

# Installation Guide



## APA-1460 SlimSCSI PCMCIA-to-SCSI Host Adapter

# Introduction

This document explains how to install and use Adaptec's APA™-1460 SlimSCSI® PCMCIA-to-SCSI adapters. The SlimSCSI adapters allow you to easily connect most SCSI devices to portable PCs using any of several popular operating systems. The SlimSCSI adapters include the following features:

- High-speed operation
- Ability to connect up to seven SCSI devices
- A standard SCSI connector, which can be used with almost any SCSI-compatible device

The following software is included with each SlimSCSI adapter:

- CardWizard Pro (for Windows 3.1) and CardWizard Pro for Windows 95 software to enable Plug and Play functionality and to resolve resource conflicts
- Adaptec EZ-SCSI® 4.0 software, providing SlimSCSI adapter support for most SCSI devices running under Windows® 3.1, Windows® 95, and Windows NT™. Adaptec EZ-SCSI includes a photo CD viewer, an audio CD player, a tape backup utility, an online tutorial, and other programs.
- Windows NT/OS2 Driver diskette



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**Note:** This document assumes that your Windows 3.1, Windows 95, or Windows NT PC has a CD-ROM drive. You will need the CD-ROM drive to install Adaptec EZ-SCSI, and you may need it to install the operating system software as well. If you do not have a CD-ROM drive, you can get Adaptec EZ-SCSI on diskettes by sending the mail-in coupon included with your SlimSCSI adapter.

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## Where Do I Start?

- If your PC uses **Windows 3.1**, you must install CardWizard Pro software before you install the SlimSCSI adapter. Turn to *Installing CardWizard Pro* on page 2.
- If your PC uses **Windows 95** or **Windows NT**, turn to *Installing the SlimSCSI Adapter* on page 3.
- If your PC uses **OS/2** versions, 2.0, 2.1, or 3.0 (Warp), turn to *Installing the SlimSCSI Adapter* on page 3.

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**Note:** Your SlimSCSI adapter cable may be different from the one pictured on the cover.

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# Installing CardWizard Pro

*If your portable PC runs under Windows 3.1, you must install the CardWizard Pro software before you install the SlimSCSI adapter and Adaptec EZ-SCSI! CardWizard Pro, from SystemSoft, enables your PC to recognize the PCMCIA slot(s) and to automatically allocate system resources to the SlimSCSI adapter and other PC cards. CardWizard Pro gives your PC Plug and Play capability in both DOS and Windows 3.1.*

Follow these steps to install CardWizard Pro:

- 1 Remove any PC cards that are currently installed in PCMCIA slots on your portable PC.
- 2 Insert the CardWizard Pro diskette in your PC's floppy disk drive.
- 3 Start Windows, if it is not already running.
- 4 Select **Run** from the Program Manager **File** menu.
- 5 Type a:\setup (or b:\setup if you are using the *B* drive), and click **OK**.
- 6 Follow the instructions that appear on the screen. Refer to the CardWizard Pro online Help if you encounter any problems during installation.
- 7 When you see a message asking if you want to restart your PC now, click on **Restart Now** and wait until Windows restarts.  
  
When Windows restarts, you will see a message warning you that the APA-1460 SlimSCSI adapter is not configured.
- 8 Click **OK**. The main CardWizard screen appears, with additional warning text. *These messages are normal.* CardWizard will recognize the SlimSCSI adapter later after you have installed Adaptec EZ-SCSI.
- 9 Exit from CardWizard and continue with *Installing the SlimSCSI Adapter* on page 3.

