AuroraPresto User Guide
Notice

Hewlett-Packard to Agilent Technologies Transition

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard’s former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. To reduce potential confusion, the only change to product numbers and names has been in the company name prefix: where a product name/number was HP XXXX the current name/number is now Agilent XXXX. For example, model number HP8648 is now model number Agilent 8648.

Contacting Agilent Sales and Service Offices

The sales and service contact information in this manual may be out of date. The latest service and contact information for your location can be found on the Web at:

http://www.agilent.com/find/assist

If you do not have access to the Internet, contact your field engineer or the nearest sales and service office listed below. In any correspondence or telephone conversation, refer to your instrument by its model number and full serial number.

United States
(tel) 1 800 452 4844
(fax) 1 800 829 4433

Canada
(tel) +1 877 894 4414
(fax) +1 888 900 8921

Europe
(tel) (31 20) 547 2323
(fax) (31 20) 547 2390

Latin America
(tel) (305) 269 7500
(fax) (305) 269 7599

Japan
(tel) (81) 426 56 7832
(fax) (81) 426 56 7840

New Zealand
(tel) 0 800 738 378
(fax) 64 4 495 8950

Asia Pacific
(tel) (852) 3197 7777
(fax) (852) 2506 9284

Australia
(tel) 1 800 629 485
(fax) (61 3) 9210 5947
Copyright Notice
The information contained in this document is the property of Agilent Technologies. and is supplied without liability for errors and omissions.

No part of this document may be reproduced or used except as authorised by contract or other written permission from Agilent Technologies. The copyright and all restrictions on reproduction and use apply to all media in which this information may be placed.

Agilent Technologies. pursues a policy of continual product improvement and reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service.

The Trend Aurora name is a registered trademark of Agilent Technologies.

© Trend Communications Ltd. 2002

All rights reserved

Publication ref: 481801
Issue 7 -05/02
Contents

Chapter 1 Welcome to AuroraPresto ..........1-1

Section 1 - About the User Guide ..................1-3
  Intended Readers ..................................................1-3
  How the Guide is Organised ..............................1-3
  Chapter Structure .................................................1-4
  Conventions in the Guide .....................................1-4
  Special Typefaces ..................................................1-4
  Tips, Notes and Warnings .....................................1-4
  Special Terms ......................................................1-5

Section 2 - Introducing AuroraPresto ..........1-7
  How You Can Use Your AuroraPresto ...............1-7
  The Basic Method of Testing ...............................1-7
  Supplied with AuroraPresto .................................1-8
  How AuroraPresto fits Together .........................1-8
  Safety Advice .....................................................1-9
  Looking after AuroraPresto .................................1-10
  A Look at AuroraPresto ........................................1-11
    Summary of the Main Features .............................1-12
    The Keypad .......................................................1-13
    Understanding the LEDs ......................................1-15
    About the Interface Cards .................................1-17
    Cables Used with AuroraPresto .........................1-19

Chapter 2 Getting Started .........................2-1

Section 1 - Preparing to Use AuroraPresto ....2-3
  Connecting to an External Power Source ............2-3
  Connecting to the Interfaces ............................2-4
  xDSL Connections ..............................................2-4
  Data Port Connections ......................................2-5
  Connecting to a PC, Printer or another AuroraPresto 2-6
Switching AuroraPresto On and Off..........................2-7
The Welcome Screen ..................................................2-7
Changing the Appearance of the Screen.....................2-7
Changing the Contrast ..................................................2-7
Switching the Backlight On and Off .................................2-8
Removing & Replacing the Belt Hook.........................2-8

Section 2 - Using the Menus and Windows ........ 2-11
The Select Test Mode Menu.......................................2-11
How to Display the Select Test Mode Menu.................2-12
Moving Through the Items in a Menu.............................2-12
Selecting a Menu Item.............................................2-12
Using the Function Keys.............................................2-13
Exiting from a Menu or Option Window .....................2-13
Switching Between Windows .....................................2-14

Section 3 - Basic Operations................................. 2-15
Adjusting the Volume..................................................2-15
Displaying Interface Cards or Modules .........................2-16
Entering Alphanumeric Information...................................2-16
Adding or Deleting Characters.......................................2-17
Saving the String and Exiting .........................................2-17

Chapter 3 Setting up AuroraPresto ............ 3-1
Setting up AuroraPresto Using Hot Keys.................3-2
How the Hot Keys work ..................................................3-3
Setting up the Hot Keys.............................................3-3
Changing the Basic Configuration ...............................3-7
Configuring the Serial Port .........................................3-8
Setting up the Modem for ADSL Tests........................3-11
Setting up the Trace Route Options.............................3-14
Setting up the IP Options ...........................................3-15
Setting up PPP Options...............................................3-26
General Settings (System Setup)..............................3-31
Setting the Automatic Power-Off Time Delay.................3-32
Setting the Screen Backlight Power-Off Time Delay.....3-33
Changing the Date/Time on the Internal Clock..............3-33
Changing the Country of Operation...............................3-34
Contents

Changing the Language of the Screen Display .......... 3-35
Returning to the Factory Defaults............................. 3-35
Checking the Current Setup of **AuroraPresto** .......... 3-41
Installing New Software on **AuroraPresto** .......... 3-42
   Installing **AuroraExchange** on the PC ................. 3-42
   Connecting **AuroraPresto** to a PC ...................... 3-43
Setting up **AuroraPresto** - Software
   Version A1.05 or Earlier ...................................... 3-44
Setting up **AuroraPresto** - Software
   Version 1.07 or Later ......................................... 3-45
Setting up **AuroraPresto** - Software
   Version 2.80 or Later ......................................... 3-47
Setting up **AuroraExchange** for **AuroraPresto** ...... 3-48
Upgrading **AuroraPresto** ...................................... 3-49
Downloading Configurations Files to **AuroraPresto** ..... 3-50
Uploading Configuration Files from **AuroraPresto** .... 3-50
Uploading Sessions from **AuroraPresto** to a PC .... 3-51
   During the Transfer ........................................... 3-51

**Chapter 4 Testing with AuroraPresto** .............. 4-1

**Section 1 - Test Modes** ........................................ 4-3
   Automatic ...................................................... 4-3
   Manual ......................................................... 4-3
   Auto Tests ...................................................... 4-3
      Setting up the Auto Test Options ...................... 4-3
      Setting up DSL Test Profiles ......................... 4-4
      Choosing the Auto Test Mode Tests .................. 4-6
      Testing in Auto Test Mode .............................. 4-7
      Viewing an Auto Test Summary ....................... 4-8
      Viewing Auto Test Results ............................. 4-8
      Printing Auto Test Results ............................. 4-8

**Section 2 - DSL Testing Techniques** ................. 4-10
   Main Test Configurations and Applications .......... 4-10
   Modem Tests .................................................. 4-11
      Simulating a DTE (Data Terminal Equipment) .......... 4-11
      Simulating Modem to a DTE ............................. 4-13
      Golden Modem Tests ......................................... 4-14
Section 3 - Physical Layer Tests ............................ 4-18

Noise Analysis.............................................................4-18
Setting up the Noise Analysis Test............................... 4-18
Running the Noise Analysis Test.................................. 4-19
DMM Tests ..................................................................4-21
DMM Measurement Tests.............................................. 4-22
Setting up DMM Tests.................................................. 4-22
Running a DMM Test...................................................... 4-23
TDR Tester ..................................................................4-24
TDR Overview .............................................................4-25
Gain................................................................................. 4-26
Pulse Widths ................................................................... 4-26
Setting Up the TDR Tester ............................................. 4-26
Running a TDR Test........................................................ 4-28
Viewing the TDR Test Results Graph ............................. 4-29
Load Coil Tests .............................................................4-31
Running a Load Coil Test.............................................. 4-32
G.SHDSL Physical Layer Test ...................................... 4-32

Section 4 - DSL Layer Tests ................................. 4-33

DSL Layer....................................................................4-33
Setting up DSL Layer Tests ........................................ 4-33
Setting up the Modem Type for DSL Layer Tests........ 4-33
Connecting AuroraPresto to a
Modem for DSL Layer Tests........................................ 4-34
Performing DSL Layer Tests........................................ 4-35
ADSL Statistics ............................................................ 4-37
DMT Carrier Usage ADSL Only (Signal Analysis) ...... 4-39
ADSL Bit Errors........................................................... 4-41
G.SHDSL Tests ...........................................................4-42
Setting up the G.SHDSL Modem ................................. 4-42
G.SHDSL DSL Statistics............................................... 4-45
G.SHDSL Loopbacks .................................................... 4-49
Contents

Section 5 - ATM Layer Tests ........................................... 4-51
  Setting up the Data Port Connection.......................... 4-51
  Setting up VPIs (Virtual Path Identifiers) and VCIs
  (Virtual Channel Identifiers) .................................. 4-52
  Bit Error Rate Testing........................................... 4-57
  Software Compatibility ......................................... 4-57
  F5 OAM Testing .................................................. 4-68
  Setting up the OAM Ping Test .................................. 4-68

Section 6 - Datalink ................................................ 4-73
  Setting up the Data Port ....................................... 4-73
  ATM25 Interface ................................................ 4-73
  Setting up an ATM 25 BERT .................................... 4-74

Section 7 - IP Layer Tests ........................................ 4-83
  Displaying the WAN Global Stats .............................. 4-83
  Displaying the LAN Global Stats .............................. 4-83
  Displaying the LAN Connection Stats .......................... 4-84
  IP Ping Test.......................................................... 4-85
  Setting up the IP Ping Test .................................... 4-86
  Setting up the Route Trace Options ........................... 4-88
  Starting a Route Trace .......................................... 4-89
  Displaying the Router Stats ................................... 4-89

Section 8 - PPP Layer Tests........................................ 4-91
  Setting up PPP Options ......................................... 4-91
  Displaying PPP Statistics ....................................... 4-91

Chapter 5 Capturing Test Information ......................... 5-1
  Capturing the Decode ........................................... 5-2
  Starting a Capture Session .................................... 5-3
  While Capturing is in Progress ............................... 5-4
  Saving an Active Session ...................................... 5-5
  Reviewing a Captured Session ................................. 5-5
  Clearing Sessions from Memory ................................ 5-6
  Sending the Capture to a Printer or PC ...................... 5-6
Chapter 6 Power Sources ........................................ 6-1
Using External (Mains) Power ..................................... 6-2
Using Battery Power .................................................. 6-3
Battery Life ............................................................... 6-3
Discharging the Battery Pack ........................................ 6-4
Recharging the Battery Pack ......................................... 6-5
Replacing a Battery Pack ............................................ 6-6
Storing the Battery Packs ........................................... 6-8
Using AuroraPresto without a Battery Pack ................. 6-8

Chapter 7 Technical & Purchasing Notes .......... 7-1
Section 1 - Technical Information .............................. 7-2
AuroraPresto Specifications ........................................ 7-2
Telecommunications Standards .................................... 7-2
User Interface ............................................................ 7-2
Physical/Environmental ............................................... 7-3
Power supplies ........................................................... 7-4
Memory Capacity ...................................................... 7-4
Interface Specifications ............................................. 7-4
ADSL line ...................................................................... 7-4
10 Base T (Ethernet) ................................................... 7-5
G.SHDSL line .............................................................. 7-6
Serial Port ................................................................. 7-7
ATM 25 Interface (Optional) .......................................... 7-8
Optional Interface Cards ............................................. 7-8
BERT .......................................................................... 7-9
Quality and Reliability ................................................ 7-9
Calibration ................................................................. 7-9
Product Safety ............................................................ 7-9
Approvals .................................................................... 7-10

Section 2 - Notes for Purchasers ......................... 7-11
Guidelines for Choosing the Modules .................... 7-12
How the Modules are Fitted ....................................... 7-13
Optional Accessories ................................................ 7-13
Appendix 1 AuroraPresto Menus .................1-1  
AuroraPresto Menus..............................................1-2  
Setup..................................................................1-2  
Tests..................................................................1-5  

Appendix 2 ADSL Status Messages & Vendor Codes ........................................2-1  
Abbreviations Used................................................2-3  
ADSL Trace Message Definitions..............................2-4  
G.SHDSL Trace Message Definitions..........................2-6  
Vendor Codes.......................................................2-6  

Appendix 3 Glossary & Abbreviations ..........3-1  
Index
Chapter 1

Welcome to Aurora Presto

Contents

Section 1—About the User Guide................. 1-3
Section 2—Introducing Aurora Presto......... 1-7
Welcome to AuroraPresto

Welcome to AuroraPresto, a hand held tester which allows you to install, configure, troubleshoot and maintain equipment on xDSL lines.

Tip
If you are a new user, read through Chapters 1 and 2 of this Guide for the basic information you need to get started. When you are more familiar with AuroraPresto, you can use the index to find specific information in the Guide.
Section 1 - About the User Guide

This User Guide will help you learn to use Aurora Presto, and can be used for reference when you are more experienced. Useful features include:

- chapter summaries and a comprehensive index
- technical and safety notes
- a glossary of technical terms and abbreviations

Note
The text and illustrations in this Guide describe a typical Aurora Presto. They may not always match your specific configuration and may include features that you did not purchase.

Intended Readers

This Guide is intended for all users of Aurora Presto—normally first-line and second-line installation and maintenance personnel in telephone companies and corporate end users. We assume some telecommunications experience, but the Guide includes some background information on DSL.

How the Guide is Organised

The first two chapters of this Guide provide introductory information for new users. Later chapters provide detailed operating instructions for more experienced users, and the appendices give background information.
Aurora Presto—User Guide

Chapter Structure
Chapt. 1 Introduces Aurora Presto and the User Guide
Chapt. 2 Basic instructions to get you started.
Chapt. 3 How to set up Aurora Presto and change basic connections.
Chapt. 4 How to set up and test DSL lines using Aurora Presto to simulate DSL equipment for example, ATU-C, ATU R, GL STU R and GL STU C.
Chapt. 5 How to use Aurora Presto to Capture & Analyse DSL information.
Chapt. 6 The power sources for Aurora Presto and how to maintain them.
Chapt. 7 The technical specification of Aurora Presto, along with information to assist equipment purchasers.
Appx. 1 Diagrams to help you navigate through the menu structure.
Appx. 2 ADSL Line Status Messages.
Appx. 3 A glossary of technical terms used in this User Guide.
Index Helps you find specific information.

Conventions in the Guide

This User Guide uses a number of special symbols, typefaces and terms to show specific information.

Special Typefaces
The names of keys are displayed in bold, italic typeface—for example: ‘Press ENTER’. Menu options are shown in a different typeface—for example: ‘Choose Setup’.

Tips, Notes and Warnings
Tip Indicates useful information—for example, a short cut for the task you are performing.
Section 1 - About the User Guide

Note
Important information which you should keep in mind when performing the task being described.

Warning
A safety warning or cautionary note. If you ignore the warning, you may endanger your own safety or damage your AuroraPresto.

Special Terms
Press
Press the indicated key once.

Choose/Select
Highlight a menu option and press ENTER to select it.

Exit
Leave the current menu or option list.

Press ◀ + n
Press and hold Shift ( ) while pressing the specified key (n), then release both keys.

Highlight
Use the arrow keys to move the cursor bar over an option.

ADSL
applies specifically to Asymmetrical DSL.

G.SHDSL
applies specifically to G.SHDSL.

DSL
used to describe DSL technologies in general.

xDSL
applies to all DSL technologies supported by AuroraPresto.

ATU-C
applies to all ADSL Central Office Terminating Units.

ATU-R
applies to all ADSL Remote Terminating Units.

STU-C
applies specifically to G.SHDSL Central Office Terminating Units.
STU-R applies specifically to G.SHDSL Remote Terminating Units.

xTU-C applies to all Central Office Terminating Units.

xTU-R applies to all Remote Terminating Units.
Section 2 - Introducing **Aurora Presto**

**Aurora Presto** enables you to test DSL links on a range of different interfaces depending on which interface cards are fitted. See *About the Interface Cards* on page 1-17.

### How You Can Use Your **Aurora Presto**

Depending on the type of test you perform, you can test one or more of the following:

- ADSL equipment and lines
- G.SHDSL equipment and lines
- the route through the network via ATM (Asynchronous Transfer Mode) switches and DSL equipment
- the integrity of a link and the quality of service
- the availability and operation of DSL services
- higher protocol layers.

### The Basic Method of Testing

You can use **Aurora Presto** to simulate the operation of DTE (Data Terminal Equipment), a Modem, ATU-C DSLAM Line Card or STU C.

#### Notes

- All Bit Rates are displayed on **Aurora Presto** in ‘bits per second’.
- Auto Test Mode is available for ADSL tests only.
Supplied with Aurora Presto

Aurora Presto is supplied in a carrying case along with:

- a mains adaptor/battery charger
- cables for the interfaces fitted to Aurora Presto
cables for the interfaces fitted to Aurora Presto
- any optional cables or accessories your organisation has purchased
- this User Guide

The packing list supplied with Aurora Presto gives details of exactly what you should have received.

How Aurora Presto fits Together

Aurora Presto consists of a base unit, into this base unit up to four interface cards may be fitted.

For details, see About the Interface Cards on page 1-17.

Your Aurora Presto is fitted with the combination of interface cards that you or your organisation have chosen. If you need details about other interfaces, see Chapter 7 section 2.

Warning: Interface Cards and Modules

Do not attempt to remove an interface module from the tester unless you have been specifically authorised to do so by Agilent Technologies or your local representative.
Safety Advice

When using *AuroraPresto*, always take basic safety precautions to reduce the risk of fire, electric shock and injury to persons. These include the following:

- When connecting to the line, especially when using crocodile clips, special care must be taken as high voltages may be present on the line and there may be a danger of electrocution. Extra care should be taken especially when using *AuroraPresto* in TDR/DMM mode.

- Avoid using the tester during an electrical storm—there is a remote risk of electric shock by lightning.

- Use only the batteries supplied for the unit. These are described in Chapter 6 and in the power source specifications in Chapter 7 section 1.

- Do not dispose of batteries in a fire—they may explode.

- Disconnect all interface cables before removing the battery cover.

- Never remove the rear of the case while *AuroraPresto* is switched on or connected to the network.

- Use only the charger/adaptor supplied with your *AuroraPresto*.

You must also observe all safety warnings related to the power supply. These are set out in Chapter 6.
Looking after **AuroraPresto**

Although light and portable, **AuroraPresto** is very robust and has been designed to operate in a typical outdoors working environment.

To ensure reliable operation, avoid:

- very high or low temperatures—**AuroraPresto** is designed to operate between 0°C and +50°C, although you should only charge the battery between +10°C and +30°C. You can store the unit safely between -25°C and +70°C.
- very wet conditions—**AuroraPresto** is weather-resistant but not waterproof. You can use it in light rain when held vertically, but you should never immerse the unit in water.

To avoid damage, we recommend that you keep **AuroraPresto** in its carrying case when you are not using it.

**Warning: Cleaning AuroraPresto**

Do not use solvents, strong detergents or abrasive materials to clean **AuroraPresto**. Use only cleaning agents approved for use on ABS and polycarbonate plastics.
Section 2 - Introducing AuroraPresto

A Look at AuroraPresto

The main features of AuroraPresto are identified below.

For details on the interface connectors, see The interface connectors panel on page 1-18.
Summary of the Main Features

External power supply/Battery charger

The connector used to supply power from an external source. The quick charge time takes approximately 1 hour.

Belt hook

You use this to carry AuroraPresto or hang it up for hands-free operation. It can be easily removed and replaced.

Water-resistant covers

These protect the serial port and external power supply/battery charger connectors.

Serial port connector

The connector for AuroraPresto’s RS232 serial port, which links to a terminal, printer, PC or VDU for output of protocol decodes and test results.

LEDs

Six Light Emitting Diodes, giving instant information on line status, BERT errors and battery condition.

Battery pack cover

Covers the battery fittings and the bolt which holds the belt hook in place.

Keypad

Alphanumeric keypad including digits 0-9, *, and # keys, function keys and Shift functions.

Interface connectors

Connectors for the interfaces fitted on your AuroraPresto.

LCD

An 8 x 22 character Liquid Crystal Display which shows all AuroraPresto’s menus, windows, test results and status information.
The Keypad

- **On/Off key**: Press and hold for 1-2 seconds to switch **Aurora** Presto on or off.

- **Function keys**: These activate particular functions, depending on the task you are currently performing, as displayed on the LCD.

- **Number keys**: Used for entering numeric information. Some number keys also combine with **Shift** ( ) to perform other tasks, as described later in this section.

- **Arrow keys**: You use these keys to move the cursor. To move one step, press and release an arrow. To move several steps in the same direction, hold down the arrow.

- **Enter**: Press this key to choose a highlighted menu item or setting, or to start an operation.

- **Esc**: Use this key to exit from menus and windows.

- **Shift**: You can combine with other keys to perform specific tasks. For details, see **Using the Shift key** on page 1-13.

- **Channel**: Not used.

- **Window**: When there is more than one window displayed, you use this key to switch between them.

**Using the Shift key**

The **SHIFT** ( ) key provides a quick and easy way to carry out common tasks. It works in the same way as the Shift key on a PC—you combine it with number keys to perform specific operations.
For each number key with a shifted function, the additional task is denoted by a yellow symbol. For example:

This means you can adjust the screen contrast by pressing Shift + 1.

The different combinations you can use are:

- + Adjusts the screen contrast.
- + Switches the screen backlight on and off.
- + Adjusts the volume of the loudspeaker.
- + Displays context-sensitive Help.
- + Shows the current configuration of your AuroraPresto.
- + Not used.
- + Moves up one page on a menu.
- + Highlights the first item on a menu.
- + Moves down one page on a menu.
- + Highlights the last item on a menu.
Section 2 - Introducing Aurora Presto

Understanding the LEDs

Aurora Presto has six Light Emitting Diodes (LEDs), which allow you to make quick checks on the status of the line.

- **BAT** ~ Shows the condition of the battery
- **BERT** ~ Indicates BERT synchronisation
- **EXT** ~ (Indicates External Data Port Activity)
- **DSL Activity** ~ (see LED Information Table)
- **DSL ALARM** ~ (see LED Information Table)
- **DSL SYNC** ~ (Indicates DSL synchronisation)
### LED Information

<table>
<thead>
<tr>
<th>Display</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BAT</strong></td>
<td><strong>BATTERY STATUS LED</strong></td>
</tr>
<tr>
<td>Off</td>
<td>Battery fully charged.</td>
</tr>
<tr>
<td>Steady red</td>
<td>Battery low.</td>
</tr>
<tr>
<td>Steady green</td>
<td>Battery being charged.</td>
</tr>
<tr>
<td><strong>BERT</strong></td>
<td><strong>BERT SYNCHRONISATION</strong></td>
</tr>
<tr>
<td>Red</td>
<td>BERT error.</td>
</tr>
<tr>
<td>Flashing Red</td>
<td>BERT is not synchronised.</td>
</tr>
<tr>
<td>Off</td>
<td>No BERT activity or no errors.</td>
</tr>
<tr>
<td><strong>EXT</strong></td>
<td><strong>EXTERNAL DATA PORT ACTIVITY</strong></td>
</tr>
<tr>
<td>Off</td>
<td>No data port activity.</td>
</tr>
<tr>
<td>Green</td>
<td>Transmit or Receive data port activity.</td>
</tr>
<tr>
<td><strong>DSL</strong></td>
<td><strong>DSL LINK ACTIVITY</strong></td>
</tr>
<tr>
<td>Green</td>
<td>Line receiving data.</td>
</tr>
<tr>
<td>Red</td>
<td>Line transmitting data.</td>
</tr>
<tr>
<td><strong>ALARM</strong></td>
<td><strong>ERRORS AT DSL LAYER</strong></td>
</tr>
<tr>
<td>Off</td>
<td>No alarms.</td>
</tr>
<tr>
<td>Red</td>
<td>DSL alarm conditions present.</td>
</tr>
<tr>
<td><strong>SYNC</strong></td>
<td><strong>DSL LINE SYNC/TRAINING</strong></td>
</tr>
<tr>
<td>Flashing green</td>
<td>Seeking/Training in progress.</td>
</tr>
<tr>
<td>Green</td>
<td>DSL layer synchronised.</td>
</tr>
</tbody>
</table>

**Note**

During start up, or when the DSL card is being initialised, ‘Initing’ is displayed in the top right hand corner of the screen and the DSL LED flashes green.
About the Interface Cards

*AuroraPresto* is fitted with one or more optional interface cards.

Your *AuroraPresto* comes ready fitted with the interface cards that your organisation has chosen. For details about the interfaces see Chapter 7 section 2, or contact your Agilent Technologies representative.

At present, the following interface cards and modules are available:

- G.SHDSL Interface (STU-R and STU-C)
- ADSL Interface over POTS (ATU-R and ATU-C)
- ADSL Interface over ISDN (ATU-R)
- ATM 25 (ATMF 25.6) Interface
- TDR/DMM

**Note**

*AuroraPresto* Ethernet 10BaseT Interface—this interface is included on the main CPU card and is used for Ping generation and IP Load generation. This port is also used for uploading and downloading configuration files and user data.
The interface connectors panel

The diagram below shows a typical AuroraPresto connectors panel. It may not exactly match the interfaces fitted on your particular tester, or the way they are arranged.

Warning: Interface cards and modules

Do not remove an interface card or module unless you have been specifically authorised by Agilent Technologies to do so.

Connector safety

The connectors on AuroraPresto conform to EN60950 safety status classifications as shown in the following table.

Connection with other equipment should be made such that the equipment continues to comply with clause 2.3 of EN60950 for SELV circuits, and with the requirements of clause 6 for TNV circuits after a connection is made.
The following cables are available for use with the basic tester:

- 2m RS232 cable with 8-pin mini-Din at tester and 9-pin D socket at remote end, wired for direct connection to a PC communications port.
- 9-pin to 25-pin D type converter (optional).
- mains battery charger/eliminator appropriate to the country of use.

For ADSL line interface
- RJ11 to RJ11 (straight)
- RJ11 to RJ11 (crossover)

For G.SHDSL Line Interface
- RJ45 to RJ11 (straight)
- RJ45 to RJ45 (straight)
For Ethernet or ATMF-25.6 Interface

- RJ45 to RJ45 (straight, Ethernet/ATM 25)
- RJ45 to RJ45 (crossover, Ethernet)
- RJ45 to RJ45 (crossover, ATM - optional)
- Other cables are supplied on request as optional accessories.
Chapter 2

Getting Started

Contents

Section 1—Preparing to Use Aurora Presto. 2-3
Section 2—Using the Menus and Windows.. 2-11
Section 3—Basic Operations......................... 2-15
Getting Started

This chapter gets you started by describing the basic tasks you will need to perform frequently as you use your Aurora Presto.

Warning: Safety advice
Before you start: remember the safety and care advice set out in Chapter 1.

Chapter Summary

To allow you to find information more easily, this chapter is divided into the following sections:

Section 1 Preparing to Use Aurora Presto on page 2-3.

Section 2 Using the Menus and Windows on page 2-11.

Section 3 Basic Operations on page 2-15.

The information is mainly intended for beginners, although it covers operations that you will perform frequently whatever your level of experience.

Tip
We recommend that if you are a new user that you read through this chapter carefully and practise the different tasks it describes.
Section 1 - Preparing to Use AuroraPresto

This section covers information you need to know before you start using AuroraPresto. It includes details about:

- connecting AuroraPresto and switching it on
- how to change the screen contrast and lighting

Before you start, you need to connect AuroraPresto to an external power source if you require one (this is usually the mains electricity supply). Then you need to connect to the interfaces on which you intend to test.

Tip
You will find more information about the power sources in Chapter 6. For details of the required voltage/frequency, see the power supply specifications in Power supplies on page 7-4.

Connecting to an External Power Source

-1- Plug AuroraPresto's power supply unit into a nearby power socket which is easily accessible.

-2- Fit the power supply's connector into the external power supply socket on AuroraPresto, as shown below.

-3- Switch on the external power source.
Connecting to the Interfaces

Warning: Connecting to the line
Remember that high voltages may be present on telecommunication lines.

AuroraPresto's interface connectors are located on the base of the unit. For information about the connectors and details of their corresponding cables see The interface connectors panel on page 1-18.

