QualiPoc Android
THE PREMIER HANDHELD TROUBLESHOOTER
The Premier Handheld Troubleshooter

More than half of today’s voice and data traffic is generated in indoor environments such as offices, shopping malls, airports, subways, and event venues. Such challenging locations require adequate portable Mobile Network Testing solutions.

That is why SwissQual invented QualiPoc Android, a multi-functional smartphone-based tool for voice and data service quality troubleshooting and RF optimization. As the premier handheld troubleooter, QualiPoc Android set a new industry standard for smartphone-based Mobile Network Testing.

QualiPoc is based on the latest commercial Android smartphones. It supports all mobile network technologies used worldwide, and covers multiple protocol layers as well as the IP stack in real-time. QualiPoc Android provides extensive test functions for voice, including MOS, data, video streaming, and messaging tests to assess and reflect the real end-user experience QoS/QoE within a mobile network.

QualiPoc offers an intuitive, fully customizable user interface. Multiple standards and configurable monitors and graphs can be selected to display measurements, parameters (KPIs), and test results in real-time, including the full history. Also, it records and saves information in a measurement file for replays or detailed analysis with SwissQual’s post processing software.

The multi-functional QualiPoc Android is a cost-efficient and powerful pocket solution for every RF engineer, who performs daily tasks such as site verification and commissioning, troubleshooting, and RF optimization.
KEY USE CASE

Ad-hoc voice and data service quality testing and verification

Use QualiPoc Android, for example, for multiple integration tests when a new site installation is planned. For this, an RF engineer can perform several data traffic tests with QualiPoc in order to verify the quality levels of services. Each cell sector and all carrier frequencies are tested using the advanced forcing functions on its handheld optimizer. Having the detailed results displayed on the monitors, the technician can immediately optimize the site or trigger some additional improvement actions.

On the way back to the office, for example, a quick measurement campaign in a shopping mall is requested. Taking a picture of the building’s floor plan with the built-in camera and using it for the requested indoor testing, the technician can immediately start an indoor campaign.

Commuting back on a crowded train in the evening, the technician can then use his QualiPoc smartphone for a quick network performance check, while all information and data are stored in a measurement file ready for a detailed analysis the next day.

Find more use cases of QualiPoc Android at www.swissqual.com

AT A GLANCE

- Smartphone-based RF optimization and service quality assessment application, supported on a wide range of the latest Android smartphones and tablets
- Comprehensive range of service test functions for voice, data, and video as well as for channel and cell locking for dedicated RF optimization
- Intuitive user interface, including customizable monitors and workspaces
PRODUCT HIGHLIGHTS

Voice and video quality tests on a handheld

Measuring subjective service quality is a challenging task that requires expertise and specialized knowledge. SwissQual has been working in this area for more than a decade, and has developed three major algorithms for detailed analysis of subjective quality, including two new ITU-T standards for HD video and HD audio quality assessment.

QualiPoc Android not only offers a comprehensive set of RF optimization features but also the full range of audio quality assessment tools. Voice quality testing algorithms, such as P.863 (POLQA) and SQuad, allow the user to easily evaluate quality of services on voice calls according to the latest ITU-T standards, including HD audio quality. Having not only the MOS for audio quality but also the RF parameters and application layer information available from one single handheld device, QualiPoc Android provides all important information that is crucial for troubleshooting and optimization.

QualiPoc Android offers three different audio quality algorithms (POLQA, PESQ, and SQuad08) and supports multiple audio voice quality tests such as mobile to land unit and mobile to mobile in both directions UL/DL.

For video quality, SwissQual is supporting the hybrid non-reference objective perceptual video quality measurement algorithm J.343.1. It is designed for multimedia IP-based video services when encrypted bitstream data is available, e.g. YouTube video streaming.

Enhanced Map Monitor

The enhanced Map Monitor offers comprehensive and valuable benefits to simplify indoor measurements. It combines outdoor and indoor navigation on one monitor. QualiPoc’s Map Monitor offers, for example, the integration of geo-referenced floor plans, which reduces the complexity of combined outdoor and indoor measurements in locations such as shopping malls, airports, or similar.

