

**BELKIN®**

DUAL-BAND WIRELESS

# Range Extender

**User Manual**

F9K1106v1 8820-00923 Rev. A01

## TABLE OF CONTENTS

<b>Getting Started</b> .....	<b>1</b>
What's in the Box .....	1
Initial Setup .....	2
<b>Getting to Know Your Dual-Band Wireless Range Extender</b> ...	<b>5</b>
Front Panel .....	5
Back Panel .....	6
<b>Technical Details</b> .....	<b>7</b>
Technical Features .....	7
System Requirements .....	7
<b>Advanced Settings</b> .....	<b>8</b>
<b>Resetting the Dual-Band Wireless Range Extender</b> .....	<b>16</b>
<b>Troubleshooting, Support, and Warranty</b> .....	<b>18</b>
Troubleshooting .....	18
Technical Support .....	20
Belkin International, Inc., Limited 2-Year Product Warranty .....	21
<b>Regulatory Information</b> .....	<b>23</b>
FCC Statement .....	23

## GETTING STARTED

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Congratulations on buying a Dual-Band Wireless Range Extender (the Range Extender). This device will enable you to extend the range of your dual-band router to eliminate “dead spots” in your wireless network. Belkin’s MultiBeam technology gives enhanced coverage and performance to the areas of your house that need it. Lastly, the dual-band feature extends both your 2.4GHz and 5GHz networks.

### **What’s in the Box**

Dual-Band Wireless Range Extender

Installation Guide

Power Supply

Networking Cable

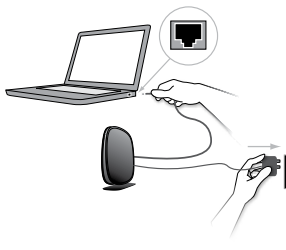
User Manual on CD

### Initial Setup

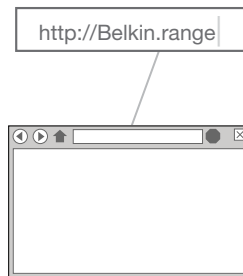
To get started, you will need:

- Your primary wireless router, its network name (SSID), and password. If it's a dual-band router, please be sure you have both SSIDs and passwords.
- A personal computer with a web browser

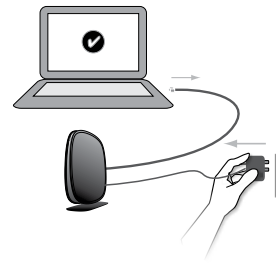
**Step 1:** Connect the cable to the Ethernet port on your PC, and then plug in the power supply.



**Step 2:** Open a browser, visit <http://Belkin.range>, and follow the onscreen instructions.



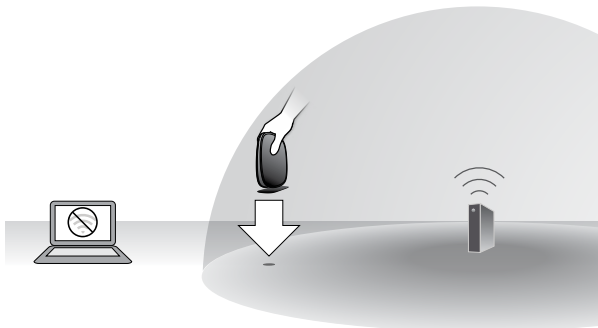
**Step 3:** Once the Range Extender has successfully joined the wireless network, disconnect it from the PC, and unplug the power supply.



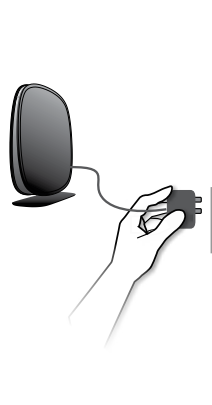
## GETTING STARTED

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**Step 4:** Place the Range Extender in an area where you can still access your wireless network without problems, but close to the area where you want to establish your extended network.



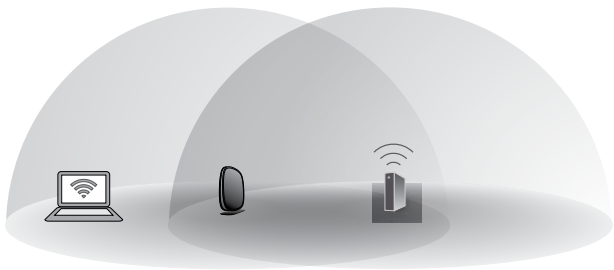
**Step 5:** Plug in the power supply.



## GETTING STARTED

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**Step 6:** Join your new extended wireless network.



