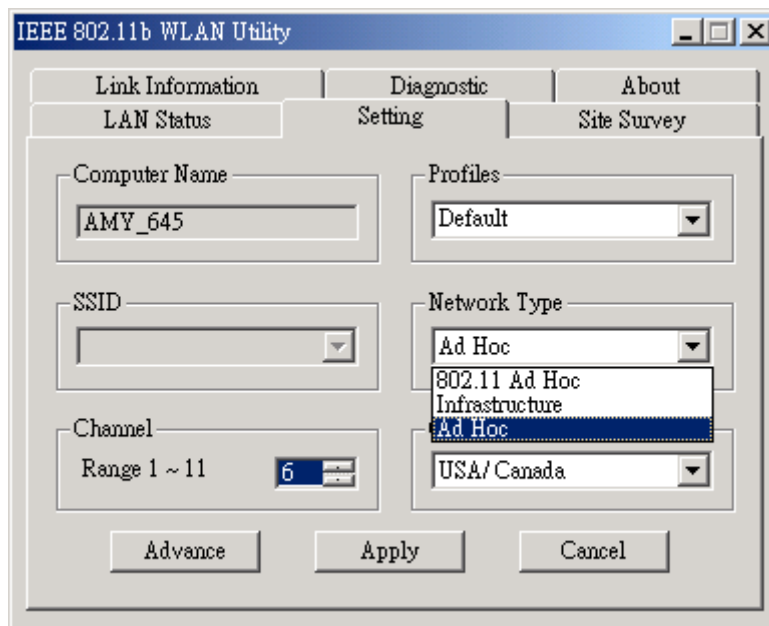## B. Ad Hoc Mode

Please follow the procedures below to set the "Ad Hoc" Mode:

1. Select the "Setting" tab.

2. Select the Network Type as "Ad Hoc".

3. Select the correct channel. (The channel of all computers in one workgroup must be the same.)

4. Press the "Apply" button.

◆   **Channel** shows radio channel numbers used for networking. Channel number must be the same between stations so computers can communicate in the same local LAN. It can be changed only under the Ad Hoc Mode. Please refer to the following table.

| Country	Channel Range
USA/Canada	1~11
Most of Europe/Australia	1~13
France	10~13
Japan	1~13 or 14
Spain	10~11

3.4.2 Advanced Settings

Click the "Advance" button in the Setting page and then the following advanced setting for your IEEE802.11b WLAN PC card will appear.

Regarding the transmission rate, there are four options:

A. Fully Auto (Default)

B. Fixed 11Mbps

C. Fixed 5.5Mbps

D. Auto 1 or 2 Mbps

You may select and change transmission rate by clicking the pull-down button.

If you enable the "Power Saving" mode, the PC card can work with low power consumption but the throughput may slow down.
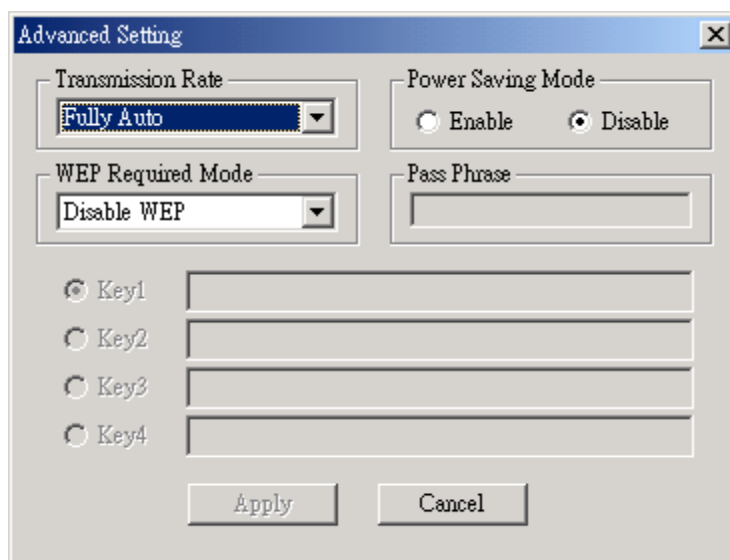
3.4.2.1 Encryption Function

You may enhance the security of your network by enabling the "Encryption" function. The WEP Required Mode enables you to define the encryption keys that your IEEE802.11b PCMCIA should use.

! Caution:

If you wish to enable the "Encryption" function, you must enable this function for all computers of your network, and the WEP key needs to be the same for all IEEE802.11b stations.

Follow the steps below to set your WEP Required Mode:

(1) Select one mode by clicking the pull-down button in the WEP Required Mode frame. Set the WEP key in your PC card by selecting one of the following modes:

