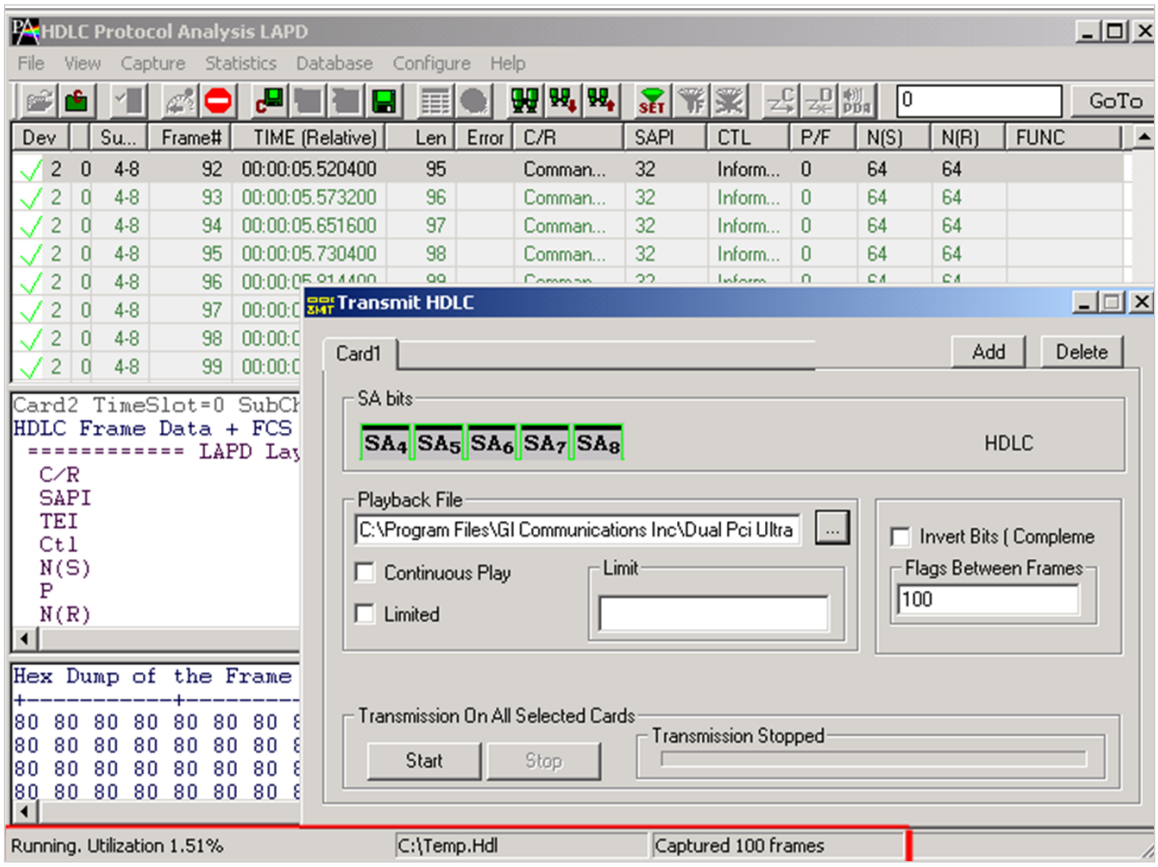
SA Bits HDLC and SSM Analysis



Overview

Timeslot 0 of every basic frame is reserved for basic frame alignment and contains either a Frame Alignment Signal (FAS) or a Non-Frame Alignment Signal (NFAS). FAS and NFAS occur in timeslot0 of consecutive basic frames. Bits four to eight of the NFAS (i.e., SA4 - SA8) are additional spare bits generally called as Signaling Associated (SA) bits. The HDLC frames can be transmitted on timeslot0 SA bits (bits 4-8 of the non-frame alignment signal) and can operate at 4,8,12,16 or 20 kbit/s depending on which SA bit is selected.

