ROHDE&SCHWARZ

Test and Measurement
Division

Handheld Spectrum Analyzer

R&S FSH

1145.5850.03
1145.5850.13
1145.5850.23
1145.5850.06
1145.5850.26
1145.5850.18

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Firmware Version 14.00

To use firmware version 14.00 with FSH View, at least version 14.00 of FSH View is required.
Do not downgrade to an earlier firmware version after version 14.00 has been installed.

New features

R&S FSH3 firmware

Measurement menu (key MEAS)

- In Isotropic Antenna, transducers of type dBµA/m can be selected.

Bandwidth menu (key BW)

- Added RBW 30 Hz (Available for models R&S FSH3 (1145.5850.03, 1145.5850.23, 1145.5850.06, 1145.5850.26 and 1145.5850.18)).

R&S FSH View software

- Added support for Windows Vista and Windows 7, 32 bits and 64 bits version.
- Added support for Office 2010.
- Added RBW 30 Hz (Available for models R&S FSH3 (1145.5850.03, 1145.5850.23, 1145.5850.06, 1145.5850.26 and 1145.5850.18)).

Repaired defects

R&S FSH3 firmware

- Remote control command WAIT did not wait for the measurement to be finished when trace mode is average, this has been repaired.
- Remote control command LIMDEF only accepted 24 instead of 25 points, this has been repaired.
- The frequency count marker result calculation was not correct (only for R&S FSH3 model 1145.5850.18), this has been repaired.

R&S FSH View software

- Frequency entry for HE300 transducer files was MHz instead of Hz, this has been repaired.
- Frequency entry in transducer editor always changed the frequency value to 1.0219 MHz, this has been repaired.
- RSS files cannot be opened with FSH View version V13.1, this has been repaired.

Known defects

-

Firmware Version 13.14

To use firmware version 13.14 with FSH View, at least version 13.1 of FSH View is required.
Do not downgrade to an earlier firmware version after version 13.14 has been installed.

New features

-

Repaired defects

R&S FSH firmware

- Option key handling modified for production reasons.
- Spurious signals for FSH18 have been removed.

Known defects

-

Firmware Version 13.13

To use firmware version 13.13 with FSH View, at least version 13.1 of FSH View is required.
Do not downgrade to an earlier firmware version after version 13.13 has been installed.

New features

-

Repaired defects

R&S FSH firmware

- The Tracking generator Calkit and offset length corrections were not correct. This has been repaired.

Known defects

-

Firmware Version 13.12

To use firmware version 13.12 with FSH View, at least version 13.1 of FSH View is required.
Do not downgrade to an earlier firmware version after version 13.12 has been installed.

New features

-

Repaired defects

R&S FSH firmware

- Corrected synthesizer setup at 10.60 GHz for FSH18.

Known defects

-

Firmware Version 13.11

To use firmware version 13.11 with FSH View, at least version 13.1 of FSH View is required.
Do not downgrade to an earlier firmware version after version 13.11 has been installed.

New features

-

Repaired defects

R&S FSH firmware

- When entering Receiver Scan mode after preset an error occurred on FSH18. This has been repaired.
- Corrected synthesizer setup at 10.21 GHz for FSH18.
- Spurious signals have been removed.

Known defects

-

Firmware Version 13.10

To use firmware version 13.10 with FSH View, at least version 13.1 of FSH View is required.
Do not downgrade to an earlier firmware version after version 13.10 has been installed.

New features

R&S FSH firmware

Measurement menu (key MEAS)

- 3GPP Measurement (FSH-K4 option) now enhanced with the option to set the Transducer Unit.

General

- The Marker Peak Search has been enhanced to find smaller relative peaks while 1dB/div scale is selected.
- In case the battery is nearly empty, the instrument indicates this via a blinking battery symbol.
- The Erase All Data function (= pressing the PRESET key for more than 5 seconds) now signals when ready via a message on screen.
- Function Hardware Setup Dynamic Range has been extended by the setting "High Dynamic Range", which increases the RF attenuation from 0 to 10 dB at a reference level above -5 dBm ("Low Noise": above -10 dBm, "Low Distortion": above -20 dBm).
- The Remote Control (FSH-K1 option) command set has been extended with commands to control the Limit Line Beep (LIMBEEP) and the Limit Line Message (LIMMSG).

Repaired defects

R&S FSH firmware

- During remote control the frequency settings on the display were hidden by the Remote Control indicator. Screen positions have been re-arranged to keep the frequency settings visible.
- Occasionally, when starting the Power Sensor Measurement, an error message occurred, although the measurement itself performed fine. This has been repaired.
- With active function Marker Demod the audio signal had drop-outs if the marker position was changed in zero span. This has been repaired.
- Spurious signals have been removed.
- The level display with transducers in unit dBµA/m has been corrected.

Known defects

-

Firmware Version 13.02

To use firmware version 13.02 with FSH View, at least version 13.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 13.02 has been installed.

New features

R&S FSH firmware

Measurement menu (key MEAS)

- Distance to Fault measurement (option R&S FSH-B1) is now possible up to 6 GHz.

