CCS Technical Documentation RH-20 Series Transceivers

Service Software Instructions

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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 extracted. K	indly 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	

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.
	and manually restart the PC.

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 Softwar Supported products:	e A7 2003.9.2.3 on your computer.
NEM-1, NEM-2, NEM-4, NHL-2NA, NHL-4, NHL NHM-4NX, NHM-7, NHM-8, NPE-4, NPL-1, NPL NPM-10, NSB-8, NSB-9, NSM-9, RH-9.	4J, NHL-4U, NHL-6, NHL-8, NHM-1, NHM-4, 2, NPL-3, NPM-6, NPM-6X, NPM-8, NPM-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 a 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 different folder, click Browse and select another folder.		
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	24
Phoenix Service Software A Setup is performing the requested operations.	
Installing: common files	
15%	
Instaliphield	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.

Registering... C:\Program Files\Nokia\Phoenix\Framework\cmnisaeventmanagerfn.dll

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> 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.

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.

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

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 Phoe and all of its components?	nix Service Software A7 2003.9.2.3 application
ОК	Cancel

Progress of the uninstallation is shown.

InstallShield Wizard	×
Setup Status	
Phoenix Service Software Setup is performing the requested operation:	s.
Uninstalling: Product files	
C:\Program Files\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. *RH-20_dp_v1.0_sw3.02.exe*) to your computer (e.g. C:\TEMP)
- Close all other programs
- Run the application file (e.g. *RH-20_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 *RH-20_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 Wiza	rd	×
Extracting Files The contents of this package are being ex	tracted.	44
Please wait while the InstallShield Wizard e Data Package on your computer. This may	xtracts the files needed to take a few moments.	o install Phone
Reading contents of package		
InstallShield	< Back Next	> Cancel

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.		No.
NPL-3 Phone Data Package Installation Note! AMS Phoenix release 04.08.004 or new Close Phoenix before starting installation of the Installation package includes - MCU software release + language package: - Flash update package (FPS-8/FLS-4 promm - NPL_3.ini file, that includes - names of flash files InstallShield	er is required. Data Package. s (PPM) ier software update)	▲ ■ ■
	< 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			No.
To start installing the files, click Next.			
Current Settings:			
Installation path: C:\Program Files\Nokia\Phoe	enix		<u>_</u>
			V
Installahreid -	< <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 Finish 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/ "RH-20 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 *RH-20_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
🔞 Man	age Connections	- I ×
Priority	list: DNNECTION	Apply Revert
		<u>A</u> dd Delete
	Select mode	×
	Mode Wizard 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 > Cance	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.

K Manage Connections		
Priority list: FBUS COM3 FPS8 COM1 FBUS NO CONNECTION	▲ ▼	Apply 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	x		
<u>F</u> ile	<u>E</u> dit	<u>P</u> roduct	Flashing	<u>M</u> ainl
<u>1</u>	<u>l</u> ew Pi	ofile		
<u>(</u>	<u>]</u> pen F	rofile		
9	<u>S</u> ave F	rofile		
9	Save F	'rofile <u>A</u> s…		
<u>h</u>	<u>M</u> anag	e Connect	ions	
Ş	Scan <u>F</u>	roduct	Ctrl	-R
<u>[</u>	Choose	Product		
(Close F	roduct		

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® will guide you through the rest of the setup proces	Vizard, which s. 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 U	odate		×
Do you want to cor and all of its compo	npletely remove the nents?	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	×
Choose Destination Location Select folder where Setup will install files.	
Setup will install Flash Update in the following f	older.
To install to this folder, click Next. To install to another folder.	a different folder, click Browse and select
Destination Folder C:\Program Files\Nokia\Phoenix Install9hield	B <u>r</u> owse < <u>B</u> ack <u>Next</u> > Cancel

Installation continues...

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InstallShield Wizard	×
Setup Status	
Flash Update Setup is performing the requested operations.	
Installing: Flash Update files	
C:\Program Files\Nokia\Phoenix\Flash\fpga0306.mcs	
31%	
InstellShield	
	Cancel

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!

