

Mobile Network Testing

# SmartBenchmarker

Benchmarking tests made easier



Product Brochure  
Version 05.00

**ROHDE & SCHWARZ**

Make ideas real



A man in a denim shirt is looking at a laptop on a server rack inside a car. The server rack is filled with various ports and cables. The laptop screen displays a software interface with charts and data. The background shows the interior of a car with a window and a door handle.

# SmartBenchmarker

## BENCHMARKING TESTS MADE EASIER

In the fast-paced and highly competitive world of mobile network operators and service providers, performing regular benchmarking tests is an indispensable investment in the future. To make smart decisions about future expansions and deployments, it is essential to have reliable and reproducible network performance data – for your own network as well as your competitors' networks.

With SmartBenchmarker, mobile network operators and service providers can perform accurate and advanced benchmarking tests that are not only in line with the latest standards and methodologies but also reduce CAPEX and OPEX.

SmartBenchmarker is a software platform from Rohde&Schwarz mobile network testing (MNT) for benchmarking tests. It allows seamless configuration, execution and monitoring of benchmarking test campaigns. SmartBenchmarker is built on state-of-the-art technology; users can control benchmarking tests either locally or remotely from the office.

Optionally, any SmartBenchmarker system can be remotely monitored or even controlled by SmartMonitor. This approach boosts flexibility for operators and service providers when conducting drive tests. SmartBenchmarker's advanced monitoring and alerting functionalities also reduce the risk of expensive redrives.

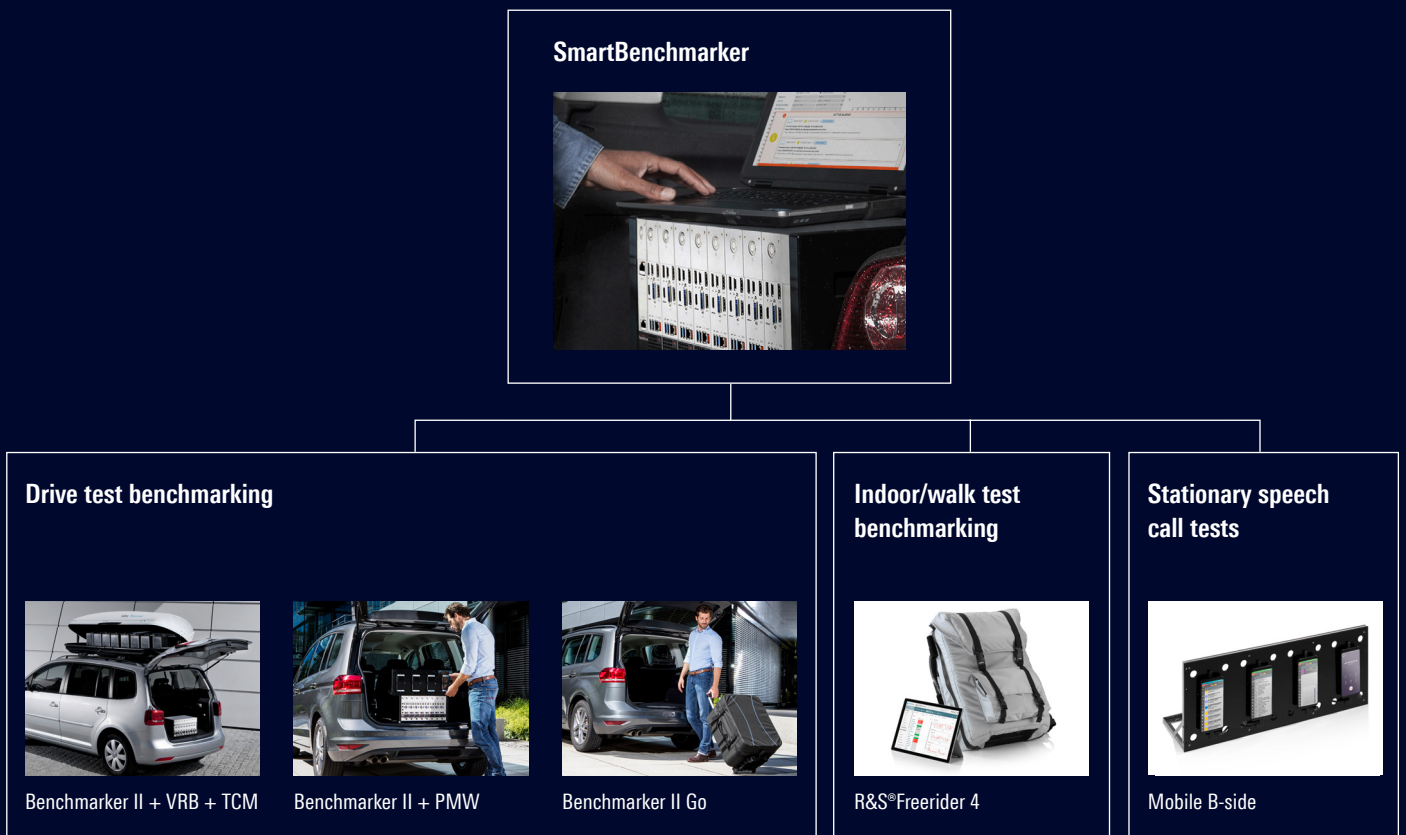
SmartBenchmarker is perfectly adaptable to user needs. Users only pay for what they need when they need it.



