

R&S®ScopeSuite Release Notes

Software Version 5.20.1

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1317.4549.02 | Version 34 | R&S®ScopeSuite |

The software makes use of several valuable open source software packages. For information, see the "Open Source Acknowledgment" provided with the product.

The following abbreviations are used throughout this document: R&S®ScopeSuite is abbreviated as R&SScopeSuite.

PAD-TM: 3574.3288.02/05.00/CI/1/EN

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1 Information on the current version and history

1.1 Version 5.20.1

New functionality

Option/Topic	Functions
	<p>Support for only R&S RTP, RTP-B</p> <p>1.2</p> <ul style="list-style-type: none"> LP-TX Signaling Requirements (Group1) <ul style="list-style-type: none"> 1.1.1 ~1.1.7 HS-TX Signaling Requirements (Group2) <ul style="list-style-type: none"> 1.2.1 ~ 1.2.6, 1.2.10 ~1.2.20 HS-TX Signaling Requirements for Eye Measurements (Group2) <ul style="list-style-type: none"> 1.2.7 ~1.2.9, 1.2.21 <p>2.1</p> <ul style="list-style-type: none"> LP-TX Signaling Requirements (Group1) <ul style="list-style-type: none"> 1.1.1 ~1.1.8 HS-TX Signaling Requirements (Group2) <ul style="list-style-type: none"> 1.2.1 ~ 1.2.6, 1.2.10 ~1.2.13, 1.2.16~1.2.19 HS-TX Signaling Requirements for Eye Measurements (Group2) <ul style="list-style-type: none"> 1.2.7 ~1.2.9, 1.2.21 ~1.2.22
C-PHY (K28)	
D-PHY (K27)	<p>Support for RTP, RTP-B, RTO6, RTO2000</p> <p>2.0/2.1/2.5</p> <ul style="list-style-type: none"> Clock Lane HS-TX Signaling Requirements (Group4) <ul style="list-style-type: none"> 1.4.18 ~1.4.20 HS Clock-To-Data Lane Timing Requirements (Group5) <ul style="list-style-type: none"> 1.5.8 ~ 1.5.10 Eye Test <ul style="list-style-type: none"> 1.4.18, 1.4.20, 1.5.7
Automation K99	<ul style="list-style-type: none"> Coverage of all eMMC test cases Supports Python Client

Improvements

Option/Topic	Improvements
Common	<ul style="list-style-type: none"> Guided steps: automatic update of the channel configuration images in the guided steps, according to the user configuration. Guided steps: automatic update of the oscilloscope's images in the guided steps, according to the detected instrument. Test case error handling enhancement for 10BASE-T1, 100BASE-T1, 1000BASE-T1 and MGBASE-T1 Support German numbering system (e.g. 0,25E-3). Enhance Auto Y-axis scaling function

	<ul style="list-style-type: none"> •
MGBase-T1	<ul style="list-style-type: none"> • Updated skew settings and support 'Retrieve Skew' button • "149.5.2.2 Transmitter linearity" test case: supported for 5G and 10G • Added hardware digital filter property to 10GBASE-T1 linearity test
PCIe	<ul style="list-style-type: none"> • New select type "Reference Clock". • "Reference Clock" test cases are moved out of "System Board".
100Base-T1	<ul style="list-style-type: none"> • "SLAVE transmitter timing jitter (96.5.4.3)" test case: "Edge Selection" (either, rising and falling) • "Common mode emission" test case: it is only using log scale if K18 is present • Add edge selection for rising, falling and both for jitter measurements
1000Base-T1	<ul style="list-style-type: none"> • Add edge selection for rising, falling and both for jitter measurements
Ethernet	<ul style="list-style-type: none"> • 1000BASE-T <ul style="list-style-type: none"> ○ Peak Output Voltage (40.6.1.2.1): Measurement method is split: <ul style="list-style-type: none"> ▪ Amplitude /Min and Max ○ Transmitter distortion (40.6.1.2.4): Distortion plot is added
USB/USB3.2	<ul style="list-style-type: none"> • USB2.0 "High speed Signal quality" tests: support 4 margins for the report • Hub > Downstream SuperSpeed Transmitted Eye test cases: the test has the wrong picture for the test fixture. The picture mentions "11" Device Test Fixture 2, but it should be "5" Host Test Fixture 2. (USB3.2) This applies to the corresponding test on the Host (DFP) as well. • SuperSpeed Transmitted Eye test case: in the guided step CP1 or CP0 are used instead of CP10
HDMI	<ul style="list-style-type: none"> • The unit of channel skew is now displayed as "ps".
Ethernet 2.5/5/10G	<ul style="list-style-type: none"> • The legacy K25 license is also working with Version 5.20.1 • 2.5GBaseT "MDI Return Loss test case": The stop frequency is changed from 250MHz to 125MHz based on the latest specification (IEEE 802.3 clause 126.8.2.1).
DDR4/LPDDR4 /LPDDR4X	<ul style="list-style-type: none"> • Support of width trigger and up to three zone trigger to capture bursts of strobe signal. • Support configurable DQ threshold and hysteresis

