

WX-1x

WX-1 and WX-1-B

802.11ac Dual Band Access Point

User Guide Version 1.0

pakedgedevice&software inc



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Industry Canada Statement.....	錯誤! 尚未定義書籤。
Europe – EU Declaration of Conformity	錯誤! 尚未定義書籤。

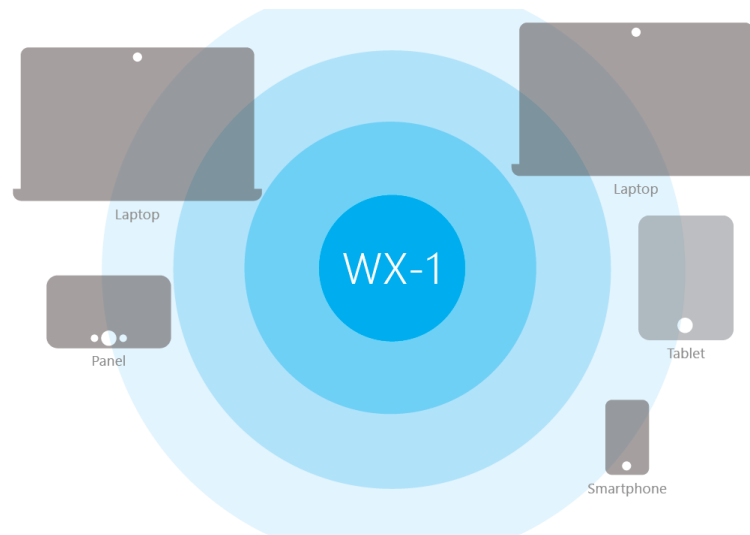
Introduction

Thank you for purchasing the Pakedge WX-1x 802.11ac Dual Band Access Point.

As the central component of your wireless network, the WX-1 provides you with high-speed, high-range wireless AC networking. The WX-1x broadcasts on both the 2.4 GHz and 5 GHz band so that select devices can choose their preferred source of wireless internet, improving the overall stability, reliability and performance of the wireless network.

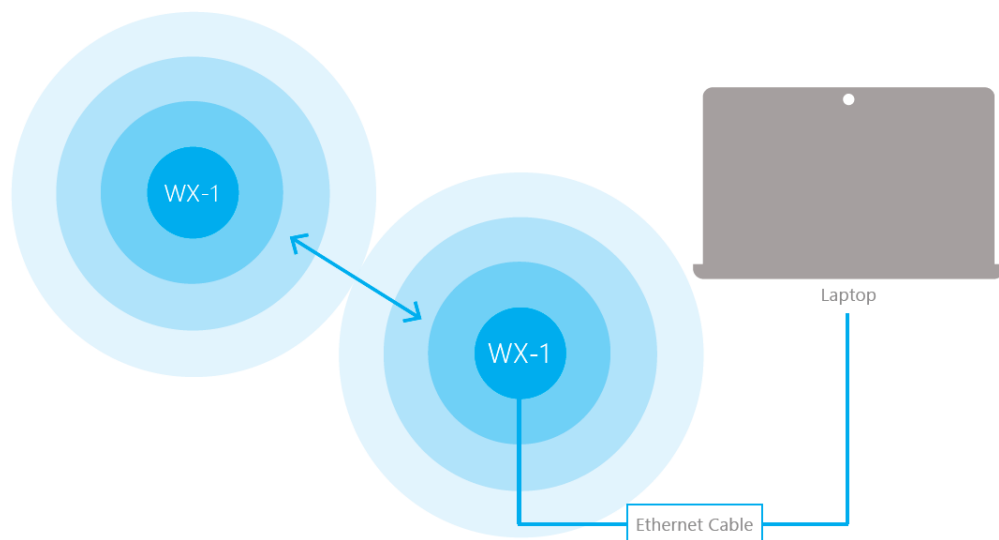
Each band (either 2.4 GHz or 5 GHz) of the WX-1x can operate in three modes:

- **Access Point Mode:** This is the typical configuration for most Wi-Fi networks, as shown below.