GL's SA Bits HDLC Analyzer performs SA Bits HDLC protocol analysis on E1 timeslot 0 during real-time and off-line. Users can capture stream of SA Bit HDLC frames on the selected even or odd frames of the E1 multiframe on timeslot 0. Captured information can be saved to disk for later off-line analysis. Both real-time and off-line analysis presents summary view and detailed views of SA Bit HDLC decode information. Captured Frames can later be used for traffic simulation using the SA Bits HDLC transmit application.

GL Communications support the following types of SA Bit HDLC analyzers:

- Real-time SA Bit HDLC Analyzer (Pre-requisites: GL's E1 internal cards or USB E1 external units, required licenses and Windows®10 and above operating system)
- Offline SA Bit HDLC Analyzer (Pre-requisites: Hardware Dongle, and Windows®10 and above operating system)

In addition, SA Bit HDLC Playback application is supported that further helps in transmitting and capturing pre-defined SA Bit HDLC frames.

For more details, visit SA HDLC and SSM Protocol Analysis webpage.

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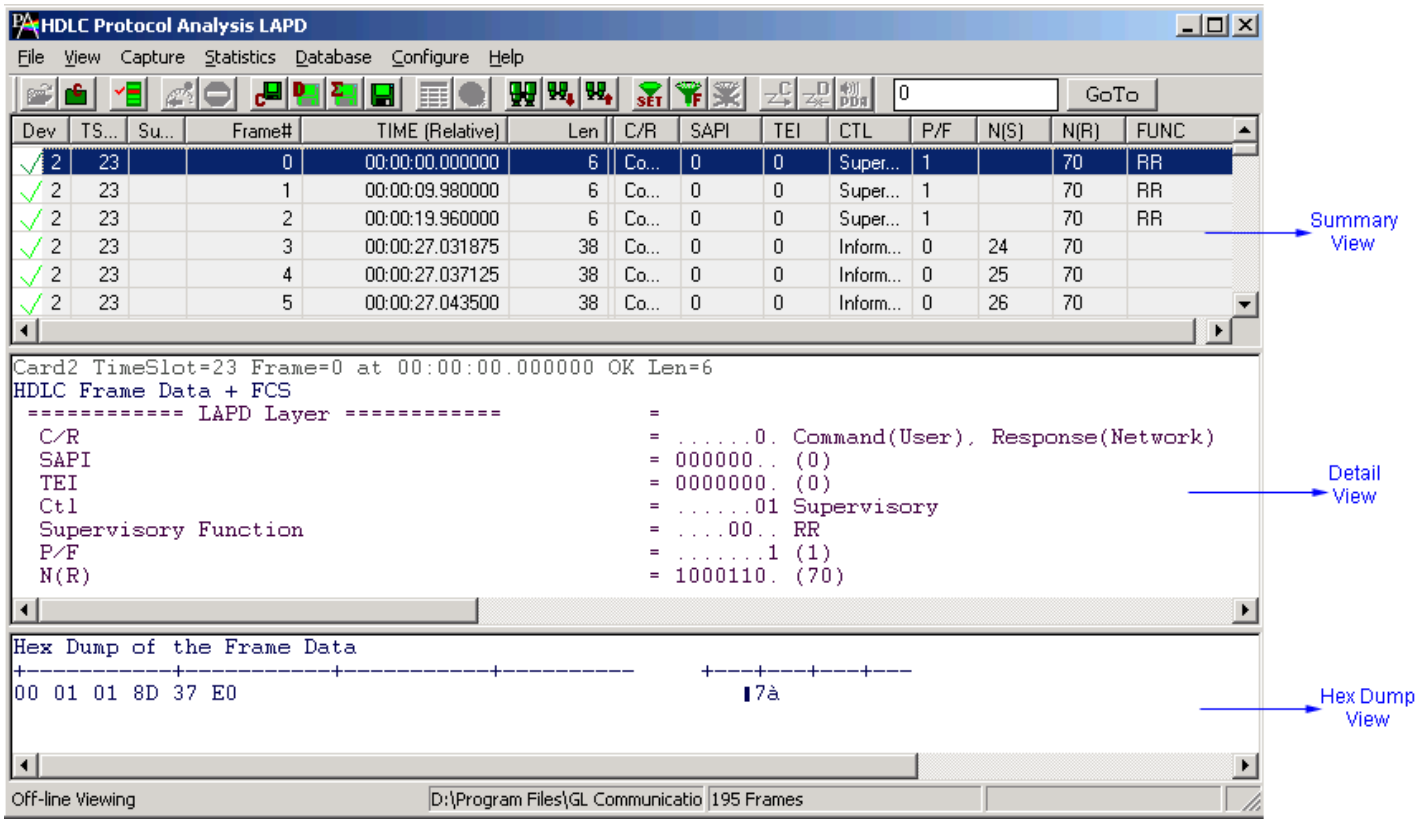
Main Features

