

QualiPoc Android Probe

Non-stop service
quality monitoring
and optimization



ROHDE & SCHWARZ
Mobile Network Testing

QualiPoc Android Probe

Non-stop service quality monitoring and optimization



QualiPoc Android Probe is a versatile, smartphone-based mobile network probe for unattended network-wide, non-stop service quality monitoring and optimization. It is remotely controlled via SmartMonitor and in real-time delivers a continuous stream of KPIs and insight into network quality just as the customer perceives it. This enables multiple applications in fixed or moving locations. These include targeted, 24/7 service quality monitoring in real-time or large-scale data collection on one or more mobile networks for the purpose of optimization.

QualiPoc Android Probe evolved from the proven handheld troubleshooting solution QualiPoc Android from Rohde&Schwarz mobile network testing (MNT). It offers extensive active testing functionalities for automated service quality measurements of voice, data, video, messaging and app services. The multifunctional back-end system SmartMonitor offers tailored functionalities to control and monitor the network probes, including active alarm functions for seamless service quality monitoring.

Key use case

QualiPoc Android Probes are controlled and monitored by SmartMonitor, a web-based module that can be installed on any application server or in the cloud. SmartMonitor is accessible for everyone from everywhere when access to the Internet is available.

Connected to SmartMonitor, QualiPoc Android Probes are placed in critical and strategic locations or deployed in cars, taxis or buses delivering a constant flow of information about the mobile network's quality of service.

Targeted, 24/7, and unattended service quality monitoring and service level agreement verification in hotspots

Thanks to its smart design and self-healing functions, QualiPoc Android Probe continuously reports the perceived end-user service quality in real-time. Installed in stationary and moving hotspots, such as shopping malls, airports, business districts, trains and metros, QualiPoc Android Probe enables mobile operators to ensure a stable quality of service where it matters most. Network and service instabilities or errors that have an adverse effect on end-user experience, are immediately detected; network and service operation centres are instantly alarmed, so that they can take prompt action.

24/7 and unattended large-scale data collection for network optimization (drive test)

QualiPoc Android Probe deployed in fleets, for example taxis, buses and couriers, offers a cost-efficient way to collect measurements for optimization, and enables mobile operators, infrastructure vendors and testing service providers to continuously collect data from a real end-user perspective. The fleets are controlled and monitored via the web-based application SmartMonitor that displays the status of the probes in dashboards and on maps. Tests are remotely configured and scheduled; the performance of each service is visible in a dedicated dashboard displaying test results and alarms in real-time.

At a glance

- Smartphone-based (QualiPoc Android platform), remotely controlled network measurement probe for unattended network-wide, non-stop service quality monitoring and optimization
- No specific license required to operate QualiPoc Android in „SmartMonitor Probe“ mode
- Multi-application ready for desktop, wall or in-car installation
- Ruggedized and future-proof hardware design with extra safety features for reliable and trouble-free 24/7 operation



Multi-device ready
fixation system



QualiPoc Android Probe

Real-time quality supervision



Product highlights

Designed for reliable, unattended, 24/7 operation

QualiPoc Android Probe uses the power of today's Android smartphones.

Rohde&Schwarz MNT designed a ruggedized and future-proof shell to protect the integrated smartphone and to guarantee an uninterrupted and reliable 24/7 function for multiple applications.

Protective features

The shell is mountable with screws, lockable with a key, comes in an unobtrusive design, and can be discretely installed in public areas.

Multi-application ready

The ruggedized shell offers multiple applications such as desktop, wall installation and in-car mounting (with a special mounting kit).

Operational reliability

The Linux-based Android operating system and a dedicated multi-stage watchdog ensure a stable and troublefree operation; self-healing functions allow the probe to recover and re-establish lost connections to the SmartMonitor.

Energy and temperature management

The integrated backup battery system (UPS) in combination with an active ventilation system ensures a continuous reliable performance.



Key product features

Service quality monitoring from the real end-user perspective

Rohde&Schwarz MNT offers comprehensive and tailored backend solutions to remotely configure, monitor and control the QualiPoc Android Probes, and to postprocess the collected data for quality analysis and reporting.

Ever since its launch, the QualiPoc application has been supported on a wide range of the latest Android smartphones. New Android smartphone models are continuously integrated into the QualiPoc platform which enables Rohde&Schwarz MNT customers to assess a mobile network's performance and competitive situation – always based on the latest end-user devices, it ensures a true representation of how customers perceive services.

Extensive set of service tests

QualiPoc Android Probes provide an extensive set of service tests to simulate the real end-user behavior. It includes call tests, voice quality (including POLQA, PESQ, and SQuad08), VoLTE as well as data tests, app services (Facebook, Dropbox, Ookla speed test, WhatsApp, etc.), video streaming and video quality.

