Window Help
🗋 🖻 😅 🔚 🕴 Connections: FPS8	C Autotune
	Set Loss
	Energy Management Calibration

Figure 4: Autotune menu - RX/TX menu

🌾 Auto Tune	<u>_   ×</u>
	Iune

### Set Loss

#### Figure 5: Set Loss menu

🌃 Phoenix	
File Edit Product Flashing Testing	Tuning Tools Window Help
📘 🗅 🚅 🔚 🗌 Operating mode: 🛛 Loca	Autotune
	Set Loss
	Energy Manggement Calibration
	Rx Channel Select Filter Calibration
	Rx Calibration
	Rx Band Filter Response Compensation
	Tx Power Level Tuning
	Tx IQ Tuning
	Rx Am Suppression

This is the component for saving RF-losses (of cables and jigs) to file. These loss values are needed when you tune the phone with Phoenix (using Auto-Tune component). When you measure the losses you have to be very careful, because these values affect directly how well the phone is tuned.

NOTE! This component is only for Auto-Tune uses.

Cable Jig Produ	ict ]		
Frequency	Loss		<u>L</u> oad
80000000	5.00		<u>S</u> ave
851000000	5.10	_	<u> </u>
853000000	5.70		<u>H</u> elp
857000000	5.50	_	
858000000	5.60		
854000000	5.30		
I	1		

#### Figure 6: Loss values

### Environment

Hardware requirements:

PC with Windows 98/2000/NT

Power supply

Product specific module jig

RF-splitter and -cables

RF equipment (only one of each is needed)

### Tx:

Agilent E4406 (VSA series transmitter tester)

Agilent E4445 (PSA series transmitter tester)

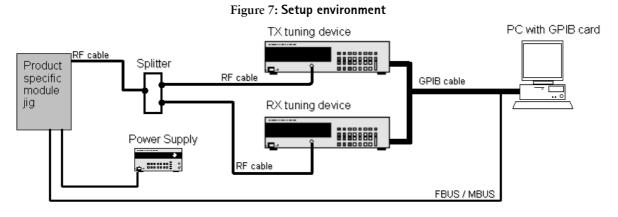
Rohde&Schwarz, FSE-family of Signal Analyzers

Rohde&Schwarz, FSIQ-family of Signal Analyzers

Rx:

Agilent ESG family of RF Signal Generators

Rohde&Schwarz, SME-family of Signal Generators



GPIB addresses are not defined. Component finds the addresses and uses them automatically.

If several TX tuning devices are connected, this component uses Agilent (VSA or PSA). In RX side, Agilent has highest priority.

### Protection

Components are protected by PKD-1CS, PKD-1NS, PKD-1 and PKD-1P dongles using standard TSS protection procedure. Autotuning itself is possible with all these dongles but with PKD-1P and PKD-1 dongles user is not able to set the loss.

# **Receiver Manual Tuning**

## **RX** Channel Select Filter Calibration

Extra equipment / external RF signal not needed.

Must be done before other RX calibrations.

This function is used to calibrate RX channel select filter in GSM Phones.

Rx Channel select filter is tuned only in one band = Single calibration for both bands.

Select Tuning => Rx Channel select filter calibration.

K Phoenix	
File Edit Product Flashing Testing	Tuning Tools Window Help
🗋 🗅 😅 🔚 🕴 Operating mode: 🛛 Loc	
	Energy Management Calibration
	Rx Channel Select Filter Calibration
	R× Calibration
	Rx Band Filter Response Compensation
	Rx Am Suppression
	Rx DtoS Balance Calibration
	Tx Power Level Tuning
	Tx IQ Tuning

"Save to Phone " is checked by default

Uncheck "Save to Phone " if you don't want the values to be saved to phone (eg testing)!

Press "Tune" to start the tuning

Ķ	Rx Channel Sele	ct Filter Calib	ration				
Γ	– HELGA Register —					1	Start
	DTOS I Address			Rc	18		Tune
	DTOS Q Address			Rc	18	🔽 Sa <u>v</u> e to Phone	Stop
	BBF I Address	BIQUAD I R	18	BIQUAD I C	22		H <u>e</u> lp
	BBF Q Address	BIQUAD Q R	17	BIQUAD Q C	22		

### Tuning values must be 0...31

If values shown are within limits, choose "Stop"

Close the "RX Channel Select Filter Calibration"-dialog to end tuning

Close the Rx Channel select filter calibration dialog, the values are saved to phone

## **RX** Calibration

RF generator needed.

This tuning performs RX Calibration.

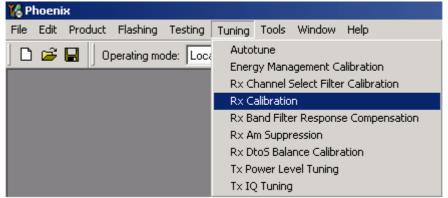
Must be done separately on every band!

Calibration is automatically performed at GSM850, then at GSM1800 and finally at GSM1900 band. If tuning is successful, it continues in the next band.

AFC tuning is done while GSM850 band RX Calibration is performed.

Remember to take jig and cable attenuations into account!

### Select Tuning => Rx calibration

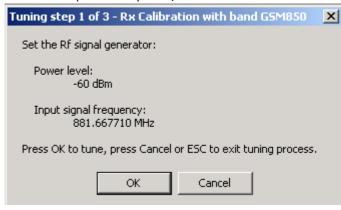


Press "Calibrate" 'to start tuning.

16 Rx Calibration	
	<u>H</u> elp
Press Calibrate button	

Set RF generator to required GSM850 frequency => OK

Set RF generator to required frequency => OK



Tuning values and ADC readings are shown.