- Supports decoding of LAPD, LAPF, LAPD+IP, LAPX+IP, Cisco HDLC protocols
- Provides Summary, Detail, Hex dump, and Statistics views
- Supports filtering and search based on C/R, SAPI, TEI, CTL, P/F, N(S), N(R) and FUNC
- HDLC frames can be transmitted/captured on selected SA bits (bits 4-8 of the non-frame alignment signal) and can operate at 4, 8, 12, 16 or 20 kbit/s depending on which SA bit is selected
- Supports inversion or non- inversion of the data
- Exports Summary View information to a comma delimited file for subsequent import into a database or spreadsheet
- Capability to export detail decodes information to an ASCII file
- Captured frames can later be used for traffic simulation using SA Bit HDLC Transmit/Playback application
- Multiple instances of SA Bit HDLC can run simultaneously to capture data from several E1 lines

Summary, Detail, and Hex dump Views

The analyzer displays Summary, Detail and Hex dump view in different panes. The Summary View displays Frame Number, Time, Length, Error, C/R, SAPI, CTL and more. User can select a frame in Summary View to analyze and decode in the Detail View. The Hex dump View displays the frame information in HEX and ASCII format.

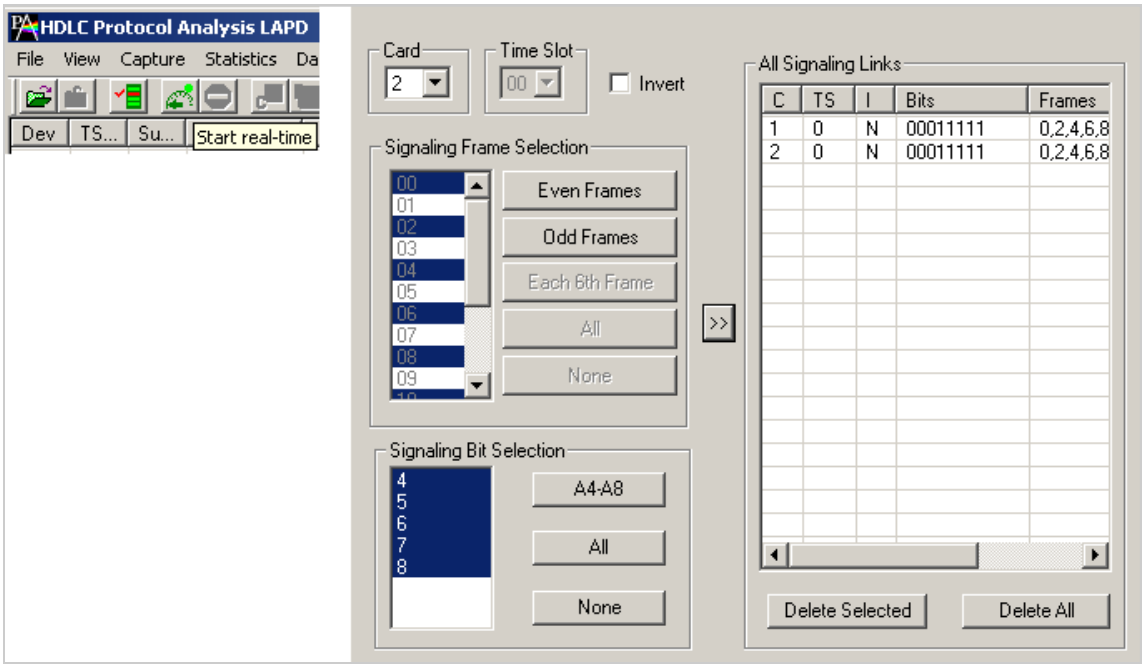


Summary, Detail, and Hex dump Views

Real-time and Offline Analysis

Users can capture and analyze SA Bit frames in real-time record all or filtered traffic into a trace file. The recorded trace file can be used for offline analysis or exported to a comma-delimited file, or ASCII file.

