AXS-200/650

IP TRIPLE-PLAY TEST SET

FROST & SULLIVAN

2011 **BEST PRACTICES AWARD**

GLOBAL xDSL TEST EQUIPMENT GROWTH LEADERSHIP AWARD

As part of the SharpTESTER Access Line, the AXS-200/650 Triple-Play Test Set delivers IP-based data, VoIP and IPTV for quick and thorough deployment of triple-play services.

KEY FEATURES

Optimized for FTTH IP triple-play service commissioning and verification

Simple, affordable residential IP triple-play testing with pass/fail indication

IPTV and VoIP service assurance using a comprehensive range of QoS metrics

Internet connectivity assessment using ping, traceroute and HTTP/FTP speed testing

Feature-rich, but cost-effective: Ethernet 10/100 termination and Ethernet 10/100 pass through with triple-play QoS measurements

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SIMPLIFYING IP TRIPLE-PLAY TESTING

EXFO's AXS-200/650 IP Triple-Play Test Set offers a quick, yet thorough method for deploying triple-play services (IP-based VoIP and IPTV) facilitated by pass/fail-driven automated tests.

The AXS-200/650 delivers advanced IPTV measurements—packet jitter, packet loss, PCR jitter, MDI, PID viewer and IGMP zap time—both in Terminate (stand-alone) and Through mode operation. The AXS-200/650 also monitors residential VoIP call flow and statistics, facilitating VoIP QoS assurance.

Quick Access to Test Results
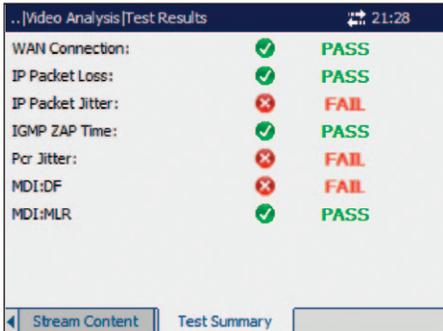
The AXS-200/650's IPTV test summary screen.
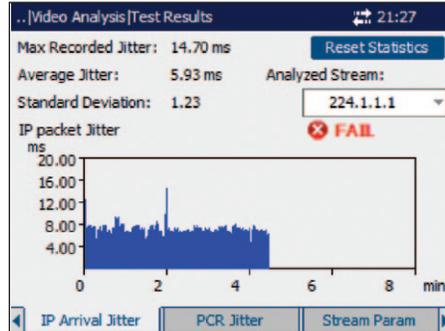
IP arrival jitter test results.
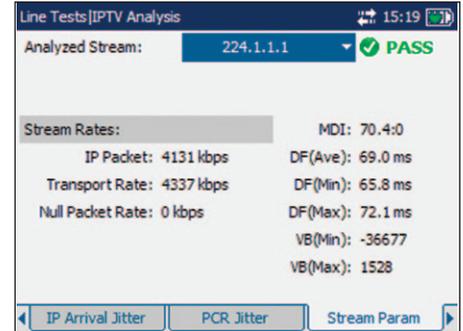
IPTV stream parameters: IP and MDI statistics at a glance.

KEY FEATURES

User-friendliness	Displays clear auto-test results with user-definable pass/fail criteria.
Dual Ethernet ports	Enables Ethernet assessment in Terminate (single Ethernet port) and Pass Through (dual Ethernet) modes.
IPTV analysis	Provides key IPTV qualification parameters with features such as set-top box (STB) emulation, join/leave requests, PCR jitter analysis and PID viewer.
MDI reporting	Supports media delivery index (RFC 4445)* for evaluating the IPTV quality of experience.
VoIP analysis	Ensures VoIP services are not affected by packet loss or jitter.
Data analysis	Offers a common set of measures such as ping, traceroute, HTTP speed testing and FTP speed testing to ensure reliable and consistent Internet connectivity.

