MaxTester 630G
G.fast/VDSL2/ADSL2+ Multi-play Test Set

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Units of Measurement

Units of measurement in this publication conform to SI standards and practices.

Version number 8.0.0.1

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Certification Information

Canada and USA Regulatory Statement

This unit was certified by an agency approved in both Canada and the United States of America. It has been evaluated according to applicable North American approved standards for product safety for use in Canada and the United States.

Electronic test and measurement equipment is exempt from FCC part 15, subpart B compliance in the United States of America and from ICES-003 compliance in Canada. However, EXFO Inc. makes reasonable efforts to ensure compliance to the applicable standards.

The limits set by these standards are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Simplified EU Declaration of Conformity

Where applicable, hereby, EXFO declares that the radio equipment type "Wideband Data Transmission" is in compliance with European Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following Internet address:
https://www.exfo.com/en/resources/legal-documentation.

1 *Introducing the MAX-630G*

The MAX-630G is a handheld device designed for testing and installing multiplay services over G.fast, DSL, and Ethernet, between the service provider and the subscriber premises. It verifies that the customer's modem/router, equipment, and inside wiring are operating correctly. The dual Ethernet ports of the MAX-630G allow it to be used inside the home to test all the way to the end point of the service.

The MaxTester 630G test set case is an aluminum enclosure with rubber over mold, which makes it ideal for field use. Its display is a back-lit LCD featuring 480 x 800 resolution; and a14-button membrane keypad mounted on the face of the unit is used to operate the test set.

Key Features and Benefits

➤ Broadcom chipset

➤ IP login

➤ DSL testing

➤ User-defined automatic testing

➤ Dual Ethernet ports

➤ Customer modem replacement

➤ Color display with graphical analysis

➤ Battery powered

➤ Rugged and weatherproof handheld unit

➤ EXFO Connect compatible

➤ Touchscreen option with stylus

Typical Applications

➤ ADSL2+ ATM/PTM and VDSL2 testing

➤ Optional ADSL2+ and VDSL2 bonding support

➤ Supports Ping, FTP, and Traceroute tests with optional support for Web Browser, VoIP and IPTV analysis

➤ Ethernet testing for qualifying FTTx service at the customer premises

➤ Configurable pass/fail results for automated testing

➤ Supports vectoring and G.INP for operators looking to mitigate self-FEXT (far end crosstalk) and promote DSL stability

➤ Proves IPv4 and IPv6 data flow between the network and the end equipment

Using the MaxTester

The MaxTester is tested IEC IP54 which means that it is not affected by dust or water splashing against the enclosure from any direction. This protection is only valid when both side doors are properly closed. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

The MaxTester is equipped with a series of interfaces shown in the following views:

➤ Left

USB Host Port

USB Client Port

SD Card (not used)

Head Set Jack (2.5 mm)

Door

➤ Right

Stylus

DC Power

Door

USB Client Port

➤ Front

Touchscreen

Power LED

Battery LED

Speaker

➤ Back

Stylus

Screws

Screws

Battery Door
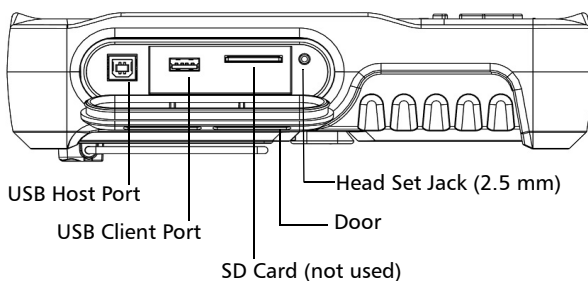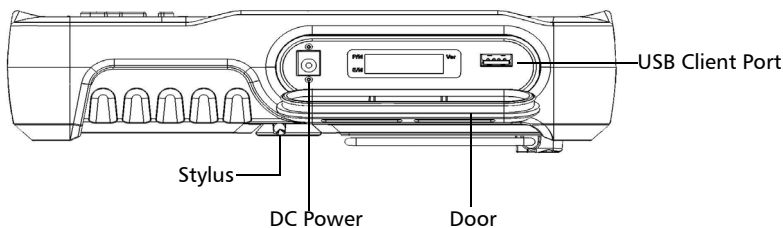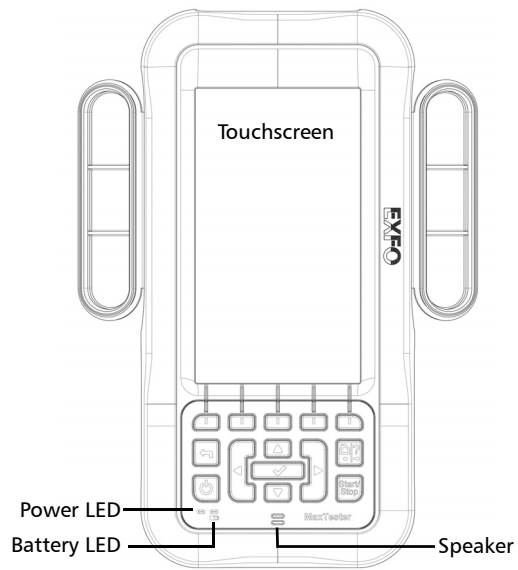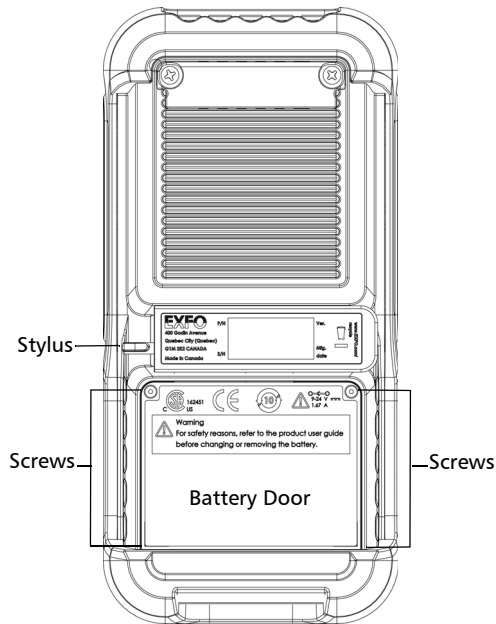
Note: *The MAX-630G enclosure may become warm during normal use.*

Cable Connections

The graphic below shows the connectors on the MAX-630G device.

Ethernet/1 GigE LAN port

Ethernet/1 GigE
WAN port
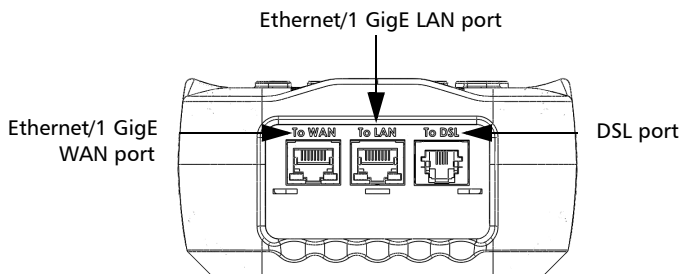
DSL port

Note: *When connecting a DSL cable to the DSL port, use the RJ-11 plug end of the 26 AWG cable provided with the unit. There is a 1500 V maximum transient voltage on telecom ports. Basic insulation is needed for external telecom circuits.*

Note: *For the connection setup, Annex B is on DSL pair 2 and Annex A is on pair 1. (Dual Annex A and B units only)*

Note: *In the MAX-63x-GVXAB model, to test an ADSL 1/2/2+ Annex B interface, the Maxtester uses the second pair (pins 2-5) in the DSL WAN RJ11 connector. When connecting the unit to a wall socket with a modem cable that uses the first pair (pins 3-4), use the red cable (pair 2) of the provided ACC-BD-RJ test cable, RJ14 to dual RJ-11, and an RJ11 female adapter ACC-RJ11-ADPTR.*

Technical Specifications

To obtain this product's technical specifications, visit the EXFO Web site at *www.exfo.com*.

Conventions

Before using the product described in this guide, you should understand the following conventions:

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in *death or serious injury*. Do not proceed unless you understand and meet the required conditions.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in *minor or moderate injury*. Do not proceed unless you understand and meet the required conditions.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in *component damage*. Do not proceed unless you understand and meet the required conditions.

IMPORTANT

Refers to information about this product you should not overlook.

2 *Safety Information*

WARNING

The use of controls, adjustments and procedures other than those specified herein may result in exposure to hazardous situations or impair the protection provided by this unit.

WARNING

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

WARNING

Use only accessories designed for your unit and approved by EXFO. For a complete list of accessories available for your unit, refer to its technical specifications or contact EXFO.

IMPORTANT

When you see the following symbol on your unit ⚠, make sure that you refer to the instructions provided in your user documentation. Ensure that you understand and meet the required conditions before using your product.

IMPORTANT

Other safety instructions relevant for your product are located throughout this documentation, depending on the action to perform. Make sure to read them carefully when they apply to your situation.

Electrical Safety

The AC adapter/charger provided with this unit (18 W/9 V) is specifically designed to work with your MaxTester.

WARNING

➤ **Use the AC/DC adapter/charger indoors only.**

➤ **Use only with a Class II AC/DC adapter, power limited output.**

➤ **On the AC/DC adapter, replacing detachable mains supply cords with inadequately rated cords, may result in overheating of the cord and create a fire risk.**

➤ **The adapter shall have the appropriate safety mark (e.g. UL, CSA, TUV, CE, etc.) that is acceptable to the authorities in the country where the equipment is to be used.**

CAUTION

When using the MaxTester while connected to the AC/DC adapter/charger, make sure you do not position the equipment so that it is difficult to disconnect the adapter/charger from the AC mains.

WARNING

Use only accessories that meet EXFO specifications.

Equipment Ratings

Equipment Ratings	
Temperature	
➤ Operation	➤ 0 °C to 40 °C (32 °F to 104 °F)
➤ Storage	➤ –40 °C to 70 °C (–40 °F to 158 °F)
Relative humidity[a]	
➤ unit	➤ ≤ 95 % non-condensing
➤ AC adapter	➤ 0 % to 80 % non-condensing
Maximum operation altitude	3000 m (9842 ft)
Pollution degree	2 (when plugged to AC mains)[b]
	3 (when operated from batteries)[c]
Overvoltage category	II
Input power[d]	
➤ unit	➤ ⎓ 9-24 V; 18 W; 1.67 A
➤ AC adapter	➤ ∼ 100 - 240 V; 50/60 Hz; 0.7 A

a. Measured in 0 °C to 31 °C (32 °F to 87.8 °F) range, decreasing linearly to 50 % at 40 °C (104 °F).
b. For indoor use only.
c. Equipment is normally protected against exposure to direct sunlight, precipitations and full wind pressure.
d. Not exceeding ± 10 % of the nominal voltage.

3 Getting Started with the MaxTester

Turning the Unit On/Off

When you turn the unit on, you may use it immediately under normal conditions. When the unit is turned off, it keeps the following parameters in its internal memory:

➤ Setup including system, application, and modem settings.

➤ Profiles consisting of:

    ➤ Test parameters

    ➤ User-defined thresholds

➤ Regional, LCD and energy-saving settings

➤ Test results saved internally vs. USB

There are two ways to turn off the MaxTester:

➤ *Suspend*: the next time you turn your unit on, you will quickly return to your work environment.

➤ *Shutdown*: completely cuts power to the unit; the unit will perform a complete restart routine the next time you use it. You should perform a shutdown if you do not intend to use your unit for a few hours or more.

To turn the unit on:

Press ⏻ to start. The unit initializes for a few seconds and displays the Home pane.

To enter suspend mode:

Press ⏻ for about 2 seconds. The MaxTester will stay in suspend mode for 2 hours, after which it will automatically shutdown. This prevents complete battery discharge and ensures maximum battery performance.

Note: *If you have the touchscreen option, you will not be able to wake up the MaxTester just by touching the display, after putting the unit into suspend mode. You must press ⏻ to wake up the MaxTester.*

To perform a shutdown:

Hold down ⏻ for about 4 seconds. The shutdown process starts.

Note: *In both previous cases, if the power adapter is connected, the MaxTester will simulate either a fake suspend or fake shutdown in order to facilitate the charger.*

Note: *If you hold down ⏻ for 12 seconds or more, the MaxTester may reset the date and time to incorrect values. Once the unit is powered back on, an **Invalid Date and Time** dialogue box will pop up displaying **The unit date and time are probably invalid. (1/1/2006 12:00:25 PM)**. Please update the date and time in Date and Time on page 25 to ensure the delivery of all the functionalities the unit has to offer.*

Using Menus and Keypad

You can access various tools from the keypad or menu. Menu options may differ depending on your unit configuration.

Home menu is where you can access **DSL/IP Tests**, **System Settings**, or **EXFO Connect**. Each test has a sub menu.

➤ To navigate through the items, use the arrow keys.

➤ To confirm a choice or enter a menu, press ✔.

➤ To cancel an action or return to the previous item or pane, press ↰.

➤ To return to the home pane, press 🏠.

➤ Press 🏠 once to return to the **Main** test menu or twice to return to the **Home** page.

Note: *Pressing 🏠 while a test is running will do nothing. The test can not be running in order to return to the main menu screen.*

Note: *You can also select an option directly by pressing the function keys corresponding to the on-screen buttons at the bottom of the screen. Alternatively, if you have the touchscreen option, any reference to pushing buttons on the keypad can be replaced in most cases by clicking/tapping the touchscreen.*

Keypad
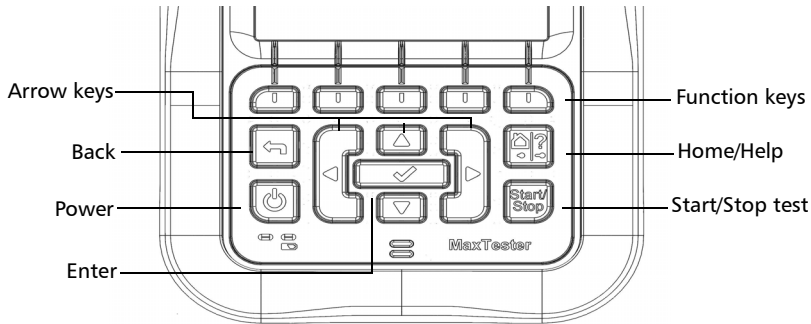
➤ Power button on the lower left side of the unit is used to power the unit on and off.

➤ Arrow keys navigate the screen to access and modify parameters.

➤ Function keys activate the corresponding on-screen function button.

➤ Home button brings you to the **Home** page of the MAX-630G.

Using Screenshot Capture/Online Help

Using the Home/Help button, you can take a screenshot of the current page display or view online help. If screenshots are **Enabled**, you will have to select **No** in the popup message before accessing the online help. (See below.)

Screenshot Capture

To take a screenshot:

Press and hold the Home/Help button to capture the current page and save it with filename screenshot_ddmmyyyy_hhmmss where ddmmyyyy is 2-digit day, 2-digit month, 4-digit year; and hhmmss is 2-digit hour, 2-digit minute, and 2-digit second. (The date and time value format is dependent on the format selected in **System Settings\Date and Time**.)

➤ Screenshots can be **Enabled/Disabled** from the **System Settings\Display and Language** page.

➤ If **Enabled**, press and hold the ? key to capture a screenshot on any page.

➤ A popup message is displayed saying **Screenshot captured**, **Press "Yes" to save or "No" to continue to Help**. Pressing **No** will also discard the screenshot.

Note: *If you selected USB as the screenshot file location and no USB is connected to the MaxTester, the following popup message is displayed: **Screenshot not saved, Insert USB and press "Yes" to save it or press "No" to continue to Help**.*

➤ Disabling **Enable Screenshots** will take you to the online help page when pressing and holding the ? key, as previously described.

Online Help

Online help is available at any time. Most test operations pause while you view help, but will resume automatically when you exit help.

To access help about the current function at any time:

Press and hold the **?** key.

4 *Setting Up the MAX-630G*

Home

Home presents the main menu page which allows you to navigate between **DSL/IP Tests**, **System Settings**, the **Wi-Fi Test** (GVXAA and GVXAB models only), and **EXFO Connect** using the left/right arrow keys on the keypad.

Press ✔ to bring up the sub-menu of the selected icon:

➤ **DSL/IP Tests** opens the **DSL Main** menu for optional G.fast, ADSL2+, VDSL2, and multiplay services testing applications.

➤ **System Settings** allow you to set the parameters of the unit such as language, date and time, and battery info. You can also view installed options, and software and hardware revision information. Plus, **System Settings** provides access to **Upload Setup**.

➤ **Wi-Fi Test** (GVXAA and GVXAB models only) scans and collects Wi-Fi information and is not related to Copper or DSL/IP Tests.

➤ **EXFO Connect** opens to **EXFO Connect Client** and **Comms** (Communications) **Setup**.

Note: *If you have the touchscreen option, any reference to pushing buttons on the keypad can be replaced in most cases by clicking/tapping the touchscreen.*

System Settings

System Settings presents a menu of items to setup the unit.

➤ **Display and Language** provides the setup for backlight, information on the title bar, language choice, and **Touchscreen Calibration** if your unit has the touchscreen option.

➤ **Date and Time** sets the date and time and format.

➤ **Battery Info** displays the battery status and measurements, and allows you to set the power schemes.

➤ **Software Options** allows you to enable/disable purchased feature options.

➤ **Information** displays information **About** EXFO and unit details pertaining to hardware/software/product info.

➤ **Upload Setup** allows you to enable and select an upload method using the following function keys:

    ➤ **Upload Enable**

    ➤ **FTP Setup**

    ➤ **Wi-Fi Setup**

    ➤ **Ethernet Setup**
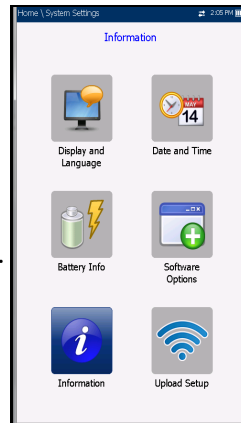
To navigate between the system settings:

1. Press the up/down left/right arrow keys on the keypad to select an icon.

2. Press ✔ to confirm your selection.

Display and Language

To fit your work environment, you may adjust the LCD brightness, display the time and Active Sync, and change the display language. If your unit has a touchscreen, you can also calibrate it here. Plus, you can **Enable Screenshots** which uses the Home/Help button. The values are kept in memory when you turn the unit off.

Note: *The LCD **Backlight** consumes battery power; more brightness, more power consumption.*

To adjust the display settings:

1. From 🏠, select **System Settings**, and then **Display and Language**.

2. Use the up/down arrow keys to select the setting to change.

3. Press ✔ to select it.

➤ By using the up/down arrow keys, you can switch between preset brightness levels in the **Backlight** item. Press ✔ to confirm.

➤ To display the time and Active Sync in the title bar, enable the item. Press ✔ after your selection to confirm.

➤ Use the up/down arrow keys to navigate between the available languages, then press ✔ to select it. You will be prompted to restart your unit.

➤ To set which **Home** page the unit defaults to when pressing 🏠, highlight **Start MaxTester using:** and select from the list.

➤ **Touchscreen Calibration** button is only present if your unit has a touchscreen and the functionality is enabled. To calibrate the touchscreen, press/tap/click the button to open a popup window and
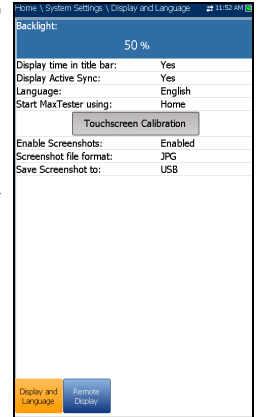
select **Yes** or **No**. This screen will automatically display during power up, if calibration was never conducted and the data file is not available in memory.

➤ To **Enable Screenshots**, select **Enabled** (default), then the **Screenshot file format** in either **JPG** (default) or **GIF**, and where you would like to **Save Screenshot to**: **USB** (default), **EXFO Connect Client**, or **FTP**.

➤ If **USB**, the image is saved to a directory called \\MaxTester\Screenshots on the USB memory device. If the directory does not exist, create it on the root directory of the USB memory device.

Note: *If you selected USB as the screenshot file location and no USB is connected to the MaxTester, the following popup message is displayed:* ***Screenshot not saved***, ***Insert USB and press "Yes" to save it or press "No" to continue to Help***.

➤ If **EXFO Connect Client**, the image is saved to \\DATA\EXFO\ECC\FileUpload and the EXFO Connect Client (ECC) manages the screenshots (for example delete). No change to ECC is required.

➤ If **FTP**, the image is saved locally to \\DATA\MaxTester\FTPUpload.

From **Result Manager\Upload\Upload Location**, select **FTP** to enable uploading screenshot images to the FTP server. If you select **USB** as the **Upload Location**, the image is uploaded to Removable Disk\MaxTester\Screenshots.

From the DSL **Upload/Save Result** tab, select In-**Band Upload & Save** button to save screenshots.