## **CardWizard Pro System Beeps**

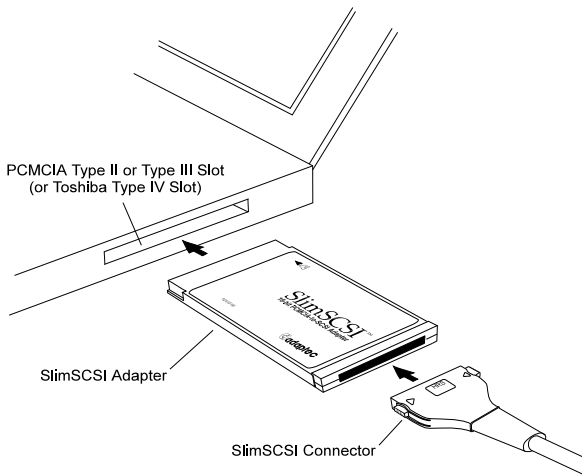
When CardWizard Pro is installed, the PC sounds the following beep codes when you insert or remove a PCMCIA card:

- *Medium tone followed by high tone*—The card is recognized and successfully configured.
- *Single low tone*—The card is recognized but is not successfully configured. You may need to change your PC and/or CardWizard Pro configuration.
- *High tone followed by a medium tone*— A card has been removed.

# Installing the SlimSCSI Adapter

Follow these steps to physically install the SlimSCSI adapter and connect your SCSI devices to it.

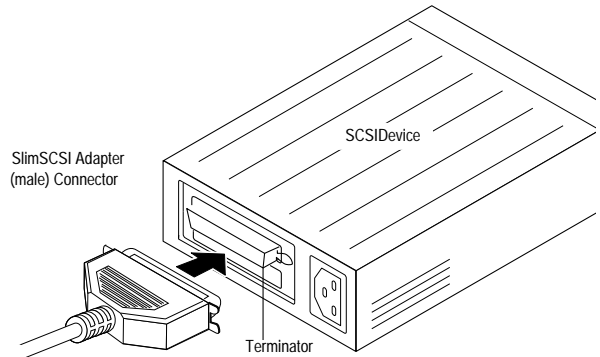
- 1 Connect the SlimSCSI connector to the SlimSCSI adapter, as shown below:



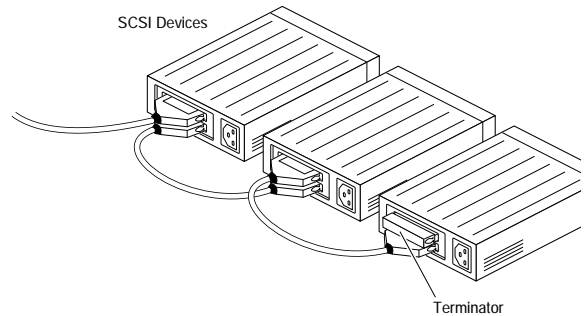
**Note:** Your adapter cable may look different from the one shown in the illustrations.

- 2 Insert the SlimSCSI adapter in a PCMCIA Type II, PCMCIA Type III, or Toshiba Type IV slot on your portable PC.

- 3 Plug the connector on the other end of the SlimSCSI cable into a SCSI device, as shown below:



- 4 To connect other external SCSI devices, obtain additional external cables and daisy-chain each device to the previous device, as shown below:



*Daisy-chaining* means that a cable runs from the SlimSCSI adapter to a SCSI connector on the first SCSI device; a second cable connects the first SCSI device to the next SCSI device, and so on. You can daisy-chain up to seven external SCSI devices.

- 5 Terminate the *last* (or *only*) SCSI device connected to the SlimSCSI adapter.

Most SCSI devices are terminated with a jumper or switch near the SCSI connector. On some SCSI devices, you must physically remove or install terminator resistor modules. See the device documentation for more information.



**Note:** The SlimSCSI adapter is actively terminated by default, and its termination cannot be changed.

- 6 Be sure that at least one of the external SCSI devices provides termination power (TERMPower) to the SCSI bus or that the last device on the bus supplies termination power to itself.

The SlimSCSI adapter *does not* provide termination power, because it would need to draw this power from the portable PC's battery. The SCSI devices will not operate correctly unless at least one device provides termination power.

- 7 Be sure that each SCSI device has a unique SCSI ID, ranging from 0 to 6. (The SlimSCSI adapter uses SCSI ID 7.)

SCSI IDs on most SCSI devices are set with jumpers or switches. See the device documentation for more information.

Your SlimSCSI adapter and SCSI devices are now installed. Next, you need to install the drivers and other software. To do this, continue with the following section, *Completing the Installation*.

