R&S®SLG
Satellite Load Generator
Release Notes
Firmware Version 01.10

ROHDE&SCHWARZ

Contents

1 Information on the Current Version and History

1.1 Version 01.10 (December 2016)

Firmware package contents

- Software Version 201612141024 (build date stamp)

  Git tag v01.10

New Functionality

- None.

Modified Functionality

- Renamed ISDBS2 mode to ISDBS3.

- Fix an issue causing ASI B inputs to malfunction.

- Fix an issue when receiving Ethernet packets causes channels to overrun each other.

- Fix an issue preventing bonded input streams from being properly spread across the bonded channels.

- Fix power calculations when using AWGN in DVB1 mode.

Improvements

- Bonding mode modified to send ISSY BUFS and BUFSTAT values, as well as ISCR.

Known Issues

- Some configuration files from old versions of software may not continue to work on load. User needs to reconfigure the unit using the web, SCPI or SNMP interface.

- Adding licenses to a running system may require a reboot for the functionality to become available.

- When renaming a directory, SLG may add .undefined to the directory name.

- In DVB 1 mode only, DVB-S2 data carriers do not generate the correct wideband header.

1.2 Version 01.09 (August 2016)

Firmware package contents

- Software Version 201608081549 (build date stamp)

  Git tag v01.09

New Functionality

- Added optional DVB-S2X bonding; requires license option.

Improvements

- ISDB-S modulator: corrected the phase reference burst.

- ISDB-S2 modulator: corrected XOR of first FEC parity bit.

Known Issues

- Some ISDB-S and ISDB-S2 configuration files from old versions of software may not continue to work on load. User needs to reconfigure the unit using the web, SCPI or SNMP interface.

- Adding licenses to a running system may require a reboot for the functionality to become available.

- When renaming a directory, SLG may add .undefined to the directory name.

- In DVB 1 mode only,

  – DVB-S2 data carriers do not generate the correct wideband header.

  – The Gaussian noise generator (AWGN) should only be used with a carrier turned ON, and at a C/N ratio greater than 10 dB. There is a constant offset between set AWGN power and output power in this mode.

1.3 Version 01.08 (May 2016)

Firmware package contents

- Software Version 201605101148 (build date stamp)

  Git hash tag 0xa295b01f85f060ef3d2b4bc61efdef056116fb8b

New Functionality

- Added optional DVB-S2X modulation and coding rates; requires license option.

- Added constellation files with DVB-S2X constellations.

- Added new band 8 2725MHz-3225MHz. Band 8 requires a license (SLG-K3018) and a factory calibration on existing units.

Modified Functionality

- Version number format has changed. Software used to report the SVN repository version number, now software reports image build time.

- Additive white gaussian noise generator power corrected.

- Phase noise levels corrected (issue introduced in 1.06).

- Corrected bug where spectral invert had no effect.

- Increased maximum symbol rate in ISDB-S2 mode to 34Msps.

- Fixed DVB1 load carriers with a symbol rate above 200 Msps.

Improvements

- Modulation and coding selection menus improved to hide invalid options.

- When saving an SLG configuration to an existing filename, the user is prompted if they want to overwrite the configuration file (fixed known issue).

Known Issues

- Adding licenses to a running system may require a reboot for the functionality to become available.

- When renaming a directory, SLG may add .undefined to the directory name.

- In DVB 1 mode only,

  – DVB-S2 data carriers do not generate the correct wideband header.

  – The Gaussian noise generator (AWGN) should only be used with a carrier turned ON, and at a C/N ratio greater than 10 dB. There is a constant offset between set AWGN power and output power in this mode.

1.4 Version 01.07 (March 2015)

Firmware package contents

- Software Version (SVN) 71772

New Functionality

- SFP+ port can be used to stream data to SLG

Modified Functionality

- None

Improvements

- Turbo is not visible in the Modulation/FEC dropdown menu when the Turbo license is absent.

- When using TS generator, the FEC rate changes after a FEC rate reconfiguration, without the user having to switch the carrier OFF then ON.

Known Issues

- When a Turbo model update file is uploaded to SLG, it is not immediately visible in the list of licenses. The workaround is to reboot the unit.

- When saving an SLG configuration to an existing filename the new configuration is not saved and there is no message. Workaround is to select a directory where you want to store the .cfg file.

