Wireless LAN Card

User Guide

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Contents

Preface

This user's guide provides the necessary information for first-time users to successfully install the Network Driver Interface Specification (NDIS) driver. This guide al o provides information for user who wish to upgrade the NDIS driver from previous releases.

This guide describe the step required to Install NDIS driver for the Wireless Network Adapter in Windows 2000,Windows Millennium Edition, Windows 98 Second Edition, Windows XP, and Windows NT 4.0.

This guide also includes detailed instruction for configuring the PC Card device, or IEEE 802.11a station (STA), to interact with an access point (AP) in infrastructure mode and with other STAs in ad hoc mode. You should also read this before proceeding to install the Wireless Network Adapter and NDIS driver in the targeted operating system (OS) environment.

About this Document

The document consists of the following chapters and appendix:

Chapter 1 **Introduction** —Hardware, Software, and System Requirements.

Chapter 2 **Windows 2000** —Installation/Uninstallation Procedure and Device/Network Configuration for Windows 2000.

Chapter 3 **Windows 98 Second Edition** —Installation/Uninstallation Procedures and Device/Network Configurations for Windows 98 Second Edition.

Chapter 4 **Windows XP** —Installation/Uninstallation Procedure and Device/Network Configuration for Windows XP.

Audience

This document is intended for customers who wish to install and evaluate the Wireless Station in the supported Microsoft Window environments.

1. Introduction

The Wireless Network Adapter is an IEEE 802.11a two-chip solution reference design based on the Atheros chipset.

This reference design implements a half-duplex, Orthogonal Frequency Division Multiplexing (OFDM) baseband processor supporting all IEEE 802.11a data rates (6 to 54 Mbp) and 802.11b.It al o supports the Atheros Turbo Mode TM supporting data rates up to 108 Mbps .The host interface is compatible with the PC Card 7.1 standard.

Package Contents

Make sure the following materials are available before you begin:

- Release CD, or electronic equivalent
- Wireless Network Adapter

System Requirements

- Laptop PC containing:
    - 32-bit CardBus slot (or Desktop PC with PC Card-PCI adapter)
    - 32 MB memory or greater
    - 300 MHz processor or higher
- Microsoft Window 2000/Windows Millennium Edition/Windows 98 Second Edition/Windows XP/Windows NT 4.0 (with Service Pack 6)

2.   Windows 2000

This chapter describes the Windows 2000 driver installation.

Driver Installation (First-Time Install)

This section describes the first-time installation for the driver for Windows 2000. If you have a previously installed driver, refer to the section "Driver Installation (Previous Driver Installed)".

We recommend that you remove any existing drivers (NDIS, DK, or TDI) on the PC system before installing the Version 1.0 release of the NDIS driver. See Section "Driver Uninstallation" for the instruction on how to remove previous driver releases.

Insert the Wireless Network Adapter into a 32-bit CardBus slot and follow these steps to install the NDIS driver:

1. Wait for the following dialog box to display.
2. Click Next to continue.
3. Choose "Search for a suitable driver for my device (recommended)
4. Click Next.
5. Insert the Release CD in your CD-ROM drive.
6. Choose *Specify a location* under "Optional search locations."
7. Click Next to continue.
8. Browse to the location where the NDIS driver is located (assuming D is the CD-ROM drive),the default folder is D:\ndi \bin \production \ndi 5.
9. Click OK to continue.
10. When you find the driver installation file (net5211.inf),click Next to continue.
11. The NDIS evaluation driver currently does not have a digital signature from Microsoft. Therefore, Windows 2000 show a warning message. Click Yes to proceed with driver installation.

12. Click Finish to complete the driver installation. See "Device Configuration" for the device configuration information.

Driver Installation (Previous Driver Installed)

If the system already has a previous release of the NDIS installed, Windows does not prompt for the device driver when the WLAN Card is inserted.