Note: *FTP is available only if you have the* ***FTP Result Upload*** *option listed in* ***System Settings\Software Options\Platform Options***.

Remote Display

The **Remote Display** function allows you to connect the MaxTester to your computer remotely, using PC TightVNC or RealVNC client application, and a Bluetooth or USB connection.

➤ **Enable Remote Display** button starts the **Remote Display** connection. Once the connection is setup successfully and the remote display server starts, the button changes to **Stop Remote Display** until the connection is dropped.

➤ **Connect to Device** allows you to select a Bluetooth device that has been paired successfully or a **USB Connection**. A connection icon is displayed in the menu bar if the setup is successful. If you select **None**, then the **Enable Remote Display** button is disabled.
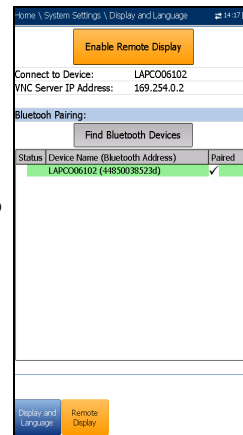
Note: *The **USB Connection** for **Remote Display** uses RNDIS protocol and the Active Sync will not be functional when this USB connection is active.*

➤ **VNC Server IP address** displays one of the following server IP addresses:

  ➤ for a **USB Connection**, 169.254.0.1

  ➤ for a Bluetooth connection, 169.254.0.2

  ➤ for **None**, N/A

➤ **Bluetooth Pairing**

  ➤ **Find Bluetooth Devices** button searches for and lists all discoverable Bluetooth devices. The list also displays all the device names that were previously paired with your MaxTester, whether or not a Bluetooth signal is currently present.

  ➤ **Status** displays a Bluetooth symbol if the device is connected.

➤ **Device Name (Bluetooth Address)** displays the name of the device and its Bluetooth address.

➤ A third, right-hand column displays a checkmark if the device is **Paired**.

Note: *Use only an EXFO certified Bluetooth dongle.*

To initiate remote display:

1. Connect the Bluetooth Dongle or **USB Connection** to a USB port on the MaxTester.

2. Select the **Connect to Device** and press the up arrow key to highlight and press the **Enable Remote Display** button.

   OR

3. Press the down arrow key to highlight and press the **Find Bluetooth Devices** button to search for available Bluetooth devices.

4. Press the down arrow key to highlight the list box and press ✔ to get into the list.

5. In the list, press the up/down arrows to select a device to pair.

6. Follow the instructions in the pop-up dialog boxes. Only one device can be paired at a time in the MaxTester.

7. Once you have connected to your device, press ⬅ to come out of the list.

8. Return to step #2 above to select your Bluetooth device and establish the VNC connection.

Date and Time

When saving results, the unit also saves the corresponding **Date** and **Time**.

➤ **Date** allows you to enter the date according to the following formats:

  ➤ yyyy-mm-dd

  ➤ dd-mm-yyyy

  ➤ mm-dd-yyyy

➤ The **Time Format** can be set according to the 12- or 24-hour formats.

➤ You can also modify the **Time Zone** and enable an option so that your unit automatically adjusts the time for the daylight saving period.
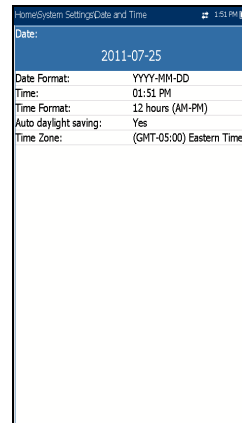
To set the date and time:
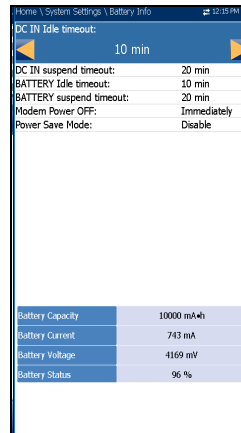
1. Press 🏠, select *System Settings*, and then *Date and Time*.

2. Use the up/down arrow keys to select any of the date or time settings.

3. Press ✔ to enable the modification controls.

  3a. For the **Date** and **Time**, an edit screen is displayed with descriptive function keys.

  3b. Use the arrow keys to modify the number values, then press ✔ to confirm the change and go back to the previous screen.

  3c. If **12 hours (AM-PM)** is selected, when setting the **Time** in the edit screen, toggle the **AM/PM** function key for the desired period of the day. Press ← to go back to the previous screen without saving the new value.

  3d. For the **Time Format**, **Auto daylight saving** and **Time Zone** values, use the arrow keys to select the desired value, then press ✔ to confirm the change.

Battery Info

You can set your unit to automatically switch to suspend mode independently for the battery or DC power modes. This is useful for example if you want to save battery power but do not want to be hindered by unwanted switches between modes when using DC power.

➤ Power off completely shuts down the unit's power.

➤ Power suspend puts the unit in sleep mode; you can wake up the system by pressing ⏻.

Note: *If you hold down* ⏻ *for 12 seconds or more, the MaxTester may reset the date and time to incorrect values. Once the unit is powered back on, an **Invalid Date and Time** dialogue box will pop up displaying **The unit date and time are probably invalid. (1/1/2006 12:00:25 PM)**. Please update the date and time in **System Settings/Date and Time** to ensure the delivery of all the functionalities the unit has to offer.*

➤ **DC IN/BATTERY Idle timeout** allows you to set the time duration for the unit to idle (no keys pressed or test being run) before turning off the LCD.

➤ **DC IN/BATTERY suspend timeout** allows you to set the time duration for the unit to enter sleep mode.

Note: *Setting the **DC IN suspend timeout** to the lowest value and not to **Never** ensures the unit enters suspend mode while the charger is connected. Battery charging time is quickest when the unit is in suspend mode.*

➤ **Modem Power OFF**:

   ➤ **Immediately** for when a DSL/IP test is completed or stopped. In this mode, the modem is powered on when DSL/IP test starts.

   ➤ Idle values power off the modem within a defined period after an DSL/IP test is completed or stopped.

➤ **Power Save Mode** is either **Disable**/**Enable**. When enabled, **BATTERY Idle timeout** and **BATTERY suspend timeout** are set to **5 min**, **Backlight** to **50 %**, and **Modem Power OFF** (including the unit) to **Immediately**. The selections are limited and the following warning message will popup:

   Power Save mode is enabled. High Voltage Monitoring is active only while the test is in progress.

Default power scheme settings are:

➤ LCD backlight turns off after system idles (no keys pressed) for 10 min.

➤ Unit switches to suspend mode after timeout: 10 min.

➤ **Power Save Mode** is **Disable** requiring you to go to this page to see what will be changed before enabling it.

The chart displays the following battery measurements: capacity, current, and voltage. **Battery Status** indicates the current power level, as a percentage, for the battery. **Charging** is shown as the status only in dual battery pack units.

To change the power scheme settings:

1. Press ⌂, select **System Settings**, and then **Battery Info**.

2. Under **DC IN** or **BATTERY**, use the arrow keys to select **Idle**/**suspend timeout** modes. Press ✔ to view the list of available choices or use the left/right arrow keys.

3. Select a new value, then press ✔ to confirm the choice. Repeat for the other modes as needed.

Software Options

To activate a newly purchased option key on your MaxTester, please see the *Software Options* procedures in the *MaxTester CQ-DSL Release Notes* that accompanied your unit.

DSL Options

This screen lists all the **DSL Configured Options** which are present on the unit. Possible options are as follows:

➤ **VDSL2MOD (Support VDSL2 test)**

➤ **PING (Support Ping and IP login)**

➤ **FTP (FTP Test Support)**

➤ **Traceroute (Traceroute Test Support)**

➤ **Browser (Web Browser Support)**

➤ **IPTV (IPTV Test Support)**

➤ **BOND (Bonding)** (not supported with GVXAB modem)

➤ **VOIP (VoIP Test Support)**

➤ **MOS (MOS / R-Factor Scores)**

➤ **IPV6 (IPv6 Support)**

➤ **GFAST (G.fast Support**

➤ **VDSL2-35B (VDSL2-35B Support)**

➤ **Bandwidth Speed Test over DSL Ethernet**
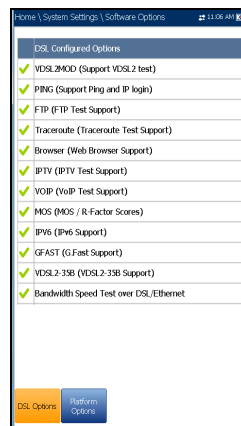
Platform Options

This screen lists all the **Platform Configured Options** which are present on the unit. Possible options are:

➤ **FTP Result Upload**

➤ **Touchscreen Support**

➤ **Wi-Fi Test**
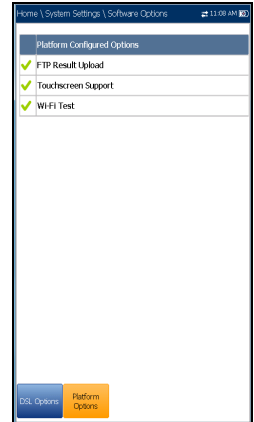
Information

About EXFO

The **About** tab contains contact information should you require technical assistance.

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Fax: +1 418 683-9224
http://www.exfo.com/support
support@exfo.com
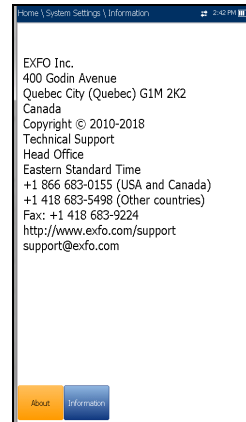
MAX-630G Information

The **Information** tab displays information about the product, software, and memory installed on the device. The page also identifies hardware information.

To view the complete version numbers of the software installed on the device:

1. Press the **Information** tab again.

2. Press the tab again to return to the original value.
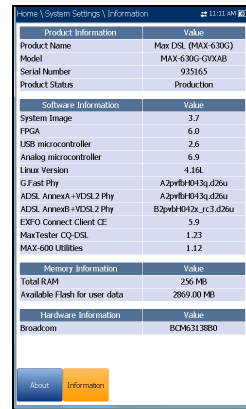
Upload Setup

Upload Enable

The **Upload Enable** function allows you to upload your test result files.

The **Out-band Upload Method** allows you to use one of the following methods:

➤ **Wi-Fi** allows you to upload files from the MaxTester via a Wi-Fi hotspot/router and is available from the following results pages:

   ➤ **Upload/Save Result** tab

   ➤ **Result Manager/Upload**

Note: *Only channels 1 to 11 are supported on the Wi-Fi hotspot/router.*
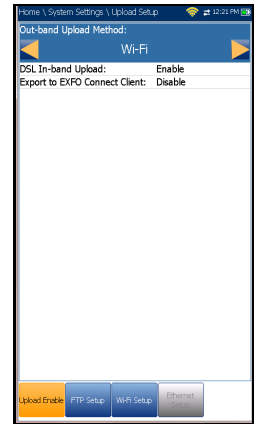
A Wi-Fi symbol, in the top right-hand corner of the navigation bar, identifies whether or not a connection is present. The Wi-Fi status is indicated as follows:

➤ Green icon indicates that the MaxTester is connected with a Wi-Fi hotspot.

Home \ System Settings \Upload Setup   12:51 PM

➤ Yellow icon indicates that the Wi-Fi dongle is powered up and ok, but that the MaxTester is not connected to any Wi-Fi hotspot.

Home \ System Settings \Upload Setup   12:51 PM

➤ Red icon indicates a problem with the Wi-Fi (dongle not attached, etc.).

Home \ System Settings \Upload Setup   12:51 PM

➤ **Ethernet** is the default upload and if selected, displays an ethernet icon 🖧 in the top right-hand corner of the navigation bar. It identifies whether or not a connection is present displaying a green or yellow icon similar to the Wi-Fi symbol described above.

➤ **Disable Upload** option disables uploading your files via Wi-Fi or Ethernet. You can export results to a USB memory device.

The **DSL In-band Upload** method supports DSL or Ethernet, and can be set to either **Enable** or **Disable**.

Export to EXFO Connect Client allows you to **Enable**/**Disable** this location to export your CQ and DSL test reports.

To select the Upload method:

1. Press 🏠, select **System Settings**, and then **Upload Setup**.

2. Select the **Upload Enable** tab.

3. Use the left/right arrow keys.

OR

4. Press ✔ to view the list of available choices.

5. Use the up/down arrow keys to make your selection and press ✔ to confirm.

FTP Setup

The **FTP Setup** function allows you to configure the file transfer information using the following:

➤ **Address Format** allows you to select the FTP server address type:

  ➤ **IP Address**

  ➤ **URL**

➤ **FTP Server Address** allows you to set either the IP Address or URL.

➤ **Port** is a fixed numeric value for the signalling port used to establish an IP network session.

➤ **Username**/**Password** is your login ID and password.

➤ **Mode** is either **Active** or **Passive** for the file transfer mode.

➤ **Transfer Type** is set to **Binary**, transferring files as a binary stream of data.

➤ **Remote Directory** can be used to specify the file upload directory on the FTP server, for example, dir1/dir2. If this field is left empty, the FTP upload will save the result file at root directory on FTP server.

➤ **Restore Default** button allows you to reset the entries to their defaults.
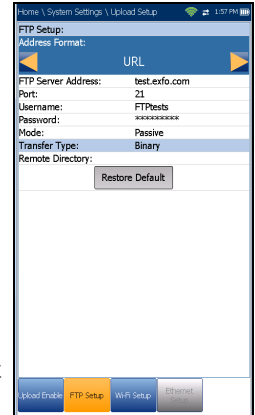
To configure the setup options:

1. Press the up/down arrows to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

  OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

Wi-Fi Setup

The **Wi-Fi Setup** pages allows you to connect your MaxTester to a Wi-Fi network.

> ➤ **Select a Wi-Fi Network for Upload** lists the available secure Wi-Fi networks in range and presently connected. (Unsecured Wi-Fi networks are not supported.) The last three networks that were connected are also listed, whether or not they are presently connected to the MaxTester.

Note: *If you select a network from the list of previously selected networks (last 3), the MaxTester will try to join that network using the credentials saved for the selected network.*
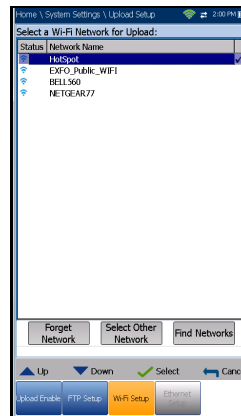
> > ➤ **Status** displays a Wi-Fi symbol if the device is connected, and is dynamically updated with the present connectivity state of the networks.
>
> > ➤ **Network Name** is the Wi-Fi network name.
>
> > ➤ A third, right-hand column displays a checkmark indicating the network selected for upload.
>
> ➤ **Forget Network** button removes a previously joined network from the list.
>
> ➤ **Select Other Network** button opens a new page allowing you to search for a specific network.
>
> ➤ **Find Networks** button searches for available networks.

Note: *Only Wi-Fi channels 1-11 are supported.*

To connect your MaxTester to a Wi-Fi network:

1. Press the down arrow key to highlight the list box and press ✔ to get into the list.

2. In the list, press the up/down arrows to select the desired network.

3. Press ✔ to confirm a network and open the alphanumeric editor screen to enter your **Password**.

4. Press ← to come out of the list.

5. Press the down and left/right arrow keys to highlight the network buttons and press ✔.

Select Network

The **Select Network** page allows you to search for a specific Wi-Fi network.

➤ **Network Name** opens the alphanumeric editor screen allowing you to enter the name of the desired Wi-Fi network.

➤ **Security** lists the following wireless security protocols:

➤ **WEP** (Wired Equivalent Privacy)

➤ **WPA** (Wi-Fi Protected Access)

➤ **WPA2** (Wi-Fi Protected Access version 2)
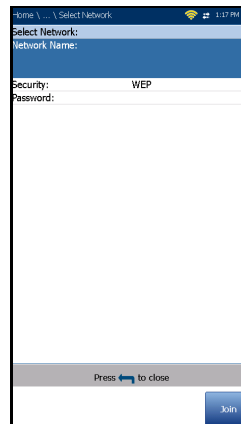
Note: *When using WPA encryption, some specific routers may have performance issues with the supplied Wi-Fi dongle. In this case, please use WPA2 encryption.*

➤ **Password** opens the alphanumeric editor screen allowing you to enter the desired Wi-Fi network's password. Join function key replaces Done on the editor screen.

➤ **Join** function key allows your MaxTester to connect to the other network and it becomes the selected/preferred upload network.

To configure the other network parameters:

1. Press the up/down arrow keys to highlight the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

5. Press the **Join** function key to connect to the other Wi-Fi network.

Ethernet Setup

The **Ethernet Setup** function allows you to configure the line and access modes, etc for an Ethernet connection, using the following parameters:

➤ **Access Mode** options are **DHCP**, **Static**, or **PPPoE**.

➤ **WAN Link Speed** is a choice between **Auto** (negotiated during the link establishment), **1000** (GVXAA and GVXAB models only), **100**, or **10 Mbit/s**.

➤ **WAN Connect Mode** is **Full-** or **Half-Duplex**, when **Link Speed** is set to either **1000** (GVXAA and GVXAB models only), **100**, or **10 Mbit/s**.

➤ **VLAN Support** enables the unit to tag/untag ethernet frames.

➤ **VLAN ID** is a virtual local area network (VLAN) tag ranging from 0 through 4094. The entry is available only when **VLAN Support** is **Enable**.

➤ **Vendor ID** is the name of the unit. This entry is available only when **Access Mode** is **DHCP**.

➤ **Local Mac Address** is the *internal* MAC address of the unit: either **MaxTester** or **User Defined**.

➤ **Mac Address** is a specific MAC address, in a hexadecimal format, if **User Defined** was selected for the previous parameter. This entry is available only when **Access Mode** is **DHCP** or **Static**.

➤ **WAN Login Timeout** is a numeric setup entry.
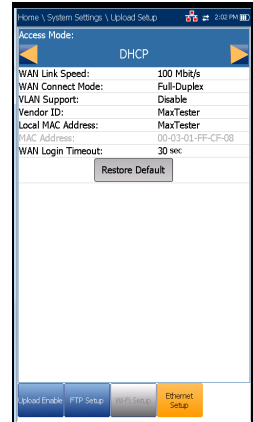
The following parameters are available only when **Access Mode** is **PPPoE**.

➤ **Login Name**/**Password** is your user ID and password.

➤ **Obtain IP** is either **Dynamic** where the access concentrator or broadband remote access server assigns a temporary IP address to the unit, or **Static** where you enter the IP address of the unit.

The following parameters are available only when **Access Mode** is **Static**.

➤ **IP Address** is the address for the unit that is actively connected to your network or the internet at the time of login.

➤ **Gateway** is the IP address of the default gateway.

➤ **Subnet Mask** is the network address used to identify if the IP address is within the same wide area network.

➤ **DNS1** is the address of the primary domain name server to be used by the unit. If DNS is unavailable, enter 0.0.0.0.

➤ **DNS2** is the address of the secondary domain name server to be used by the unit. If DNS is unavailable, enter 0.0.0.0.

➤ **Restore Default** button allows you to reset the entries to their defaults.

To configure the setup options:

1. Press the up/down arrows to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

Wi-Fi Test

Selecting the **Wi-Fi Test** icon (GVXAA and GVXAB models only) activates the **Wi-Fi Scan** function, listing all the Wi-Fi (wireless) networks available to you.

Wi-Fi Scan

The **Wi-Fi Scan** tab displays all wireless networks available with details that allow you to compare them.

➤ **Navigate to a Wi-Fi Network for Details** enables you to select a wireless network from the list to view further details below.

   ➤ **Chan.** displays the Wi-Fi channel number.

   ➤ **Network Name** or SSID (service set IDentifier) is the name assigned to a wireless network.

   ➤ **MAC Address** or BSSID (basic service set identifier) is the address of the WAP (wireless access point).

   ➤ **RSSI** is the received signal strength indicator returned from the Wi-Fi dongle.

➤ **Sort Channels** button allows you to toggle the channel numbers by ascending and descending.

➤ **Sort RSSI** button allows you to toggle the RSSI signal strength values by ascending and descending.

Note: *With touchscreen, you can also sort the network names by clicking/tapping the column header.*

➤ **Hide/Show Hidden Network** button allow you to hide/show hidden networks in the list.
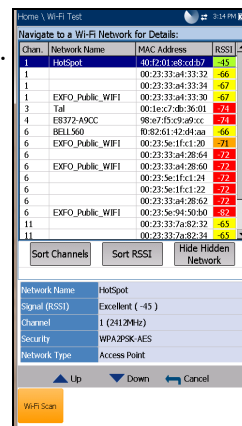
Details of the selected **Network Name** include:

➤ **Signal (RSSI)** strength may list one of the following levels with the table cell shown in the corresponding colour:

  ➤ **No Signal** (< -90/black)

  ➤ **Very Low** (-90 to -82/red)

  ➤ **Low** (-81 to -72/red)

  ➤ **Good** (-71 to -68/orange)

  ➤ **Very Good** (-67 to -58/yellow)

  ➤ **Excellent** (> -58/green)

➤ **Channel** displays the Wi-Fi channel number and frequency.

