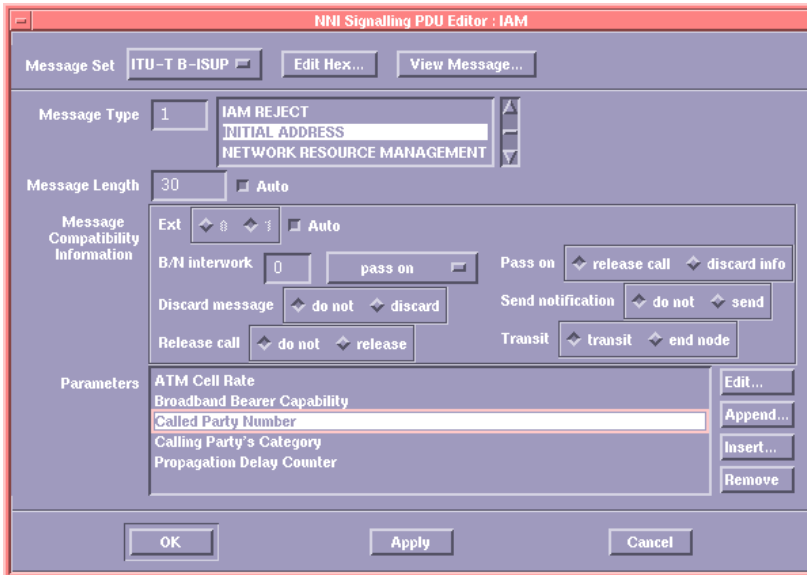HEWLETT®
PACKARD

NNI Signalling Test Software
For the HP Broadband Series Test System

E4217B

New

NNI PDU builder facilitates quick construction of B-ISUP and MTP-3b messages

Product Features:

- Supports the Broadband ISDN User Part (B-ISUP) and the ATM Forum's BISDN Inter Carrier Interface (B-ICI) Version 2.1

- Emulation of the Signalling ATM Adaptation Layer (SAAL) and MTP-3b signalling message handling

- Incorporates support for ITU-T Capability Set 2.1 and ANSI and Bellcore variants

- Build and store custom B-ISUP parameters for network and vendor specific services

The E4217B NNI Signalling Test Software is HP's new and enhanced solution for Network-Node Interface (NNI) testing. The product utilizes the Broadband ISDN User Part (B-ISUP) protocol, and has been designed as an application for HP's widely-used Broadband Series Test System (BSTS). This latest version supports new features defined in the ITU-T's recently announced Capability Set 2.1, intended to standardize NNI features, as well as ANSI and Bellcore variants, and the ATM Forum's Broadband Inter Carrier Interface(B-ICI) Version 2.1.

The E4217B supports monitoring of signalling messages with a live display, emulation of the SSCOP, SSCF, MTP-3b signalling message handling, and simulation of the B-ISUP protocol. This product complements the comprehensive family of available BSTS ATM signalling applications and conformance test suites.

Key Features:

Complete Decode and Display

Users can select from multiple protocol variants for decoding. All defined fields in NNI signalling messages for each supported variant can be decoded and displayed, with decode errors highlighted in red for easy identification. A Live Data Viewer allows users to view traffic data in real time; data can also be captured and examined via the product's Playback Viewer for detailed analysis. Parameters, such as sizing of DPC, SLS and OPC fields can be configured by the user for MTP-3b decoding.

SAAL and MTP-3b Emulation

The HP E4217B can emulate SAAL (SSCOP and SSCF) and the signalling message handling capabilities of MTP-3b. A graphical user interface facilitates configuration and control of the SAAL and MTP-3b emulation state machines.

The following parameters and options are available for each state machine:

- Configuration of protocol stacks
- Configuration of parameters such as counter values and timer durations
- Configuration of trace statements
- Start/stop control for emulation state machines
- Check the current status of the state machine, such as the current state

- Send primitives to the state machine, at the top layer in the configured protocol stack

Protocol errors detected by the emulation are reported as trace statements in both the live and playback viewers.

B-ISUP and MTP-3b PDU Builder

The product interface provides graphical B-ISUP and MTP-3b PDU editors that facilitate testing of NNI implementations. Signalling PDUs can be edited to construct valid and invalid messages to test device response. For example, users can easily enter invalid values into B-ISUP and MTP-3b message fields to isolate faults or simulate network signalling problems. Custom B-ISUP parameters can be easily built, sent, and stored for later reuse in order to quickly prototype new network and vendor specific services.

Applicable Standards

The E4217B conforms to the following standards:

ANSI

- ANSI T1.111-1996, Signalling System No. 7, Message Transfer Part
- ANSI T1.637-1994, B-ISDN ATM Adaptation Layer - Service Specific Connection Oriented Protocol (SSCOP)
- ANSI T1.648, Signalling System No. 7 (SS7) - Broadband Integrated Services Digital Network User Part (BISUP), 1995.
- ANSI T1.645-1995, B-ISDN Signalling ATM Adaptation Layer - Service Specific Coordination Function for Support of Signalling at the Network Node Interface (SSCF at the NNI)

- ANSI T1.658, Broadband Integrated Services Digital Network (B-ISDN) User Part - Additional Traffic Parameters for Sustainable Cell Rate (SCR) and Quality of Service (QOS), 1996.

