Beta 13 Oct 2014 – calibration data files

Please download and test this feature on this link:
http://micro.arocholl.com/download/sw/beta/RFEGEN_Beta_13Oct2014.zip

Or check latest BETA version from www.rf-explorer.com/download (bottom end of the page for BETA downloads)
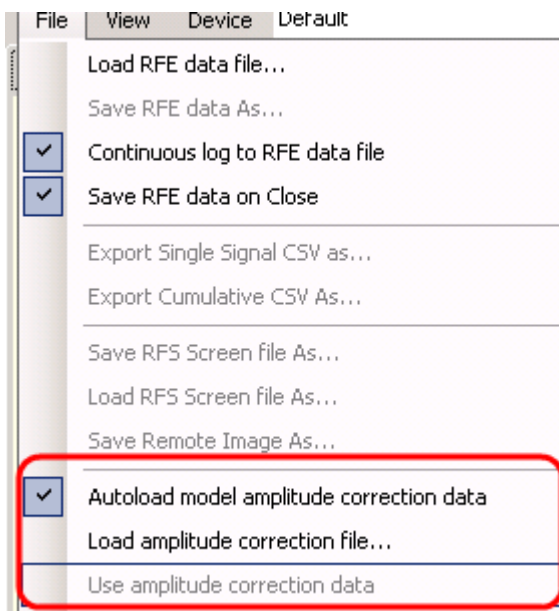
It includes Amplitude Calibration files that can be freely modified by end users to make both modules measure same amplitude and, more importantly, to calibrate it against a high precision instrument for more reliable measurements.

Amplitude Correction files are intended for use in the RF Explorer for Windows, and allows the user to modify the amplitude response of the analyzer over frequency.

It includes two main characteristics that are important for demanding advanced users with higher accuracy measurement needs:

- Overload limit warning
- Calibration amplitude offset compensation over frequency

The calibration files are independent for each model and, therefore, you can easily adjust independently left connector (WSUB1G) and right connector (WSUB3G) response and calibration in a 3G Combo.

The RF Explorer for Windows automatically reads the right file and applies the correction to the measurement. For that to work, make sure to have the "Autoload model amplitude correction data" checked in the File menu and also check on "Use amplitude correction data" for the calibration files to effectively adjust all measurements.

Files that are loaded for correction data are reported in the Report tab, including full name and path of the file being loaded and used. A message like this would be an example:

```
Automatic amplitude calibration data loaded:
C:\Users\MyName\AppData\Roaming\RFExplorer\WSUB3G.RFA
```

When a file is loaded and the "Use amplitude correction data" option is checked, the software will show a tiny line at threshold levels, and will automatically apply adjustment offset to every single data measurement point. By disabling the "Use amplitude correction data" you no longer apply these corrections or threshold warning.

You can manually load a different correction file using the "Load amplitude correction file…" option, but this is not needed in normal cases.

The software comes with calibrated files including standard overload warning threshold levels for all RF Explorer models. If you see different reads than expected and want to manually calibrate any of your models, please modify the files with extension .RFA you will find in the %appdata%\RFExplorer folder in your computer.

There is a dedicated file for each model. For instance WSUB1G (left 3G Combo connector) uses the WSUB1G.RFA file. If you open that file with a text editor (such as Notepad) you can see configuration data currently defined. An example of a WSUB1G.RFA standard file is listed below:

```
--RFEAT01
--Last updated 2014-04-17
--WSUB1G baseline delivered with RF Explorer software
--Place it at %APPDATA%\RFExplorer folder
--File parameters:
--  1st column: Frequency
--  2nd column: Amplitude correction in dB
--  3rd column: Overload/compression input value in dBm
--separate column data by either blanks or tabs
240   0   -15
350   1   -18
420   2   -18
440   6   -18
450   5   -18
455   1   -18
480   1   -18
540   1   -15
650   2   -15
750   3   -15
850   3   -15
960   4   -15
--EOF
```

The first column is the start frequency range for which the amplitude correction is specified.

The second column is the amplitude correction in dB.

The third column is the value in dBm where the unit may start not behaving linearly and therefore should be protected by an external attenuator in order to get it back to linear response region.

The way the correction works is by adjusting RF Explorer for Windows response on each frequency region specified. A user can specify as many regions as needed.

As an example of how this works: If the unit is measuring a sweep data point at 687.430MHz, this goes into the region 650-750MHz defined in standard WSUB1G.RFA file, and therefore will adjust amplitude as offset +2 dB, and will warn user with OVERLOAD message if any measurement gets as high as -15dBm.

If you want to modify the file to add new regions, or to adjust calibration values, proceed as follows:

- Always backup the original file to restore if needed. You can have as many .RFA files for different uses as long as they do not have the standard unit model file name. For instance WSUB1G.RFA is reserved for automatic correction file, but you can define WSUB1G_AND_RFCABLE2.RFA or WSUB1G_AND_ANTENNA_YAGI_15dB.RFA as files you can define and load on demand.

- Change one value at a time and reload the file to retest response. Doing multiple changes at the same time will be difficult to diagnose for calibration mistakes.

- If you need to define new regions, make any new frequency entry consecutive and ordered from lower to higher frequency. For instance this definition will be incorrect and will lead to undetermined behavior:

  - 240   0   -15
  - 430   1   -18   (wrong frequency – higher than 420)
  - 420   2   -18

- You can also remove regions if are of no use for your needs

- Do not remove or change first comment --RFEAT01 nor last --EOF, these are protected for correct file identification. Other comments can be added preceded by -- anywhere.