    A. Auto Generate 64 bits

    B. Auto Generate 128 bits

    C. Manual Generate 64 bits

    D. Manual Generate 128 bits

(2) If you select "Auto Generate 64 bits" or "Auto Generate 128 bits" mode, type "Pass" and the WEP key will be automatically generated in Key1 box.
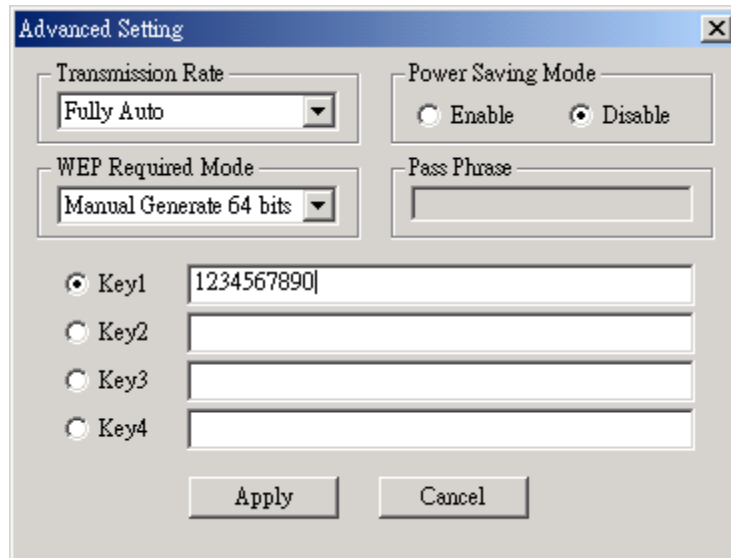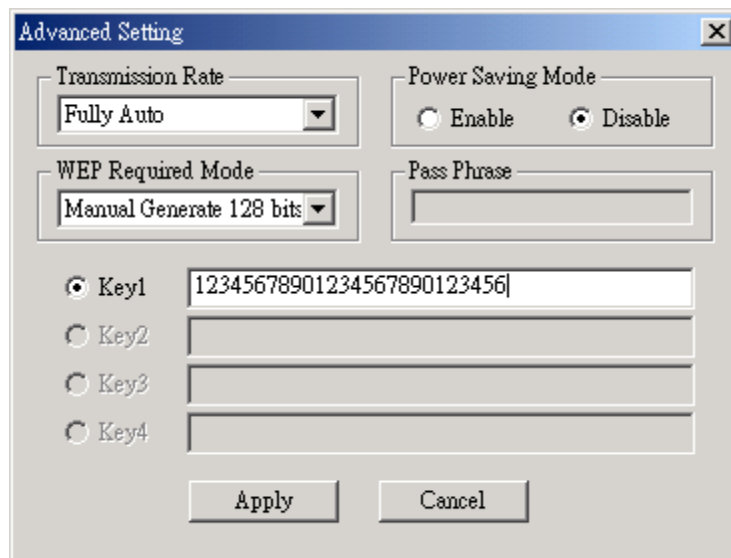
a. Auto Generate 64 bits
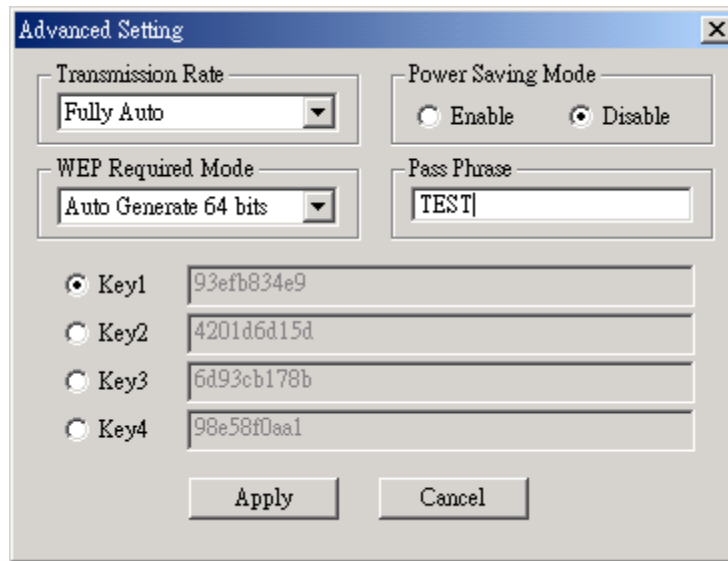
. b. Auto Generate 128 bits
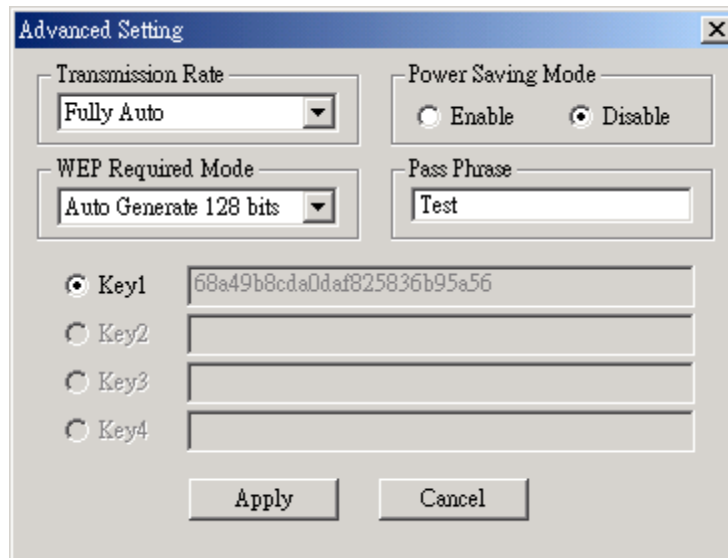
(3) If you select "Manual Generate 64 bits" mode, you can type 10 alphanumeric characters (within the range 0~9 and a~f) as the WEP key manually into any key box.

(4) If you select "Manual Generate 128 bits" mode, you can type 26 alphanumeric characters (within the range 0~9 and a~f) as the WEP key manually only into the key1 box.

(5) Press the "Apply" button after you finish the above setting.

4 Using Your IEEE802.11b WLAN PC Card and Utility

4.1 Using Your IEEE802.11b WLAN PC Card

4.1.1 Radio Antenna

The embedded radio antenna of your IEEE802.11b WLAN PC Card performs best in an open environment with as few obstacles as possible.

- To achieve the maximum range for wireless communications do not cover the card with objects such as books or thick stacks of paper.

4.1.2 Maintaining Your PC Card

To clean the PC Card, gently wipe it with a soft (damp) cloth.

! CAUTION:

To avoid damage to the PC Card do not use abrasive materials, or rinse the card with liquids.

4.1.3 Disconnect the Wireless Communications

4.1.3.1 Remove Your PC Card

If you do not need the wireless connectivity of your IEEE802.11b PCMCIA Card, you can follow the procedures mentioned below to remove the PC Card from its slot.

! CAUTION:

- When removing the IEEE802.11b PCMCIA Card you will lose your connection to the network. Prior to removing the PC Card, make sure you have closed all files and network applications (such as e-mail).

- You are advised to always disable the PC Card prior to removing the card from the PC Card slot, or the system may be hurt seriously.

To stop using the IEEE802.11b PCMCIA Card:

