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Chapter 1 Product Introduction

Thank you for choosing our wireless adapter!

The wireless adapter supports IEEE wireless standards, and is able to quickly process file transfer, video, multi-media and other applications that require higher bandwidth.

This wireless adapter also integrates wireless configuration program, which makes it easy and quick to set up the wireless client. Besides, Soft AP is supported for fast wireless network establishment, and WPS encryption supported for you to quickly encrypt and secure your wireless network.

All in all, the wireless adapter is easy-to-use, and of robust signal, long transmitting distance.

1.1 Package Contents

- One Wireless network adapter
- One Software CD (includes user guide and driver)

The above list is for your reference only; the actual contents may differ according to the product you purchase.

1.2 Product Features

- Supports soft AP feature
- Detects wireless network and adjusts transmitting rate automatically
- Provides two working modes: Infrastructure and Ad-Hoc
- Supports WEP data encryption and WPA-PSK/WPA2-PSK encryption methods
- Supports WPS (Wi-Fi Protected Setup) encryption to secure your wireless network
- Complies with Windows 7/Windows 8/XP/ 2000/Vista, Linux, MAC OS, etc.

1.3 Product Usage

This Wireless Adapter offers a fast, reliable and extendable solution for wireless access.

It is mostly used in the following circumstances:

1. Enables staff members who require higher mobility, to have access to the wireless network anywhere inside their company.
2. Enables wireless communication for companies or places which are not suitable for wired LAN installation because of budget or building environment restrictions, such as historical buildings, rentals, or places for short-term usage.
3. Suitable for Enterprises or individuals requiring to regularly alter the networking topology
4. Helps enterprises or individuals who would like to use wireless to establish wireless network quickly and frees them from the trouble of cable distribution.

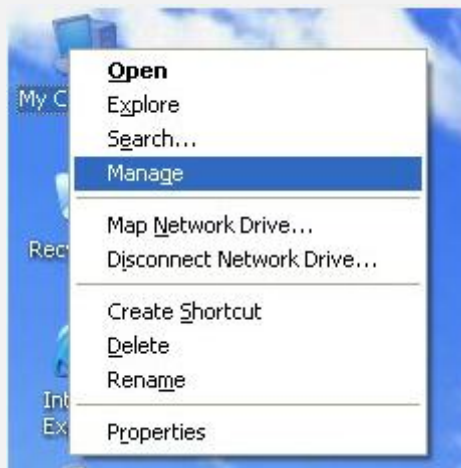
1.4 Before Installation

1. Please read through the whole user guide before you install and use this product.

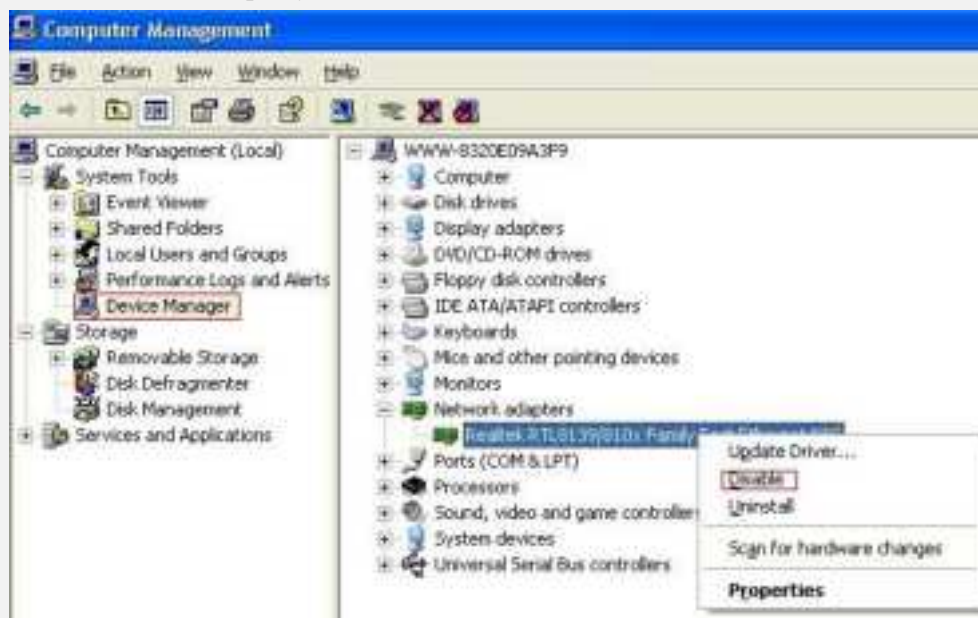
2. Please close or uninstall the configuration programs of other manufacturers' before you install the configuration programs of the network adapters to avoid possible UI (user interface) conflict.
3. To avoid possible network conflicts between this the network adapter and those of other manufactures', we recommend that you first disable the network adapters of other manufacturers before installing the driver.

1.5 Disable other manufacturers' wireless network adapters

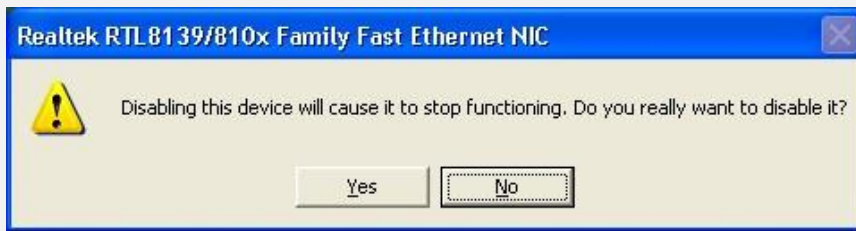
1. Right click "My Computer" and select "Manage"



2. On the Computer Management screen ,select "Device Manager" — "Network adapters", and right click the network adapter you want to disable and click "Disable"



3. Click the "Yes" button on the dialogue box to disable the network adapter.



1.6 Product Maintenance

1. Please keep the product away from water and humid environment to guarantee its normal performance
2. Protect it against hazardous substances (such as acids, alkalis etc).
3. Please don't directly expose the adapter to the sunlight or excessive heat.
4. Please contact our tech support if any problems occur.

Chapter 2 Installation Guide

This chapter will guide you through the process of installing the network adapter software package, with the included software CD. The package integrates driver and configuration software. Thus, when you are installing the driver, the configuration software will be installed automatically as well.

The software installation steps and operating guide in this user guide are explained under Windows XP, Installation steps for other operating systems are similar.

