NEWSLETTER TS-EMF

New Release Version 4.10 of System Software RFEX

Dear TS-EMF Users

We have released version 4.10 of TS-EMF System Software RFEX. This newsletter is issued in order to inform you about the new features included in this version as compared to currently released V4.00. The new version can be obtained free of charge for customers already working with RFEX. The existing hardlocks remain valid.

Update / Uninstall of previous Versions

Please be aware, that all packet files which are delivered with the RFEX are uninstalled with the uninstall procedure or overwritten during the update, respectively. Files generated by the user are not affected. If original packets have been modified by the user without changing the name and shall be kept, they have to be saved before and restored after the update.

Hardware

The Rohde & Schwarz spectrum analyzer FSL is now supported by RFEX.

The number of sweep points making up a trace on the FSx (FSP, FSU, FSL, ESPI, ESCI) display is now set to 8001 from the previously used default value of 501. This allows to measure much more channels with one sub-packet as in previous versions. As a channel shall contain a minimum number of pixels, the maximum number of channels per sub-packet was limited to 250 at present. This figure now is extended to 1000 channels. Note that this extension is not applicable to the FSHx hand-held spectrum analyzers.

Measurement Procedures

Channel Power Measurements also enabled for ESPI/FSx

Channel Power measurements are now supported with ESPI and FSx as they were with FSHx in previous versions.

While the 10 MHz resolution bandwidth available from ESPI and FSx should be enough for correctly evaluating the standard radio signals to be monitored, newer technologies like W-LAN implement signals with broader bandwidths. Using the channel power measurement capability makes it possible to measure such signals with RFEX as well.

Threshold Calibration now generates tables

Up to now, threshold calibration only generated a fix value for one packet, taking the maximum of the acquired noise trace, after application of the antenna factor. Due to the frequency response of the antenna factor, taking only the maximum value for the range of the packet did lead to a potential loss of sensitivity.

This has been changed, the threshold calibration now generates a frequency dependent table of the new table type "Threshold". The File menu and the sub-folder structure have been extended accordingly to take into account this new file type.

RFEX Configuration (Options)

The one minute delay before starting a peak/average or a long-term measurement can be skipped. A new check box has been added to the Options dialog for this purpose.

UMTS measurements can be selected to be the default when starting a new measurement. A new check box has been added to the Options dialog for this purpose.

TS-EMF probe can now be addressed using single axes only. A new check box has been added to the Hardware Configuration dialog, tab "Switch Unit" for this purpose.

Measurement Packet Configuration

Video Bandwidth

The spectrum analyzer's video bandwidth can now be selected. In the previous version, it was always set to be coupled, that is, automatically set by the analyzer depending on resolution bandwidth and sweep time. This is still the default setting, but arbitrary video bandwidths can be set as well.

This feature is not available for the FSHx.

Evaluation Threshold

Evaluation threshold can now be set in three different ways:

- o Selecting a threshold table: This corresponds to selecting a fixed threshold value in former versions of RFEX. Any measured value below this threshold will be skipped during measured value compression.

  Existing packets will automatically be patched when loaded as follows: A file of type "Threshold" will automatically be generated with the frequency range of the packet and a constant threshold value equal to the fixed value set previously. The name of the new table is set to "Threshold_nn" where nn is the previous threshold value.

  For example: Loading a packet with a threshold of 85 dBµV/m results in a new table "Threshold_85", and this table is automatically selected to the packet.

- o Setting a constant value relative to the maximum value found in the packet. This is equivalent to the setting known from previous versions.

- o Setting a constant value relative to the selected limit line. If a limit line is available for the measurement, only values will be considered during compression which are nearer to the limit than this threshold value.

Suppress Cross talk

When defining the measurement frequencies to use a known cannel pattern with the channel width being equal to the packet's RBW, it may happen that trailing signal edges of the signal in one channel overlap to the adjacent channels. This is known as cross talk. If there is no signal in the adjacent channel, this trailing edge could be interpreted as signal corresponding to the adjacent channel giving an unrealistically high value.

In order to avoid such situations, a new checkbox "Suppress crosstalk" has been added to the "Measurement Frequencies" tab. If checked, the RFEX will not just find the maximum level in the channel, but will examine whether this maximum is at one of the channel boundaries and the trace decreases from this boundary towards the center frequency of the channel. In this case, cross talk from a strong signal in the adjacent channel is assumed and the maximum at the boundary is ignored. A local maximum (level higher than at the neighbouring frequencies) will be searched for within this channel, instead.

Report

New extended report format

A new report format has been implemented for single and peak/average measurements. The results are plotted to columns in the Excel worksheet in all possible result units: field values in V/m and dBµV/m, fractions of the limit in percent, per-thousand and ppm, power flux density in µW/cm², W/m² and µW/cm². Most of the columns are hidden in the report, leaving a meaningful representation. If other units are wanted, the user only has to hide and unhide columns in the Excel sheet, there is no need for generating new reports.

Also, numeric values are not generated as strings any more, but the cells of the Excel sheet now contain formulas. Thus, result conversion between different units and total field accumulations can be traced and, if wanted, directly be modified by the user.

Always generate report

If no data were available in the final compressed table, a report would not be generated in previous versions. Instead, a warning message would pop up. This has been changed: A report will always be generated, even if it does not contain useful data. This allows to state that with the reported packet settings no signals were detected above the selected threshold.

Reporting on systems without Microsoft Excel

On PCs without Excel installed (as is the case, for example, when running RFEX on a spectrum analyzer), no report could be generated. In V4.10, at least a simple result viewer is available in this case: When clicking the "Create Report" button or when selecting one of the Export menu items, the final result table with compressed results is passed opened with the Windows Notepad utility, allowing the user a direct and simple view to his result. Of course, this will not include post-processing elements like total sum values and graphics.

RFEX Installation

The default installation path has been changed to *C:\Rfex* in order to avoid problems if the user is not logged in to Windows as administrator. In this case the user has no write access to C:\Program Files and RFEX is not able to write data, causing run-time errors.

Known Problem for UMTS decoding on ESPI/FSP

If RFEX is installed on the spectrum analyzer or the spectrum analyzer is remotely controlled through its LAN interface, the following two features have been found to be incompatible and thus may not be used at the same time:

- running tests with UMTS decoding, and
- switching the TS-EMF probe through the analyzer

There is no problem in doing UMTS decoding with RFEX installed on the analyzer (or controlling it via LAN) if the probe is switched through the USB converter.

Also, there is no problem switching the probe through the analyzer, if it is remotely controlled through GPIB.

Finally, there is no problem running RFEX on the analyzer and switching the probe through the analyzer, as long as you don't do UMTS decoding measurements.

How to get the new version

In order to get the new RFEX version 4.10, you can either

- contact your Rohde & Schwarz representative for getting a CD-ROM, or
- download an image of the CD-ROM from the TS-EMF download page in our homepage at www.rohde-schwarz.com/www/dev_center.nsf/html/ts-emfdown. The image is password protected, please ask your representative for the password.

As the previous upgrade of RFEX, this version 4.10 can be installed and run in parallel to an existing RFEX installation.

Customer Support

In case of questions and problems please contact one of our Customer Support Centers:

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