ATM Network Impairment Emulator Module

E4219A

Major Test Functions

- ◆ Realistically emulates imperfect networks by introducing on-demand impairments into an ATM cell stream
- ◆ Emulate switching delays, traffic shaping, buffering delays, burst errors and noisy transmission lines
- ◆ Impairs information at the ATM cell layer—select the virtual channels you want to impair

New hardware module gives you direct control over the ATM layer quality of services for stress testing ATM services and equipment. Runs on the HP Broadband Series Test System, the industry-standard ATM & B-ISDN protocol and transmission test system for R&D engineering, field trials, commissioning and conformance testing.

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Major Test Functions

The new *E4219A ATM Network Impairment Emulator Module* helps you stress test ATM services by realistically emulating an imperfect network. Voice, data, and video services may run smoothly on uncongested trial networks, but real networks usually exhibit some degree of impairment, especially when operating under adverse conditions. Both network equipment and customer premise equipment must be capable of reliably handling errors, but quantifiable and controllable error levels cannot easily be generated on-demand with a network. The E4219A gives you control over quality of service by introducing various errors into an ATM cell stream with parameters defined by you. Ideal for video testing—introduce errors and see the effect on picture quality.

Variable Cell Delay

◆ Emulates ATM multiplexing jitter, variable switching delays, and network traffic shaping

◆ Cell delay variation distributions include binomial, geometric and user-definable Markov chain

Cell Errors

◆ Emulates transmission line noise with constant error rate or bursts

◆ Errors can be modeled with uniform, exponential, normal, deterministic or user-defined probability density functions

Cell Loss

◆ Emulates transmission line noise, traffic policing and switch malfunction

◆ Errors can be modeled with uniform, exponential, normal, deterministic or user-defined probability density function

Cell Misinsertion

◆ Emulates transmission line noise and undetected header errors

◆ Model errors with uniform, exponential, normal, deterministic or user-defined distributions

Constant Cell Delay

◆ Emulates transmission distance, satellite hops, switching and buffering delays

◆ Range is scalable depending on rate of line interface

Broadband Series Test System Configuration

The Broadband Series Test System is a sophisticated UNIX®-based high speed ATM/B-ISDN test platform. Used for product development, quality assurance, network operations, type approval, and conformance testing, the BSTS can perform comprehensive testing of all ATM protocol layers. Configure a test system to suit your needs.

The *E4219A ATM Network Impairment Emulator Module* is used with a line interface. The cell stream output from a line interface is routed over the BSTS's internal cell bus to the E4219A, which modifies the cell stream to introduce impairments. The resulting impaired cell stream is then routed back to the line interface's output over the internal cell bus. Network impairment modules can be cascaded to increase total delay, or use different impairments on different virtual channels. The E4219A can also be used with an *E4209B Cell Protocol Processor.*

Ordering Information & Accessories

E4219A *ATM Network Impairment Emulator Module*

E4209B *Cell Protocol Processor*

For More Information

To find the location of your local HP sales office, please contact the nearest regional sales headquarters listed below.

United States:
Hewlett-Packard Company
Test and Measurement Organization
5301 Stevens Creek Blvd.
Building 51L-SC
Santa Clara, CA   95052-8059
1-800-452-4844

Canada:
Hewlett-Packard Canada Ltd.
5150 Spectrum Way
Mississauga, Ontario L4W 5G1
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Europe:
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Japan:
Yokogawa-Hewlett-Packard Ltd.
Measurement Assistance Center
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Latin America:
Hewlett-Packard
Latin American Region Headquarters
5200 Blue Lagoon Drive, 9th Floor
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