# Wireless LAN USB Adapter

User Manual V1.1

#### USING THIS DOCUMENT

This document provides detailed user guidelines for Wireless LAN USB Adapter operation and setting-up. Though every effort has been made to ensure that this document is up-to-date and accurate, more information may have become available subsequent to the production of this guide.

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# **Chapter 1 Introduction**

Thank you for purchasing Wireless LAN USB Adapter. Wireless LAN USB Adapter is a perfect combination of both performance and cost-effective product introduced. It is sincerely hoped that you can enjoy the wireless world through this solidly profiled wireless adapter.

It provides a full solution of all the IEEE 802.11 b/g protocols, that pass the WiFi tests and are compatible with all the wireless products with WiFi logo. If you have a Wireless LAN USB Adapter on hand, it means you can connect to the wireless world without any difficulty.

It also provides all the data rates in the IEEE 802.11 b/g standards, with both short and long preambles to ensure the compatibility of legacy wireless products and new ones, saving the panic works for end users to find compatible products.

Since the security issue has become one of the most important one in the wireless society, it provides you with the full security coverage from the 64/128bits WEP encryptions, second generation WPA-PSK encryption, to the most advanced WPA2-AES encryption. WPA2 is the latest security standard currently approved by WiFi standards.

Saving mode, Adhoc wireless Lan, Wake on Lan (WOL) and other exciting features are also included in this Wireless LAN USB Adapter. This user manual will guide you through these exciting features in the following chapters and we is believed that you will be greatly satisfied with its performance and ease of use.

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

IMPORTANT NOTE: To comply with the FCC RF exposure compliance requirements, no change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

# **Chapter 2 Specifications**

#### Host system connections

Interface	Fully complies with USB 2.0 or 1.1
USB date transfer rate	USB high speed (480Mbps), and full speed (12Mbps)

#### Wireless LAN (WLAN) environment connections

WI AN Interface	Multimode features	
	Fully complies with IEEE 802.11 b/g specifications	
	802.11 b:DQPSK with data scrambling capability to provide data rate of 1,2,5.5 and 11Mbps	
WLAN transfer rate	802.11 g:A high-speed Fast Fourier	
	Transform(FFT)/Inverse Fast Fourier Transform(IFFT) provide data rate of 6,9,12.18,24,36,48 and 54Mbps	
WLAN Frequency Band	2.4 ~ 2.497 GHz ((Industrial Scientific Medical Band)	
Operation Channel Channel 1 ~ 11		
Coverage Area	Indoors:100ft with straight path	
Compatibility	Fully compatible to IEEE 802.11 b/g devices	
Security	Hardware-based IEEE 802.11i encryption/decryption engine, including 64-bit/128-bit WEP, TKIP, and AES	
Antenna	Detachable dipolar antenna	
	On: link is on	
LED present (Green/Red light)	Off: ling is off	
	Quick blinking: data transition	
	Slow blinking with 5 times: scan wireless nodes	
Wake on WLAN         Wake up system by wireless LAN(AP mode)		

#### SYSTEM REQUIREMENTS

Windows System : Windows 98SE, Me, 2000, XP or Windows 64bit. PCs must have a device driver installed. It allows you to communicate with WLAN Mini USB Adapter.

#### PACKAGE CONTENTS

1.Wireless LAN USB Adapter 2.Installation Software CD 3.User Manual

# **Chapter 3 Installation/ Uninstallation**

Warning! Do not cover or block the airflow to the adapter. The adapter will reach a high temperature during use.

# **3.1 Installation**

Before you proceed with the installation, please notice the following descriptions. Note1: The following installation was operated under Windows XP. (Proceduresare similar for Windows 98SE/Me/2000.)

Note2: If you have installed the WLAN USB driver & utility before, please uninstall the old version first.

1. Do not plug the wireless LAN USB adapter into your computer USB port before installing the software program.

r - - 8- ---- -

Insert the software program CD , then auto installation window pops up on following:

2. While the following screen pops out, click Driver Installation

CD auto run 畫面



4. Choose a set up language. Click **Next** to process the installation.

Choose Setup Language Select the language for the in	stallation from the choices below.	
	Basque Bulgarian Catalan Chinese (Simplified) Chinese (Traditional) Crostian Castian Castian Castian Darish Dutch Emplifith Finnish French (Canadian) French (Canadian) French (Canadian) German Greek	
InstallStield	< Back Next >	Cancel

5. The system starts software installation of the WLAN USB adapter.



6. On Windows Logo Software Installation screen, click **Continue Anyway** to continue. *Note: Not all the drivers will have this message box.* 



7. Click **Finish** to complete the installation.



8. After click **Finish** to complete the installation , under Windows XP <ALL Programs> menu , REALTEK USB wireless LAN Utility program installed.