Follow the step below to update the NDIS driver:

1. Start System Properties from Control Panel. Under Hardware tab, click Device Manager.
2. Within Device Manager, right-click "Wireless Network Adapter" under "Network adapters" device node, and click Properties.
3. Click Update Driver...from the Driver tab. Note the Driver Version that you are updating from. You may need to verify this field again after driver update completes to make sure the driver has been updated correctly.
4. Click Next to continue.
5. Choose "Display a list of the known drivers for this device so that is can choose a specific driver."
6. Click Next to continue.
7. Insert the Release CD into your CD-ROM drive. Click Have Disk...to continue.
8. Click Browse to specify the location where the NDIS driver is located (assuming D is the CD-ROM drive),the default folder is "D:\ndi \bin \production \ndis5".
9. Click OK to continue.
10. Select "Wireless Network Adapter" from the list.
11. Click Next to continue.
12. Click Yes to continue when Windows displays the warning message.
13. Click Next to proceed with the installation.
14. The NDIS evaluation driver currently does not have a digital signature from Microsoft. Therefore, Windows 2000 show a warning message. Click Yes to proceed with driver installation.

15. Click Finish.

16. Note that Driver Version should display 2.0 as the major revision number. Click OK to continue.

17. Click Yes to restart system.

18. After the system restarts, the "Wireless Network Adapter" will display under "Network adapter" in the Device Manager. Proceed to Section "Device Configuration" for device configuration information.

Driver Uninstallation

This section provides information about uninstallation procedures required for upgrading the NDIS driver from previous software release .If the system does not have previously installed versions of the NDIS driver and you wish to remove the newly installed driver from the system, proceed to Step 4.

The NDIS driver since Release 1.0 no longer leverages the Transport Driver Interface (TDI) protocol to provide the LinkMon programming interface. The TDI protocol should be uninstalled.

Follow these step to uninstall the TDI protocol:

1. To remove the NDIS driver from the OS, go to Device Manager, right-click "Wireless Network Adapter," and choose Uninstall.

2. Click OK to unInstall the device.

3. When the device is uninstalled from Device Manager, search for and delete the driver file that reside in the system.

    a. Go to the Start menu and choose Search For Files or Folders...

    b. Enter "oem*.inf"in the "Search for file or folders named "field",and enter *Atheros* in the "Containing text:" field.

    c. Click Search Now.

    A few files matching these criteria are possible, if previous drivers have not been removed properly.

    d. Choose the files that have been found and delete them from the system.

4. To complete the uninstallation, remove the file "ar5211.sys" from the "\WINNT \system32 \drivers" folder.

Device Configuration

Configuration of the Wireless Network Adapter can be done through the NIC Configuration utility found in the Windows Control Panel. The device can be set to work in one of two modes: infrastructure mode or ad hoc mode.

In **infrastructure** mode, the Wireless Network adapter participates in a basic service set (BSS) as a station, and communicate with other stations through an AP.

In **ad hoc** mode, a Wireless Network Adapter work within an independent basic service set (IBSS). All stations communicate directly with other station without an AP.

To configure the Wireless Network Adapter:

1. In the Device Manager, right-click "Wireless Network Adapter," and click Properties to access the properties of the adapter.
2. Configuration additions, modifications, and deletions are made under the "Setting" tab of the "Wireless Network Adapter"
3. Select one of the configurations under the configuration list, and click Modify to show the "Network Configuration Settings" screen. This property sheet has two pages: General and Security. Table 2-1 provide descriptions for the fields on the General page.

Table 2-1. General Dialog Field Descriptions

Field Name	Description
Configuration Name	This field identifies the configuration. This name must be unique. Configuration names are case insensitive.
Network Name (SSID)	This is the name of the IEEE 802.11a wireless netw ork, for example, "802.11a Wireless Network." This field has a maximum limit of 32 character .
Network Connection	This field defines whether the STA is configured for an ad hoc or infrastructure network.

