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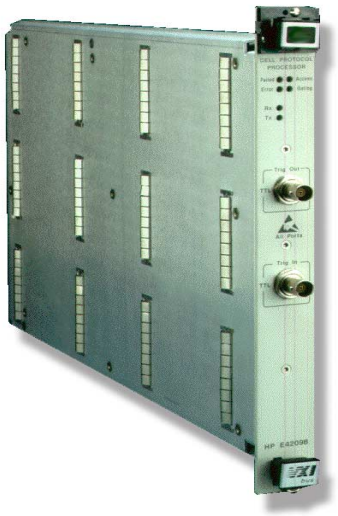
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Find the *Keysight / Agilent E4209B* at our website: ***Click HERE***

Cell Protocol Processor

Agilent Technologies Broadband Series Test System

E4209B



Product Features

- Provides protocol monitoring and simulation
- Runs optional test software for additional upper-layer protocol testing
- Generates up to eight streams of user-defined ATM test traffic
- Fast hardware-based cell segmentation and re-assembly

The Agilent Technologies Cell Protocol Processor (CPP) provides real-time and post-processing protocol testing features for the Broadband Series Test System. The basic CPP assembly and system software can perform monitoring and simulation of ATM, F4 and F5 OAM, and AAL1 protocols. Software required to provide the features described below is provided with the CPP hardware. Further upper layer testing can be performed using additional software packages. The Cell Protocol Processor can be configured with many different Line Interfaces, at rates from 1.5 Mb/s to 622Mb/s, including: E1616A 1.5/45 Mb/s (DS1/DS3), E1610A 34 Mb/s (E3), E1618A 622 Mb/s (STS-12c/STM-4c) Optical, E1697A 155 Mb/s (STS-3c/STM-1) Optical, as well as: E4219A ATM Network Impairment Emulation Module.

The CPP can generate up to eight streams of user-defined ATM traffic. It also provides both real-time and post-processed measurements on ATM traffic. Measurements are automatically synchronized between devices in the test session.

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User Programming

The CPP supports a C-language UNIX® user programming environment.

Test Software

Additional test software can be run on the CPP. These packages provide high layer protocol testing. The following test software is currently available:

- AAL Test Software
- SMDS and DXI Test Software
- Traffic Characterization and Policing Software (E4223A)
- UNI, PNNI, ILMI, NNI, and VB5 Signalling Protocol Software
- LAN and LANE Protocol Software
- Conformance and Interoperability Test Suites
- MPEG Test Software

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

The E4209B Cell Protocol Processor requires a BSTS chassis with UNIX® controller.

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. At the time of purchase, you may select warranty option W01, a no-charge option which converts the standard 3-year return to Agilent warranty to a 1-year on-site warranty.

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.

Product Numbers

- **E4209B** 0-155 Mb/s Cell Protocol Processor (CPP)
- **E4200A/B** BSTS Form-7 Transportable Chassis
- **E4210A/B** BSTS Form-13 Mainframe Chassis

  B-ISDN SMDS Test software on CD ROM
- **E4212A** B-ISDN AAL test software on CD ROM

  B-ISDN DXI Test software standard with base software

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Technical Specifications

PDU and PDU Sequence Builder

The Protocol Data Unit (PDU) and PDU Sequence builders can be used to create, custom-built libraries of predefined traffic. These libraries can contain ATM cells and AAL1 PDUs. Cells and PDUs can be linked to form a complex library of sequences. The PDU editor can create, edit, copy, rename, and delete PDUs.

ATM Cell Editing

Header	• User defined by field GFC, VPI, VCI, PT, CLP
Interface	• UNI/NNI selectable
HEC	• User defined • Auto-calculate
Trailer	• User defined by field
Payload	• User defined in hex • Can be incrementing or decrementing

AAL1 PDU Editing

Header	• User defined by Field CSI
Sequence Number Protection	• User defined or auto-calculated
Payload	• User defined in hex, can be incrementing

Encoding Options

AAL1 PDUs can be automatically encoded down to lower layer ATM cells. The user specifies the encode options to be applied during the encoding process.

