

# Release Notes

Revision: 01

## R&S<sup>®</sup> ZVH4/ZVH8 Cable and Antenna Analyzer

### Firmware Release V1.33

These Release Notes describe the following models and options of the R&S<sup>®</sup> Cable and Antenna Analyzer:

- R&S<sup>®</sup> Cable and Antenna Analyzer ZVH4, order no. 1309.6800.24 <sup>1)</sup>
- R&S<sup>®</sup> Cable and Antenna Analyzer ZVH8, order no. 1309.6800.28 <sup>1)</sup>

#### New Features of V1.33:

- Antenna & Cable Test: 1-Port Cable Loss measurement supports display of result  $(\text{Open} + \text{Short}) / 2$  in combination with the measured curves for Open and Short in one screen

#### Modified functions of V1.33:

- Antenna & Cable Test: Extended selection of scaling ranges down to 1.1 for result format SWR

#### Improvements of R&S ZVH View Software Version V1.33:

- Resolved possible lockup when using the file conversion in order to convert multiple dataset files simultaneously

#### Important notes:

- <sup>1)</sup> On instrument models R&S<sup>®</sup>ZVH4 and R&S<sup>®</sup>ZVH8 equipped with firmware version V1.11 or lower, the self alignment function must be performed once as described in chapter 1.2.4 after installation of V1.33.
- <sup>2)</sup> The measurement of the DC bias current is supported by R&S<sup>®</sup>ZVH4 starting at serial number 102370 and R&S<sup>®</sup>ZVH8 starting at serial number 102256

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# 1 Installation Information

## 1.1 General Information

- Firmware release V1.33 corresponds to ZVH View V1.33, which is available on the Rohde & Schwarz web page as a separate update package.

## 1.2 Firmware Update

The firmware update file for the R&S ZVH4/ZVH8 is one file with the name ZVH\_V1\_33.EXE from the Rohde & Schwarz web page.

The installation can be done via SD-Card or via USB-Stick

### 1.2.1 Preparing the Installation via SD-Card

In order to update the device after downloading the ZVH\_V1\_33.EXE installation file, an SD memory card is required, e.g. R&S HA-Z231 (1 GB), order # 1309.6217.00, or R&S HA-Z232 (2 GB), order # 1309.6223.00. Please make sure that your PC is equipped with an SD card reader.

#### **Make a backup of datasets, screenshots and modified files**

Before you start the firmware update, make sure that you created a backup with ZVHView of all datasets and screenshots which you previously stored on the instrument. The same holds true for all channel tables, standards, limit lines, transducer factors and cable models which you created or modified. The factory preset necessary to complete the firmware update procedure will otherwise erase or overwrite the files.

#### **Preparing the installation files**

1. Insert an SD card into the SD card reader and wait until Windows® has identified the SD card as a new volume (e.g. D:)
2. Copy ZVH\_V1\_33.EXE into the root directory of the SD card, e.g. D:\
3. Execute ZVH\_V1\_33.EXE. The self-extracting .ZIP file will be unpacked.

The SD card should now contain the following files:

```
bootloader_ZVH_V1_33.bin
osimage_ZVH_V1_33.bin
updater_ZVH_V1_33.bin
splashscreen_ZV.bmp
ZVH_V1_33.EXE
```

#### **Prepare the instrument**

1. Switch the instrument OFF.
2. Connect the R&S ZVH to AC mains via its power adapter.  
**Note:**  
The instrument firmware will refuse to perform the update if the instrument runs on battery.
3. Insert the SD card into the SD card slot at the right side of the instrument.

### 1.2.2 Preparing the installation via USB

In order to update the device after downloading the ZVH\_V1\_33.EXE installation file, a USB stick is required.

#### **Make a backup of datasets, screenshots and modified files.**

Before you start the firmware update, make sure that you created a backup with ZVHView of all datasets and screenshots which you previously stored on the instrument. The same holds true for all channel tables, standards, limit lines, transducer factors and cable models which you created or modified. The factory preset necessary to complete the firmware update procedure will otherwise erase or overwrite the files.

