



Q o s m o t e c

software solutions gmbh

Lab Test System



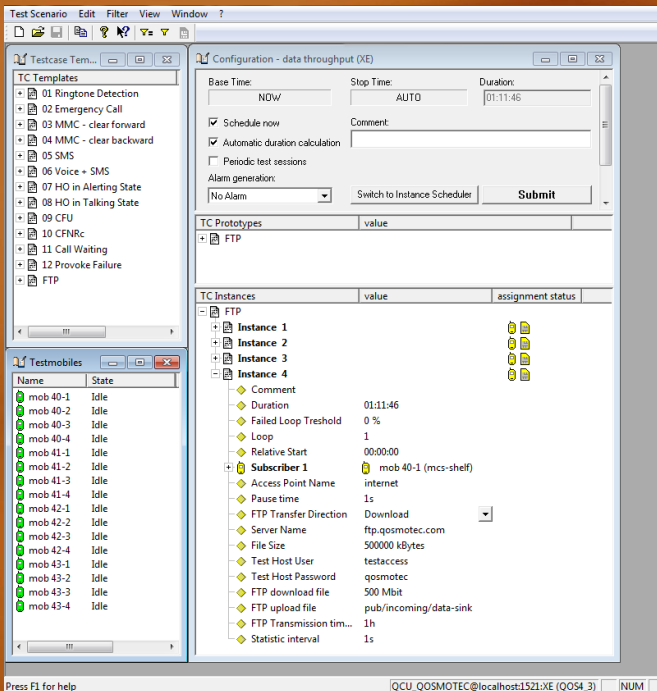
*Brings the Field
into the Lab*

GSM EDGE UMTS HSPA LTE WiFi

<http://www.qosmotec.com>



LTS integrates multiple lab test devices under a common test management system



Easy to use drag & drop graphical user interface

Characteristics

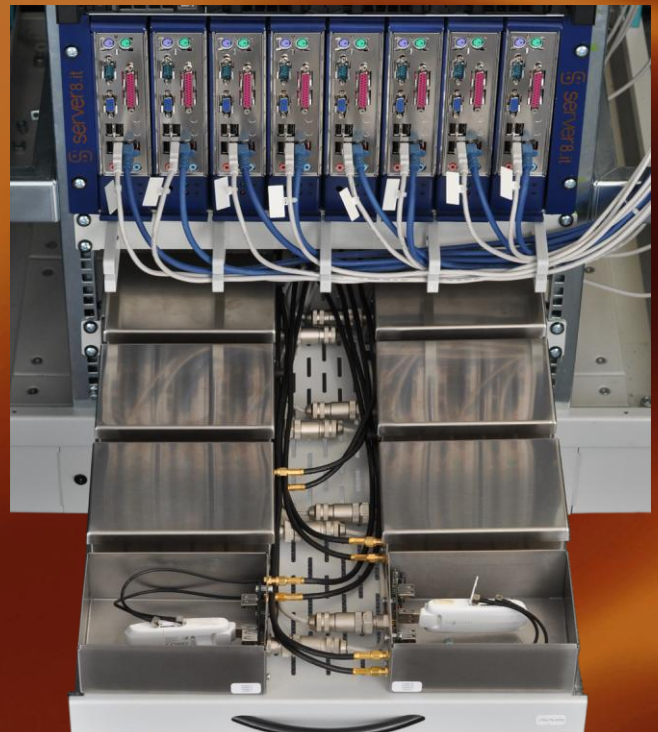
- ▶ **Intuitive graphical user interface**
For creating, scheduling & monitoring test suites.
- ▶ **Multi-user operation**
Concurrent multi-user access & parallel testing with resource conflict prevention & access management.
- ▶ **Predefined, configurable test scripts**
Providing user-definable parameters.
- ▶ **Graphical Test Script Editor**
Create new test scripts from more than 250 basic steps.
- ▶ **Database-oriented**
All test suites & results archived in LTS database; CSV export and report generation provided.
- ▶ **Unlimited scalability by distributed processing**
Available from laptop-based solution with 1-2 mobiles to rack-mounted installation with several hundred mobiles.
- ▶ **Open platform concept**
Straightforward integration of new mobile types & testers.