### Typical values and limits in GSM850 RX Calibration:

GSM850	Typical value	Low limit	High limit
Afc value:	-90	-350	350
Afc slope:	270	150	350
Rssi 0:	65.09375	58	68
Rssi 1:	71.09375	64	74
Rssi 2:	76.90625	70	80
Rssi 3:	82.90625	76	86
Rssi 4:	88.90625	82	92
Rssi 5:	93.71875	88	98
Rssi 6:	99.71875	94	104
Rssi 7:	105.53125	100	110
Rssi 8:	111.53125	106	116
Rssi 9:	117.53125	112	122
Rssi 10:	123.53125	118	128
Rssi 11:	129.53125	124	134
Rssi 12:	135.53125	130	140
Rssi 13:	141.53125	136	146
Rssi 14:	147.53125	142	152

Set RFgenerator to required GSM1800 frequency => OK

Tuning step 2 of 3 - Rx Calibration with band GSM1800	×		
Set the Rf signal generator:			
Power level: -60 dBm			
Input signal frequency: 1842.867710 MHz			
Press OK to tune, press Cancel or ESC to exit tuning process.			
OK Cancel			

Tuning values and ADC readings are shown.

GSM1800	Typical value	Low limit	High limit
Rssi 0:	62.40625	58	68
Rssi 1:	68.40625	64	74
Rssi 2:	74.265625	70	80
Rssi 3:	80.265625	76	86
Rssi 4:	86.265625	82	92
Rssi 5:	91.859375	88	98
Rssi 6:	97.859375	94	104
Rssi 7:	103.71875	100	110
Rssi 8:	109.71875	106	116
Rssi 9:	115.71875	112	122
Rssi 10:	121.71875	118	128
Rssi 11:	127.71875	124	134
Rssi 12:	133.71875	130	140
Rssi 13:	139.71875	136	146
Rssi 14:	145.71875	142	152

# Typical values and limits in (GSM1800) RX Calibration

Set the RF generator to required GSM1900 frequency => 0K

Tuning step 3 of 3 - Rx Calibration with band GSM1900	X
Set the Rf signal generator:	
Power level: -60 dBm	
Input signal frequency: 1960.067710 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

Tuning values and ADC readings are shown.

GSM1900	Typical value	Low limit	High limit
Rssi 0:	66.25	61	71
Rssi 1:	72.25	67	77
Rssi 2:	78.09375	73	83
Rssi 3:	84.09375	79	89
Rssi 4:	90.09375	85	95
Rssi 5:	93.25	88	98
Rssi 6:	99.25	94	104
Rssi 7:	105.09375	100	110
Rssi 8:	111.09375	106	116
Rssi 9:	117.09375	112	122
Rssi 10:	123.09375	118	128
Rssi 11:	129.09375	124	134
Rssi 12:	135.09375	130	140
Rssi 13:	141.09375	136	146
Rssi 14:	147.09375	142	152

### Typical values and limits in (GSM1900) RX Calibration

If values are within limits, they are saved to the phone after successful tuning of each band.

Close the "Rx Calibration" dialog to end tuning

## **RX Band Filter Response Compensation**

RF generator needed.

This operation must be done separately on each band!

Start RX Calibration at GSM850, then continue at GSM1800 band and finally on the GSM1900 band

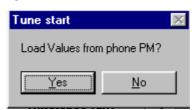
*NOTE! Remember to do RX calibration before doing Rx Band Filter Response Compensation!* 

Remember to take jig and cable attenuations into account!

Select Tuning => Rx band filter response compensation



Select "Yes" to start tuning with values already saved to the phone



Select "Manual tuning" and tuning starts.

-0.016 0.063 -0.344 -0.516 -0.516 0.000 In 0.000 + 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.000	<u>M</u> anual Tuning <u>A</u> uto Tuning
-0.984 -0.516 -0.094 -0.016 -0.063 -0.344 -0.516 -0.516 -0.516 -0.516 -0.516 -0.500 In -0.000 + -0.000 + -0.0000 -0.0000 -0.0	<u>A</u> uto Tuning
-0.094 -0.016 -0.063 -0.344 -0.516 -0.516 -0.516 -0.0000 -0.0000 -0.0000 -0.000 -0.0000 -0.000 -0.0000 -0.0000 -0.0000 -0	
0.063 -0.344 -0.516 -0.516 -0.516 -0.516 -0.000 -0.000 + -0.000 + -0.000 	Stop, Write to PM area
-0.516 Si 0.000 In 0.000 + 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.000000	Help
+ 0.000 0.000 0.000 0.000 0.000 0.000	ignal Generator Setting: nput SIgnal Level
0.000 0.000 0.000 0.000	cable attenuation.
0.000	able to Clipboard: elect Letf Top of table
0.000	vith text 'Channel'). ress left mouse
0.000	ress left mouse

You are asked to supply 9 different RF frequencies to the phone.

The tuning begins from GSM850 band and continues the same way for GSM 1800 and GSM1900 bands

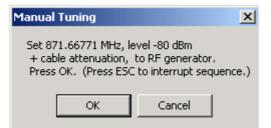
Set the first required frequency and level => OK

Manual Tuning	X
Set 867.26771 MHz, le + cable attenuation, I Press OK. (Press ESC	
ОК	Cancel

Set the 2nd required frequency and level => 0K

Manual Tuning	×
Set 869.26771 MHz, le + cable attenuation, I Press OK. (Press ESC	
ОК	Cancel

Set the 3rd required frequency and level => OK



Set the 4th required frequency and level => 0K

Manual Tuning	×			
Set 878.06771 MHz, level -80 dBm + cable attenuation, to RF generator. Press OK. (Press ESC to interrupt sequence.)				
ОК	Cancel			

Set the 5th required frequency and level => OK

Manual Tuning	×
Set 881.66771 MHz, le + cable attenuation, l Press OK. (Press ESC	
OK	Cancel

Set the 6th required frequency and level => OK



Set the 7th required frequency and level => OK

Manual Tuning	×
Set 891.86771 MHz, le + cable attenuation, Press OK. (Press ESC	
OK	Cancel

Set the 8th required frequency and level => 0K



Set 9th required frequency and level => 0K

Manual Tuning	×			
Set 895.86771 MHz, level -80 dBm + cable attenuation, to RF generator. Press OK. (Press ESC to interrupt sequence.)				
ОК	Cancel			

Typical values and limits in Rx Band Filter Response Compensation GSM850:

Channel	Input Frequency (MHz)	Low limit (dB)	High limit (dB)
118	863.26771	-10	3.5
128	869.26771	-3.5	3.5
140	871.66771	-3.5	3.5
172	878.06771	-3.5	3.5
190	881.66771	-3.5	3.5
217	887.06771	-3.5	3.5
241	891.86771	-3.5	3.5
251	893.86771	-3.5	3.5
261	895.86771	-10	3.5

Choose "Stop, write to PM area"

If the values shown are within limits, choose "Yes" to save values to the phone.

