Q72WLANTUBGR

802.11b/g WLAN USB User Manual

Contents

1 Introduction

1.1 Product introduction

The 54M Wireless USB Adapter is a USB 2.0 pen-size wireless adapter supporting IEEE 802.11b/g 2.4GHz radio operation. It provides high-speed wireless connection with data rate up to 54Mbps.   Additionally, wireless roaming allows the user to move among different APs without losing the current connection. The adapter provides excellent security features including：TKIP, AES, WPA, and up to 128 bit WEP encryption security making the network almost impenetrable.
Featuring high performance transmission rates, simple installation and adaptability, as well as strong security, the CNE Wireless USB Adapter is the perfect solution for small office and home uses
.
LED Status:
The LED on the top of this card indicates Link/Act status. It blinks at green light when sending and receiving data.

1.2 Main Features

● Complies with IEEE802.11g, IEEE802.11b standards

● Supports WPA data security, IEEE802.1x authentication, TKIP/AES encryption,

64/128-bitWEP encryption

● Supports 54/48/36/24/18/12/9/6Mbps or 11/5.5/2/1Mbps wireless LAN data transfer

rates

● Provides USB interface

● Supports Ad-Hoc and Infrastructure modes

● Supports roaming between access points when configured in Infrastructure mode

● Eases configuration and provides monitoring information

● Internal Antenna

1.3 System Requirements
• A computer or laptop with an available USB 2.0 port
• Windows 98SE, Windows® 2000 (Service Pack 4), XP (Service Pack 2), ME.
• CD-ROM Drive
• 300MHz processor and at least 64MB of RAM
• A draft 802.11b/g access point (for Infrastructure mode).

2 Installation Guide

This chapter will walk you through the installation process. If you have a built-in wireless adapter, please disable it in device manager before installing your wireless USB adapter. Also, if you have previously installed another wireless adapter, please make sure any software is uninstalled.

Before installing your new wireless USB adapter, please verify the following:
• Remove any previous installations of wireless adapters.
• Disable any built-in wireless adapters.
• Verify the settings such as the SSID and security settings of the network(s) you want to connect to.
If you need instructions as to how to remove the old driver or existing unused Installations and several of the above, please refer to the next section Uninstall Software.

2.1 Software Installation

2.1.1 Overview

The Adapter's Setup Wizard will guide you through the installation procedure for Windows 98SE, ME, 2000 and XP. The Setup Wizard will guide you install the Utility and drivers.
If you install the hardware before the software, you will be prompted "Found New Hardware Wizard", click the **Cancel** button, and run the Setup Wizard program on the CD-ROM.
All of following sections are written based on Windows XP. Note that the comments and conditions for other OS platforms may be different from this chapter.

2.1.2 Software Installation
1. Insert the Resource CD into your CD-ROM drive, double click the driver to installing button, *Figure 2-1* should then appear.
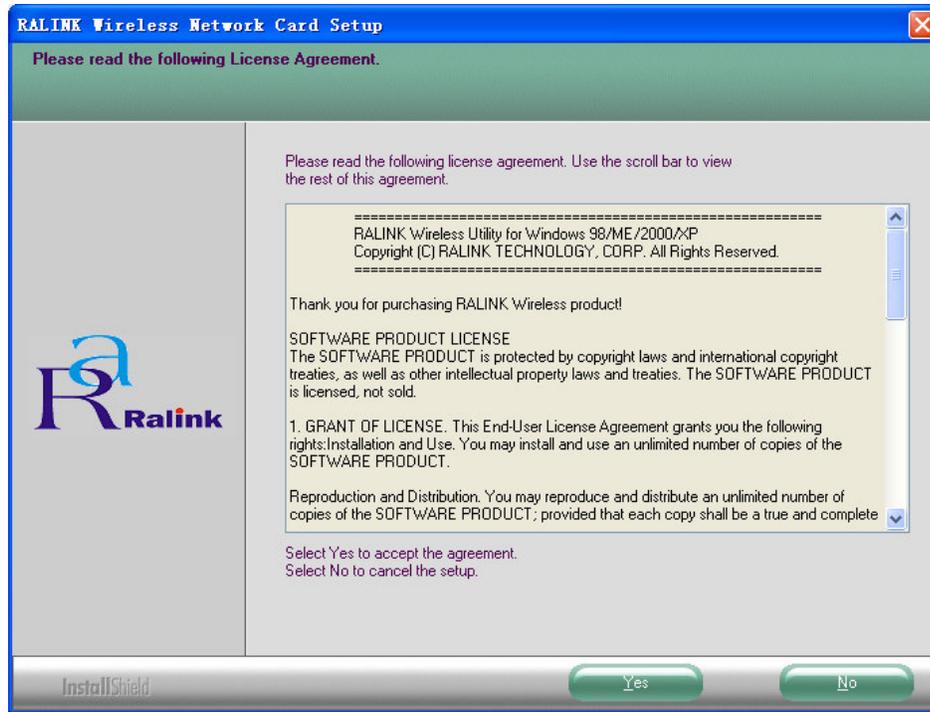
Figure 2-1 Preparing Setup

