

MaxTester DSL



Fast, easy-to-use and cost-effective solution for installing FTTx services over DSL

KEY FEATURES AND BENEFITS

ADSL2+ testing, with optional VDSL2 for hybrid networks

Ethernet testing for qualifying FTTx service at the customer premises

Configurable pass/fail results for automated testing

Rugged and weatherproof handheld unit designed for the outside plant



A NEXT-GENERATION TOOL FOR BROADBAND DEPLOYMENT

EXFO's MaxTester DSL is the perfect tool for any service provider deploying ADSL2+ or VDSL2 services. It has been designed to stand up to the challenges of the outside plant environment. Its small form factor, rugged design and easy-to-use menu system are ideal for installation technicians. It makes the test process highly automated, and allows users to close their jobs quickly and efficiently.

Its large display makes it even more user-friendly, and when it comes to saving results, the MaxTester DSL gives the user many connectivity options for uploading tests and compiling reports.

TEST TRADITIONAL ADSL AND NEWLY DEPLOYED VDSL2

MaxTester DSL is based on the industry-leading Broadcom chipset, which ensures excellent interoperability for VDSL2 and ADSL2+ when testing against other Broadcom-based devices and other vendors' chipsets. It also allows 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 proprietary Broadcom approach that increases the throughput on links by compressing the ADSL2+ ATM header, thus requiring fewer bits to be transmitted.

Ensuring the highest quality triple-play services to customers is a must for service providers, but it is also quite a challenge with aging copper plant. One industry standard method that helps achieve this is the xDSL impulse noise protection (INP) parameter, which is particularly important when deploying IPTV services based on VDSL2 and ADSL2+. For example, INP helps reduce the amount of macro-blocking in an IPTV stream caused by short duration and intermittent impulse noise spikes. The MaxTester DSL has a complete implementation of the ITU-T INP standard for values ranging from 0 to 16.

KEY FEATURES	
IP login	Authenticates on the network and confirms correct operation
Ping testing	Operates over DSL and Ethernet interfaces to prove network access
User-defined automatic testing	Easy-to-read results with graphical pass/fail thresholds
Ethernet testing	Emulates the customer equipment inside the home
Dual Ethernet ports	Monitor real-time traffic inside the customer premises
Modem replacement	Allows confirmation of service in the home or isolation of faults to the customer modem
Broadcom chipset	Industry-leading ADSL2+ and VDSL2 support

SIMPLIFYING FTTx TESTING

Thanks to its xDSL and dual Ethernet ports, MaxTester DSL is a very flexible tool for service providers qualifying service all the way from the central office to the customer's equipment. It also provides powerful capabilities in troubleshooting applications where the MaxTester DSL 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 being deployed, the MaxTester DSL's Ethernet ports can be used inside the home to test at any point where a LAN connection is available.

ADSL2+/VDSL2 Terminate Mode

In DSL Terminate mode, MaxTester DSL synchronizes with the DSLAM, allowing authentication and ping testing.

- > Assesses service delivery to the customer without gaining access to the customer premises
- > Ensures the customer has the required bandwidth (downstream and upstream rates)
- > Guarantees that the signal-to-noise ratio margin and all DSL parameters meet service specifications



xDSL Pass Through Mode

In xDSL Pass Through mode, MaxTester DSL replaces the customer modem or router, synchronizes with the DSLAM, and allows authentication and ping testing.

It also permits 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.

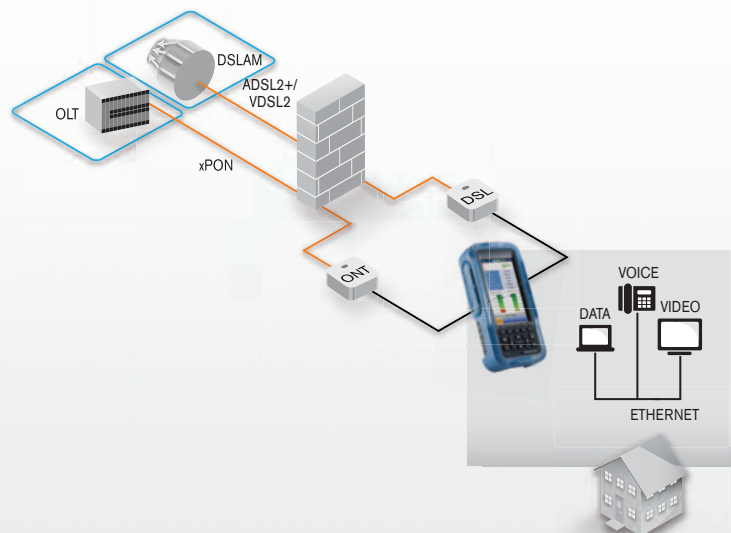
- > Helps verify if the customer's modem/router is working correctly
- > Ensures the IPTV service can operate on the circuit
- > Certifies the bandwidth is sufficient for delivering triple-play services
- > Guarantees the signal-to-noise ratio margin and all DSL parameters meet service specifications



Ethernet Terminate Mode

In Ethernet Terminate mode, MaxTester DSL automatically synchronizes with 10/100Base-T ports inside the customer premises, and allows authentication and ping testing. In this application, MaxTester DSL can be used in xDSL (FTTN), xPON (FTTH) or Ethernet deployments.