End Tuning		×
Save Values to p	hone PM?	
		_
Yes	<u>N</u> o	

**Continue tuning from GSM1800.** Choose the correct band from the dropdown menu.

🌃 Pi	hoeni	ж								
File	Edit	Product	Flashing	Testing	Tuning	Tools	Winde	ow Help	0	
] D	6	日 🛛 or	perating mo	ide: Loca	al 💌	Rea	be	Band:	GSM 850	•
									GSM 850	
									GSM 1800	
									GSM 1900	

Repeat the same steps as for the GSM850 band above.

Typical values and limits in Rx Band Filter Response Compensation GSM1800:

	Input		
Channel	Frequency (MHz)	Low limit (dB)	High limit (dB)
497	1802.26771	-10	3.5
512	1805.26771	-3.5	3.5
535	1809.86771	-3.5	3.5
606	1824.06771	-3.5	3.5
700	1842.86771	-3.5	3.5
791	1861.06771	-3.5	3.5
870	1876.86771	-3.5	3.5
885	1879.86771	-3.5	3.5
908	1884.46771	-10	3.5

Choose "Stop, write to PM area"

If the values shown are within limits, choose "Yes" to save values to the phone.

End Tuning	×
Save Values to p	hone PM?
Yes	No

Continue tuning from GSM1900. Choose the correct band from the dropdown menu.

🌃 Pl	hoeni	x								
File	Edit	Product	Flashing	Testing	Tuning	Tools	Windo	w Hel	р	
	<b>2</b>	日 🛛 o	perating mo	ide: Loc	al 💌	Rea	ad	Band:	GSM 1800	•
									GSM 850	1
									GSM 1800	
									GSM 1900	

Repeat the same steps as for the GSM850 and GSM1800 bands above.

	Input		
Channel	Frequency (MHz)	Low limit (dB)	High limit (dB)
496	1927.06771	-10	3.5
512	1930.26771	-3.5	3.5
537	1935.26771	-3.5	3.5
586	1945.06771	-3.5	3.5
661	1960.06771	-3.5	3.5
736	1975.06771	-3.5	3.5
794	1986.66771	-3.5	3.5
810	1989.86771	-3.5	3.5
835	1994.86771	-10	3.5

Typical values and limits in Rx Band Filter Response Compensation GSM1900:

Choose "Stop, write to PM area".

If the values shown are within limits, choose "Yes" to save values to the phone.

Close the "RX Band Filter Response Compensation" - dialog to end tuning.

### **Rx Am Suppression**

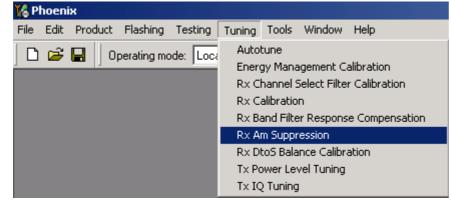
RF generator is needed.

Must be done separately on each band!

Start RX Am Suppression at GSM850, then continue at GSM1800 band and finally at the GSM1900 band.

Remember to take jig and cable attenuations into account!

Select Tuning => Rx Am Suppression



NPL-3

These start to begin tanning	y.	
🔓 Phoenix		
File Edit Product Flashing Testing	Tuning Tools Window Help	
🗅 😅 🔚 🛛 Operating mode: 🛛 Loc	al 💌 Read Band: GSM 850 💌	
KRx Am Suppression		
Rf Generator's settings:	L0_I sign 0-6 bits 0 0 L0_Q sign 0-6 bits 0 0	Save & Continue
Rssi level:		

Press "Start" to begin tuning.

Adjust signal generator accordingly and press "OK" to tune.

Tuning step 1 of 3 - RxAm Suppression with band GSM850	×
Set the Rf signal generator:	
Power level: -23 dBm	
AM modulation: 83 %	
Modulation signal frequency: 1 kHz	
Input signal frequency: 891.667710 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

When tuning is finished, press "Save & Continue".

_ D ×	ļ
Start	
Save & <u>C</u> ontinue	
<u>H</u> elp	

Tuning continues automatically at GSM1800 band.

Adjust signal generator accordingly and press "OK" to tune.

Tuning step 2 of 3 - RxAm Suppression with band G5M1800	×
Set the Rf signal generator:	
Power level: -23 dBm	
AM modulation: 83 %	
Modulation signal frequency: 1 kHz	
Input signal frequency: 1852.867710 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

When tuning is finished, press "Save & Continue".

Start
Dian
·····
Save & <u>C</u> ontinue
<u>H</u> elp

Tuning continues automatically at GSM1900 band.

Adjust signal generator accordingly and press "OK" to tune.

Tuning step 3 of 3 - RxAm Suppression with band GSM1900	×
Set the Rf signal generator:	
Power level: -23 dBm	
AM modulation: 83 %	
Modulation signal frequency: 1 kHz	
Input signal frequency: 1970.067710 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

When tuning is finished, press "Save & Continue".



If the Rx Am Suppression tuning was completed successfully, press "OK" to stop tuning.

Rx Am Su	Ippression	×
•	RxAm Suppression tuning was completed successfully.	
	ОК	

Close the Rx Am Suppression window.

