

Q o s m o t e c

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Lab Test System



Brings the Field into the Lab

GSM EDGE UMTS HSPA LTE WIFI





Description

Do you employ a large team of testers to manually test services or handsets?

Testing consumes about 40% of the software development life cycle, and 80% of all tests are regression tests that need to be re-tested with every new release. Hence, automation of regression tests can achieve significant reductions of development costs and shorten time to market.

The purpose of LTS is to fully automate your lab tests, driving commercial or test terminals as well as supplementary test equipment, such as Qosmotec AIS, protocol analysers or signalling generators, and even the network switches, in a synchronous test campaign. Test suites are stored in a database and can be replayed at any time. By controlling hundreds of terminals, LTS can also be used as end-to-end load generator.

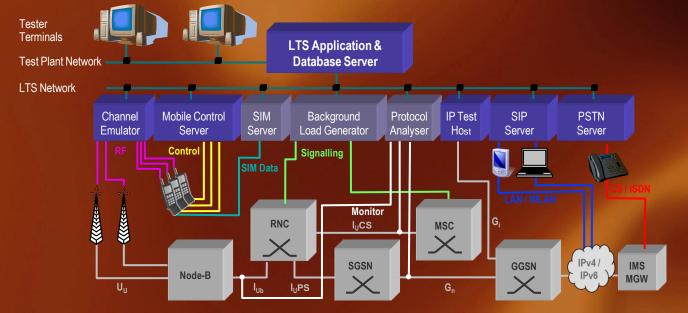
LTS performs the job of a whole team of testers upon a keypress.

LTS Integrates Automated Testing on all Network Interfaces

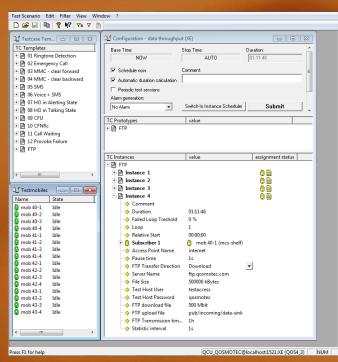
- Automate load, stability and regression tests
 LTS integrates various means of testing under a common management,
 e.g. feature test, handover test, protocol analysis, KPI measurement, etc.
- ▶ Use your competence in a more efficient way Shift routine testing to a machine so your engineers can focus on debugging and testing of new features.
- ▶ Improve the quality of your test process
 Replicating archived test suites on a keypress means you can test
 every patch with exact reproducibility and free of human errors.
- ➤ Reduce Time to Market
 Fast, parallel, unattended 24/7 test execution.



LTS Rack with LTE terminals & integrated channel emulation



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



Easy to use drag & drop graphical user interface

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.

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.

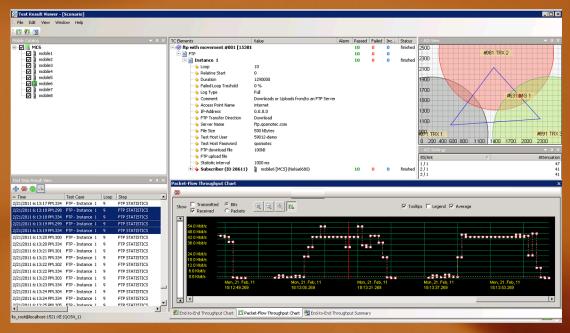


Individual Mobile Screening with RF Guard Shielding Boxes





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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 & ASCI 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.

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