Power Savings	This field allow the configuration of power management option .The option are Off, Normal, and Maximum. Power management is disabled when ad hoc mode is selected in the Network Connection field. When the Power Saving setting is Off, the adapter receives full power from the PC. When the Power Saving setting is Normal, the driver turns off power to the adapter for brief period over briefly spaced time intervals. When the Power Saving setting is Maximum, the driver turn off power to the adapter for longer periods over more widely-spaced time intervals.
Locally Administered Address (LAA)	This field defines the locally administered MAC address.

Table 2-2 provides descriptions for the fields on the Security dialog. All encryption key fields are displayed only when initially entered. On subsequent entry into the security property page, the field are masked. The keys must be entered as hexadecimal digit .

Table 2-2.Security Dialog Field Descriptions

Field Name	Description
Enable Security	Completely enables or disables the IEEE 802.11 wired equivalent privacy (WEP)security feature.
Default Encryption Key	Defines the type of encryption key to use (either Unique Key or Shared Key).This field allows you to elect only a key (Unique, First, Second, Third, or Fourth) whose corresponding field has been completed.
Unique Key	Defines the unique encryption key for security for the current network configuration. In ad hoc mode, this encryption key type is not used. To enable security using a Unique Key, This field must be populated.
Shared Keys	These fields define a set of shared encryption keys. To enable security using Shared Key ,at least one Shared Key field must be populated.
Key Length	Defines the length for each encryption key. A the Key Length is changed, the number of available characters in the field is changed automatically. If after a key is entered the length is adjusted to a smaller number, the key is automatically truncated to fit. If the length is increased

	again, the field is not automatically updated to it previous value.

Selecting Encryption Types

We support two encryption type ;Wired Equivalent Privacy (WEP)and Advanced Encryption Security (AES).While WEP is universally supported and commonly used, AES provide a much higher level of security, that is, frames encrypted with AES are more difficult to decipher without knowing the key. To use AES, you must specify a unique key (refer to Table 2-2).

NOTE: AES is not supported in ad hoc mode, since ad hoc mode does not support unique keys.

Select the encryption type automatically (auto) or manually at both the STA and AP. By specifying auto, the STA and AP will negotiate and attempt to use AES before exchanging data packets. If AES is not supported by the STA or AP,WEP is used. Manual selection allows you to specify the encryption type. By default, the STA is set to auto and will first attempt to use AES, and will only use WEP if the AP supports, or is configured for WEP only.

Use the Advanced tab on the "Wireless Network Adapter" dialog to change the encryption type.

Table 2-3 provides descriptions for the fields on the Network Configuration Setting, Advanced tab dialog.

Table 2-3. Advanced Dialog Field Descriptions

Field Name	Description
Wireless Mode	Specifies 802.11a,802.11b,or autoselect operation. Autoselect allows the use of both 802.11a and 802.11b mode .
Ad Hoc Mode	Specifies a band to establish an ad hoc network if no matching SSID is found after scanning all available mode .
802.11a Turbo	Enables or disables turbo mode for 802.11a radio space.. Once enabled, both 802.11a and 802.11a turbo modes are scanned.

802.11b Range	Selects either normal (uses all four 802.11b transmit rates)or extended range (limits network to 1 or 2 Mbit range).
Encryption Type	Specifies the encryption types: _ WEP -u e only WEP encryption. _ AES -only associate with Acce Point that can successfully negotiate AES encryption. _ Auto -Allow the STA and AP to negotiate the encryption type.
Scan Mode	Specifies passive, or auto canning (use country code to select the type of scan, active or passive).
Transmit Power	Select full, half, quarter, eighth, or minimum transmit power.
QoS	Disables or enables the station to cooperate in a network using Quality of Service.

To change the encryption type, take the following step:

1. From the Network Configuration Settings dialog Advanced tab, use the Encryption Type drop-down menu to specify the encryption type.
2. Click OK to enable your change.