To connect AuroraPresto to an interface
-1- Plug the interface cable into the appropriate connector on AuroraPresto.
-2- Connect the other end of the cable to the equipment you want to test.

xDSL Connections
The following diagrams show all the points, on the xDSL 2-wire connections, where you can connect and test using AuroraPresto. See Testing with AuroraPresto on page 4-1 for more information.

Key
- xTU-C: xDSL Terminating Unit (Central Office)
- xTU-R: xDSL Terminating Unit (Remote)
- DTE: Data Terminal Equipment
- DSLAM: Digital Subscriber Loop Access Multiplexer
- ISP: Internet Service Provider
- RAS: Remote Access Server
Section 1 - Preparing to Use *AuroraPresto*

**Data Port Connections**

**Ethernet**

*AuroraPresto* is fitted with a standard Ethernet (10BT) port.

You can use the Ethernet port for:

- connecting to and simulating DTE.
- operating in Golden Modem Mode
- downloading software.

![10BT Modem](image1)

**ATMF25.6**

*AuroraPresto* is fitted with a standard ATMF25.6 (ATM25) port.

You can use the ATM25 port for:

- connecting to and simulating DTE.
- operating in Golden Modem Mode.

![ATM25 Modem](image2)
Connecting to a PC, Printer or another AuroraPresto

You can connect your AuroraPresto to:

- a PC to send test results to a PC file for analysis using the serial port.
- a printer to print out test results using the serial port. See Sending the Capture to a Printer or PC on page 5-6.
- a PC to download new software or firmware using the Ethernet port. See Installing AuroraExchange on the PC on page 3-42.

**Note**
The serial ports on both devices must be set up in the same way. For details on how to change the configuration of AuroraPresto's serial port, see Configuring the Serial Port on page 3-8.

**-1-** Use the RS232 cable to connect AuroraPresto's serial port to the serial port on the PC or printer.

**Tip**
To check the current setup of AuroraPresto's serial port, press $+$ 5 to display the Status screen. See Checking the Current Setup of AuroraPresto on page 3-41.
Switching Aurora Presto On and Off

Press the key and hold it down for 1-2 seconds.

When you switch off, Aurora Presto stores the current system settings.

The Welcome Screen

When you switch on Aurora Presto, a Welcome screen is displayed briefly.

The Select Test Mode menu is displayed after the Welcome screen. From the Select Test Mode menu you can select an interface, access the setup menus or begin testing. For more details about the Select Test Mode menu, see The Select Test Mode Menu on page 2-11.

Changing the Appearance of the Screen

You can make the display easier to read in different lighting conditions by changing the contrast or switching the backlight on and off.

Changing the Contrast

-1- Press and hold + 1. Aurora Presto displays a bar graph indicating the current contrast.

-2- Change the contrast to the level you require. To increase or decrease by one step, press ↑ or ↓. To increase or decrease by 10 steps, press ▲ or ▼.

-3- To choose the currently displayed contrast and close the adjustment window, press ENTER.
Tip
If you have made the screen slightly too dark or too light, you can reverse the direction of the contrast change by repeating the above steps.

Switching the Backlight On and Off

-1- Press + 2.

Note
When AuroraPresto is using battery power, the backlight switches off after a set time if no keys have been pressed. You can change the length of time that passes before the backlight goes off—see Changing the Basic Configuration on page 3-7.

Removing & Replacing the Belt Hook

AuroraPresto has a removable belt hook, attached to the battery pack cover at the back of the unit. You can use the hook to carry the unit or to hang it up for hands-free operation.

Removing the belt hook

Warning
Disconnect all cables before removing the battery cover.

-1- Remove the battery pack cover. To do this:

- Loosen the screw by turning it anticlockwise using a coin or screwdriver.

- When the screw is released, it pops up. Slide the cover upwards to remove.
Section 1 - Preparing to Use Aurora Presto

-2- Turn the cover over to show the belt hook release mechanism. The hook is held in place by a small bolt.

-3- Remove the bolt from its holder. To do this:
   - Release the bolt by pushing it upwards.
   - Slide the bolt out of its holder.

-4- Remove the belt hook from the top of the cover.

-5- Replace the bolt in its holder by sliding it back in and pushing down to secure it in place.

**Warning: Belt hook bolt**
Always keep the bolt in its holder. If you lose it you will not be able to replace the belt hook, and the case will not be water-resistant.

-6- Replace the battery pack cover:
   - Slide the cover back down into place.
   - Push the screw down and turn it clockwise to tighten.

**Warning: Tightening the screw**
Make sure the screw is tight enough to avoid the cover coming off when you try to hang up Aurora Presto from its belt hook.
Replacing the belt hook

-1- Remove the battery pack cover and take out the bolt from the belt hook release mechanism, as described in Removing the belt hook on page 2-8.

-2- Replace the hook by placing it in the socket at the top of the battery pack cover with the opening pointing towards the back of the unit. Line up the bolt holes in the hook with the holes in the cover.

-3- Replace the bolt in its holder and secure it by pushing down.

-4- Replace the cover as described in Removing the belt hook on page 2-8.
Section 2 - Using the Menus and Windows

**AuroraPresto**'s functions are accessed via menus and sub-menus. The choices on a menu depend on the task you are performing and the interface you have selected. A typical menu is shown below:

When you select some menu items (usually from the **Setup** sub-menus) **AuroraPresto** displays an ‘option window’. This is a pop-up box listing the settings or values you can choose for the item you have selected. For example:

The **Select Test Mode Menu**

The **Select Test Mode** menu leads to all **AuroraPresto**'s sub-menus and options, from which you can select an interface, access the setup menus and begin testing.
Note
Auto Test Mode is not available in all software releases. Contact your Agilent Technologies representative for details.

How to Display the Select Test Mode Menu
To return to the Select Test Mode press ESC, to exit from each option list and sub-menu in turn. See Exiting from a Menu or Option Window on page 2-13.

Moving Through the Items in a Menu
Use the arrow keys to move the cursor up and down through the menu items, one at a time.

A scroll bar (▲ and ▼) displayed to the left of a menu means that there are more options than can fit on a single screen. When a scroll bar is displayed, you can use the following keys to move through the items more quickly:

- to highlight the first item in the menu, press 4 + ▼
- to highlight the last item, press 4 + ▲
- to move up one page, press 4 + ▲
- to move down one page, press 4 + ▼.

Selecting a Menu Item

-1- Move the cursor through the menu items until the one you require is highlighted.
-2- Press ENTER to select the highlighted item.

Depending on what you have selected, AuroraPresto does one of the following:

- performs the task you have selected
- displays a sub-menu related to the selected item
- displays an option window for you to choose a setting or value for the item you have selected.
Section 2 - Using the Menus and Windows

Using the Function Keys

AuroraPresto has four function keys, labelled \textit{F1} to \textit{F4}. They enable you to carry out common tasks related to the operation you are currently performing.

At any time when you can perform a task using a function key, AuroraPresto shows the task name in abbreviated form at the foot of the screen, just above the key. For example:

\begin{itemize}
  \item For this task, you can press \textit{F1} to delete a character
\end{itemize}

\textbf{Note}

This Guide always refers to a function key by its key and its name as it is shown on screen. For example, ‘Press \textit{F1 Del}’.

Exiting from a Menu or Option Window

In all menus and sub-menus, when you press \textit{ENTER} to select a menu item AuroraPresto automatically displays the sub-menu or screen appropriate to the item you have chosen. To return to the previous level without selecting a menu item, press \textit{ESC}.

In an option window, when you press \textit{ENTER} to select a value or setting AuroraPresto automatically closes the window. To close the window without changing the setting, press \textit{ESC}. 
Switching Between Windows

For some menus and functions, AuroraPresto displays more than one window at a time. For example when you are entering a Session Name, an entry window is displayed.

Only one of the windows is active at a time. The active window is indicated by a ‘shadow’ effect—for example:

To change the active window:

-1- Press the key.

The ‘shadow’ switches to the window that is now active.
Basic Operations

This section is intended for beginners, and explains some simple operations that you are likely to perform frequently while using your AuroraPresto. You will learn how to:

- adjust the volume of the loudspeaker
- select an interface for testing
- choose the operating mode
- enter alphanumeric information (e.g. names to identify stored test results).

Adjusting the Volume

To switch the loudspeaker on or off, press the key located on the right-hand side above the screen. The default is on.

Note
When you switch the loudspeaker on, the last entered volume setting is used.

You can change the volume of the loudspeaker.

To adjust the volume:

-1- Press + 3. AuroraPresto displays a bar graph indicating the current volume.

-2- Change the volume to the level you require. To increase by one step, press ▼ or ▲. To decrease by one step, press ◁ or ▼.
Tips

- To increase or decrease by several steps in succession, hold down the arrow key.
- To choose the currently displayed level and close the adjustment window, press ENTER.

Displaying Interface Cards or Modules

- From the Agilent Technologies logo screen press F1 Config or from the Select Test Mode screen press ESC to display the Hardware screen. The interface cards fitted in your AuroraPresto are displayed.

Entering Alphanumeric Information

When performing certain tasks, you need to enter a string of alphanumeric characters. For example, when entering a Hot key number you assign a name to identify a profile. Each time you choose or are required to enter an alphanumeric name, the following window opens:

Note

The active window is the one in which the shadow appears. In the above example the selection window is active, as can be seen by the shadow and one of its letters (a) being highlighted. To switch between windows, press $+$ as normal.
Adding or Deleting Characters

-1- In the selection window, highlight each character you require and press ENTER to add it to the edit window in the cursor’s current position. You can add a space by pressing F3 Space.

Tips:
- To enter numbers, use the keypad.
- In the selection window, to ‘wrap’ the cursor round to the first or last character, press ▶ or ◄.
- You can add a new character at any point in the string by switching to the edit window and moving the cursor.
- In the edit window, to move quickly from the last character to the first, press 3 + ◄ (Home). To move from the first to the last character, press 6 + ▶ (End).

To delete a single character:

-1- In the edit window, move the cursor under the character and press F1 Del.

Tip
You can delete the last character in the string or the character over the cursor without leaving the selection window, by pressing F1 Del.

To delete the entire string:

-1- Press F2 Clear.
This works when either window is active.

Saving the String and Exiting

-1- Press F4 OK.
Chapter 3

Setting up Aurora Presto

Contents

Setting up Aurora Presto Using Hot Keys ..........3-2
Changing the Basic Configuration ....................3-7
General Settings (System Setup) ......................3-31
Checking the Current Setup of Aurora Presto .3-41
Installing New Software on Aurora Presto .......3-42
Setting up **AuroraPresto**

When you are comfortable using **AuroraPresto** and familiar with the basic operations described in Chapter 2, you can begin to set up and use its testing features.

The information is useful for:

- beginners, who will learn about the different settings and can use the step-by-step instructions as a tutorial
- more experienced users, who can consult the chapter for reference on specific settings.

This Chapter describes how to set up the way in which **AuroraPresto** operates. It explains how to:

- set up **AuroraPresto** to test on DSL
- change general settings such as the display language
- configure the serial port
- configure **AuroraPresto** with default settings
- download new software

**Note**

For Bit Error Rate Test (BERT) settings see Chapter 4.

When you first use **AuroraPresto** it may be set up with default values or with settings downloaded from a PC.

**Tip**

To check the current setup, press 3 + 5. For details see **Checking the Current Setup of AuroraPresto** on page 3-41.

---

**Setting up AuroraPresto Using Hot Keys**

**AuroraPresto** has 20 Hot Keys which enable you to configure the unit quickly without having to redefine each individual setting. You can customise the Hot Keys to suit your requirements.
How the Hot Keys work

Each of the most commonly used combinations of settings can be assigned to the Hot Keys. When you want to set up AuroraPresto in a particular way, you simply select the key to which the settings are assigned.

For example, the first 4 Preconfigured Hot Keys, could be set as follows:

- 1 Alcatel ATU-R(P) (ADSL over POTS operation).
- 2 Alcatel ATU-C(P) (ADSL over POTS operation).
- 3 ADI ATU-R(I) (ADSL over ISDN operation).
- 4 ADI ATU-R(P) (ADSL over POTS operation).

You can use the Hot Key options to:

- retrieve preset configurations or profiles
- retrieve custom configurations or profiles
- save the current configuration as a Named item in the profile list
- delete any unwanted custom profiles for the profile list
- set up automatic test operations to omit specified tests.

Setting up the Hot Keys

You can set up each Hot Key to hold any user defined setting, excluding real-time settings: clock, statistics and results.

- In the Select Test Mode menu, press F3 Hot to display the Hot Keys Menu.
AuroraPresto—User Guide

STO  Use this to save and store the current configuration and setting(s) to the selected Hot Key Number.

NAME  Use this to enter a name for the Hot Key Number you have selected.

DEL  Use this to delete the selected Hot Key’s Name, current configuration and settings.

Note
When you press F3 DEL, AuroraPresto deletes the Hot Key without a warning.

Naming a Hot Key
Use this to enter a name for the Hot Key you have selected.

Notes
When you assign a name to a Hot Key, AuroraPresto records that the Hot Key has a name assigned to it. The name is not stored. Therefore you can assign a currently-used Hot Key name to a different Hot Key number.

You cannot edit a named Hot Key. AuroraPresto displays the following screen if you have selected a named Hot Key.

See Deleting a Hot Key on page 3-6 to delete the Hot Key.

1- Use the UP and DOWN keys to select the Hot Key you want to name.
Setting up AuroraPresto

-2- Press F2 NAME to select the Hot Key number. A screen similar to the following is displayed.

-3- Press ENTER to enter the Hot Key Name.

For details on how to enter a name Entering Alphanumeric Information on page 2-16.

-4- Press F4 OK to accept the name entry and return to the Hot Keys screen. The Hot Key name you have entered is displayed.

Storing a Hot Key

Note
You must name the Hot Key before you can store it.

-1- Use the UP and DOWN keys to select the Hot Key you want to use to store the current configuration.

-2- Press F1 STO to select the Hot Key number. A screen similar to the following is displayed briefly.
Deleting a Hot Key

-1- Use the UP and DOWN keys to select the Hot Key you want to delete.

-2- Press F3 DEL.

**Note**
When you press F3 DEL, AuroraPresto deletes the Hot Key without a warning.

Loading a Hot Key
Use this function if you want AuroraPresto to use a Hot Key profile for testing.

-1- From the Hot Keys menu use the UP and DOWN keys to select the Hot Key you want to load and press ENTER.

OR
use the keypad to enter the Hot Key number. For example, to load Hot Key 15, press 1 followed by 5 and press ENTER.

If the Hot Key has been loaded successfully, the following screen is displayed briefly followed by the Welcome screen.

To exit without loading a Hot Key press ESC.

**Tip**
Press 3 + 5 to display the current settings.
Changing the Basic Configuration

You can change some of the basic operational settings of your *AuroraPresto* - for example, the Serial Port settings. Once you have defined these settings you will probably not need to change them often.

- From the Select Test Mode menu, press *F4 Setup* to display the Main Setup screen:

- Select the option you want to set up and press *ENTER* to display the Setup screen for the selected option.

**Notes**

- You can access the Setup menus from the Status screen. Press *+ 5* to display the Status screen from any Setup menu. See *Checking the Current Setup of AuroraPresto* on page 3-41.

- You can also access the relevant Setup menus from the Test screens. Press *F4 Setup*.

**System**

Use to set up *AuroraPresto*'s General settings for example, LCD backlight Language, Time and Date. See *General Settings (System Setup)* on page 3-31.

**Serial Comms**

Use to set up the RS 232 port settings.

**Data Port**

Use to set up the data ports, Ethernet or 10Base T. See *Setting up the Data Port* on page 4-73.

**Modem**

Use to set up the Modem type and settings.
Aurora

ATM
Use to set up VPIs (Virtual Path Identifiers) and VCIs (Virtual Channel Identifiers). See Setting up VPIs (Virtual Path Identifiers) and VCIs (Virtual Channel Identifiers) on page 4-52.

BERT
Use to set up the BERT settings. See Setting up an ATM BERT on page 4-59.

Ping
Use to set up the Ping network mode, Destination address and Ping settings. See Setting up the IP Ping Test on page 4-86.

Trace Route
Use to set up Dst (Destination IP Address), Max TTL (Time to Live) and Timeout.

IP
Use to set up the IP Options.

PPP
Use to set up PPP Type, Authentication Method, Password, User and Tracer.

Configuring the Serial Port
Aurora

Aurora

Presto has a two-way, high speed RS232 serial port, which is used to connect the tester to another device such as a PC or printer. For example, you would connect to a PC to transfer results. See Chapter 5 for information on sending and receiving data using a PC.

To configure the serial port:

1. From the Main Setup menu, select Serial Comms to display the Serial Setup screen.
AuroraPresto’s RS232 port can be used:

- to print test results
- to output results of a BERT as it is performed
- to print information from a test that has been saved to AuroraPresto’s memory.

**Setting the baud rate**

The **baud rate** is the rate at which data is transmitted over the serial port.

To set the baud rate:

1. Select **Baud rate** from the **Serial Setup** menu to display a list of possible rates, in kilobits per second:

   ![Baud Rate Menu]

2. Highlight your choice and press **ENTER**.

**Setting the character length of serial port data**

You need to specify a character length of either 7 or 8 bits for the serial port data, depending on the device to which you intend to connect your AuroraPresto.

**Note**

This setting must be the same on both AuroraPresto and the connected device.

1. Select **Data bits** from the **Serial Setup** menu.

   ![Data Bits Menu]

2. Choose either **7** or **8** and press **ENTER**.
Setting the parity configuration

You need to set the parity configuration of AuroraPresto's serial port to suit the device to which it is connected.

**Note**

This setting must be the same on both AuroraPresto and the connected device.

1. Select **Parity** from the **Serial Setup** menu.

2. Highlight the option you require and press **ENTER**.

The options are:

<table>
<thead>
<tr>
<th>Parity Bit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Do not use Parity.</td>
</tr>
<tr>
<td>Odd</td>
<td>Use odd Parity.</td>
</tr>
<tr>
<td>Even</td>
<td>Use even Parity.</td>
</tr>
</tbody>
</table>

Including stop bits

Stop bits are the last bits sent in asynchronous transmission, to indicate that the message is complete. You can transmit either 1 or 2 stop bits, to suit the device to which it is connected.

**Note**

This setting must be the same on both AuroraPresto and the connected device.
Setting up **AuroraPresto**

1. Select **Stop bits** from the **Serial Setup** menu to display an option window:

   ![Stop bits menu](image)

2. Choose either 1 or 2 and press **ENTER**.

**Using XON/XOFF flow control**

XON/XOFF is a protocol which controls asynchronous flow between **AuroraPresto** and the device to which it is connected. It allows the other device to stop and restart the flow of data it is receiving from **AuroraPresto**.

1. Select **XON/XOFF** from the **Comms/Tracer** menu to display the options:

   ![XON/XOFF menu](image)

2. Choose either On or Off and press **ENTER**.

**Note**

It is usually best to set XON/XOFF to On, on both **AuroraPresto** and the connected device.

**Setting up the Modem for ADSL Tests**

Before you can perform Tests you must select the Modem Type and set up the modem Options. See **Displaying Interface Cards or Modules** on page 2-16 for information.

1. From the **Main Setup Menu** select **Modem** and press **ENTER** to display the **Modem Setup** screen.

   ![Modem setup menu](image)
-2- Select **Type** and press **ENTER** to display the following screen.

![Type Interface Card Selection](image)

**Type**

This displays the interface cards that are fitted to your **Aurora Presto**. For example, for ADSL tests, choose **ADI ATU-R(I)**, **ADI ATU-R(P)**, **AL ATU-R(I)**, **AL ATU-R(P)**, **AL ATU-C(P)** or **TI ATU-R(I)** and for **G.SHDSL tests**, choose **GL STU R** or **G STU C**.

**Mode**

This enables you to select the available modes. Choose **GLITE**, **AUTO Fast** or **AUTO Intlv** for ADSL tests and **Auto**, **Annex A** or **Annex B** for G.SHDSL tests depending on the modem. If you choose **Auto**, **Aurora Presto** automatically chooses the correct regional setting.

**Training**

Use to set the modem training to Automatic or Manual.

**Up Nm/Attn** (ADI ATU-R only)

Use to enable or disable the Upstream Noise Margin and Attenuation parameters.

**Dn Nm/Attn** (ADI ATU-R only)

Use to enable or disable the Downstream Noise Margin and Attenuation parameters.

**Note**

Some DSLAMs do not support Noise Margin and Attenuation parameters.

- For accurate results, you must choose enable for ADI based DSLAMs that support Noise Margin and Attenuation parameters.
- For accurate results, you must choose disable for DSLAMs that do not support Noise Margin and Attenuation parameters.
Setting up Aurora Presto

**Upstream and Downstream Parameters (ATU-C only)**

The following options are only available if an ATU-C interface is fitted to your Aurora Presto and you have selected ATU-C mode.

- **Max Add NM dB**—Enter the Maximum Noise Margin above the Target Noise Margin for the modem to stay in steady state.
- **Min NM dB**—Enter the Minimum Noise Margin below the Target Noise Margin for the modem to stay in steady state.
- **Target NM dB**—Enter the Noise Margin that you want the modem to achieve to activate successfully.

Enter a value between 0 and 9000 kbps, in 32 kbps increments, for the following options:

- **Min FBR kbps**—Minimum Fast Bit Rate.
- **Max FBR kbps**—Maximum Fast Bit Rate.
- **Min IBR kbps**—Minimum Interleaved Bit Rate.
- **Max IBR kbps**—Maximum Interleaved Bit Rate.

**Downstream only**

- **Max PSD**—Maximum Power Spectral Density. The maximum ATU-C downstream power.

**Tracer**

Enables you to choose to display or not to display ADSL, PPP and G.SHDSL messages.

Choose **Tracer None** to disable ALL the Tracer options.

Choose **Tracer ALL** to enable ALL the Tracer options.

The default is **Off**.

Choose **Trace DSL** to trace DSL events.

Choose **Trace DSL Alms** to trace DSL Alarms (G.SHDSL only).

Choose **Trace EOC** to trace EOC events (G.SHDSL only).

Choose **Trace PPP** to trace PPP events.

**Parameters (G.SHDSL only)**

This option is only available if you have a G.SHDSL interface card fitted and you have selected **GL STU R** or **G STU C** in the **Type** option. See **G.SHDSL Tests** on page 4-42 for details on setting up G.SHDSL tests.
Thresholds (G.SHDSL only)

This option is only available if you have a G.SHDSL interface card fitted and you have selected GL STU R or GS T UC in the Type option. Use to set up the SNR (Signal-to-Noise Ratio). Use to set up the low Signal-to-Noise Ratio threshold. If the Signal-to-Noise Ratio falls below the level set then a DSL Trace Alarm will be activated.

Setting up the Trace Route Options

Your Aurora Presto may not have the Trace Route option. For details contact your Agilent Technologies representative.

1. From the Select Test Mode screen press F4 Setup to display the Main Setup screen.
2. Select Trace Route.
3. Press ENTER. The Trace Route Setup screen is displayed.

Src
This displays the Default Gateway from the WAN setup. You can accept this or enter the Source IP address.

Dst
Use this to enter the Destination IP address.

Msk
This displays the Mask IP Address from the WAN setup. You can accept this or enter the Mask IP address.
Max TTL  Maximum Time to Live. Use this to set up the maximum TTL value. Enter a value between 1 and 75.
Time to Live, sometimes known as hop count, is a value that is set by the device that sends the Ping message.
The value is decremented by each IP network router device that the message passes through. When the value = 0 the IP packet is deleted from the network. This prevents un-routed packets remaining in the network any longer than necessary.

Timeout (ms)  Use this to set up the time to wait for a response from a specified router before terminating the test. Enter a value between 500 and 5000ms.

Setting up the IP Options
The IP (Internet Protocol) Address is an address allocated to a specific internet location. ADSL uses the IP address to send data to, or receive data from a specific internet location.

-1- From the Select Test Mode screen press F4 Setup to display the Main Setup screen.
-2- Select IP.
-3- Press ENTER.
The IP Setup screen is displayed.

Mode  Choose Bridged, Routed or PPP. If your Aurora Presto does not have the PPP Option, Mode is always set to Bridged.
The following options are displayed according to how the mode option is set up.

- **Port**
  Use to set up the port over which the routed protocol (or PPP) applies.

- **LAN Address**
  Enter the IP Address that *Aurora Presto* will use on the LAN.

- **WAN Address**
  Enter the IP Address that *Aurora Presto* will use on the WAN.

- **Framing**
  Use to set up the IP (Internet Protocol) Frame type, Ethernet encapsulation method, IP operation mode and IP Header compression.

- **NAT**
  Use to set up the Network Address Translation settings.

- **DHCP**
  Use to set up the Dynamic Host Configuration Protocol settings.

### Setting up the IP Mode

1. From the **IP Setup** screen press **ENTER**.
   The following screen is displayed.

   ![Screen Image]

2. Choose **Bridged** Mode for Layer 2 operation.
   Choose **Routed** Mode for Layer 3 operation.
   Choose **PPP** when *Aurora Presto* is operating as a PPP generator.

3. Press **ENTER** to accept the settings.

4. Press **ESC** to exit the **IP Setup** screen.
Note

If your AuroraPresto does not have the PPP Option, the Protocol Setup is always set to Bridged.

Setting up the IP Port
This option is only available if you have set the IP Mode to Routed or PPP.

-1- Select Port from the IP Setup menu.
   A screen similar to the following is displayed.

![IP Port Setup Screen](image)

The default is None, you must select a port.

-2- Choose 10BT if you are using an Ethernet connection.
    Choose a VC if you are using an ADSL connection.

-3- Press ENTER to save the changes.

-4- Press ESC to exit the IP Setup screen.

Setting up the LAN Address
This option is used to set up AuroraPresto's address on the LAN (Ethernet) side of the network.

This option is only available if you have set up the IP Mode to Routed.

-1- Select LAN Address from the IP Setup screen and press ENTER to display the LAN Address screen.

![LAN Address Screen](image)

Adr

Use this to set up the Address that AuroraPresto will use on the LAN (Local Area Network).
Aurora Presto—User Guide

**DGW**
This displays the Default Gateway from the WAN setup.

**Msk**
Use to enter the LAN IP Mask. The IP Mask separates the network address from the host address.

**DNS**
This displays the Domain Name Server IP address from the WAN setup.

**Entering the Source IP address, Mask IP address**

1. Select **Adr** or **Msk** from the **LAN Address** screen. A screen similar to the following is displayed.

2. Enter the required value.
   The dot is entered automatically. You can enter a new number or accept the current setting.

3. Press **ENTER**.

   **Note**
   The above options consist of 4 groups of 3 digits divided by a dot. The maximum number you can enter in each group is 255.

4. Press **F4 Setup** to return to the **Main Setup** screen.

   **Note**
   The above options consist of 4 groups of 3 digits. The maximum number you can enter in each group is 255.

**Setting up the WAN Address**
This option is used to set up Aurora Presto’s address on the WAN (ADSL) side of the network.

This option is only available if you have set up the **IP Mode** to **Routed**.
Setting up Aurora Presto

-1- Select **WAN Address** from the **IP Setup** screen to display the **WAN Address** screen.

![WAN Address Screen]

**Origin**
Use this to choose the origin between a fixed IP Address (**Specify**) and a network assigned IP Address (**IPCP**).

**Adr**
Use this to set up the Address that Aurora Presto will use on the WAN (Wide Area Network).

**DGW**
Use this to enter the Default Gateway IP Address.

**Msk**
Use to enter the WAN IP Mask. The IP Mask separates the network address from the host address.

**DNS**
Use this to set up the Domain Name Server.

**Note**
**Origin** must be set to **Specify** before you can enter a **Src** (Source IP Address).

**Note**
The above options consist of 4 groups of 3 digits divided by a dot. The maximum number you can enter in each group is 255.

**Setting up the WAN IP Address Origin**
The IPCP (Internet Protocol Control Protocol) is responsible for configuring, enabling and disabling both ends of the Point-to-Point link. It is used to enable an IP address to be allocated to Aurora Presto from the network.

Use this to choose the origin between a fixed IP Address (**Specify**) and a network assigned IP Address (**IPCP**).
**Notes**

The IP address allocated using IPCP, is set to zero at the end of a PPP session.

-1- From the **WAN Address** screen select **Origin** and press **ENTER**.

