

QualiPoc Freerider III

The ultimate portable benchmarker



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Mobile traffic data is exploding. Globally, it has doubled during recent years, especially in indoor locations such as shopping malls, stadiums, event halls, pedestrian zones, airports and trains. For network operators, such indoor or confined venues are extremely challenging, because they require a denser network of end-points and a higher number of base stations. This raises the complexity in their core networks indoors.

To easily and comfortably test such demanding locations, Rohde&Schwarz mobile network testing (MNT) has engineered and designed QualiPoc Freerider III: the third generation of smartphone-based and portable benchmarking solution from Rohde&Schwarz MNT for extended walk and drive-test-based quality of experience (QoE) benchmarking campaigns and optimization.

The compact, lightweight and well-designed backpack provides optimal conditions to extensively test voice, data, video and messaging to assess quality of service (QoS) and quality of experience (QoE) from a real end-user perspective, including the complete information about the physical RF environment.

Its future-proof concept, the various applications, the outstanding performance and the ease of use make QualiPoc Freerider III the ultimate portable benchmarking solution, setting a new standard that underpins the status of Rohde&Schwarz MNT as market driver in the field of mobile network testing.

Key use case

Extensive, multichannel benchmarking and coverage measurements

Use QualiPoc Freerider III for boundless walk and also drive test campaigns to reflect the complete network status. For example, while driving to a given indoor measurement location, a field engineer can use Freerider III to conduct a brief drive test campaign.

Once indoors, the user simply puts on the lightweight backpack and implements the indoor campaign, using the tablet to control and monitor the tests and measurements that are running on the QualiPoc Androids in the backpack. Back in the car, the user conducts another drive test. Even taking a plane to another location is no problem, since QualiPoc Freerider III can be carried as hand luggage.

At the end of the day, the field engineer will have collected a full day of measurements with up to six channels in parallel – more measurements at a time than any other portable solution can manage. The data collected can be used for both benchmarking and optimization thanks to the embedded R&S®TSME scanner.

At a glance

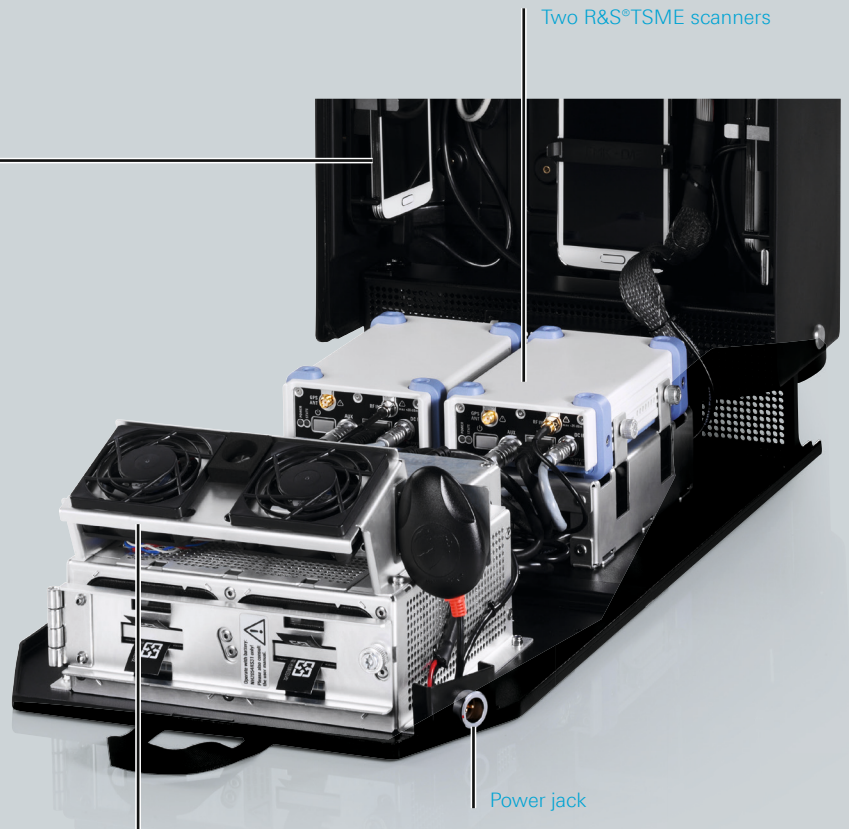
- Portable, smartphone-based multi-channel solution for extended walk and drive-test-based quality of experience benchmarking campaigns and optimization
- Optional multiband and multitechnology R&S®TSME scanner
- Ruggedized, powerful and future-proof hardware for efficient, uninterrupted and reliable data collection



