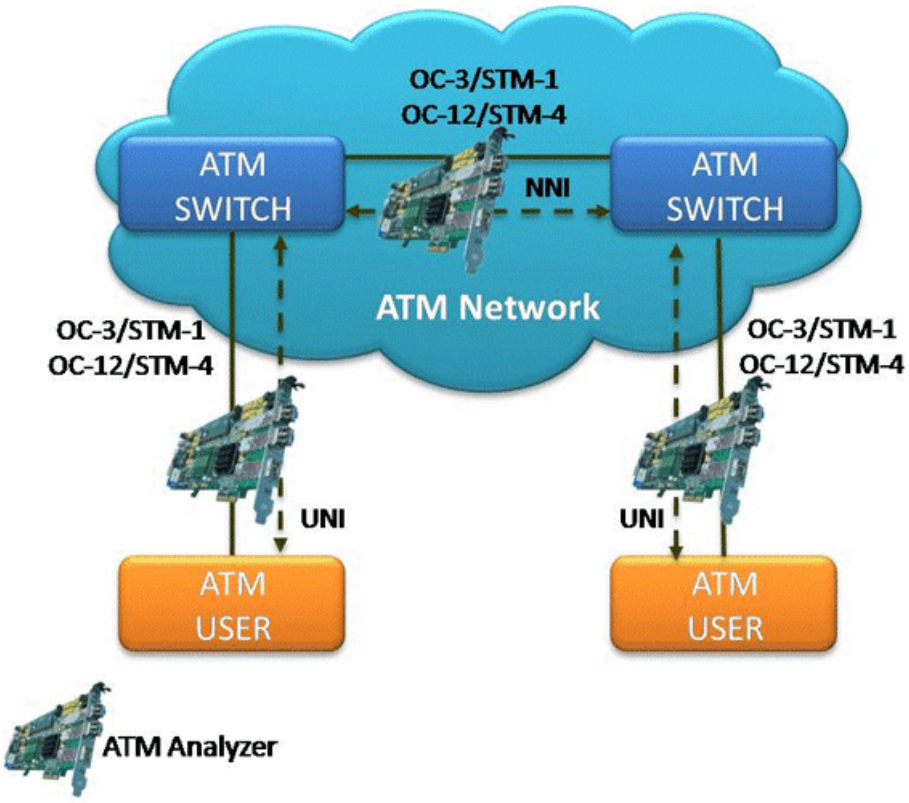
ATM Protocol Analyzer for LightSpeed1000

(Legacy Product)



Overview

GL's **ATM Analyzer** in **LightSpeed1000™** is used to analyze and decode AAL2 (CPS-SDU, SSSAR-SDU, and SSCS), AAL5 (CPCS), UNI, and others across U plane and C plane of UNI and NNI interfaces. The analyzer can also decode ATM frames constituting Classical IP over ATM, or CIP based networks, and traditional SS7 Stack (ISUP, SCCP, MAP, CAMEL(CAP) etc.) over ATM.

The ATM Analyzer can capture, decode, filter, and reassemble AAL-2 and AAL-5 frames in real-time, from within the ATM cells according to user defined VPI/VCI. The requirements are:

- Real-time ATM Analyzer (Pre-requisites: GL's LightSpeed1000™ internal PCIe cards or USB external units, along with licenses and Windows® Operating System)
- Offline ATM Analyzers (Pre-requisites: Hardware dongle Windows® Operating Systems)

For more details, refer ATM Protocol Analyzer for OC-3 / STM-1 & OC-12 / STM-4 webpage.

GL Communications Inc.

