

# **11abgn WLAN/Bluetooth Combo adapter**

**DHUB-81**

## **User Manual**

### **Copyright Statement**

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# Federal Communication Commission

## Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

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

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

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.

### **IMPORTANT NOTE:**

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

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

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

Country Code selection feature to be disabled for products marketed to the US/CANADA

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

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# 1. Introduction

Thank you for purchasing the 802.11 a/b/g/n / Bluetooth Combo adapter that provides the easiest way to wireless networking. This User Manual contains detailed instructions in the operation of this product. Please keep this manual for future reference.

## System Requirements

- 128 MB of RAM or later (recommended)
- 300 MHz processor or higher

# 2. Driver/Utility Installation

The driver should have been installed before the **STB** is shipped from the manufacturer. You can start using its network function without installing driver or utility.

This module is associated product for STB host.

The following description provides a basic installation for wireless module.

For more information about the Wireless Module, please refer to your STB manual.

Installing Wi-Fi module :

1. Link cable with USB connector on wireless module
2. Link wireless module with USB connector to PC and install software in wireless module
3. Open the back lid of STB, lock wireless module on internal main board of STB
4. Power supply on internal main-board and allow STB to load fully.

# 3. Connecting to an Existing Network

1. Use the remote control that came with your **STB** to access the network configuration settings page.
2. Select the scanning wireless network function. The system starts to scan for available network. On this list, click Refresh to refresh the list at any time
3. Select the network you want to connect to.
4. If the chosen network has security enabled, you will have to setup corresponding security

parameter. Contact the network manager for the correct settings. Select the security type and fill in required parameters. The options include the following:

- WPA/WPA2/CCKM
- WPA/WPA2 Passphrase
- 802.1x
- Pre-Shared Key (Static WEP)
- None

## 4. Modifying a Wireless Network

### 4.1 Modifying General Settings

1. Use the remote control that came with your **STB** to access the network configuration settings page.
2. From the profile list, select one profile and choose the modify function.
3. Modify the settings below for your network.

Profile Name	Identifies the configuration wireless network profile. This name must be unique. Profile names are not case sensitive.
Client Name	Identifies the client machine.
Use this profile for Access Point mode	Configures station to operate in Access Point mode.
Network Names (SSIDs)	The IEEE 802.11 wireless network name. This field has a maximum limit of 32 characters. Configure up to three SSIDs (SSID1, SSID2, and SSID3).

## 4.2 Modifying Security Settings

1. Use the remote control that came with your **STB** to access the network configuration settings page.
2. Select a security option of this wireless network. This product provides security options below. Contact your wireless network administrator for choosing a correct option.
  - WPA/WPA2/CCKM
  - WPA/WPA2 Passphrase
  - 802.1x
  - Pre-Shared Key (Static WEP)
  - None

<b>WPA/WPA2</b>	<p>Enables the use of Wi-Fi Protected Access (WPA). Choosing WPA/WPA2 opens the WPA/WPA2 EAP drop-down menu. The options include:</p> <ul style="list-style-type: none"> <li>• EAP-FAST</li> <li>• EAP-TLS</li> <li>• EAP-TTLS</li> <li>• EAP-SIM</li> <li>• PEAP (EAP-GTC)</li> <li>• PEAP (EAP-MSCHAP V2)</li> <li>• LEAP</li> </ul>
<b>WPA/WPA2 Passphrase</b>	<p>Enables WPA/WPA2 Passphrase security. Click on the Configure button and fill in the WPA/WPA2 Passphrase.</p>
<b>802.1x</b>	<p>Enables 802.1x security. This option requires IT administration. Choosing 802.1x opens the 802.1x EAP type drop-down menu. The options include:</p> <ul style="list-style-type: none"> <li>• EAP-FAST</li> <li>• EAP-TLS</li> <li>• EAP-TTLS</li> <li>• EAP-SIM</li> <li>• PEAP (EAP-GTC)</li> <li>• PEAP (EAP-MSCHAP V2)</li> <li>• LEAP</li> </ul>
<b>Pre-Shared Key (Static WEP)</b>	<p>Enables the use of pre-shared keys that are defined on both the access point and the station. To define pre-shared encryption keys, choose the Pre-Shared Key radio button and click the Configure button to fill in the <u>Define Pre-Shared Keys window</u>.</p>

<b>None</b>	No security (not recommended).
<b>Allow Association to Mixed Cells</b>	Check this check box if the access point with which the client adapter is to associate has WEP set to Optional and WEP is enabled on the client adapter. Otherwise, the client is unable to establish a connection with the access point.
<b>Limit Time for Finding Domain Controller To</b>	Check this check box and enter the number of seconds (up to 300) after which the authentication process times out when trying to find the domain controller. Entering zero is like unchecking this check box, which means no time limit is imposed for finding the domain controller. Note: The authentication process times out whenever the authentication timer times out or the time for finding the domain controller is reached.
<b>Group Policy Delay</b>	Specify how much time elapses before the Windows logon process starts group policy. Group policy is a Windows feature used by administrators to specify configuration options for groups of users. The objective is to delay the start of Group Policy until wireless network authentication occurs. Valid ranges are from 0 to 65535 seconds. The value that you set goes into effect after you reboot your computer with this profile set as the active profile. This drop-down menu is active only if you chose EAP-based authentication.

## 4. Specifications

**Dimensions:** 90(L) \* 25(W) \* 5.4(H) mm

### 4.1 802.11abgn :

**Frequency range:**

- USA: 2.400 ~ 2.483GHz, 5.15 ~ 5.35GHz, 5.25 ~ 5.35GHz, 5.47 ~ 5.725GHz, 5.725 ~ 5.85GHz

**Channels support:**

- 802.11n b/g  
USA/CANADA/Taiwn: 11 (1-11) channels.
  
- 802.11na  
1). US/Canada/Taiwan: 30 channels

### 4.2 Bluetooth :

Item	Key specifications		
Main chipset	➤ BCM43242		
Compliance	➤ Bluetooth v3.0		
Frequency range	➤ 2402 ~ 2480MHz		
Initial carrier frequency tolerance	➤ +/- 40kHz (typical)		
Modulation technique	➤ Frequency hopping, 1600 hops/sec		
Channel spacing	➤ 1MHz		
Channels support	➤ 79 channels		
Operation voltage	➤ 5.0V +/- 9%		
Power consumption @25° C		Avg (mA)	Max (mA)
	Idle mode	5.9	24.5
	USB Suspend Mode without Scan	20.9	56.0
	Continuous DH5 TX	37.1	81.7
	Continuous 2DH5 TX	38.5	80.7
	Continuous 3DH5 TX	37.9	87.4
	Inquiry Scan	15.8	77.3

	***The maximum current consumption would be impacted by radiation environment and the driver mechanism.
Output power (dBm)	➤ 0 dBm typical, class 2 device ( -6 dBm < output power <4 dBm).  BT output Power by FW adjust
Sensitivity	➤ -85 dBm (typ.) for pi/4-DQPSK, 0.1%BER
Operation temperature	➤ -10° ~ 60° C
Storage temperature	➤ -35° ~ 70° C , R.H. : 90%

**Host interface:** USB 2.0  
**Operation temperature:** -10° ~ 60° C  
**Storage temperature:** -35° ~ 70° C