Repaired defects

R&S FSH firmware

- The audio output was disabled upon changing the marker position during zero span measurements.
- When difference between min- and max-peak-detector values was smaller then 0.5 divisions only the max-peak-detector value was displayed.
- Settling time quasi peak detector corrected.
- Occasionally the accessory detection did not detect the connected accessory.

Known defects

-

Firmware Version 13.01

To use firmware version 13.01 with FSH View, at least version 13.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 13.01 has been installed.

Repaired defects

R&S FSH firmware

- Spurious signals for FSH18 have been removed.

Known defects

-

Firmware Version 13.00

To use firmware version 13.00 with FSH View, at least version 13.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 13.00 has been installed.

New features

R&S FSH firmware

Measurement menu (key MEAS)

- New measurement: Vector Voltmeter (R&S FSH-K2 option required)
- Tracking Generator with installed R&S FSH-K2 option
  - Manual RBW setting available for vector calibration
  - Added editor for the electrical length of the calibration kit
  - Added editor for the electrical offset length
- 3GPP Measurement (FSH-K4 option)
  - Channel table support added
  - Transducer support added
  - Relative presentation of P-CCPCH, P-SCH and S-SCH power
- Carrier/Noise
  - Added support for user standards
  - Added support for Ratio Channel BW
  - Added support for Noise Floor correction
  - Added support for Zero Span measurements
  - Added support for relative frequency settings in case of Noise measurements
  - Added coupling from CN Reference Channel to Cable-TV Reference Channels
  - Enhanced reference measurement value stability and/or step response
  - Added support for manual selection of Peak-Power/Channel-Power in case of reference measurements

Range menu (key RANGE)

- Ranges 0.2 and 0.5 dB/div added
- Ranges 0...3, 0..30 and 0..300 mRho added
- Ranges 0..0.3, 0..0.03 and 0..0.003 Rho added

Marker Mode menu

- New function ‘n dB down’ added

General

- Marker display resolution increased to 0.01 dB.
- Amplitude settings are preserved when switching to other measurement modes.
- Transducer settings are preserved when switching to other measurement modes.
- Warning message is displayed when external reference is selected and no external reference signal is connected.

- Auto Power Down indication (clock symbol) is added when operating on battery.

R&S FSH View software

- FSH View software version 13.0 supports all new features of firmware version 13.00.
- Numerical marker positioning added
- Frequency count marker is displayed in the sweep window
- Indicator for scalar/vector calibration added
- Indicator for connected VSWR Bridge added
- Black/white print option in the preview window is stored permanently
- Print all open windows added
- Added indicator for connected accessories in the status screen

Repaired defects

R&S FSH firmware

- Occasionally stored datasets are hidden after the instrument has been switched off. This has been repaired.
- Occasionally missing update of the phase screen in the tracking generator measurement corrected
- Interpolation problems in the frequency range between 3 and 4 GHz during the scalar transmission measurement are solved.
- Settling time of the FSH-Z3 bridge corrected.
- Trigger delay is taken into account in the marker time readout.

R&S FSH View software

- Some RSS files could not be read, this is repaired.
- If the memory trace and the active trace have different values of the REF Level Offset the display sweep window shows a the active trace with the same REF level offset of the memory trace. This problem is solved.

Known defects

-

Firmware Version 11.21

To use firmware version 11.21 with FSH View, at least version 11.3 of FSH View is required.
Do not downgrade to an earlier firmware version after version 11.21 has been installed.

Repaired defects

R&S FSH firmware

- Supports the 18 GHz spectrum analyzer FSH18.

Known defects

-

Firmware Version 11.20

To use firmware version 11.20 with FSH View, at least version 11.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 11.20 has been installed.

Repaired defects

R&S FSH firmware

- Upgrading instruments with firmware version V4.3 or older to V11.00 or V11.10 is not possible. This has been repaired.
- When recalling a Channel Power dataset with transducer enabled the unit of the power measurement was wrong.
- The FSH-Z3 (6GHz bridge) was not correctly initialized.
- Spurious signal at 575.893 MHz has been removed.

Known defects

-

Firmware Version 11.10

To use firmware version 11.10 with FSH View, at least version 11.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 11.10 has been installed.

Repaired defects

R&S FSH firmware

- In Tracking Generator operation occasionally the saved calibration data were invalid after a recall. This has been repaired.
- Spurious signal at 2418.75 MHz has been removed.
- Option R&S FSH-K4: Auto scrambling detection progress indicator showed wrong value after start, stop and restart. This has been repaired.

R&S FSH View software

- The transfer of datasets was not possible for localized Windows regional settings where comma is used as a decimal separator. This has been repaired.
- If no FSH was connected or an FSH without the FSH-K4 option was connected with the PC, an opened 3GPP dataset displayed always a 0/0 scrambling code. This has been repaired.

Known defects

-

Firmware Version 11.00

To use firmware version 11.00 with FSH View, at least version 11.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 11.00 has been installed.