## **RX DTOS balance calibration**

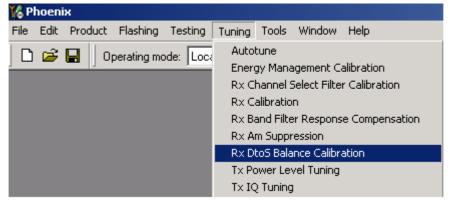
Extra equipment / external RF signal not needed

Must be done separately on each band!

Start RX Calibration for GSM850, then continue at the GSM1800 band and finally at the GSM1900 band.

This Calibration is used for calibrating DSP control words values.

### Select Tuning => Rx DtoS Balance Calibration



NOTE! No RF-input is allowed to feed when calibrating

Choose "OK" and "Start", tuning begins automatically at the GSM850 band.



NPL-3

Select "OK" to start tuning with values already saved to the phone

Start parameter:	×
Default values	OK
C Zero values	Cancel
C PM values	

### Press "Calibrate"

🌃 Rx DtoS Bala		
DtoS I Sign	bits #1410- 31	<u>S</u> tart
		S <u>t</u> op
DtoS Q Sign	bits #2016 9	<u>C</u> alibrate
		Help

If values shown are within limits, Select "Stop" choose "Yes" to save values to the phone

Tune end	ding 🛛 🔀
৾	Do you want to save values to phone?
	Yes <u>N</u> o

**Continue tuning from GSM1800.** Choose the correct band from the dropdown menu.

🌃 Pł	hoeni	×								
File	Edit	Product	Flashing	Testing	Tuning	Tools	Window	Help	)	
	<b>2</b>	日 🛛 or	perating mo	de: Loc	al 💌	Rea	ad be	Band:	GSM 850	•
									GSM 850	
									GSM 1800	
									GSM 1900	

Repeat the same steps as for the GSM850 band.

If values shown are within limits, choose "Yes" to save values to the phone.

Continue tuning from GSM1900. Choose the correct band from the dropdown menu.

🔀 Phoenix	
File Edit Product Flashing Testing Tuning Tools Window He	P
🗅 😅 🔚 🛛 Operating mode: 🔽 🔽 🖉 Read 🔹 Band	GSM 1800 💌
	GSM 850
	GSM 1800
	GSM 1900

Repeat the same steps as for the GSM850 and GSM1800 bands.

If values shown are within limits, choose "Yes" to save values to the phone.

Close the RX DtoS Balance Calibration dialog to end Receiver tuning.

# Transmitter Manual Tuning

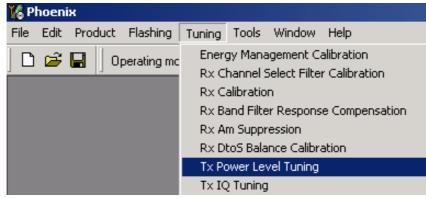
## **TX** Power Level Tuning

Power meter or spectrum analyzer needed.

With Tx Power Level Tuning, the coefficients are adjusted for each power level.

Start Power Level tuning at GSM850/EDGE, then continue at GSM1800/EDGE band and finally at the GSM1900/EDGE band.

Tuning => Tx power level tuning



### Select "Start", tuning begins at the GSM850 band

🕻 Tx Power Level Tuning	
Press Start to begin Tx Power Level Tuning	Band:

Set up spectrum analyzer accordingly.

dge OFI	Ftuning		×
	Frequency:	836,6 MHz	
~	Resolution Band Width Video Band Width Video Trig Sweep Time Span Detector:	3 kHz 3 kHz Free Run 3 s 200 kHz Max Peak	
		OK	

Remember to take the jig and cable attenuations into account!

The coefficient table lists the power level, coefficient, target dBm and DAC value for each power level.

The tuned power level can be chosen by using up and down arrows or mouse.

The current power level is shown with inverse colors.

The tuning value can be adjusted with "-" and "+" keys.

Tune <u>Base level</u> and power levels <u>19</u>, <u>15</u> and <u>5</u> to target level.

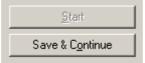
	Coefficient	Target dBm	<u>S</u> tart
5	0.7067	32.5	
3	0.5909	31.0	Continue to next band
7	0.4894	29.0	
8	0.4195	27.0	
Э	0.3660	25.0	
10	0.3237	23.0	
1	0.2911	21.0	Band: GSM 850
12	0.2651	19.0	Band: Justin 000
13	0.2444	17.0	Tx PA mode: High
14	0.2282	15.0	,
15	0.2163	13.0	
16	0.2068	11.0	
17	0.1994	9.0	
18	0.1934	7.0	
19	0.1885	5.0	
Base	<u>0.1613</u>	-30.0	
Test	0.1613		

Press "Calculate coefficients".

## Typical values: GSM850

Power level	DAC Value
5	0.6700.850
15	0.2100.240
19	0.1700.200
Base	0.1400.170

Press "Save & Continue". Tuning values will be calculated and saved to phone's memory.



### Tuning continues at EDGE850.

Set up spectrum analyzer accordingly.

Edge ON t	uning		×
•	Frequency: Resolution Band Width Video Band Width Video Trig Sweep Time Span Detector:	836,6 MHz 3 kHz 3 kHz Free Run 3 s 200 kHz Max Peak	
		<u>ok</u> ]	

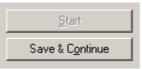
### Press "OK" and start tuning.

	Coefficient	Target dBm	<u>S</u> tart
8	0.7891	27.0	
9	0.7143	25.0	Save & C <u>o</u> ntinue
10	0.6417	23.0	Stops Tx power level
11	0.5894	21.0	
12	0.5528	19.0	
13	0.5133	17.0	
14	0.4830	15.0	Band: GSM 850
15	0.4593	13.0	Band: asin coo
16	0.4742	11.0	Tx PA mode: High
17	0.4511	9.0	
18	0.4345	7.0	
19	0.4188	5.0	
Base	<u>. 0.3099</u>	-30.0	
Test	0.3099		
	nnel: 190		

Tune all power levels to target level.

Note! Target for EDGE Base level is -15dBm.

Press "Save & Continue" to save the tuning values to phone's memory.



### Continue tuning at GSM1800 band

Set up spectrum analyzer accordingly.

