



ROHDE & SCHWARZ

Test and Measurement
Division

Release Notes

Firmware Release 4.73 SP5

for R&S ESU EMI Test Receiver

with order number: 1302.6005.xx

Release Note Revision: 6

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History

<u>Date</u>	<u>Rel Note Rev</u>	<u>Changes</u>
07. Feb 2013	1	First revision for 4.73
17. Jun 2013	2	First revision for 4.73 SP1
03. Jul 2014	3	First revision for 4.73 SP2
28. Jan 2015	4	First revision for 4.73 SP3
10. Sep 2015	5	First revision for 4.73 SP4
26. Oct 2018	6	First revision for 4.73 SP5

General Topics

Firmware Update

Generation of the update set

The instrument firmware is provided as ZIP. It is available from our website.

Preparing installation via USB stick or LAN:

- Download the update set ZIP file.
- Extract the contents of the ZIP file to a temporary folder, e.g. C:\MyTemp.



Other files (e.g. release notes) shall not be stored in these directories. These files would be copied on harddisk and may cause a disk full problem on drive E:.

- Now copy the content of the temporary folder including all sub folders if present to a USB stick.
- The USB stick is now ready for the update.

Performing the firmware update on the instrument

A new method for update is available, if the installed firmware is V4.13 or newer.

Firmware Update from version < 4.13 to 4.13 or newer:

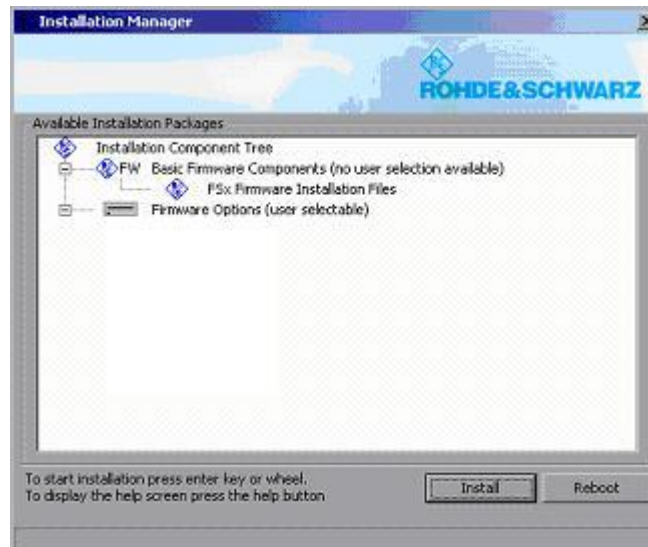
Skip this step, if the installed firmware is V4.13 or newer. The firmware update process is performed as follows:

- Switch the instrument on and wait until the Receiver has resumed operation.
- Use the SETUP | NEXT | FIRMWARE UPDATE | UPDATE PATH softkey to specify any path for the location of the disk directory (e.g. F:\MyTemp).
- Press SETUP → NEXT → FIRMWARE UPDATE
- Confirm the query "Do you really want to update the firmware?" with OK
- Confirm the copy process.
- The instrument will perform several automatic shutdowns, until the new firmware is installed properly.
Do not switch the instrument off until the update process has been finished completely.

Complete Update with update manager:

- Use the SETUP | NEXT | FIRMWARE UPDATE | UPDATE PATH softkey to specify any path for the location of the disk directory (e.g. F:\MyTemp).
- Press SETUP → NEXT → FIRMWARE UPDATE
- Confirm the query "Do you really want to update the firmware?" with OK

The *Installation Manager* will terminate the analyzer application, search for available application update set and will show a selection list.



- Start the installation process with INSTALL. REBOOT will abort the update and restart the analyzer application without any changes.
- The instrument will perform several automatic shutdowns, until the new firmware is installed properly.

Do not switch the instrument off until the update process has been finished completely.

After a successful firmware update it is necessary to execute the instrument's self alignment process by pressing CAL and softkey CAL TOTAL.

