

**IEEE802.11b/g**  
**Wireless MiniPCI Card**

**NMP-3602/NMP-3601**

**User's Manual v1.0**

## Chapter 1: Introduction

### 1.1 Overview of the product

The Wireless Adapter gives you the flexibility to install your PC or Notebook PC in the most convenient location available, without the cost of running network cables.

The adapter's auto-sensing capability allows high packet transfer rate of up to 54Mbps for maximum throughput, or dynamic range shifting to lower speeds due to distance or operating limitations in an environment with a lot of electromagnetic interference. It can also interoperate with all 11Mbps wireless (802.11b) products. Your wireless communications are protected by up to 152-bit WEP and WPA encryption for high security.

It adopts **2x to 3x eXtended Range™ WLAN transmission technology** so that transmission distance is 2-3 times of traditional 11g/b solutions, up to 855.36m tested in China. Transmission range is extended to 4-9 times.

### 1.2 Features

- Complies with IEEE802.11g, IEEE802.11b standards
- Adopts **54M 11b/g** and **2x to 3x eXtended Range™** wireless LAN transmission technologies
- Supports WPA data security, IEEE802.1x authentication, TKIP/AES encryption, 64/128/152-bit WEP encryption
- Supports 54/48/36/24/18/12/9/6/11/5.5/3/2/1Mbps wireless LAN data transfer rates
- Provides 32-bit PCI interface Supports Ad-Hoc and Infrastructure modes
- Supports roaming between access points when configured in Infrastructure mode
- Eases to configure and provides monitoring information
- Supports Windows 2000, XP

## **Package Contents**

The following contents should be found in your box:

- One 802.11B/G Wireless miniPCI module

**Note:** If any of the listed contents are damaged or missing, please contact the retailer from whom you purchased the Wireless Adapter for assistance.

## **Chapter 2: Installation Guide**

### **2.1 Hardware Installation**

#### **2.1.1 54M Wireless miniPCI Adapter Hardware Installation**

To install the adapter, follow these steps listed below:

1. Turn off your desktop PC and disconnect the power.
2. Open your PC case and locate an available PCI slot on the motherboard. Remove the metal slot cover on the back of the PC. Check with your computer manufacturer for instructions if needed.
3. Slide the PCI Adapter into the PCI slot. Make sure that all of its pins are touching the slot's contacts. Once the adapter is firmly in place, secure its fastening tab to your PC's chassis with a mounting screw. Then, close your PC case.
4. Reconnect your PC's power and turn on your desktop PC.

### **2.2 Software Installation**

#### **2.2.1 Overview**

The Adapter's Setup Wizard will guide you through the Installation procedure for Windows 2000, XP. The Setup Wizard will install the Wireless Client Utility (WCU) and drivers.

When you install the hardware before installing the software, the system will prompt "Found New Hardware Wizard" window, click **Cancel**, and run the Setup Wizard program on the CD-ROM.

The Setup steps for Windows 2000 and Windows XP are very similar. The following setup steps are for Windows 2000.

#### **2.2.2 Software Installation for Windows 2000**

1. Insert the Resource CD into your CD-ROM drive, click **Start** and choose **Run**. In the field that appears, enter F:\WCUWin2000\_XP\Setup.exe (if "F" is the letter of your CD-ROM drive), figure 2-1 should then appear.
2. You can click **Cancel** to end the installation on the Preparing Setup screen, figure 2-1. Otherwise, the Setup Wizard will display a screen similar to that shown in figure 2-2 after a moment.