- When renaming a directory, SLG may add .undefined to the directory name.

- In DVB 1 mode only,

    – DVB-S2 data carriers have a bug that causes an invalid data protocol. A modulated carrier is generated but it cannot be demodulated with a DVB-S2 receiver.

    – Load carriers with a symbol rate above 200 Msps have a performance issue. Spectrally these carriers have two dips (up to 6 dB).

    – The Gaussian noise generator (AWGN) should only be used with a carrier turned ON, and at a C/N ratio greater than 10 dB. There is a constant offset between set AWGN power and output power in this mode.

1.5 Version 01.06 (January 2015)

Firmware package contents

- Software Version (SVN) 71335

New Functionality

- Added the capability to generate Turbo modulated carriers

Modified Functionality

- None.

Improvements

- Fixed the following SCPI commands:

    – LOAD:CHAN1:LOAD:TRAN:SEL?

    – MOD:TSG:CONT

    – MOD:TSG:PCR

    – MOD:TSG:TDT

- Fixed the instability in PCR re-stamping at input data rates greater than 4 Mbps (Ethernet A/B only)

- Updated the user manual with minor corrections

Known Issues

- In DVB 1 mode only,

  – DVB-S2 data carriers has a bug that causes an invalid data protocol. A modulated carrier is generated but it cannot be demodulated with a DVB-S2 receiver.

  – load carriers with a symbol rate above 200 Msps have a performance issue. SPECTRALLY these carriers have two dips (up to 6 dB).

  – The Gaussian noise generator (AWGN) should only be used with a carrier turned ON, and at a C/N ratio greater than 10 dB. There is a constant offset between set AWGN power and output power in this mode.

1.6 Version 01.05 (September 2014)

Firmware package contents

- Software Version (SVN) 68184

New Functionality

- Added ISDB-S and ISDB-S2 modes

  – Each generates up to 14 channels of the desired standard.

  – Each supports a single multi-stream channel with up to 8 inputs

- Added Transport Stream Generator (TSGEN)

- Added PCR Re-stamping

- Added multicast support (IGMP.v3) to the Data LAN ports

Modified Functionality

- The restriction for operation of a master-slave network is changed from a class C subnet to class B.

- When a network setting is changed, an alarm message is displayed and a restart button has been added to this page.

- Fixed missing temperature compensation for power level settings when SLG operating temperature differs from room temperature (22 to 23°C).

- Fixed a bug observed in Chrome where the dropdown boxes close by themselves after a few seconds.

- Fixed a bug where upon startup the unit sometimes delivers more power than desired and exhibits spectral corruption (high noise floor, unclean spectrum).

- Fixed the resolution for reporting frequency from the SCPI command, "QueryOutputConfiguration".

Improvements

- Updated user manual to suggest the use of @channel list to speed up SCPI execution time when configuring multiple channels.

- Updated user manual to recommend the use of ESE register after re-configuring SLG with SCPI commands.

- Updated the user manual to indicate the feature that multiple output channels can be assigned to the same frequency (e.g., to overlay noise for a BER measurement). (Sec 2.3 GUI- Output Settings Page, Sec 3.7.3 SCPI – Channel Frequency)

Known Issues

- PCR re-stamping is unstable under certain conditions:

  - When the input source is Ethernet A or B and the input data rate greater than 4 Mbps.

    NOTE: PCR re-stamping is stable if the video source is ASI A or B.

- In DVB 1 mode only,

  - DVB-S2 data carriers has a bug that causes an invalid data protocol. A modulated carrier is generated but it cannot be demodulated with a DVB-S2 receiver.

  - Load carriers with a symbol rate above 200 Msps have a performance issue. Spectrally these carriers have two dips (up to 6 dB).

  - The Gaussian noise generator (AWGN) should only be used with a carrier turned ON, and at a C/N ratio greater than 10 dB. There is a constant offset between set AWGN power and output power in this mode.

  - The arbitrary waveform generator will occasionally deliver incorrect output; reloading the file by turning the carrier OFF, then ON, will fix the problem.

1.7 Version 01.04 (February 2014)

Firmware package contents

- Software Version (SVN) 59492

New Functionality

- Added a Master/Slave function. More economical slave units can be purchased that only work in conjunction with a master unit.

