ROHDE&SCHWARZ

Radiomonitoring and Radiolocation
Division

# Release Notes

# Firmware Update V03.50

# R&S EB500

**4072.5004.02**
**4072.5004.03**

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Dear Customer,

Throughout this manual, EB500 is generally used as an abbreviation for R&S EB500.

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# 1 General Information

Installation CD: EB500

CD Version: V01.07

Release date: July 2012

Part No.: 4072.8510.00

## 1.1 Manual for EB500

The following manual is supplied with the EB500: **Operating Manual EB500,** order no. 4072.8426.02 – 08.

## 1.2 How to obtain a current version of the manual

- Order a printed Operating Manual from Rohde & Schwarz, order no. 4072.8426.02.
- You will also find PDF documents of the current release of the manual on the Software / Documentation CD.
- The latest Software / Documentation CD can be downloaded from GLORIS or from the Rohde & Schwarz website under “Service & Support”.

# 2 Current Release

## 2.1 EB500 Firmware V03.50

### 2.1.1 New Features

- Demodulation bandwidths 8, 10, 12.5, 15 and 20MHz are now supported.
- Antennas ADD190 and ADD195 are now supported.
- Software option R&S EB500-DDC (Digital Down Converter) now supports phase demodulation.
- Jumbo frames is now supported.

### 2.1.2 Improvements

- IQ LAN streaming performance has been improved.

### 2.1.3 Changes

- GPSC Trace channel data is now tied to Main Receiver instead of DDC1.
- Switching to an unsupported antenna polarization no longer reports an error message. It will be silently discarded.

### 2.1.4 Problems Solved

- Changing demodulation to phase demodulation causes audio to stop. This problem has been resolved.
- FSCAN & MSCAN now works with small bandwidths.
- The PSCAN spectrum started flickering when changing attenuation. This problem has been resolved.
- MEMory:COPY now copies demodulation mode from RX to DDC correctly.
- V/UHF tuner lower limit can no longer be set below its limit by changing the HF tuner limit of the antenna definitions. Values below the limit will be silently discarded.

### 2.1.5 Known Errors and Limitations

- Due to hardware limitations only the first 1000 memory channels are stored nonvolatile. To store channels 1001 to 9999, the internal or external GUI “PRESET Profile” function can be used.
- If a receive frequency is set outside the frequency ranges of two DF antennas, it is possible for both antennas to be switched on at the same time.
- The current version of RAMON (EB500-CTL_5.4.1.11979) will crash when used together with EB500 Firmware V03.50 in polychrome histogram mode.

# 2.2 EB500 GUI V03.50

## 2.2.1 New Features

None

## 2.2.2 Improvements

- The panel config dialogs now have a button to automatically adjust the level range.
- Volume control now will be faster, when using the volume knob.

## 2.2.3 Changes

- In case the EB500 is connected to a time server, network time can be used as a time source.

## 2.2.4 Problems Solved

- The marker level values in the measurement panel are now correctly updated when averaging is switched on during scanning.
- Temporary files and folders which are created for file export operations are now properly deleted when closing the dialog.
- When a USB flash drive is removed during file export the GUI will not “hang” anymore.
- The “First” and “Last” keys now work properly in the Suppress List dialog.
- If memory contains only extreme (high and low) frequencies and no frequencies in between (e.g. 100, 110, 120, 2000, 2010, 2020), the zooming in MScan now works properly.
- A warning “Unsupported Video Display Variants” does not appear anymore when changing the application to “Video” mode.
- In the previous version, when changing the application mode from DDC to Decode or ITU, some receiver parameters (frequency, bandwidth etc) still redirected to the DDC channel that was selected. This issue has now been resolved.
- The zoom function in MScan was not very consistent (e.g. with combination of very high and very low frequencies). This problem has resolved.
- In Direction Finding mode the DF squelch marker was always shown. Now the marker is only shown when the DF SQU MODE is ON.
- The comb spectrum was not shown properly during MScan differential mode. This problem has been resolved.
- In the previous version, zooming went wrong when the left and right markers were swapped

## 2.2.5 Known Errors and Limitations

- In RF Waterfall the yellow marker is still linked to center frequency (it should be linked to the demod frequency, as is the case in RF panorama).