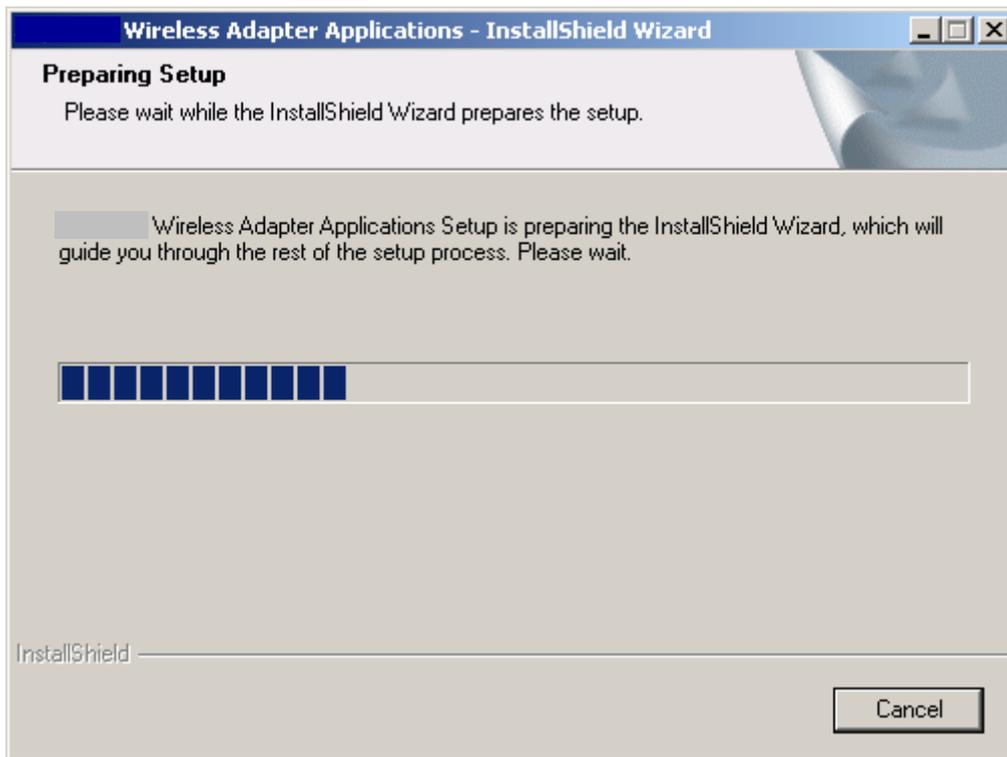


Figure 2-1 Wireless Client Utility – Install Shield Wizard

3. To continue, click **Next** on the screen, figure 2-2. Click **Cancel** to end the Installation.

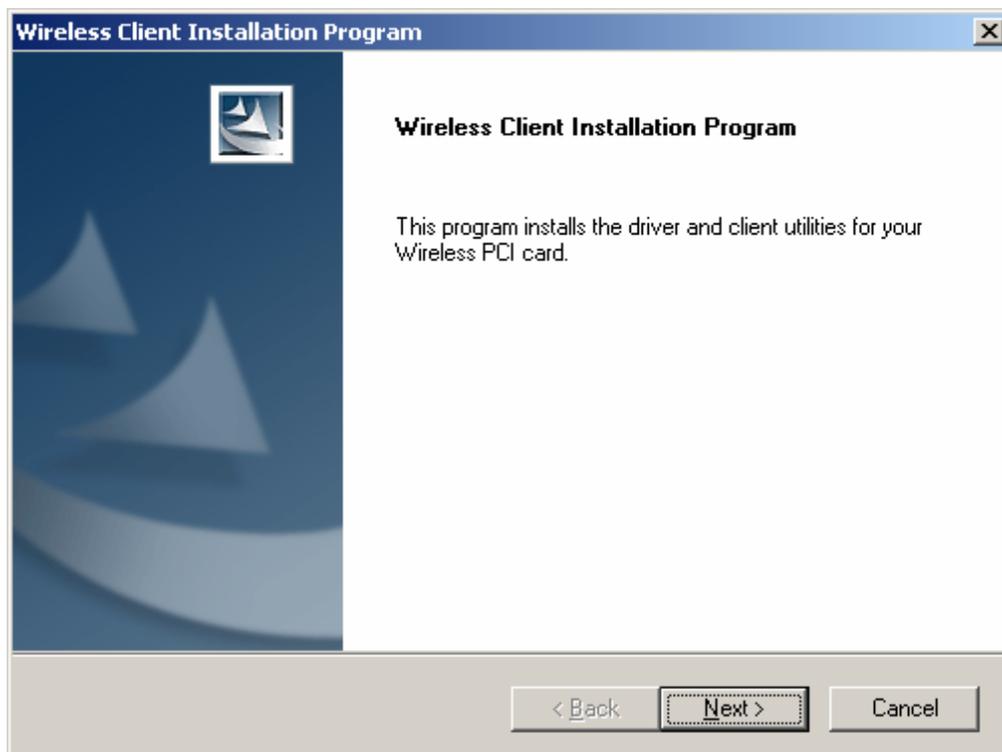


Figure 2-2 Wireless Client Utility Installation Program

4. The Setup Wizard will ask you to choose a Setup type in figure 2-3. It is recommended that you select **Install Client Utilities and Driver**. Select **Install**

**Driver Only** to install driver only, select **Make Driver Installation Diskette(s)** to make the diskette(s) as the installation driver. Select **Install Client Utilities and Driver** and click **Next** to continue the Installation. Click **Back** to return to the previous page, or click **Cancel** to end the Installation.

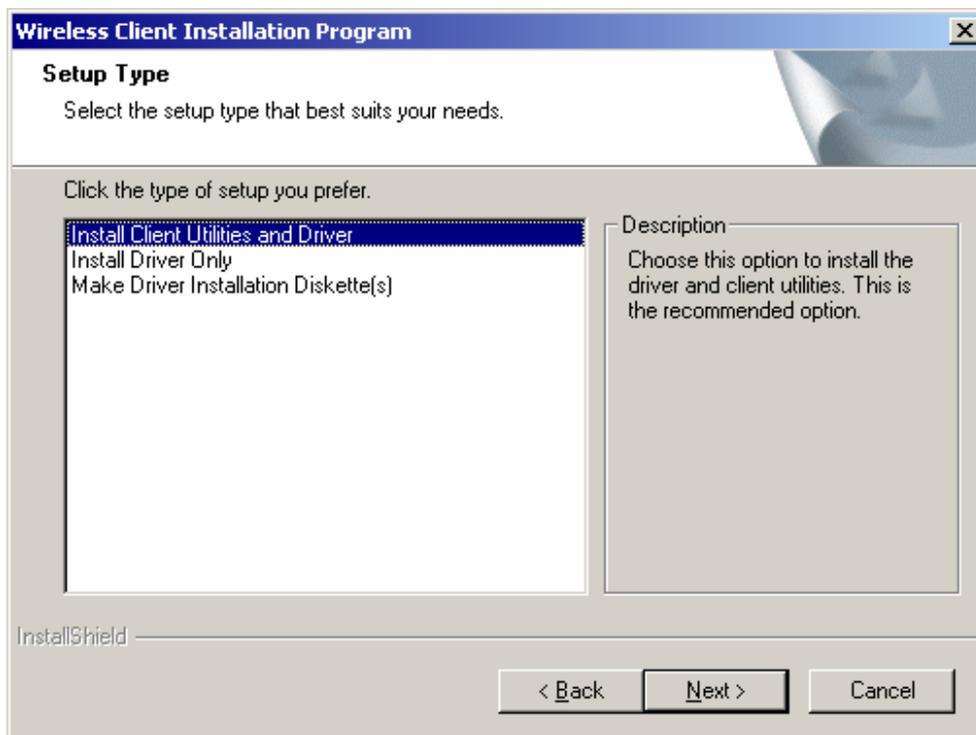


Figure 2-3 Select the setup type

5. Figure 2-4 should appear. Click **Yes** to continue the Installation, or click **No** to end the Installation.

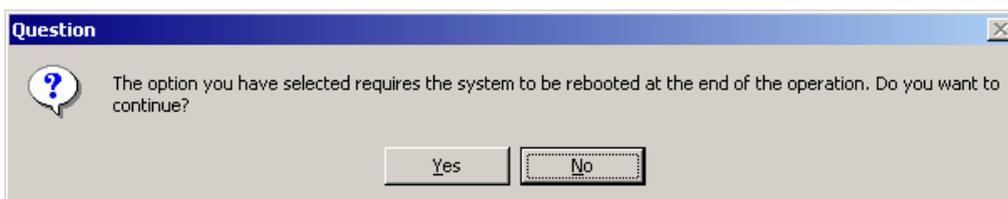


Figure 2-4 Question

6. Click **Browse** to change the destination location for the software in figure 2-5. Click **Next** to continue the Installation. Click **Back** to return to the previous page, or click **Cancel** to end the Installation.