InstallShield Wizard	
	Maintenance Complete InstallShield Wizard has finished performing maintenance operations on Flash Update.
	< <u>B</u> ack. Finish Cancel

How to Update The FPS-8* Flash Prommer SW

Start Phoenix Service Software



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

🌠 P	🌾 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	
1 🗅	Ê		<u>E</u> PS-8	3 Flash			
	_		FPS-8	3 <u>C</u> Flash			
			FPS-8	37 FPS-	8C <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 S₩ 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	lone 🛛 🔀	
•	Prommer SW updated succesfully.	

K FPS-8 / FPS-8C Maintenance						
FPS-8 FPS-8C						
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		<u>D</u> elete
Flash size 16MB	u_cbusb.fia	Algo	3	004.015.000		Benort
Free Flack (b) Freezers	u_int_b.fia	Algo	4	004.015.000		
Fiee Fidsh (D) 16777216	u_inter.na u_st.fia	Algo	6	004.015.000		<u>R</u> eset
SRAM size 8MB	u_st_i.fia	Algo	7	004.015.000		<u>H</u> elp
Free SRAM (b) 8388608	t1_amd_b.fia	Algo	8 9	004.015.000		
Boot sw B0.09	t1_cbusb.fia	Algo	10	004.015.000		
EDCA [pga0306.mcs v0	t1_int_b.fia	Algo	12	004.015.000		
A210	t2_amd.fia	Algo	13	004.015.000		
Application JA2.10	t2_amd_b.ria t2_cbusb.fia	Algo Algo	14	004.015.000	T	- Activation/Deactivation
Selftest status		111		•	C	Activate
TEST OK Details	Log file write					Deac <u>t</u> ivate
Progress info						
Getting file information					_	
File information got						
FLASH size:16MB,						
SRAM size:8MB, Serial nbr:70943.						
SRAM memory used 0 of 8388608.	8388608 bytes left					_
FLASH memory used U or 16/7/216). 16777216 Dytes left.					_

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>	=
🐻 fps8upd.in					
File <u>n</u> ame:	fps8upd.ini			<u>O</u> per	n
Files of type:	Ini files (*.ini)		•	Canc	el

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.

🌠 P	hoen	ix				
<u>F</u> ile	<u>E</u> dit	<u>P</u> roduct	Flashing	<u>T</u> ools	$\underline{W} indow$	<u>H</u> elp
	Ê		<u>E</u> PS-8) Flash		
, —	_		FPS-8) <u>C</u> Flash		
			FPS-8	37 FPS-6	BC <u>M</u> ainter	iance

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

🌃 FPS-8 / FP	S-8C Maintenance					_ 🗆 ×
FPS-8 FPS-8	3C					
FPS-8 Info-		Flash box files				
S/N	70943	File name	Туре	File ID	Version 🔺	Update
HW	SE11.09	u_amd.fia	Algo	1	004.015.000	Delete
Elach oize		u_amd_b.ha u_cbusb.fia	Algo Algo	2	004.015.000	Based
1 10311 3126	Темв	u_int_b.fia	Algo	4	004.015.000	
Free Flash (b)	16777216	u_intel.fia	Algo	5	004.015.000	<u>R</u> eset
SBAM size	ISMB	u_st.ha	Algo	5	004.015.000	
		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	
Pootou	B0.09	t1_cbusb.fia	Algo	10	004.015.000	
DOOL SW		t1_intel.fia	Algo	11	004.015.000	
FPGA	fpga0306.mcs v0	t1_int_b.ha	Algo	12	004.015.000	
Application	A2.10	t2_amd_b_fia	Algo	14	004.015.000	- Activation /Deactivation
Application		t2_cbusb.fia	Algo	15	004.015.000	Activation/Deactivation
- Selftest status		1				<u>Activate</u>
TEST OK	Dgtails	Log file write				Deac <u>t</u> ivate
Progress info-						
Getting file inf	formation					
File informatio	in got					
HW ver:SF11	_09, CMD					
SBAM size:8	MB.					
Serial nbr:709	943,					
SRAM memor	ry used 0 of 8388608.	8388608 bytes left				_
FLASH memo	ory used U of 16/7721	5. 16777216 bytes left.				•
14						

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 in: 🔂	BoxActivation	- 🗈 💆	
I			
File <u>n</u> ame:			<u>O</u> pen
Files of type:	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

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.