2. You will see a warning box shown in *Figure 2-1,* click the **No** button to end the installation. Otherwise, click the **Yes** button to install driver, the Setup Wizard will display a screen similar to that shown in *Figure 2-2* after a moment.
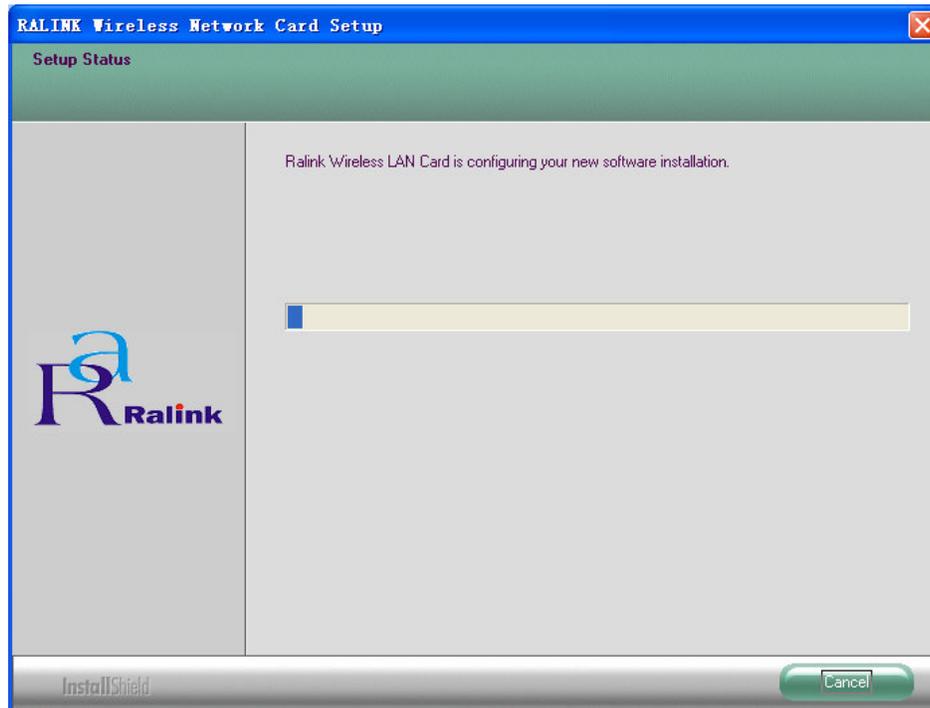
Figure 2-2 Start Setup

3. To continue, please wait for running automatically for a moment, *Figure 2-2*. Click the **Cancel** button to end the Installation.

4. The soft install automatically in the operating system, and appear a dialog box *Figure 2-3*. Now, only a thing which you can do is Waiting!
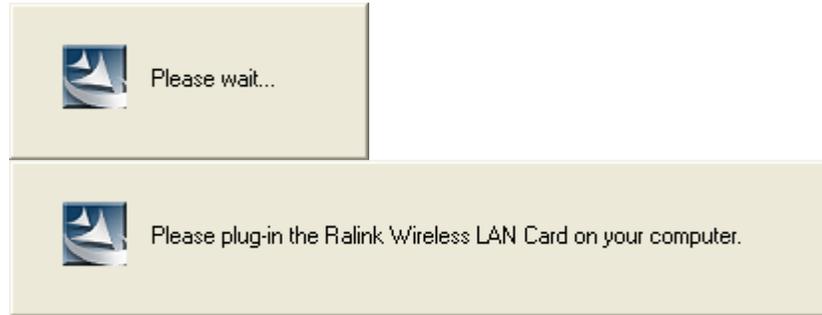
Figure 2-3 waiting state dialog box

5. After the files have been successfully installed, the screen in *Figure 2-4* will appear. Click the **Finish** button to finish the wizard.
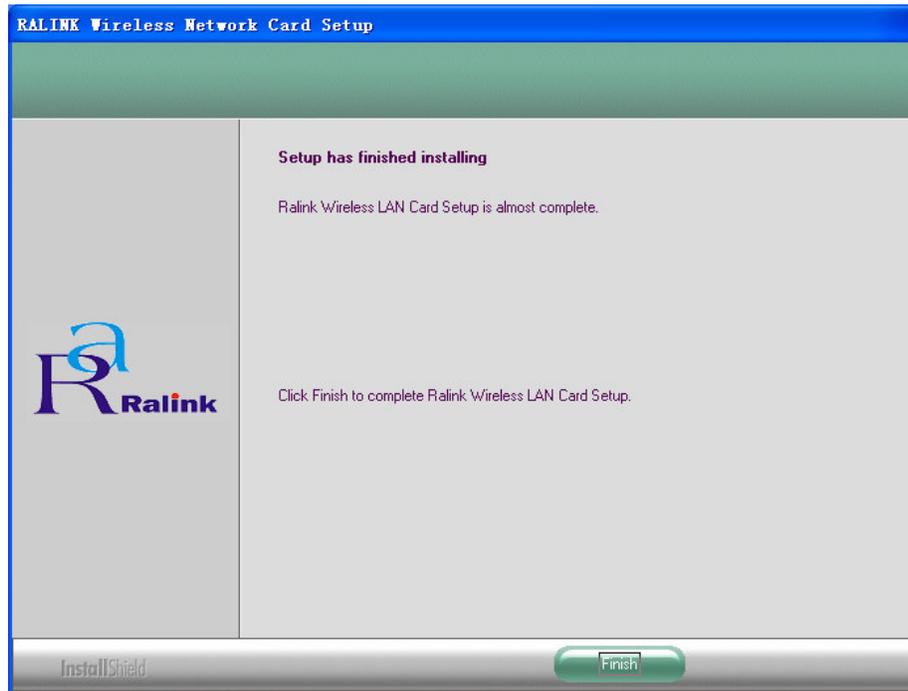
Figure 2-4 Finish installing

6. After installing the software, Please plug the adapter into your PC. If you need instructions as to how to do this, please refer to next section - Hardware Installation. If you have plugged it into you PC already, please unplug it and plug it back in. The

OS will automatically detect the adapter and automatically setup the driver for the adapter. If it does not, please follow the setup steps to finish the driver installation.

After installing the driver successfully, you should see an icon appear in your system icon box.

2.2 Uninstall Software

2.2.1 Uninstall the utility software

If you've installed a different manufacture's adapter or a different model 802.11b/g wireless USB adapter, make sure the software is uninstalled before installing the new software. Some utilities may cause a conflict with the new software. If you plan to use multiple adapters at different times, make sure the utilities are not set to load when your computer boots up.

To remove any old software in Windows XP:

1. On the Windows taskbar, click the **Start** button, point to **Settings**, and then click **Control Panel.**

Figure 2-5 uninstall utility

2. Double-click the **Add/Remove Programs** icon, find the **Ralink wireless LAN Card** program from the installed program list, highlight it and click the **Remove** button, the screen in *Figure 2-5* will appear.
3. Following the Install Shield Wizard will uninstall the utility software from your PC.

