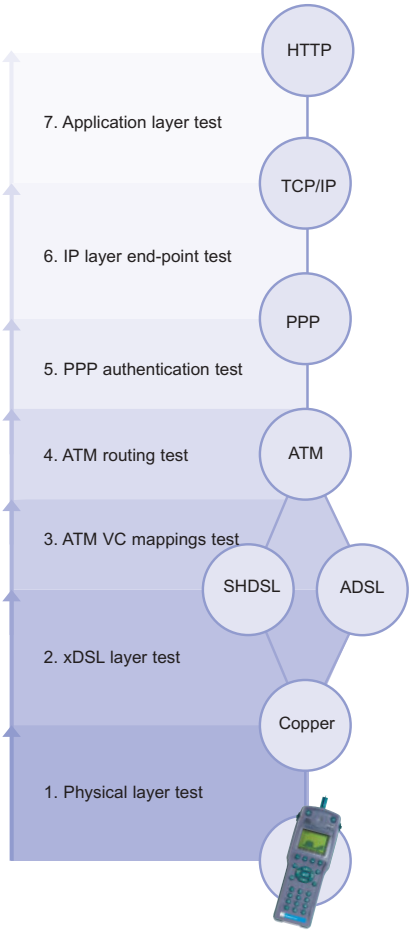
AuroraPresto

A Revolution in DSL Testing

xDSL

the complete test tool for DSL technologies

TrendCommunications



xDSL

a multilayer technology

The massive customer demand for new services has driven the need to develop Digital Subscriber Line technologies (DSL) to achieve the higher data rates required.

Using existing copper, which shares a bundle with many diverse services, may cause quality-of-service problems to the network operator, service provider and end users.

Aurora Presto has been developed to offer all the functionality needed for the installation, maintenance and troubleshooting of Asymmetrical Digital Subscriber Line (ADSL) and Symmetrical High Speed Digital Subscriber Line (SHDSL) services, in both laboratory and field environments.

Aurora Presto enables you to test at all layers of the xDSL service

AuroraPresto

Multilayer Test Solution for xDSL Rollout, Maintenance and Troubleshooting

With the growth of 'self install', where the customer obtains the DSL modem and a splitter box from an electronics retailer as a move to cut costs, DSL service, installation and commissioning problems are set to grow.

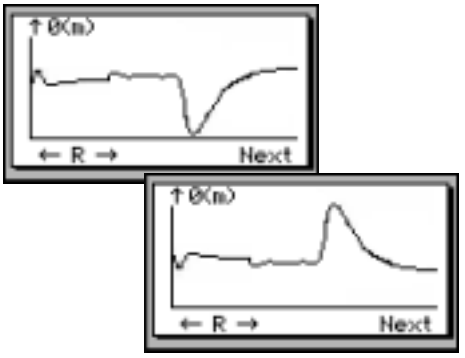
Aurora Presto, the market leader in xDSL testing, quickly and correctly locates and identifies fault conditions on the DSL, ATM, AAL5, PPP, IP and Application layers.

- ADSL over POTS and ADSL over ISDN
- SHDSL Annex A and B
- Fully automated One-Button Testing Mode
- Analogue line testing with TDR and DMM tools
- ATM layer testing (full ATM cell stream handling capability)
- IP layer testing with Bridged and Routed Ping facility
- PPP testing: PPPoE and PPPoA
- Internet download testing

Physical Layer

test with TDR and DMM

DSL technologies are robust and highly suited for use over existing poor-quality copper. However, degradation of the local loop may lead to physical layer problems which cannot be found using conventional service test measurements.



TDR and DMM testing with Aurora Presto

A typical test scenario would be where a customer's modem is unable to achieve synchronisation on a previously live circuit.

A service engineer would probably use a DMM to confirm that there is the correct voltage on the copper pair and to test the connection to the DSLAM. Should this test fail, the engineer would typically then locate the type and location of the fault on the pair using a TDR.

Aurora Presto includes both TDR and DMM functionality to enable effective fault finding at the physical layer on the local loop.