### Remember to take the jig and cable attenuations into account!

Edge OFF	tuning		×
•	Frequency: Resolution Band Width Video Band Width Video Trig Sweep Time Span Detector:	1747,8 MHz 3 kHz 3 kHz Free Run 3 s 200 kHz Max Peak	
		OK	

	Coefficient	Target dBm	<u>S</u> tart
0	0.6011	29.5	
1	0.5388	28.0	Continue to next band
2	0.4857	26.0	
3	0.4403	24.0	
4	0.4013	22.0	
5	0.3679	20.0	
6	0.3392	18.0	Band GSM 180
7	0.3144	16.0	Band:  GSM 180
8	0.2931	14.0	Tx PA mode: High
9	0.2748	12.0	1 -
10	0.2590	10.0	
11	0.2456	8.0	
12	0.2341	6.0	
13	0.2244	4.0	
14	0.2163	2.0	
15	0.2097	0.0	
Base Test	0.1544	-30.0	
	0.1544		

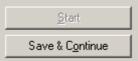
Press "OK" and start tuning.

Tune <u>Base level</u> and power levels <u>15,11</u> and <u>0</u> to target level.

### Typical values: GSM1800

Power level	DAC Value
0	0.5800.700
11	0.2100.240
15	0.1800.210
Base	0.1350.165

Press "Save & Continue". Tuning values will be calculated and saved to phone's memory.



### Tuning continues at EDGE1800.

Set up spectrum analyzer accordingly.

Edge ON t	uning		×
•	Frequency: Resolution Band Width Video Band Width Video Trig Sweep Time Span Detector:	1747,8 MHz 3 kHz 3 kHz Free Run 3 s 200 kHz Max Peak	
		OK	

Press "OK" and start tuning.

🔏 Tx Power Level Tuning 📃 🗌 🗙					
	Coefficient	Target dBm	<u>S</u> tart		
2	0.7311	26.0			
3	0.6735	24.0	Save & C <u>o</u> ntinue		
4	0.6119	22.0			
5	0.5644	20.0			
6	0.5341	18.0			
7	0.4983	16.0			
8	0.4700	14.0	Band GSM 1800		
9	0.4484	12.0	Band: GSM 1800		
10	0.4317	10.0	Tx PA mode: High		
11	0.4151	8.0	<u> </u>		
12	0.4117	6.0			
13	0.3978	4.0			
14	0.3866	2.0			
15	0.3775	0.0			
Base	0.2903	-30.0			
Test	0.2903				
	nnel: 700 noy: 1747.80 M	Hz	Help		

Tune all power levels to target level.

Note! Target for EDGE Base level is -15dBm.

Press "Save & Continue" to save the tuning values to phone's memory.



### Continue tuning at GSM1900 band

Set up spectrum analyzer accordingly.

### Remember to take the jig and cable attenuations into account!

Edge OFF	tuning		×
<b>i</b>	Frequency:	1880,0 MHz	
V	Resolution Band Width Video Band Width Video Trig Sweep Time Span Detector:	3 kHz 3 kHz Free Run 3 s 200 kHz Max Peak	
		OK	

Press "OK" and start tuning.

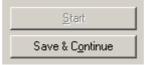
	wer Level Tun		
	Coefficient	Target dBm	<u>S</u> tart
0	0.6160	29.5	
1	0.5471	28.0	St <u>o</u> p
2	0.4891	26.0	
3	0.4402	24.0	
4	0.3989	22.0	
5	0.3637	20.0	
6	0.3339	18.0	Band: GSM 1900
7	0.3085	16.0	Bana.
8	0.2870	14.0	Tx PA mode: High
9	0.2688	12.0	
10	0.2533	10.0	
11	0.2404	8.0	
12	0.2296	6.0	
13	0.2207	4.0	
14	0.2137	2.0	
15	0.2082	0.0	
Base	0.1593	-30.0	
Test	0.1593		
<b>-</b> -	1.001		
Tx channel: 661 Frequency: 1880.00 MHz Help			

Tune <u>Base level</u> and power levels <u>15</u>, <u>11</u> and <u>0</u> to target level.

### Typical values: GSM1900

Power level	PA high mode
0	0.5800.700
11	0.2100.240
15	0.1800.210
Base	0.1500.165

Press "Save & Continue". Tuning values will be calculated and saved to phone's memory



## Tuning continues at EDGE1900.

Set up spectrum analyzer accordingly.

Edge ON	tuning		×
•	Frequency: Resolution Band Width Video Band Width Video Trig Sweep Time Span Detector:	1880,0 MHz 3 kHz 3 kHz Free Run 3 s 200 kHz Max Peak	
		OK	

🔓 Tx Power Level Tuning			
	Coefficient	Target dBm	<u>S</u> tart
2 3	0.8063	26.0	
3	0.7418	24.0	Save & C <u>o</u> ntinue
4	0.6690	22.0	
5	0.6072	20.0	
6	0.5662	18.0	
7	0.5231	16.0	
8	0.4898	14.0	Band: GSM 1900
9	0.4638	12.0	Band: dom rooo
10	0.4447	10.0	Tx PA mode: High
11	0.4249	8.0	
12	0.4253	6.0	
13	0.4102	4.0	
14	0.3981	2.0	
15	0.3882	0.0	
Base	0.3069	-30.0	
Test	0.3069		
	nnel: 661 hoy: 1880.00 M	Hz	Help

Press "OK" and start tuning.

Tune all power levels to target level.

Note! Target for EDGE Base level is -15dBm.

Press "Save & Continue" to save the tuning values to phone's memory.



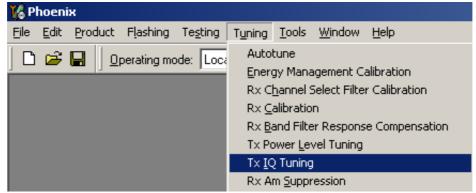
TX Power Level Tuning is now completed.

Spectrum analyzer needed.

