MaxTester 630

ADSL2+/VDSL2 MULTIPLAY TESTING MADE EASY

SPEC SHEET

A fast, easy-to-use and cost-effective solution for installing multiplay services over DSL and Ethernet.

KEY FEATURES AND BENEFITS

Supports ADSL2+ and VDSL2 bonding, allowing service providers to recover and grow wireline revenues

Supports ADSL2+ ATM/PTM and VDSL2 single-pair testing for hybrid networks

IPTV and VoIP test suites for automated quality of service (QoS) testing

Data testing and Web browser for complete service qualification

Configurable pass/fail results for automated testing

Designed to face the challenges of the outside plant environment with an IEC IP54 rating

THE MAXTESTER 600 SERIES

MAX-610
Copper Test Set

MAX-635
Copper, xDSL and
Multiplay Test Set

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A NEXT-GENERATION TOOL FOR BROADBAND DEPLOYMENTS

EXFO's MaxTester 630 is the perfect tool for any service provider deploying multiplay services over single-pair or bonded ADSL2+ and/or VDSL2. Its small form factor, rugged design and easy-to-use menu make it the ideal tool for installation and repair technicians. With the MaxTester 630, the testing process is highly automated and technicians close their jobs quickly and efficiently. The large display of the MaxTester 630 makes it even more user-friendly, and when it comes to saving results, it provides technicians with many connectivity options for uploading tests and compiling reports.

TEST HYBRID ADSL1/2/2+, VDSL2 AND NEWLY DEPLOYED BONDED DSL NETWORKS

The MaxTester 630 is based on the industry-leading Broadcom chipset, which ensures excellent interoperability for VDSL2 and ADSL2+ hybrid networks. The MaxTester 630 also supports the use of Broadcom's ADSL2+ Nitro mode to negotiate with Broadcom-based DSLAMs in order to achieve data rates as high as 30 Mbit/s (depending on DSLAM setup, loop length, noise influences and circuit quality). Nitro™ is a Broadcom approach that increases the throughput on links by compressing the ADSL2+ ATM header and as a result, requires fewer bits to be transmitted.

Ensuring the highest quality triple-play services to customers is a must for service providers, but it is also a challenge with an aging copper plant and the need to maximize the use of all pairs in the cable bundle. Service providers can offer higher rate/reach by implementing ADSL2+ and/or VDSL2 bonding (using two copper pairs as defined within ITU-T G.998.1,2,3) to increase the available data rates and/or the loop lengths to address a new customer service area. Another industry standard method that helps achieve high-quality multiplay is to take noise mitigation to the next level through G.INP (impulse-noise protection and physical-layer retransmission as defined by ITU-T G.998.4) and vectoring (ITU-T G.993.5). These techniques are supported by the MaxTester 630 to ensure consistency with service providers' noise mitigation methods and procedures.

KEY DSL APPLICATIONS

› Ensures that customers have the required bandwidth (downstream and upstream rates) for delivering triple-play services over single-pair or bonded ADSL2+ and VDSL2

› Validates that the IPTV, VoIP and data services can operate on the circuit with the required QoS

› Verifies that the customer's modem/router, equipment and inside wiring are operating correctly

› Proves data flow between the network and the end equipment

1. Dual Ethernet connectors—sealed against the environment
2. DSL connector—sealed against the environment
3. All-round rubber bumper
4. Large 6 in daylight-visible color LCD
5. Interface connections—water and dirt protected
6. Innovative and icon-driven user interface
7. Handgrip area
8. Simple keypad

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SIMPLIFYING FTTx TESTING

Thanks to its DSL and dual Ethernet ports, the MaxTester 630 is a flexible tool for service providers qualifying service from the central office or remote terminals to the customer's equipment. The MaxTester 630 also provides powerful troubleshooting applications that can be used in different modes to quickly isolate faults no matter where they are located (network, outside plant, customer equipment or inside wiring). Even in hybrid networks, where FTTH is also deployed, the Ethernet ports of the MaxTester 630 can be used inside the home to test at any point where a LAN connection is available.
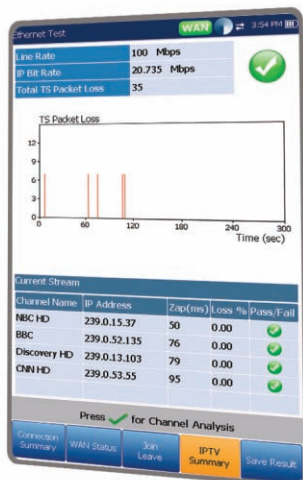
IPTV TESTING