In addition, it supports the import and export of iBwave files with multi-floor plan navigation as well as the loading of predefined GPX tracks to navigate an operator to a specific location. This exclusive QualiPoc feature helps to reduce errors and improve operational efficiency for indoor and outdoor measurements.
QUALIPOC ANDROID

Always at hand when you need it
KEY PRODUCT FEATURES

Reflecting the real end-user perception

Ever since its launch, SwissQual’s QualiPoc application has been supported on a wide range of Android smartphones and tablets, including the latest Samsung Galaxy product families, HTC, LG, and Sony Xperia products. New Android smartphone models are continuously integrated into the QualiPoc platform which enables SwissQual customers to assess a mobile network’s performance and competitive situation – always based on the latest end-user devices, it guarantees a true representation of customer perception of services.

Comprehensive feature set on a handheld

Extensive set of service tests
QualiPoc Android provides an extensive set of service tests. These include call tests, voice quality (including POLQA, PESQ, and SQuad08) as well as data tests, video streaming, and video quality. QualiPoc covers all test functions and latest technologies to assess quality of service for voice, data, video, and messaging such as:
– GSM, GPRS, EDGE, WCDMA, HSDPA, HSUPA, HSDPA DC, LTE-FDD & TD-LTE, CDMA2000®, EVDO Rev.0/A,
– full recording and decoding of protocol layers on the supported technologies: 3GPP, L2, L3, TCP/IP, IMS, SIP. Rev.0/A,
– direct decoding of L3 text messages and TCP/IP, RTP packets on smartphones.

Advanced RF optimization feature
QualiPoc offers advanced channel and cell locking, a crucial RF optimization feature to control the quality and coverage of wireless networks. This enables mobile operators and testing service providers to implement fast and cost-efficient on-site inspections; and it allows them to test and verify the antenna range by conducting active service and performance tests, including speech quality measurement for each cell sector at an antenna site.

OTA application update
With an over-the-air update function, users can conveniently keep their QualiPoc applications up-to-date.

SwissQual – Experts in Mobile Network Testing
It is the attention to detail, the unique expertise, and the innovative mindset that distinguish SwissQual’s quality products. SwissQual, together with Rohde & Schwarz, is the preferred supplier of specialist equipment for global top-tier mobile operators, infrastructure vendors, testing service providers, regulators and authorities as well as multiple innovators in different industries.

Expertise
SwissQual employs specialists for applied research for voice and video quality assessment and for fundamental QoE/QoS testing methods. Our specialists are active members in international standardization bodies, such as ITU, ETSI, and VQEG, and help to define industry standards for HD voice and video quality testing.

Swiss Engineering
SwissQual products are known for their future-proof and ruggedized design, their ease-of-use and versatility, and for their system stability and accuracy. This results in more efficient operation and ensures a maximum level of Qos/QoE data quality and conformity at lower total cost of ownership.
As easy to use as a smartphone

SwissQual’s powerful handheld troubleshooter QualiPoc is well-known and highly appreciated for its ease-of-use and multi-functionality. The intuitive and customizable user interface is based on the latest features of today’s smartphone technology with a user-friendly, multi-touch screen operation. All major functions, such as system configuration and test creation and execution, are no more than three finger tips away.

Multiple default technology and KPI monitors can be selected from a library; or a personal monitor can easily be customized based on a selection of more than 300 parameters from layer 3, device information, and test KPIs. In addition, a special import/export feature allows to directly exchange test configuration files between different QualiPoc devices.

KEY BENEFITS

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

– operational efficiency of field engineers thanks to a compact, easy-to-use, and multi-functional pocket tool for ad-hoc measurements, trouble-shooting, testing, and verification. QualiPoc can also be used as a conventional smartphone.
– up-to-date QoS/QoE testing features, including voice, data, video, and messaging and full compliance with latest industry standard KPIs.
Software specifications

Technologies
Extensive technology test support including: GSM, GPRS, EDGE, WCDMA, HSDPA, HSUPA, HSPA+, CDMA, EVDO, LTE, LTE-A (Cat8)

Devices
Support of a wide range of the latest Android smartphones, including Samsung Galaxy S5, S4; LG G3, G2; Sony Xperia Z2, Z1, and tablets incl. Samsung Note 10.1 LTE

System Architecture
QualiPoc software application running on Android OS devices, tracing and displaying information in real-time. Recording all data to files for later post processing analysis.