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Choose Destination Loca	ation	×
	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 Browse < Back Next > Cancel]

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

Select Components		×
Select Components	Select full or custom installation Image: True Im	<u></u>
Instal Bhald		
	< <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
Instel 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

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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 Haldware 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>Herresh Status</u>	Update Firmware	

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

Select Firmwa	are File					<u> ? ×</u>
Look in: 🦳	FIRMWARE UPDATE		- 🗈	<u></u>	<u></u>	
JBV1V11.0	CDE					
esi2307.C	de					
				_		_
File <u>n</u> ame:	1				<u>0</u> pe	n
Files of type:	JBV-1 Firmware File			-	Cano	cel
		1 1			_	
	<u>R</u> efresh Status		<u>U</u> pdate I	Firmware	;	

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 su	uccesfully updated	
)K	
🕕 JBV-1 Firm	ware Update		_ 🗆 🗵
-Device Status-			
JBV-1 Conne	cted		
External powe	ersupply connected		
Firmware vers	ion 11		
Serial number	000000240007		
<u>R</u> efre	esh Status	Update Firmwa	re

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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

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

Autotuning

General

Autotune feature is designed to align product's RF part easier and faster. By this autotune component product is tuned automatically. User needs to press only one button (named 'Tune') and 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.

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



Autotune is a pair of two different components. First is User Interface and another is FunctioNal. UI does not contain any functionality. MTI takes care of phones messages.

Autotune can be done by two ways, with VSA-series (Agilent) meters and with CMU (Rohde & Schwarz) Radio Communication tester.

Autotune with VSA

The Autotune component can be found under Tuning menu:

🌃 Pl	hoen	iх									
File	Edit	Prod	uct	Flashing	Testing	Tuning	Tools	RD	Window	Help	
	2		lο	onnections:	EPS8.C	Auto	tune				
] =		111 00 0	Set L	oss				
						Energ	w Mana	aome	ont Calibrat	tion	

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.

Autotune with CMU

First of all you have to initialize GPIB-card.

Tools Window Help	
Fault Log Label Printing PPC/Fault Log Archive & Send	th Reset
Options IMEI/ESN Rebuild	Fault Log Settings GPIB Card
	JBV-1 Information Label Printing Configuration Product Polling R× Tuning Channel

🔀 GPIB Card				
Card Details Nu Type O None	Gpi 0	<u>E</u> dit <u>F</u> indListen <u>H</u> elp		
	Gpib:Card Setti	ings		x
	Card Number	0 💌		
	Card Type	None 💌		
	GPIB Address	NI CEC 8Bit CEC 16Bit None		
	OK	Cancel	Help	

Gpi	Gpib:FindListeners							
	Listeners							
	Pri Address	Sec Address	Identity 🔺					
	20	96	Rohde&Sch					
	20	97	Rohde&Sch					
	20	98	Rohde&Sch					
	20	99	Rohde&Sch 💶					
	1	100	Dobdo?Cob					
	OK	Cancel	Help					

After GPIB-card initializing you can go to Autotune part. First you have to set losses of jig and RF-cables. If you have PKD-1 or PKD-1P dongle it is not possible to set loss.

🌃 Phoenix	
File Edit Product Flashing Testing	Tuning Tools Window Help
📙 🗅 😅 🔚 🗍 Operating mode: 🛛 Loc	Auto Tune Display Tune Energy Management Calibration R× Channel Select Filter Calibration R× Calibration R× Band Filter Response Compensation R× DtoS Balance Calibration
	Set Loss
	T× IQ Tuning
	Tx Power Level Tuning

First set RF-cable losses. The example is for 1.5 m cable.

🌃 Set Loss		
Cable Jig Produ	ict	
Frequency	Loss	<u>L</u> oad
90000000	0.60	Save
180000000	1.00	
190000000	1.10	<u>H</u> elp

RH-20

Then set the jig losses. The example is for MJS-38.

