R&S® ZNB
Vector Network Analyzers
Release Notes for Firmware V1.63
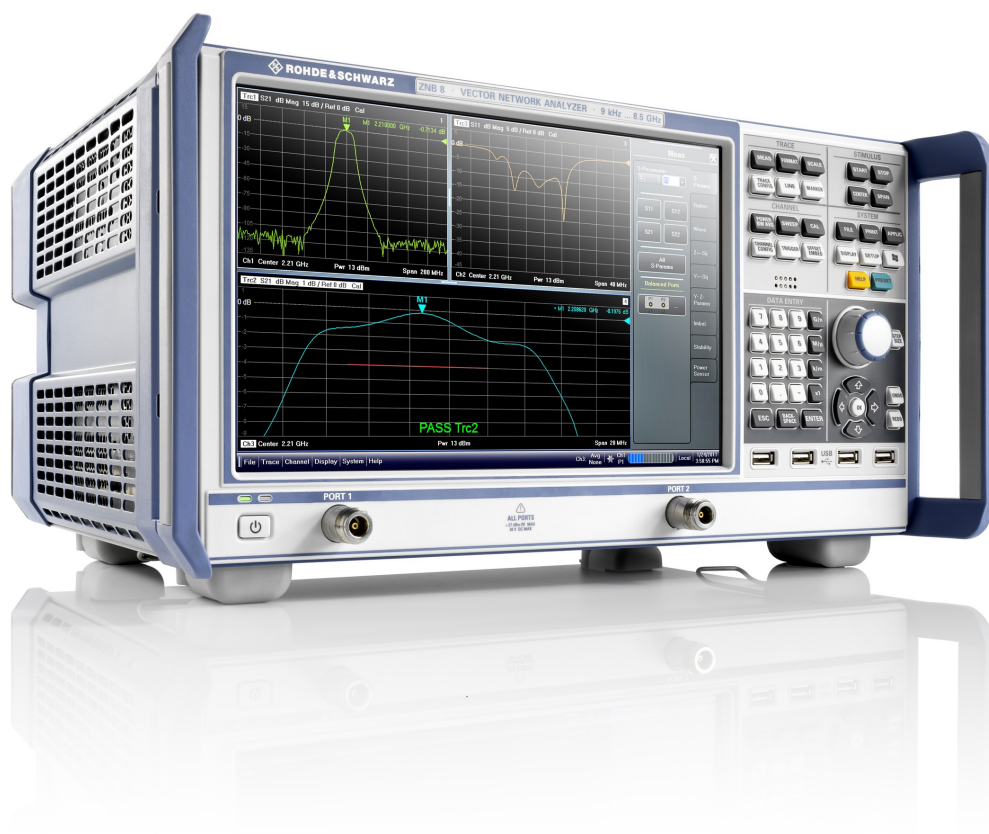
ROHDE & SCHWARZ

The following abbreviations are used throughout this guide: R&S® ZNBxx is abbreviated as R&S ZNBxx, R&S® ZNB-xxx as R&S ZNB-xxx.

1 Release Notes for Firmware V1.63

Version V1.63 of the R&S ZNB firmware fixes the following issues of previous versions:

- Due to a timing conflict in accessing the internal instrument specific information, this information might possibly get corrupted.
  It is strongly recommended to install the firmware version 1.63 in order to fix this issue. In case the firmware shows the message "Error reading instrument serial number. " it needs recovery in a R&S service center.

Software version

► To check your R&S ZNB firmware version, press "Help > About...".

1.1 V1.62 (Compared to V1.61)

Bug fixes:

- Mixer measurement with sweeping LO and interpolation did not work.
- Command `CALCulate<Ch>:PARameter:DEFine:SGRoup` could not be used repeatedly with the same port numbers.
- `MMEMory:LOAD:LIMit` (ENA parser command) did not work.
- Problems with measurement and cal unit calibration for a very large number of sweep points (100000).
- Problems with new (2nd) calibration with a different start or stop frequency setting.