#### **Preparing the installation files**

1. Insert a USB stick into the USB slot and wait until windows has identified the USB stick as a new volume (e.g. D:)
2. Copy ZVH\_V1\_33.EXE into the root directory of the USB stick, e.g. D:\
3. Execute ZVH\_V1\_33.EXE. The self-extracting .ZIP file will be unpacked.

The SD card should now contain the following files:

```
bootloader_ZVH_V1_33.bin
osimage_ZVH_V1_33.bin
updater_ZVH_V1_33.bin
splashscreen_ZV.bmp
ZVH_V1_33.EXE
```

#### **Prepare the instrument**

4. Switch the instrument OFF.
5. Insert the USB stick into the USB slot of the instrument.

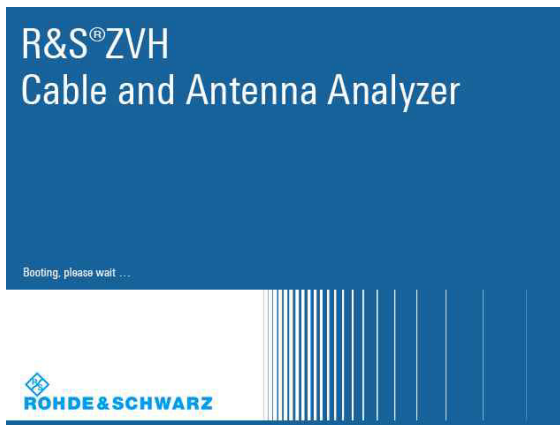
### 1.2.3 Performing the Firmware Update on the Instrument

The firmware update process is performed by the following steps:

1. Press the keys PRESET and 8 on the numeric keypad simultaneously.



2. Switch the instrument on and keep PRESET and 8 pressed for at least 5 seconds after the startup screen has appeared on the screen.



3. Release the keys PRESET and 8.

The ZVH will continue its boot process and after a couple of seconds the following information will appear on the screen:

---

### Instrument Firmware Update

```
Searching for firmware update (updater_*.bin)
...Found \USB\updater_ZVH_V1_33.bin
...OK
Checking updater_ZVH_V1_33.bin: ... OK
```

---

Update instrument to software version V1.33  
Press [ENTER] to update the firmware.  
Press [CANCEL] to abort firmware updating.

---

### Note:

If the AC mains connection is missing at the start of the firmware update process, the following message will appear at the bottom of the screen in step 3:

---

Instrument not powered by the power adapter. Please connect power adapter.  
Press [ENTER] to retry.  
Press [CANCEL] to abort firmware updating.

---

In this case check the power supply connection.  
Continue the update process with step 4.

4. Press ENTER to start the firmware update process.  
The instrument will perform the firmware update. This will take about 5 minutes.  
The progress of the update will be displayed in a sequence of messages on the screen.

**Warning:**

Do not switch the instrument off during the update process in order to avoid data corruption of the internal flash memory!

5. As soon as the firmware update is completed, the R&S ZVH will display the following message at the bottom of the screen:

---

Firmware updating is successfully completed.  
Please switch off the instrument.

---

Switch the instrument off and on again. The ZVH will boot with the new firmware version.

6. After the boot process is completed, press SETUP – INSTRUMENT SETUP.  
Select "RESET TO FACTORY SETTINGS" by moving the cursor down the list with the cursor keys or the rotary knob. Confirm the selection with ENTER, and re-confirm with YES when prompted.  
Please be patient: the subsequent reset and reboot process will take about a minute to complete.

**Note:**

Restoring the factory settings is necessary to update the pre-installed channel tables, cable models and transducer factors. If this step is omitted, bugfixes and updates to these pre-installed files will not be installed.

