



ROHDE & SCHWARZ

Division
Radiomonitoring and Radiolocation

Release Notes

Firmware Update V 1.62

MONITORING RECEIVER ESMB

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1 General Information

Manual for ESMB

The following manual is supplied with the ESMB: **Manual ESMB**

The new firmware version 1.62 corresponds with the manual 4056.6045.34-02.

How to get a current version of the manual?

- Order a printed manual at Rohde & Schwarz, order no. 4056.6045.34-02
- You will also find pdf-files of the current release of the manual in the SALES INFORMATION Board on GLORIS. If you don't have access to this Board, please ask your local support for a manual in pdf format.

2 Firmware Update

2.1 System Requirements

- IBM-compatible PC with RS232 interface COM1 or COM2
- Serial null-modem cable (RxD, TxD crossed), 9-pin female to 9-pin female
- Adapter 25-pin female to 9-pin male (is included in the ESMB accessories set)

2.2 Preparations before Update

- Plug the adapter (25-pin to 9-pin) in X6 (OPTION Connector).
- Use the null modem cable to connect the COM port of your PC to the adapter of your ESMB. For Update do **not** connect to X9 RS232 !

2.3 Contents of Firmware Update Kit

The update kit comprises the following disks (3.5"/1.44MB):

- ESMB FlashUp (order no.: 4052.6268.00) contains the current firmware
- ESMB Utilities (order no.: 4056.6274.00) contains the update program

You will also find the current firmware release in the FIRMWARE section of the Service Board on GLORIS or on the web page of the Rohde & Schwarz:

<http://www.rohde-schwarz.com>

Search for ESMB download area.

2.4 Update Procedure

2.4.1 Prepare Update Data

- Create a new directory on your PC by command:
md ESMB\V0162
- Copy the self-extracting archive file to this directory.
- Unpack the self-extracting archive file in the directory by command:
ESMB162.exe
- After unpacking you will find the following files in your directory:

UPDATE.EXE	update program for DOS
UPDATE.HLP	help file for DOS update program
UPD32.EXE	update program for Win95, Win98, WinNT, WinME, Win2000
UPD32.HLP	help file for update program for Win95, Win98, WinNT, WinME, Win2000
ESMBP1.CFG	configuration file
ESMBP1B.ELF	boot loader
ESMBP1P.ELF	firmware update code

2.4.2 Prepare ESMB for Update

Switch off the ESMB before running the update program.

2.4.3 Start Update Programm

Run UPDATE.EXE under DOS and Win3.1

- Select configuration file ESMBP1.CFG through:
File - Open Config File
- Configure the connected COM port through:
File - COM port
- Start update with:
Actions - Update device

Run UPD32.exe under Win95, Win98, WinNT, WinME, Win2000

- Select configuration file ESMBP1.CFG through:
File - Config File
- Configure the connected COM port through:
Config - COM Port
- Start update through:
Update - via COM

2.4.4 Start Update Process

Switch the ESMB on within 30 seconds after the update has been started on the PC. This will start the update process on ESMB.

With 115200 Baud the update process will take about 6 minutes.

3 New Features, Improvements and Changes

3.1 New Features

None

3.2 Improvements

None

3.3 Changes

- The EEPROM type on the DSP module in the IF-Panorama was changed. The resulting power on problem could be solved by a changed initialisation.

3.4 Version History

Changes from Version 1.61 to Version 1.62:

- See 3.1 to 3.3 and Faults Remedied in Firmware Version 1.62

Changes from Version 1.54 to Version 1.61:

Improvements:

- In D-SCAN operation with level detector FAST the frequency accuracy is improved.
- Increased overload limit in HF range.
The overload detection of the ESMB is now exclusively determined by the IF section. The hard limit of 113 dB μ V, which existed until Firmware V1.54, is no more relevant. Depending on the equipment the modulation ability in the HF range goes up to 117dB μ V. The global operation mode switch LOW NOISE, NORMAL, LOW DIST has now also a significance in HF range, but LOW NOISE and NORMAL don't differ. With LOW DIST a 10 dB attenuation is always switched on. Practically the overload limit in HF range with ATT ON and LOW DIST rises from previously 113 dB μ V up to 127 dB μ V, which corresponds to 2.2 V at the antenna input.

