ADSL Modem

USER'S MANUAL

BRIDGE

zoom

NOTICE

Contents

1

Installation Instructions

1.1 Important! Before You Begin

Before installing your ADSL Bridge, you must have DSL service enabled on your telephone line. To do this, you need to sign up with a DSL service provider. The provider will arrange to have DSL enabled and provide you with the communications settings necessary to log on to their network.

1.2 Package Contents

In addition to these installation instructions, your package should include the following items:

- ADSL Bridge modem
- Power adapter and power cord
- Straight-through Ethernet cable
- RJ-11 phone cord
- RJ-11-to-wall-jack adapter (certain models only)
- CD-ROM, including software and Warranty and Customer Support information
- Phone filter(s) (certain models only).

If anything is missing or damaged, please contact your supplier.

You Will Also Need

- A Windows, Macintosh, Linux, or other computer that supports TCP/IP and that is equipped with a Network Interface Card (NIC).
- A telephone wall jack to plug the Bridge into. The associated phone line must be DSL enabled.

1.3 Quick Start Instructions

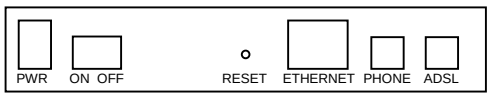
Default Communication Settings

VPI	VCI	Protocol (Encapsulation)
0	35	Bridge LLC (RFC 1483)

- If your service provider uses all three default settings listed above (the majority do), proceed to **Connect the Bridge** below.
- If your service provider uses the default VPI and VCI numbers but the PPPoE protocol rather than the Bridge protocol, turn to the **Appendix** on page 16.
- If your service provider uses settings different from these default ones (you would have been told this information when you signed up with your DSL provider), turn to the **Appendix** on page 17.

Connect the Bridge

To connect the Bridge modem hardware, all connections originate from the Bridge's back panel.



(For reference, we have included a table that defines these back panel ports, or jacks; see page 14.)

1 Your computer should be off. Plug one end of the supplied phone cord into the unit's **ADSL** jack and the other end into the ADSL wall jack.

2 Plug one end of the straight-through Ethernet cable into the modem's **ETHERNET** jack and plug the other end into your computer's corresponding Ethernet port.

3 Plug one end of the included power adapter into the unit's **PWR** jack and the other end into a power strip or wall receptacle.

4 Turn your computer back on.

5 Turn the Bridge modem on by pushing the **ON/OFF** toggle switch. The **PWR** light on the unit's front panel turns on.

6 The Bridge performs a startup sequence—the **LINK** light blinks. When the startup sequence is complete, the **LINK** light will change from blinking to solid. (For reference, we have included a table on page 14 that explains the meaning of the front panel lights.)

Using Phone Filters

You should use a filter with each device—phone, fax machine, analog modem, etc.—that is sharing the DSL-enabled line, because this prevents the device from receiving noise when the DSL modem is on. Your Bridge modem includes an onboard filter, so you can plug a phone or other device directly into the Bridge's **PHONE** jack if you like. Plugging a device into this jack is optional, not required. For other devices on the DSL-enabled line, plug the device's phone cord into the filter's **PHONE** end, and plug the filter's **LINE** end into the wall jack. Some Bridge models come with filters, and more can be purchased from a retailer or service provider.

Now that your modem is connected and appropriate filters are attached, you're done. To connect to the Internet, simply click the Web browser icon on your computer desktop.

The remainder of this manual contains information intended for future reference—for example, there are chapters on **System Administration** and **Removing Your Bridge Modem**. Refer to the Table of Contents for guidance.

1.4 If You Need Help

- If you have hardware installation problems, our Technical Support Staff will be happy to assist you.

  Windows Users: Please see the Customer Support portion of the CD for contact information. You may also want to refer to the Frequently Asked Questions on the CD.

  Macintosh and Linux Users: You will find Customer Support information and Documentation in Adobe PDF format in the appropriately named folders in the CD-ROM's directory.