Known problems during firmware update

After switching on the instrument for the first time after a successful firmware update, the following system message might occur once:

System Message
CDS: Error...

In this case the unit needs to be switched off and on again. This system message does not appear again during further power-on cycles.

Note: *If the unit is not restarted as described, system error correction data (CAL TOTAL) of a later date will be lost when switching the unit on again.*

New Functions in version 4.73 SP5

General:

- Support of R&S ELEKTRA EMI Test Software.

New Functions in version 4.73 SP3

General:

- Support of Four-Line V-Network ENV 432.

New Functions in version 4.73

Receiver Mode:

- **Stepsize information in receiver scan mode.**
On the left upper corner of the receiver scan window the actually selected step mode of the receiver scan is shown. If step mode LIN is selected in stepped scan, this field is shown yellow if the step size is greater than the AUTO-Stepsize and red if the step size is greater than the resolution bandwidth.

General:

- **New filter type MIL available.**
If the filter type MIL is selected, only the military 6dB bandwidths are available.

Remote command: `:[SENSe<1|2>:]BANDwidth|BWIDth[:RESolution]:TYPE MIL`
- **New RRC Filter 6 kHz available.**
- **New Channel Filter 7.5 kHz available.**
- **New remote command "DIAG:SERV:VERS?" available to query all the measurement application versions.**
- **New Remote Status Bits supported:**
Status Operation Register Bit 4: "Wait for TRIGger" for I/Q measurements
Questionable Power Register Bit 7: "Input Overload"
- **FSP-B10: Support of SMB100A12, SMB100A20, SMB100A40 and HP83620.**
- **Switchover frequency for 150 kHz Highpass**
The switchover frequency of the 150 kHz highpass in the preselector of the instrument can be assigned either to CISPR Band A or Band B. The preselection filters are used to protect the input circuit of the instrument from overload when measuring weak disturbance signals in the presence of high amplitude signals or when measuring strong broadband signals with a bandwidth that is much wider than the instrument's measurement bandwidth. Nowadays high disturbance voltages in the range below 150 kHz occur in many cases. The source of the high disturbance voltage below 150 kHz is quite often the switching frequency of the switch mode power supply and its harmonics. These disturbance voltages are not limited in commercial product standards like CISPR 22 / EN 55022 or CISPR 14-1 / EN 55014-1 as these standards do not specify disturbance voltage limits below 150 kHz. As a consequence these high levels below 150 kHz may contribute to the measurement results in CISPR Band B (150 kHz to 30 MHz). Therefore it is essential to use a highpass filter in CISPR Band B at 150 kHz and above. For measurements in CISPR Band B it is thus recommended to assign the 150 kHz to Band B.

The softkey "150K BAND" is located in the Setup-sidemenu.
Remote command: :INPut:PRESelection:CUToff ABANd | BBANd

Spectrum Analyzer Mode:

- **ACP Measurement: Improved dynamic range with activated noise correction and detector RMS.**
- **Spectrum Emission Mask measurement: Additional customized configuration files for CDMA 2000.**
- **New Remote command ":TRAC:DATA:MEM?" to read a part of the trace data.**
- **Remote command SENSE:SWEEP:COUNT:CURRENT? is supported for Spurious Emissions and Spectrum Emission Mask measurement.**
- **Multi Carrier ACP with up to 18 TX Channels.**
- **Multi Carrier ACP: Support of save/recall of user defined standards.**
- **SEM measurement: Supports of save/recall of user defined standards.**
- **SEM measurement: Additional WIMAX configuration files available for DL ETSI (5MHz / 10MHz).**
- **FS-K7: New Fundamental Frequency AUTO/MANUAL setting for SINAD and THD measurement**

Modified functions

Modified functions in version 4.73:

Receiver Mode:

- The span of IF Analysis is rounded to 1/2/5/10 steps even if the value is entered directly.
- Block data transmission of receiver scan is switched off after leaving receiver mode.
- Frequency offset is set to 0.0 Hz when entering Receiver or APD mode.

