

# Release Notes

Revision: 01

## R&S® FSC Spectrum Analyzer

### Firmware Release V1.22

These Release Notes describe the following models and options of the R&S® FSC Spectrum Analyzer:

- R&S® Spectrum Analyzer FSC3, order no. 1314.3006.x3
- R&S® Spectrum Analyzer FSC6, order no. 1314.3006.x6

#### **New Features of V1.22:**

- Spectrum Analyzer: Minimum value for Reference Level is -200 dBm
- Spectrum Analyzer: LTE standard configurations now support ACLR limits for LTE and WCDMA adjacent channels
- Network Analyzer: Minimum value for Reference is -200 dB

#### **Important note:**

**On instrument models R&S FSC3.13 and R&S FSC6.16, which have been shipped with firmware version V1.10 or lower, the self alignment function must be performed once as described in chapter 1.2.3 after installation of V1.22.**

**Since V1.21 a new type of internal flash memory is supported. Instruments shipped with V1.21 or higher cannot be downgraded to earlier firmware versions.**

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# 1 Installation Information

## 1.1 General Information

- Firmware release V1.22 corresponds to FSCView V1.22, which is available on the Rohde & Schwarz web page as a separate update package.
- Although older versions of FSCView might be able to communicate with firmware release V1.22, an update of FSCView is highly recommended, as older FSCView versions might not support all functions included in the new firmware release.

## 1.2 Firmware Update

The firmware update file for the R&S FSC is one file with the name FSC\_V1\_22.EXE from the Rohde & Schwarz web page.

### 1.2.1 Preparing the Installation

In order to update the device after downloading the FSC\_V1\_22.EXE installation file, a USB stick is required.

#### **Make a backup of datasets, screenshots and modified files.**

Before you start the firmware update, make sure that you created a backup with FSCView of all datasets and screenshots which you previously stored on the instrument. The same holds true for all channel tables, standards, limit lines, transducer factors and cable models which you created or modified. The factory preset necessary to complete the firmware update procedure will otherwise erase or overwrite the files.

#### **Preparing the installation files**

1. Insert an USB stick into the USB slot of the PC and wait until windows has identified the USB stick as a new volume (e.g. D:)
2. Copy FSC\_V1\_22.EXE into the root directory of the USB stick, e.g. D:\

- Execute FSC\_V1\_22.EXE. The self-extracting .ZIP file will be unpacked.

The USB stick should now contain the following files:

bootloader\_FSC\_V1\_22.bin  
osimage\_FSC\_V1\_22.bin  
updater\_FSC\_V1\_22.bin  
splashscreen\_FS.bmp  
FSC\_V1\_22.EXE

**Note:**

Please make sure that only one file of each type is present on the USB stick. The update mechanism will reject the USB stick if it detects two versions of a file type (e.g. bootloader\_FSC\_V1\_01 and bootloader\_FSC\_V1\_22) and abort the update later on.

### Prepare the instrument

- Switch the instrument OFF.
- Insert the USB stick into the USB slot of the instrument.

## 1.2.2 Performing the Firmware Update on the Instrument

The firmware update process is performed by the following steps:

- Press the keys PRESET and '8' on the numeric keypad simultaneously.



- Switch the instrument on and keep PRESET and '8' pressed for at least 5 seconds after the startup screen has appeared on the screen.



8. Release the keys PRESET and 8.

The FSC will continue its boot process and after a couple of seconds the following information will appear on the screen:

---

**Instrument Firmware Update**

Searching for Storage card ... OK

Searching for updater \*.bin ... Found updater \_FSC\_V1\_22.bin

Checking updater \_FSC\_V1\_22.bin: ... OK

---

Update instrument to software version V1.22

Press [ENTER] to update the firmware.

Press [CANCEL] to abort firmware updating.

---

9. Press ENTER to start the firmware update process.  
The instrument will perform the firmware update. This will take about 5 minutes.  
The progress of the update will be displayed in a sequence of messages on the screen.

**Warning:**

Do not switch the instrument off during the update process in order to avoid data corruption of the internal flash memory! Do not remove the USB stick from of the USB slot during the firmware update!

10. As soon as the firmware update is completed, the R&S FSC will display the following message at the bottom of the screen:

---

Firmware updating is successfully completed.

Please switch off the instrument.

---

Switch the instrument off and on again. The FSC will boot with the new firmware version.