Tx IQ Tuning allows changing the Tx I DC Offset, Tx Q DC Offset, Amplitude difference and Phase difference.

Must be done separately on all bands!

Select Tuning => Tx\_IQTuning



Tx IQ Tuning window will open.

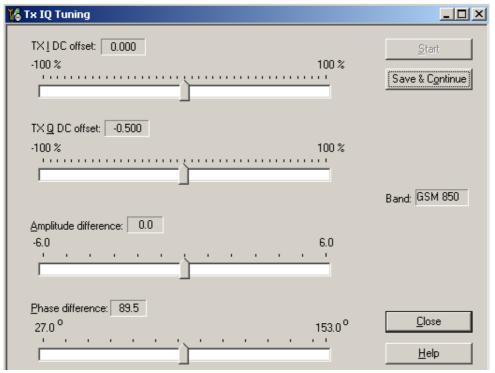
🔀 Tx IQ Tuning	
TX <u>I</u> DC offset:	<u>Save &amp; Co</u> ntinue
TX Q DC offset:	-
Amplitude difference:6.0	Band:
Phase difference:	<u>C</u> lose <u>H</u> elp

Press "Start" and tuning will begin at GSM850 band.

Adjust spectrum analyzer accordingly.

dge OFF	tuning. Set the spectru	m analyzer.	×
<b>i</b>	Frequency:	836,6 MHz	
	Resolution Band Width Video Band Width Video Trig Sweep Time Span Detector:	3 kHz 3 kHz Free Run 3 s 200 kHz Max Peak	
	[	OK	

Press "OK" and start tuning.



Tuning is done by setting each of the sliders to desired value.

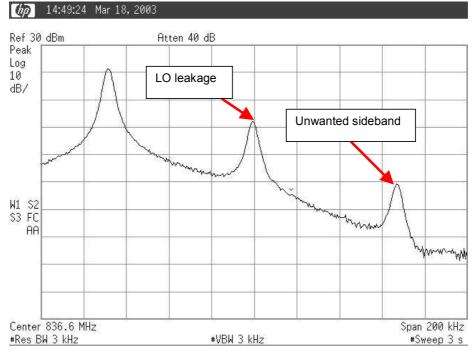
The order of tuning should be the same as the order of the sliders, that is, the Tx I DC Offset is tuned first and Phase difference is tuned last.

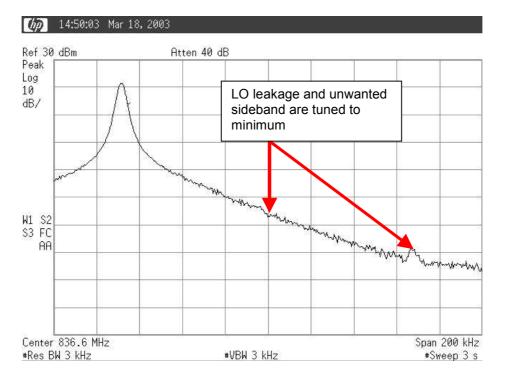
Use <= , =>, PgUp or PgDn keys.

Tune LO leakage to minimum with TXI/TXQ DC Offset control (f0 on spectrum analyzer screen).

Tune unwanted sideband to minimum using Amplitude/Phase difference controls (f0 +

#### 67.71kHz on spectrum analyzer screen).





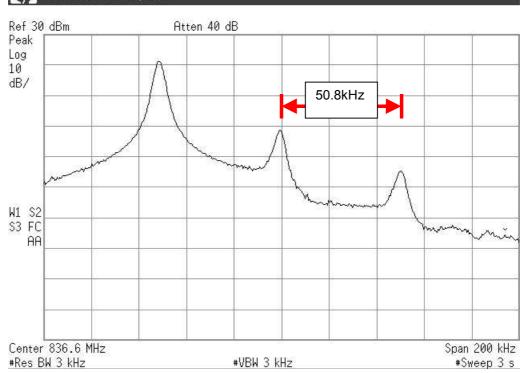
Tuning limits are the same for all bands (GSM/EDGE850, GSM/EDGE1800 and GSM/EDGE1900):

Tuning limits:	
I DC Offset	-6+6
Q DC Offset	-6+6

Tuning limits:	
Amplitude difference	-1+1
Phase difference	- 80°…100°

When the IQ spectrum is balanced, "Save & Continue" to EDGE850 TX IQ tuning.

Spectrum analyzer settings are the same as for GSM850 IQ tuning.



NOTE! In EDGE-mode, the unwanted sideband is located at 50.8kHz from f0.

When the IQ spectrum is balanced, press "Save & Continue".

#### Continue tuning at GSM/EDGE1800 band

Adjust spectrum analyzer accordingly. Edge OFF tuning. Set the spectrum analyzer. × 1747,8 MHz Frequency: **i**) 3 kHz Resolution Band Width Video Band Width 3 kHz Video Trig Free Run Sweep Time Зs Span Detector: 200 kHz Max Peak ÖK

NPL-3

Both GSM and EDGE 1800 use the same settings.

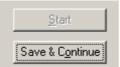
#### Continue tuning at GSM/EDGE1900 band

Adjust spectrum analyzer accordingly.

ge OFF	tuning. Set the spectru	n analyzer.	2
i)	Frequency:	1880,0 MHz	
Ŷ	Resolution Band Width Video Band Width Video Trig Sweep Time Span Detector:	3 kHz 3 kHz Free Run 3 s 200 kHz Max Peak	
		OK ]	

Both GSM and EDGE 1900 use the same settings.

When GSM and EDGE 1900 are tuned, press "Save & Continue".





Press "OK" and the TX IQ Tuning is completed.

## Service Tool Concept For Baseband Tuning Operations

EM calibrations should be carried out in JBV-1 Docking Station equipped with DA-19 Docking Station Adapter.