2.2.2 Uninstall the driver software

Most newer laptops may include a built-in wireless adapter. To prevent any conflicts with the 802.11b/g wireless USB adapter, this section describes how to uninstall any old or unused Ethernet Adapters and the driver for Ralink wireless adapter from your PC.

1. From the desktop, right-click on the **My Computer** icon and select **Properties.**

2. Click the **Hardware** tab and then click **Device Manager**. Scroll down the list and click the **+** sign to the left of **Network Adapters**, show in *Figure 2-6*.
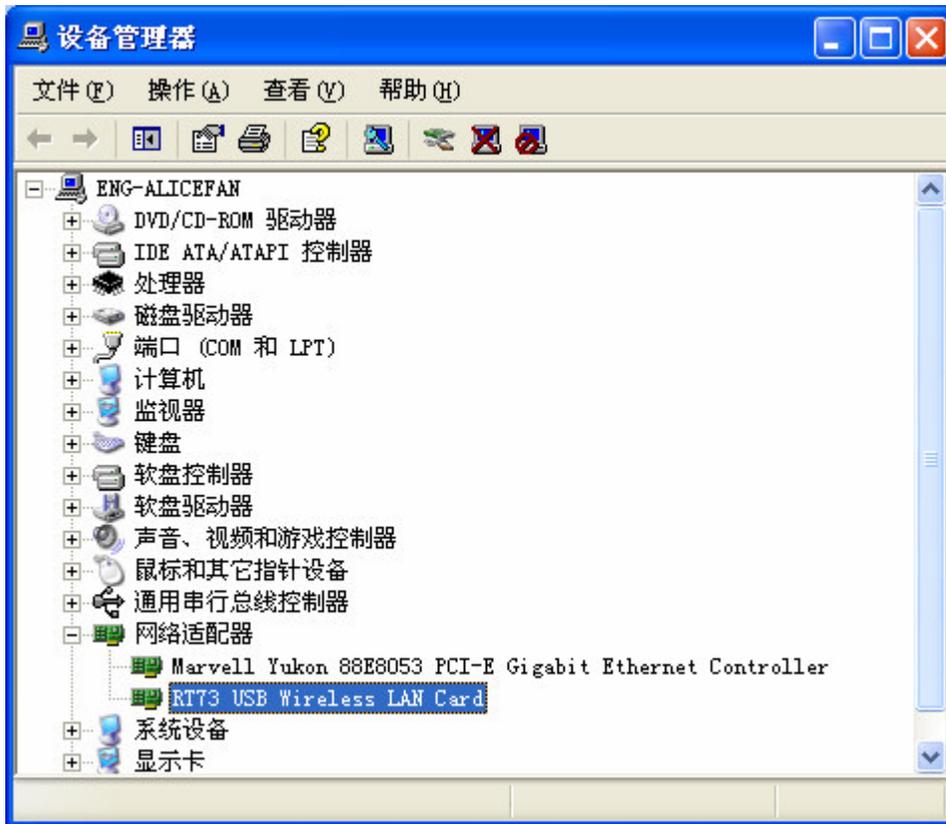
Figure 2-6 the adapter hardware

3. Right-click the adapter you would like to uninstall and select **Unistall**.

Figure 2-7 uninstall the driver

4. Click **Yes** to uninstall the adapter.

2.3 Hardware Installation

1. Connect one end of the USB cable to the Adapter.

2. Connect the other end of the USB cable to the USB port on your computer. Because the Adapter gets its power from the host, there is no external power supply. The LED should light up when the Adapter is plugged in and the PC is on.

3 Configuration

CNE 802.11b/g Wireless USB Adapter can be configured by its utility. This chapter describes how to configure your Wireless USB Adapter for wireless connectivity on your Wireless Local Area Network (WLAN) and use the data security encryption features.

After the Adapter's driver and utility has been installed, the adapter's tray icon 🔵 or 🔴 will appear in your system tray. It means the utility is running on your system. If the utility does not run, you can run the utility by clicking: **Start> Program>RaLink Wireless> RaLink Wireless Utility**. If the icon still does not appear, the driver or utility may be installed incorrectly or the adapter is unplugged, please try again.
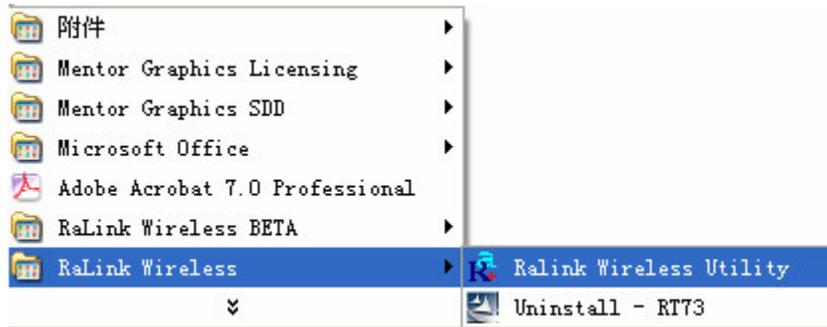
Figure 3-1 start-up the Utility

Icon 🔵 means the connection has been established. Icon 🔴 means there is no connection.

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

● Display current status information

● Edit and add configured profiles

● Display current diagnostics information

The section below introduces these above capabilities.

Right-click the icon 🖼 at the bottom of the screen, and click **Exit** to exit the utility.

