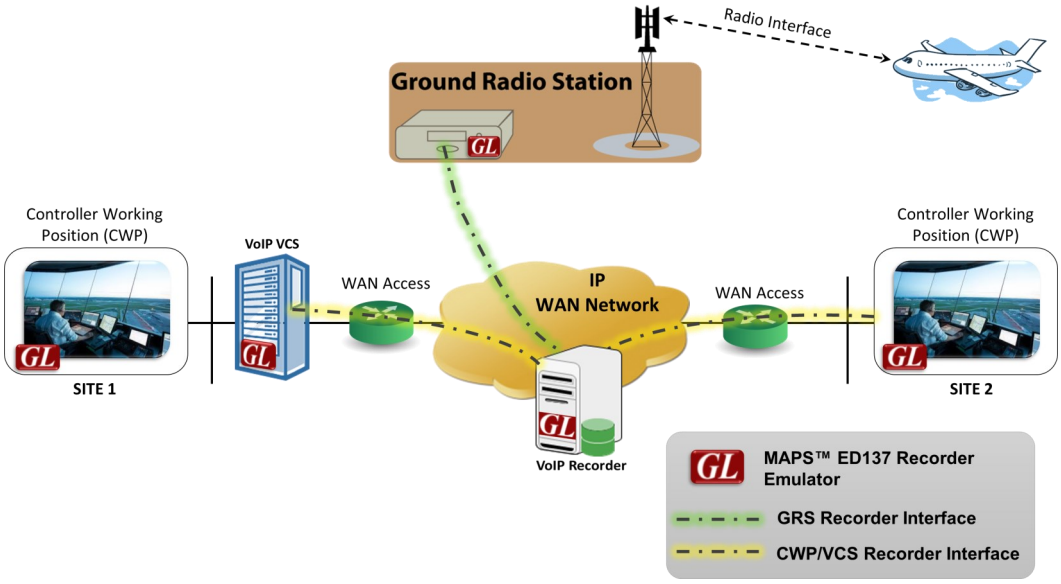
MAPS™ ED137 Recorder Emulator



Overview

GL's **MAPS™ ED137 Recorder (PKS117)** can simulate recorder interfaces for both **Air-to-Ground** and **Ground-to-Ground** calls at CWP, GRS and Recorder endpoints as per **ED-137/4B** and **ED-137/4C** versions**,** as defined under EUROCAE (European Organization for Civil Aviation Equipment) Working Group 67.

MAPS™ ED137 Recorder supports **Real Time Streaming Protocol (RTSP)** to establish, terminate and maintain media sessions to deliver media to recording servers. The software not only provides complete control over call scenarios to be tested, but also the ability to customize the network parameters for signaling and VoIP traffic. It has the capability of generating more than hundreds of recording sessions to verify performance and load testing.

For more information, please visit MAPS™ ED137 Recorder Emulator webpage.

Features

- Supports all the features as per ED137_Volume_4C_Recorder Change 1 and Change 2 recommendations
- Simulates Recorder interface on multiple CWPs, Radios and Recorder servers from single instance of MAPS™
- Supports both IPv4 and IPv6
- Supports RTP over independent UDP, independent TCP and Interleaved RTSP
- Supported codecs include G711 A-law, Mu-law and G729
- Scripts to automate PTT and Squelch operations on AG recording sessions
- Recorder node automatically records the voice on each session to audio files
- Up to 500 RTSP sessions can be generated or recorded simultaneously
- Call Record Data of each session is stored in CSV format
- Custom Properties and Operations can be included
- Supported ED-137/4B Call Scenarios
  - Air-to-Ground Call operations at CWP Node - Voting, Simultaneous Squelch, Start Squelch
  - Air-to-Ground Call operations at GRS Node - SCT with SQL ON
  - Ground-to-Ground Call operations - Call Intrusion, Call Transfer, Call Hold
- Supported ED-137/4C Call Scenarios
  - RTSP Session Keep Alive
  - Recorder Server Liveliness
  - Caller Rejected Calls
  - Air-to-Ground Call Operations - Recording 2 byte base R2S header and R2S header extensions (R2S-TLV), R2S-TLV operation
  - Ground-to-Ground Call Operations - Attended Call Transfer, Joining Conference

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MAPS™ ED137 Recorder Use Cases

CASE 1: Simulate AG call recording towards Recorder

MAPS™ ED137 Recorder can be configured as CWP or GRS to simulate AG recording sessions towards the Recorder (device under test) to test its recording interface as per ED137 volume 4.