➤ **Security** displays one of the following encryption and authentication types: NONE, WEP-OPEN, WEP-SHARED, WPA-TKIP, WPAPSK-TKIP, WPA2-TKIP, WPA2PSK-TKIP, WPA-AES, WPAPSK-AES, WPA2-AES, WPA2PSK-AES

➤ **Network Type** is either **Access Point** (the infrastructure network or router) or **Adhoc** (spontaneous).

To navigate to a Wi-Fi network and view the details:

1. Press ✔ to get into the list.

2. Press the up/down arrow keys to select a network and view its details below.

EXFO Connect

The **EXFO Connect** menu presents the following
2 sub-menus:

➤ **EXFO Connect Client** (ECC) opens to the main
menu page which allows you to navigate between
the ECC interfaces. Please refer to the *ECC User
Guide* for more information.

➤ **Comms Setup** allows you to configure the **EXFO
Connect** communications upload setup.
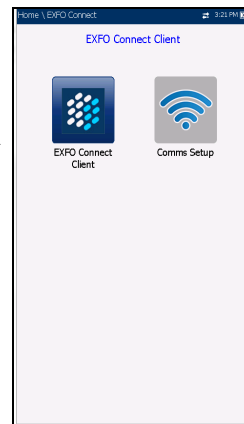
Comms Setup

Connection Enable

The **Connection Enable** tab allows you to choose the
Connection Method for upload.

➤ **Wi-Fi**

➤ **Ethernet**

➤ **DSL** allows you to perform software downloads
and upload your results to the EXFO Connect
Server. You should run Manual DSL tests and
achieve a WAN connection before activating the
EXFO Connect application from the Upload/Save
Result screen. When DSL is selected, the
following message is displayed: **DSL connection
was chosen for EXFO Connect. Please use EXFO Connect button
inside DSL Manual test Upload/Save Results page**.

➤ **Disable Connection** option disables uploads via Wi-Fi or the Ethernet.
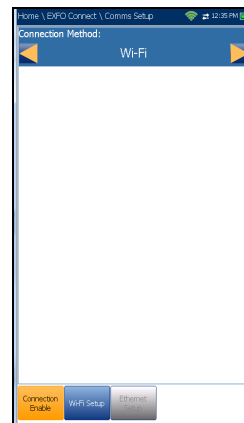
When **Wi-Fi** or **Ethernet** are selected, their respective icons are displayed in the top right-hand corner of the navigation bar. The status of whether or not a connection is present is indicated by the colour of the icon: green, yellow, or red.

Wi-Fi Setup

The **Wi-Fi Setup** function for **Comms Setup** is the same as in the **System Settings**/**Upload Setup**. Please see *Wi-Fi Setup* on page 34.
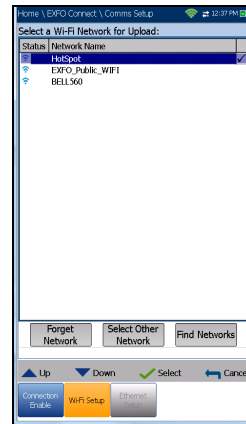
Ethernet Setup

The **Ethernet Setup** function for **Comms Setup** is the same as in the **System Settings**/**Upload Setup**. Please see *Ethernet Setup* on page 37.
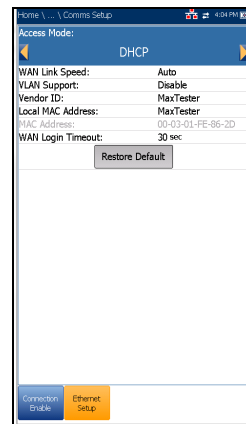
5 *Setting Up DSL/IP Tests*

DSL Main Menu Page

DSL Main presents the main menu page which allows you to navigate to each icon using the up/down left/right arrow keys on the keypad. Press ✔ to access a test or bring up the sub-menu of the selected icon:

➤ For Auto, Manual, or Ethernet, the test will start and the screen control will navigate to the **Connection Summary** page.

➤ **Result Manager** opens a list of file names previously saved tests, to view, upload, export, or delete results.

➤ **Test Configuration** provides the utilities to configure test parameters.

➤ **Setup** opens a sub-menu displaying the following:

➤ **Modem Settings** allows you to set the display and power parameters of the modem.

➤ **Application Settings** allows you to preset the unit with specific DSL measurement values.

➤ **VoIP Phone Book** allows you to manage phone numbers relevant to performing VoIP tests.
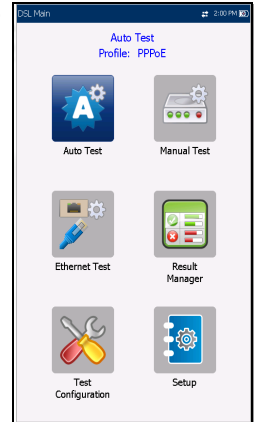
Test Configuration

The MaxTester supports 3 types of test applications: **Auto Test**, **Manual Test**, and **Ethernet Test**. Configuration parameters for all 3 test applications are saved into a test configuration profile. A default profile is provided with a predefined set of parameters for all test applications.

➤ **Select Profile** lists saved available profiles. The current active profile is shown in the upper information header. At power up, settings are read from the last loaded profile.

➤ **Profile Details** lists the 3 types of tests for configuration:

  ➤ **Auto Test Setup**

  ➤ **Manual Test Setup**

  ➤ **Ethernet Test Setup**

➤ **Copy to USB** allows you to copy all profiles found in the internal memory to an external USB device.
If the profile name already exists in the destination folder, Copy (x) will be appended to the profile name, where x corresponds to the number of copies starting from 1.

➤ **Copy from USB** allows you to copy all profiles found on an external USB device to the unit.

➤ **Delete Profile** allows you to delete a profile (except the default profile) on the unit.

➤ **Profile Default** resets the current test setup to the factory default profile. If selected, a dialogue box pops up to confirm that all single and auto test settings will revert to factory test settings.

➤ **Save Profile** opens the alphanumeric editor screen allowing you to create a new profile name and copy all parameters from the currently loaded profile.
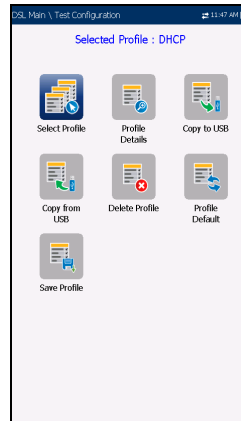
Setup Profile Name

This alphanumeric editor screen allows you to change parameter values and save changes to a new word.

To use the editor screen:

1. Press the up/down left/right arrows to navigate the on-screen keyboard.

2. Press ✔ to confirm each selection.

3. Use the on-screen function buttons to create or edit the word.
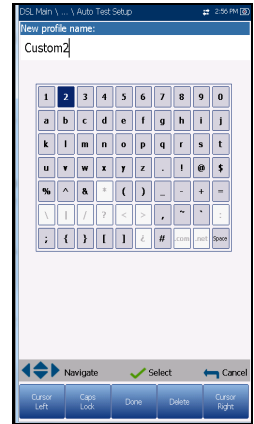
Profile Details Menu

You can view any of your saved profiles on the MaxTester from the **Profile Details** menu by selecting the desired test setup icon. This sub-menu displays an icon for each test: Auto Test, Manual, and Ethernet.

To select a test:

1. Press the up/down left/right navigation keys to select the desired icon.

2. Press ✔ to display the test profile details.
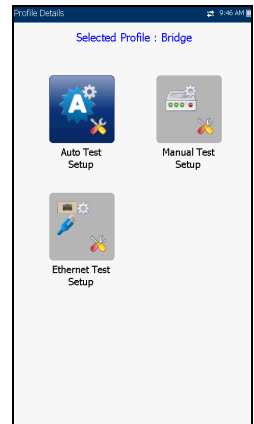
Connection Setup

The **Connection Setup** tab allows you to configure the line and access modes, etc of your test dependent on your unit's **Software Options** and model **Information**.

The *V2XAA* unit does ADSL Annex A, VDSL2 Bonding, and Vectoring. ADSL Annex A is on pair 1 and bonding uses pair 1 and pair 2.

➤ The **Test Interface** setup options for the V2XAA module are the following:

   ➤ **ADSL2+** - if VDSL2 option disabled.

   ➤ **VDSL2/ADSL2+** - if VDSL2 option enabled

   ➤ **ADSLMulti** supports G.DMT, T1.413, and G.Lite.

   ➤ **ADSL2+ Bonding** - if VDSL2 option disabled, Bonding option enabled.

   ➤ **VDSL2/ADSL2+ Bonding** - if VDSL2 and Bonding options enabled.

   ➤ **VDSL2-30a** - if VDSL2 option enabled.
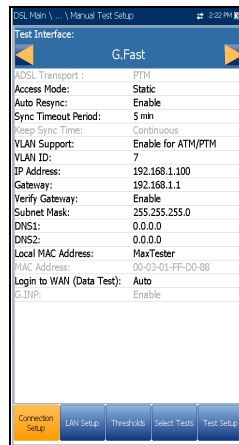
The *V2XAB* unit does ADSL Annex A and Annex B. ADSL Annex A is on pair 2 and ADSL Annex B is on pair 1.

➤ The **Test Interface** setup options for the VA2XAB module are the following:

   ➤ **VDSL2/ADSL2+ (xB/P1)** - if VDSL2 option enabled, ADSL Annex B mode.

   ➤ **ADSLMulti (xB/P1)** - supports G.DMT only.

   ➤ **VDSL2/ADSL2+ (xA/P2)** - if VDSL2 option enabled, ADSL Annex A mode.

   ➤ **ADSLMulti (xA/P2)** - support G.DMT and T1.413 only.

   ➤ **ADSL2+ (xB/P1)** - if VDSL2 option disabled, ADSL Annex B mode.

➤ **ADSL2+ (xA/P2)** - if VDSL2 option disabled, ADSL Annex A mode.

➤ **VDSL2-30a (Pair 1)** - if VDSL2 option is enabled.

➤ **VDSL2 Bonding** - if VDSL2 and Bonding options are enabled.

The *GVXAA* unit does ADSL Annex A on pair 1 and supports bonding.

➤ The **Test Interface** setup options for the *GVXAA* module are the following:

➤ **G.fast** if enabled.

➤ **VDSL2/ADSL2+** - if VDSL2 option enabled.

➤ **ADSLMulti** supports G.DMT, T1.413, and G.Lite.

➤ **VDSL2/ADSL2+ Bonding** - if VDSL2 and Bonding options enabled.

➤ **VDSL2-35b** if enabled.

The *GVXAB* unit does ADSL **Annex B** and **UR2** which can be configured in **Setup\Modem Settings\DSLAM**. ADSL Annex A is on pair 1, and ADSL Annex B and UR2 are on pair 2. This modem does not support bonding.

➤ **Test Interface** options for the *GVXAB* module are as follows:

➤ **G.fast (Pair 1)**

➤ **VDSL2/ADSL2+ (xA/Pair 1)**

➤ **ADSLMulti (xA/Pair 1)**

➤ **VDSL2-35b (Pair 1)**

➤ **ADSL2+ (xB/Pair 2)**

➤ **ADSLMulti (xB/Pair2)**

➤ **ADSL2+ (UR2/Pair 2)**

➤ **ADSLMulti (UR2/Pair 2)**

➤ **Annex M** allows you to **Enable/Disable** this option when **Test Interface** is:

  ➤ VDSL2/ADSL2+ or VDSL2/ADSL2+ Bonding for V2XAA and GVXAA units.

  ➤ VDSL2/ADSL2+ (xA/P2) for V2XAB unit.

  ➤ VDSL2/ADSL2+ (xA/Pair 1) for GVXAB unit.

➤ **Annex J** allows you to **Enable/Disable** this option when **Test Interface** is:

  ➤ VDSL2/ADSL2+ (xB/P1) for V2XAB unit.

  ➤ ADSL2+ (xB/Pair 2) for GVXAB unit.

➤ **ADSL Transport** displays the transport type options: **PTM** (packet transfer mode), **ATM** (asynchronous transfer mode), or **ATM and PTM**. When **G.fast** is selected as the **Test Interface**, **ADSL Transport** is disabled.

➤ **Access Mode** options are dependent on the test setup selection.

  ➤ For Auto and Manual tests, available options are: **Sync Only**, **Bridged** (not in Auto Test), **DHCP**, **Static**, **PPPoE**, **PPPoA**, **IPoA**, and **IPv6 (DHCP)**.

  ➤ For Ethernet tests, available options are **Bridged**, **DHCP**, **Static**, **PPPoE**, and **IPv6 (DHCP)**.

Note: *IPv6 requires an option key to be enabled.*

➤ **Auto Resync** allows you to **Enable** the SyncLossCounter as the Pass/Fail criteria. When SyncLossCounter+1 is reached, the test will have fail status.

If **Auto Resync** is disabled, any time the test loses sync, the result status will be fail and the test will stop automatically.

➤ **Sync Timeout Period** enables you to enter the duration, between 2 and 30 minutes, to run a DSL test from activation to reaching **Show Time**.

➤ **Keep Sync Time** is either:

  ➤ **Continuous** where the test runs until you manually stop it, or

  ➤ **User Defined** where you can set a **Keep Sync Time Period**. Default is 5 minutes.

➤ **VPI (ATM mode only)** is the virtual path identifier (VPI) ranging from 0 through 255 for the downstream channel.

➤ **VCI (ATM mode only)** is the virtual circuit identifier (VCI) ranging from 32 through 65535 for the downstream channel.

➤ **Encapsulation Type** depends on the network configuration and sets the ATM to either **LLC** also known as LLC-SNAP (logical link control-sub network address protocol) or **VC_MUX** (virtual channel multiplex).

➤ **VLAN Support** enables the unit to tag/untag ethernet frames.

➤ **VLAN ID** is a virtual local area network (VLAN) tag ranging from 0 through 4094. The entry is available only when **VLAN Support** is **Enable**.

➤ **Vendor ID** is the name of the unit. This entry is available only when **Access Mode** is **DHCP** or **IPv6 (DHCP)**.

➤ **Local Mac Address** is the *internal* MAC address of the unit: either **MaxTester** or **User Defined**.

➤ **Mac Address** is a specific MAC address, in a hexadecimal format, if **User Defined** was selected for the previous parameter. This entry is available only when **Access Mode** is **DHCP**, **Static**, or **IPv6 (DHCP)**.

➤ **WAN Login Timeout** is a numeric setup entry.

➤ **G.INP** allows you to **Enable**/**Disable** the standards based Physical Layer Retransmission scheme for impulse noise protection. This entry applies only to Auto and Manual tests.

➤ **NAT** (network address translation) allows you to **Enable**/**Disable** the translation of the IP addresses of computers in a local network to a single IP address. **NAT** is available only if **Access Mode** is set to **DHCP**, **Static**, or **IPoA**.

Note: *For **Ethernet Test Setup**, NAT is available only for GVXAA and GVXAB models.*

➤ **Login to WAN (Data Test)** (in **Manual Test Setup** only) can be set to one of the following, when running a **Manual Test**:

➤ **Auto** will start the WAN login automatically right after **Show Time**.

➤ **Manual** enables a **Login** button on the **WAN Status** page, once **Show Time** is reached. You must press the button to start the WAN login.

This parameter can *not* be selected for the following **Access Modes**: **Sync Only**, **Bridged**, and **IPv6 (DHCP)**, and will be set to Auto.

The following parameters are available only when **Access Mode** is **PPPoE** or **PPPoA**.

➤ **Login Name**/**Password** is your user ID and password.

➤ **Obtain IP** is either **Dynamic** where the access concentrator or broadband remote access server assigns a temporary IP address to the unit, or **Static** where you enter the IP address of the unit.

➤ **Static IP** is the address of the current location assigned by the service provider. This entry is available only if **Obtain IP** is set to **Static**.

The following parameters are available only when **Access Mode** is **IPoA** or **Static**.

➤ **IP Address** is the address for the unit that is actively connected to your network or the internet at the time of login.

➤ **Gateway** is the IP address of the default gateway.

➤ **Verify Gateway** can be set to **Enable** or **Disable**.

➤ **Subnet Mask** is the network address used to identify if the IP address is within the same wide area network.

➤ **DNS1** is the address of the primary domain name server to be used by the unit. If DNS is unavailable, enter 0.0.0.0.

➤ **DNS2** is the address of the secondary domain name server to be used by the unit. If DNS is unavailable, enter 0.0.0.0.

The following parameters are available only when the test setup is for **Ethernet**.

WAN/LAN Link Speed is always set to **Auto** (GVXAA and GVXAB models only).

➤ **WAN/LAN Link Speed** is a choice between **Auto** (negotiated during the link establishment), **100**, or **10 Mbit/s**.

➤ **WAN/LAN Connect Mode** is **Full-** or **Half-Duplex**, when **Link Speed** is set to **100**, or **10 Mbit/s**.

Note: *GVXAA and GVXAB models also support 1000 Mbit/s.*

To configure the setup options:

1. Press the up/down arrows to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

5. If you make any changes to the parameter values, press the on-screen function keys to save or cancel your input.

LAN Setup

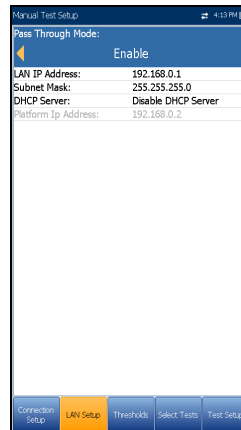The **LAN Setup** tab is available in **Ethernet Test Setup** and **Manual Test Setup** when the **Access Mode** set in **Connection Setup** is *not* **Sync Only**. **LAN Setup** allows you to configure the parameters required when working in **Pass Through Mode**, and the LAN (local area network) is connected to the external device which supports 10/100 and 1000 (GVXAA and GVXAB models only) Ethernet.

Note: *This tab is not available in **Auto Test Setup**.*

➤   **Pass Through Mode** - **Enable** or **Disable**. When the **Access Mode** is **Bridged**, **Pass Through Mode** is set to **Enable**.

➤   **LAN IP Address** is the local network IP address of the unit.

Note: *If the DSL WAN has an IP address on a specific subnet (for example 192.168.x.y) and the Ethernet **LAN port** is enabled, configure the default LAN IP address to a different subnet (for example 10.0.x.y) to avoid IP communication problems.*

➤   **Subnet Mask** is the network address mask used to identify if the IP address is within the same local area network.

➤   **DHCP Server** enables the dynamic host configuration protocol (DHCP) mode for the LAN side of the connection.

➤   **Platform Ip Address** is displayed when the **DHCP Server** is disabled.

To configure LAN setup values:

1. Press the up/down arrows to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

5. If you make any changes to the parameter values, press the on-screen function keys to save or cancel your input.

IPv6 LAN Setup

The IPv6 **LAN Setup** tab is available only in **Manual Test Setup** and when the **Access Mode** set in **Connection Setup** is set to **IPv6 (DHCP)**. This page allows you to Enable/Disable Pass Through Mode when the LAN (local area network) is connected to the external device which supports 10/100/1000 Ethernet. Pass Through Mode is renamed **LAN Port**.

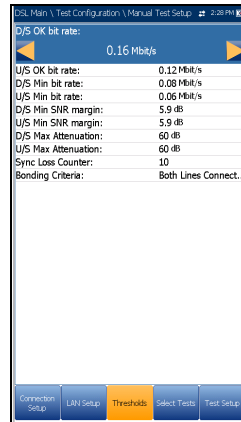***To set the parameter:***

1. Press the left/right arrow keys to toggle between **Enable**/**Disable**.

OR

2. Press ✔ on any value to open the list box to toggle between **Enable**/**Disable** by pressing the up/down arrow keys.

3. Press ✔ to confirm your selection.
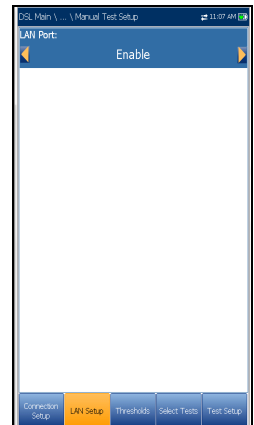
Thresholds

The **Thresholds** tab allows you to define DSL parameter criteria. For **D/S** (downstream) and **U/S** (upstream) data rates, there are **OK** and **Min** (minimum) bit rates defined to indicate unacceptable, marginal, and acceptable rates.

➤ **D/S** and **U/S OK bit rate**:

    ➤ for ADSL - value limited to D/S 30 Mbit/s, U/S 2 Mbit/s.

    ➤ for VDSL - D/S to 100 Mbit/s, U/S to 50 Mbit/s.

    ➤ for G.fast - D/S and U/S maximum value set to 1000 Mbit/s.

    ➤ for VDSL2-35b - D/S can be 350 Mbit/s, U/S is 50 Mbit/s.