Before you proceed with the installation, please notice the following descriptions.

***Note 1:** The following installation was operated under Windows XP.*

(Procedures are similar for Windows 98SE/Me/2000.)

***Note 2:** If you have installed the WLAN USB driver & utility before, please uninstall the old version first.*

2.1 Install the USB network adapter

2.1.1 Please insert the Wireless USB Adapter into the USB port of your computer.

2.1.2 Ignore the following dialog. Please click "Cancel".



2.1.3 Put the software program CD, then auto installation window pops up on following. Just click **Windows**, the driver should run automatically. (Double click “**Setup.exe**” in the software CD and manually install when it doesn’t auto-run).



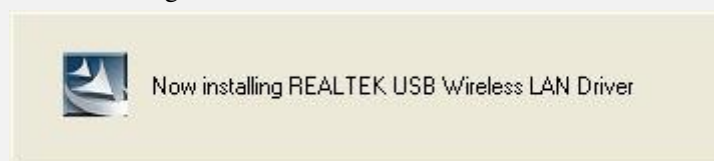
2.1.4 The following window will show up.



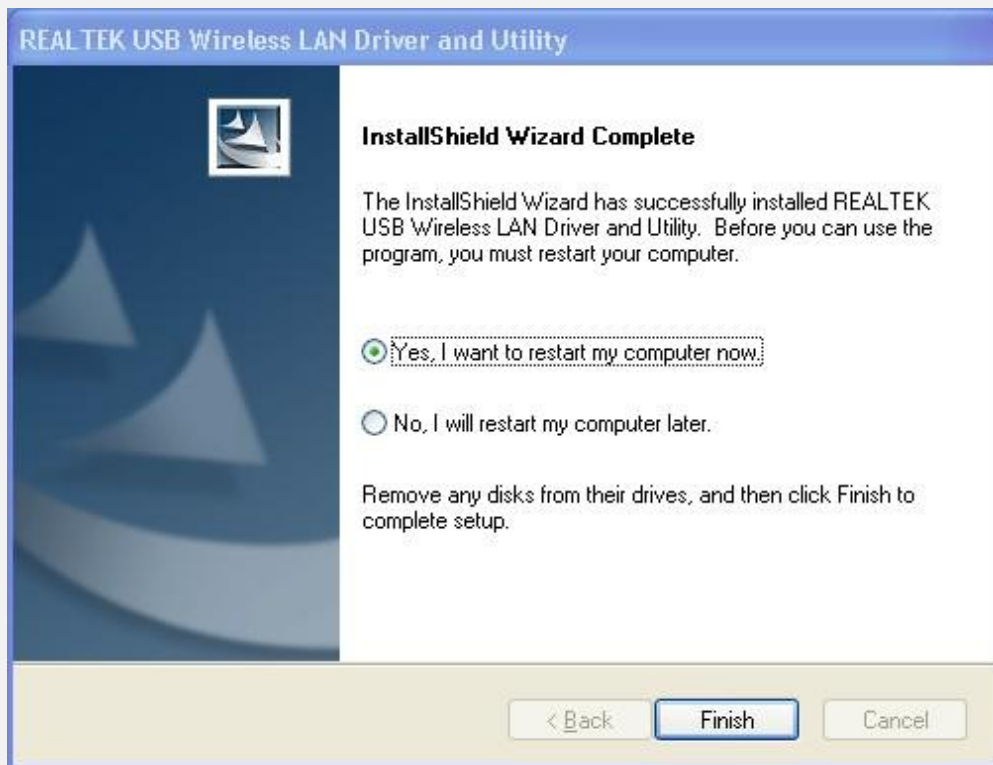
2.1.5 Click “Next” to process the installation.