1. Double click the "My Computer" icon.

2. Double click the "Control Panel" icon and then select the "PC Card" icon.

3. Select the IEEE802.11b PC Card and click "Stop" icon.

4. Wait a few seconds until the operating system displays a pop-up message to indicate you can safely remove the PC Card.
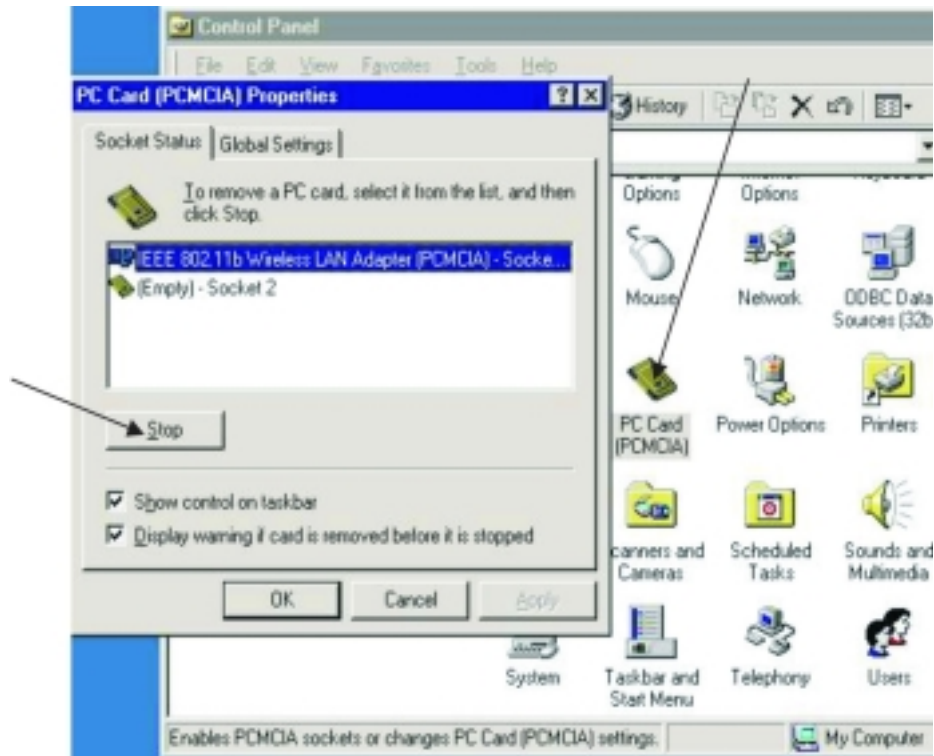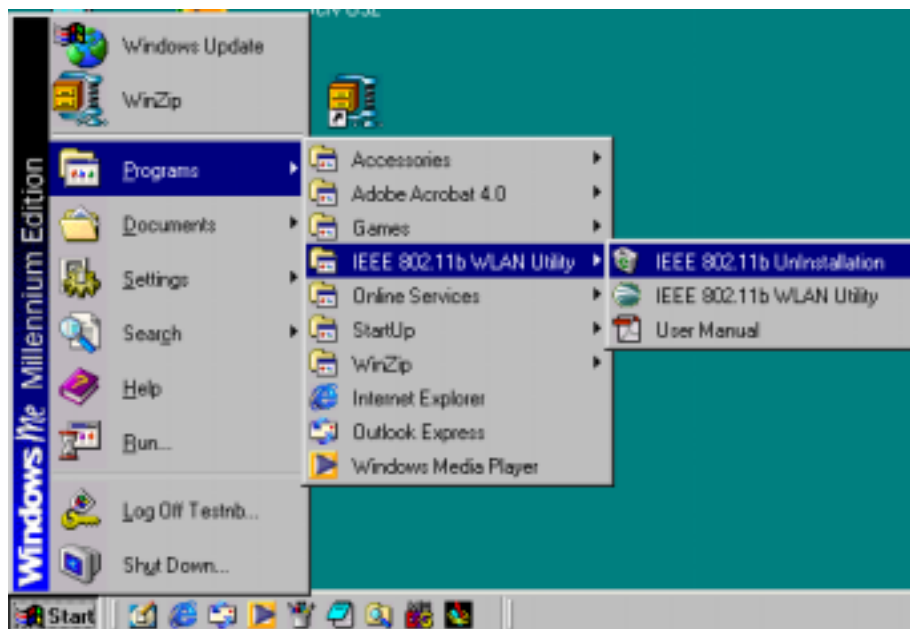
4.1.3.2 Uninstall the IEEE802.11b WLAN Utility/ Driver

1. To exit the IEEE802.11b WLAN Utility, right click on the Utility icon in the task bar and select "Exit".
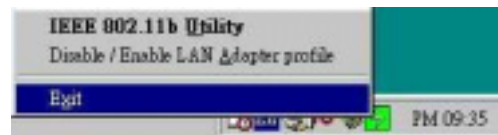
2. Click on the "Start Manu" and select the items in sequence as follows:

   Program→IEEE 802.11b WLAN Utility→IEEE 802.11b Uninstallation

3. You will be asked if you want to uninstall the IEEE802.11b WLAN Utility and all of its components. Click "Yes" to start to uninstall or click "No" to exit.
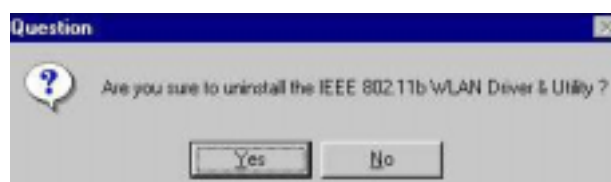
4. Now the uninstallation is completed. Please click "Finish".

Additional Note for Windows 2000

The following items should be noted:
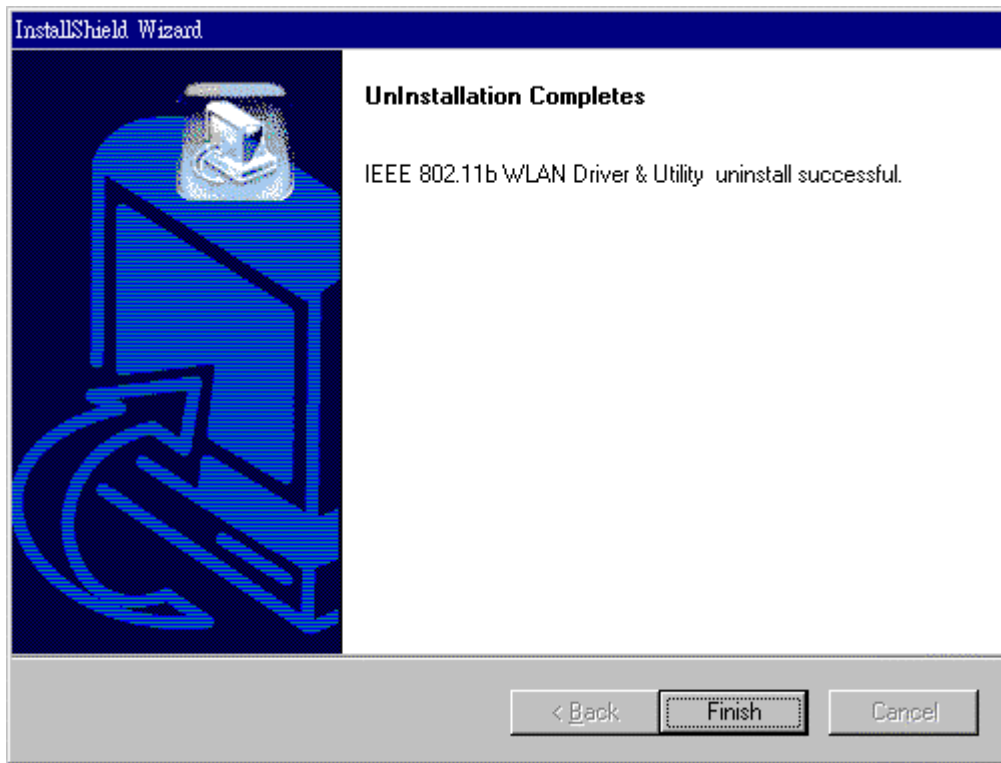
1. Please do not remove your PC card unless the IEEE802.11b WLAN un-installation is completed.