3.1 Profile

Click the **Profile** tab of the utility and the **Profile** screen will appear, *Figure 3-2*. The
Profile screen provides tools to:
- Add a Profile
- Delete a profile
- Edit a profile
- Activate a profile
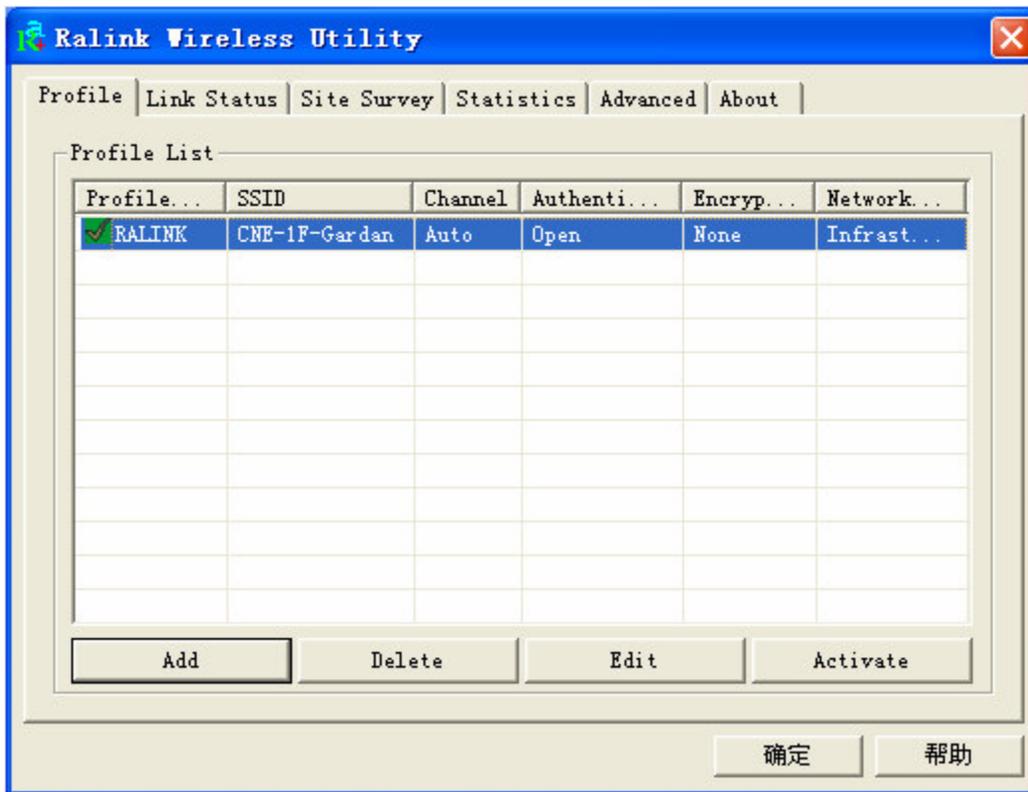
Figure 3-2 Profile Tab

To create a new profile, click the **Add** button on the Profile tab, the **Profile**
configuration screen will appear as shown in *Figure 3-2*.

To edit a profile, highlight the desired profile name on **Profile Name** list, and click the
Edit button, the **Profile** configuration screen will appear shown in *Figure 3-1*.

To delete a profile, highlight the desired profile name on **Profile Name** list, and click
the **Delete** button.

To switch to another profile, highlight the desired profile name on **Profile Name** list, and click the **Activate** button.

* **Note:**
Do not forget to click the **Apply** button when you create a new profile for connection.

To add a new configuration profile, click **Add** button on the Profile Management tab. To modify a configuration profile, select the configuration from the Profile list and click **Edit**. The Profile Management dialog box will display a screen similar to that shown in *Figure 3-3.*

1. Edit the Configuration tab
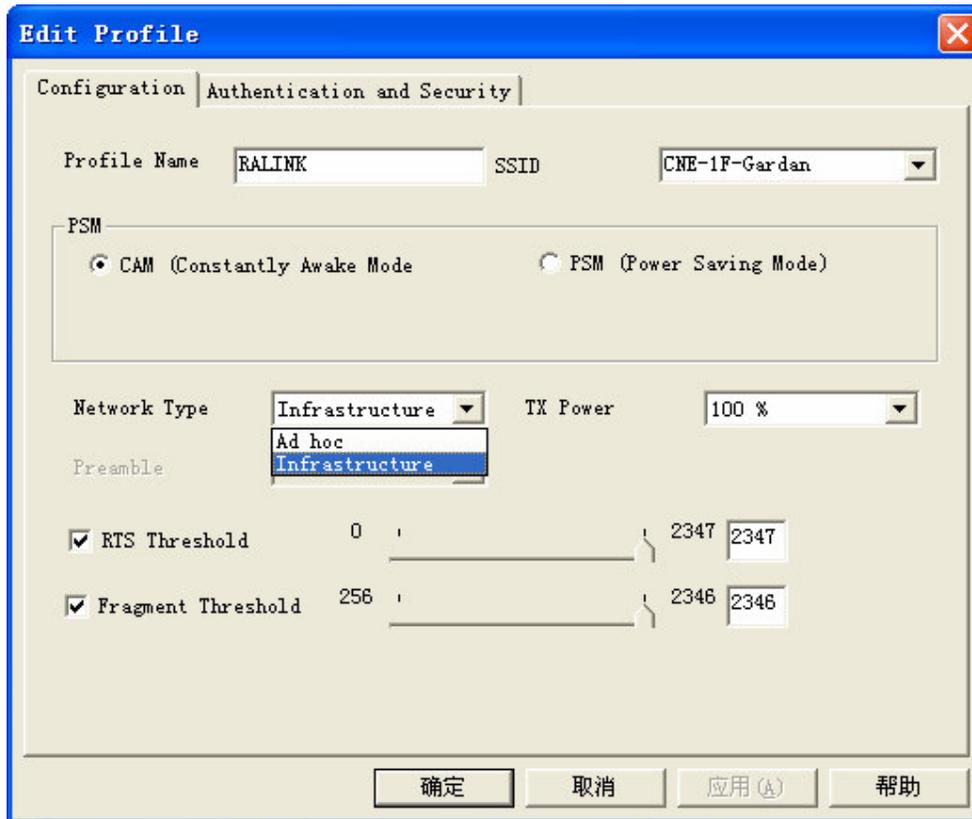
Figure 3-3 Add Profile – configuration

● **Profile Name -** Identifies the configuration profile. This name must be unique. Profile names are not case-sensitive.