- If you have DSL service problems, you should contact your DSL service provider

2

System Administration

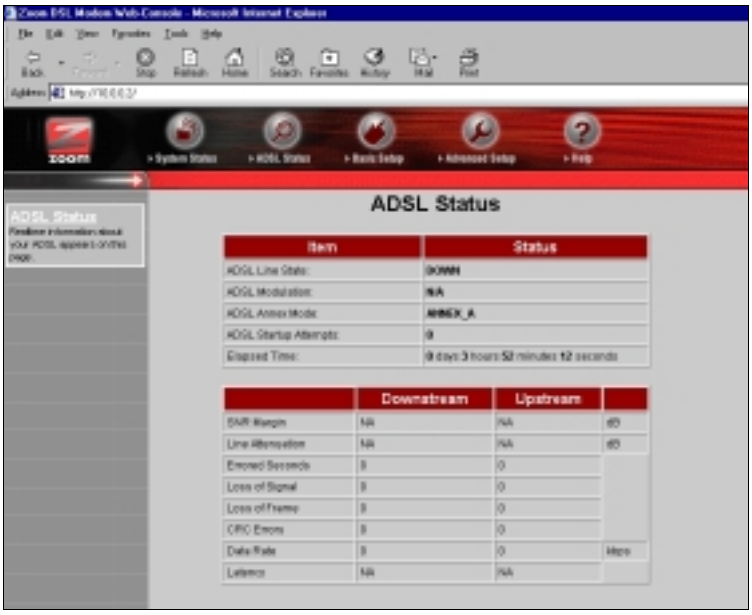
Using the computer attached to the Bridge modem and a Web-based browser such as Netscape Communicator or Internet Explorer, you can administer your Bridge unit and monitor your ADSL connection.

2.1 Monitoring System Status

If you want to check the overall system status, click the **System Status** icon at the top of the Bridge's main interface page. If the Bridge's main interface page isn't open, click your desktop Web browser icon and type **http://10.0.0.2** to display the Bridge's main page.

2.2 Monitoring ADSL Status

If you want to check the status of your ADSL connection, click the **ADSL Status** icon at the top of the Bridge's main interface page.



From here, you can verify whether your ADSL connection is active or not (**ADSL Line State Status** will read **SHOWTIME**). You can also monitor related ADSL parameters; for example, how fast the Bridge is transferring data.

If you want to review other network status aspects, click the **Advanced Setup** icon at the top of the main interface page.

Under the **Status** heading, you will see **ATM Status** and **TCP Status** buttons. Clicking these buttons displays pertinent, real-time information. (This information can be useful if a technician needs to troubleshoot your Bridge connection.)

2.3 Performing System Administration Tasks

To change system administration-type settings, click the **Advanced Setup** icon at the top of the main user interface page. Under the **Administration** heading, you will see items such as **Admin Password** and **System Log**.

For example, you can

- Change the **Admin Password**:

  Type the new password, then retype it for verification purposes. **Note:** The password must be at least 8 characters. If you change your password and then forget it, your only recourse is to reset it to the default by performing a hardware system reset (see page 11).

- View **System Log** or write log information to a file.

  Click this button to view a log of system activity.

- Perform a **Diagnostic Test**.

The Bridge's user interface uses a few basic buttons, which are listed in the table below.

Button	Function
Save Changes	Clicking this button initiates new settings and changes.
Write Settings to Flash and Reboot	Clicking this button puts new settings and changes into effect—and restarts the unit. (Changes do not become effective until unit is restarted.)
Help	Clicking the **Help** icon at the top of any page displays context-sensitive help.

Note: We strongly recommend that you change the administrator password to safeguard the security of your network.

2.4 Resetting the Bridge to Its Default Settings

If you have changed the system settings on your Bridge and want to restore them to the factory default settings, you can do so in one of two ways: You can perform a software reset or a "hard" reset.

Note: The unit's default IP address is **http://10.0.0.2**.

If you can open your Web browser and access your Bridge's user interface, initiate a software reset:

- From the **Advanced Setup** page, under **Administration**, click **Reset to Default**. You will be prompted to click the **Write Settings to Flash and Reboot** button. Once this process is complete, your unit is reset to its factory settings. Click on any of the icons at the top of page to continue.

If you lose your link to the unit and cannot communicate with it via the Web browser, initiate a hard reset.

- Using a paper clip, press the **RESET** button on the unit's back panel. While holding in this button, count to five, and then release the button. The unit's **LINK** light will turn off and then it will blink slowly, about once per second. You are now guaranteed that all system settings are set to the unit's factory defaults.

2.5 Updating the Bridge's Firmware

To upgrade the Bridge's firmware, click the **Advanced Setup** icon at the top of the main interface page and then follow these steps.