# AT A GLANCE

- ▶ Flexible and customizable web interface that facilitates configuration, execution and monitoring of benchmarking test campaigns
- ▶ Supports existing Benchmarker II hardware chassis and all its modules, including the vehicle roof box (VRB), the test device containment module (TCM) and the phone mounting wall (PMW)
- ▶ Supports Benchmarker II Go
- ▶ Supports R&S®Freerider 4, the portable benchmarking system for walk tests
- ▶ Supports SmartBenchmarker Mobile B-side, a stationary, smartphone based B-side for speech call tests
- ▶ Any SmartBenchmarker system can be remotely monitored and configured with SmartMonitor
- ▶ Modular concept for all benchmarking data collection use cases
- ▶ Supports all flavors of 5G NR (e.g. FR1, FR2)

## SmartBenchmarker – one for all



# KEY USE CASES

## DRIVE AND WALK TEST CAMPAIGNS

SmartBenchmarker is designed to easily manage both large multichannel drive test setups and ad-hoc benchmarking campaigns. All tests are executed on the connected Android smartphones running the QualiPoc application. This approach delivers reliable results that reflect the real end-user QoE and it offers the flexibility to measure with equipment that supports the latest technology, including 5G NR. Beyond these use cases, SmartBenchmarker fully supports walk tests for indoor measurement campaigns when used together with R&S®Freerider 4. Thanks to SmartBenchmarker's flexible concept, QualiPoc probes and scanners can be reused for the walk test setup.

## REMOTE CONTROLLED BENCHMARKING DRIVE TEST

### Advanced alerting and superior control functions

The flexible and adaptable SmartBenchmarker interface supports the configuration of customized benchmarking dashboards to monitor ongoing tests at a glance. Advanced alerting and notification functionalities save SmartBenchmarker users time since they can customize the collection and processing of events and notifications and only need to actively monitor tests when prompted.

As part of the Smart platform, SmartBenchmarker allows SmartMonitor users to remotely control one or multiple benchmarking systems. For example, a system could comprise the Benchmarker II chassis installed in a vehicle and a number of TCMs hosted inside the VRB on top of the car. Via a secure and encrypted connection, a test supervisor can monitor the system and simultaneously manage the vehicle and monitor multiple devices (smartphones and scanners) remotely.

