

R&S® ESR

EMI Test Receiver

Release Notes

Firmware Version V3.48 SP3

These Release Notes are for following models of the R&S® EMI Test Receiver:

R&S® ESR3, order no. 1316.3003K03

R&S® ESR7, order no. 1316.3003K07

R&S® ESR26, order no. 1316.3003K26

We highly recommend to upgrade instruments with firmware 3.36 to 3.36 SP1 or higher.

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The following abbreviations are used throughout this document:

R&S® ESR is abbreviated as R&S ESR.

Table of Contents

1	Current Version and History	3
1.1	New Functions	3
1.2	Modified Functions	4
1.3	Improvements	6
1.4	Known Issues.....	8
1.5	Modifications to the Documentation.....	8
2	Firmware Update.....	9
2.1	Performing the Firmware Update on the Instrument	9
2.2	Performing the Firmware Update from a Windows PC	10
2.3	Operation with and without Administrator Rights	11
2.4	Installing Firmware Options	12
2.4.1	Firmware options included in basic instrument.....	12
2.4.2	Enabling Options by Entering Option Key Codes.....	12
3	Quality Assurance	14
4	Customer Support	15

1 Current Version and History

1.1 New Functions

The following table lists the new functions and indicates the version in which the new function was introduced:

New functions of Firmware V3.48 SP1:

Version	Function
V3.48 SP1	ESR-B10: Support for generators R&S SMB100B and R&S SMBV100B models.

New functions of Firmware V3.48:

Version	Function
V3.48	CISPR 16-1-1 Ed. 4 Ready. The Hardware Info dialog shows a "CISPR 16-1-1 EDITION 4 READY" message if your device has the required calibration data. Please contact the R&S service otherwise.

New functions of Firmware V3.47:

Version	Function
V3.47	New limit lines and transducers have been added for addressing the replacement of EN 55022 and EN 55013 by EN 55032 as well as for testing of high voltage power supply systems in vehicles in accordance with latest EN 55025

New functions of Firmware V3.46:

Version	Function
V3.46	Support of ASCII export of a receiver scan spectrogram.
V3.46	Support of external tracking generators R&S SMAB-B103, R&S SMAB-B106, R&S SMAB-B112 and R&S SMAB-B120.
V3.46	Support of manual user port handling. New softkey "User Port ->" added to the "Input/Output" hardkey menu that opens a menu to configure the user port manually.
V3.46	Selectable Click Rate Analyzer installation added to the firmware installation.

New functions of Firmware V3.36:

Version	Function
V3.36	Support for 7.5 kHz channel filter.
V3.36	Added softkey "Status Bar State" in the menu "Setup -> Display Setup".
V3.36	Firmware supports Windows 10 operating system.
V3.36	Firmware provides open source acknowledgement on instrument.
V3.36	Added "Enhanced Tree Walking" as a new SCPI parser mode.

1.2 Modified Functions

The following table lists the modified functions and indicates the version in which the modification was carried out:

Modified functions of Firmware V3.48 SP3:

Version	Function
V3.48 SP3	Zero span: The x-axis scaling algorithm optimized for bandwidths greater than or equal to 1 MHz.
V3.48 SP3	The auto sweep time calculation in spectrum analyzer with active filter type CISPR was optimized.
V3.48 SP3	In specific cases after a recall of save settings signal path settings for RF frontend 1329.0114.02 were not initialized. This problem was solved.

Modified functions of Firmware V3.48 SP2:

Version	Function
V3.48 SP2	Zero span: the same x-axis scaling algorithm is now used for traces and diagram graticule.

Modified functions of Firmware V3.47:

Version	Function
V3.47	Preselector switching algorithm optimized for FFT sweep in microwave range of spectrum analyzer mode.

Modified functions of Firmware V3.46 SP1:

Version	Function
V3.46 SP1	Number of sweep segments for spectrum analyzer sweep mode "Sweep" increased.
V3.46 SP1	Scans using ranges with different inputs are now supported.

