

Ethernet PCI Adapter Installation Guide

Note

Before using this information and the product it supports, be sure to read the general information under "Product Warranties and Notices" included with your system unit.

Second Edition (November 1996)

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Contents

Safety Information	v
About This Book	vii
Related Publications	vii
ISO 9000	vii
Trademarks	vii
Chapter 1. Overview	1-1
Ethernet PCI Adapter Features	1-1
Handling the Adapter	1-1
Chapter 2. Hardware Installation	2-1
Inventory	2-1
Installing the Adapter	2-2
Diagnostics	2-2
Chapter 3. Installing, Configuring, and Verifying Software	3-1
AIX Device Driver Installation	3-1
Verifying Device Driver Installation	3-2
Windows NT (PowerPC Edition) Device Driver Installation - Version 3.51	3-2
Windows NT (PowerPC Edition) Device Driver Installation - Version 4.0	3-3
Chapter 4. Connecting to an Ethernet Network	4-1
10Base2	4-1
10BaseT	4-2
10Base5	4-3
Viewing the Card's LEDs	4-5
Appendix A. Communications Statements	A-1
Federal Communications Commission (FCC) Statement	A-1
European Union (EU) Statement	A-1
International Electrotechnical Commission (IEC) Statement	A-2
United Kingdom Telecommunications Safety Requirements	A-2
Avis de conformité aux normes du ministère des Communications du Canada	A-2
Canadian Department of Communications Compliance Statement	A-2
VCCI Statement	A-3
Electromagnetic Interference (EMI) Statement - Taiwan	A-3
Radio Protection for Germany	A-4

Safety Information

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communication lines.

About This Book

This book (when used with your system unit documentation) helps you install the Ethernet PCI Adapter and attach it to an ethernet network.

Related Publications

This book refers to the documentation that came with your system unit.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Trademarks

AIX is a registered trademark of International Business Machines Corporation.

PowerPC is a trademark of International Business Machines Corporation.

Windows NT is a trademark of Microsoft Corporation.

Chapter 1. Overview

The Ethernet PCI Adapter is a 32-bit high performance expansion card for PCI-compatible systems adhering to the Peripheral Component Interconnect (PCI) and IEEE 802.3 standards. The Ethernet PCI Adapter is available in two versions:

- Ethernet PCI BNC/RJ-45 adapter supports thin Ethernet (10Base2) and unshielded twisted-pair (10BaseT) local area networks.
- Ethernet PCI AUI/RJ-45 adapter supports standard Ethernet (10Base5) and unshielded twisted-pair (10BaseT) local area networks only.

Ethernet PCI Adapter Features

The Ethernet PCI Adapter provides the following features:

- High-performance 32-bit card
- 33 MHz bus speed
- Easy to install and auto-configurable
- LED status indicators
- Media connection auto-sensing.

The installation process consists of:

- Taking an inventory of all pieces necessary for installation
- Installing the adapter
- Installing device drivers for the adapter
- Connecting to a network.

Handling the Adapter

Attention: Static electricity can damage your equipment. Leave the adapter in its static-protective bag until you are ready to install it in your computer.

Chapter 2. Hardware Installation

The chapter provides information on:

- Taking an inventory of all pieces necessary for installation
- Installing the adapter
- Running diagnostics for the adapter

Inventory

You should have received in addition to these instructions your Ethernet adapter.

To identify which adapter you have, refer to Figure 2-1.