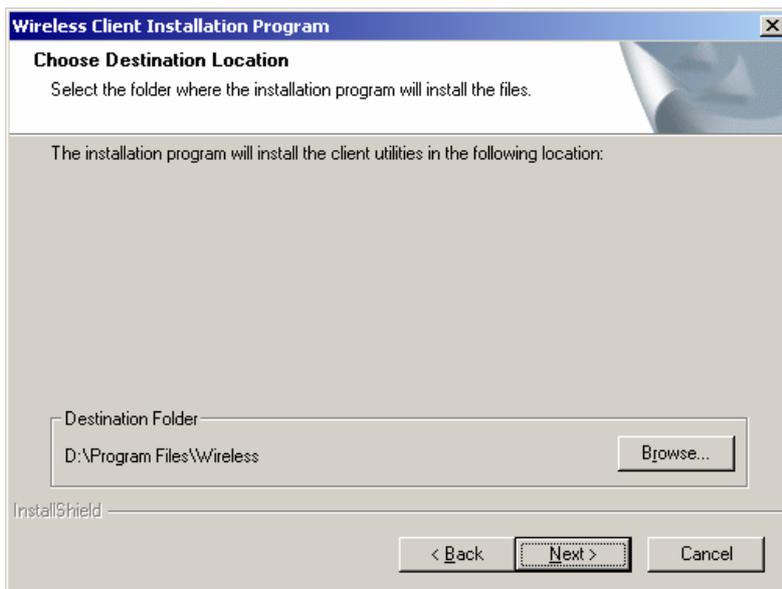


Figure 2-5 Choose Destination Location

7. The Setup Wizard will ask you to create a new folder name or select one from the **Existing Folders** list shown in figure 2-6. It is recommended that you keep the default value. Click **Next** to continue the Installation. Click **Back** to return to the previous page, or click **Cancel** to end the Installation.

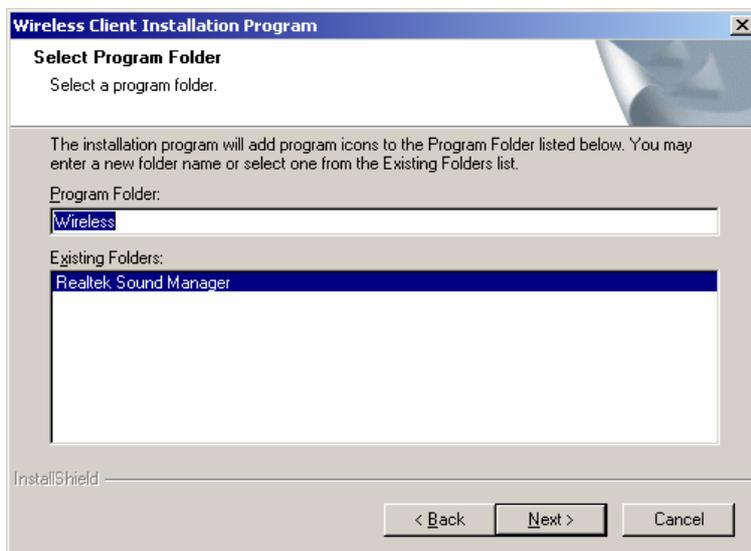


Figure 2-6 Select a Program Folder

8. The Setup Wizard will notify you of how to proceed with the installation, shown in figure 2-7. Click **OK** to continue the Installation.



Figure 2-7 Information prompt

9. While files are copying, you will see a warning box, shown in figure 2-8. Please select **YES** to continue installation. Our drivers have been tested thoroughly, and are able to work with the operating system.



Figure 2-8 Windows 2000 Warning Box

**Note:** In Windows XP, the warning box is similar to that shown figure 2-8a. Please select **Continue Anyway** to continue installation.



Figure 2-8a Windows XP Warning Box

10. After the files have been successfully copied, the screen in figure 2-9 will appear. Click **Finish** to reboot the system.

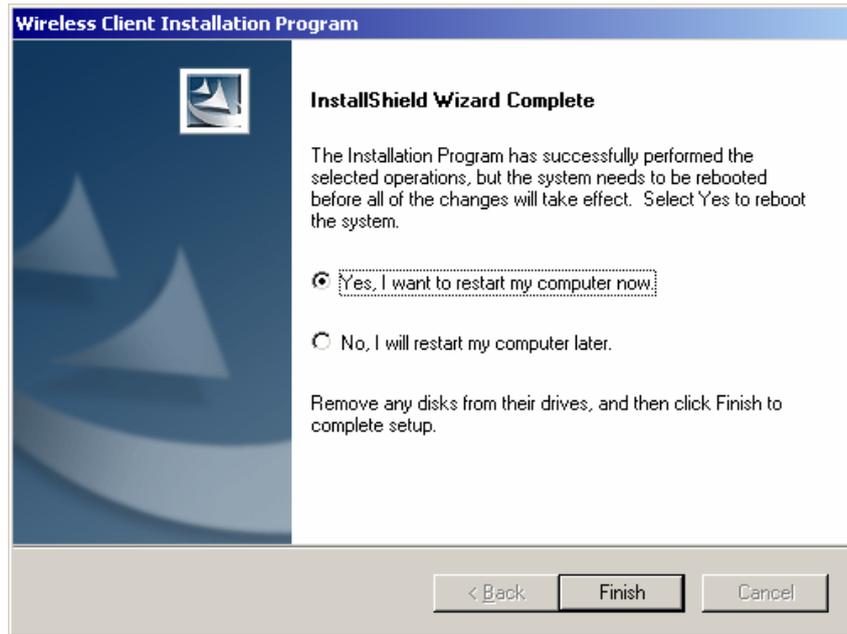


Figure 2-9 Finish

### Chapter 3: Configuration

The Wireless Adapter can be configured by Wireless Client Utility (WCU). This chapter describes how to configure your Wireless Adapter for wireless connectivity on your Wireless Local Area Network (WLAN) and use the data security encryption features.

After Installing the Adapter, the Adapter's tray icon  will appear in your system tray. It appears at the bottom of the screen, and shows the signal strength using color and the received signal strength indication (RSSI).



If the icon is gray, there is no connection.



If the icon is red, there is poor signal strength and the RSSI is less than 5dB.



If the icon is yellow, there is poor signal strength and the RSSI is between 5dB and 10dB.



If the icon is green, there is good signal strength and the RSSI is between 10dB and 20dB.



If the icon is green, there is excellent signal strength and the RSSI is more than 20dB.

Double-click the icon and the **WCU utility** will run. You can also run the utility by clicking the **Start>Program>Wireless>Wireless Client Utility**. The WCU utility provides a complete and easy to use set of tools to:

- Display current status information
- Edit and add configuration profiles
- Display current diagnostics information

The section below introduces these above capabilities.

#### 3.1 Current Status

The Current Status tab contains general information about the program and its operations. The Current Status tab does not require any configurations.