Multidevice ready fixation system



Power button on the outside of the protective core element



Two R&S®TSME scanners

Power jack

Active cooling and ventilation system

QualiPoc Freerider III

Virtually unlimited possibilities



Product highlights

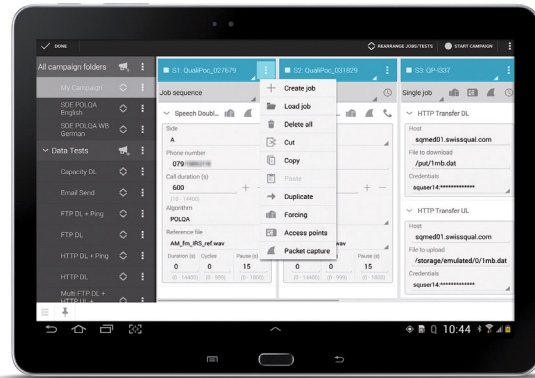
User-friendly campaign management

The campaign management is an exclusive feature of the QualiPoc platform. It is an intuitive graphical user interface on the controlling master tablet to clearly structure and efficiently configure complex measurement campaigns. It enables, for example, a preconfiguration of standard measurements in a user specific library. Thanks to multitouch control functions, such as copy/paste or drag&drop, the whole measurement campaign configuration process is simplified, standardized and more efficient – even when configuring six channels.

The Freerider master tablet offers easy scanner configuration, displaying detailed scan results on a dedicated monitor and providing the user with a complete overview of the RF situation. Other scanner specific features, such as automatic channel detection (ACD), are also well supported on QualiPoc Freerider III, increasing efficiency even more.

Benchmarking monitor

All monitors on the Freerider master tablet can show multiple channels in parallel on the same monitor. With this feature, multiple channels can be benchmarked directly on the tablet while measuring.



Master tablet campaign management



Master tablet with benchmarking monitors

Designed for extensive walk and also drive test campaigns

The custom designed backpack contains a durable core element which holds and protects all system components, including smartphones and RF scanners. Two fans ensure effective, active cooling to ensure a reliable and continuous performance.

The sturdy construction is shock and vibration proof according to automotive standards and is allowed to be used in any vehicle type.

Freerider III allows multiple use cases for multichannel walk and also drive testing. It ensures accurate measurement results – also on extensive, long-lasting campaigns – and reflects the complete network status from the end-user perspective, including the RF environment.



Key product features

Flexible multichannel measurements intuitively controlled

Measurement devices of the QualiPoc Freerider III are integrated into a well-designed, protective core element and essentially consist of:

QualiPoc smartphones (slaves)

Up to six commercially available Android smartphones can be integrated as single measurement probes based on customer needs and market requirements to ensure maximum flexibility.

High-performance Rohde & Schwarz RF scanners, including MIMO 2x2

The multitechnology and multiband R&S®TSME scanner can be added to simultaneously and seamlessly measure up to eight technologies in wireless communications bands from 350 MHz to 4.4 GHz. Freerider III can host up to two R&S®TSME scanners and perform MIMO 2x2 measurements.

Freerider controlling master tablet

The Android tablet-based Freerider III offers an intuitive user interface to configure and operate the system and to monitor the measurement and KPIs in realtime, including the complete history of every measurement channel.

R&S®TSME scanners for MIMO 2x2 measurements



Master tablet with ACD monitor



A ruggedized, flexible and future-proof hardware concept

Freerider III will best demonstrate its exclusive benefits, endurance, performance and unique flexibility in practice. Some key hardware features and benefits include:

A well thought-out product design

Practical design

The compact and comfortable backpack has an inconspicuous design and is ideal for walk tests in public areas.

Lightweight and adjustable construction

The fully configured backpack, including four batteries and the optional RF scanner, weighs less than 9 kg. The carrying straps can be individually adjusted to offer best wearing comfort.

Maximum flexibility and future readiness

Multidevice ready

The smart fixation system is compatible with different smartphone designs and ensures the convenient integration of future smartphone models.

