Spectra GSM Generator

From Inet Technologies, Inc.

SPECTRA GSM GENERATOR

The Spectra GSM Generator provides simultaneous monitoring, emulation, and traffic generation features for any Global System for Mobile Communication (GSM) network element, including Message Switching Centers (MSCs), Visitors Location Registers (VLRs), Home Location Registers (HLRs), and Base Station Controllers (BSCs).

In addition, GSM, ABIS, and MAP A through MAP G interfaces are fully supported, allowing the Spectra system to be connected to any type of GSM hardware.

The Spectra system can monitor ABIS, Public Switched Telephone Network (PSTN), and MAP A through MAP G interfaces simultaneously to verify call completion, handover procedures, or trace transaction. Any GSM or PSTN network element can be emulated by the Spectra system, thus allowing individual network nodes to be isolated for specific testing. (ABIS generation requires the use of the Spectra system's ISDN Call Generator.)

As an example, the Spectra system can be used to emulate a Base Transceiver Station (BTS) to simulate incoming traffic from mobile users so that Base Station Controller (BSC) transaction processing and capacities can be tested. The BSC can then be emulated to test the registration and handover procedures of the Mobile Switching Center (MSC). The health and efficiency of the entire GSM network can be determined by the Spectra system emulating the PSTN, thus allowing traffic to be simulated between the PSTN and the MSC.

SUPPORTED PROTOCOLS

The GSM Generator mode can generate MAP messages and BSSAP messages for the following protocols:

- BLUE
- CHINA
- WHITE
- JAPAN 4-BIT
- JAPAN 9-BIT

GSM GENERATOR APPLICATIONS

The GSM Generator can run and complete from 1 to 60 individually defined intervals or it can repeat intervals 1 to 60 continuously until you stop it. You can determine the interval duration and number of calls generated per second for each interval. Each interval can range from 1 second to 10,000 seconds. Maximum call load for incoming and outgoing calls combined is 600 calls per second. During the interval, calls are generated randomly from test scripts you create—up to ten for each SP/STP.

Numbers are also generated either randomly or sequentially from databases and substituted in outgoing messages as defined in the test scripts. Incoming transactions are handled by a selection from a terminating end script for each SP/STP.

Called Numbers, International Mobile Subscriber Identity (IMSI) or International Mobile Station Equipment Identity (IMEI), and Temporary Mobile Subscriber Identity (TMSI) numbers are generated for BSSAP scripts. Databases used to generate numbers for MAP scripts are assigned an offset that defines the octet within the transmitted message in which values are inserted. BSSAP scripts can also generate numbers from databases using an offset.

The GSM Generator mode's flexibility allows you to simulate sudden traffic surges, busy hour traffic, or induce dual seizures. The Spectra system is capable of generating 100 percent load on each of its 16 links. The combined octet size of an application determines the generation capacity.

GSM Generator Statistics

The GSM statistics screens display results of communication transactions from GSM Generator test scenarios.

The **GSM Call Processing Statistics** screen displays information regarding GSM call processing, including total paging requests, Mobile Originated Calls (MOCs), and emergency calls. The statistics shown in this screen are accumulated according to user- specific assignments.

The **GSM Peg Counters Statistics** screen displays information regarding the number of peg counts (assigned in the GSM scripts) encountered when the traffic model is executed. Peg count information is displayed by individual point code, but the totals per script can be displayed, if desired.

The **GSM Stopwatch Statistics** screen displays information regarding the number of timer pairs (assigned in the GSM scripts) encountered when traffic models are executed. Stopwatch statistics are used to determine precisely how much time has elapsed between two points within a given script. This information is broken down into associated individual point code columns.

The **GSM Timeout Counters Statistics** screen displays information regarding the number of trigger timeouts encountered when traffic models are executed. Timeout statistics can be used to determine precisely how often and at what rate Trigger messages are responding to certain Transmit messages. This information is broken down into associated individual point code columns, but the totals per script can be displayed if desired.