818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878, U.S.A

(Web) www.gl.com - (V) +1-301-670-4784 (F) +1-301-670-9187 - (E-Mail) info@gl.com

Main Features

Display Features

- Displays Summary, Detail, Hex-dump, and Statistics Views
- Summary view displays Dev #, Frame #, VPI/VCI, PT (Payload Type), HEC, OSF, AAL Type, Frame Type, CID, LI, CPI, UUI, SSSAR CID, SSCS message type and more in a tabular format
- Detail View
  - Displays decodes of a user-selected frame from the summary view
  - Provides options to display or hide the required protocol layers
  - Contents of this view can also be copied to clipboard
  - Provides option to toggle detail view vertically or horizontally as feasible for the user
- Hex dump View displays the frame information in HEX and ASCII format, the contents of this view can also be copied to clipboard
- Statistics View displays statistics based on frame count, byte count, frames/sec, bytes/sec etc. for the entire capture data
- Any protocol field can be added to the summary view, filtering, and search features providing users more flexibility to monitor required protocol fields
- Call Detail View displays called/ calling number, released calls, call status, and more
- Option to combine data from multiple columns under one column

Supported Protocols

- UNI signaling protocols i.e. UNI 4.0, UNI 3.1 and UNI Q-293

Filtering and Search

- Advanced filtering and search based on any user selected protocol fields

Capturing Streams and Decoding Frames

- Streams may be captured on the selected ports
- Multiple streams of ATM traffic on various ports can be simultaneously decoded with different GUI instances
- Captures, decodes, filters, and reassembles AAL-2 and AAL-5 frames in real-time, from within the ATM cells according to user defined VPI/VCI
- Supports decoding of Classical IP over ATM, Multi-Protocol Over ATM, and SS7 signaling over ATM

Export Options

- Exports Summary View information to a comma delimited file for subsequent import into a database or spreadsheet
- Capability to export detailed decode information to an ASCII file

Remote Monitoring

- Remote monitoring capability using GL's Network Surveillance System

Additional Features

- Ability to configure .ini file for PVC carrying UNI signaling messages to get the proper decoding options

Summary, Detail, and Hex dump Views

The analyzer displays Summary, Detail, and Hex dump in different panes. The Summary View displays Dev#, Frame#, Time, Length, Error, VPI/VCI, PT, HEC, OSF, AAL Type, Frame Type, CID, LI, CPI, UUI, SSSAR CID, and so on. User can select a frame in Summary View to analyze and decode each frame in the Detail View. The Hex dump View displays the frame information in HEX and ASCII format. The contents of detail and hex dump view can also be copied to clipboard. The Statistics View helps to study the performance and trends in the ATM network based on protocol fields and different parameters.

