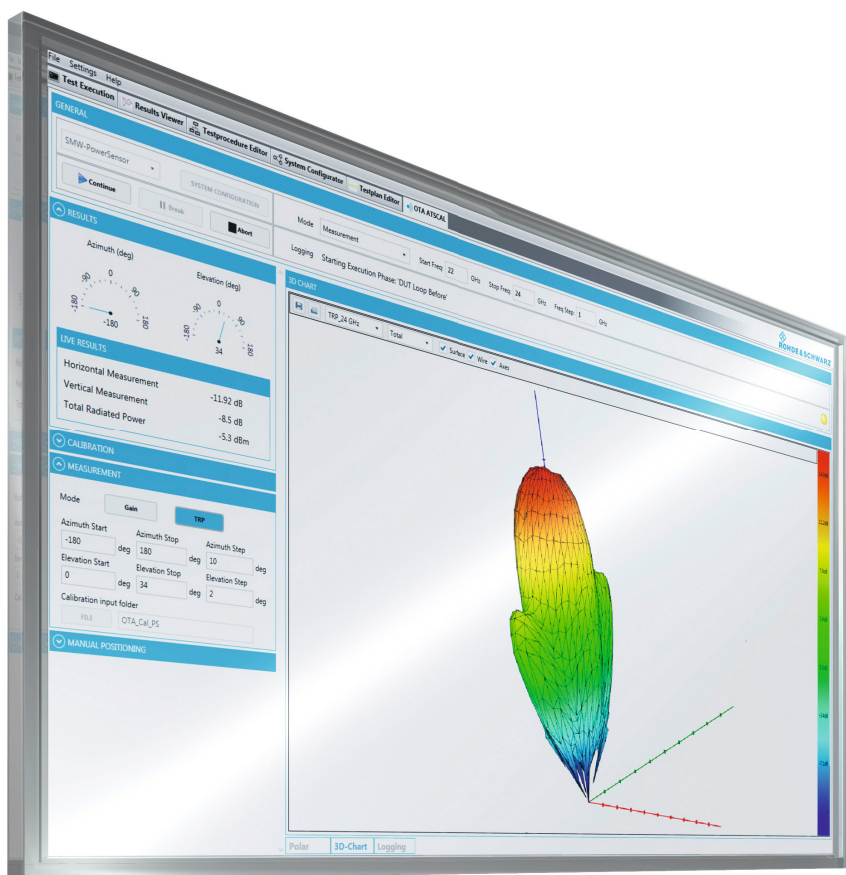


# R&S® QuickStep ATSCAL

## Calibration and measurement with R&S® ATS anechoic chambers



# R&S®QuickStep ATSCAL

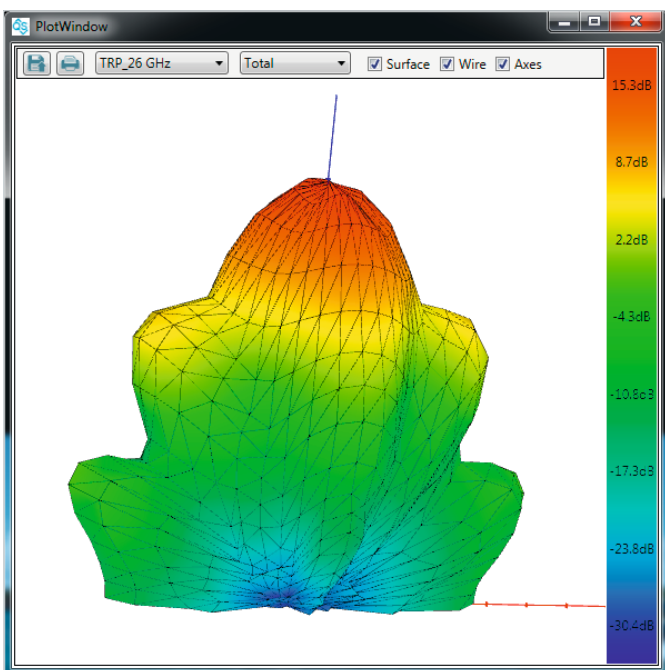
## At a glance

The R&S®QuickStep ATSCAL application supports over-the-air (OTA) calibration and basic measurements in combination with the R&S®ATS family of anechoic chambers. Multiple Rohde & Schwarz RF instrument combinations and positioners are supported. A streamlined graphical user interface (GUI) simplifies parametrization and execution of the OTA calibration and measurements.