Modified Functionality

- Fixed a bug where the unit could be configured with non DVB-S2 settings in single carrier (DVB 1 Carrier) transmission mode.

- Fixed the setting of symbol rates to constrain the value to the minimum rate allowed for the current transmission mode.

● Fixed the status monitoring so it updates continuously between configurations.

● Fixed a bug in the software that wideband noise when configuring multiple modulated carriers.

Improvements

● None

Known Issues

● Single Carrier DVB-S2 has a bug that causes an invalid data protocol. A modulated carrier is generated but it cannot be demodulated with a DVB-S2 receiver.

● ISDB 32 Carrier transmission mode is not implemented.

1.8   Version 01.03 (December 2013)

Firmware package contents

● Software Version (SVN) 57421

New Functionality

● Added a power Tilt function to Web page and SCPI command interface.

● Added AWGN generation.

● Added Phase Noise impairment.

● Added 5% rolloff.

Modified Functionality

● Fixed a bug in DiSEqC logic to extend acceptable baseband timings from 400-560 µs to 400-600 µs.

Improvements

● None

Known Issues

● Single Carrier DVB-S2 has a bug that causes an invalid data protocol.

● ISDB 32 Carrier transmission mode is not implemented.

1.9 Version 01.02 (November 2013)

Firmware package contents

- Software Version (SVN) 25585

New Functionality

- None.

Modified Functionality

- Fixed a bug when setting up AWG carriers that occasionally results in no carrier.

- Fixed a bug in the software and logic where the ASI input was not configured correctly.

- Fixed a bug in DiSEqC logic that prevented proper decoding of messages on some units.

- Fixed bugs for the following SCPI commands:

  - DISE:DEF 1,"MOD:CHAN1:STAT ON"

  - SYST:COMM:NETW:IPAD:DAT?

  - OUTP:BAND B095   (fix to work with short form of band)

Improvements

- None

Known Issues

- Single Carrier DVB-S2 has a bug that causes an invalid data protocol.

- DiSEqC logic has a bug that needs to extend acceptable baseband timings from 400-560 μs to 400-600 μs.

- ISDB 32 Carrier transmission mode is not implemented.

- The User's Manual incorrectly documents one SCPI command. The syntax for following command:
  MOD:CHAN1:FORM:POL?
  should be:
  MOD:CHAN1:POL?

1.10 Version 01.01 (October 2013)

Firmware package contents

- Software Version (SVN) 21935

New Functionality

- None.

Modified Functionality

- Fixed a bug in the DiSEqC software that prevented sending the slave response to the decoded command.

- Additional calibration was added in order to meet per carrier and composite power accuracy. Note that the calibration data format has changed and units with previous calibration data may not be compatible with this release resulting in degraded performance. Those units will need to be re-calibrated at the factory.

- Fixed a bug in the SCPI command decoding. The short form of OUTPut:INTerface did not work.

Improvements

- None

Known Issues

- Single Carrier DVB-S2 has a bug that causes an invalid data protocol.

- DiSEqC logic has a bug that needs to extend acceptable baseband timings from 400-560 μs to 400-600 μs.

- DiSEqC logic has a bug that prevents proper decoding of messages on some units.

- The software and logic does not configure the ASI input correctly.

- The software has a bug when setting up AWG carriers that occasionally results in no output power.

- ISDB 32 Carrier transmission mode is not implemented.

1.11 Version 01.00 (September 2013)

Firmware package contents

- Software Version (SVN) 19549

New Functionality

- None. Initial release.

Modified Functionality

- None

Improvements

- None

Known Issues

- Single Carrier DVB-S2 has a bug that causes an invalid data protocol.

- DiSEqC logic has a bug that needs to extend acceptable baseband timings from 400-560 μs to 400-600 μs and the software has a bug that does not provide the slave response to the decoded command.

- The software does not configure the ASI input correctly.

- Additional calibration is required in order to meet per carrier and composite power accuracy.

2 Modifications to the Documentation

Updated User Manual as follows:

● Changed all references to ISDBS2 mode to ISDBS3

● Added description of ISSY ISCR, BUFS, and BUFSTAT

3 Firmware Update

3.1 Updating the Firmware

The firmware update consists of one file. The version number in the file name varies with each update (symbolized by placeholder x).