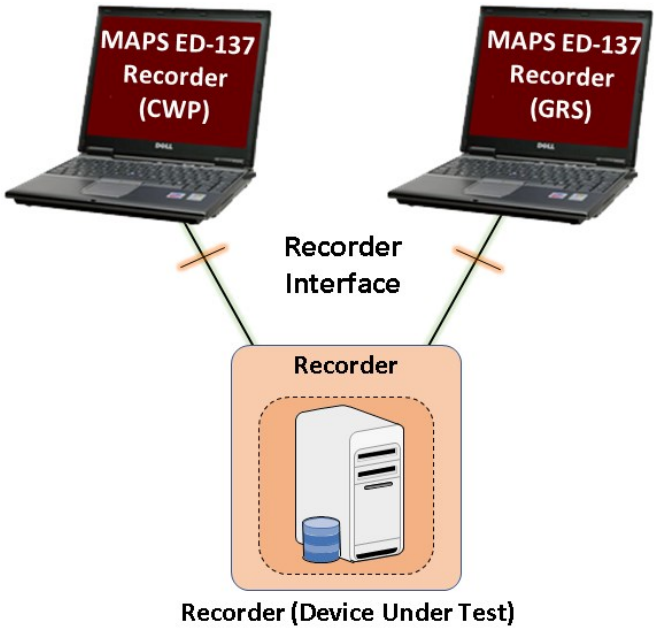


Figure: MAPS™ ED137 Recorder configured as CWP and GRS

CASE 2: Simulate GG call recording towards Recorder

MAPS™ ED137 Recorder can be configured as CWPs to simulate GG recording sessions towards the Recorder (device under test) to test its recording interface as per ED137 volume 4.

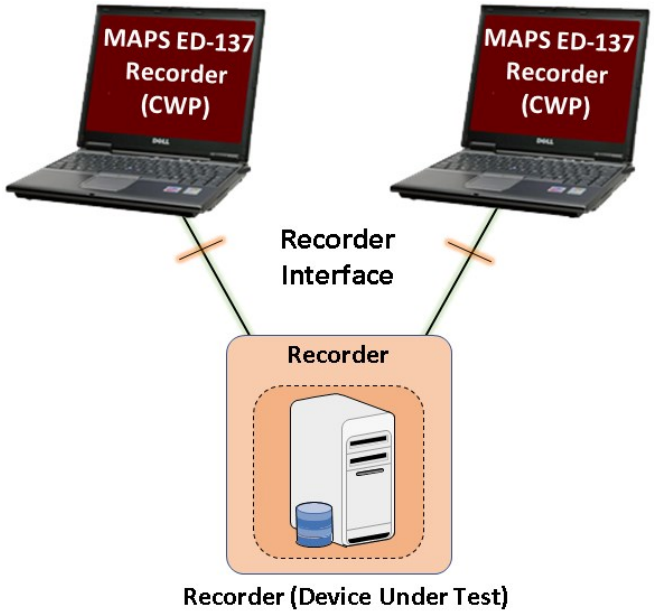


Figure: MAPS™ ED137 Recorder configured as CWPs

MAPS™ ED137 Recorder Use Cases *(Contd.)*

CASE 3: Testing Recorder interface of CWP/VCS

In this test case, CWP or VCS vendors can use MAPS™ ED137 Recorder (simulating Recorders) to test the Recorder interface of their equipment.