1. You must first download the upgrade (for example, from our web site or a floppy disk). Save it under a filename with a .dlf extension.

2. Click the **Firmware Update** button and then click **Image Download**. The modem will restart itself and switch into download mode.

3. Click **Browse** and select the upgrade file.

4. Click **Upload**. The modem will restart itself when the upload is done. The front panel **LINK** light will go off during the rebooting process. Then it will blink and finally remain on steady; the process is now complete. **Note:** This process may take up to a minute.

   VERY IMPORTANT!
   Do not turn off the Bridge or unplug it while you are upgrading the firmware or while the unit is in download mode.

5. Close and re-open your Web browser and resume your Internet session.

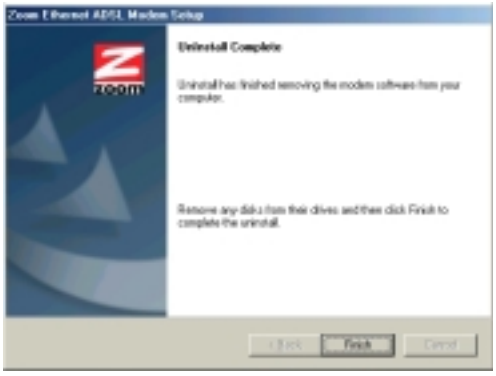
3

Removing the Bridge Modem

If you have installed the Bridge modem software and want to remove it—for instance, if you move your computer to a location without ADSL service—follow the steps below.

1. From the desktop, select **Start | Programs | Zoom ADSL Modem | Uninstall Ethernet ADSL Modem**.
2. When prompted to confirm your choice, click **Yes**.

3. When the process is complete, you will be prompted to click **Finish**.

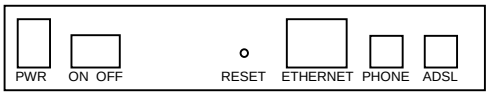


4. You can now unplug your modem hardware.

Appendix A
Front and Back Panel Data

Back Panel

The back panel of your unit looks like this.



The table below defines the purpose of these ports, or jacks.

Port	Description
PWR	Port to connect the unit to the power adapter.
ON/OFF	Toggle switch to turn the unit on or off.
RESET	Button to reset the unit to its system default settings.
ETHERNET	Port to connect the unit to the Ethernet (10BaseT) port of a computer.
PHONE	Port to connect a phone to the unit.
ADSL	Port to connect the unit to the ADSL telephone wall jack.

Front Panel

The front panel of your unit looks like this.

The table below defines these front panel lights and how to interpret them.

Light	Description
LAN	Lights when LAN connection is active.
RXD	Blinks when unit is transmitting or receiving data.
LINK	Blinks when unit is performing its startup sequence; stays on solid when unit is connected to the ADSL line.
PWR	Lights when power switch on back panel is turned on.

Appendix B

Using the Bridge with PPPoE

This Appendix is intended for those users whose service provider uses the PPPoE protocol, rather than the default Bridge protocol. You should be aware of the following alternatives.

- You can connect your Bridge modem to a computer that has PPPoE client software installed on it. (In most cases, your service provider will supply this software.)
- You can connect your Bridge modem to a Gateway that has built-in PPPoE client software.

Your service provider can advise you, or you can consult the documentation that came with your computer or Gateway.

Note: Your provider will give you a User Name and Password, so make sure you have them at hand, because you will need them to complete the installation.

User Name _____

Password _____

Appendix C

Custom Installation Instructions

Most users will follow the installation instructions on page 5. Follow these instructions only if your service provider is using settings that are different than the default settings listed on that page.

This custom installation involves the following tasks:

- *Setting up the Bridge*
- *Changing the TCP/IP settings*
- *Connecting the Bridge*
- *Establishing communication*
- *Completing the installation.*

Setting Up the Bridge

1 **Macintosh, Linux, Windows NT, and 95 Users:**
You do not need to run the CD-ROM software.
Skip to Step 2.

