

R&S® ScopeSuite

Release Notes

Software Version 4.75.0

© 2020 Rohde & Schwarz GmbH & Co. KG
Muehldorfstr. 15, 81671 Munich, Germany
Phone: +49 89 41 29 - 0
Fax: +49 89 41 29 12 - 164
E-mail: <mailto:info@rohde-schwarz.com>
Internet: <http://www.rohde-schwarz.com>

Subject to change – Data without tolerance limits is not binding.
R&S® is a registered trademark of Rohde & Schwarz GmbH & Co. KG.
Trade names are trademarks of the owners.

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

Contents

1 Information on the Current Version and History	3
1.1 Version 4.75.0	3
1.2 Version 4.60.2	5
1.3 Version 4.60.0	6
1.4 Version 4.15	8
1.5 Version 4.1.0	9
1.6 Version 3.6.0	13
1.7 Version 3.4.0	15
1.8 General Information	16
2 Modifications to the Documentation	18
3 Software Update	19
3.1 Update Information	19
3.1.1 Requirements	19
3.1.2 Uninstall old Versions	19
3.1.3 Install R&S ScopeSuite	20
3.1.4 Log files	20
3.1.5 Accessing old Reports	20
3.1.6 Error Recovery	21
4 Customer Support	22

1 Information on the Current Version and History

1.1 Version 4.75.0

New Functionality

10BASE-T1

- 147.5.4.1 Transmitter output voltage
- 147.5.4.3 Transmitter timing jitter
- 147.5.4.2 Transmitter output droop
- 147.5.4.4 Transmitter power spectral density
- 147.7.3 and 147.7.2 MDI mode conversion loss and return loss

Automation K99

- Add automation support for 4 test cases in 10Base-T1
 - Output voltage and timing jitter
 - Transmitter output droop
 - Transmitter power spectral density
 - MDI mode conversion loss and return loss

USB 2.0

- Support waveform export features for all test cases except Device Test J/K/SeoNak, Back Voltage, Host Test J/K/SeoNak, Drop, Hub Upstream and Downstream Test/JK/SeoNak, Downstream Drop and Upstream Back Voltage
- Offline Support for all test cases (except Device High Speed Chirp Timing, Suspend/Resume/Reset, Receiver Sensitivity, Test J/K/SeoNak, Back Voltage, Host Chirp Timing, Suspend/Resume, Test J/K/SeoNak, Drop, Hub Upstream Receiver Sensitivity, Upstream and Downstream Chirp Timing, Upstream

Suspend/Resume/Reset, Upstream and Downstream Test J/K/SeoNak, Back Voltage, Drop

- Support Inrush current measurement on RTP
- Change trigger type on Inrush current measurement to edge trigger
- Add re-enumerate guided steps before running TEST_J, TEST_K and TEST_SEO_NAK

PCIe 1.1/2.1

- offline mode support
 - PCIe1/2: Add-In card - Signal Quality
 - PCIe1/2: System Board - Signal Quality
 - PCIe1/2: Transmitter - Signal Quality

Improvements

Common

- Support splash screen for RSScopesuite.
- Add build number into software version for all beta releases.

Automation K99

- Enhance GetSingleRunResult to support test case with subtest
- Enhance Automation to support offline mode test execution
- Simplify interface by removing ComplianceTestType

DDR3/DDR3L/LPDDR3, DDR4/LPDDR4

- Common GUI
 - Change default value of "Burst Count" from "All" to 10.
 - Enhancement of default value of CL, CWL and Speed Bin properties for clock test cases.
- Timing Tests
 - Fix for tDIPW got indeterminable result for some waveform.
 - Fix for tQH Measurement, its zoom in area in chart was shifted sometimes.
 - Fix for tWPRE measurement start position was not correct.
 - Fix for DDR3L 1066 tCKavg clock limits was not correct.
- Electrical Tests
 - Hide VIX(AC) for DQS measurement.
 - Change test case from "AC & DC level for DQ & DM" to "AC & DC level for DQ".
 - Fix for Scope Suite error when performing AC & DC Input Level tests on DDR3L.

- DDR Charts,
 - Auto adjust zoom in zone, if it is away from cursor pair positions.
 - Auto adjust waveform overview zone based on zoom in zone, if it is too long to display clearly in chart.

