



Solution for User Experience Measurement

QoS Suite™ is an automated Solution that performs Quality of Service (QoS) Measurements from an End-User perspective on Mobile Networks (2G, 3G, 4G, 5G and Wifi). Innovation, reliability, traceability and operational efficiency are the main qualities of this Solution.



Use Cases

- ✦ Benchmarking of Operators Networks, on behalf of the National Telecoms Regulators, Operators Networks, Virtual Operators (MVNOs), Major Accounts like Transportation , Retail and Infrastructure.
- ✦ Evaluation of Operator Services: Voice accessibility, Voice Quality Evaluation, SMS/MMS, Data Download/Upload, WEB Navigation, Video Streaming and Social Networks.
- ✦ Deployment of new Operators Services such as 4G+/5G, Voice over LTE (VoLTE), Voice over Wifi...
- ✦ 4ème use case: Mobile Network Territory Coverage for Local Authorities, thanks to simple process of measurement (Remote Control and Alerts Management).

Available Measurements

- ✦ **Voice:** Call Coverage, Accessibility and Quality Assessment thanks to Polqa™ Algorithm integration.
- ✦ **SMS:** on co-localized or remote Smartphones.
- ✦ **MMS:** on co-localized or remote Smartphones, with configurable attachment.
- ✦ **Data:** Latency (Ping), file and data transfer (Upload and Download) on http, https and ftp protocols. Mono and Multi-threads Download measures (5G).
- ✦ **Web Navigation:** on unitary Web site, or a sites selection, loading time measurement with data volume transferred and screenshot attachment.
- ✦ **Video:** Video Streaming Quality measurement on popular Platforms (Youtube...), with fixed video resolution or Adaptive Bitrate Streaming modes.

Mobiles and Measures can be synchronized based on a reference time, this means that a measure is executed on the same time among different Smartphones and Operators.



Mobile Application

The mobile application is running on commercial Smartphones (iOS and Android). Technical Smartphones are also used for Network Operators Infrastructure tests.

This application used by operators on-the-field is able to:

- ↳ Load automatically at startup a defined campaign (script and measurements parameters). Run can be done in Robot mode (24/7).
- ↳ Launch and follow-up the script execution, at the end a Mobile measurement report is automatically synchronized with the Backend. If network connectivity is not sufficient, reports are kept in the Mobile and synchronized later when better connectivity come back.
- ↳ Record measurement attachments used for the control:
 - Screenshots and video
 - Audio
 - Place Pictures.

Synchronization with the Backend is done in Real Time, out of the Measurement periods.

2ème point: Remote Control Tablet can pilot up to six Android or iOS Smartphones and centralize Measurement Alerts management.

Backend & User Interface Portal

The User Interface Portal, dedicated to each Client is able to:

- ↳ Define the measurement campaigns : the Equipement list (Smartphones, SIM cards, Vocal Equipments and Throughput servers), the script and the measures parameters.
- ↳ Manage the campaigns lifecycle : creation, activation, suspension and termination.
- ↳ Supervise the campaigns results in Real-Time: from synthetic view using Key Performance Indicators (KPI) linked to each type of measures, to detailed measures geolocalized.
- ↳ Control the measurements: based on records (Audio, Video, Screenshots and place Pictures).
- ↳ Download the Client Measurements reports (Excel and CSV formats). Periodic Report Automation can be integrated to Client IT.

Measurement report

A report contains for each measure :

- ↳ Mobile identifiers, Device information (Brand, Model, Software versions).
- ↳ Usage and Location identifiers.
- ↳ Battery level information.
- ↳ GPS coordinates.
- ↳ External IP (IP v4 and v6) for Data measurements.
- ↳ Measure (time, throughput, quality rate, assessment. . .), NR and Wifi.
- ↳ Network and Radio Samples Information depending on technologies (GSM, 3G, LTE) : Network Operator (MCC/MNC), Radio Signal Frequencies, BTS identifiers (LAC, CID), Mobile Reception Signal Quality indicators (RSSI, RSCP, RSRP, RSRQ...) and Other indicators (isNrConnexed isVoLTE. . .).