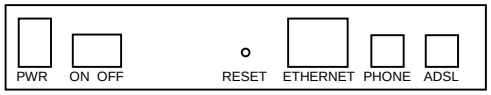
Windows 98/98SE, Me, 2000, and XP Users:

a Insert the supplied CD-ROM into your computer. The CD starts automatically and the **Main Menu** opens: (**Note:** If the CD does not start automatically, from the desktop, go to **Start | Run** and then type **D:\setup.exe**, where **D** is the letter of your CD-ROM drive.)

b Click the **ADSL Modem Installation Wizard** button. The software installation proceeds automatically.

c When the process is complete, you will be prompted to click **Finish** and shut down your computer.

2 Now connect the modem hardware. All connections originate from the Bridge modem's back panel.



(For reference, we have included a table that defines these back panel ports, or jacks; see page 14.)

a Your computer should be off. Plug one end of the supplied phone cord into the unit's **ADSL** jack and the other end into the ADSL wall jack.

b Plug one end of the straight-through Ethernet cable into the modem's **ETHERNET** jack and plug the other end into your computer's corresponding Ethernet port.

c Plug one end of the included power adapter into the unit's **PWR** jack and the other end into a power strip or wall receptacle.

d Turn your computer back on.

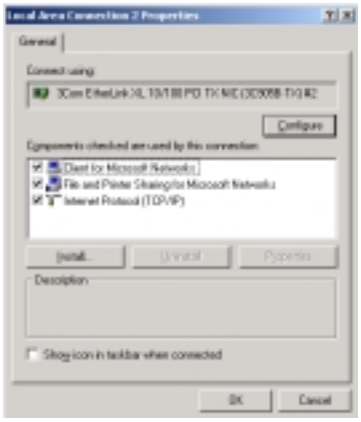
e Turn the Bridge modem on by pushing the **ON/OFF** toggle switch. The **PWR** light on the unit's front panel turns on.

f The Bridge performs a startup sequence—the **LINK** light blinks. When the startup sequence is complete, the **LINK** light will change from blinking to solid, indicating the DSL connection is successful. (For reference, we have included a table on page 14 that explains the meaning of the front panel lights.)

Note: These TCP/IP instructions and screenshots are typical of a computer using Windows 2000 or XP; if you are using Windows 98 or Me, yours may differ slightly. If you are a Macintosh or Linux user, turn to page 20 or 23, respectively.

Changing the Windows TCP/IP Setting

1 Click **Start | Settings | Control Panel** and then double-click the **Network** icon to display the **Network** dialog box.



Click the **Configuration** tab, highlight **TCP/IP**, and then click **Properties** to display the **TCP/IP Properties** dialog box.

2 Make sure you are at the **IP Address** tab. Click the button **Use the following IP address** and enter these addresses:

- **IP address=10.0.0.3** (or any IP address higher than the Bridge's 10.0.0.2 IP address)
- **Subnet mask=255.255.255.0**
- **Default gateway=10.0.0.2**.

Then click **OK**.

3 You will see the **Network** dialog box again. Click **OK** to enable your settings. If prompted to do so, insert your Windows CD-ROM and click **OK**.

Changing the Macintosh TCP/IP Setting

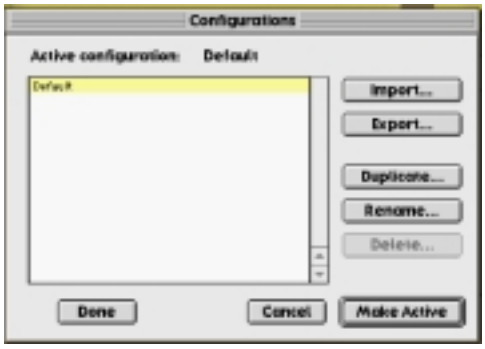
Depending on your Mac OS, the directions to configure your Macintosh's network settings will differ. For OS X, follow the instructions on page 22. Otherwise, continue directly below.

For Mac OS 7.6.1 - 9.2.2 and Above but not OS X

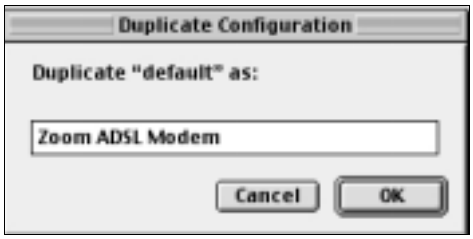
1 From the **Apple** menu, choose **Control Panels** and then **TCP/IP** to display the **TCP/IP** dialog box.