USB 2.0

- Fix triggering issue for Packet Parameters test case on RTP
- Fix triggering issue for Upstream Repeater test case on RTP
- Fix (Host) Suspend/Resume Throw error when running on RTP (16GHz only)
- Fix (Hub) Down Jitter triggering issue when running on RTP (16GHz only)
- Fix RX sensitivity test case running on SuperMUTT V3.0 device leads to “An error occurred” issue

Tested Firmware

This ScopeSuite Version is tested against the RTP Firmware Version 4.75.0

Known Issues

Report

- HTML report has multiple headers and footers.

ScopeSuite

- Accessing Reports/Sessions from versions before 3.0.0 (see 3.1.5)
- Sometimes test execution may result in an error when downloading screenshot image from the instrument. Please refer to section 3.1.6 on how to recovery from this error.

1.2 Version 4.60.2

Improvements

ScopeSuite

- Fixing k22 option problem
- Get Instrument Information fixed for RTP

1.3 Version 4.60.0

New Functionality

DDR4 and LPDDR4

- 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)

1000BASE-T

- Support RTO/RTP channel selection
- Support Expert Mode

100BASE-T1

- Support IEEE and ECU test limits and settings in VNA test cases
- Add GUI configuration for Average Count and Bandwidth
- Support VNA Calibration File selection and VNA working path display
- Allow leveraging the calibration files between Mode Conversion Loss and Adaptor Verification test cases
- Support test fixture RT-ZF8 and RT-ZF2

1000BASE-T1

- Support TX_TCLK option for Transmitter distortion test case
- Support Expert Mode
- Support offline execution for Test Mode 1, 2 and 4 test cases
- Add MDI mode conversion loss adaptor verification test case
- Support Return Loss differential mode measurement
- Support IEEE and ECU test limits and settings in VNA test cases
- Support VNA Calibration File selection and VNA working path display
- Allow leveraging the calibration files between Mode Conversion Loss and Adaptor Verification test cases
- Support Test Fixture RT-ZF8 and RT-ZF2Automation

Automation K99

1000BASE-T support automation for 13 test cases

- Peak Output Voltage
- Maximum Output Droop
- Differential Output Templates
- Transmitter Distortion (No TX_TCLK)
- Transmitter Distortion (With TX_TCLK)
- Peak Output Voltage (With Disturber)
- Maximum Output Droop (With Disturber)
- Differential Output Templates (With Disturber)
- Transmitter Distortion (With Disturber No TX_TCLK)
- Transmitter Distortion (With Disturber With TX_TCLK)
- Jitter Master Mode and Clock Frequency
- MDI Return Loss
- Common-mode Output Voltage

1000BASE-T1: support automation for 8 test cases

- Transmitter timing jitter master mode
- Transmitter timing jitter slave mode
- MDI jitter and clock frequency
- Transmitter distortion
- PSD, power level and output voltage
- Maximum output droop
- MDI mode conversion loss adaptor verification
- MDI mode conversion loss and return loss

Improvements

100BASE-T1/1000BASE-T1

- Transmitter distortion support inverse signal input
- Improve Export waveform file naming
- Show Signal Type in test report

100BASE-T1

- Update limits for Common Mode Emission test to the latest Open Alliance Test Specification ECU 2.0

1.4 Version 4.15

New Functionality

100BASE-TX, 1000BASE-T

- Return Loss measurements support port selection.

100BASE-T1

- Support offline execution for MASTER jitter test case.

Improvements

1000BASE-T1:

- Added Demo Session.
- Added bandpass filter for jitter test cases and made them optional.
- Optimal use of resolution for all test cases and supported scopes.

100BASE-T1:

- Specify the path of Export Files (can set the Export file path)
 - Transmitter output droop
 - Transmitter distortion
 - MASTER transmitter timing jitter and Clock Freq.
 - SLAVE transmitter timing jitter
 - PSD
- Reference Level determination improved for MDI jitter test case.
- Optimal use of resolution for all test cases and supported scopes.

2.5/5/10G Ethernet:

- Support of ESRP in the Linearity test case.

DDR3:

- Improved naming of the exported waveforms.

ScopeSuite

- Much faster start up time.
- Stability issues resolved.