🌃 Set Loss			_ 🗆 🗵
Cable Ji	9 Produ	ict	
Freq	uency	Loss	Load
1800	000000	0.60	<u>S</u> ave
9000	000000	0.30	<u>H</u> elp
MJS	-38	•	
<u>A</u> dd		<u>R</u> emove	

Finally choose the right product.

Set Loss		
Cable Jig Pr	oduct	
Product	Used Jig	Load
RH-20	MJS-38	Save
		<u>H</u> elp

The Autotune component can be found under Tuning menu.

🌃 Pl	hoeni	×							
File	Edit	Product	Flashing	Testing	Tuning	Tools	Window	Help	
	Â	📮 🛛 ո	nerating mo	ide: Locz	Auto	Tune			
	_		ponong mo		Energ	jy Mana	agement C	alibration	
					Rx C	hannel S	Select Filte	r Calibration	
					Rx Ci	alibratio	n		

Press Tune button and autotune will start.

🌾 Auto Tune	
	Iune Help

The results look like this.

*****			*****			Tuno
INITIALISATION		-	POWER LEVEL TUNE		-	Lune
*******************************			******			Help
ok			GSM 900			<u> </u>
			base	-29.91		
			5 - High PA	32.70		
************************************			6 - High PA	31.06		
CH SELECT FILTER			7 - High PA	29.10		
*************************			8 - High PA	27.17		
GSM 900			9 - High PA	25.21		
Dtos I	11.00		10 - High PA	23.22		
Dtos Q	11.00		11 - High PA	21.29		
Biguad Ir	9.00		12 - High PA	19.38		
Biguad Ic	13.00		13 - High PA	17.47		
Biguad Qr	11.00		14 - High PA	15.56		
Biguad Qc	15.00		15 - High PA	13.80		
Notch	21.00		16 - High PA	11.89		
			17 - High PA	10.16		
			18 - High PA	8.60		
***********************************			19 - High PA	6.95		
CALIBRATION						
*************************			GSM 900 EDGE (Sinale Slot)			
GSM 900			base	-14.87		
Afc Value	176.0	-	8 - High PA	27.71	T	

Environment

Hardware requirements:

PC with Windows 98/2000/NT

Power supply

Product specific module jig

RH-20

RF -cable

Rohde&Schwarz, CMU 200 Radio Communication Tester

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 those 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.



"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

Ĭ,	Rx Channel Sele	ct Filter Calib	ration				
	- HELGA Register					1	Start
	DTOS I Address			Rc	18		Tune
	DTOS Q Address			Rc	18	Save to Phone	Stop
	BBF1 Address	BIQUAD I R	18	BIQUAD I C	22		Help
	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 GSM900, then at GSM1800 and finally at GSM1900 band. If tuning is successful, it continues in the next band.

AFC tuning is done while GSM900 band RX Calibration is performed.

Remember to take jig and cable attenuations into account!

Select Tuning => Rx calibration



Press "Start" 'to start tuning.

🌃 Rx Calibration	
PM values:	<u>Start</u>
	Save & Continue
	Help

Set RF generator to required GSM900 frequency => OK

Set RF generator to required frequency => OK

Tuning step 1 of 3 - Rx Calibration with band EG5M900
Set the Rf signal generator:
Power level: -60 dBm
Input signal frequency: 942.467710 MHz
Press OK to tune, press Cancel or ESC to exit tuning process.
OK Cancel

Tuning values and ADC readings are shown.

Typical values and limits in GSM900 RX Calibration:

GSM900	Typical value	Low limit	High limit
Afc value:	130	-350	350
Afc slope:	140	90	165

900						
		typ	min	max		
rssi	0	65	55	75		
rssi	1	71	61	81		
rssi	2	77	67	87		
rssi	3	83	73	93		
rssi	4	89	79	99		
rssi	5	94	84	104		
rssi	6	100	90	110		
rssi	7	106	96	116		
rssi	8	112	102	122		
rssi	9	118	108	128		
rssi	10	124	114	134		
rssi	11	130	120	140		
rssi	12	136	126	146		
rssi	13	142	132	152		
rssi	14	148	138	158		

Press "Save and continue", then starts GSM1800 calibration.

Set RFgenerator to required GSM1800 frequency => OK



Tuning values and ADC readings are shown.