New features

R&S FSH firmware

Measurement menu (key MEAS)

- Occupied Bandwidth
  - Added adjustable percentage of the power to be used to define the occupied bandwidth
- Tracking Generator
  - Enhanced marker presentation in Smith Chart
  - Added group delay measurement
  - Added possibility to analyse the phase trace in TG vector measurements.
  - Added electrical cable length measurement
  - Added relative transmission measurements
    TG calibration data are kept active while changing the frequency span, as long as the new span is within the “calibrated” span.
- 3GPP Measurement (FSH-K4 option)
  - Added auto scrambling code detection
  - Added Ec/Eo measurement
- Receiver Measurement (FSH-K3 option)
  - Added marker demodulation in Receiver mode (fixed frequency mode)

Remote control

- The following commands have been added:
  - CCORRTRACE and CCORRTRACEBN to read out corrected trace data (Tracking Generator measurement).
  - TEMP to read out instrument temperature (for relative temperature measurements).
  - MARKIMPREF to set or get the marker-reference and MARKMEASY to set or get the marker-format.
  - ELCABLENVAL to readout measured Cable Length value (Tracking Generator measurement).
- Following commands have been extended
  - MARKDEMOD, MARKTIME and MARKVOL supported in Receiver Measurement (FSH-K3 option).

For a detailed description all Remote Control commands see Remote Control for R&S FSH (FSH-K1 option)

R&S FSH View software

- The FSH View software has been expanded for new features in firmware version 11.00.
- Marker functionality has been extended with channel number display.

Repaired defects

R&S FSH firmware

- When during manual tracking generator calibration remote control commands are sent, it could happen that the instrument hangs. This has been repaired.
- Marker demodulation was sometimes not possible on first value in Receiver (Scan Mode). This has been repaired.
- Accessory detection didn’t function after setting back the instrument time. This has been repaired.
- Distance to Fault measurement datasets including calibration data could make instrument crash upon activation. This has been repaired.
- Transferring tracking generator datasets with active calibration data to and from FSH-View doesn't work. This has been repaired.
- When the command sequence "GET TRIGSRC" is sent to the FSH it will respond with an additional '1' after the normal response. This has been repaired.
- Occasionally stored datasets are hidden after the instrument has been switched off. This has been repaired.

R&S FSH View software

- FSH-View was showing incorrect timestamps on datasets without trace information (PC-Time instead of measurement time). This has been repaired.
- Limit limes sometimes displayed incorrect results. This has been repaired.
- FSH View will recognize corrupt datasets created with earlier versions and reject them instead of downloading them to the R&S FSH
- Reflected power value was incorrect when Power Sensor (Z44) is used and unit is set to Watt. This has been repaired.

Known defects

-

Firmware Version 10.01

To use firmware version 10.01 with FSH View, at least version 10.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 10.01 has been installed.

Repaired defects

R&S FSH firmware

- Solved memory reset which sometimes occurred when connecting the power adaptor.

  Items that were affected by memory reset:
  - Time reset to factory default
  - Battery indicator reset to empty
  - Tracking generator calibration data lost
  - Last active measurement lost

Firmware Version 10.00

To use firmware version 10.00 with FSH View, at least version 10.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 10.00 has been installed.

New features

R&S FSH firmware

Measurement menu (key MEAS)

- Channel Power
  - Added availability of markers
  - Re-enabled transducers
  - When transducers are used the channel power unit is defined by the transducer unit.

- Tracking Generator
  - Phase calibration is dynamically corrected in vector calibration mode. Available for model R&S FSH3 (1145.5850.23) as of serial no. 102314
  - Storage of vector calibration data. Available for R&S FSH3 (1145.5850.23) as of serial no. 102314
  - Support of 1dB tracking generator attenuator steps. Available for R&S FSH3 (1145.5850.23) as of serial no. 102314

- Receiver
  - Added AM/FM demodulation

Range menu (key RANGE)

- Ranges VSWR 1-10 and 1-20 are added.

Firmware options

- Added 3GPP Measurement (FSH-K4 option)

R&S FSH View software

The FSH View software has been expanded for new features in firmware version 10.00, including the Math function of firmware version 9.1

Repaired defects

R&S FSH firmware

- Sometimes calibration was lost with TG or DTF, this is solved.
- In measurement receiver mode (R&S FSH-K3) the quasi peak detector setting was overruled by coupled settings, as a result the Quasi Peak could no be selected, this is solved.
- The marker sometimes displayed wrong results, when the frequency count marker is enabled and when the FM-demodulation on the marker has been enabled before. This has been fixed.
- Sometimes the instrument was not shutdown as specified, the procedure is optimized

Known defects

When during manual tracking generator calibration remote control commands are sent, it might happen that the instrument hangs. To avoid this situation please don't mix up manual and remote control. To recover from this situation, please execute a reset.

Firmware Version 9.10

To use firmware version 9.10 with FSH View, at least version 9.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 9.0 has been installed.