2. Make sure to exit the IEEE802.11b WLAN Utility before uninstalling.

3. To uninstall the IEEE802.11b WLAN Utility and Driver, the system will prompt you to execute the "Device Manager" to remove the IEEE802.11b WLAN PC Card, and then click "OK".

4. The system will give you a prompt as below while waiting for the "Device Manager". Follow the instruction to uninstall IEEE802.11b WLAN adapter.

4.2 Using the Utility

4.2.1 LAN Status

If you want to know the connecting status in Infrastructure Mode or 802.11Ad Hoc Mode, choose LAN Status tab in IEEE802.11b WLAN Utility window.

1. Infrastructure Mode:

    - The SSID and MAC of the Access Point, which your computer connects to, will appear in the screen if you choose the Infrastructure Mode.

    - Double click the Access Point SSID (under the Infrastructure Mode) to access to the Microsoft Network Neighborhood folder to find other on-line computers.

    - You can see the status of the Link Quality and Signal Strength under the LAN Status page.
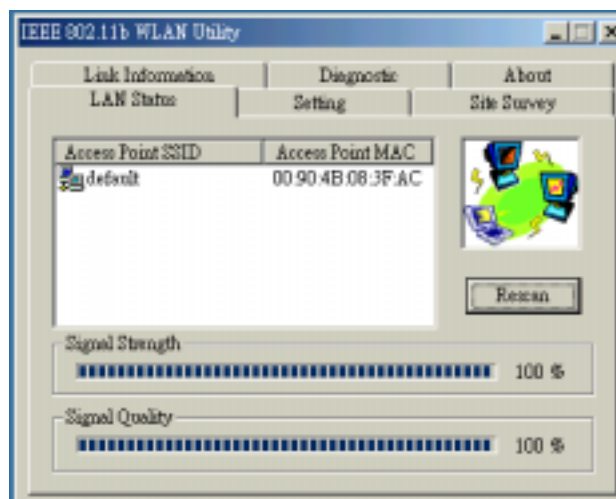
2. 802.11 Ad Hoc Mode / Ad Hoc Mode:
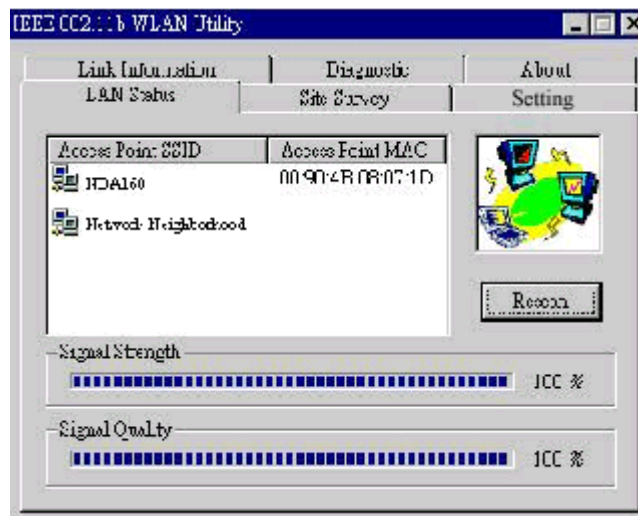
- The Station Name and MAC Address of your station will appear if you choose the 802.11Ad Hoc Mode (or Ad Hoc mode).

- Double click the right name to display the content of your computer or double click Network Neighbors to access to the Microsoft Network Neighborhood folder to find other on-line computers.

- Click " Rescan " if you cannot find any other computer.

4.2.2 Link Information

The link information, showed as the picture below, includes the Current Channel, Current Transmission Rate, Own MAC Address, Current Connection State, Wireless Network Adapter IP Address, Wireless Network Adapter Subnet Mask, and Wireless Network Adapter Default Gateway.
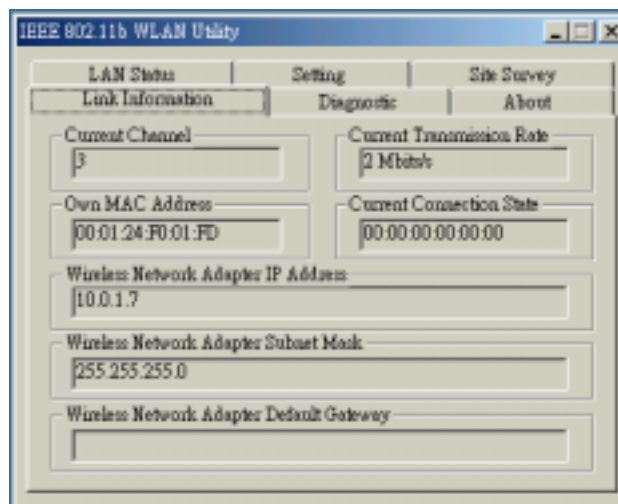
4.2.3 Site Survey

In this dialog box, you may get all the information of each Access Point within the communication range of your PC Card. You may choose a preferred one to connect to according to the information (Connecting to the Access Point with the strongest signal is recommended.)
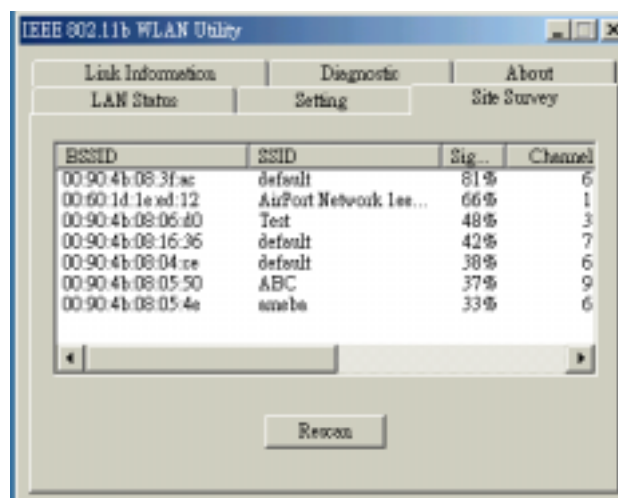
4.2.4 Diagnostic