2 On the main toolbar, from the **File** menu, choose **Configurations**.

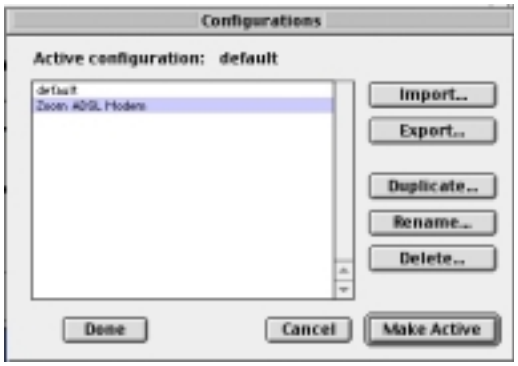
3 In the **Configurations** dialog box, click **Duplicate**.



4 The **Duplicate Configuration** dialog box appears. Type a name, such as "**Zoom ADSL Modem**," and click **OK**.



5 The **Configurations** dialog box appears again. Highlight your new configuration—in our example, **Zoom ADSL Modem**—and click **Make Active**.



6 In the **TCP/IP** dialog box, under **Connect via:**, select **Ethernet**.

Under **Configure:**, highlight **Manually** from the **Configure:** list and then enter the static IP address **10.0.0.3** (or any IP address higher than the Bridge's 10.0.0.2 IP address) and the subnet mask **255.255.255.0**.

7 Close the **TCP/IP** dialog box. You will be asked if you want to save the changes. Click **Save**.

For Mac OS X

1 From the **Dock**, choose **System Preferences** and then **Network**. The **Network** pane appears.

2 From the **Location:** drop-down list box, select **New Location…**. In the box, type a name of your choosing, such as "**Zoom ADSL Modem**," and click **OK**.

3 Under the **Show:** drop-down tab, choose **Built-in Ethernet** or **Ethernet**.

4 Make sure that the **TCP/IP** tab is foremost.

Highlight **Manually** in the **Configure:** menu and then enter the static IP address **10.0.0.3** (or any IP address higher than the Bridge's 10.0.0.2 IP address) and the subnet mask **255.255.255.0**.

5 Click **Save** and close the **Network** pane.

Changing the Linux TCP/IP Setting

The instructions for setting up boot-time DHCP vary dramatically by distribution, so you may want to refer to your particular version's documentation. We have included instructions for RedHat.

Note: If you have other network cards installed, you will need to pick distinct Ethernet identifiers for each (eth0, eth1, eth2, etc.). If you select an identifier other than eth0 for your ADSL modem, use that identifier throughout.

For RedHat

To use a static IP address, edit or create **/etc/sysconfig/network-scripts/ifcfg-eth0** so that it contains the following lines:

DEVICE=eth0
ONBOOT=yes
BOOTPROTO=static
IPADDR=10.0.0.3
NETMASK=255.255.255.0
NETWORK=10.0.0.2

Note: If your computer won't always be on a network with working DNS at boot-time, set ONBOOT=no. If you don't, RedHat 6.2 (and possibly other versions) might hang. To activate the card by hand when you have attached your computer to the network, at root, run the command: **/sbin/ifup eth0**.

Establishing Communication with the Bridge

1 **Windows 98/98SE, Me, 2000, and XP Users:**
Once you've run the CD and connected the hardware, there should be a Zoom Web Console icon on your desktop. Double-click it to display the **Network Password** dialog box.

Macintosh, Linux, Windows NT, and 95 Users:
There will not be a Zoom Web Console icon on your desktop. Instead, open your Web browser, type **http://10.0.0.2** and press Enter to display the **Network Password** dialog box.

Note: This User Name and Network Password are different from the ones that your service provider gave you. They provide an added level of security that protects your ADSL unit's settings.

- **User Name=admin**
- **Password=zoomadsl**

Remember: The **User Name** and **Password** letters are case-sensitive.

Tip: If the **Network Password** box doesn't display, perform the following in this order:

a Recheck all connections.

b Restart the modem and computer.