ATM Forum

- B-ICI Specification, V 2.0, December 1995 (af-bici-0013.003).
- Addendum to B-ICI Specification, V 2.0 (B-ICI Specification, Version 2.1), 09/96 (af-bici-0068 Letter Ballot).

Bellcore

- GR-246-CORE, Bell Communications Research Specification of Signalling System Number 7 (SS7), Issue 1, Revision 1 (Bellcore, 11/95).
- GR-2878-CORE Issue 1, November 1995, Generic Requirements for CCS Nodes Supporting ATM High-Speed Signalling Links (HSLS)

ITU-T

- ITU-T Recommendation Q.2660: Broadband Integrated Services Digital Network (B-ISDN) - Interworking Between Signalling System No. 7 - Broadband ISDN User Part (B-ISUP) and Narrow-band ISDN User Part (N-ISUP) (ITU-T, 02/95).
- ITU-T Recommendation Q.2730: Broadband Integrated Services Digital Network (B-ISDN) - Signalling System No. 7 B-ISDN User Part (B-ISUP) - Supplementary Services (ITU-T, 02/95).

- ITU-T Recommendation Q.2761: Broadband Integrated Services Digital Network (B-ISDN) - Functional Description of the B-ISDN User Part (B-ISUP) of Signalling System No. 7 (ITU-T, 02/95).

- ITU-T Recommendation Q.2762: Broadband Integrated Services Digital Network (B-ISDN) - General Functions Messages and Signals of the B-ISDN User Part (B-ISUP) of Signalling System No. 7 (ITU-T, 02/95).

- ITU-T Recommendation Q.2763: Broadband Integrated Services Digital Network (B-ISDN) - Signalling System No. 7 B-ISDN User Part (B-ISUP) - Formats and Codes (ITU-T, 02/95).

- ITU-T Recommendation Q.2764: Broadband Integrated Services Digital Network (B-ISDN) - Signalling System No. 7 B-ISDN User Part (B-ISUP) - Basic Call Procedures (ITU-T, 02/95).

- ITU-T Capability Set 2, Step 1 (Q.2921, Q.2922.1, Q.2923.1, Q.2924.1, Q.2925.1, Q.2925.2, Q.2926.1, Q.2926.2, Q.2926.3)

- ITU-T Recommendation Q.2110 (07/94), B-ISDN ATM Adaptation Layer - Service Specific Connection Oriented Protocol (SSCOP)

- ITU-T Recommendation Q.2140 (02/95) B-ISDN ATM Adaptation Layer - Service Specific Coordination Function For Signalling At The Network Node Interface (SSCF at NNI)

- ITU-T Recommendation Q.2210 Message Transfer Part Level3 functions and messages using the services of ITU-T Recommendation Q.2140 (Draft, 07/95)

- ITU-T Recommendation Q.704 Specifications of Signalling System No.7 - Message Transfer Part - Signalling Network Functions and messages (03/93)

- ITU-T Recommendation Q.707 Specifications of Signalling System No.7 - Testing andMaintenance (Extract from Blue Book)

Configuration & Use With Other BSTS Line Interfaces, Hardware Modules & Test Software

The E4217B NNI Signalling Test Software requires a minimal Broadband Series Test System configuration of a chassis, E4209A or E4209B Cell Protocol Processor, and any ATM cell-based line interface. Two cell protocol processor/line interface pairs are recommended for monitoring a bi-directional stream; two receivers are required to capture both sides of the protocol exchange across the NNI. The E4217B requires the E4212A AAL Test Software.

A related product, the E6280A PNNI Test Software tests the private network-network signalling and routing protocols at the interface within switches in private networks. Also, the E4214B B-ISDN UNI Signalling Test Software product provides reference emulations, decode and display, PDU builders and a user programming environment for the Signalling ATM Adaptation Layer, and for the UNI 3.0/3.1/4.0 and Q.2931 signalling protocols.

Warranty & Support Options

HP 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 HP Broadband Series Test System, the software/firmware media has the same warranty period as the product.

Product Numbers

- **E4217B** NNI Signalling Test Software

- **E6280A** PNNI Test Software

- **E4214B** B-ISDN UNI Signalling Test Software

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For more information

For an introduction to the modular Broadband Series Test System, please request the *BSTS Product Catalog*, HP publication 5965-4721E or visit the BSTS web pages at http://www.hp.com/go/bsts.

The *BSTS Ordering Guide*, HP publication 5964-0393E, helps you determine the appropriate system configuration for your testing needs. Technical specifications detailing other dedicated test modules and test software packages for the BSTS are also available.

How to Find Out About Other HP Products, Publications & Services

For more information on Hewlett-Packard Test & Measurement products, publications or services, please call your local Hewlett-Packard sales office. A current listing is available via Web through AccessHP at http://www.hp.com. If you do not have access to the internet, please contact one of the HP centers listed below and they will direct you to your nearest HP representative.

United States:

Hewlett-Packard Company
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5301 Stevens Creek Blvd.
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