R&S®QuickStep ATSCAL is a QuickStep test application with an application specific graphical user interface. The application supports the usage of network analyzers, power sensors and signal generators and analyzers from Rohde&Schwarz for system loss calibration and total radiated power and gain measurement. With the help of a positioner a 3D antenna pattern can be generated. All measurement data is stored as csv data files which can be analyzed within the R&S®QuickStep Result Viewer module. The behind lying QuickStep test plan and procedures might be customized and extended by 3rd parties in order to support the development of customized OTA test solutions.

### Key facts

- Support of R&S®ZNA/ZNB vector network analyzers
- Support of R&S®SMW200A vector signal generator, R&S®FSW vector signal analyzer and R&S®NRP power sensors
- Support of R&S®ATS-CCP1 positioner
- VISA instrument management with instrument discovery function
- File-based calibration and path loss data handling
- System configurator for system setup selection and parametrization
- Automated OTA calibration procedure for multiple frequencies
- 3D measurement of gain or TRP with configurable angle range and resolution
- 2D plot for realtime visualization of horizontal and vertical polarization measurement
- Explorable 3D measurement result plot
- CSV calibration files and storing of measurement results
- Manual positioner control for non-automated measurements
- Customizable and user-extendable procedures in combination with the R&S®QuickStep development option (R&S®QS-DEV)



## Practical system configurator

The system configurator allows you to select the system type for different instrument setups: VNA, VSG/VSA, VSG/power sensor. To measure horizontal and vertical polarization, a quad-port vector network analyzer (VNA) is required. The VSA and power sensor setup uses an R&S®OSP for switching between the two measurement antennas. For each system type, you can select the instrument VISA addresses from a list of predefined instruments. This list can be populated manually or by using the automatic network discovery function. CSV files containing the input cable loss and reference antenna gain can be selected.

## Simple OTA calibration

OTA calibration is performed based on a given frequency range, frequency step width and the selected system type. A reference antenna is required; the corresponding antenna gain must be provided as a CSV file. The OTA calibration procedure generates CSV files with system gain versus frequency. Multiple OTA calibration files can be generated.

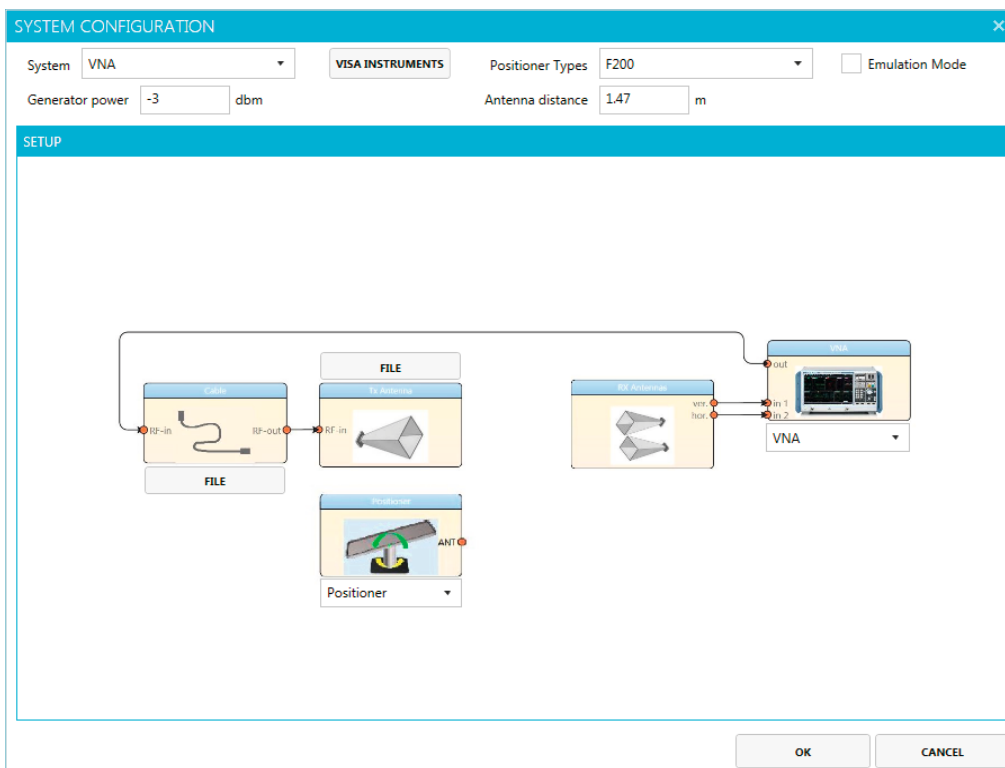
## TRP and gain measurements

The equivalent isotropic radiated power (EIRP) and gain are measured over a user-selectable azimuth and elevation range and resolution. At each position, the power is measured with two antennas for vertical and horizontal polarization. Multiple measurements for the given frequency range and step width are executed at each position. A gain/EIRP value is calculated using a preselected OTA calibration file. The measurement results of both polarizations are visualized in a realtime 2D polar plot. If TRP measurement is selected, the estimated accumulated TRP value is shown during the measurement.