New features

R&S FSH firmware

Analyzer

- A Mathematical Function is added in the Analyzer and can be activated in the Trace menu. *Remark*: The mathematical function is not yet supported in FSH View 9.0

Preset-key

- For security reasons it is now possible to delete all internal user data by pressing the preset key for at least five seconds.

Repaired defects

R&S FSH firmware

- When range RHO or mRHO was selected in Measurement DTF the threshold values were not always correct. This has been fixed.

Firmware Version 9.0

To use firmware version 9.0 with FSH View, at least version 9.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 9.0 has been installed.

New features

R&S FSH firmware

- When saving or uploading datasets, uploading cable models, limit lines, transducer factors, channel tables and user-defined standards for OCBW, CHP and TDMA, the full storage space of 2MB can flexibly be shared between the different items.
- Support for the Z3 bridge has been added.
- The connected accessory is detected and instrument settings are automatically adjusted for best performance.

Measurement menu (MEAS key)

Isotropic antenna
- Isotropic antenna measurement functions have been added.

Tracking generator
- A zoom function for the smith chart has been added.

Power sensor
- Tetra standard for the Z44 has been added.

Channel power
- Power display MAX HOLD has been added.

Range menu (RANGE key)

- Range 0.1 dB/DIV has been added.
- Reflection coefficient ranges have been added.

Marker menu (MARKER key)

- Marker frequency is presented in channel numbers and band names in case the frequency input is set to channel.

R&S FSH View software

- Support for new firmware features of version 9.0.
- Drag and drop for Power Sensor, Receiver (fixed frequency/channel) and Smith Charts measurements has been added.
- Support for up to 10 comm. ports.
- Options to show or hide measurement results and Pass/Fail have been added.
- Column headings for measurement data in CSV file (and for drag and drop to other applications) has been added.

- Transducer files for FSH-Z38 matching pad have been added.

Repaired defects

R&S FSH firmware

- When the rotary knob was used to change the span in case a small spans was already active, the center frequency was unnecessary changed. This has been fixed.
- The result of the frequency counter marker was not always displayed in the correct precision. This has been fixed.
- In the receiver mode, some signals where indicated though they where not physically present. This has been fixed
- If audio demodulation on the marker was enabled and the instrument was switched off and on again, the audio demodulation did not work properly. This has been fixed.

R&S FSH View software

- Problems with selecting limit lines from the Sweep Settings dialog and previewing limit lines from the Limit Line Editor have been fixed
- It was possible to copy zero-span and non-zero-span TG traces into same Sweep window. This has been fixed.

Firmware Version 8.0

To use firmware version 8.0 with FSH View, at least version 8.0 of FSH View is required.
Do not downgrade to an earlier firmware version after version 8.0 has been installed.

New features

R&S FSH firmware

- When uploading cable models, limit lines, transducer factors, channel tables and user-defined standards for OCBW, CHP and TDMA, the full range of 100 sets can flexibly be shared between the different items. Previously, each item (e.g. cable model) was limited to a maximum of 20 sets.

Setup screen (SETUP key)

- The currently installed options are listed in the SETUP screen.

Measurement menu (MEAS key)

Carrier/noise
- Carrier/noise measurement functions have been added.

Tracking generator
- Limit lines with VSWR can be uploaded to the FSH.
- Phase calibration is dynamically corrected in vector calibration mode on models 26 of the FSH.
- TG level is controlled via attenuator setting instead of the absolute level.

Distance to fault
- Limit lines with range VSWR can be uploaded.
- Minimum user span has been decreased to 10 MHz.

Power sensor
- Support for the power sensor Z14 has been added.
- Peak envelope power and reflected power measurements are now supported for the Z14 and Z44.

Channel power, occupied bandwidth, and TDMA power
- Customized user standards can be uploaded.

Trace menu (TRACE key)

- Trace averaging over N sweeps now possible, where N can be specified in the range between 2 and 999.

Marker menu (MARKER key)

- Search range for marker search functions (PEAK, NEXT PEAK, MINIMUM) can be specified by the user.

Span menu (SPAN key)

- Minimum span value has been lowered to 100 Hz.

R&S FSH View software

- Support for new firmware features of version 8.0.
- Multiple instances of FSH View can be started and run in parallel.
- It is now possible to drag-and-drop sweeps either between different instances of FSH View or into office applications such as EXCEL or WORD.
- Marker values for all traces in a sweep window are now displayed.
- Marker search functions (PEAK, NEXT PEAK, MINIMUM) have been added.
- Limit search range for marker search functions has been added.
- Automatic file conversion between different file formats of FSH View is now possible.

Repaired defects

R&S FSH firmware

- In the tracking generator, spikes were visible in the frequency range between 3 GHz and 6 GHz that were related to the sweep time. This has been fixed.

R&S FSH View software

- Crashing when control dialogs were resized has been fixed.
- Crashing when trying to zoom in on power sensor mode or receiver mode has been fixed.
- Incorrect handling of all invalid traces in CSV files has been fixed.
- Incorrect formatting of trace blocks when four sweeps are displayed in one window has been fixed.
- Incorrect marker movement by cursor keys when two or more channel scans are displayed in one window has been fixed.
- Selection of range Linear was not possible in receiver mode. This has been fixed.
- Error handling of CSV files has been corrected.
- Frequency offset is now taken into account for the start and stop frequencies.