Tested firmware

Version	Functions
Firmware 5.20.1	This ScopeSuite version is tested against the RTx firmware version 5.20.1 on RTP-B, RTP & RTO6 & RTO2000 series.

Known issues

issue	Known Issues
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Common After installation ScopeSuite could fail on the first run of any test case. Restart the ScopeSuite and try again.

1.2 Version 5.0.1

New functionality

Option/Topic	Functions
Common	Support RTO 6
Common	eMMC support for RTP
Common	Merge k22 and k86 (eliminate k86)
Common	Merge k23 and k25 (eliminate k25)
	<p>2.1 TMD5</p> <ul style="list-style-type: none"> All Clock Tests Single-Ended Tests Differential Timing Tests Differential Voltage Mask Tests Jitter Mask Tests Inter-Pair Skew (HF 1-3)
HDMI	<p>1.4b</p> <ul style="list-style-type: none"> All Clock Tests Voltage Off Tests Single-Ended Tests Voltage Off Tests Differential Timing Tests Jitter Mask Tests Inter-Pair Skew (7-6)
MGBase-T1	<ul style="list-style-type: none"> 149.5.2.3 Transmitter timing jitter master 149.5.2.3 Transmitter timing jitter slave 149.5.2.3.1 Transmit MDI random jitter in master mode 149.5.2.3.2 Transmit MDI deterministic jitter in master mode 149.5.2.2 Transmitter linearity (only 2.5G) 149.5.2.6 Transmitter clock frequency 149.5.2.3.2 Transmit MDI Even-Odd jitter in master mode 149.5.2.4 Transmitter power spectral density (PSD) and power level 149.5.2.5 Transmitter peak differential output 149.5.2.1 Maximum output droop 149.8.2.1 MDI return loss
DDR3/DDR3L/ LPDDR3, DDR4/LPDDR4	<ul style="list-style-type: none"> Support configurable scaling modes (Auto/Reference) Support write triggering method (Edge/ABR/Width) Support CLK Off selection for DDR4 both online and offline execution. Configurable hysteresis of address signals

**Automation
K99**

- Support Sub-Test selections and its run API.
- Support two channel mode for DDR4.

Improvements**Option/Topic****Improvements****Common**

- ScopeSuite errors handling enhancement.
- ScopeSuite log file enhancement
- Communication protocol enhancement between ScopeSuite, Scope and VNA.
- Enhancement of keeping ScopeSuite in front of firmware when running on scope.

**DDR3/DDR3L/
LPDDR3,
DDR4/LPDDR4
/LPDDR4X**

- Error handling enhancement
- Timing & electrical test cases enhancement
- Re-design tDIPW measurement on CMD/ADD/CS
- Smarter execution for Data Timing and Strobe Timing Tests

USB/USB3.2

- Property view enhancement.
- Error message handling enhancement.

PCIe

- Test cases re-arrangement in different test subtypes.

**Ethernet
1000Base-
T/100Base-Tx**

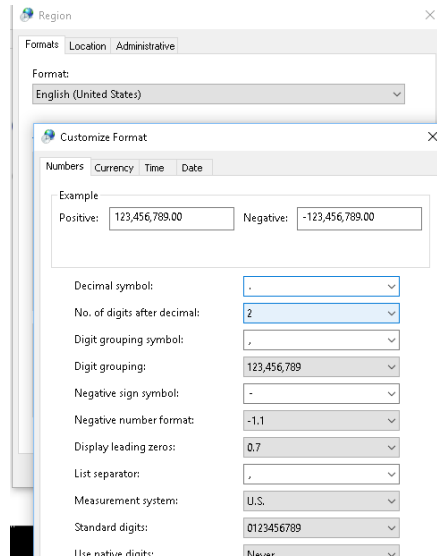
- Support calculation of 85 Ohm & 115 Ohm reference impedance in MDI return loss measurement.