➤ **D/S** and **U/S Min SNR margin** - values range from 0 to 63.5 dB. Default is 5 dB.

➤ **D/S** and **U/S Max Attenuation** - values range from 0 to 96 dB. Default is 10 dB.

➤ **Sync Loss Counter** is the number of times the unit lost synchronization.

➤ **Bonding Criteria** allows you to select either **Single Line**/**Both Lines Connected & Bonded** to check the pass/fail criteria of the DSL lines in bonding mode.

To set threshold values:

1. Press the up/down arrows to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

   OR

3. Press ✔ on a value to open the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

5. If you make any changes to the parameter values, press the on-screen function keys to save or cancel your input.

Select Tests

The **Select Tests** page allows you to **Enable/Disable** the following optional sub-tests, within the 3 types of test applications.

➤ **VoIP Test** determines DSL and IP packet rates, and calculates jitter, packet loss, and packet delay. When enabled, all other sub-tests are automatically disabled, in **Auto Test** and **Ethernet Test Setup**. In **Manual Test Setup**, you can enable all sub-tests independent of each other.

➤ **IPTV Test** supports STB (set-top box) emulation mode over DSL and Ethernet interfaces enabling the MaxTester to join and leave multicast IPTV streams. When enabled, all other sub-tests are automatically disabled, in **Auto Test** and **Ethernet Test Setup**. In **Manual Test Setup**, you can enable all sub-tests independent of each other.

➤ **Ping** is also known as ICMP echo request and determines network connectivity and accessibility. When **Access Mode** is set to **IPv6 (DHCP)**, **Ping** is the only test available.

➤ **FTP** test verifies the file transfer speed of the file download and upload.

➤ **HTTP** test allows you to download a file from a HTTP web server and measure the file size downloaded and the speed of the download.
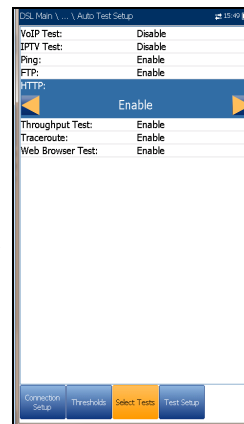
➤ **Throughput Test** (GVXAA and GVXAB models only) implements the iPerf3 or Ookla[1] tool for active measurements of the maximum achievable bandwidth on IP networks.

Note: *Ookla Privacy Policy: http://www.speedtest.net/privacy*
You, end user, understand and acknowledge, by performing the test contained in the Speedtest Powered Software Application, that Ookla, LLC may collect your IP address during the test and share it with selected third parties.

➤ **Traceroute** is a complement tool of the Ping test to determine why a destination cannot be reached, or where the internet is broken.

➤ **Web Browser Test** can only be started when a WAN connection (either through xDSL or Ethernet) has been established.

When enabled, the sub-tests' test pages are available in the results pages.

You must highlight the sub-test for which you want the contents shown on the **Test Setup** page.

Note: *Select Tests and Test Setup tabs are not available in Sync Only and Bridged Access Modes.*

To select sub-tests:

1. Press the up/down arrows to highlight the desired test.

2. Press the left/right arrow keys to toggle between **Enable**/**Disable**.

OR

3. Press ✔ on any value to open the list box to toggle between **Enable**/**Disable**.

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1. Ookla is a third party provider. The Ookla Speedtest Powered technology involves Ookla owned and/or controlled servers that may or may not be within your network. Ookla retains the right to aggregate test results and to monetize aggregated results as they see fit.
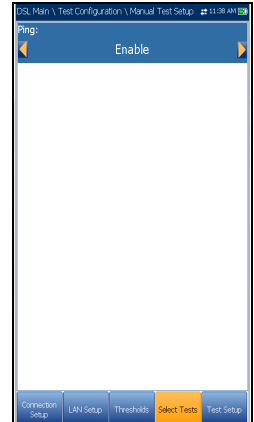
IPv6 Select Tests

When **IPv6 (DHCP)** is set as the **Access Mode**, the **Select Tests** tab allows you to **Enable**/**Disable** only the **Ping** parameter.

To set the parameter:

1. Press the left/right arrow keys to toggle between **Enable**/**Disable**.

OR

2. Press ✔ on any value to open the list box to toggle between **Enable**/**Disable** by pressing the up/down arrow keys.

*3.* Press ✔ to confirm your selection.

Test Setup

The **Test Setup** tab allows you to configure profile values for the optional sub-tests within the 3 types of test applications. You must highlight the sub-test on the **Select Tests** page in order to display the sub-test's parameters on the **Test Setup** page.

VoIP Test Setup

The **VoIP** test function allows you to configure the unit for VoIP testing. During the analysis, the unit determines the DSL and IP packet rate, and calculates jitter, packet loss, and latency.

➤ **Codec** is the VoIP coder/decoder value to be used by the unit.

➤ **Call Mode** (enabled for **Auto Test** only) is either **Incoming** or **Outgoing**. The VoIP test is not only used to initiate a VoIP call, but responds to incoming VoIP calls.
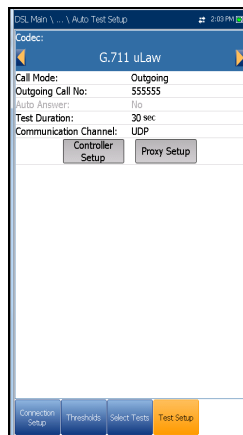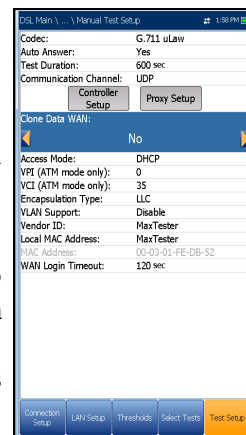
Note: *When **Incoming** mode is selected, **Auto Answer** is set to **Yes**, and is read only. When **Outgoing** mode is selected, **Auto Answer** is set to **No**, and is read only; that is, incoming calls are rejected.*

➤ **Auto Answer** (disabled for **Auto Test**) is either **Yes** or **No**. When an incoming call is detected, a popup message will indicate that this state is detected with the message **Incoming call**.

  ➤ If **Auto Answer** is **No**, then the popup presents you with the choices: **Answer** or **Decline**.

  ➤ If **Auto Answer** is **Yes**, then the popup message presented is **Incoming call**, and persists for 5 seconds.

➤ **Test Duration** allows you to set the duration of the VoIP test, in seconds.

➤ **Communication Channel** is the parameter based on either **UDP** or **TCP**.

➤ **Controller Setup** button opens a new page that allows you to set the required VoIP parameters for the unit.

➤ **Proxy Setup** button opens a new page that allows you to set parameters for the Proxy.

➤ **Clone Data WAN** (only available in **Manual Test Setup**) allows you to add the WAN configuration from the **Connection Setup** tab to this test, by selecting **Yes**. If you select **No**, all the parameters from the **Connection Setup** page, beginning with **Access Mode**, are listed and can be modified.

One additional **Access Mode**, **Bridged (DHCP)** can be configured here in the VoIP WAN setup, to support the modem in bridge mode and WinCE in DHCP. This allows WinCE to get the WAN IP address via DSL connection through the modem's bridge. **Bridged (DHCP)** uses same parameters as **DHCP** mode.

To configure test setup values:

1. Press the up/down arrow keys to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

   OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

5. If you make any changes to the parameter values, you will be prompted to save changes done in Profile. Press the on-screen function keys to save or cancel your input.
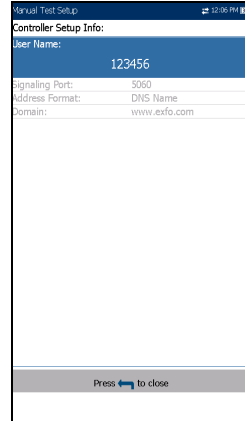
Controller Setup

The Controller is the local VoIP connection for your MaxTester. The **Controller Setup Info** page allows you to set the following VoIP parameters for your unit:

➤ **User Name** allows you to enter alphanumeric characters in this field using the editor screen to create a name.

➤ **Signalling Port** (read only) displays a fixed numeric value of the signalling port used to establish an IP network session.

➤ **Address Format** (read only) displays **DNS Name**.

➤ **Domain** (read only) displays the domain name www.exfo.com.
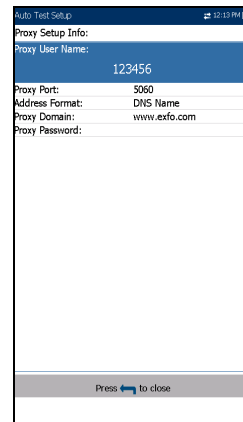
To enter a user name:

1. Press ✔ to open the alphanumeric editor screen and use the navigation keys to scroll through.

2. Press ✔ to confirm the value.

Proxy Setup

Proxy is the registered /proxy sip server. The **Proxy Setup Info** page allows you to set the following required server's VoIP parameters:

➤ **Proxy User Name** allows you to enter alphanumeric characters in this field using the editor screen to create a name.

➤ **Proxy Port** is a numeric value of the proxy port used to establish an IP network session.

➤ **Address Format** is either **IP Address** or **DNS Name**.

➤ **Proxy Domain** allows you to enter either the address of the IP or name of the domain server.

➤ **Proxy Password** allows you to set a password for the proxy domain.

To setup the proxy info:

1. Press the up/down arrow keys to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

IPTV Test Setup

IPTV test supports STB (set-top box) emulation mode over xDSL and Ethernet interfaces enabling the MaxTester to join and leave multicast IPTV streams. The following parameters can be configured from the **Test Setup** tab:

➤ **Display Mode** is either the **Channel Name** or **#** used for displaying channel information in the result pages.

➤ **IGMP Version** is a value of either **2** or **3** used to send IGMP join/leave messages.

Note: *If you change the **IGMP Version** from the default of **2** to **3**, you must reboot your unit.*

➤ **Max TS Packet Loss Ratio** is an editable percentage, ranging from 1 to 50, used to qualify if the IPTV stream is stable.

➤ **Max ZAP Time** is an editable value ranging from 0 to 10,000 that measures the channel switch time in ms.

➤ **Channel List Setup** button accesses the page to configure parameters for channel analysis.

➤ **Auto IPTV Test Setup** button (only available In Auto Test Setup) accesses the setup page to automatically run an IPTV test.
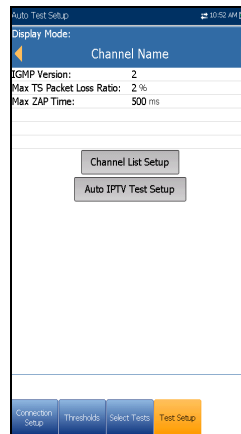
➤ **Clone Data WAN** (only available in **Manual Test Setup**) allows you to add the WAN configuration from the **Connection Setup** tab to this test, by selecting **Yes**. If you select **No**, all the parameters from the **Connection Setup** page, beginning with **Access Mode**, are listed and can be modified.

One additional **Access Mode**, **Bridged (DHCP)** can be configured here in the IPTV WAN setup, to support the modem in bridge mode and WinCE in DHCP. This allows WinCE to get the WAN IP address via DSL connection through the modem's bridge. **Bridged (DHCP)** uses same parameters as **DHCP** mode.

To configure test setup values:

1. Press the up/down arrow keys to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

5. If you make any changes to the parameter values, you will be prompted to save changes done in Profile. Press the on-screen function keys to save or cancel your input.

Channel List Setup

The **Channel List Setup** page in the IPTV test setup provides a tool for you to create an alias table. It allows you to join/leave an IPTV stream using a symbolic name or TV channel number instead of the IP address. Maximum entries in the table are 100, divided into pages.

➤ **Channel Info** lists 3 editable parameters:

  ➤ **Channel #** is a numeric value from 1 to 9999.

  ➤ **Channel Name** is a 24-character alphanumeric entry.

  ➤ **IP Address** is a multicast address from 224.1.1.1 to 239.255.255.254.

➤ **Previous**/**Next Entry** buttons highlight the previous/next entry in the table (up/down direction). When the highlight reaches the first/last entry of the alias table page, the button(s) is disabled.

➤ On-screen function buttons:

  ➤ **Add/Insert** adds currently edited channel info into the alias table below the highlighted entry and moves the highlight to the newly added entry. If the page is full, the bottom entry moves to the next page. Selecting the highlight placement allows you add and group entries with similar parameters.

  ➤ **Delete** removes the highlighted entry in the alias table. If the deleted entry was also present in the **IPTV Channel Analysis** list or **Join/leave Test** list in **Auto IPTV Test Setup** page, it will also be removed from those lists.

  ➤ **Accept** replaces the edited value for the current highlighted entry. Use this function for modification purposes.

  ➤ **Page Up/Down** display the previous/next page(s) of the alias table. If current page is the first/last page, the button(s) are disabled.
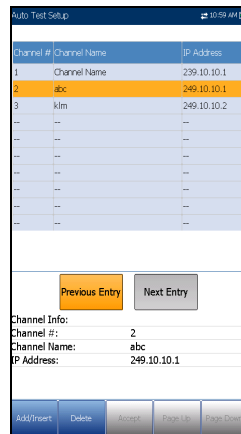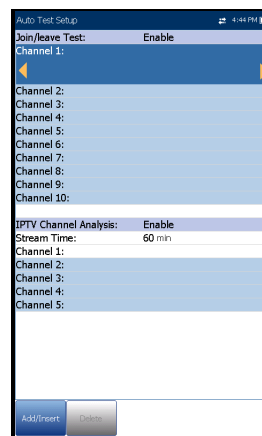
To setup the channel list:

1. Press the up/down, right/left keys to select the desired channel parameter.

2. Use the on-screen function buttons to create or edit the channel list.

   OR

3. Use the navigation keys to select the **Previous**/**Next Entry** button(s) and press ✔ to select the entry to be highlighted and edited.

Auto IPTV Test Setup

The **Auto IPTV Test Setup** page in the IPTV test setup allows you to define 2 types of IPTV tests to run automatically:

➤ **Join/leave Test** - **Enable** to define a list of channels to sequentially join and leave. If disabled, no test is performed.

   Channel 1-10 allows you to define a list of up to 10 channels.

➤ **IPTV Channel Analysis** - **Enable** to add channels for analysis. If disabled, channel analysis in auto test is not performed.

   ➤ **Stream Time** defines the length of time, from 1 to 60 s, to keep the channel stream(s) for analysis.

   ➤ **Channel 1-5** allows you to define up to 5 IPTV channels for concurrent analysis.

➤ On-screen function buttons:

➤ **Add/Insert** is available only when a blank entry is highlighted. When the button is pressed, the first available channel from the alias **Channel List** is automatically added to this list of channels. Upon highlighting another blank entry, the next channel from the alias table is added, and so on.

➤ **Delete** removes the selected channel from the list.

You can **Enable** either one or both, but you cannot **Disable** both of them at same time. If both tests are enabled, **Join/leave Test** runs first.
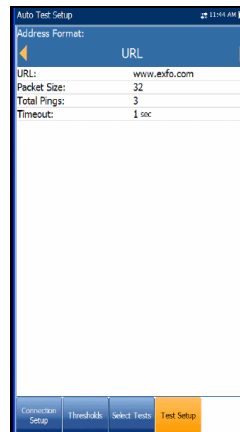
To configure test setup values:

1. Press the up/down arrow keys to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

Ping Test Setup

The **Test Setup** tab is available only if **Access Mode** is *not* **Sync Only**.

➤ **Address Format** is **URL**, **IP Address**, or **Gateway**. When **IPv6 (DHCP)** is set as the **Access Mode** in **Connection Setup**, **IP Address** is changed to **IPv6 Address**.

➤ **URL/IP Address** lists either the URL or IP Address where the unit pings.

➤ **IPv6 Address** parameter replaces the **URL/IP Address** when **IPv6 (DHCP)** is set as the **Access Mode**.

➤ **Packet Size** is a value from 32 through 1200 of the number of bytes sent in one packet. The default value is 32.

➤ **Total Pings** is the total number of Ping packets to send out from 1 through 99. The default value is 3.

➤ **Timeout** is the time in seconds from 1 through 10, that the unit will wait for a response back from the destination device.

To configure test setup values:

1. Press the up/down arrow keys to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

5. If you make any changes to the parameter values, press the on-screen function keys to save or cancel your input.

Enter IPv6 Address

The alphanumeric editor screen allows you to add and change parameter values, and save changes to an **IPv6 Address**. You must enter a value for each of the 8 IPv6 octets for example, 2001:db8:0:0:0:0:2:1.

### *To use the editor screen:*

1. Press the up/down left/right arrows to navigate the highlighted keys in the on-screen keyboard.

2. Press ✔ to confirm each selection.

3. Use the on-screen function buttons to create or edit the address.
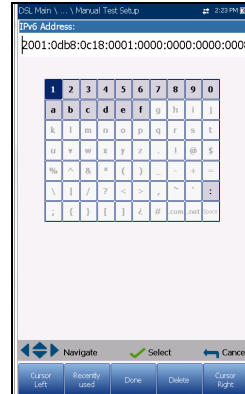
FTP Test Setup

The FTP test verifies the file transfer speed of the file download and upload. The FTP **Test Setup** tab allows you to configure the following parameters:

➤ **Address Format** is **URL** or **IP Address**.

➤ **FTP Server Address** lists either the URL or IP Address.

➤ **Login Name/Password** is your user ID and password.

➤ **Download File Name** is the filename requested for downloading, maximum 128 characters.

➤ **Sim. Dn Sessions** (GVXAA and GVXAB models only) is the number of simultaneous sessions required to download the file, from 1 to 4.

➤ **Upload File Name** is the filename used for uploading, maximum 128 characters.
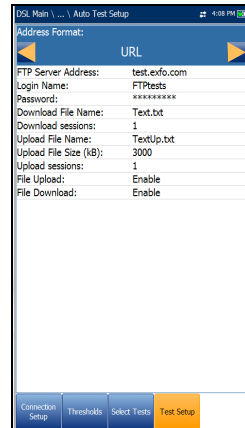
➤ **Upload File Size (kB)** is the number of bytes or size of the file to be uploaded to the server.

➤ **Sim. Up Sessions** (GVXAA and GVXAB models only) is the number of simultaneous sessions required to upload the file, from 1 to 4.

➤ **File Upload/Download** - **Enable**/**Disable** options available only in **Auto Test Setup**. **Enable** to perform the upload/download operation automatically.

To configure test setup values:

1. Press the up/down arrow keys to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

5. If you make any changes to the parameter values, press the on-screen function keys to save or cancel your input.

HTTP Test Setup

The HTTP **Test Setup** tab allows you to enter the destination IP address or Web site URL to be downloaded (depending on the test selected) from the HTTP server.

➤ **Download Address** is either the URL or IP address of the destination address.

➤ **Sim. DN Sessions** is the number of simultaneous sessions required to download the file, from 1 to 4.

To configure test setup values:

1. Press the up/down arrow keys to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

5. If you make any changes to the parameter values, press the on-screen function keys to save or cancel your input.

Throughput Test Setup

The Throughput **Test Setup** tab (GVXAA and GVXAB models only) allows you to select the **Test Type**, either **iPerf3 Test** or **Speedtest by Ookla**[1].

If **iPerf3 Test**, the following parameters can be configured:

➤ **Address Format** is **URL** or **IP Address**.

➤ **iPerf3 Server Address** is either the URL or IP Address of the known iPerf3 server.

➤ **iPerf3 Server Port** is the port number of the iPerf3 server. Default port is **5201**.

➤ **Test Duration** modifies the duration value of the test from 10 - 60 sec. Default is **10 sec**.

➤ **Sim. Dn Sessions** is the number of simultaneous sessions required to download the file, from 1 to 4.

➤ **Sim. Up Sessions** is the number of simultaneous sessions required to upload the file, from 1 to 4.

➤ **Auto Download**/**Upload** (available only for **Auto Test**) can be enabled or disabled.
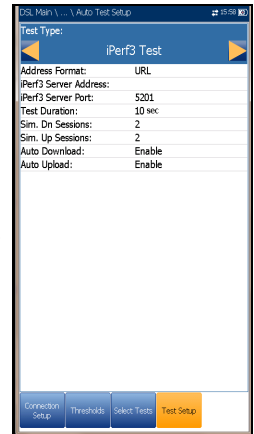
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1. Ookla is a third party provider. The Ookla Speedtest Powered technology involves Ookla owned and/or controlled servers that may or may not be within your network. Ookla retains the right to aggregate test results and to monetize aggregated results as they see fit.

If **Speedtest by Ookla**, you can configure the
following parameters:

➤ **Show Privacy Statement** displays the Ookla
   Privacy Policy (noted below) each time you run
   the test, if you select **Yes.** Select **No** to forgo
   displaying the statement.

➤ **Ookla Server** allows you to select an Ookla server
   from a list. The default **Automatic** means the final
   tested Ookla server is automatically selected by
   the Ookla test.

➤ **Edit selected server** button allows you to edit the
   currently selected server.

➤ **Add to the list** button allows you to add a specific Ookla server to the
   list. The newly added server will be automatically set as the selected
   server.