1800						
		typ	min	max		
rssi	0	63	53	73		
rssi	1	69	59	79		
rssi	2	75	65	85		
rssi	3	81	71	91		
rssi	4	87	77	97		
rssi	5	92	82	102		
rssi	6	98	88	108		
rssi	7	104	94	114		
rssi	8	110	100	120		
rssi	9	116	106	126		
rssi	10	122	112	132		
rssi	11	128	118	138		
rssi	12	134	124	144		
rssi	13	140	130	150		
rssi	14	146	136	156		

Typical values and limits in (GSM1800) RX Calibration

Press "Save and continue", then starts GSM1900 calibration.

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

Tuning step 3 of 3 - Rx Calibration with band GSM1900 🛛 🗙
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.

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

1900						
		typ	min	max		
rssi	0	66	56	76		
rssi	1	72	62	82		
rssi	2	78	68	88		
rssi	3	84	74	94		
rssi	4	90	80	100		
rssi	5	94	84	104		
rssi	6	99	89	109		
rssi	7	105	95	115		
rssi	8	111	101	121		
rssi	9	117	107	127		
rssi	10	123	113	133		
rssi	11	129	119	139		
rssi	12	135	125	145		
rssi	13	141	131	151		
rssi	14	147	137	157		

Press "Save and continue".

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 GSM900, 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



Press "Start" to start tuning with values already saved to the phone

K R× Band Filt	er Response Compensation evel (dBm): -80 🔹	1			<u> </u>
Channel	Input Frequency (MHz)	Measured Level Difference (dB)	-	[Save & <u>C</u> ontinue Help
				-Tuning mode ○ <u>A</u> utomatic ⓒ <u>M</u> anual	
			•	Copying table to clipboard: press mouse left button on the left top of the table (with text 'Channel').	

Select "Manual tuning" and tuning starts.

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

The tuning begins from GSM900 band and continues the same way for GSM 1800 and GSM1900 bands

Set the first required frequency and level => OK

Tuning step 1 of 3 - Rx Band Filter Response Compensation for EG5M900	×
Manual Tuning - stage 1 of 9.	
Set the Rf signal generator:	
Power level: -80 dBm + cable attenuation	
Input signal frequency: 923.26771 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

Set the 2nd required frequency and level => OK

-		
T	uning step 1 of 3 - Rx Band Filter Response Compensation for EGSM900	×
	Manual Tuning - stage 2 of 9.	
	Set the Rf signal generator:	
	Power level: -80 dBm + cable attenuation	
	Input signal frequency: 925.26771 MHz	
	Press OK to tune, press Cancel or ESC to exit tuning process.	
	OK Cancel	

Set the 3rd required frequency and level => OK

Tuning step 1 of 3 - Rx Band Filter Response Compensation for EGSM900	×
Manual Tuning - stage 3 of 9.	
Set the Rf signal generator:	
Power level: -80 dBm + cable attenuation	
Input signal frequency: 927.66771 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

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

Tuning step 1 of 3 - Rx Band Filter Response Compensation for EG5M900	×
Manual Tuning - stage 4 of 9.	
Set the Rf signal generator:	
Power level: -80 dBm + cable attenuation	
Input signal frequency: 932.06771 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

Set the 5th required frequency and level => 0K

Tuning step 1 of 3 - Rx Band Filter Response Compensation for EGSM900	×
Manual Tuning - stage 5 of 9.	
Set the Rf signal generator:	
Power level: -80 dBm + cable attenuation	
Input signal frequency: 942.46771 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

Set the 6th required frequency and level => 0K

Tuning step 1 of 3 - Rx Band Filter Response Compensation for EGSM900	×
Manual Tuning - stage 6 of 9.	
Set the Rf signal generator:	
Power level: -80 dBm + cable attenuation	
Input signal frequency: 953.06771 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

Set the 7th required frequency and level => 0K

Tuning step 1 of 3 - Rx Band Filter Response Compensation for EGSM900	×
Manual Tuning - stage 7 of 9.	
Set the Rf signal generator:	
Power level: -80 dBm + cable attenuation	
Input signal frequency: 957.86771 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