● **SSID -** The IEEE 802.11 wireless network name. This field has a maximum limit of 32 characters.

● **PSM (Power Save Mode)**

►**CAM (Constantly Awake Mode) –** Continuous Access Mode.

►**PSM (Power Saving Mode) -** Power Saving mode.

● **Network Type –** Displays the wireless mode, either Ad-hoc or Infrastructure mode.

● **Preamble –** Specifies the preamble setting in 802.11b. The default setting is Auto Switch (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.

● **RTS Threshold –** Default is 2312.

● **Fragment Threshold –** Default is 2312.

● **Ad-hoc mode –** Displays the wireless mode, either Only 802.11b or 802.11b/g mode.

● **Channel –** Shows the current channel in use. This field determines which operating frequency will be used.

2. Edit the Authentication and Security tab
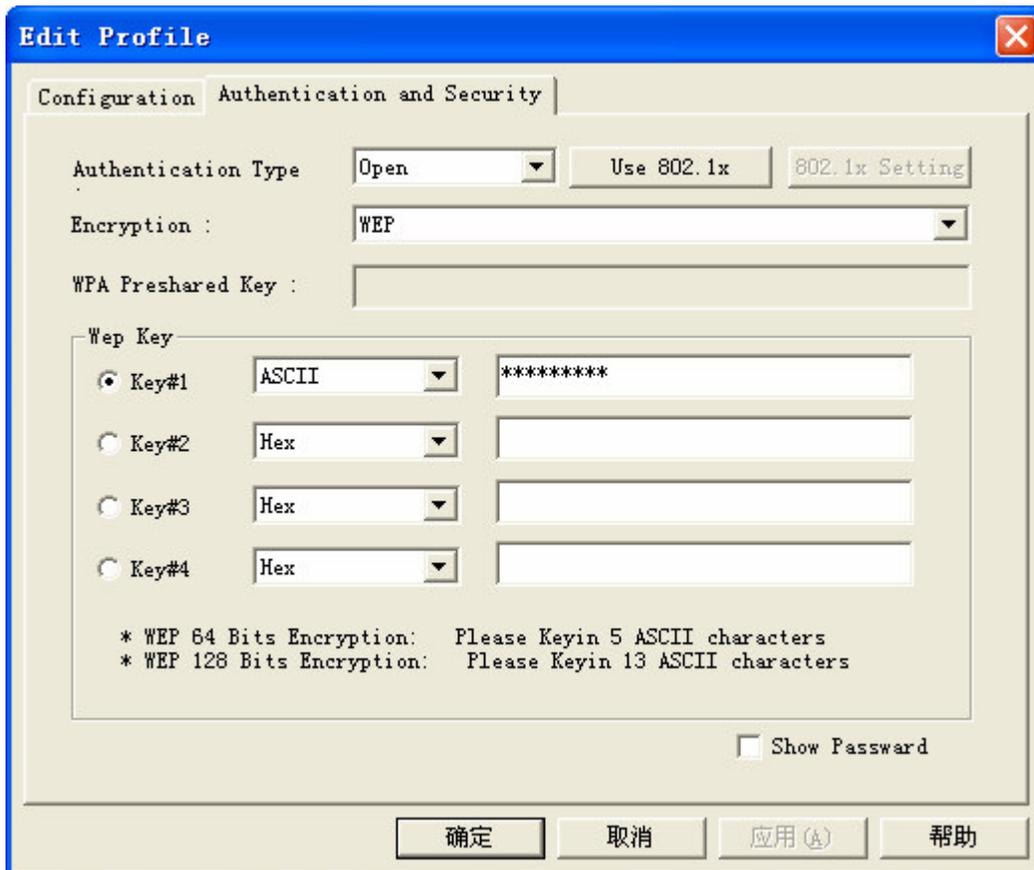
Figure 3-4 Add Profile – configuration

● **Authentication Type –** Three options, **Open System**, **Shared-Key System** or **LEAP.**

● **802.1x Setting –** It enables when Authentication Type is setting to WPA.

● **Encryption –** Displays which encryption type that the driver is using. When you select **Open System**, **Shared-Key System** as **Network Authentication,** there are two options: **WEP** and **None**. If you select **WPA-PSK** as **Network Authentication,** there are **TKIP** and **AES** options instead of **WEP** and **None.**

● **Wep Key –** Key #1, Key #2, Key #3, Key #4, the Key groups. You can enter 10 hexadecimal digits (any combination of 0-9, a-f, A-F) or 5 ASCII characters for 64-bit (also called 40bits) encryption. You can enter 26 hexadecimal digits (any combination of 0-9, a-f, A-F) or 13 ASCII characters for 128-bit (also called 104bits) encryption.

