RFEX V6.1.61
Release Notes

Products:

- R&S®RFEX
- R&S®RFEX-Fast

This document provides information on the bug fix and improvement implemented with version 6.1.61

ROHDE&SCHWARZ

Release Note

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1 Scope

This document provides information on the bug fix and improvement which have been implemented with version 6.1.61, as there are:

- for decoding measurements (UMTS / LTE) with analyzers of the FSH4/8 family, a problem with switching between the modes has been removed.
- for LTE decoding measurements with analyzers of the FSH4/8 family, the Level Adjust routine of the analyzer is now called up automatically for each measurement, thus eliminating the need for manual leveling.

Version 6.1.61 includes only minor changes compared to version 6.1.60 . For this reason, the new functions of the latter version are highlighted, again. New features are

- Support of the Frequency Selective Power Meter R&S®NRQ6 for 5 G measurement
- Improvement of H-field measurement mode

Furthermore, the release notes provide information on the download link, the update procedure and known issues for the current versions.

2 Installation / Update

2.1 Download of Version V6.1.61

The software can be downloaded from the Rohde & Schwarz web site under the following link:

https://www.rohde-schwarz.com/de/produkt/ts-emf-produkt-startseite_63493-8174.html

The zip-file is password protected. Registered customers get the password via mailing from the R&S customer support center. Please contact customer support or your local sales representative in case you did not receive the mail and need the password.

2.2 Upgrade to V6.1.61

Upgrade to Version 6.1.61 is free of charge.

Installation of RFEX 6.1.61 requires de-installation of the previously used version. Please refer to the quick start and installation guide for further information on the installation.

Important Note: In particular, RFEX 6.1.60 is not compatible with installations prior to 6.1.50. Be sure that versions using the old installer are removed!

3 New Features in Version 6.1.61 / 60

Due to the fact that Version 6.1.61 only provides minor bugfixes to Version 6.1.60, the changes in 6.1.60 are repeated in this place.

In addition to the bugfix, in Version 6.1.61 the Level Adjust routine of analyzers of the FSH4/8 family is now called up automatically for each LTE decoding measurement.

3.1 Support of R&S NRQ6 for 5 G measurements

The R&S NRQ6 is a frequency selective power sensor with unprecedented features for power measurements. Due to its frequency range up to 6 GHz, it's high bandwidth of up to 100 MHz with flat frequency response (the Gaussian filter is specified up to 400 MHz), **it is the ideal measurement device to measure signals of 5 G FR1**. RFEX Version 6.1.60 supports NRQ6 for spectral and power measurements.

For general EMF-measurements with the NRQ6, however, there are also important restrictions. The R&S NRQ6 does not provide a similar level of spurious response rejection as a spectrum analyzer. While the predominant high frequency emissions are measured with high accuracy, spurious of the NRQ may show up at frequencies lower than 40% of the predominant emission. For EMF measurements at frequencies lower than 40 % of the predominant emission, a separate spectrum analyzer is strongly recommended.

Spectral measurements evaluate the magnitude of the IQ data measured by the NRQ6. Those values are peak level, which provide a good overview of the spectrum, allow a worst case indication and show the predominant emissions at the investigated site. For the assessment of EMF-levels of the predominant emissions, the RMS values of the Channel Power function of the NRQ6 are used.

Summary: The NRQ6 allows fast and exact measurement of the 5 G FR1 signals, where it is the predominant emission. It covers the complete bandwidth of a channel by 100 MHz RF bandwidth. An additional spectrum analyzer is recommended especially due to better selectivity at lower emissions and faster sweeping complete frequency bands with RMS detector.

3.2 Full support of H-field measurements

With version 6.1.60 of RFEX, H-field antenna factors and limit lines can be selected. The reports then show the immissions in A/m or dBµA/m, and the ER is calculated as H^2/L^2.

3.3 Improvements in Version 6.1.60

Antenna switching through FPH is now available.

Display warning if there are too many measurement points for FPH in RFEX Fast.

Newly created packets do not overwrite existing packet files, which may be hidden in the dialogs due to different analyzers.

3.4 Eliminated Errors in Version 6.1.60

Antenna switching through FPL has been disabled since AUX port did not support pin setting commands.

The registry key for the data path may have been set wrongly in previous installations depending on the operating system and the user permissions. This may have led to empty folders in RFEX.