### 1.2.4 Performing the Self Alignment on the Instrument



**This section is relevant for R&S ZVH4 and R&S ZVH8 shipped with firmware version 1.11 or below.**

In Cable & Antenna Test and Network Analyzer operating mode the instrument models R&S ZVH4 and R&S ZVH8 support a default set of calibration data, the so-called factory calibration. This dataset is used whenever the instrument displays "fcal" in the title bar.

Instruments which were shipped with firmware versions 1.11 or below need an update of this dataset, as V1.33 uses improved algorithms which need more data in order to obtain optimum results.

The self alignment procedure requires a calibration standard R&S FSH-Z28 (order # 1300.7810.03), which is suitable for R&S ZVH4 and R&S ZVH8 instruments, or at least a calibration standard R&S FSH-Z29 (order # 1300.7510.03) for R&S ZVH4 instruments. In addition a RF cable with two N connectors is required in order to provide a through connection between measurement port 1 and port 2.

The self alignment is performed by the following steps:

7. Switch the instrument on
8. Select Network operation by pressing MODE – Cable & Antenna Test.
9. Make sure that the instrument runs for at least 30 minutes at room temperature.
10. Press the keys SETUP – INSTRUMENT SETUP. Place the cursor on the menu entry "Self Alignment" by scrolling the menu bar down with the rotary knob and press ENTER.  
The instrument will prompt you to confirm that the factory calibration data will be overwritten.
11. Press softkey YES.  
The self alignment procedure will start and prompt you to connect the calibration standards and the through connection to port 1 and 2 in the sequence.
12. Follow the instructions until the instrument reports "Self Alignment Done!".

Press softkey EXIT to return to the measurement screen.

## 1.3 Installing Firmware Options

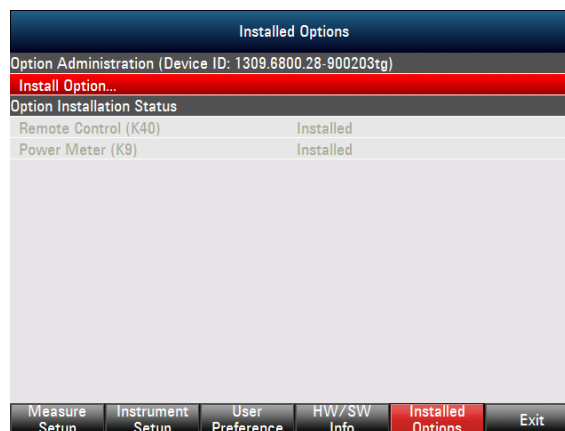
### 1.3.1 Enabling Options by Entering Option Key Codes



This section can be skipped if the option keys were already entered once. Option keys are not affected by a firmware update.

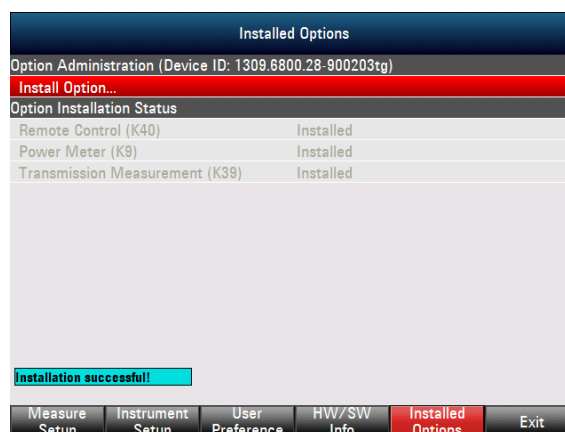
To activate application software packages, you must enter a license key for validation. The license key is in the device certificate or delivered as a part of the software package. The process is performed in the following steps:

- Press the SETUP key.
- Press the softkey INSTALLED OPTIONS.
- Use the rotary knob or the cursor keys to select the INSTALL OPTION... menu item and confirm the entry with the ENTER key.
- Enter the key code ( 32 digit number) for the option with the numeric keys and confirm with the ENTER key.