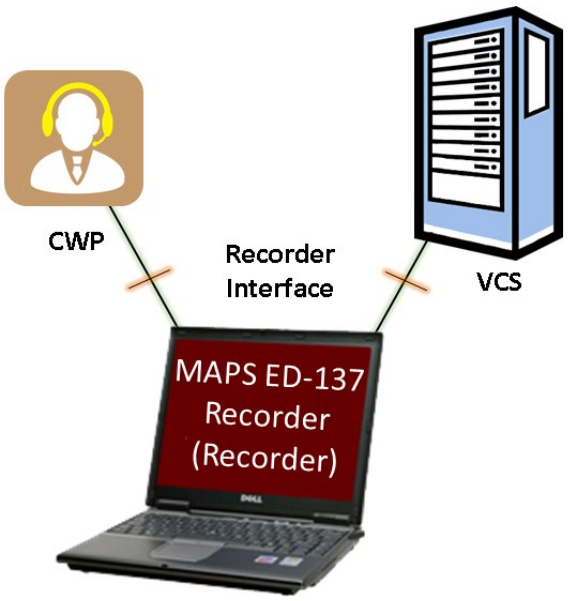


Figure: MAPS™ ED137 Recorder testing CWP/VCS interface

CASE 4: Testing Recorder interface of GRS

In this test case, MAPS™ ED137 Recorder is simulating Recorder server to receive recording sessions from GRS, thus testing Recorder interface of GRS.

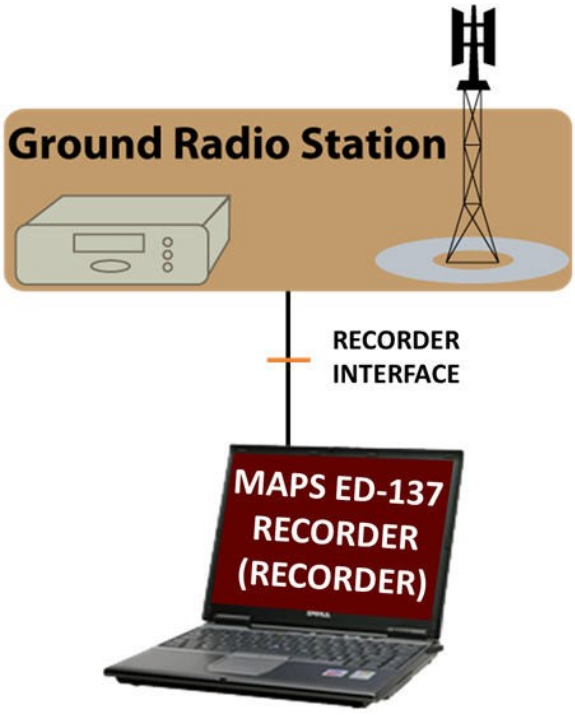


Figure: MAPS™ ED137 Recorder testing GRS interface

MAPS™ ED137B Volume 4 Recorder

CWP/GRS/Recorder Call Simulation

In call generation, MAPS™ is configured for the out going messages, while in call receive mode, it is configured to respond to incoming messages.

Scripts/sessions can be run repeatedly for defined number of iterations with results of the test. Multiple scripts can be run simultaneously or sequentially or randomly. Scheduler helps to run a set of scripts (test cases) at different intervals as defined by user.

MAPS™ supports performance and automated stress/load testing capabilities simulating hundreds of recording sessions over the Recorder interface. All the recorded files are automatically saved at Recorder terminal in GL's proprietary file format (*.glw).

- Supported ED-137/4B Call Scenarios
  - Air-to-Ground Call operations at CWP Node - Voting, Simultaneous Squelch, Start Squelch
  - Air-to-Ground Call operations at GRS Node - SCT with SQL ON
  - Ground-to-Ground Call operations - Call Intrusion, Call Transfer, Call Hold