1.2 V1.61 (Compared to V1.60)

New features:

- "Adjust Time Gate" function, moves the time gate in the opposite direction when the offset parameters are changed. This allows measurements at variable offset but fixed time gate position.

Bug fixes:

- Measurement with more than one power meter did not work.
- Marker info fields on printed hardcopies were misplaced or invisible.
- Some error messages contained wrong characters and were hard to read.
- Calibration unit characterization with different connector types did not work.
- Calibration unit characterization required consecutive ports starting with port 1.
- Calibration for frequency conversion measurements (option R&S ZNB-K4) at frequencies < 100 kHz was incorrect.
- Missing GUI for receiver attenuator settings (options R&S ZNB<n>-B31/32/33/34).

1.3 V1.60 (Compared to V1.50)

New features:

- Direct access to the function "Repeat previous cal" in calibration soft tool (softkey added).
- Calculation of filter quality factor based on selectable bandwidth different to 3 dB.
- Overview window for zoomed traces.
- Support for R&S SGMA signal generator.

New remote control features:

- Definition of diagram and their positions including nested layouts:
  `DISPlay:LAYout:APPLy`, `DISPlay:LAYout:DEFine`,
  `DISPlay:LAYout:EXECute`, `DISPlay:LAYout:JOIN`.
- Circle test for limit checks in Smith and Polar diagrams:
  `CALCulate<Chn>:LIMit:CIRCle...`
  etc.
- New command `[SENSe<Ch>:]SWEep:DWELl:POint ALL | FIRSt`, defines whether a delay time is inserted before all partial measurements or before the first partial measurement only.
- New command `SOURce<Ch>:POWer:CORRection:IMODulation:PORT`, selects the source port for the receiver power calibration with intermodulation measurement.

New options:

- R&S ZNB-K19, "1 mHz Frequency Resolution".
  This option enhances the frequency resolution to 1 mHz. In order to utilize the higher frequency resolution set "Decimal Places" for unit "Hz" to "12" in the "Setup/System Config/User Interface" dialog.
- R&S ZN-B14,"Handler IO".

Product improvements:

- Frequency axis (RF, IF, LO) selectable in mixer mode.

Bug fixes:

- The bandwidth setting of segmented sweep did not work in firmware V1.50.
- The settings "Channel / Mode / LO< RF" and "Channel / Mode / LO > RF" were interchanged, also the SCPI command settings `SENSe:FREQuency:SBANd POSitive` and `NEGative`. This is fixed now. However, if you use the command in your programs and it works correctly you have to change the setting to the correct values now.

1.4 V1.50 (Compared to V1.40)

New features:

- Circle test for limit checks in Smith and Polar diagrams.
- Fixture Compensation to correct the measurement result for effects of a test fixture.

- Support of separate AGC (Automatic Gain Control) settings per drive port, receiver port and segment.
- Support of ENA parser emulation.
- Wizard for scalar mixer measurements.

New remote control features:

- Scpi commands for split display:
  `DISPlay:LAYout <mode>` and `DISPlay LAYout:GRID <rows>, <cols>`.

New options:

- R&S ZNB-K14, "Intermodulation Measurements"

Product improvements:

- Correct sorting of numerical values in tables.
- Drag&Drop for table lines and rows if applicable. An arrow in the upper left corner indicates the feature.
- Drag&Drop for markers from the soft tool into the diagram
- Additional marker symbols
- Creation of CalKits with the same name, e.g. for CalKits with various serial numbers.
- "SCal" instead of "Cal" is indicated with "SMARTerCal"
- Characterization of the CalU: Support of any combination of CalU-port.
- Reference lines is moved using the triangle.
- Fixed output format for SNP export.
- Context sensitive help for tabs and dialogs with QTabWidgets.
- Restrictions for Remote desktop removed, e.g. no administrator mode necessary.
- New command for "Averaging Mode"
- Support of generator Hittite HMC-T2240.
- Trace progress bar in remote control

1.5 V1.40 (Compared to V1.31)

New features:

- Scalar power calibration (including reference receiver calibration, flatness calibration, measurement receiver calibration)
- Characterization wizard for R&S calibration units
- Smarter Calibration (combination of system error correction and power calibration at one port). Smarter calibration is also supported on calibration units R&S ZV-Zxx.
- Automatic adjustment of calibration sweep ranges in frequency conversion measurements
- Multi-chanel system error correction (manual control and cal unit)
- Touchscreen lock in order to prevent inadvertent entries
- "External Tools" softtool panels, gives access to pre-installed applications.