General:

- X-Axis scaling of limit lines EN55014A and EN55014Q changed from LOG to LIN.
- New "Instrument Driver Actuator" in the Windows Start menu.
- New functions to temporary disable/enable option license keys.
- New remote command "SYSTEM:SHUTdown" to shut down the instrument.
- Trace Export: Additional ASCII File entries "Preamplifier" and "Transducer".
- **Transducer factors with unit dBpW changed.**
 Transducer factors defined in unit dBpW up to now represented the insertion loss of e.g. an absorbing clamp. This was changed to use the clamp factor instead of the insertion loss, to avoid the chance of misinterpretation of the calibration values shipped in combination with the absorbing clamp.

As a consequence the numerical values of a transducer factor in dBpW have to be reduced by 17 dB compared to previous firmware versions.

Typical transducer factor for an absorbing clamp representing the insertion loss (old)

EDIT TRANSDUCER FACTOR			
Name/Unit/Interpolation:		MDS21	LOG
Comment:		Power Absorbing Clamp MDS-21	
FREQUENCY	TDF/dB..	FREQUENCY	TDF/dB..
30.000000000 MHz	18.500		
35.000000000 MHz	17.900		
40.000000000 MHz	17.400		
45.000000000 MHz	18.000		
50.000000000 MHz	16.900		
60.000000000 MHz	16.400		
70.000000000 MHz	16.100		
80.000000000 MHz	15.800		
90.000000000 MHz	15.600		

Typical transducer factor for an absorbing clamp representing the clamp factor (new)

EDIT TRANSDUCER FACTOR			
Name/Unit/Interpolation:		MDS21	LOG
Comment:		Power Absorbing Clamp MDS-21	
FREQUENCY	TDF/dB..	FREQUENCY	TDF/dB..
30.000000000 MHz	1.500		
35.000000000 MHz	0.900		
40.000000000 MHz	0.400		
45.000000000 MHz	1.000		
50.000000000 MHz	-0.100		
60.000000000 MHz	-0.600		
70.000000000 MHz	-0.900		
80.000000000 MHz	-1.200		
90.000000000 MHz	-1.400		
100.000000000 MHz	-1.600		

Improvements

The version numbers in brackets indicate the version in which the problem was observed for the first time.

Improvements in version 4.73:

Receiver Mode:

- **(V4.43) Overload indication "OVTRC" was displayed in receiver bargraph measurement.**
No "OVTRC" is available in receiver bargraph measurement.

General:

- **(V4.43) Remote command "MMEM:DATA" ignored the current folder, previously set with "MMEM:CDIR".**
- **(V4.43) The deactivation of the screen saver with remote command "DISP:PSAV:STAT OFF" did not switch on the display.**
- **(V4.43) Remote control: Bit 8 of the remote status register STATUS:QUESTionable (UNCAL) is set now if the self alignment correction data usage is switched off with CAL:STAT OFF.**
- **(V4.43) FSP-B10 SMF did not go to LOCAL state after being used as external tracking generator.**
- **(V4.43) B10: A GPIB address change for the external signal generator was ignored.**
The analyzer application was using the previous address until the external source is switch off and on again.
- **(V4.43) When the unit dBpT was selected in a limit line, the SCPI command to write the limit data returned an error.**
- **(V4.43) Application crashed after flowing key strokes: FILE – FILEMANAGER – PREV – ESC - ESC.**
- **(V4.43) Function SGL SWEEP DISP OFF did not reactivate the screen after reaching the end of a sweep.**

Spectrum Analyzer Mode:

- **(V4.43) The remote command "TRAC:IQ:FORM?" returned the wrong settings as long as TRACE:IQ:STAT was not switched on.**
- **(V4.43) Marker Function Reference Fixed could not be switched off.**
It was not possible to switch off the marker function REFERENCE FIXED after following order of key strokes:
 - MARKER – REFERENCE FIXED (activates Reference Fixed)
 - MKR FCTN – NOISE MEAS (activates Noise Marker)
 - MKR FCTN – NOISE MEAS (de activates Noise Marker)
- **(V4.43) SEM Measurement: It was not possible to generate a save set while the measurement is running.**
- **(V4.43) ACP Measurement: Wrong unit indication for absolute power results with more than 3 adjacent channels.**
The measured ACP powers were indicated with unit dB instead of unit dBm if following settings were used:
 - CP/ACP ABS
 - Number of Adjacent Channels > 3The numerical results were not affected.
- **(V4.43) Spurious Emissions Measurement: A spurious signal appeared when the marker position was modified.**
This issue did not affect the measurement results (e.g. the trace or the marker readout).

- **An error message "Undefined header" was reported in remote operation, but the command was executed.**
This issue only occurred with a sequence using nested commands, e.g. "DISP:WIND:TRAC:Y 100 DB;;FREQ:CENT 28E+6;SPAN 3E+3".

Improvements in version 4.73 SP1:

Receiver Mode:

- **(V4.73) Input 2 in Receiver Scan Table**
After recalling a data set with input 1 and input 2 in the scan table and deleting the ranges with input 2 it happened that the remaining range was set to input 2.

General:

- **(V4.73) Width of CAL RESULT TABLE enlarged to show preselector calibration results properly.**
- **(V4.73) Tracking Generator: RMS Detector was used by Cal Trans function.**
In Version 4.73 the RMS detector was selected. Now the sample detector is used.

Improvements in version 4.73 SP2:

Receiver Mode:

- **(V4.73 SP1) Input handling of receiver final measurement improved**
If more than one scan ranges with different inputs (1/2) were defined, the receiver final measurement always selected the input defined in the last scan range. This issue is solved.

General:

- **(V4.73) Application locked after preset with startup recall file.**
If the IF Analysis was active, the ESU locked after a preset with a startup recall. This issue is solved.
- **(V4.73) Tracking Generator: Normalization did not work correctly.**
In some cases the trace with active tracking generator was not normalized to 0 dBm after startup. This problem is solved.

Improvements in version 4.73 SP3:

Receiver Mode:

- **(V4.73) Synthesizer settings of Time-Domain-Scan improved.**

Spectrum Analyzer Mode:

- **(V4.73) Synthesizer settings of Spectrum Analyzer Sweep improved.**
- **(V4.43) A frequency domain sweep did not terminate**
This issue happened for certain combinations of Center Frequency, Span, Resolution Bandwidth, Video Bandwidth and Sweeptime and is now fixed.
Note: This issue is already fixed in V4.73.

Improvements in version 4.73 SP4:

If Analyzer Mode:

- **(V4.73 SP3) If the remote command "CALC:MARK:FUNC:CENT" was sent while the IF Analyzer Mode was active, the attenuation was set to 10 dB. This issue is solved.**

Receiver Mode:

- **(V4.43 SP3) If the General Setup menu was active within the receiver mode, the application was frozen after changing to spectrum analyzer mode. This issue is solved.**

Known Issues

- **Savesets of versions 3.83 and 3.93 only can be recalled if the Report-Item is deselected in the save/recall item list.**
- **Underload detection in Status Reporting not available.**
The detection of an underload in receiver mode is not available. Bit 1 and bit 9 in the STATus:QUESTIONable:POWer register will not be set.

Quality Assurance

This firmware release was tested and approved according to the processes, which are part of the ISO 9001 certified quality system of Rohde & Schwarz. The test procedures include a verification of specified instrument performance, as described in the performance test in the service manual.

Customer Support

Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz equipment, contact one of our Customer Support Centers. A team of highly qualified engineers provides telephone support and will work with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz equipment.

Up-to-date information and upgrades

To keep your instrument up-to-date and to be informed about new application notes related to your instrument, please send an e-mail to the Customer Support Center stating your instrument and your wish. We will take care that you will get the right information.

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