# Completing the Installation

Turn to one of these sections to install software for the operating system you are using on your PC:

- *Completing the Installation in Windows 3.1* below
- *Completing the Installation in Windows 95* on page 5
- *Completing the Installation in Windows NT* on page 6
- *Completing the Installation in OS/2* on page 7

## Completing the Installation in Windows 3.1



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**Note:** If your PC is running Windows 3.1, the CardWizard Pro software must already be installed before you install Adaptec EZ-SCSI. If you have not already done this, see *Installing CardWizard Pro* on page 2.

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- 1 Insert the SlimSCSI adapter in a slot, connect the CD-ROM drive to it, and turn the drive ON.  
Be sure the CD-ROM drive is *terminated*, if it is the last SCSI device on the bus.
- 2 Start Windows 3.1 on your PC.
- 3 Insert the Adaptec EZ-SCSI 4.0 Setup Diskette in the floppy disk drive.
- 4 Select **File/Run** from the Program Manager menu.
- 5 When the Run dialog box appears, type a:\setup (or b:\setup if you are using the B drive) and click **OK**.
- 6 Follow the instructions that appear on the screen.
- 7 When Adaptec EZ-SCSI is installed, continue with *Using the SlimSCSI Adapter* on page 8.

# Completing the Installation in Windows 95

## If Windows 95 Is Not Installed on Your PC

If Windows 95 is *not* already installed on your PC, install it now and then continue with the instructions in the next section, *If Windows 95 Is Installed on Your PC*.

Follow these steps if you need to install Windows 95 from a CD-ROM drive connected to your SlimSCSI adapter:

- 1 Insert the SlimSCSI adapter in a slot, connect the CD-ROM drive to it, and turn the drive ON.  
Be sure the CD-ROM drive is *terminated*, if it is the last SCSI device on the bus.
- 2 Boot the PC to DOS and insert the Adaptec EZ-SCSI Setup Diskette in the PC's floppy drive.
- 3 At the DOS prompt, type `a:\dosinst` (or `b:\dosinst`, if the diskette is in the *B* drive) and press **Enter**.
- 4 Follow the instructions that appear on the screen. EZ-SCSI will install the drivers required by your CD-ROM drive.
- 5 When EZ-SCSI DOS installation is complete, reboot your PC. Be sure the CD-ROM drive is still powered ON when you do this.
- 6 Insert the Windows 95 installation CD disc in the CD-ROM drive and follow the installation instructions that appear on the screen.
- 7 When Windows 95 is installed on your PC, continue with the following section, *If Windows 95 Is Installed on Your PC*.

## If Windows 95 Is Installed on Your PC

- 1 Start Windows 95 on your PC.
- 2 To ensure that the correct PCMCIA Card and Socket Services are installed, open the Control Panel and double-click on **PC Card (PCMCIA)**. Then follow the instructions that appear on the screen.
- 3 If the SlimSCSI adapter is not already inserted in the slot, insert it now. If no prompt appears, continue with step 4.  
  
If you are prompted for APA-1460 adapter files, click **Browse** and insert the Adaptec EZ-SCSI 4.0 Setup diskette in the floppy drive. Select the drive letter of your floppy drive and click **OK**, then follow the instructions that appear on the screen. (This step ensures that the most up-to-date versions of drivers are installed.)
- 4 Insert the Adaptec EZ-SCSI 4.0 Setup Diskette in the floppy disk drive.
- 5 Click the **Start** button and select **Run**.
- 6 Type `a:\setup` (or `b:\setup` if you are using the *B* drive). Then click **OK**.
- 7 Follow the instructions that appear on the screen.
- 8 When Adaptec EZ-SCSI is installed, remove the Setup Diskette from the floppy disk drive.
- 9 We recommend that you install the CardWizard Pro for Windows 95 software included with your SlimSCSI adapter. To do this, follow these directions:
  - a Insert the CardWizard Pro for Windows 95 diskette in the floppy disk drive.
  - b Type `a:\setup` (or `b:\setup` if you are using the *B* drive). Then click **OK**.
  - c Follow the directions that appear on the screen. Choose the defaults for a "typical" installation.
- 10 Continue with *Using the SlimSCSI Adapter* on page 8.

