CAMA Simulation and Monitoring
(Centralized Automatic Message Accounting)

Overview

CAMA - Centralized Automatic Message Accounting is a special analog trunk originally developed for long-distance billing but is now mainly used for emergency call services: 911 and Enhanced 9-1-1 (E-911). CAMA trunk connects a carrier switch directly to the Selective Router (SR), a special 911 Switch that in turn connects to many PSAPs.

CAMA Signaling Simulation and Monitoring is accomplished using GL's MAPS™ CAS Emulator and MAPS™ FXO FXS Emulator hardware and software applications. Similarly, MAPS™ ISDN Emulator and MAPS™ SS7 Emulator can perform 911 messaging and analysis over ISDN/PRI and SS7. All of these are strictly over a PSTN/TDM network.

GL's MAPS™ CAS Emulator can be used to simulate CAMA trunks connected to the 911 Selective Router. CAMA type signalling trunks are used to provide the calling party's Automatic Number Identification (ANI) to the Selective Router. The Selective Router then routes the call to the appropriate Public Safety Answering Point (PSAP) based on the calling party’s location.

GL’s MAPS™ FXO FXS application with T1 Analyzer unit (tProbe hardware) can simulate analog CAMA type trunks directly connecting tProbe FXO FXS ports to 911 selective router or PSAP on CAMA-type circuits. The application can also be used for non-intrusive monitoring of CAMA trunks. The tProbe™ FXO port can be tapped onto CAMA-type circuits for non-intrusive monitoring of 9-1-1 service.

CAMA simulation and monitoring capabilities include - seizure and wink start detection, onhook and offhook detection and MF digit (ANI) generation/detection.

Drive Test Voice, and Data Services for Quality (Emergency services)

The Wireless Drive-Test solution includes GL’s VQuad™ with Dual UTA HD supporting call control of variety of mobile device networks – from 2G to 4G LTE and beyond, including the capability of sending/recording voice, testing video conferencing, and testing a variety of data over the mobile devices, while analyzing their performance.

**CAMA Simulation for 911 Systems**

**CAMA Trunks Connected to 911 Switch**

CAMA type signalling is used for sending the calling party’s Automatic Number Identification (ANI) to the 911 selective router. The ANI in the form of MF digits can be defined as: KP-I-NXX-XXXX-ST where,

- **KP**: indicates a KP (key pulse) signal
- **I**: information digit
- **NXX**: the prefix of the telephone number (exchange)
- **XXXX**: the caller’s PBX station number
- **ST**: indicates a ST (start pulse)

![CAMA Trunks Connected to 911 Switch Diagram](image)

**CAMA Trunks Connected to the PSAP**

As an alternative configuration in Private Exchange Branches (PBX), where the CAMA trunks are connected directly to the PSAP, the ANI is defined as: KP-NPD-NXX-XXXX-ST where,

- **KP**: indicates KP (key pulse) signal
- **NPD**: numbering plan digit representing the area code of the PBX caller who originated the 9-1-1 call
- **NXX**: the prefix of the telephone number (exchange)
- **XXXX**: the caller’s PBX station number
- **ST**: indicates a SP (start pulse)

![CAMA Trunks Connected to the PSAP Diagram](image)
911 CAMA Signaling Simulation (FXO FXS)

CAMA (Centralized Automatic Message Accounting) is a special analog trunk, originally developed for long-distance billing, but now mainly used for emergency call services (911 and E911 services).

The below figure illustrates analog CAMA simulation via tProbe™ FXO and FXS:

The tProbe™ FXO port can be directly connected to 911 selective router or PSAP on CAMA-type circuits for simulation of CAMA calls to the selective router or PSAP. The script will seize the line, wait for wink, dial ANI and wait for call connect.

911 CAMA FXO Monitoring

The tProbe™ FXO port can be tapped onto CAMA-type circuits for non-intrusive monitoring of 911 service. Monitoring capabilities include seizure and wink start detection, onhook and offhook detection and MF digit (calling party ANI) detection. A normal analog call is routed based on the destination (called party) phone number. However, 911 calls are routed based on the calling party number.

Figure: Analog Bulk CAMA Simulation with tProbe™ FXO

The MAPS™ FXO FXS Emulator application displays a real-time signalling sequence of the CAMA type trunk connected to the 911 Selective Route as shown below.

Figure: Originating (FXO) and Terminating (FXS) CAMA Call Simulation

Buyer's Guide

XX651 - MAPS™ CAS Emulator
XX624 - MAPS™ FXO FXS Emulator (only for tProbe)
PTE001 - tProbe™ Dual T1 E1 Laptop Analyzer with Basic Analyzer Software
PTE015 - w/ 2Wire FXO and FXS Optional Board
XX092 - CAS (Channel Associated Signaling) Analyzer
OLV092 - Offline CAS Analyzer