Modified functions of Firmware V3.46:

Version	Function
V3.46	Peak list export files were always saved to "C:\\" after a preset. Now, the user defined path remains unchanged.
V3.46	In the time domain scan, the maximum resolution bandwidth for start frequencies of 100 kHz was limited to 5 kHz (3 dB) and 9 kHz (6 dB). This upper limit has been increased to 10 kHz.
V3.46	The maximum EMI bandwidth was limited to 100 Hz for a receiver frequency of 100 Hz in both the receiver bargraph and the receiver scan. This limit has been increased to 200 Hz.
V3.46	The switch off algorithm of the internal tracking generator was changed in spectrum analyzer mode.
V3.46	After restoring a saveset with active receiver mode, all saved traces with mode "View" were set to "Clear Write". Now the saved trace mode is restored.
V3.46	Turning on the squelch in a demodulation measurement automatically activates the video trigger. In earlier versions, the video trigger remained active after the squelch function was turned off. Now, the video trigger is also switched off, when the squelch function is deactivated.
V3.46	Preselector switching algorithm optimized for FFT sweep in spectrum analyzer mode.

Modified functions of Firmware V3.36 SP1:

Version	Function
V3.36 SP1	Self-alignment algorithm of one specific 3 rd IF signal path (102.5 MHz) adapted to the other signal paths.

Modified functions of Firmware V3.36:

Version	Function
V3.36	The visibility state of status bar, tool bar and date & time field are now saved before shutdown and in save/recall datasets.
V3.36	Changing the reference level offset will preserve the vertical position of limit lines with relative y-values on the screen.
V3.36	Extended number of significant digits from 12 to 14 for remote command CALCulate:MARKer:COUNT:FREQuency? to be able to read out 1 mHz frequency resolution.

1.3 Improvements

The following tables list the improvements and indicate since which version the issue could be observed:

Improvements of Firmware V3.48 SP1:

Since	Function
V3.48	The name of an active transducer set was not shown in the ASCII trace export files in receiver mode. This issue is solved.
V3.36	Limit lines with unit dBx/m were not recalled with active bargraph unit dBx/MHz in receiver mode. This issue is solved.

Improvements of Firmware V3.47:

Since	Function
V3.46	The softkey to perform an ASCII export of all traces in spectrum analyzer mode, showed the wrong caption "ASCII Trace Export Trace x". This issue is solved and the softkey shows now "ASCII Trace Export All Traces".

Improvements of Firmware V3.46:

since	Function
V3.36 SP2	The remote command 'SENSe:DEMod:SQUelch:LEVel' did not work in receiver mode. This issue is solved.
V3.36	The remote query command "INPut:UPORt:VALue?" did not work in receiver mode. This issue is solved.
V3.36 SP2	In some cases, the preamplifier value of the scan table in the report did not represent the hardware setup. The measurements were not affected. This issue is solved.
V3.36 SP2	No header was shown in the report in case of RTF format, if either the result list in the spectrum analyzer mode or the scan table in the receiver mode was selected. This issue is solved.
V2.28	Spectrum Analyzer: An active transducer set was not taken into account during the auto leveling. As a consequence the obtained sensitivity of the measurement was lower than expected. This issue is solved.
V2.28	If the user port was set to input and the state of the control lines were read, the previously adjusted output bit pattern was not restored after switching back the user port to output state. This issue is solved.

Improvements of Firmware V3.36 SP2:

since	Function
V3.36	The application locked up after pressing the "Marker To" hardkey if the on screen keyboard was previously active. This issue is solved.

Improvements of Firmware V3.36:

since	Function
V2.27	Rounding algorithm for remote queries revised (e.g. DISP:WIND:TRAC:Y:RLEV?).
V2.27	The trace average result was restarted on parameter change although trace mode hold/cont was active. This issue is solved.
V2.27	Extremely slow SEM measurement with span = 10 MHz, RBW = VBW = 10 Hz. This issue is solved.

Improvements of Firmware V2.28 SP2:

since	Function
V2.27 SP2	If marker demodulation was active in spectrum analyzer mode, the demodulation was deactivated after switching on continuous demodulation. This issue is solved.
V2.27 SP2	If the "Help" hardkey was pressed while the "Marker To" or "Marker Function" menu was active in the receiver mode, the test automation online help was shown. This issue is solved.
V2.27	If the quasipeak detector was active in the zerospan mode of the spectrum analyzer, the firmware locked up, when an external trigger with a trigger offset less than zero was defined. This issue is solved.
V2.27	If the tuned frequency of the receiver mode was added to the peak list by "Add to Peak List", the application locked up after activating the final measurement twice. This issue is solved.