To boost their revenues, many service providers are using DSL to deliver new multiplay services on their existing networks. Among these services, video (IPTV) is one of the fastest growing and is getting a high level of focus and investment. Knowing that customers are very sensitive when it comes to IPTV QoS (i.e., picture quality due to packet loss, zap time, etc.), technicians must be equipped with the right test sets to quickly and efficiently turn up IPTV services and meet customers' QoS expectations. With this in mind, the MaxTester 630 offers an optional IPTV test suite to provide both expert and entry-level technicians with a simple method to check the operation and quality of the offered video channels.
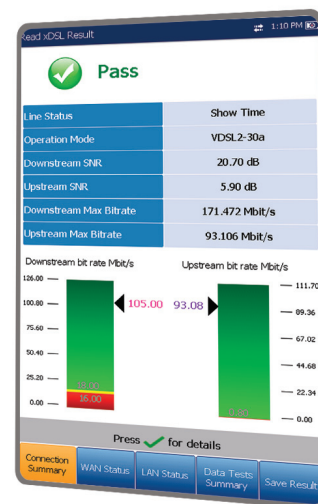
WEB BROWSER

Many telcos require that technicians use a Web browser to confirm service operation or as visual proof to show the customer. Up to now, technicians required a PC in addition to the test set to do this. Thanks to the integrated browser of the MaxTester 630, carrying a laptop to the job location is no longer necessary. The MaxTester 630 is equipped with a browser that allows the user to access websites and load a web page as part of any automated test, directly from the test set. Just as with any other browser, it can bookmark commonly used URLs and allows the user to save new ones in real time as needed.
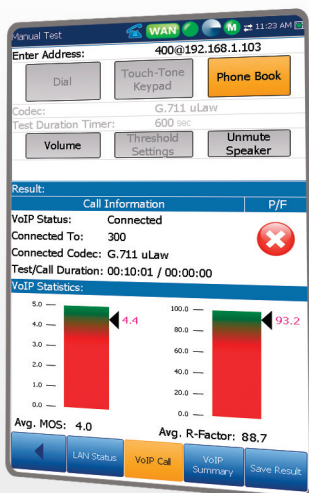
VoIP TESTING

The MaxTester provides SIP-based, voice-over-IP (VoIP) performance validation for service turn-up and troubleshooting. The VoIP function allows users to send or receive live VoIP calls to an FTB EXpert VoIP-enabled platform or IP phone. The MaxTester supports industry-recognized quality metrics (e.g., mean opinion score (MOS), R-factor) and performance metrics (e.g., latency, jitter).

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ALL THE RIGHT FEATURES FOR INSTALLATION TECHNICIANS

With its small form factor, the MaxTester 630 can go anywhere the technician needs to go. It is rugged and light, and all connectors are protected from the rain—just what is needed for the demanding outside-plant environment.

Automated Service Testing

Thresholds can be set and saved for key DSL parameters as well as for the data and IPTV service tests. When tests are run, users are given a clear graphical pass/fail result so they can quickly move on to the next job or investigate further. Test profiles can easily be transferred between units to ensure that all technicians from the same organization are testing to the same thresholds.

Easy-to-Use GUI

The next-generation user interface of the MaxTester 630 was designed with first-level technicians in mind. The large display features colored icons and graphics for easy configuration and operation, and is simple to use for both experienced and novice users.

Capturing Results and Connectivity

In today's highly competitive environment, QoS is paramount for service providers. The MaxTester 630 allows reports of all tests to be uploaded in a variety of formats. Therefore, service providers can keep all the results on file for future reference and confirm that all the required tests have been completed by the technician.

Battery Powered

The MaxTester 630 is equipped with a battery using the latest technology in rechargeable cells. It provides the maximum testing time between charges—even when meeting the high-power demands of VDSL2. When charging is required, technicians can either use the optional 12 Volt vehicle charger or the supplied AC adapter.