USB

- Support of RT-ZC30 current probe
- RT-ZC20B image was corrected

Automation

- 1000BASE-T: support 4 interfaces
 - Peak Output Voltage

- Maximum Output Droop
- Differential Output Templates
- Transmitter Distortion (No TX_TCLK)

1.5 Version 4.1.0

New Functionality

Automation:

- ScopeSuite provides .NET remote programming interface. It allows client program to control ScopeSuite and perform compliance tests (Ethernet 100Base-TX and 100Base-T1).
- Add GUI property Expert Mode to bypass test case guided steps and further automate VNA test cases (Ethernet 100Base-TX and 100Base-T1).

DDR3, DDR3L and DDR3LP:

Clock Timing (12.1)

- tCK(avg) (12.1.1)
- tCK(abs) (12.1.2)
- tCL(avg) (12.1.3)
- tCH(avg) (12.1.3)
- tJIT(per) (12.1.4)
- tJIT(duty) (12.1.4)
- tJIT(cc) (12.1.5)
- tERR(nper) (12.1.6)

Data Timing (4.13.2, 13.4, 13.6)

- tDS(base) (13.6)
- tDH(base) (13.6)
- tDS(derate) (13.6)
- tDH(derate) (13.6)
- tHZ(DQ) (4.13.2)
- tLZ(DQ) (4.13.2)

tDIPW (13.4 Note 28)

tDQSQ (4.13.2)

tQH (4.13.2)

tVAC (13.6)

Strobe Timing (4.13.2, 4.14.2, 8.3.1)

tDQSCK (4.13.2)

tLZ(DQS) (4.13.2)

tHZ(DQS) (4.13.2)

tRPRE (4.13.2)

tRPST (4.13.2)

tQSH (4.13.2)

tQSL (4.13.2)

tDQSS (4.14.2)

tDQSH (4.14.2)

tDQSL (4.14.2)

tDSS (4.14.2)

tDSH (4.14.2)

tWPST (4.14.2)

tWPRE (4.14.2)

tDVAC(Strobe) (8.3.1)

tDVAC(Clock) (8.3.1)

Command Timing (13.5)

tIS(base) (13.5)

tIS(derate) (13.5)

tIH(base) (13.5)

tIH(derate) (13.5)

tIPW (13.5)

tVAC(CA) (13.5)

Address Timing (13.5)

tIS(base) (13.5)

tIS(derate) (13.5)

tIH(base) (13.5)

tIH(derate) (13.5)

tIPW (13.5)

tVAC(CA) (13.5)

Chip Select Timing (13.5)

tIS(base) (13.5)

tIS(derate) (13.5)

tIH(base) (13.5)

tIH(derate) (13.5)

tIPW (13.5)

Input Slew Rate for ADD and CMD (8.5, 13.5)

SR(tIS) Rising

SR(tIS) Falling

SR(tIH) Rising

SR(tIH) Falling

Input Slew Rate for DQ and DM (8.5, 13.6)

SR(tIS) Rising

SR(tIS) Falling

SR(tIH) Rising

SR(tIH) Falling

AC & DC Input Levels for ADD and CMD (8.1.1)

VIH(AC)

VIL(AC)

VIH(DC)

VIL(DC)

AC & DC Input Levels for DQ and DM (8.1.2)

VIH(AC)

VIL(AC)

VIH(DC)

VIL(DC)

AC Input Levels for CK and DQS (8.3.3)

VSEH(AC)

VSEL(AC)

Output Slew Rate for DQ (9.3)

SRQse Rising

SRQse Falling

AC & DC Output Levels for DQ (9.1)

VOH(AC)

VOL(AC)

VOH(DC)

VOL(DC)

AC Overshoot & Undershoot for ADD and CMD (9.6.1)

Overshoot Amplitude

Overshoot Area

Undershoot Amplitude

Undershoot Area

AC Overshoot & Undershoot for CK, DQ, DQS and DM (9.6.2)

Overshoot Amplitude

Overshoot Area

Undershoot Amplitude

Undershoot Area

AC Input Levels for CK and DQS (8.3)

VIHdiff(AC)

VILdiff(AC)

AC Differential Cross Point Voltage for CK and DQS (8.4)

VIX(AC)

Differential Output Slew Rate for DQS (9.4)

SRQdiff Rising

SRQdiff Falling

Differential AC Output Levels for DQS (9.2)

VOHdiff(AC)

VOLdiff(AC)

Trigger Write Cycle

Trigger Read Cycle

- Offline Execution of tests with saved waveforms
- Waveform export functionality.
- Rich images for result and waveform visualization.