Drive and walk test campaigns on a Freerider 4 controlled by SmartBenchmarker



Remote management of VRB units





# SmartBenchmarker

EASY AND INTUITIVE

SwissQual

Swi





# KEY PRODUCT FEATURES

## ADVANCED FLEET MANAGEMENT AND REMOTE CONTROL

With SmartMonitor, each SmartBenchmarker system can be remotely controlled or monitored via a secure connection. There is even smart alerting to the remote SmartMonitor application. Users can customize collection and processing of events and choose how test supervisors are kept informed: via SMS, email or SNMP traps. SmartMonitor also offers centralized campaign configuration and live monitoring – potentially of every smartphone in the field.

### Fully integrated network performance score (NPS)

SmartBenchmarker supports a wide range of service tests for measuring voice and data quality. It also comes with a built-in configurator for network performance score (NPS) campaigns. This ETSI ratified scoring methodology offers an efficient method of calculating an overall score that reflects the perceived technical performance of a network or one of its subsets, such as a region, a period of time or a technology. With the built-in configurator, SmartBenchmarker allows any user to create a NPS campaign from scratch with just a few clicks.

### Supporting 5G NR

SmartBenchmarker supports 5G NR for both active and passive testing. 5G capable QualiPoc probes offer a wide range of active tests, including the new interactivity test that has been especially designed for measuring new URLLC networks. The R&S®TSME6 ultracompact drive test scanners support passive measurements in FR1. And in combination with an R&S®TSMExxDC, measurements in FR2 are also possible.

## MORE VALUE FROM TEST RESULTS

SmartBenchmarker tests are executed directly on the smartphones, using the devices' native software. The test results reflect the true end-user behavior since SmartBenchmarker probes are based on commercially available device firmware and standard Android apps. SmartBenchmarker also supports and integrates high-end hardware modules such as the VRB and TCM. Combined, they comprise the leading solution for end-to-end assessment.

### Indoor support

SmartBenchmarker is also the right application for walk tests in combination with R&S®Freerider 4. SmartBenchmarker supports iBwave project files for floor plans as well as pictures taken with the tablet camera. During indoor measurements, setting the position is as simple as a finger tap.

## POWERFUL AND EASY-TO-USE USER INTERFACE

The SmartBenchmarker software allows users to seamlessly configure one or more systems to complete various advanced testing scenarios, for example establishing a voice call test between two independent systems located in two different vehicles and connected via a secure and encrypted connection. SmartBenchmarker's intuitive and modern graphical user interface makes configuration of such complex tasks very quick and efficient. A robust and automated pretest check offers an additional efficiency boost since it prevents user and configuration errors and saves the time and effort of staff training.



Powerful alerts help operators focus on key information



The main dashboard provides aggregated information to control multiple devices simultaneously



The monitoring and replay overview offers in-depth information (down to the bit level) for advanced users

# SYSTEM OVERVIEW

The software platform allows secure remote connection to each system separately. The SmartMonitor application offers centralized campaign configuration and live monitoring – potentially of every smartphone in the field.

## KEY BENEFITS

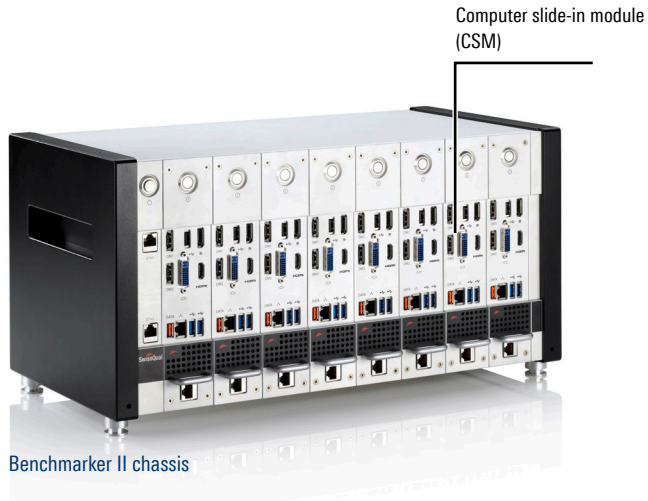
Using SmartBenchmarker will reward you with long-term benefits, including:

- ▶ Lower operational costs thanks to customized and advanced remote control functions and high system stability, reducing redrives
- ▶ Lower training costs thanks to its ease of use and flexible interface, allowing efficient configuration of multiple testing scenarios
- ▶ Lower capital expenditure costs thanks to its configuration flexibility and modularity and the repurposing of mobile devices and scanners for other testing purposes

### Remote control of SmartBenchmarker from SmartMonitor



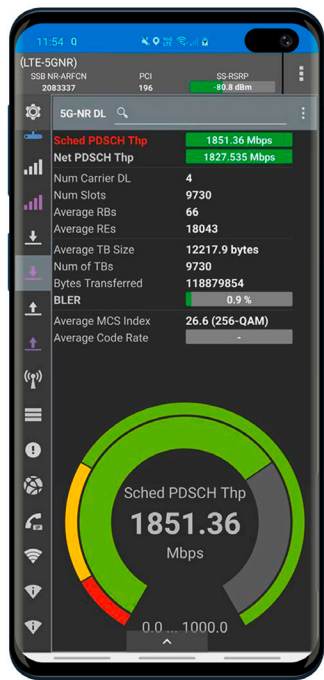
# OVERVIEW OF SUPPORTED HARDWARE



Benchmarker II chassis



Benchmarker II Go



QualiPoc Android



Vehicle roof box (VRB) hosting test device containment modules (TCM)



R&S®TSME or R&S®TSM6 scanners and Rohde & Schwarz downconverters from the R&S®TSMx network scanner family



R&S®TSME30DC downconverter



R&S®Freerider 4



# TECHNICAL SPECIFICATIONS

## Software specifications

<b>Configuration data storage</b>	SmartBenchmarker stores all configuration data and high-level test results in a secure communications database.
<b>Technology</b>	Secure communications technology, including SSH and HTTPS protocol, is used to interact with the systems.
<b>User interface</b>	The modern user interface developed using Angular Material Design is easy to operate and fully compatible with any display size. No matter where it is displayed – on a large desktop monitor or a smaller tablet screen – SmartBenchmarker adapts its layout automatically.
<b>Dashboard</b>	All test result KPIs are presented in powerful dashboards. At all times, the manager has an accurate overview of the network's current service quality and receives detailed status information from all measuring devices.
<b>Campaign management</b>	Intuitive and easy-to-operate campaign and test management offers fast and efficient test configuration in a modular way – also for large numbers of measuring devices.
<b>User management</b>	Multiple roles with different access levels (admin, manager, test manager, viewer) are part of the built-in user management and allow system administrators to manage users and assign tailored roles.

## Functionalities

SmartBenchmarker supports up to 32 measuring devices per system. When registering with SmartBenchmarker, phone configuration and subscriber number are included, which allows fast and efficient system setups.

## Compatibility

<b>Network probes</b>	SmartBenchmarker supports QualiPoc Android probes that are available on a wide range of the latest Android flagship smartphones (Qualcomm and Samsung Exynos Shannon chip sets) from multiple vendors such as Samsung, Xiaomi, OnePlus, Sony, LG and others. Furthermore, SmartBenchmarker supports Rohde&Schwarz scanners, including R&S®TSMW, R&S®TSME, R&S®TSME6 as well as R&S®TSMExxDC downconverters to measure 5G NR in FR2.
<b>Hardware</b>	The SmartBenchmarker software platform is compatible with the computer slide-in module (CSM) versions 2 and 3, TCM, Benchmarker II Go, the Benchmarker II chassis and the NCM versions 2 and 3 on R&S®Freerider 4.

## Service that adds value

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

## Rohde & Schwarz

The Rohde&Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test & measurement, technology systems and networks&cybersecurity. Founded more than 85 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

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

## Mobile network testing

The company's broad and diverse product portfolio for mobile network testing addresses every test scenario in the network lifecycle – from base station installation to network acceptance and network benchmarking, from optimization and troubleshooting to interference hunting and spectrum analysis, from IP application awareness to QoS and QoE of voice, data, video and app based services.

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

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