# 3 Release History

## 3.1 EB500 Firmware V03.00

### 3.1.1 New Features

- Software option R&S EB500-DDC (Digital Down Converter) is now supported.
- Software option R&S EB500-SL (Selective Call) is now supported.
- Software option R&S EB500-WDF (Wideband Direction Finding) is now supported.
- Software option R&S EB500-COR (DF Error Correction) is now supported.
- The frequency range for bandwidth measurement can now be configured within the IF panorama span. This feature is only available via remote interface.
- The antenna factor (KFactor) is now available in data output protocols IF, DFPan, AIF, ADDC.

### 3.1.2 Improvements

- 1MHz and 2MHz step sizes are now supported in DF with normal and narrow selectivity.
- Error message "Component Failure, Reference Unlocked" will not be shown when switching between internal and external reference with a connected external reference.
- Remote query command `SYSTem:SECurity:OPTion:INFormation?` returns the extended information for all active software options. Thus the duration of demo keys can be read out.
- In the status reporting system an additional operation fan out status registers show the reference state with the REFSettling bit.
- According to SCPI the remote commands with token "INFO" can alternatively be used with token "INFormation".
- The bearing calculation for very short pulses has been improved.

### 3.1.3 Changes

- Changing the LAN port configuration now affects only the remote interface rather than the device internal LAN. When starting the GUI on an external PC the LAN port can be configured via command line parameter The LAN port number range has been extended to range from 1024 to 65535.
- According to the definition of the AMMOS data format the polarity of the “Invalid Flag” has been changed.

### 3.1.4 Problems Solved

- Static noise can be heard from the headphone jack during receiver power up. This problem has been resolved.
- During GH150 compass calibration the compass sometimes sent strange answers. This problem has been resolved.
- The HP/LP filter in the HF preselector was no longer changed once the span was set to 20 MHz. Also, after changing back to smaller spans, the filters no longer changed. This problem has been resolved.

### 3.1.5 Known Errors and Limitations

- Due to hardware limitations only the first 1000 memory channels are stored nonvolatile. To store channels 1001 to 9999, the internal or external GUI “PRESET Profile” function can be used.

## 3.2 EB500 GUI V03.00

### 3.2.1 New Features

- GUI supports Digital Down Converter Option.
- GUI supports Selective Call Option.
- GUI supports Wideband Direction Finding Option.
- GUI supports DF Error Correction Option.
- New interface for File Management, Import and Export.
- Audio recording and IQ recording for all DDC channels

### 3.2.2 Improvements

- Improved interface for configuring snapshot settings.
- In the polar panel the user can choose to show, besides the current measurement, either the previous measurement or the average of the last 10 measurements with standard deviation.

### 3.2.3 Changes

- In previous versions, when changing application mode during a running scan, the application mode indeed changed, however the scan stopped. To avoid this undesirable situation, the current version does not allow changing application mode while a scan is running.

### 3.2.4 Problems Solved

- USB Mouse and USB keyboard operations are now fully implemented.
- The Level Indicator now always shows the Current Level, also when Differential Mode is Turned On.
- DF Bandwidth used to have some has strange values: 4999, 9999 and 19999 due to some rounding errors. This has been resolved.

### 3.2.5 Known Errors and Limitations

- The marker level values in the measurement panel are not updated correctly when averaging is switched on during scanning.
- When starting the export dialog, some temporary files and folders are created. These temp files / folders are not deleted after closing the dialog. A side effect is that the folders from then onwards appear in the Recording dialog and, other than by sanitizing, can not be deleted.
- There is a chance that the GUI hangs when a USB flash drive is removed during export.