Protocol Layers
Full logging and decoding of multiple protocol layers on all technologies: 3GPP, L2, L3, TCP/IP, IMS, SIP. Rev.0/A. and text decoding of L3 messages, TCP/IP and RTP packets.

User Interface
Intuitive and fully touch screen adapted user interface with predefined workspaces and monitors, automatically adapting to the used technology with choice between light and dark theme. Map navigation monitor available based on Google Maps, OpenStreetMap or other tile provider with optional BTS position display. Easy in-building positioning using dynamic indoor floor plan pictures or iBwave design multi-floor .dwg project files.

Optimization Testing
Easy configuration of standard voice and data testing tasks. Static forcing of technology as well as channel and cell locking, BTS list with cell name identification. Customizable notification for L3 messages and L1 values.

Service Testing Options
Benchmarking or service testing with wide range of services:
- Voice telephony: call to any number, speech MOS
- Data: Ping, FTP DL/UL, HTTP DL/UL, PING, Capacity DL, Iperf UDP/TCP
- Browsing: HTTP
- Messaging: SMS, MMS, e-mail (SMTP, POP3, IMAP)
- Video streaming (YouTube)

Key technology features

Speech Quality (MOS)
Speech quality testing to Diversity or 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)
- SwissQual 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 the J.343.1 algorithm.

Positioning
For exact positioning, QualiPoc supports internal GPS or an external Bluetooth GPS for outdoor campaigns and indoor mapping (incl. iBwave) for indoor testing.

OTA Application Update
Application update over the air, QualiPoc Android keeps you easily up to date.

KPI Analysis
More than 250 key performance indicators (incl. ETSI) available in real-time as well as in post processing.

Post Processing Platform
NetQual 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.

Post Processing Compatibility
Compatibility with major third party post processing vendors. CSV file export option to write iBwave result files.

Network Displays for RF Optimization
Predefined and configurable monitors and charts.
- Cell information
- BTS name display

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TECHNICAL SPECIFICATIONS

GSM/GPRS/EDGE
Predefined GSM monitors and charts
- SC cell Id and band, dedicated channel information, SC C1/C2
- Channel type, hopping channel information, and more
Predefined GPRS and EDGE monitors
- GMM and SM state, IP address, APN
- Mode, modulation UL/DL, coding scheme UL/DL, and more.

WCDMA/HSDPA/HSUPA
Predefined WCDMA monitors and charts
- MCC-MNC-LAC-CI, channel information, DL frequency channel number, RRC state, channel measurements, and more.
Predefined HSUPA monitors
- UE category, dual carrier operation, CQI, HS SCCH decoding with QPSK, and 16QAM rates, and more.
Predefined HSUPA monitors
- E-DCH channel configuration, RLS Set presentation, E-DPDCCH Happy Rate, DTX rate, and more.

CDMA/EVDO
Predefined CDMA2000 1x, EV-DO Rev0, and EV-DO RevA monitors and charts
- Active, candidate and neighbor set, CDMA2000 and EV-DO power control, CDMA cell and air link parameters, and more.

LTE/LTE-A
Predefined LTE monitors and charts
- Serving and neighbor cells presentation
- Serving cell EARFCN, PhyCellId, bandwidth and Nr Tx antennas
- EMM PLMN Id, EMM registration state
- RSSI, RSRP, and RSRQ
- Cell parameters such as QRxlevMin, Pmax, MaxTxPower, SRxLev, and more.

VoLTE
Predefined VoLTE monitors and charts
- RTP Jitter, IPPV, PDV, JBBQ length, SSRC, etc.

WiFi
Predefined WiFi monitor
- SSID, BSSID, RSSI, IP address, frequency, link speed, connection status, and capabilities.

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