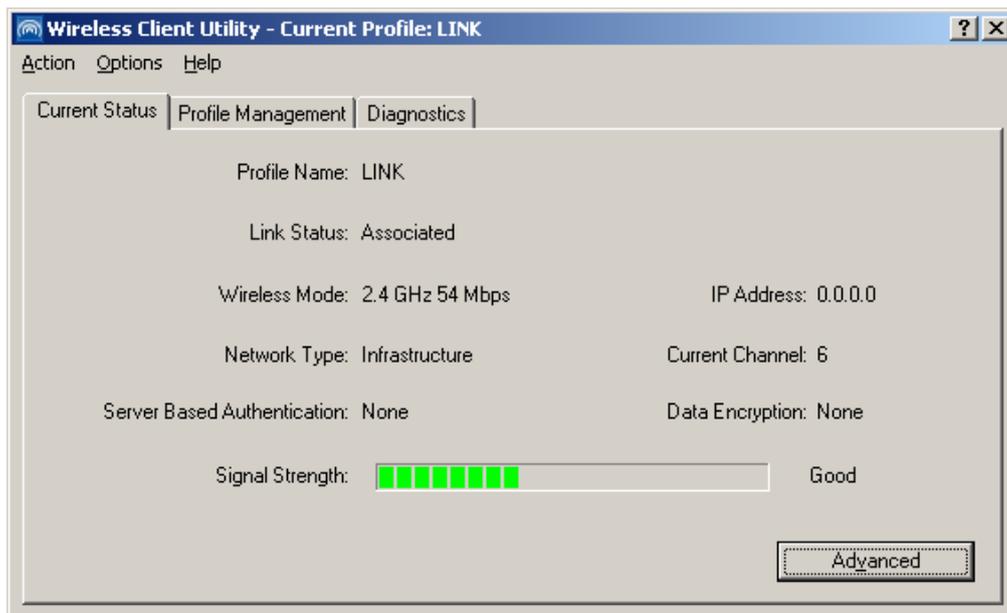


Figure 3-1 Current Status

The following table describes the items found on the Current Status screen.

- **Profile Name** - The name of current selected configuration profile. Set up the configuration name on the **General** tab of **Profile Management**.
- **Link Status** - Shows whether the station is associated to the wireless network.
- **Wireless Mode** - Displays the wireless mode. Configure the wireless mode on the **Advanced** tab of **Profile Management**.
- **Network Type** - The type of network and the station currently connected. The options include:
  - Infrastructure (access point)
  - Ad Hoc
 Configure the network type on the **Advanced** tab of **Profile Management**.
- **IP Address** - Displays the computer's IP address.
- **Current Channel** - Shows the currently connected channel.
- **Data Encryption** - Displays the encryption type the driver is using. Configure the encryption type on the **Security** tab of **Profile Management**.
- **Server Based Authentication** - Shows whether server based authentication is used.
- **Signal Strength** - Shows the strength of the signal.

**Note:** In the WCU utility, access the **General** tab, **Security** tab and **Advanced** tab by clicking **New** or **Modify** on the **Profile Management** tab.

Click **Advanced** to see advanced information about the program and its operations. For more information, please refer to the help file of the utility.

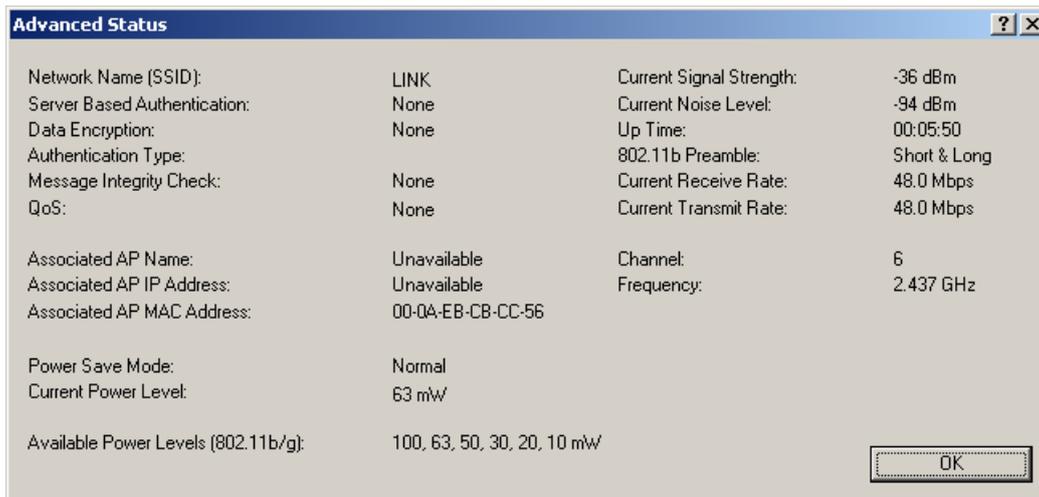


Figure 3-2 Advance Status

### 3.2 Profile Management

Click the Profile Management tab of the WCU Utility and the Profile Management screen will appear, figure 3-3. The Profile Management screen provides tools to:

- Add a profile
- Edit a profile
- Remove a profile
- Switch to another Profile
- Import a Profile
- Export a Profile
- Scan Available Networks
- Order profiles

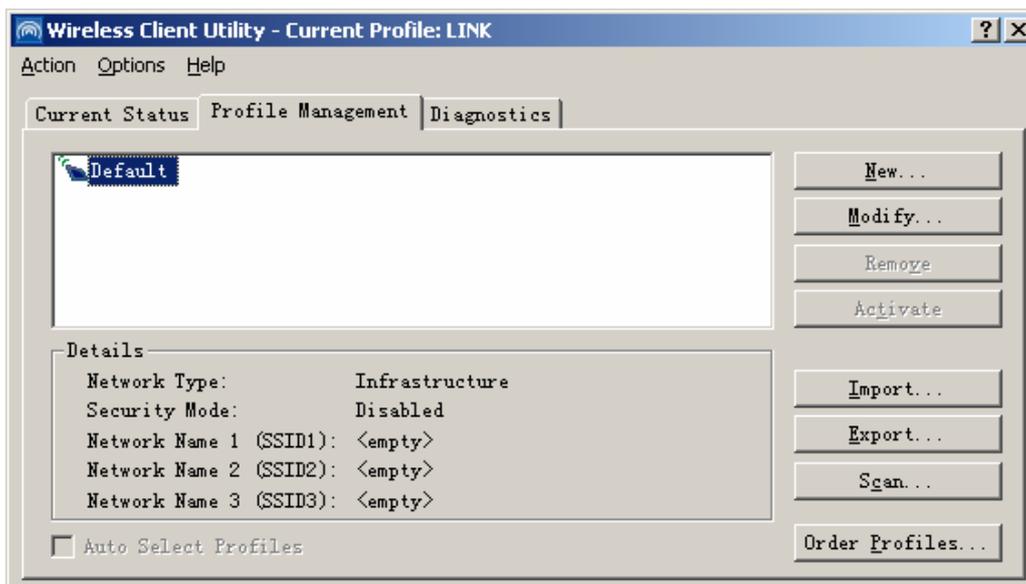


Figure 3-3 Profile Management tab

### 3.2.1 Add or Modify a Configuration Profile

To add a new configuration profile, click **New** on the Profile Management tab. To modify a configuration profile, select the configuration from the Profile list and click **Modify**.