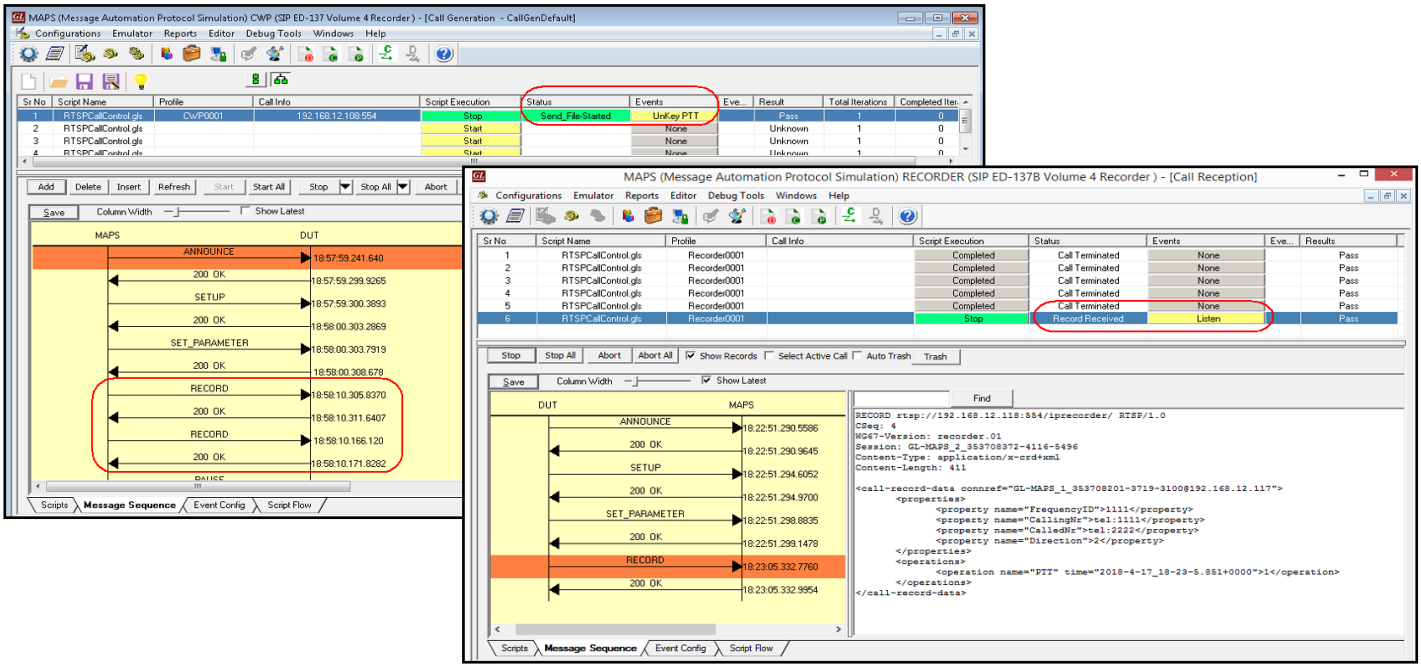
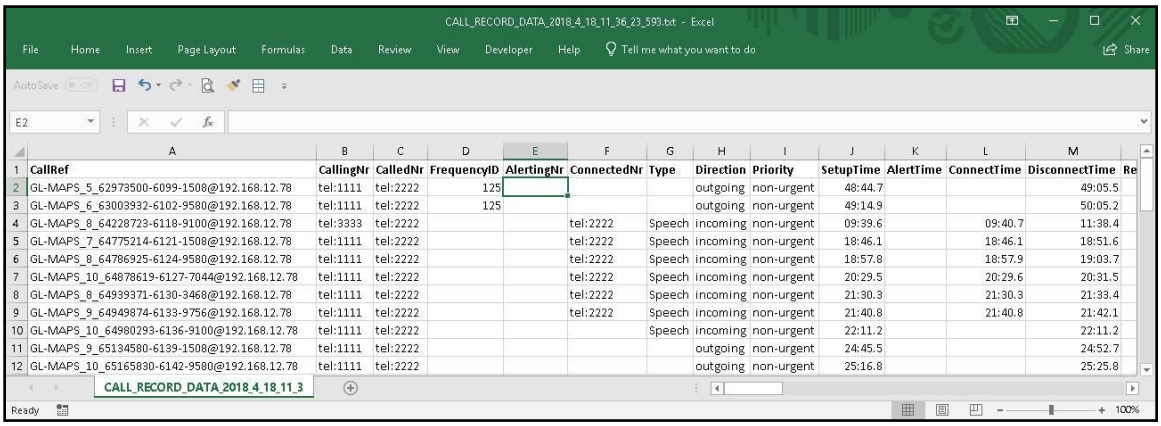


Figure: Call Generation at CWP and Reception at Recorder

The Call Record Data for AG and GG calls are saved in CSV file format. Call Record Data entry for each recorded call in the CSV file will also contain the recorded audio file. These audio files are in GL's proprietary format (GLW).