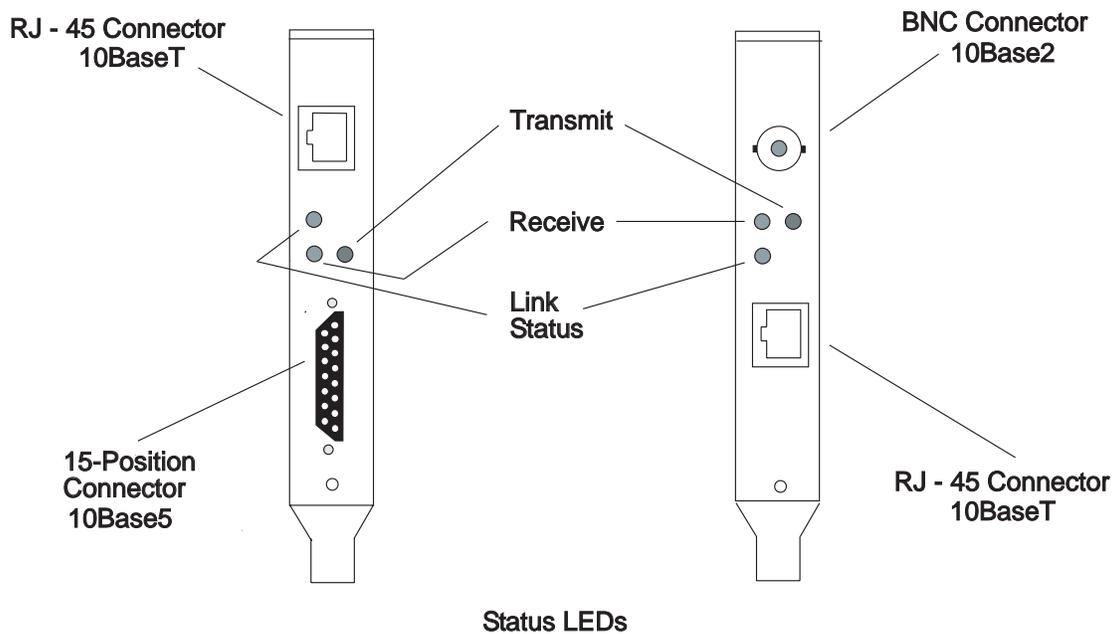


Figure 2-1. Adapter brackets are used for version identification

To install your ethernet adapter, you also need:

- The documentation that came with your system unit
- A flat-blade screwdriver
- Wrap plugs if you are going to run the total diagnostics package.
 - P/N 00G2380 for RJ-45 connector
 - P/N 02G7433 for BNC connector (Ethernet T2 only)
 - P/N 70F9625 for 15-pin D-shell connector (Ethernet T5 only)
- Cables for network attachment (see Chapter 4, “Connecting to an Ethernet Network” on page 4-1).

Installing the Adapter

Refer to the documentation that came with your system unit for directions on shutting down the system and removing the system unit covers.

Follow your system unit documentation instructions on installing PCI adapters in your system unit expansion slots.

Replace your system unit covers according to the system unit documentation instructions.

Diagnostics

Diagnostics may be supplied with your device driver, or may be found in a separate package. Refer to your system unit documentation for more information about running diagnostics.

Chapter 3. Installing, Configuring, and Verifying Software

Once you have completed installing the hardware, you must next install the device driver software.

AIX Device Driver Installation

1. Turn the system unit on.
2. Log in as root.
3. Insert the media containing the device driver software into the appropriate media device, for example, CD-ROM drive.

4. Enter:

```
smit cfmgr
```

and press Enter.

The **Install/Configure Devices Added After IPL** screen displays. The "INPUT device/directory for software" option is highlighted. The cursor is positioned on the entry field where you identify the input device you are using.

5. Press F4 to display a list of input devices you can select.
6. Select the device by moving the cursor to the appropriate media type and pressing Enter.

The device or directory you selected is now displayed in the "INPUT device/directory for software" option on the **Install/Configure Devices Added After IPL** screen.

7. Press Enter to execute the software installation command.

The COMMAND STATUS screen is displayed. The status changes from Running to OK when the software installation completes.

Note: If an error message displays on the COMMAND STATUS screen, verify that the adapter card is seated properly. If the card is secure, refer to the documentation that came with your system unit for information on running hardware diagnostics.

8. Remove the installation media from the drive.
9. Press F10 to exit SMIT.
10. At the prompt, enter:

```
shutdown -Fr
```

and press Enter.

This shuts down and reboots your system. This is a necessary final step in the installation process. AIX configures your adapter card automatically when the system reboots. No additional procedures are required.

Verifying Device Driver Installation

To verify that your newly installed Ethernet PCI Adapter is available for use, follow the steps below:

1. At the prompt, type the following and press Enter.
`lsdev -Cs pci`
2. A list of PCI devices displays. Verify that the Ethernet PCI Adapter is in Available mode.

If the Ethernet PCI Adapter registers Available, your installation is ready to use.

Windows NT (PowerPC Edition) Device Driver Installation - Version 3.51

These instructions are for installing the Auto LANStreamer Token-Ring PCI adapter and Ethernet PCI adapter device drivers.

1. Log on Windows NT (PowerPC Edition) as an Administrator.
2. Double-click on the Main program group icon.
3. Double-click on the Control Panel icon.