Firmware Version 7.20

To use the firmware version 7.20 with FSH View, at least version 7.0 of the R&S FSH View software is required.
Do not downgrade to an earlier firmware version after version 7.20 has been installed.

New features

R&S FSH firmware

None

R&S FSH View software

None

Repaired defects

R&S FSH firmware

- In firmware version 7.11 the measurement with the Smith Chart display showed wrong phase values. The bug is fixed with firmware version 7.20. Earlier firmware versions measure correctly.

R&S FSH View software

None

Firmware Version 7.11

To use the firmware version 7.11 with R&S FSH View, at least version 7.0 of the R&S FSH View software is required.
Do not downgrade to an earlier firmware version after version 7.11 has been installed.

New features

R&S FSH firmware

Sweep time (SWEEP key)

- Using video bandwidths ≤ 1 kHz, the minimum sweep time settings can be approx. twice as fast (using MANUAL SWPTIME).

Saving data sets (SAVE key)

- When saving a data set, you can edit the default data set name by using the UP/DOWN keys as cursor keys:

Receiver mode (MEAS key)

- By toggling between the different modes (FIXED FREQ ↔ FREQ SCAN and ANALYZER ↔ RECEIVER), you can maintain the scan start and scan stop frequencies.
- With the RBW setting AUTO CISPR dependent on the current frequency, the R&S FSH automatically uses the CISPR resolution bandwidth (RBW 200 Hz for freq. < 9 kHz, RBW 9 kHz for freq. of 9 kHz to 30 MHz, RBW 120 KHz for freq. of 30 MHz to 1 GHz, RBW 1 MHz for freq. > 1 GHz).

Distance-to-fault measurement (MEAS key)

- As an alternative to the settings CENTER and SPAN, you can input the start and stop frequencies with distance-to-fault measurement. The start and stop frequencies are also shown on the display.

R&S FSH View software

- If a CISPR RBW is selected in receiver mode, the bandwidth display in the status box is marked with 'CISPR'.
- The instrument model number is shown in the status box together with the serial number.

Repaired defects

R&S FSH firmware

- If an active limit line was partially shifted out of the display range (e.g. by changing the reference level or display range), parts of the limit line were folded back into the display. This has been fixed.
- With a frequency or channel scan in receiver mode, the marker showed the pixel frequency instead of the measured frequency in firmware version 7.0. This has been fixed.

R&S FSH View software

- RBW values were displayed erroneously in the sweep window if CISPR RBW was selected in receiver mode.
- Resizing the control dialogs (Data Set, Cable Model, Transducer, Limit Lines, Channel Table) is now limited to a minimum size. In previous versions, downsizing the control windows could force R&S FSH View to terminate.
- Incorrect marker movement by cursor keys when a window contained two or more channel scans has been fixed.
- When using CTRL-TAB (Next) with a maximized sweep window, the sweep window could be blanked out. This has been fixed.

Firmware Version 7.0

Firmware version 7.0 also supports the new models 1145.5850.06 and 1145.5850.26 of the R&S FSH. To use the firmware version 7.0 with FSH View, at least version 7.0 of the R&S FSH View software is required.
Do not downgrade to an earlier firmware version after version 7.0 has been installed.

New features

R&S FSH firmware

Frequency menu (key FREQ)

- As an alternative to frequency input, channel numbers can be input using channel configurations defined via FSH View (more complex channel configurations) or via the front panel (one simple channel configuration). Channel input is switched on in the menu CF STEPSIZE.

Trace menu (key TRACE)

- When the detector is in coupled mode, the AUTO PEAK detector is used when the CLEAR/WRITE trace mode is active.

Amplitude menu (Key AMPT)

Tracking generator

- The softkey REF OFFSET has been renamed to REF POSITION.
- Added the softkey TRACE OFFSET to compensate for a fixed attenuation or gain.

Measurement menu (key MEAS)

- Added the option Receiver Mode (option R&S FSH-K3).

Tracking generator

- The user interface for operating the tracking generator has been changed. When the option FSH-K2 is installed, the vector transmission or reflection measurement is selected in a separate menu (softkey MEAS MODE in the tracking generator menu). Also, the cable loss measurement function is switched on in the menu MEAS MODE.
- Changed user interface for cable loss, now in TG button bar.

Setup menu (key SETUP)

- The preset setting can now be customized. A stored data set can be defined as the preset setting by using FSH View. The use of the custom preset setting is switched on in the GENERAL menu item PRESET SETTINGS: DEFAULT or CUSTOM.
- Added 9600 baud in SERIAL BAUDRATE menu.
- Added selection of dynamic range HARDWARE SETUP menu.

The remote control commands have been expanded for new features in firmware version 7.0; see remote control manual.