ATM interface options (UNI/NNI)	• VPI • VCI • PT • CLP

Traffic Generation

The transmission of the ATM Cells, PDUs and PDU sequences can be done as a single-shot or as distributed traffic. Single-shot and distributed traffic can be sent simultaneously.

Single-Shot

In single-shot operation, you can select on PDU or PDU sequence to be sent.

Cell rate	• User selectable (0 - 100% of line rate)
Number of cells	• Up to 2047 unique cells
Encoding	• AAL1 to ATM cell

Distributed Channels

Up to eight independent traffic streams can be generated using predefined PDUs and PDU sequences.

Transmission	• Continuous and repetitive
Number of cells combined	• 2047 unique cells on all streams
Multiplexing	• Distributed streams are multiplexed with single-shot traffic
Priority	• Single-shot takes precedence over distributed traffic; stream 1 has the highest priority

Stream 1 Distribution & Parameters

Constant cell rate (CCR)	• Mean load
Burst/Max Load	• Burst gap length
Sawtooth	• Minimum/maximum load, burst gap length
Poisson	• Mean cell interarrival time

Streams 2-8

CCR	• Mean load

Real-Time Measurements

Measurements can be displayed in real-time either numerically or graphically. These measurements can be recorded to disk in a Lotus 1-2-3 compatible format for storage and later use.

PDU Data Capture

Live PDU data can be captured into memory

Capture capacity	• 131,072 cells per 8 MB of capture RAM
Capture control event	• Manually or on a specified trigger
Time stamping	• All captured data is timestamped with the calendar time (resolution = 0.1 us)

Capture Filters

Incoming cells are filtered using up to eight Pattern Matchers. Real-time filtering determines which cells are kept for analysis.

Receive Streams

Each received cell undergoes the following reassembly and analysis process.

- Pattern matcher filtering
- Error checking
- Reassembly
- Event triggers

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Pattern Matchers

Incoming cells are matched against up to eight programmable patterns. The results are used as inputs to the trigger engine.

Patterns	• 53 byte cell
Editing forms	• ATM cells, AAI1
Pattern matching	• Inverted or non-inverted
Bit matching	• 0, 1 or wildcard

Trigger Event Engine

A programmable event/action matrix is provided in the CPP. It is used to trigger actions when specified events are detected.

Actions	• Start/restart capturing • Suspend or stop capturing • Capture cells • Increment counter • Reset counter • Start/restart timer • Stop timer • Exert external trigger • Start transmitter
Events	• Pattern match (1-8) • Cell received • Timer expiry (programmable 1-256ms +/- 1 ms) • External trigger input detected • Logically ORed combinations of the above • Decode errors

Statistical Measurements

Real-time statistics can be calculated on the incoming cell streams.

- Total cells received
- Total unassigned cells
- Total cells received on a channel
- Number of pattern matches

Playback

Event streams can be reconstructed from recorded cell-streams for off-line analysis using the playback facility.

- Detection of protocol errors
- Filtering
- Cell and PDU display
- Results archiving facility

ATM Analysis

Options	• UNI/NNI selectable
Decode Errors	• Invalid HEC VPI< >0, VCI=0

As per ITU-T I.361

AAL1 Analysis

Decode information

Sequence Number	• CSI Sequence count
SNP	• CRC-3 Parity
Payload	• Hex or ASCII display

As per ITU-T I.363

OAM F4 and F5 Analysis

OAM Decode information

Flow level	• F5 VC segment • F5 VC end-to-end • F4 VP segment • F4 VP end-to-end
Cell type	• Fault & performance management, activation, or deactivation of user management
Function type	• AIS, FERF, Continuity check, Forward monitor, Backward monitor, Monitoring/reporting

As per ITU-T I.610 & T1S1.5/92-029R91

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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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Specifications subject to change.
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