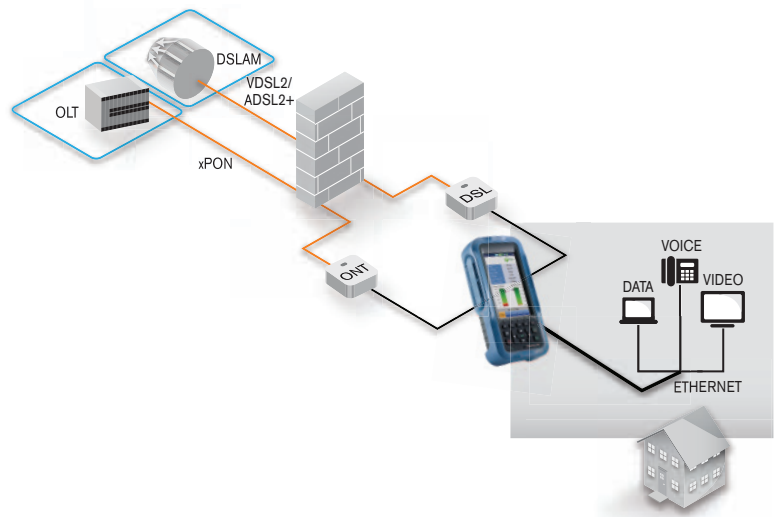
- > Assesses connectivity all the way to the customer equipment over most technologies
- > Confirms correct operation of inside wiring
- > Qualifies that network access has been configured correctly



Ethernet Pass Through Mode

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- > Assesses connectivity all the way to the customer equipment over most technologies
- > Confirms correct operation of inside wiring
- > Proves data flow between the network and end equipment



ALL THE RIGHT FEATURES FOR INSTALLATION TECHNICIANS

With its small form factor, the MaxTester DSL can go anywhere you need 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 Testing

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

Easy to Use

The MaxTester DSL's next-generation user interface has been designed with the first-level technician in mind. The large display makes use of colored icons and graphics for easy configuration and operation, simple to use for experienced and novice users alike.

Capturing Results and Connectivity

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

Battery Powered

MaxTester DSL is fitted with a battery using the latest technology in rechargeable cells. It provides the maximum testing time between charges, even when using 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.