2.1.6 It shows that it is installing.

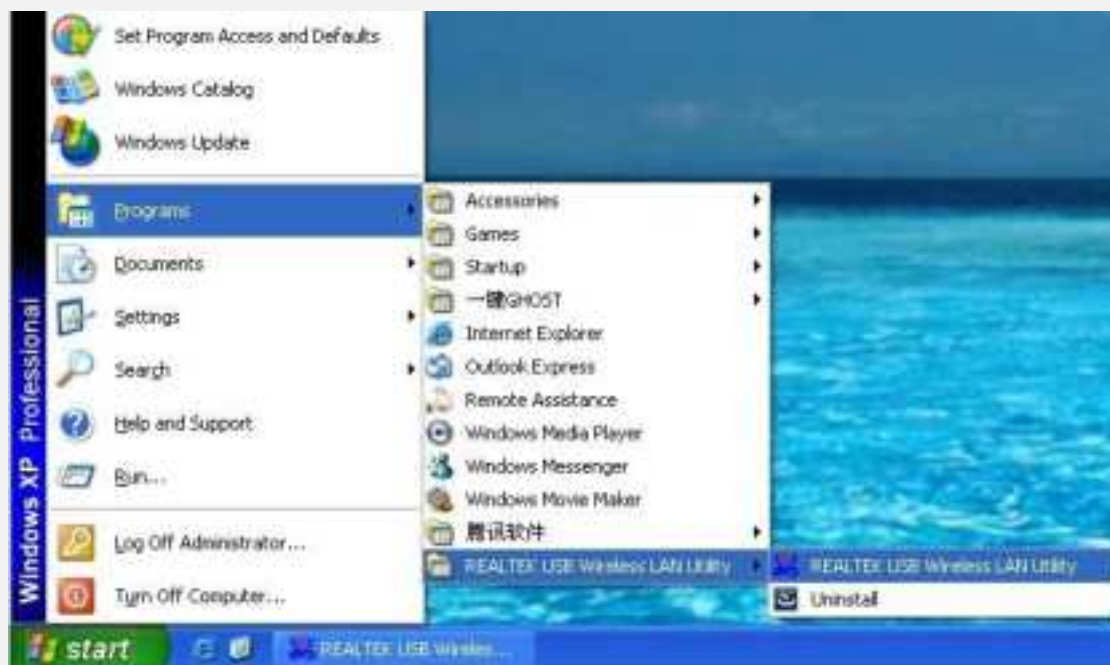


2.1.7 Click “finish” to complete the installation.



Chapter 3 Wireless LAN Utility

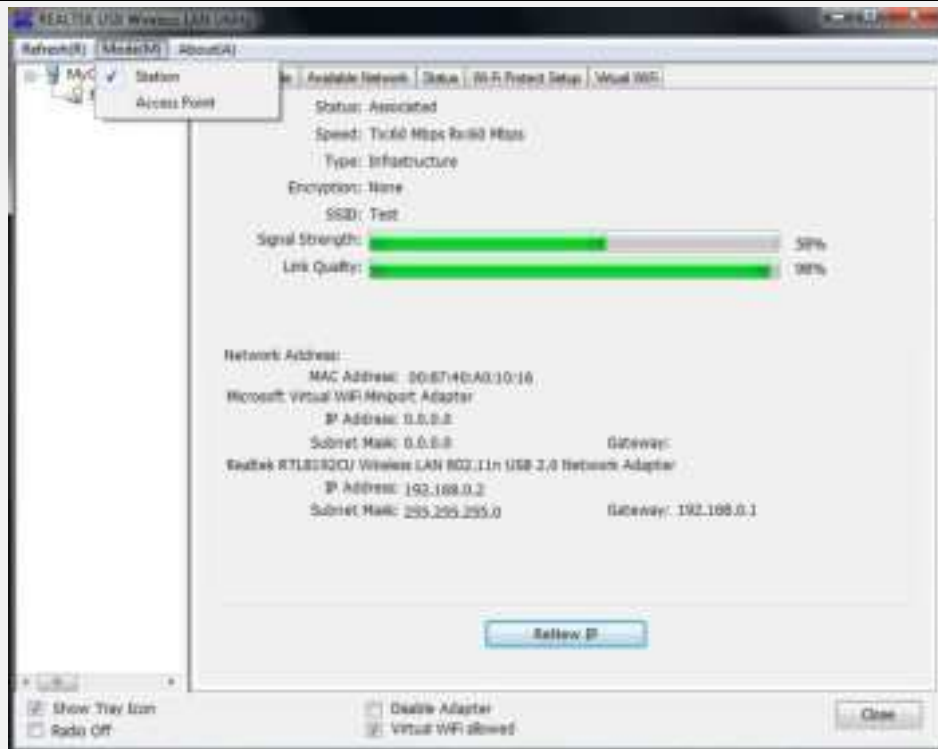
Select “Start”—“Programs”—“REALTEK USB Wireless LAN Utility”— “REALTEK USB Wireless LAN Utility”,



or click the “REALTEK USB Wireless LAN Utility” shortcut on your PC’s desktop to start the UI.

3.1 Station Mode

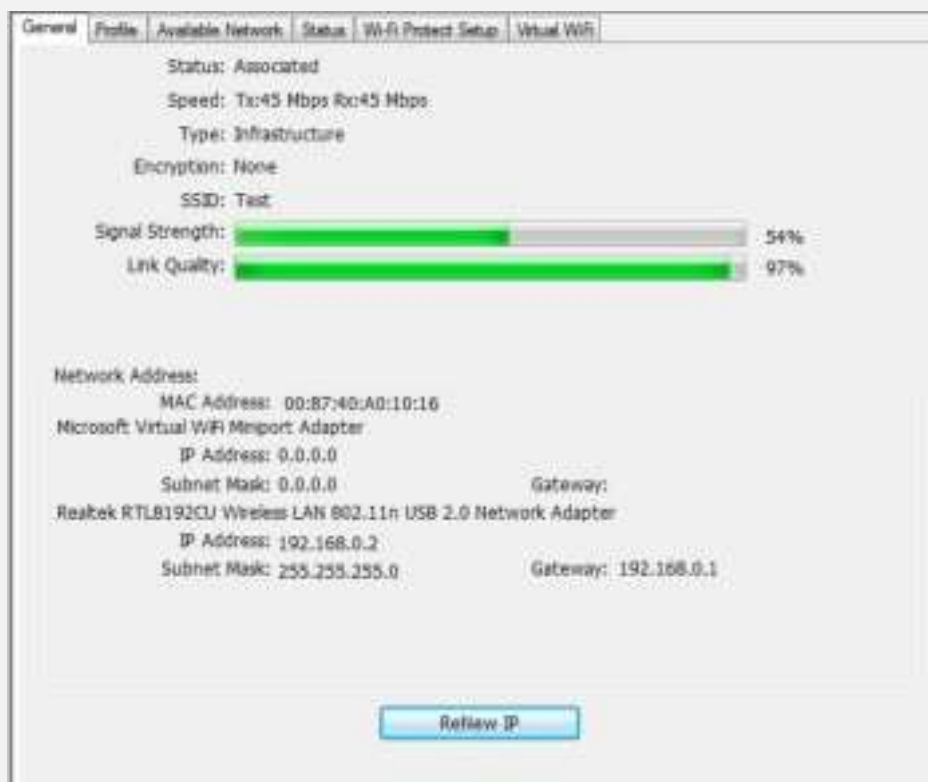
The following explanations focus on the properties area.



Infrastructure and Ad-Hoc

With both Infrastructure and Ad-Hoc types, the properties should look like the picture above. Six property pages present different information of current wireless network status. Please read the following explanations before you reviewing these pages, it could help you to well understand the wireless environment around the system. It is easy to use to switch property pages just by clicking left button of mouse on the title of each page. The following six sections describe detailed information of each page.

A: General Page



1. Status

The status of station connection to AP.

2. Speed

Current transition speed in Mbps (Mega-Bits-Per-Second).

3. Type

Current wireless LAN configuration type.

4. Encryption

Current encryption mode used.

5. SSID

Name of wireless network.

6. Signal Strength

The average signal quality of packets received from wireless network.

We recommend connecting AP with over 70% signal strength.

7. Throughput Diagram

Current throughput, including transmission (Tx) and total traffic (Total).

8. Network Address

Mac Address: six two-digital number of this Wireless LAN USB adapter

IP Address: assigned network address by DHCP server or self-definition in four three-digital number format.