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SIMPLIFYING RESIDENTIAL IP TESTING

## A Highly Flexible, Future-Proof Test Solution

Residential IP service testing has never been so easy. Thanks to its dual-port Ethernet design, the AXS-200/650 can test in xPON, xDSL or any other IP environment (such as CATV environments). Any device equipped with an "Ethernet out" LAN port is within the realm of testing with the AXS-200/650, which creates countless possibilities for future applications. With the migration from today's converged networks to 100% IP service, the AXS-200/650 is literally "future-proof".

Ethernet Terminate Mode

In Ethernet Terminate mode, the AXS-200/650 automatically synchronizes with 10Base-T or 100Base-T ports inside the customer premises, allowing data analysis (ping, traceroute, HTTP/FTP speed test) and IPTV STB emulation for join/leave requests.

In this configuration, the AXS-200/650 can be used in xDSL, xPON (FTTH) or Ethernet-fed deployments.

› Assesses service delivery to the customer over most technologies

› Helps determine if the PC's NIC card is faulty and validates the username/password

› Helps determine if the STB is faulty by issuing IGMP joins/leaves
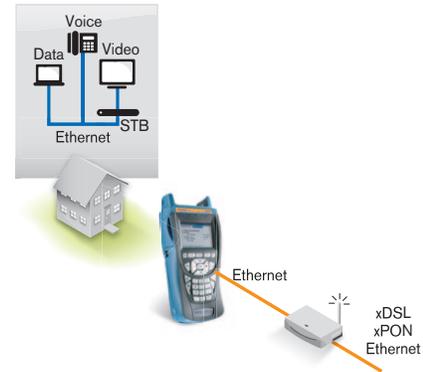
AXS-200/650 in Ethernet Terminate Mode

Ethernet Pass Through Mode

In Ethernet Pass Through mode, the AXS-200/650 automatically synchronizes with 10Base-T or 100Base-T ports inside the customer premises, allowing data analysis (ping, traceroute, HTTP/FTP speed test), web surfing from a connected PC, IPTV STB emulation for join/leave requests, as well as VoIP analysis.

In this configuration, the AXS-200/650 can be used in xDSL, xPON (FTTH) or Ethernet-fed deployments.

› Ensures the STB is correctly negotiating with the middleware

› Assesses the quality of experience by monitoring IPTV joins/leaves, zap time, jitter and delay

› Assesses VoIP call flow, jitter and delay
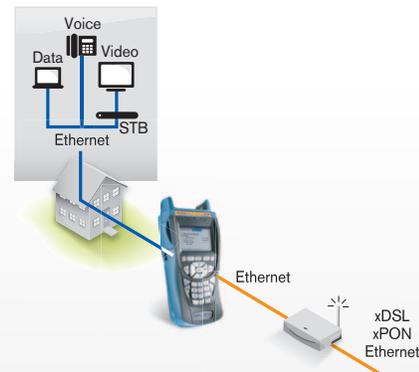
*AXS-200/650 in Ethernet Through Mode
(Ethernet Monitoring)*

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SIMPLIFYING TROUBLESHOOTING OPERATIONS

An Essential Tool for FTTH Service Providers and Contractors

The AXS-200/650 is the optimal tool for Ethernet-based FTTH service verification and triple-play testing. It helps telco and contractor personnel to quickly and easily identify the reason for IP triple-play deployment failure using automatic testing with customer-adjustable pass/fail criteria. In addition, network operators appreciate the AXS-200/650, as it eliminates the guesswork in hunting down quality-of-experience issues that might otherwise tie up valuable staff and company resources—a real CAPEX and OPEX saver.

IPTV and Triple-Play Deployments

EXFO's AXS-200/650 is the most cost-effective FTTH IP triple-play tester on the market. It offers comprehensive IPTV and VoIP testing over 10/100Base-T Ethernet to ensure a flawless customer experience.

Fingerpointing

The essence of the AXS-200/650 is to assist service providers in determining why the service is not working correctly. The AXS-200/650 provides ease of use and result interpretation for data services using measurement techniques such as ping, traceroute, HTTP and FTP speed testing. VoIP and IPTV applications are analyzed to determine the quality of service and, ultimately, the quality of experience offered to customers. All these features make the AXS-200/650 the preferred choice for verifying residential IP services.