Improvements of Firmware V2.28 SP1:

since	Function
V2.27	In some cases the Receiver-Time-Domain-Scan locked up with active autorange. This issue is solved.
V2.28	In some cases the Receiver-Time-Domain-Scan did not start with more than one CISPR detector and a measurement time above 7 seconds. This issue is solved.

Improvements of Firmware V2.28:

since	Function
V2.27	Not all buttons and tabs were updated correctly in the Test Report Settings dialog, after a saved template was loaded. This issue is solved.
V2.27	The correct soft key menu is displayed when switching between measurement modes.
V2.27	The currently selected level unit was not taken into account in the color mapping dialog of the receiver mode spectrogram (it always referred to dBm). This issue is solved.
V1.76	The remote command :CALCulate1:MARKer1:FUNCTION:CENTer did not work for the Receiver IF Analysis Window. This issue is solved.

1.4 Known Issues

The following table lists the known issues and indicates since which version the issue could be observed:

since	Function
V1.78	The analyzer supports the LXI standard. As a consequence the DHCP IP address assignment is performed twice: once while Windows XP is booting, and again when the firmware is started. This be omitted by deleting the following registry key: HKEY_LOCAL_MACHINE\SOFTWARE\Rohde&Schwarz\SoftwarePlatform\ServiceConfiguration\LanServices: "DoRenewDHCP"="1"

1.5 Modifications to the Documentation

The current documentation is up-to-date.

2 Firmware Update

The firmware update file for the R&S ESR is one file including the main firmware version number e.g. ESRSetup_V2.16_SP1.exe. It will be referred as ESRSetup.exe later in the text. The file can be found on Rohde & Schwarz web page.

2.1 Performing the Firmware Update on the Instrument

There are three ways to make the setup ESRSetup.exe visible to the device:

Using a memory stick:

1. Copy the file to a directory of the memory stick and insert the memory stick into one of the USB sockets of the R&S ESR.

Using the remote desktop and copying the installation files to a directory of the instrument:

1. Connect the R&S ESR to your LAN.
2. Start the remote desktop on your PC (C:\winnt\system32\mstsc.exe).
3. Enter the TCP/IP address of the instrument, you want to update. Ensure that the "local resources" > "drives" option is selected and press the "Connect" button. (To get the TCP/IP address of the R&S ESR press the hard key "Setup" and then the soft keys "General Setup", "Network Address", "IP Address". The IP address consists of 4 numbers between 0 and 255)
4. Login to the instrument (user name: "instrument" and default password "894129").
5. Copy the ESRSetup.exe from your PC to a new folder e.g. C:\FWUpdate.
6. You can now access this directory with the ESRSetup.exe from the R&S ESR firmware.

Using a network drive:

1. Connect your R&S ESR to your LAN, and establish a connection to one of your servers. (Please ask the local IT administrator for support)
2. Copy the ESRSetup.exe from your PC to a directory on this server
3. You can now access the directory with the ESRSetup.exe from the R&S ESR firmware.

Performing the update on the instrument:

The firmware update process is performed by the following steps:

1. Switch the instrument on and wait until the Receiver has resumed operation.
2. Press the "SETUP" hard key, go to the side menu using the "More" soft key, and press the soft keys "Firmware Update".

A file browser is displayed to select the proper ESRSetup.exe setup file. Change the path to the drive and directory which you prepared in the step before (USB

stick directory, remote PC directory or directory on a server) and close the dialog with the "Select" button.