A screen similar to the following is displayed.

```
+--------------------+
|        AL-CP        |
|        108T         |
+--------------------+
```

-2- Choose **Specify** to select a Source IP Address.

OR

choose **IPCP** to request a IP Address allocated by the network.

**Note**

If you have chosen IPCP as the origin, the source address is set to **Src: Acquire Mode** in the **IP Setup** menu.

To display the actual IP Address supplied, press `+ 5` to display the **Status** screen.

-3- Press **ENTER** to accept the entry.

**Note**

**AuroraPresto** will try to use the alternative IP Type if the currently selected one is unsuccessful. The successful IP Type will also be displayed in the **Status** screen.

See **Checking the Current Setup of AuroraPresto** on page 3-41.

You can also access the **IP Address Setup** menu from the **Select Tests** screen.

See **Setting up the IP Ping Test** on page 4-86.
Setting up **Aurora Presto**

**Entering the Source IP address, Default Gateway, Mask IP address and Domain Name Server address**

-1- Select **Adr**, **DGW** or **Msk** from the **WAN Setup** screen. A screen similar to the following is displayed.

![WAN Setup Screen](image)

-2- Enter the required value.

The dot is entered automatically. You can enter a new number or accept the current setting.

-3- Press **ENTER**.

**Note**

The above options consist of 4 groups of 3 digits divided by a dot. The maximum number you can enter in each group is 255.

**Setting up IP Framing**

-1- Select **Framing** from the **IP Setup** screen to display the **Framing Setup** screen.

![Framing Setup Screen](image)

**IP Type**

Use this to set up the Standard for Ethernet message formats.

**IP Encap**

Use this to select the Ethernet encapsulation method.

**IP Mode**

Use this to select the IP operation mode.

**Hdr Compression**

Use this to enable or disable IP Header compression.
Setting up the IP Type

1. Select IP Type from the Framing Setup menu to display the options:

2. Choose IEEE or DIX. This can be IEEE or DIX. IEEE is mainly used in Europe and DIX is mainly used in the USA.

3. Press ENTER to accept the entry.

Note
You can set up the IP options from the Select Tests screen. Setting up the IP Ping Test on page 4-86.

Setting up the IP Encapsulation

1. Select IP Encap from the Framing Setup menu. A screen similar to the following is displayed.

2. Choose VC MUX (Virtual Channel Multiplex Address) or LLC SNAP (Logical Link Control Sub-Network Address Protocol) depending how the network is configured.

3. Press ENTER to accept the entry.
Setting up the IP Operation Mode

-1- Select IP Mode from the Framing Setup menu. A screen similar to the following is displayed.

-2- Choose Bridge Type 1 or Bridge Type 7. If you choose Bridge Type 1, AuroraPresto preserves the Frame Check Sum (FCS). If you choose Bridge Type 7, AuroraPresto discards the FCS.

Setting up the IP Header Compression

-1- Select HDR Compression from the Framing Setup menu. A screen similar to the following is displayed.

-2- Choose On to enable header compression OR Off to disable header compression depending on how the network is set up.

-3- Press ENTER to accept the entry.

Setting up the NAT (Network Address Translation) and PAT (Port Address Translation)
The NAT option is used to translate IP addresses that are not globally unique and cannot be connected directly to the Internet. These IP addresses are translated and can then be used to connect to the Internet. NAT is used when you want to connect to one device.
AuroraPresto—User Guide

The PAT option (also known as NAPT Network Port Address Translation) is used when you want to connect to several devices.

These options are only available if you have set up the IP Mode to Routed.

-1- From the IP Setup screen select NAT and press ENTER to display the NAT options.

-2- Choose NAT or PAT depending on the connection. Choose Off to disable the NAT option.

Setting up the DHCP (Dynamic Host Configuration Protocol)
This option is only available if you have set up the IP Mode to Routed.

The DHCP option enables AuroraPresto, when configured as a Golden Router, to allocate IP addresses to the LAN dynamically so that an address can be reused when a device is no longer connected to the network.

The DHCP pool is the number of local IP addresses that the server can distribute. The limit is 10 on AuroraPresto.

DHCP allocates a lease to each IP address. This lease can be unlimited (Permanent), set for a length of time set up by the user (Leased).

-1- Select DHCP Setup from the IP Setup screen to display the DHCP Setup screen.
-2- Choose **Permanent** if you want to set up **AuroraPresto** to allocate an unlimited lease.
Choose **Leased** if you want to set up **AuroraPresto** to allocate a limited lease.

A screen similar to the following is displayed when you choose **Manual** or **Auto**:

<table>
<thead>
<tr>
<th>Screen Layout</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adr</strong></td>
</tr>
<tr>
<td><strong>Pool Size</strong></td>
</tr>
<tr>
<td><strong>Msk</strong></td>
</tr>
<tr>
<td><strong>Lease Time</strong></td>
</tr>
</tbody>
</table>

**Setting up the Pool Size**
The maximum number of IP addresses in the DHCP Pool supported by **AuroraPresto** is 10.

-1- From the **DHCP Setup** screen select **Adr**.

-2- Enter the first IP address to be used from the DHCP Pool and press **ENTER** to accept the entry.

-3- Select **Pool Size** and press **ENTER**.

-4- Enter the last IP address to be used from the DHCP Pool and press **ENTER** to accept the entry.
Setting up the Lease Time
This option is only available if you have selected Leased. See Setting up the DHCP (Dynamic Host Configuration Protocol) on page 3-24.

1. From the DHCP Setup screen select Lease Time and press ENTER to display the following screen.

-2- Enter a time, in the format HH:MM:SS, for the lease to run. The maximum time you can enter is 99:59:59.

3. Press ENTER to accept the entry.

Setting up PPP Options
The PPP Option is only available if:

- your organisation has purchased this option. For details contact your Agilent Technologies representative.
- you have selected PPP Mode from the IP Setup menu.

1. From the Main Setup menu choose PPP. The PPP Setup menu is displayed.

Type Use to set up the Point-to-Point Protocol options.

Mode Use to set up Aurora Presto as the Client or Server.
Setting up **AuroraPresto**

**PPP Init**
Use to set up **AuroraPresto** to start a PPP session automatically or for **AuroraPresto** to wait for the User to start the PPP session.

**Attempts**
Use to set up how many attempts **AuroraPresto** will make to start a PPP session.

**Auth**
Use to set up the Authentication method PAP etc.

**User**
Use this to set up a User Name for a PPP session.

**Pswd**
Use this to set up a password for a PPP session (if applicable).

**Tracer**
Use to set up the display of events for ADSL and PPP.

### Setting up the PPP Type

- **PPP Setup**
- **Type**

1. From the **PPP Setup** menu choose **Type** and press **ENTER** to display the following screen.

2. Choose **PPPoA** if you are using Point-to-Point Protocol over ATM.
   
   Choose **PPPoE** if you are using an Ethernet connection.
Note
If you have not assigned a VC to the PPP Port, the following
screen is displayed. See Setting up the IP Port on page 3-17.

-3- Press ESC to continue.

Note
Only VCs that are enabled are displayed. To enable a VC,
press F1 VC Config to display the VC Config screen. See
Setting up VPIs (Virtual Path Identifiers) and VCs (Virtual
Channel Identifiers) on page 4-52.

Setting Up the PPP Mode
-1- From the PPP Setup menu choose Type and press
ENTER to display the following screen.

Note
If you select Client Mode (PPPoE Cli or PPPoA Cli), the
authentication is automatically set to None to indicate that
AuroraPresto is not an authenticator.

Setting up the PPP Session Options
-1- From the PPP Setup menu choose Init Mode and
press ENTER to display the following screen.
Setting up **Aurora**

-2- Choose **Auto** or **Manual**.  
The default is **Auto**.

-3- Press **ENTER** to accept the entry and return to the **PPP Setup** menu.

-4- Choose **Attempts** and press **ENTER**.

-5- Enter a number between 1 and 25.  
The default is 1.

**Note**  
**Init Mode** and **Attempts** are only displayed if you have set **IP Mode** to **PPP**.

**Setting up the Authentication Method**

Before you begin a PPP session, you must set up the Authentication Method.

-1- Select **Authentication** from the **PPP Setup** menu.  
A screen similar to the following is displayed.

-2- Choose **PAP** (Password Authentication Protocol) or **CHAP** (Challenge Handshake Authentication Protocol) if you want to use passwords or user names.

-3- Press **ENTER** to accept the entry.

**Setting up the User Name**

-1- Select **User** from the **PPP Setup** menu.  
A screen similar to the following is displayed.

-2- Enter a User Name (up to 40 characters). See entering **Entering Alphanumeric Information** on page 2-16 for information on entering alphanumeric information.
Setting up the Password

-1- Select Pswd from the PPP Setup menu.
A screen similar to the following is displayed.

-2- Enter a Password (up to 40 characters).
See entering Entering Alphanumeric Information on page 2-16 for information on entering alphanumeric information.

-3- Press F4 OK to continue.

Setting up the Tracer

-1- From the PPP Setup menu select Tracer and press ENTER.
A screen similar to the following is displayed.

-2- Choose ADSL to trace ADSL events only.
Choose PPP to trace PPP events only.
Choose ADSL+PPP to trace ADSL and PPP events.
Choose OFF to disable the tracer option. The default is Off.
Setting up Aurora Presto

General Settings (System Setup)

You can change some of the basic operational settings of your Aurora Presto - for example, the settings on the internal clock. Once you have defined these settings you will probably not need to change them often.

- From the Select Test Mode menu, press F4 Setup to display the Main Setup screen:

Select System Setup to display the following:

Auto power off  The time delay before Aurora Presto switches off to save the battery.

LCD Backlight  The time delay before the screen backlight switches off to save the battery.

Time  The time on Aurora Presto's internal clock.

Date  The system date.

Country  The country of operation.

Language  Aurora Presto operates in English and up to four other languages. The additional languages are French, German, Italian and Spanish.
Download  Enables you to transfer software to and from Aurora Presto. See Installing New Software on Aurora Presto on page 3-42.

Factory Defaults  Enables you to restore the default system settings.

Setting the Automatic Power-Off Time Delay

When operating from the battery, Aurora Presto can switch off automatically to save power if no tests are in progress and no keys have been pressed after a certain length of time.

To choose the time delay before Aurora Presto switches off:

-1-  From the Select Test Mode menu, press F4 Setup to display the Main Setup screen:

-2-  Select System Setup to display the following:

-3-  Select Auto power off.

-4-  Highlight the time delay you require, or Off to disable the power-saving feature, and press ENTER to close the option window.

-5-  Press ESC to save your selection and close the Main Setup menu.
Setting the Screen Backlight Power-Off Time Delay

When AuroraPresto is operating from batteries, the backlight on its LCD screen switches off to save power if the ASDL layer is not active and no keys have been pressed after a certain length of time. You can change the time delay before the backlight switches off, although you cannot disable the feature entirely.

-1- Select LCD Backlight from the System Setup menu to display the following:

-2- Highlight your choice and press ENTER to close the option window.

-3- Press ESC to save your selection and close the System Setup menu.

Changing the Date/Time on the Internal Clock

AuroraPresto has an internal clock/calendar (Real-Time Clock) which is used to time-stamp decodes and test results.

To change the time

-1- From the System Setup menu, select Time to display a time entry window:

-2- Enter a time in hours, minutes and seconds, using the 24-hour clock. To enter each digit, move the cursor to the required position and type the digit. The new digit replaces the one already in that position.

-3- Press ENTER to save the new time and exit.
To change the date

1. From the System Setup menu, select Date to display a date entry window:

   - Enter a date in day, month and year format, using two digits for each. To enter each digit, move the cursor to the required position and type the digit. The new digit replaces the one already in that position.

   - Press ENTER to save the new date and exit.

Changing the Country of Operation

AuroraPresto can cater for regional variations in ADSL operations.

You need to identify the country in which you are using your AuroraPresto—it then automatically changes its settings to the units of measure used by the selected country. For example, feet or metres. To do this:

1. Select Country from the System Setup menu to display a list of the countries in which AuroraPresto can operate:

   - Highlight the country of operation and press ENTER to close the option window.

   - Press ESC to save your selection and close the System Setup menu.
Changing the Language of the Screen Display

Aurora Presto operates in English and three other languages. The additional languages may be French, German and Italian.

To change the language of the screen display:

-1- Select **Language** from the **System Setup** menu to display the following screen:

-2- Highlight the language you wish to use and press **ENTER** to close the option window.

-3- Press **ESC** to save your selection and close the **System Setup** menu.

Returning to the Factory Defaults

**Note**

After performing a Software Update **YOU MUST RESET** Aurora Presto back to the Factory Defaults.

To restore the default settings:

-1- Select **Factory Defaults** from the **System Setup** menu and press **ENTER** to display the following screen. Aurora Presto prompts you to confirm that you wish to select the factory defaults.
To confirm, choose OK
OR
choose CANCEL to close the confirmation window without changing any settings.
If you choose OK the following screen is displayed briefly and confirms that **AuroraPresto** has been reconfigured.

**AuroraPresto** resets and loads the factory defaults.
This takes a few seconds.

**Note**
When you return to the factory defaults, you reset all the settings back to their original values—that is, the way they were when you first received the tester, except the Hot Key Profiles and any stored results.

To delete a Hot Key Profile see Deleting a Hot Key on page 3-6. To remove stored results see Clearing Sessions from Memory on page 5-6.
List of factory defaults
The following tables list AuroraPresto’s factory default setting.

**System Settings**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto Power Off</td>
<td>Off</td>
</tr>
<tr>
<td>Speaker Volume</td>
<td>Off</td>
</tr>
<tr>
<td>Country</td>
<td>UK</td>
</tr>
<tr>
<td>Language</td>
<td>English</td>
</tr>
</tbody>
</table>

**Serial Comms**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud Rate</td>
<td>38400</td>
</tr>
<tr>
<td>Data Bits</td>
<td>8</td>
</tr>
<tr>
<td>Parity</td>
<td>None</td>
</tr>
<tr>
<td>Stop Bits</td>
<td>1</td>
</tr>
<tr>
<td>XON/XOFF</td>
<td>Off</td>
</tr>
</tbody>
</table>

**Data Port**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>10BaseT</td>
</tr>
</tbody>
</table>
## Modem Settings

<table>
<thead>
<tr>
<th>Type</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode</td>
<td>Auto</td>
</tr>
<tr>
<td>Tracer</td>
<td>Off</td>
</tr>
</tbody>
</table>

## ATM Settings

| VP1   | 8    |
| VP2   | 8    |
| VP3   | 8    |
| VP4   | 8    |
| VC1   | 35   |
| VC2   | 17   |
| VC3   | 18   |
| VC4   | 19   |
| VC Mode | Disable |
| VC TX Rate % | All 0 except VC1 = 25 |
Setting up **Aurora**

### BERT Settings

<table>
<thead>
<tr>
<th>Test Mode</th>
<th>Rx &amp; Tx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold</td>
<td>Enabled</td>
</tr>
<tr>
<td>Pattern</td>
<td>2047 p.r</td>
</tr>
<tr>
<td>Invert Pattern</td>
<td>Off</td>
</tr>
<tr>
<td>Duration</td>
<td>1 hour</td>
</tr>
<tr>
<td>VPI</td>
<td>0</td>
</tr>
<tr>
<td>VCI</td>
<td>20</td>
</tr>
<tr>
<td>DSL BW%</td>
<td>100</td>
</tr>
</tbody>
</table>

### IP Ping Settings

<table>
<thead>
<tr>
<th>Src</th>
<th>000.000.000.000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dst</td>
<td>000.000.000.000</td>
</tr>
<tr>
<td>Msk</td>
<td>000.000.000.000</td>
</tr>
<tr>
<td>Pings</td>
<td>10</td>
</tr>
<tr>
<td>Timeout</td>
<td>2000</td>
</tr>
<tr>
<td>Length</td>
<td>32</td>
</tr>
<tr>
<td>Pause</td>
<td>50</td>
</tr>
</tbody>
</table>
**Trace Route**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Src</strong></td>
<td>000.000.000.000</td>
</tr>
<tr>
<td><strong>Msk</strong></td>
<td>255.255.255.000</td>
</tr>
<tr>
<td><strong>Max TTL</strong></td>
<td>10</td>
</tr>
<tr>
<td><strong>Timeout</strong></td>
<td>5000</td>
</tr>
</tbody>
</table>

**IP Settings**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mode</strong></td>
<td>Bridged</td>
</tr>
</tbody>
</table>

**Note**
The default setting for PPP are **Client** and **PPPoA**.

**IP Address Settings**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Src</strong></td>
<td>000.000.000.000.000</td>
</tr>
<tr>
<td><strong>Msk</strong></td>
<td>000.000.000.000.000</td>
</tr>
</tbody>
</table>

**IP Framing Settings**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IP Type</strong></td>
<td>DIX</td>
</tr>
<tr>
<td><strong>IP Encap</strong></td>
<td>VC Mux</td>
</tr>
<tr>
<td><strong>IP Mode</strong></td>
<td>Bridge Type 1</td>
</tr>
<tr>
<td><strong>HDR Compression</strong></td>
<td>Off</td>
</tr>
</tbody>
</table>
Checking the Current Setup of *AuroraPresto*

The **Status** screen displays the current configuration and settings of *AuroraPresto*.

To display the **Status** screen from any menu or screen:

- **1-** Press 3 + 5.
- **2-** Select the option you want to display.

- **3-** Press `ESC` to return to the **Status** screen

OR

<table>
<thead>
<tr>
<th><strong>G.SHDSL Physical Settings</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mode</strong></td>
</tr>
<tr>
<td><strong>Training</strong></td>
</tr>
<tr>
<td><strong>SNR Thresh</strong></td>
</tr>
<tr>
<td><strong>PSD Mode</strong></td>
</tr>
<tr>
<td><strong>Rate Mode</strong></td>
</tr>
<tr>
<td><strong>Min Rate</strong></td>
</tr>
<tr>
<td><strong>Max Rate</strong></td>
</tr>
<tr>
<td><strong>Start Up Margin</strong></td>
</tr>
<tr>
<td><strong>Power Backoff</strong></td>
</tr>
</tbody>
</table>
press **F4 Setup** to display the **Setup** screen for the selected option.

The status information is displayed in the same format as the **Main Setup** menu (see **Changing the Basic Configuration** on page 3-7 and **System Setup** (see **General Settings (System Setup)** on page 3-31.

---

**Installing New Software on AuroraPresto**

New software releases for **AuroraPresto** are provided on a CD-ROM. The new software is installed on **AuroraPresto** using **AuroraExchange** which must be installed on a PC running Windows 95, 98 or NT.

**Caution**
- If **AuroraPresto** loses power while software is being downloaded the tester may be damaged. We recommend that you connect **AuroraPresto** to an external power supply before you start to download software.
- After you have transferred new software to **AuroraPresto** you must return **AuroraPresto** to the Factory Defaults.

**Installing AuroraExchange on the PC**

The Software Upgrade contains the following:

- **AuroraExchange**—Application for downloading software to your **AuroraPresto**.
- User Guide Addendum—Information on new features.
- **AuroraPresto** Software—Software files for upgrading your **AuroraPresto**
Setting up **Aurora**

**Notes**

- If you have an existing version of **Aurora** on your PC you must uninstall it before installing **Aurora**.
- You must have **Aurora** version 2.20 or later installed on your PC.

-1- Save the file (**Setup.exe**) to a temporary directory on your PC. **Setup.exe** is a self extracting installation file for the software download application **Aurora**.

-2- To start installing **Aurora**, double-click on **Setup.exe**.

-3- To complete the installation follow the instructions displayed on the screen.

**Connecting Aurora**

**Notes**
The Ethernet port settings on **Aurora** and the PC must have the same settings with the exception of the Source IP Address (**Src**).

For Software Version 1.05 or earlier the **DGW**, **Msk** and **IP Type** on **Aurora** and the PC must have the same settings. See Setting up the IP Address on page 3-44.

For Software Version 1.07 or later the **DGW**, **Msk**, **IP Type**, **IP Encap**, **IP Mode** and **HDR Compression** on **Aurora** and the PC must have the same settings. See Setting up the IP Address on page 3-45.

For Software Version 3.xx or later Download mode sets the **DGW**, **Msk**, **IP Type**, **IP Encap**, **IP Mode** and **HDR Compression** automatically on **Aurora**. The PC must have the same settings. See Setting up **Aurora** - Software Version 2.80 or Later on page 3-47.

**Caution**

If you change the Ethernet port settings or IP Addresses on your PC your settings may conflict with other equipment connected to the PC.
-1- Connect AuroraPresto to the PC using the Ethernet cable supplied.  
If the connection has been made, the LED on the PC Ethernet card will be lit.  
If the connection is direct you will need a ‘crossover’ cable (Part No: 437353).  
If the connection is via a LAN you will need a ‘straight’ cable (Part no: 437352).  
These cables are supplied with AuroraPresto.

Setting up AuroraPresto - Software  
Version A1.05 or Earlier  

Tip  
To check the current software version, press + 5. For details see Checking the Current Setup of AuroraPresto in Chapter 3 of the main AuroraPresto User Guide.

Setting up the IP Address  
-1- From the Select Test Mode screen, press F4 Setup.  
-2- Select IP Setup to display the options:

-3- Enter an IP Source Address (Src) and Default Gateway (DGW).  
Enter 000.000.000.000 if you do not know the Default Gateway.

-4- Enter a Subnet Mask (Msk).  
Enter 255.255.000.000 if you do not know the Subnet Mask.

-5- Select IP Type and choose Dix.  
-6- Press ESC to accept the settings and exit the IP Setup screen.  
-7- Press ESC again to return to the Select Test Mode screen.
Choosing the Ethernet Port
-1- From the Select Test Mode screen, select Modem Tests.
-2- Select Data Connect and press F1 10BT.

Setting up AuroraPresto - Software Version 1.07 or Later
Tip
To check the current software version, press  + 5. For details see Checking the Current Setup of AuroraPresto on page 3-41.

Setting up the IP Address
-1- From the Select Test Mode screen, press F4 Setup. Select IP Address Setup to display the options:

-2- Enter an IP Address (Src), Default Gateway and (DGW).
    Enter 000.000.000.000 if you do not know the Default Gateway.
-3- Enter a Subnet Mask (Msk).
    Enter 255.255.000.000 if you do not know the Subnet Mask.
-4- If you have the PPP Option, select Origin and choose Specify.
-5- Press ESC to accept the settings and exit the IP Address Setup screen.
Setting the IP Frame Setup

-1- From the Select Test Mode screen press F4 Setup.
-2- Select IP Frame Setup.

The following screen is displayed.

3- Select IP Type and choose DIX.
4- Select IP Encap and choose LLC SNAP.
5- Select IP Mode and choose Bridge Type1.
6- Select HDR Compression and choose Off.
7- Press ESC to accept the settings and exit the IP Frame Setup screen.
8- Press ESC again to return to the Select Test Mode screen.

Setting up the Protocol

-1- From the Select Test Mode screen press F4 Setup.
-2- Select Protocol Setup.
-3- Press ENTER.

The following screen is displayed.

4- Choose Bridged and press ENTER to accept the settings.
5- Press ESC to exit the Protocol Setup screen.

Note
If your AuroraPresto does not have the PPP Option, the Protocol Setup is always set to Bridged.
Choosing the Ethernet Port

-1- From the Main Setup screen select Data Port to display the Data Port Setup screen.

-2- Choose 10BT.

Setting up AuroraPresto - Software Version 2.80 or Later

Tip
To check the current software version, press + 5. For details see Checking the Current Setup of AuroraPresto on page 3-41.

-1- Select Download from the System Setup menu to display the following screen.

-2- Choose OK to select Download Mode or CANCEL to leave the Download screen and return to the current settings. The default is CANCEL.

Notes
- When you select Download AuroraPresto is automatically set to Bridged. If AuroraPresto was previously set to Routed, then the LAN IP Address and Mask Address are displayed. You can accept these or enter new addresses.
- The setting are only temporary when in Download mode.
To leave Download mode and return to your previous settings, press ESC. **AuroraPresto** reboots and resets to the previous settings.

**Note**
After you have transferred new software to **AuroraPresto** you must return **AuroraPresto** to the Factory Defaults.

### Setting up **AuroraExchange** for **AuroraPresto**

1. Choose **Start**, select **Programs** and choose **AuroraExchange** from the **Aurora** folder OR double-click on the **AuroraExchange** icon on your desktop. The **Welcome to AuroraExchange** dialog is displayed.

2. From the **Product** list, select **Presto** and then click on **Next**. The **Step 1: Connect to the Presto** dialog is displayed.

3. Make sure that the **IP Address** displayed in **AuroraExchange Tester IP Address** is the same as **AuroraPresto**’s IP Address, then click on **Next**. If the IP addresses are correct, the **Step 2: Choose the Task** dialog is displayed.

**Note**
If **AuroraExchange** cannot connect to **AuroraPresto**, a warning is displayed. Follow the instructions displayed and repeat step 3 above.

4. Select the **Task** you want to perform and then click on **Next**.
   - **Upgrade**—install new software on **AuroraPresto**
     Choose this option to transfer any new options you have purchased, for example, PPP or F5 OAM; or updated software, for example, version 3.00 to **AuroraPresto**.
     See **Upgrading **AuroraPresto** on page 3-49.  

Setting up **AuroraPresto**

**Note**

After you have transferred new software to **AuroraPresto** you must return **AuroraPresto** to the Factory Defaults.

- **Download—send configuration files to **AuroraPresto**
  Choose this option if you want to transfer Hot Key Profiles to **AuroraPresto**.
  See **Downloading Configurations Files to **AuroraPresto** on page 3-50.

- **Upload Configuration files from **AuroraPresto**
  Choose this option if you want to upload Hot Key Profiles from **AuroraPresto**.
  See **Uploading Sessions from **AuroraPresto** to a PC** on page 3-51.

- **Upload Sessions from **AuroraPresto**
  Choose this option if you want to upload stored results from **AuroraPresto** to a PC.
  See **Uploading Sessions from **AuroraPresto** to a PC** on page 3-51.

-5- The **Step 3** dialog, with the **Task** you have chosen, is displayed.

**Upgrading **AuroraPresto**

-1- From the **Step 2: Choose the Task** dialog select **Upgrade - install new software on AuroraPresto** and then click on **Next**.
  The **Step 3: Upgrade Software on Aurora Presto** dialog is displayed.

-2- Accept the initialisation file **presto.ini**, or click on **Browse** to find the file you want.

-3- Click on **Transfer**.

These options have their own Presto.ini file which is in the following folder on the CD:
**PrestoSoftware\Options\Your MACAddress**.
Note
The MAC Address and .key folder names are based on Aurora Presto’s MAC address.

Press + 5 to display Aurora Presto’s Status screen and select MAC Address.

To enable the options, repeat from step 4 under Setting up Aurora Exchange for Aurora Presto on page 3-48.

Note
After you have transferred new software to Aurora Presto you must return Aurora Presto to the Factory Defaults.

Downloading Configurations Files to Aurora Presto

-1- From the Step 2: Choose the Task dialog select Download - send configuration files to Aurora Presto and then click on Next. The Step 3: Send Configuration to Aurora Presto dialog is displayed.

-2- Accept the initialisation file prestcfg.ini or click on Browse to find the file you want.

-3- Click on Transfer.

Uploading Configuration Files from Aurora Presto

-1- From the Step 2: Choose the Task dialog select Upload Configuration from Aurora Presto and then click on Next. The Step 3: Copy Configuration from Aurora Presto dialog is displayed.

-2- Accept the location and file prestcfg.ini, or click on Browse to find the location you want to save the files to.

-3- Click on Transfer.
Uploading Sessions from **AuroraPresto** to a PC

-1- From the Step 2: Choose the Task dialog select **Upload Sessions from AuroraPresto** and then click on Next. The Step 3: Copy Sessions from AuroraPresto dialog is displayed.

-2- Accept the location displayed or click on **Browse** to find the location you want to save the Session files to.

-3- Click on **Transfer**.

**During the Transfer**

**Caution**
- Do not disturb any connections. The PC and **AuroraPresto** must remain connected throughout the download operation.
- Do not press any keys on **AuroraPresto** or on the PC.

**If the transfer fails**
If the transfer procedure fails, switch off **AuroraPresto**, then switch it on again. Restart your PC and repeat the transfer procedure.