3.2 Link Status

The Link Status tab *Figure 3-5* displays the adapter's current status.
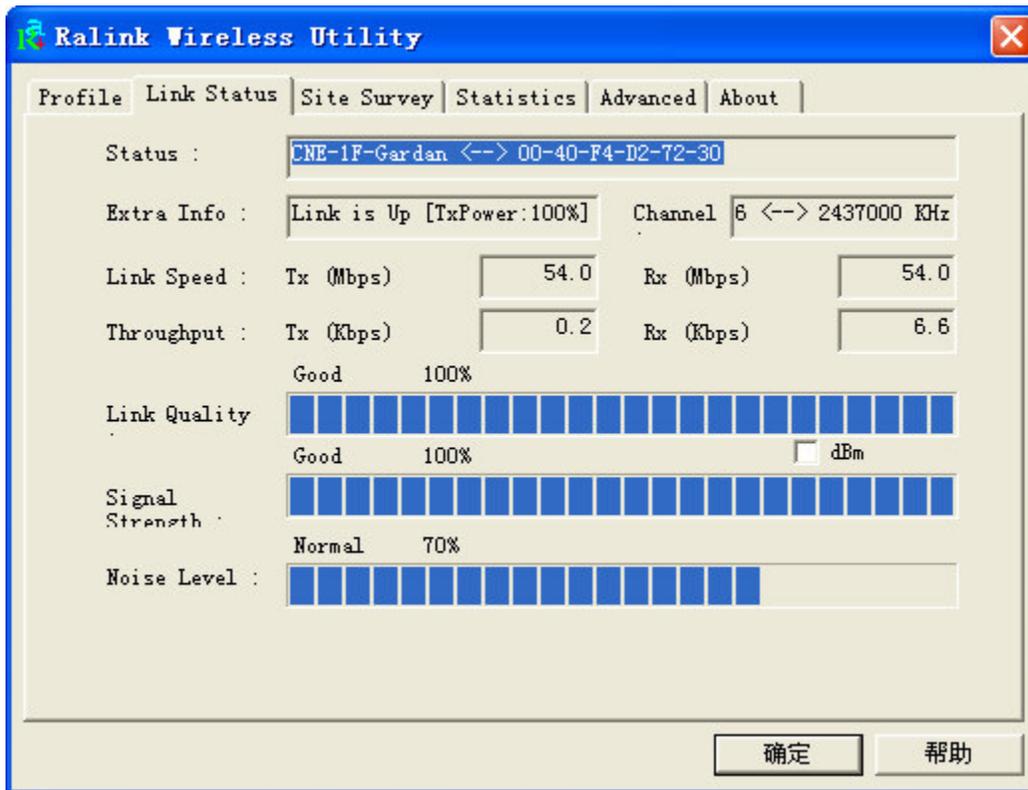
Figure 3-5 Link Status

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

● **Status -** Shows whether the station is connected to the wireless network, if not connected, display **RF is closed**; if connected, display AP name and BSSID.

● **Extra Info -** Shows link status and the current channel in use.

● **Link Speed -** Shows the current max Transfer rate, unit is Mbit/sec.

● **Throughput -** Displays Tx and Rx rate, unit is Kbits/sec.

● **Link Quality -** Shows the quality of the signal.
● **Signal Strength -** Shows the strength of the signal.

3.3 Site Survey

Click the **Site Survey** tab of the Utility and the **Site Survey** screen will appear, *Figure 3-6*. On the **Site Survey** screen you can scan the Available Infrastructure and Ad Hoc Networks.

Figure 3-6 Site Survey tab

Click the **Rescan** button to refresh the list at any time. Highlight an SSID and click the **Connect** button to connect to an available network.

3.4 Statistics

The **Statistics** tab as *Figure 3-7* shows receiving and transmitting statistical information for the following receive and transmit diagnostics for frames received by or transmitted to the wireless network adapter.
Click the **Reset Counter** button to reset the count of the statistics information.
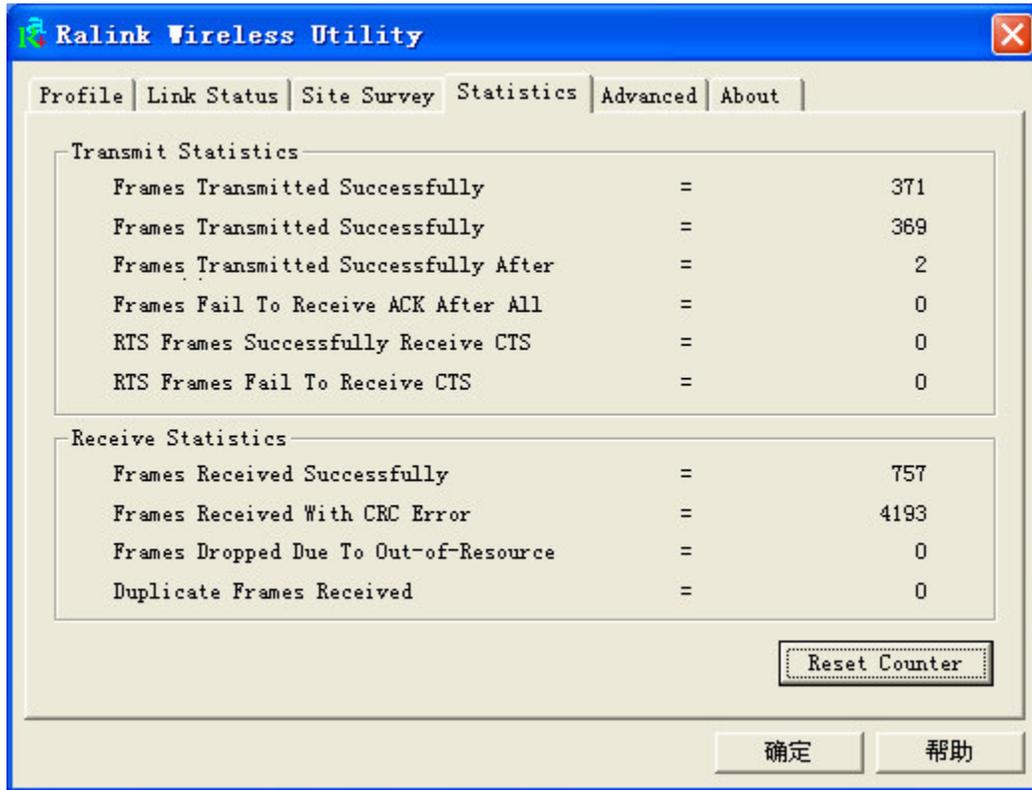
Figure 3-7 Statistics tab