➤ **Remove from the list** button is used to remove any Ookla server from
   the list except **Automatic**.
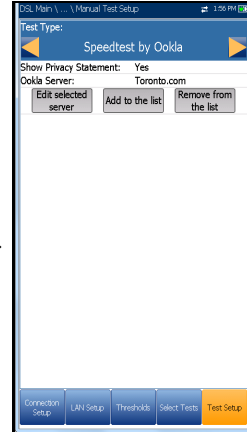
Note: *Ookla Privacy Policy: http://www.speedtest.net/privacy*
You, end user, understand and acknowledge, by performing the test
contained in the Speedtest Powered Software Application, that Ookla, LLC
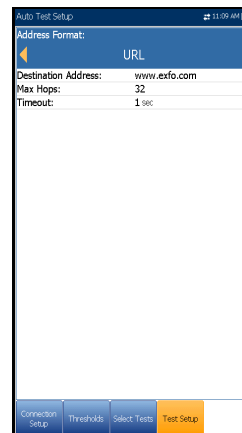*may collect your IP address during the test and share it with selected third*
parties.

To configure test setup values:

1. Press the up/down arrow keys to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

   OR

3. Press ✔ on a value to open a list box of options or the alphanumeric
   editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

Traceroute Test Setup

The Traceroute **Test Setup** tab allows you to configure the following parameters:

➤ **Address Format** is **URL** or **IP Address**.

➤ **Destination Address** is the destination IP or URL address.

➤ **Max Hops** specifies the maximum number of hops (1 to 32) used in attempting to reach the destination address.

➤ **Timeout** is the time in seconds from 1 to 10, that the unit will wait for a response back from the destination device.

To configure test setup values:

1. Press the up/down arrow keys to select the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

5. If you make any changes to the parameter values, press the on-screen function keys to save or cancel your input.
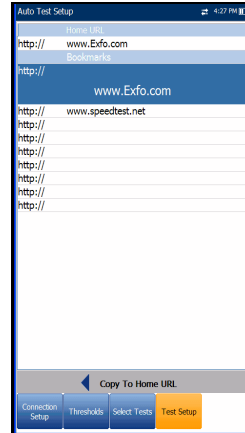
Web Browser Test Setup

The **Test Setup** page for the web browser content is displayed when the **Web Browser Test** is highlighted on the previous **Select Tests** tab. Here you can edit the **Bookmarks** and **Home URL**.

➤ **Bookmarks** lists 9 entries. The default is **http://**.

The **Bookmarks** list is shared by all 3 tests (Auto Test, Manual, and Ethernet tests). If the list is changed in one test, the changes are reflected in the other two.

➤ **Home URL** acts as the Home URL for the web browser test page when started. It is independent among the 3 types of test applications.

➤ **Copy to Home URL** allows you to set a highlighted URL as the **Home URL**.

To configure the web browser setup:

1. Press the up/down arrows to highlight the desired entry in the list.

2. Press ✔ to access the edit screen.

3. If you make any changes to the test values, press the on-screen function keys to save or cancel your input.

Setup

The **Setup** function displays the following sub-menu:

➤ **Modem Settings** allows you to set the display and power parameters of the modem.

➤ **Application Settings** allows you to preset the unit with specific DSL measurement values.

➤ **VoIP Phone Book** includes pages to setup and save phone numbers for the VoIP test.
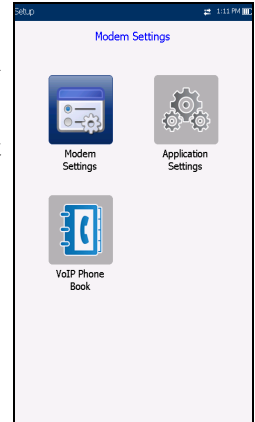
Modem Settings

Modem Settings provide the means to configure the unit power scheme.

➤ **Display Modem** displays the modem state in the title bar of the unit. Default value is **Yes**.

➤ **Modem Power OFF**:

➤ **Immediately** for when a DSL/IP test is completed or stopped. In this mode, the modem is powered on when DSL/IP test starts.

➤ **Idle** values power off the modem within a defined period after an DSL/IP test is completed or stopped.
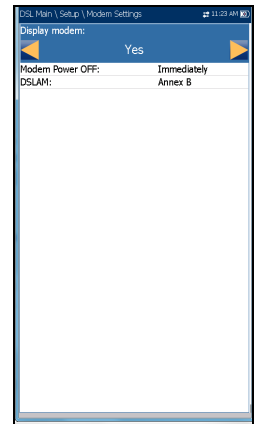
➤ If your modem is V2XAB/GVXAB, then **DSLAM** entry is visible and allows you to choose the following:

  ➤ **Annex B**

  ➤ **UR2**

  ➤ **Annex B and UR2**

To access the modem settings:

1. From 🏠 , select **DSL/IP Tests**, **Setup**, and then **Modem Settings**.

2. Use the up/down arrow keys to select the setting to change.

3. Press ✔ to view the list of available choices or use the left/right arrow keys.

4. Press ✔ to confirm.

Application Settings

Before executing the DSL/IP tests, the **Application Settings** function allows you to set general settings and identification fields.

To access Application Settings:

From the **Home** pane, select **DSL/IP Tests**, **Setup**, and then **Application Settings**. The following parameters are available to configure:

General

The **General** tab allows you to configure the unit with specific measurement values.

➤ **Report File Storage Location** is dependent on whether **Export to EXFO Connect Client** is enabled or not, in **System Settings\Upload Setup**. If enabled, you can select either **USB** or **EXFO Connect Client** as your test report storage location. If disabled, **USB** is automatically selected.

➤ **Report Format** is **MaxTester**, **HTML**, **MHTML**, or **XML** as the generated report format.
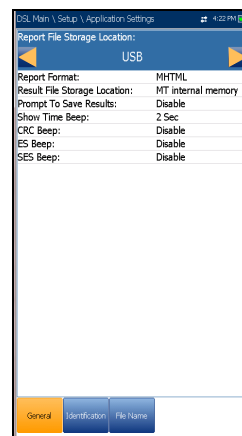
Note: *If **EXFO Connect Client** is selected, the available selections for **Report Format** are only **MHTML** and **XML**.*

➤ **Result File Storage Location** allows you to select where to save your results: to a **USB** or the internal memory of the MaxTester.

➤ **Prompt To Save Results** allows you to **Enable**/**Disable** popup confirmation messages before leaving a test and not saving results.

➤ **Show Time Beep** allows you to select the time span for a beep from 0 to 3 seconds.

➤ **CRC**/**ES**/**SES Beep** allows you to **Enable**/**Disable** an error-warning beep while running a test. By selecting the error(s), you can immediately identify lines with DSL errors. They are sampled periodically and if any new errors are detected, the tester will generate a short beep.
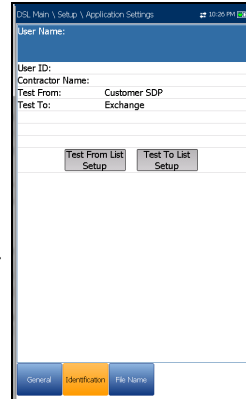
To access the parameter values:

1. Press the up/down arrow keys to highlight the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options.

4. Press ✔ to confirm the value.

Identification

The **Identification** tab allows you to preset values to identify each single and auto test result file when saving them.

The parameters are as follows:

➤ **User Name**/**User ID** allow you to enter up to 25 alphanumeric characters, in each field.

➤ **Contractor Name** allows you to enter the name of a contractor used to perform the tests.

➤ **Test From**/**To** allows you to select from a list of entries - up to 20 each, including user defined values.

➤ **Test From**/**To List Setup** buttons open separate list management pages.

To select the parameter values:

1. Press the up/down arrow keys to highlight the desired parameter.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

Test List Setup

The **Test From List Setup** and **Test To List Setup** pages allow you to manage the entries of the list. However, there are 5 entries by default which cannot be edited or deleted. These are **DSLAM**, **NID**, **CPE**, **CROSSBOX**, **FRAME**. When any of these are selected, the **Delete** and **Accept** buttons are disabled.

A maximum of 20 different entries can be added.

To manage the list:

1. Press the left/right arrow keys to select the **Previous**/**Next Entry** buttons and press ✔ to select the previous/next entry.

2. Press **Page Up**/**Down** function keys to see entries on the previous or next pages. These keys are disabled if no other pages exist.

3. Press **Add** function key to add an entry just below the selected entry in the list.

4. To edit an entry, press the up/down arrow keys to highlight the selected test. Press **Accept** function key to confirm the changes. If you press **Previous**/**Next Entry** buttons before the **Accept** function key, the edited value will be lost.

5. Press **Delete** function key to delete any entry you have added.
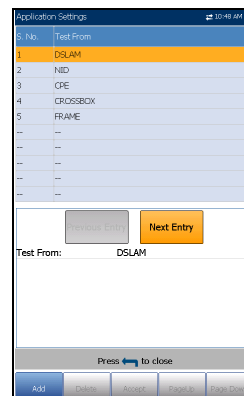
File Name

The **File Name** tab sets up the standard configuration for automatically naming a result file. You can only **Enable**/**Disable** the entries. All enabled entries are considered for file name generation.

➤ **File Name Preview** displays a preview of the file name. The actual values of the enabled entries are not shown.

➤ **Date and Time** value format depends on the format selected in **System Settings**. This entry cannot be disabled.

➤ **Separator** allows you to choose a value to separate the enabled entries in the file name, e.g.: **Space ( )**, **Dash (-)**, **Underscore (_)**.
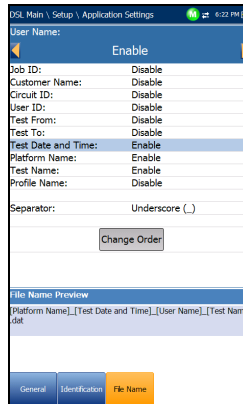
To select an entry and choose a value:

1. Press the up/down arrow keys to highlight the desired entry.

2. Press the left/right arrow keys to view and select the options.

OR

3. Press ✔ on a value to open a list box of options.

4. Press the up/down arrow keys to select the option and press ✔ to confirm your selection.

Change Order

Change Order page allows you to change the order of the entries in the file name.

To change the order:

1. Press ✔ to get into the list.

2. Use the up/down arrow keys to select the desired entry.

3. Press ⬅ to come out of the list.

4. Press the up or down arrow key to activate the **Up**/**Down** buttons.

5. Using the left/right arrow keys, select **Up**/**Down** and press ✔ to move the entry up/down the list.

6. Press ⬅ to go back to the **File Name** tab. The **File Name Preview** will be updated with your changes.
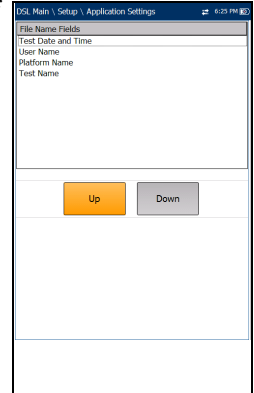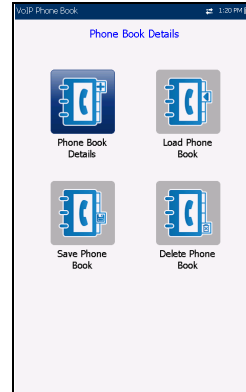
VoIP Phone Book

The **Phone Book** menu presents a selection of functions which allow you to manage phone numbers relevant to performing VoIP tests.

The functions are as follows:

➤ **Phone Book Details** displays an editable list of phone book entries.

➤ **Load Phone Book** allows you to import a phone book from either the internal memory of a USB.

➤ **Save Phone Book** allows you to save or export a phone book.

➤ **Delete Phone Book** allows you to delete an entry.

To navigate between the phone book functions:

1. Press the up/down left/right arrow keys on the keypad to select an icon.

2. Press ✔ to confirm your selection.

Phone Book Details

The **Phone Book Details** page allows you to view, add, and edit **VoIP Phone Book** entries.

➤ **Selected Entry** is the current **SIP Address** entry that you selected.

➤ **Entry** displays the entry number and cannot be edited.

➤ **SIP Address** has the form *username@host*, where *username* is the SIP user name (or number) and *host* is the SIP server IP address or domain name.Examples of **SIP Address** are:

   ➤ john@206.162.164.122

   ➤ 3145551212@domain.com

   ➤ john@206.162.164.122:5060
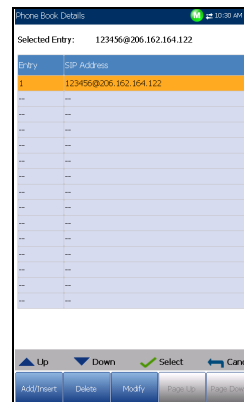
On-screen function buttons:

➤ **Add/Insert** adds a new entry into the **Phone Book** below the highlighted entry and moves the highlight to the newly added one. If the page is full, the bottom entry moves to the next page.

➤ **Delete** removes the highlighted entry in the Phone Book.

➤ **Modify** replaces the edited value of the current highlighted entry.

➤ **Page Up**/**Down** display the previous/next page(s) of the Phone Book. If current page is the first/last page, the button(s) are disabled.

### *To setup the Phone Book details:*

1. Press the up/down arrow keys to select the desired entry.

2. Use the on-screen function buttons to create or edit the details.

Enter SIP Address

The alphanumeric editor screen allows you to add and change parameter values, and save changes to the **Phone Book**.

To use the editor screen:

1. Press the up/down left/right arrows to navigate the on-screen keyboard.

2. Press ✔ to confirm each selection.

3. Use the on-screen function buttons to create or edit the address.
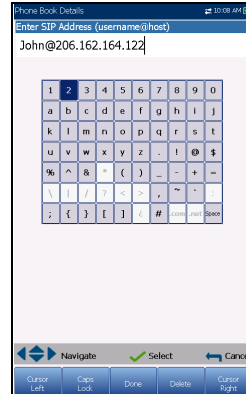
Load Phone Book

The **Load Phone Book** page allows you to import a phone book. The page lists phone book files stored at a particular location and displays the **Loaded File** name and date of the last phone book loaded. Only .csv files are supported.

➤ The **Storage Location** lists the load destinations:

➤ **MT internal memory**

➤ **USB**

➤ **Entry** displays the entry number of the phone book(s).

➤ **File Name** lists the phone book file name(s) to load.

➤ **Load** button imports the selected phone book. You will be prompted for confirmation since this action will overwrite the current phone book.
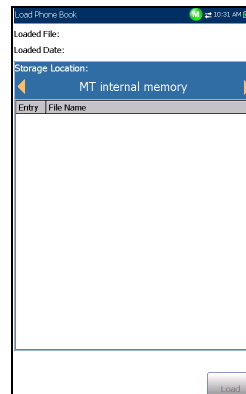
To load a phone book:

1. Select the **Storage Location** using the left/right arrow keys.

OR

2. Press ✔ to display the list of options.

3. Using the up/down arrow keys, select a file name to load.

4. Press **Load** button and confirm. The unit will remove the existing phone book and replace it by the loaded one.

Save Phone Book

The **Save Phone Book** page allows you to save or export a phone book.

➤ **Save File** allows you to enter a file name of the current phone book to save. By default, the name is phone_book.csv.

➤ The **Storage Location** lists the save destinations:

　➤ **MT internal memory**

　➤ **USB**

➤ **Save** button saves the selected file.
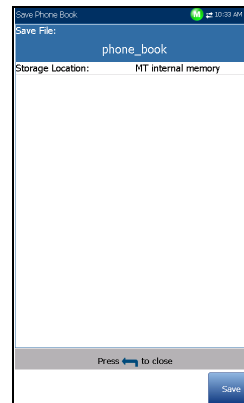
**Note:** *The unit will overwrite any document with the same file name found on the disk, without warning.*

To save a phone book:

1. Accept the default file name or press ✔ to create a new name using the edit screen.

2. Select a **Storage Location**.

3. Press **Save** button.

Delete Phone Book

The **Delete Phone Book** page allows you to delete a phone book**.** The page lists phone book files stored at a particular location and displays the **Loaded File** name and date of the last phone book loaded.

➤ The **Storage Location** lists the location where the phone book file is stored:

➤ **MT internal memory**

➤ **USB**

➤ **Entry** displays the number of the phone book(s).

➤ **File Name** lists the phone book file name(s).

➤ **Delete** button deletes the selected phone book.
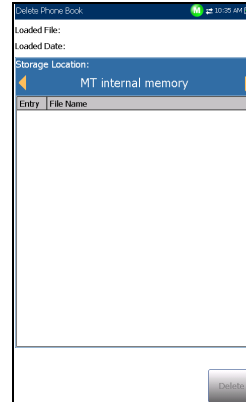
To delete a phone book:

1. Select the **Storage Location** using the left/right arrow keys.

OR

2. Press ✔ to display the list of options.

3. Press the up/down arrow keys to select the entry to be removed.

4. Press the **Delete** button to remove the selected entry from the list.

6 *Running DSL/IP Tests and Viewing Results*

The MaxTester is designed to make DSL/IP turn-up easy. The unit will emulate an customer CPE modem to the point that it can handshake and connect with an DSLAM and report the upstream and downstream parameters. Simply connect to the line, turn on the MAX-630G, and select a test to run. Results obtained include upstream and downstream throughput and noise margin.

To activate a test:

1. Press the left/right, up/down arrow keys on the keypad to select the desired test icon.

2. Press ✔ to start the test.

DSL/IP Connection Summary

The **Connection Summary** tab allows you to view the pass/fail status and details of the test results.

When the **Test Interface** for **Auto Test** or **Manual Test** is set to ADSL2+ or VDSL2 bonding mode, there will be 2 columns of results. While the test is running, 2 soft LEDs will appear above these columns displaying the 2-DSL line condition. The pass/fail status is based on the 2-DSL line connection state and combined data rate. Once the test is completed, these 2 soft LEDs disappear and the pass/fail icon is displayed at the top of the screen.

➤ **Profile** displays the name of the current profile that results were saved to. You can change the **Profile** within a test once it is stopped. Pressing the up arrow key opens a list of profiles from which you can select. Use the on-screen function buttons to navigate, **Select** a new profile, or **Cancel** and restore the test result screen.

➤ **Sync Time** is a count-up timer (maximum 99 h) that starts counting only when the **Line Status** reaches **Show Time**. In the case of bonding, both lines must reach **Show Time** before the counter starts.

➤ **Line Status** displays the status of the line under test during negotiation with the DSLAM. The value changes from **Idle** /**Activate** /**Handshake** /**Training** /**Show Time** for ADSL2+ or VDSL2 mode.

Note: *When loading firmware into the Broadcom chipset, the **Line Status** value displays **Loading M:SS**, where M:SS is a count down timer.*

➤ **Operation Mode** is the xDSL mode of operation, bonded or non-bonded, as negotiated between the unit and the DSLAM.

➤ **Downstream**/**Upstream** SNR is a value ranging from 0 through 63.5 for the existing SNR (signal-to-noise ratio) margin.
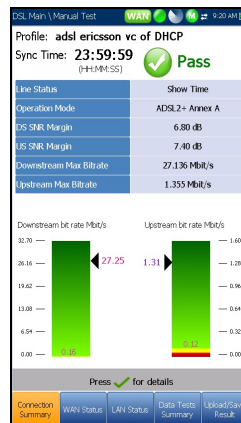
➤ **Downstream/Upstream Max Bitrate** displays the D/S (downstream) and U/S (upstream) maximum attainable bit rates that the circuit can handle as determined by the remote terminal and CO during the training phase. Values can be greater than the actual bit rate.

If the **Operation Mode** is bonded, the 2-DSL line **Max Bitrate** is combined.

➤ **Aggregate Data Rate** (GVXAA and GVXAB models only) displays a value of the gross bit rate if the **Operation Mode** is **G.fast** or **VDSL2-35b**. Otherwise the value is **N/A**.

➤ Downstream/Upstream actual bit rates are displayed by graphic bars and the current actual values appear as numbers.

  ➤ Downstream/Upstream bit rate values are shown in yellow region if they are greater than Min threshold and less than OK threshold.

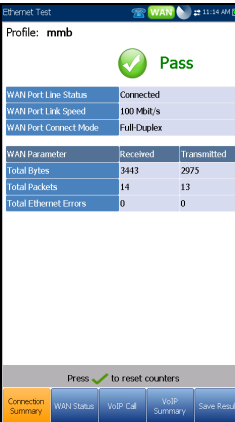 ➤ Downstream/Upstream bit rate values are shown in red region if they are less than Min threshold.

If the **Operation Mode** is bonded, the actual bit rate is a summary of both DSL lines.

Ethernet Connection Summary

When set up over Ethernet, the available test results are the following:

➤ **WAN/LAN Port Line Status** displays **Booting** (GVXAA and GVXAB models only), **Connected**, or **Disconnected** for the particular line connection under test.

➤ **WAN/LAN Port Link Speed** is **Auto** (negotiated during the link establishment), **1000** (GVXAA and GVXAB models only), **100**, or **10 Mbit/s**.