■ Subnet Mask: the only valid value is 255.255.0.0

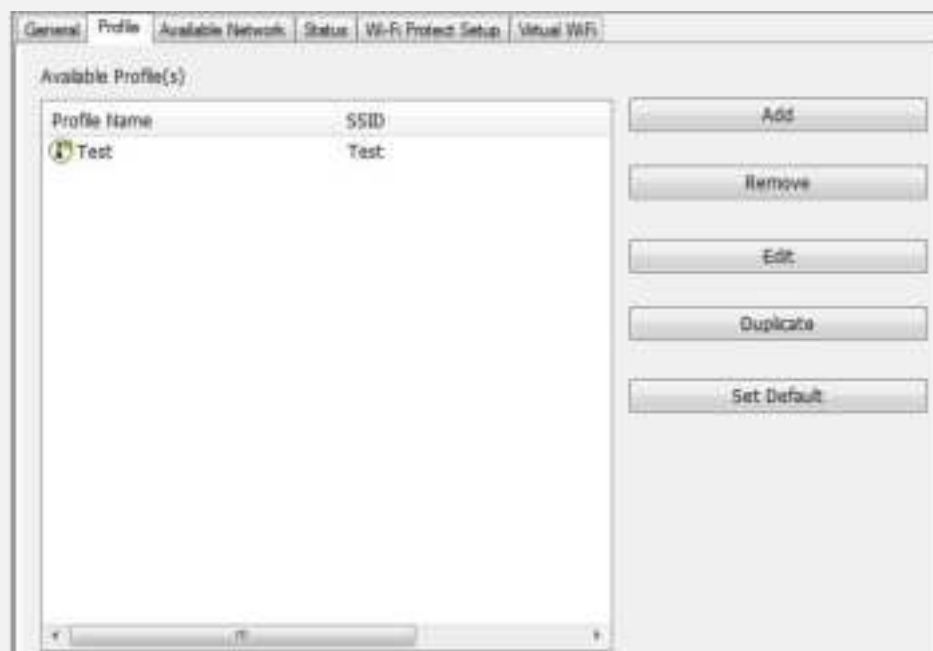
■ Gateway: It comes from connected AP. Your system can not connect internet with this field empty.

B. Profile Page

This page provides profiles management such as add, remove, edit and duplicate just by pressing the respected button.

Available Profile(s)

The list box shows all the created profiles.



1. Add

Add a new profile for AP or IBSS (Ad-Hoc mode).

2. Remove

Remove the selected profile.

3. Edit

Edit contents of selected profile.

4. Duplicate

Make copy of selected profile.

5. Set Default

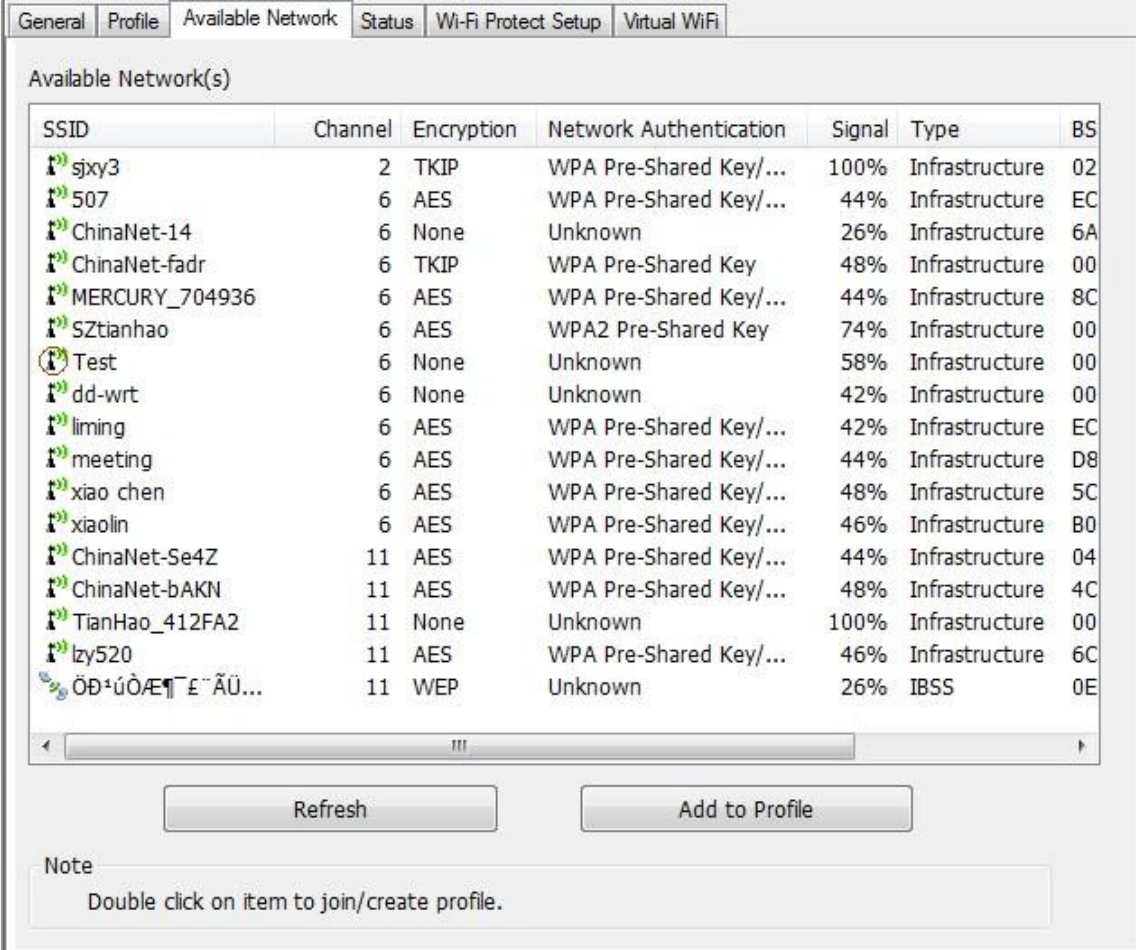
Set the selected profile as default selection.

6. Available Network Page

This page presents all BSS, including AP and IBSS, around this system. You can pick any one of these network connections.