● *SLG_Setup_FW_xxxx.exe*

Perform the update on a computer under control of the Windows operating system.

1. Make sure that the computer and the R&S SLG are connected by LAN.

2. Switch on the R&S SLG.

3. Wait until the R&S SLG firmware has booted and the application has started.

4. On the computer, execute *SLG_Setup_FW_xxxx.exe*.
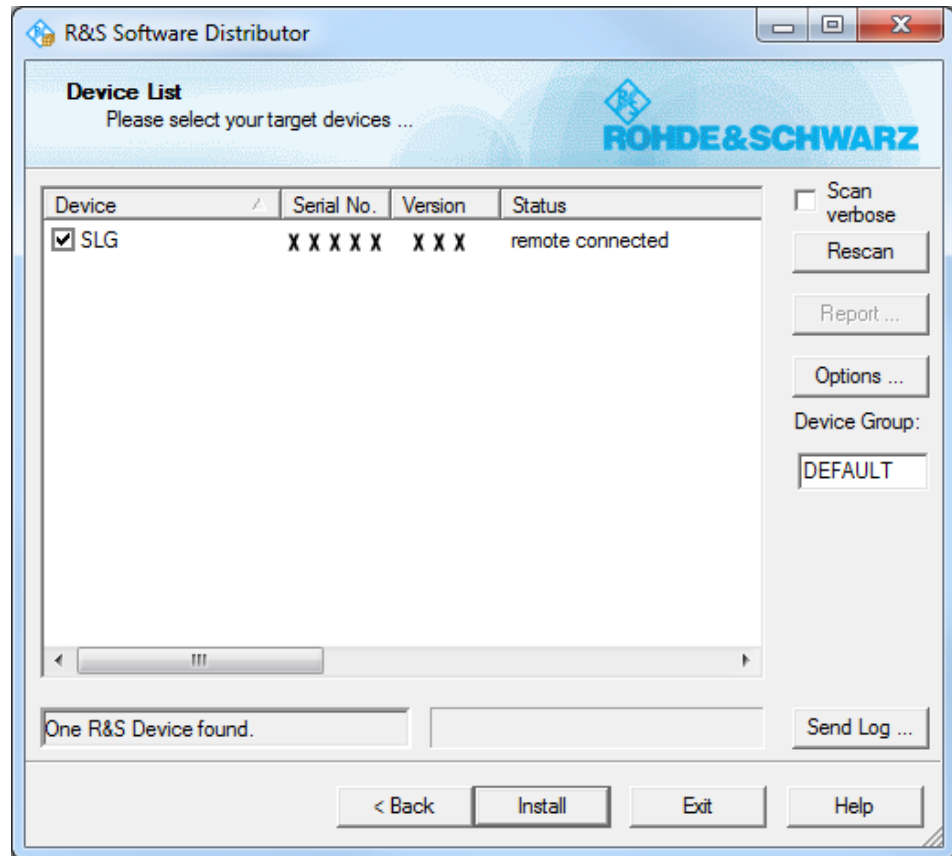   The "R&S Software Distributor" is displayed. Only "Remote Installation" is available.
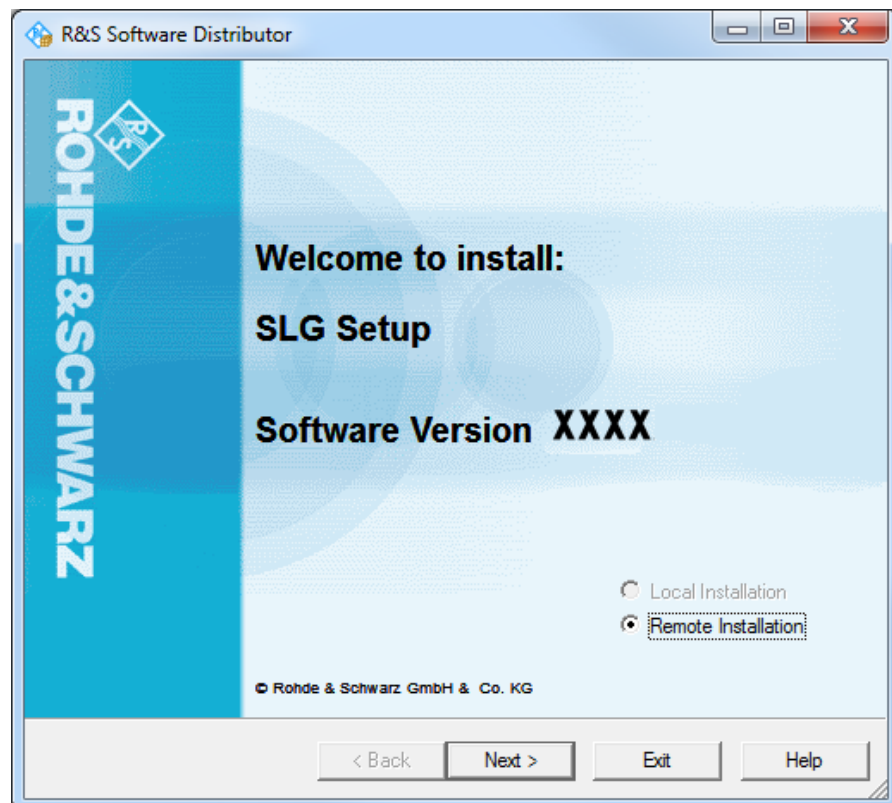
5. Click "Next>".
    By default, "Step 8" is selected. Do not change the selection.
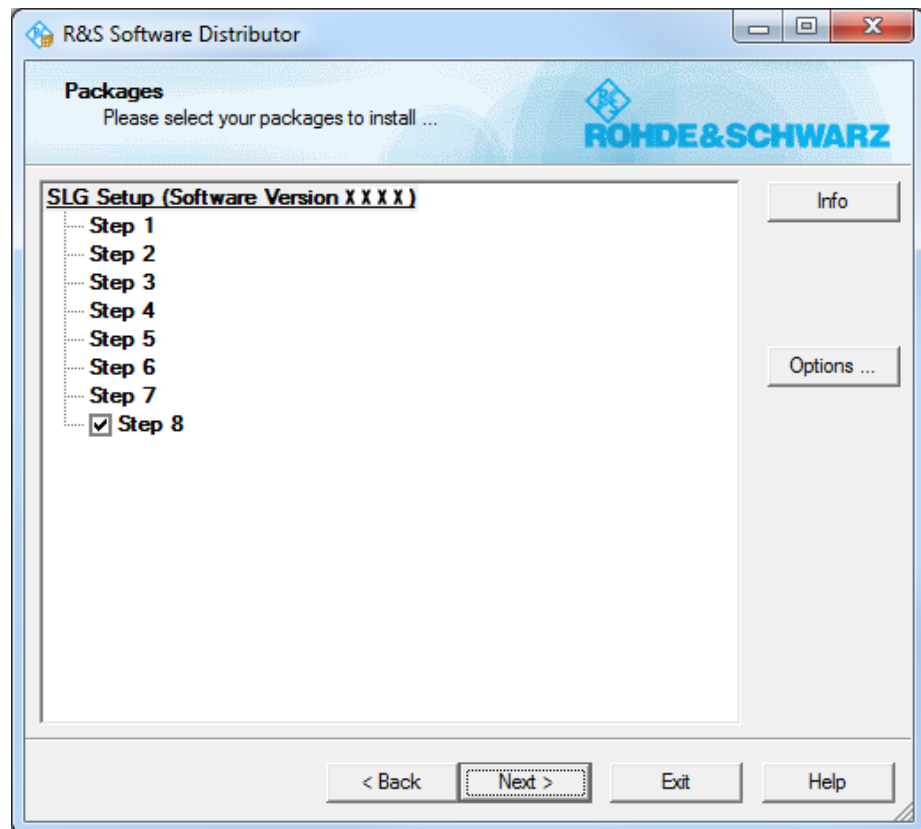
6. Click "Next>".
    All detected R&S SLGs are displayed.