- "TRACE > TRACE CONFIG > Trace Data > s1p Active Trace..." button; stores the active trace to a Touchstone (`*.s1p`) file.
- User-defined softkeys in the remote screen
- Averaging modes "Reduce Noise" and "Flatten Noise"
- Sweep symbols on the trace indicate the progress of the sweep.
- Hardkeys may open the first tab of a softtool panel or the last used tab.

New remote control features:

- Support for HiSLIP protocol for TCP-based remote control
- Command `CALCulate<Chn>:DATA:NSWeep` extended to retrieve several consecutive sweep results.
- Commands `CALCulate<Chn>:DATA:CALL?` and `CALCulate<Chn>:DATA:CALL:CATalog?;` return all S-parameter traces in the active channel or in the active system error correction.
- Commands `[SENSe<Ch>:]CORRection:CDATa:PORT<PhyPt>`, `[SENSe<Ch>:]CORRection:DATa:PARameterPORT<PhyPt>`, `[SENSe<Ch>:]CORRection:POWer:DATA:PORT<PhyPt>`, `[SENSe<Ch>:]CORRection:STIMulus:PORT<PhyPt>`, `SOURce<Ch>:POWer:CORRection:DATA:PORT<PhyPt>`, designed to handle calibration data for frequency conversion measurements.

New options:

- R&S ZNB-K4, "Frequency Conversion Measurements"
- R&S ZNB-B1, "Bias Tees"
- R&S ZNB-B2, "Internal Second Source"
- R&S ZNB-B4, "OCXO Frequency Reference"
- R&S ZNB-B81, "DC Inputs", provides DC voltage and power added efficiency (PAE) measurements.

Product improvements:

- If a front panel key or a key in the hardkey bar is pressed repeatedly, the analyzer switches between the different softtool tabs.
- The source port for wave quantities and ratios is always indicated in the trace list.
- Tapping a trace in a diagram activates the trace (equivalent to tapping the trace line).

1.6 V1.31 (Compared to V1.30)

Issues fixed:

- Inadvertent switchover of measurement results
- Incorrect external generator control via the "Modify Cal Power" dialog

1.7 V1.30 (Compared to V1.20)

New features:

- Support for external power meters and generators

New remote control features:

- Status registers for external power meters and generators (bits no. 10 and 11 of the `STATus:QUEStionable:INTegrity:HARDware` register).
- New command `SYSTem:COMMunicate:RDEVice:AKAL:PREDuction[:STATe]`, enables power reduction during an automatic calibration.
- New commands `CALCulate<Ch>:PARameter:DELete:CALL` and `CALCulate<Ch>:PARameter:DELete:ALL`, delete several traces.

Product improvements:

- "Search" tab in the Help system, allows you to search for a character string (full text search).
- Segmented frequency sweep with point-based x-axis
- New user color setting "Colorize Trace when Failed"
- Windows Explorer is accessible from all file dialogs.

1.8 V1.20 (Compared to V1.14)

New features:

- Ripple limits and ripple test (e.g. for checking whether the passband ripple of a filter is within acceptable limits)
- Embedding/deembedding of virtual networks (single-ended or balanced)
- S-Parameter Wizard; facilitates the configuration of a standard S-parameter measurement
- LXI support
- Additional settings for user color schemes in the "Define User Color Scheme" dialog, e.g. "Use Trc Color for Limit Lines"
- New toolbar icon "New Ch + Tr", adds a new trace with new channel settings
- Show/hide the toolbar

New remote control features:

- Commands `INITiate:CONTinuous:ALL` and `INITiate[IMMEdiate]:ALL`, start a single sweep (sequence) in all channels.
  The remote language setting "ZBABT" ensures compatibility with network analyzers of the R&S ZVA/B/T family.
- New command `[SENSe:]SWEep:COUnt:ALL`, defines the number of sweeps in single sweep mode for all channels.