Tested Firmware**Version****Functions**Firmware
4.80.1/5.0.1

This ScopeSuite Version is tested against the RTX Firmware Version 4.80.1 & 5.0.1 on RTP & RTO2000 series, 5.0.1 on RTO6.

Known issues**issue****Known Issues**Opening
session

With US windows OS and German ("," as a decimal point) numbering format, entering sessions in ScopeSuite will give error.



MGBASE-T1	<ul style="list-style-type: none"> For 2.5G and 5G speed variants, the test case '149.5.2.2 Transmitter linearity (test mode 4)' has not been implemented. This is due to the standard and the official test methodology not being finalized and still worked on. For the test case '149.5.2.3.2 Transmit MDI deterministic jitter in master mode', it can yield negative jitter results. As above, standard and test methodology not finalized. For very long acquisitions it can happen that ScopeSuite is running out of memory. Please close other applications and restart ScopeSuite.
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HDMI 1.4 Voltage Off Tests fails with firmware 4.80.1

1.3 Version 4.80.1

New functionality

Option/Topic	Functions
USB 3.2 Gen 1 (5 GT/s)	Official SigTest version 3.2.11.4 (see installation instructions 3.2.2.1)
	(NOTE: SSC Profile Test will need higher version of SigTest)
	• Device - Low Frequency Periodic Signaling Tx (TD.1.1)
	• Device – Short Channel Transmitted Eye (TD.1.3)
	• Device – Long Channel Transmitted Eye (TD.1.3)
	• Device – SSC Profile (TD.1.6)
	• Host - Low Frequency Periodic Signaling Tx (TD.1.1)
	• Host – Short Channel Transmitted Eye (TD.1.3)
	• Host – Long Channel Transmitted Eye (TD.1.3)
	• Host – SSC Profile (TD.1.6)
	• Hub – Upstream Low Frequency Periodic Signaling Tx (TD.1.1)
	• Hub – Upstream Short Channel Transmitted Eye (TD.1.3)
	• Hub – Upstream Long Channel Transmitted Eye (TD.1.3)

- Hub – Upstream SSC Profile (TD.1.6)
- Hub – Downstream Low Frequency Periodic Signaling Tx (TD.1.1)
- Hub – Downstream Short Channel Transmitted Eye (TD.1.3)
- Hub – Downstream Long Channel Transmitted Eye (TD.1.3)
- Hub – Downstream SSC Profile (TD.1.6)

USB 3.2 Gen 2 (10 GT/s)	<p>Official SigTest version 4.0.23.2 (see installation instructions 3.2.2.1)</p> <ul style="list-style-type: none"> • Device – Short Channel Transmitted Eye (TD.1.4) • Device – Long Channel Transmitted Eye (TD.1.4) • Device – SSC Profile (TD.1.7) • Device – Transmit Equalization Test (TD.1.5) • Host – Short Channel Transmitted Eye (TD.1.4) • Host – Long Channel Transmitted Eye (TD.1.4) • Host – SSC Profile (TD.1.7) • Host – Transmit Equalization Test (TD.1.5) • Hub – Upstream Short Channel Transmitted Eye (TD.1.4) • Hub – Upstream Long Channel Transmitted Eye (TD.1.4) • Hub – Upstream SSC Profile (TD.1.7) • Hub – Upstream Transmit Equalization Test (TD.1.5) • Hub – Downstream Short Channel Transmitted Eye (TD.1.4) • Hub – Downstream Long Channel Transmitted Eye (TD.1.4) • Hub – Downstream SSC Profile (TD.1.7) • Hub – Downstream Transmit Equalization Test (TD.1.5)
PCIe 3.0	<p>Official SigTest version 3.2.0 (pre-installed)</p> <ul style="list-style-type: none"> • Add-In card – Signal Quality • Add-In card – Tx Equalization • System Board – Signal Quality • System Board – Tx Equalization • System Board – Reference Clock
10BASE-T1L	<ul style="list-style-type: none"> • 146.5.4.1 Transmitter output voltage • 146.5.4.2 Transmitter output droop • 146.5.4.3 Transmitter timing jitter • 146.5.4.4 Transmitter power spectral density (PSD) and power level • 146.5.4.5 Transmit clock frequency • 146.8.3 MDI return loss • 146.8.4 MDI mode conversion loss
1000BASE-T1	Test Head verification