R&S FSH View software

- Support for new features of firmware version 7.0.
- Support for R&S FSH6 models 1145.5850.06 and 1145.5850.26.
- Support of serial interface baud rate 9600
- Added auto-save function with “multiple transfers”.

Repaired defects

R&S FSH firmware

None

R&S FSH View software

- The vector traces were incorrectly loaded from .rss files. The software crashed when loading files with a tracking generator memory trace included. This has been solved in FSH View V7.0.

Firmware Version 6.2

Operating the R&S FSH3 with firmware version 6.2, version 6.0 of the R&S FSH View software is required.

New features

None

Repaired defects

SAVE/RECALL

- When scrolling the data set preview window the firmware crashed. This has been fixed now.

STATUS screen

- The status of the external reference has not been updated correctly in the status screen.

Limit Lines

- In Tracking Generator mode limit lines have not been shown on screen. Only pass or fail information has been output. This is fixed now.

UNITS

- With the unit V/m the numbered values for the marker output always showed the unit V/m. Dependent on the measured value the unit changes to mV/m or µV/m.

Noise Floor

- The noise display with specific spans and sweep times has been increased. This has been resolved.

Reflection measurement with option FSH-K2

- In firmware 6.0 the reflection measurement the dynamic range in vector mode (option FSH-K2) has been decreased compared to firmware version 5.0. Firmware 6.2 fixes the problem.

Distance to Fault measurement

- The auto sweep time in DTF mode is increased to avoid ghost reflections.
- The value of the measured reflection in DTF mode has been dependent on the set center frequency. With firmware version 6.0 it is independent of the center frequency.

Firmware Version 6.0

To use the new features of firmware version 6.0, version 6.0 of the R&S FSH View software is required.

Do not downgrade to an earlier firmware version after version 6.0 has been installed.

New features

R&S FSH3 firmware

Amplitude menu (key AMPT)

- With option R&S FSH-K2 installed a Smith Chart display is added for reflection measurements (menu AMPT: RANGE).

BW menu (key BW)

- Resolution bandwidths 100 Hz and 300 Hz are added with model 1145.5850.03

Trace menu (key TRACE)

- The coupling between trace mode and detector can be switched on or off in the menu TRACE: DETECTOR.

Frequency menu (key BW)

- For the frequency offset also negative values are allowed.

Measurement menu (key MEAS)

Channel Power / Occupied Bandwidth / TDMA Power

- The selection of the transmission standard is retained when changing to a different mode.
- The standard USER can be renamed to a user specific name.
- With Channel Power measurements a minimum channel bandwidth of 834 Hz corresponding to a span of 1 kHz is allowed (only model 03 and 23).
- With Channel Power and Occupied Bandwidth measurements the span can be increased up to ten times the channel bandwidth (softkey MANUAL SPAN and AUTO SPAN in span menu added).

Distance to Fault Measurement

- Selection of the frequency range used for DTF measurement is possible now. In span menu the softkeys MANUAL SPAN and AUTO SPAN are made available for setup.

Tracking Generator

- One Port Cable Loss measurement function has been added with vector reflection measurement. (requires FSH-K2, not yet supported in FSH View). It is switched on in the AMPT menu (softkey TG MODE).

Marker menu (key MARKER)

When changing back and forth the measurement mode the former marker settings will be restored.

Setup menu (key SETUP)

Hardware Setup softkey

- Added preamplifier control also for model 03 for serial numbers beginning with 101362 (softkey HARDWARE SETTINGS).

R&S FSH View software

- Support for new features of firmware version 6.0; Detector coupling, Smith Chart.
- The One Port Cable Loss Measurement is not supported yet in FSH View V6.0.
- Added Display line
- Added control to pre-view Limit Lines
- Added control exchange Limit Lines in rss files.

Repaired defects

R&S FSH3 firmware

- When leaving the Distance to Fault measurement (in firmware version 5.0) via the measurement menu the phase was still measured (although not used). This doubled the sweep update. This problem is solved in firmware version 6.0.
- In the Power Sensor Measurement the prefixes k an M were missing. This is solved in V6.0.
- The menu item ZOOM OFF was not green is when ZOOM OFF was selected. In firmware version 6.0 the ZOOM OFF menu item becomes green.

R&S FSH View software

None

Firmware Version 5.0

To use the new features of firmware version 5.0, version 5.0 of the R&S FSH View software is required.

Do not downgrade to an earlier firmware version after version 5.0 has been installed.

New features

R&S FSH3 firmware

Amplitude menu (key AMPT)

- With option R&S FSH-K2 installed, the VSWR ranges 1 to 1.5 and 1 to 1.1 are added for reflection measurements (menu AMPT: RANGE).

Sweep time menu (key SWT)

- The minimum sweep time is now 20 ms (instead of 100 ms).

Bandwidth menu (key BW)

- Added RBW 200 kHz (only available via numerical keypad).

Measurement menu (key MEAS)

Tracking generator

- With scalar transmission or reflection measurements, the calibration data is now saved with a data set.