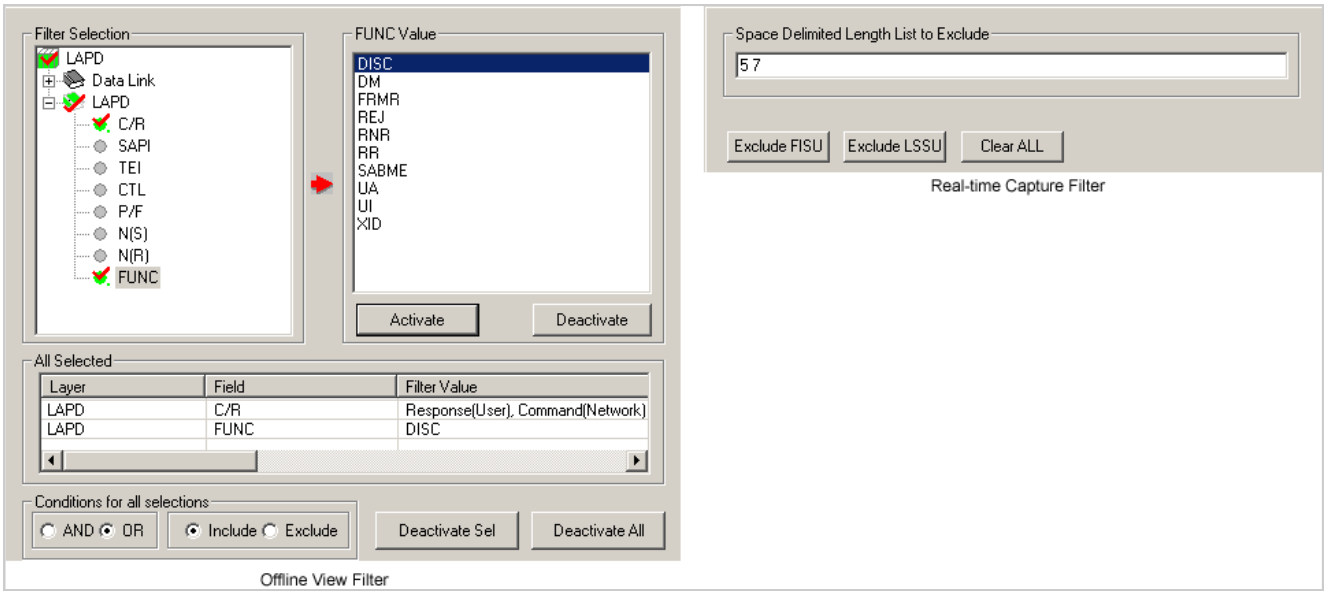
Real-time capturing requires user to specify even or odd frames on a timeslot, signaling links, and bit inversion. Recorded trace file can be played back on SA Bit HDLC Playback file.