To check if there are any errors in the hardware, firmware, and software of your PC Card, you may enter this dialog box and click the "Start Diagnostic" button. If there are any errors, please click the "View Error Details" and print it out to present to your dealer/ distributor.
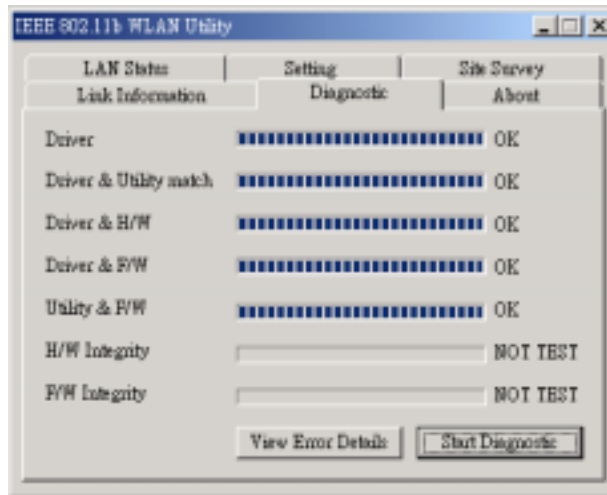
4.2.5 About

From this dialog box, you can get the details such as the version information of each Software component.

5. Networking Applications

To enable the sharing of your Internet access, you should set your connection mode to "Infrastructure" (please refer to the chapter 3.4.1 "Setting"). When the procedure is completed, an access point will appear on the "LAN Status" of IEEE802.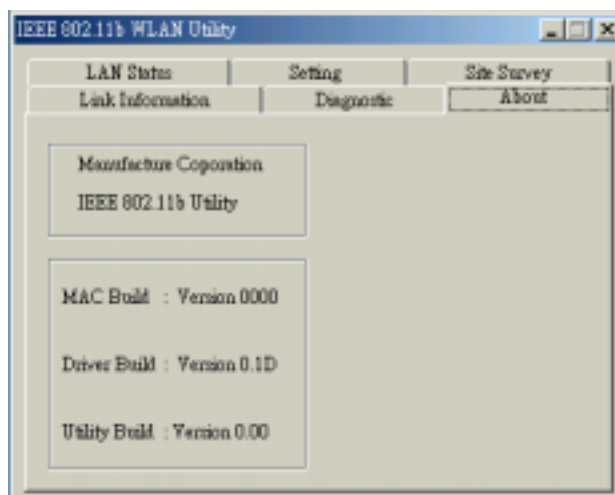11b WLAN Utility. Double click it to enter the Network Neighborhood folder. This folder contains the links to all computers in your   workgroup on the entire network.

5.1 File Sharing in Microsoft Windows 98SE

IEEE802.11b WLAN allows the sharing of files between computers that are logged onto the same wireless network. Follow the procedures below to share your "My Documents" directory:

1. First, locate the folder "My Documents" and right click it.
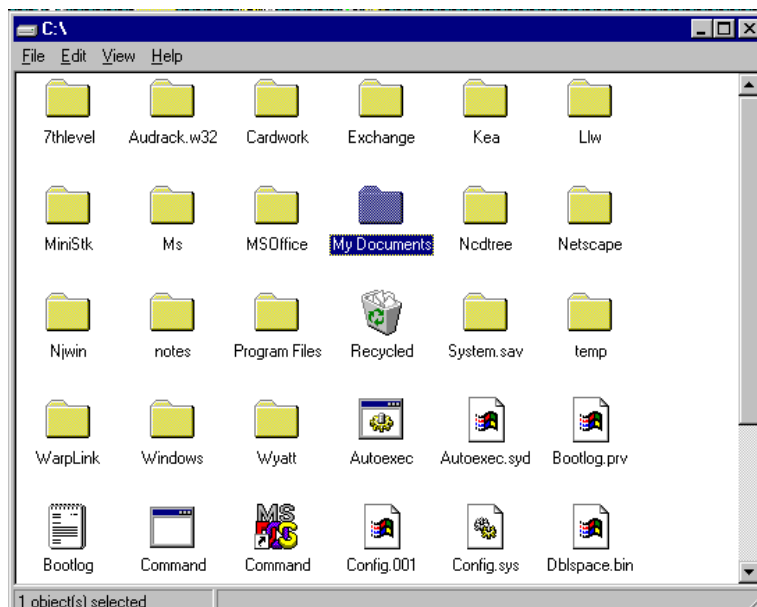
2. Select "Sharing" from the available options.

3. Select "Shared As" to allow your folder to be shared. You can also select and define the level of access you want for your folder.
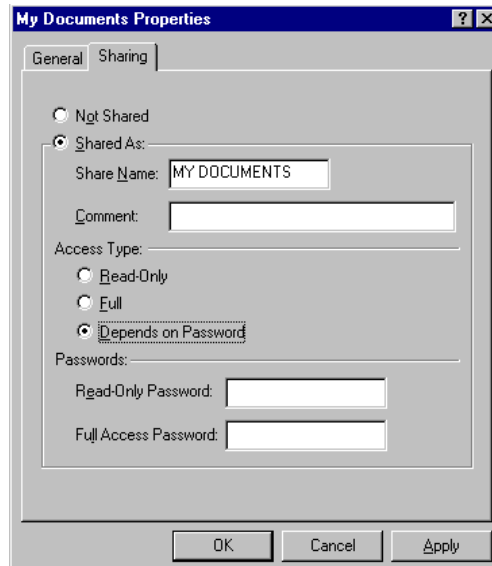
- If "Read-Only" is selected, the other users in the wireless network can only copy files from your folder. Copying files into your folder is not allowed.

- If "Full" is selected, the other users in the wireless network have full access to your folder. They can copy to and from your folder as well as modify files.

- You can also set the option to "Depends on Password" wherein the user in the wireless network can access to your folder through a set password. The set password will determine if the user can only read your folder or has full access to your folder.

4. Click "Apply" or "OK" to activate the options that you have set.

Now you can see the folder "My Documents" with a little hand under it. The folder is now open for file sharing.
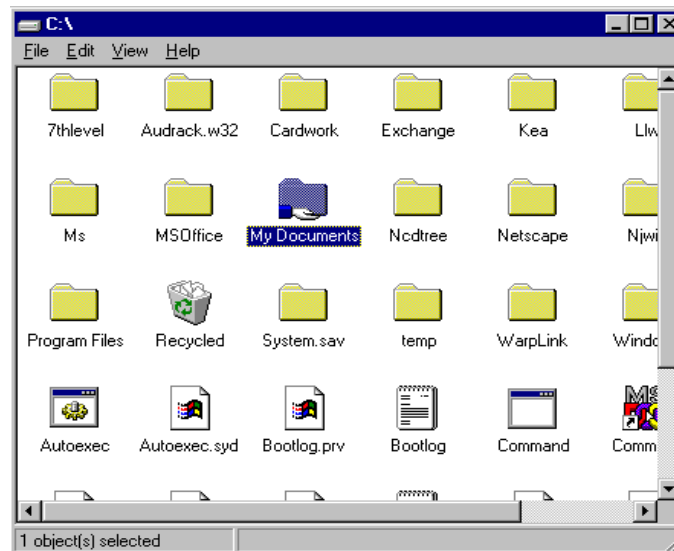
Sharing files in the IEEE802.11b WLAN wireless network will be like sharing files on a wired LAN.