➤ **WAN/LAN Port Connect Mode** is **Full-** or **Half-Duplex**, when **Link Speed** is **1000** (GVXAA and GVXAB models only), **100**, or **10 Mbit/s**.

➤ The **Total** number of **Received** and **Transmitted** **Bytes**, **Packets**, and **Ethernet Errors** are also displayed during the test.

WAN Status

The **WAN Status** tab allows you to view the status information of the connection between the WAN port of the unit and the ISP (internet service provider). For **Manual Test**, you can also select which triple-play test you want to run or view.

➤ **WAN Access** specifies the encapsulation method used by the network and consists of the following types:

  ➤ **PPPoE** is point-to-point protocol over Ethernet.

  ➤ **PPPoA** is point-to-point protocol over ATM.

  ➤ **DHCP** is Dynamic Host Control Protocol which is used to dynamically assign an IP address for the client node on the network.

  ➤ **IPv6 (DHCP)** is equivalent to the above but for Internet Protocol version 6 vs IPv4.

  ➤ **Static IP** is the current location assigned by the service provider or user.

  ➤ **IPoA** stands for classical Internet Protocol over ATM.

➤ **WAN Status** value changes as per the WAN state of the current test. For **Manual Test**, the following states may be displayed:

  ➤ **Idle** - if WAN setup for the selected **Test** is different from the one running and **Login** button is not activated.

  ➤ **Disconnected** - if WAN setup for the selected **Test** is different from the one running and this test had WAN connected before and stopped.

  ➤ **Connecting** or **Connected** - if current selected test is running.

➤ **Assigned IP** displays IPv4 address information assigned to the unit that is connected to the network.
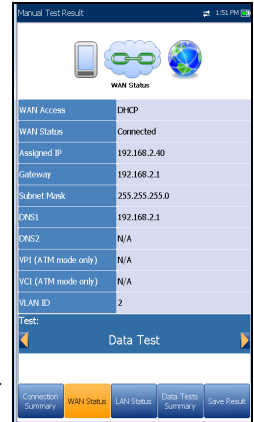
➤ **WAN IPv6** parameter replaces the IPv4 **Assigned IP**, when **IPv6 (DHCP)** is set as the **Access Mode** in **Connection Setup**, because there are 2 assigned IPv6 addresses: the global one (WAN) and the local one (Link-Local).

➤ **Link-Local IPv6** is only displayed when **IPv6 (DHCP)** is set as the **Access Mode**, and is the assigned local IPv6 address.

➤ **Gateway** is the IP address of the default gateway.

➤ **Subnet Mask** is the network address used to identify if the IP address is within the same WAN.

➤ **DNS1** is the address of the primary domain name server to be used by the unit.

➤ **DNS2** is the address of the secondary domain name server to be used by the unit.

➤ **VPI (ATM mode only)** is the virtual path identifier value, not available in PTM mode.

➤ **VCI (ATM mode only)** is the virtual circuit identifier value, not available in PTM mode.

➤ **VLAN ID** is a virtual local area network (VLAN) tag ranging from 0 through 4094. The entry is available only when **VLAN Support** is **Enable**.

➤ **Test** (for **Manual Test** only) allows you to select which triple play test you want to run or results to view, along with their respective tabs:

➤ **Data Test** - **LAN Status** and **Data Tests Summary**.

➤ **IPTV Test** - **Join Leave** and **IPTV Summary**.

➤ **VoIP Test** - **VoIP Call** and **VoIP Summary**.

The WAN info reflects the state of currently selected test.

➤ **Login** (for **Manual Test** only) button allows you to start the test application, which also stops the previous test. For example, if the current test is IPTV, and you select **Data Test** and press the **Login** button, the **IPTV Test** stops and the unit will reconnect WAN for Data Test if the WAN setup is different between these 2 tests.

LAN Status

The **LAN Status** tab allows you to view the pass/fail status and parameters related to the LAN (local area network).

➤ The **Total** number of **Received** and **Transmitted Bytes**, **Packets**, and **Errors** counted on the unit's LAN interface are also displayed during the test.

Note: *The following 2 parameters are not displayed if **IPv6 (DHCP)** is set as the **Access Mode** in **Connection Setup**.*

➤ **LAN IP** is the local network IP address of the unit.

➤ **LAN Subnet Mask** is the network address mask used to identify if the IP address is within the same local area network.
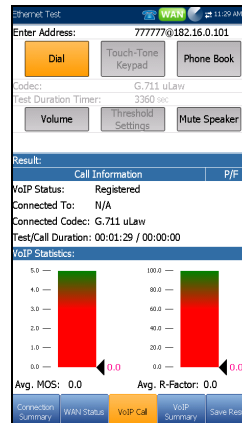
VoIP Call

The **VoIP Call** feature allows you to place and receive
VoIP calls while displaying phone numbers, call status,
and statistics.

➤ **Enter Address** displays the dialed number
entered from the editor screen or selected from
the **Recent Dialed Numbers** list or **Phone Book**.

When **Enter Address** is selected, it opens the
alphanumeric keypad to enter a **SIP Address**.

If the call is already connected after **Enter
Address** is selected, it opens the
DTMF/Touch-Tone Keypad.

➤ **Dial/Hang Up** button allows you to dial the selected or entered
number, or disconnect the dialed call.

➤ **Touch-Tone Keypad** button opens the DTMF keypad. If the call is not in
progress or connected, this button is disabled.

➤ **Phone Book** button opens a page where you can enter a new address,
access **Recently Dialed** numbers, or **Select From Phone Book**.

➤ **Volume** button adjusts the speaker volume.

➤ **Threshold Settings** button opens a new page that allows you to set the
VoIP Call threshold parameters.

➤ **Mute/Unmute Speaker** button changes the speaker status.

➤ **Result** displays **Call Information** such as the **VoIP Status**, number and
Codec the call is connected to, duration, and the pass/fail status of the
test/call.

➤ **VoIP Statistics** display histograms showing the current values of each of the following:

➤ **Avg. MOS** - average Mean Opinion Score, which provides a relative measurement of VoIP call quality.

➤ **Avg. R-Factor -** average R-Factor score, which is a VoIP transmission quality rating derived from multiple VoIP metrics, including latency, jitter, and loss.

To select the parameter values:

1. Press the up/down arrow keys to highlight the desired parameter.

2. Press the left/right arrow keys to view and select the options.

   OR

3. Press ✔ on a value to open a list box of options or the alphanumeric editor screen and use the navigation keys to scroll through.

4. Press ✔ to confirm the value.

Enter Address

The alphanumeric editor screen allows you to change parameter values and save changes to a new profile.

To use the editor screen:

1. Press the up/down left/right arrows to navigate the on-screen keyboard.

2. Press to confirm each selection.

3. Use the on-screen function buttons to create or edit the address.
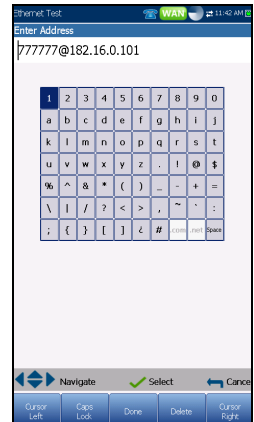
Touch-Tone Keypad

The **Touch-Tone Keypad** allows you to enter a DTMF
number to dial a **VoIP Call**. The page contains
alphanumeric keys to send a DTMF tone, and
special-use alpha keys: A, B, C, D. For example, some
systems require these keys for entering admin mode.

To enter a phone number:

Press any of the buttons on the keypad by using
the navigation keys on the unit and pressing ✔.
The selected numbers are entered in the text box.
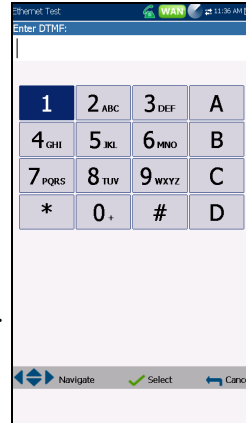
Phone Book

The **Phone Book** page allows you to enter a new
address, access **Recently Dialed** numbers, or **Select
From Phone Book**.

➤ **VoIP Status** shows the current status of the dialed
  number.

➤ **Enter Address** displays the dialed number
  entered or selected from the **Recent Dialed
  Numbers** list or **Phone Book**.

  When **Enter Address** is selected, it opens the
  alphanumeric keypad to enter a **SIP Address**.

  If the call is already connected after **Enter
  Address** is selected, it opens the **DTMF/Touch-Tone Keypad**.

➤ **Recent Dialed** button opens a list of recently dialed numbers for
  selection.

➤ **Select From Phone Book** button allows you to select a number from
  the **Phone Book**.
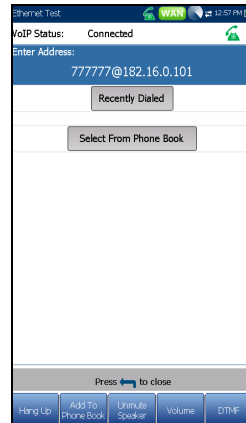
➤ Function Keys:

   ➤ **Dial/Hang Up** button allows you to dial the selected or entered number, or disconnect the dialed call.

   ➤ **Add To PhoneBook** saves the entered number to the **Phone Book**.

   ➤ **Mute/Unmute Speaker** changes the speaker status.

   ➤ **Volume** adjusts the volume level.

   ➤ **DTMF** opens the DTMF keypad. If the call is not in progress or connected, this button is disabled.

To dial a number:

1. Use the up/down arrow keys to highlight an entry or button and press ✔.

2. Enter a new number using the on-screen keypad or select an existing one from the lists.

3. Press the **Dial** function key to start the call.

Recently Dialed

The **Recently Dialed** page contains a list of previously dialed SIP entries which you can select to make your call.

To select an entry:

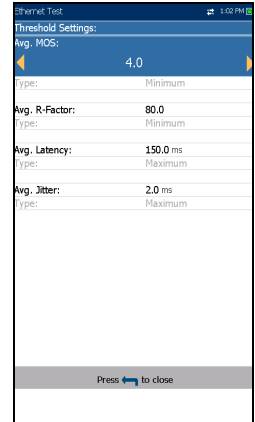1. Use the up/down arrow keys to select an entry.

2. Press ✔ to confirm your choice. The number is automatically entered in the **Enter Address** field of the **VoIP Call** page.

Select From Phone Book

The **Select From Phone Book** page contains a selection of entries from the **Phone Book**, to make a **VoIP Call**.

To select an entry:

1. Use the up/down arrow keys to select an entry.

2. Press ✔ to confirm your choice. The number is automatically entered in the **Enter Address** field of the **VoIP Call** page.

Threshold Settings

The **Threshold Settings** page allows you to set the VoIP test threshold parameters.

➤ **Avg. MOS** is the average Mean Opinion Score, which provides a relative measurement of VoIP call quality.

➤ **Avg. R-Factor** or average R-Factor score is a VoIP transmission quality rating derived from multiple VoIP metrics, including latency, jitter, and loss.

➤ **Avg. Latency** is the maximum average threshold time delay (in ms) allowed to deliver the data.

➤ **Avg. Jitter** the average variation (in ms) in the packet transit delay of received packets.

➤ **Type** is a read-only field displaying the threshold limit: either **Minimum** or **Maximum**.

To set threshold values:

1. Press the up/down arrow keys to highlight the desired parameter.

2. Press ✔ on a value to open the alphanumeric editor screen and use the navigation keys to scroll through.

3. Press ✔ to select each value and use the function keys to complete your selection.

4. Press ← to confirm and close your selections.

VoIP Summary

The **VoIP Summary** tab allows you to view the pass/fail status and measurement details of the different parameters. If a measured value is out the thresholds configured in the **VoIP Call** setup, or if the WAN connection was not completed successfully, the **VoIP Summary** page will display a fail status.

➤ **MOS** displays values for both the average and current Mean Opinion Score, which provides a relative measurement of VoIP call quality.

➤ **R-Factor** displays values for both the average and current R-Factor score which is a VoIP transmission quality rating derived from multiple VoIP metrics, including latency, jitter, and loss.

➤ **Latency** displays the average, current, and maximum time delay experienced (in ms) to deliver VoIP packets.

➤ **Jitter** displays the average, current, and maximum variation (in ms) in the packet transit delay of received VoIP packets.

➤ **Packets** displays the number of lost and received VoIP packets, and the total number of received bytes or active (non-idle) frames received on a channel.

IPTV Summary

The **IPTV Summary** tab allows you to view the pass/fail status and test results of the IPTV stream live time analysis and statistic counters and actions (Join/Leave).

➤ **Line Rate** is the actual rate achieved by the physical interface media, in Mbps.

➤ **IP Bit Rate** is the IP data rate for the IPTV service, including all channels detected.

➤ **Total IP Packet Loss** is the total number of packets lost, with errors, or out of sequence, during the test period.

➤ **Current Stream** lists a maximum of 5 live channel streams by name and **IP Address**.

   ➤ **Zap** is the time between sending a request to join the stream and the start of receiving the video stream. It is one of the key factors to be considered when evaluating the IPTV quality of service (QoS).

   ➤ **Loss** is the percentage of IP packet loss during the last ten thousand packets received.
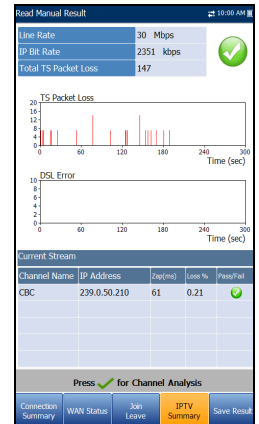
To view the **Channel Analysis**, press ✔ from the **IPTV Summary** tab.

Channel Analysis

The Channel Analysis function provides a separate tab for every live stream channel. Each channel displays the following information:

➤ **Stream Rate Info**

    ➤ **Transport Rate (kbit/s)**

    ➤ **IP Packet Rate (kbit/s)**

    ➤ **Stream Content** lists the information about the **Video**, **Audio**, and **Program Association**/**Map Table**(s) content for each MPEG video analyzed stream.

    ➤ **PID** is a unique packet identifier that is assigned to the packet payload of the video stream.

    ➤ **Rate (kbit/s)** is the rate calculated of a given stream content.

➤ **Stream Error Indicator**

    ➤ **TS Packet Loss Counter** is the number of packets lost, with errors, or out of sequence, during the test period in the transport stream.

    ➤ **TS Packet Loss Ratio (%)** is the percentage of IP packet loss per last ten thousand packets received in the transport stream.

Join Leave

The **Join Leave** tab displays a list of IPTV channels from the alias table, their activity (measured Zap time), and pass/fail status. Upon successful WAN connection, the **Join**/**Leave Channel** lists are shown.

To join/leave channels:

1. Press **Join** to send an IGMP report to join the specified multicast IP address.

2. Press **Leave** to inform the network to stop sending the specified multicast stream.

DSL Parameter Details

The **DSL Param Details** tab displays the **Downstream** and **Upstream** parameter results configured in the DSL/IP tests.
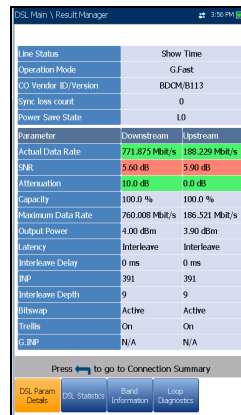
When the **Test Interface** for **Auto Test** or **Manual Test** is set to ADSL2+ or VDSL2 bonding mode, there will be 2 pages of results, one for each DSL line-pair.

To access the second-pair results, press the **Pair 1/2** function key at the bottom-right of the screen.

➤ **Line Status** displays the status of the line under test during negotiation with the DSLAM. The value changes from Idle /Activate /Handshake /Training /Show Time for DSL mode.

Note: *When loading firmware into the Broadcom chipset, the **Line Status** value displays **Loading M:SS**, where M:SS is a count down timer.*

➤ **Operation Mode** is the DSL mode of operation as negotiated between the unit and the DSLAM.

➤ **CO Vendor ID/Version** is a unique 4-digit alphanumeric identifier of the DSL chipset manufacturer, used on the CO (central office) side, and its version number.

➤ **CO Version** is the version number of the unique alphanumeric identifier of the DSL chipset used on the CO side.

➤ **Sync loss count** is the number of times the unit lost synchronization.

➤ **Power Save State** refers to the power-save mode of the DPU (distribution point unit) and displays one of three states: **L0** (power full on), **L1** (low power), or **L2** (idle).

➤ **Parameter - Downstream/Upstream**

➤ **Actual Data Rate** displays the values at which the unit and CO are connected, as negotiated during the training phase. The values should represent what the CO was set to, unless the DSL link is being subjected to high levels of noise/crosstalk.

➤ **SNR** is the signal-to-noise ratio margin measured on the line.

➤ **Attenuation** is line attenuation measured during the training phase.

Note: **DSL Param Details** *displays* **Attenuation** *for ADSL1/2/2+ and G.fast. See* **Band Information** *for VDSL2 attenuation.*

➤ **Capacity** is the capacity of the line as a ratio of achieved bit rate over the maximum attainable bit rate presented as a percentage (%). A high value could mean that the link is nearing its maximum capabilities while a low value could mean the link is being under utilized (sometimes intentionally – verify your local DSLAM setup).

➤ **Maximum Data Rate** displays the maximum attainable bit rates that the circuit can handle as determined by the remote terminal and CO during the training phase. Values can be greater than the actual bit rate.

➤ **Output Power** is the current transmit power level that is a measure of the aggregated transmit power.

➤ **Latency** is the path type, **Fast** or **Interleave**, set by the service provider at the CO. The use of the interleaved path means greater delay in the delivery of data but it is less susceptible to noise or crosstalk due to increased Reed-Solomon coding and FEC (forward error checking). The use of the fast path means little or no delay in the delivery of data but it is more susceptible to noise and crosstalk.

- ➤ **Interleave Delay** defines the mapping (relative spacing) between subsequent input bytes at the interleave input and their placement in the bit stream at the interleave output.

- ➤ **INP** is the level of impulse noise protection.

- ➤ **Interleave Depth** defines the number of bits (or bytes) in each block of data.

- ➤ **Bitswap** specifies the status of the bit swapping mechanism - **Active** or **Not Active** - swapping bits from tone m to tone n to prevent modem retraining.

- ➤ **Trellis** or Trellis Coded Modulation (TCM) is a type of convolutional code which utilizes parity bits on each symbol within a continuous data stream. When the line is connected, Trellis displays either **On** or **Off**.

- ➤ **Phy-R** is Broadcom proprietary Physical Layer Retransmission technology which is used to overcome impulse noise.

- ➤ **G.INP** is the standards based Physical Layer Retransmission scheme for impulse noise protection and will report **Active** or **Not Active**. **G.INP** state will be shown unless system is using **Phy-R**.

DSL Statistics

The **DSL Statistics** tab allows you to view transfer mode statistics and DSL counters.

When the **Test Interface** for **Auto Test** or **Manual Test** is set to ADSL2+ or VDSL2 bonding mode, there will be 2 pages of results, one for each DSL line-pair.

To access the second-pair results, press the **Pair 1/2** function key at the bottom-right of the screen.

➤ **DSL Counters** lists the **Local** and **Remote** results for the following counters:

➤ **CRC** is the cyclical redundancy check Interleaved/Fast counter.

➤ **FEC** is the Reed Solomon forward error correction.

➤ **Errored Seconds** is the number of seconds when code violation is detected.

➤ **HEC** is the header error check (HEC) Interleaved/Fast counter. Available only in ATM connection mode.

➤ **SES** (severely errored seconds) (GVXAA and GVXAB models only) is the count of a one-second period that contains >30 % errored blocks or at least one severely disturbed period.

➤ **Parameter** - **Received/Transmitted**

➤ **Bytes** records the number of active (non-idle) PTM/ATM cells or frames on a channel.

➤ **Packets** displays the number of packets.

➤ **DSL Transport** options include **PTM** (packet transfer mode), **ATM** (asynchronous transfer mode), and **ATM/PTM**.

➤ **Sync loss count** is the number of times the unit lost synchronization.

➤ **Vector State** for single VDSL2 connection mode is **Active**/**Not Active** and for G.fast mode is always **Active**. When **Active**, the VCE (vector control entity) + DSLAM asks the CPE for noise samples. The VCE uses the noise samples to calculate the level of FEXT (far end crosstalk) and to calculate the solution to mitigate the effects of FEXT.

➤ **KL0** displays the attenuation that the system calculated during the determination of UPBO (Upstream Power Back Off) requirements as an estimated electrical length of its loop.

➤ **EWL** is the estimated wire length and is based on the **KL0**.

➤ **Rate Adaptation** mode (GVXAA and GVXAB models only) displays the following in Manual and Auto Test:

  ➤ **SRA** (seamless rate adaptation) which adjusts the rate according to the current line conditions. Received and transmitted counters are shown, for example SRA(DS/US).

  ➤ **FRA** (fast rate adaptation) which enables rapid (<1 ms) reconfiguration of the data rate. Received and transmitted counters are shown, for example FRA(DS/US).

  ➤ **N/A** means none used.