If the problem persists, contact Agilent Technologies - you will find contact numbers at the front of the **AuroraPresto** Short User Guide.

-4- When the transfer has finished choose **Close** or press **ESC** on you PC.

-5- To close **AuroraExchange** choose **Close**.

-6- Switch off **AuroraPresto**, then switch it on again. When **AuroraPresto** starts the new software version is displayed.
Chapter 4

Testing with AuroraPresto

Contents

Section 1—Test Modes........................................ 4-3
Section 2—DSL Testing Techniques..................... 4-10
Section 3—Physical Layer Tests.......................... 4-18
Section 4—DSL Layer Tests............................... 4-33
Section 5—ATM Layer Tests............................... 4-51
Section 6—Datalink............................................ 4-73
Section 7—IP Layer Tests................................. 4-83
Section 8—PPP Layer Tests............................... 4-91
Note

The Auto Test option is not available on all interface cards.

This chapter explains how to use AuroraPresto to test DSL lines and equipment. It is divided into sections as follows:

- Section 1 - Test Modes see page 4-3
- Section 2 - DSL Testing Techniques see page 4-10
- Section 3 - Physical Layer Tests see page 4-18
- Section 4 - DSL Layer Tests see page 4-33
- Section 5 - ATM Layer Tests see page 4-51
- Section 6 - Datalink see page 4-73
- Section 7 - IP Layer Tests see page 4-83
- Section 8 - PPP Layer Tests see page 4-91
Test Modes

Before you start testing you must set up AuroraPresto as described in Chapters 2 and 3 of this User Guide.

There are two options for testing, Automatic (Auto Test Mode) and Manual.

Automatic

Auto Test Mode performs a series of tests using selected Hot Key profiles.

Each Hot Key Profile has a programmable set of parameters containing the configuration parameters for the line.

Manual

Manual Mode is mainly for more advanced users. This mode enables you to control and set up individual test steps. You can access more detailed results in text or graphic form. Manual Mode is also used for entering details into AuroraPresto Hot Key configurations where necessary. See page 4-3 for a list of tests available.

Auto Tests

Auto Test Mode enables you to perform DMM, TDR, DSL, ATM, PPP and IP PING tests, and print the results with a single button press.

Setting up the Auto Test Options

Warning:

When connecting to the line, especially when using crocodile clips, special care must be taken as high voltages may be present on the line and there may be a danger of electrocution.
Caution: TDR/DMM Tests
When performing Capacitance and Load Coil tests make sure that voltage is NOT present on the line, if a voltage is present on the line you may damage Aurora Presto.

The Current test is intended for low DC current measurement only. It is protected by a 400mA fuse.

The TDR/DMM module has protection devices fitted at manufacture that cannot be reset by the user. If the protection devices are activated Aurora Presto must be returned to Agilent Technologies for repair.

- Setting up DMM Tests—The DMM test is a physical layer test. See Setting up DMM Tests on page 4-22.
- Setting up TDR Tests—See Setting Up the TDR Tester on page 4-26.
- Setting up DSL Tests—See Setting up DSL Layer Tests on page 4-33.
- Setting up Ping Tests—See Setting up the IP Ping Test on page 4-86.
- Setting up ATM BERT Tests—See Setting up an ATM BERT on page 4-59.
- Setting up F5 OAM PING Tests—See Setting up the OAM Ping Test on page 4-68.

Setting up DSL Test Profiles
Auto Test Mode has 3 DSL Test Profiles. You can assign Hot Key profiles to each DSL Test Profile. See Setting up Aurora Presto Using Hot Keys on page 3-2 for information on setting up the Hot Key profiles.

1- From the Select Test Mode screen, choose Auto Tests and press ENTER to display the Select Tests screen.
Section 1 - Test Modes

-2- Press **F2 Param** to display the **ADSL Test Profile** Screen.

If the following screen is displayed, instead of the one above,

-3- Select an existing **ADSL Test Profile** to use in the Auto Test session OR press **F3 List** to display the **Hot Keys** list.

-4- Choose a **Hot Key** and press **F1 Sel**.

**Note**

If the following screen is displayed, all the ADSL Test Profiles have a Hot Key assigned.

Press **ESC** to return to the **ADSL Test Profile** and press **F2 Clear**. All the current ADSL Test Profiles are cleared.
Choosing the Auto Test Mode Tests

You can run all the Auto Test Mode tests or you can select the tests individually.

**Notes**

- If you select DMM or TDR tests, no other tests can be selected.
- If you select DSL Layer, ATM BERT or PING Test you cannot run DMM or TDR tests.

1. From the Select Test Mode screen choose Auto Tests.
   The Select Tests screen is displayed.

2. From the Select Tests menu, select the test you want to perform.

3. Press ENTER to select the test or deselect it. Repeat Step 2 for each test you want to run.

**Notes**

- If you select DMM or TDR tests, no other tests can be selected in this Auto Test.
- If you select DSL Layer, ATM BERT or PING Test you cannot run DMM or TDR tests in this Auto Test.
Section 1 - Test Modes

Testing in Auto Test Mode

When you start an Auto Test, AuroraPresto creates a results session. These test results can be stored or printed in either text or graphical format. See Printing Auto Test Results on page 4-8.

-4- From the Select Tests screen, press F1 Start to start the Auto Test session.

-5- The following screen is displayed during the test. A progress bar is displayed to indicate that the test is running. This can take a few minute.

If you want to stop the test, press F1 Abort.

The following screen is displayed when the test has finished.

- Indicates that the test was selected in the Auto Test profile and the test has failed.
- Indicates that the test was selected in the Auto Test profile and the test has passed.
- Indicates that the test was not selected in the Auto Test profile.
Viewing an Auto Test Summary

-1- From the Auto Test Finished screen, press F1 View to display the Auto Summary screen. For example:

-2- Press ESC to return to the Auto Test Results screen.

Viewing Auto Test Results

The results of the Auto Test are automatically saved in the following format:

- A—Indicates that the session is an Auto Test session and not a manual test session.
- 080502—The date of the saved Auto Test session.
- 0001—The number of the saved Auto Test session.

To view the Auto Test results:

-1- From the Auto Test Finished screen, press F1 View.

Printing Auto Test Results

-1- Set up AuroraPresto’s serial port connection to match the printer you are going to print to.
-2- Connect AuroraPresto to the printer.
Section 1 - Test Modes

Make sure that you select Auto Print from the Auto Test Modes screen.

The results will be printed automatically at the end of the Auto Test.
**Section 2 - DSL Testing Techniques**

**Main Test Configurations and Applications**

ADSL is a physical layer transmission technology. ADSL uses traditional copper wire telephone lines to transmit data at high speeds. *AuroraPresto* enables you to test and troubleshoot ADSL lines.

The following diagram shows the points on the ADSL where you can connect and test using *AuroraPresto*.

*AuroraPresto* provides AAL5 encapsulation when in termination mode.
Modem Tests

*AuroraPresto* enables you to test the ADSL layer, the ATM layer and the IP layer. Any Application Layer traffic is transparent to *AuroraPresto* when it is operating in Golden Modem Mode.

**Simulating a DTE (Data Terminal Equipment)**

You can use *AuroraPresto*’s Ethernet 10BaseT interface to connect to the local modem when simulating a DTE. You can also use the optional ATM25 interface, if fitted, to connect to the local modem.

You can configure *AuroraPresto* to simulate a DTE to the local bridged modem (if the modem has an IP address). For an End-to-End configuration, you can also configure *AuroraPresto* to simulate a DTE via the local bridged modem through the network and to a remote DTE.

*AuroraPresto* can test a DTE to modem connection without the ADSL connection being active.

*AuroraPresto* sends an IP Ping to the modem’s IP address.

*AuroraPresto* can send an ATM BERT pattern on the ATM25 interface to the ATU-R.

*AuroraPresto* can be used to test, locate and display the following faults:

- **IP routing**

  These can be caused by faults to and from the LAN or DTE to the Wide Area Network.
ATM layer throughput
These can be caused for example, by:
- problems with remote modem buffering
- incompatible ATM multiplexer ratios
- incorrect ATM or IP addressing.

ATMF 25.6 interface configuration
This can be caused by faulty PC or NIC interconnecting cabling.

The following diagram shows the point where you should connect AuroraPresto to simulate a DTE.

Simulating a DTE or Modem to Network
You can configure AuroraPresto to simulate an ATU-R and use it as a troubleshooting tool during ADSL service line provisioning and testing over a known good copper pair line. Once the ADSL line is synchronised with the remote ATU-C, AuroraPresto (simulating an ATU-R) can be used to check the ATM virtual channels on the ADSL access line.

If the customer uses a DTE with an internal ADSL modem (NIC Card), AuroraPresto can be used instead of the DTE/ATU-R to terminate the access line on ADSL/ATM line level as well as on the network end-to-end IP protocol level.
Section 2 - DSL Testing Techniques

*AuroraPresto* can be configured:

- as a local modem to the network (DSLAM) to test the ADSL physical layer

OR

- to simulate a DTE and local modem to the Network (DSLAM) and remote DTE to test the ADSL and the Network Layer.

**Simulating Modem to a DTE**

You can use *AuroraPresto* to perform a Ping test of the locally attached DTE over the Ethernet 10 Base T interface and to test the operation of the DTE and its interface to the modem.

**Note**

Before you can begin testing, you must connect *AuroraPresto*’s 10 Base T interface to the PC Ethernet card or IP terminal using an Ethernet IP cross-over cable. See the following diagram.

For key see [diagram](#) on page 4-10.

See [IP Ping Test](#) on page 4-85.
Golden Modem Tests

Note
In this User Guide, the term Golden Modem Mode, is used instead of Through Mode.

This test is used mainly for faults on ADSL Modems (ATU-R) installed at customer sites. AuroraPresto can also be configured as an ATU-C to send data over the 10 Base T port towards the ATU-R. AuroraPresto can be configured in Golden Modem Mode to simulate different modem types, to test connections between the customer's DTE and the DSLAM ATU-C.

AuroraPresto can be used to test, locate and display the following faults:

- **Modem synchronisation**
  This can be caused by:
  - incorrect DSLAM settings
  - poor line performance
  - remote modem faults.

- **Routing**
  This can be caused by incorrect ATM or IP addressing.

- **User application settings**
  This can be caused by incorrect PC or NIC card settings.
Section 2 - DSL Testing Techniques

The following diagram shows the point where you can connect *AuroraPresto* to perform a Golden Modem test.

![Diagram showing AuroraPresto connected to ADSL line for Golden Modem test](image)

For key see diagram on page 4-10.

When *AuroraPresto* is simulating the ADSL modem, it can be connected to the ADSL line and can test a DTE Ethernet or ATM 25 interface sending or receiving IP or other user traffic.

**Setting up *AuroraPresto* for Golden Modem Tests**

To enable you to perform a Golden Modem Test you must:

- **1-** Synchronise the DSL, see page 4-34.
- **2-** Set up ATM VCs, see page 4-52.
- **3-** Set up the data ports, see *Setting up the Data Port on page 4-73.*
Set up the IP Frame to Bridged Mode. See Setting up IP Framing on page 3-21.

Simulating an ATU-R to DSLAM (ATU-C)

Aurora Presto (simulating an ATU-R) can be used to test the ADSL line by training and synchronising to the DSLAM.

Aurora Presto's ADSL layer tracer option can be used to trace failed synchronisation and help identify faults.

Simulating DSLAM (ATU-C) to Modem (ATU-R) or DTE

Aurora Presto (simulating an ATU-C) can be used to test the ADSL line by training and synchronising to the ATU-R.

Aurora Presto (simulating an ATU-C) enables you to specify upstream and downstream physical line parameters including bit rates (minimum and maximum) and noise margins (minimum, target and maximum). See Setting up the Modem Type for DSL Layer Tests on page 4-33.

Testing the complete subscriber line

For key see diagram on page 4-10.
Section 2 - DSL Testing Techniques

**Aurora Presto** can simulate an ATU-C to test:

- for modem faults
- customer equipment
- for faults between the DSLAM and the ATU-R or DTE.

**Aurora Presto** can send a PING to test the connection to the ATU-R and the DTE.

See [IP Ping Test](#) on page 4-85.

**Dual Ended Line Testing**

You can use **Aurora Presto** to test the copper pair using a Dual Ended Line Test prior to commissioning or for evaluation purposes.

You will need two **Aurora Presto** testers to perform a dual ATM BERT. One **Aurora Presto** is simulating an ATU-R and transmits data up to the maximum upstream rates. The other **Aurora Presto** is simulating an ATU-C and transmits data up to the maximum downstream rates.
Physical Layer Tests

The ‘physical layer’ (Layer 1 of the OSI-7 layer model), is responsible for the electrical, mechanical and interface aspects of transmitted data.

Noise Analysis

This performs a signal test to measure the amount of noise across the available bandwidth.

When you select the ATU-C modem card option, the noise analysis test measures the frequencies <130kHz. The noise analysis graph displays the tones 1 to 29.

When you select the ATU-R modem card option, the noise analysis test measures the frequency range 160 kHz to 1.1 MHz. The noise analysis graph displays the tones 38 to 255.

Notes
- The full ADSL bandwidth can only be tested if both modem cards are present in the unit.
- The Noise Analysis option is not available if you have selected the TI ATU-R(I) as the Modem Type.

Setting up the Noise Analysis Test

-1- From the Main Setup screen select Modem, and press ENTER. The Type screen is displayed.

-2- Select Type and choose AL ATU-C(P) for frequencies <130kHz
OR
Select Type and choose AL ATU-R(P) for frequencies >160kHz.

-3- Press ENTER to exit the Type screen.
Section 3 - Physical Layer Tests

Running the Noise Analysis Test

Note
The ADSL Layer must be down before you start the Noise Analysis Test. Synchronise the DSL, see page 4-34.

-1- From the Select Test Mode screen select Manual Tests to display the Select Operation screen.
-2- Select Physical Layer to display the following screen.

-3- Select Noise Analysis to display the following screen.

-4- Press F1 Start. The following screen is displayed.

When the Noise Analysis test has finished a screen similar to the following is displayed.

Press ESC to display the previous screen.
From the previous screen, press F2 View to display the graph screen again.
The following table shows the navigation keys to move through the trace.

<table>
<thead>
<tr>
<th>Noise Analysis Key Sequence</th>
<th>Key Name</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>▲</td>
<td>Pg UP</td>
<td>Moves one screen to the right</td>
</tr>
<tr>
<td>▼</td>
<td>Pg DN</td>
<td>Moves one screen to the left</td>
</tr>
<tr>
<td>3 + ▶</td>
<td>End</td>
<td>Moves to the far right of the trace</td>
</tr>
<tr>
<td>3 + ◄</td>
<td>Home</td>
<td>Moves to the far left of the trace</td>
</tr>
<tr>
<td>▶</td>
<td>Right</td>
<td>Steps right through the trace</td>
</tr>
<tr>
<td>◄</td>
<td>Left</td>
<td>Steps left through the trace</td>
</tr>
<tr>
<td>1</td>
<td>Key 1</td>
<td>Zooms in</td>
</tr>
<tr>
<td>2</td>
<td>Key 2</td>
<td>Zooms out</td>
</tr>
<tr>
<td>3</td>
<td>Key 3</td>
<td>Increases the display from 0 to -160 in 40 dB steps.</td>
</tr>
<tr>
<td>4</td>
<td>Key 4</td>
<td>Decreases the display from 0 to -160 in 40 dB steps.</td>
</tr>
</tbody>
</table>
DMM Tests

Warning
When connecting to the line, especially when using crocodile clips, special care must be taken as high voltages may be present on the line and there may be a danger of electrocution.

Caution: TDR/DMM Tests
When performing Capacitance and Load Coil tests make sure that voltage is NOT present on the line, if a voltage is present on the line you may damage AuroraPresto.

The Current test is intended for low DC current measurement only. It is protected by a 400mA fuse.

The TDR/DMM module has protection devices fitted at manufacture that cannot be reset by the user. If the protection devices are activated AuroraPresto must be returned to Agilent Technologies for repair.

Your AuroraPresto may not have the DMM Tester option. For details contact your Agilent Technologies representative.

You can also run a DMM test from the Auto Test Mode screen. See Auto Tests on page 4-3 for more information.

DMM (Digital Multimeter) and TDR (Time Domain Reflectometer) tests are used to test the Electrical Layer of the local loop.

The DMM test enables you to:

- measure ADSL line voltage and other voltages (AC/DC)
- find capacitive problems
- find resistive problems.
DMM Measurement Tests

You can set up a ±% variance threshold that is used to set up the exception points on the chart.

Setting up DMM Tests

-1- From the Select Test Mode screen, choose Auto Tests and press enter to display the Select Tests screen.

-2- Select DMM test and press F2 Param to display the DMM Test Mode screen.

Max DCV (±): Enter the maximum ± DC Volts range from 1 to 400.

Min DCV (±): Enter the minimum ± DC Volts range from 1 to 400.

Max Res: Enter the maximum resistance range from 0 to 1 MOhm.

Min Res: Enter the minimum resistance range from 0 to 1 MOhm.
Running a DMM Test

The DMM Test is made up of five sub-tests. You can use the DMM tests to measure: voltage, resistance, capacitance and current on analogue lines.

-1- From the Physical Layer screen select DMM Tests and press ENTER to display the following options:

- **DC Voltage**—use to measure ADSL line voltage.
- **AC Voltage**—use to measure AC voltage.
- **Resistance**—Use this to test for resistive problems which can indicate cable shorts.
- **Capacitance**—Use this to test for capacitive problems which can indicate insulation problems and breaks in the cable.
- **DC Current**—Use this to check the current drawn to test the cable characteristics.

-2- Select the sub-test you want and press ENTER.

-3- Connect Aurora Presto to the device to be tested. For example, the following screen displays the Resistance test screen.

To perform another DMM test, repeat from step 2 above.

-4- Press ESC to exit the test.
Warning
When connecting to the line, especially when using crocodile clips, special care must be taken as high voltages may be present on the line and there may be a danger of electrocution. Extra care should be taken especially when using Aurora Presto in TDR/DMM mode.

Caution: TDR/DMM Tests
When performing Capacitance and Load Coil tests make sure that voltage is NOT present on the line, if a voltage is present on the line you may damage Aurora Presto.

The Current test is intended for low DC current measurement only. It is protected by a 400mA fuse.

The TDR/DMM module has protection devices fitted at manufacture that cannot be reset by the user. If the protection devices are activated Aurora Presto must be returned to Agilent Technologies for repair.

Your Aurora Presto may not have the TDR Tester option because your organisation has not bought it. For details contact your Agilent Technologies representative.
TDR Overview

**AuroraPresto**'s TDR (Time Domain Reflectometer) enables you to quickly locate the position of a fault - short, break, low insulation, cross-talk, or any impedance mismatch - in the copper pair being tested. It also enables you to measure the total length of an open copper pair.

**AuroraPresto** repeatedly transmits a burst of pulses down the line and measures the time it takes to receive the reflected signal back from the other end of the line, or from a fault. **AuroraPresto** compares this measured time with the PVF (Pulse Velocity Factor) for the line under test, and calculates the distance between the test position and the fault in the cable. **AuroraPresto** converts the time to distance and displays it as a distance reading.

The pulse generated by all TDRs need time and distance to start. This distance is known as the blind spot. The length of the blind spot varies with the pulse width. The longer the pulse width, the larger the blind spot.

You can add a known length of jumper cable (preferably with the same impedance as the cable being tested) to eliminate the blind spot. **AuroraPresto** includes the length of the jumper cable during the TDR test. Remember to subtract the jumper cable length from the total cable length when measuring from the connection point.

Any pulse that is transmitted from **AuroraPresto** or any reflection that is generated as a result of an impedance mismatch, will reduce in amplitude (energy) as it travels along the line. This effect is known as signal attenuation. On long line lengths this can result in a very small signal being received back at the TDR, which makes the reflection difficult to display. Increasing the width of the transmitted pulse or adjusting the receiver gain will make the signal easier to display.
Gain

The receiver gain sets the amplification of the received reflections. Increasing the receiver gain can make smaller reflections easier to display. However, adjusting the receiver gain higher than is necessary can make smaller faults harder to detect. **AuroraPresto**’s TDR option selects an appropriate receiver gain using measurement ranges based on the length of cable. Each measurement range uses a receiver gain and pulse width setting typical for fault finding on cables lengths in the selected range. If you find that the gain and pulse width is not suitable, you can adjust the receiver gain and pulse width settings to maximise the performance of the TDR.

Pulse Widths

**AuroraPresto** enables you to select the pulse width settings. The longer the pulse width, the more energy is produced and therefore, the signal will travel further down the cable. Use a short pulse width first, even when testing a long length of cable. If the fault is not located, select the next longest pulse width and retest. Keep selecting the next longest pulse width until the fault is located.

Sometimes longer pulse widths are helpful even for locating faults that are relatively close. If the fault is very small, the signal strength of a short pulse width may not be enough to travel down the cable, locate the fault, and travel back. A longer pulse width transmits more energy down the cable, making it easier to detect a small fault.

Setting Up the TDR Tester

DMM (Digital Multimeter) and TDR (Time Domain Reflectometer) tests are used to test the Electrical Layer of the local loop.

You can also use the TDR test to find and test the faults found by the DMM test.

- From the **Select Test Mode** screen select **Manual Tests** and choose **Physical Layer from the Select Operation** screen.
Section 3 - Physical Layer Tests

-2- Choose **TDR Tests**, press **F4 Setup** and press **ENTER**
to display the following screen.

![TDR Test Setup Screen]

-3- Select one of the following and press **ENTER**.

- **TDR Range**—Select a maximum Test Length.
The **TDR Range** setting also changes the **Gain**
and **Pulse Width** settings. If you change the
**TDR Range** then **AuroraPresto** will reset the
**Gain** and **Pulse Width** settings to the default
setting for that length of cable.
You can save the **Range Velocity %**, **Gain** and
**Pulse Width** settings as a **Hot Key** profile.
See **Setting up the Hot Keys** on page 3-3.

**Note**
To set the default unit of length to ‘feet’, select **USA**; to set
it to ‘metres’, select a country other than **USA** from the
**System Setup** menu.

- **Velocity% Factor**—Enter a number in the range
1 to 99. This is given as a percentage of the speed
of light \(c=\text{lightspeed}=3 \times 10^8 \text{ m/s}\).

- **Gain**—Displays the current gain setting
**AuroraPresto** uses the default gain for the length
of cable under test.
For more information see **Gain** on page 4-26.

- **Width**—Displays the current pulse width setting.
**AuroraPresto** uses the default pulse width for the
length of cable under test.
To reduce the pulse width, press **F3 ↓**. To
increase the pulse, press **F4 ↑**.
For information see **Pulse Widths** on page 4-26.

-4- Press **ESC** to return to the **TDR Tester** screen.
To return the **Gain** and **Pulse** settings to the default
for the length selected, press **F1 Defaults**.
Running a TDR Test

You can use the TDR Test to locate and investigate faults on the line or faults indicated by the DMM test. See DMM Tests on page 4-21.

-1- From the Physical Test screen select TDR Tests and press ENTER to display the following screen:

-2- To start the test, press F1 Start from the TDR Tests screen

OR

press ESC from the TDR Setup screen.
A screen similar to the following is displayed.

If you want to stop the test press F1 Stop to return to the previous screen.
The results of the test are displayed as a graph.

You can move through the display using the keypad. See TDR Key Sequence table on page 4-30.
Section 3 - Physical Layer Tests

Viewing the TDR Test Results Graph

AuroraPresto displays the transmitted pulse and any impedance change reflections as a graph. For example: a tall peak may indicate an open fault, a medium peak may indicate a cable short and a trough may indicate a cable break.

Changing the Range, Gain and Width

- From the TDR Graph screen, press F1 ← to reduce the Range or to increase the range, press F2 →.

To display the Gain press F4 Next.

To reduce the Gain, press F1 ← or to increase the Gain, press F2 →.
To display the Width, press F4 Next.
To reduce the **Width**, press **F1** or to increase the **Width**, press **F2**. You can move the marker using the **<** and **>** keys.

<table>
<thead>
<tr>
<th>TDR Key Sequence</th>
<th>Key Name</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>▲</td>
<td>Pg UP</td>
<td>Moves one screen to the right</td>
</tr>
<tr>
<td>▼</td>
<td>Pg DN</td>
<td>Moves one screen to the left</td>
</tr>
<tr>
<td>3 + ▶</td>
<td>End</td>
<td>Moves to the far right of the trace</td>
</tr>
<tr>
<td>3 + ◀</td>
<td>Home</td>
<td>Moves to the far left of the trace</td>
</tr>
<tr>
<td>▶</td>
<td>Right</td>
<td>Move the cursor to the right</td>
</tr>
<tr>
<td>◀</td>
<td>Left</td>
<td>Moves the cursor to the left</td>
</tr>
<tr>
<td>1</td>
<td>Key 1</td>
<td>Expands the trace horizontally</td>
</tr>
<tr>
<td>2</td>
<td>Key 2</td>
<td>Contracts the trace horizontally</td>
</tr>
<tr>
<td>4</td>
<td>Key 4</td>
<td>Places a marker on the trace</td>
</tr>
<tr>
<td>5</td>
<td>Key 5</td>
<td>Removes the marker from the trace</td>
</tr>
<tr>
<td>8</td>
<td>Key 8</td>
<td>Contracts the trace vertically</td>
</tr>
<tr>
<td>9</td>
<td>Key 9</td>
<td>Expands the trace vertically</td>
</tr>
<tr>
<td>F1</td>
<td></td>
<td>Reduces the Range, Gain or Width</td>
</tr>
</tbody>
</table>
### Section 3 - Physical Layer Tests

### Load Coil Tests

**Warning**
When connecting to the line, especially when using crocodile clips, special care must be taken as high voltages may be present on the line and there may be a danger of electrocution.

**Caution: TDR/DMM Tests**
When performing Capacitance and Load Coil tests make sure that voltage is NOT present on the line, if a voltage is present on the line you may damage **Aurora Presto**.

The Current test is intended for low DC current measurement only. It is protected by a 400mA fuse.

The TDR/DMM module has protection devices fitted at manufacture that cannot be reset by the user. If the protection devices are activated **Aurora Presto** must be returned to Agilent Technologies for repair.

Your **Aurora Presto** may not have the Load Coil Tests option because your organisation has not bought it. For details contact your Agilent Technologies representative.

### TDR Key Sequence Table

<table>
<thead>
<tr>
<th>TDR Key Sequence</th>
<th>Key Name</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>F2</td>
<td>Increases the Range, Gain or Width</td>
</tr>
<tr>
<td>4</td>
<td>F4</td>
<td>Next- Selects the Range, Gain or Width</td>
</tr>
<tr>
<td>Window</td>
<td>Window</td>
<td>Switches between the Graph Results screen and the TDR Setup screen</td>
</tr>
</tbody>
</table>
The Load Coil Test is part of the TDR/DMM tester option. Your AuroraPresto may not have the TDR/DMM tester option because your organisation has not bought it. For details contact your Agilent Technologies representative.

**Running a Load Coil Test**

1. From the Physical Tests screen select Load Coil Tests and press ENTER to start the test. The results screen is displayed at the end of the test.

**G.SHDSL Physical Layer Test**

1. From the Select Operation screen choose Physical Layer screen to display the Physical Tests screen.

- **TipRing**—The current connection status either normal or reversed.
**Section 4 - DSL Layer Tests**

**DSL Layer**

You can set up the DSL, ATM, IP and PPP layer independently for testing.

---

**Setting up DSL Layer Tests**

Before you can perform DSL Layer Tests you must select the DSL Modem Type and choose the modem settings. See [Displaying Interface Cards or Modules on page 2-16](#) for information on the DSL Modem Type.

**Setting up the Modem Type for DSL Layer Tests**

1. From the **Main Setup Menu** select **Modem** and press **ENTER** to display the **Modem Setup** screen.
Select **Type** and press **ENTER** to display the following screen.

- **3-** Choose the Modem Type you want according to the Interface card. See *Setting up the Modem for ADSL Tests* on page 3-11 for details on setting up the **Mode**, **Training** and **Tracer** options.

### Connecting **AuroraPresto** to a Modem for DSL Layer Tests

To be able to run a DSL Layer Test, you must set up the DSL layer to be connected.

The following text assumes you have selected DSL tests.