# Completing the Installation in Windows NT



**Note:** The APA-1460 SlimSCSI adapter is supported under Windows NT *version 3.51 and higher*. Windows NT 3.51 does not support *hot plugging* or *hot swapping*. This means that the SlimSCSI adapter and the devices connected to it must be plugged in and powered ON before you start Windows NT and that you cannot remove the adapter (or other PCMCIA cards) while Windows NT is running.

## If Windows NT Is Not Installed on Your PC

If Windows NT is *not* already installed on your PC, install it now and then continue with the instructions in the next section, *If Windows NT Is Installed on Your PC*.

Follow these steps if you need to install Windows NT from a CD-ROM drive connected to your SlimSCSI adapter:

- 1 Insert the SlimSCSI adapter in a slot, connect the CD-ROM drive to it, and turn the drive ON.  
Be sure the CD-ROM drive is *terminated*, if it is the last SCSI device on the bus.
- 2 Boot the PC to DOS and insert the Adaptec EZ-SCSI Setup Diskette in the PC's floppy drive.
- 3 At the DOS prompt, type a:\dosinst (or b:\dosinst, if you are using the B drive) and press **Enter**.
- 4 Follow the instructions that appear on the screen. EZ-SCSI will install the drivers required by the CD-ROM drive.
- 5 When EZ-SCSI installation is complete, reboot your PC to DOS. A drive letter should now be assigned to your CD-ROM drive.
- 6 Insert the Windows NT installation CD disc in the CD-ROM drive and change to the \i386 directory on the CD.
- 7 At the DOS prompt, type winnt /b and press **Enter**.
- 8 Install Windows NT, following the instructions that appear on the screen.

- 9 When Windows NT is installed, continue with the next section, *If Windows NT Is Installed on Your PC*.

## If Windows NT Is Installed on Your PC

You must complete *all* steps in this section, even though Windows NT is already installed on your PC. These steps ensure that the required Windows NT registry changes are made.

- 1 Be sure that the SlimSCSI adapter is inserted in a PCMCIA slot and that the CD-ROM drive is connected to it and is turned ON.
- 2 Start Windows NT on your PC.
- 3 Double-click the Windows NT **Setup** program icon in the Main program group.
- 4 Select **Options** from the Setup program menu, then select **Add/Remove SCSI Adapters**. A list of all currently installed SCSI adapters appears.



**Note:** If Adaptec 151x/152x/AIC-6260/6360 appears on the list, select it and click **Remove**.

- 5 Click **Add**. Click **OK** to verify that you want to add an adapter.
- 6 When the Select SCSI Adapter Option dialog box appears, select **Other** from the Adapter scroll window.
- 7 Insert the Windows NT/OS2 Drivers diskette (included with your SlimSCSI adapter) in the PC's floppy drive. Type a:\winnt (or b:\winnt, if you are using the B drive) in the dialog box and click **OK**.
- 8 Click **OK** to add the Adaptec 151x/152x/AIC-6260/6360 driver to the list of SCSI adapters. (This entry is highlighted by default.)
- 9 Select **Adaptec 151x/152x/AIC-6260/6360** from the list of SCSI adapters and click **Install**. Follow the instructions that appear on the screen.
- 10 When the Setup program displays an updated list of currently installed host adapter types, verify that Adaptec 151x/152x/AIC-6260/6360 appears on the list.
- 11 Click **Close** and exit Setup; then restart your PC when you are prompted to do so.

- 12 When Windows NT starts again, insert the Adaptec EZ-SCSI 4.0 Setup Diskette in the floppy disk drive.
- 13 Click the **Start** button, and select **Run**.
- 14 Type a:\setup (or b:\setup if you are using the B drive). Then click **OK** to install Adaptec EZ-SCSI.
- 15 When Adaptec EZ-SCSI is installed, continue with *Using the SlimSCSI Adapter* on page 8.

## Completing the Installation in OS/2

Follow these steps to complete installation of the SlimSCSI adapter under OS/2 versions 2.0, 2.1, or 3.0 (Warp).