Distance-to-fault

- A cable model at a single frequency can be defined by direct entry via the front panel of the R&S FSH3.
- Multimarkers are also available with distance-to-fault measurements.
- Distance-to-fault measurements are performed using amplitude and phase information. With earlier firmware versions, only amplitude information was used.
- Calibration data is now saved in the R&S FSH3 memory to avoid a new calibration when the instrument settings are changed.

Power sensor

- Support for the Directional Power Sensor R&S FSH-Z44 has been added.

Marker menu (key MARKER)

- In addition to PEAK, NEXT PEAK, CENTER = MKR FREQ and REF LVL = MKR LVL in the SET MARKER menu, MINIMUM has been added.

Remote control

- The following commands have been added:
  - GET CTRACE, GET CTRACEBIN
    (read-out of the complex trace data with vector transmission or reflection measurements)
  - CMD MARKERMIN
    (set marker to trace minimum)
  - SET AUTORBW, SET AUTOVBW, SETAUTOSWPTIME
    (set RBW, VBW or SWEEP TIME to auto-coupling)
- The Directional Power Sensor R&S FSH-Z44 is supported.
- Status Byte (read-out of instrument status which may cause measurements to be questionable (e g. uncoupled settings))

Transducers

- The unit V/m has been added.

Data sets

- The active limit lines, transducer factors and/or cable models are now stored along with data sets instead of only their names.

R&S FSH View software

- Support for new features of firmware version 5.0.
- Support of serial interface COM 5 for controlling the R&S FSH3.
- Multimarkers have been added for analyzing measurements.
- The Word macro FSH Report now allows sweep window files (.rss files) to be imported.

Repaired defects

R&S FSH3 firmware

Measurement menu (key MEAS)

- With distance-to-fault measurements and transmission or reflection measurements, the R&S FSH3 erroneously indicated a valid calibration. This has been fixed.

Marker menu (key MARKER)

- With SET MARKER: PEAK, the marker was not positioned to the peak of the trace in the case of low signal peaks. This has been fixed.

Remote control

- Solved long response time when many incorrect commands are sent.
- WAIT: Using the WAIT command to synchronize on end of sweep did not work correctly for short sweep times. This has been fixed.

Firmware Version 4.3

Do not downgrade to an earlier firmware version after version 4.3 has been installed.

Repaired defects

R&S FSH3 firmware

- Improved AM demodulation.

Firmware Version 4.2

Do not downgrade to an earlier firmware version after version 4.2 has been installed.

New features

R&S FSH3 firmware

Setup menu	Display type B/W or Color has been added to the setup menu.

Firmware Version 4.1

Firmware version 4.1 supports the permanent storage of data sets, cable models, limit lines and transducer factors independently of the battery charge status.
In addition, it provides text messages instead of numbers when operated in the Power Sensor mode.

To use the new features of firmware version 4.0 or 4.1, version 4.0 of the R&S FSH View software is required.

Do not downgrade to an earlier firmware version after version 4.1 has been installed.

New features

R&S FSH3 firmware

Marker menu

In the Multi Marker mode, the function 'All Markers ON' is added for both the Marker and Delta Marker menu.

Repaired defects

R&S FSH3 firmware

- Added a green bar in the Date Format menu for indication of the current setting.
- Minimum frequency setting for Power Sensor changed to 10 MHz instead of 10 Hz.
- When the instrument was switched on after it had been switched off with the AM demodulator active, the IF filter was not programmed correctly. This resulted in a noisy display.
  This has been fixed.

Firmware Version 4.0

Firmware version 4.0 supports model 1145.5850.23 of the R&S FSH3 and the 18 GHz Power Sensor R&S FSH-Z18. To use the new features of firmware version 4.0, version 4.0 of the R&S FSH View software is required.

New features

R&S FSH3 firmware

Firmware options

Added Remote Control (R&S FSH-K1) via the optical RS-232 interface.

Bandwidth menu (key BW)

Added 100 and 300 Hz resolution bandwidth (model 1145.5850.23 only).

Trace menu (key TRACE)

With trace mode Min Hold, the Min Peak detector is selected as the default detector.
With trace mode Max Hold, the Max Peak detector is selected as the default detector.

Measurement menu (key MEAS)

Tracking generator

- The tracking generator output level is switchable between 0 dBm and –20 dBm (model 1145.5850.23 only).

Power sensor

- Support for R&S FSH-Z18 up to 18 GHz.

Added **Occupied Bandwidth** measurement.

Distance to fault

- In addition to return loss, VSWR is available for display of cable faults (key AMPT, softkey UNIT).
- Insertion loss of the R&S FSH-Z2 is taken into account when displaying spectrum in Distance to Fault mode.

Marker menu

The number of markers has been increased to six (Multi Marker mode).

Setup menu

The setup menu has been rearranged to support new functions.

Added Hardware Setup softkey

- Added preamplifier control (model 1145.5850.23 only).
- BNC input connector can be switched between external trigger input and external reference input (applies to instruments from serial number 100466 (model 1145.5850.03) and serial number 100938 (model 1145.5859.13)).

Moved the Power Down function to General softkey menu.