Stream / Interface Selection

Filtering and Search

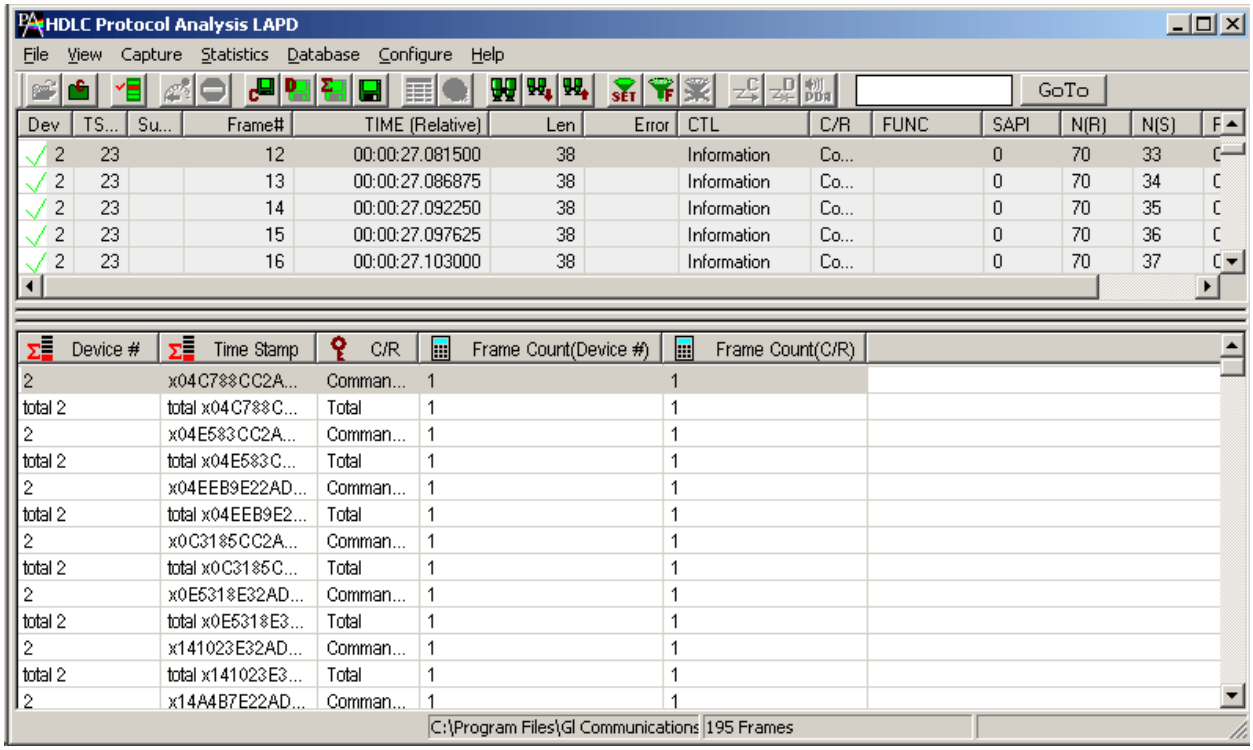
Users can record all or filtered traffic into a trace file. Filter and search capabilities adds a powerful dimension to the SA Bit HDLC Analyzer. Theses features isolate required frames from captured frames in real-time /offline. Users can specify custom values for frame length to filter frames during real-time capture. The frames can also be filtered after completion of capture based on Frame Number, Time, Length, Error, C/R, and more. Similarly, Search capability helps user to search for a particular frame based on specific search criteria.



Real-time and Offline Filter

Statistics View

Statistics is an important feature available in SA Bits HDLC analyzer and can be obtained for all frames both in real-time as well as offline mode. Various statistics can be obtained to study the performance and trend in the SA Bits network based on protocol fields and parameters.



Statistics View

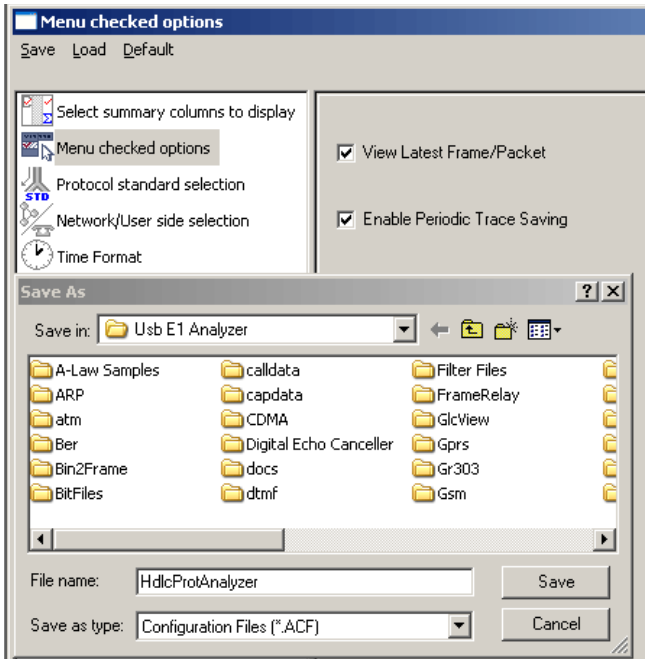
Automated Testing of SA Bit HDLC using Client Server

Receiving and transmitting SA Bit HDLC frames can be accomplished using SABitsFunc WCS module. The GL's Windows Client Server application allows script based test environment to facilitate remote access and automation

For more details, visit File based HDLC Record/Playback over SA Bits webpage.