100BASE-T1:

- A new test case “MDI mode conversion loss and return loss” has been added. This supports balanced port and ECU limits from Open Alliance.

100BASE-TX:

- Quicker test execution of droop test

2.5/5GBASE-T

- Waveform export functionality.

10GBASE-T

- Waveform export functionality.

PCIe

- New GUI properties to specify D+ and D- channel skews.

USB

- New GUI properties to specify D+ and D- channel skews.
- New GUI properties to specify channel voltage offsets.

ScopeSuite

- Result tab includes a report preview.
- All properties are displayed in the details of the report.
- Result tab now includes a comment column for user input. Double clicking or long press invokes virtual keyboard.

1.6 Version 3.6.0

New Functionality

1000BASE-T1:

- 97.5.3.3 Transmitter timing jitter master mode
- 97.5.3.3 Transmitter timing jitter slave mode
- 97.5.3.3 Transmitter timing MDI jitter
- 97.5.3.6 Transmitter clock frequency
- 97.5.3.2 Transmitter distortion
- 97.5.3.4 Transmitter Power Spectral Density (PSD)
- 97.5.3.4 Transmitter power level
- 97.5.3.5 Transmitter peak differential output
- 97.5.3.1 Maximum Output Droop
- 97.7.2.1 MDI return loss
- 97.7.2.2 MDI mode conversion loss

PCIe 1.x:

- Signal Quality (4.3.3)
 - Mean unit interval

- Data rate
- Template tests
- Min eye width
- Median to max jitter
- Differential output voltage

Reference Clock (1.32)

- Differential input High Voltage
- Differential input Low Voltage
- Duty Cycle
- Average Clock Period
- Rising edge rate
- Falling edge rate
- Mean unit interval

PCIe 2.0

Signal Quality (4.3.3)

- Data rate
- Template tests
- Min eye width
- Median to max jitter
- Differential output voltage

ScopeSuite

- Support for B6 Waveform generator
- Support for 6GHz RTO

Tested Firmware

- This ScopeSuite Version is tested against the RTO Firmware Version 3.50.3.1

Improvements

MIPI D-PHY

- Fixing chart plotting problems for group 3 and 4.

TenBaseT

- MAU template trigger improved
- Link Test Pulse and TP_IDL work on a 600MHz scope

Known Issues

100BASE-T1

- Saved waveform for debugging are saved in the session that are in the hidden folder ProgramData.

Ethernet

- Jitter master/slave mode filtered with TX_TCLK will not work on RTO 10x2 without a memory extension.

Report

- HTML report has multiple headers and footers.

ScopeSuite

- Accessing Reports/Sessions from versions before 3.0.0 (see 3.1.5)
- Sometimes test execution may result in an error when downloading screenshot image from the instrument. Please refer to section 3.1.6 on how to recovery from this error.

1.7 Version 3.4.0

New Functionality

EEE

1000BASE-T EEE:

- Quiet Time (78.2)
- Refresh Time (Master) (78.2)
- Refresh Time (Slave) (78.2)
- Wake State Levels (40.6.1.2.7)
- Transmitter Timing Jitter With TX_TCLK (Master) (40.6.1.2.5)
- Transmitter Timing Jitter With TX_TCLK (Slave) (40.6.1.2.5)
- Transmitter Timing Jitter Without TX_TCLK (Master) (40.6.1.2.5)
- Transmitter Timing Jitter Without TX_TCLK (Slave) (40.6.1.2.5)

100BASE-TX EEE (24.2.3.4 and 78.2):

- Sleep Time
- LPI Quiet Time
- LPI Refresh Time
- LPI Transmitter Timing Jitter
- Transmit Wake Time

10BASE-Te

- All test cases like 10BASE-T.