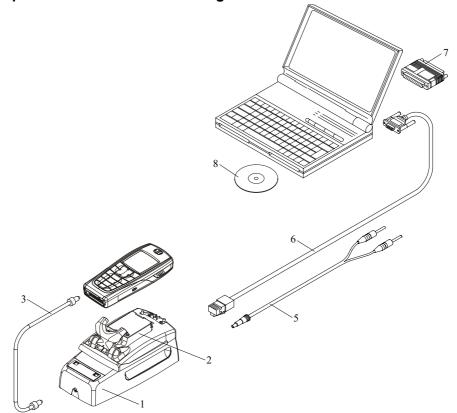
Note: RF tunings must be carried out in MJS-38 module jig, JBV-1.

Power to JBV-1 should be supplied from an external DC power supply, <u>not</u> FPS-8 prommer.

JBV-1 input voltages:

Maximum +16 VDC

Nominal input for RF tunings is +12 V DC.



ltem	Accessory type	Service Accessory	Product code
1	JBV-1	Docking Station	0770298
2	DA-19	Docking Station adapter	0770674
3	SCB-3	DC-DC Cable	0730114
5	PCS-1	DC power cable	0730012
6	DAU-9S	Service FBUS cable	0730108
7	PKD-1	Software protection key	0750018
8	Service SW	CD-ROM	

# **Baseband Tuning operations**

### **Energy Management Tuning**

External power supply needed.

Energy Management (EM) Calibration is used for calibrating Battery and Charger settings of the phone.

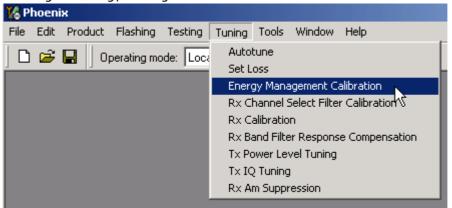
Preparation for EM Calibration:

- Connect the DC Cable SCB-3 between JBV-1 and Vin of the Phone for Charger calibration.

- Connect 12...15 V from the Power Supply to JBV-1.

- NOTE! Check that the connection is F-BUS (does not work with M-BUS).

Select Tuning => Energy Management Calibration.



Energy Management values to be calibrated are checked.

Select "Read from Phone" to show the current values in the phone memory and to check that the communication with the phone works.

		Calibrated	Phone Values	
	ADC Offset [mV]			
	ADC Gain [0.0001 mV/bit]			<u>C</u> alibrate
Battery Size	BSI Gain (100 Ohm)			Save To Phon
🔽 Battery Temperature	BTEMP Gain			-
Battery Voltage	SCAL Offset [mV]			<u>R</u> ead From Pho
	SCAL Gain			Help
🔽 Charger Voltage	VCHAR Gain			
🔽 Charge Cyrrent	ICHAR Gain			

Select "Calibrate" to run the selected calibrations.

Limits for Energy Management Calibration:

Parameter	Min.	Max	Note	
ADC gain	25400	29000	VBatt, BSI, BTemp	
DC offset	-50	50	ADC voltage offset	
BSI gain	970	1100	ADC BSI calibration gain	
BTEMP gain	2075	2275	ADC BTEMP calibration gain	
VBAT gain	10000	11000	ADC VBATT Voltage gain	
VBAT offset	2300	2900	ADC VBATT Voltage offset scale	
VCHAR	58000	62000	Charge voltage	
ICHAR	4050	4800	charge current	

If values shown are within limits select "Save To Phone" to save the values in the phone.

NOTE! Only the values of the checked tunings (Battery size, Battery Temperature etc...) are saved.

Close the "Energy Management Calibration" – dialog to end tuning.

You must manually switch the phone on after exiting "Energy Management Calibration" – dialog.

### LCD Contrast Tuning

Extra equipment not needed.

This function is used to calibrate the LCD Contrast.

Must be done when LCD module is changed and there is considerable difference in the contrast.

Select Testing => Display Tune

🌃 Phoenix		
File Edit Product Flashing	Testing Tuning Tools RD Window	Help
🗋 🖻 🚰 📕 Connections	ADC Reading Audio Routing and Test Signals Audio Test Self Tests	Settings
	Display Test Display Tune	
	Factory Settings	
	IR Test RF Controls	

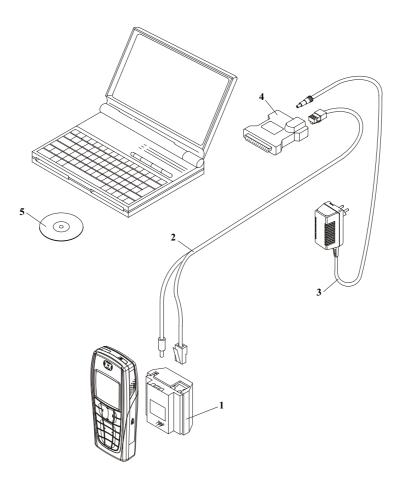
Move the sliders to reach good LCD contrast.

Contrast tuning	Display metrics
Contrast factory [ 50 % ]	Display width: Not available
	Display height: Not available
Contrast offset [-12%]	Display type: Not available
Contrast factory offset [ 15 52 ]	Default

Close the "Display tune" dialog to end tuning.

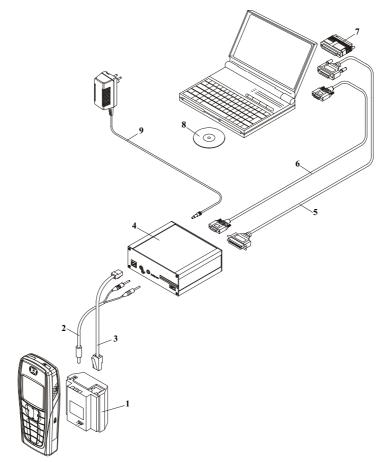
# **Flashing Setup Instructions**

## POS (Point of Sale) Flash Concept



#### Figure 1: POS flash

ltem	Туре	Description	Code
1	FLA-27	Point Of sales flash loading adapter	0770492
2	XCS-1	Service cable	0730218
3	ACF-8	AC Charger	0680032
4	FLS-4S	FLS-4S sales package E&A	0080541
	FLS-4S,	FLS-4S sales package APAC	0080542
	FLS-4S,	FLS-4S sales package US	0080543
5		Service SW CD-ROM	



