Release Notes

Firmware Update V 1.84

MONITORING RECEIVER ESMB

4056.6000.02
4056.6000.10
4056.6000.12
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4056.6000.23

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Contents

1 General Information

Manual for ESMB

The ESMB CD Set 4056.6445 contains the Documentation CD 4056.6097 with the manual.

The new firmware version 1.84 corresponds with the manual 4056.6045.32-04

How to get a current version of the manual?

- Order a printed manual at Rohde & Schwarz, order no. 4056.6045.32-04

- 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 ESMB Firmware & Utilities CD (Ident-Nr.: 4056.6468.00).

The folder \ESMB_FlashUp contains all necessary files and this description.

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\V0184`

- Copy the self-extracting archive file to this directory.

- Unpack the self-extracting archive file in the directory by command:

  `ESMB_V01_84.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, WinXP
`UPD32.HLP`	help file for update program
`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, WinXP

- 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

- To improve the contact the relay in the V/UHF preselection is switched several times after power on and before long test.

3.3 Changes

- None

3.4 Version History

Changes from Version 1.82 to Version 1.84:

- See 3.1 to 3.3 and Faults Remedied in Firmware Version 1.84

Changes from Version 1.80 to Version 1.82:

Faults Remedied:

- Since 2/2007 the module Frontend 1 showed in the production test with very high temperature and frequency scan due to a narrow timing occasionally a control problem. The cause of this problem is solved.

- With Digiscan in a frequency range which goes from tuner HF to tuner VUHF and with setting (HF Input: ANT V/UHF X13) a humming noise out of the speaker occurred at the switch point. This problem is solved now.

Changes from Version 1.77 to Version 1.80:

New Features:

- The new display variant "LEV-DBM" shows the signal level with the unit dBm. This display variant can also be selected with the remote command `DISPlay:MENU LEVDBM`.

Changes from Version 1.76 to Version 1.77:

Improvements:

- The accuracy of AFC has been improved.

Faults Remedied:

- The Change in firmware version 1.77 to shorten the squelch reaction time has caused the following effect. With squelch on, measure mode periodic and long measure times the audio was interrupted in the rhythm of the measure time. This change has been canceled again.

As remedy to avoid noise during radio-telephone pauses you can select a short measure time (e.g. 20 ms) with measure mode periodic.

Changes from Version 1.74 to Version 1.76:

Improvements:

- The AF is switched off now immediately with squelch function on and signal below threshold. As a result the noise gets shorten after carrier switch off while radio telephone. This change has been canceled again. See also Faults Remedied in firmware version 1.77

Changes :

- The level tone is now also switched off like AF with squelch function on and signal below threshold.

Faults Remedied:

- Level measurement went wrong under very special conditions. If the receiver was set to FM, MGC OFF, SQU OFF, LEVEL Detector AVG and measurement time not DEFAULT and the bandwidth was changed from 30kHz to 15 kHz the measured value of the level was wrong. This problem has been solved.

- The Optional Header of the FSCAN Datagram contained two not documented bytes between stopSignal and f_start. This problem existed from version 1.54 on and is solved now.

- A problem occurred in the following situation. The EB200 is configured with a IP-Address 172.x.x.x which is per default a class B network. But the subnet mask is configured for a class A network. If RARP finished and no dynamic IP-address was configured, the TCP/IP stack in the EB200 decided to be in a class B network and overwrote the set subnet mask with a class B mask. So the ping didn't work anymore.
  This problem occurred after implementation of the RARP functionality in firmware version 2.70 and is solved now.

Changes from Version 1.72 to Version 1.74:

New Features:

- From this version on also Flash EEPROMs from manufacturer STM (0041.8712.00) are supported.

Improvements:

- During initialisation of the hardware modules the audio is switched off. As a result there is no more 2 seconds noise to hear out of the speaker after power.

- With audio via LAN the current demodulation is inserted into the Optional Header not only as enum but also as string.

Faults Remedied:

- In measure mode periodic during measure time digital audio via LAN was not available. This problem is solved.

- Parameter, which have been changed during front panel state "CONTROLLED BY REMOTE" are now displayed correctly after the command DISP:ENAB ON.

- If the TCP/IP connection is opened and closed about 1100 times and only setting commands are sent without sending query commands, the device shows 'OUT OF MEMORY' . This problem is solved.

- If the TCP/IP connection is configured for data output via Trace buffers and the connection is closed during data output, it can happen, that the buffer memory is not freed. If this happens a few thousand times in succession, the device does not output data any more. This problem is solved.

- If the UDP data output is configured to the default path and the device is switched off without resetting this configuration, the device remains in the start display after power on. This problem exists from version 1.71 on and is solved now.

- Changing the measure mode now also sets the RX-DATA-CHANGED Bit in the STAT:EXT register of the status reporting system.

- With data output of level values in ASCII format the minus sign was missing at values between - 0.1 and - 0.9. This problem is solved.

Changes from Version 1.70 to Version 1.72:

Improvements:

- For Datagram Communication the Optional Header for Audio Data is extended.

- If the receiver frequency is in the HF range of an ESMB with HF tuner, the maximum IF bandwidth is 10 kHz. In this case the IF bandwidth value is blinking with values greater than 10 kHz. Also the IF panorama span is blinking with values greater than 15 kHz to give a hint.

Changes:

- The information in the Java-Plugin Security window has changed. With Java version 1.3.10 and later this Security window pops up before Antenna Factor Tool starts. The publisher of the Java Applet is "Rohde & Schwarz GmbH.