Faults Remedied:

- With the "Antenna Factor Tool" it is now possible to load more than 20 parts of a characteristics diagram into the ESMB without problems.
- The problem with system hang-up while transferring binary Trace data via RS232 in STANDARD mode is solved.

Changes:

- Change of the channel pattern behaviour in D-SCAN.
Up to now there was a shift of 1/4 IF bandwidth between measured level value and delivered frequency value on D-SCAN remote data output.
With the new firmware at first the channel pattern behaviour is the same.
But with the command:
`[SENSe]:FREQuency:DSCan:FCHannel ON`
it is possible to change the status of the equipment to a D-SCAN channel behaviour to F-SCAN like. As a result, the number of channels within the frequency span increases by one and the level values are measured at the delivered frequency values.

With the remote commands:
`[SENSe]:FREQuency:DSCan:FCHannel OFF` or `*RST`
the default state is set again.

If D-SCAN data are send via UDP, the *minor_version_number* 0x24 indicates, that the *OptionalHeader* contains the additional Flag *newStepScheme*. This flag indicates whether the old or the new channel pattern is used.

Changes from Version 1.50 to Version 1.54:**Improvements:**

- In the D-SCAN menu the selector is set to the receiver frequency, if the softkey 'MARK to PEAK' is pressed.

Faults Remedied:

- In DSCAN the number of measurements in the MTRACE and the ITRACE buffer is now correct also in the first cycle.
- System error 2319 does not occur any more when the receiver mode is being changed through the remote control interface while the editor window is open.
- There is no UDP problem any more when the remote control command `FUNC:OFF "FREQ:OFFS"` is sent by a second TCP/IP client.
- The problem "signal > threshold result data" to more than one TCP or UDP client is eliminated.
- The problem "OUT OF MEMORY" which occurred when the ESMB has been configured for UDP without any client connected, does not exist any more
- If the parameter MESSAGE DISPLAY is set to DURATION INFINITE, messages remain displayed until QUIT or any other key is being pressed.
- Very rarely there was a communication problem, when many query commands were sent to the ESMB at a high rate. This error in the TCP/IP stack is eliminated.
- With the setting: "bandwidth 150 Hz", "demodulation PM" and "measure mode PERIODIC" the measurement values are available now in approx. 3 seconds (previously 30 sec).
- Remedy for older preselection modules (HW-Code: 0 and 1) for the setting of ATT AUTO, NORMAL, and SCAN: When the attenuation is switched off automatically, the next signal measurement is delayed for 10 msec to cover also small signals.
- The system being remotely controlled does not stop any more when all the sensor functions (field strength included) are activated and the MTRACE buffer is running full.
- Measurement results for the sensor functions FM, FM:POS, FM:NEG and BAND queried by the command "sense:data?" have now the unit 'Hz' corresponding to the IEEE488.2 standards. Previously the unit was "kHz".

- Antenna data and names which are modified with the Antenna Factor Tool are now stored non volatile in the ESMB.

