MAPS™ GSM - Abis Interface Emulator

Overview

GL’s Message Automation & Protocol Simulation (MAPS™) is a powerful Protocol Test platform-supporting a wide range protocols such as GSM over A interface, A-bis interface, SS7, ISDN, MGCP, SIP, MEGACO, and SIGTRAN.

GL’s MAPS™ GSM-Abis Interface Emulator is an advanced protocol simulator/tester for GSM simulation over Abis Interface that can simulate BTSM messages and signaling specification as defined by 3GPP standards. The tester supports testing network elements BTS and BSC, error tracking, regression testing, conformance testing, load testing/call generation and generation of high volumes of GSM traffic. It can run pre-defined test scenarios against GSM Abis interface test objects in a controlled & deterministic manner.

GSM Abis Interface Emulator supports powerful utilities like Message Editor, Script Editor and Profile Editor which allow new scenarios to be created or existing scenarios to be modified using BTSM messages and parameters.

GL also provides an independent GUI based GSM protocol analyzer for online capture and decode of the signaling in real-time both during tests and as a stand-alone tracer for live systems.

For more details, refer to https://www.gl.com/maps-gsmabis.html.

Main Features

- GSM Abis Interface simulation over TDM (E1/T1).
- GSM Abis Interface Emulator can be configured to act as either BSC or BTS.
- Supports transmission and detection of TRAU traffic - digits, voice file, single/dual tones.
- Multiple E1/T1 line interfaces supported.
- User-friendly GUI for configuring the LAPD Layer.
- Supports Dedicated Channel Management (DCM), Radio Link Management (RLM), and Common Channel Management (CCM) message groups.
- Configure AGCH, ACCH, SDCCH, BCCH and other logical channels.
- Supports all Call Control, Mobility Management, and Radio Resource messages and procedures.
- Access to all BTSM Message Parameters like TMSI, IMSI, Request Reference, and others.
- User controlled access to optional parameters such as timers.
- Supports Authentication, TMSI Reallocation, Encryption and other optional procedures.
- Ready scripts for Mobile Originating, Mobile terminating and Location Updating procedures.
- Logging of all messages in real time.
- Automation, Remote access, and Schedulers to run tests 24/7
Testbed Setup Configuration

Test Bed configuration feature allows the users to configure the necessary BTS and BSC GSM Abis interface entities with signaling port number and timeslots in order to establish communication between the MAPS™ and the DUT. Once the LAPD layer is configured properly, BTSM messages can be transmitted and received over LAPD layer.

Pre-processing Tools

**PROFILE EDITOR**

This feature allows loading profile to edit the values of the variables using GUI, replacing the original value of the variables in the message template. An XML file defines a set of multiple profiles with varying parameter values that allow users to configure call instances in call generation and to receive calls.

**SCRIPT EDITOR**

The script editor allows the user to create/edit scripts and access protocol fields as variables for the message template parameters. The script uses pre-defined message templates to perform send and receive actions.

**MESSAGE EDITOR**

With message editor, users can build a template for each protocol message type. The value for each field may be changed in the message template prior to testing. The protocol fields comprises of mandatory fixed parameters, mandatory variable parameters, and optional variable parameters.
Call Generation and Reception

In call generation, MAPSTM is configured for the outgoing messages, while in call receive mode, it is configured to respond to incoming messages. Tests can be configured to run once, multiple iterations and continuously. Also, allows users to create multiple entries using quick configuration feature.

The editor allows to run the added scripts sequentially (in which the scripts are added in the window) or randomly (any script from the list of added script as per the call flow requirements). The test scripts may be started manually or they can be automatically triggered by incoming messages.

GSM Abis Interface Call Procedures

MAPSTM GSM Abis can be configured as Base Transceiver Station (BTS) or BSC to simulate LUC, MOC, and MTC call procedures in the GSM Abis interface.

In Channel Assignment procedure, Channel Required request message is sent from BTS end, the BSC activates the channel and replies with Immediate Assignment message to BTS.
Supported Protocol Standards

<table>
<thead>
<tr>
<th>Supported Protocols</th>
<th>Standard / Specification Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTSM</td>
<td>3GPP TS 08.58 V8.6.0</td>
</tr>
<tr>
<td>MM</td>
<td>3GPP TS 04.08 V7.17.0</td>
</tr>
<tr>
<td>CC</td>
<td>3GPP TS 04.08 V7.17.0</td>
</tr>
<tr>
<td>RR</td>
<td>3GPP TS 04.18 V8.13.0</td>
</tr>
<tr>
<td>SMS</td>
<td>3GPP TS 03.40 V7.5.0 &amp; 3GPP TS 04.11 V7.1.0 GSM 03.38 version 7.2.0 Release 1998</td>
</tr>
</tbody>
</table>

Buyer’s Guide

- XX693 – MAPS™ GSM-Abis Interface Emulator
- XX692 – MAPS™ GSM A Emulator
- XX610 – File based Record/Playback
- XX620 – Transmit/Detect digits (Place Call/ Answer Call)
- XX646 – Multi-Channel TRAU Tx/Rx Emulation and Analysis

Related Software

- XX648 – MAPS™ ISDN
- XX692 – MAPS™ GSM-A Interface Emulator
- PKS130 - MAPS™ SIGTRAN ($S7 over IP)
- PKS140 - MAPS™ LTE- S1 Interface
- PKS142 - MAPS™ LTE- eGTP (S3, S4, S5, S8, S10, S11 and S16) Interfaces
- PKS164 - MAPS™ UMTS - IuPS Interface Emulation
- PKS160 - MAPS™ UMTS - IuCS and Iuh Interface Emulation
- PKS135 - MAPS™ ISDN-SIGTRAN (ISDN over IP)
- 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)

Recommended Software

- XX120 - SS7 Analysis Software
- PKV107 - LTE Protocol Analyzer
- 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
- XX100 - ISDN Analyzer Software

Related Hardware

- HTE001 - Universal HD T1 or E1 PCI Cards
- UTE001 - USB based Dual T1 or E1 Laptop Analyzer
- PTE001 - tProbe™ T1 E1 Base Unit

For complete list of MAPS™ products, refer to https://www.gl.com/signaling-and-traffic-simulator.html webpage.