Save/Load All Configuration Settings

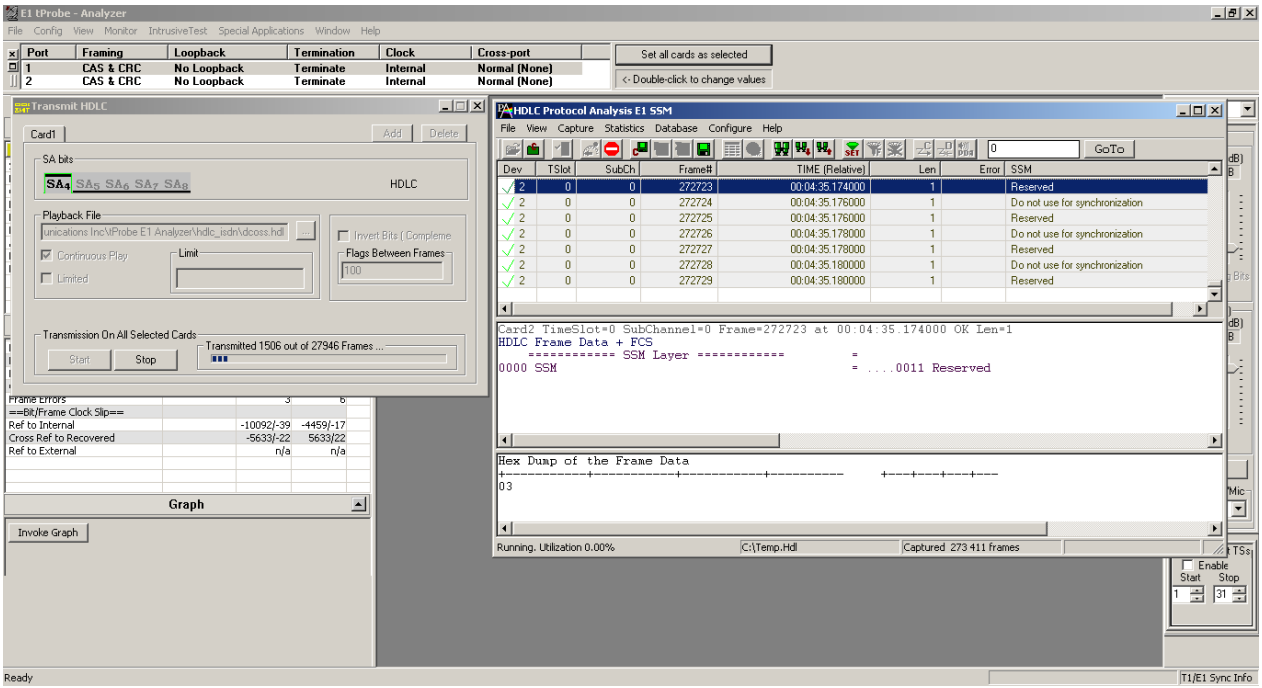
Protocol Configuration window provides a consolidated interface for all the important settings required in the analyzer. This includes various options such as protocol selection, startup options, stream/interface selection, filter/search criteria and so on. All the configuration settings can be Saved to a file and then loaded for future operations, or user may just revert to the default values using the default option.