CallRef	CallingNr	CalledNr	FrequencyID	AlertingNr	ConnectedNr	Type	Direction	Priority	SetupTime	AlertTime	ConnectTime	DisconnectTime
GL-MAPS_5_62973500-6099-1508@192.168.12.78	tel:1111	tel:2222	125				outgoing	non-urgent	48:44.7			49:05.5
GL-MAPS_6_63003932-6102-9580@192.168.12.78	tel:1111	tel:2222	125				outgoing	non-urgent	49:14.9			50:05.2
GL-MAPS_8_64228723-6118-9100@192.168.12.78	tel:3333	tel:2222			tel:2222	Speech	incoming	non-urgent	09:39.6		09:40.7	11:38.4
GL-MAPS_7_64775214-6121-1508@192.168.12.78	tel:1111	tel:2222			tel:2222	Speech	incoming	non-urgent	18:46.1		18:46.1	18:51.6
GL-MAPS_8_64786925-6124-9580@192.168.12.78	tel:1111	tel:2222			tel:2222	Speech	incoming	non-urgent	18:57.8		18:57.9	19:03.7
GL-MAPS_10_64878619-6127-7044@192.168.12.78	tel:1111	tel:2222			tel:2222	Speech	incoming	non-urgent	20:29.5		20:29.6	20:31.5
GL-MAPS_8_64939371-6130-3468@192.168.12.78	tel:1111	tel:2222			tel:2222	Speech	incoming	non-urgent	21:30.3		21:30.3	21:33.4
GL-MAPS_9_64949874-6133-9756@192.168.12.78	tel:1111	tel:2222			tel:2222	Speech	incoming	non-urgent	21:40.8		21:40.8	21:42.1
GL-MAPS_10_64980293-6136-9100@192.168.12.78	tel:1111	tel:2222				Speech	incoming	non-urgent	22:11.2			22:11.2
GL-MAPS_9_65134580-6139-1508@192.168.12.78	tel:1111	tel:2222					outgoing	non-urgent	24:45.5			24:52.7
GL-MAPS_10_65165830-6142-9580@192.168.12.78	tel:1111	tel:2222					outgoing	non-urgent	25:16.8			25:25.8

Figure: CSV File

MAPS™ ED137B Volume 4 Recorder *(Contd.)*

Profile Configurations

Each profile represents a CWP/GRS/Recorder node simulating recorder interface. The parameters involved to simulate a recorder interface include RTSP session/transport parameters, codecs and Call Data Record Properties and Operations. All these parameters can be easily configured in the XML based configuration files.

Similar to signaling, traffic configuration files allow users to customize the traffic parameters. User can create hundreds of profiles and each profile will have its own set of parameters. Profiles will also provide feasibility to add custom parameters like call data record properties.