- Compass calibration issue: “Continue Calibration” is not changed back to “Start Calibration” after it is done.
- The “First” and “Last” keys can not work in the Suppress List dialog.
- If memory contains only extreme (high and low) frequencies and no frequencies in between (e.g. 100, 110, 120, 2000, 2010, 2020), the zooming in MScan can not work: the scan stops and the frequencies have to be re-enabled in the Memory Edit dialog.
- A warning “Unsupported Video Display Variants” appears when changing the application to “Video” mode. This warning can be ignored.
- When changing the application mode from DDC to Decode or ITU, some receiver parameters (frequency, bandwidth etc) still redirect to the DDC channel that was selected. The user is advised to change from DDC mode to “Receiver” mode first before changing to ITU / Decode mode.

# 3.3 EB500 Firmware V02.30

### 3.3.1 New Features

- Polychrome IF panorama histogram mode is now available.
- Supports EB500 DF upgrade.
- Support for blanking and mute.
- Support for “Voice Inversion Descrambling”.

### 3.3.2 Improvements

- When an antenna is configured with an unsupported antenna polarization an error will be shown.

### 3.3.3 Changes

- None.

### 3.3.4 Problems Solved

- Fixed issue where previous receiver settings were not restored on the next power on or warm reset when demodulation mode was set to CW, LSB or USB.
- Changing LAN port disconnects GUI permanently upon restarting the receiver.
- Long test takes a much longer time to complete with sharp and narrow selectivity.
- Multiple tries may be required to successfully calibrate the compass.

### 3.3.5 Known Errors and Limitations

- When switching between internal and external reference an error message will be shown: “Component Failure, Reference Unlocked”. This is expected and the error should clear within 6 seconds after a lock has been re-established.

# 3.4 EB500 GUI V02.30

### 3.4.1 New Features

- GUI supports EB500 DF upgrade.
- GUI supports Polychrome IF panorama histogram mode.

### 3.4.2 Improvements

- Not Applicable.

### 3.4.3 Changes

- Changed the function of the RESET key into “warm reset” and the DEFAULT key into “cold reset”.

### 3.4.4 Problems Solved

- Sanitization operation was unreliable in the previous release. Now it works properly for internal and external GUI and will not cause GUI to hang.
- When Frequency Unit is changed, the IF panel X-axis unit will now be updated correctly.
- MScan zoom operations now works correctly for all zoom levels.
- The startup time of GUI and firmware are better synchronized now. There will be no more disturbing messages during startup due to difference in startup time.
- After a Preset to Default setting, used markers will now be switched off, as expected.
- In the previous release a warning “invalid string data” appeared when selecting “LAST” profile. This warning will not appear anymore.
- Memory descriptions are now properly retained in profiles.

### 3.4.5 Known Errors and Limitations

- USB Mouse and USB keyboard operations are not fully implemented.
- When all the entries in the memory list are cleared, the old lines in the waterfall panel are not cleared.
- The Level Indicator should preferably show the Current Level even if Differential Mode is Turned On.

# 3.5 EB500 Firmware V1.04

### 3.5.1 New Features

- Not Applicable.

### 3.5.2 Improvements

- Not Applicable.

### 3.5.3 Changes

- None.

### 3.5.4 Problems Solved

- Not Applicable.

### 3.5.5 Known Errors and Limitations

- No known limitation at time of publish.

## 3.6 EB500 GUI V1.04

### 3.6.1 New Features

- One step update for GUI and firmware for instruments with frontpanel.

### 3.6.2 Improvements

- Not Applicable.

### 3.6.3 Changes

- Not Applicable.

### 3.6.4 Problems Solved

- Not Applicable.

### 3.6.5 Known Errors and Limitations

- When Frequency Unit is changed, the IF panel X-axis unit does not update accordingly.
- GUI startups faster than firmware, resulting in a “no connection” message followed by a “connection to receiver” message.
- Used markers will not be switched off after a Preset to Default setting.
- When “LAST” profile is selected a warning “invalid string data” appears.
- Memory descriptions are not retained in profiles.
- MScan zoom operations under revision.

- USB Mouse and USB keyboard operations are not fully implemented

## 3.7 First Release

EB500 V01.04 is the first customer released Version.