- TDR (Time Domain Reflectometer)
- DMM (Digital Multimeter) ACV, DCV, Capacitance, Resistance, DC Current
- Detects up to 4 load coils
- Noise analysis test with graphical display

xDSL Layer

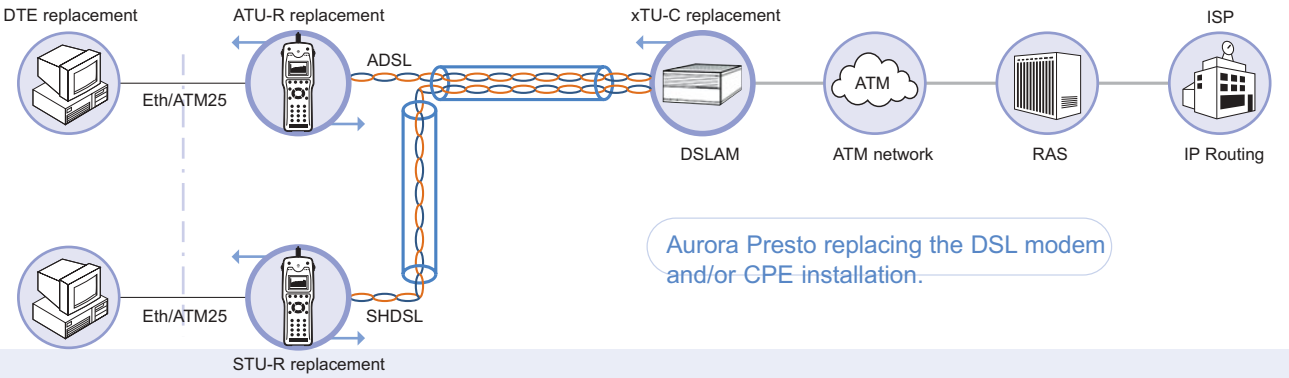
test functions

ADSL Test

Aurora Presto provides comprehensive statistical reporting of the ADSL link performance, including a full display of the allocation of bits per tone.

All major DSLAM and chipset vendors are supported for both ADSL over POTS and ADSL over ISDN bandplans. You can easily select any of the three DSL modems or data cards via the graphical user interface.

- ATU-C and ATU-R operation
- Up to 3 modems simultaneously
- Full ADSL Golden Modem Replacement Mode
- Full ADSL Golden Router Replacement Mode



Aurora Presto replacing the DSL modem and/or CPE installation.

SHDSL Test

SHDSL offers flexible broadband provision based on robust standards (G.991.2), with significant reach and performance improvements over its non-standardised predecessor, SDSL.

Aurora Presto includes full STU-R and STU-C modem replacement and offers all the same testing features (ATM, PPP and IP) available on the ADSL line cards.

- STU-C and STU-R operation
- SHDSL tracer with EOC messaging and G.994.1 trace
- Loopback invocation/response
- Sealing current termination
- Full SHDSL Golden Modem Replacement Mode
- Full SHDSL Golden Router Replacement Mode

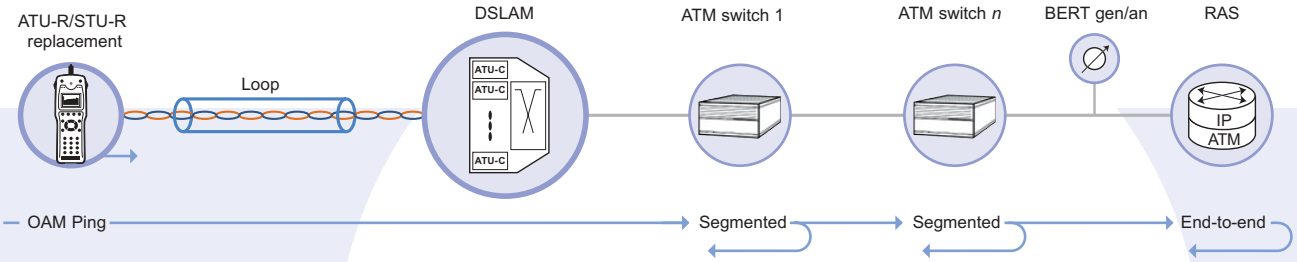
ATM Layer

test functions

With ATM providing the main transport technology for ADSL networks, Aurora Presto is several steps ahead of similar testers with its full ATM layer cell stream handling.

Aurora Presto offers actual usable data throughput - a function that is not available with DSL layer only testers, nor with testers that implement the marginal ATM functionality available via the DSL chipsets.