11. After the boot process is completed, press SETUP – INSTRUMENT SETUP.  
Select "RESET TO FACTORY SETTINGS" by moving the cursor down the list with the cursor keys or the rotary knob. Confirm the selection with ENTER, and re-confirm with YES when prompted.

**Note:**

The subsequent reset and reboot process will take about a minute to complete.

**Note:**

Restoring the factory settings is necessary to update the pre-installed channel tables, cable models and transducer factors. If this step is omitted, bugfixes and updates to these pre-installed files will not be installed.

### 1.2.3 Performing the Self Alignment on the Instrument



This section is relevant for R&S FSC3.13 and R&S FSC6.16 shipped with firmware version V1.10 or below.

In Network operating mode the instrument models R&S FSC3.13 and R&S FSC6.16 support a default set of calibration data, the so-called factory calibration. This dataset is used whenever the instrument displays "uncal" in the title bar.

Instruments which were shipped with firmware versions V1.10 or below need an update of this dataset, as V1.22 uses improved algorithms which need more data in order to obtain optimum results.

The self alignment procedure requires a calibration standard R&S FSH-Z28 (order # 1300.7810.03), which is suitable for R&S FSC3 and R&S FSC6 instruments, or at least a calibration standard R&S FSH-Z29 (order # 1300.7510.03) for R&S FSC3 instruments. In addition a RF cable with two N connectors is required in order to provide a through connection between the instrument ports.

The self alignment is performed by the following steps:

12. Switch the instrument on
13. Select Network operation by pressing MODE – NETWORK ANALYZER.
14. Make sure that the instrument runs for at least 30 minutes at room temperature.
15. Press the keys SETUP – INSTRUMENT SETUP. Place the cursor on the menu entry "Self Alignment" by scrolling the menu bar down with the rotary knob and press ENTER.  
The instrument will prompt you to confirm that the factory calibration data will be overwritten.
16. Press softkey YES.  
The self alignment procedure will start and prompt you to first connect the load calibration standard and then the through connection.
17. Follow the instructions until the instrument reports "Self Alignment Done!".  
Press softkey EXIT to return to the measurement screen.

## 1.2.4 Enabling Options by Entering Option Key Codes



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

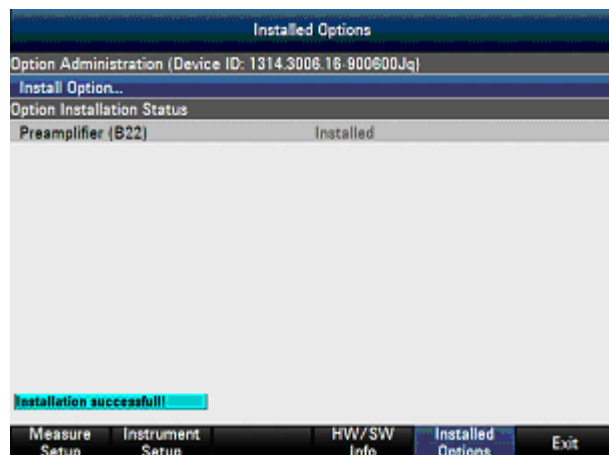
To activate application software packages, you must enter a license key for validation. The license key is in the device certificate or delivered as a part of the software package. The process is performed in the following steps:

- Press the SETUP key.
- Press the softkey INSTALLED OPTIONS.
- Use the rotary knob or the cursor keys to select the INSTALL OPTION... menu item and confirm the entry with the ENTER key.
- Enter the key code ( 32 digit number) for the option with the numeric keys and confirm with the ENTER key.



If the correct key code is entered, the R&S FSC displays "Installation successful", and the option is marked as "Installed" in the option list (example: Option Preamplifier (B22)).

If an invalid key code is entered, the R&S FSC displays "Invalid key code!". The correct key code can then be entered.