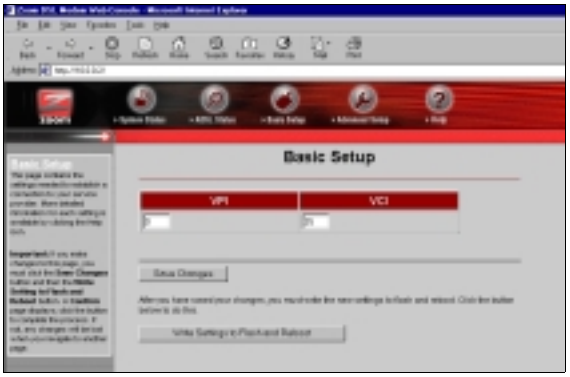
c Perform a "hard" reset. (See page 11.)

2 The **Basic Setup** page displays. You are now communicating with your Bridge.

a Change the **VPI** and **VCI** numbers so that they match those given by your service provider.

b Click **Save Changes** and **Write Settings to Flash and Reboot**. Once the reboot is complete and the unit has reset itself—when the front panel's **LINK** light remains on steady again—close the Zoom Web Console page.

c Continue below with **Completing the Installation**.



REMEMBER:
Any time you make a change to the **Basic Setup** page, you must click the **Save Changes** button and then the **Write Settings to Flash and Reboot** button. A **Confirm** page displays; click the button to complete the process. If not, the change will be lost when you navigate to another page.

Completing the Installation

To complete the Bridge setup, you need to re-adjust your IP address, depending on your service provider.

- If your service provider has instructed you to use a **dynamic IP address**:
  — Be sure to select **DHCP** or **Obtain an IP address automatically**. (Refer to page 19 if you have forgotten how to access the **TCP/IP Properties** box.)
- If your service provider has instructed you to use a specific **IP address**:
  —Enter the **static IP address** and **subnet mask** you have been given. (Refer to page 19 if you have forgotten how to access the **TCP/IP Properties** box.)

That's it! You can now connect to the Internet by clicking the Web browser icon on your computer desktop. For instructions on using phone filters, turn to page 6.

Appendix D
Regulatory Information

U.S. FCC Part 68 Statement

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. The unit bears a label on the back which contains among other information a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

This equipment uses the following standard jack types for network connection: RJ11C.

This equipment contains an FCC compliant modular jack. It is designed to be connected to the telephone network or premises wiring using compatible modular plugs and cabling which comply with the requirements of FCC Part 68 rules.

The Ringer Equivalence Number, or REN, is used to determine the number of devices which may be connected to the telephone line. An excessive REN may cause the equipment to not ring in response to an incoming call. In most areas, the sum of the RENs of all equipment on a line should not exceed five (5.0).

In the unlikely event that this equipment causes harm to the telephone network, the telephone company can temporarily disconnect your service. The telephone company will try to warn you in advance of any such disconnection, but if advance notice isn't practical, it may disconnect the service first and notify you as soon as possible afterwards. In the event such a disconnection is deemed necessary, you will be advised of your right to file a complaint with the FCC.

From time to time, the telephone company may make changes in its facilities, equipment, or operations which could affect the operation of this equipment. If this occurs, the telephone company is required to provide you with advance notice so you can make the modifications necessary to obtain uninterrupted service.

There are no user serviceable components within this equipment. See Warranty flyer for repair or warrantee information

It shall be unlawful for any person within the United States to use a computer or other electronic device to send any message via a telephone facsimile unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity, or individual sending the message and the telephone number of the sending machine or of such business, other entity, or individual. The telephone number provided may not be a 900 number or any other number for which charges exceed local or long distance transmission charges. Telephone facsimile machines manufactured on and after December 20, 1992, must clearly mark such identifying information on each transmitted

message. Facsimile modem boards manufactured on and after December 13, 1995, must comply with the requirements of this section.

This equipment cannot be used on public coin phone service provided by the telephone company. Connection to Party Line Service is subject to state tariffs. Contact your state public utility commission, public service commission, or corporation commission for more information.

U.S. FCC Part 15 Emissions Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Declaration of Conformity

The manufacturer declares under sole responsibility that this equipment is compliant to Directive 1999/5/EC (R&TTE Directive) via the following:

Directive	Standard	Test Report
73/23/EEC-Low Voltage	IEC 60950: 3rd ed. 1999	electrical safety
89/336/EEC-EMC	EN 55024: 1998ed	EMC-immunity
89/336/EEC-EMC	EN 55022 : 1998ed	EMC-emissions

This product is CE Marked.

Electrostatic Discharge Statement

The unit may require resetting after a severe electrostatic discharge event.

Additional compliance information is included on the CD.