If the Control Panel icon is missing, type `control` on a command line to initiate the program directly. You can get a command line prompt by selecting the MS DOS command prompt icon.

4. Double-click on the Network icon.

Once the Control Panel window displays, select the Network application.

On this window there is a Network Software and Adapter Cards area that contains an INSTALLED NETWORK SOFTWARE list, and an INSTALLED ADAPTER CARDS list. When you have finished the installation, this bottom list contains entries for the adapter you have installed.

5. Click on **Add Adapter**, not **Add Software**.

The message Setup is preparing network card choices displays in a window. This may take 10 to 30 seconds, depending on your configuration.

For the Ethernet PCI adapter, choose: **AMD PCNET Family Ethernet Adapter**

6. In the Windows NT (PowerPC Edition) setup window, leave the selection as is and choose **CONTINUE**.

7. Enter configuration parameters.

8. Click on **OK**.

The NETWORK SETTINGS panel displays again. This time an entry for the adapter you have just added appears in the INSTALLED ADAPTER CARDS list box.

Click on the OK button at the top right of this window to complete the installation.

9. A message displays indicating that you need to shutdown and reboot. Click on **Restart now**.

Windows NT (PowerPC Edition) Device Driver Installation - Version 4.0

1. Log on to Windows NT (PowerPC Edition) as an Administrator.

2. Double-click on the My Computer icon.

3. Double-click on the Control Panel icon.

4. Double-click on the Network icon.

5. Select **Adapters**.

6. Select **Add**.

7. Insert the Windows NT (PowerPC Edition) CD-ROM into the CD-ROM drive and select **Have Disk**.

8. Enter the path for the CD-ROM drive and press OK.

9. If the Windows NT (PowerPC Edition) main panel displays, close the window and continue with the install.

10. Scroll through the adapter list, select **AMD PCNET Family Ethernet Adapter**.

11. Press OK.

The driver now installs and the changes are saved. Upon completion, you must shutdown and restart your system unit before the new settings take effect.

Chapter 4. Connecting to an Ethernet Network

Refer to your local procedures for more information about connecting this adapter to your network.

Note: Only one type of network may be attached to the card at a time.

10Base2

The following checklist describes the equipment required to connect the adapter to a 10Base2 Ethernet network.

Equipment Checklist

- A Ethernet coax RG-58 cable segment that is not longer than 185 meters (610 feet).
- One BNC T-connector
- One 50-ohm BNC terminator, if you system unit is the first or last workstation on the network.

Connecting the Network Cables

To connect the adapter to a 10Base2 Ethernet network, refer to Figure 4-1 on page 4-2 and follow these steps:

1. Connect the T-connector's center barrel to the BNC connector on the card. Push the T-connector in and turn it clockwise to lock it into place.
2. If your system unit is either the first or last workstation on the network, attach the 50-ohm terminator to one arm of the T-connector. Push the terminator in and turn it clockwise to lock. Attach the coax Ethernet cable from the adjacent system unit to the other end of the T-connector.

3. If your system unit is an intermediate workstation on your network, attach the coax Ethernet cable from the adjacent system units to each end of the T-connector. Push the cables in and turn clockwise to lock.

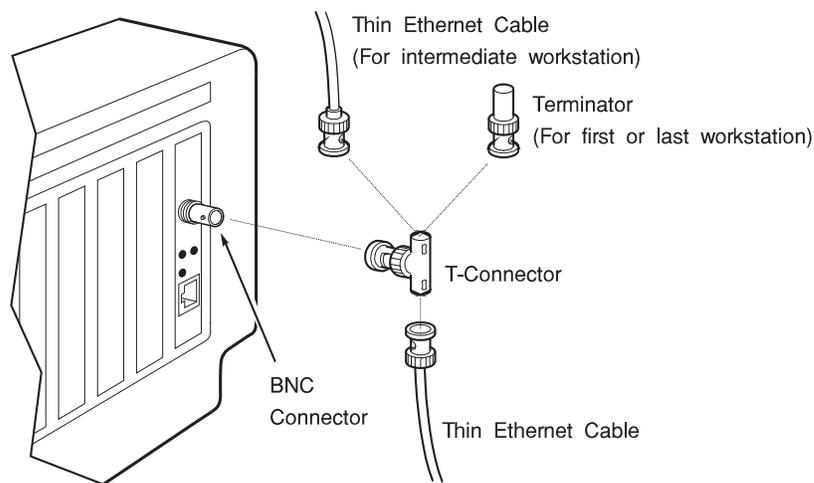


Figure 4-1. Connecting the Ethernet system unit BNC/RJ-45 to a 10Base2 network.