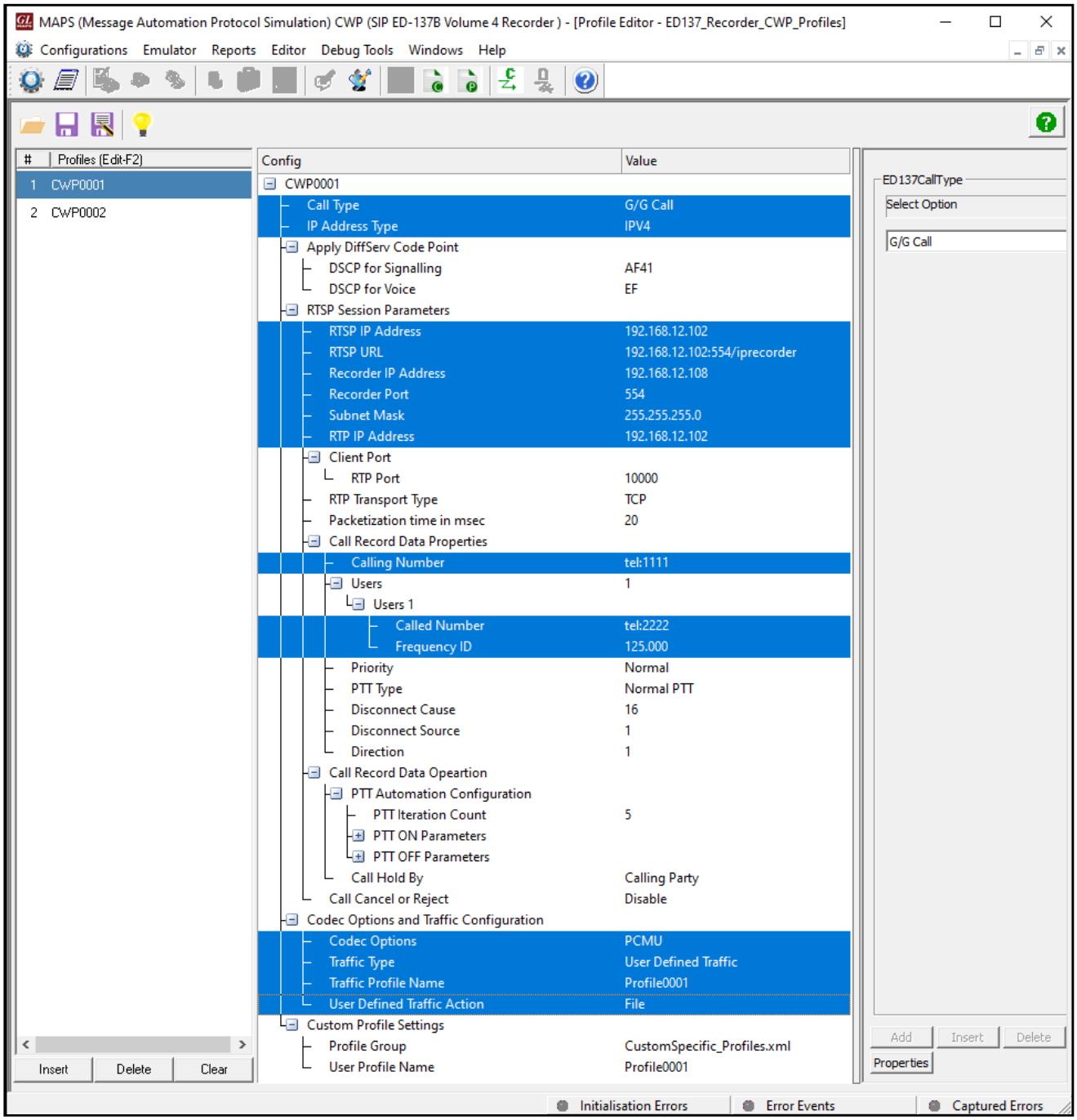


Figure: MAPS™ ED137 Recorder Call Profile (CWP)

MAPS™ ED137C Volume 4 Recorder

CWP/GRS/Recorder Call Simulation

In call generation, MAPS™ is configured for the out going messages, while in call receive mode, it is configured to respond to incoming messages.

MAPS™ supports performance and automated stress/load testing capabilities simulating hundreds of recording sessions over the Recorder interface. All the recorded files are automatically saved at Recorder terminal in GL's proprietary file format (*.glw).

- Supported ED-137/4C Call Scenarios
  - RTSP Session Keep Alive
  - Recorder Server Liveliness
  - Proprietary CRD metadata
  - WG67-Version header updated with 'recorder.02'
  - Caller Rejected Calls
  - Air-to-Ground Call Operations - Recording 2 byte base R2S header and R2S header extensions (R2S-TLV), R2S-TLV operation
  - Ground-to-Ground Call Operations - Attended Call Transfer, Joining Conference