C. Available Network(s)

Show network connection around this system



Available Network(s)

SSID	Channel	Encryption	Network Authentication	Signal	Type	BS
sjxy3	2	TKIP	WPA Pre-Shared Key/...	100%	Infrastructure	02
507	6	AES	WPA Pre-Shared Key/...	44%	Infrastructure	EC
ChinaNet-14	6	None	Unknown	26%	Infrastructure	6A
ChinaNet-fadr	6	TKIP	WPA Pre-Shared Key	48%	Infrastructure	00
MERCURY_704936	6	AES	WPA Pre-Shared Key/...	44%	Infrastructure	8C
SZtianhao	6	AES	WPA2 Pre-Shared Key	74%	Infrastructure	00
Test	6	None	Unknown	58%	Infrastructure	00
dd-wrt	6	None	Unknown	42%	Infrastructure	00
liming	6	AES	WPA Pre-Shared Key/...	42%	Infrastructure	EC
meeting	6	AES	WPA Pre-Shared Key/...	44%	Infrastructure	D8
xiao chen	6	AES	WPA Pre-Shared Key/...	48%	Infrastructure	5C
xiaolin	6	AES	WPA Pre-Shared Key/...	46%	Infrastructure	B0
ChinaNet-Se4Z	11	AES	WPA Pre-Shared Key/...	44%	Infrastructure	04
ChinaNet-bAKN	11	AES	WPA Pre-Shared Key/...	48%	Infrastructure	4C
TianHao_412FA2	11	None	Unknown	100%	Infrastructure	00
lzy520	11	AES	WPA Pre-Shared Key/...	46%	Infrastructure	6C
ÖÐ¹úÖÆ¶£ÄÜ...	11	WEP	Unknown	26%	IBSS	0E

Refresh Add to Profile

Note
Double click on item to join/create profile.

1. Refresh

Rescan network connection around this system.

2. Add to Profile

Create profile for selected network connection and add it to profile list.

D. Status Page

General	Profile	Available Network	Status	Wi-Fi Protect Setup	Virtual WiFi
Manufacturer	REALTEK				
NDIS Driver Version	1021.3.912.2012				
Short Radio Header	Yes				
Encryption	Disabled				
Authenticate	Open System				
Channel Set	ETSI				
MAC Address	00:87:40:A0:10:16				
Data Rate (AUTO)	Tx:0 Mbps Rx:0 Mbps				
Channel (Frequency)	1 (2412 MHz)				
Status	Not Associated				
SSID					
Network Type					
Power Save Mode	None				
Associated AP MAC	00:00:00:00:00:00				
Up Time (hh:mm:ss)	0:15:45				

NDIS Driver Version: Driver version

Short Radio Header: No

Encryption: Current encryption mode.

Authenticate: Authentication state

Channel Set: Selected channel plan currently.

MAC Address: MAC address of this adapter.