If the correct key code is entered, the R&S ZVH displays "Installation successful", and the option is marked as "Installed" in the option list (example: Remote Control (K40)).

If an invalid key code is entered, the R&S ZVH displays "Invalid key code!". The correct key code can then be entered.

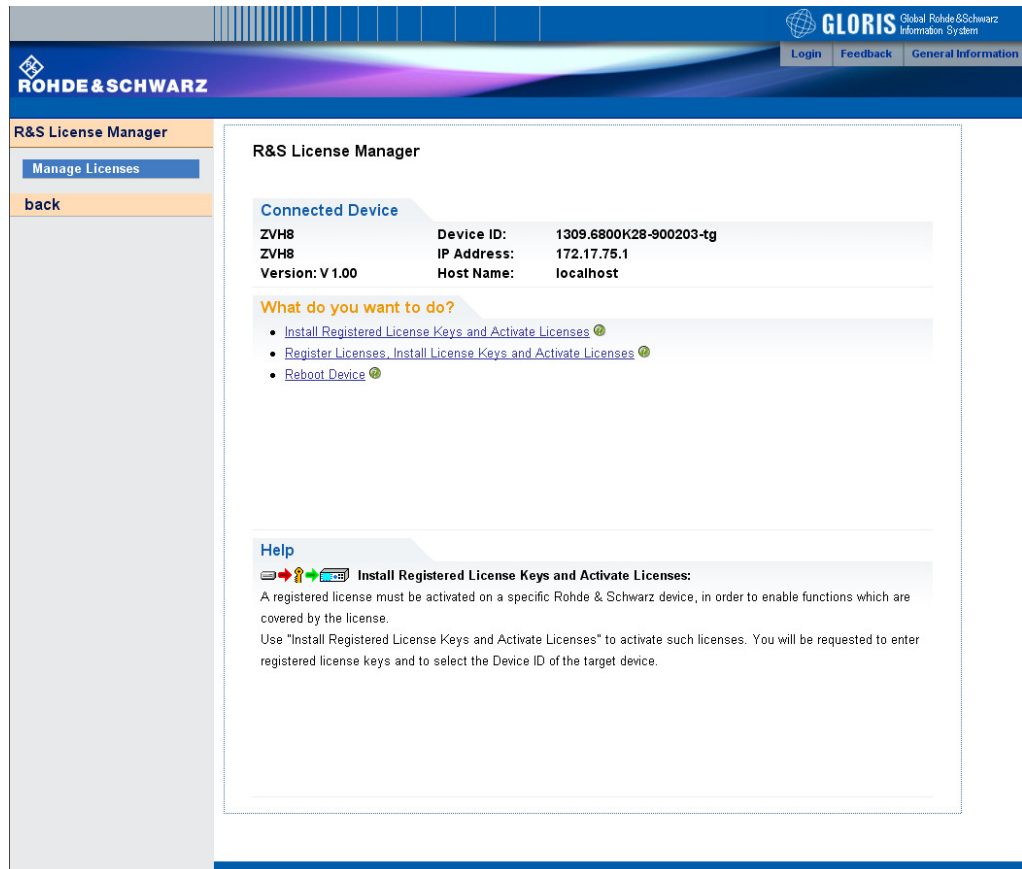




### 1.3.2 Enabling Options via the R&S License Manager

Prerequisite: Your PC must be connected via Ethernet to the instrument and to the internet.

- Open your browser and type in the IP address of your instrument.



**R&S License Manager**

**Connected Device**

|                 |             |                        |
|-----------------|-------------|------------------------|
| ZVH8            | Device ID:  | 1309.6800K28-900203-tg |
| ZVH8            | IP Address: | 172.17.75.1            |
| Version: V 1.00 | Host Name:  | localhost              |

**What do you want to do?**

- [Install Registered License Keys and Activate Licenses](#)
- [Register Licenses, Install License Keys and Activate Licenses](#)
- [Reboot Device](#)

**Help**

**Install Registered License Keys and Activate Licenses:**

A registered license must be activated on a specific Rohde & Schwarz device, in order to enable functions which are covered by the license.