4 Known Issues

4.1 All Versions / FSH4/8 Firmware 3.00

The “Level Adjust” routine of the analyzer firmware may result in settings with attenuation > 0 dB and pre-amplifier (PA) switched on. The optimum setting is being investigated and might be changes in a future firmware version.

4.2 Version 6.1.51

UMTS decoding using spectrum analyzers together with the obsolete Sync Unit TSEMF-SC are not supported at the moment. This does not affect decoding with FSH4/8/13/20 or TSMx devices.

4.2.1 XML reports: LTE measurements

Regarding LTE measurements, currently only PSync and SSync values are listed in the XML report.

4.2.2 XML Reports: Longterm measurements

Currently, no XML reports are generated for longterm measurements.

4.2.3 Calibration File in the Hardware Configuration menu

In the menu Hardware Configuration a calibration file can be used to compensate any frequency response of the measurement device or any additional attenuation. The functionality is the same and in addition to an extension cable called up in the packet settings. While the calibration file is correctly included in the calculation of the final results, it is not considered for the level indication during measurement in the status window and in the bar graph indication during Peak/Average measurement.

4.2.4 Suppress Crosstalk plus 8001 pixels resolution

Restrictions have been found when the Suppress Crosstalk function was used together with 8001 Pixel resolution (RFEX menu *System--> Options*), in particular for small frequency range and small RBW (transmission channel = ½ RBW). In this case, the 8001 pixels setting results in a high number of pixels per broadcast channel, which may lead to wrong results of the suppress crosstalk function.

Recommendation

- Use default setting 501 pixels
- Use 8001 pixel only for wide frequency ranges or together with the peak-search function.

4.2.5 UMTS decoding with FSV

The theoretical maximum measurement rate for Peak/AV is 10 Hz. Due to a timing issue between start of measurement and trigger pulse quite often only 5 Hz may be achieved.

4.2.6 FSH4 / FSH8 antenna switching

For the time being it is not possible to control the switching of an R&S Isotropic Antenna from the RFEX via the Probe Connector of FSH4 / FSH8 (as it is possible for FHS3/6/18). Meanwhile, the functionality has been implemented in the firmware (since V2.0), but it requires activation of a Dummy Transducer on the FSH. An acceptable solution is being sought.

5 Eliminated Errors Previous Versions

5.1 Eliminated Errors Version 6.1.51

Not applicable

5.2 Eliminated Errors Version 6.1.50

5.2.1 FSH4/8 switching between different analyzer modes

In certain situations the switching between analyzer modes (spectrum and digital modulation analyzer) of the FSH4/8 did not work. This has been corrected.

5.2.2 Spectral Measurements with TSME/TSMW

There have been issues while measuring several packets in a spectral measurement with TSME/TSMW. Due to device configuration issues, this caused problems for the TSME/TSMW. To avoid this problem, the number of selectable packets for a spectral measurement for TSME/TSMW has been restricted to one.

5.2.3 3-Axis-Antenna Switching for TSME/TSMW spectral measurements

In certain cases, the antenna switching stopped at the z-axis after the measurement of the first packet. Following packets have been measured only on the z-axis. This has been solved. Anyway, this situation will not appear in future due to the modification of the packet selection for those analyzers (refer to 4.1.2.)

5.2.4 FSH4/8 detection issue

In case an FSH4/8 had previously been selected in the hardware setup and another spectrum analyzer was connected at RFEX startup with the same IP address, a warning message regarding the FSH firmware version has been displayed. This erroneous message will no longer appear.

5.3 Eliminated Errors Version 6.1.42

5.3.1 FSH4/8/13/20 Switching of isotropic antenna through analyzer

In some cases, the selection box “Switching antenna through analyzer” was not displayed. This has been corrected.

5.3.2 Unit in threshold tables wrong

Manually created threshold tables were saved with the wrong unit. This has been corrected.

5.3.3 Error message with RFEX-Fast while report output

Depending on the report output settings of RFEX, an error message occurred while showing reports with RFEX-Fast. This has been corrected.

5.3.4 GPS position from FSH4/8/13/20 not correctly entered in report

The GPS coordinates from FSH4/8/13/20 were only correctly entered in the report, when the GPS sensor unit was tested before in the hardware setup. This has been corrected.

5.4 Eliminated Errors Version 6.1.41

5.4.1 Removal of the Beta-Version mark on the main GUI of RFEX-Fast

For some reason, a Beta-Version label appeared on the main GUI. This has been removed.

5.4.2 Update of the language resource files

The language files for Spanish and Chinese have been updated.