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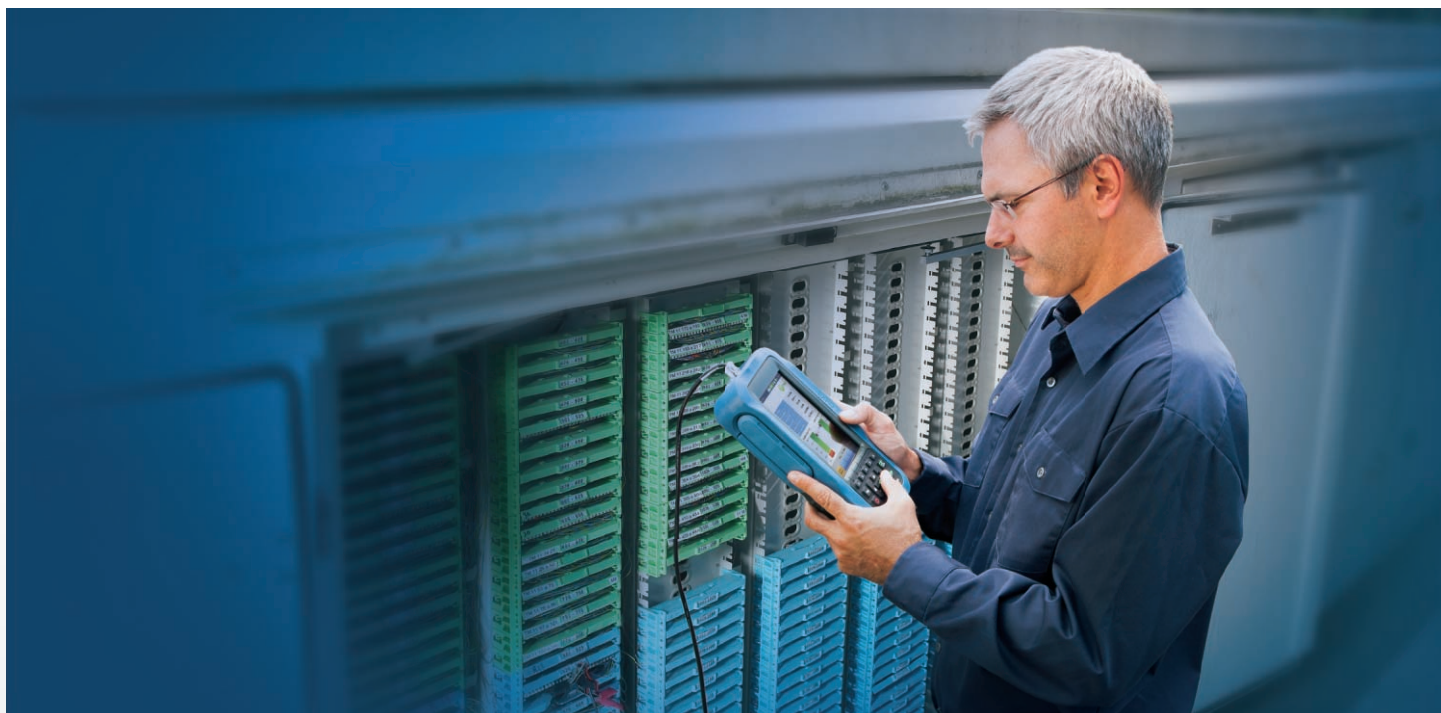
MAXTESTER 630 OPERATIONAL MODES

1

ADSL2+/VDSL2 Terminate Mode

The MaxTester 630 synchronizes with the DSLAM on the circuit in the outside plant or at the NID, allowing authentication and service testing. Technicians can test ADSL2+ and VDSL2 single pair, ADSL2+ and VDSL2 bonding, as well as ADSL2+ PTM modes.