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

Tuning step 1 of 3 - Rx Band Filter Response Compensation for EG5M900	×
Manual Tuning - stage 8 of 9.	
Set the Rf signal generator:	
Power level: -80 dBm + cable attenuation	
Input signal frequency: 959.86771 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

Set 9th required frequency and level => OK



🌃 Rx Band Filte	er Response Compensation			
Input Signal Le	vel (dBm): -80		Ľ	<u>S</u> tart
Channel	Input Frequency (MHz)	Measured Level A Difference (dB)	<u>[</u>	Save & <u>C</u> ontinue
965	923.26771	-2.313		Help
975	925.26771	-0.750	_	
987	927.66771	-0.313	- Tuping mode	
1009	932.06771	-1.234	Taning mode	
37	942.46771	0.078	C Automatic	
90	953.06771	0.078	💿 <u>M</u> anual	
114	957.86771	-0.313		
124	959.86771	-1.359		
136	962.26771	-2.313		
		0.000	Copying table to clipboard: press mouse left button on the left top of the table (with the tot (Charanal)	
			(with text Channel).	

	Input		
Channel	Frequency (MHz)	Low limit (dB)	High limit (dB)
965	923.26771	-10	3.5
975	925.26771	-3.5	3.5
987	927.66771	-3.5	3.5
1009	932.06771	-3.5	3.5
37	924.46771	-3.5	3.5
90	953.06771	-3.5	3.5
114	957.86771	-3.5	3.5
124	959.86771	-3.5	3.5
136	962.26771	-10	3.5

Limits in Rx Band Filter Response Compensation GSM900:

If the values shown are within limits, press "Save and continue" to save values to the phone, then the GSM1800 tuning starts automatically.

Repeat the same steps as for the GSM900 band above.

	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

Limits in Rx Band Filter Response Compensation GSM1800:

If the values shown are within limits, press "Save and continue" to save values to the phone, then the GSM1900 tuning starts automatically.

Repeat the same steps as for the GSM900 and GSM1800 bands above.

Limits in Rx Band Filter Response Compensation GSM1900:

Channel	Input 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

If the values shown are within limits, press "Save and continue" 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 GSM900, 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

12 Phoen	ix					
File Edit	Product Flashing	Testing	Tuning	Tools	Window	Help
🗋 🕞 🔚 🗍 Operating mode: 🛛 Loca		Autotune Energy Management Calibration Rx Channel Select Filter Calibration Rx Calibration Rx Band Filter Response Compensation				
		Rx Am Suppression				
Rx DtoS Balance Calibration		ation				
Tx Power Level Tuning						
		T× IQ Tuning				

Press "Start" to begin tuning.

1/6 Phoenix				
File Edit Product Flashing Testing Tuning Tools Window Help				
🗅 😂 🔚 🛛 Operating mode: 🛛 Local 🖃 🖉 Read 🚽 Band: GSM 900 💌				
🔀 Rx Am Suppression				
Rf Generator's settings: L0_1 sign 0-6 bits 0 0 0 L0_Q sign 0-6 bits 0 0 0 0	Save & Continue			

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

Tuning step 1 of 3 - RxAm Suppression with band EG5M900	X
Set the Rf signal generator:	
Power level: -23 dBm	
AM modulation: 83 %	
Modulation signal frequency: 1 kHz	
Input signal frequency: 952.467710 MHz	
Press OK to tune, press Cancel or ESC to exit tuning process.	
OK Cancel	

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

<u>S</u> tart
Save & <u>C</u> ontinue
Help

Tuning continues automatically at GSM1800 band.

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

Tuning step 2 of 3 - RxAm Suppression with band GSM1800	×
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".



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".

<u>S</u> t	art
Save & (Continue
<u>H</u> e	elp

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



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 GSM900, 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 GSM900 band.



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Press "Start" to start tuning.

Rx Dto5 Balance Calibration	
DtoSI DCRange: Value:	Save & Continue
DtoS Q DC Range: Value: Value:	

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

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

If values shown are within limits, press "Save and continue" to save values to the phone

KRx DtoS Balance Calibration	
DtoS I DC Range: 1 Value: 10	Save & Continue
DtoS Q DC Range: 0 Value: 52	<u>H</u> elp

GSM1800 and GSM1900 are calibrated automatically. If values are within limits, press "Save and continue" to save values to the phone.