5.2 Printer Sharing in Windows 98SE

In order for a printer to be shared across the network, it has to be set as the network printer. Follow the instructions below to set a printer as a network printer:

1. Click the "Start" button, point to the "Settings", and then click "Printers".

2. In the Printers window, click the printer you want to share.

3. Click "Sharing…" on the "File" menu.
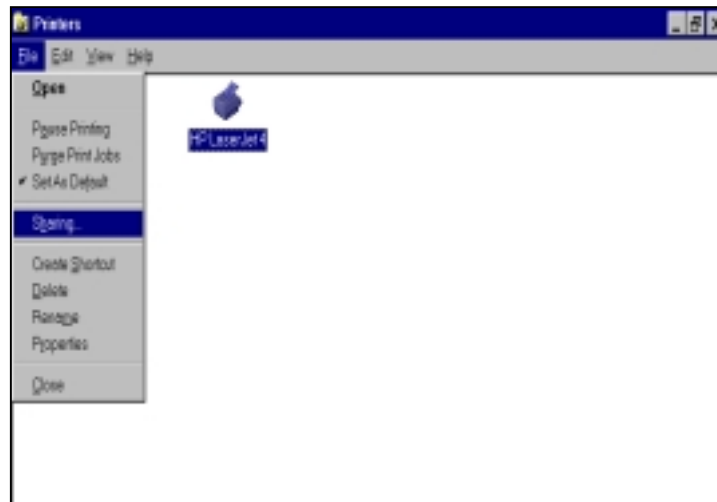
4. Click the Sharing tab, then click " Shared As " , and if necessary, enter a password.

5.3 Using the shared folder

1. Double click the "Network Neighborhood" icon, and then double click the computer where the shared folder is located.

2. Double click the folder you want to connect to.

3. You may want to assign a drive letter for the shared folder that you connect to.

4. In the "Network Neighborhood", double click on the computer where the shared folder is located.

5. Click on the folder you want to connect, and click "File" menu, and then click "Map Network Drive".

6. Select an available drive, and then click OK.

7. Type in a password if required.

5.4 Using the shared network printer

1. In the "Network Neighborhood", locate and double click the computer where the printer you want to use is located.

2. Double click the printer icon in the window.

3. To set up the printer, follow the instructions on the screen.

4. After you have set up a network printer, you can use it as if it were attached to your computer.

5. If a password is required, the Windows will prompt you, and you need to enter the password that had been assigned to this shared printer.

◈ Whenever printing a document through the network, be sure to select the printer that is set as the network printer.

6. Specifications

6.1 Physical Specifications

Dimensions	(L x W x H) 110 X 54 x 6mm
Weight	39g
Host Interface	PCMCIA PC Card Type II
Antenna	Internal diversity Antenna Supporting
Status Indicator	LED (Indicates RF/Link Activity)

6.2 Networking Compliant Standards

Standard	IEEE802.11b Wi-Fi Compliment
Host Systems	Windows98SE/2000/Me, NT
Media Access Protocol	CSMA/CA with ACK
Network Protocol	TCP/ IP, IPX, NetBEUI

6.3 Available Channels in Each Country/ Area

Radio Channel Selection Table

Channel_ID	Regulatory domains					
	U.S.A.	Canada	Most of Europe	Spain	France	Japan
1	X	X	X	–	–	X
2	X	X	X	–	–	X
3	X	X	X	–	–	X
4	X	X	X	–	–	X
5	X	X	X	–	–	X
6	X	X	X	–	–	X
7	X	X	X	–	–	X
8	X	X	X	–	–	X
9	X	X	X	–	–	X
10	X	X	X	X	X	X
11	X	X	X	X	X	X
12	–	–	X	–	X	X
13	–	–	X	–	X	X
14	–	–	–	–	–	X

6.4 Operating Specifications

Frequency Band	2.400 ~ 2.4835GHz (subject to local regulations)
Number of Channel:	USA and Canada: 11 (1~11) France: 4 (10~13) Most European countries: 13 (1~13) Japan: 1~13 or 14
Operating Voltage:	3.3 V ~ 5V
Spreading:	DSSS (Direct Sequence Spread Spectrum)
Data rate:	11Mbps, 5.5Mbps, 2Mbps, 1Mbps
Transmit Power:	Transmit power: 15 dBm min. (typical) Nominal Temp Range: 17 dBm max. Extended Temp Range: 13 dBm min.
Receive Sensitivity:	**Nominal Temp Range:** 1 Mbps: 10-5 BER @ -90 dBm, minimum 5.5 Mbps 10-5 BER @ -87 dBm, minimum 11 Mbps 10-5 BER @ -84 dBm, minimum **Extended Temp Range:** 1 Mbps 10-5 BER @ -84 dBm, minimum 5.5 Mbps 10-5 BER @ -81 dBm, minimum 11 Mbps 10-5 BER @ -78 dBm, minimum

Modulation:	11 Mbps and 5.5 Mbps: CCK; 2Mbps: DQPSK; 1Mbps: DBPSK
Security:	64-bit/ 128-bit WEP Encryption
Temperature Range:	0 ~ 60°C (Operating), -20 ~ 75°C (Storing)
Humidity:	Max. 95% Non-condensing
Operating Range:	Open Space: 200 – 400m; Indoor: 35m - 100m
Roaming:	Full mobility and seamless roaming from cell to cell and across access points (subject to access point)
Management Utility:	Link configuration for network participation and diagnostics
EMC certification:	FCC part 15 class in US; ETSI 300.328, ETSI 300.826 and EN60950 in Europe TELEC/JATE in Japan

7. Troubleshooting

If you encounter some problems installing the IEEE802.11b WLAN PC card or you want to confirm whether your card is installed properly or not, refer to the procedure below after you have installed the card.

## 7.1 Check the Various Properties of the Card

To verify if your PC Card has been set into the PCMCIA slot properly, you can follow the procedures below.

Click on the "Control Panel" icon and then on the "PC Card". Check the Socket Status of PC Card Properties whether there is a PCMCIA card in one of the sockets or not. If you find the IEEE802.11b WLAN PC Card (PCMCIA) in one of the sockets, it means a card is detected.