Data Rate: Wireless LAN transition speed

Channel (Frequency): Current channel number

Status: Wireless network status

SSID: name of connecting AP

Network Type: Indicate current network configuration type

Power Save Mode: Current setting power save mode

Associated AP MAC: MAC address of connecting AP

Associated AP IP: IP address of connecting AP

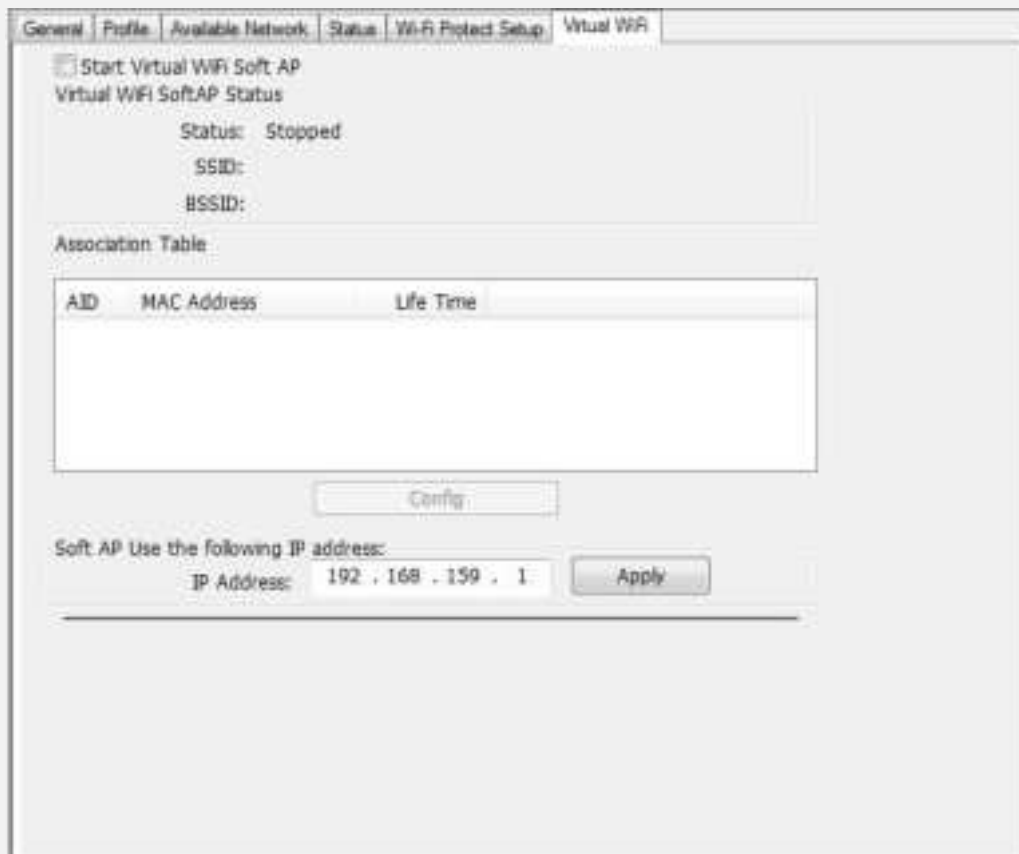
Up Time: Total connection time

E. Wi-Fi Protect Setup Page



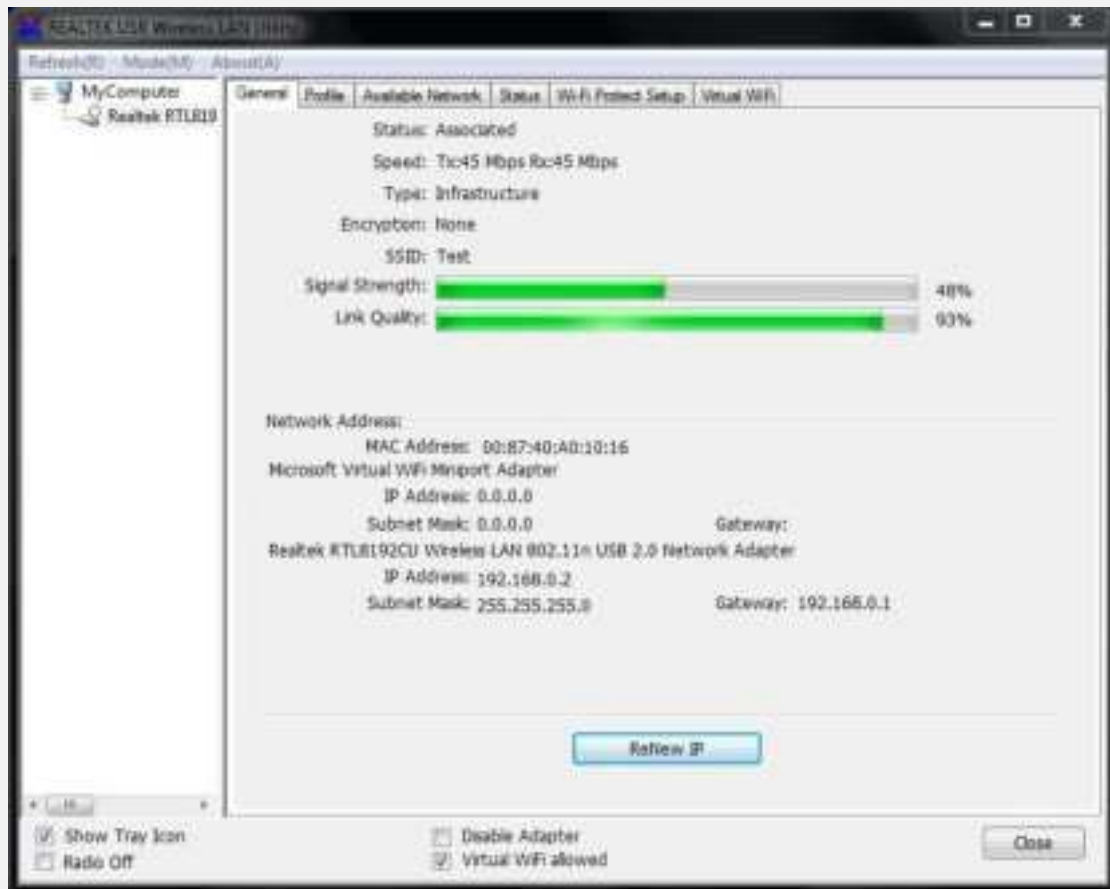
The image shows the 'Wi-Fi Protected Setup (WPS)' configuration window. It has tabs for 'General', 'Profile', 'Available Network', 'Status', 'Wi-Fi Protect Setup', and 'Virtual WiFi'. The 'Wi-Fi Protect Setup' tab is selected. The window title is 'Wi-Fi Protected Setup (WPS)' with the subtitle 'An easy and secure setup solution for Wi-Fi network'. Under 'Role Selection', the 'As WPS Device' radio button is selected. The 'Pin Input Config (PIN)' section includes the instruction 'After pushing the PIN button, Please enter the PIN code' and displays the 'PIN Code : 90959394'. Below this is a 'Pin Input Config (PIN)' button. The 'Push Button' section includes the instruction 'After pushing the PBC button, Please push the physical button on your AP or virtual button on the WPS config page.' and a 'Push Button Config (PBC)' button.

F. Virtual WiFi Page



The image shows the 'Virtual WiFi' configuration window. It has tabs for 'General', 'Profile', 'Available Network', 'Status', 'Wi-Fi Protect Setup', and 'Virtual WiFi'. The 'Virtual WiFi' tab is selected. The window title is 'Virtual WiFi'. Under 'Start Virtual WiFi Soft AP', the checkbox is unchecked. The 'Virtual WiFi SoftAP Status' section shows 'Status: Stopped', 'SSID:', and 'BSSID:'. Below this is an 'Association Table' with columns 'AID', 'MAC Address', and 'Life Time'. A 'Config' button is located below the table. At the bottom, the 'Soft AP Use the following IP address:' section shows 'IP Address: 192 . 168 . 159 . 1' and an 'Apply' button.

3.2 Introduction of Main Window



A. Main Menu

The main menu includes five submenus.

1. **Refresh(R)**

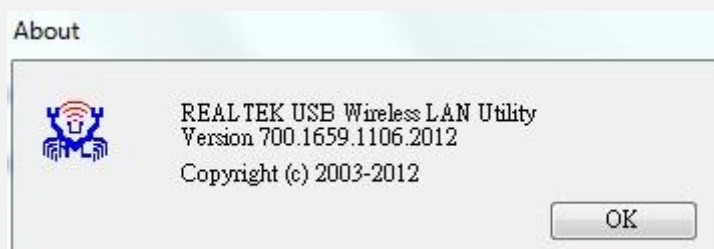
When clicking the refresh menu, you can update and re-enumerate the contents of adapter list area.

2. **Mode(M)**

Wireless configuration is quickly switched to be either [Station] or [Access Point].

3. **About(A)**

Click the “About” to show the about dialog. The application version and license information are shown in the about dialog.



