

**LTE S11, S5/S8 Interfaces Simulation**



**3GPP TS 29.274 Evolved GPRS Tunneling Protocol for Control Plane (eGTP-c) Specification**



**Simulates MME, SGW, PGW**



**Generate / Respond S11/S5 eGTP-C Signaling Messages**



**Scripted Call Generation and Automated Call Reception**



**Customization of Call Flow with Message & Sequence Editors**



**Provides Fault Insertion, & Erroneous Call Flow Testing**



**Analysis and Simulation Capability on par with any Protocol Tester in the Market**



**Authenticate and Confirm Security Procedures**



**Simulate up to 500 Smartphones (UEs) Powering Up & Down**

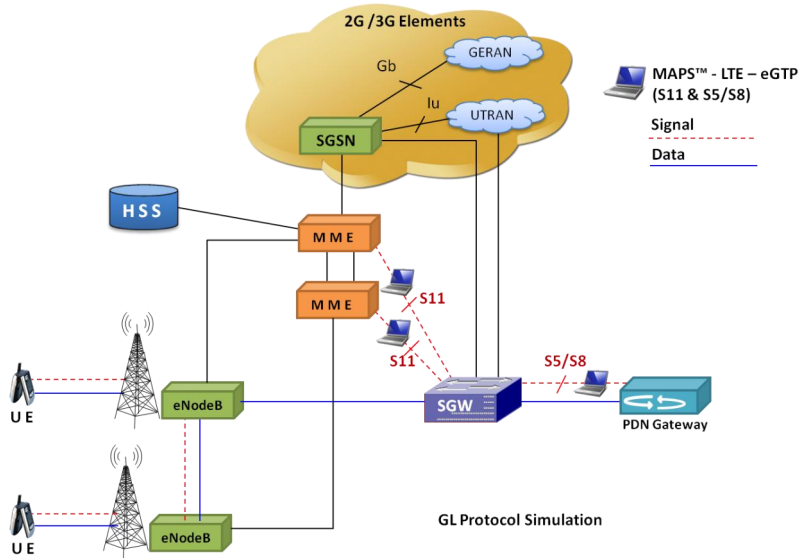


**QoS Requests for Greater or Lesser Bandwidth**



**Message Automation & Protocol Simulation (MAPS™)**

**Long Term Evolution (LTE) –(eGTP) Interfaces S3, S4, S5, S8, S10, S11 and S16**



**Overview**

GL's Message Automation & Protocol Simulation™ (MAPS™) designed for LTE S11, S5/S8 network can simulate and test MME (Mobility Management Entity), SGW (Serving Gateway), and PGW (Packet Data Network Gateway) network elements. The messages exchanged between MME and SGW (S11 Interface) is same as the messages exchanged between SGW and PDN Gateway (S5/S8 Interface).

The MAPS™ - LTE test tool is designed with specific test cases, as per LTE eGTP-C mobile standard as specified in 3GPP TS 29.274 Evolved GPRS Tunneling Protocol for Control Plane.

GL LTE eGTP software enables Network Equipment Providers of, MMEs, Serving GWs, PDN GWs,

- Accelerate time to market
- Reduce development costs
- Reduce project risk of internally-developed LTE applications

The application gives the users the unlimited ability to edit eGTP-c messages and call control scenarios (message sequences). "Message sequences" are generated through scripts. "Messages" are created using message templates.

For more information on MAPS™ - LTE eGTP, refer to <http://www.gl.com/maps-lte-egtp.html>.

**Main Features**

- Simulates MME, SGW and PDN GW.
- Supports LTE Control plane.
- Generates and responds to hundreds of UE Signaling (Load testing).
- Generates and process GTP-C valid and invalid messages.
- Handles Retransmissions.
- Supports customization of call flow and messages.
- Supports scripted call generation and automated call reception.
- Provides protocol trace with full message decoding, and graphical ladder diagrams of call flow with time stamp
- Provides call statistics and associated events status.
- Supported on Windows® XP or higher version operating systems



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### Call Generation and Call Reception

In call generation, MAPS™ is configured for the out going calls, and in call receive mode, it is configured to respond to incoming calls. Tests can be configured to run once, multiple iterations or continuously. Scripts can be set to run sequentially according to a call scenario or randomly.

The test scripts may be started manually or they can be automatically triggered by incoming messages. In receive mode, MAPS™ can be automated to respond to messages using script configuration dialog, where a receive script is preset against particular message expected to arrive.