Testing IPTV at the Ethernet port of the ONT.

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SPECIFICATIONS

IPTV TESTING SUITE

Supported video compression/standards	MPEG2, MPEG4 part 2 and 10 (H.264/AVC), WM9
Video streaming control	Video streaming (channels) detection IGMP joins/leaves
Operation	Through mode or stand-alone with STB IGMP emulation
Analysis and statistics	IP layer analysis Bandwidth usage per channel IGMP packets Set-top box (STB) traffic Key IP video QoS parameters: packet loss, packet jitter, zap time PCR jitter, PID statistics Media delivery index (MDI) (option) QoS pass/fail indicators Multicast/unicast RTP/UDP TCP/RTSP VOD
Graphic results	Bandwidth usage IP packet and PCR jitter histograms

VoIP ANALYSIS SUITE (VOIP TESTING)

Recognized signaling protocol	Session initiation protocol (SIP) v2 (RFC)
Operation	Through mode
Call monitoring/analysis	IP layer call statistics Call flow Codec indicator (G.711, G.729, G.726, G.723) Key VoIP QoS parameters: packet loss, packet jitter QoS pass/fail indicators
Graphic results	Delay distribution, jitter histogram

DATA ANALYSIS MODE

Login format	Username and password using PAP or CHAP
IP options	Routing functionality, NAT, DNS support
Ping	Pings another device on the network Device: gateway, destination IP address or URL Configurable number of pings (1 to 99) Packet size: 32 to 1500 bytes (32 is default) Results: indicate packet size, packets sent/received, average round-trip times in milliseconds (ms)
Traceroute	Determines the path used to reach device on the network Timeout in seconds Time to live (TTL) (default is 100 ms, maximum is 5 s) Packet size: 32 bytes Number of hops: 1 to 30 (default is 30) Results indicate IP address of hop and round-trip time in milliseconds (ms)
HTTP speed test	Downloads a Web page and indicates speed of download Address: IP or URL Protocol: HTTP
FTP speed test	FTP upload, FTP download or both Displays the file upload and/or download speed

IP CONNECTIVITY SUPPORT

Supported functions	DNS, DHCP, client/server, NAT, VLAN (802.1g)

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SPECIFICATIONS (CONTINUED)

GENERAL SPECIFICATIONS

Module size (H x W x D)	283 mm x 125 mm x 97 mm (11 $^1/_8$ in x 4 $^{15}/_{16}$ in x 3 $^{13}/_{16}$ in)
Module weight (with battery)	1.0 kg (2.2 lb)
Temperature operating storage	0 °C to 50 °C (32 °F to 122 °F) −20 °C to 60 °C (−4 °F to 140 °F)
Humidity	5 % to 95 % relative, noncondensing
Power supply input	100 V to 240 V to AC at 1.8 A, 50 Hz to 60 Hz
Power supply output	18 V to 24 V DC at 3.3 A to 2.50 A, 60 W
Battery	Internal rechargeable Li-ion battery, with battery status indicator
Test connections	RJ-45 for Ethernet 10/100 LAN
Self-test	Routine on power-up
Results storage	128 MB
Languages	English, French, German, Spanish, Chinese (Simplified)

STANDARD ACCESSORIES

Hand strap
ACC-RJRJ: RJ-45 Ethernet cable

ORDERING INFORMATION

TK-AXS-650-XX-XX-XX

Model
TK-AXS-650 = IP triple-play kit

Probe Option
00 = Without probe
FP4S = Inspection probe (400X)
FP4D = Inspection probe (200X/400X)

DSL Software Option
MDI = Media delivery index (RFC 4445)

Probe Software Option
00 = Without software option
FPS = Fiber probe software

Example: TK-AXS-650-FP4S-FPS-MDI

For the most recent version of this spec sheet, please go to the EXFO website at www.EXFO.com/specs.

In case of discrepancy, the web version takes precedence over any printed literature.

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