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**Note:** OS/2 must *already be installed* on the PC before you begin these steps. OS/2 does not support installation from a CD-ROM drive connected to a PCMCIA card such as the SlimSCSI adapter.

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- 1 Be sure that the SlimSCSI adapter is inserted in a PCMCIA slot and that the SCSI disk drive and/or other SCSI devices are connected to it and are turned ON.
- 2 Start OS/2 and open the OS/2 System folder.
- 3 Select the **Selective Install** icon (in the *os/2\_sys\system\_s* directory).
- 4 Click **PCMCIA Support**, select the PCMCIA system appropriate to your PC, and click **OK**.
- 5 Click **Install** and follow the instructions that appear on the screen. (You will be instructed to insert a series of OS/2 diskettes.)
- 6 When the installation procedure is completed, click **OK**.
- 7 Insert the Windows NT/OS2 Drivers diskette in drive A.
- 8 Select the **Device Driver Installation** icon (in the *os/2\_sys\system\_s* directory).
- 9 Click **Install**. The *aha152x.add* file is then installed on your PC.
- 10 If you are installing a CD-ROM drive, select a CD-ROM from the Selective Install icon.
- 11 If automatic installation completes, restart your PC. The installation is now complete.
- 12 Continue with *Using the SlimSCSI Adapter* on page 8.

If automatic installation fails:

- 1 Use an editor to add these lines to *config.sys*. (Be sure to place them before other basedev lines):

```
basedev=aha152x.add  
basedev=os2scsi.dmd
```



- 2 Copy the *aha152x.add* file from the Windows NT/OS2 Drivers diskette to \os2\boot.
- 3 Restart your PC. The installation is now complete.
- 4 Continue with the following section, *Using the SlimSCSI Adapter*.

# Using the SlimSCSI Adapter

Before you boot your PC, be sure that the SlimSCSI adapter is firmly inserted in a PCMCIA slot and that the SCSI devices are connected to it and are turned ON. This allows the device drivers to load.



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**Note:** You cannot boot your portable PC from a disk drive or other SCSI device connected to the SlimSCSI adapter; booting from a PCMCIA SCSI device is not supported.

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After you install Adaptec EZ-SCSI on a Windows 95 PC, you may remove and insert the SlimSCSI adapter at any time except when data is being transferred on the SCSI bus. (Windows NT does not support this *hot plugging* feature.) You can tell that data is being transferred if the SCSI device's activity light is on.

*To remove the SlimSCSI adapter while Windows 95 is running*, click on the small PC Card (PCMCIA) icon in the lower right corner of the screen and select **Stop APA-1460 SlimSCSI host adapter**. Then remove the SlimSCSI adapter.

When you insert the SlimSCSI adapter while Windows 95 is running, the SCSI disk drives and other devices connected to the card appear as active devices in Windows Explorer and My Computer.

# Need Assistance?

## Troubleshooting Checklist

Check these items first if your SlimSCSI adapter and SCSI devices do not operate properly. If you are using Adaptec EZ-SCSI 4.0, also see the troubleshooting information in the *EZ-SCSI 4.0 Quick Reference* and the *readme* file on the Setup diskette:

- Be sure all SCSI bus and power cables are properly connected and all devices are turned ON.
- Be sure the SlimSCSI adapter is firmly installed in the PCMCIA slot.
- Be sure each SCSI device has a different SCSI ID.
- Be sure the last SCSI device on the SCSI bus is terminated.
- Be sure at least one SCSI device connected to the SlimSCSI adapter supplies termination power to the SCSI bus. Some devices have a switch to enable or disable termination power.
- *(Windows 3.1 PCs Only)* Be sure that the Adaptec EZ-SCSI drivers are listed *after* the CardWizard Pro drivers in the *config.sys* file.
- *(Windows NT PCs Only)* Follow these steps if CD-ROM drives or hard disk drives do not appear in File Manager or Disk Administrator:
  - Open the Control Panel, then open Devices.
  - Look at the scsidisk and scsicsdrm devices.
  - If scsidisk and/or scsicsdrm have not been started, select them and set the device to *System* by clicking on the **Startup** button.
  - Reboot the PC.
- *(Windows NT PCs Only)* Follow these steps to determine if the SlimSCSI drivers loaded properly:
  - Open the Control Panel, then open Devices.
  - Look at the sparrow device.
  - If the sparrow device has not been started, there is a device or resource problem.