The Profile Management dialog box will display a screen similar to that shown in Figure 3-4.

1. Edit the General tab
  - **Profile Name** - Identifies the configuration profile. This name must be unique. Profile names are not case-sensitive.
  - **Client Name** - Identifies the client machine.
  - **Network Names (SSIDs)** - The IEEE 802.11 wireless network name. This field has a maximum limit of 32 characters.

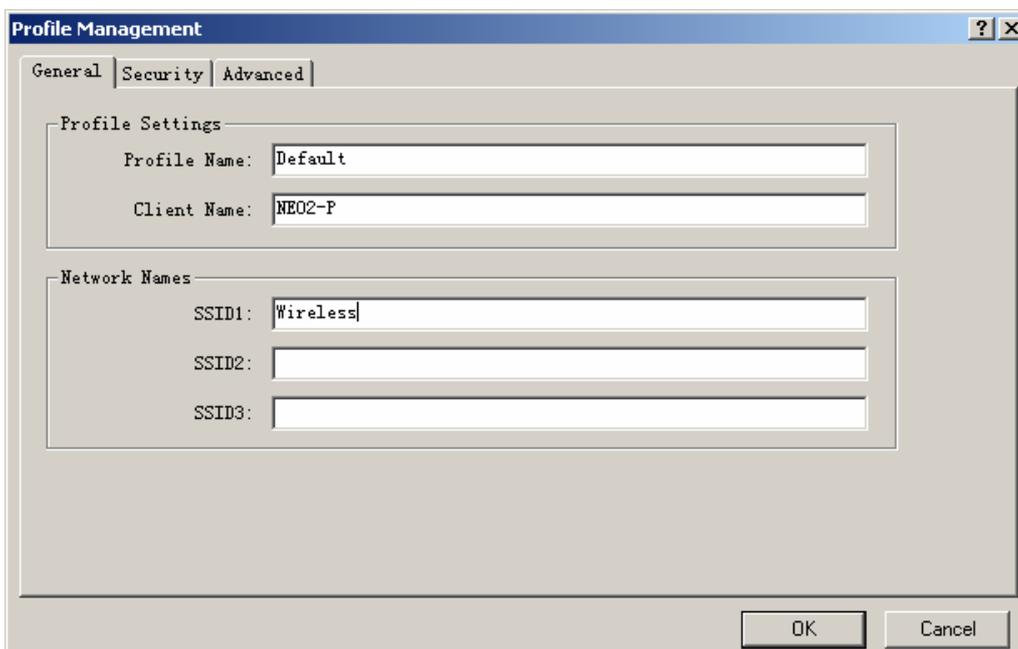


Figure 3-4 General Tab of Profile Management

2. Edit the Security tab

Edit the fields in the Security tab of Profile Management to configure the profile. To define the security mode, select the radio button of the desired security mode.

- **WPA - Wi-Fi Protected Access**
- **WPA Passphrase - Wi-Fi Protected Access Passphrase**
- **802.1x** - Enables 802.1x security.
- **Shared Key (Static WEP)** - Enables the use of shared keys that are defined on both the access point and the station. To define shared encryption keys, choose the Shared Key radio button and click **Configure** to fill in the Define Shared Keys window.
- None:** No security (not recommended).

**Note:** If the access point that the wireless adapter is associating to has WEP set to Optional and the client has WEP enabled, make sure that Allow Association to Mixed

Cells is checked on the Security Tab to allow association. To complete WEP encryption configuration, you must select the 802.11 Authentication Mode as appropriate on the **Advanced** tab of this **Profile Management** dialog.

