



ROHDE & SCHWARZ

Test and Measurement
Division

Release Notes

Phase Noise Test

Application Firmware R&S FS-K40

Release 4.10

with Service Pack 1

for R&S FSP/FSU/FSQ Analyzer Firmware V4.1x

Release Note Revision: 4

Printed in the Federal
Republic of Germany

Contents

History	2
General Topics	3
Compatibility of the R&S FS-K40 Phase Noise Application Firmware with other Firmware Releases	3
Firmware Update of the R&S FS-K40	4
Generation of the update disk set.....	4
Preparing installation via LAN or USB stick:.....	5
Performing the Application Firmware Update on the Instrument.....	5
Enabling the Application Firmware via License Key Code Entry	5
New Functions in version 4.10	6
Modified Functions.....	6
Problems Eliminated with option R&S FS-K40 Phase Noise Test Application Firmware	7
Manual Operation and IEC/IEEE Bus.....	7
IEC/IEEE Bus only	7
Problems eliminated with Service Pack 1	7
Known problems	7
Manual Operation and IEC/IEEE Bus.....	8
Modifications to the Operating Manual	8
Modified Chapters for manual operation	8
Modified Chapters for remote operation.....	8
Appendix: Contact to our hotline.....	9

History

<u>Date</u>	<u>Rel Note Rev</u>	<u>Changes</u>
28 March 2007	1	First revision for Phase Noise Application Firmware 4.10.
22 May 2007	2	Command DISP:WIND:TRAC:SMO:TYPE added.
13 August 2007	3	Version number corrected.
21 August 2007	4	Problems eliminated with Service Pack 1 added.

General Topics

Compatibility of the R&S FS-K40 Phase Noise Application Firmware with other Firmware Releases

The following table shows the compatible versions of the basic analyzer firmware and the Phase Noise Application Firmware:

Table of compatible versions:

R&S FS-K40 Application Firmware	R&S FSP Basic Firmware	R&S FSU Basic Firmware	R&S FSQ Basic Firmware	R&S FSMR Basic Firmware
4.10 SP1	4.10	4.11	4.15	-
4.10	4.10	4.11	4.15	-
4.00	4.00	4.01	4.05	-
3.90	3.90	3.91	3.95	3.96
3.80	3.80	3.81	3.85	3.86
3.70	3.70	3.71	3.75	3.76
3.60	3.60	3.61	3.65	3.66 SP1

Firmware Update of the R&S FS-K40

The R&S FS-K40 Phase Noise Application Firmware package is available with its own version number. This application firmware package requires an appropriate basic instrument firmware version. Compatible revisions are shown in the table above.

Please make sure to have the correct basic firmware version installed prior to installing the R&S FS-K40 Phase Noise Application Firmware. Please refer to the basic firmware version release notes for firmware update information of the basic firmware.

Generation of the update disk set

The files needed for the R&S FS-K40 Phase Noise Application Firmware update are available in the FIRMWARE section of the Service Board on GLORIS (R&S FS-K40).

If you already have the update disk set you can skip this paragraph.

They are grouped according to the disk contents:

Disk 1:	disk1.bin	(self-extracting ZIP file)
Disk 2:	data3.cab	(packed contents of disk 2, will be automatically unpacked by FW update)
Disk 3:	data4.cab	(packed contents of disk 3, will be automatically unpacked by FW update)
Disk 4:	data5.cab	(packed contents of disk 4, will be automatically unpacked by FW update)

The contents of disk 1 are packed in a self-extracting ZIP file and need to be unzipped. For this purpose the following steps are necessary:

1. Create a temporary directory on your local PC (e.g. MyTemp\Extensions\K40 on drive C:)
2. Copy disk1.bin into that directory and rename it to disk1.exe
3. Execute disk1.exe. Under Windows XP this is done best using the following sequence:
<CTRL><ESC> - RUN – C:\MyTemp\Extensions\FSK40\DISK1 - <ENTER> or
<CTRL><ESC> - AUSFÜHREN – C:\MyTemp\Extensions\FSK40\DISK1 - <ENTER> for a German version.

The files will be unzipped.

4. Delete disk1.exe from the temporary directory.

The temporary directory will now contain the following files:

data1.cab	data1.hdr	data2.cab	dax1_6.txt	ExecCtrl.exe	id.txt
ikernel.ex_	ISSetup.exe	layout.bin	RestInst.exe	Setup.exe	Setup.ini
setup.inx					

Please make sure that all the filenames are spelt correctly on your disks before you try to use them for the firmware update. Especially the trailing underscore ('_') as used in ikernel.ex_ is essential for correct operation of the update program.