CAUTION: To successfully transmit data frames, specify a unique key.

NOTE: If AES and ad hoc are both specified, the STA will use WEP.

NOTE: Fragmentation is currently not supported using AES.

Infrastructure Mode

To configure an Wireless Network Adapter in infrastructure mode:

1. Ensure that the "Locally Administered Address" checkbox is unchecked.
2. Enter information in the General dialog as summarized in Table 2 -4.

Table 2-4. Infrastructure Mode General Dialog Field Descriptions

Field Name	Description
Configuration Name	This field identifies the configuration. This name must be unique. Configuration names are case insensitive.
Network Name (SSID)	This is the name of the IEEE 802.11a wireless network, for example, "802.11a Wireless Network." This field has a maximum limit of 32 characters. If the field is left blank, the STA connect to the AP with the best signal strength.
Network Connection	AP (infrastructure).
Power Savings	This field allow the configuration of power management options. The options are Off, Normal and Maximum.
Locally Administered Address (LAA)	This field defines the locally administered MAC address. To enter a value in the address field, the check box needs to be selected.

Usually infrastructure mode is used in an enterprise environment where APs are installed and maintained by corporate IT staff. Much of the data in the enterprise network is confidential. It is important to configure security to make sure only stations with appropriate keys can receive sensitive data. The Wireless Network Adapter and NDIS driver support key lengths of 40 bits,104 bits, and 128 bits. Typically, the appropriate encryption and decryption keys are supplied by the corporate IT staff.

Ad Hoc Mode

An ad hoc network usually is a short-lived network with a small number of stations. The network is usually created for a special purpose such as exchanging data between friend ,or between customer and client. Because the duration of the ad hoc network tends to be limited, Power Saving and Security features are not typically a requirement. For ad hoc network activity, the Power Saving and Security features can be disabled. Currently, shared key security is supported in ad hoc mode. Future software implementation will provide unique key support.

In ad hoc mode, a station scans the air for an existing BSS. If no BSS is found, the station establishes a BSS for other stations to join. When other stations scan the air and find an established BSS in place, they join that BSS to form an ad hoc network. If a specific set of stations requires ad hoc network connectivity, it is recommended to have one station establish a BSS first before configuring the remaining stations. This prevent the scenario of several stations trying to form a BSS at the same time, which can result in multiple singular BSSs being established, rather than a single BSS with multiple stations.

Table 2-5 summarize the field description for the General dialog in ad hoc mode.

TCP/IP Setup

After configuring the Wireless Network Adapter through the Network Control Panel, the TCP/IP address for the network device must be configured.

1. Open the "Control Panel" and click "Network and Dial-up Connections."
2. Find the "Local Area Connection"that is associated with the Wireless Network Adapter. Right-click that connection, and click Properties.

Table 2-5. Ad Hoc Mode General Dialog Field Descriptions

Field Name	Description
Configuration Name	This field identifies the configuration. This name must be unique. Configuration names are case insensitive.
Network Name (SSID)	This is the name of the IEEE 802.11a wireless network, for example, "802.11a Wireless Network." This field has a maximum limit of 32 characters. If the field is left blank, the STA connect to the AP with the best signal strength.
Network Connection	AP (infrastructure).
Power Savings	This field allow the configuration of power management options. The options are Off, Normal

	and Maximum.
Locally Administered Address (LAA)	This field defines the locally administered MAC address. To enter a value in the address field, the check box needs to be selected.

3. Select "Internet Protocol (TCP/IP)" and click **Properties** .

4. Click "Use the following IP address" and input an IP address and Subnet mask. Assigning an IP address and Subnet mask allows stations to operate in infrastructure mode and to have Internet access." Default gateway"and "DNS server"information is also required. IP configuration information (DHCP or assigned IP address, Gateway and DNS server IP addresses) is usually obtained from the corporate IT staff.