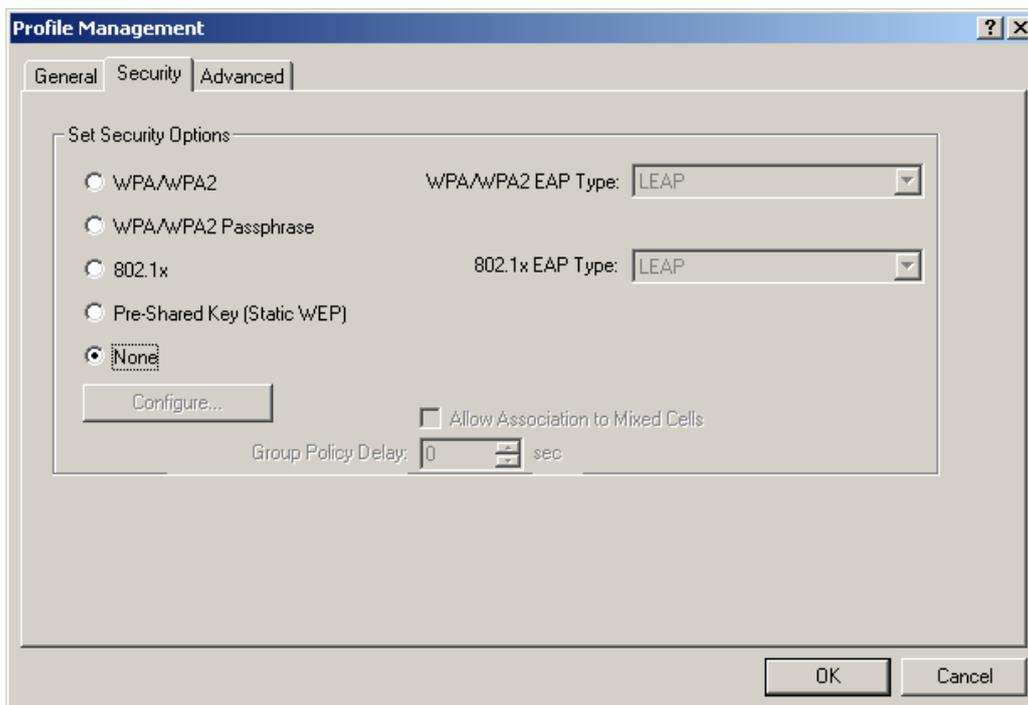


Figure 3-5 Security tab of Profile Management

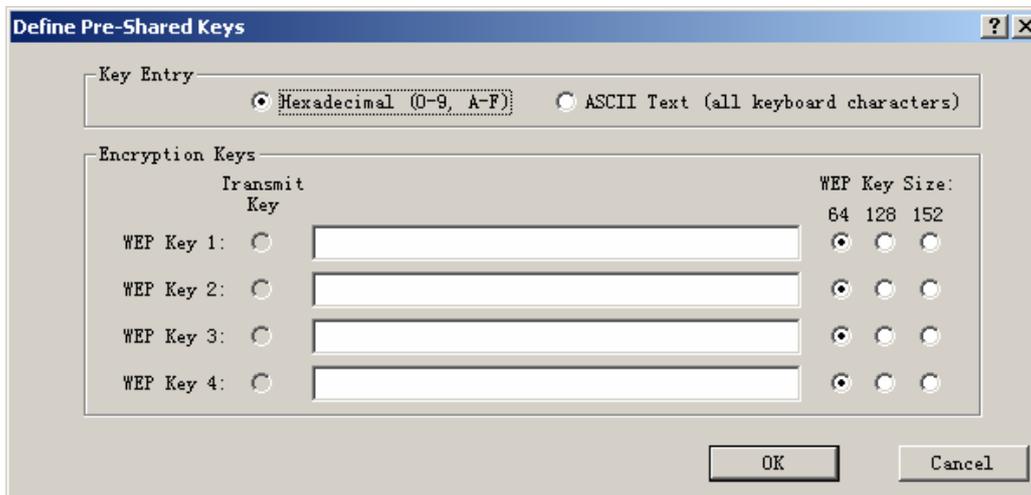


Figure 3-6 Define Shared Keys

3. Edit the Advanced tab

➤ **Power Save Mode -**

- **Maximum** - Selects maximum mode to let the access point buffer incoming messages for the wireless adapter. The adapter will detect the access point if any messages are waiting periodically.
- **Normal** - In Normal mode, the adapter will be switched to maximum mode automatically when no large packets are retrieved.
- **Off** - turns power saving off, thus powering up the wireless adapter continuously

for a short message response time.

- **Network Type:** Select Infrastructure from the drop-down list.
- **802.11b Preamble** - Specifies the preamble setting in 802.11b. The default setting is Short & Long (access point mode), which allows both short and long headers in the 802.11b frames. The adapter can only use short radio headers if the access point supports and uses them. Set to **Long Only** to override allowing short frames.
- **Wireless Mode** - Specifies 2.4 GHz 54 Mbps, 2.4 GHz 11 Mbps, operation in an access point network. The wireless adapter must match the wireless mode of the access point with which it associates
- **Wireless Mode when Starting an Ad Hoc Network** - 2.4 GHz, 54/11Mbps to start an Ad Hoc network if no matching network name is found after scanning all available modes. This mode also allows the selection of the channel the wireless adapter uses. The channels available depend on the regulatory domain. If the adapter finds no other ad hoc adapters, the channel that the adapter starts the ad hoc network with will be selected automatically. The wireless adapter must match the wireless mode and channel of the clients it associates.
- **802.11 Authentication Mode** - Select which mode the wireless adapter uses to authenticate to an access point:
  - **Auto** causes the adapter to attempt authentication using shared, but switches it to open authentication if shared fails.
  - **Open** enables an adapter to attempt authentication regardless of its WEP settings. It will only associate with the access point if the WEP keys on both the adapter and the access point match.
  - **Shared** only allows the adapter to associate with access points that have the same WEP key.

For infrastructure (access point) networks, click **Preferred APs...** to specify up to four access points to the client adapter that attempts to be associated to the access points.

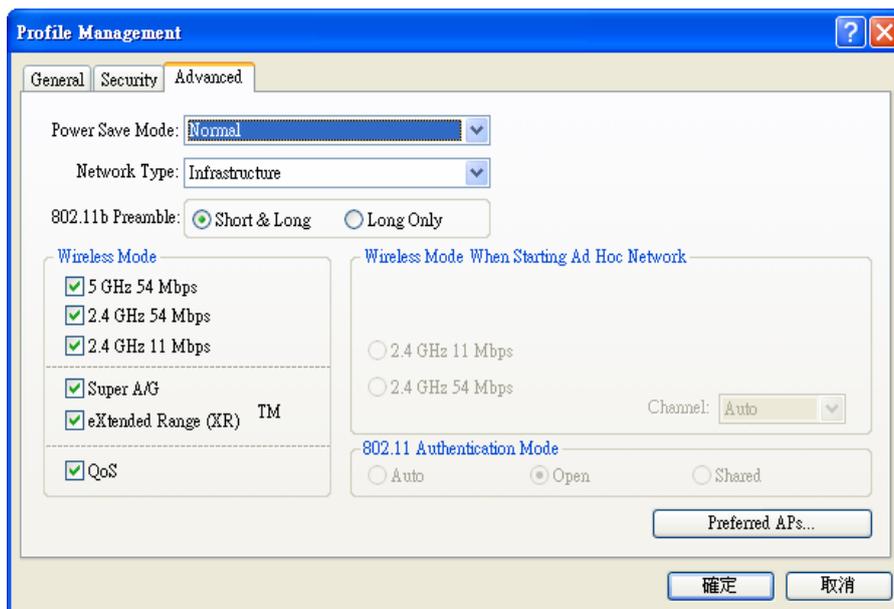


Figure 3-7 Advanced tab of Profile Management

### 3.2.2 Remove a profile

1. Go to the Profile Management tab.
2. Select the profile name to remove in the Profiles List.
3. Click **Remove**.

### 3.2.3 Switch another Profile

1. Go to the Profile Management tab.
2. Click on the profile name in the Profiles List.
3. Click **Activate**.

### 3.2.4 Import a Profile

1. From the Profile Management tab, click **Import...** The Import Profile will then appear.
2. Browse to the directory where the profile is located.
3. Highlight the profile name.
4. Click **Open**, the imported profile will then appear in the Profiles List.