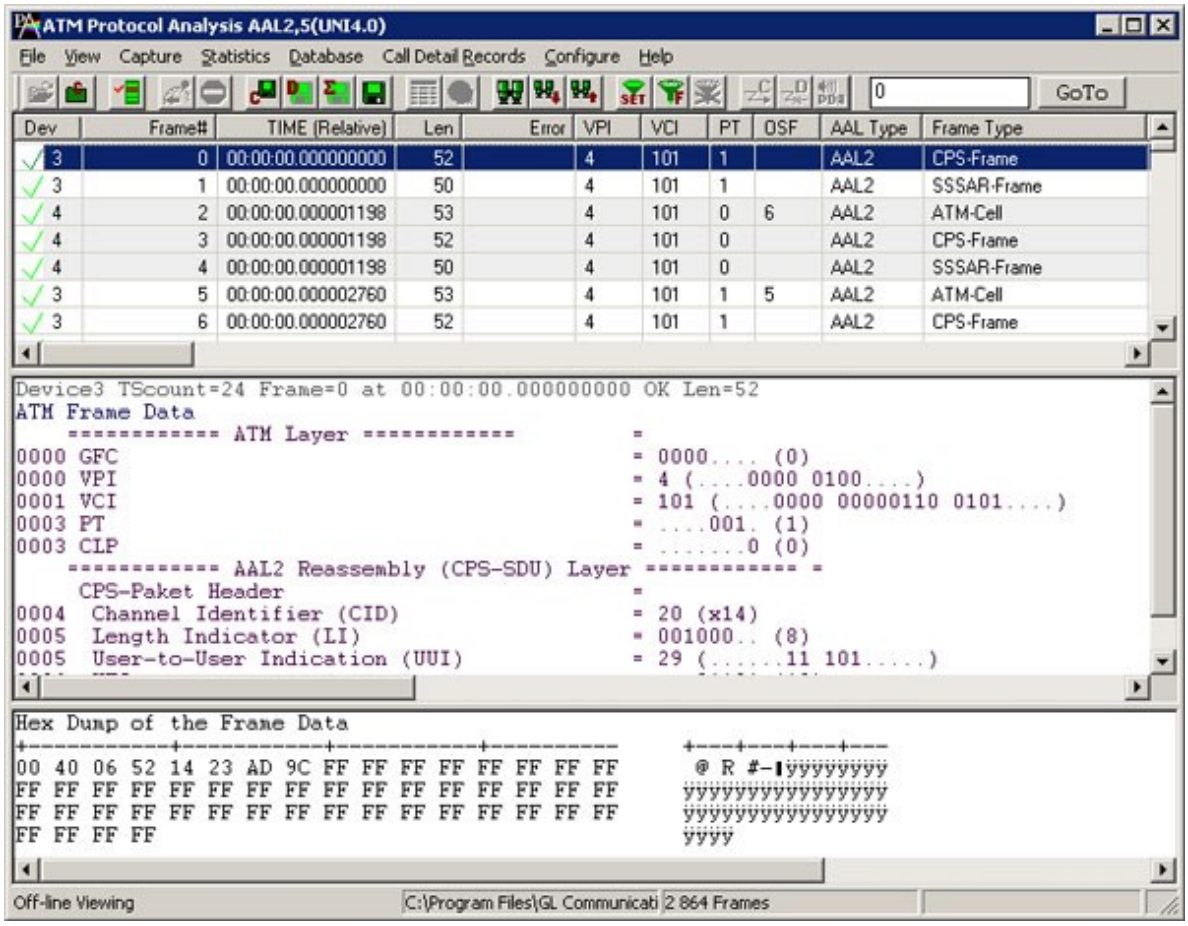


Figure: Summary, Detail, and Hex dump Views

Real-time and Offline Analysis

Multiple ports can be selected in a single instance of the analyzer to capture frames simultaneously. ATM analyzer is capable of capturing & reassembling frames.

Users can capture and analyze UNI and NNI interfaces in real-time and record all or filtered traffic into a trace file. The recorded trace file can be transmitted using playback file application such as "**Rx Packets to File**" application for offline analysis, or exported to a comma-delimited file, or ASCII file.