5. After obtaining IP configuration information from the appropriate IT staff, click OK in both "Internet Protocol (TCP/IP) Properties" and "Local Area Connection Properties" to complete the IP configuration..

6. Choose Start >Programs >Accessories >Command Prompt to open the DOS command prompt window.

7. Type "ipconfig" at the C::\>prompt to determine if the TCP/IP configuration has taken effect. To test IP connectivity in ad hoc or infrastructure mode, use the **ping <ipaddress>** command. When a TCP/IP connection is established, the LinkMon utility can be used to monitor the Wireless Network Adapter operating status.

8. To map the drive on another machine to your computer, right-click "My Computer" and click Map Network Drive...**.**

9. After mapping the drive, you can perform file transfers, use video streaming applications, and all other network data transfer that are normally performed with wired 10/100 Ethernet connections.

3.   Windows Millennium Edition

This chapter describes the Windows Millennium Edition network driver installation.

Driver Installation

We recommend that you remove any existing NDIS driver on the PC y tem before installing Version 1.0 release of the NDIS driver. See "Driver Uninstallation" for the instructions on how to remove previous driver releases. When the system no longer has the NDIS driver Installed, insert the Wireless Network Adapter into a 32-bit CardBus slot, and follow these teps to install the NDIS driver:

1. Wait for the following dialog box to appear. Choose "Specify the location of the driver (Advanced)," and click Next to continue.

2. Choose "Search for the best driver for your device.(Recommended)."

    a. Select "Specify a location."

    b. Click Browse to locate the NDIS driver. The default folder is "E:\ndis \bin \production \ndis5" (assuming E: is the CD-ROM drive).

    c. Click Next to continue.

3. When the driver installation file (NET5210B.INF)has been found,

4. Click Finish to continue, and restart the system to complete driver installation. Refer to "Device Configuration" for device configuration.

Driver Uninstallation

This section provides uninstallation procedure for removing the NDIS driver from the system. Uninstallation is recommended for upgrading the NDIS driver from previous driver releases.

1. Remove the NDIS driver from the OS:

    a. Go to Start >Search >For Files or Folders...,and search for the INF file containing the "Atheros " text string under the \WINDOWS \INF folder. Be sure to include subfolders in the search criteria.

    b. When "Atheros net5211.inf " has been found, delete it by right-clicking the file and choose Delete.

2. From Control Panel, launch the System Properties window. Select "Wireless Network Adapter " from Device Manager, and click Remove to uninstall the

3. Click OK to confirm the removal of the device.

4. Restart the system to complete un-installation.

Device Configuration

Configuration of the Wireless Network Adapter can be done through the NIC Configuration utility found in the Windows Control Panel. Similar to Windows 2000,the device can be set to work in one of two modes: infrastructure mode or ad hoc mode. Please refer to "Device Configuration" for more details on these network connection type .

To launch the configuration utility, go to Control Panel and double-click on the NIC Configuration icon.

The configuration utility allows addition, modification, and deletion of the configuration profile .Select one of the existing configuration profiles under the configuration list to modify, or click New to add a new configuration profile. Refer to "Infrastructure Mode" and "Ad Hoc Mode" to set up the station to work in infrastructure mode and ad hoc mode.

Selecting Encryption Types

We support two encryption type ;Wired Equivalent Privacy (WEP)and Advanced Encryption Security (AES). Refer "Selecting Encryption Types" in chapter 2 for details.

TCP/IP Configuration

After configuring the Wireless Network Adapter network adapter properties, the TCP/IP address for the network device needs to be configured.

1. From Control Panel, launch the Network properties window.

2. Select "TCP/IP .Wireless Network Adapter "and click Properties. Depending on the type of network the station connects to, Gateway and DNS Configuration information can also be required. IP configuration information (DHCP or assigned IP address, Gateway and DNS server IP addresses) is usually obtained from the corporate IT staff. For a simple demonstration, the station is assigned a static IP address.