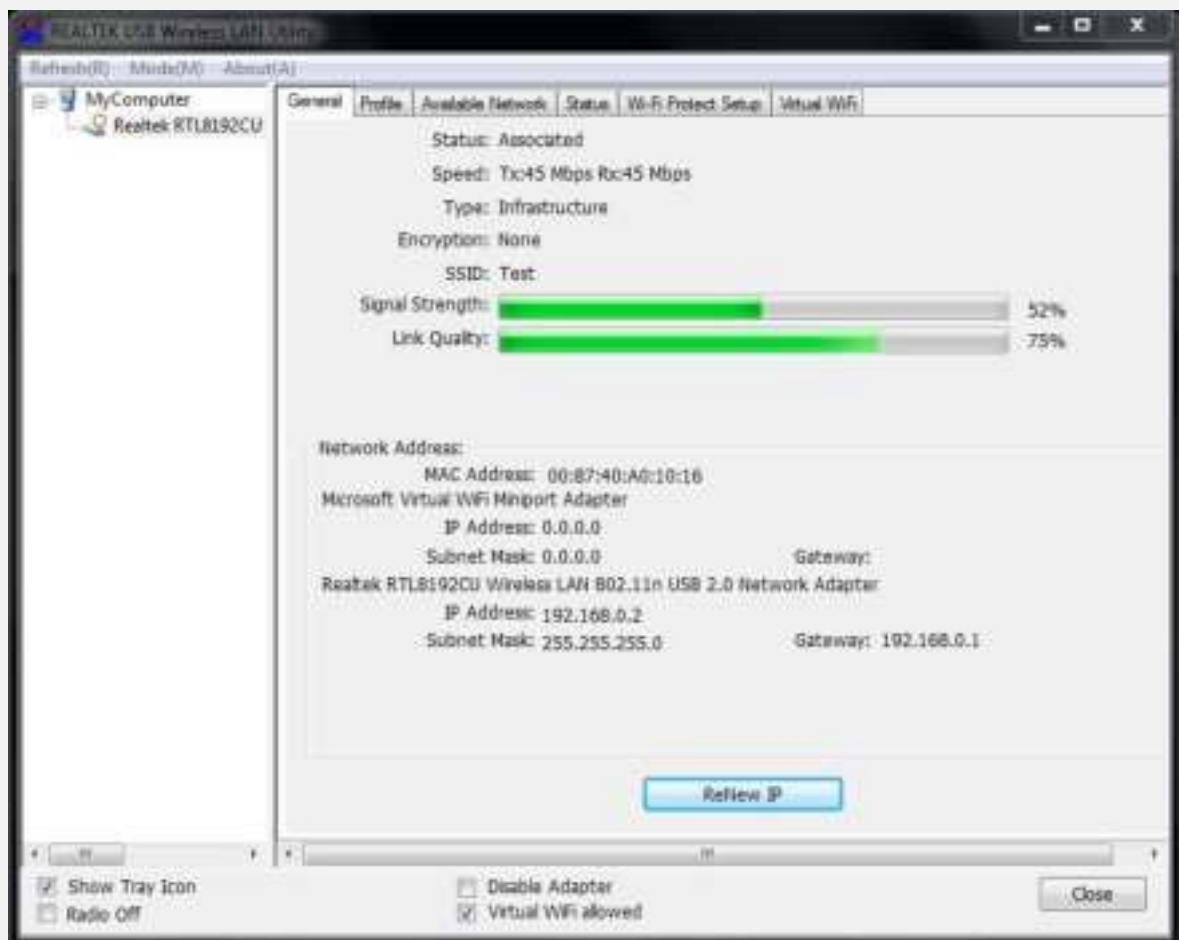
B. Adapter List Area

All connected adapters on this system with multiple adapter installations are displayed in this area. It is easy for users to change the selected adapter by one click. The contents of properties area are dependent on wireless configuration that the selected adapter is set up. If only single adapter is installed on the system, only one adapter is always selected.



C. Properties Area

The contents of this area are dependent on current wireless configuration. The current configuration is determined on previous explanation of submenu “Mode”. The more detailed contents are described in the following wireless configuration sections for both Station and AP mode.



D. Global Control Bar



Each control item on this bar affects the adapter or management GUI directly.

Show Tray Icon

Checking "Show Tray Icon" and clicking "Close" button, the management GUI will be minimized and stay on the tray icon located at the right bottom corner of Windows. If not, management GUI will shut down while clicking "Close" button with unchecked condition.



Radio Off

Turn off the radio to save power. While the radio is off, the links with other wireless network nodes are disconnected. User should be aware that while the wireless configuration is in AP mode. The radio off will cause the sub network belonging to the AP to be disconnected with internet/intranet.

Disable Adapter

Stop wireless USB device.



Virtual WiFi allowed

Switch utility to virtual WiFi setting tool.

Close

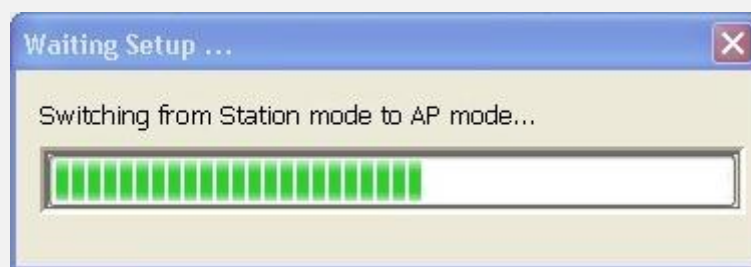
Whether to check or uncheck "Show Tray Icon" is to shut down or hide the management GUI.

3.3. AP Mode

Click main menu **Mode(M)** and choose “Access Point” to switch AP mode.

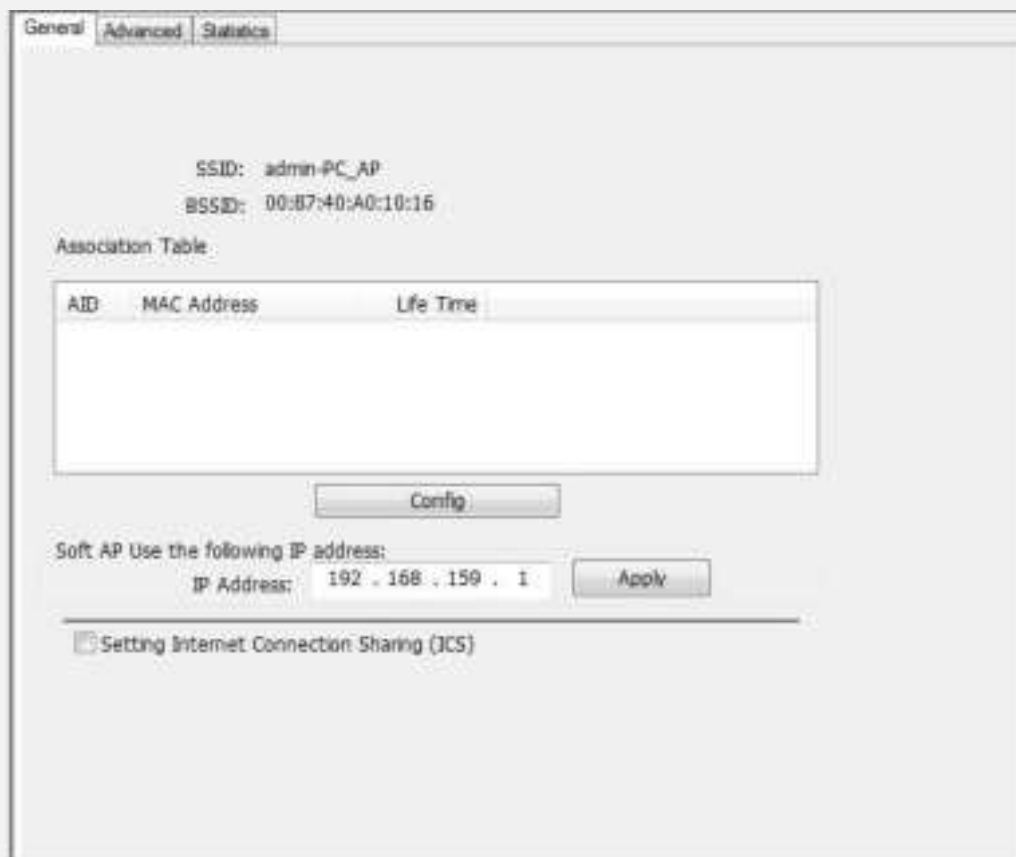


You will see the following window.