Aurora Presto's ATM functionalities are used to verify the ATM connectivity



F5 OAM Troubleshooting

OAM loopback cells are used to verify the end-to-end connectivity on the ATM layer, and to test if there is a continuous ATM 'pipe' from the modem all the way to the RAS (Remote Access Server). Aurora Presto's OAM Ping test takes less than 30 seconds.

If the OAM Ping fails, Aurora Presto can perform further tests using segmented OAM Ping flows to find the location and nature of the fault.

- ATMF 25.6 interface including BER test capability
- AAL-5 global, mapped VC and unmapped VC statistics and errors
- ATM layer BER test by means of fixed, pseudo-random or user-defined bit sequences
- ATM cell-stream throughput test
- F5 OAM loopback statistics
- F5 OAM support including OAM Ping functionality

BER Testing

Aurora Presto enables Bit Error Rate Testing (BERT) over DSL by means of user-defined, fixed or pseudo-random (PRBS) patterns and provides full statistical analysis of the BER test. ATMF 25.6 BER testing is available with the optional ATM-25 interface.

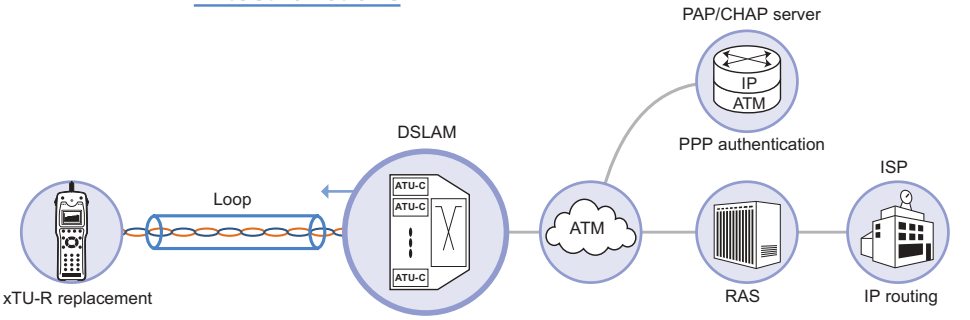
IP/PPP Layer

test functions

IP Ping

Aurora Presto includes full IP Ping testing and Trace Route functionalities over the standard 10 BT Ethernet or DSL connection.

Detailed IP statistics are displayed when Router Replacement Mode is selected. Asymmetric IP load testing complements the F5 OAM test by means of upstream and downstream bandwidth measurements.



PPP Testing

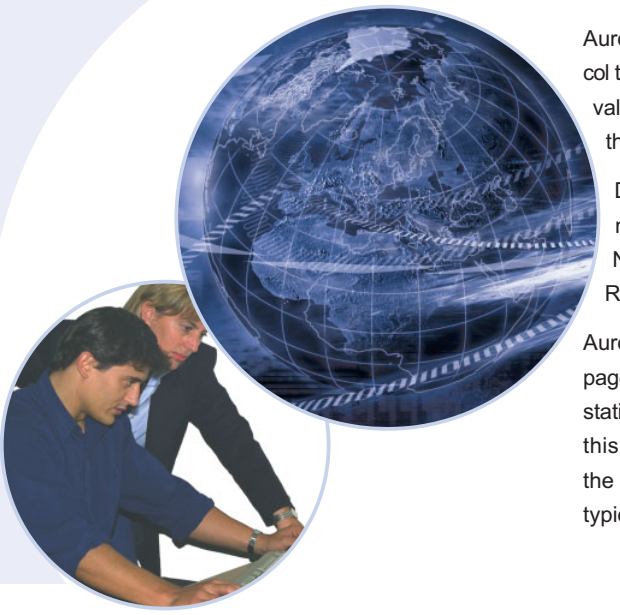
Aurora Presto enables you to log in to the RAS using either PPPoE or PPPoA. The PPP trace function enables you to quickly identify the point of failure. The tester's PPP Server modes make it possible to verify the customer premises equipment independent of the DSLAM, core network and ISP.