- **1-** From the **Select Test Mode** screen select **Manual Tests** to display the **Select Operation** screen.

#### Note

The PPP Layer option is displayed only when a PPP protocol has been selected. Press **F1 Protocol** to display the **PPP Setup** menu. See *Setting up PPP Options* on page 3-26.

- **2-** Press **F3** to begin connecting to a modem.

**AuroraPresto** performs 3 stages to connect to a modem. The status is displayed in the top right-hand corner.
Section 4 - DSL Layer Tests

- **DSL**—is displayed when **AuroraPresto** is not connected to a modem or DSLAM or Layer 1 is not active.

- **Seeking**—**AuroraPresto** is searching for a modem to synchronise to.

- **Training**—is displayed when **AuroraPresto** has found a modem and is waiting to make a connection to the modem. If training is unsuccessful, **AuroraPresto** attempts to retrain automatically after 1.5 seconds if you have set **Training** to **Auto** in **Modem Setup**. See [Setting up the Modem for ADSL Tests on page 3-11](#).

- **Showtime** (DataMode for G.SHDSL). See [G.SHDSL Tests on page 4-42](#) is displayed when **AuroraPresto** has successfully connected to the modem or DSLAM and the DSL layer is active.

- Press ENTER to display the following screen.

  **Performing DSL Layer Tests**

- **From the Select Test Mode select Manual Tests to display the Select Operation screen.**
Choose DSL Layer. The following screen is displayed.

**DSL Tracer**

During testing, *AuroraPresto* can display a trace background window if the Tracer has been set to On. See [Setting up the Modem for ADSL Tests on page 3-11](#).

To display the Decode Window:

Press the *p* key.

The following is an example of an ADSL trace printout. See [Sending the Capture to a Printer or PC on page 5-6](#).

```
Trace Decode

<table>
<thead>
<tr>
<th>State</th>
<th>Direction</th>
<th>Message</th>
<th>Timestamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing</td>
<td>&lt;RSP</td>
<td>Connect. Closed</td>
<td>14:34:54.25</td>
</tr>
<tr>
<td>Offline</td>
<td>&lt;RSP</td>
<td>IDLE</td>
<td>14:34:54.25</td>
</tr>
<tr>
<td>Offline</td>
<td>CMD&gt;</td>
<td>Open AUTO</td>
<td>14:35:09.26</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RSP</td>
<td>Seeking ATU</td>
<td>14:35:09.39</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RSP</td>
<td>OPEN failed TO</td>
<td>14:35:54.26</td>
</tr>
<tr>
<td>Closing</td>
<td>&lt;RSP</td>
<td>Connect. Closed</td>
<td>14:35:54.32</td>
</tr>
<tr>
<td>Offline</td>
<td>&lt;RSP</td>
<td>IDLE</td>
<td>14:35:54.32</td>
</tr>
<tr>
<td>Offline</td>
<td>CMD&gt;</td>
<td>Open AUTO</td>
<td>14:36:09.33</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RSP</td>
<td>Seeking ATU</td>
<td>14:36:09.46</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RSP</td>
<td>OPEN failed TO</td>
<td>14:36:54.34</td>
</tr>
<tr>
<td>Closing</td>
<td>&lt;RSP</td>
<td>Connect. Closed</td>
<td>14:36:54.40</td>
</tr>
</tbody>
</table>
```

For more information on decodes, see [ADSL Trace Message Definitions on page A2-4](#).
Section 4 - DSL Layer Tests

ADSL Statistics

Note
During training, the ATU-R and the ATU-C exchange operational information. The ADSL Statistics are displayed as follows:

- The ATU-R Upstream numbers are updated in real-time and the Downstream numbers are static.
- The ATU-C Downstream numbers are updated in real-time and the Upstream numbers are static.

To view the Upstream and Downstream ADSL statistics and physical layer cell counts:

- From the Select ADSL Tests menu, choose ADSL Statistics.
- Press ENTER to display the following screen.

- Press F1 Next to toggle between the ADSL Physical layer statistics following options.

Note
The following options are displayed only if you have selected AL-ATU-R(I).

Upstream and Downstream Statistics

- **ATU Mode**—The ATU Mode can be ANSI, G.DMT or G.LITE.
- **Fast TxR**—Transmission rate of the fast transmission path.
- **Intlv TxR**—Transmission rate of the interleaved transmission path.
- **Capacity Used**—The percentage of the available bandwidth used.
- **Noise Mgn**—The noise margin measured.
AuroraPresto—User Guide

- **Output Pwr**—The Power output from the selected AuroraPresto modem
- **Attenuation**—The measured attenuation on the ADSL line length.
- **Attain BR**—The attainable bit rate. If the attainable bit rate is less than or equal to 8128kbps then the attainable bit rate is read from the chipset. If it is above 8128kbps then it is calculated from the actual bit rate and the capacity used.

**Upstream and Downstream Counts**
- **Cells Tx**—Number of cells transmitted (as detected by the modem).
- **Cells Rx**—Number of cells received (as detected by the modem).
- **FEC**—Number of Forward Error Corrections received.
- **CRC**—Number of Cyclic Redundancy Check errors received.
- **HEC**—Number of Header Error Checksum errors received.

**Note**
If the ADI ATU-R card is selected, FEC, CRC and HEC are displayed as FEC ES, CRC ES and HEC ES. ES stands for Errored Seconds. The ADI ATU-R card counters display the number of seconds in which the event has occurred and not the actual errors counted.
DMT Carrier Usage ADSL Only (Signal Analysis)

This displays the bits per tone as a graph. The results can be used when you are testing for degradation across the available bandwidth on the line.

To select Tones:

-1- From the Select ADSL Tests choose Carrier Usage.
-2- Press F4 Setup and press ENTER to displayed the options.
-3- Choose All Tones, Upstream Tones or Downstream Tones.
-4- Press ENTER to accept the entry.

To start a Signal Analysis:

-1- From the Modem Tests screen select DSL Layer and choose Carrier Usage.
-2- Press F1 View. A screen similar to the following is displayed.

This screen is displaying a typical trace.

-3- Press ESC to return to the Select ADSL Tests screen.
The following table shows the navigation keys to move through the trace.

<table>
<thead>
<tr>
<th>Carrier Usage Key Sequence</th>
<th>Key Name</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pg UP</td>
<td>Pg UP</td>
<td>Moves one screen to the right</td>
</tr>
<tr>
<td>Pg DN</td>
<td>Pg DN</td>
<td>Moves one screen to the left</td>
</tr>
<tr>
<td>+ End</td>
<td>End</td>
<td>Moves to the far right of the trace</td>
</tr>
<tr>
<td>+ Home</td>
<td>Home</td>
<td>Moves to the far left of the trace</td>
</tr>
<tr>
<td>Right</td>
<td>Right</td>
<td>Steps right through the trace</td>
</tr>
<tr>
<td>Left</td>
<td>Left</td>
<td>Steps left through the trace</td>
</tr>
<tr>
<td>Key 1</td>
<td>Key 1</td>
<td>Zooms in</td>
</tr>
<tr>
<td>Key 2</td>
<td>Key 2</td>
<td>Zooms out</td>
</tr>
<tr>
<td>Key 3</td>
<td>Key 3</td>
<td>Expands the trace horizontally</td>
</tr>
<tr>
<td>Key 4</td>
<td>Key 4</td>
<td>Contracts the trace horizontally</td>
</tr>
</tbody>
</table>
Section 4 - DSL Layer Tests

**ADSL Bit Errors**

A physical layer BERT runs continuously enabling you to monitor the ADSL Bit Errors.

**Note**

The ADSL Bit Error option is only available if you choose AL ATU-R(I) as the Modem Type.

To display the ADSL Bit Errors:

1. From the **Select ADSL Tests** screen choose **ADSL Bit Errors**.
2. Press **ENTER**.

A results screen is displayed.

- **Fast Errors**—The number of Background BERT errors detected on the ADSL Fast Channel.
- **Fast Secs**—The number of seconds that the Background BERT has been running in the ADSL Fast Channel.

OR

- **Intlv Errors**—The number of Background BERT errors detected in the ADSL Interleaved Channel.
- **Intlv Secs**—The number of seconds that the Background BERT has been running in the ADSL Interleaved Channel.
G.SHDSL Tests

The G.SHDSL option is only available if your organisation has purchased this option. For details contact your Agilent Technologies representative.

G.SHDSL is a high speed, symmetric Digital Subscriber Line (DSL) technology carrying payload data of between 192kbps and 2.312Mbps over a single copper pair.

G.SHDSL groups parts of traditional DSL technologies into a single, internationally recognized industry standard, G.991.2.

G.SHDSL is purely digital. In ADSL, POTS is transmitted as normal analogue to allow POTS to be used over existing phone lines. Some performance can be lost due to the higher frequency attenuation that occurs, as well as increased sensitivity to bridged taps. G.SHDSL uses the lower band of frequencies digitally to achieve range performance as well as maintaining the ability to transmit voice or data services symmetrically.

Setting up the G.SHDSL Modem

Setting up the Modem Type

Before you can run G.SHDSL Layer Tests you must set up the Modem Type.

-1- From the Modem Setup screen choose Type and press ENTER.

The following screen is displayed.
Section 4 - DSL Layer Tests

-2- Choose GL STU R if AuroraPresto is replacing the customer (remote) modem
    OR
    choose GL STU C if AuroraPresto is replacing the central office modem.

Setting up the Mode

-1- From the Modem Setup screen choose Mode to display the following screen.

-2- Choose Annex A for US or Annex B for European systems. Auto is the default.
    If you choose Auto, AuroraPresto automatically chooses the correct regional setting.

Setting up Training

See Setting up the Modem for ADSL Tests on page 3-11.

Setting up the Parameters

-1- From the Modem Setup screen choose Parameters and press ENTER to display the following screen.

- • PSD Mode—Choose SYM for symmetrical and choose from the list of ASYM options for asymmetrical.
- • Rate Mode—Adaptive or Fixed (SYM only).
• **Data Rate**—Enter a number between 192 and 2312. *AuroraPresto* will adjust the value you enter to the nearest valid data rate as defined in G.991.2. **Data Rate** is only available if you choose **Fixed Rate Mode**.

• **Min Rate kbps**—Enter a minimum bit rate value between 192 and 2312 (SYM only). 

• **Max Rate kbps**—Enter a maximum bit rate value between 192 and 2312. The maximum bit rate must be greater than the minimum bit rate (SYM only). 

• **Startup Mgn**—Enter a value between 0 and 15. Use to set up the Startup margin required when bit rate is negotiated during startup. Enter a value between 0 and 15dB. The default is 0dB. At start up AP negotiates the attainable bit rate.

• **Pwr BackOff**—Use to enable or disable the Power Back Off option. When enabled, it gives 6dB power backoff if the estimated power loss is 6dB or less in accordance with G991.2.

### Setting up the Tracer

*See Setting up the Modem for ADSL Tests on page 3-11.*

### Setting up the Threshold

- **1**—From the Modem Setup screen choose **Thresholds** and press **ENTER** twice to display the following screen.

- **2**—Enter a value between 15 and 40.
Section 4 - DSL Layer Tests

G.SHDSL DSL Statistics

**Note**
During training, the STU-R and the STU-C exchange operational information.

To display the G.SHDSL Statistics:

-1- From the **Select Test Mode** select **Manual Tests** to display the **Select Operation** screen.

-2- Choose **DSL Layer**. The following screen is displayed.

-3- Choose **DSL Statistics** to display the G.SHDSL Statistics screens. For example:

**Near End Statistics**
- **Bit Rate**—The Bit Rate in kbps when running in fixed bit rate mode. If the link is not yet active ‘0’ is displayed.
- **Tx Pwr**—The Transmit Power in dBs. If the link is not active ‘0’ is displayed.
- **Rx SNR**—The Received Signal-to-Noise Ratio in dBs. This is updated every second. If the link is not active ‘0’ is displayed.
Rx SNM—The Received Signal-to-Noise Margin in dBs. This is updated every second. If the link is not active ‘0’ is displayed.

Rx Gain—The Receiver Gain in dBs. This is updated when the line is activated.

Atten.—The Loop Attenuation. This is updated every second. If the link is not active ‘0’ is displayed.

Choose F1 Next to display the next statistics screen.

Far End Statistics

Rx Gain—The Receiver Gain in dBs. This is updated when the line is activated.

Atten.—The Loop Attenuation. This is updated every second. If the link is not active ‘0’ is displayed.

Near End Errors

This displays the number of Near End segment error counts that have occurred on the local segment between AuroraPresto and the next segment terminator in the link. The errors displayed are:

- CRC—Displays the Cyclic Redundancy Check errors detected during the session.
- LOSW—Displays the Loss of Sync Word defect errors during the detected during the session.

Choose F1 Next to display the next statistics screen OR press F3 Clear to set the counts to zero.

Far End Errors

CRC—Displays the Cyclic Redundancy Check errors detected during the session.

Choose F1 Next to display the next statistics screen.
Near End Alarms
- **LowSNRS**—Low Signal-to-Noise Ratio Seconds
- **LOSS**—Loss of Signal Seconds
- **LOSSWS**—Loss of SyncWord Seconds
- **LPRS**—Loss of Power Seconds
- **ES**—Displays The number of Errored Seconds. An errored second is any second during which one or more bit errors are received.
- **SES**—Severely Errored Seconds
- **US**—Unavailable Seconds

Choose **F1 Next** to display the next statistics screen OR press **F3 Clear** to set the counts to zero.

Far End Alarms
- **LOSSWS**—Loss of SyncWord Seconds
- **LPRS**—Loss of Power Seconds
- **ES**—Displays The number of Errored Seconds. An errored second is any second during which one or more bit errors are received.
- **SES**—Severely Errored Seconds
- **US**—Unavailable Seconds

Choose **F1 Next** to display the next statistics screen.

Seg Errors
Segmented Errors. This displays the number of local errors detected by a downstream segment terminator.

- **SEGA**—Displays the current status of SEGment Anomaly errors detected during the session. When a segmented terminator encounters a CRC error the segmented terminator sets the SEGA bit in the regenerated frame to indicate that the data in the regenerated frame may be unreliable.
• **SEG**D—Displays the current status of SEGment Defect errors detected during the session. When a segmented terminator encounters a LOSW condition the segmented terminator sets the SEGD bit in the regenerated frame to indicate that the data in the regenerated frame may be unreliable.

The following is an example of a G.SHDSL printout.  
*Sending the Capture to a Printer or PC* on page 5-6.

### G.SHDSL Trace Decode

<table>
<thead>
<tr>
<th>State</th>
<th>Direction</th>
<th>Message</th>
<th>Timestamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening</td>
<td>pre act</td>
<td></td>
<td>16:50:42.76</td>
</tr>
<tr>
<td>Opening</td>
<td>activation</td>
<td></td>
<td>16:50:43.31</td>
</tr>
<tr>
<td>Opening</td>
<td>chk bitrate</td>
<td></td>
<td>16:50:46.61</td>
</tr>
<tr>
<td>Opening</td>
<td>pre act</td>
<td></td>
<td>16:50:57.29</td>
</tr>
<tr>
<td>Opening</td>
<td>activation</td>
<td></td>
<td>16:50:57.94</td>
</tr>
<tr>
<td>Opening</td>
<td>chk bitrate</td>
<td></td>
<td>16:51:01.03</td>
</tr>
<tr>
<td>Opening</td>
<td>Tx cr</td>
<td></td>
<td>16:51:01.46</td>
</tr>
<tr>
<td>Opening</td>
<td>Tx sr</td>
<td></td>
<td>16:51:04.54</td>
</tr>
<tr>
<td>Opening</td>
<td>Load CP Train</td>
<td></td>
<td>16:51:04.66</td>
</tr>
<tr>
<td>Opening</td>
<td>FD RC train</td>
<td></td>
<td>16:51:04.87</td>
</tr>
<tr>
<td>Opening</td>
<td>EQ train</td>
<td></td>
<td>16:51:06.41</td>
</tr>
<tr>
<td>Opening</td>
<td>Load CP Tom</td>
<td></td>
<td>16:51:15.76</td>
</tr>
<tr>
<td>Opening</td>
<td>Rx TC</td>
<td></td>
<td>16:51:15.98</td>
</tr>
<tr>
<td>Opening</td>
<td>Load CP DM</td>
<td></td>
<td>16:51:16.09</td>
</tr>
<tr>
<td>Opening</td>
<td>no startup</td>
<td></td>
<td>16:51:16.31</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Disc Probe</td>
<td></td>
<td>16:51:16.64</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC disc resp</td>
<td></td>
<td>16:51:16.64</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Inv Req</td>
<td></td>
<td>16:51:16.97</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Inv Resp</td>
<td></td>
<td>16:51:16.97</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC cfg Req SHDSL</td>
<td></td>
<td>16:51:17.52</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Config Resp</td>
<td></td>
<td>16:51:17.52</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Full Stat req</td>
<td></td>
<td>16:51:17.85</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Net Perf</td>
<td></td>
<td>16:51:17.85</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Maint Resp</td>
<td></td>
<td>16:51:17.85</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Stat Req</td>
<td></td>
<td>16:51:18.84</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC SNR Resp</td>
<td></td>
<td>16:51:18.84</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Net Perf</td>
<td></td>
<td>16:51:18.84</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Maint Resp</td>
<td></td>
<td>16:51:18.84</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Stat Req</td>
<td></td>
<td>16:51:21.26</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC SNR Resp</td>
<td></td>
<td>16:51:21.26</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Maint Resp</td>
<td></td>
<td>16:51:21.26</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC Stat Req</td>
<td></td>
<td>16:51:23.68</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RCV EOC SNR Resp</td>
<td></td>
<td>16:51:23.68</td>
</tr>
</tbody>
</table>
G.SHDSL Loopbacks

To send a G.SHDSL Loopback:

-1- From the Select Test Mode select Manual Tests to display the Select Operation screen.

-2- Choose DSL Layer. The following screen is displayed.

-3- Choose DSL Loopbacks to display the Loopbacks screen.

- Addr—Enter an Embedded Operations Channel.
- Cmd—Sends a command to the Far-End.
- Direction—Use to set up the loop direction from customer to network or network to customer.
- Result—NOK indicates that the results are not OK.
-4- Press F1 SND to send a loopback request. 
If the following screen is displayed your Aurora Presto has not connected to the modem or DSLAM. See Setting up the Modem for ADSL Tests on page 3-11.
ATM Layer Tests

AuroraPresto can generate, transmit and receive AAL-5 encapsulated ATM packets.

You can configure AuroraPresto to accept data via the 10 Base T (or optional) ATM 25 data port.

When 10 Base T is selected as the data port, Ethernet frames are processed into AAL-5 encapsulated ATM packets for transport over the ADSL layer. For Higher level statistics for mapped and unmapped VCs see Displaying ATM Layer Test Results on page 4-53. These statistics reflect the increased, level of processing involved.

When ATM 25 is selected as the data port, the native ATM cells are transmitted via AuroraPresto onto the ASDL layer. A top level view of the statistics is provided for this simple MAC bridging operation.

Setting up the Data Port Connection

**Setting up the ATM Layer Test Data Connection**

This sets up AuroraPresto to simulate Golden Modem Mode. See the diagram on page 4-10.

- From the Main Setup screen select Data Port to display the Data Port Setup screen.
Setting up VPIs (Virtual Path Identifiers) and VCIs (Virtual Channel Identifiers)

ATM switches use 256 VPIs (Virtual Path Identifiers). Each VPI has 65,535 VCs (Virtual Channels or Circuits). The VPI is used with the VCI to identify the route of each ATM cell between switches. Each switch allocates a cell’s VPI/VCI as it passes through. Therefore, a cell’s VPI/VCI may change from switch to switch.

You can configure up to four VPI/VC combinations.

-1- From the Main Setup screen select ATM to display the VC Config screen.

-2- Use the UP and DOWN keys to select one of the following and press ENTER.
   - VPI—Enter a number in the range 0 to 255.
   - VCI—Enter a number in the range 0 to 65535.
   - VC Mode—a VC must be enabled to send or receive data. You can disable a VC to free more bandwidth for use by other enabled VCs.

Notes
- You can also access the VC Config screen from the PPP Setup menu.
- If you want to select a different VC, press F1 Next to display the VC you want to edit.
Section 5 - ATM Layer Tests

- **Tx Rate%**—There are four VCs available for data transfer. These four VCs share the available bandwidth. Each VCs transmission rate can be set between 0 and the remaining available bandwidth. The sum of the four VCs bandwidth cannot exceed 100%. *AuroraPresto* calculates the remaining available bandwidth to prevent the bandwidth availability exceeding 100%.

-3- Press *ENTER* to accept your entry.

If additional VCs are used, press *F1 Next* and repeat steps 2 to 3 above.

**Note**
The MAC learning bridge sets up a MAC/IP relationship for any VC or 10 Base T destination that you enable. If you disable any of these destinations, the MAC learning bridge will retain the existing MAC/IP relationship until 15 minutes of inactivity has passed. After 15 minutes the MAC learning bridge will clear the MAC/IP relationship it has learned.

**Displaying ATM Layer Test Results**

-1- From the *Select Test Mode* screen select *Manual Tests* to display the *Select Operation* screen.

-2- Select *ATM Layer* and press *ENTER* to display the *ATM Tests* screen.

**ATM Global Statistics**

**Note**
ATM Global Stats displays the statistics for all ATM cells recognised by *AuroraPresto*. 
From the ATM Tests screen select ATM Global Stats. The following screen is displayed.

For ATM Global Statistics to be valid, **State:** must display **Sync Locked.**

-2- Use the **UP** and **DOWN** arrow keys to view the results.

  - **State**—ATM synchronisation status
  - **Cells Rx**—The number of cells received
  - **Cells Tx**—The number of cells transmitted
  - **Error Cells**—The number of errored cells received
  - **Unmap cells**—The number of unmapped incoming cells received
  - **AAL5 Pkt Rx**—The number of AAL5 packets received
  - **AAL5 Pkt Tx**—The number of AAL5 packets transmitted
  - **AAL5 Pkt Dsc**—The number of AAL5 packets discarded

Press **F2 Clear** to clear the ATM Global Statistics.

**ATM VC Statistics**

**Note**
ATM VC Stats displays the statistics for the VCs which have been mapped and enabled by **AuroraPresto.**
From the **ATM Tests** screen select **ATM VC Stats**.
The following screen is displayed.

![ATM VC Stats Screen](image)

Use the **UP** and **DOWN** arrow keys to view the results.
The VC (Virtual Circuit Identifier) number is displayed in the title bar.

- **VPI**—Virtual Path Identifier
- **Cells Rx**—The number of cells received
- **Cells Tx**—The number of cells transmitted
- **AAL5 Pkt Rx**—The number of packets received
- **AAL5 Pkt Tx**—The number of packets transmitted
- **AAL5 Err Pkts**—The number of errored packets received
- **AAL5 Pkt Dsc**—The number of packets discarded
- **Tx Cells/S**—The number of transmitted cells per second
- **Rx Cells/S**—The number of cells received per second
- **Tx User kbps**—Transmitted User Bit Rate (ATM Layer) in kbps
- **Rx User kbps**—Received User Bit Rate (ATM Layer) in kbps

**Note**

**Tx User kbps** and **Rx User kbps** counters are not applicable to BERT data.

To display statistics for the next VC, press **F1 Next**.
Press **F2 Clear** to clear the VC Statistics.
**Unmapped VCs**

These are VCs that AuroraPresto does not recognise as configured or known VCs. AuroraPresto receives ATM cells and decodes the VC number in the header. If AuroraPresto does not recognise the VC number it stores the VC number in the list of unmapped VCs.

- **From the ATM Tests screen select Unmapped VCs.**
  
The following screen is displayed.

  ![Unmapped VC List Screen](image)

  - **Cells Rx**—The number of cells received on the Unmapped VC List.
  - **Time**—The time cells were received on the Unmapped VC List.

- **To display the next VC number, press F2 Next.**
  
  To clear the Unmapped VCs List press F3 Clear.

AuroraPresto stores the 10 Most Recently Used (MRU) unmapped VCs in the MRU Unmapped VC list. The oldest MRU Unmapped VC is deleted when a new VC is added.

**To display the MRU Unmapped VC List**

- **From the Unmapped VC List screen, press F1 Done.**
  
The following screen is displayed.

  ![MRU Unmapped VC List Screen](image)

  - **Press F1 List to return to the Unmapped VC List.**
  - **To clear the MRU Unmapped VC list press F3 Clear.**
Bit Error Rate Testing

You can use **AuroraPresto** to perform a Bit Error Rate Test (BERT) to test the quality of the DSL copper pair line. There are two BER tests: the physical layer BERT and the DSL ATM BERT.

Software Compatibility

If you are using **AuroraPresto** to test a BERT pattern from an **AuroraJazz** or another **AuroraPresto** you must make sure that the versions of software on the testers are compatible. If the software versions are not compatible BERT synchronisation will not be achieved. The following table shows the software versions that are compatible and incompatible.

<table>
<thead>
<tr>
<th>AuroraJazz Software version</th>
<th>1.23 &amp; earlier</th>
<th>later than 1.23</th>
<th>AuroraPresto Software version</th>
<th>2.0 &amp; earlier</th>
<th>later than 2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AuroraJazz</strong></td>
<td>✔</td>
<td>🗋</td>
<td><strong>AuroraPresto</strong></td>
<td>✔</td>
<td>🗋</td>
</tr>
<tr>
<td>Software version</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.23 &amp; earlier</td>
<td>✔</td>
<td>🗋</td>
<td></td>
<td>✔</td>
<td>🗋</td>
</tr>
<tr>
<td>later than 1.23</td>
<td>🗋</td>
<td>✔</td>
<td></td>
<td>🗋</td>
<td>✔</td>
</tr>
<tr>
<td><strong>AuroraPresto</strong></td>
<td>✔</td>
<td>🗋</td>
<td></td>
<td>✔</td>
<td>🗋</td>
</tr>
<tr>
<td>Software version</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0 &amp; earlier</td>
<td>✔</td>
<td>🗋</td>
<td></td>
<td>✔</td>
<td>🗋</td>
</tr>
<tr>
<td>later than 2.0</td>
<td>🗋</td>
<td>✔</td>
<td></td>
<td>🗋</td>
<td>✔</td>
</tr>
<tr>
<td><strong>Third Party Equipment</strong></td>
<td>N/A</td>
<td>🗋</td>
<td></td>
<td>🗋</td>
<td>✔</td>
</tr>
</tbody>
</table>

* = incompatible
✓ = compatible
ADSL Physical Layer BERT
The ADSL physical layer BERT is a BERT which is automatically performed by the Alcatel ADSL ATU-R and ATU-C hardware during a normal transmission. BERT data is injected into the unused part of the ADSL line bandwidth and is carried in dummy cells. The user has no control over the BERT pattern choice, this is defined by the Alcatel hardware. The BERT line speed can be controlled indirectly by changing the speed of the data transmission.

When a cell header error is found in a test cell, the current second is counted as an errored second, the whole cell is discarded and the payload is not used for the BERT again.

The BERT counts and accumulates payload bit errors during valid seconds and not during errored seconds. This is a disadvantage of the Background BERT but, it is available at all times during Link and Network Level Tests.

You can use the ADSL physical layer BERT alone, or with the ADSL ATM BERT.

After the ADSL layer has been activated, the ADSL physical layer BERT runs continuously, checking the integrity of received frames.

ADSL ATM BERT
AuroraPresto generates ATM cells with data payloads containing the BERT pattern. Each ATM cell has a 5 byte header and 48 bytes of payload. The BERT pattern is inserted into the payload in blocks of 48 x 8 bits in the transmit direction. In the receive direction the ATM cell payload is extracted and checked for bit errors by AuroraPresto.
The ADSL ATM BERT can be configured as follows:

- **A single AuroraPresto with remote ATM PHY level loopback.** AuroraPresto generates the BERT Pattern (transported in ATM cells) and the pattern is looped back to the receiver. The BERT operates only on the lower of the two ADSL line speeds (up to 800 Kbps upstream speed). The ATM PHY or cell level loopback must be invoked in the DSLAM (ATU-C) or in the modem (ATU-R).

- **Two AuroraPresto testers terminating the ends of the ADSL line.** This test runs a full bandwidth BERT at upstream and downstream line speeds. You must set up the testers to send and receive the same BERT pattern at known line speeds over known VCCs (Virtual Channel/Circuit Connections).