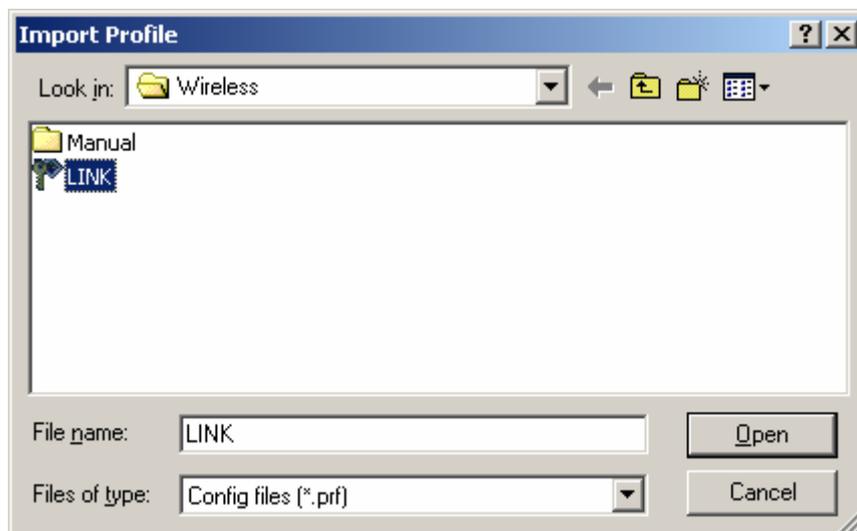


Figure 3-8 Import Profile Dialog

### 3.2.5 Export a Profile

1. From the Profile Management tab, highlight the profile to export.
2. Click **Export...**, the Export Profile window will then appear.
3. Browse the directory to export the profile to.
4. Click **Save**. The profile should then be exported to the specified location.

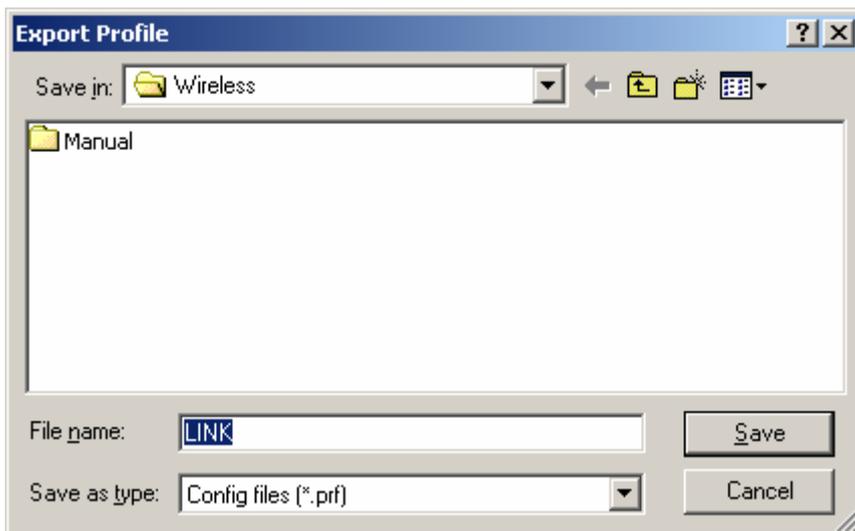


Figure 3-9 Export Profile Dialog

### 3.2.6 Scan Available Networks

1. Click **Scan** on the Profile Management, the Available Infrastructure and Ad Hoc Networks window will appear.
2. Click **Refresh** to refresh the list at any time.
3. Highlight a network name and click **Activate** to connect an available network. If no configuration profile exists for that network, the Profile Management window will open the General tab. Fill in the Profile name and click **OK** to create the configuration profile for that network.

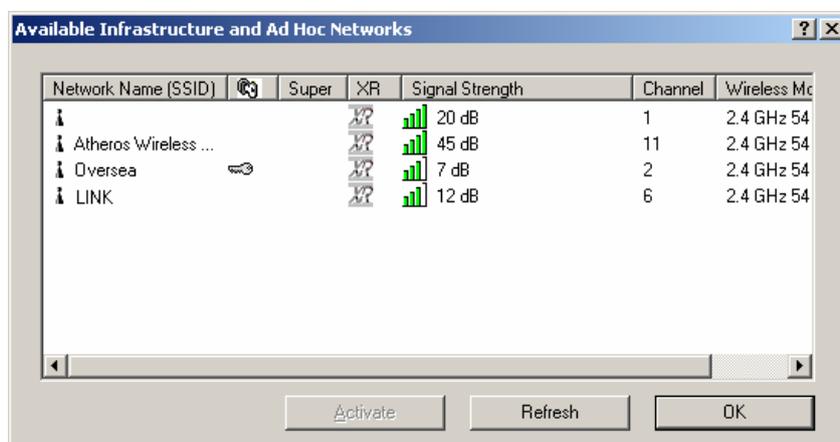


Figure 3-10 Scan Available Networks Dialog

### 3.2.7 Auto Profile Selection Management

The auto selection feature allows the wireless adapter to automatically select a profile from the list of profiles and use it to connect to the network. To add a new profile into the Auto Selected Profiles list, please follow these steps.

1. On the Profile Management tab, click **Order Profiles....**
2. The Auto Profiles Selection management window will appear, with a list of all created profiles in the Available Profiles box.
3. Highlight the profiles to add to auto profile selection, and click **Add**. The profile will

appear in the Auto Selected Profiles box.

4. Highlight a profile in the Auto Selected Profiles box.
5. Click **Move Up** or **Move Down** as appropriate. Note: The first profile in the Auto Selected Profiles box has highest priority, and the last profile has lowest priority.
6. Click **OK**.
7. Check the **Auto Select Profiles** checkbox on the **Profile Management** tab.

**Note:** When auto profile selection is enabled by checking **Auto Select Profiles** on the **Profile Management** tab, the client adapter will scan for an available network. The profile with the highest priority and the same SSID as one of the found networks will be used to connect to the network. If the connection fails, the client adapter will try the next highest priority profile that matches the SSID until an available network is found.

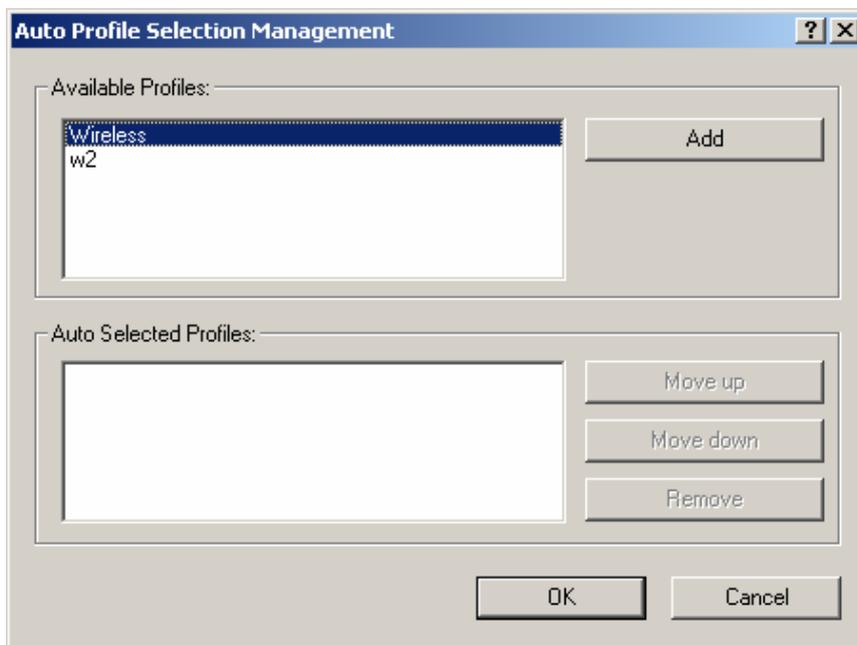


Figure 3-11 Auto Profile Selection Management Dialog

### 3.3 Diagnostics

The **Diagnostics** tab of the Wireless Client Utility (WCU) provides buttons used to retrieve receiving and transmitting statistics. The Diagnostics tab does not require any configuration.