DPHY	<p>1.2</p> <ul style="list-style-type: none"> 1.5.5 Initial HS Skew Calibration Burst T_SKEWCAL-SYNC and T_SKEWCAL 1.5.6 Periodic HS Skew Calibration Burst T_SKEWCAL-SYNC and T_SKEWCAL
DDR3/DDR3L/ LPDDR3, DDR4/LPDDR4	Support Expert Mode
LPDDR4X	<ul style="list-style-type: none"> Clock Timing (13.3) Data Timing (4.24.1.2, 4.24.1.3) Strobe Timing (8.3.1, 4.24.1, 4.25.1) Command Timing (13.7) Address Timing (13.7) Chip Select Timing (13.7) AC & DC Input Levels for ADD and CMD (8.1) AC Input Levels for CK (8.3.3) AC Overshoot & Undershoot for ADD and CMD and CTRL (8.3.4) AC Overshoot & Undershoot for CK (8.3.5) AC Overshoot & Undershoot for DQ,DQS and DM (8.3.6) Input Slew Rate for ADD and CMD (8.4.2) AC & DC Output Levels for DQ (9.2) Output Slew Rate for DQ (9.4) AC & DC Input Levels for CK (8.3.2) Input Slew Rate for CK (8.4.1) Differential Cross Point Voltage for CK (8.5) AC Input Levels for DQS (8.7.2) AC Differential Cross Point Voltage for DQS (8.7.4) Input Slew Rate for DQS (8.7.5) Differential AC Output Levels for DQS (9.3) Differential Output Slew Rate for DQS (9.5)
Automation K99	<ul style="list-style-type: none"> Coverage of all 10BASE-T1L test cases Coverage of all DDR3, DDR3L, DDR4, LPDDR4, LPDDR4X

Improvements

Option/Topic	Improvements
Common	<ul style="list-style-type: none"> RSScopesuite log file enhancement Add build number and build type for beta installer Communication protocol enhancement Support High Definition as standard feature on new serial number scopes
10BASE-T1S	Removed common mode conversion loss test case and updated return loss limits
100BASE-T1	<ul style="list-style-type: none"> CommonModeEmission is issuing a warning above 70MHz Improved reporting
1000BASE-T1	Changed filter for jitter test cases from 2 MHz to 5 MHz
100BASE-TX	AOI Template Test changed from mandatory to informative

DDR3/DDR3L/
LPDDR3,
DDR4/LPDDR4

- Error handling enhancement
- Electrical test cases enhancement

Tested Firmware

Version	Functions
Firmware 4.80.1	This ScopeSuite Version is tested against the RTX Firmware Version 4.80.1

Known issues

issue	Known Issues
PCIe	In older Windows 10 versions, PCIe3 test cases may prompt crash message as SigTest exits.

2 Modifications to the documentation

The current documentation is up-to-date.

3 Software update

3.1 Update information

R&S ScopeSuite can be installed on Windows 7,8 and 10 systems.

You need a VISA installed. The system is tested against R&S VISA 5.8.5 and we recommend to use this or a higher version.

