ATM Forum LAN Emulation 1.0 Service Test Suite

Agilent Technologies Broadband Series Test System

E7293B

The Test Manager user interface that runs on the Agilent E4200/E4210 BSTS displays all relevant information about the test campaign at the top. The test suite browser displays a collapsible/expandable tree structure. Further down, trace and test case purpose windows provide detailed data.
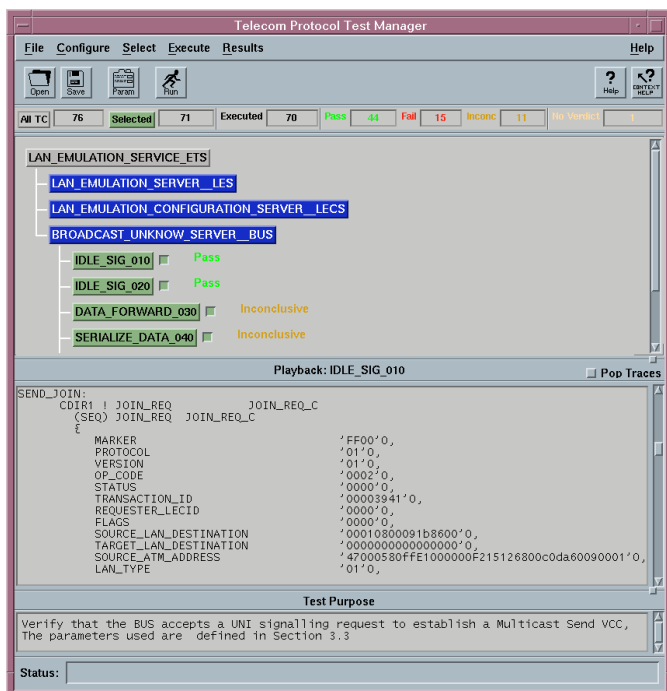
Product Features

- Supports PVC and SVC (UNI 3.0 and 3.1) connections
- Tests LANE Service on End Systems (e.g. ATM interface cards) as well as on Intermediate Systems (e.g. switches)
- On LAN side, only supports Ethernet/802.3
- Verifies LANE messages: Join, Register, ARP
- Tests LANE-specific aspects of Signalling

The Agilent Technologies E7293A ATM Forum 1.0 LAN Emulation Service Test Suite is designed to verify the conformance of the LAN Emulation Server (LES), the LAN Emulation Configuration Server (LECS) and the Broadcast and Unknown Server (BUS) of an Ethernet/IEEE 802.3 Emulated LAN to the ATM Forum LAN Emulation Over ATM 1.0 specification.

To accomplish this, the test suite can act as one or several (max. 3) LAN Emulation Clients (LECs) simultaneously and perform various expected procedures and inter-actions depending on the test case.

The LANE servers are checked for all appropriate messages, state transitions, error situations set out in the specification as well as to verify that they establish and accept the connections that they are required to handle.

ATM Network equipment manufacturers (NEMs) and network operators can expect to achieve higher confidence that the protocol allowing transparent LAN functionality over ATM backbones is behaving correctly with regard to the LANE service they are implementing.

The abstract test suite has been submitted to the ATM Forum for approval.

The test suite consists of 76 test cases divided into following areas:

LES - Join, Normal Behavior, Not Valid, Release & Termination, Registration, ARP, Flush, Topology
*LECS* - LECS Address, Configuration
BUS

Please see the table on p.3 for more details and numbers of test cases in each group.

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Key Features

- Fully automated off-the-shelf test solution based on a recognized ATM Forum test matrix. The complete abstract test suite (ATS) is pending ATM Forum approval.

- Parameters can be set (interactive questions) to establish if and how the implementation supports signalling. Simply answer the questions accordingly, and the BSTS will handle all connection setups automatically.

- Automated stimulus-and-response testing simplifies the verification process of ATM products at all phases of R&D. A complete, automated suite of tests in a single package can help reduce design cycle costs by producing results more quickly and with less operator intervention.

- Flexible test case selection translates into either exhaustive testing or tailoring test case selection to suit the specific functions under test.

- Clear verdict assignments for each test case run (such as PASS or FAIL) make focussing on problems to be fixed easier and are a good indicator of the quality of the IUT.

- Diagnostic information in test case traces can help pinpoint errors.

- Quickly and accurately verify the conformance of LANE products and implementations prior to market introduction.

- Flexible data recording and playback capabilities built-in to the interface's trace window simplify the review of messages transmitted. The operator can either pop traces to a separate window or keep track of overall results by generating variable-detail test campaign reports. The full exchange of messages produced by the test
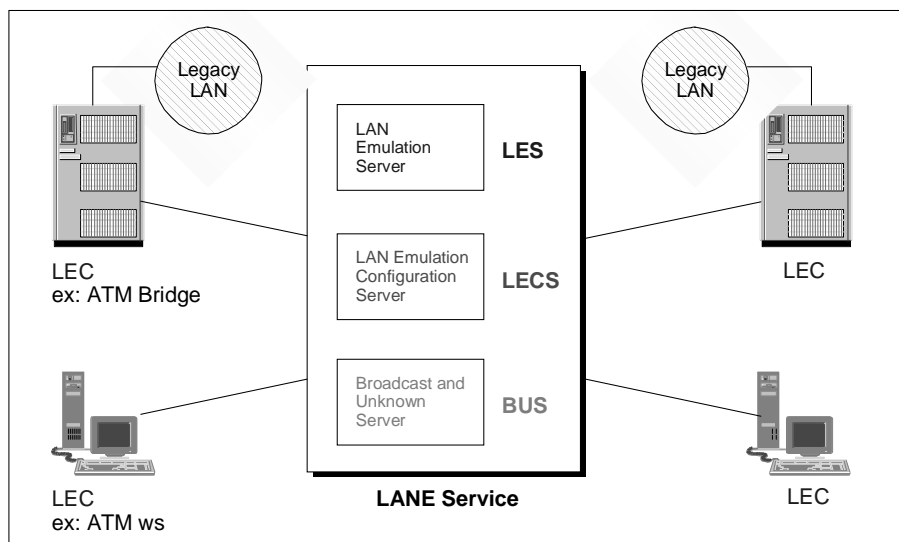
LANE clients connected to the LANE server. 1-2 LANE clients can be connected respectively to a single-port or dual-port tester.

cases is recorded for later analysis.

- Test repeatability is achieved by saving test session setups and results. This allows quick regression testing of product's evolution.

- Test campaigns are easily configured via interactive True/ False or value setting questions for most PICS, PIXIT and other types of statements.

- Selecting test cases based on previously assigned verdicts helps concentrate on problem areas.• The test suite follows an internationally recognized protocol testing standard methodology as defined in ISO 9646.

- Comprehensive multilevel on-line help is available to guide the user through many aspects of testing, with the help of hyperlinks, diagrams and definitions.

Typical Applications

ATM network equipment manufacturers (NEMs) and network operators can expect to achieve higher confidence that the protocol allowing transparent LAN functionality over ATM backbones is behaving correctly with regard to the LANE service they are implementing.

The LANE Service test suite actually offers six capabilities bundled into one fully automated test package: it tests LANE Service on Intermediate Systems, such as switches, as well as on End Systems such as ATM interface cards.

A parameter can be set to select between the two configurations, that require respectively either dual or single ports.

In addition to these 2 configurations, 3 types of connections are supported: PVC; SVC based on the ATM Forum UNI 3.0 spec; and SVC based on the UNI 3.1 spec. In the case of SVCs, all LANE-specific aspects of signalling are handled automatically.

Applicable Standards or Specifications

ATM Forum LAN Emulation Over ATM 1.0

Abstract Test Suite

Reference

Test matrix: August 1996, ATM Forum contribution # 96-1124. ATS: December 1996, ATM Forum contribution # 96-1668.

Standard Body

ATM Forum approval of the abstract for this suite is pending.

Software Package Contents

- ETS (on CD-ROM.
- ETS User's Guide
- ATS Manual
- Release Notice
- Test Manager GUI (on CD-ROM)
- Test Manager User's Guide
- Test Manager Release Notice
- Hardware key

Product Numbers

- **E7293B**   ATM Forum LANE 1.0 Complete Service Test Suite

Areas Tested

Test Suite Structure

Test Group	Number of Test Cases
LES	
Join - Normal Behavior	9
Not Valid	13
Release & Termination	5
Registration	12
ARP	7
Flush	1
Topology	2
LECS	
LECS Address	3
Configuration	17
BUS	7
Total Number of Test Cases	76

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

Hardware Requirements

- Testing LANE on intermediate systems: 2 CPP + 2 LIF (any LIF).
- Testing LANE on end systems: 1 CPP + 1 LIF (any LIF).

Software Requirements

- Base System V3.02 or higher.
- UNI Signalling Test Application (E4214A), V3.02 or higher.

Warranty & Support Options

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.

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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