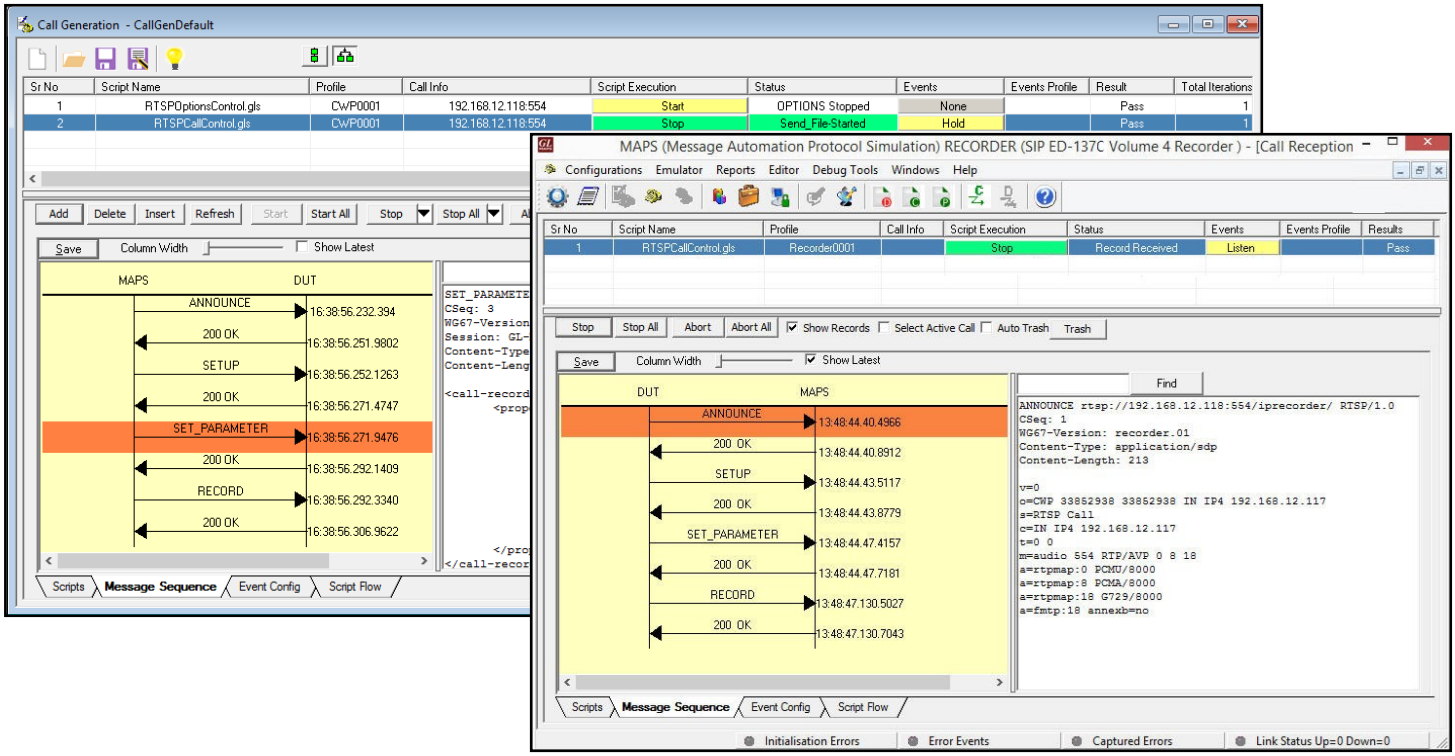


Figure: Call Generation at CWP and Reception at Recorder

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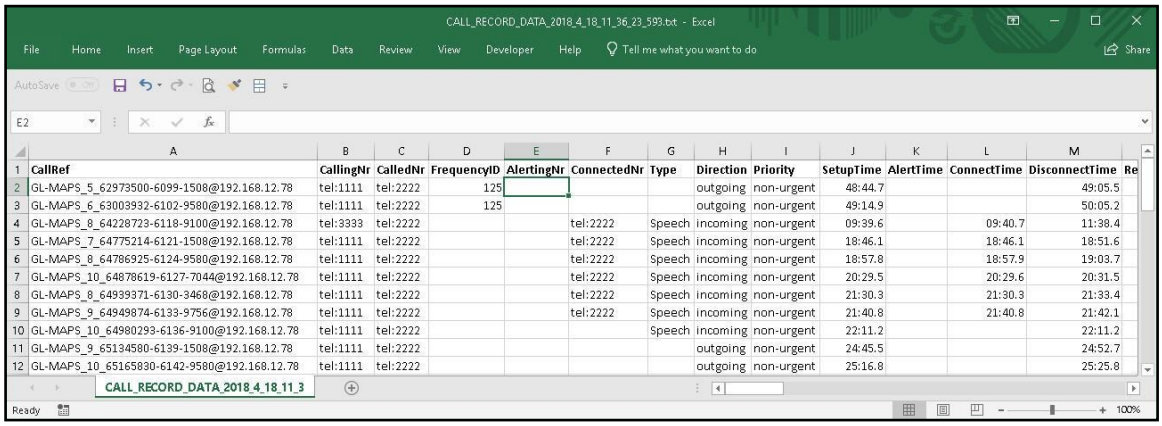

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MAPS™ ED137C Volume 4 Recorder *(Contd.)*