100BASE-T1/BroadR-Reach

- Renamed to 100BASE-T1 compliance test.
- Removed support for BroadR-Reach before version 3.2 .
- Allow user to select channel for testing.
- Support Single Ended input like SMA cables for measurements.
- Return loss calibration with RT-ZF2 is optional.
- Support of IEEE 802.3bw limits and corresponding IOL test procedures.
- Added new test case: Peak differential output
- Allow user to export waveforms for offline analysis and debugging purposes.
- Transmitter distortion: Disallow user to test with TX_TCLX if B4 option (OCXO) option is not installed.
- Optimal auto scaling for all test cases.

Ethernet

- 100BASE-TX Amplitude Domain Tests: Overshoot calculation is corrected.

MIPI D-PHY

- Enhanced group 2 trigger for ULPS exit.

USB

- Disallow the use of differential probe (except modular probe) for droop test.
- Disallow user to select R&S or Allion test fixture if USB-IF test fixture is selected

ScopeSuite

- Support for modular probes.

1.8 General Information

Tested Firmware

- This ScopeSuite Version is tested against the RTO Firmware Version 4.60.2

Known Issues

BroadR-Reach

- Older sessions cannot be continued. Please create a new session for 100BASE-T1
- Saved waveform for debugging are saved in the session that are in the hidden folder ProgramData.

Ethernet

- Jitter master/slave mode filtered with TX_TCLK will not work on RTO 10x2 without a memory extension.

Report

- HTML report has multiple headers and footers.

2 Modifications to the Documentation

The current documentation is up-to-date.

Version 1.0	26.06.2013
Version 2.0	30.09.2013
Version 3.0	17.01.2014
Version 4.0	02.05.2014
Version 5.0	05.06.2014
Version 6.0	20.10.2014
Version 7.0	15.12.2014
Version 8.0	19.03.2015
Version 9.0	03.08.2015
Version 10.0	11.02.2016
Version 11.0	25.04.2016
Version 12.0	17.06.2016
Version 13.0	26.07.2016
Version 14.0	20.12.2016
Version 15.0	03.03.2016
Version 16.0	23.07.2018
Version 17.0	23.09.2019
Version 18.0	21.10.2019
Version 19.0	22.04.2020

3 Software Update

3.1 Update Information

3.1.1 Requirements

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

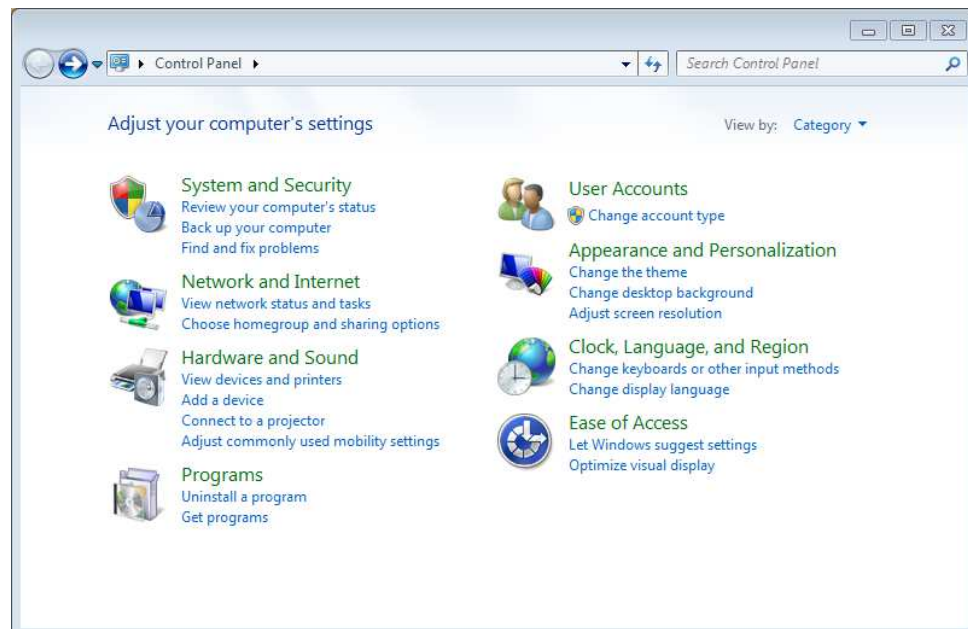
You need a VISA installed. The system is tested against R&S VISA 5.8.5 and we recommend to use this or a higher version.