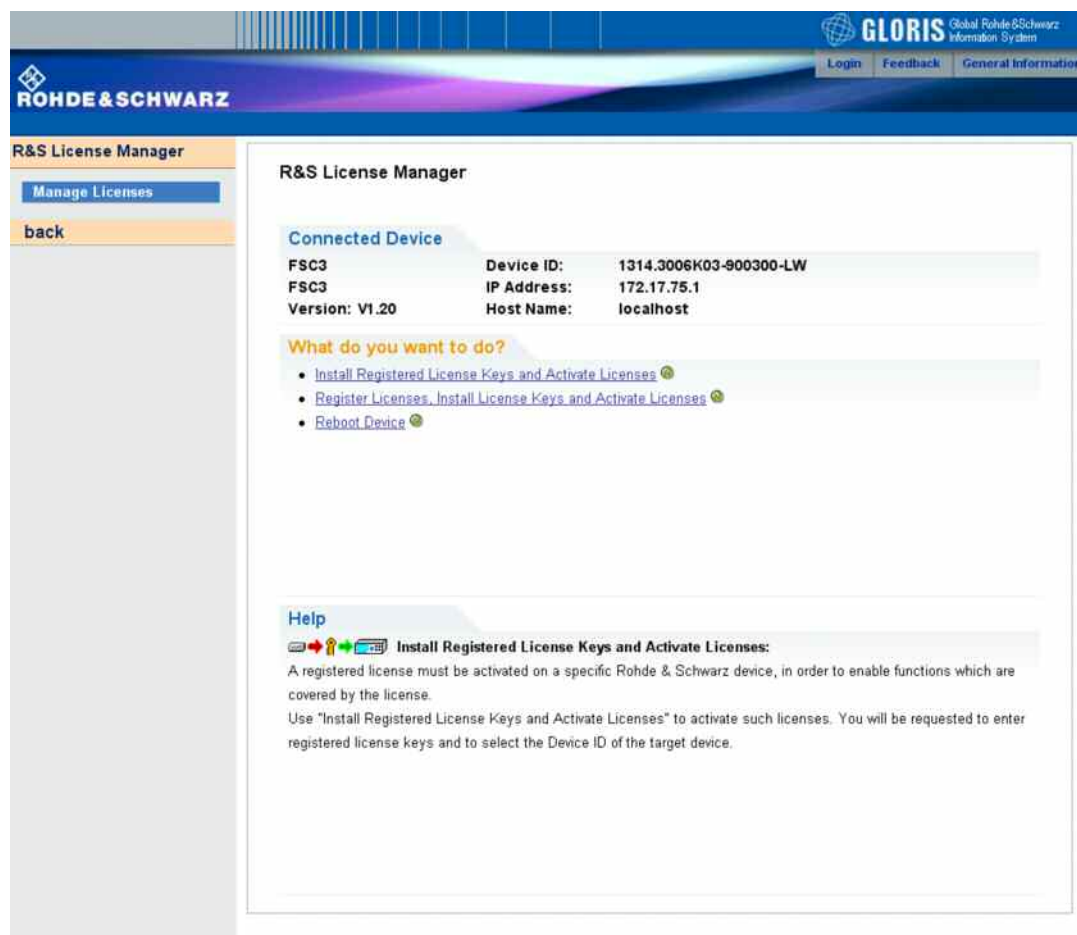


## 1.2.5 Enabling Options via the R&S License Manager

This feature is only available starting with firmware version V1.20.

Prerequisite: Your PC must be connected via Ethernet to the instrument and to the internet.

- Open your browser and type in the IP address of your instrument.



The screenshot displays the R&S License Manager web interface. At the top, there is a navigation bar with the Rohde & Schwarz logo and the GLORIS (Global Rohde & Schwarz Information System) logo. Below the navigation bar, the main content area is titled "R&S License Manager". On the left side, there is a sidebar with a "Manage Licenses" button and a "back" link. The main content area is divided into several sections:

- Connected Device:** A table showing device information:

FSC3	Device ID:	1314.3006K03-900300-LW
FSC3	IP Address:	172.17.75.1
Version: V1.20	Host Name:	localhost
- What do you want to do?:** A list of three options:
  - [Install Registered License Keys and Activate Licenses](#)
  - [Register Licenses, Install License Keys and Activate Licenses](#)
  - [Reboot Device](#)
- Help:** A section titled "Install Registered License Keys and Activate Licenses:" with the following text:

A registered license must be activated on a specific Rohde & Schwarz device, in order to enable functions which are covered by the license.

Use "Install Registered License Keys and Activate Licenses" to activate such licenses. You will be requested to enter registered license keys and to select the Device ID of the target device.

- Select "License Manager" > "Manage Licenses".
- Choose "Register Licenses, Install License Keys and Activate Licenses" and follow the instructions.