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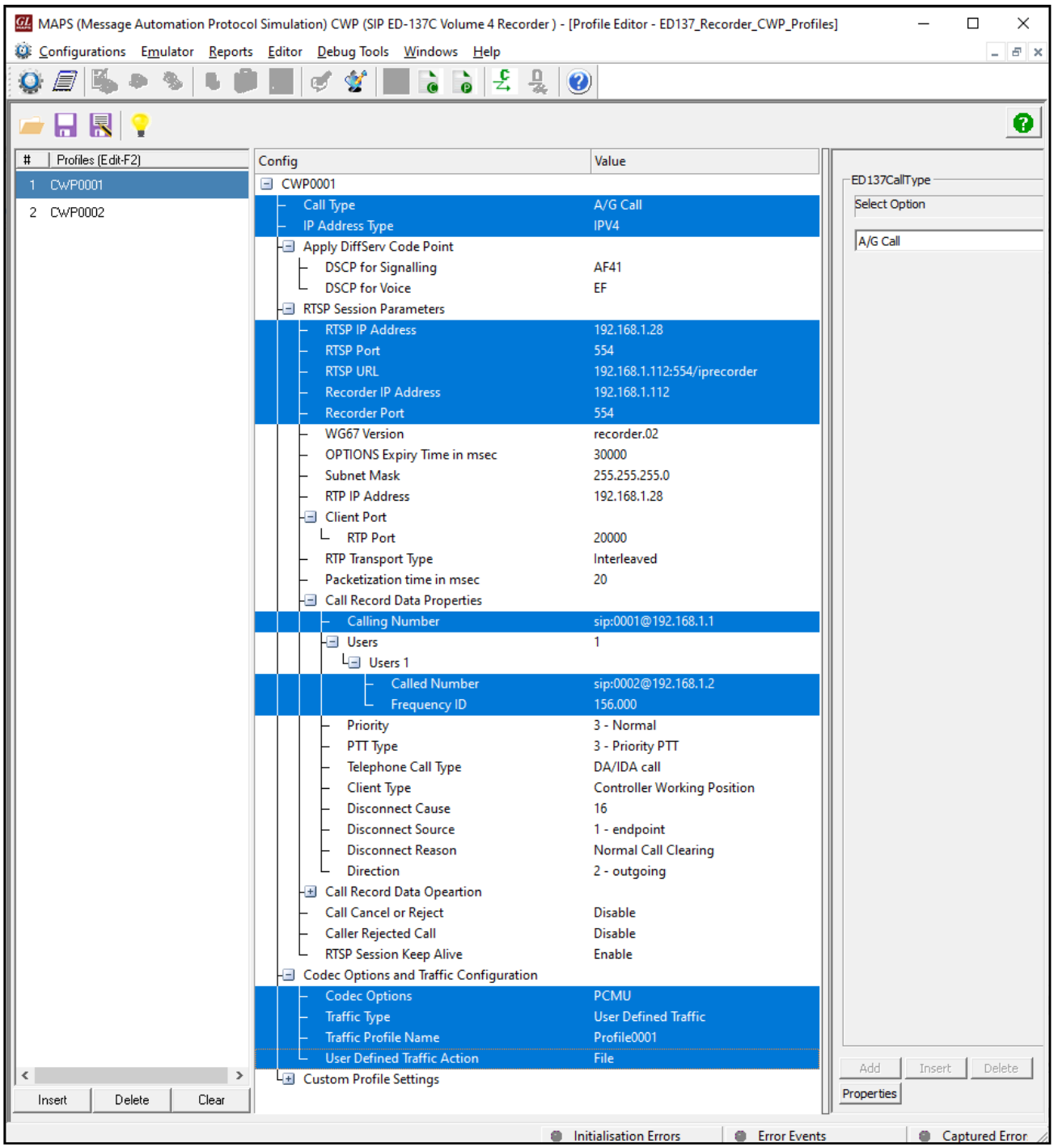

Figure: MAPS™ ED137C Recorder Call Profile (CWP)

Buyer's Guide

Item No	Product Description
PKS117	MAPS™ ED137 Recorder (includes PKS102)
PKS118	MAPS™ ED137 Radio (includes PKS107, & PKS102)
PKS119	MAPS™ ED137 Telephone (includes PKS102)

Item No	Related Software
PKS102	RTP Soft Core for RTP Traffic Generation
PKS107	RTP EUROCAE ED137
PKS120	MAPS™ SIP Emulator
PKS121	MAPS™ SIP Conformance Test Suite (Test Scripts)
PKS126	MAPS™ SIP I Emulator
PKS127	MAPS™ SIP - IMS

For more information, please visit Test solutions for VoIP Air Traffic Management webpage.

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