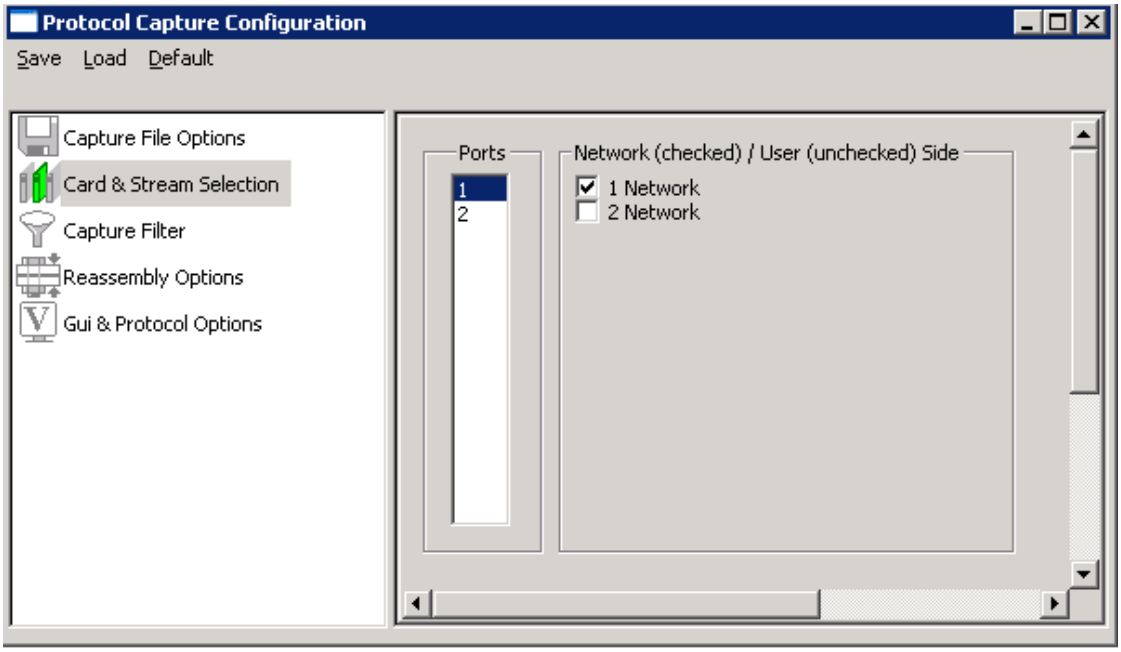


Figure: Stream / Interface Selection

Filtering and Search

Users can record all or filtered traffic into a trace file. Filter and search capabilities adds a powerful dimension to the ATM Analyzer. These features isolate required frames from all the captured frames in real-time, as well as offline. Users can specify custom VPI, VCI, and PT type values to filter frames during real-time capture. The frames can also be filtered after completion of capture based on Time Slot, Frame #, Time, Length, Error, VPI/VCI, PT (Payload Type), HEC, and more. Similarly, Search capability helps user to search for a particular frame based on specific search criteria.

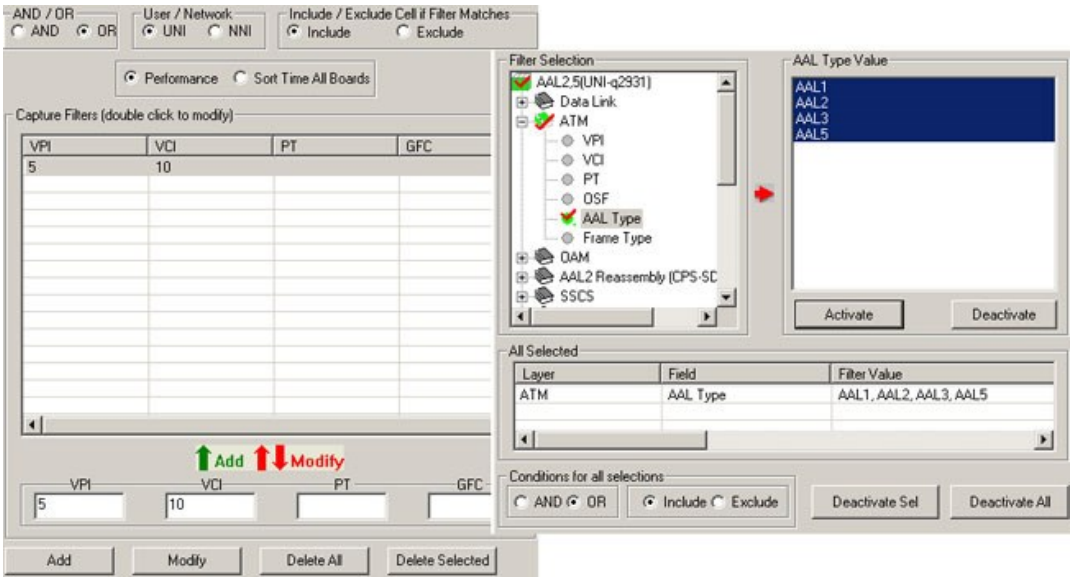


Figure: Real-time and Offline Filter

Reassembly

Using reassembly option user can specify VPI /VCI value to reassemble using the segmentation and reassembly rules defined by the specified AAL type.