A. General Page

This page provides general information of this AP, including name, MAC address and list of joined stations.



1. SSID

The name of this AP.

2. BSSID

Six two-digit numbers of the MAC address of this AP.

3. Association Table

It is the list of joined stations to this AP.

4. AID (Association ID)

The AID field is a value assigned by an AP during association that represents 16-bit ID of a station. It is a unique value assigned by AP.

5. MAC Address

It is the six two-digit numbers that assemble the MAC address of respected joined station.

6. Life Time

It is the timer that counts down from 10 minutes whenever the AP connects the station successfully. If an STA associated to SW AP does not have any interaction with the AP in 10 minutes, it will be disassociated from the Infra-structure BSS.

7. Config

A dialog of this AP is shown for configuration modification



The image shows a Windows-style dialog box titled "Wireless Network Properties:". It contains several configuration fields for a wireless network profile named "Access Point Mode".

- Profile Name:** Access Point Mode
- Network Name(SSID):** Access Point Mode
- ☐ This is a computer-to-computer(ad hoc) network; wireless access points are not used.
- Channel:** 1 (2412MHz) (dropdown menu) ☐ AUTO Channel
- Wireless network security:**
 - This network requires a key for the following:
 - Network Authentication:** Open System (dropdown menu)
 - Data encryption:** Disabled (dropdown menu)
 - ☐ ASCII ☐ PASSPHRASE (text input field)
 - Key index (advanced):** 1 (dropdown menu)
 - Network key:** (text input field)
 - Confirm network key:** (text input field)
- Buttons:** OK, Cancel

7.1. Network Name (SSID)

Name of the AP is searchable by other wireless Modes. The length of SSID should be shorter than 32 characters.

7.2. Channel

Select the wireless channel within current channel plan.

7.3. Network Authentication & Data Encryption

There are three types of authentication:

■ Open System

It is combined with data encryption type to be WEP or to be disabled.

Encryption ~ disabled: you decide to open this AP to every one without network authentication.

Encryption ~ WEP: you decide to setup the basic data encryption with a defined network key.

■ Shared Key + WEP

You decide to apply both authentication and data encryption to prevent unauthorized login.

■ WPA-PSK + TKIP & WPA2-PSK + TKIP

The most advanced authentication and data encryption that provide the best security protection.

7.4. ASCII/ PASSPHRASE

The most advanced authentication and data encryption that provide the best security protection.

■ **ASCII:** You should provide either 5 or 13 ASCII characters on Network key edit box.

■ **PASSPHRASE:** You could input words on Network key edit box.

64 bits: The generated pass key is 64-bit to be complied with data packets.

128 bits: The generated pass key is 128-bit to be complied with data packets.

■ **Hexadecimal:** While both ASCII and PASSPHRASE are not checked, you should input hexadecimal number in the network key box. For example, 10 digits hex number for 64-bit WEP or 26 digits hex number for 128-bit WEP.

7.5. Key index (1 ~4)

At most four key index to represent the opposite network key.

B. Advanced Page

Users could setup the advanced characteristics of network packet for transmission on this page.



1. Beacon Interval

This field indicates the interval between each beacon that this AP sends out in unit of TU (1024 micro-seconds).

2. DTIM Period

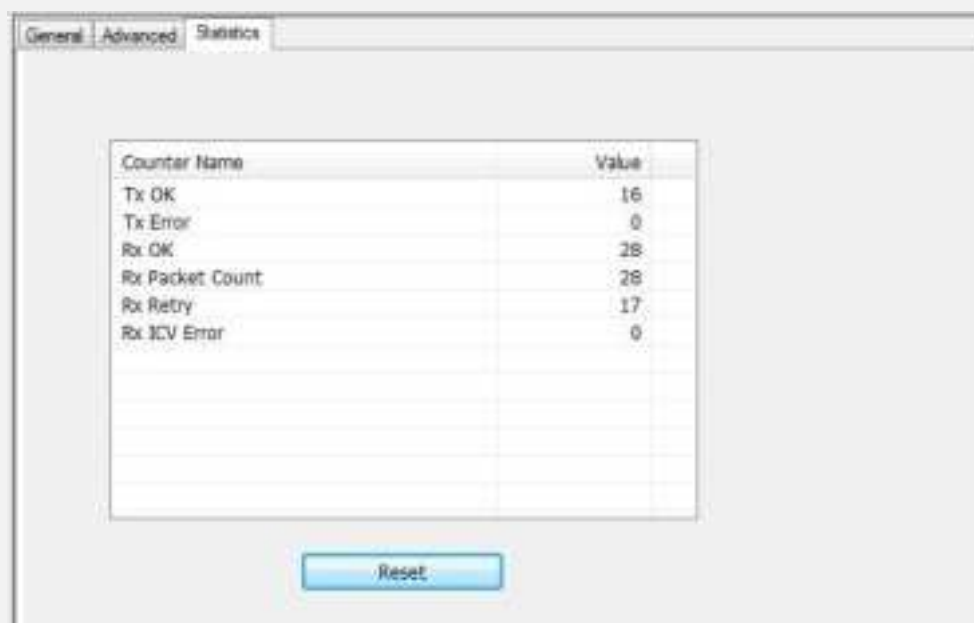
The DTIM Period field is the number of Beacon intervals between successive DTIMs.

3. Preamble Mode

- Long: higher quality but with lower performance than preamble short mode.
- Short: Normal quality but with higher performance than preamble long mode.
- Auto: select the proper preamble mode by current signal frame information.

C. Statistics Page

The Tx/Rx status of current wireless connection is shown. A statistics analysis of packet transition is listed.



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

NOTE: 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 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.

The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: AJ-4512AC (FCC ID:2AYK2-AJ-4512AC) has also been tested against this SAR limit. The highest SAR value reported under this standard during product certification for worn on the body is 0.354W/kg. When carrying the product or using it while worn on your body, maintain a distance of 5mm from the body to ensure compliance with RF exposure statements.