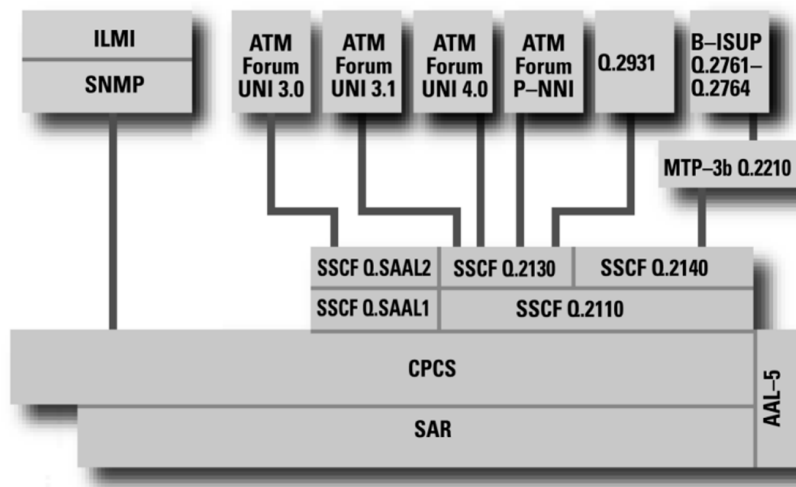


ATM Signalling Test Solution

Broadband Series Test System

E5116A



The Agilent E5116A ATM Signalling Test Solution offers comprehensive signalling protocol coverage, and fast diagnosis of implementation errors and performance bottlenecks.

Bundle Features

- Widest coverage of protocols, PDU builders, and line interfaces
- Independent "Agilent" functional protocol verification
- Tests SSCOP layer, UNI, PNNI, NNI (including B-ISUP and MTP-3b emulation), complete ILMI emulation
- Functional and conformance testing over line interfaces from 1.5 Mb/s to 155 Mb/s
- ATM Forum-compliant conformance test suites
- Test methods developed by those who write the standards
- Realistic SVC performance benchmarking
- Multiport load conditions; rapid, correlated measurements
- Ability to detect and identify the cause of bottlenecks

The Agilent Technologies E5116A BSTS ATM Signalling Test Solution provides the industry's most comprehensive coverage of ATM signalling protocols. It offers in-depth analysis capabilities designed to help you identify the causes of signalling implementation problems and performance bottlenecks. BSTS signalling products operate over an extensive range of line interfaces, from 1.5 Mb/s to 155 Mb/s.

ATM equipment manufacturers and service providers use the solution to bring their ATM switch or network service to market faster and with greater confidence.

Equipment manufacturers use functional and conformance testing products during ATM switch design and system integration, to detect and identify the causes of signalling protocol implementation errors and standards non-conformance problems. They also use BSTS performance testing tools to gain a competitive edge, by benchmarking and fine-tuning SVC signalling performance.

Service providers use functional and conformance testing products to evaluate product features and detect interoperability problems between different vendor's ATM switches. During switch evaluation and network field trials, they use performance testing to evaluate

SVC signalling performance and fine-tune network parameters, under simulated maximum load conditions.

The E5116A solution bundle includes two E4209B Cell Protocol Processors (CPP) operating with your choice of line interfaces (LIF), from 1.5 Mb/s to 155 Mb/s. The CPP performs functional testing (encodes, decodes, and emulation) of a wide range of ATM signalling protocols. Automated protocol conformance test suites also run on the dual-port CPP-LIF hardware.

The E1600A Multiport Test Module provides UNI SVC performance testing over four OC-3/STM-1 single-mode ports.



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Innovating the HP Way

Key Bundle Features

Functional Testing

BSTS functional test products provide independent verification of the widest range of ATM signalling protocols:

- UNI 3.0, 3.1, and 4.0 encode, decode, and emulation (SSCOP layer and UNI message handling)
- NNI encode and decode (B-ISUP and B-ICI), and emulation (SAAL layer and MTP-3b message handling)
- ILMI encode, decode, and emulation (including address registration and MIB table display/edit)
- PNNI encode and decode (signalling and routing messages), and emulation (SSCOP layer)

Conformance Testing

BSTS conformance test products provide ATM-Forum compliant verification of UNI signalling and ILMI address registration:

- UNI 3.1 signalling: verify both user-side and network-side equipment
- ILMI Address Registration: verify both user-side and network-side equipment

You can also customize BSTS automated testing capability to your needs, using a range of productivity tools (TTCN, C, and Tcl).

Performance Testing

The BSTS Multiport UNI SVC Performance Test solution provides realistic 4-port load conditions, up to 100,000 simultaneous active connections at 2,500 calls/s per system. Extensive performance-related, time-correlated measurements, combined with a powerful graphing

tool, help you to detect and identify the cause of SVC performance bottlenecks. BSTS signalling performance testing doesn't just tell you if there is a performance bottleneck – it helps you to identify the cause of the problem.

