

Important: After update a switch off at the rear panel and a restart may be necessary due to a new FPGA version!



ROHDE & SCHWARZ

Test and Measurement
Division

Release Notes

Firmware Release V1.81SP1

for R&S FSL Spectrum Analyzers

with order number: **1300.2502.xx**

New Features of V1.80/V1.81:

- Support for FSL18. The FSL spectrum analyzer up to 18 GHz.
- Support of Spectrum Emission Mask measurement in base spectrum analyzer
- Support of Spurious Emission measurement in base spectrum analyzer
- Support of RFID 14443 within ACP measurement
- Support of range linear % as default linear display in spectrum mode
- Support of y-unit % within CCDF and APD measurement
- Support of transducers in IQ measurements, CCDF/APD measurement as well as in video trigger mode
- Support of Q-factor reading in ndBdown measurement
- Within MC ACP measurement the TX spacing is now definable between every TX carrier
- GPIB address saved permanently directly after editing the address
- Shutdown behaviour selectable between standby and switching off the device
- Black background screen for print out selectable
- Marker peak list can now also be exported as ASCII list
- FSL-K92/K93: Support for controlling the pre-amplifier via remote control
- FSL-K92/K93: Support for setting hold off and hysteresis settings for the IF power trigger
- FSL-K92/K93: Closes point to failure points available via remote control for spectrum flatness and spectrum flatness difference results

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History

Date	Rel Note Rev	Changes
21. July 2008	1	First revision for V1.81SP1

General Topics

Prerequisite for Firmware Update

Attention: In order to ensure a correct firmware update a minimum version 2.03 of the FSL XP Image is required.

The XP image version is shown during start-up. When the R&S FSL splash screen appears the “XP Image Version” is shown in the top left corner. The minimum required XP image version is 2.03. (The information is also available in the registry, use regedit HKEY_LOCAL_MACHINE/Software/Image/MajorVersion and /MinorVersion. The decimal values in brackets are the valid ones. MajorVersion (2) and MinorVersion (1) means 2.01)

If the XP image version is 2.01 the “XP Image Update 2.03 for FSL” or newer is required to install before proceeding any further firmware installations. The “XP Image Update for FSL” with its own release notes can be downloaded from the R&S internet in the FSL download section. Please install the XP image update according to its release notes.

Without the minimum XP image version 2.03, the firmware update will complete without any effect and the firmware version will remain unchanged (Setup | More | System Info | Versions+Options: Table entry Instrument shows the old firmware version number)

Firmware Update

If the XP Image Update fulfils the prerequisite (see chapter above) the firmware update can be carried out.

The firmware update set of the R&S FSL consists of one package file (with the extension .package) and the following installation files (with the extension .msi):

FSL.package	SA-*_FSL.msi	K30-*_FSL.msi
CO-*_FSL.msi	SP-*_FSL.msi	K72-*_FSL.msi
HW-*_FSL.msi	LxiClassC-*_FSL.msi	K91-*_FSL.msi
KS-*_FSL.msi	K20-*_FSL.msi	K92-*_FSL.msi

The * is the placeholder for a detailed version information of that file.

Copying the installation files to the instrument

To install a new firmware version the installation files of the new version have to be copied to the instrument. This can be done in several ways:

Using a memory stick:

- Copy all files to a directory of the memory stick (the default path is D:\FW_UPDATE).
- Insert the memory stick into one of the USB sockets at the front panel of the R&S FSL.

Using the remote desktop and copying the installation files to a directory of the instrument:

- Connect the R&S FSL to your LAN.
- Start the remote desktop on your PC (C:\winnt\system32\mstsc.exe).
- Enter the TCP/IP address of the instrument, you want to update. Ensure that the **local resources→drives** option is selected and press the **Connect** button.
- Login to the instrument (user name and password are by default "instrument").
- To get the TCP/IP address of the instrument, in the **Start** menu, select **Settings → Network Connections → Local Area Connection (2) → Properties**, select **Internet protocol (TCP/IP)** and press the **Properties** button.
An edit dialog box with the **IP address** field is displayed. The IP address consists of 4 numbers between 0 and 255.
- After the login, create an own directory and copy all installation files from your PC to the instrument using the explorer at the instrument (the drives of your PC are listed in the folder window of the explorer as well as the local drives of the instrument).