One Platform, Many Applications

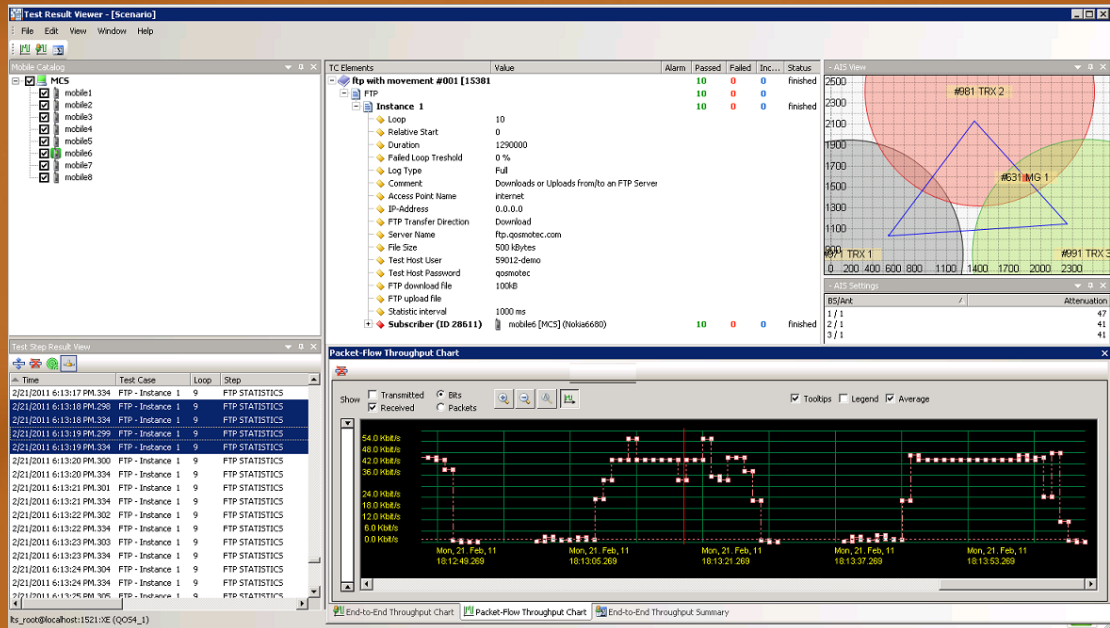
- ▶ **Load and stability test**
LTS can stress mobile networks on cell level via massive parallel access of voice and data services by actual UEs.
- ▶ **Feature & regression test**
By executing programmed test scripts, LTS can perform complex test cases involving multiple test resources; pass / fail verdicts and alarms are automatically generated.
- ▶ **KPI assessment**
LTS can be used to assess quality of service levels by measuring key performance indicators from call set up times and packet performance to voice quality.

Protection from Interference

To prevent terminals from being affected by external interference or causing mutual interference, terminals can each be hosted in individual *RF Guard* shielded enclosures. The enclosures provide a remarkable 50 dB of isolation throughout mobile network bands and are equipped with two antenna ports for MIMO operation, multiple internal USB 2.0 connectors providing data links to the LTS system, and a power supply that can be interrupted under LTS control.



Individual Mobile Screening with *RF Guard* Shielding Boxes



View of test results

Test Features

LTS can be used to access a variety of services:

- ▶ **Support of all Radio Access Technologies**
LTE, HSPA, UMTS, EGDE, GSM-R, GSM / GPRS
- ▶ **CS call tests**
Voice, Video, Supplementary Services, CS data call
- ▶ **VoIP tests**
Mobile originated, mobile terminated.
Full duplex, half duplex and simplex transmission
- ▶ **Voice quality evaluation with PESQ**
Measurement of MOS, SNR, latency and more
Arbitrary speech files and Text-to-speech support
GSM-AMR, GSM-06.10, G.711 μ -law & A-law
G.723.1, G.729 / G.729A / G.729B / G.729A/B, iLBC
- ▶ **PS data tests**
Various protocols (ICMP, FTP, HTTP etc.)
LTE speeds up to 100 Mbps DL / 50 Mbps UL
Measurement of payload & channel throughput
Packet transmission performance
(retransmissions, duplicates, losses, round trip time)
- ▶ **Integrated Wireshark Interface**
TCP dump to Wireshark for detailed traffic flow analysis
- ▶ **Tracing of air interface layers 1/2/3**
For GSM(-R) / GPRS / EDGE / UMTS
- ▶ **Call Data Record Generation**
Timing of call establishment / alerting / release
- ▶ **GSM-R & ASCII test scripts**
Voice Group Call, Voice Broadcast Call, eMLPP

The LTS Testing Tool Kit

- ▶ **Qosmotec Mobile Control Servers**
19" mounted blade chassis with multiple CPUs to drive cell phones & data sticks.
- ▶ **Qosmotec Channel Emulators**
Provides synchronous mobility simulation during service access.
- ▶ **SIM Servers**
Fast swapping of used SIM card between tests.
- ▶ **SIP & PSTN Servers**
Provides for VoIP and analogue connections.
- ▶ **IP test host**
Provides for end-to-end monitoring of data services.
- ▶ **Network OSS Interfaces**
Manipulate or verify subscriber properties, network parameters etc. directly in the network switches.

Contact Information

Postal address:

Qosmotec Software Solutions GmbH
Schloss-Rahe-Straße 3
52072 Aachen
Germany

Phone +49 241 8797 510

Fax +49 241 8797 515

E-mail info@qosmotec.com

Internet <http://www.qosmotec.com>