

# AXS-200/650

part of the SharpTESTER Access Line

NETWORK TESTING—ACCESS



## Ensuring optimal delivery of triple-play services

- 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

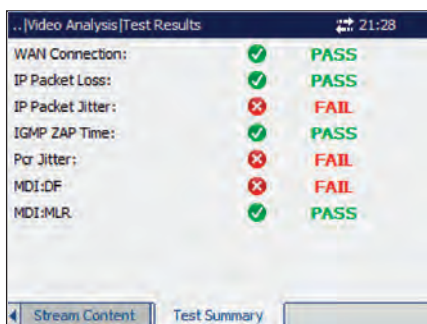


# Simplifying IP Triple-Play Testing

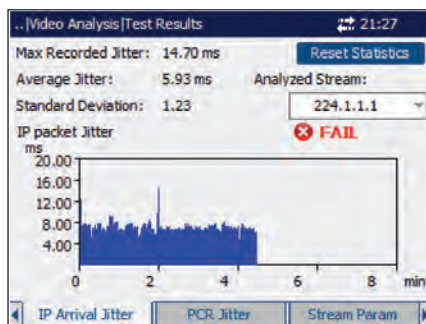
EXFO's AXS-200/650 IP Triple-Play Test Set offers a quick, yet thorough method for deploying triple-play services—IP-based data, VoIP and IPTV—facilitated by pass/fail-driven automated tests.

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.

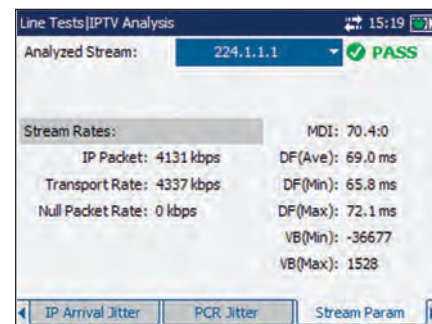
## Quick Access to Test Results



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

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

# Simplifying Residential IP Testing

## A Highly Flexible, Future-Proof Test Solution

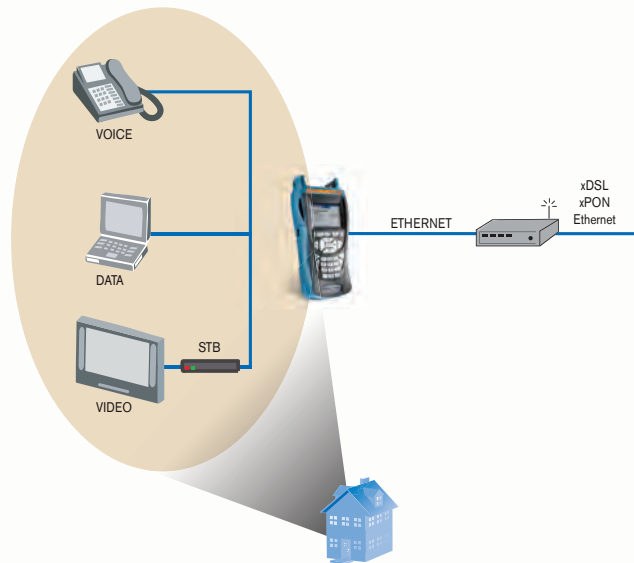
Residential IP service testing has never been so easy. Thanks to its dual-port Ethernet design, the AXS-200/650 can test in xPON, xDSL or any other IP environment (such as CATV environments). Any device equipped with an "Ethernet out" LAN port is within the realm of testing with the AXS-200/650, which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



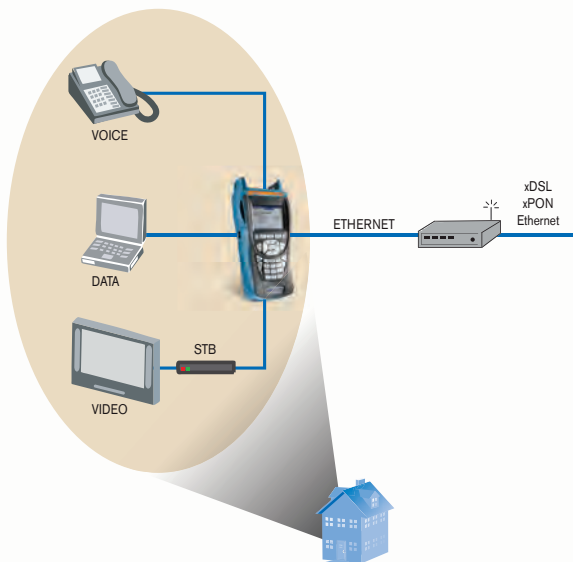
AXS-200/650 in Ethernet Terminate Mode

### 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)

# 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.

## Fingerprinting

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.

# 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, minimum/average/maximum 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 speed to upload and/or download a file

## IP CONNECTIVITY SUPPORT

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

Module size (H x W x D)	283 mm x 125 mm x 97 mm	(11 1/8 in x 4 19/16 in x 3 13/16 in)
Module weight (with platform and battery)	1.0 kg	(2.2 lb)
Temperature		
operating	0 °C to 50 °C	(32 °F to 122 °F)
storage	-20 °C to 70 °C	(-4 °F to 158 °F)
Humidity	5 % to 95 % relative, non-condensing	
Power supply		
input	100-240 VAC at 1.8 A, 50 Hz to 60 Hz	
output	18-24 VDC at 3.33 A to 2.50 A, 60 W	
Battery	Internal rechargeable Li-Ion battery, with battery state indication	
Test connections	RJ-45 for Ethernet 10/100 LAN	
Self-test	Routine on power-up	
Results storage	128 Mbytes	
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)

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

■ **DSL Software Option**

MDI = Media delivery index (RFC 4445)

■ **Probe Software Option**

00 = Without software option

FPS = Fiber probe software

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