Performing the firmware update on the instrument

The firmware update process is performed in the following steps:

- Switch the instrument on and wait until the Analyzer has resumed operation.
- Press the **SETUP** hard key, go to the side menu using the **More** softkey, and press the two softkeys **Firmware Update** one after the other.
A dialog box is displayed. If necessary, change the default path to locate the installation files (enter the path name using an external keyboard or the keypad at the front panel of the instrument or use the **Browse** button).
- Press the **Execute** button to start the update.
The instrument firmware is shutting down and a dialog box is displayed. By default all the installation packages for the basic analyzer firmware available at the path you entered are selected.
- Firmware applications (e.g. FSL-K20) appear at the end of the list and can be selected with the key.
- Press the **Install** button.
The installation is running. After a few minutes the system will restart automatically. After the restart the firmware installation is complete.
- After the firmware update the UNCAL flag appears. A self alignment is necessary. Press the **SETUP** hard key, **Alignment** and the **Self Alignment** to start the alignment procedure.
- Depending on the previous firmware version a reconfiguration of the hardware may be required during the first start of the firmware. In this case the following message box will be displayed:
"Start automatically reload of PCI FPGA ..."
The update will be performed automatically.

Afterwards, a message box with the following text will be displayed:

"Finished automatically reload of PCI FPGA. Reboot the device!"

Now, please turn off the instrument at the rear panel.

If you have an instrument with options FSL-B30 (DC power supply) and FSL-B31 (battery pack), please switch off the instrument at the front panel too. Wait until the instrument is completely switched off.

After a few seconds, you can restart the instrument.

For problems with firmware installation see the chapter "Appendix: Installation troubleshooting" at the end of this document.

Firmware installation of the R&S FSL-K7 analog demodulator, R&S FSL-K8 BLUETOOTH Analyzer software, R&S FSL-K9 power sensor measurement and R&S FSL-K14 spectrogram measurement

The R&S FSL-K7, R&S FSL-K8, R&S FSL-K9 and R&S FSL-K14 application software packages are included in the basic instrument firmware. Therefore they do not need a separate firmware update procedure.

Firmware installation of the R&S FSL-K20/K72/K91/K92/K93/LxiClassC

As mentioned in the firmware update description above, these applications have their own installation file and are therefore added to the selection list. Simply check it with the key if their installation is requested.

The LXIClass C observer can be switched ON or OFF after installation. Default state is OFF. To switch it ON either use a USB keyboard and press Ctrl + ESC or use the next tab key () + ESC/CANCEL on the front key. Select the LXI item in the start menu and press ENTER to TURN LXI ON. An LXI configuration window occurs. Please select RESCAN with the FIELD TAB keys and press ENTER. Then select the SAVE button. The instrument will reboot and after the reboot LXI is active.

To switch LXI OFF, select again the LXI entry from the start menu and use the FIELD TAB key to select the LXI TURN OFF button. Press enter to invoke the turn off action.

Note:

The functionality of the FSL-K93 is integrated within the K92 msi file and is activated by its own key code.

Compatibility of R&S FSL-K20/K30/K72/K91/K92/K93

The compatibility of these firmware options is checked with the installation tool. If a non compatible version of the basic instrument firmware is installed the options will be deleted.

R&S FSL V1.81SP1 is compatible to the following firmware option releases:

R&S FSL-K20	R&S FSL-K30	R&S FSL-K72	R&S FSL-K91	R&S FSL-K92 R&S FSL-K93
1.81	1.80	1.80	1.81	1.81

Enabling options via option key code entry

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

For activation of application software packages a license key for validation must be entered. The license key is in the device certificate or delivered as a part of the software package. The process is performed in the following steps:

- Press the **SETUP** hard key, go to the side menu using the **More** softkey, and press the **Option Licenses** softkey and then the **Install Option** softkey.
A dialog box is displayed.
- Enter the option key number using the keypad.
- Press **ENTER**.
On a successful validation the message **option key valid** is displayed. If the validation failed, the option software is not installed.