Internet Internet Explorer	My Documents  My Recent Documents
MSN Explorer	Windows Catalog
Windows Media Playe	Accessories       Capture Studio
Windows Movie Make	Games +
Tour Windows XP	RealVNC     Uninstall       Startup     Internet Evplorer
REALTEK USB Wirele:	MSN Explorer  MSN Explorer  Coutlook Express  Remote Assistance  Mischart Maria Planar
All Programs 🜔	3 Windows Messenger

9. Insert the wireless LAN USB adapter into your computer USB port , the computer detected and active the wireless LAN USB adapter automatically.

# **3.2 Uninstallation**

From "Wireless Network Driver and Utility" or "Control Panel" "Change or Remove Programs".

A. Uninstall the WLAN USB Adapter Driver from "Start" "All Programs"

Click "Uninstall" (or "Change/Remove") to remove Wireless LAN USB Adapter driver.





B. Click "OK" if you want to remove Wireless LAN USB Adapter Driver .



C. Click "Finish" to complete the uninstallation.



# **Chapter 4 Rt WLAN: Wireless LAN Management GUI**

# **4.1 Introduction of Main Window**



# A. Main Menu

The main menu includes five submenus.

#### $1.Refresh(\underline{R})$

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

# $2.Set Wizard(\underline{S})$

## 2.1 Wizard-1

Click **Set Wizard(S)** menu to enter operation wizard. **Click AP: Setup a wireless network**. To configure Access Point parameters. **Next** to continue. **Cancel** to leave wizard



### 2.2Wizard-2

User defines wireless network Name [SSID](less than 32 characters). User may skip wireless security. Strongly recommend user to setup wireless security to avoid invalid users. **Back** to go previous. **Next** to continue. **Cancel** to close wizard.



### 2.3Wizard-3

This page shows SSID & Security settings **Back** to go previous **Next** to continue. **Cancel** to close wizard.

RT-Set Show S Comm	Setting In Armatic my me parameter.			
	Network Name[SSID Network Key :	) : WLAN_AP		
	< Back	Next >	Cacnel	

# 2.4Wizard-4

Select device that connects with internet. **Back** to go previous. **Next** to continue. **Cancel** to close wizard.



#### 2.5Wizard-5

Show all settings under AP mode. Click **Finish** to complete wizard setup.



# **3.Mode** (<u>M</u>)

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

REALTEK USB Wi	eless LAN Utility	
$Refresh(\underline{R})$ Set $Wizard(\underline{S})$	Mode(M) View(V) About(A)	
🗉 😼 MyComputer	✓ Station Profile Available Network Advance	d Status Statistics Easy Config
- 🚟 Realtek RTL8187 V	Access Point Status: Associated	Throughput:
	Shood: 54 Millions	

### 4.View (<u>V</u>)

Enable/disable the presence of **E. Status Bar**. Without the check mark (v) the **E. Status Bar** will be hidden.

# $5.About(\underline{A})$

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

😹 REAL TEK USB Wireless L	AN Utility	
Refresh(R) Set Wizard(S) Mod	e(M) View(V) About(A)	
Prealtek RTL8187 Wir	General       Profile       Available Network       Advanced       Status       Statistics       Easy Config         Status:       Associated       Throughput:         Speed:       54 Mbps       Type:       Infrastructure         Encryption:       AES       Tx:0.01%, Total:0.01%         SSID:       Test - AP       100%         About       Infrastructure       90%         REAL TEK USB Wireless LAN Utility       90%         Version 402.1470.518.2007       OK	
Show Tray Icon	Gateway: 192.168.1.10 ReNew IP Disable Adapter	Close
Radio Off	U Windows Zero Config	
Ready		NUM

# 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.	General Profile Available Network Advanced Status Statistics Easy Config	
	Status: Associated Throughput:	
	Speed: 54 Mbps	
	Type: Infrastructure	
	Encryption: AES Tx:0.00%,Total:0.00%	
	SSID: Test - AP	
	Signal Strength: 100%	
	Link Quality:	
	Network Address:	
	Mac Address: 00:1A:EF:01:7A:7E	
	IP Address: 192.168.1.13	
	Subnet Mask: 255.255.255.0	
	Gateway: 192.168.1.10	
	ReNew IP	

# D. Global Control Bar

Show Tray Icon	Disable Adapter	Close
Radio Off	🗌 Windows Zero Config	

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.