To verify if the driver has been set in your computer properly, you can follow the procedures below.

Right click the "My Computer" icon and then select "Properties". You will enter your system properties. Select the Device Manager tab and click on the Network Adapter. You will find the IEEE802.11b WLAN PC Card if it is installed successfully.
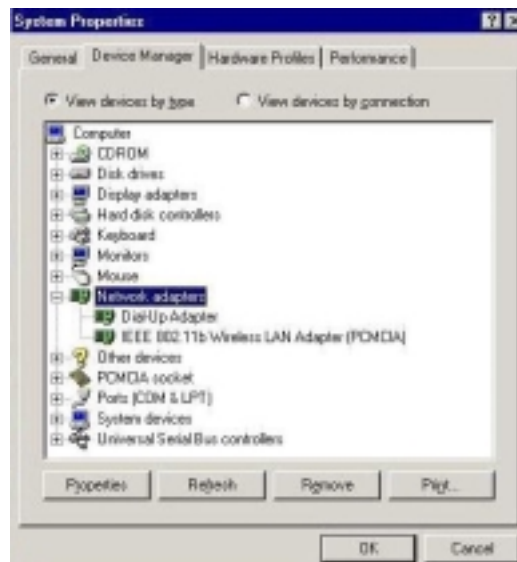
● If there are Question-mark (?) or Exclamation-mark (!) in yellow on your IEEE802.11b Wireless LAN Adapter in the previous picture (PC Card Properties & System Properties), please make sure you have inserted the right PC Card and the proper driver and utility have been installed. If you are not sure, follow the procedure below to reinstall (update) the driver.

    1. Enter "System Properties" and click on the "Device Manager" tab.

    2. Click on "Network Adapter" and select the IEEE802.11b Wireless LAN Adapter.

    3. Click on the "Driver" tab of the IEEE802.11b Wireless LAN Adapter properties, and then click on " Update Driver" button.

4. Follow the Update Device Driver Wizard to complete the driver installation.
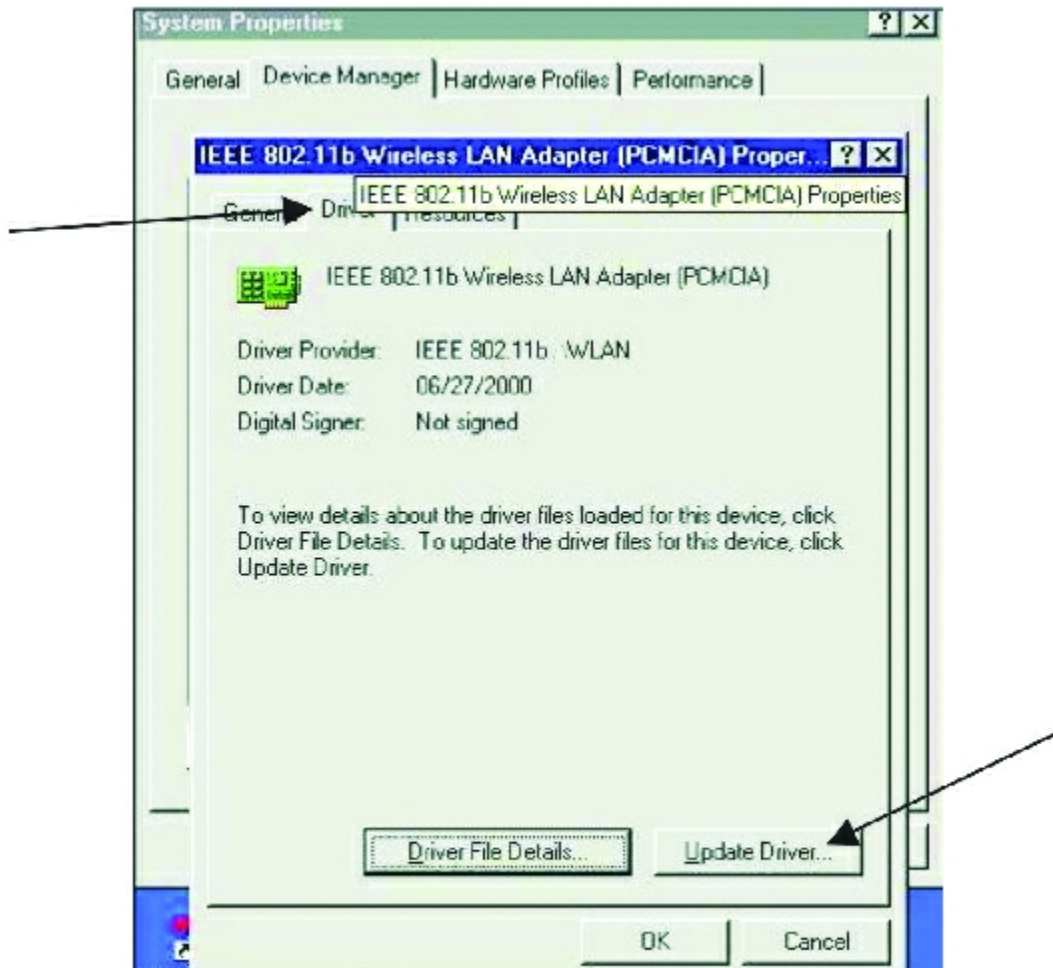
7.2 Microsoft Networking Checklist

In order for the IEEE802.11b WLAN to run properly, some network items must be presented in the Microsoft "Network Neighborhood" setup. To check and activate the network setup, right click the "Network Neighborhood" and select "Properties" with your mouse. The following items should be presented in the network setup:

1. IEEE802.11b Wireless LAN Adapter (PCMCIA)

2. IPX/SPX-compatible Protocol→IEEE802.11b Wireless LAN Adapter (PCMCIA)

3. NetBEUI→ IEEE802.11b Wireless LAN Adapter (PCMCIA)

4. TCP/IP → IEEE802.11b Wireless LAN Adapter (PCMCIA)

5. File and printer sharing for Microsoft Networks

6. Client for Microsoft Networks

If any of these items are missing, please follow the instructions below to install them properly:

1. Set up the Network Protocols:

   i.   Click the "Add" button and select "Protocol" on Network "Setting Configuration".
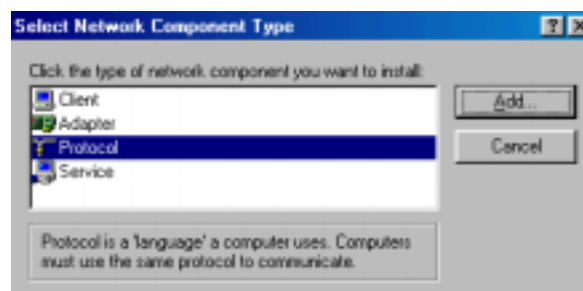
ii. Click "Add" and then choose the network protocol. Select "Microsoft" as the manufacturer and "NetBEUI", "TCP/IP", and "IPX/SPX-compatible" for the network protocols. Then click "OK".
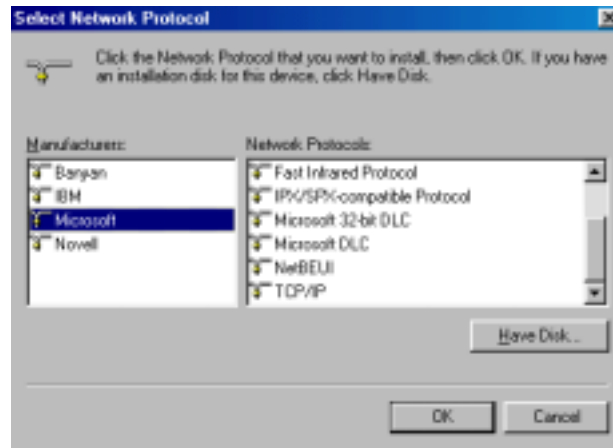

iii. Now your network protocol should be set. Please check if your network needs any special requirements to operate in your office environment.

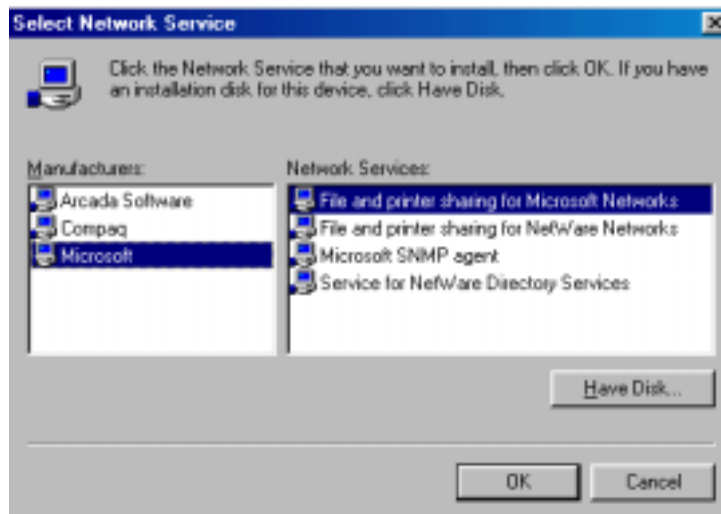Note: If you are following the Step-by-Step Installation Guide, please refer back to Chapter 2 Step 8 **AND DO NOT REBOOT THE SYSTEM UNTIL YOU ARE FINISHED WITH Step 9.**

2. Network Service for Microsoft Networking:

i. Click "Add" and select "Service".
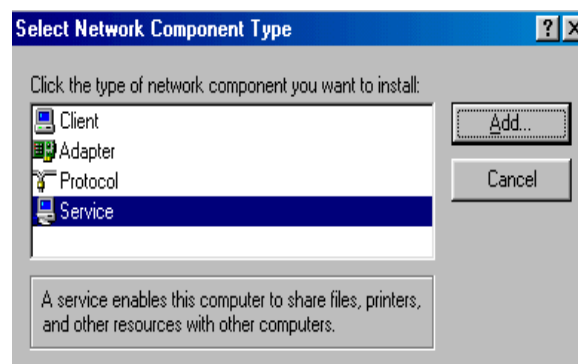
ii.   Select "Microsoft" as the manufacturer and choose "File and printer sharing for Microsoft Networks" for network service;

iii. Click "OK" to set the network service.

7.3 Others

1. **Wired Equivalent Privacy (WEP)**

If you enable the WEP function, which is the same as the Access Point (AP) in your IEEE802.11b WLAN PC card, but still cannot connect with the AP. It may be that the key generated by your PC card is different from the key generated by the AP even if the same Pass phrase is used between your PC card and AP. Please follow the steps below to set WEP manually.

1. Check the WEP type and WEP key setting from the AP.
2. Select "Manual" under the WEP Advanced Settings.
3. Type a set of WEP key generated from the AP into the key1 blank of your Encryption frame, other space you can type anything you like, but make sure all the blanks (Key1~Key4) will be filled.
4. Remember to press the "Write" button and "OK" to finish the WEP setting.

### Additional Note for Windows 98 earlier edition

If your system is running Windows 98 first edition, you may use one of the following ways to make IEEE 802.11b WLAN Utility work properly.

1. Copy and replace the file "MFC42.dll from CD Drive of "windows\system" of Windows 98SE directory.
2. Upgrade your system and Internet Explorer by downloading files from the Microsoft web site.

Additional Note for Windows 2000

1. IEEE802.11b WLAN Utility error message

- If the IEEE802.11b WLAN Utility and Driver installation was completed, but the following error message appears, you should check if your IEEE802.11b WLAN PC Card was inserted successfully and packet protocol installed was correctly. (See Section 3.2 " Install the IEEE802.11b WLAN Utility/Driver"—Additional note for windows 2000 to install packet protocol, in the User Guide for details.)
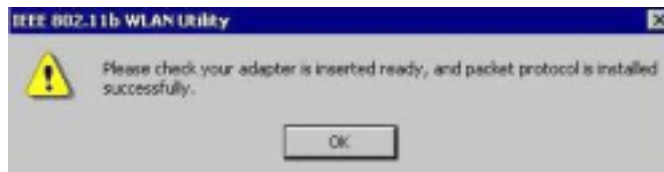
2. Uninstall failed

- If you cannot uninstall IEEE802.11b WLAN Utility and Driver successfully. Please follow the procedure below to reinstall the Utility and Driver.

-
    (1) Find the file AWLAN.isu and delete it from the Programs files\ IEEE802.11bWLAN Utility folder.
    (2) Reboot your system
    (3) Reinstall IEEE802.11b WLAN Utility and Driver.
    (4) Uninstall again.

FCC Class B Radio Frequency Interference 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 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 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, 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:

1.   Reorient or relocate the receiving antenna.

2.   Increase the separation between the equipment and receiver.

3.   Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

4.   Consult the dealer or an experienced radio/television technician for help.

Notice 1:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2:

Shielded interface cables, if any, must be used in order to comply with the emission limits.

Notice 3:

This device complies with part 15 of the FCC Rules. The operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

CAUTION: To comply with FCC RF exposure compliance requirements, a separate distance of at least 20cm must be maintained between the antenna of this device and all people.