New Functions

The version numbers in brackets indicate the version in which the new function was introduced:

1. [V1.80] Support for FSL18. The FSL spectrum analyzer up to 18 GHz.
2. [V1.80] Support of fast and full flexible Spectrum Emission Mask measurement inbuilt in base spectrum analyzer
 - Sweep list table setup including control of every segmented sweep parameter
 - XML file support for standard setup of the sweep list
 - Remote control support included
 - Full diagram, full list and split screen layout
3. [V1.80] Support of Spurious Emission Measurement inbuilt in base spectrum analyzer with similar features as the SEM measurement.
4. [V1.80] Support of RFID 14443 within ACP measurement.
5. [V1.80] Shutdown behaviour selectable between standby mode and switching off Windows XP.
6. [V1.80] Support of range linear % as default linear display in spectrum mode. Linear dB/V/W etc. still supported with the softkey range linear unit.
7. [V1.80] Support of y-unit % within CCDF and APD measurement.
8. [V1.80] Support of transducers in IQ measurements, CCDF/APD measurement as well as in video trigger mode.
9. [V1.80] Support of Q-factor reading in ndBdown measurement.
10. [V1.80] Within MC ACP measurement the TX spacing is now definable between every TX carrier
11. [V1.80] Display sweep update rate enhanced for high number of sweep points. This also accelerates the print out in BMP format.
12. [V1.80] Black background screen for print out selectable (Screen colors hardcopy).
13. [V1.80] Marker peak list can now also be exported as ASCII list.
14. [V1.80] FSL-K20: Support of transducers in CCDF/APD measurement. (Now all measurements support transducers.)
15. [V1.80] FSL-K92/K93: Support for controlling the pre-amplifier via remote control using the following command: INPut1:GAIN:STATe with values OFF | ON | AUTO.
16. [V1.80] FSL-K92/K93: Support for setting hold off and hysteresis settings for the IF power trigger. For remote control the following commands are provided:
 - :TRIGger:SEQuence:IFPower:HOLDoff -double: 150nS to 10s
 - :TRIGger:SEQuence:IFPower:HYSTeresis -double: 3dB to 50 dB.
17. [V1.80] FSL-K92/K93: Closes point to failure points available via remote control for spectrum flatness and spectrum flatness difference results
 - :TRACe1:DATA? List
 - This command returns a list of comma separated results in the following format:
<Upper limit carrier>,<Upper limit distance>,<Lower limit carrier>,<Lower limit distance>
 - The distance values are relative to the limit. Positive value are within the limit, negative value are outside of the limit.
18. [V1.80] FSL-K91/K92 Support for *TRG command which initiates a sweep.

Modified Functions

The version numbers in brackets indicate the version in which the modification was carried out.

1. [V1.80] GPIB address saved permanently directly after editing the address:
The GPIB address is now saved into the registry after the address is changed. Therefore it remains unchanged even if the device is switched off at the rear panel. Also a firmware upgrade or a cold boot will not change the GPIB address.
2. [V1.80] Support of Range linear % as default linear display in spectrum mode. Linear dB/V/W etc. still supported with the softkey range linear unit.
3. [V1.80] Renamed "Specification" in the info dialog to "Data sheet version".
4. [V1.80] *IDN? format for the identifier format 'new' adjusted. Examples in online help available.
5. [V1.80] Increment and decrement of the parameter sweep points are now in 100/1000 steps.
6. [V1.80] Removed ACP-Standards W-CDMA 4.096 FWD/REV.
7. [V1.80] Trace and detector selection via submenu.
8. [V1.80] K20-CATV: All measurements use the unit of the signal level as default grid unit if applicable.
The signal level unit is no longer changed, when switching between measurements
9. [V1.80] K20-CATV: The softkey RF step size is now also available if no channel table is selected. The default step size for the RF has been changed to 50 kHz.

Eliminated Problems in V1.81SP1

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

1. [V1.80] New synthesizer setup table.
2. [V1.80] For R&S FSL devices with mother board 2112.1800.02 the printing in WMF format is now possible again.

