ATM Traffic
Management

ATM Traffic Management Test Solution

Agilent Technologies Broadband Series Test System

E5115A

The E5115A ATM Traffic Management Test Solution allows you to test all aspects of ATM Service Level Agreements. It includes powerful features such as multi-stream traffic generation and real-time QoS measurement.
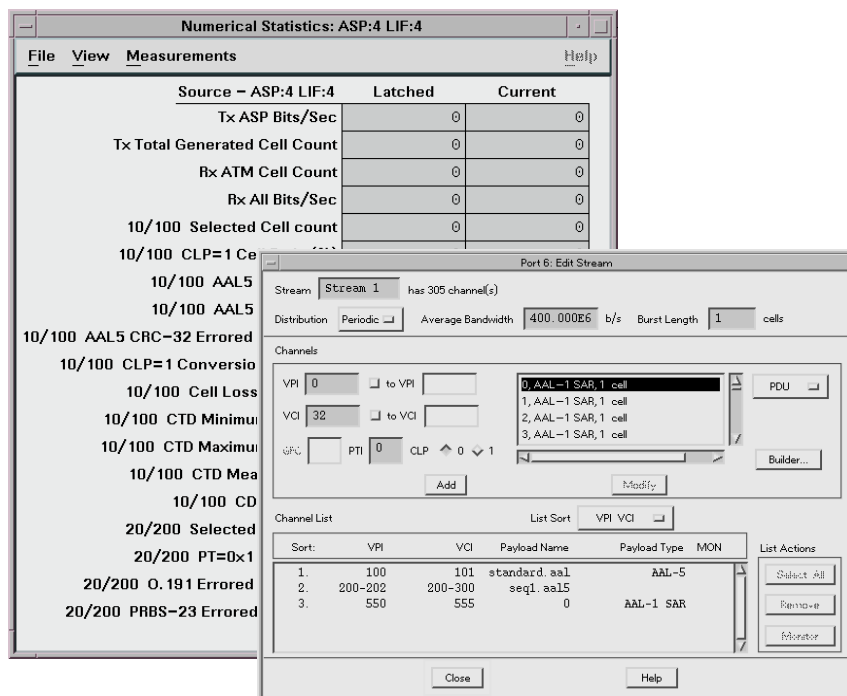
Bundle Features

- O.191 ITU-T / ATM Forum standard test cell
- 2nd generation multi-stream traffic generator with contract-compliant dynamic scheduling
- Real-world impairment emulation
- Complete hardware-based OAM testing
- Real-time I.610 in-service performance measurement
- Extended ABR analysis option with SVC support

The Agilent Technologies E5115A BSTS ATM Traffic Management Test Solution lets you comprehensively test your ATM switch or network to the ATM Forum Traffic Management specification. The ATM Stream Processor, OAM Protocol Tester, Network Impairment Emulator, and two Line Interfaces form a powerful 2-port ATM test system with unmatched performance and flexibility.

You can test traffic contract performance with a multi-stream, contract-compliant traffic source, and measure QoS and traffic policing in real time using an extended O.191-standard test cell. You can also characterize congestion management techniques such as early packet discard and traffic shaping, verify OAM protocol operation, and simulate and decode ABR RM cells.

Order E5115A option 501 to add ABR test capabilities and provide UNI signalling and ILMI emulation. This option includes two ABR Emulator modules, two Cell Protocol Processor modules, and additional test software.
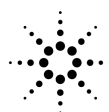
Agilent Technologies
Innovating the HP Way

Key Bundle Features

ATM Forum Conformance

This solution offers out-of-service QoS benchmarking using industry-standard O.191 ATM test cells. O.191 payload scrambling helps to provoke and uncover any "stuck bit" switch errors.

You can also conduct AAL-5 performance testing using AAL-5 test packets based upon an extension to O.191.

Dynamic Traffic Scheduling

A next-generation traffic generator with multistream GCRA-compliant dynamic traffic scheduling offers accurate and predictable testing of multiple traffic contracts.

Impairment Emulation

Impairment functionality allows real-time insertion of traffic impairments, including cell errors, loss, misinsertion, delay, and delay variation.You can emulate noisy transmission lines, buffering delays, satellite hops and switch malfunctions, with over 220 ms of cell delay at 155 Mb/s, and proportionately higher delays over lower line interfaces.

Performance Measurement

You can perform in-service and out-of-service QoS measurement using industry-standard I.610 OAM Performance Measurement cells, with 124 independent CBR/VBR/UBR traffic streams.