- A single AuroraPresto with AuroraJazz connected behind the DSLAM. AuroraPresto and AuroraJazz are used to generate ATM cells containing the BERT pattern.

**Note**
The BERT pattern available on AuroraJazz may be limited by the software version installed.

**Displaying ADSL physical layer BERT Results**
See [DSL Layer on page 4-33](#).

**Setting up an ATM BERT**

**Note**
To be able to run an ATM BERT, you must set up the ADSL layer to be connected.

-1- From the **Select Test Mode** screen, press *F4 Setup* to display the **Main Setup** screen.

-2- Select **BERT** to display the **BERT Setup** screen.
**Test Mode**
- Select **Test Mode**.

- **Rx Only**
  *AuroraPresto* is set to receive an ATM BERT pattern.

- **Tx Only**
  *AuroraPresto* is set to transmit an ATM BERT pattern.

- **Rx & Tx**
  *AuroraPresto* receives and transmits an ATM BERT pattern at the same time. For example, *AuroraPresto* can transmit 8Mb/s downstream with a BERT payload in ATM cells, and receive 256kb/s upstream with a BERT payload in ATM cells. This fully tests both the upstream and downstream channels.

**Setting the fail threshold**

For a timed test (that is when **Duration** is not **Continuous**), you must set the number of errors that cause the test to fail if they occur within the designated time.

The threshold you choose depends on the specification of the link you are testing. For example, if it requires a performance which is almost error-free, you would set a low threshold.

- From the **Main Setup** screen select **BERT** to display the **BERT Setup** screen.

---

*AuroraPresto—User Guide*
Section 5 - ATM Layer Tests

-2- Select **Threshold**.

The **BER** display shows the error rate that applies if the currently selected number of errors occur within the selected test time. The rate is shown as x.yE-z, where E-z means 10 to the power of z. In the above example, the rate is 1.0E9.

-1- If the following screen is displayed,

press **F1 On** to enable the threshold.

To set the threshold as a number of errors:

-1- Select **Errors** from the **Threshold** screen to display an entry window.

-2- Enter a number of errors between 1 and 100 and press **ENTER**.
Choosing the test pattern
You can choose different test patterns to find errors on the line.

-1- Select **Pattern** from the **BERT** setup menu to display a list of patterns which **AuroraPresto** can transmit for a BERT.
   For details of the patterns see **BERT on page 7-9**.

-2- Select a pattern and press **ENTER**.
   If you choose User Defined the following optional are available:
   - **Def: Pat (hex)**—Define Bit Pattern. Enter a bit pattern in hexadecimal format and press **F4 OK** to accept the entry.
     To delete individual characters press **F1 Del**.
     To clear all characters press **F2 Clear**.
   - **Def: Pat Bit Len**—Define Pattern Bit Length.
     Enter a pattern bit length between 2 and 32 bits.

Inverting the test pattern
-1- Select **Invert Pattern** from the **BERT** setup menu to display the following screen.

-2- To invert the BERT pattern choose **On**.

Choosing the duration of the test
You can change the length of time you want the BERT to run.
Section 5 - ATM Layer Tests

-1- Select Duration from the BERT setup menu to display the options.

-2- Select one of the following and press ENTER.
   • Continuous—the test runs until you stop it. Continuous BERT does not need a fail rate, so the Threshold setting is removed.
   • the test length you require from 1 minute, 15 minutes or 1 hour.
   • User Defined—set a custom test length. Aurora Presto displays a User Def setting window.

To set a custom (User Defined) test length:

-1- From the BERT setup menu select Duration, choose User Defined and press ENTER. The User Def window is displayed in the BERT setup menu.

-2- Select User Def and press ENTER.

-3- Enter the duration in hours, minutes and seconds (two digits for each), and press ENTER. The maximum duration you can enter is 99:59:59.

Setting up a VPI/VPC for the BERT
You can set up a dedicated VPI/VCI for the ATM BERT.

Note
The VPI/VCI that you enter for the ATM BERT must not be the same as any of the four VPI/VCIs set up for the ATM Layer.
-1- Use the UP and DOWN keys to select VPI from the BERT setup menu to display an entry window.

-2- Enter a VPI number between 0 and 255.

Setting up a VCI for the BERT

-1- Select VCI from the BERT setup menu to display an entry window.

-2- Enter a VCI number between 0 and 65535.

Setting up BERT%

The BERT VC is a dedicated VC and not one of the four ATM Layer Test VCs. It shares the same bandwidth pool as the four VCs. It can be used to transmit data above its selected available bandwidth when one or more of the four VCs is not transmitting data.

Note

If the ADSL BERT% is set to 100% then none of the four ATM Layer Test VCs will be suitable for carrying data while the test is being performed.

-1- Select DSL BW% from the BERT setup menu to display an entry window.

-2- Enter a BERT% between 1 and 100.
Starting a DSL ATM BERT

Note
Showtime must be displayed to indicate that the DSL is active and a connection to a modem has been established.

-1- From the Select Operation screen select ATM Layer and press ENTER to display the DSL ATM BERT Test screen.

-2- Press F1 Start to begin the BERT.
When the BERT has finished the following screen is displayed.

Making sure that the patterns are synchronised
For the BERT to be reliable, the pattern AuroraPresto receives back across the line must be synchronised with the pattern it is transmitting, so that they can be compared.

To check that this is the case, look at the BERT Sync LED. Steady green means that the patterns are synchronised. If they are out of synchronisation, check that the remote end is looping back and sending the same pattern as your AuroraPresto.

Making sure that the test is working properly
At the start of the test, you can inject a single bit error into the data stream and check that it is detected. To do this:

-1- Press F4 Error.

-2- Make sure that the error has been detected and is displayed.
Press F3 Clear to reset the BERT LED.

-3- Press F2 Reset to reset the counters to zero and begin the ‘real’ test.
Stopping the test manually

You can stop a BER test manually at any time. You might do this when **Duration** is **Continuous** and you want to end the test, or when you want to perform a new test with different BERT settings.

1. Press **F1 Stop**.

   ![](image)

   **AuroraPresto** stops the test and the results are displayed.

   Use the **UP** and **DOWN** keys to scroll through the on-screen results.
The following table explains the results.

<table>
<thead>
<tr>
<th>DSL ATM BERT Results Display</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time</strong></td>
</tr>
<tr>
<td><strong>Rx kbits</strong></td>
</tr>
<tr>
<td><strong>BER</strong></td>
</tr>
<tr>
<td><strong>Bit_errs</strong></td>
</tr>
<tr>
<td><strong>Tx kbits</strong></td>
</tr>
<tr>
<td><strong>ES</strong></td>
</tr>
<tr>
<td><strong>Injected</strong></td>
</tr>
<tr>
<td><strong>Sync-Loss</strong></td>
</tr>
<tr>
<td><strong>Status</strong></td>
</tr>
</tbody>
</table>

**Note**

No synchronisation is required to start the counter in **TX Only** mode.
ATM Layer BERT Results
These follow G821 format and are saved as part of the session information.

During the test Aurora Presto displays the error count.
When the test is complete, Aurora Presto displays the final results.

F5 OAM Testing
Your Aurora Presto may not have the OAM Ping Test option because your organisation has not bought it.
For details contact your Agilent Technologies representative.

OAM (Operation, Administration & Maintenance) is a set of ATM management procedures which operate on the network. Designated OAM cells are transmitted across the network. The OAM cells carry information that is used for alarm surveillance, performance monitoring and troubleshooting on virtual circuits.

Setting up the OAM Ping Test
Notes
- The source address on Aurora Presto must be clear as some types of network equipment may not recognise a loopback cell from Aurora Presto if a source address is present.
- You can also run an OAM Ping test from the Auto Test Mode screen. See Auto Tests on page 4-3 for more information.

-1- From Select Test Mode screen select Manual Tests.
-2- Select ATM Layer and choose OAM Ping Test and press ENTER.
Section 5 - ATM Layer Tests

-3- Press F4 Setup to display the OAM Ping Setup screen.

**Src**
Use this to set up AuroraPresto's ATM Source Address for the Ping response.

**Dst**
Use this to set up the Destination Address (for Segmented Pings only).

**Port**
Choose a VC (VC1 to VC4). Only VCs which have been mapped and enabled by AuroraPresto are displayed.

**Type**
Choose Segmented or End-to-End. You must specify an ATM Destination Address if you choose Segmented.

**Pings**
Enter the number of Pings to be sent between 0 to 10000 (0 = continuous).

**Timeout**
Enter a timeout length between 500 to 5000ms. This is the length of time AuroraPresto waits after sending a ping before it assumes that a reply will not be received.

**Delay**
Enter the delay in seconds between successive Pings. The minimum is 5 seconds.

Setting up the Destination Address

-1- Select Other Tests from the Select Test Mode screen and choose OAM Ping Test.

-2- Press F4 Setup and select Dst Addr.
Choose **F1 List** to select a Destination Address.

A screen similar to the following is displayed.

- Press **F1 Sel** to select an existing Destination Address 
  OR
  To edit an existing address, select the address and press **ENTER**.

- Enter the Destination Address and press F4 OK.

To delete an address, select the address you want to delete and press **F1 Del**.

### Starting an OAM Ping Test

- Select **ATM Layer** from the **Select Test Mode** screen and choose **OAM Ping Test**.

  A screen similar to the following is displayed:
Section 5 - ATM Layer Tests

-2- Press F1 Start to start the test. To stop the test, press F1 Stop. A results screen similar to the following is displayed.

```
<table>
<thead>
<tr>
<th>Status</th>
<th>Passed/Failed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sent/Recvd</td>
<td>The number of Pings sent (Tx) and the number of Pings received (Rx).</td>
</tr>
<tr>
<td>Timeouts</td>
<td>The number of Ping Timeouts.</td>
</tr>
<tr>
<td>Min RTT</td>
<td>Minimum Round Trip Time (Delay)</td>
</tr>
<tr>
<td>Max RTT</td>
<td>Maximum Round Trip Time (Delay)</td>
</tr>
<tr>
<td>Avg RTT</td>
<td>Average Round Trip Time (Delay)</td>
</tr>
</tbody>
</table>
```

F5 OAM VC Statistics

-1- Select ATM Layer from the Select Test Mode screen and choose F5 OAM Stats.

The following screen is displayed.

```
F01-1P1 10B7 Initng
F01-0AMVC Stats
VPI-1 VCI-322
Cells logged: 111
Stats: F: 484
Cells Rx: 333
Next Clear
```
Use the **UP** and **DOWN** arrow keys to view the results.

- **VPI**—Virtual Path Identifier
- **Cells looped**—The number of F5 OAM cells looped
- **Cells Tx**—The number of F5 OAM cells transmitted
- **Cells Rx**—The number of F5 OAM cells received

To display statistics for the next VC, press **F1 Next**. Press **F2 Clear** to clear the F5 OAM Statistics.
Section 6 - Datalink

Setting up the Data Port

-1- From the Main Setup screen select Data Port.

-2- Select Data Connect and press ENTER to display the Data Port Connection screen.

Choose the Data Port interface you want to use. Choose either 10BT or ATM 25.

ATM25 Interface

If your Aurora Presto is fitted with the optional ATM 25.6 interface, Aurora Presto can simulate a DTE using an ATM25.6 data port.

The ATM 25.6 interface card carries ATM traffic up to 25.6 Mbits/s. You can produce full bandwidth testing results statistics by performing an ATM 25 BERT.
Setting up an ATM 25 BERT

-1- From the Select Test Mode screen, press F4 Setup to display the Main Setup screen.

-2- Select BERT.

Test Mode

-1- Select Test Mode from the BERT setup menu to display a list of ATM25 BERT test modes.

- • Rx & Tx
  AuroraPresto is set up to receive and transmit an ATM BERT pattern at the same time.

- • Rx Only
  AuroraPresto is set to receive an ATM BERT pattern.

- • Tx Only
  AuroraPresto is set to transmit an ATM BERT pattern.

Setting the fail threshold

For a timed test (that is when Duration is not Continuous), you must set the number of errors that cause the test to fail if they occur within the designated time.

The threshold you choose depends on the specification of the link you are testing. For example, if it requires a performance which is almost error-free, you would set a low threshold.
-1- Select **Threshold** from the **BERT** setup menu.

The **BER** display shows the error rate that applies if the currently selected number of errors occur within the selected test time. The rate is shown as \(x.y \times 10^z\), where \(E-z\) means 10 to the power of \(z\). In the above example, the rate is \(1.0 \times 10^9\).

-1- If the following screen is displayed,

press **F1 On** to enable the threshold.

To set the threshold as a number of errors:

-1- Select **Errors** from the **Threshold** screen to display an entry window.

-2- Enter a number of errors between 1 and 100 and press **ENTER**.
Choosing the test pattern

You can choose different test patterns to find errors on the line.

- 1- Select Pattern from the BERT setup menu to display a list of patterns which AuroraPresto can transmit for a BERT. For details of the patterns see BERT on page 7-9.

- 2- Select a pattern and press ENTER. If you choose User Defined the following optional are available:

  - **Def: Pat (hex)** — Define Bit Pattern. Enter a bit pattern in hexadecimal format and press F4 OK to accept the entry. To delete individual characters press F1 Del. To clear all characters press F2 Clear.

  - **Def: Pat Bit Len** — Define Pattern Bit Length. Enter a pattern bit length between 2 and 32 bits.

Inverting the test pattern

- 1- Select Invert Pattern from the BERT setup menu to display the following screen.

- 2- To invert the BERT pattern choose On.
Choosing the duration of the test

You can vary the length of time you want the BERT to run.

-1- Select Duration from the BERT setup menu to display the options.

-2- Select one of the following and press ENTER.

- Continuous—the test runs until you stop it. Continuous BERT does not need a fail rate, so the Threshold setting is removed.
- the test length you require from 1 minute, 15 minutes or 1 hour.

- User Defined—set a custom test length. AuroraPresto displays a User Def setting window.

To set a custom (User Defined) test length:

-1- From the BERT setup menu select Duration, choose User Defined and press ENTER. The User Def window is displayed in the BERT setup menu.

-2- Select User Def and press ENTER.

Enter the length in hours, minutes and seconds (two digits for each), and press ENTER. The maximum length you can enter is 99:59:59.
Setting up a VPI/VCI for the BERT

You can set up a dedicated VPI/VCI for the ATM 25 BERT.

**Note**

The VPI/VCI that you enter for the ATM 25 BERT must not be the same as any of the four VPI/VCIs set up for the ATM layer.

1. Use the **UP** and **DOWN** keys to select VPI from the BERT setup menu to display an entry window.

2. Enter a **VPI** number between 0 and 255.

Setting up a VCI for the BERT

1. Select **VCI** from the BERT setup menu to display an entry window.

2. Enter a **VCI** number between 0 and 65535.

Setting up BERT%

The BERT VC is a dedicated VC and not one of the four ATM Layer Test VCs. It shares the same bandwidth pool as the four VCs. It can be used to transmit data above its selected available bandwidth when one or more of the four VCs is not transmitting data.

**Note**

Data speeds will always be limited by the narrowest available bandwidth on an end-to-end connection. For cells generated on the ATM25 interface, transmitted over ADSL, the maximum rate will be 8Mbps.
-1- Select DSL BW% from the BERT setup menu to display an entry window.

-2- Enter a DSL BW% between 1 and 100.

Performing an ATM25 BERT

-1- From the Select Test Mode select Manual Tests.

-2- From the Select Operation screen select ATM Layer and press ENTER to display the ATM25 BERT Test screen.

-3- Press F1 Start.

The following screen is displayed.

Making sure that the patterns are synchronised

For the BERT to be reliable, the pattern AuroraPresto receives back across the line must be synchronised with the pattern it is transmitting, so that they can be compared.

To make sure that this is the case, look at the BERT Sync LED. Steady green means that the patterns are synchronised. If they are out of synchronisation, check that the remote end is looping back and sending the same pattern as your AuroraPresto.
Making sure that the test is working properly
At the start of the test, you can inject a single bit error into the data stream and check that it is detected. To do this:

-1- Press **F4 Error**.

-2- Check that the error has been detected and is displayed.
   
   Press **F3 Clear** to reset the BERT LED.

-3- Press **F2 Reset** to reset the counters to zero and begin the ‘real’ test.

Stopping the test manually
You can stop a BER test manually at any time. You might do this when **Duration** is **Continuous** and you want to end the test, or when you want to perform a new test with different BERT settings.

-1- Press **F1 Stop**.

**AuroraPresto** stops the test and the results are displayed.
Use the **UP** and **DOWN** keys to scroll through the on-screen results.
The following table explains the results.

### ATM25 BERT Results Display

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time</strong></td>
<td>The length of time the test has been running, in hours, minutes and seconds.</td>
</tr>
<tr>
<td><strong>Rx kbits</strong></td>
<td>The number of kilobits of data received while the test is running and the patterns are synchronised.</td>
</tr>
<tr>
<td><strong>BER</strong></td>
<td>The Bit Error Rate, displayed in exponential format.</td>
</tr>
<tr>
<td><strong>Bit_errs</strong></td>
<td>The number of bit errors received while the test is running and the patterns are synchronised.</td>
</tr>
<tr>
<td><strong>Tx kbits</strong></td>
<td>The number of kilobits of data transmitted while the test is running and the patterns are synchronised.</td>
</tr>
<tr>
<td><strong>ES</strong></td>
<td>The number of Errored Seconds. An errored second is any second during which one or more bit errors are received.</td>
</tr>
<tr>
<td><strong>Injected</strong></td>
<td>The number of errors injected.</td>
</tr>
<tr>
<td><strong>Sync-Loss</strong></td>
<td>The number of occasions when pattern synchronisation has been lost.</td>
</tr>
<tr>
<td><strong>Status</strong></td>
<td>The status of the BERT synchronisation.</td>
</tr>
</tbody>
</table>

**Note**

No synchronisation is required to start the counter in **TX Only** mode.
**ATM25 Statistics**

-1- From the ATM Layer screen press ENTER to display the ATM Tests screen.

-2- Select ATM25 Stats.
   The following screen is displayed.

Use the UP and DOWN arrow keys to view the results.

- **State**—ATM25 synchronisation status.
- **Cells Rx**—The number of cells received.
- **Cells Tx**—The number of cells transmitted.
- **Rx Symbol Err**—The number of received framing error symbols.
- **Rx Short Cells**—Cells received that are shorter than 53 bytes.
- **HEC**—Header Error Count. The number of headers received with CRC errors.
Section 7 - IP Layer Tests

You must set up the IP Layer before you can perform IP Tests. See Setting up the IP Options on page 3-15.

Displaying the WAN Global Stats

- From the IP Tests screen select WAN Global Stats to display the following screen.

- **Tx Fr**—Displays the total number of Frames transmitted.
- **Rx Fr**—Displays the total number of Frames received.
- **Dsc Fr**—Dsc Fr: The total number of discarded frames.

Displaying the LAN Global Stats

- From the IP Tests screen select LAN Global Stats to display the following screen.

- **Tx Fr**—Displays the total number of Frames transmitted.
- **Rx Fr**—Displays the total number of Frames received.
Displaying the LAN Connection Stats

- From the IP Tests screen select Connection Stats to display the following screen.

- **Frm**—Displays the IP Address of the device that *Aurora Presto* is receiving data from.
- **To**—Displays the IP Address of the device that *Aurora Presto* is sending data to.
- **Tx UDP Pkts**—Displays the total number of Universal Data Protocol/Universal Datagram Protocol packets transmitted.
- **Rx UDP Pkts**—Displays the total number of Universal Data Protocol/Universal Datagram Protocol packets received.
- **Tx TCP Pkts**—Displays the total number of Transmission Control Protocol packets transmitted.
- **Rx TCP Pkts**—Displays the total number of Transmission Control Protocol packets received.
- **Tot Tx Pkts**—Displays the total number of packets transmitted.
Section 7 - IP Layer Tests

- **Tot Rx Pkts**—Displays the total number of packets received.

-2- Press **F1 Clear** to clear the **Connection Stats**.
Press **F2 Next** to display the next set of Connection Statistics.
Press **F4 Setup** to display the **IP Setup** screen.

**IP Ping Test**

*AuroraPresto* enables you to perform a bridged or routed IP Ping Test.

You can use an IP Ping Test to test IP routing.

*AuroraPresto* can send a ping via the 10 Base T data port and can also send an encapsulated IP ping as the ATM cell payload. The ATM cell is sent across the ADSL layer.

*Note*

The PPP Option is only available if your organisation has purchased this option. For details contact your Agilent Technologies representative.

If you have enabled PPP, *AuroraPresto* can send an IP Ping using the PPP connection.
Setting up the IP Ping Test

-1- From the Main Setup screen choose Ping.
   The Ping Setup screen is displayed.

   Note
   To access the Ping Setup screen from the Ping Test screen, press F4 Setup.

-2- Select one of the following and press ENTER.
   - **Mode**—Use to set up the network type. Choose LAN if you are using an Ethernet connection.
     Choose WAN if you are using an ADSL connection.

   **Note**
   The Mode option is only available if you have set the IP Mode to Routed. See Setting up the IP Mode on page 3-16.

   - **Dst**—Use this to set up the Destination IP Address. This consists of 4 groups of 3 digits. The maximum number you can enter in each group is 255.
   - **Pings**—Enter the number of Pings to be sent between 0 to 10000 (0 = continuous).
   - **Timeout (ms)**—Enter a timeout length between 500 to 5000ms. This is the length of time AuroraPresto waits after sending a ping before it assumes that a reply will not be received.
   - **Ping Length**—Use this to set up a payload for the Ping. Enter a ping length between 1 and 1000 bytes or characters.
   - **Pause**—Enter a time, AuroraPresto waits between each ping it sends, between 0 to 1000ms.

IP Frame Setup—See Setting up IP Framing on page 3-21.
Section 7 - IP Layer Tests

PPP Setup—See Setting up PPP Options on page 3-26.

-3- Enter the digits in the correct format and range and press ENTER.

Starting an IP Ping Test

-1- From the Select Test Mode screen select Manual Tests to display the Select Operation screen.

-2- Select IP Layer and press ENTER to display the IP Tests screen.

-3- Choose Ping to display the Ping Test screen.

-4- Press F1 Start.
To stop the test and display the results, press \textbf{F1 Stop}. A screen similar to the following is displayed.

Press \textbf{F2 Addr} to return to the \textbf{Ping Test} start screen.

\begin{table}[h]
\centering
\begin{tabular}{|c|p{10cm}|}
\hline
\textbf{IP Ping Results Display} & \\
\hline
\textbf{Ping} & This displays the Ping Test Results as Passed or Failed. \\
\hline
\textbf{Sent/ Recvd} & The number of Pings sent (Tx) and the number of Pings received (Rx). \\
\hline
\textbf{Timeouts} & The number of Ping Timeouts. \\
\hline
\textbf{Errors} & The number of errors detected. \\
\hline
\textbf{Avg Delay} & Average roundtrip delay in ms (milliseconds). \\
\hline
\textbf{Path} & This displays the current Ping interface; 10BT, VC1-VC4. and the method used, for example: Bridged, PPPoA or PPPoE. \\
\hline
\end{tabular}
\end{table}

\textbf{Note}

If any of the above results fail a ‘-’ symbol or a blank will be displayed.

\textbf{Setting up the Route Trace Options}

See \textit{Setting up the Trace Route Options} on page 3-14.
Section 7 - IP Layer Tests

Starting a Route Trace

-1- From the Select Test Mode screen select Manual Tests to display the Select Operation screen.

-2- Select IP Layer and press ENTER to display the IP Tests screen.

-3- Choose Route Trace to display the following screen.

Press F3 IP Adr to display the WAN Address screen. Press F4 IP Setup to display the Route Trace Setup screen.

Displaying the Router Stats

-1- From the Select Operation screen select IP Layer and press ENTER to display the IP Tests screen.

-2- Select Router Stats to display the Router Stats screen.
Note

You can also access the Router Stats from the Route Trace test screen by pressing F2 Rsits.

- **Tx UDP Pkts**—Displays the total number of Universal Data Protocol/Universal Datagram Protocol packets transmitted.
- **Rx UDP Pkts**—Displays the total number of Universal Data Protocol/Universal Datagram Protocol packets received.
- **Tx TCP Pkts**—Displays the total number of Transmission Control Protocol packets transmitted.
- **Rx TCP Pkts**—Displays the total number of Transmission Control Protocol packets received.
Section 8 - PPP Layer Tests

Note
The PPP Option is only available if your organisation has purchased this option. For details contact your Agilent Technologies representative.

PPP (Point-to-Point Protocol) enables a DTE to communicate with another DTE over networks that use different protocols. PPP provides OSI layer 2 messaging.

AuroraPresto can start a PPP session to an Edge Router.

Setting up PPP Options
See Setting up PPP Options on page 3-26.

Displaying PPP Statistics
Note
The PPP Layer option is displayed only when a PPP protocol has been selected.
See Setting up PPP Options on page 3-26.

-1- From the Select Test Mode screen select Manual Tests to display the Select Operation screen.
2- Select PPP Layer and press ENTER to display the PPP Link State screen.

- Variant—PPPoE Cli, PPPoE Svr, PPPoA Cli, PPPoA Svr, or Bridged.
- LCP—Link Control Protocol status.
- IPCP—Displays the IPCP (Internet Protocol Control Protocol) link status. Opened is displayed when an IP address is allocated to Aurora Presto from the network. Unused is displayed if the origin has been set to a fixed IP Address (Specify).
- Tot RxPkt—The total number of PPP packets received.
- Tot TxPkt—The total number of PPP packets transmitted.

Press F3 PPP to active or deactivate the PPP layer.

Press F2 Clear to clear all PPP Link States.

PPPoE Only Statistics
- Variant—PPPoE Cli or PPPoE Svr
- Dis RxPkt—The total number of Discovery Phase packets received.
- Dis TxPkt—The total number of Discovery Phase packets transmitted.
- Ses RxPkt—The total number of Session Phase packets received.
- Ses TxPkt—The total number of Session Phase packets transmitted.
- AC Name—The name of the Access Concentrator (Edge Router). (PPPoE Cli only)
Section 8 - PPP Layer Tests

- **Service**—Any service. For example: TV on Demand. (**PPPoE Cli only**).

- **Port**
  - Enabled VCs 1-4.

- **State**
  - Displays the protocol state either **Down** or **Open**.

- **Tot RxPkt**
  - The total number of PPP packets received.

- **Tot TxPkt**
  - The total number of PPP packets transmitted.
Chapter 5

Capturing Test Information

Contents

Capturing the Decode ........................................ 5-2
Capturing Test Information

You can save the test information for an entire test session in AuroraPresto’s memory. This is useful on sites where no PC or printer is available.

- You can retrieve the stored session and display a simple decode on screen. This allows you to view trace and results information for an entire session.
- You can also send a stored session to one of the communications ports, when the equipment you require is available.

Capturing the Decode

You can set AuroraPresto to begin capturing DSL information to memory. AuroraPresto also enables you to stop and start capturing at any time—this means that you can capture an entire session, or any part of a session.

To display the options for the DSL capture:

- From the Select Test Mode screen press F2 Cp/Rv. The following screen is displayed.
Capturing Test Information

-2- Select the option you want.

<table>
<thead>
<tr>
<th>Sessions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Session</td>
<td>Begin capturing test information to memory.</td>
</tr>
<tr>
<td>Save RealTime</td>
<td></td>
</tr>
<tr>
<td>Review Results</td>
<td>Review previously stored test results.</td>
</tr>
</tbody>
</table>

The following is an example of an ADSL Trace.