Eliminated Problems in V1.81

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

1. [V1.80] For R&S FSL devices with mother board 2112.1800.02 the maximum IQ bandwidth is now 28 MHz.
2. [V1.80] In ACP measurement mode the start frequency was printed as CF. This problem is solved.
3. [V1.80] In MCACP measurement with active MIN and MAX POWER TX CHANNEL mode the REF indication is now updated in the table after every sweep. The values were correctly shown.
4. [V1.80] Units different to dB/dBm are displayed correct in the spurious and spectrum emission mask result table.
5. [V1.80] Problems with trace mode view and trace mode blank after using FSL-K14 Spectrogram are solved.
6. [V1.80] On FSL18 the temperature display in the self alignment results had been corrected.
7. [V1.80] On FSL18 the FSL-K20 auto level did not work properly. This problem is solved.
8. [V1.80] Invoking an windows application switch with ALT+TAB on a keyboard could lock up the firmware depending on the opened input field. This problem is solved.
9. [V1.80] With frontends 1300.3609 the tracking generator order number was displayed wrong. This problem is solved.

Eliminated Problems in V1.80 and V1.80SP1

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

1. [V1.10] Sweep time within FSL3 preset state corrected to 5ms.
2. [V1.10] Memory leak solved within the mode dialog. The problem did not occur in remote control.
3. [V1.10] Activating first marker could destroy a trace max hold result. This problem is solved.
4. [V1.20] The reference level adjust mode AUTO in the transducer menu did not change the upper border of the reference level setting. This problem is solved.
5. [V1.70] Display flickering with ACP table if OBW measurement is switched on corrected.
6. [V1.30] Unit and display problems in Marker Peak List dialog solved.
7. [V1.10] Display power save also works after windows remote desktop and afterwards local instrument control. The soft key itself is not displayed in remote desktop mode because Windows does not allow to change display settings from remote.
8. [V1.10] The application windows was sometimes shown truncated in windows remote desktop sessions.
9. [V1.00] Performance of print out in BMP format with a lot of sweep points improved.
10. [V1.30] The transducer function Ref Level Adjust Auto did not work correctly. This problem is solved.
11. [V1.70] For RBW \geq 300 kHz and spans $>$ 30MHz and \leq 100 MHz the sweep performance was too slow. This problem is solved.
12. [V1.80] On some instrument configurations the self alignment failed to to a software problem. This problem is solved.
13. [V1.20] Return values of HCOPY:CMAP<1..26>:HSL corrected.
14. [V1.00] SYST:VER? answer string corrected.
15. [V1.20] CALCulate<1|2>:LIMit<1...8>:CLEar[:IMMEDIATE] returned always an error. This problem is solved.
16. [V1.70] The command SENS:MPOW:FTYP returned always an error. This problem is solved.
17. [V1.70] The command SENS:LIST now supports different units.
18. [V1.70] The command TRAC:IQ:DATA:MEM? leads to a system hang-up if more that 184k IQ Samples were queried. This problem is solved.
19. [V1.30] FSL-K20: The algorithm of the noise floor correction has been reworked and now leads to better measurement results.
20. [V1.30] FSL-K20: The video scope measurement did show some parts of the channel below the selected channel. This problem is solved.
21. [V1.80] FSL-K20: In the digital specrum measurement, the display lines showing the frequency ranges for the calculation of the shoulder attenuation did not disappear when the shoulder attenuation was switched off. This problem is solved.
22. [V1.60] FSL-K30/K92/K93 Command SWEep:ACPR:TIME took too long to execute. This problem is solved.
23. [V1.50] FSL-K93: Memory leak within bit stream and burst summary measurement solved.
24. [V1.80] FSL-K93: After setting a center frequency with SENS:FREQ:CENT the command did not return. This problem is solved.

Known Problems

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

1. [V1.30] With some save sets containing trace information, the traces are only properly shown if the set is restored after a preset.
2. [V1.81] FSL-K91 and R&S FSL devices with mother board 2112.1800.02: Trace pixels in capture buffer and pvt display with values below (RefLevel-60dB) may be displayed wrong (to low).