A 3D antenna pattern plot for each measured frequency allows you to explore the antenna characteristic for the horizontal and vertical component or the sum of both.

## Manual positioner control

The manual positioner control mode allows you to directly operate the positioner. You can set the speed and an offset for the positioner.



Practical system configurator.

## Test results at a glance

After completion of the measurements, the results are stored in CSV files for each frequency. A 3D antenna pattern plot for each measured frequency allows you to explore the antenna characteristics for the horizontal and vertical component or the sum of both. You can use the 2D plot for more detailed analysis of the result values.

Additional R&S®QuickStep standard result files, such as the execution log and measurement time log, are available.

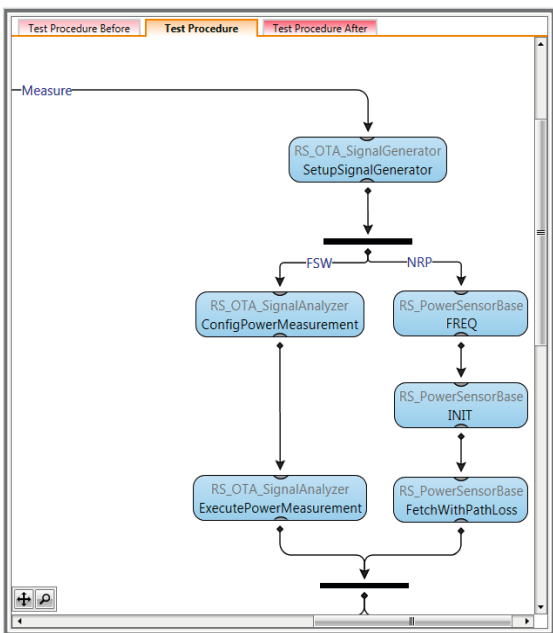
## Customizable and extendable

It is possible to modify the provided calibration and measurement procedures. The R&S®QS-DEV development option and the R&S®QS-APP option are required to alter the procedures. It is mandatory to complete the expert training and support package (R&S®QS-ATSTRN) for modifying R&S®QuickStep ATSCAL functions in order to gain access to the R&S®QuickStep ATSCAL test procedures. This interactive online training (duration: 2 h) is conducted by an Rohde&Schwarz application expert. Additionally 15 h of remote support are included.

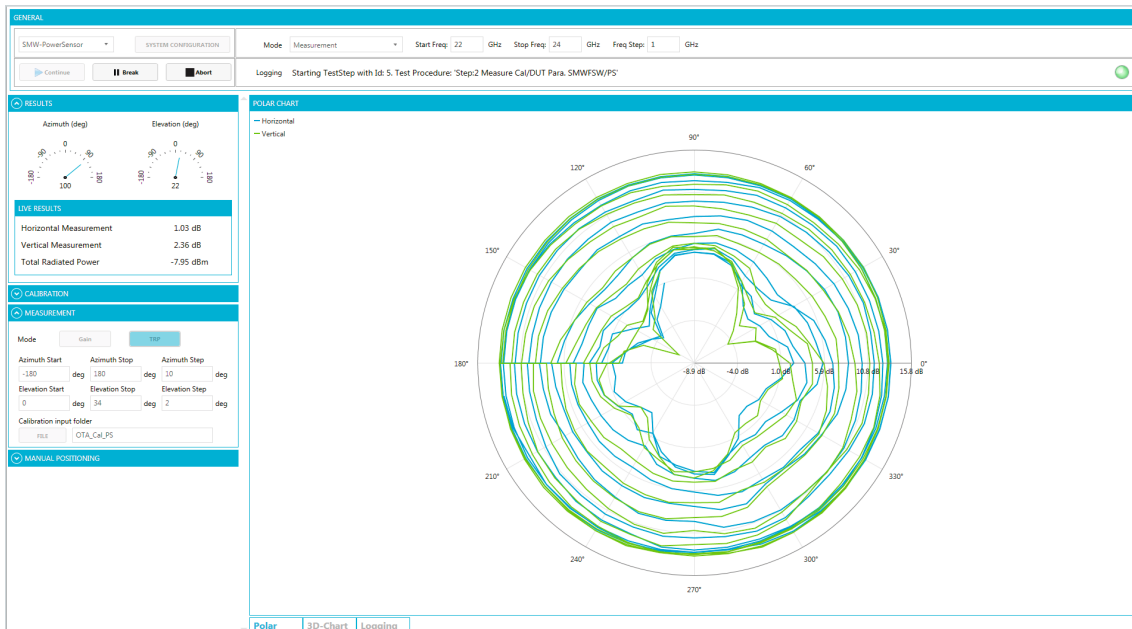
The R&S®QS-DEV option allows you to add other procedures e.g. for DUT integration and control of additional equipment.

