Solution for QoS Measurement in User Experience

QoS Suite™ is an automated solution that performs Quality of Service (QoS) measurements from the end-user perspective on mobile networks (2G, 3G, 4G, 5G, and WiFi). Innovation, reliability, traceability, and operational efficiency are the key strengths of this solution.

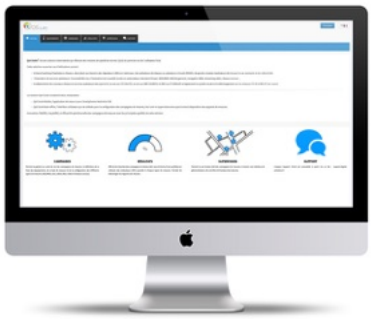
Use Cases

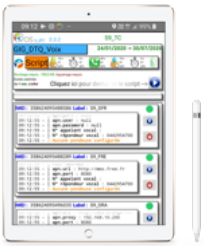
- **Network supervision and validation of new infrastructure and service deployments**: For network operators. 24/7 measurement robots are used.
- **Evaluation and comparison of operator services**: For measurement professionals and the regulatory authority (ARCEP).
- **Assessment of territorial network coverage:** For local authorities. 24/7 measurement robots and QoS Suite Case kits are used.

Available Measurements

- **Throughput, Web, and YouTube Video (*)**
- **Latency** with ICMP, TCP Sync(*), and TWAMP(*) UDP protocols
- **Voice (*):** Call accessibility and retention. Voice quality based on Auto Polqa MOS (requires a mobile with an audio jack connector and Voice Companion equipment).
- **Messaging (*):** SMS and MMS
- **Options:**
  - **Robot Mode:** Continuous 24/7 measurements without user intervention (increases measurement volume).
  - **Remote contro**l of 2 to 6 Android and iOS mobile devices from a Bluetooth remote (mobile or Android tablet).
  - **Network captures (*)** on commercial mobile devices (in pcap format).
  - **Multi-SIM and Multi-WiFi Mode (*)**: On Android devices, allows scripting the selection of different SIM cards (up to 2), e-SIMs (up to 5), and WiFi networks (up to 5 SSIDs).
  - Ability to script different network configurations on the mobile device (*): APN, network mode, airplane mode, etc.
  - **Automatic report generation** based on client alert delay requirements: daily, hourly, or every 5 minutes (minimum).
  - **Remote control** of measurement devices in Robot Mode.

Product overview





Mobile Application

The mobile application runs on commercial **iOS and Android smartphones**. Technical mobile devices are also used.
This application can:

- Automatically load a predefined campaign (script and measurement parameters) at startup. Execution can be performed **in Robot Mode (24/7)**.
- Remote control tablet that pilot up to six Android or iOS mobile devices
- Launch and monitor script execution. At the end, a measurement report is automatically synchronized with the **Web Portal**. If network connectivity is insufficient, reports are stored on the mobile device and synchronized later.
- Record measurement control attachments: audio, network captures pcap format (*), screenshots, and photos of locations.

Synchronization with the **Portal** is performed in real-time, outside of measurement periods.

Web Portal Application

The **Web Portal** is the user interface dedicated to each client. It allows:

- **Defining measurement campaigns:** List of equipment (mobile devices, SIM cards, voice equipment, and throughput servers), scripts, and measurement parameters.
- **Managing the lifecycle of campaigns:** Creation, activation, suspension, and closure.
- **Supervising campaign results in real-time:** Based on key performance indicators (KPIs) associated with each type of measurement.
- **Controlling measurements:** Based on control attachments.
- **Generating measurement reports on demand** (Excel and CSV formats) and periodically (daily, hourly, or every 5 minutes period at minimum)

QoS Suite Case

The QoS Suite Case **ensures the mobility**, **battery recharging**, **and mobile cooling** of 1 to 4 mobile devices. An energy-saving mode **optimizes the device's autonomy** by suspending measurements and cooling during prolonged static positions.

Measurement Report

A report contains for each measurement:

- **Mobile identifiers**, device information (brand, model, software versions).
- **Usage and location identifiers.**
- **Battery charge level.**
- **GPS coordinates.**
- **External IP address** (IPv4 and IPv6).
- **Measurement indicators** (delays, volumes, throughput, etc.).
- **Network and radio sample information** according to network technologies (GSM, 3G, LTE, NR, and WiFi): Network operator (MCC/MNC), radio signal frequencies, base station identifiers (LAC, CID), mobile reception quality indicators (RSSI, RSCP, RSRP, RSRQ), etc.