### Flash Concept with Flashing adapter

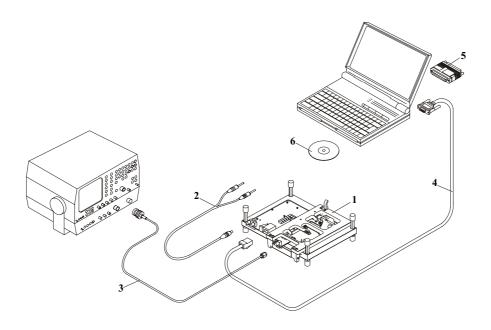
Figure 2: Flash comcept with flashing adapter

Item	Туре	Description	Code
1	FLA-27	Point of sales flash loading adapter	0770326
2	FLC-2	Power cable, incl in FLA-27 sales package	0730185
3	XCS-4	Modular cable	0730178
4	FPS-8	Flash prommer box with 2x SF12 SRAM	0080321 and 0080346
5		Centronics (printer) cable, incl in FPS-8 sales package	0730029
6	AXS-4	RS-232 (D9-D9) cable, incl in FPS-8 sales package	0730090
7	PKD-1	Software protection key	0750018
8		Service SW CD-ROM	
9	ACF-8	AC charger, incl in FPS-8 sales package	0680032

### NOKIA

**CCS** Technical Documentation

### Module Jig Concept



#### Figure 3: Module jig concept

ltem	Туре	Description	Code
1	MJS-38	Module jig	0770416
2	PCS-1	DC power cable	0730012
3	XRF-1	RF antenna cable	0730085
4	DAU-9S	Service FBUS cable	0730108
5	PKD-1	Software protection key	0750018
6		Service SW CD-ROM	

## JBV-1 Flash Concept

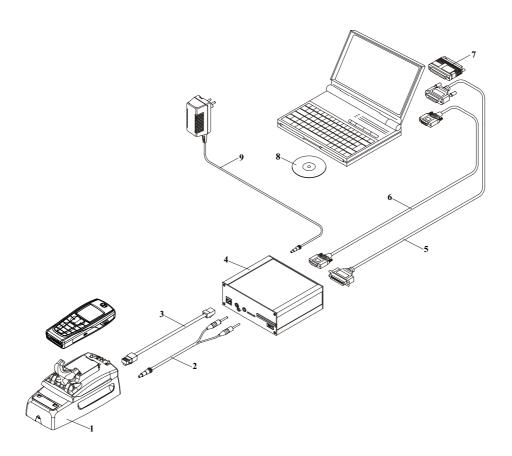
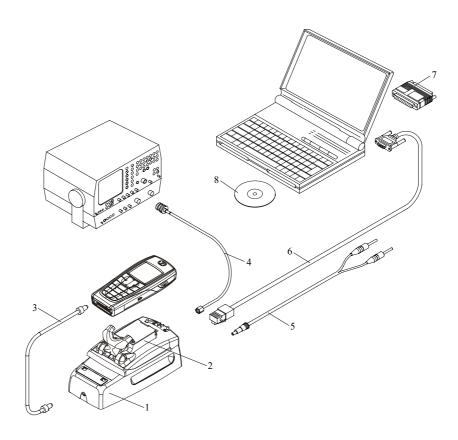


Figure	4:	JBV-1	Flash	concept
--------	----	-------	-------	---------

ltem	Туре	Description	Code
1	JBV-1	Docking station	0770298
2	PCS-1	DC power cable	0730012
3	XCS-4	Modular cable	0730178
4	FPS-8	Flash prommer box	0080321
5	Printer cable	Incl. in FPS-8 sales pack	0730029
6	AXS-4	D9 – D9 cable, incl. in FPS-8 sales pack	0730090
7	PKD-1	Software protection key	0750018
8		Service SW CD-ROM	
9	ACF-8	AC Charger, incl. in FPS-8 sales pack	0680032

### Service Concept

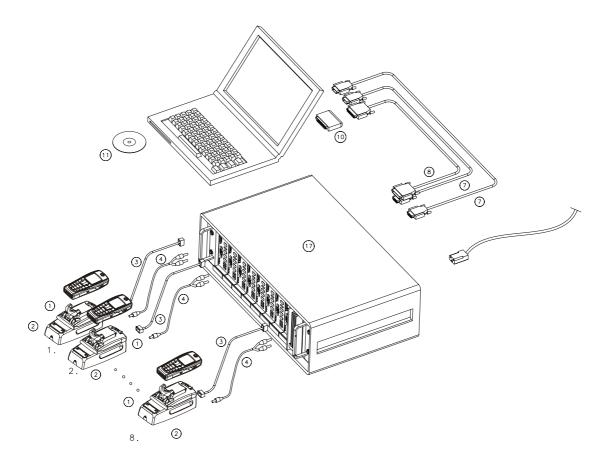


#### **Figure 5: Service Concept**

ltem:	Service accessory:	Туре:	Product code:
1	Docking station	JBV-1	0770298
2	Docking station adapter	DA-19	0770674
3	DC-DC cable	SCB-3	0730114
4	RF antenna cable	XRF-1	0730085
5	DC power cable	PCS-1	0730012
6	Service FBUS cable	DAU-9S	0730108
7	Software protection key	PKD-1	0750018
8	Service SW CD-ROM		

Issue 1 3/03

### Parallel Flash concept



ltem	Туре	Description	Code
1	DA-19	Docking station adapter	0770674
2	JBV-1	Docking station	0770298
3	XCS-4	Modular cable	0730178
4	PCS-1	DC power cable	0730012
7	AXS-4	D9 – D9 cable, incl. in FPS-8C sales pack	0730090
8	Printer cable	Incl. in FPS-8C sales pack	0730029
10	PKD-1	Software protection key	0750018
11		Software (PC SW + SF11C SW)	
17	FPS-8C		0080396

#### Figure 6: Parallel flash concept