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

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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 GSM900/EDGE, then continue at GSM1800/EDGE band and finally at the GSM1900/EDGE band.

Tuning => Tx power level tuning



🌃 Tx Power Level Tuning	
Press Start to begin Tx Power Level Tuning	Save & Continue Band: Tx PA mode:
	<u>H</u> elp

Set up spectrum analyzer accordingly.

Remember to take the jig and cable attenuations into account!

Spectrur	n Analyzer Settings: Edg	e OFF tuning	×
i	Frequency:	897,4 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	
		ОК	

The coefficient table lists the power level, coefficient and target dBm 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.

Use only High-mode (TxPA mode).

🔞 Tx Power Level Tuning				
	Coefficient	Target dBm	Start	
5	0.7790	32.5		
6	0.6829	31.0	Save & C <u>o</u> ntinue	
7	0.5873	29.0		
8	0.5052	27.0		
9	0.4366	25.0		
10	0.3803	23.0		
11	0.3353	21.0	D	
12	0.2984	19.0	Band: Julian 200	
13	0.2696	17.0	Tx PA mode: High	
14	0.2465	15.0	,	
15	0.2279	13.0		
16	0.2133	11.0		
17	0.2018	9.0		
18	0.1926	7.0		
19	0.1856	5.0		
Base	<u>0.1505</u>	-30.0		
Test	0.1505			
Tx channel: 37 Frequency: 897.40 MHz				

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

Press "Save and continue".

Typical values: GSM900

Power level	Coefficient
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 EDGE900.

Set up spectrum analyzer accordingly.

Frequency:	897,4 MHz	
Resolution Band Width	3 kHz	
Video Band Width	3 kHz	
Video Trig	Free Run	
Sweep Time	3 s	
Span	200 kHz	
Detector	мах геак	
_		
	ок	

Press "OK" and start tuning.

Tx Pov	ver Level Tun	ing	
	Coefficient	Target dBm	<u>S</u> tart
8	0.8328	27.0	
9	0.7302	25.0	Save & C <u>o</u> ntinue
10	0.6588	23.0	
11	0.6061	21.0	
12	0.5679	19.0	
13	0.5288	17.0	
14	0.4985	15.0	Bandt GSM 900
15	0.4741	13.0	Band: Jushi 300
16	0.4829	11.0	Tx PA mode: High
17	0.4614	9.0	
18	0.4418	7.0	
19	0.4272	5.0	
Base	0.3343	-30.0	
Test	0.3343		
000	0.0040		
Tx chan Frequen	nel: 37 cy: 897.40 MH	z	Help

Tune all power levels to target level. Use only High-mode (TxPA mode).

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			
ОК					

Press "OK" and start tuning.

	Coefficient	Target dBm	<u>S</u> tart
0	0.7293	29.5	
1	0.6521	28.0	Save & C <u>o</u> ntinue
2	0.5831	26.0	
3	0.5242	24.0	
4	0.4737	22.0	
5	0.4306	20.0	
6	0.3934	18.0	р. (1747.8 МН:
7	0.3615	16.0	Band: 11747,0 Mills
В	0.3339	14.0	Tx PA mode: High
9	0.3102	12.0	
10	0.2896	10.0	
11	0.2640	8.0	
12	0.2568	6.0	
13	0.2437	4.0	
14	0.2326	2.0	
15	0.2191	0.0	
Base	0.1554	-30.0	
Test	0.1554		

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

Typical values: GSM1800

Power level	Coefficient
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		×
i	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	0.7771	26.0		
3	0.7703	24.0	Save & Continue	
4	0.6237	22.0		
5	0.5767	20.0		
6	0.5513	18.0		
7	0.5103	16.0		
8	0.4800	14.0	Panet GSM 1800	
9	0.4565	12.0	Band.	
10	0.4360	10.0	Tx PA mode: High	
11	0.4213	8.0		
12	0.4174	6.0		
13	0.4008	4.0		
14	0.3891	2.0		
15	0.3763	0.0		
Base	0.3157	-30.0		
Test	0.3206			
Tx channel: 700 Frequency: 1747.80 MHz		Hz	<u>H</u> elp	

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.