- You can also check for errors in loading drivers by opening Administrative Tools and then opening Event Viewer. Errors are listed under sparrow.

- *(OS/2 PCs Only)* Your SCSI subsystem and SCSI devices may become unstable when your laptop PC enters suspend mode (APM). (This is due to the way in which IBM has implemented suspend mode in OS/2.) If this problem occurs, disable suspend mode.

## Contacting Adaptec

If you have questions about installing or using your Adaptec product, check this document first—you will find answers to most of your questions here. If you need further assistance, please contact us. We offer the following support and information services:

- For technical support, for information about the Adaptec Electronic Bulletin Board Service (BBS) and the File Transfer Protocol (FTP) and World Wide Web (WWW) Servers, and for access to the Interactive Fax system, call 800-959-SCSI (7274) or 408-945-2550, 24 hours a day, 7 days a week. To speak with a product support representative, call 408-934-SCSI (7274), Monday through Friday, 6:00 A.M. to 5:00 P.M., Pacific Time; after these hours, on weekends, and on holidays, product support is also available for a fee at 800-416-8066.
  - The Adaptec BBS provides answers to commonly asked questions and information on software upgrades and other topics. The BBS is available 24 hours a day, 7 days a week, at 408-945-7727; 1200/2400/9600/14,400/28,800 bps, 8 data bits, 1 stop bit, no parity.
  - The Adaptec FTP and WWW Servers provide product literature, answers to commonly asked questions, and information on software upgrades and other topics. The FTP and WWW Servers are available from the Internet 24 hours a day, 7 days a week, at ftp.adaptec.com and http://www.adaptec.com.
  - The Adaptec Interactive Fax system provides product literature, answers to commonly asked questions, and current information about Adaptec products and services. The Adaptec Interactive Fax system is available 23 hours a day, 7 days a week. The Fax system is out of service

1 hour each day. You can call this service directly at 408-957-7150.

- For sales information, call 800-959-SCSI (7274) or 408-945-2550, Monday through Friday, 6:00 A.M. to 5:00 P.M., Pacific Time.
- To order Adaptec software and cables, call 800-442-SCSI (7274) or 408-957-SCSI (7274), Monday through Friday, 6:00 A.M. to 5:00 P.M., Pacific Time.
- To request additional documentation for Adaptec products, call 800-934-2766 or 510-732-3829, Monday through Friday, 6:00 A.M. to 5:00 P.M., Pacific Time.

### ***FCC Compliance Statement***

NOTE: 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 residential installations. This equipment generates, uses, and can radiate radio frequency energy, 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 interference to radio or television equipment 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
- Move the equipment away from the receiver
- Plug the equipment into an outlet on a circuit different from that to which the receiver is powered
- If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions

CAUTION: Only equipment certified to comply with Class B (computer input/output devices, terminals, printers, etc.) should be attached to this equipment, and must have shielded interface cables.

Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the user's authority to operate such equipment.

Each host adapter is equipped with an FCC compliance label which shows only the FCC Identification number. The full text of the associated label follows:

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

### *European Community Mark*

CE mark is rated for the adapter as follows:

- CISPR 22 Radiated Emissions (EN 550022)
- EN50082-1 Generic immunity standard for the following:
  - 801-2 ESD Immunity
  - 801-3 Radiated Immunity
  - 801-4 Fast Burst Immunity

**NOTE:** The APA-1460 SlimSCSI adapter must be used with the supplied cable. Otherwise it may cause harmful interference.

**NOTE:** The APA-1460 SlimSCSI adapter is a Class B product. It was tested and verified for EMC compliance in a system with an IBM compatible 486 CPU. This product is expected to achieve compliance with the Class B limits when installed in systems with Pentium grade CPUs and below.

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