➤ **Performance Counters - Local/Remote**

  ➤ **G.INP RTX_TX** is the number of frames retransmitted by the transmitter. The **Local** number is what is retransmitted from the CPE to the DSLAM. The **Remote** value is what is retransmitted from the DSLAM to the CPE.

Note: *The RTX_TX number may contain retransmits not requested by the receiver (that is, the retransmission request channel got corrupted and a retransmission was sent automatically) resulting in an incremental value even though the same frame ID was retransmitted multiple times.*

➤ **G.INP RTX_C** is a counter that is increased each time a frame is detected in error and has successfully been *corrected* by a retransmission. The **Local** number is received by the CPE, the **Remote** value received by the DSLAM.

➤ **G.INP RTX_UC** is a counter that is increased each time a frame is detected in error and has *not been corrected* by one or more retransmissions within the maximum delay period. The **Local** number is received by the CPE, the **Remote** value received by the DSLAM.

Note: *The RTX_TX may not equal RTX_C + RTX_UC because of the infrequent reboot nature of the DSLAM and the double-counting that the RTX_TX counter might do.*

➤ **Vector Err. Samples Sent** is the total number of error samples the CPE has sent to the DSLAM during the test. A high number can indicate a network that is unstable (CPEs joining / leaving, causing the VCE to continuously recalculate the best solution).

➤ **Vector Err. Samples Dis.** is the total number of error samples discarded. A high number can indicate a network that is unstable (CPEs joining / leaving, causing the VCE to continuously recalculate the best solution).

Band Information

The **Band Information** tab allows you to view a list of individual upstream or downstream band parameter details. The test results display **Bits per Tone** in graphical format. For G.fast, the **Frequency** is shown in MHz.

When the **Test Interface** for **Auto** or **Manual Test** is set to ADSL2+ or VDSL2 bonding mode, there will be 2 pages of results, one for each DSL line-pair.

> To access the second-pair results, press the **Pair 1/2** function key at the bottom-right of the screen.

➤ The tab contains **Upstream** and **Downstream** parameters. Press ✔ to toggle between bands.

   ➤ ADSL lists only 1 of each.

   ➤ VDSL lists US0 to US3, and DS1 to DS4 possible bands, depending on the band plan.

➤ **Parameter - Downstream/Upstream**

   ➤ **SNR Margin** is the measured current signal-to-noise ratio margin across all active sub-carriers, as an amount of increased noise relative to the measured noise power that the system would be able to tolerate. Only a value of 6 or above is able to support a bit error rate of 10^{-7}.

   ➤ **Loop Atten** (VDSL) is the current quality of the line and is measured only once during testing.

   ➤ **Signal Attenuation** (ADSL, G.fast) is the current reduction of signal strength and is measured periodically when the line is connected.

   ➤ **Tx/Output Power** is the upstream/downstream transmitting power for the selected band.

   ➤ **KL0** displays the per band attenuation values calculated during a Manual VDSL2 test.
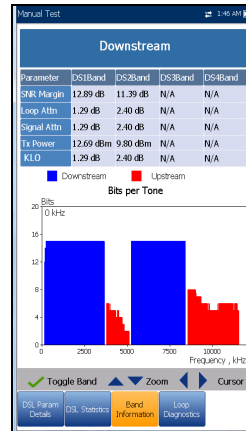
Loop Diagnostics

The **Loop Diagnostics** tab displays the characteristics and potential problems on the line, in graphical format. Some DSLAMs provide upstream SNR and Hlog per tone info to the CPE during DSL connection phase. If the SNR/Hlog/QLN info is available, the upstream and downstream diagnostic data is displayed using different colors which are identified in the graph. For VDSL2/ADSL2+, **Frequency** is shown in kHz. If G.fast, the **Frequency** is shown in MHz. There are 4 (when in G.fast mode) separate graphs for each pair:
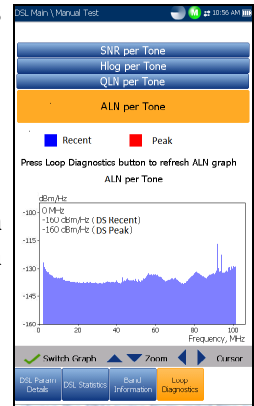
➤ **SNR per Tone** presents the signal-to-noise ratio per tone.

➤ **ATTN (Hlog) per Tone** shows the attenuation from Hlog (Channel Response) per tone.

➤ **QLN per Tone** shows the PSD noise from quiet line noise per tone.

➤ **ALN per Tone** defines the downstream active line noise per tone and is displayed as 2 sets of data:

  ➤ **Recent** based on the most recent refresh values. Press the **Loop Diagnostics** tab to refresh the ALN graph.

  ➤ **Peak** which shows the maximum values registered for each tone since the test started; that is initial and consequent refresh graphs.

Press ✔ to switch between graphs.

Data Tests Summary

The **Data Tests Summary** tab displays the pass/fail status of the selected data tests enabled in the connection setup. A successful WAN connection must be established in order to view the detailed results. When **IPv6 (DHCP)** is set as the **Access Mode** in **Connection Setup**, only **Ping Test** will be displayed.

To view individual data test results:

1. Press the up/down navigation keys to select the desired test.

2. Press ✔ to display the test result details.
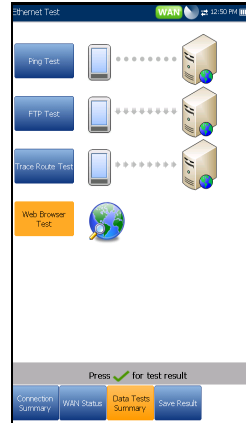
Ping Test

The **Ping Test** tab allows you to view the Pass/Fail summary status of either a Ping Address or Ping Gateway.

➤ **Status** is the status of the Ping test performed.

➤ **Ping IP/URL** is the IP Address or domain name of the destination being pinged.

➤ **Packet Size** is the number of bytes sent in one packet.

➤ **Packets Sent** is the number of packets sent.

➤ **Packets Received** is the number of packets received.

➤ **Average Round Trip Time** is the duration in milliseconds (ms) it took the data to reach the destination device and come back.
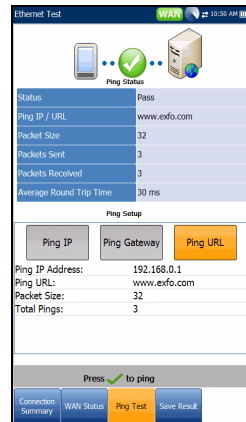
Note: *The following are not shown if the **Access Mode** in **Connection Setup** is set to **IPv6 (DHCP)**.*

➤ **Ping IP Address** is the destination IP address.

➤ **Ping URL** is the destination URL address.

➤ **Packet Size** is the number of bytes sent in one packet ranging from 32 through 1200 (default is 32 bytes).

➤ **Total Pings** is the total number of Ping requests to be sent.

FTP Test

The **FTP Test** tab displays the FTP download and upload results configured in the connection setup, and a pass/fail summary status of whether or not the file transfer protocol (FTP) was completed successfully or not.

Except for Auto Test, FTP parameters can be reconfigured and have information updated from this tab by using the on-screen **FTP Download/Upload** buttons.
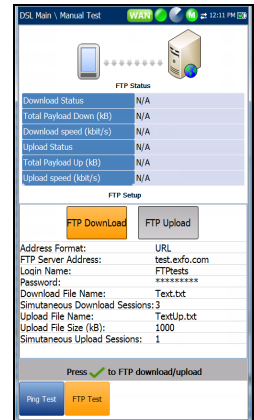
HTTP Test

The **HTTP Test** tab allows you to evaluate the speed at which a particular Web page or URL or Web object can be downloaded by the unit. The page displays the HTTP **Download Status**/**speed** and results; and a pass/fail summary status of whether or not the test was completed successfully or not. Except for Auto Test, HTTP parameters configured in the connection setup can be reconfigured from this tab and have information updated by using the on-screen **Download** button.
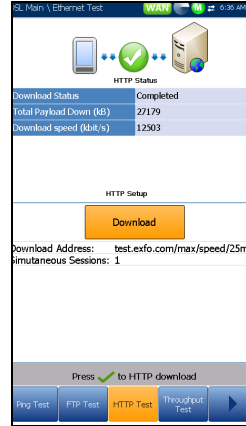

iPerf3 Test

The **Throughput Test** tab (GVXAA and GVXAB models only) displays the **Download/Upload Status** and speed results of the **iPerf3 Test**, configured in the connection setup, and a pass/fail summary status of whether or not the **Throughput Test** was completed successfully or not. Except for **Auto Test**, the **iPerf3 Test** parameters can also be reconfigured from this tab under the **iPerf3 Test Setup** section and have information updated, by using the on-screen **Download/Upload** buttons.
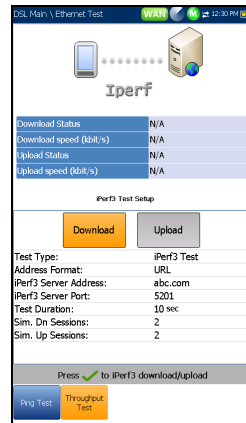
Speedtest by Ookla[1]

The **Throughput Test** tab (GVXAA and GVXAB models only) displays the **Speedtest by Ookla Test Status** and the **Download/Upload speed** results, along with the **Ping** (reaction time in ms) value to the nearest server. Other parameters displayed are the following:

➤ **Test Status** displays a real-time condition of the test or an error message.

➤ **Host** is the URL or IP address of the nearest Ookla server based on the lowest **Ping**.

➤ **Location** is the city and province/state in which the **Host** server resides.

➤ **Country** is the country the **Location** is in.

➤ **Sponsor** is the name of the testing **Host** server.

➤ **Test Type** displays which test was run. Here you can switch to the **iPerf3 Speed Test**, configure the parameters (except for **Auto Test**), and run the test.

➤ **Ookla Server** displays the server used to run the test. **Automatic** runs the Ookla test with the lowest latency server. You can select a specific Ookla server from the list and rerun the test.

➤ **Begin Test** button allows you to run a new test.
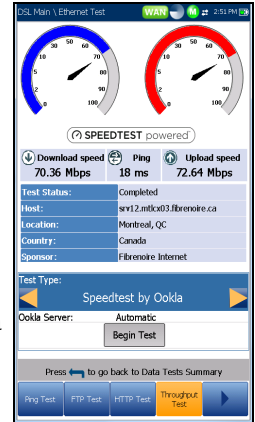
If you selected **Yes** for the **Show Privacy Statement** in the **Test Setup**, the following note is displayed prior to the test.

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1. Ookla is a third party provider. The Ookla Speedtest Powered technology involves Ookla owned and/or controlled servers that may or may not be within your network. Ookla retains the right to aggregate test results and to monetize aggregated results as they see fit.

Note: *Ookla Privacy Policy: http://www.speedtest.net/privacy*
You, end user, understand and acknowledge, by performing the test
contained in the Speedtest Powered Software Application, that Ookla, LLC
may collect your IP address during the test and share it with selected third
parties.

Trace Route Test

The **Trace Route Test** tab allows you to view the pass/fail status of the IP packet sent to a specified IP destination, and the path and time taken to do so.

Except for Auto Test, Traceroute parameters can be reconfigured and have information updated from this tab by using the on-screen **Trace URL** or **Trace IP** buttons.
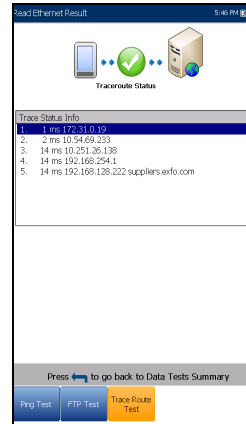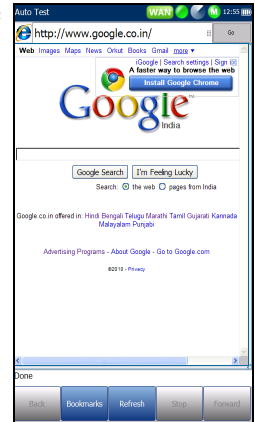
Web Browser

The MaxTester web browser is intended as a tool to view web pages and confirm internet connections. It is not designed for extensive browsing or to view complex web pages. Some pages containing images or animated graphics may not display fully. EXFO suggests that you use the supplied bookmarks or similar simple web pages for testing.

The web browser results screen is available only if the software option is enabled. The results screen contains the following functions:

➤ URL Box displays the current web address to be connected.

➤ The **Go** button starts the specified URL or reloads the previous web page.

➤ On-screen function keys:

   ➤ **Back** retrieves the previous web page (if available). If no web page was previously browsed, this key is disabled.

   ➤ **Enter Text** opens the editor screen allowing you to type an entry.

   ➤ **Bookmarks** opens the **Bookmarks** page allowing you to select a URL from the list or save the current URL to **Bookmarks**. You must press ← to enable the **Bookmarks** key.

   ➤ **Refresh** reloads the current web page.

   ➤ **STOP** halts loading the web page. If the web page has already loaded, the key is disabled.

   ➤ **Forward** takes you to the next web page (if available). If no web page was browsed after the current page, this key will be disabled.

To edit the web address:

1. Press ← to highlight the URL box.

2. Press ✔ to bring up the edit screen and modify the web address. The edited URL can be used to browse the web page temporarily but it will not be saved as the **Home URL**.

To navigate the web browser page:

1. Use the keypad arrow keys to move the on-screen cursor. When the cursor reaches the edge of the viewing area, the web browser page scrolls up/down/left/right. The cursor turns into a text edit tool when scrolling over an editable box or a hand tool when hovering near a hyperlink.

2. Press ✔ to start the desired outcomes.

3. Press 🏠 to load the **Home URL** page.

4. Press ← to exit from the web browser test.

Bookmarks

The **Bookmarks** page allows you to select from a list of URLs or save the current one.

➤ **URL** box shows the current URL in the web browser page.

➤ On-screen function keys:

   ➤ **Add to Bookmarks** copies the current URL to the **Bookmarks** list above the highlight. When the list reaches the maximum 9 URLs, the key is disabled.

   ➤ **Set as URL** copies the highlighted URL to the **URL** box.

   ➤ **GO** saves the bookmarks and starts the web connection using the address in **URL** box.
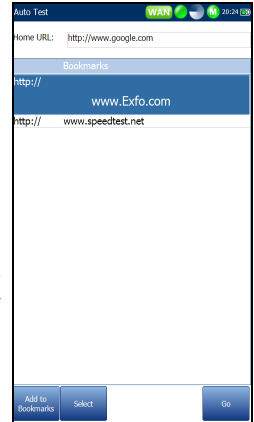
Press ← to exit from the **Bookmarks** page avoiding all actions and return to the web browser page.

7 *Saving, Reading, and Managing DSL/IP Test Results*

Saving Results

You can save a snapshot of test results into a result file during or after performing a DSL/IP test, with the MaxTester. Each Auto Test, Manual, and Ethernet test includes an **Upload/Save Result** tab to do so. The tab allows you to **Upload & Save** (see *Upload Setup* on page 35) your test results using the following:

➤ out-band upload method if not disabled and the test is stopped

➤ existing in-band method if enabled, using the DSL or Ethernet connection made during the test, and the test is running.

Or you can **Save** your results to an internal memory file or **Export** results to an HTML, MHTML, or XML report using a USB key.

Alternately, when a test is completed or stopped and you press ⬅, **Confirm Save Results** dialogue box pops up. Selecting **Yes** displays the **Upload/Save Result** screen where the following information can be entered:

➤ **Identification Fields**

➤ **User Name**/**User ID** display the values set up in the **Setup**/**Application Settings**/**Identification** tab. You can edit this field using the editor screen.

➤ **Contractor Name** allows you to enter the name of a contractor used to perform the tests.

➤ **Test From/To** display the values set up in the **Setup**/**Application Settings**/**Identification** tab. You can edit this field using the choices from the list box.

➤ **Job ID** allows you to create/edit a unique identifier for the task.

➤ **Customer Name** is the name of the customer for which the test was run.

➤ **Circuit ID** allows you to create/edit a unique identifier for the circuit under test.

➤ **Comments** allows you to add any relevant information.

➤ **Save Result**

➤ **Select Result File** button displays a list of existing file names where you can save your results.

➤ **Result File Storage Location** gives you the option of storing results either in the **MT internal memory** or **USB** device. The default selection comes from **Setup/Application Settings/General** tab.

➤ **Result File Name** allows you to preview and edit the result file name. The proposed file name is based on current auto-naming parameters configured in **Setup/Application Settings/File Name**.

➤ **Out-Band Upload & Save** button is enabled when test is stopped and out-band upload method is not disabled in **System Settings/Upload Setup**.

➤ **Save** button confirms if the **Result File Name** is saved successfully.

➤ **Export to ECC & Save** button replaces the **Save** button when **Export to EXFO Connect Client** is enabled in **System Settings\Upload Setup**. This feature allows you to save test results and export XML test reports to be uploaded to the **EXFO Connect** platform using the **EXFO Connect Client** application.

➤ **Export Report**

➤ **Report File Storage Location** is dependent on whether **Export to EXFO Connect Client** is enabled or not, in **System Settings\Upload Setup**. If enabled, you can select either **USB** or **EXFO Connect Client** as your test report storage location. If disabled, **USB** is automatically selected.

➤ **Report Format** is **MaxTester**, **HTML**, MHTML, or XML.

You can generate and export HTML, MHTML, or XML reports from any saved test result.

Note: *If **EXFO Connect Client** is selected, the available selections for **Report Format** are only **MHTML** and **XML**.*

Reports include:

Product/**General Information** including **Pass**/**Fail** status.

Identification

Profile/Results Summary

Blank entries for your **Signature** and the **Date**.

➤ **Report File Name** allows you to preview and edit the result file name. The proposed file name is based on current auto-naming parameters configured in **Setup**/**Application Settings**/**File Name**.

➤ **Export** button confirms if the **Report File Name** is saved successfully. If a USB device is not inserted, the following warning dialogue box appears: **USB device not present**.

➤ **EXFO Connect** button is active only for **Manual Test** when DSL sync is established and **WAN Status** is **Connected**. If **Access Mode** is **IPv6 (DHCP)** or **Bridged**, **EXFO Connect** button is *not* available. The button activates **EXFO Connect Client** (ECC) menu allowing you to access the **ECC** interfaces. Please refer to the *ECC User Guide* for more information.

To set parameter values and save results:

1. Press the left/right and up/down arrow keys to highlight the desired parameter.

2. Press ✔ to display the list or select the value.

*3.* Press the up/down arrow key to highlight the desired value.

OR

4. Press the left arrow key to erase the existing value, and then use the alphanumeric keypad to enter a value. To cancel the entry, press ⬅.

5. Press ✔ to accept the value.

Select Result File

Select Result File page displays a list of existing file names where you can save your results.

To save your results to an existing file name:

1. Use the up/down navigation keys to highlight the desired **FileName**.

2. Press ✔ to confirm your selection.
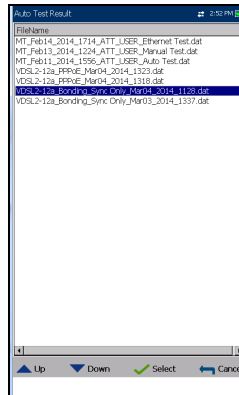
Upload

The **Upload** page allows you to upload the saved results to an FTP site or a USB memory stick. Select a **FileName** or **All** files previously saved. Files are uploaded via the existing in-band DSL or Ethernet connection made during the test or an out-band upload connection (Wi-Fi or Ethernet) as shown by the corresponding icon in the top right-hand corner of the navigation bar.

➤ **Upload Location** is **FTP** or **USB**.

➤ **Upload Results Location** allows you to upload saved **DSL/Ethernet** or **Copper** result files. DSL and Ethernet result files are at the same location.

➤ **Select Files** is either **None** which removes all check marks allowing you to select one or more files, or **All**.
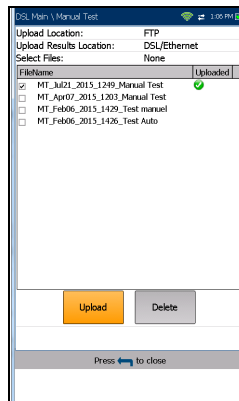
➤ **Uploaded** status column displays a successful, failed, or no upload for each file.

➤ **Upload** button transfers the selected files to the designated location.

➤ **Delete** button removes selected XML files from the internal memory.