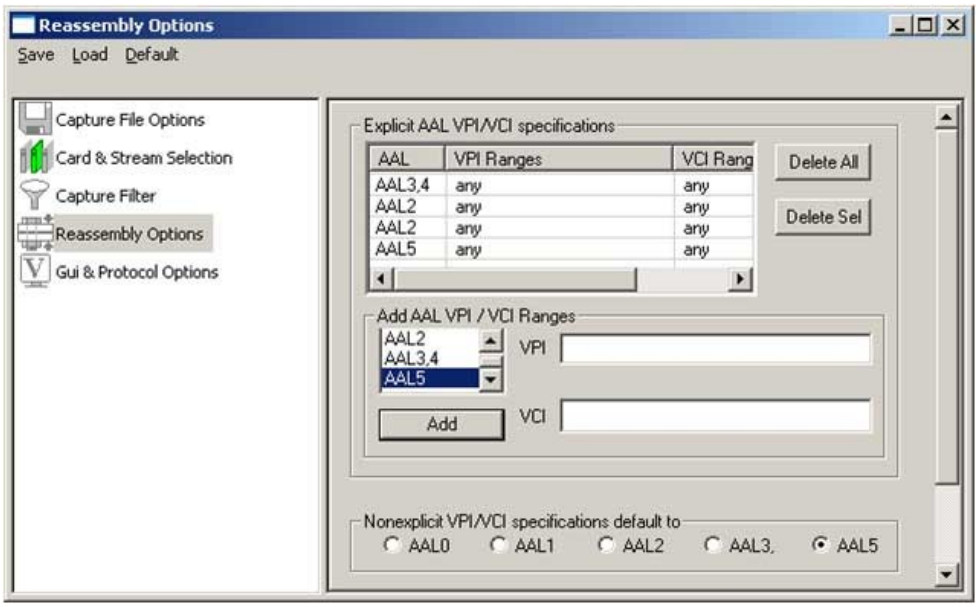


Figure: Reassembly Options

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. Any protocol field can be added to the summary view, filtering, and search features from this GUI providing the users more flexibility to monitor required protocol fields. All the configuration settings can be saved to a file and then loaded for future operations. Users may also just revert to the default settings using the default option.

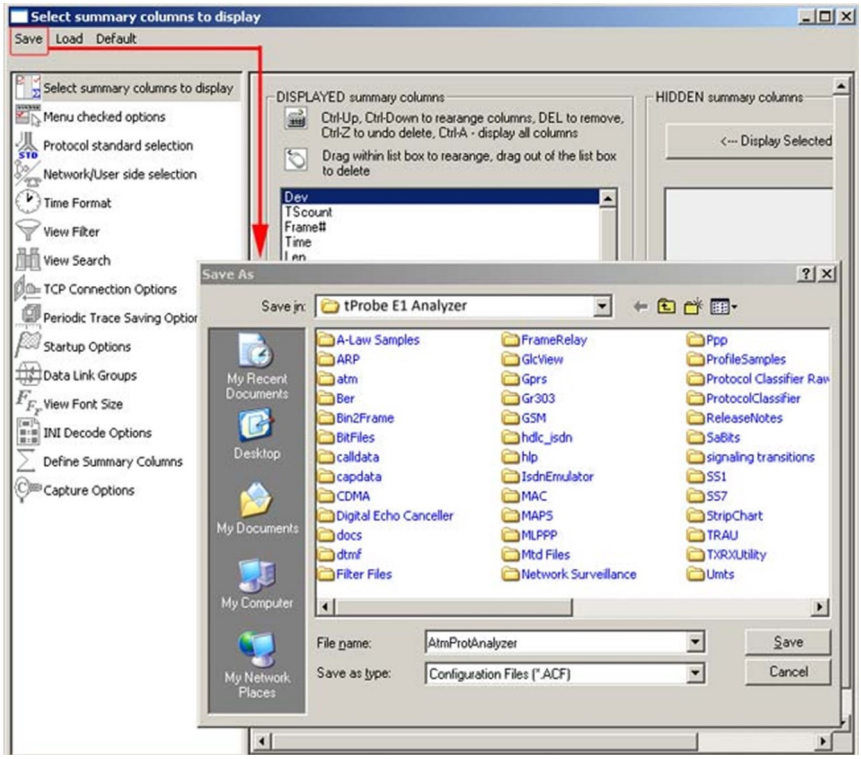


Figure: Save / Load Configuration

Call Detail Record and Statistics View

Important call specific parameters like Call ID, Call disposition, Call duration, VPI/VCI, Call type (point-to-point/point-to-multipoint and more) calculated based on UNI signaling messages are displayed in Call Detail Record view. Additionally, users are provided with the option to search a particular call detail record from the captured traces.