10BaseT

The following checklist describes the equipment required to connect the adapter to an unshielded twisted-pair network.

Equipment Checklist

- An unshielded twisted-pair wire segment with a male RJ-45 connector on each end.

The cable segment must not be longer than 100 meters (330 feet), which is the maximum allowable cable length from the adapter to the local concentrator, including patch cables.

Connecting the network cables

To connect the adapter to an unshielded twisted-pair network, follow these steps:

1. Insert the male RJ-45 jack at one end of the unshielded twisted-pair wire segment into the female RJ-45 connector (see Figure 4-2 on page 4-3).
2. Insert the male RJ-45 connector at the other end of the unshielded twisted-pair wire segment into the network concentrator.

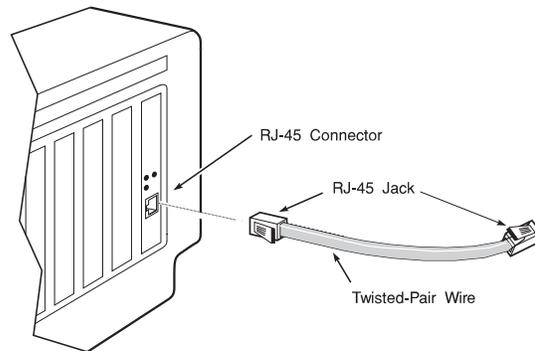


Figure 4-2. Connecting either Ethernet BNC/RJ-45 or Ethernet AUI/RJ-45

10Base5

The following checklist describes the equipment required to connect the adapter to a standard Ethernet network.

Equipment Checklist

- An AC-coupled transceiver installed on a standard RG-8 Ethernet cable. Place the transceiver at least 2.5 meters (8 feet 3 inches) from adjacent transceivers to minimize interference. Approved Ethernet coaxial cable is marked with rings at 2.5-meter intervals.

The adapter operates correctly only with an AC-coupled transceiver that is compatible with IEEE 802.3 and ISO 8802-3 specifications. It is not designed for use with DC-coupled transceivers. If you are uncertain as to whether your transceiver is AC-coupled, refer to its installation manual or ask your system administrator.

- A standard Ethernet transceiver cable with male and female 15-pin D-connectors. The transceiver cable must not be longer than 50 meters (165 feet).

Connecting the Network Cables

To connect the adapter to an external transceiver that is installed on a standard Ethernet network, follow these steps:

1. Attach the transceiver cable's female connector to the 15-pin male D-connector on the external Ethernet transceiver (see Figure 4-3 on page 4-4). Secure the cable's connection with the slide latch on the female connector bracket.

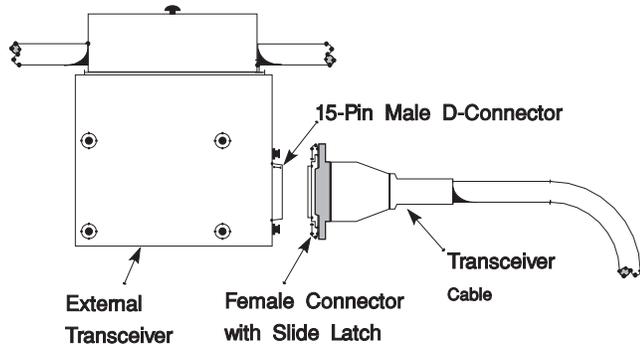


Figure 4-3. Connecting the transceiver cable to an external Ethernet

2. Attach the transceiver cable's male connector to the card's 15-pin D-connector, and secure the connection by tightening the two mounting screws (see Figure 4-4).