Show Tray Icon	Disable Adapter	Close
Radio Off	Windows Zero Config	
		👔 🔊 🚮 🔏 下午 06:50
	C)	🜌 🚯 🔽 星期二
		2008/4/29

#### **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.



### Windows Zero Config

Switch utility to Windows XP default wireless setting tool.

Refresh(R) Set Wizard(S) Mode(M) MyComputer Realtek RTL8187 Wireless 802. Show Tray Icon Readin Off	Utility       Image: Constraint of the second
Zeevy         Connect to Wireless Network         The following network(s) are available. To access a network, it from the list, and then click Connect.         Available networks:         I TEST1-AP         TEST2-AP         This network requires the use of a network key (WEP). To acthis network, type the key, and then click Connect.         Network key:         If you are having difficulty connecting to a network, click Adv.         Advanced         Connect       Cancel	Wireless Network Connection 5 Properties   select   General   Wireless Networks   Authentication   Advanced   Vuse Windows to configure my wireless network settings   Available networks:   To connect to an available network, click Configure   ITEST1.AP   ITEST2.AP   ITEST2.AP   ITest · AP   Preferred networks:   Automatically connect to available networks in the order listed below: Move up Move down Add   Remove   Properties   Learn about setting up wireless network   OK

### Close

Whether to check or uncheck "Show Tray Icon" is to shutdown or hide the management

# GUI.

#### E. Status Bar

The hints or status of the management GUI are presented in the status bar.

# 4.2 Station Mode

REALTEK USB Wireless LA	iN Utility	
Refresh(R) Set Wizard(S) Mode	(M) View(V) About(A)	
🖃 😼 MyComputer 🗸 Sta	ation file Available Network Advanced Status Statistics Easy Config	
Realter R ILOIO7 AC	Status: Associated Throughout:	
	Speed: 54 Maps	
	SSID: Test - AP	
	Signal Strength:	
	100%	
	Link Quality: 84%	
	Network Address:	
	Mac Address: 00:1A:EF:01:7A:7E	
	IP Address: 192.168.1.13 Subnet Made: 255.255.0	
	Gateway: 192.168.1.10	
	ReNew IP	
< · · · >		
Show Tray Icon	Disable Adapter	Close
🗌 Radio Off	Windows Zero Config	
		NUM

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. <u>General Page</u>

This page represents the general information of this adapter.

General	Profile	Availat	ole Network Ad	vanced	Status	Statistics	Easy C	onfig	
	c	tatus	Associated		т	hroughpu	ıt:		
	-				ĺ				
	5	peed:	54 Mbps						
		Type:	Infrastructure						
	Encry	ption:	AES		Т	x:0.00%,	Total:0.	00%	
		SSID:	Test - AP						
Siç	gnal Stre	ngth:						100%	
	Link Qu	uality:						89%	
Netv	vork Add	tress: -							
			Mac Address:	00:1A	:EF:01:7	7A:7E			
			IP Address:	192.1	68.1.13				
			Subnet Mask:	255.2	55.255.	0			
			Gateway:	192.1	68.1.10				
			Re	New IF	)	)			

#### 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 2555.255.255.0
- 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.

Gene	eral Prol	file .	Availa	ible Ne	twork	Adva	anced	Status	Statisti	ics	Easy Config
A٧	ailable P	rofile	(s)								
	Profile	Nam	e				S	SID			Add
	Test	t - Al	D				Τe	st - AP			
											Remove
											Edit
											Duplicate
											Set Default
	<						)		>		

### 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

Gene	eral Profile	Available Network	Advanced	Status	Statistics	Easy Config		
Av	ailable Netv	vork(s)						
[	SSID		Channel E	ncryntion	Netw	rork Authent	ication	7
	IN TEST2	-AP	6 No	one	Unkno	own		
	🕐 Test - 7	ΔP	10 TK	(IP/AES	WPA	Pre-Shared K	(ey/	
	<						>	
		Refresh			Add to P	Profile		
	Note						_	
	Double o	lick on item to jo	in/create pro	ofile.				

### 1. Refresh

Rescan network connection around this system.

# 2. Add to Profile

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

#### D. Advanced Page

	General Profile Available Net	work Advanced	Status Statistics Easy Config
	Power Save None O Min O Max O	Turbo Mode OFF ON AUTO	Fragment Threshold: 2346 256 2432
802.11g/b ¥ 802.11b 802.11g/b	Wireless Mode:		0
Auto Y Long Short Auto	Preamble Mode: Auto  Channel Plan: FCC  PSP XLink Mode		WOL         Please Input MAC Address:           00         : 00         : 00         : 00           Wake Up         Wake Up         : 00         : 00
	XLink Enable		Apply

### 1. Power Save

None: without power save function.

Min: wake up more frequently to receive packets.

Max: wake up less frequently to receive packets.

#### 2. Wireless Mode

802.11b

802.11g/b

#### 3. 802.11b 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: use the preamble mode of current.

BSS.

### 4. Fragment Threshold

The threshold of fragment length. Higher threshold increase data transition performance with good signal quality. However, in a poor signal quality environment, data throughput might be worse on high fragment threshold than low fragment threshold.

### 5. RTS Threshold

Threshold of Request To Send mechanism. The RTS frame will not send out until the packet size over threshold.

### 6. WOL (Wake On LAN)

The wake-on-LAN is applied for remote control purpose. You could wake up a system through network packets. For Wireless LAN USB Adapter, only the same adapter on another system could wake it up.

Input MAC Address: the six two-digit numbers of Wireless LAN USB Adapter on target system.

Wake Up: click this button to wake it up.

### 7. Set Defaults

Restore the default value to be current settings.

### 8. Apply

Apply the current settings to GUI.

#### E. Status Page

General Profile Available Network A	Advanced Status S	tics Easy Config
Manufacturer NDIS Driver Version Short Radio Header Encryption Authenticate Channel Set MAC Address Data Rate (AUTO) Channel (Frequency) Status SSID Network Type Power Save Mode Associated AP MAC Up Time (hh:mm:ss)	<ul> <li>Realtek</li> <li>5.1293.518.2007</li> <li>No</li> <li>AES</li> <li>WPA2-PSK</li> <li>FCC</li> <li>00:1A:EF:01:7A:</li> <li>54 Mbps</li> <li>10 (2457 MHz)</li> <li>Associated</li> <li>Test - AP</li> <li>Infrastructure</li> <li>None</li> <li>00:1A:EF:81:86:7</li> <li>0:47:09</li> </ul>	

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

# F. Statistics Page

You could watch the Tx/Rx status of current wireless connection. This page shows a statistic analysis of packet transition.

General	Profile	Available Network	Advanced	Status	Statistics	Easy Config	
	-						_
	Cour	nter Name				Value	
	Tx O	ĸ				2892	
	Tx E	rror				0	
	Rx O	K				81	
	Rx Pa	acket Count				81	
	Rx Re	etry				11	
	Rx IC	V Error				0	
						Peret	
						Reset	

# 4.3 AP Mode

# A. <u>General Page</u>

This page provides general information of this AP, including name,

MAC address and list of joined stations.

General Advanced Statistics ICS	
SSID: english-jxlqb1r_AP	
BSSID: 00:1A:EF:01:7A:74	
Association Table	Config
AID Mac Address Life	ie Time

#### 1. SSID

The name of this AP.

### 2. BSSID

Six two-digital 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.

Wireless Network Pr	operties: 💽	3
Profile Name:	Access Point Mode	
Network Name(SSID):	english-jxlqb1r_AP	
This is a computer-t	o-computer(ad hoc) network; wireless ot used.	
Channel:	1 (2412MHz) 🔽 🗌 AUTO Channel	
Wireless network sec	urity	1
This network requires	a key for the following:	
Netw	ork Authentication: Open System 🛛 💌	Open Syster
	Data encryption: Disabled	Open System
	Disabled	Shared Key WPA-PSK
ASCII PAS	SPHRASE	WPA2-PSK
Key index (advanced) Network key:	1	
Confirm network key:		
ОК	Cancel	

#### 7.1. Network Name (SSID)

Name of the AP searchable by other wireless nodes. 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  $\sim$  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 unauthouized 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.

	General	Advanced	Statistics	ICS		
	Gener	al: Beacon Int	erval:			
		\$00				
		DTIM Perio	d:			
		1				
		Preamble N	lode:			
Short 💌 🗲		Short	*			
Short						
		Set	t Defaults		Apply	

#### **1. Beacon Interval**

This filed 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 then 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 statistic analysis of packet transition is listed.

Counter Name	Value
Tx OK	92
Tx Error	0
Tx Retry	0
Tx Beacon OK	0
Tx Beacon Error	0
Rx OK	0
Rx Packet Count	
Rx Retry	
Rx CRC Error(0-500)	
Rx CRC Error (500-1000)	
Rx CRC Error(>1000)	
Rx ICV Error	
	Reset
	(

### D. ICS Page



1. ConnName List all network connections to this system. You can pick up

one from the listed item(s) whose network domain you would want to connect to.

### 2. Select

Make the desired network connection to public network.

#### **3. ICS**

Internet Connection Sharing. It enables this AP to create the domain to share this internet/intranet network connection

#### 4. Firewall

Any of a number of security schemes that prevents unauthorized users from gaining access to a computer network, or that monitors transfers of information to and from the network.

#### 5. Apply

Execute the current settings.

# Appendix 1: How to Use 802.1x ( Step by Step )

ofile 802.11g-SSI	D				
twork 802.	11g-SSID				
This is a computer-to-co	omputer(ad hoc) netwo	ork; wireles			
access points are not us	ed. Channel 11 (	2462MHz 🗡			
Wireless network security			802.1x config	ure	
This network requires a k	ey for the		EAP TYPE :	TLS	~
Network Authentication:	WPA 802.1X	~	Tunnel :		~
Data encryption:	TKIP	~	Username :		
ASCII Passphra	ise		Identity :	tester	
			Password :	7	
Network key:			Certificate :	"Tester" "RTWLAN"	~
Confirm network key:				1997 (199 <del>8)</del>	
Key index (advanced): 1	*				

# Step 1 : Set Network Authentication mode to WPA 802.1x ,or WPA2 802.1x

Network Authentication:	WPA 802.1X	*
Data encryption:	Open System Shared Key WPA-PSK WPA2-PSK	
	WPA 802.1X	
	WPA2 802.1X WEP 802.1x	_

# Step 2 : Set Data Encryption to TKIP ,or AES

Data encryption:	AES	×
	TKIP	
ASCII Pas	sphrase AES	

	and the second sec	Enne
EAP TYPE :	TTLS	*
Tunnel :	CHAP	~
Ucornamo +	CHAP	
username ;	MSCHAP	
	MSCHAP-V2	
Identity :	PAP	

Step 3 : Set EAP Type to MD5, GTC, TLS, LEAP, TTLS, or PEAP

Step 3.1.1 : When set TTLS, set Tunnel Type to CHAP , MSCHAP , MSCHAP-V2 , PAP , or EAP-MD5

802.1x config	ure	
EAP TYPE :	PEAP	~
Tunnel :	MD5	~
Username :	MD5	
	GTC	
Identity :	TLS MSCHAP-V2	

Step 3.1.2 : When set PEAP, set Tunnel Type to MD5 , GTC , TLS , or MSCHAP-V2

Certificate :	"Tester" "RTWLAN"	~

Step 3.2 If you do not set PEAP to TLS ,you could use certificate.

Username :		
Identity :		
Password :		

**Step 4 : After you finish above steps.** 

You should fill up the following fields( Username , Identity , Password ).

User name : Certificated user name .

Identity : User's identity on the RADIUS server

Password : User's password on the RADIUS server

EAP TYPE :	GTC	~
	GTC	
Tunnel :	TLS	
	LEAP	
Username :	TTLS	
	PEAP	

# FCC INFORMATION

The Federal Communication Commission Radio Frequency Interference Statement includes the following paragraph:

The 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 instruction, may cause harmful interference to radio communication. However, there is no grantee that interference will not occur in a particular installation. If this equipment dose 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 user should not modify or change this equipment without written approval Form loopcomm technology. Modification could void authority to use this equipment.

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.