Faults Remedied:

- With firmware version 1.70 the display of the DSCAN sometimes stopped in the mode SPEED HIGH, IF bandwidth 300 kHz and level detector AVG or RMS. This problem has been solved.

- If the ESMB is equipped with the LAN remote interface, the lowest byte of the IP-address and the gateway can now be configured up to the value 254.

- The whole frequency suppress table, TRAC SSTART and TRAC SSTOP can now be loaded to the receiver within one string.

- With firmware version 1.70 the loading of the 1000 memory channels via remote took three times longer than with former versions. This problem has been solved.

Changes from Version 1.62 to Version 1.70:

New Features:

- When remotely controlled via LAN the ESMB can now accept an IP-address which is dynamically assigned by RARP. For the purpose of RARP server configuration it is possible to query for the ethernet address of the ESMB. See also Annex L of the current ESMB manual.

- Now the ESMB can be equipped also with a front panel without controls.

- If the ESMB is equipped with a front panel without controls the remote-control interface parameters can be configured via the RS232 update interface and a standard terminal program. See also Annex L of the current ESMB Manual.

Improvements:

- In the position of LOW NOISE and OFF ATT, the preamplifier in the module Preselector can be overdriven by a too strong signal at the antenna. In this case the message "Preselector input overload" is output instead of "Preselector defective".

- In the position of LOW NOISE and OFF ATT, the preamplifier in the module IF Panorama can be overdriven by a too strong signal at the antenna. In this case, the message "IF Panorama input overload " is output, instead of "IF Panorama defective".

Changes:

- If the ESMB is equipped with a front panel without controls, after a cold start the parameters of the remote-control interface RS232 are set to the following default values: RS232 standard, 19200 baud, 8 data bits, no parity bit, 1 start bit and 2 stop bits, no handshake.

- If the ESMB is equipped with a front panel without controls, after power on or *RST command the front panel is set to „CONTROLLED BY REMOTE" state. This provides additional processor capacity for remote control and hardware control.

Faults Remedied:

- After switching on the ESMB there was a signal at about 1555 MHz, which disappeared after a temporary frequency change to HF range. This initialisation problem has been solved.

- The Bit 10 (IFPAN total full) in the Status:Trace register is now set, if the maximum fill level of the IFPAN Trace is reached.

- With firmware version 1.61 and 1.62 the display of the DSCAN sometimes stopped in the mode SPEED HIGH, IF bandwidth 250 kHz and level detector AVG. This problem has been solved.

- Now the remote output of the suppress trace does not lead to a system outage under any conditions.

- In the DSCAN, if the upper frequency of the HF tuner was above 25 MHz and the full frequency range 9 kHz to 3 GHz was configured, frequencies above 2. 7 GHz could not be reached. This problem has been solved.

- In the "measure mode periodic" it could happen very seldom that the DSP of the IF Panorama delivered no more spectrum data. This problem has been solved.

- Now also in front panel state "CONTROLLED BY REMOTE" changed data are updated in non volatile ram.

Changes from Version 1.61 to Version 1.62:

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.

Changes from Version 1.54 to Version 1.61:

Improvements:

- In D-SCAN operation with level detector FAST the frequency accuracy is improved.

- Increased level-control limit in the HF range.
The overdriving indication of the ESMB is now exclusively driven by the IF section.
The hard limit 113 dBµV which was valid up to firmware release V1.54 is not relevant anymore.
Depending on the equipment there is now a level-control capability in the HF range of up to 117 dBµV.
The global operating mode switch LOW NOISE, NORMAL, LOW DIST has now a meaning also in the HF range, however LOW NOISE and NORMAL are equally effective! With LOW DIST a 10 dB attenuator is always switched on. With that the maximum level-control capability is 10 dB higher.
Thus, in the position ATT ON and LOW DIST the level-control capability has practically increased

in the HF range to up to 127 dBµV (previously 113 dBµV) which corresponds to a voltage of approx. 2.2 V at the antenna input.

Faults Remedied:

- With the "Antenna Factor Tool" it is now possible to load more than 20 sections of a characteristics diagram into the ESMB.

- The problem with system outage in the case of binary Trace data output via the RS232-interface in the STANDARD operation mode was 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 arenow available after 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 dBµV 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 the mode "attenuation off" has been extended to 88 dBµV.

- The symbolic offset display has been extended to +/- 3/4 of the current bandwidth.

- The new feature "digital audio" via LAN and UDP has been 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 dBµV , –10 dBµV or 10 dBµV.

- 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 dBµV (formerly 50 dBµV).

- The *RST value of the antenna number is 0 (formerly 1).

- The lowest SQU value is –30 dBµV (formerly –10 dBµV).

- The lowest MGC value is –30 dBµV (formerly –10 dBµV).

- The lowest TONE value is –14 dBµV (formerly 6 dBµV).

- 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 a configurable display variant in the menu DISPLAY-MORE-BANDW.

- The former menu for modulation measurement RX-CONF – MOD is now available as a configurable display variant in the menu DISPLAY-MORE-MVALUE.

- The ANT / ATT menu has been 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.

- Level measurements in the D-SCAN produced deviations of up to 3 dB 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 the 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 dBµV 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 1.84

- 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 dBµV an overload detection symbol is displayed.

- With ATT AUTO the 30-dB attenuation is switched on with levels greater than approx. 85 dBµV and is switched off with levels lower than about 78 dBµV.

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:

Telephone: ++49-180-5124242

FAX : ++49-89-4129-13777

E-mail: CustomerSupport@rsd.rohde-schwarz.com