Modifications to the Documentation

The new and modified functions mentioned in these release notes are already documented. Except the below mentioned last minute changes you can find the description including remote commands in the online help or in the manual. The manual can be downloaded from the internet under: <http://www.rohde-schwarz.com>. Select DOWNLOAD and search for FSL within the category MANUAL.

Last minute changes to the operating manual

NONE.

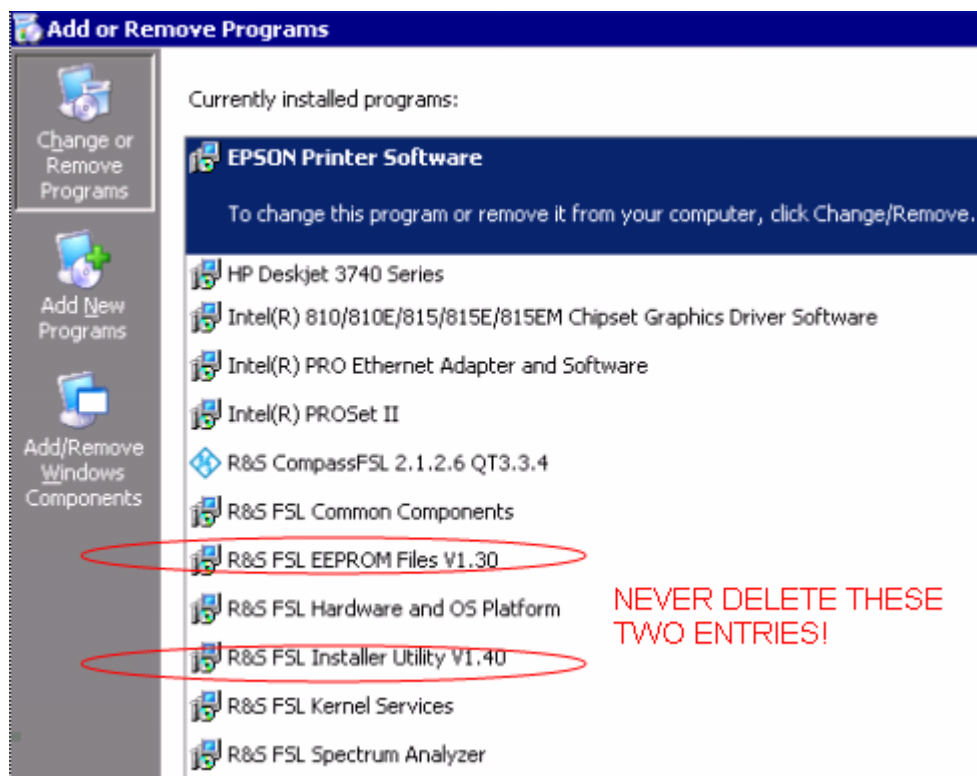
Appendix: Installation troubleshooting

The installation will only be carried out correctly if it is done through the firmware with **Setup | More | Firmware Update** as described in the “Firmware Update” section in this release notes. A second valid possibility is the usage of the update tool (FSLUpdate)

**Never try to update by starting the MSI-files directly!
In this case version checking is not carried out and this may lead to
black screens when starting up the firmware or an application.**

If such an installation problem occurs on the FSL the following procedure will completely remove the firmware and a new installation of firmware and applications is possible. Please use a USB keyboard and mouse for this procedure.

- Open DOS prompt
- Change to the following folder (please include the quotes “ ” due to the blank and the & sign)
`cd "C:\Program Files\Rohde&Schwarz\Installer"`
- Execute `FSLInstaller.exe /remove`
- Confirm with *Install* twice
- (after reboot it may happen that the driver needs to be copied again, allow this action)
- Execute *Windows Start -> Settings -> Control Panel -> Add or Remove Programs*
- Remove all R&S FSL components which are left - except the following components
 - R&S FSL Installer Utility Vx.xx
 - R&S FSL EEPROM Files Vx.xx



- Now execute *Windows Start->Programs->Accessories->FSLUpdateTool*
- Install firmware as described above in the “Firmware Update” section

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