3. From "TCP/IP Properties," choose "IP Address" and select "Specify an IP address." Input an IP address and subnet mask. Assigning an IP address and subnet mask allows the station to interact with the AP or other stations in the same IP subnet.

4. Click OK to complete the TCP/IP configuration, and re tart the system for the changes to take effect.

5. Choose Start >Programs >Accessories >Command Prompt to open the DOS command prompt window. Type "ipconfig" to determine if the TCP/IP configuration has taken effect. To test IP connectivity in ad hoc or infrastructure mode, use the **ping <ipaddress>**command. When a TCP/IP connection is established, the LinkMon utility can be used to monitor the Wireless Network Adapter operating status.

4.   Windows XP

This chapter describes the Windows XP driver installation.

Driver Installation (First-time Install)

We recommend that you remove any existing drivers on the PC system before installing Version 1.0 release of the NDIS driver. Refer to "Driver Uninstallation" for the instructions on how to remove previous driver release.

With no existing NDIS driver installed, insert the Wireless Network Adapter into a 32-bit CardBus slot, and follow these steps to install the NDIS driver:

1. Wait for the following dialog box to appear. Choose "Install from a list or specific location (Advanced)," and click Next to continue..

2. Under "Search for the be t driver in these locations," choose "Include this location in the search" and click Browse to find the location of the NDIS driver. When the driver location has been identified, click Next to continue.

3. The NDIS evaluation driver currently does not have a digital signature from Microsoft. Therefore, Windows XP shows a warning message. Click Continue Anyway to proceed with driver installation.

4. Click Finish to complete driver installation, and refer to "Device Configuration" for device configuration.

Driver Uninstallation

This section provides uninstallation procedure for removing the NDIS driver from the system. Uninstallation is recommended for upgrading the NDIS driver from previous driver releases.

1. To remove the NDIS driver from the OS, go to Device Manager, right click "Wireless Network Adapter," and choose Uninstall.

2. Click OK to uninstall the device.

3. When the device is uninstalled from Device Manager, search for and delete the driver installation file that reside in the system.

   a. Go to Start and choose Search >All files and folder, enter "oem*.inf" in the "All or part of the file name" field.

   b. Enter "Atheros" in the "A word or phrase in the file" field.

   c. Enter "C:\WINNT \INF" in the "Look in" field, where C: is the drive letter of where Windows XP is installed.

   d. Click Search to find the driver installation file.

4. A file matching the search criteria is displayed. Choose this file and delete it from the system.

Device Configuration

Windows XP zero-configuration functionality allows you to select and join a wireless network without having to configure the device separately. You can decide to choose the default parameters and directly proceed to zero-configuration in "Window XP Wireless Network Configuration".

Similar to Windows 2000,configuration of the Wireless Network Adapter can be done through the Network Control Panel (NCP) in adapter properties. You can set the Wireless Network Adapter to work in one of two modes: infrastructure mode or ad hoc mode. Refer to "Device Configuration" for more details on these network connection type.

To launch NCP go to Device Manager, right-click "Wireless Network Adapter," and select Properties to access to the properties of the adapter.

Configuration additions, modifications, and deletions are made under the "Setting" tab of "Wireless Network Adapter Properties."

Select one of the configuration under the configuration, click Modify or New and complete the steps in "Infrastructure Mode" or "Ad Hoc Mode" to set up the station to work in infrastructure mode or ad hoc mode, respectively.

Selecting Encryption Types

We support two encryption type ;Wired Equivalent Privacy (WEP)and Advanced Encryption Security (AES). Refer "Selecting Encryption Types" in chapter 2 for details.

TCP/IP Setup

After configuring the Wireless Network Adapter through the Network Control Panel, the TCP/IP address for the network device needs to be configured.