Changes from Version 1.18 to Version 1.50:**New Features:**

- The "measure time" can be configured in the menu RXCONF-MEASURE and in some other CONFIG menus.
- CONTINUOUS or PERIODIC "measure mode" can be selected.
- The characteristics of the ESMB up to firmware version 1.18 corresponds with the default setting of the new firmware version 1.50. This setting is "measure time" DEFAULT and "measure mode" CONTINUOUS. If another configuration is selected it is indicated by P, MC or MP.
- The D-SCAN menu has its own CONFIG menu with a few new configuration parameters.
- The D-SCAN SPEED can be set to LOW, NORMAL, HIGH or MTIME PER CHANNEL.
- The D-SCAN has a maximum hold function.
- The number of cycles can be set in D-SCAN.
- The marker in the D-SCAN menu shows the level on the current position.
- With ATT ON and levels greater than 113 dB μ V an overload detection symbol is displayed.
- In the menu DISPLAY-LEVEL-CONFIG you can select a big numeric level display.
- The squelch line is displayed with the IF-panorama when the squelch function is switched on.
- In the menu DISPLAY-IFPAN-CONFIG you can select MIN, MAX, AVG and CLRWRITE. The "measure time" has only an effect on MIN, MAX and AVG.
- In the menu DISPLAY-IFPAN-CONFIG you can jump to the next left or right signal by two softkeys.
- In the menu DISPLAY-IFPAN the numeric level is also displayed.
- "REM RS232.2" is displayed if the new RS232 hardware EB200R2 is installed.
- A test point for the backup lithium battery is implemented. You will receive a warning if the backup lithium battery is low.
- The level bar range in mode "attenuation off" is extended to 88 dB μ V.
- The symbolic offset display is extended to +/- 3/4 of the current bandwidth.
- The new feature "digital audio" via LAN and UDP is included.
- The SW option EB200CM (Coverage Measurement) is available.
- The SW option EB200FS (Field Strength Measurement) is available.

Improvements:

- In the D-SCAN menu you can configure the display limits with the reference level and the range to show also very low levels.
- The lower limit of the level bar can be configured to -30 dB μ V , -10 dB μ V or 10 dB μ V.
- The endian order of the UDP result data can be selected.
- Now you can round the receive frequency to the next channel frequency by pressing the FRQ key if FRQ (receive frequency) is already selected. The channel spacing is defined by the ROLLKEY INCR VALUE in the submenu SETUP-KEYS.
- With the improved remote command for antenna selection, for example:
ROUTE:PATH "123 45ANT" , (@10)
it is also possible to define antenna names starting with numbers and containing spaces.
- The receiver mode CW, SWEEP, MSCAN, DSCAN, FASTLEVCW or LIST is displayed in the state "Controlled by Remote".
- An expanded tuning table avoids spurious signals in the D-SCAN.
- The measurement of the peak FM deviation has been improved.
- The level measurement of pulse signals has been improved.

Changes:

- Every DISPLAY menu has its own CONFIG menu.
- If the SW option EB200FS is installed, the upper display limit in the D-SCAN CONFIG menu can be selected independent of the reference level.
- The *RST value of the reference level is 70 dB μ V (formerly 50 dB μ V).
- The *RST value of the antenna number is 0 (formerly 1).
- The lowest SQU value is -30 dB μ V (formerly -10 dB μ V).
- The lowest MGC value is -30 dB μ V (formerly -10 dB μ V).
- The lowest TONE value is -14 dB μ V (formerly 6 dB μ V).
- In the menu DISPLAY-IFPAN-CONFIG the function of the AVG softkey has changed. "AVG OFF" corresponds to "CLRWRITE" and AVG average time (for example "AVG 500") corresponds to AVG and "measure time" 500 msec.
- The former menu for bandwidth measurement RX-CONF – BANDW is now available as configurable display variant in the menu DISPLAY-MORE-BANDW.
- The former menu for modulation measurement RX-CONF – MOD is now available as configurable display variant in the menu DISPLAY-MORE-MVALUE.
- The ANT / ATT menu is now separated in two menus RX-CONF-ANT and RX-CONF-ATT.