3. Press the "Next" button to come to the selection of the firmware packages. By default all application should be installed. Ensure that the applications needed are selected.
4. Press the "Install" button.
The firmware will be stopped and the installation starts. After a few minutes the system restarts automatically. After the restart the firmware installation is complete. After the firmware update the "UNCAL" flag appears
5. A self alignment is necessary. Press the "SETUP" hard key, then "Alignment" and the "Self Alignment" soft key to start the alignment procedure.
6. Depending on the previous firmware version, a reconfiguration of the hardware may be required during the first start of the firmware. In this case the following message box is displayed:

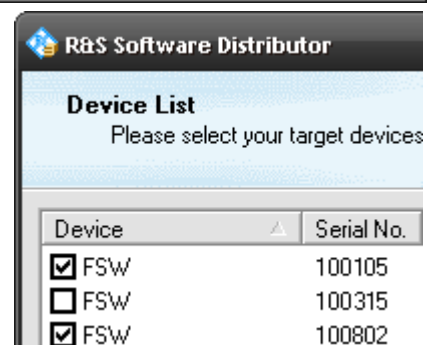
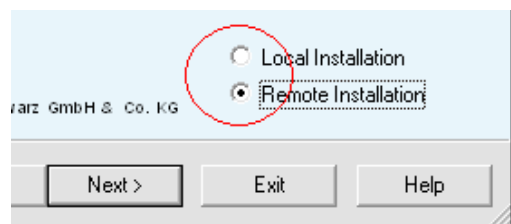
"FPGA Update. A system shutdown is necessary"

Accept this and the device will be shut down. It is then necessary to start the device on the front panel. An automatic restart is not possible because the FPGA needs a complete boot cycle from power off.

2.2 Performing the Firmware Update from a Windows PC

If the firmware version 1.78 or newer is installed on the instrument the new firmware can also be uploaded without using a memory stick or a network drive. Just a LAN connection from the instrument and a Windows PC is necessary.

1. Run ESRSetup.exe on your PC.
2. Select Remote Installation and click the button Next.
3. Select the Packages which shall be installed and click the button Next.
HINT FOR FIRE WALL USERS: The ESRSetup.exe is communicating with the instruments via LAN. Therefore it is necessary that the ESRSetup.exe may pass the fire wall. After adding it to the fire wall rules, restart the scan by clicking on Rescan.



4. After scanning your LAN subnet all found instruments are listed. Select the instruments you want to update.
It is possible to select up to 5 instruments for updating in parallel.

NOTICE

Please be careful and check twice if you have selected the correct instruments. Depending on your company's network structure also instruments of other departments will show up!

5. Additional help will be displayed after clicking the button "Help" and further options are available by clicking the button "Options".
6. Start the installation by selecting "Install"
7. Confirm that you want to reboot the instrument in order to activate the firmware update (the instrument then restarts automatically)

2.3 Operation with and without Administrator Rights

The receiver may be operated with or without administrator rights. Some administrative tasks (e.g. a firmware update or network configuration) do require administrator rights. In the default configuration, auto login is enabled, and the "Instrument" account with administrator rights is active. This means that no password is required, and the full functionality of the receiver is available. An additional user account (user name "NormalUser" with default password "894129") is pre-defined. Use standard Windows functionality if you wish to deactivate the auto login mechanism and activate the NormalUser account. Please refer also to the Quick Start Manual of the R&S ESR.

2.4 Installing Firmware Options

2.4.1 Firmware options included in basic instrument

All Firmware Options for the R&S ESR are part of the basic instrument firmware. Therefore they do not have a separate item in the installer to be selected.

2.4.2 Enabling Options by Entering Option Key Codes

NOTICE

This section can be skipped if the option key was entered once.

To activate application software packages, you must enter a license key for validation. If a XML-file with an option key was sent to you see the install description below. The license key is in the device certificate or delivered as a part of the software package. The process is performed in the following steps:

1. Press the "SETUP" hard key.
2. Go to the side menu using the "More" soft key.
3. Press the "Option Licenses" soft key.
4. Press the "Install Option" soft key.
A dialog box is displayed.
5. Enter the option key number using the keypad.
6. Press "ENTER".

After a successful validation the message "option key valid" is displayed. If the validation failed, the option software is not installed.

8. Reboot the device.

Installation of options via XML-file

7. Press the "SETUP" hard key.
8. Go to the side menu using the "More" soft key.
9. Press the "Option Licenses" soft key.
10. Press the "Install Option by XML" soft key.
A dialog box is displayed.
11. Select the path to the XML file (e.g. network drive or USB stick)
12. Press "ENTER".
After a successful validation the message "option key valid" is displayed. If the validation failed, the option software is not installed.
13. Reboot the device.

3 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.

4 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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