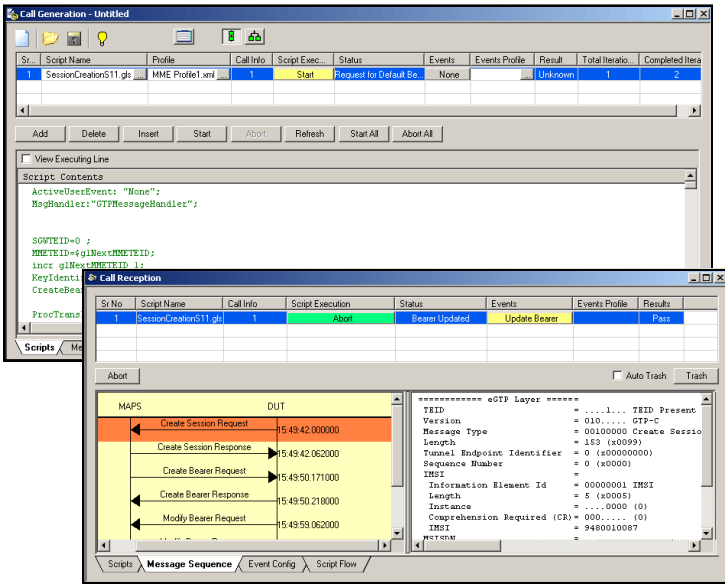


Figure: Call Generation & Reception

### MAPS™ - LTE eGTP Signaling Flow

#### Scenario 1: MAPS™ -LTE eGTP acting as eNodeB and testing DUT (SGW)

MAPS™ - LTE eGTP is considered as Caller (Mobility Management Entity - MME) and initiates the call flow by sending CreateSessionRequest to the DUT (Serving GateWay - SGW).

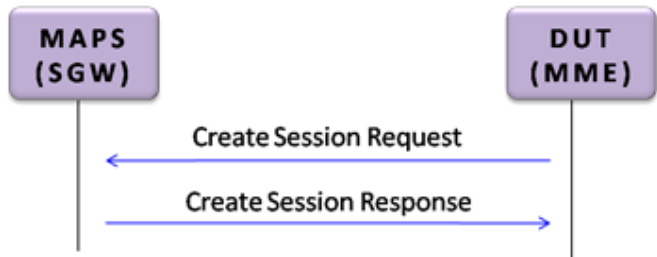


#### Sample Place Call Script

send "CreateSessionRequest" "CreateSessionRequestImport";  
decode "CreateSessionResponseExport";

#### Scenario 2: MAPS™- LTE eGTP resides at the network (SGW) testing DUT (MME)

MAPS™ - LTE eGTP is considered as the DUT (SGW) processing the received request and replying with CreateSessionResponse message to the caller (MME).



#### Sample Answer Call Script

decode "CreateSessionRequestS11Export";  
send "CreateSessionResponseS11"  
CreateSessionResponseS11Import";

### Incoming Call Handler Configuration

This option to preset the script required to handle all possible signaling and call processing messages for responding to the call requests during call reception.

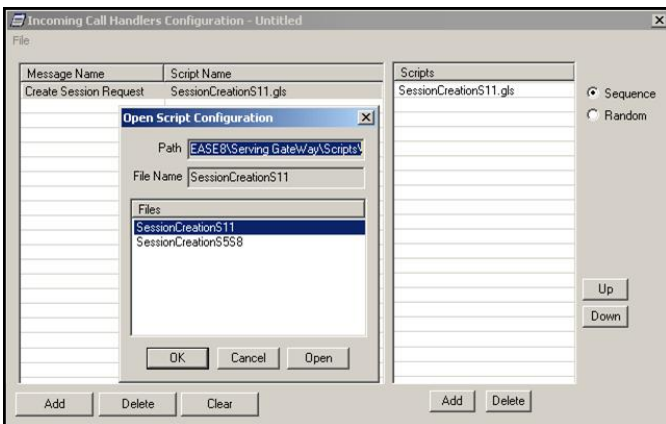


Figure: Incoming Call Handler



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## Supported Protocols and Specifications

Supported Protocols	Standard / Specification Used
Evolved GTP (eGTP) for EPS	3GPP TS 29.274 V8.0.0 (2008-12)
Evolved GTP (eGTP) for EPS	3GPP TS 29.274 V9.2.0 (2010-03)

### Buyer's Guide

[PKS142](#) - MAPS™ - LTE eGTP (S3, S4, S5, S8, S10, S11 and S16) Interfaces

### Related Software

[PKS140](#) - MAPS™ - LTE S1 Interface

[PKS164](#) - MAPS™ - UMTS – Iu-PS Interface Emulation

[PKS160](#) - MAPS™ - UMTS – Iu-CS and Iuh Interface Emulation

[XX165](#) - T1 or E1 UMTS Protocol Analyzer

[OLV165](#) - Offline UMTS Protocol Analyzer

[LTS206](#) - OC-3 / STM-1 UMTS Protocol Analysis

[LTS306](#) - OC-12 / STM-4 UMTS Protocol Analysis

[PKS130](#) - MAPS™ - SIGTRAN (SS7 over IP)

[XX120](#) - SS7 Analysis Software

[PKS135](#) - MAPS™ - ISDN SIGTRAN (ISDN over IP)

[XX100](#) - ISDN Analyzer Software

[PKV107](#) - LTE Protocol Analyzer

[PKS120](#) - MAPS™ - SIP

[PKS121](#) - MAPS™ - SIP Conformance Test Suite (Test Scripts)

[PKS122](#) – MAPS™ - MEGACO

[PKS123](#) – MAPS™ - MEGACO Conformance Test Suite (Test Scripts)

[PKS124](#) - MAPS™ - MGCP

[PKS125](#) - MAPS™ - MGCP Conformance Test Suite (Test Scripts)

[PKB100](#) - RTP Toolbox™

[PKS100](#) - PacketGen™

[PKV100](#) - PacketScan™ (Online and Offline)

For complete list of MAPS™ products, refer to <http://www.gl.com/maps.html> webpage.



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