www.rohde-schwarz.com/rsvisa

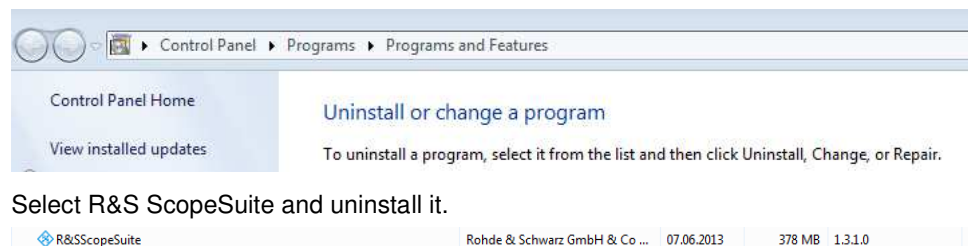
3.1.2 Uninstall old Versions

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

Open Control Panel



Choose Uninstall a program

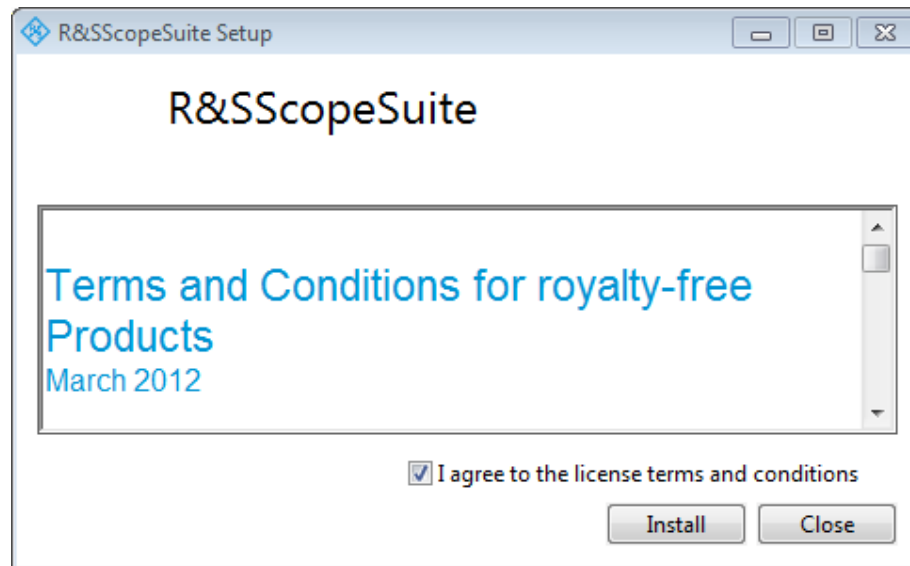


Select R&S ScopeSuite and uninstall it.

3.1.3 Install R&S ScopeSuite

The installation of the R&S ScopeSuite, is started by executing the file "RSScopeSuiteSetup.exe".

An Install wizard like this starts and follow the instructions.



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

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

3.1.4 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\4.75.0\Logs

3.1.5 Accessing old Reports

With R&S ScopeSuite 3.0.0 and above you cannot access the reports from earlier versions out of the ScopeSuite anymore.

When you created reports we recommend to access reports directly in the session folder:

C:\ProgramData\Rohde-Schwarz\RSScopeSuite\<VersionNumber>\Sessions

C:\ProgramData is a hidden folder, so you might have to adjust your visibility settings for the file explorer.

In the case you have not created the Reports you have to uninstall the ScopeSuite 3.0.0 and above and reinstall the old ScopeSuite version and create the report from the Report Management. When going back to ScopeSuite 3.0.0 and above remove the old ScopeSuite Version. You cannot run two ScopeSuite versions in parallel.

3.1.6 Error Recovery

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

North America

Phone 1-888-TEST-RSA (1-888-837-8772)

customer.support@rsa.rohde-schwarz.com

Latin America

Phone +1-410-910-7988

customersupport.la@rohde-schwarz.com

Asia/Pacific

Phone +65 65 13 04 88

customersupport.asia@rohde-schwarz.com

China

Phone +86-800-810-8828 / +86-400-650-5896

customersupport.china@rohde-schwarz.com