Trace Decode

<table>
<thead>
<tr>
<th>State</th>
<th>Direction</th>
<th>Message</th>
<th>Timestamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing</td>
<td>&lt;RSP</td>
<td>Connect. Closed</td>
<td>14:34:54.25</td>
</tr>
<tr>
<td>Offline</td>
<td>&lt;RSP</td>
<td>IDLE</td>
<td>14:34:54.25</td>
</tr>
<tr>
<td>Offline</td>
<td>CMD&gt;</td>
<td>Open AUTO</td>
<td>14:35:09.26</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RSP</td>
<td>Seeking ATU</td>
<td>14:35:09.39</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RSP</td>
<td>OPEN failed TO</td>
<td>14:35:54.26</td>
</tr>
<tr>
<td>Closing</td>
<td>&lt;RSP</td>
<td>Connect. Closed</td>
<td>14:35:54.32</td>
</tr>
<tr>
<td>Offline</td>
<td>&lt;RSP</td>
<td>IDLE</td>
<td>14:35:54.32</td>
</tr>
<tr>
<td>Offline</td>
<td>CMD&gt;</td>
<td>Open AUTO</td>
<td>14:36:09.33</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RSP</td>
<td>Seeking ATU</td>
<td>14:36:09.46</td>
</tr>
<tr>
<td>Opening</td>
<td>&lt;RSP</td>
<td>OPEN failed TO</td>
<td>14:36:54.34</td>
</tr>
<tr>
<td>Closing</td>
<td>&lt;RSP</td>
<td>Connect. Closed</td>
<td>14:36:54.40</td>
</tr>
</tbody>
</table>

Starting a Capture Session

-1- From the Select Test Mode screen, press F2 Cp/Rv to display the Capture/Review screen.
-2- Select **Start Session**. The following screen is displayed.

-3- Enter a name (up to eight characters).
    You cannot use the same name as a session that is already stored.

**Tip**
If you need information on how to use this screen, see Entering Alphanumeric Information on page 2-16.

-4- To save the name and begin capturing, press **OK**.
    **AuroraPresto** begins capturing and returns to the **Select Test Mode** screen. The letter **S** is displayed in the top right-hand side of the screen to indicate that you have started a session.

**Note**
When you start a new session, all the current results will be cleared, unless you have saved them first. See Saving an Active Session on page 5-5.

**While Capturing is in Progress**
As **AuroraPresto** captures session results they are added to the end of an open session file stored in the memory.

When the memory is full, **AuroraPresto** either displays a memory full message and stops saving until you delete an older session, or displays a wrap message and begins overwriting the oldest data in the memory.
Capturing Test Information

Saving an Active Session

-1- From the Select Test Mode screen, press F2 Cp/Rv to display the following screen.

-2- Choose Save Active Session. The active session is saved.

To review the session results, see Reviewing a Captured Session on page 5-5.

Note
When you save an active session, the results of any tests that are still running will not be saved.

Reviewing a Captured Session

You can retrieve the captured test information.

-1- From the Capture/Review screen select Review Results. The following screen is displayed.

In the above example there are two stored capture sessions.

-2- Select the Session results you want to review and press ENTER. The following screen is displayed.

-3- Use the UP or DOWN keys to select the results you want to review.

-4- Press ESC to return to the Review Results screen.
Clearing Sessions from Memory

You can delete capture sessions from the memory to make room for more information.

1. From the Capture/Review screen, select Review Results.

   ![Review Results screen]

2. Select the session you want to delete and press F1 Del. The following screen is displayed.

   ![Delete session confirmation screen]

3. Use the LEFT and RIGHT keys to select OK and press ENTER to confirm that you want to delete the session. The following screen is displayed briefly:

   ![Session deleted confirmation screen]

4. To return to the Review Results screen without deleting the session select CANCEL.

Sending the Capture to a Printer or PC

You can export test results in the following formats:

- Spreadsheet—standard character delimited text, for example, CSV (Comma Separated Variable)
- Formatted text—for export to and display on a terminal program, for example, a HyperTerminal, or a printer.
Capturing Test Information

You can send a stored session via AuroraPresto’s serial port to a printer or PC. To do this:

-1- From the Capture/Review screen, select Review Results and press ENTER. The Review Results screen is displayed.

-2- Select the session you want to send. To print the session, press F3 Print OR to export the session to a PC, press F2 Xport. AuroraPresto begins printing or exporting. A progress bar is displayed. When printing or exporting has been completed, AuroraPresto displays Print Complete.

-3- Press ESC to return to the previous screen.
Example of Printed Results
The following is an example of a text file which you can export from either of AuroraPresto’s communications ports (RS232 or 10BaseT).

Modem Test Results
===================================
Session GARY 01/12
-----------------------------------
Start Date 01/12/2000
Start Time 15:27:41
End Date 01/12/2000
End Time 15:32:07
Type Alcatel ATUR
Mode G.LITE
Test Mode Manual
Country U.K.
Data Port 10BT
Version A1.04b

ADSL Upstream Statistics:
===================================
Parameter Result
-----------------------------------
ATU Mode G.LITE
Fast TxR 0 kbps
Intlv TxR 128 kbps
Capacity Used % 92%
Attain BR 128 kbps
Noise Mgn 7.0 dB
Attenuation > 31 dB
Output Pwr 11.5 dBm

ADSL Upstream Counts:
===================================
Parameter Result
-----------------------------------
Cells Tx 14348
Cells Rx 0
FEC 0
CRC 0
HEC 0
Chapter 6

Power Sources

Contents

Using External (Mains) Power ....................... 6-2
Using Battery Power................................. 6-3
Power Sources

This chapter describes how to operate AuroraPresto from external power or rechargeable batteries. It includes instructions for recharging and replacing the battery pack.

Using External (Mains) Power

You can power AuroraPresto from the mains electricity supply, using the adaptor/charger supplied with the unit. When you connect the adaptor/charger, this automatically starts up a battery charging cycle—see Recharging the Battery Pack on page 6-5.

-1- Plug AuroraPresto's power supply unit into a nearby power socket which is easily accessible.

-2- Fit its connector into the external power supply socket on AuroraPresto, as shown below.

-3- Switch on the mains power supply.

Note

You can also power AuroraPresto from the 12V cigar lighter adaptor in a vehicle, using a vehicle cigar lighter power cable which is supplied as an optional extra.
Using Battery Power

_AuroraPresto_ is supplied with a removable, rechargeable nickel metal hydride (NiMH) battery pack—see Chapter 7 section 1 for details.

Warning: Battery packs

The battery packs are factory-sealed and must not be opened.

Battery Life

The battery life depends on the interfaces you are using, the age of the battery, surrounding temperature and the task you are performing.

Under normal conditions, the battery lasts up to approximately 3½ hours from fully charged.

Checking the battery voltage

-1- Press  + 5 to display the status screen.

-2- Use the UP and DOWN keys to display the current battery condition.

Note

Use this figure as an approximate indication of battery condition.
When battery power is low

When battery power has dropped to a low level the Batt LED shows steady red and the following screen is displayed.

<table>
<thead>
<tr>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• If the speaker is switched on and the volume is set to high, <em>Aurora Presto</em> will beep continuously for 10 seconds when the battery power has dropped to a low level.</td>
</tr>
<tr>
<td>• If battery power falls to a level which is insufficient to power the tester reliably, <em>Aurora Presto</em> switches itself off. The system settings are stored in the memory.</td>
</tr>
</tbody>
</table>

You must now either recharge or replace the battery pack.

Saving the batteries

*Aurora Presto* can be set to switch itself off automatically when powered from batteries, if no tests are in progress and no keys have been pressed after a certain length of time.

You can choose the length of time that *Aurora Presto* will wait before switching itself off, or disable the battery-saving feature for continuous operation. For details, see *Setting the Automatic Power-Off Time Delay* on page 3-32.

Discharging the Battery Pack

NiMH cells exhibit a ‘memory’, which means that if you repeatedly recharge a battery which is only partially discharged, a small amount of its capacity is lost.

This should not normally be a problem, but you may wish to discharge the battery completely before recharging it. You can do this by operating *Aurora Presto* from battery power with the battery-saving feature disabled (see above).
Recharging the Battery Pack

**Warning: Recharging the battery**

Only recharge the rechargeable NiMH battery pack supplied with your Aurora Presto.

You must not recharge the battery if the temperature is below 0°C or above +35°C.

-1- Plug the power adaptor/charger into the mains supply and Aurora Presto's power supply socket.

**Warning: Using the adaptor/charger**

Aurora Presto is intended for use only with the adaptor/charger with which it is supplied. If you use any other adaptor/charger, you may damage the tester or battery, and invalidate equipment warranties and approvals relating to safety or electromagnetic compatibility.

The battery is initially charged at a high current (‘fast charging’). This means it will be almost fully charged in 2-3 hours.

During fast charging, the Bat LED lights up bright green.

**Tip**

You can use Aurora Presto while the battery is recharging. You can also disconnect the adaptor/charger at any time during the charging cycle: when you reconnect, a new cycle begins.

-2- Continue until the battery is fully charged.

When fast charging is complete, the Bat LED glows green less brightly. The battery is now being charged in ‘pulses’. This is the ‘top off’ stage, which ensures that the battery is fully charged: it lasts for 3 hours.

When charging is complete, the LED glows green very dimly, to indicate that the battery is being ‘trickle charged’.
When the battery is fully recharged, it is safe to leave the charger connected for longer periods. If you do this, it continues ‘trickle charging’ the battery to maintain full capacity, and the Bat LED glows green very dimly.

**Note**
Avoid ‘force charging’ *Aurora Presto* by repeatedly removing and inserting the charger—this may cause excessive heat in the tester and reduce the capacity of the battery.

### Replacing a Battery Pack
It may be useful to carry spare battery packs with you, in case the battery runs out at a site where no mains power is available. Keep them in the carrying case until needed.

While you are replacing the battery, the real-time clock and system settings are maintained by a memory backup capacitor. This should ensure that the settings are retained even if *Aurora Presto* is left without a battery for several hours.

**To remove the old battery**

**Warning**
Disconnect all cables before removing the battery cover.

- **-1-** Remove the battery pack cover, which is on the back of *Aurora Presto*. To do this:
  - Loosen the screw by turning it *anticlockwise* using a coin or screwdriver.
  - When the screw is completely released, it pops up. Slide the cover upwards to remove.
-2- Remove the battery pack. To do this:
  - Gently lift the pack slightly out of its casing, with the connector still attached.
  - Unplug the connector by pulling the connector itself. Do not pull on the wires.

**To fit a new battery**

-1- Place the new battery pack in the unit.

-2- Plug in the connector.

-3- Replace the battery pack cover:
  - Slide the cover back down into place—be careful not to trap the connector wires.
Push the screw down and turn it clockwise to tighten.

**Warning: Tightening the screw**
Make sure the screw is properly tightened—otherwise the cover will come off when you hang AuroraPresto from its belt hook.

**Disposing of the old battery**
Dispose of batteries in accordance with local environmental regulations. Please recycle them wherever possible.

**Warning: Disposing of batteries**
Do not dispose of batteries in a fire—they may explode.

**Storing the Battery Packs**
If your AuroraPresto is to be left unused for more than three months, you should remove the battery and store it separately, to avoid chemical changes caused by the discharge of the internal circuitry.

For maximum life, batteries should be stored in a cool dry place. The surrounding temperature must not exceed 30°C.

*Note*
When an AuroraPresto battery has been stored for a long period of time, it may be necessary to perform three or four complete charge/discharge cycles to recover its full capacity.

**Using AuroraPresto without a Battery Pack**
It is quite acceptable to use your AuroraPresto without a battery pack. However, if you plan to do this, remember that the internal clock and system settings are maintained by the memory backup capacitor for only a few hours. You are advised to keep a note of the system settings.
Chapter 7

Technical & Purchasing Notes

Contents

Section 1—Technical Information .................. 7-2
Section 2—Notes for Purchasers .................. 7-11
Section 1: Technical Information

This chapter provides technical and purchasing information related to Aurora Presto and its various interfaces. It is divided into sections as follows:

Section 1: Technical Information
Section 2: Notes for Purchasers

This section sets out the specification and other technical information related to Aurora Presto. If you require more details, contact your local Agilent Technologies representative.

Aurora Presto Specifications

Telecommunications Standards
Aurora Presto is designed to meet the following standards:

- ANSI T1.413 issue 2
- ETSI ETR328 DMT ADSL

User Interface

Display
Backlit, monochrome graphics Liquid Crystal Display (LCD) with contrast control, 128 dots wide by 64 dots high. Screen 61mm x 41mm, 8 rows x 21 characters.

Keypad
6 dedicated keys
27 keys (includes 6 dedicated keys), plus shifted functions.

Indicators
6 LEDs on front panel.
- DSL Link Status
- DSL Alarms
Section 1 - Technical Information

- DSL Activity
- External Datalink Activity (Ethernet/ATM25)
- BERT Synchronisation/error
- Battery Status

Physical/Environmental

**Dimensions**
Length 285mm; width 100mm; depth 87mm.

**Weight**
Approximately 1.1kg with a single option card.

**Temperature range (non-condensing)**

- **Operation**: 0°C to + 50°C
- **Battery charging**: 0°C to +35°C maximum
  +10°C to +30°C recommended
- **Storage**: -25°C to +70°C
- **Humidity**: 5% to 85% non-condensing

**Durability**
Tested in accordance with:
- ETS 300019-1-1 Class 1.2
- ETS 300019-1-2 Class 2.2
- ETS 300019-1-7 Class 7.3
- IP22 (when laid flat or held upright)

**Case Description**
Plastic moulded insulated case with protected access to all interfaces connector pins and to DC power connector (water resistant covers) to EN60950.
Aurora Presto—User Guide

Power supplies

Batteries
NiMH rechargeable pack: 3.5AH or greater.
Low voltage is indicated at nominally 16% cell capacity.

External power supply
12V input DC at 2A maximum.

External power source unit
International power supply at 95-260V AC, 50/60 Hz.

Memory Capacity

Static CMOS RAM
8 megabytes.

Flash memory capacity
8 megabytes.

Interface Specifications

ADSL line

ADSL Maximum line voltage
400V DC.

ADSL Line interface
This is internally routed to fitted modem cards.

RJ11 Interface Connector

Aurora Presto uses the RJ11-FCC68 6-6 connector to connect to the ADSL service connector installed at the customer premises or to the Central Office.

Aurora Presto uses pins 3 and 4.
Agilent Technologies supply a straight or crossover ADSL line cable to match different configurations and connections in different countries, as the RJ11 connector pinout is fixed on some manufacturer’s boards.

### 10 Base T (Ethernet)

This interface is used for:
- user data and results transfer
- software/firmware upload
- Golden Modem through-line operation.

#### RJ45 Interface Connector

### 10 Base T RJ45 Pinouts

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>From ATU-R to DTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX+</td>
</tr>
<tr>
<td>2</td>
<td>TX-</td>
</tr>
<tr>
<td>3</td>
<td>RX+</td>
</tr>
<tr>
<td>4</td>
<td>Not Used</td>
</tr>
<tr>
<td>5</td>
<td>Not Used</td>
</tr>
<tr>
<td>6</td>
<td>RX-</td>
</tr>
<tr>
<td>7</td>
<td>Not Used</td>
</tr>
<tr>
<td>8</td>
<td>Not Used</td>
</tr>
</tbody>
</table>
G.SHDSL line

G.SHDSL Maximum line voltage
200V DC.

G.SHDSL Line interface
This is internally routed to fitted modem cards.

RJ45 Interface Connector

AuroraPresto uses the RJ45-FCC 4-4 connector to connect to the G.SHDSL service connector installed at the customer premises or to the Central Office.

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>G.SHDSL RJ45 Pinouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not Used</td>
</tr>
<tr>
<td>2</td>
<td>Not Used</td>
</tr>
<tr>
<td>3</td>
<td>Pair 2</td>
</tr>
<tr>
<td>4</td>
<td>Pair 1</td>
</tr>
<tr>
<td>5</td>
<td>Pair 1</td>
</tr>
<tr>
<td>6</td>
<td>Pair 2</td>
</tr>
<tr>
<td>7</td>
<td>Not Used</td>
</tr>
<tr>
<td>8</td>
<td>Not Used</td>
</tr>
</tbody>
</table>
Serial Port

Bi-directional, high speed RS232 port providing baud rates of 2.4, 9.6, 19.2, 38.4, 57.6 and 115.2 KBD.

This interface is used for:

- user data and results transfer
- software/firmware upload

8 pin mini DIN socket:

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DTR (Data Terminal Ready)</td>
</tr>
<tr>
<td>3</td>
<td>Transmit</td>
</tr>
<tr>
<td>4</td>
<td>Ground</td>
</tr>
<tr>
<td>5</td>
<td>Receive</td>
</tr>
</tbody>
</table>

Xon/Xoff flow control protocol is used.

Clock accurate to within 1.2% on asynchronous data above 19.2Kbps

Cable supplied with 9 pin ‘D’ type socket for direct communication with a PC serial port.
Optional Interface Cards

A choice of interface cards can be fitted:

- ATM-F-25.6 interface card
- ADSL over ISDN ATU-R (Alcatel remote modem) card
- ADSL over ISDN ATU-R (ADI remote modem) card
- ADSL over POTS ATU-R (Alcatel remote modem) card
- ADSL over POTS ATU-C (Alcatel central office modem) card
- ADSL over POTS ATU-C (ADI central office modem) card
- ADSL over ISDN ATU-R (TI remote modem) card
- TDR/DMM (Time domain reflectometer and digital multimeter)
- G.SHDSL STU-C (central office modem) card
- G.SHDSL STU-R (remote modem) card.
Section 1 - Technical Information

BERT

Available patterns: Binary 0, Binary 1, 1:1, 1:3, 3:1, 63 p.r., 511 p.r., 2047 p.r., 2^7-1 p.r., 2^15-1 p.r., 2^20-1 p.r., 2^23-1 p.r., 2^32-1 p.r. or user definable pattern.

511 bit pattern conforms to CCITT Rec. V52.

2047 bit pattern conforms to CCITT Rec. 0151/152.

Quality and Reliability

Designed according to Trend Communications Ltd. ISO 9000 procedures.

Calibration

AuroraPresto was designed not to require any periodic calibration. You may want to carry out periodic performance verification (to conform to ISO9000 procedures for example). However, we recommend that there is no need to do this more frequently than once every five years.

Product Safety

AuroraPresto complies with EN60950, UL1950, AS/NZS 3260 and TS001, IEC950.
Approvals

Trend Communications

Declaration Of Conformity

Council Directive 1999/05/EC
(Radio and Telecommunications Terminal Equipment)

Julian Russell,
Managing Director,
Trend Communications Ltd.,
Knaves Beech Estate,
Loudwater,
Bucks, HP10 9QZ,
England.

Declares That The Following Equipment:

Trend AuroraPresto with the following interfaces:
- Alcatel ATU-R ADSL over POTS
- Alcatel ATU-R ADSL over ISDN
- Alcatel ATU-0 ADSL over POTS
- TDR/OMM
- ATM25
- pSHDSL

conforms with the requirements of

Signed: 

Date: 23/04/2002

Compliance is demonstrated by applying the following standards:


Document Control
Drawing No.: 49900
Drawn By: I. Morsor
File ref.: Attached to Agile part

Revision History
Issue Date EC0 Changes made
1 30.06.00 000013 First issue
2 13.09.00 0000794 New life and now to RTTED
3 25.03.01 0001118 Add Harm’s & Flicker
4 06.01.02 0001713 Add new modems & TDR
5 16.04.02 0001941 Add TD modem
Notes for Purchasers

This section provides information to help you make decisions when purchasing optional equipment for use with Aurora Presto.

As explained in Chapter 1, Aurora Presto can be fitted with a number of different optional interface modules.

The main advantage of this is that you can customise your unit, using only those interfaces that meet your organisation’s specific requirements. This means that:

- the overall cost of the tester is lower, because you only need to purchase the interfaces that you actually need
- if your requirements change, you can arrange for additional interfaces to be fitted
- the tester can easily accommodate future developments

When you first purchase Aurora Presto, you specify which interface modules you require. Each module that you choose is fitted onto the main unit by Trend Communications Ltd. Once fitted, it is an integral part of the tester.

Your local sales representative can advise you on how to proceed with upgrades.

Warning: Interface modules

Any future upgrades will require special handling. Do not attempt to remove an interface module from the tester yourself, unless you have been specifically authorised by Agilent Technologies to do so.
Guidelines for Choosing the Modules

To perform certain tasks you need particular combinations of interface modules. As a general guide, the modules you require for specific tasks are as follows:

<table>
<thead>
<tr>
<th>Interface Card Configurations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interface Modules Required</strong></td>
</tr>
<tr>
<td>ADI ATU-R (I)</td>
</tr>
<tr>
<td>ADI ATU-R (P)</td>
</tr>
<tr>
<td>Alcatel ATU-R (P)</td>
</tr>
<tr>
<td>Alcatel ATU-C (P)</td>
</tr>
<tr>
<td>Alcatel ATU-R (I)</td>
</tr>
<tr>
<td>TI ATU-R (I)</td>
</tr>
<tr>
<td>ATMF- 25.6</td>
</tr>
<tr>
<td>TDR/DMM</td>
</tr>
<tr>
<td>GL STU R GL STU C</td>
</tr>
</tbody>
</table>

*Note*
ADI = Analog Devices Inc.
How the Modules are Fitted

When you receive your Aurora Presto, the modules you have requested are already fitted.

Once a module is fitted, it is an integral part of the tester and can only be removed by persons authorised by Agilent Technologies.

Optional Accessories

The following optional accessories are available for Aurora Presto:

- additional interface cards
- spare battery packs of either capacity
- soft carry case
- spare adapter/charger
- additional User Guide
- vehicle cigar lighter charger power lead
- additional cables as requested

For full details and ordering information contact your representative.
Appendix 1

Aurora Presto Menus
AuroraPresto Menus

Setup

Main Setup
- System Setup
  - Auto power off
  - LCD Backlight
  - Time
  - Date
  - Country
  - Language
  - Download
- Factory Defaults

Serial Setup
- Baud Rate
- Data Bits
- Parity
- Stop bits
- XON/XOFF

Data Port Setup
- Data Port (10B/ATM25)

Modem Setup
- ATM
- BERT
- Ping
- Trace Route

Data Port Setup
- Data Port (10B/ATM25)

Modem Setup
- Mode (G.Lite/G.DMT...)
- Training (G.SHDSL only)
- Parameters (G.SHDL only)

Setup Modem Params
- PSD Mode
- Rate Mode
- Min Rate kbps
- Max Rate kbps
- Start up Margin
- Per BackOff

See next page
Setup continued

**Main Setup**
- System
- Serial Comms
- Data Port
- Modem
- ATM
- BERT
- Ping
- Trace Route
- IP
- PPP

**BERT Setup**
- Test Mode
- Threshold
- Pattern
- Invert Pattern
- Duration
- VPI
- VCI
- DSL BW%

**PING Setup**
- Mode LAN/WAN
  (Router enabled only)
- Src
- Dst
- Mask
- Ping
- Timeout
- Ping Length
- Pause

See previous page

See next page
Setup continued
Tests

Select Test Mode
- Manual Tests
- Auto Tests

Select Operation
- Physical Layer
- DSL Layer
- ATM Layer
- PPP Layer
- IP Ping Test
- Auto Print

Auto Tests
- DSL Layer
- ATM Layer
- ATM Bert
- PPP Layer
- IP Ping Test
- Auto Print

Physical Tests
- Noise Analysis
- TDR Tests (if fitted)
- DMM Tests (if TDR fitted)
- Load Coil Tests (if TDR fitted)

DSL Tests
- DSL Statistics
- DSL Loopback (G.SHDSL only)
- Carrier Usage (ADSL only)
- DSL Bit Error (ADSL only)

ATM Tests
- ATM Global Stats
- ATM VC Stats
- Unmapped VCs
- DSL ATM BERT
- IF OAM Stats
- OAM Ping Test

See next pages
Tests continued
Tests continued
Tests continued

Aurora Presto — User Guide

Select Test Mode

Auto Tests

Manual Tests

Select Operation

Physical Layer

DSL Layer

ATM Layer

IP Layer

PPP Layer

PPP Link State

Variant

LCP

iPDP

Dis RxPktS

Dis TxPktS

Ses RxPktS

Ses TxPktS

Tot RxPktS

Tot TxPktS

AC Name (Client Mode only)

Service (Client Mode only)

See previous pages
Appendix 2

ADSL Status Messages & Vendor Codes
ADSL Status Messages & Vendor Codes

This Appendix lists:

- the ADSL Status Messages generated by Aurora Presto displayed when a connection has failed, cleared or has been disconnected
- The Vendor Names for the Vendor Codes printed in Session printouts.

### ADSL Status Messages

<table>
<thead>
<tr>
<th>ADSL Status Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATU-C <strong>LOS</strong> Set.</td>
</tr>
<tr>
<td>ATU-C LOS Cleared.</td>
</tr>
<tr>
<td>ATU-C <strong>LOF</strong> Set.</td>
</tr>
<tr>
<td>ATU-C LOF Cleared.</td>
</tr>
<tr>
<td>ATU-C LPR Set.</td>
</tr>
<tr>
<td>ATU-C LPR Cleared.</td>
</tr>
<tr>
<td>ATU-C LOM Set.</td>
</tr>
<tr>
<td>ATU-C LOM Clear.</td>
</tr>
<tr>
<td>ATU-C LCD-Ni Set.</td>
</tr>
<tr>
<td>ATU-C LCD-Ni Clear.</td>
</tr>
<tr>
<td>ATU-C LCD-I Set.</td>
</tr>
<tr>
<td>ATU-R LCD-I Clear.</td>
</tr>
<tr>
<td>ATU-R LOS Set.</td>
</tr>
<tr>
<td>ATU-R LOS Cleared.</td>
</tr>
<tr>
<td>ATU-R LOF Set.</td>
</tr>
<tr>
<td>ATU-R LOF Cleared.</td>
</tr>
</tbody>
</table>
ADSL Status Messages & Vendor Codes

**ADSL Status Messages**

<table>
<thead>
<tr>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATU-R LPR Set.</td>
</tr>
<tr>
<td>ATU-R LPR Cleared.</td>
</tr>
<tr>
<td>ATU-R LOM Set.</td>
</tr>
<tr>
<td>ATU-R LOM Cleared.</td>
</tr>
<tr>
<td>ATU-R LCD-Ni Set.</td>
</tr>
<tr>
<td>ATU-R LCD-Ni Clear.</td>
</tr>
<tr>
<td>ATU-R LCD-I Set.</td>
</tr>
<tr>
<td>ATU-R LCD-I Clear.</td>
</tr>
<tr>
<td>Timeout</td>
</tr>
<tr>
<td>Idle</td>
</tr>
<tr>
<td>Waiting ACT/ACK</td>
</tr>
<tr>
<td>ACT/ACK complete</td>
</tr>
</tbody>
</table>

**Abbreviations Used**

ACK = Acknowledgement

ACT = Activated

Idle = The ADSL line is idle and/or waiting to retrain.

LOS = Loss of Signal. For Example:

- Far Set
- Far Clear
- Near Set
- Near Clear

LCD-I = Loss of Cell Delineation

LCD-Ni = Loss of Cell Delineation Non-Interleaved (Fast) channel.
Aurora Presto—User Guide

LOF = Loss of Framing
LPR = Loss of Power
LOM = Loss of Margin. Also known as Loss of Signal Quality.

ADSL Trace Message Definitions

IDLE
The ADSL line is idle and/or waiting to retrain.

Note
In the case of AUTO mode the ATU-C transitions through IDLE when AUTO training to a G.LITE ATU-R device.

Open AUTO
A request to open a connection using automatic mode detection. This message applies when Aurora Presto is configured as an ATU-R in AUTO mode.

Open AUTO Full
A request to open a connection using automatic mode detection trying FULL rate. This message applies when Aurora Presto is configured as an ATU-C in AUTO mode.

Open AUTO G.LITE
A request to open a connection using automatic mode detection trying G.LITE. This message applies when Aurora Presto is configured as an ATU-C in AUTO mode.

Open Full
A request to open a FULL rate (only) connection. This message applies when Aurora Presto is configured as an ATU-C in FULL mode.

Note
ATU-Rs cannot be configured to operate in a FULL rate ONLY mode.

Open G.LITE
A request to open a G.LITE (only) connection. This message applies when Aurora Presto is configured as an ATU-C or an ATU-R in G.LITE mode.

Seeking ATU
Aurora Presto is waiting for an activation sequence to begin.
Training Modem

AuroraPresto has detected a peer ATU and is training.

Connect Opened

AuroraPresto has successfully trained and opened a connection to the peer ATU (for example, Showtime).

Trying G.LITE

AuroraPresto, configured as an ATU-C in AUTO mode, has detected a G.LITE device (for example, failed to open in full rate mode due to a parameter mismatch) and will reattempt the open in G.LITE mode.