## 2 New Functions

The following table lists the new functions in V1.22:

Version	Function
V1.22	Spectrum Analyzer: Minimum value for Reference Level is -200 dBm
V1.22	Network Analyzer: Minimum value for Reference is -200 dB
V1.22	Spectrum Analyzer: LTE standard configurations now support ACLR limits for LTE and WCDMA adjacent channels

The following table lists extensions which were introduced in earlier versions, and indicates the version in which the extension was introduced:

Version	Function
V1.21	Remote Control: Remote command SYST:SHUT added for instrument shutdown
V1.20	Power Meter: New measurement mode Power Meter
V1.20	Power Meter: Support of R&S@NRP-Z11, R&S@NRP-Z21, R&S@NRP-Z22, R&S@NRP-Z23, R&S@NRP-Z24, R&S@NRP-Z31, R&S@NRP-Z51, R&S@NRP-Z55, R&S@NRP-Z56, R&S@NRP-Z57, R&S@NRP-Z81, R&S@NRP-Z91, R&S@NRP-Z92.
V1.20	Network Analyzer: Support for Limit Lines with unit dB
V1.20	Screen Capture supports JPG and PNG format
V1.20	LAN gateway settings for LAN connections with firewall
V1.20	Support of user defined preset dataset
V1.20	Remote Control: Support of Gated Trigger
V1.10	Spectrum Analyzer: ACLR measurements
V1.10	Spectrum Analyzer: Spectrum Emission Mask measurements
V1.10	Spectrum Analyzer: Gated Trigger
V1.10	Spectrum Analyzer: Measurement of Harmonic Signals
V1.10	Spectrum Analyzer: AM Modulation Depth measurement
V1.10	Spectrum Analyzer: Display of frequency + channel number with active channel tables
V1.10	Indicator for presence of valid external reference signal
V1.10	Printer friendly color scheme
V1.10	Network Analyzer: Support of channel tables
V1.10	Remote control: Export of trace data in binary format
V1.10	Remote control: Support of HCOPY command

## 3 Modified Functions

The following table lists the functions modified in V1.22:

Version	Function
V1.22	New synthesizer setup table

The following table lists modifications, which were introduced in earlier versions, and indicates the version in which the modification was introduced:

Version	Function
V1.21	Hardware: V1.21 supports a new type of internal flash memory. Instruments shipped with V1.21 cannot be downgraded to earlier versions.
V1.21	Spectrum Analyzer: Update of the LTE standard files for spectrum emission mask
V1.20	Support of Channel Tables with overlapping frequency limits between channels
V1.20	The following predefined transducer factors were renamed from primary transducer factors to secondary transducer factors (= add on factors in unit dB): FSH-Z38 PreAmp RAM TSEMFZ2 example
V1.20	The limit lines GSM_UPPER.RELLIM and GSM_LOWER.RELLIM, which are positioned relative to the upper diagram border, were shifted down by 4 dB, so that their maximum level is displayed inside the diagram.
V1.10	More transducer and limit line points (1000)
V1.10	Spectrum Analyzer: Improved level adjust routine with active preamplifier
V1.10	Auto sweep time in Network Analyzer mode changed for RBW < 10 kHz and span < 300 MHz

## 4 Improvements

The following table lists the issues eliminated in V1.22:

Version	Function
V1.22	Spectrum Analyzer: Improved level adjust routine for multicarrier signals

The following table lists the issues already eliminated in earlier versions and indicates the version in which the issues were eliminated:

Version	Function
V1.20	Remote control: The response for command TRACE:DATA? TRACE1 contains double quotes and a trailing comma
V1.20	When saving a dataset, the saved trace data and the preview screenshot capture different data
V1.20	Spectrum Analyzer: The trace contains black lines in the noise floor

Version	Function
V1.20	Several predefined transducer factors for HE300 and HE200 antenna contain frequency values in Hz rather than MHz
1.10	Network Analyzer: The accuracy with active normalization is limited to +/- 1.5 dB
1.01	New synthesizer setup table

## 5 Known Issues

None.

## 6 Modifications to the Documentation

The latest manual can be downloaded from the R&S® FSC Spectrum Analyzer product web page under: <http://www.rohde-schwarz.com>. Select "DOWNLOADS" and "MANUALS".

### Appendix: Contacting 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](mailto: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](mailto: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. +49 (0) 89 4129 12345

Fax +49 (0) 89 4129 63778

E-mail [CustomerSupport@rohde-schwarz.com](mailto:CustomerSupport@rohde-schwarz.com)