7. Select the R&S SLG(s) you want to update.
   **Note:** You can update several R&S SLGs simultaneously.

8. If no R&S SLG is automatically detected, expand the search:

   a) Click "Options".
   b) Click "Add URL".
   c) Enter one or several R&S SLG URL(s), e.g. 192.168.10.1, to be included in the search.
   d) To save the search address(es), click "Save Options". If you do not save the options, the added search addresses are only used for the current installation.

9. Click "Install".
   The installation process itself is self-explanatory.
   After the installation, the "Status" is changed to "Ready".
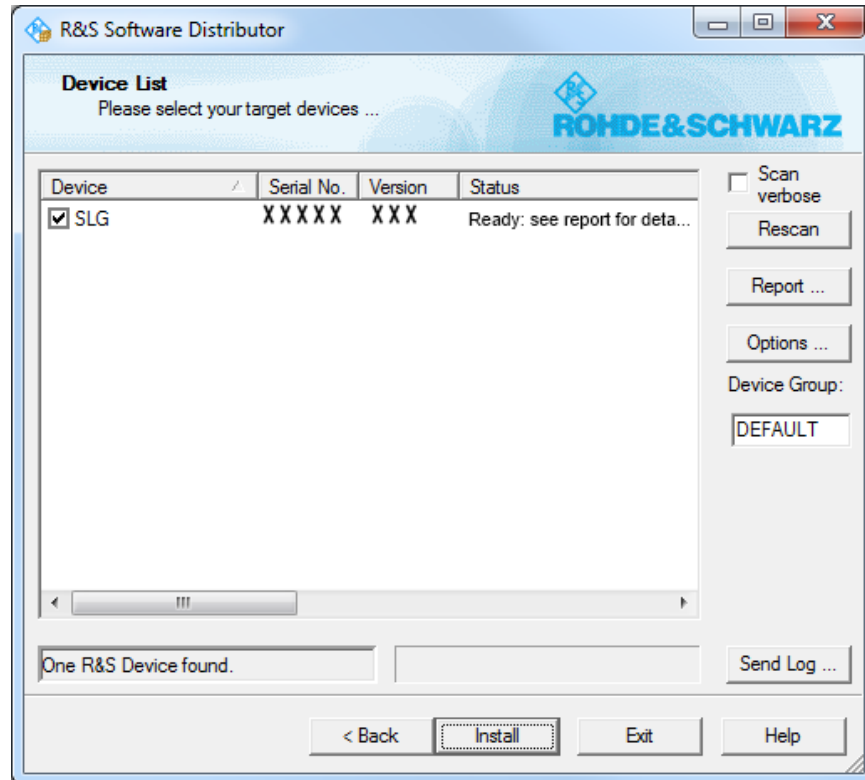
10. Click "Report" to view the installation report. If the installation was successful, no errors are displayed (see example below).
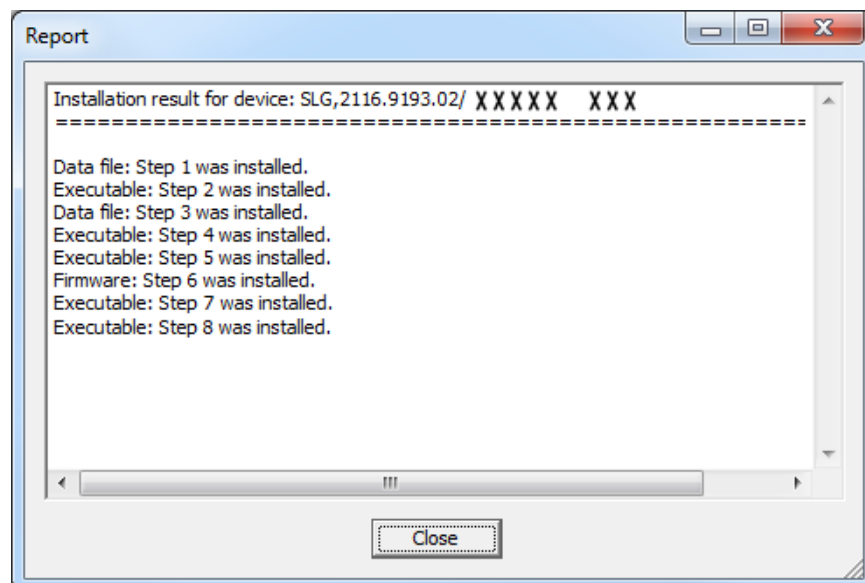
11. Close the report and click "Exit".

4 Open Source Acknowledgement

The firmware used in this instrument makes use of open source software packages. Please refer to the SLG Open Source Acknowledgements document (2118.7352.02) included with the shipped product or downloadable online from the R&S website.

5 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.

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