Various statistics can be obtained in Statistics View to study the performance and trend in the ATM network based on protocol fields and parameters.

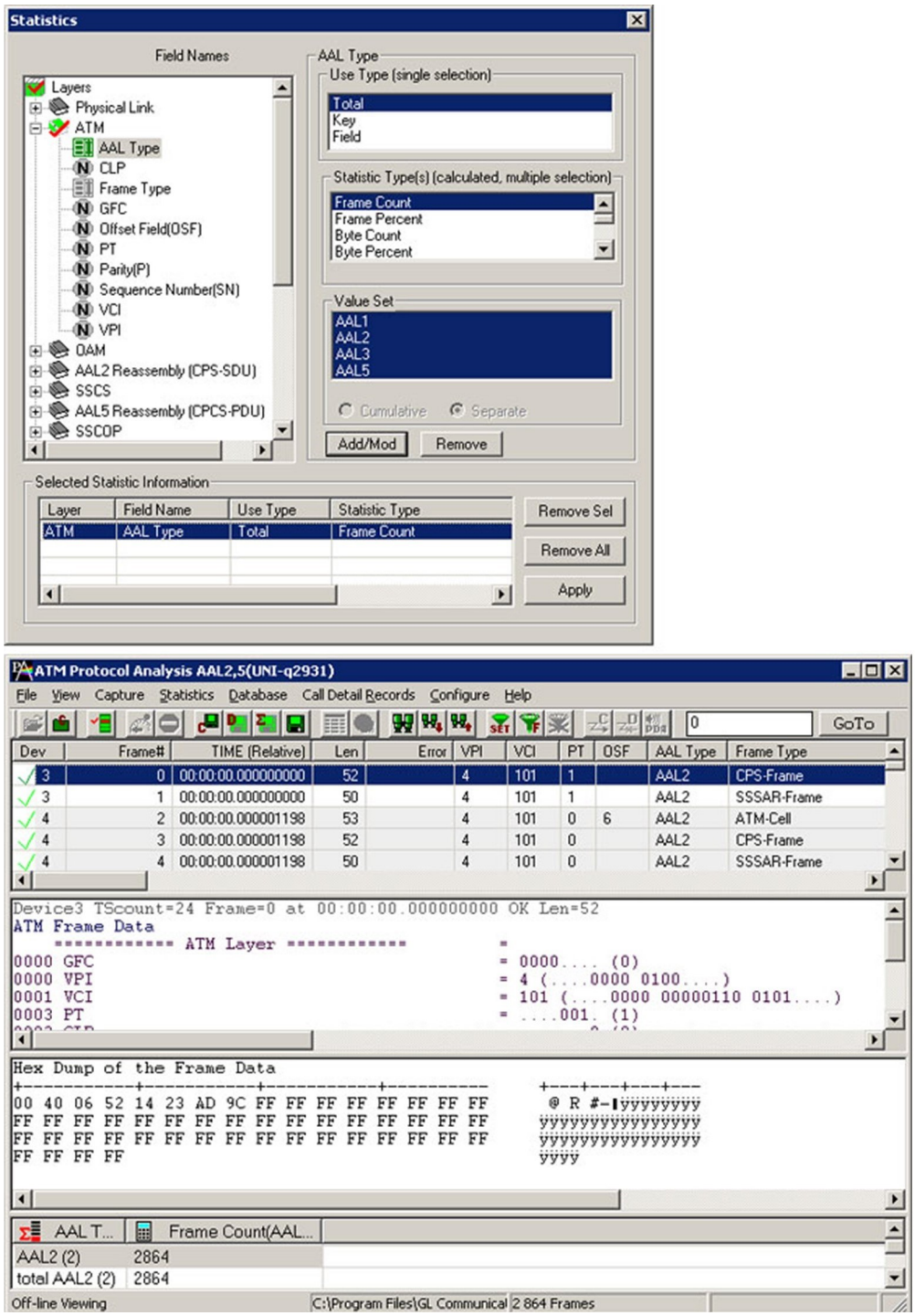


Figure: Statistics and Call Detail Record View

Supported Protocols Standards and Specifications

Supported Protocols	Specification Used
ATM	ITU-T I.361
AAL	ITU-T I.363
SSSAR	ITU-T I.366.1
SSCS	ITU-T I.366.2
AAL2	Class B (ITU-T I.363.2)
AAL5	Class C & D (ITU-T I.363.5)
SSCOP	ITU-T Q.2110
UNI	Q.2931 & Q.2971
UNI31	ATM User-Network Interface Specification Version 3.1
UNI40	ATM User-Network Interface Specification Version 4.0
OAM	IM for ATM Version 1.1 AF-PHY-0086.001 March, 1999
MAC	IEEE 802.3
IP	RFC 791
IPv6	RFC 2460, RFC 2402, RFC 2406
TCP	RFC 793
UDP	RFC 768
ICMP	RFC 792
ICMPv6	RFC 2463, 2461, 1885, 2894, 3122, 3810, 3775, 3971, 4286, 4066
Payload (Multiprotocol Encapsulation over AAL)	RFC2684
Classical IP and ARP over ATM	RFC 2225
MTP3b	ITU-T Q.2210
SSCF UNI	ITU-T Q.2130
SSCF NNI	ITU-T Q.2140
Border Gateway Protocol 4 (BGP-4)	RFC 1771, RFC 1997, RFC 2842, RFC 1965

Buyer's Guide

Item No	Product Description
LTS204	OC-3 / STM-1 ATM Protocol Analysis
LTS304	OC-12 / STM-4 ATM Protocol Analysis

Item No	Related Software
LTS200	OC-3 / STM-1 ATM Monitor, BERT, Tx/Rx Test, RAW
LTS300	OC-12 / STM-4 ATM Monitor, BERT, Tx/Rx Test, RAW