Key benefits

Using QualiPoc Freerider III will reward you with long-term values, including:

- Reduction of operational costs thanks to efficient and combined multichannel (QoS and QoE) and RF scanner-based data collection
- Secure cost-intensive investments due to a highly flexible, multipurpose and future-proof product concept which allows flexible and economic technology and device upgrades
- A maximum level of QoS/QoE data quality and conformity as a reliable foundation for strategic decisions

Multi-usage

The smartphones are easily removed and can also be used as QualiPoc handheld measurement devices.

A reliable functionality for uninterrupted data collection

Active cooling

Two fans provide an effective cooling and airflow to ensure the uninterrupted and reliable performance of all embedded system components.

Smart power management

A strong power supply consisting of four powerful and hot swappable batteries ensures autonomy of up to eight hours.



Technical specifications

Software specifications

Technologies

Extensive technology test support including: GSM, GPRS, EDGE, WCDMA, HSDPA, HSUPA, HSPA+, CDMA2000®, EV-DO, LTE, LTE-A (Cat9)

Devices

Support of a wide range of Android smartphones, including Samsung Galaxy S9 and Sony Xperia XZ2

System architecture

Android tablet controls and monitors multiple (up to six) smartphones and a scanner connected via Bluetooth®. The scalable Freerider architecture allows distribution of data collection running on dedicated phones for true benchmarking testing. Time synchronization controlled by Android tablet ensures reliability on all KPI calculations on all end-to-end performed testing (voice, video calls and messaging testing).

Protocol layers

Full logging and decoding of multiple protocol layers on all technologies: 3GPP, L2, L3, TCP/IP, IMS, SIP and text decoding of L3 messages, TCP/IP and RTP packets.

User interface

Intuitive and fully touchscreen adapted user interface with predefined workspaces and monitors automatically adapts to the used technology with choice between light and dark themes for monitors. Map navigation monitor available based on Google Maps or OpenStreetMap with optional BTS position display. Easy in-building positioning using dynamic indoor floor plan pictures or iBwave design multi-floor .ibwc files.

Service testing options

Benchmarking or service testing with wide range of services:

- Voice telephony: call to any number, speech MOS, audio delay
- Data: Ping, FTP DL/UL, HTTP DL/UL, Capacity DL, Iperf UDP/TCP
- Browsing: HTTP
- Messaging: SMS, MMS, email (SMTP, POP3, IMAP)

- Video streaming (YouTube), including video MOS using ITU J.343.1
- App services: Dropbox, Facebook, Ookla speed test, Line

Speech quality (MOS)

Speech quality testing to QualiPoc Android answering stations. Standard algorithms integrated for intrusive voice MOS assessments on narrowband and wideband channels:

- ITU-T P.863 (POLQA)
- ITU-T P.862 (PESQ)
- SQuad

VoLTE

Speech quality using POLQA along with many VoLTE specific KPIs are supported on VoLTE capable devices.

Positioning

This discreet system is able to reach non-drive places and supports full location logging: GPS for outdoor testing (internal or external USB or Bluetooth® GPS) and indoor mapping (incl. iBwave) for indoor testing.

Control and analysis

Device configuration, realtime results display and KPIs provided on the QualiPoc Freerider master tablet.

Data management

Data collection performed directly on the smartphones and scheduled data upload to the master tablet provided by all measurement devices.

Measurements events

Standard and configurable real-time status information and measurement related events available on controlling device.

KPI analysis

More than 250 key performance indicators (incl. ETSI) available in realtime as well as in postprocessing.

Postprocessing platform

NQDI with in-depth data analysis, network troubleshooting, report generation and historical performance trending. Flexible and customizable data selection and filtering capabilities, including time and data, network technology, operator, device type, map polygon regions, service quality threshold, layer 3 messages and more. Customizable Excel reports based on KPIs with a powerful report generator.

Postprocessing compatibility

Compatibility with major third-party postprocessing vendors.

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Hardware specifications

Dimensions

55 cm × 29 cm × 14 cm (21.65 in × 11.42 in × 5.51 in)

Dimensions backpack

59 cm × 32 cm × 18 cm (23.23 in × 12.60 in × 7.09 in)

Weight

Fully configured less than 9 kg (19.8 lb)

Battery capacity

4 × 89 Wh

GPS

Built-in or external USB or Bluetooth® GPS receiver

Temperature

Temperature operational range: –10°C to +50°C

Humidity

Operating relative humidity: 0% to 95%

Elevation

Operating elevation: 0 m to 2000 m

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.

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

Regional contact

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

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QualiPoc Freerider III

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