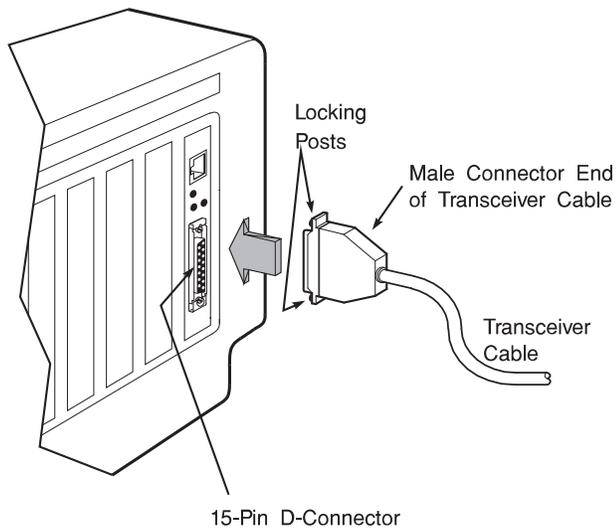


Figure 4-4. Connecting the Ethernet AUI/RJ-45 card to a standard Ethernet network

Viewing the Card's LEDs

The adapter features three LEDs that provide information on the status of the card's operation. The LEDs are visible through the card's mounting bracket and indicate the following conditions when lit:

- Receive LED (yellow) - Indicates packets are being received from the network
- Transmit LED (yellow) - Indicates packets are being transmitted over the network
- Link Status LED (green) - Indicates a valid network connection (10BaseT networks only)

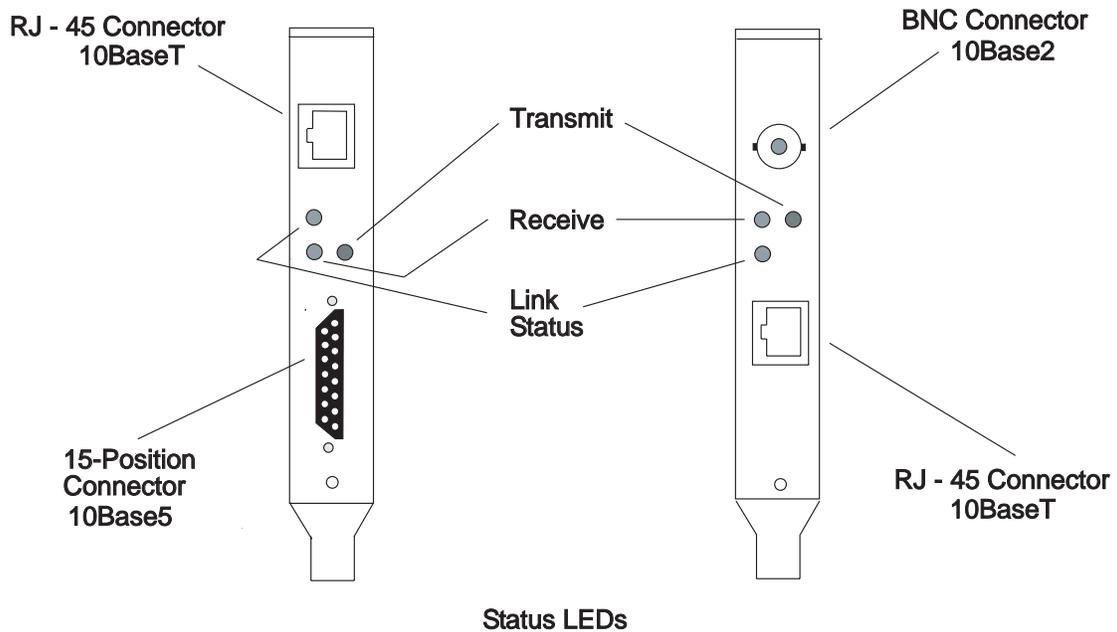


Figure 4-5. Position of LEDs on the bracket of the Ethernet adapter.

Appendix A. Communications Statements

The following statement applies to this product. The statement for other products intended for use with this product appears in their accompanying documentation.

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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 Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards supplied by third parties. Consult with your dealer or sales representative for details on your specific hardware.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial

environments to provide reasonable protection against interference with licensed communication equipment.

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Canadian Department of Communications Compliance Statement

This Class A digital apparatus meets the requirements of the Canadian Interference–Causing Equipment Regulations.

VCCI Statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

The following is a summary of the VCCI Japanese statement in the box above.

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

Electromagnetic Interference (EMI) Statement - Taiwan

警告使用者:

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

The following is a summary of the EMI Taiwan statement above.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user will be required to take adequate measures.

Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit Dem deutschen EMVG vom 9.Nov.92 das EG–Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese von Geräten gilt folgende Bestimmung nach dem EMVG:

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(Auszug aus dem EMVG vom 9.Nov.92, Para.3, Abs.4)

Hinweis

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