LTS201	OC-3 / STM-1 PoS Monitor, BERT, Tx/Rx Test, RAW
LTS301	OC-12 / STM-4 PoS Monitor, BERT, Tx/Rx Test, RAW
LTS202	OC-3 / STM-1 ATM and RAW Record / Playback
LTS203	OC-3 / STM-1 PoS and RAW Record / Playback
LTS303	OC-12 / STM-4 PoS and RAW Record / Playback
LTS204	OC-3 / STM-1 ATM Protocol Analysis
LTS304	OC-12 / STM-4 ATM Protocol Analysis
LTS206	OC-3 / STM-1 UMTS Protocol Analysis
LTS306	OC-12 / STM-4 UMTS Protocol Analysis

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Buyer's Guide (*Contd.*)

Item No	Related Hardware
LTS100	Lightspeed1000™ - Dual OC-3/12 STM-1/4 PCIe Card
LTS105	Lightspeed1000™ - Portable Dual OC-3/12 STM-1/4 USB Unit
LTS404	SFP, Single Mode
LTS405	SFP, Multimode
SA019a	1 Gbps / 10 Gbps Fiber Optic Cable, Single-Mode, Duplex LC to Duplex LC
SA019b	1 Gbps / 10 Gbps Fiber Optic Cable, Single-Mode, Duplex LC to Duplex SC
SA019c	1 Gbps / 10 Gbps Fiber Optic Cable, Multi-Mode, Duplex LC to Duplex LC
SA019d	1 Gbps / 10 Gbps Fiber Optic Cable, Multi-Mode, Duplex LC to Duplex SC
SA019e	40G / 100G Fiber Optic Cable, Multi-Mode
SA019f	40G / 100G Fiber Optic Cable, Single-Mode

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

For more details, refer ATM Protocol Analyzer for OC-3 / STM-1 & OC-12 / STM-4 webpage.

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