Faults Remedied:

- Binary loading of the 1000 memory locations also works in one stream.
- With demodulation CW, USB, LSB, IQ and level detector peak the fall time is not too long any more.
- The level correction was faulty during the first D-SCAN cycle, if the receiver frequency was outside the span. This fault has been remedied.
- Faulty levels up to 10 dB were measured in D-SCAN if the start frequency was lower than 20 MHz and the stop frequency higher than 20 MHz. This fault has been remedied.
- In D-SCAN faulty levels up to 3 dB were measured if the span was very narrow in upper frequency ranges. This fault has been remedied.
- With demodulation PM the phase measurement also works correctly during scan.

Changes from Version 1.17 to Version 1.18:

- A bug has been fixed in the bandwidth measurement.

Changes from Version 1.07 to Version 1.17:

- With the new IF section (IF SECTION.2) in the mode ATT AUTO the 30-dB attenuation is switched on over about 85 dB μ V and switched off by a hysteresis of 7 dB.
- With the new IF section (IF SECTION.2) there is an overload detection with AGC and MGC.
- The EBD190 can be controlled by BCD frequency information being output at the AUX connector X8 on the rear panel.
- With the RS232 remote control you can choose between PPP and Standard.
- Current level measurements are displayed while running F-SCAN or M-SCAN with dwell time 0.
- The speed of D-SCAN is selectable via remote control in 3 steps.
- With LAN or RS232 PPP there is also data output via UDP available.
- The IF panorama is checked during the start of the unit for availability of the calibrating block (18013) in the EEPROM. In its absence a self-calibration is carried out and the EEPROM is provided with this block. After the self-calibration the receiver frequency is set to 8 MHz.
- The service tool is now also able to print out the Device Card.
- The AFC and offset measurement works also always with bandwidth 150 Hz or 300 Hz.
- While tuning via spinwheel no more level spikes will be produced which formerly disturbed the detector PEAK measurement.

4 Faults Remedied in Firmware Version 1.62

None

5 Restrictions - Known Problems - Workarounds

5.1 Restrictions

This new firmware version can be run on every ESMB hardware. Until now there is no problem known which causes incompatibility to higher software versions.

But some new features can only be used with newer hardware releases. The following chapters show the dependencies.

5.1.1 Old or New IF Section

From 2000/Q2 the ESMB is delivered with a dynamic improved IF section. From firmware version 1.17 on you can find out whether or not your ESMB is equipped with the new IF section. If the new IF section is installed, "IF SECTION.2" is displayed in the RX-CONF-TEST menu.

The following functions are only available with the new IF section:

- With ATT OFF and levels greater than approx. 85 dB μ V an overload detection symbol is displayed.
- With ATT AUTO the 30-dB attenuation is switched on with levels greater than approx. 85 dB μ V and is switched off with levels lower than about 78 dB μ V.

5.1.2 Old or New RS232 Interface

From 2001/Q2 on, the remote control option ESMBR2 has been improved. From firmware version 1.50 on you can find out whether or not your ESMB is equipped with the new RS232 interface. If the new RS232 interface is installed, "REM RS232.2" is displayed in the RX-CONF-TEST menu.

Depending on the combination of RS232 receiver (PC) and RS232 transmitter (ESMB) in some cases the highest baudrate 115200 could lead to transmit errors. Under normal conditions these errors are corrected in PPP mode. With the new RS232 the rise time of the pulses has been improved.

5.2 Known Problems

5.2.1 Cold Boot after Update

After update with some firmware version increments, the structure of the nonvolatile parameters changed, which may lead to corrupt parameters (for example receiver frequency 0 MHz). If malfunction of the receiver remains after a RESET in the menu RX-CONF-SYSTEM, you should force a **cold boot**. For that briefly connect pin 31 of connector X8 on the rear panel with ground.

5.2.2 RS232 PPP Connection to WinNT 4.0, Service Pack 5

When you transfer a huge data stream from a PC (WinNT 4.0 and Service Pack 5) to the ESMB via RS232 PPP this will work only for a certain period of time.

Workaround: Install Service Pack 6 or higher on the PC.

Hotline

Should you have any questions or suggestions, please use the hotline:

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