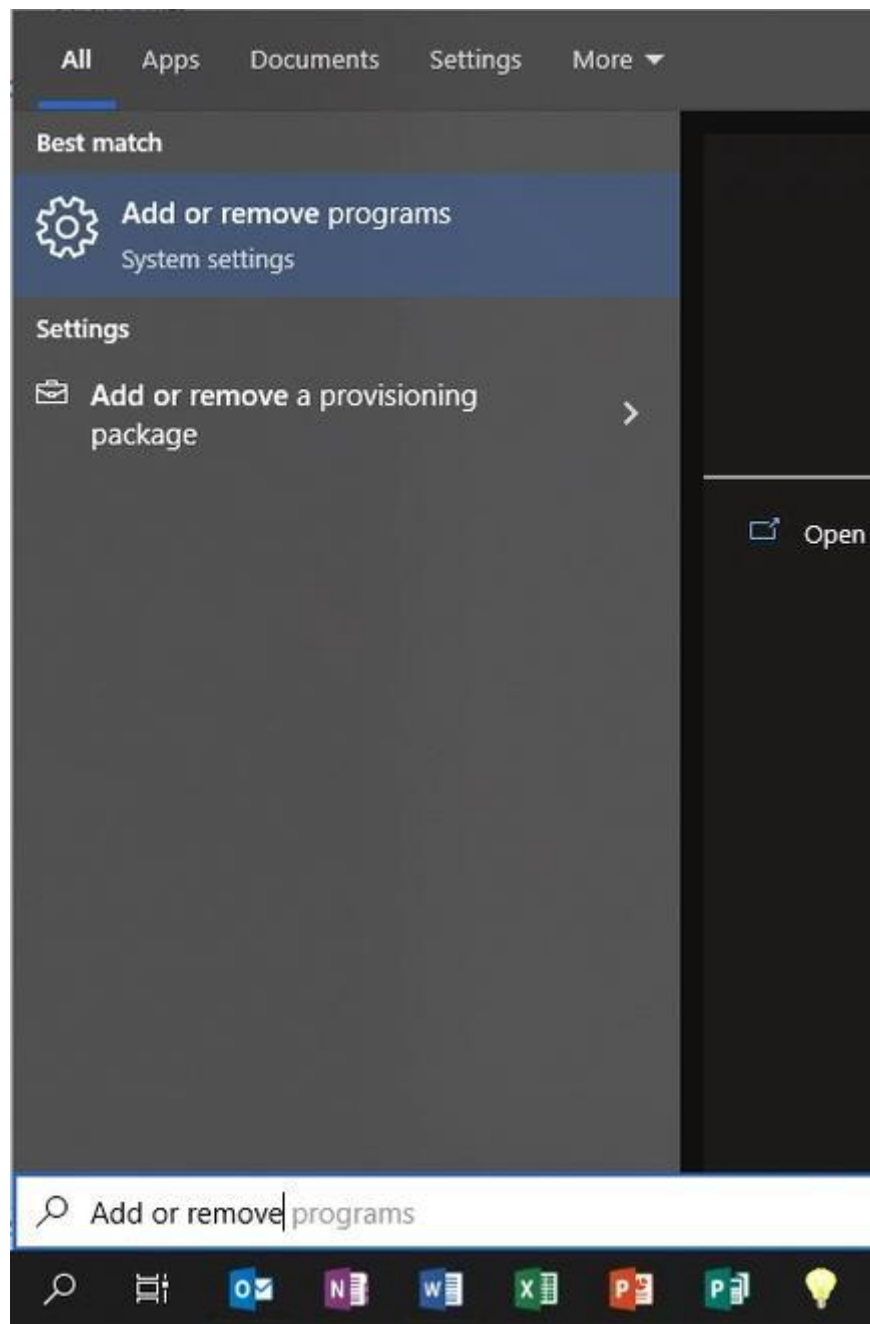
www.rohde-schwarz.com/rsvisa

3.2 Updating the firmware

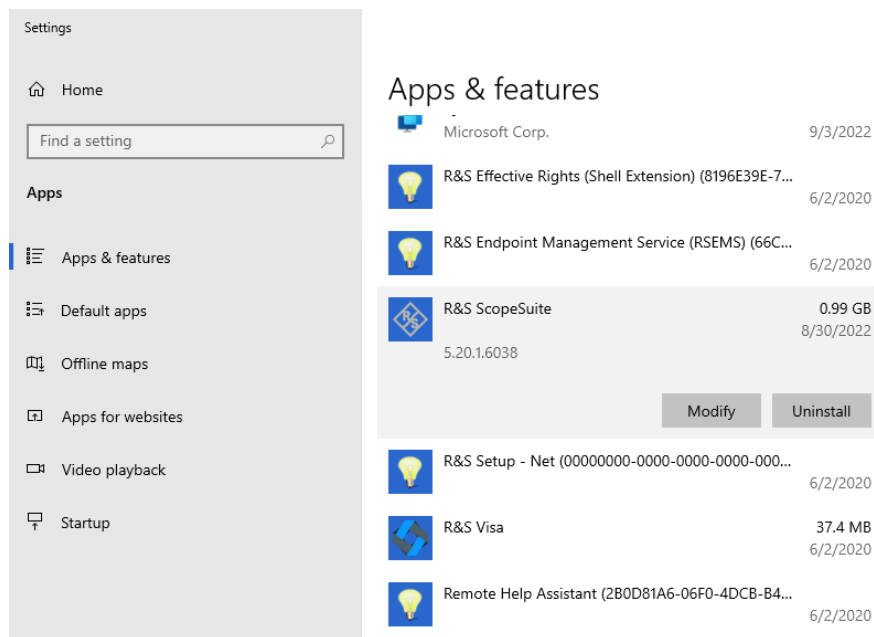
3.2.1 Uninstall old versions

It is recommended to remove older versions manually before starting installation:

1. Search for "Add or remove programs"



2. In Apps & features uninstall ScopeSuite



3.2.2 Install R&S ScopeSuite

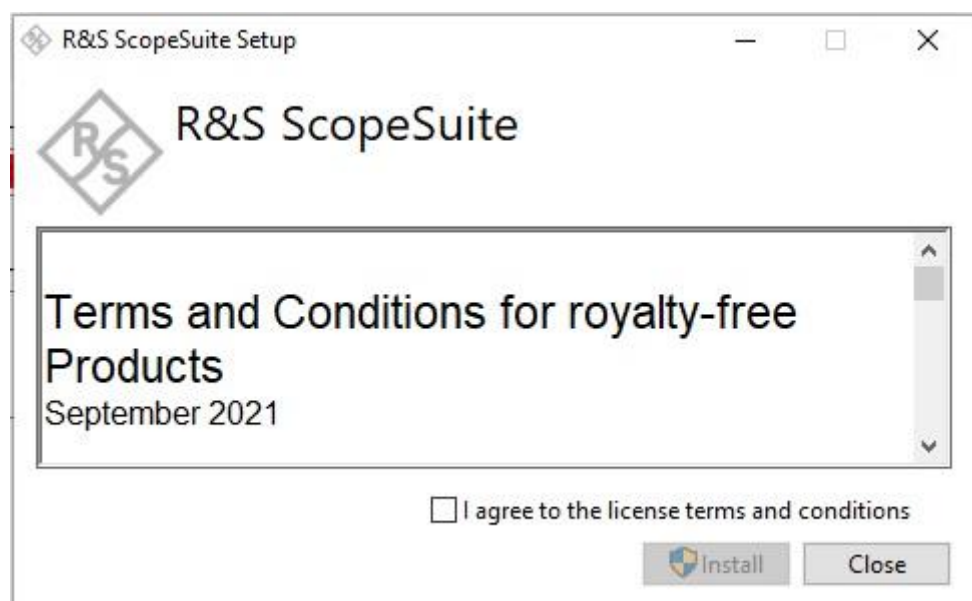
You can install the R&S ScopeSuite on Windows 7, 8 and 10

When you install the R&S ScopeSuite on a R&S RTO/RTP please reboot the R&S RTO/RTP after the installation.

To install the R&S ScopeSuite:

1. Start the "RSScopeSuiteSetup.exe".

An Installation wizard opens:



2. Follow the instructions to complete the installation.

3.2.2.1 SigTest Installation for USB 3.2

In order to perform the USB 3.2 tests, the SigTest versions 3.2.11.4 (Gen1) and 4.0.23.2 (Gen2) have to be installed from the Intel website:

https://www.intel.de/content/www/de/de/design/technology/high-speed-io/tools.html?grouping=EMT_Content%20Type&sort=title:asc

Follow the individual installation instructions.

3.2.3 Log files

In case you encounter problems, it is helpful to supply us log files and send along a waveform from the scope when the problem occurred.

The log files can be found here:

<My Documents folder>\Rohde-Schwarz\RSScopeSuite\<VersionNumber>\Logs

3.2.4 Error recovery

- Check the oscilloscope firmware version. Confirm that it is the same as the version stated in "Tested Firmware".
- Check for loose connections. Make sure the probe is connected to the test point firmly.
- Check if the DUT is in the correct test mode.
- If the problem persists, soft reboot the instrument. Select "Power" button (bottom right) followed by "Exit". Launch the application from the desktop ("RTx" for oscilloscope and "Vector Network Analyzer" for VNA).
- If the problem still persists, hard reboot the instrument by switching it off and on again.

4 Customer support

Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz product, contact our customer support center. A team of highly qualified engineers provides support and works with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz products.

Contact information

Contact our customer support center at www.rohde-schwarz.com/support or follow this QR code:



Figure 4-1: QR code to the Rohde & Schwarz support page