1. From the Start menu, choose Programs >Accessories >Communications >Network Connections. Find the "Local Area Connection" that is associated with the Wireless Network Adapter. Right-click that connection and click Properties.
2. Select "Internet Protocol (TCP/IP)" and click Properties.
3. Click "Use the following IP address" and input an IP address and Subnet mask. Depending on the type of network the station connects to, Gateway and DNS Configuration information can also be required. IP configuration information (DHCP or assigned IP address, Gateway and DNS server IP addresses) is usually obtained from the corporate IT staff. For a simple demonstration, the station is assigned a static IP address.
4. Click OK in both "Internet Protocol (TCP/IP) Properties" and "Local Area Connection Properties" to complete the IP configuration..
7. To map the drive on another machine to your computer, from the Start menu, choose My Computer and right-click to select "Map Network Drive...."

8. Assign the drive letter that map to the network-hared folder and specify the shared folder information. Click Finish to map the drive.

9. After mapping the drive, you can perform file transfers, video streaming, and all other network data transfers that are normally performed with wired 10/100 Ethernet connection .

Windows XP Wireless Network Configuration

Aside from using the Network Control Panel (NCP)to configure the Wireless Network Adapter, Windows XP provides zero-configuration functionality that automatically tries to connect the STA to available wireless networks in the following order:

- Infrastructure mode with valid WEP key
- Infrastructure mode with unauthenticated acce for tation without WEP keys
- Ad hoc mode

To configure wireless network setting through the Windows XP user interface:

1. Open Network Connections from Control Panel.

2. Right-click the Local Area Network Connection icon (pertinent to Wireless Network Adapter).

3. Click Enable to enable the device first, and then click Properties.

4. On the Wireless Networks tab, select the "Use Windows to configure my wireless network settings" check box to enable automatic wireless network configuration.

Refer to "Infrastructure Mode" or "Ad Hoc Mode" to set up the station to connect to an infrastructure or ad hoc network.

If you want to use non-default setting for power saving and turbo mode, you should set those parameter through the NCP method (refer to "Device Configuration").Then use Wireless Network tab to select network name, network type, and encryption keys.

Note that you can disable automatic wireless network configuration, and revert back to using NCP configuration settings, by clearing

the "Use Windows to configure my wireless network setting" check box.

Infrastructure Mode

To set up automatic wireless network configuration to connect to an existing Access Point (infrastructure network),follow these steps:

1. Click the network name under "Available networks" in the Wireless Networks tab, and click Configure. You can update the list of available networks that are within range of your computer by clicking Refresh under Available Networks.
2. If the network requires WEP, then the "Data encryption (WEP enabled)" check box is elected by default in Wireless Network Properties.
3. Select "The key is provided for me automatically" check box if the WEP key is automatically provided for you. The driver will then use the Default Encryption key from the current NCP configuration profile irrespective of the network name.

    You may choose to enter the WEP key by clearing this check box and manually entering the network key and key length.

    NOTE: The key format must be hexadecimal digits and the key length is limited to 104-bit in Window XP, as opposed to 128-bit key supported by NDIS driver in the NCP configuration interface. If the network that you are connecting to requires 128-bit WEP key, then it is recommended that you disable Windows XP automatic wireless network configuration and use NCP configuration instead.

Ad Hoc Mode

To connect to an existing computer-to-computer (ad hoc)network:

1. Click the ad hoc network name under "Available networks" in the Wireless Network tab, and click Configure.
2. In Wireless s Network Properties, the "This is a computer-to-computer (ad hoc) network; wireless access point

are not used" check box is selected by default. You may choose to enable WEP by selecting the "Data encryption (WEP enabled)" check box and the "Network Authentication (Shared mode)" check box..

3. Select the "The key is provided for me automatically" check box if the shared key is automatically provided for you. The driver will then use the Default Encryption key from the current NCP configuration profile irrespective of the network name. You may choose to enter the shared key by clearing this check box and enter the key and key length manually.