Note: *For **Auto Test**, if you have enabled the **Web Browser**, wait for the browser test to start, and then exit the browser to upload files. Alternately, wait for files to complete uploading before pressing any keys.*

To upload previously saved results:

1. Press the left/right arrow keys to highlight the desired **Upload Location**.

OR

2. Press ✔ to display the list and select the value.

3. Press the down arrow key and select either **None** or **All** files.

4. If **None**, press the down arrow key to highlight the list box and press ✔ to open the list.

5. In the list, press the up/down arrows to select the desired files.

6. Press ⬅ to come out of the list.

7. Press the down arrow key to highlight either **Upload** or **Delete** and press ✔.

Managing Results

You can view, **Upload**, **Export**, and **Delete** any of your saved results with the MAX-630G by highlighting the **Result Manager** icon from the **DSL Main** pane and pressing ✔.
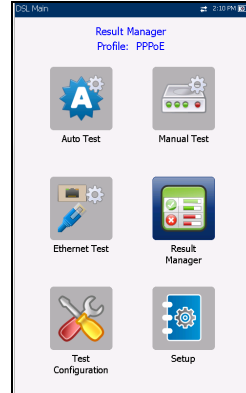
Read Results

The **Result** page allows you to select a **File Name** and view the results of files previously saved. The page lists all saved result files by test date and time. The format of **Test Date Time** is per the selection in **System Settings**. Result files can be loaded from either the **MT internal memory** or a **USB**.

To open previously saved test results:

1. Press the left/right arrow keys to highlight the desired parameter.

   OR

2. Press ✔ to display the list or select the value.

3. Press the down arrow key to highlight the list box and press ✔ to open the list.

4. In the list, press the up/down arrows to select the test results file.

5. Press ✔ to open the result file.
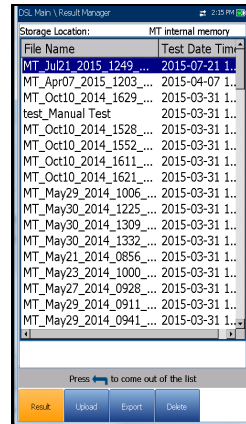
Upload

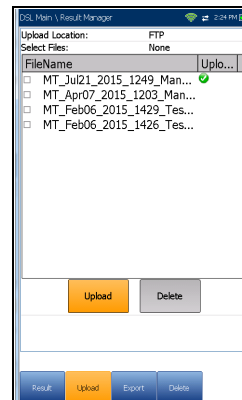The **Upload** page in the Result Details is the same as previously described. Please see *Upload* on page 124 for more information.

Export

The **Export** page allows you to select a **File Name** or **All** files previously saved and export the results in a selected **Report Format**.

➤ **Storage Location** gives you the option of exporting your results to either the **MT internal memory** or USB device.

➤ **Select Files** is either **None** or **All**. **None** removes all check marks allowing you to select one or more files, or **All**.

➤ **Export Report**

➤ **Report File Storage Location** is dependent on whether **Export to EXFO Connect Client** is enabled or not, in **System Settings\Upload Setup**. If enabled, you can select either **USB** or **EXFO Connect Client** as your test report storage location. If disabled, **USB** is automatically selected.
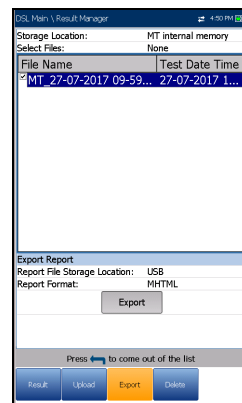
➤   **Report Format** is **HTML MHTML,** or **XML.**

Note: *If **EXFO Connect Client** is selected, the available selections for **Report Format** are only **MHTML** and **XML.***

➤   **Export** button transfers the selected file(s) to the internal memory or USB device in the selected report format.

To export previously saved test results:

1. Press the left/right arrow keys to highlight the desired **Storage Location.**

OR

2. Press ✔ to display the list and select the value.

3. Press the down arrow key and select either **None** or **All** files.

4. If **None**, press the down arrow key to highlight the list box and press ✔ to open the list.

5. In the list, press the up/down arrows to select the desired files.

6. Press ⬅ to come out of the list.

7. Press the down arrow key to highlight the **Report Format.**

8. Press the left/right arrow keys to select the desired format.

OR

9. Press ✔ to display the list and select the value.

10. Press the down arrow key to press the **Export** button.

Delete

The **Delete** page allows you to delete a selected **File Name** or **All** selected result files previously saved in the **MT internal memory** only.

➤ **Storage Location** is the **MT internal memory**.

➤ **Select Files** is either **None** or **All**. **None** removes all check marks allowing you to select one or more files, or **All**.

➤ **Delete** button removes the selected files.

To delete previously saved test results:

1. Press the left/right arrow keys ✔ to select either **None** or **All** files.

2. If **None**, press the down arrow key to highlight the list box and press ✔ to open the list.

3. In the list, press the up/down arrows to select the desired files.

4. Press ← to come out of the list.

5. Press the down arrow key to press the **Delete** button.

6. Press **Delete** to confirm your selection or **Cancel** to abort the operation.
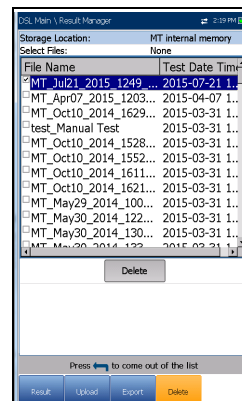
8 *Maintenance*

General Maintenance

The MaxTester has been designed to be a rugged and lightweight piece of test equipment. The MaxTester LCD display should only be cleaned using a soft, lint-free cloth and an anti-static cleaning solution. Ordinary detergents and other cleaning solutions may cloud or scratch the surface and should be avoided.

To help ensure long, trouble-free operation:

➤ Keep the unit free of dust.

➤ Clean the unit casing and front panel with a cloth slightly dampened with water.

➤ Store unit at room temperature in a clean and dry area. Keep the unit out of direct sunlight.

➤ Avoid high humidity or significant temperature fluctuations.

➤ Avoid unnecessary shocks and vibrations.

➤ If any liquids are spilled on or into the unit, turn off the power immediately and let the unit dry completely.

WARNING
The use of controls, adjustments and procedures other than those specified herein may result in exposure to hazardous situations or impair the protection provided by this unit.

Recalibrating the Unit

EXFO manufacturing and service center calibrations are based on the ISO/IEC 17025 standard (*General Requirements for the Competence of Testing and Calibration Laboratories*). This standard states that calibration documents must not contain a calibration interval and that the user is responsible for determining the re-calibration date according to the actual use of the instrument.

The validity of specifications depends on operating conditions. For example, the calibration validity period can be longer or shorter depending on the intensity of use, environmental conditions and unit maintenance, as well as the specific requirements for your application. All of these elements must be taken into consideration when determining the appropriate calibration interval of this particular EXFO unit.

Under normal use, the recommended interval for your MaxTester 630G is: 2 years.

For newly delivered units, EXFO has determined that the storage of this product for up to six months between calibration and shipment does not affect its performance (EXFO Policy PL-03).

To help you with calibration follow-up, EXFO provides a special calibration label that complies with the ISO/IEC 17025 standard and indicates the unit calibration date and provides space to indicate the due date. Unless you have already established a specific calibration interval based on your own empirical data and requirements, EXFO would recommend that the next calibration date be established according to the following equation:

Next calibration date = Date of first usage (if less than six months after the calibration date) + Recommended calibration period (2 years)

To ensure that your unit conforms to the published specifications, calibration may be carried out at an EXFO service center or, depending on the product, at one of EXFO's certified service centers. Calibrations at EXFO are performed using standards traceable to national metrology institutes.

Note: *You may have purchased a FlexCare plan that covers calibrations. See the Service and Repairs section of this user documentation for more information on how to contact the service centers and to see if your plan qualifies.*

Battery

The MaxTester is equipped with a Lithium Polymer battery.

WARNING

➤ **Recharge the battery using only the MaxTester and with the battery properly installed in the unit.**

➤ **Never open the battery back panel of the MaxTester without reading the *Replacing the Battery* section in this chapter.**

When fully charged, the battery should provide between 3 and 10 hours of power depending on different factors such as: type of tests performed, display backlight level, and connected accessories.

Note: *When the battery level is very low, tests cannot be performed. Plug in the AC/DC adapter for continued operation and to recharge the battery. However, the charge speed will be reduced. Should the voltage detection beeper sound when the unit is plugged in, remove the AC/DC adapter.*

To maximize the battery power of the MaxTester:

1. Lower the display backlight level using the application found in **Display and Language** in the **System Settings**, when the unit is used under low to medium light conditions.

2. Disconnect any unused USB or SD accessories.

3. Quit any running tests when the MaxTester is not in use.

4. Whenever possible, put the unit in suspend mode by pressing ⏻ until the suspend notification sound plays, about 2 seconds.

5. When not in use, turn the unit off by pressing ⏻ for at least 4 seconds.

If the battery capacity remains low or outside the previously stated values, it should be replaced. This could occur after 3 years depending on the usage. If your current battery capacity is lower than 8000 mAh, replace the battery.

Unit Temperature Handling

When the battery temperature reaches ≥ 55 °C, the unit temperature is displayed in the bar at the top of the unit and a warning message will appear. Tests stop automatically when the battery temperature reaches 60 °C.

Replacing the Battery

WARNING

Only use an EXFO battery. Batteries from other suppliers could result in serious damage to the MaxTester or personal injuries. See *Contacting the Technical Support Group* on page 422 for information on contacting EXFO.

Battery replacement should only be done by a qualified technician with the appropriate tools on an electronic bench or similar environment.

To replace the battery:

1. Remove all 4 screws of the battery back panel using a 1.5 mm Allen key. Put aside the screws and the panel keeping the inside foam seal clean. See *LED Statuses* on page 421.

2. Pull out the old battery using your fingers. Flipping the unit, battery-side down, will ease removal. Do not use tools in order to prevent damage to the battery envelope. Pull out the electrical connector. Put aside the old battery.

3. Remove the new battery from its package. Keep the package for future use. Plug in the electrical connector ensuring the pins are correctly aligned. Place the new battery in the MaxTester.

4. Inspect the inside rib around the MaxTester battery compartment to make sure it is free from any debris. Remove any debris using a dry cloth. Replace the battery back panel. Replace the 4 screws with a moderate torque so the foam seal is evenly compressed without damaging the screws.

Battery Charging and Replacing

Charging the MaxTester battery can take up to 5 hours. This battery was custom made for your unit; replacement batteries must be ordered from EXFO.

Recycling and Disposal
(Applies to European Union Only)

For complete recycling/disposal information as per European Directive WEEE 2002/96/EC, visit the EXFO Web site at www.exfo.com/recycle.

9 Troubleshooting

Solving Common Problems

The table below presents common problems and their solution.

Problem	Possible Cause	Solution
Impossible to turn on unit.	➤ You did not press ⏻ long enough.	➤ Press ⏻ for a few seconds.
	➤ Battery discharged.	➤ Charge battery by connecting the AC adapter/charger.
	➤ Battery is missing.	➤ Insert a battery and replace battery back panel.
	➤ Unit temperature is too cold or too hot.	➤ Make sure that the unit is within the operation temperature range. You might have to wait for the unit to warm up/cool down.
Battery does not charge as expected.	➤ Temperature is too high.	➤ Ensure temperature is within specifications.
	➤ Battery is incorrectly connected.	➤ Ensure battery is connected properly.
A battery status LED is red.	➤ Battery temperature is too high.	➤ Shut down the unit by pressing ⏻ and holding it down for more than 10 seconds and/or until the power LED goes off.
		➤ Wait for the unit to cool down, and then reboot it.
	➤ Battery is defective.	➤ Contact EXFO or replace the battery.

Problem	Possible Cause	Solution
The unit is not responding.		➤ Shut down the unit, as above. ➤ Turn the unit on again to reset it.

LED Statuses

The left-side *power* and right-side *battery* LEDs are used to indicate specific statuses of your unit. If you notice that one of the LEDs displays a particular status, please see the table below to determine what could be causing it.

LED Legend

Power State	Power Source	Charger State	Battery Level	Power LED Single-Battery Pack	Battery LED
ON	DC	Error	N/A	Solid green	Red
		Charging	N/A		Green blinking
		Charged	Full		Solid green
	Battery	N/A	< 13 %	Solid yellow	Red blinking
			≥ 14 % - < 37 %		Yellow blinking
			≥ 38 % - < 62 %		Yellow
			> 63 %		Solid Green
Fake suspend[a]	DC	Error	N/A	Solid green	Red
		Charging	N/A		Green blinking
		Charged	Full		Solid green
Suspend	Battery	N/A	N/A	Yellow blinking	Black
OFF	Battery	N/A	N/A	Black	Black

a. Fake Suspend -- When AC/DC is plugged in, MaxTester will simulate the suspend mode by turning off the display in order to facilitate the charge.

Contacting the Technical Support Group

To obtain after-sales service or technical support for this product, contact EXFO at one of the following numbers. The Technical Support Group is available to take your calls from Monday to Friday, 8:00 a.m. to 7:00 p.m. (Eastern Time in North America).

Technical Support Group

400 Godin Avenue	1 866 683-0155 (USA and Canada)
Quebec (Quebec) G1M 2K2	Tel.: 1 418 683-5498
CANADA	Fax: 1 418 683-9224
	support@exfo.com

For detailed information about technical support, and for a list of other worldwide locations, visit the EXFO Web site at www.exfo.com.

If you have comments or suggestions about this user documentation, you can send them to customer.feedback.manual@exfo.com.

To accelerate the process, please have information such as the name and the serial number (see the product identification label), as well as a description of your problem, close at hand.

Transportation

Maintain a temperature range within specifications when transporting the unit. Transportation damage can occur from improper handling. The following steps are recommended to minimize the possibility of damage:

➤ Pack the unit in its original packing material when shipping.

➤ Avoid high humidity or large temperature fluctuations.

➤ Keep the unit out of direct sunlight.

➤ Avoid unnecessary shocks and vibrations.

10 *Warranty*

General Information

EXFO Inc. (EXFO) warrants this equipment against defects in material and workmanship for a period of one year from the date of original shipment. EXFO also warrants that this equipment will meet applicable specifications under normal use.

During the warranty period, EXFO will, at its discretion, repair, replace, or issue credit for any defective product, as well as verify and adjust the product free of charge should the equipment need to be repaired or if the original calibration is erroneous. If the equipment is sent back for verification of calibration during the warranty period and found to meet all published specifications, EXFO will charge standard calibration fees.

IMPORTANT

The warranty can become null and void if:

➤ **unit has been tampered with, repaired, or worked upon by unauthorized individuals or non-EXFO personnel.**

➤ **warranty sticker has been removed.**

➤ **case screws, other than those specified in this guide, have been removed.**

➤ **case has been opened, other than as explained in this guide.**

➤ **unit serial number has been altered, erased, or removed.**

➤ **unit has been misused, neglected, or damaged by accident.**

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL EXFO BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

Liability

EXFO shall not be liable for damages resulting from the use of the product, nor shall be responsible for any failure in the performance of other items to which the product is connected or the operation of any system of which the product may be a part.

EXFO shall not be liable for damages resulting from improper usage or unauthorized modification of the product, its accompanying accessories and software.

Exclusions

EXFO reserves the right to make changes in the design or construction of any of its products at any time without incurring obligation to make any changes whatsoever on units purchased. Accessories, including but not limited to fuses, pilot lamps, batteries and universal interfaces (EUI) used with EXFO products are not covered by this warranty.

This warranty excludes failure resulting from: improper use or installation, normal wear and tear, accident, abuse, neglect, fire, water, lightning or other acts of nature, causes external to the product or other factors beyond the control of EXFO.

IMPORTANT

In the case of products equipped with optical connectors, EXFO will charge a fee for replacing connectors that were damaged due to misuse or bad cleaning.

Certification

EXFO certifies that this equipment met its published specifications at the time of shipment from the factory.

Service and Repairs

EXFO commits to providing product service and repair for five years following the date of purchase.

To send any equipment for service or repair:

1. Call one of EXFO's authorized service centers (see *EXFO Service Centers Worldwide* on page 147). Support personnel will determine if the equipment requires service, repair, or calibration.

2. If equipment must be returned to EXFO or an authorized service center, support personnel will issue a Return Merchandise Authorization (RMA) number and provide an address for return.

3. If possible, back up your data before sending the unit for repair.

4. Pack the equipment in its original shipping material. Be sure to include a statement or report fully detailing the defect and the conditions under which it was observed.

5. Return the equipment, prepaid, to the address given to you by support personnel. Be sure to write the RMA number on the shipping slip. *EXFO will refuse and return any package that does not bear an RMA number.*

Note: *A test setup fee will apply to any returned unit that, after test, is found to meet the applicable specifications.*

After repair, the equipment will be returned with a repair report. If the equipment is not under warranty, you will be invoiced for the cost appearing on this report. EXFO will pay return-to-customer shipping costs for equipment under warranty. Shipping insurance is at your expense.

Routine recalibration is not included in any of the warranty plans. Since calibrations/verifications are not covered by the basic or extended warranties, you may elect to purchase FlexCare Calibration/Verification Packages for a definite period of time. Contact an authorized service center (see *EXFO Service Centers Worldwide* on page 147).

EXFO Service Centers Worldwide

If your product requires servicing, contact your nearest authorized service center.

EXFO Headquarters Service Center

400 Godin Avenue	1 866 683-0155 (USA and Canada)
Quebec (Quebec) G1M 2K2	Tel.: 1 418 683-5498
CANADA	Fax: 1 418 683-9224
	support@exfo.com

EXFO Europe Service Center

Winchester House, School Lane	Tel.: +44 2380 246800
Chandlers Ford, Hampshire S053 4DG	Fax: +44 2380 246801
ENGLAND	support.europe@exfo.com

EXFO Telecom Equipment (Shenzhen) Ltd.

3rd Floor, Building C,	Tel: +86 (755) 2955 3100
FuNing Hi-Tech Industrial Park, No. 71-3,	Fax: +86 (755) 2955 3101
Xintian Avenue,	support.asia@exfo.com
Fuhai, Bao'An District,	
Shenzhen, China, 518103	

To view EXFO's network of partner-operated Certified Service Centers nearest you, please consult EXFO's corporate website for the complete list of service partners:
http://www.exfo.com/support/services/instrument-services/exfo-service-centers.

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CHINESE REGULATION ON RESTRICTION OF HAZARDOUS SUBSTANCES (RoHS)
中国关于危害物质限制的规定

NAMES AND CONTENTS OF THE TOXIC OR HAZARDOUS SUBSTANCES OR ELEMENTS CONTAINED IN THIS EXFO PRODUCT
包含在本 EXFO 产品中的有毒有害物质或元素的名称及含量

Part Name 部件名称	Lead 铅 （Pb）	Mercury 汞 （Hg）	Cadmium 镉 （Cd）	Hexavalent Chromium 六价铬 （Cr(VI)）	Polybrominated biphenyls 多溴联苯 （PBB）	Polybrominated diphenyl ethers 多溴二苯醚 （PBDE）
Enclosure 外壳	O	O	O	O	O	O
Electronic and electrical sub-assembly 电子和电气组件	X	O	X	O	X	X
Optical sub-assembly[a] 光学组件 [a]	X	O	O	O	O	O
Mechanical sub-assembly[a] 机械组件 [a]	O	O	O	O	O	O

Note:
注：
This table is prepared in accordance with the provisions of SJ/T 11364.
本表依据 SJ/T 11364 的规定编制。
O: Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.
O：表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 标准规定的限量要求以下。
X: indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572. Due to the limitations in current technologies, parts with the "X" mark cannot eliminate hazardous substances.
X：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 标准规定的限量要求。
标记"X"的部件，皆因全球技术发展水平限制而无法实现有害物质的替代。
a. If applicable.
  如果适用。

MARKING REQUIREMENTS
标注要求

Product 产品	Environmental protection use period (years) 环境保护使用期限 （年）	Logo 标志
This EXFO product 本 EXFO 产品	10	
Battery[a] 电池	5	

a. If applicable.
   如果适用。

P/N: 1074251

CORPORATE HEADQUARTERS	400 Godin Avenue	Quebec (Quebec) G1M 2K2 CANADA Tel.: 1 418 683-0211 · Fax: 1 418 683-2170
EXFO AMERICA	3400 Waterview Parkway Suite 100	Richardson, TX 75080 USA Tel.: 1 972-761-9271 · Fax: 1 972-761-9067
EXFO EUROPE	Winchester House, School Lane	Chandlers Ford, Hampshire S053 4DG ENGLAND Tel.: +44 2380 246 800 · Fax: +44 2380 246 801
EXFO ASIA-PACIFIC	62 Ubi Road 1, #09-01/02 Oxley Bizhub 2	SINGAPORE 408734 Tel.: +65 6333 8241 · Fax: +65 6333 8242
EXFO CHINA	Beijing Global Trade Center, Tower C, Room 1207, 36 North Third Ring Road East, Dongcheng District	Beijing 100013 P. R. CHINA Tel.: +86 (10) 5825 7755 · Fax: +86 (10) 5825 7722
EXFO SERVICE ASSURANCE	250 Apollo Drive	Chelmsford MA, 01824 USA Tel.: 1 978 367-5600 · Fax: 1 978 367-5700
EXFO FINLAND	Elektroniikkatie 2	FI-90590 Oulu, FINLAND Tel.: +358 (0) 403 010 300 · Fax: +358 (0) 8 564 5203
TOLL-FREE	(USA and Canada)	1 800 663-3936

EXFO

EXPERTISE REACHING OUT

ISO 900¹   CE