5. Copy the contents of the temporary directory onto update disk #1.

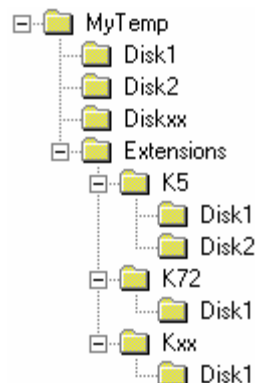
The contents of the other disks are already packed in the format required by the firmware update program and need no further processing. The files only need to be copied onto disks #2, #3 and #4, the number in the filename (minus 1) indicating the corresponding disk number (data3.cab => disk #2, data4.cab => disk #3 and data5.cab => disk #4etc).

Preparing installation via LAN or USB stick:

If the installation shall be done via LAN or USB stick please set up the following directory structure:

Copy all files as mentioned in the previous section in the directories ..\MyTemp\Extensions\FSK40\Disk1 – Disk4.

Since version 3.40 the directory path can contain more the 64 characters.



Performing the Application Firmware Update on the Instrument

The Application Firmware update process is performed in the following steps:

- Switch the instrument on and wait until the Analyzer has resumed operation.
- For updates from LAN or USB use the SETUP | NEXT | FIRMWARE UPDATE | UPDATE PATH softkey to specify any path for the location of the Disk1 directory (e.g. F:\MyTemp\Extensions\K40). For floppy usage the default A:\ must not be changed
- Press SETUP → NEXT → FIRMWARE UPDATE
- Confirm the query "Do you really want to update the firmware?" with OK
- Insert update disk #1 to #4 as requested (for LAN or USB just confirm the copy process)
- The instrument will perform several automatic shutdowns, until the new firmware is installed properly.
Do not switch the instrument off until the update process has been finished completely.

After switching on the instrument for the first time after a successful firmware update it is necessary to execute the instrument's self alignment process by pressing CAL and softkey CAL TOTAL.

Note: A simplified update process is available if base system firmware 4.1x or newer is installed. More details are described in the release note of the base system firmware.

Enabling the Application Firmware via License Key Code Entry

This section can be skipped if the option key was entered once.

After installing the application firmware package a license key for validation must be entered. The license key is printed either on a label on the rear panel of the instrument or delivered as a part of the R&S FS-K40 Phase Noise application firmware package.

The key sequence for entering the license key is:

SETUP - GENERAL SETUP – OPTIONS - INSTALL OPTION

Use the numeric keypad to input the license key number and press ENTER.

- On a successful validation the message 'option key valid' will appear. The instrument will perform an automatic reboot.
- If the validation failed, the application firmware is not installed.
The most probable reason will be that the instrument is not equipped with the correct basic firmware version. Therefore a messagebox will appear asking for installation of the correct basic firmware version.

If the application firmware package was not installed prior to entering the license key code, a message will appear asking for installation of the application firmware package.

In any case please make sure that the correct basic firmware version and the application firmware package is installed prior to entering the license key code..

New Functions in version 4.10

None

Modified Functions

The behaviour of the following functions changed compared to earlier versions [the number in brackets indicates the firmware version that introduced the individual change]:

1. [V3.70] Selection of Logarithmic or Linear smoothing

2. [V3.70] Automatic Frequency and Level Control

3. [V3.70] Support for pre-amplifier

4. [V3.70] New function Reference Measurement

5. [V3.70] New softkey Preset Option

6. [V3.70] Changes to the General Settings and Measurement Settings screens

Softkeys have been added that will select various parameters in the settings screens with a single key press.

7. [V3.70] Improvements to the Verify Frequency and Level functionality

Verify frequency and level has been improved to be more reliable.

8. [V3.70] Changes to Measurement Settings

- The 10 kHz RBW filter no longer defaults to FFT mode.
- The 30 MHz RBW filter is not selectable.

9. [V3.80] Trace Math Functionality

The trace stored in TRACE3 may be subtracted from TRACE1 or TRACE2 using the trace math submenu of the trace softkey menu.

10. [V3.80] Trace Offset

If a non-zero trace offset is set by the user it will be shown on the trace display.

11. [V3.80] Max Hold Trace

A max hold trace mode is now available in the trace menu and via remote control.