    NOTE: The key format must be hexadecimal digits and the key length is limited to 104-bit in Windows XP as opposed to 128-bit key supported by NDIS driver in the NCP configuration interface. If the network that you are connecting to require 128-bit WEP key then it is recommended that you disable Windows XP automatic wireless network configuration and use NCP configuration instead.

4. If you want to connect to an ad hoc network, but both ad hoc and infrastructure networks are within range of your computer, then click Advanced in the Wireless Network tab and then select "Computer-to-computer (ad hoc)networks only" .Note that if you want the station to start it own ad hoc network, the "Computer-to-computer (ad hoc) networks only" option should be selected. There should be no network active from the preferred list and the "Automatically connect to non-preferred network" check box should be cleared..

Connect to an Available Wireless Network

When there is more than one available network detected by Windows XP, the OS will prompt you to select and connect to a preferred network. To connect to an available wireless network, right-click the network connection icon in the notification area, and then click "View Available Wireless Network".

In Connect to Wireless Network, under "Available network", select the wireless network that you want to connect to. If a network key is required and is automatically provided for you, then leave "Network key" blank. If the network key is not automatically

provided for you, then type the key in "Network key." Click Connect to establish the network connection.

If you are either unable to make a connection to the wireless network that you selected or need to configure additional wireless network connection settings, click Advanced in Connect to Wireless Network, and the Wireless Networks tab will appear.

You can configure a new wireless network connection by clicking Add, and specifying the network name (SSID)in Wireless Network Properties, and the wireless network key settings, if needed.

If the network connection that you are configuring is an ad hoc network, then select "This is a computer-to-computer (ad hoc)network; wireless access point are not used" check box. The network will be added under "Preferred networks" in the Wireless Networks tab.

You can change the order of the preferred networks by selecting the wireless network that you want to reposition on the list, and then clicking Move up or Move down.

You can change the wireless network connection settings of a preferred network by selecting the wireless network, clicking Properties, and then changing the setting as needed.

To remove a wireless s network from the list of preferred networks, select the wireless network that you want to remove, and then click Remove.

If a network is not defined in the preferred networks list, but you know it is available and you want to automatically connect to it, then click Advanced in the Wireless Networks tab, and select the "Automatically connect to non-preferred network" check box.

5. Regulatory Compliance Information

Radio Frequency Interference Requirements

This device is restricted to indoor use due to its operation in the 5.15 to 5.25 GHz frequency range. FCC requires this product to be used indoors for the frequency range 5.15 to 5.25 GHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems.

High power radar are allocated as primary user of the 5.25 to 5.35 GHz and 5.65 to 5.85 GHz bands. These radar stations can cause interference with and / or damage this device.

DECLARATION OF CONFORMITY

We Askey Computer Corp.
10F, No.119, Chienkang Rd., Chung-Ho, Taipei, Taiwan R.O.C.

declare under our sole responsibility that the product WLC221-D4/ BCP3483U Wireless LAN CardBus Card Complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1)the device may not cause harmful interference, and (2)this device must accept any interference received, including interference that may cause undesired operation.

FCC WARNING

This equipment has been tested and found to comply with the limit 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. The equipment generate, use, 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 harmful interference to radio or television reception, with 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 methods:

_ Reorient or relocate the receiving antenna.
_ Increase the separation between the equipment and the receiver.
_ Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
_ Consult the dealer or an experienced radio/TV technician for help.
_ Modifications made to the product, unless expressly approved by Askey Computer Corp., could void the user's authority to operate the equipment.

RF Exposure

In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies.
The design of this device complies with the FCC guidelines and these international standards. Use only the supplied or an approved antenna. Unauthorized antennas, modifications, or attachments could result in violation of FCC regulations. This device can not co-locate or operate with any other transmitter.

Body-worn Operation
This device was tested with typical laptop computer with PCMCIA slot on either side of the computer for typical body-worn operations with the device directly contacted to the human body to the back and side of the laptop computer. To maintain compliance with FCC RF exposure compliance requirements, maintain at least 1.5 cm to nearby person.