2

xDSL Pass Through Mode

The MaxTester 630 replaces the customer modem or router, synchronizes with the DSLAM, and enables authentication and service testing. It also allows the customer's applications to be used to confirm the correct operation for services such as PC Web access, IPTV viewing, STB operation and VoIP.
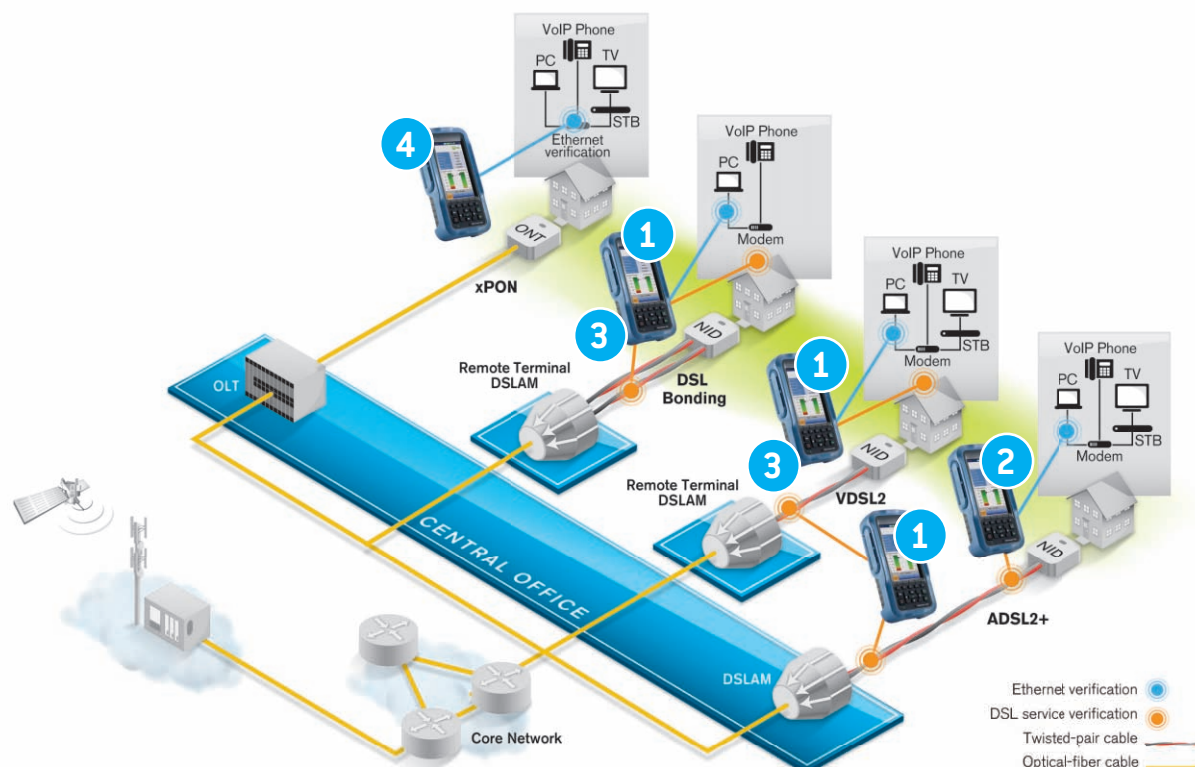
3

Ethernet Terminate Mode

The MaxTester 630 automatically synchronizes with 10/100Base-T ports inside the customer premises and allows authentication as well as service testing. In this configuration, the MaxTester 630 can be used in xDSL (FTTN), xPON (FTTH) or Ethernet deployments.

4

Ethernet Pass Through Mode

The MaxTester 630 automatically synchronizes with 10/100Base-T ports inside the customer premises as traffic is passed between both Ethernet ports. In this configuration, the MaxTester 630 can be used in xDSL (FTTN), xPON (FTTH) or Ethernet deployments.

DSL SPECIFICATIONS

DSL chipset	Broadcom	
Standards compliance	ADSL1/2/2+	ITU-T G.992.5 (ADSL2+ including Annex A, B, M), ITU-T G.992.3 (ADSL2 including Annex A, B, L), ITU-T G.992.1 (G.DMT including Annex A, B) ATIS/ANSI T1.413 Issue 2 IEEE 802.3ah (PTM) ITU-T G.998.x (ATM, Ethernet bonding)
	VDSL2	ITU-T G.993.2 Annex A, B Profiles: 8a/b/c/d, 12a/b, 17a, 30a Band Plan: 997, 998, US0 IEEE 802.3ah (PTM) ITU-T G.998.x (ATM, Ethernet bonding)
DSL parameters	Maximum attainable bit rates Actual achieved bit rates Actual bonded achieved rates Latency modes: fast, interleaved Data modes: ATM, PTM Capacity (%) Signal-to-noise ratio (SNR) margin Output power Attenuation Bits/bin Attenuation/bin (Hlog/bin) QLN/bin SNR/bin Vendor code, revision	Interleave depth Interleave delay Trellis coding Bit swapping INP Nitro PhyR, G.INP Vectoring Modes: PTM, ATM, Nitro LOS, FEC, CRC, HEC LATN per band SATN per band EWL KL0