The Diagnostics tab lists the following receive and transmit diagnostics for frames received or transmitted by the wireless network adapter:

- Multicast frames transmitted and received
- Broadcast frames transmitted and received
- Unicast frames transmitted and received
- Total bytes transmitted and received

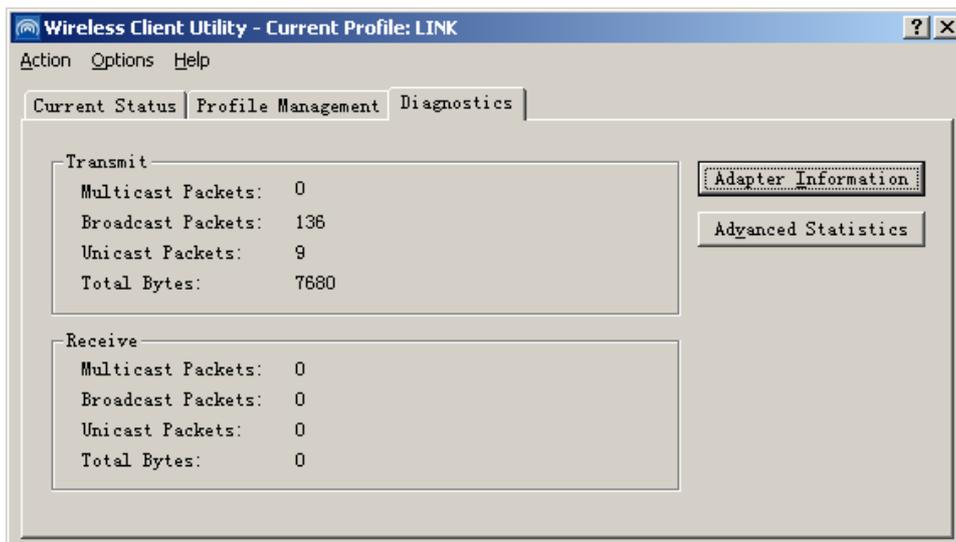


Figure 3-12 Diagnostics tab

### 3.3.1 Check Driver Information

The **Adapter Information** contains general information about the wireless network adapter and the Network Driver Interface Specification (NDIS) driver. Access the adapter information from the Diagnostics tab.

- **Card Name** - The name of the wireless network adapter.
- **MAC Address** - The MAC address of the wireless network adapter.
- **Driver** - The driver name and path of the wireless network adapter driver.
- **Driver Version** - The version of the wireless network adapter driver.
- **Driver Date** - The creation date of the wireless network adapter driver.
- **Client Name** - The name of the client computer.



Figure 3-13 Adapter Information

### 3.3.2 Check Receive and Transmit Statistical Information

The **Advanced Statistics** show receiving and transmitting statistical information for the

following receive and transmit diagnostics for frames received by or transmitted to the wireless network adapter.

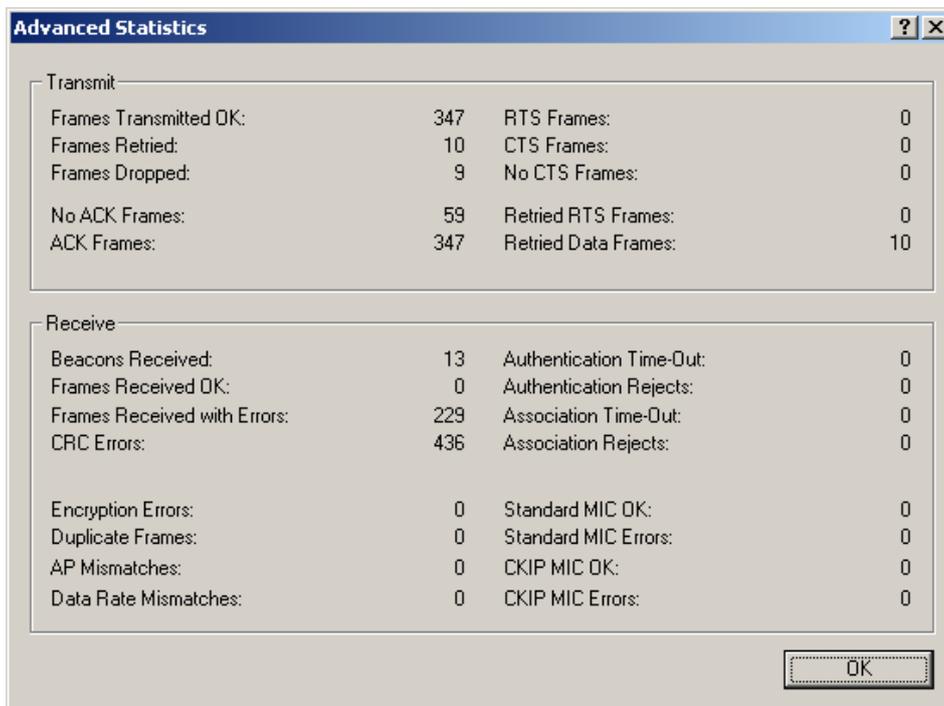


Figure 3-14 Advanced Statistics

## **APPENDIX I**

### **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency 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 of the following measures:

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

**FCC Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

### **IMPORTANT NOTE:**

#### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

**This device is intended only for OEM integrators under the following conditions:**

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna,
- 3) For all products market in US, OEM has to limit the operation channels in CH1 to CH11 for 2.4G band by supplied firmware programming tool. OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.

As long as 3 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

**IMPORTANT NOTE:** In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID: NI3-MP36006001 can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

### **End Product Labeling**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: NI3-MP36006001".

### **Manual Information To the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.