Note

This is how the Alcatel firmware implements multimode opens. A transition through IDLE (with a corresponding trace message) is followed after a timeout of approximately 5 seconds by an Open AUTO G.LITE.

ATU Mode

ANSI

After successfully training the device on the far end was determined to be operating in (ANSI T1.413) mode.

G.DMT

After successfully training the device on the far end was determined to be operating in G.DMT ITU (G.992.1) mode.

G.LITE

After successfully training the device on the far end was determined to be operating in G.LITE ITU (G.992.2) mode.

Unknown

After successfully training, the mode the device on the far end was operating in could not be determined.

Note

This message is included for completeness and will only occur if the device on the far-end does not properly identify itself as one of the above types.

Close REQ

A request to close an active connection.

Connect Closed

A connection was successfully closed.
Signal lost  The signal from the far end ATU was lost.

OPEN failed TO An attempt to open a connection with a far end ATU failed due to a timeout.

Note This occurs if no peer ATU is found (for example, the line never entered the Training Modem state).

OPEN failed An attempt to open a connection with a far end ATU failed during training.

OPEN rejected A request to open a line was rejected.

Note This is typically caused by an invalid set of configuration parameters being entered.

G.SHDSL Trace Message Definitions

DSL↓ The G.SHDSL line is idle and/or waiting to retrain.
Seeking AuroraPresto is seeking a peer STU.
Training AuroraPresto has detected a peer STU and is training.
DataMode AuroraPresto has made a connection to a peer STU.

Vendor Codes

The following table list the Vendor Names for the Vendor Codes printed in Session printouts.

The vendor codes are specified in ANSI T1.413 specification in Annex D.

<table>
<thead>
<tr>
<th>Vendor Codes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>not allocated</td>
</tr>
<tr>
<td>0001</td>
<td>not allocated</td>
</tr>
<tr>
<td>0002</td>
<td>Westell, Inc.</td>
</tr>
</tbody>
</table>

AuroraPresto—User Guide
<table>
<thead>
<tr>
<th>Vendor Codes</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>0003</td>
<td>ECI Telecom</td>
</tr>
<tr>
<td>0004</td>
<td>Texas Instruments</td>
</tr>
<tr>
<td>0005</td>
<td>Intel</td>
</tr>
<tr>
<td>0006</td>
<td>Amati Communications Corp.</td>
</tr>
<tr>
<td>0007</td>
<td>General Data Communications, Inc.</td>
</tr>
<tr>
<td>0008</td>
<td>Level One Communications</td>
</tr>
<tr>
<td>0009</td>
<td>Crystal Semiconductor</td>
</tr>
<tr>
<td>000A</td>
<td>Lucent Technologies</td>
</tr>
<tr>
<td>000B</td>
<td>Aware, Inc.</td>
</tr>
<tr>
<td>000C</td>
<td>Brooktree</td>
</tr>
<tr>
<td>000D</td>
<td>NEC</td>
</tr>
<tr>
<td>000E</td>
<td>Samsung</td>
</tr>
<tr>
<td>000F</td>
<td>Northern Telecom, Inc.</td>
</tr>
<tr>
<td>0010</td>
<td>PairGain Technologies</td>
</tr>
<tr>
<td>0011</td>
<td>Paradyne</td>
</tr>
<tr>
<td>0012</td>
<td>Adtran</td>
</tr>
<tr>
<td>0013</td>
<td>INC</td>
</tr>
<tr>
<td>0014</td>
<td>ADC Telecommunications</td>
</tr>
<tr>
<td>0015</td>
<td>Motorola</td>
</tr>
<tr>
<td>0016</td>
<td>IBM Corp.</td>
</tr>
<tr>
<td>0017</td>
<td>Newbridge Network Corp.</td>
</tr>
<tr>
<td>Vendor Code</td>
<td>Company Name</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>0018</td>
<td>DSC</td>
</tr>
<tr>
<td>0019</td>
<td>TelTrend</td>
</tr>
<tr>
<td>001A</td>
<td>Exar Corp.</td>
</tr>
<tr>
<td>001B</td>
<td>Siemens Telecom Networks</td>
</tr>
<tr>
<td>001C</td>
<td>Analog Devices</td>
</tr>
<tr>
<td>001D</td>
<td>Nokia</td>
</tr>
<tr>
<td>001E</td>
<td>Ericsson Information Systems</td>
</tr>
<tr>
<td>001F</td>
<td>Tellabs Operations, Inc.</td>
</tr>
<tr>
<td>0020</td>
<td>Orckit Communications, Inc.</td>
</tr>
<tr>
<td>0021</td>
<td>AWA</td>
</tr>
<tr>
<td>0022</td>
<td>Alcatel Network Systems, Inc.</td>
</tr>
<tr>
<td>0023</td>
<td>National Semiconductor Corp.</td>
</tr>
<tr>
<td>0024</td>
<td>Italtel</td>
</tr>
<tr>
<td>0025</td>
<td>SAT - Société Anonyme de Télécommunications</td>
</tr>
<tr>
<td>0026</td>
<td>Fujitsu Network Trans. Systems</td>
</tr>
<tr>
<td>0027</td>
<td>MITEL</td>
</tr>
<tr>
<td>0028</td>
<td>Conklin Corp.</td>
</tr>
<tr>
<td>0029</td>
<td>Diamond Lane</td>
</tr>
<tr>
<td>002A</td>
<td>Cabletron Systems, Inc.</td>
</tr>
<tr>
<td>002B</td>
<td>Davicom Semiconductor, Inc.</td>
</tr>
<tr>
<td>002C</td>
<td>Metalink</td>
</tr>
</tbody>
</table>
### Vendor Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Vendor Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>002D</td>
<td>Pulsecom</td>
</tr>
<tr>
<td>002E</td>
<td>US Robotics</td>
</tr>
<tr>
<td>002F</td>
<td>AG Communications Systems</td>
</tr>
<tr>
<td>0030</td>
<td>Rockwell</td>
</tr>
<tr>
<td>0031</td>
<td>Harris</td>
</tr>
<tr>
<td>0032</td>
<td>Hayes Microcomputer Products, Inc.</td>
</tr>
<tr>
<td>0033</td>
<td>Co-optic</td>
</tr>
<tr>
<td>0034</td>
<td>Netspeed, Inc.</td>
</tr>
<tr>
<td>0035</td>
<td>3-Com</td>
</tr>
<tr>
<td>0036</td>
<td>Copper Mountain, Inc</td>
</tr>
<tr>
<td>0037</td>
<td>Silicon Automation Systems, Ltd</td>
</tr>
<tr>
<td>0038</td>
<td>Ascom</td>
</tr>
<tr>
<td>0039</td>
<td>Globespan Semiconductor, Inc.</td>
</tr>
<tr>
<td>003A</td>
<td>ST Microelectronics</td>
</tr>
<tr>
<td>003B</td>
<td>Coppercom</td>
</tr>
<tr>
<td>003C</td>
<td>Compaq Computer Corp.</td>
</tr>
<tr>
<td>003D</td>
<td>Integrated Technology Express</td>
</tr>
<tr>
<td>003E</td>
<td>Bay Networks, Inc.</td>
</tr>
<tr>
<td>003F</td>
<td>Next Level Communications</td>
</tr>
<tr>
<td>0040</td>
<td>Multi-Tech Systems, Inc.</td>
</tr>
<tr>
<td>0041</td>
<td>AMD</td>
</tr>
</tbody>
</table>
### Vendor Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>0042</td>
<td>Sumitomo Electric</td>
</tr>
<tr>
<td>0043</td>
<td>Philips M&amp;N Systems</td>
</tr>
<tr>
<td>0044</td>
<td>Efficient Networks, Inc.</td>
</tr>
<tr>
<td>0045</td>
<td>Interspeed</td>
</tr>
<tr>
<td>0046</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td>0047</td>
<td>Tollgrade Communications, Inc.</td>
</tr>
<tr>
<td>0048</td>
<td>Cayman Systems</td>
</tr>
<tr>
<td>0049</td>
<td>FlowPoint Corp.</td>
</tr>
<tr>
<td>004A</td>
<td>I.C.COM</td>
</tr>
<tr>
<td>004B</td>
<td>Matsushita</td>
</tr>
<tr>
<td>004C</td>
<td>Siemens Semiconductor</td>
</tr>
<tr>
<td>004D</td>
<td>Digital Link</td>
</tr>
<tr>
<td>004E</td>
<td>Digitel</td>
</tr>
<tr>
<td>004F</td>
<td>Alcatel Microelectronics</td>
</tr>
<tr>
<td>0050</td>
<td>Centillium Corp.</td>
</tr>
<tr>
<td>0051</td>
<td>Applied Digital Access, Inc.</td>
</tr>
<tr>
<td>0052</td>
<td>Smart Link, Ltd.</td>
</tr>
</tbody>
</table>
Appendix 3

Glossary & Abbreviations
A

AAL

ATM Adaption Layer - the standards layer that allows multiple applications to have data converted to and from the ATM cell. A protocol used that translates higher layer services into the size and format of an ATM cell.

AAL1 ATM Adaptation Layer Type 1: AAL functions in support of constant bit rate, time-dependent traffic such as voice and video.

AAL2 ATM Adaptation Layer Type 2: This AAL is still undefined by the International Standards bodies. It is a placeholder for variable bit rate video transmission.

AAL3/4 ATM Adaptation Layer Type 3/4: AAL functions in support of variable bit rate, delay-tolerant data traffic requiring some sequencing and/or error detection support. Originally two AAL types, that is connection-oriented and connectionless, which have been combined.

AAL5 ATM Adaptation Layer Type 5: AAL functions in support of variable bit rate, delay-tolerant connection-oriented data traffic requiring minimal sequencing or error detection support.

ABR

Available Bit Rate. This is an ATM layer service provided by the network. The flow rate is controlled to use the available bandwidth specified by the service provider, according to the amount of traffic using the network.

ADSL

Asymmetric Digital Subscriber Line - as defined by ANSI T1.413. Modems attached to twisted pair copper wires that transmit from 1.5 Mbps to 9 Mbps downstream (to the subscriber) and from 16 kbps to 800 kbps upstream, depending on line distance.
Glossary & Abbreviations

**AIS**
Alarm Indication Signal - an all ones signal sent down or up stream by a device when:
- it detects an error condition,
- receives an error condition
- receives an error notification from another unit in the transmission path.

**ANSI**
American National Standards Institute - the national co-ordinating organisation for voluntary standards in the US.

**ATM**
Asynchronous Transfer Mode - a form of digital transmission based on the Switching of fixed-length units of information known as cells. It is suitable for the transmission of image, voice, video and data.

**ATM Layer**
The protocol layer that relays cells from one ATM node to another. It handles most of the processing and routing activities including:
- Switching
- multiplexing/demultiplexing
- operation and maintenance of virtual circuits
- traffic shaping and congestion control

**ATM25**
As defined by the ATM Forum. This is a 25.6 Mbits/p cell-based user interface based on the IBM token ring network.

**ATU-C & ATU-R**
ADSL Transmission Unit, Central or Remote. This is a device at the end of an ADSL line between the subscriber premises (ATU-R) or a telephone switch (ATU-C).

**B**

**Bandwidth**
A measure of the throughput of a system or network.

**Baud Rate**
The number of line signal transitions per second - or the rate at which data is transmitted over the serial port.
BER  Bit Error Ratio/Rate - a measure of transmission quality. This is represented as the number of bits received in error during a transmission, divided by the total number of bits transmitted in a specific interval. It is usually shown as a negative exponent, (for example, $10^{-7}$ which means 1 out of $10^7$ bits are in error or 1 out of 10,000,000 bits are in error).

BERT  Bit Error Rate Test - usually performed with a Pseudo-Random Bit Sequence (PRBS) payload, for the measurement of transmission errors in data sent.

C  

Cell  The unit of transmission in ATM - a fixed length frame made up of 53 bytes (octets): a 5-byte header and a 48-byte data payload.

Channel  This refers to the path for transmission of information. It may be physical or logical.

CHAP  Challenge Handshake Authentication Protocol. This is used during PPP sessions to verify User Names and Passwords.

CO  Central Office. A central Switching or control centre belonging to a PTT.

CPE  Customer Premise Equipment.

CRC  Cyclic Redundancy Check - an algorithm that computes a numerical value based on the bits in a block of data. This number is transmitted with the data and the receiver uses this information and the same algorithm to make sure that the data has been delivered accurately by comparing the results of the algorithm and the number received. If they are not the same, an error in transmission has probably happened.
Glossary & Abbreviations

D

Data
This is digital information which may be voice, data, image or video.

DE
Discard Eligibility. A bit in the cell header that, when set, tells the network ‘discard this cell first’. This provides a method of prioritising cells whose DE bits are not set.

DGW
Default Gateway.

DHCP
Dynamic Host Control Protocol.

DMM
Digital MultiMeter.

DNS
Domain Name Server.

DSLAM
Digital Subscriber Loop Access Multiplexer. A device which takes a number of ADSL subscriber lines and concentrates these into a single ATM line.

DTE
Data Terminal Equipment. This is end user equipment such as a PC, mainframe or workstation.

E

EMI
Electro-Magnetic Interference.

ES
Errored Second - when AuroraJazz is running a BERT, a second that contained at least one error.

F

FCS
Frame Checksum.

FEC
Forward Error Corrections.
<table>
<thead>
<tr>
<th><strong>G</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G.SHDSL</strong></td>
<td>Single-pair High-speed Digital Subscriber Line</td>
</tr>
<tr>
<td><strong>GR</strong></td>
<td>Golden Router.</td>
</tr>
<tr>
<td><strong>GUI</strong></td>
<td>Graphical User Interface.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>H</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Header</strong></td>
<td>Protocol control information located at the beginning of a protocol data unit.</td>
</tr>
<tr>
<td><strong>HEC</strong></td>
<td>Header Error Control - using the fifth octet in the ATM cell header, ATM equipment may check for an error and corrects the contents of the header. The check character is calculated using a CRC algorithm allowing a single bit error in the header to be corrected or multiple errors to be detected.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>I</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ICMP</strong></td>
<td>Internet Control Message Protocol.</td>
</tr>
<tr>
<td><strong>IP</strong></td>
<td>Internet Protocol - originally developed by the Department of Defence to support interworking of dissimilar computers across a network. This protocol works in conjunction with TCP and is usually identified as TCP/IP. A connection-less protocol that operates at the network layer (layer 3) of the OSI model.</td>
</tr>
<tr>
<td><strong>IPCP</strong></td>
<td>Internet Protocol Control Protocol.</td>
</tr>
<tr>
<td><strong>ISP</strong></td>
<td>Internet Service Provider. An organisation offering and providing internet services to the public using its own server.</td>
</tr>
</tbody>
</table>
Glossary & Abbreviations

ITU-T

International Telecommunications Union - an international organisation that develops standards and defines interfaces for telecommunications systems. Formerly known as the CCITT.

L

LAN

Local Area Network - a system consisting of computer and communications hardware and software connected by a common transmission medium, usually limited to a scope of a few miles.

Layer 1

The physical layer of the Open Systems Interconnection (OSI) reference model for example an ADSL line.

LB

Loopback.

LCP

Link Control Protocol.

Link

Any physical connection on a network between two separate devices, such as an ATM switch and its associated end point or end station.

LLC SNAP

Logical Link Control, Sub Network Address Protocol is a protocol used in IP Encapsulation.

LOF

Loss of Frame - a condition at the receiver or a maintenance signal transmitted in the physical framing indicating that the receiving equipment has lost frame delineation. This is used to monitor the performance of the physical layer.

Loop

A loop is used to redirect data. There are two types of loop - remote and local.

LOS

Loss of Signal - a condition at the receiver or a maintenance signal transmitted in the PHY overhead indicating that the receiving equipment has lost the received signal. This is used to monitor the performance of the physical layer.
MAC

Media Access Control.

N

NAT

Network Address Translation.

NNI

Network Node Interface.

O

OAM

Operations Administration and Maintenance - group of network management functions that provide network fault indication, performance information, and data and diagnosis functions.

OAM Loopback

A mechanism for connectivity verification at VPC and VCC level. A loopback indication determines whether a cell is to be looped back, and a correlation tag matches returned OAM cells with transmitted ones.

OSI Reference Mode

This is a seven layer model, defined by the International Standardisation Organisation, in which functions are broken up into clearly defined layers.

P

PAP

Password Authentication Protocol is a PPP Authentication Method.

PAT

Port Address Translation.

Parity

A simple mechanism for determining if a single bit error has occurred when individual characters are transmitted.
**Physical Layer**  The first layer in the OSI Model. It specifies the physical interface (for example connectors, voltage levels, cable types) between a user device and the network.

**Ping**  The IP Ping procedure. This lets you test for the presence of a remote device on a network.

**POTS**  Plain Old Telephone Service. POTS is recognised around the world to mean the basic analogue telephone service.

**PPD**  Partial Packet Discard.

**PPP**  Point-to-Point Protocol is a protocol used to communicate across networks that use different protocols.

**PPPoA**  Point-to-Point Protocol over ATM. This used over an ADSL connection.

**PPPoE**  Point-to-Point Protocol over Ethernet. This used over an Ethernet connection.

**PSD**  Power Spectral Density.

**PTT**  National Postal, Telephony and Telegraphy administration.

**PVC**  Permanent Virtual Circuit/Connection. This a permanent circuit, route or link in which the routes between two endpoints are defined during network setup. PVCs are used mainly for Wide Area Networks (WANs). A fixed virtual circuit between two users.

**Q**

**QoS**  Quality of Service.
R

RAI  Remote Alarm Indication - an error received from a piece of equipment that is receiving data to indicate that it is receiving a fault condition, for example LOS or LOF.

RAS  Remote Access Server.

RDI  Remote Defect Indication - an error received from a piece of equipment that is receiving data to indicate that an RAI has been received for longer than a preset time.

RS232 A standard type of serial connector.

Rx  Receiver/Receive/Received.

S

Signalling (ATM)  The procedures used to establish connections on a ATM network. Signalling standards are based on the ITU's Q.93B recommendation.

Src  Source Address.

Stop bits  The last bits set in asynchronous transmission, to indicate that the message is complete. In asynchronous serial data transmission, each character is sent between a start bit and one or more stop bits. At the end of each character the line goes into an idle state, known as marking. At the start of the next character it activates again - the active state is known as spacing. There is a minimum of 1, 1.5 or 2 stop bits between characters, but the line may remain idle until the next character is sent.

SVC  Switched Virtual Circuit. This a temporary route or link which can be set up and cleared down on a call by call basis. The user defines the endpoints when the call is started.
Switching

An ATM network is comprised of a collection of ATM switches and the end systems (users) attached to them. In ATM switching, cells are received on one port of a switch. The switch then identifies the port through which the cell is to be forwarded to the next device, based on information in the cell header.

TCP

Transmission Control Protocol - originally developed by the Department of Defence to support interworking of dissimilar computers across a network. A protocol which provides end-to-end, connection-oriented, reliable transport layer (layer 4) functions over IP controlled networks. TCP performs the following functions: flow control between two systems, acknowledgements of packets received and end-to-end sequencing of packets.

TDR

Time Domain Reflectometer. Enables you to locate the position of a fault - short, break, low insulation, cross-talk, or any impedance mismatch - in the copper pair being tested. The TDR transmits a pulse down the line and measures the time it takes to receive the reflected signal back from the other end of the line, or from a fault.

TTL

Time To Live, sometimes known as hop count, is a value that is set by the device that sends the Ping message. The value is decremented by each IP network router device that the message passes through. When the value = 0 the IP packet is deleted from the network. This prevents un-routed packets remaining in the network any longer than necessary.

Tx

Transmission/Transmitted/Transmit.

UBR

Unspecified Bit Rate.

UNI  User to Network Interface. This specifies the connection between end user equipment and the network.

V

VC Mux  Virtual Circuit Multiplex address is a protocol used in IP Encapsulation.

VCI  Virtual Channel Identifier: A unique numerical tag as defined by a 16 bit field in the ATM cell header that identifies a virtual channel, over which the cell is to travel.

VC  Virtual Channel
A Virtual Channel operates between each pair of adjacent devices between the source and destination of the information being transferred across an ATM network, thus supporting the virtual connection (VC). Each Virtual Channel has a unique Virtual Channel Identifier (VCI). Virtual Channels are grouped by switches into Virtual Paths. Since Virtual Channels in different Virtual Paths may use the same VCI value, the unique combination of VCI and VPI (Virtual Path Identifier) is used to identify a specific Virtual Channel between adjacent switches.

VPI  Virtual Path Identifier. A unique value that distinguishes a Virtual Path from all the others that are supported on the same physical link. A VPI value is assigned to each Virtual Path when the connection is set up. Since Virtual Channels in different Virtual Paths may use the same VCI value, the combination of VPI and VCI is used to uniquely identify a specific Virtual Channel between adjacent switches.
**VP**
**Virtual Path**
A group of $2^{14}$ (65,536) Virtual Channels that have been grouped together by the switch for management purposes (e.g. reserving bandwidth for groups of users). In a similar way to Virtual Channels, a Virtual Path is identified by a unique Virtual Path Identifier.

**W**
**WAN**
Wide Area Network. A system consisting of computer and communications hardware and software connected by different transmission types over an unlimited area network.

**X**
**Xon/Xoff**
A type of flow control in which the control signal passes in band in the normal data flow. The special characters XON (11H) and XOFF (13H) are used to halt and to restart the flow of data respectively.
Index

A
ADSL Bit Errors 4-41
ADSL Layer
  about 4-33
  downstream parameters 3-13
  upstream parameters 3-13
ADSL Layer Tests
  about 4-33
ADSL Statistics 4-37
Alphanumeric information
  entering 2-16
Approvals 7-10
ATM BERT
  BERT% setting up 4-64, 4-78
  choosing the test length 4-62
  choosing the test pattern 4-62
  pattern synchronising 4-65
  results 4-68
  running 4-65
  VCIs setting up 4-64
  VPI for BERT setting up 4-63
  VPIs setting up 4-63, 4-78
ATM Global Statistics 4-53
ATM Layer
  about 4-51
ATM VC Statistics 4-54
ATM25 BERT
  BERT% setting up 4-78
  choosing the test length 4-77
  choosing the test mode 4-74
  choosing the test pattern 4-76
  pattern synchronising 4-79
  running 4-79
  VCIs setting up 4-78
ATM25 Statistics 4-82
Aurora
  Exchange
    installing on a PC 3-43
    setting up 3-48
AuroraPresto Specifications 7-2
Auto Test Mode 2-12, 4-3
Automatic Power-Off
  setting 3-32
Autotests 4-7

B
Battery use/maintenance 6-3
Belt hook
  removing 2-8
  replacing 2-10
BERT
  Patterns 7-9
Bit Error Rate
  testing 4-57
Bridge Type
  setting up 3-23

C
Cables 1-19
  ADSL line 1-19
  ATMFi 25.6 1-20
  Ethernet 1-20
  G.SHDSL line 1-19
Carrier Usage 4-39
  selecting tones 4-39
Case description 7-3
Connecting to
  external power source 2-3
  interfaces 2-4
  PC 2-6
  printer 2-6
Connectors
  interfaces 1-18
  RJ11 Interface 7-4
  RJ45 Interface 7-5, 7-6
  safety advice 1-18
  serial port 1-12
Country of operation 3-34

D
Data Connection
  setting up 4-51
AuroraPresto—User Guide

Date
  changing 3-34
Default Gateway (DGW)
  entering 3-21
Default settings
  list of factory defaults 3-37
Digital Multimeter See DMM
Dimensions 7-3
DMM Tests
  running 4-23
DSL
  Trace Message Definitions 2-4
DSL Layer Tests
  running 4-35
Durability 7-3

E
External power source
  connecting to 2-3

F
Factory Defaults
  returning to 3-35
Function keys
  using 2-13

G
G.SHDSL DSL Statistics 4-45
G.SHDSL Loopbacks 4-49
gotolink glossary.fm
  Gloss Term CHAP 3-29

H
Hot Keys
  deleting 3-6
  editing 3-4
  loading 3-6
  preconfigured 3-3
  setting up 3-3
  storing 3-5

I
Installing new software 3-42
Interface specifications
ADSL maximum line voltage 7-4

Interfaces
10 Base T 7-5
ADSL 7-4
configurations 7-12
connecting to 1-18, 2-4
displaying 2-16
Ethernet 7-5
G.SHDSL 7-6
modules 1-8
optional 7-8
RS232 7-7

IP
setting up framing 3-17, 3-19, 3-21, 3-24
setting up the Mode 3-16
setting up the Port 3-17

IP Address
entering the Default Gateway (DGW) 3-21
entering the Source address (Src) 3-18, 3-21
Mask IP address (Msk) entering 3-18, 3-21
setting up 3-15
Source IP Address 3-18, 3-21

IP Encapsulation
setting up 3-22

IP Frame Setup
Header Compression 3-23
IP Operation Mode 3-23

IP Framing
IP Type 3-22

IP Framing Setup
IP Encapsulation 3-22

IP Header Compression
setting up 3-23

IP Operation Mode
setting up 3-23

IP Port
ADSL connections 3-17
Ethernet connections 3-17

IP Type
setting up 3-22
Aurora Presto — User Guide

**L**
Language setting 3-35
LCD backlight setting 3-33
Load Coil Test running 4-32
Load Coil Tests about 4-31
Loadspeaker switching on and off 2-15
Lower case characters entering 2-17

**M**
Menus exiting 2-13
moving through items 2-12
selecting an item 2-12
using the menu system 2-11
Menutrees setup 1-2
tests 1-5

**N**
Noise Analysis 4-18

**O**
OAM Destination Address entering 4-69
Option windows introduction 2-11
Optional accessories 7-13

**P**
Parity setting 3-10
Passwords setting up 3-30
PC connecting to 2-6
Ping Tests results 4-87
setting up 4-86
Pinouts 10BaseT 7-5
Index

8 pin Mini DIN socket 7-7
ATM 25 7-8
G.SHDSL 7-6
Power supply (batteries)
  about 6-3
  checking battery voltage 6-3
  discharging 6-4
  fitting a battery pack 6-6
  power saving features 2-8
  recharging 6-5
  storage 6-8
Power supply (external)
  about 6-2
PPP Authentication Method
  CHAP setting up 3-29
  PAP setting up 3-29
  setting up 3-29
PPP Setup
  Authentication Method 3-29
  Passwords 3-30
  Tracer 3-30
  User Names 3-29
Preconfigured Hot Keys 3-3
Printer
  connecting to 2-6
Product Safety 7-9
Protocols
  national variants 3-34
R
Real-Time Clock
  adjusting date/time 3-33
Results
  printed example 5-8
S
Safety advice
  interface connectors 1-18
Screen display
  backlight, automatic power-off 3-33
  changing the contrast 2-7
  changing the language 3-35
Screen display backlight
  automatic power-off 2-8
  switching on/off 2-8
Serial port
  baud rate 3-9
  character length 3-9
  connector 1-12
  parity configuration 3-10
  sending stop bits 3-10
  using Xon/Xoff flow control 3-11
Session Results
  sending to a printer or PC 5-6
Sessions
  clearing from memory 5-6
  displaying the results 5-5
  saving an active session 5-5
Setting up **AuroraPresto** 3-2
Setup
  menutree 1-2
Signal Analysis 4-39
Source IP Address
  entering 3-18, 3-21
  setting up the origin 3-20
Specifications
  display 7-2
  keypad 7-2
  LEDs 7-2
  user interface 7-2
Status display 3-41
Swiching on and off 2-7
**T**
TDR Tests
  running 4-28
  setting up 4-26
Temperature range 7-3
Test Modes
  automatic 4-3
Tests
  Menutree 1-5
Time Domain Reflectometer *See* TDR
Tones 4-39
Trace Message Definitions
  ADSL 2-4
  G.SHDSL 2-6
Tracer
  setting up 3-30

U
Unmapped VC 4-56
  MRU 4-56
User Name
  setting up 3-29

V
VC
  MRU Unmapped 4-56
  Unmapped 4-56
VCI
  setting up 4-52
Vendor Codes 2-6
Virtual Channel Identifiers See VCI
Virtual Path Identifiers See VPI
Volume
  adjusting 2-15
  switching on and off 2-15
VPI
  setting up 4-52

W
Weight 7-3
Windows
  exiting 2-13
  option windows 2-11
  switching between 2-14