Add ABR Test Solution

The E5115A Option 501 Add ABR Test Solution extends ABR test capabilities and provides signalling emulation. By choosing this option, you will receive the following additional functionality:

- Full ABR emulation of both source and destination with real-time RM cell turn-around
  - EFCI marking, relative rate, explicit rate, and virtual source / virtual destination
  - Behaving and misbehaving (non-conforming) traffic
  - AbrExtract tool for graphing and analyzing ABR performance
- SVC call set-up and traffic parameter negotiation
- UNI 3.0, 3.1, 4.0, and Q.2931 signalling emulation using an independently-developed protocol stack
- Full ILMI emulation – including "keep alive" polling, address registration, and browsing of MIB Managed Objects
- Additional traffic policing analysis software
- The added CPP and ABR modules can be used separately to support additional line interfaces

ATM Traffic Management Standards

ATM Forum Traffic Management Specification Version 4.0 (04/1996)

- Definition of peak-to-peak cell delay variation
- Available Bit Rate traffic class

ATM Forum UNI 3.0 & 3.1 (09/1994)

- GCRA definition and tagging algorithm

ITU-T Recommendation I.356 (11/1993)

- Non-conforming cell algorithm (for transmitted traffic) cell delay, 1-point CDV

ITU-T Recommendation I.371 (11/1995)

- GCRA definition (including OAM end-to-end variation) and tagging algorithm
- Available Bit Rate traffic class

ITU-T Recommendation O.191 (12/1996)

- Algorithm for computing cell loss and cell misinsertion implemented using proprietary test cells

ITU-T Recommendation I.610, B-ISDN Operation and Maintenance Principles and Functions (11/1995)

- OAM cell definitions, including Performance Measurement

Telcordia/Bellcore GR-1248-CORE, Generic Requirements for Operations of ATM Network Elements (08/1996)

- OAM specifications for ATM network elements

Product Numbers

The BSTS ATM Traffic Management Test Solution is a bundle of products designed to cater for the typical ATM traffic management testing requirements. You can customize the bundles to better match your specific needs as explained below.

- **E5115A**   BSTS ATM Traffic Management Test Solution

Contents include:

- **E4210B**   BSTS Form-13 Mainframe Chassis

- **E1607A**   0-155 Mb/s ATM Stream Processor (ASP)

- **E6270A**   OAM Protocol Tester

- **E4219A**   Network Impairment Emulator

- **E4212A**   AAL Test Software

Plus your choice of any two low-speed ATM Line Interface modules from the following:

- **Option 101**   2 Mb/s E1

- **Option 102** 34 Mb/s E3

- **Option 103** 1.5/45 Mb/s DS-1/DS-3

- **Option 104** 25.6 Mb/s

- **Option 105**   155 Mb/s Single Mode Optical OC-3c/STM-1

- **Option 106** 155 Mb/s Electrical

- **Option 107** 155 Mb/s UTP-5

- **Option 108** 6.3 Mb/s J2 Electrical

- **Option 109** 6.3 Mb/s J2 Optical

- **Option 110** 52 Mb/s Optical OC-1/STM-0

NB. You can either choose two of the same type of line interface, or two different line interfaces from the above list.

- **E5115A Option 501** Add ABR Test Solution

Order option 501 and receive the following additional products:

- **2 x E6287A**   ABR Emulator Modules

- **2x E4209B**   Cell Protocol Processor (CPP)

- **E4214B**   UNI Test Software

- **E6273B**   ILMI Test Software

- **E4223A**   Traffic characterization and Policing Test Software for the CPP

www.Agilent.com/comms/BSTS

Configuration and Use With Other BSTS Modules and Applications

The E5115A ATM Traffic Management Test Solution and the E5115A Option 501 Add ABR Test Solution simplify BSTS configuration by providing the chassis, HP-UX controller, SCSI hard drive, as well as the modules and software applications required for traffic management testing.

You can maximize the return on your test equipment investment by selecting additional line interfaces, dedicated hardware modules, and test software that suit your specific needs.

A selection of monitors are available for use with the ATM Traffic Management Test Solution, as well as an optional CD-ROM drive. These items are not included in the bundle. The screens are multi-sync and can be used for the V743 UNIX controller.

- E4210B option ADJ - 20" color screen (1280 x 1024)
- E4210B option AQ5 - 17" color screen (1280 x 1024)
- E4210B option AQ3 - 15" color screen (1024 x 768)
- E4210B option AM8 - CD-ROM drive

Warranty & Support Options

Hardware

All BSTS hardware components are warranted for a period of 3 years. Products must be returned to an authorized Agilent service center for service.

Software

Agilent Broadband Series Test System software and firmware products are supplied on transportable media such as disk, CD-ROM or integrated circuits. The warranty covers physical defects in the media, and defective media is replaced at no charge during the warranty period. When installed in an Agilent Broadband Series Test System, the software/firmware media has the same warranty period as the product.

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Agilent Technologies Broadband Series Test System

The Agilent Technologies BSTS is the industry-standard ATM/BISDN test system for R&D engineering, product development, field trials and QA testing. The latest leading edge, innovative solutions help you lead the fast-packet revolution and reshape tomorrow's networks. It offers a wide range of applications:

- ATM traffic management and signalling
- Packet over SONET/SDH (POS)
- switch/router interworking and performance
- third generation wireless tesing
- complete, automated conformance testing

The BSTS is modular to grow with your testing needs. Because we build all BSTS products without shortcuts according to full specifications, you'll catch problems other test equipment may not detect.

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