ATM Signalling Standards

ATM Forum

UNI and ILMI:

- UNI version 3.0, 09/1993
- UNI version 3.1, 09/1994
- UNI version 4.0, 07/1996

NNI:

- B-ICI version 2.0, 12/1995
- B-ICI version 2.1 addendum, 09/1996

PNNI:

- PNNI version 1.0, 03/1996

ITU-T

UNI:

- Q.SAAL.0 (AAL), 05/1993
- Q.SAAL.1 (SSCOP), 05/1993
- Q.SAAL.2 (SSCF), 06/1993
- Q.2100 (SAAL), 1994
- Q.2110 (SSCOP), 07/1994
- Q.2130 (SSCF at UNI), 07/1994
- Q.2931 (DSS no. 2 at UNI), 02/1995
- Q.2951 (DSS no.2, number ID), 02/1995
- Q.2957 (DSS no.2, UUS), 02/1995
- Q.2961 (DSS no.2, traffic parameters), 10/1995
- Q.2971 (DSS no.2, point-multipoint), 02/1995

NNI:

- Q.704 (MTP functions and messages), 03/1993
- Q.707 (SS#7 testing and maintenance), blue book
- Q.2140 (SSCF at NNI), 02/1995
- Q.2210 (MTP-3b), draft 07/1995
- Q.2660 (B-ISUP to N-ISUP interworking), 02/1995
- Q.2730 (B-ISUP supplementary), 02/1995
- Q.2761 (B-ISUP functional description), 02/1995
- Q.2762 (B-ISUP general functions), 02/1995
- Q.2763 (B-ISUP formats and codes), 02/1995
- Q.2764 (B-ISUP basic call procedures), 02/1995
- ITU-T Capability Set 2.1 (Q.2721, Q.2722.1, Q.2723.1, Q.2724.1, Q.2725.1, Q.2725.2, Q.2726.1, Q.2726.2, Q.2726.3)

Telcordia (Bellcore)

NNI:

- GR-246-CORE (SS#7), Issue 1, 11/1995
- GR-2878-CORE (HSLs), Issue 1, 11/1995

Product Numbers

- **E5116A** BSTS ATM Signalling Test Solution

Contents include:

- **E4210B** BSTS Form-13 Mainframe Chassis
- **E1600A** Multiport Test Module (Inc. UNI Signalling Performance Test software)
- **E1602A** Quad OC-3c/STM-1 Single-mode Port Adapter
- **E4209B** 155 Mb/s Cell Protocol (X2) Processor
- **E4212A** AAL test software
- **E4214B** UNI signalling test software
- **E4217B** NNI signalling test software
- **E6273B** ILMI emulation test software
- **E6280A** PNNI test software
- **E7833C** ATM Forum UNI 3.1 complete signalling conformance test suite (network side)
- **E7834A** ATM Forum UNI 3.1 core signalling conformance test suite (user side)
- **E7842A** ATM Forum UNI 3.x ILMI Address Registration test suite (user side)
- **E7843A** ATM Forum UNI 3.x ILMI Address Registration test suite (network side)

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.

NB. Upgrade credits or bundle credits are not available for individual software applications included in the E5116A BSTS Signalling Test bundle.

Configuration and Use With Other BSTS Modules and Applications

The E5116A ATM Signalling Test Solution simplifies BSTS configuration by providing the chassis, HP-UX controller, SCSI hard drive, as well as the modules and software applications required for ATM signalling 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.

Additional Ordering Information

A selection of monitors are available for use with the ATM Signalling 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 testing
- 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.

www.Agilent.com/comms/BSTS

United States:

Agilent Technologies
Test and Measurement Call Center
P.O. Box 4026
Englewood, CO 80155-4026
1-800-452-4844

Canada:

Agilent Technologies Canada Inc.
5150 Spectrum Way
Mississauga, Ontario
L4W 5G1
1-877-894-4414

Europe:

Agilent Technologies
European Marketing Organisation
P.O. Box 999
1180 AZ Amstelveen
The Netherlands
(31 20) 547-9999

Japan:

Agilent Technologies Japan Ltd.
Measurement Assistance Center
9-1, Takakura-Cho, Hachioji-Shi,
Tokyo 192-8510, Japan
Tel: (81) 426-56-7832
Fax: (81) 426-56-7840

Latin America:

Agilent Technologies
Latin American Region Headquarters
5200 Blue Lagoon Drive, Suite #950
Miami, Florida 33126
U.S.A.
Tel: (305) 267-4245
Fax: (305) 267-4286

Asia Pacific:

Agilent Technologies
19/F, Cityplaza One, 1111 King's Road,
Taikoo Shing, Hong Kong, SAR
Tel: (852) 2599-7889
Fax: (852) 2506-9233

Australia/New Zealand:

Agilent Technologies Australia Pty Ltd
347 Burwood Highway
Forest Hill, Victoria 3131
Tel: 1-800-629-485 (Australia)
Fax: (61-3) 9272-0749
Tel: 0-800-738-378 (New Zealand)
Fax: (64-4) 802-6881

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