Use "Install Registered License Keys and Activate Licenses" to activate such licenses. You will be requested to enter registered license keys and to select the Device ID of the target device.

- Select "License Manager" > "Manage Licenses".
- Choose "Register Licenses, Install License Keys and Activate Licenses" and follow the instructions.

## 2 New Functions

The following table lists the new functions in V1.33:

| Version | Function   |
|---------|--|
| V1.33   | Antenna & Cable Test: 1-Port Cable Loss measurement supports display of result (Open+Short) / 2 in combination with the measured curves for Open and Short in one screen |

The following table lists extensions which were introduced in earlier versions, and indicates the version in which the extension was introduced:

| Version | Function  |
|---------|---|
| V1.31   | ZVHView Report Generator: Custom logo support   |
| V1.30   | Cable & Antenna Test: Cable loss measurement: new method (Open + Short) / 2   |
| V1.30   | Cable & Antenna Test: Quick Calibration   |
| V1.30   | Cable & Antenna Test: Display line  |
| V1.30   | Cable & Antenna Test / Network Analyzer: trace mathematics  |
| V1.30   | Network Analyzer: new result format Cable Delay in addition to Electrical Length  |
| V1.30   | Switch between uplink and downlink channel  |
| V1.30   | Uplink and downlink search range for markers  |
| V1.30   | Measurement of DC bias current (supported by R&S®ZVH4 starting at serial number 102370 and R&S®ZVH8 starting at serial number 102256) |
| V1.30   | Wizard: Overall PASS/FAIL information   |
| V1.30   | Wizard: Interrupt and resume function   |
| V1.30   | Wizard: Support of external interfaces (Trigger, external reference, DC bias)   |
| V1.30   | Wizard: Support of Asian letters for instructions   |
| V1.30   | File manager: Rename function   |
| V1.30   | Quick Naming function added for saving files  |
| V1.30   | Picture view function for screenshots   |
| V1.30   | Support for different time zones  |
| V1.30   | Spectrum Analyzer Remote Control: new data collection query and control commands for the isotropic antenna                            |
| V1.30   | ZVHView Report Generator: Repetition of general information on each page possible   |
| V1.30   | ZVHView Report Generator: multiple selection of files available   |
| V1.30   | ZVHView Report Generator: Multilanguage support   |
| V1.30   | ZVHView: Definition of Quick Naming tables  |
| V1.30   | ZVHView: Remote Instrument Desktop  |
| V1.30   | ZVHView: Support of JPG for export  |
| V1.20   | Support for Vector Network Analysis Measurement Application R&S®ZVH-K42   |

|       |   |
|-------|---|
| V1.20 | Support for Vector Voltmeter Measurement Application R&S@ZVH-K45                                  |
| V1.20 | Cable & Antenna Test: Interference suppression  |
| V1.20 | Cable & Antenna Test: Number of sweep points selectable in predefined steps (min. 101, max. 1201) |
| V1.20 | Cable & Antenna Test: Drive Port switchable to Port 2 for S22 and S12 measurements                |
| V1.20 | Cable & Antenna Test: Limit lines for format SWR  |
| V1.20 | Cable & Antenna Test: Format reflection coefficient for reflection measurement                    |
| V1.20 | Cable & Antenna Test: Calibration method "Normalize transmission with isolation"                  |
| V1.20 | Cable & Antenna Test: User calibration can be switched off  |
| V1.20 | Cable & Antenna Test: DTF settings overview table   |
| V1.20 | Wizard: Support of all measurement modes  |
| V1.20 | Wizard: Support of limit lines and Pass/ Fail information   |
| V1.20 | Limit lines: Horizontal threshold line available in addition to limit lines loaded from file      |
| V1.20 | Trace from recalled setup file is automatically stored in memory trace                            |
| V1.20 | Internal DC Bias can be routed to BNC connectors  |