- Commands `CONFigure:CHANnel<Ch>:MEASure[:STATe]` and `CONFigure:CHANnel<Ch>:MEASure:ALL[:STATe]`, deactivate the sweep in a particular channel (speed gain for the remaining channels)
- New commands `CALCulate...STATe:AREA`, move various info fields to nine pre-defined positions within the diagrams.
- New commands `SYSTem:DISPlay:BAR:...`, display or hide control bars and panels.
- New commands `SYSTem:IDENtify...` and `SYSTem:OPTions...`, customize or reset the identity and option strings of the instrument.
- New `SYSTem:COMMunicate:RDEVice:AKAL:...?` queries, return the characterizations stored on a calibration unit and their properties.
- New command `SYSTem:COMMunicate:RDEVice:AKAL:SDATa?`, returns the complex characterization data for a particular standard from a cal unit characterization.
- New command `CALCulate:DATA:TRACe? '<Trace name>', FDATa | SDATA | MDATa | NCData`, returns the trace data of an arbitrary (not necessarily the active) trace.
- New command `CONFigure:CHANnel<Ch>:TRACe:CATalog?`, queries the traces in a particular channel <Ch>.
- New commands `CONFigure:TRACe:WINDow? <'Trace name>'` and `CONFigure:TRACe:WINDow:TRACe? <'Trace name>'`, query the window and trace number of a particular displayed trace.
- New command `[SENSe:]CORRection:COLLect:LOAD:SELected`, loads calibration data from a cal group file.

Product improvements:
- Nine different positions for info fields (instead of 6)
- Re-numbering of diagrams when a diagram is deleted
- Progress monitor for automatic calibration with calibration unit R&S ZV-Z5x
- The title bars of closed softtool panels keep being displayed and can be used to re-open the softtools any time.
- Improved drag and drop functionality for markers; single markers can be deleted.

1.9 V1.14 (Compared to V1.13)

The new firmware provides support for a new type series of the internal flash memory.

1.10 V1.13 (Compared to V1.12)

Measurements below 25 MHz have been improved. To achieve full performance below 25 MHz without user calibration, the instrument needs to be serviced if it was delivered with firmware V1.12 or earlier.

1.11 V1.12 (Compared to V1.10)

Some bugs have been fixed.

1.12 V1.10 (Compared to V1.00)

New features:

- Calibration kit management (load, modify, and store calibration kit data).
- "Calibration Manager" dialog, stores system error correction data to the cal pool and assigns stored correction data to channels.
- Graphic zoom; see chapter "Operating the Instrument > Using the Graphic Zoom" in the Getting Started manual or in the Help system of your R&S ZNB.
  This feature is also available in remote control.
- Various drag and drop features for efficient manual control; see chapter "Operating the Instrument" in the Getting Started manual or in the Help system.

2 Firmware Update

Upgrade versions of the analyzer firmware are supplied as single setup files *.msi.

Administrator account

You need administrator rights to install a new firmware version. Refer to the Getting Started manual for details.

To perform a firmware update,

1. Copy the setup file to any storage medium accessible from the analyzer. This may be the internal hard disk, an external storage medium (USB memory stick, external CD-ROM drive) or a network connection (LAN, GPIB bus).

2. In the Windows® Explorer, tap the setup file twice (or double-click with a mouse) and follow the instructions of the setup wizard.

Setup files can be stored and installed again. The default drive name of the internal hard disk is C:. External storage devices are automatically mapped to the next free drive, i.e. D:, E: etc.

Factory calibration

A firmware update does not affect the factory calibration.

NOTICE

External accessories

The calibration unit (accessory R&S ZV-Z5x) must be disconnected during a firmware update.