## GETTING TO KNOW YOUR DUAL-BAND WIRELESS RANGE EXTENDER

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### Front Panel



#### A) Status Light

*Your Range Extender's status is shown by the light on the front.*

**Off:** The Range Extender is not plugged into a power source.

**Blinking Blue:** The Range Extender is starting up.

**Solid Blue:** The Range Extender is connected to the Wi-Fi® network.

**Solid Amber:** The Range Extender is connected to the Wi-Fi network but is experiencing a weak signal. The weak signal may be either the 2.4GHz or 5GHz band. A weak signal may lead to performance problems. Consider moving the Range Extender closer to the wireless router.

**Blinking Amber:** The Range Extender is not connected to the Wi-Fi network. Check to make sure that your wireless router is functioning properly, and/or move the Range Extender closer to the wireless router.

**Alternating Blue/Amber:** The Range Extender is ready to be set up. (Refer to "Getting Started" for instructions on how to set up your Range Extender.)

#### B) Wi-Fi Protected Setup (WPS) Light and Button

The WPS button on the front of your Range Extender can be used to help establish a secure connection between your Range Extender and other WPS-enabled Wi-Fi devices such as computers. To use the WPS feature on your Range Extender, see "Getting Started > Adding Computers to Your Network > Using the WPS Button." The small light near the WPS button shows what is happening while you are using WPS to establish a connection.

**Off:** Idle

**Blinking Blue:** The Range Extender is listening for a WPS-enabled computer or other device.

**Solid Blue:** The Range Extender has made a secure connection with the computer or other device.

**Amber:** A connection was not created.

### Back Panel



#### A) Wired (LAN) Connectors

Connect AV devices such as a TV, Blu-ray™ player, gaming console, and other wired devices to these ports using Ethernet cables.

#### B) Reset Button

This button is used to restart your Range Extender in rare cases when it functions incorrectly. Resetting the Range Extender will preserve your settings. This button may also be used to restore the factory default settings. Please see the Troubleshooting section for more information.

#### C) Power Connector

Connect the included power supply to this jack.



## TECHNICAL DETAILS

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### System Requirements

- 802.11a/b/g/n 2.4GHz and/or 5GHz wireless router with broadband Internet connection
- At least one computer with:

Installed wireless network interface card and TCP/IP protocol

Windows® XP 32 (SP3 or greater), Windows Vista® 32/64, or Windows 7 32/64; or Mac OS® X v10.5 or 10.6

Internet Explorer® v7 or above, Firefox®, Google Chrome™, or Safari®

Minimum 1.8GHz processor

Minimum 512MB RAM

### Specifications

#### Wireless Standards with Link Rate

- IEEE 802.11n (up to 300Mbps for 2.4GHz and 5GHz\*)
- IEEE 802.11g (up to 54Mbps\*)
- IEEE 802.11a (up to 54Mbps\*)
- IEEE 802.11b (up to 11Mbps\*)

#### Wireless Operating Spectrum:

- Simultaneous Dual-Band
- 2.4GHz and 5GHz

#### Wireless Security:

- Wi-Fi Protected Setup™
- 256-bit WPA®/WPA2® encryption
- 64/128-bit WEP encryption

#### VPN Support:

- PPTP
- IPSec pass-through

#### Ports:

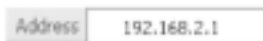
- 4 LAN Fast Ethernet ports

## ADVANCED SETTINGS

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### Connecting to the Web Interface

Using your Internet browser, you can access the Range Extender's Web-Based Advanced User Interface (UI). In your browser, type "belkin.range." Then press the "Enter" key.



### The Status Page



This page shows the detailed status of your Range Extender. The meaning of the various items is detailed on the right.

### 1. Quick-Navigation Links

You can go directly to any of the Range Extender's advanced UI pages by clicking directly on these links.

### 2. Language

Shows the active language for the Advanced User Interface. Select the desired language by clicking one of the available languages.

### 3. Page Name

The page you are on can be identified by this name. This User Manual will sometimes refer to pages by name. For instance, "LAN > LAN Settings" refers to the "LAN Settings" page.

### 4. Version Info

The Version Info section gives you information on the hardware part number, version number, firmware version, and serial number. Belkin Technical Support may ask you for this information in certain troubleshooting situations.

### 5. Features

This section details whether the WPS function is enabled or disabled, and for which extended network (2.4GHz or 5GHz).

### 6. and 7.

These sections provide detailed information on the 2.4GHz and 5GHz extended networks.

### Logging into the Firmware

The Range Extender's home page is visible to any user who wants to see it. To make any changes to the Range Extender's settings, you have to log in. Clicking on any one of the links on the home page will take you to the login screen. The Range Extender ships with no password entered. In the login screen, leave the password blank and click the "Submit" button to log in.