### 3 Modified Functions

The following table lists the functions modified in V1.33:

| Version | Function   |
|---------|--|
| V1.33   | Antenna & Cable Test: Extended selection of scaling ranges down to 1.1 for result format SWR |
| V1.33   | Optimized synthesizer setup table  |

The following table lists modifications, which were introduced in earlier versions, and indicates the version in which the modification was introduced:

| Version | Function   |
|---------|--|
| V1.31   | Maximum length of file names extended for quick naming function  |
| V1.31   | When selecting a cable model a mismatch in the frequency range will be notified on screen  |
| V1.30   | The limit value entered for a limit line is still part of the allowed range (fail: exceeded)   |
| V1.30   | When switching between operating modes (e.g. Spectrum Analyzer -> Network Analyzer), the display now shows the target operating mode while the switch is in progress.  |
| V1.30   | User must now explicitly confirm when changing the date settings. Together with the new support for time zones this mechanism should help avoiding conflicts with timed option licenses.   |
| V1.30   | Spectrum Analyzer Remote Control:<br>In manual operation the span is adjusted automatically when selecting narrow resolution bandwidths. Via remote control the resolution bandwidth command was rejected if the span settings didn't match. Starting with V1.60 the remote control behaviour is equal to the behaviour in manual operation. |
| V1.20   | Improved speed on parameter change   |
| V1.20   | Cable & Antenna Test: improved speed for large frequency spans   |
| V1.20   | Cable & Antenna Test: changed default settings for source power (-10 dBm) and receiver attenuation (10 dB) for optimum dynamic range   |
| V1.20   | Optimized synthesizer setup table  |
| V1.20   | Wizard supports the unit feet  |

## 4 Improvements

The following table lists the issues eliminated in V1.33:

| Version | Function   |
|---------|--|
| V1.33   | ZVHView: Resolved possible lockup when using the file conversion in order to convert multiple dataset files simultaneously |

The following table lists modifications, which were introduced in earlier versions, and indicates the version in which the modification was introduced:

| Version | Function  |
|---------|---|
| V1.31   | ZVHView: Remote Instrument Desktop available without R&S® ZVH-K40                                   |
| V1.31   | ZVHView: Improvements in Cable Model Editor   |
| V1.31   | ZVHView Report Generator: Japanese Language support   |
| V1.30   | Remote Control: Support for status bits of limit lines, overload and external reference was missing |
| V1.30   | ZVHView: Cyrillic letters were not properly supported   |
| V1.20   | Cable & Antenna Test: Extension of predefined Cable Models to higher frequencies                    |
| V1.20   | Spectrum Analyzer: Update of LTE ACLR standard files  |

## 5 Known Issues

None

## 6 Modifications to the Documentation

The latest manual can be downloaded from the R&S ZVH4/8 cable and antenna analyzer product web page under: <http://www.rohde-schwarz.com>. Select "DOWNLOADS" and "MANUALS".

## 7 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.

### Europe, Africa, Middle East

Phone +49 89 4129 12345  
[customersupport@rohde-schwarz.com](mailto:customersupport@rohde-schwarz.com)

### North America

Phone 1-888-TEST-RSA (1-888-837-8772)  
[customer.support@rsa.rohde-schwarz.com](mailto:customer.support@rsa.rohde-schwarz.com)

### Latin America

Phone +1-410-910-7988  
[customersupport.la@rohde-schwarz.com](mailto:customersupport.la@rohde-schwarz.com)

### Asia/ Pacific

Phone +65 65 13 04 88  
[customersupport.asia@rohde-schwarz.com](mailto:customersupport.asia@rohde-schwarz.com)