3.5 Advanced

On this Screen, you can configure the WEP key or view the configured WEP key.
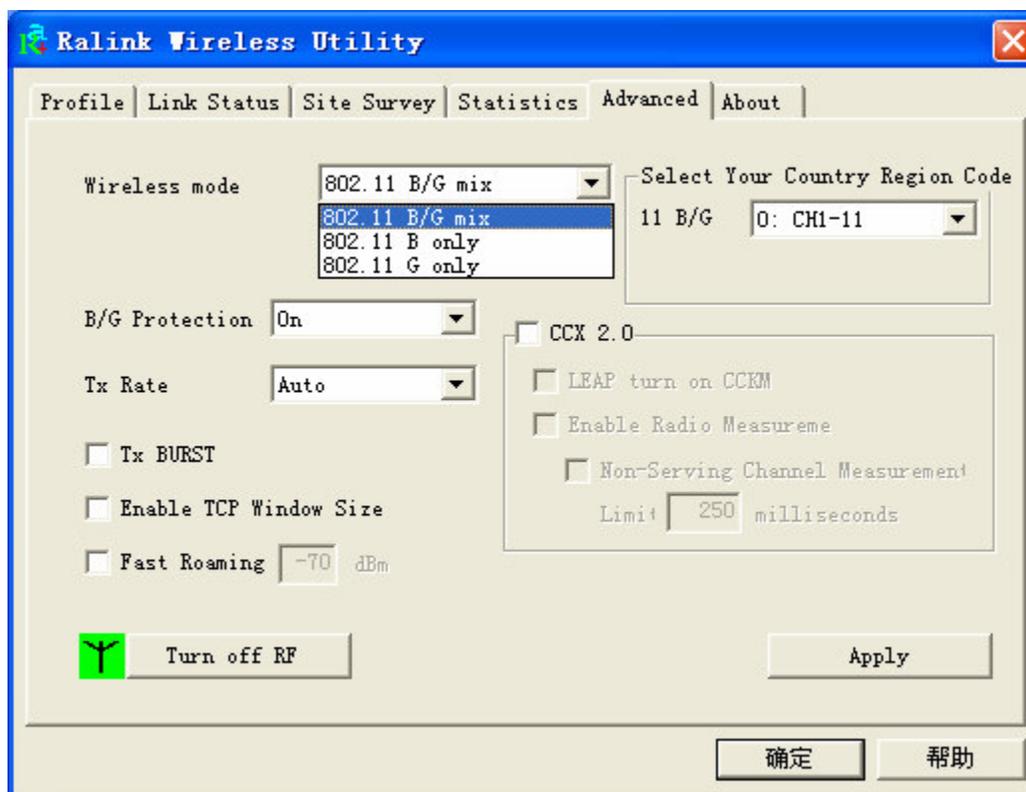
Figure 3-8 Advanced

● **Wireless mode** - Displays the wireless mode, either 802.11b/g mix or 802.11b only.

● **B/G Protection** - There are three options: either Auto or Enable, or Close.

● **Tx Rate** - Shows the current Transfer rate.

● **Tx BURST** - It can translate more data when it enables.

● **Fast Roaming** - Roaming will disable when Transmit Power is below some dBm.

● **Turn off RF** - The wireless radio of this adapter can be enabled or disabled. You can turn the wireless radio off by selecting the check-box.

● Apply - Click the Apply button to save the current setting.

3.6 About

This screen displays some information about this adapter, including Driver Date, Driver Version, Utility Date, RaConfig Version, EEPROM Version, Firmware Version, IP Address, Phy_ Address, Sub Mask, Default Gateway.
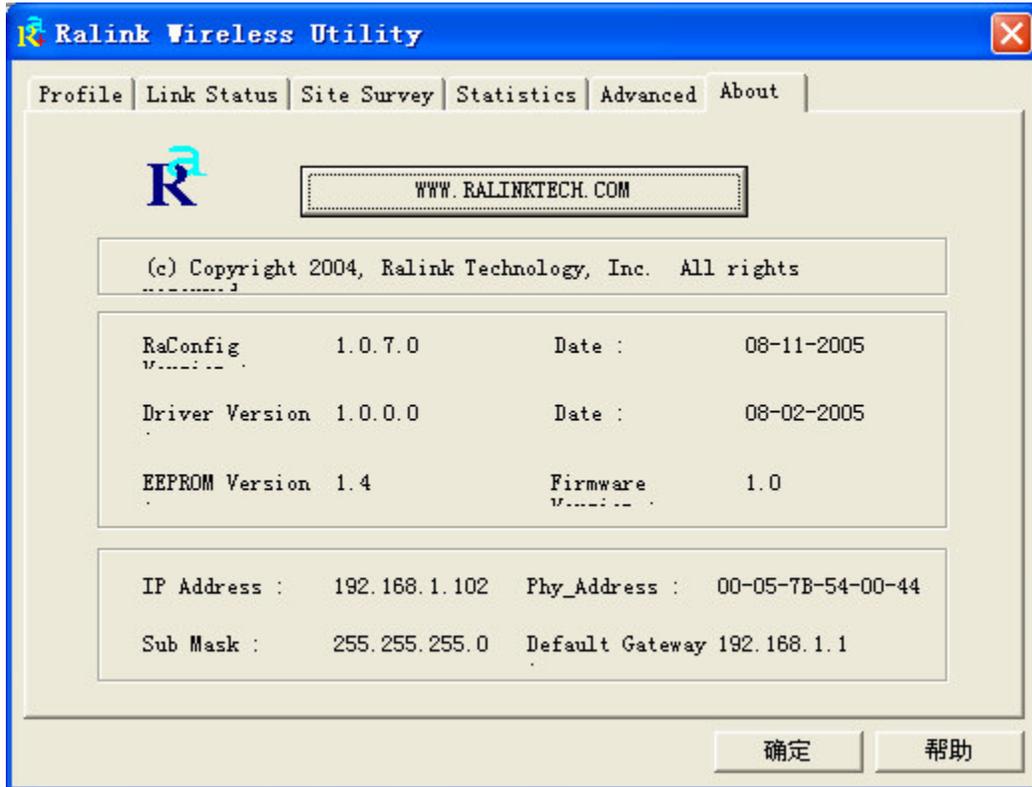
Figure 3-9 About

●**RaConfig Version -** The version of this utility.

● **Utility Date -** The creation date of this utility.

● **Driver Version -** The version of the wireless network adapter driver.

● **Driver Date -** The creation date of the wireless network adapter driver.

● **EEPROM Version -** The version of this EEPROM.