Multiple IP/PPP test facilities for a complete verification of the upper layers

Application Layer

Internet Download Testing (HTTP)

- Bridged and routed IP Ping via 10BaseT or DSL connection
- Full router replacement
- DHCP Client and Server
- NAT/PAT address translation
- Trace Route
- PPPoE and PPPoA statistics
- PPP Client and Server modes
- PAP or CHAP authentication
- Internet download delay
- Web server response statistics
- Download time statistics



Aurora Presto uses the HTTP protocol to download the contents of any valid web page, to pinpoint where the delays are occurring.

Download speed depends on a number of factors, such as Network Routing, Traffic Density, Redundancy and Multiplexing.

Aurora Presto downloads the web page repeatedly to average out the statistics. The measurement achieved this way is more representative of the download rates than during a typical Internet session.

Technical data

AuroraPresto

Relevant Standards	ANSI T1.413, ITU-T G.992.1 (G.DMT Annex A and B), G.992.2 (G.Lite), multi-protocol over AAL-5, RFC2364 (PPPoA), RFC2516 (PPPoE), G.994.1 (G.hs), G.991.2 (Annex A & B)
Physical	TDR (Location of faults in graphical format) Load coil test (Location and number of Load coils) DMM (DC Voltage), (AC Voltage), (Resistance), (Capacitance), (DC Current).
ADSL	Synchronisation Results ADSL Statistics (Upstream and Downstream Counts) DMT Carrier Load [bits:tone], Noise Analysis [dBm:tone] ADSL Bit Errors
SHDSL	Synchronisation Results Near End Statistics, Near End Alarms, Far End Statistics, Far End Errors, Far End Alarms, Segment Status
ATM	AAL-0 Global Statistics ATM VC Statistics Unmapped VC List DSL ATM BERT F5 OAM Ping (End-to-End, Segmented), F5 OAM Statistics ATM25 BERT, ATM25 Statistics
PPP	PPP over Ethernet and PPP over ATM PPP Tracer PAP/CHAP Authentication, Dynamic IP address allocation
IP	WAN Global Statistics, LAN Global and Connection Statistics LAN/WAN IP Ping, Trace Route, DHCP Server, NAT/PAT Address Translation
Internet	Time to send and respond a request for the IP address to the DNS Data request response time Data transfer time, from the Web Server to the Web Client
Test modes	DSL Termination Modes (xTU-R, xTU-C) Golden Modem/Router (modem and router replacement mode) In Service (any testing point) DTE/DCE replacement mode
Auto Test mode	Hot Key Test Profiles, One-Button testing, Automatic printing
Hot Keys	Up to 20 user-defined, exportable test profiles
LEDs	xDSL Link Status, xDSL Alarms, xDSL activity, Datalink activity, BERT sync/error, Battery status
Interface Cards	ADSL over POTS (Annex A), ADSL over ISDN (Annex B) SHDSL: STU-R, STU-C (Annex A and B), Ethernet 10BaseT, ATMF- 25.6, TDR/DMM
Connectors	ADSL Line: RJ11 Ethernet 10BaseT: RJ45 socket ATMF 25.6F: RJ45 socket RS232: Mini DIN (8pin)socket SHDSL: RJ45 (line), RJ11 (Clock)
Safety and Environmental	Storage ETS 300 019-2-1, Transportation: ETS 300 019-2-2, Operating ETS 300 019-2-7 Temperature: Operating 0 ºC to +45 ºC, Storage -25 ºC to +70 ºC EMC Emission EN55022, EN61000-3-2 and EN61000-3-3, Immunity: EN55024 Rugged insulated case, EN60950 IP22 water resistant
Connectivity	Serial Port: RS232 mini Din, Ethernet 10BaseT Results Export in Text and CSV, Direct results Print (connect to printer)
Ergonomics	285x100x87mm, 1.1kg Backlit graphical display Power supply: NiMH rechargeable battery pack, field replacement or 12V DC from mains conversion, cigar lighter connector

TrendCommunications

TrendCommunications Ltd

Knaves Beech Estate
Loudwater
High Wycombe
Buckinghamshire
HP10 9QZ
United Kingdom

TrendCommunications

International: +44 (0)1628 524977
United Kingdom: 01628 524977
France: 01 69 35 54 70
Deutschland: 089 32 30 09 30
España: 93 300 3313
India: 022 28521059
Americas: 1 256 461 0790
US/Canada Toll Free: 1 877 78TREND
Email: infoline@trendcomms.com
Web: www.trendcomms.com

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