### Configuring the 2.4GHz Wireless Connection

This option will change the settings for the Range Extender's connection to your main 2.4GHz network. You can use this option for the following tasks:

- Connecting to a different wireless network
- Updating the settings after you've changed the wireless settings (e.g., security type or password) on your Range Extender

Click on the "2.4GHz Wireless Connection" link on the left side of the screen.



The Range Extender will provide the following options:

#### Network Name (SSID)

This is the name of the 2.4GHz network you wish to extend.

#### Security Type

You must specify the type of security for your Range Extender (WPA2, WPA, WEP, or None).

#### Password (Key)

This is the password or passkey that you normally use to connect to your wireless router.

### Configuring the 5GHz Wireless Connection

This option will change the settings for the Range Extender's connection to your main 5GHz network. You can use this option for the following tasks:

- Connecting to a different wireless network
- Updating the settings after you've changed the wireless settings (e.g., security type or password) on your Range Extender

Click on the "5GHz Wireless Connection" option on the left side of the screen.



The Range Extender will provide the following options:

#### Network Name (SSID)

This is the name of the 5GHz network you wish to extend.

#### Security Type

You must specify the type of security for your router (WPA2, WPA, WEP, or None).

#### Password (Key)

This is the password or passkey that you normally use to connect to your wireless router.

### Extended Network Settings

These options enable you to configure your Extended Networks.

#### SSID Settings



This screen enables you to configure the SSID, security, and other features of your Extended Network.

We recommend accepting the default values here, which will mirror your main network. However, if you wish to change settings for the Extended Network, you can do so here.

The screen is arranged in two columns, one for your 2.4GHz Extended Network and the second for the 5GHz Extended Network.

For each network, you may configure the following:

#### Network Name (SSID)

This is the name of your extended wireless Range Extender as it will show up when you try to connect to it from a laptop, tablet, etc.

#### Broadcast SSID

Note: This advanced feature should be employed by advanced users only. For security, you can choose not to broadcast your extended network's SSID. Doing so will keep your network name hidden from computers that are scanning for the presence of wireless networks. To turn off the broadcast of the SSID, remove the check mark from the box next to "Broadcast SSID", and then click "Apply Changes." The change is immediate. Each wireless computer or device now needs to be set to connect to your specific SSID. Refer to the documentation of your computer, tablet, or other device.

### Protected Mode

Protected mode ensures proper operation of draft 802.11n-compliant devices on your wireless network when 802.11g or 802.11b devices are present or when there is heavy 802.11g or 802.11b traffic in the operating environment. Use protected mode if your network consists of a mix of Belkin Double N+ Wireless Cards and 802.11g or 802.11b cards. If you are in an environment that includes little to no 802.11g or 802.11b wireless network traffic, you will achieve the best wireless performance with protected mode OFF. Conversely, in an environment with HEAVY 802.11g or 802.11b traffic or interference, you will achieve the best wireless performance with protected mode ON. This will ensure wireless performance is not affected.

### 802.11e/WMM QoS

802.11e/WMM QoS is a feature that prioritizes the traffic on your wireless network based on the type of traffic. We recommend leaving this enabled for optimal performance.

## Security

This screen enables you to change the wireless security settings such as WPA or WEP.



We recommend leaving the settings you used when you went through the Setup Wizard. By default, your Range Extender will use the same security settings as your main network. However, if you wish, you may specify different security settings here. The screen is arranged in two columns, one for your 2.4GHz network and the other for your 5GHz network.

**Security Type:** You may specify the type of security here. Available options are WPA2/WPA, WEP, and None (no security). We recommend you use the same type of security as your main router.

### **Password(Key)**

For WPA2 security, this can be any set of characters from 8 to 63 characters in length. For WEP security, this must be a string of "hex characters" (0-9 or A-F). (If you specify "None" for the security, this field will be hidden.) We recommend you use the same password as your main router.

### **Obscure password**

If this box is checked, the password will be obscured in your browser so that others cannot see it when you type it in.

## **Wi-Fi Protected Setup**

Your Dual-Band Wireless Range Extender supports the Wi-Fi Protected Setup™ (WPS) specification, which simplifies the setup of a wireless network. WPS uses familiar methodologies, such as typing in a Personal Identification Number (PIN) or pushing a button, to enable users to automatically configure network names and strong WPA/WPA2 data encryption and authentication.



### Using Wi-Fi Protected Setup™

Belkin recommends that you set up WPA2 as your wireless security. WPS does not provide additional security, but rather simplifies the addition of wireless devices to your wireless network. You may use either the Push Button Configuration (PBC) method or PIN method to allow a device access to your wireless network.