Main menu

Ping test results

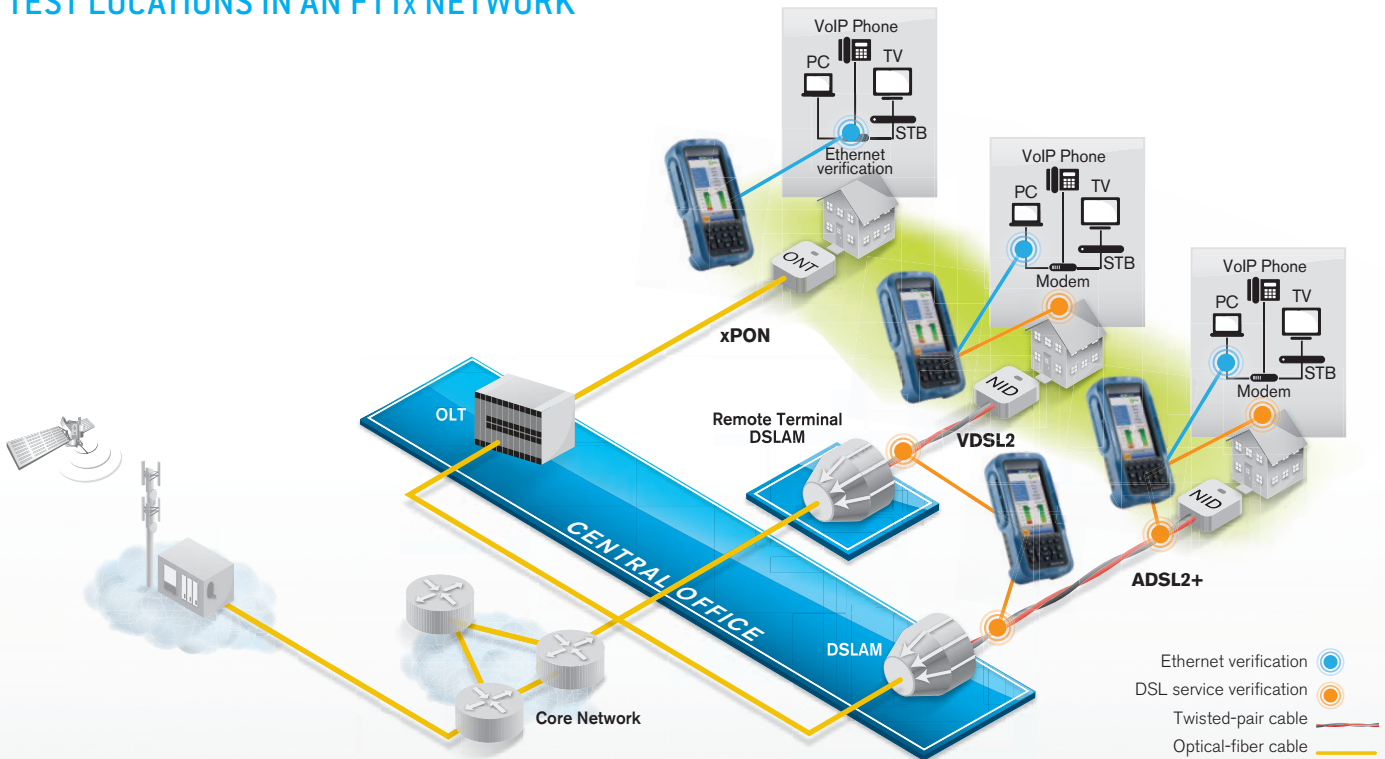
Bits-per-tone results

KEY CHARACTERISTICS



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

TEST LOCATIONS IN AN FTTx NETWORK



SPECIFICATIONS

DSL INTERFACE

Chipset	Broadcom
Standards Compliance	
VDSL2	ITU-T G.993.2
ADSL1/2/2+	Annex A version (over POTS): ITU-T G.992.5 (ADSL2+), ITU-T G.992.3 (ADSL2), ITU-T G.992.1 (G.DMT) and ANSI T1.413 Issue 2 Annex B version (over ISDN): ITU-T G.992.5 (ADSL2+), ITU-T G.992.3 (ADSL2), ITU-T G.992.1 (G.DMT) and UR2 Annex L (RE-ADSL) and Annex M (optional) also supported
DSL measurements (upstream and downstream)	Maximum attainable bit rates Actual achieved bit rates Latency mode: fast, interleaved Capacity (%) Signal-to-noise ratio (SNR) margin Output power Attenuation Carrier load (bits/bin) Interleave depth Interleave delay Trellis coding Bit swapping
Miscellaneous functions	PhyR™ and INP support Nitro™ support FEC, CRC, HEC counters Loss of sync counter VDSL2 per band information

DATA TESTING

Interfaces supported	VDSL2 ADSL1/2/2+ Ethernet 10/100
Encapsulation methods	PPPoE (RFC 2516), RFC 2684 supporting bridged Ethernet (IPoE), IPoA (RFC 1577), 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	Username and password using PAP/CHAP
IP connectivity support	DNS, DHCP client/server, NAT, VLAN
IP ping	Pings another device on the network Ping destination: gateway, IP address or URL Number of pings: 1 to 99 Packet size: 32 to 1200 bytes (32 is default) Timeout: 1 to 10 seconds Results: packets sent/received, average round-trip delay (ms)

GENERAL SPECIFICATIONS

Display	TFT LCD with backlight 152 mm (6 in) diagonal 800 x 480 resolution, QVGA
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)
Temperature range operating storage	0 °C to 40 °C (32 °F to 104 °F) -20 °C to 60 °C (-4 °F to 140 °F)
Humidity	5 % to 95 % relative, non-condensing
Shock	1 m (39 in) drop per GR-196-CORE
Water/dust ingress	IP54 compliant per IEC 60529
Altitude	3000 m (9842 ft)
Power supply input output	100-240V AC at 0.7 A, 50 Hz to 60 Hz 9V DC at 0 to 1.66 A, 18 W
Battery	Internal rechargeable Lithium polymer, with battery-state and level indications
Test connections	RJ-11 for ADSL2+/VDSL2 RJ-45 for Ethernet 10/100 WAN RJ-45 for Ethernet 10/100 LAN
Connectivity	USB 2.0 ports Four clients: Type A connectors One host: Type B connector
Results storage	1.5 GB internal memory
Languages	English, French, Spanish, Chinese (Simplified)
CE marked	

STANDARD ACCESSORIES

Test cable: RJ-11 to RJ-11 and telco clip with bed of nails (ACC-RJ11-TC),
or RJ-11 to RJ-11 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

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

USB host/client cable (GP-2053)

12 V vehicle charger (CL4-CAR)

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

ORDERING INFORMATION

MAX-630-XX-XX

Model

MAX-630 = MaxTester DSL test set

DSL software options

00 = Without software options
 VDSL2MOD = VDSL2 Modem emulation
 ADSL2+M = ADSL2+ Annex M support

ADSL version

A2XA = ADSL2+ Annex A
 A2XB = ADSL2+ Annex B

Example: MAX-630-A2XB-VDSL2MOD

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EXFO is certified ISO 9001 and attests to the quality of these products. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. EXFO has made every effort to ensure that the information contained in this specification sheet is accurate. However, we accept no responsibility for any errors or omissions, and we reserve the right to modify design, characteristics and products at any time without obligation. Units of measurement in this document conform to SI standards and practices. In addition, all of EXFO's manufactured products are compliant with the European Union's WEEE directive. For more information, please visit www.EXFO.com/recycle. Contact EXFO for prices and availability or to obtain the phone number of your local EXFO distributor.

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