12. [V3.80] The use FFT softkey in the measurement settings is now an ON/OFF toggle.

13. [V3.80] A SMOOTHING% softkey has been added to the general settings menu.

14. [V3.80] Obtaining residual noise and spot noise for trace 2 and 3 using remote control.

It is now possible to obtain the residual noise and spot noise results for trace 2 and trace 3.
FETCh:PNOIse1:RFM/RPM/RMS or FETCh:PNOIse2:RFM/RPM or FETCh:PNOIse3:RFM/RPM

15. [V4.00] Spot Noise Table

Spot Noise Results display now shows the selected trace from which the results are calculated.

16. [V4.10] ASCII Trace Export now allows exporting to floppy/usb.

17. [V4.10]. Printing: Optimized colours are now used for printing.

- 18. [V4.10]. IEC/IEEE Bus: *TRACe:DATA* command now supports output in binary format. (By setting: *FORMat:DATA REAL*)
- 19. [V4.10]. IEC/IEEE Bus: OPC Handling for ibclear (device clear)

Problems Eliminated with option R&S FS-K40 Phase Noise Test Application Firmware

The version numbers in brackets indicate the version in which the problem was observed for the first time.

- 1. [V4.00] Residual Results (PM, FM & RMS Jitter) were inaccurate for certain subspans
This has now been corrected.

Manual Operation and IEC/IEEE Bus

None

IEC/IEEE Bus only

None

Problems eliminated with Service Pack 1

Service Pack 1 fixes the following problems. The version numbers in brackets indicate the version in which the problem was observed for the first time.

- 1. [V4.10] **Incorrect Display of Measurement Settings Dialog**

On certain instruments (FSP with CPU board 1091.2895, FSU and FSQ with CPU board 1091.3104), the Measurement Settings Dialog did not fit the display area. This has now been corrected.

Known problems

The version numbers in brackets indicate the version in which the error was observed for the first time.

Manual Operation and IEC/IEEE Bus

1. (K40 V3.60) Estimated measurement times

The estimated measurement times displayed in the Meas Settings view are too low. They represent the time for a sweep to execute in ideal circumstances, and do not include processing time or time to execute the verification sequence.

2. (K40 V3.60) Delta Marker display

If the difference between a normal and delta marker is large (e.g. 100 MHz) incrementing and decrementing the delta marker by small increments may have no effect. If the marker does move it is not possible to see the change in marker value as not enough decimal places are shown when the marker value is ~MHz and is in the Hz range of the trace.

3. (K40 V3.60) Soft front panel

The setting parameter does not update when the numeric keys are pressed on the soft front panel. Pressing return to enter the value shows that the keystrokes have been received and the parameter updates correctly.

Modifications to the Operating Manual

The R&S FS-K40 Phase Noise application functions are included in a separate manual set. Please refer to the following order numbers:

- 1301.9675.42-01- (German and English)

Modified Chapters for manual operation

None

Modified Chapters for remote operation

DISPlay[:WINDow<1|2>]:TRACe<1...3>:SMOothing:TYPE

This remote control command specifies whether LINear or LOGarithmic smoothing is to be used when trace smoothing is performed.

Example: "DISP:TRAC1:SMO:TYPE LIN" sets the smoothing type for trace 1 to linear smoothing.

Characteristics: *RST value: LIN
SCPI: conforming

Mode: FSUP/FS-K40

Appendix: Contact to our hotline

Any questions or ideas concerning the instrument are welcome by our hotline:

USA & Canada

Monday to Friday (except US public holidays)

8:00 AM – 8:00 PM Eastern Standard Time (EST)

Tel. from USA 888-test-rsa (888-837-8772) (opt 2)

From outside USA +1 410 910 7800 (opt 2)

Fax +1 410 910 7801

E-mail Customer.Support@rsa.rohde-schwarz.com

East Asia

Monday to Friday (except Singaporean public holidays)

8:30 AM – 6:00 PM Singapore Time (SGT)

Tel. +65 6 513 0488

Fax + 65 6 846 1090

E-mail Customersupport.asia@rohde-schwarz.com

Rest of the World

Monday to Friday (except German public holidays)

08:00 – 17:00 Central European Time (CET)

Tel. from Europe +49 (0) 180 512 42 42

From outside Europe +49 89 4129 13776

Fax +49 (0) 89 41 29 637 78

E-mail CustomerSupport@rohde-schwarz.com