#### PBC

Push and hold the WPS button located on the front of your Range Extender for two seconds and the security LED will flash, indicating that WPS has been initiated. Then, initiate WPS on the client device within two minutes (refer to your client's documentation on this procedure). The wireless device and Range Extender will automatically exchange a security key and establish a secure connection.

#### PIN

The client device has a WPS PIN number (eight digits) that will be provided to you when you initiate the connection to the Range Extender. Enable WPS through the screen illustrated to the below. Enter the client's PIN into the Range Extender's internal registrar (accessed through this screen). The client will be securely enrolled into your wireless network within two minutes.



## RESETTING THE DUAL-BAND WIRELESS RANGE EXTENDER

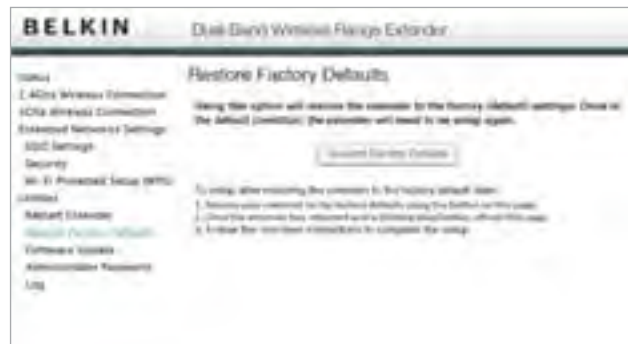
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### Restart your Dual-Band Wireless Range Extender



### Restoring Factory Defaults

In some situations, it may be necessary to restore factory defaults; this will restore the unit to the settings when you pulled it out of the box. If you do this, you'll need to set it up again.



### Updating the Range Extender's Firmware via the Web Interface

The following steps show you how to update your Dual-Band Wireless Range Extender's firmware using its web interface.



Click the button to “Check for Firmware Updates.” This will show you whether there is new firmware available.

Download the firmware file and save it to your PC.

Click “Choose Update File”; a box will open up. Select the firmware file you just downloaded.

Click “Update Firmware.”

### Troubleshooting

#### **Belkin Setup cannot find my Dual-Band Wireless Range Extender.**

If Belkin Setup is not able to communicate with your Dual-Band Wireless Range Extender during the installation process, please make sure that the Range Extender is turned on and has Internet connectivity.

#### **The Range Extender is having trouble connecting to your wireless network.**

##### **Blinking Amber LED**

This indicates that the Dual-Band Wireless Range Extender is not connected to your wireless network. Please move the Range Extender closer to your router.

##### **Solid Amber LED**

This indicates that the Dual-Band Wireless Range Extender is connected to your wireless network but the signal is weak. You might experience slower performance. Please move the Range Extender closer to your router.

#### **My wireless network performance is slow, inconsistent, suffers from weak signal, or I'm having difficulty maintaining a connection with my wireless network.**

Wireless technology is radio-based, which means connectivity and the throughput performance between devices decreases when the distance between devices increases. Other factors that will cause signal degradation (metal is generally the worst culprit) are obstructions such as walls and metal appliances. Note also that connection speed may decrease as you move your computer farther away from the Range Extender. Finally, note that all your wireless devices are sharing the same network. So, if you have another device that is generating a lot of network traffic (for example, transferring large files) that will compromise the performance of other devices on the network. Try moving high-traffic devices closer to the Range Extender, or try wiring them to your router with an Ethernet cable.

### **Reset Button**

The “Reset” button is used in rare cases when the Range Extender may function improperly. Resetting the Range Extender will restore the Router’s normal operation while maintaining the programmed settings. You can also restore the factory default settings by using the “Reset” button. Use the restore option in instances where you may have forgotten your custom password.

#### **Resetting the Dual-Band Wireless Range Extender**

Push and release the “Reset” button. The light on the Range Extender will momentarily flash and then become solid again, indicating that the reset is complete.

#### **Restoring Your Range Extender to Factory Defaults**

Press and hold the “Reset” button for at least 10 seconds, and then release it. The light on the Range Extender will momentarily flash and then will begin to blink. When the light becomes solid again, the restore is complete.

### **Technical Support**

#### **US**

<http://www.belkin.com/support>

#### **UK**

<http://www.belkin.com/uk/support>

#### **Australia**

<http://www.belkin.com/au/support>

#### **New Zealand**

<http://www.belkin.com/au/support>

#### **Singapore**

1800 622 1130

#### **Europe**

<http://www.belkin.com/uk/support>

### **Belkin International, Inc., Limited 2-Year Product Warranty**

#### **What this warranty covers.**

Belkin International, Inc. ("Belkin") warrants to the original purchaser of this Belkin product that the product shall be free of defects in design, assembly, material, or workmanship.