Edge OFF	tuning		×		
(i)	Frequency:	1880,0 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!

Press "OK" and start tuning.

	Coefficient	Target dBm	<u>S</u> tart
0	0.8108	29.5	
1	0.7216	28.0	Save & C <u>o</u> ntinue
2	0.6226	26.0	
3	0.5423	24.0	
4	0.4767	22.0	
5	0.4229	20.0	
6	0.3786	18.0	- · 1000.0 MU
7	0.3422	16.0	Band: 1000,0 MH.
8	0.3121	14.0	Tx PA mode: High
9	0.2873	12.0	1.2
10	0.2669	10.0	
11	0.2503	8.0	
12	0.2368	6.0	
13	0.2262	4.0	
14	0.2180	2.0	
15	0.2122	0.0	
Base	0.1476	-30.0	
π.	01476		

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	Coefficient
0	0.5800.700

Power level	Coefficient
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

<u>S</u> tart	
Save & C <u>o</u> ntinue	

F

Tuning continues at EDGE1900.

Set up spectrum analyzer accordingly.

Edge ON	tuning		×
i	Frequency:	1880,0 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]	

🕼 Tx Power Level Tuning 📃 🔲 🕽			
		-	
	Coefficient	Target dBm	Start
2	<u>0.8710</u>	26.0	Saue & Continue
3	0.7605	24.0	Save & Continue
4	0.6813	22.0	
5	0.6217	20.0	
6	0.5885	18.0	
7	0.5435	16.0	
8	0.5077	14.0	Rand: GSM 1900
9	0.4800	12.0	
10	0.4594	10.0	Tx PA mode: High
11	0.4418	8.0	
12	0.4448	6.0	
13	0.4282	4.0	
14	0.4145	2.0	
15	0.4008	0.0	
Base	0.3216	-30.0	
Test	0.3245		
Tx chan Frequen	nel: 661 cy: 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.

TX I/Q Tuning

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 & Co</u> ntinue
TX Q DC offset:	Durch
Amplitude difference:	Band:
Phase difference:	<u>C</u> lose <u>H</u> elp

Press "Start" and tuning will begin at GSM900 band.

Adjust spectrum analyzer accordingly.

Edge OFF	tuning. Set the spectrur	n analyzer.	×
(i)	Frequency:	897,4 MHz	
Y	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.

🕼 Tx IQ Tuning	
TX I DC offset: -0.500 -100 % 100 %	<u>Save & Continue</u>
TX Q DC offset: 0.100 -100 % 100 %	Band: GSM 900
Amplitude difference: 0.0 -6.0 6.0	
Phase difference: 89.5 27.0 ° 153.0 ° 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<u>C</u> lose <u>H</u> elp

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/EDGE900, GSM/EDGE1800 and GSM/EDGE1900):

Tuning limits:	
I DC Offset	-6+6
Q DC Offset	-6+6
Amplitude difference	-1+1
Phase difference	- 80°…100°

When the IQ spectrum is balanced, "Save & Continue" to EDGE900 TX IQ tuning.

Spectrum analyzer settings are the same as for GSM900 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 spect	trum ar	alyzer accordingly	y.	
E	dge OFF (uning. Set the spectru	×	
	i	Frequency:	1747,8 MHz	
	Y	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 1800 use the same settings.

Adjust spectrum analyzer accordingly.

Edge OFF	tuning. Set the spectru	n analyzer.	×
(i)	Frequency:	1880,0 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]	

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.

Service Concept for RH-20* Baseband tunings



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			-
🔽 Batteru Voltage	SCAL Offset [mV]			Read From Phot
je pakoly Tokago	SCAL Gain			Help
🔽 Charger Voltage	VCHAR Gain			
🔽 Charge C <u>u</u> rrent	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

K 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				
	FM Radio TR 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

ltem	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

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
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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

Item:	Service accessory:	Туре:	Product code:
1	Docking station	JBV-1	0770298
2	Docking station adapter	DA-13	0770613
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		

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