

DigiTest® EDGE® Broadband Test Platform

The DigiTest® EDGE® Broadband Test Platform is Tollgrade's global solution for broadband service providers offering integrated digital services.

Managing and testing this multi-layered network requires powerful solutions to accurately qualify potential customers, verify provisioning prior to service activation and isolate multi-layered network faults. DigiTest EDGE test heads, located at the network edge, coupled with Tollgrade's powerful LoopCare™ Test Operations Support System (OSS), provide these essential remote test and management capabilities.

The broadband network is characterized by highly distributed architectures with connection to the local loop provided by DSLAMs and BLCs. A modular and compact design allows

the DigiTest EDGE to co-reside with these broadband network elements located in either a Remote Terminal (RT) or low-line-count Central Office (CO) environment.

The DigiTest EDGE has flexible configuration options with capabilities that include:

- Precision DC/metallic, narrowband and wide-band testing, including TDR, load coil and bridged tap detection and location;
- Multi-layered DSL test support to isolate common DSL, ATM, IP and HTTP network faults; and
- T1 in-service monitoring and out-of-service Bit Error Rate Testing (BERT).

**Tollgrade
is everywhere
your broadband
network needs
to be.™**

tollgrade
Network Assurance
Simplified.™

Multi-layered
broadband testing,
optimized for the
network edge.



Right-sized, Multi-service Testing for the Network Edge

The DigiTest EDGE's various configurations provide a complete suite of POTS, DSL and DS1 testing in a compact, environmentally hardened chassis. Remote test OSSs, such as LoopCare, can manage and direct tests with the DigiTest EDGE over a TCP/IP Ethernet, V.92 modem or RS-232 serial connection. Ideal for remote DSLAM testing applications, an optional ADSL (ATU-R) modem is available for northbound communications to the test OSS.

The DigiTest EDGE's DC/metallic, narrowband, wideband and DSL service testing can be switched to any of four independent Test Access Ports (TAPs). The T1 BERT option includes separately managed TAPs, providing independent Tx/Rx T1 ports. This allows a single DigiTest EDGE test head to serve as a test resource for multiple network elements within a given site.

Additionally, four auxiliary RS-232 interfaces are available to provide serial communications with external test access devices.

DigiTest EDGE Options

Metallic Test Module (MTM)

Equipped with a suite of narrowband and wideband metallic testing features, the MTM allows service providers to troubleshoot lines for both POTS and wideband services. Specialized capabilities, such as load coil/bridged tap detection, wideband tone transmit and receive, and ATU-R detection, round out the MTM's features designed to address the metallic testing needs of today's POTS/DSL networks.

Broadband Services

The Broadband Services Unit (BSU) allows operators to emulate Customer Premises Equipment (CPE) in order to test core network-, ISP- and Internet-related troubles from a central location. Key DSL, ATM, IP and HTTP tests reproduce an end-user connection at all service layers, offering a variety of information for problem resolution.

Through ISP emulation, the BSU can validate and confirm end-to-end connectivity prior to service turn-up. ISP emulation helps service providers isolate problems behind the customer demarcation point to help ensure customer satisfaction and confirm reliable network operation.

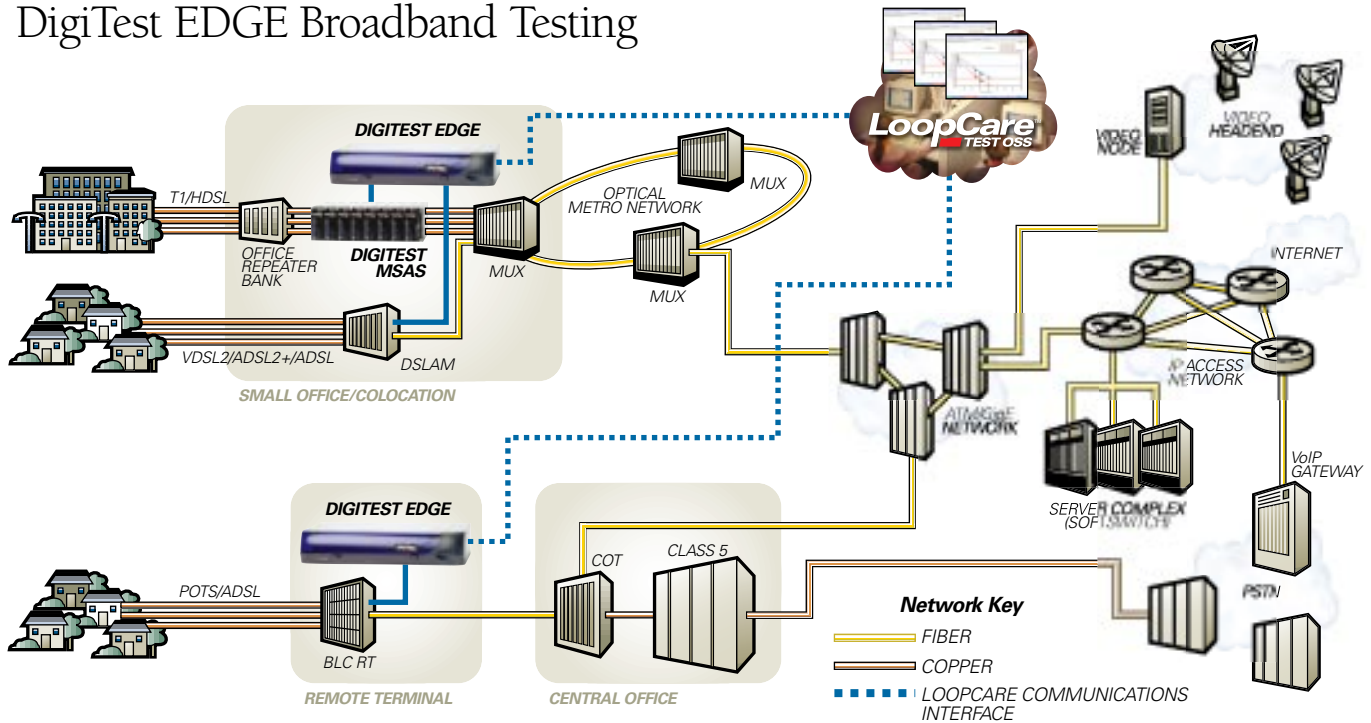
The Broadband Services option accommodates up to two DSL modem modules—for ADSL and g.SHDSL services—to troubleshoot the DSL, ATM, IP and HTTP layers. Each module is capable of emulating both the CPE and ISP network.

T1 BERT Module

The T1 BERT Module delivers cost-effective turn-up and in-service troubleshooting capabilities for T1 and HDSL circuits. This option enables the T1 and HDSL circuit to be tested in a variety of applications, including live circuit monitoring, end-to-end testing with other DigiTest EDGE T1 BERT modules or portable testers, and loopback testing with terminating NIU/ATU.



DigiTest EDGE Broadband Testing



By combining T1, POTS and DSL testing into a single platform, the DigiTest EDGE offers service providers a way to eliminate costly, multi-test-head configurations.

Metallic Testing for POTS and DSL Networks

The DigiTest EDGE offers a comprehensive suite of narrowband and wideband metallic test functionality, ensuring accurate diagnosis of subscriber loop conditions in support of POTS and DSL service deployments. Precision measurements—such as capacitance, load coil detection and location, wideband noise, TDR, transmit and receive, wideband tones—make the DigiTest EDGE a paramount addition to the testing toolbox.

Multi-layered DSL Testing

Quickly isolate multi-layered DSL faults among CPE, loop, DSLAM, ATM and ISP network segments with a full suite of DSL, ATM, IP and HTTP tests.

DS1 Bit Error Rate Testing

Verify provisioning and remotely isolate DS1/DS0 troubles with a complete suite of in-service monitoring and out-of-service BERT tests.

DigiTest EDGE Specifications

Physical

3.5"(H) X 17.72"(W) X 11.02"(D) [8.89cm(H) X 45.00cm(W) X 28.00cm(D)]
Mountable in 19" or 23" Standard EIA Racks or an ETS 300 119-Compliant Rack or Cabinet

Environmental

Operating Temp. . . -45°C to +70°C (-49°F to +158°F) (Per GR-63-CORE and GR-487-CORE)
Humidity 5 to 90% (non-condensing)
Storage Temp. -45°C to +70°C (-49°F to +158°F)
Certification CE Mark and NEBS Level 3

Power Requirements

Power Dissipation 39 watts
Battery Input Voltage -40.5 VDC to -57.0 VDC
Current Required 2A

Communications Interface(s)

Analog Dial-up V.92 or ADSL Modem Option (RJ-11)
10/100 BaseT Ethernet Auto Sensing (RJ-45)
Local RS-232 Craft Port Interface (DB-9)
Four RJ-45 RS-232 auxiliary ports (RJ-45)

Test Bus Interface

One Eight-pin Terminal Block for Four Port (Two-Wire — T/R) Connections
Shrouded header with screw terminals

Alarms

One Six-pin Terminal Block for Two Sets of Alarm Contacts
Shrouded header with screw terminals

Metallic Tests

Load Coil Detection and Location	Soak Testing
Hazardous Potential Voltage	Single-Sided Resistive Fault
AC/DC Voltage Measurements (three-terminal)	Sectionalization
AC/DC Resistance (three-terminal)	Filtered Voiceband Noise (C-message, Psophometric)
Capacitance (two- and three-terminal)	Narrowband Tone Generation (longitudinal and metallic)
Longitudinal Balance	Speech Detection
Capacitive Balance	

Wideband Tests

Time Domain Reflectometry	Wideband Noise Disturber Identification
Bridged Tap Detection and Location	Impulse Noise
Wideband Spectrum Analysis	ADSL Quiet Tone
Wideband Noise Filtered (E, F and G)	

Interactive Tests

Metallic Tracing Tone	Transmit Wideband Tone (16 kHz to 2 MHz)
Longitudinal Tracing Tone	Receive Wideband Tone (16 kHz to 2 MHz)

T1 BERT (option)

Line Coding AMI, B8ZS

Input Terminations

Terminate DSX +6 dB to DSX -36 dB, 100 ohms

Clock

Internal, Recovered, External

Transmitter and Receiver

T1 Framing Unframed, D4, ESF
T1 Channel Formats Full T1, Nx56, Nx64
T1 Test Patterns QRSS, All ones, 1:7, 2-in-8, 3-in-24, All zeros, Multipat, Bridgtap,
T1-Daly, 55-Octet, 2047, 2E15-1, 2E20-1, 2E23-1, A-LT1/0, T1_1-5, DDS1-6

T1 Error Injection

Type	Frame, CRC, Logic
Rate	Single, Fixed-rate, Burst
T1 Alarms	LOS, LOF, Yellow, AIS, Idle (CDI)

T1 Test Features

Error Detect/Rate/Seconds BPV, Frame, CRC, Pattern
Alarm Detect/Seconds LOS, LOF, Yellow, AIS, Idle (CDI), Excess zeros
G.821 Performance

Error-free seconds, Errored seconds, Severely errored seconds,
Available seconds, Unavailable seconds, Degraded minutes

Auto Configuration Line coding, Framing, Test pattern

Channel Access

Rx Level/Frequency	Signaling Bits (single-channel and 24-channel)
Rx Byte	DDS Control Code Decodes

Transmit Channel

Signaling Bits	All Zeros, All Ones, 63, 511, 2047 via DS0A channel formats
1000 Hz (at 0dB)	DDS1-5 via DS0A channel formats

Delay Measure round trip delay in unit intervals (full T1 only)

T1 Loopback Control Transmit/Respond to CSU (in/out-of-band),
NIU, Intelligent repeaters, HDSL (HTU-C/R/Doublers)

DS0 Loopback Control OCU-DP, CSU/DSU

Ordering Information

Please contact your Tollgrade representative for ordering information.

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