#### **What the period of coverage is.**

Belkin warrants the Belkin product for two years.

#### **What will we do to correct problems?**

##### *Product Warranty.*

Belkin will repair or replace, at its option, any defective product free of charge (except for shipping charges for the product). Belkin reserves the right to discontinue any of its products without notice, and disclaims any limited warranty to repair or replace any such discontinued products. In the event that Belkin is unable to repair or replace the product (for example, because it has been discontinued), Belkin will offer either a refund or a credit toward the purchase of another product from Belkin.com in an amount equal to the purchase price of the product as evidenced on the original purchase receipt as discounted by its natural use.

#### **What is not covered by this warranty?**

All above warranties are null and void if the Belkin product is not provided to Belkin for inspection upon Belkin's request at the sole expense of the purchaser, or if Belkin determines that the Belkin product has been improperly installed, altered in any way, or tampered with. The Belkin Product Warranty does not protect against acts of God such as flood, lightning, earthquake, war, vandalism, theft, normal-use wear and tear, erosion, depletion, obsolescence, abuse, damage due to low voltage disturbances (i.e. brownouts or sags), non-authorized program, or system equipment modification or alteration.

#### **How to get service**

To get service for your Belkin product you must take the following steps:

1. Contact Belkin International, Inc., at 12045 E. Waterfront Drive, Playa Vista, CA 90094, Attn: Customer Service, or call 800-223-5546, within 15 days of the Occurrence. Be prepared to provide the following information:
  - a. The part number of the Belkin product.
  - b. Where you purchased the product.
  - c. When you purchased the product.
  - d. Copy of original receipt.
2. Your Belkin Customer Service Representative will then instruct you on how to forward your receipt and Belkin product and how to proceed with your claim.

Belkin reserves the right to review the damaged Belkin product. All costs of shipping the Belkin product to Belkin for inspection shall be borne solely by the purchaser. If Belkin determines, in its sole discretion, that it is impractical to ship the damaged equipment to Belkin, Belkin may designate, in its sole discretion, an equipment repair facility to inspect and estimate the cost to repair such equipment. The cost, if any, of shipping the equipment to and from such repair facility and of such estimate shall be borne solely by the purchaser. Damaged equipment must remain available for inspection until the claim is finalized. Whenever claims are settled, Belkin reserves the right to be subrogated under any existing insurance policies the purchaser may have.

### **How state law relates to the warranty**

THIS WARRANTY CONTAINS THE SOLE WARRANTY OF BELKIN. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR, EXCEPT AS REQUIRED BY LAW, IMPLIED, INCLUDING THE IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SUCH IMPLIED WARRANTIES, IF ANY, ARE LIMITED IN DURATION TO THE TERM OF THIS WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

IN NO EVENT SHALL BELKIN BE LIABLE FOR INCIDENTAL, SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR MULTIPLE DAMAGES SUCH AS, BUT NOT LIMITED TO, LOST BUSINESS OR PROFITS ARISING OUT OF THE SALE OR USE OF ANY BELKIN PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This warranty gives you specific legal rights, and you may also have other rights, which may vary from state to state. Some states do not allow the exclusion or limitation of incidental, consequential, or other damages, so the above limitations may not apply to you.



## REGULATORY INFORMATION

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### FCC Statement

#### DECLARATION OF CONFORMITY WITH FCC RULES FOR ELECTROMAGNETIC COMPATIBILITY

We, Belkin International, Inc., of 12045 E. Waterfront Drive, Playa Vista, CA 90094, declare under our sole responsibility that the device, **F9K1106v1**, 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.

#### Caution: Exposure to Radio Frequency Radiation

The device shall be used in such a manner that the potential for human contact normal operation is minimized.

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

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

### Federal Communications Commission Notice

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 and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to 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 and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

### **Industry Canada Statement:**

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-210 d'industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

### **IMPORTANT NOTE:**

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

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

#### **Caution:**

The device for the band 5150-5250MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems. High-power radars are allocated as primary users (meaning they have priority) of 5250-5350MHz and 5650-5850MHz and these radars could cause interference and/or damage to LE-LAN devices.

### **NOTE IMPORTANTE:** (Pour l'utilisation de dispositifs mobiles)

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20cm de distance entre la source de rayonnement et votre corps.

### **Avvertissement:**

Le dispositif fonctionnant dans la bande 5150-5250MHz est réservé uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux. Les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350MHz et 5650-5850MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

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