5.4.3 Automatic disabling of active transducers for UMTS measurements with FSH4/8/13/20

If an UMTS measurement is started on FSH, active transducers are automatically disabled.

5.4.4 Correction of position readout for the southern hemisphere with FSH4/8/13/20

The GPS position calculation for FSH was erroneous for the southern hemisphere. This has been corrected.

5.4.5 Recognition errors of hardlock-option TSEMF-K23 (UMTS/LTE decoding with FSH8)

In some cases, option TSEMF-K23 was not recognized correctly for UMTS/LTE decoding with FSH8.

5.4.6 FSH4/8/13/20 problems while switching between different measurement modes

When FSH users with TSEMF-K23 switched between spectral and UMTS decoding or between UMTS and LTE measurements, it could easily happen, that the FSH did not switch the measurement mode or that the data connection got lost. This misbehavior has been removed.

5.4.7 RFEX Option “Switch through Analyzer” for measurements with analyzers of the FSH-family

RFEX Option “Switch through Analyzer” for measurements with analyzers of the FSH-family
Under some conditions the selection box “Switch through Analyzer” on the tab “Switch Unit” of the RFEX Hardware Configuration menu disappeared. This has been corrected.

5.4.8 Support of additional R&S measurement devices

Additional, ZVH4/8, FSW, ESR/ESRP/ESL are now supported.

5.4.9 RFEX-Fast on analyzer: support of GPS receiver

If the RFEX-Fast was installed on an analyzer, activation and usage of a GPS-Receiver were possible, however, the activation and COM address were not stored. This has been changed.

5.4.10 Generation of Packets with frequencies below 30 MHz

For packets with frequencies below 30 MHz, an error message could occur that the cable used does not cover the selected frequency range, even the correct cable was used. This erroneous message does no longer appear.

5.5 Eliminated Errors Version 6.1.40

5.5.1 RFEX crash during startup

On some systems, old ocx and dlls were not overwritten by the components in the latest installation.

5.5.2 Switch through analyzer

The checkbox “Switch through Analyzer” on the tab “Switch Unit” of the RFEX hardware configuration sometime appeared, even if FSH4/8 was selected (reference to known issues below).

5.5.3 Diagnostic routine for antenna switching

A diagnostic routine has been implemented in case if there are problems switching the 3-axis-probe. Thus, the problem can be narrowed down to help the user to solve the problem.

5.5.4 Pre-Amplifier Support for FSL

The pre-amplifier can now be activated in the packet, if FSL is selected as analyzer.

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7 Improvements Previous Releases

7.1 Improvements in Version 6.1.51

7.1.1 Support of FPL

The RFEX has been extended to support the R&S FPL

7.1.1 Installation on analyzer

Restriction to install RFEX on analyzer have been removed with the updated installer of RFEX 6.1.51.

7.2 Improvements in Version 6.1.50

7.2.1 New Windows installer

New windows installer was introduced.

7.2.1 Support of FPH

The RFEX has been extended to support the R&S FPH handheld analyzer

7.2.1 Extrapolation factor in LTE/UMTS packets

Numbers with decimal fraction can be entered as extrapolation factor.

7.2.2 Sweep time settings for spectral measurements

Instead of using the default “Auto” setting where the analyzer chooses automatically the sweep time, a distinguished sweep time can be set.

7.3 Improvements in Version 6.1.42

7.3.1 Decoding with TSME

UMTS and LTE decoding with TSME have been implemented.

7.3.1 Spectral measurements with TSME

Spectral measurements with TSME (RF Power Scan) have been implemented.

7.4 Improvements in Version 6.1.40

7.4.1 Improvement TSMW RF Power Scan

Major improvement of spectral measurements with TSMW (RF Power Scan)

7.4.2 Support for FSH13 / FSH20

FSH13 / FSH20 analyzers can be used for measurements.

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Regional contact

USA & Canada
USA: 1-888-TEST-RSA (1-888-837-8772)
from outside USA: +1 410 910 7800
CustomerSupport@rohde-schwarz.com

East Asia
+65 65 13 04 88
CustomerSupport@rohde-schwarz.com

Rest of the World
+49 89 4129 123 45
CustomerSupport@rohde-schwarz.com

Rohde & Schwarz GmbH & Co. KG
Mühldorfstraße 15 | D - 81671 München
Phone + 49 89 4129 - 0 | Fax + 49 89 4129 – 13777

www.rohde-schwarz.com