● **IP Address -** The IP address of the wireless network.

● **Phy_Address -** The MAC address of the wireless network adapter.

● **SubMask -** The subnet mask of the wireless network.

● **Default Gateway -** The default gateway of the wireless network.

3.7 An example for application

Suppose you have an installed and using AP, the SSID is wireless USB adapter and it adopts 64-bit encryption with the key 0123456789. To establish a connection with this AP, you should follow these steps below:

1. Launch this Ralink WIRELESS UTILITY Utility.
2. Click the **Profile** tab of the utility and click the **New** button on the screen that appears.
3. The Profile configuration screen will appear, please enter *Test* for the Profile Name, Ralink for the SSID, select *Infrastructure* for the Network Mode, select *WEP* for the Data Encryption and enter *0123456789* for Network key.
4. Click **OK** to save this profile.
5. Click **Apply** on the Profile screen. The utility will establish a connection with this AP by configured profile.

Appendix A: Glossary

802.11b - The 802.11b standard specifies a wireless networking at 11 Mbps using direct-sequence spread-spectrum (DSSS) technology and operating in the unlicensed radio spectrum at 2.4GHz, and WEP encryption for security. 802.11b networks are also referred to as Wi-Fi networks.

802.11g - specification for wireless networking at 54 Mbps using direct-sequence spread-spectrum (DSSS) technology, using OFDM modulation and operating in the unlicensed radio spectrum at 2.4GHz, and backward compatibility with IEEE 802.11b devices, and WEP encryption for security.

DSSS (**D**irect-**S**equence **S**pread **S**pectrum) **-** DSSS generates a redundant bit pattern for all data transmitted. This bit pattern is called a chip (or chipping code). Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the receiver can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers. However, to an intended receiver (i.e. another wireless LAN endpoint), the DSSS signal is recognized as the only valid signal, and interference is inherently rejected (ignored).

FHSS (**F**requency **H**opping **S**pread **S**pectrum) **-** FHSS continuously changes (hops) the carrier frequency of a conventional carrier several times per second according to a pseudo-random set of channels. Because a fixed frequency is not used, and only the transmitter and receiver know the hop patterns, interception of FHSS is extremely difficult.

Infrastructure Network - An infrastructure network is a group of computers or other devices, each with a wireless adapter, connected as an 802.11 wireless LAN. In infrastructure mode, the wireless devices communicate with each other and to a wired network by first going through an access point. An infrastructure wireless network connected to a wired network is referred to as a Basic Service Set (BSS). A set of two or more BSS in a single network is referred to as an Extended Service Set (ESS). Infrastructure mode is useful at a corporation scale, or when it is necessary to connect the wired and wireless networks.

Spread Spectrum - Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communications systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread-spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).

SSID - A **S**ervice **S**et **Id**entification is a thirty-two character (maximum) alphanumeric key identifying a wireless local area network. For the wireless devices in a network to communicate with each other, all devices must be configured with the same SSID. This is typically the configuration parameter for a wireless PC card. It corresponds to the ESSID in the wireless Access Point and to the wireless network name.

WEP (**W**ired **E**quivalent **P**rivacy) **-** A data privacy mechanism based on a 64-bit or 128-bit or 152-bit shared key algorithm, as described in the IEEE 802.11 standard.

Wi-Fi - A trade name for the 802.11b wireless networking standard, given by the Wireless Ethernet Compatibility Alliance (WECA, see http://www.wi-fi.net), an industry standards group promoting interoperability among 802.11b devices.

WLAN (**W**ireless **L**ocal **A**rea **N**etwork) - A group of computers and associated devicescommunicate with each other wirelessly, which network serving users are limited in a local area.

WPA (**W**i-Fi **P**rotected **A**ccess) **-** A wireless security protocol use TKIP (Temporal Key Integrity Protocol) encryption, which can be used in conjunction with a RADIUS server.

Appendix B: Specifications

General	
Interface	A-type USB 2.0 Connector
Standards	IEEE 802.1b; IEEE 802.1g
Operating System	Windows 98SE, ME, 2000, XP
Transmission Distance	In door up to 100m, out door up to 300m (It is limited to the environment).
Frequency	2.4 ~ 2.4835 GHz
Sensitivity	54M -70dBm
	11M -83dBm
Spread Spectrum	Direct Sequence Spread Spectrum (DSSS)
Wireless	
Radio Data Rate	54/48/36/24/18/12/9/6 Mbps 11g OFDM，11/5.5/2/1 Mbps 11b DSSS,(Auto Rate Sensing)
Modulation	11g OFDM , 11b CCK/DSSS
Media Access Protocol	CSMA/CA with ACK
Transmit Power	Typical 15dBm, 18dBm(Max)
Data Security	WPA, 64/128 bit WEP, TKIP/AES, IEEE 802.1X authentication
Physical Environmental	
Working Temperature	0℃～40℃ (32℉～104℉)
Storage Temperature	-40℃～70℃ (-40℉～158℉)
Humidity	10%～90% RH, Non-condensing
Dimensions	77m (L) x 20mm (W) x 4.6mm (H)

THE END

Regulatory Information

FCC Information to User

This product does not contain any user serviceable components and is to be used with approved antennas only. Any product changes or modifications will invalidate all applicable regulatory certifications and approvals.

FCC Guidelines for Human Exposure

Warning:

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Electronic Emission Notices

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

FCC Radio Frequency 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 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 instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interferences, in which case the user will be required to correct the interference at his own expense.

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:

- 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

OEM installation Guide

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

1) The antenna must be installed such that 20cm is maintained between the antenna and users, and
2) The transmitter module may not be co-located with any other transmitter or antenna.

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 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 devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example access points, routers, wireless ADSL modems, and similar equipment). The final end product must be labeled in visible area with the following:

"Contains TX FCC ID: Q72WLANTUBGR"

End Product Manual Information

The user manual for end users must include the following information in a prominent location "IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

IMPORTANT NOTE

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

RF Exposure Info (For mobile configuration)

To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter