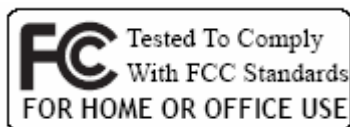


# WLAN and BT Combo Adapter

## USER'S GUIDE

VERSION 1.0



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## INTRODUCTION

Thank you for your purchase of the WLAN and Bluetooth dual mode combo Adapter. Featuring wireless technology, this wireless networking solution has been designed for both large and small businesses, and it is scalable so that you can easily add more users and new network features depending on your business scale.

### FEATURES

- Support Microsoft 10/8.1/7 (32bit/64bit) platforms
- Operating distance of up to 300 meters in free space.
- Operating under 2.4GHz or 5.8GHz
- 802.11 ac supports up to 433.3 Mbps selectable Data Rate according to client adapter default antennas.
- Wi-Fi security supports 64/128-bit WEP , WPA TKIP, WPA2 AES PSK
- Wi-Fi WPS support PIN/PBC Method
- Wi-Fi MIMO support
- Bluetooth 2.1+EDR / 4.2 dual modes integrated with Microsoft Windows Bluetooth features.
- Wi-Fi and BT coexist support
- Easy operation and setting up.

### SYSTEM REQUIREMENTS

- Windows Systems : 10/8.1/7 (32bit/64bit).
- USB port
- WLAN Device Driver

## BEFORE YOU START

### Box Contents

- WLAN and BT Combo USB Adapter
- User's Guide
- Driver CD

## CONNECTING YOUR WLAN AND BT COMBO ADAPTER TO PC

### Quick Start Guide

- Connect your WLAN and BT Combo USB Adapter to your PC.
- Install Wi-Fi driver
- Use Microsoft Inbox Bluetooth driver

## GETTING TO KNOW WIRELESS LAN ADAPTER

### LED Status



**BT**      **WiFi**

#### Wi-Fi

- Quick Blinking – Adapter connected to the Access Point.
- Slow Steady Blinking – Adapter is enabled
- Steady Blinking – Adapter is under WPS mode
- Off – Adapter is disabled

#### BT

- On – Adapter is enabled
- Off – Adapter is disabled

### Best Performance Requirement

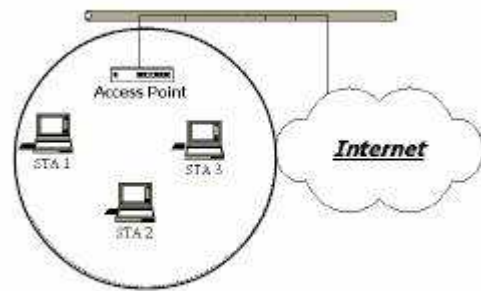
- 1T1R ac Adapter
- USB 2.0
- Windows 7 or later
- Wireless 802.11ac AC600 AP/Router or above with gigabit Ethernet port

## 2

## WIRELESS LAN BASICS

Wireless LAN network defined by IEEE 802.11ac/a/b/g standard committee  
It is designed for

**Infrastructure wireless LAN.**



**Infrastructure** Wireless Network

The PCs in **Infrastructure** wireless network can access the resource in the Internet through **Access Point**. It's the most popular way to establish your first wireless network environment.



## IP ADDRESS

To use the WLAN 11ac USB Client Adapter with a computing device, the WLAN and Bluetooth Combo Adapter must be equipped with a proper Interface. All drivers and supporting software for the WLAN Adapter must be installed and configured first.

Ask your system administrator for the following information, which you may need to provide during installing driver:

- Your Wireless Client Name.
- Your Wireless SSID.
- Your computer's unique client name and workgroup name. For your network account, your user name and password.
- Your IP address, gateway address, and subnet mask if you're not using a DHCP client.

Any computer on a network is identified by a unique network address. There are two methods to assign a network address to a computer on a TCP/IP network :

- Static IP addressing.
- Dynamic IP addressing (DHCP Client).

In network with static IP addressing, the network administrator manually assigns an IP address to each computer. Once a static IP address is assigned, a computer uses the same IP address every time it reboots and logs on to the network. You may manually change the IP address in the **Network Properties dialog box**. Network using static IP address is easy to set up and do not require additional network management software.

In network with dynamic IP addressing, a DHCP server in the network dynamically assigns IP addresses to all clients every time they log on to the network. Network using dynamic IP address requires setting up and running a DHCP Server.

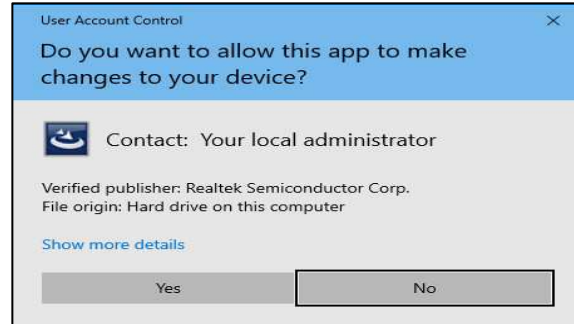


## INSTALL DRIVER / UTILITY

The installation & driver CD will automatically activate the autorun installation program after you insert the disk into your CD drive.

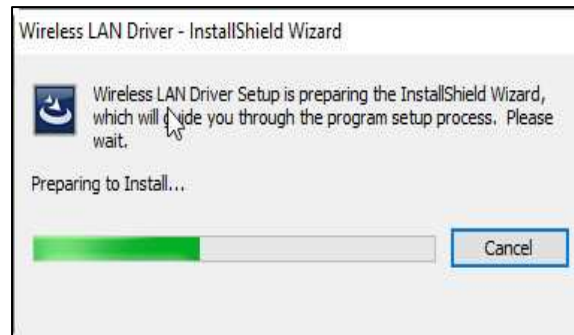
### Step 1 : (Win10/8.1/7 only)

Insert the installation CD into your CD-ROM. Win10/8.1/7 UAC Dialog is shown. Click **Yes** to continue.



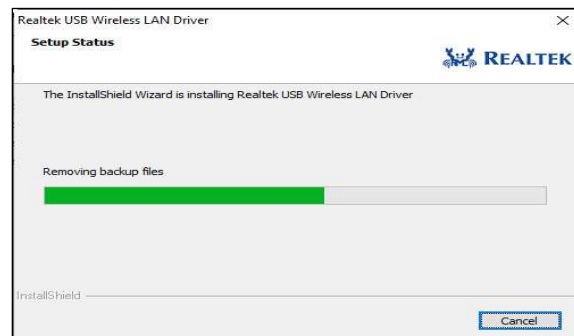
### Step 2 :

Wizard is preparing install driver



### Step 3 :

Installing driver



|

### Step 4 :

Click **Finish** to complete installation. The installation will affect after windows rebooting




# 5

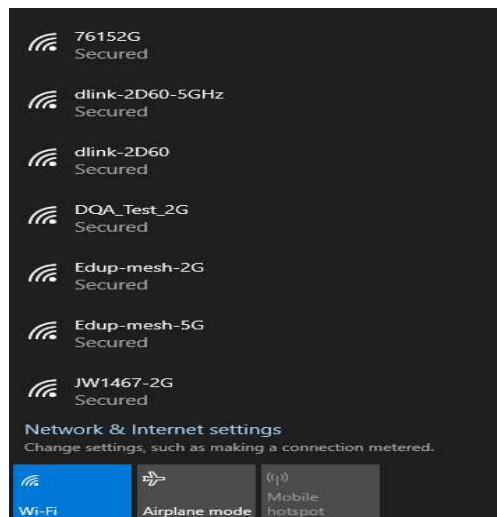
## WIRELESS NETWORK CONFIGURATION

WLAN 11ac USB Client Adapter uses windows management software. All functions are from Microsoft. When you insert the WLAN Adapter into your laptop or desktop, an icon should appear in the Windows System Tray automatically.

### 5.1 Wi-Fi Setup

#### 1. Scan Wi-Fi AP near you

Click “Network and Internet settings”  in system tray and it will show the list for you



#### 2. Connect Wi-Fi AP /Use WPS

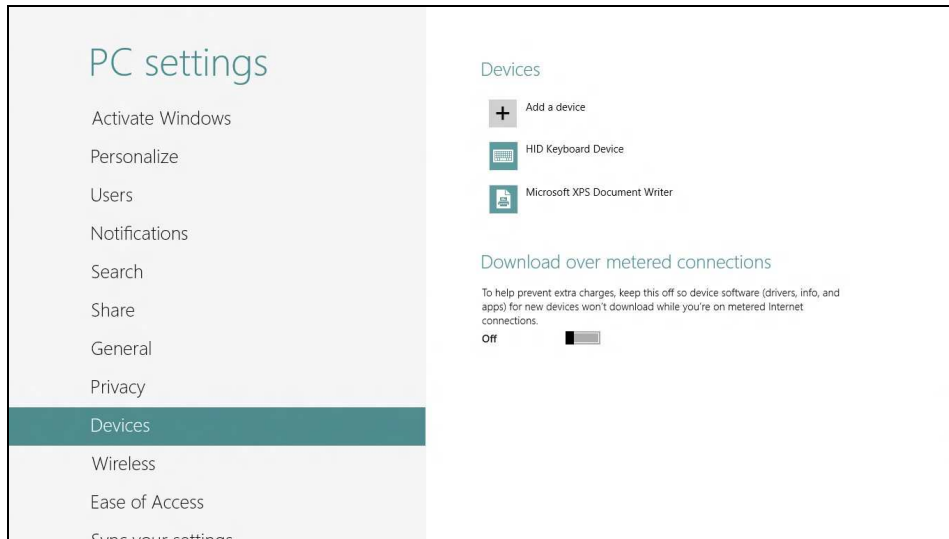
Input passphrase set by Wi-Fi AP in “Enter the network security key” box



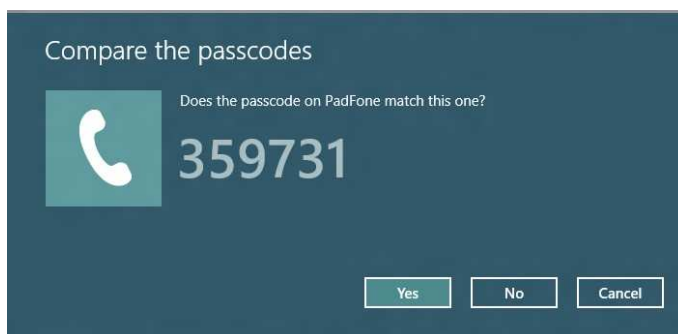


## 5.2 Bluetooth Setup

- Use Bluetooth to facilitate wireless data transfers/call/audio with other Bluetooth-enabled devices.
- Pairing with other Bluetooth-enabled devices
- You need to pair your Notebook PC with other Bluetooth-enabled devices to enable data transfers. To do this, use your touchpad as follows:
  - 1 Launch the Charms bar.
  - 2 Tap then tap Change PC Settings.
  - 3 Under PC Settings, select Devices then tap Add a Device to search for Bluetooth-enabled devices.
  - 4 Select a device from the list. Compare the passcode on your Notebook PC with the passcode sent to your chosen device. If they are the same, tap yes to successfully pair your Notebook PC with the device.



NOTE: For some Bluetooth-enabled devices, you may be prompted to key in the passcode of your Notebook PC.





## TECHNICAL SPECIFICATIONS

Model Name	CL-8821CU-V2
Product Name	WLAN ac1x1 + BT Dongle
Standard	IEEE 802.11b/g/n/a/ac/e/h/i Bluetooth v2.1+EDR / v4.2
Data Transfer Rate	WIFI: 11ac mode up to 433Mbps 11n mode up to 150Mbps BT: Basic rate: 1Mbps Enhanced data rate: 2, 3 Mbps
Modulation Method	WLAN: CCK, DQPSK, DBPSK, BPSK, QPSK, 16QAM, 64QAM, 256QAM Bluetooth: 8DPSK, $\pi/4$ DQPSK, GFSKFSK
Frequency Band	2.4GHz and 5GHz ISM Band
Spread Spectrum	IEEE 802.11b: CCK (Complementary Code Keying) IEEE 802.11g/n/a/ac: OFDM (Orthogonal Frequency Division Multiplexing) Bluetooth: FHSS (Frequency Hopping Spread Spectrum)
RF Output Power (tolerance $\pm 2$ dBm)	WLAN: 17dBm – 802.11b@CCK 11Mbps 15dBm – 802.11g@OFDM 54Mbps 13dBm – 802.11n@MCS7_HT20 13dBm – 802.11n@MCS7_HT40 13dBm – 802.11a@OFDM 54Mbps 9dBm – <a href="#">802.11ac@NSS1</a> MCS9_VHT80 Bluetooth: Bluetooth Class 2 standard
Receiver Sensitivity	WLAN: -80dBm – 802.11b@11Mbps -70dBm – 802.11g@54Mbps -70dBm – 802.11a@54Mbps -65dBm – 802.11n@MCS7_BW20 -64dBm – 802.11n@MCS7_BW40 -55dBm – <a href="#">802.11ac@NSS1</a> MCS9_BW80 Bluetooth: -85dBm@1Mbps -82dBm@2Mbps -80dBm@3Mbps
LED	WiFi/BT
Security	WPA, WPA2
Power supply	USB / 5V
Operating Temperature	0 - 50° C ambient temperature
Storage Temperature	-10 ~ 70° C ambient temperature
Humidity	5 to 90 % maximum (non-condensing)
Dimension	22.3 x 15 x 8 mm (L x W x H)

The specification is subject to change without further notice

The channel identifiers, channel center frequencies, and regulatory domains of each 22-MHz-wide channel are shown in following Table.

Channel Identifier	Frequency (MHZ)					
		Japan	ETSI	North America	Israel	Mexico
1	2412	●	●	●		
2	2417	●	●	●		
3	2422	●	●	●	●	
4	2427	●	●	●	●	
5	2432	●	●	●	●	
6	2437	●	●	●	●	
7	2442	●	●	●	●	
8	2447	●	●	●	●	
9	2452	●	●	●	●	
10	2457	●	●	●		●
11	2462	●	●	●		●
12	2467	●	●			
13	2472	●	●			
14	2484	●				

5GHz Bands descriptions as below

Freq.	Bands	Frequency
5 GHz	UNII1	5.15 -5.25 GHz
	UNII2	5.25 -5.35 GHz
	Midband	5.47 -5.725 GHz
	UNII3	5.725 -5.805 GHz
	ISM	5.725 -5.850 GHz
	DSRC	5.850 -5.925 GHz
	Japan 11j and US public safety	4.90 -5.1 GHz



## 7 TROUBLESHOOTING

### **Symptom :**

The adapter is connected to AP, but can't share files with others.

### **Remedy :**

Make sure the **file and printer sharing** function is enabled. You can enable the function by checking the icon of **My Computer -> Control Panel -> Network -> file and printer sharing -> I want to be able to give others to access to my files.**

### **Symptom :**

The Wi-Fi HotSpot mode does not work under windows 7/8.1

### **Remedy :**

The adapter only supports HotSpot 2.0 under windows 10. Steps as below

1. Select the **Start button**, then select **Settings > Network & Internet > Mobile hotspot.**
2. For **Share my Internet connection from**, choose the Internet connection you want to share.
3. Select **Edit > enter a new network name and password > Save.**
4. Turn on **Share my Internet connection with other devices.**

### **Symptom :**

Bluetooth LED is always on

### **Remedy :**

The LED is shown Bluetooth is enabled or disabled. Make sure the the Bluetooth LED is on and it is all functional

### **Symptom :**

Why Bluetooth A2DP profile does not work under windows 7

### **Remedy :**

Windows 7 does not support A2DP Bluetooth profile. Please contact your agent for further support

**IEEE 802.11 Standard**

The IEEE 802.11 Wireless LAN standards subcommittee, which is formulating a standard for the industry.

**Access Point**

An internetworking device that seamlessly connects wired and wireless networks together.

**BSSID**

A specific Ad Hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSSID.

**ESSID**

An Infrastructure configuration could also support roaming capability for mobile workers. More than one BSS can be configured as an Extended Service Set (ESS). Users within an ESS could roam freely between BSSs while served as a continuous connection to the network wireless stations and Access Points within an ESS must be configured with the same ESSID and the same radio channel.

**SSID**

A Network ID unique to a network. Only clients and Access Points that share the same SSID are able to communicate with each other. This string is case-sensitive.

**Wireless LAN (WLAN)**

A wireless LAN does not use cable to transmit signals, but rather uses radio or infrared to transmit packets through the air. Radio Frequency (RF) and infrared are the commonly used types of wireless transmission. Most wireless LANs use spread spectrum technology. It offers limited bandwidth, usually under 11Mbps, and users share the bandwidth with other devices in the spectrum; however, users can operate a spread spectrum device without licensing from the Federal Communications Commission (FCC).

### **Wired Equivalent Privacy (WEP)**

Now widely recognized as flawed, WEP was a data encryption method used to protect the transmission between 802.11 wireless clients and APs. However, it used the same key among all communicating devices. WEP's problems are well-known, including an insufficient key length and no automated method for distributing the keys. WEP can be easily cracked in a couple of hours with off-the-shelf tools.

### **Temporal Key Integrity Protocol (TKIP)**

The Temporal Key Integrity Protocol, pronounced tee-kip, is part of the IEEE 802.11i encryption standard for wireless LANs. TKIP is the next generation of WEP, the Wired Equivalency Protocol, which is used to secure 802.11 wireless LANs. TKIP provides per-packet key mixing, a message integrity check and a re-keying mechanism, thus fixing the flaws of WEP.

### **WPA2**

It is the second generation of WPA. WPA2 is based on the final IEEE 802.11i amendment to the 802.11 standard.

### **Advanced Encryption Standard (AES)**

Security issues are a major concern for wireless LANs, AES is the U.S. government's next-generation cryptography algorithm, which will replace DES and 3DES.

### **Wi-Fi Protected Setup (WPS)**

Created by the Wi-Fi Alliance, the goal of the protocol is to allow home users who know little of wireless security and may be intimidated by the available security options to set up Wi-Fi Protected Access, as well as making it easy to add new devices to an existing network without entering long passphrases. Prior to the standard, several competing solutions were developed by different vendors to address the same need.

### **Wi-Fi Alliance**

The Wi-Fi Alliance is a nonprofit international association formed in 1999 to certify interoperability of wireless Local Area Network products based on IEEE 802.11 specification. The goal of the Wi-Fi Alliance's members is to enhance the user experience through product interoperability. The organization is formerly known as WECA

## **Gigabit Ethernet**

Ethernet is a 10/100/1000Mbps network that runs over dedicated home/office wiring. Users must be wired to the network at all times to gain access.

## **Gateway**

A gateway is a hardware and software device that connects two dissimilar systems, such as a LAN and a mainframe. In Internet terminology, a gateway is another name for a router. Generally a gateway is used as a funnel for all traffic to the Internet.

## **Local Area Network (LAN)**

A LAN is a group of computers, each equipped with the appropriate network adapter card connected by cable/air, that share applications, data, and peripherals. All connections are made via cable or wireless media, but a LAN does not use telephone services. It typically spans a single building or campus.

## **Network**

A network is a system of computers that is connected. Data, files, and messages can be transmitted over this network. Networks may be local or wide area networks.

## **Protocol**

A protocol is a standardized set of rules that specify how a conversation is to take place, including the format, timing, sequencing and/ or error checking.

## **DHCP**

Dynamic Host Configuration Protocol - a method in which IP addresses are assigned by server dynamically to clients on the network. DHCP is used for Dynamic IP Addressing and requires a dedicated DHCP server on the network.

## **Static IP Addressing**

A method of assigning IP addresses to clients on the network. In networks with Static IP address, the network administrator manually assigns an IP address to each computer. Once a Static IP address is assigned, a computer uses the same IP address every time it reboots and logs on to the network,

unless it is manually changed.

### **Transmission Control Protocol / Internet Protocol (TCP/IP)**

TCP/IP is the protocol suite developed by the Advanced Research Projects Agency (ARPA). It is widely used in corporate Internet works, because of its superior design for WANs. TCP governs how packet is sequenced for transmission the network. The term "TCP/IP" is often used generically to refer to the entire suite of related protocols.

### **Transmit / Receive**

The wireless throughput in Bytes per second averaged over two seconds.

### **Wide Area Network (WAN)**

A WAN consists of multiple LANs that are tied together via telephone services and / or fiber optic cabling. WANs may span a city, a state, a country, or even the world.