Save / Load Configuration

SSM Analyzer

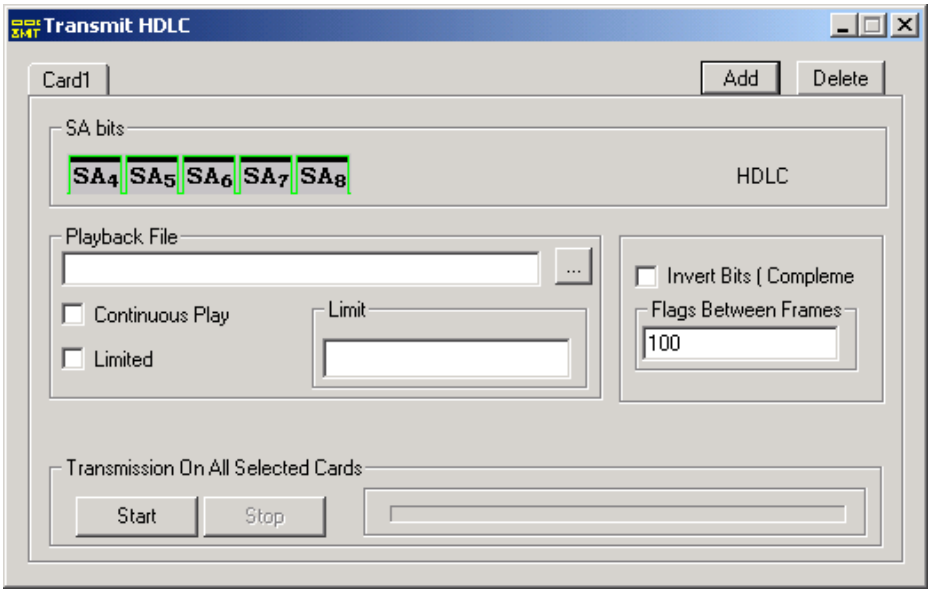
GL's SA Bits HDLC Analyzer supports SSM Analyzer licensed along with SA bits HDLC transmit and analysis modules using the same part number. GL's Synchronization Status Message (SSM) analyzer operates in accordance with G.704 standard and analyzes 4 bit long SSM messages received over E1 San bits in time slot 0.



SSM Analyzer

SA Bits HDLC Playback

The SA Bits HDLC Playback provides HDLC and/or codeword transmission using SA bits on E1 line (s). Files captured by the SA Bits HDLC Analyzer can be replayed using this application on one or multiple E1 lines. Codewords can be specified via user interface.



SA Bits Playback

Supported Protocol Standards

The supported protocol standards in HDLC analyzer are LAPF, LAPD, LAPD+IP, LAPX+IP, X.25, Cisco HDLC Protocols.

Supported Protocols	Specification Used
LAPD	CCITT Q.920/921
LAPF	ITU-T Q.922
IP	RFC 791
TCP	RFC 793
UDP	RFC 768
ICMP	RFC 792
STUN	RFC 3489
DNS	RFC 1035
DHCP	RFC 1533, 2131
HTTP	RFC 2616
FTP	RFC 959
SNMP	RFC 1157,1155,1902,3416,2863,2578,3418,2011,2012 etc.
Cisco HDLC	http://www.protocols.com/pbook/bridge.htm#CISCOROUTER
ARP	RFC 826
LAPB	ITU-T Recommendation X.25

Buyer's Guide

Item No	Product Description
XX095	E1 Real-time SA Bit HDLC Analyzer, and Playback
OLV095	E1 Offline SA Bit HDLC Analyzer

Item No	Related Software
XX600	Basic Client/Server Scripted Control Software (Included with Basic Software)
XX650	File based HDLC Record/Playback over SA Bits
XX641	File based HDLC Remote Record/Playback
XX634	Multi-Channel HDLC Emulation and Analysis and File based High Throughput HDLC Record/Playback

Item No	Related Hardware
PTE001	tProbe™ Dual T1 E1 Laptop Analyzer with Basic Analyzer Software
FTE001	QuadXpress T1 E1 Main Board (Quad Port– requires additional licenses)
ETE001	OctalXpress T1 E1 Main Board plus Daughter Board (Octal Port– requires additional licenses)
XTE001	Dual T1 E1 Express (PCIe) Boards (requires additional licenses)

Note: PCs which include GL hardware/software require Intel or AMD processors for compliance.

For more details, visit SA HDLC and SSM Protocol Analysis webpage.