RF parameter live monitoring

In combination with SmartMonitor, QualiPoc Android Probe offers the unique Live Monitoring feature, displaying the monitor information of selected QualiPoc Android Probes on SmartMonitor in real-time.

Real-time view of service quality

QualiPoc Android Probes send test results directly and continuously to the backend application SmartMonitor. A fleet setup of QualiPoc Android Probes provide a realtime view of the complete network status, including detailed QoS information, to trigger actions.

High grade of flexibility

Adding new QualiPoc Android Probes to an existing service monitoring fleet is very simple. Every QualiPoc Android smartphone can be switched to the SmartMonitor operation mode, without the need of a separate license. SmartMonitor automatically manages the total number of connected probes. Depending on the test scenario, QualiPoc can be operated in handheld, Freerider slave or SmartMonitor mode.

OTA application update

An over-the-air update function, triggered from SmartMonitor, ensures that all QualiPoc Android Probes in a fleet are up to date.

Active testing and systematic problem isolation

With QualiPoc Android Probe, the data collection is controlled, active and systematic; measurements are reproducible making it easier to identify necessary actions for improvement. The data collected by the QualiPoc Android Probe contains the full range of information – from the application layer down to layer 1. This is crucial not only for detecting voice and video quality issues, but also for systematically identifying the root causes and to isolate and eliminate issues.

QualiPoc platform from Rohde&Schwarz MNT supports extensive functionalities for voice, data, video, messaging, and app-based service tests to measure QoS:

- GSM, GPRS, EDGE, WCDMA, HSDPA, HSUPA, HSDPA DC, LTE-FDD and TD-LTE, CDMA2000®, EV-DO Rev.0/A
- Full recording and decoding of protocol layers on the supported technologies: 3GPP, L2, L3, TCP/IP, IMS, SIP
- Rich set of service tests, including VoLTE voice quality, audio delay tests, and video streaming quality

Key benefits

Using QualiPoc Android Probe will reward you with long-term values, including:

- Real-time and 24/7 problem identification through targeted service monitoring allowing immediate reaction before the end-user experience is substantially affected and results in churn
- Reduction of operational costs for mobile network optimization thanks to remotely controlled and configured measurement probes that reduce the need for qualified manpower in the field
- Smartphone-based and future-proof product concept enabling economical large-scale deployments

CDMA2000® is a registered trademark of the Telecommunications Industry Association (TIA-USA).



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 the latest Android smartphones, including Samsung Galaxy S9 and Sony Xperia XZ2

System architecture

QualiPoc Android smartphones operated in SmartMonitor mode are controlled by the web-based SmartMonitor application. Communication between probe and SmartMonitor is via HTTPS socket connection.

Protocol layers

Full logging and decoding of multiple protocol layers on all technologies: 3GPP L1, L2, L3, TCP/IP, IMS SIP, text decoding of L3 messages, TCP/IP and RTP packets.

Fleet control

Intuitive and easy to operate fleet control application SmartMonitor allows to fast and efficiently define test campaigns in a modular way.

Fleet monitoring

Web-based fleet monitoring SmartMonitor offers high-level test result information and probe status in real-time.

Service testing options

Benchmarking or service testing with wide range of services:

- Voice telephony (CS and VoIP): call to any number, audio MOS and audio delay (RTT)
- Data: Ping, FTP DL/UL, HTTP DL/UL, Capacity DL, Iperf UDP/TCP
- Browsing: HTTP
- Messaging: SMS, MMS, email (SMTP, POP3, IMAP)
- App services: Facebook, Dropbox, Ookla speed test, WhatsApp, Line
- Video streaming (YouTube) including video MOS, using J.343.1 ITU approved no reference video quality algorithm

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.

Video quality (VMOS)

Video quality testing for multimedia IP-based video services (e.g. YouTube) in the presence of encrypted bitstream data using ITU approved no reference video quality algorithm.

Positioning

A built-in GPS receiver or an external Bluetooth® GPS receiver provides an accurate position of the probe.

Data management

Data collection performed directly on the smartphones, scheduled data upload to the backend followed by an automatic import into the postprocessing database.

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 real-time 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 post processing vendors.

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Hardware specifications

Dimensions

20 cm × 19.5 cm × 8 cm (7.88 in × 7.7 in × 3.15 in)

Weight

Weight without device 800 g (1.77 lb)

Built-in batteries

Cover power breakdowns for approx. 3 h

GPS

Built-in or external Bluetooth® GPS

Temperature

IEC/EN 60068-2-14, temperature operation 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.

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