MULTIPLAY TESTING SPECIFICATIONS

Test interfaces	VDSL2 ADSL1/2/2+ Ethernet 10/100 BT	
Encapsulation methods	RFC 2684 supporting bridged Ethernet (IPoE) IPoA (RFC 1577)	PPPoE (RFC 2516) PPPoA/LLC and PPPoA/VC-MUX (RFC 2364)
Operating modes	DSL Terminate Modem Replacement (DSL to Ethernet) Pass Through	Ethernet Terminate Ethernet/Ethernet Pass Through
Login format	User name and password using PAP/CHAP	
Connectivity support	LAN/WAN status DNS, gateway DHCP client/server, DHCP vendor class NAT	VLAN ID, VLAN tagging VPI/VCI IP release
Ping test	Ping destination Number of pings Packet size Timeout Results	Gateway, IP address or URL 1 to 99 32 to 1200 bytes (32 is default) 1 to 10 seconds Packets sent/received, average round-trip delay (ms)
Traceroute test	Traceroute destination Timeout Packet size Number of hops Results	Gateway, IP address or URL In seconds, default is 1 s, maximum is 10 s 32 bytes 1 to 32 (default is 30) Indicates IP address of hop and round-trip time in milliseconds (ms)
FTP speed test	Address Direction Results	IP or URL Upload and/or download Time, kB transferred, speed in kbit/s
Web browser (software option)	Address Bookmarks	IP address or URL User-definable
VoIP testing (software option)	Protocol support Codecs Interface support Parameter/functionality	SIP G.711 μ-Law, G.711 A-Law ADSL1/2/2+, VDSL2, Ethernet Test duration timer MOS (current, average) R-Factor (current, average) Latency (current, average, maximum) Jitter (current, average, maximum) Packets (lost, total)
IPTV testing (software option)	Supported video standards Operating modes IPTV parameters/functionality	MPEG2, MPEG4 part 2 and 10 (H.264/AVC), Microsoft Mediaroom/WM9/VC1 DSL Terminate Ethernet Terminate IGMP join/leave requests with STB emulation Automatic tests to join/leave and analyze up to five simultaneous streams Programmable channel list for storage of commonly used channels Bandwidth usage per channel IGMP packet and rate information per line and channel Multicast/unicast RTP/UDP IP stream support Key IP video QoS parameters, packet loss, zap time, PID statistics Graphical results Transport

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GENERAL SPECIFICATIONS

Display	TFT LCD with backlight 152 mm (6 in) diagonal 800 x 480 resolution, WVGA
Test connections	RJ11 for ADSL2+/VDSL2 RJ45 for Ethernet 10/100 WAN RJ45 for Ethernet 10/100 LAN
Results storage	1.2 GB internal memory
Temperature 　operating 　storage	0 °C to 40 °C (32 °F to 104 °F) −20 °C to 60 °C (−4 °F to 140 °F)
Relative humidity	5 % to 95 %, non-condensing
Shock	1 m (39 in) drop per GR-196-CORE
Altitude	3000 m (9842 ft)
Input power	9-24 VDC, 2 A, 15 W via 90-220 VAC adapter or 12 V vehicle adapter
Battery	Internal rechargeable lithium polymer, with battery-state and level indications, adjustable auto-power down
Safety	CE and CSA marked
Size (H x W x D)	254 mm x 124 mm x 62 mm (10 in x 4 $^7/_8$ in x 2 $^7/_{16}$ in)
Weight (with battery)	1.5 kg (3.3 lb)
Water/dust ingress	IP54 compliant
Self-test	Routine on power-up
Connectivity	Two USB 2.0 client ports One USB Type B host port
Languages	English, French, Spanish

STANDARD ACCESSORIES

DSL test cables: RJ14 to RJ11 and telco clip with bed of nails (ACC-RJ11-TC), or
　　　　　　　　RJ14 to RJ11 and 4 mm plugs with crocodile clips (ACC-RJ11-4MM)

Certificate of compliance

AC adapter (GP-2146)

Soft carrying case (GP-10-061)

OPTIONAL ACCESSORIES

DSL bonded test cables: RJ14 to dual RJ-11 (ACC-BD-RJ), or
　　　　　　　　　　　RJ14 to four telco clips with bed of nails (ACC-BD-TC), or
　　　　　　　　　　　RJ14 to four 4 mm plugs with crocodile clips (ACC-BD-4MM)

RJ-45 Ethernet cable (ACC-RJRJ-UTP)

USB host/client cable (GP-2053)

12 V vehicle charger (GP-2205)

Form fitting, protective soft glove with shoulder strap (ACC-GLOVE)

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ORDERING INFORMATION

MAX-630-XX-XX

Model
MAX-630 = ADSL2+ test set

DSL Version
V2XAA = ADSL2+ Annex A
A2XAB = ADSL2+ Annex A + B

Example: MAX-630-V2XAA-VDSL2MOD-BOND-IPTV

DSL Software Options
00 = Without software options
VDSL2MOD = VDSL2 modem emulation
BOND = ADSL2+ and VDSL2 bonding support [a, b]
IPTV = IPTV analysis
BROWSER = Web browser
VOIP = VoIP Emulation support (Ethernet and DSL ports)
MOS = MOS/R-factor for VoIP calls [c]

Notes
a. Available on V2XAA model only.
b. VDSL2MOD option required to enable VDSL2 bonding capability.
c. VoIP option required.

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