Messages

When switching off the instrument when the battery charge is low, the R&S FSH3 issues a warning to save the data sets or to load the battery.

R&S FSH View software

- Support for new R&S FSH3 firmware version 4.0 features.
- The supplied Word Macro ‘FSH Report’ can also read data sets stored on the PC hard disk.
- Added input of relative velocity for cable parameters.

Repaired defects

R&S FSH3 firmware

- Solved slow startup after off/on while vector calibrated in TG measurement.

R&S FSH View software

- Solved bug in reading back data sets including transducer factors exported in csv format.
- Solved bug with readout of measurements using the power sensor.

Firmware Version 3.02

Firmware version 3.02 supports a new hardware release of the digital board of the R&S FSH3. No new functions or repairs are implemented in this firmware version.

Firmware Version 3.01

To use the new features of firmware version 3.01, version 3.0 of the R&S FSH View software is required.

New features

R&S FSH3 firmware

- None

R&S FSH View software

- None

Repaired defects

R&S FSH3 firmware

Tracking generator

- The auto sweep time in the tracking generator mode has been modified for accurate results.

Recall function

- When the status display is viewed in the recall mode, the rotary knob browses through the stored data sets and the cursor keys scroll through the setting table of the status screen.

- The counter frequency is now shown when the test results of stored data sets are viewed. This value was missing in the previous versions.

R&S FSH View software

- None

Firmware Version 3.0

To use the new features of firmware version 3.0, version 3.0 of the R&S FSH View software is required.

New features

R&S FSH3 firmware

Frequency menu

- Frequency offset (up to 100 GHz) added.

Measurement menu (MEAS)

Tracking generator

- Vector transmission and reflection measurement added (Option R&S FSH-K2, for instruments with tracking generator and serial numbers greater than 100523).

Power sensor

- Resolution of power level read-out increased to 0.01 dB.

Distance to fault

- Resolution of distance to fault (DTF) measurement increased from 301 points to 1024 points.
- Zoom function added to marker menu (softkey ZOOM FACTOR).
- Feet added as unit to the distance to fault display (menu SETUP: LOCAL SETTINGS: UNIT OF LENGTH).

Channel power

- dBmV and dBµV added as units to the PWR UNIT menu (in addition to dBm).

Amplitude menu

- 1 dB/DIV added for level resolution (menu AMPT: RANGE).

R&S FSH View software

- Support of new features in firmware version 3.0.

Repaired defects

R&S FSH3 firmware

- None

R&S FSH View software

- Error when reading cable model files with MS Windows French region settings corrected.

Firmware Version 2.0

To use the new features of firmware version 2.0 version, version 2.0 of the R&S FSH View software is required.

Do not downgrade to version 1.1 or 1.0 after version 2.01 has been installed, because the factory adjustment parameters of the display will be lost.

New features

R&S FSH3 firmware

Trace menu

- MIN PEAK detector added.
- MIN HOLD and VIEW added in trace mode.

Measurement menu (MEAS)

- Display line added.
- Limit lines added.
- Transducer factors added.

Status screen (STATUS)

- RF attenuator setting information added.
- Scroll bar added.

R&S FSH View software

- Limit line editor and control added.
- Transducer factor editor and control added.
- Capability to open and store data sets from the R&S FSH3 (*.rsd) files in graphics or text format added.
- Microsoft Word macro for generating test reports added.

Repaired defects

R&S FSH3 firmware

- Spurious signal that occurred when applying an input signal at 402 MHz removed.

R&S FSH View software

- None

Firmware Version 1.1

New features

- None

Repaired defects

- Measurement time for the Power Sensor R&S FSH-Z1 corrected (in firmware version 1.0, the settling time for the measurement result was too long).
- Frequency input for the power sensor increased to 8 GHz.
- Internal memory content with low battery repaired (in firmware version 1.0, a low battery can cause unpredictable memory content, thus preventing correct loading of the battery).

Installation of New Firmware

The new firmware for the R&S FSH is packed in the executable file flashfsh3.exe.

- Store this file in a separate directory on your PC or laptop.
- Connect the R&S FSH to an available COM port on your PC or laptop using the RS-232-C optical interface cable.
- Operate the R&S FSH from the AC mains power supply. Operation from battery does not allow the firmware to be updated.
- Switch on the R&S FSH.
- Store all data sets, cable models, transducer factors and limit lines in the R&S FSH on your PC or laptop using the R&S FSH View software. Otherwise, this information will be lost after the firmware is updated.

  Installed firmware options are not affected by a firmware update.
- Run flashfsh3.exe.
- The program will start and guide you through the installation process.
- After the firmware update is finished, download the data sets, cable models, transducer factors and limit lines from your PC or laptop to the R&S FSH.

Note: *If the firmware installation does not work properly, set the baud rate for the serial port transmission to a lower rate and try again. The maximum baud rate is dependent on the driver capability of the COM port of the PC that is used.*

The battery charge level indication shows a flat battery after a firmware update. The correct charge level indication will be available after the battery is fully charged for the first time after the firmware update.