## ATS positioner driver

The R&S®ATSDRV C# driver supports the integration of the R&S®ATC-CCP1 positioner in individual remote control solutions. This positioner is used in the R&S®ATS type anechoic chambers. The C# driver can also be used in other software environments that support the integration of C# DLLs. Documentation of the supported positioner remote control functions and how to use the driver within a MATLAB® environment is provided.



R&S®QuickStep ATSCAL test procedure.



2D- polar plot measurement results.

# Specifications in brief

## Recommended system configuration

Operating system	Windows 7 SP1 (64 bit), Windows 8.1 (64 bit), Windows 10 (64 bit)
Free hard disk space	1 Gbyte
Min. free RAM	4 Gbyte

# Ordering information

Designation	Type	Order No.
License dongle and key card for software options	R&S®QS-DGL	1528.9003K02
R&S®QuickStep test sequencer software <sup>1)</sup>	R&S®QS-SEQ	1528.9049.02
Automatic calibration of R&S®ATS1000 <sup>2)</sup>	R&S®QS-ATSCAL	1528.9078.02
Mandatory developer training for R&S®QS-ATSCAL <sup>3)</sup>	R&S®QS-ATSTRN	1528.9061.02
Driver package for R&S®ATS anechoic chamber positioner <sup>4)</sup>	R&S®ATSDRV	1528.9084.02
R&S®QuickStep Test Executive Software <sup>1)</sup>	R&S®QS-APP	1528.9010.02
Development Option for R&S®QuickStep Test Executive Software <sup>5)</sup>	R&S®QS-DEV	1528.9026.02

<sup>1)</sup> Requires R&S®QS-DGL license dongle.

<sup>2)</sup> Requires R&S®QS-SEQ or R&S®QS-APP.

<sup>3)</sup> This option needs to be ordered at least once by any customer who wants to modify or extend the R&S®QS-ATSCAL procedures  
The R&S®QS-APP and R&S®QS-DEV options are additionally required for doing the modifications.

<sup>4)</sup> Comes with a 30-day demo option of R&S®QS-ATSCAL and R&S®QS-SEQ.

<sup>5)</sup> Requires R&S®QS-APP.

## Service that adds value

- | Worldwide
- | Local and personalized
- | Customized and flexible
- | Uncompromising quality
- | Long-term dependability

## Rohde & Schwarz

The Rohde & Schwarz electronics group offers innovative solutions in the following business fields: test and measurement, broadcast and media, secure communications, cybersecurity, monitoring and network testing. Founded more than 80 years ago, the independent company which is headquartered in Munich, Germany, has an extensive sales and service network with locations in more than 70 countries.

## Sustainable product design

- | Environmental compatibility and eco-footprint
- | Energy efficiency and low emissions
- | Longevity and optimized total cost of ownership

Certified Quality Management

**ISO 9001**

Certified Environmental Management

**ISO 14001**

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[www.rohde-schwarz.com](http://www.rohde-schwarz.com)

## Rohde & Schwarz training

[www.training.rohde-schwarz.com](http://www.training.rohde-schwarz.com)

## Regional contact

- | Europe, Africa, Middle East | +49 89 4129 12345  
[customersupport@rohde-schwarz.com](mailto:customersupport@rohde-schwarz.com)
- | North America | 1 888 TEST RSA (1 888 837 87 72)  
[customer.support@rsa.rohde-schwarz.com](mailto:customer.support@rsa.rohde-schwarz.com)
- | Latin America | +1 410 910 79 88  
[customersupport.la@rohde-schwarz.com](mailto:customersupport.la@rohde-schwarz.com)
- | Asia Pacific | +65 65 13 04 88  
[customersupport.asia@rohde-schwarz.com](mailto:customersupport.asia@rohde-schwarz.com)
- | China | +86 800 810 82 28 | +86 400 650 58 96  
[customersupport.china@rohde-schwarz.com](mailto:customersupport.china@rohde-schwarz.com)

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R&S®QuickStep ATSCAL

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