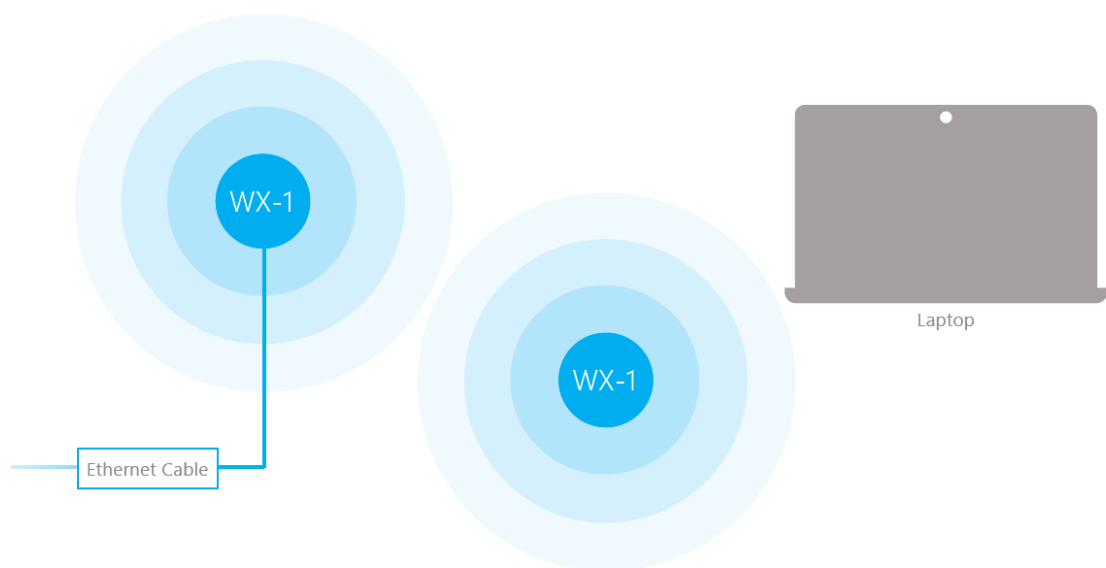


- **WDS Bridge Mode:** This mode is used to send wireless internet to a hardwired device when you cannot use an Ethernet cable directly. Let's say you have a desktop computer in an isolated portion of an old home and can't run a cable through the whole house to get internet to that specific computer.

- When you put the WX-1x in bridge mode, it can receive a wireless signal from an access point in root access point mode and send it to a client device through an Ethernet connection.



- **WDS Repeater** – The repeater also receives wireless signal from another access point. However, unlike a bridge access point, a repeater access point sends out Wi-Fi so that client devices can connect to it wirelessly.



The functionality of the WX-1x changes depending on its operating mode. This manual offers both general and mode-specific content.

System Requirements

The minimum system requirements for the WX-1x are:

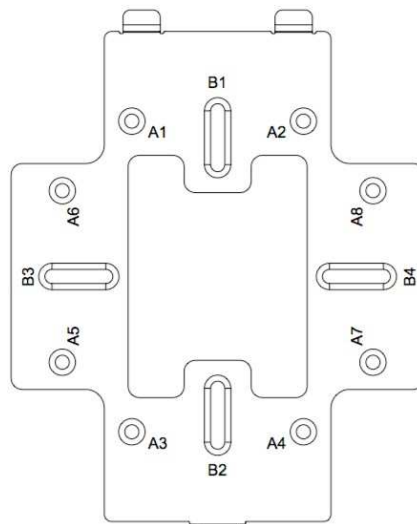
- PC or MAC book compatible with an Ethernet interface
- Operating system that supports an HTTP web browser

Hardware Installation

Note: the product is designed for specific application and must be professionally installed by a qualified personal who has RF and related knowledge.

WX-1/WX-1-B Mounting Options

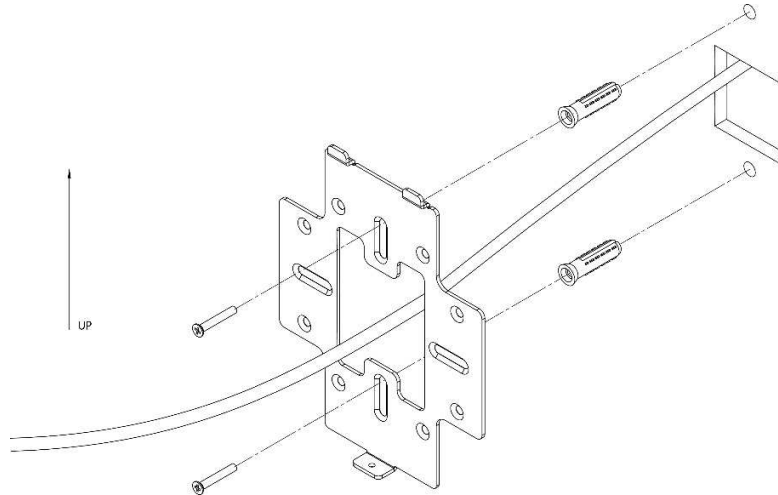
Using the Provided Wall Mount



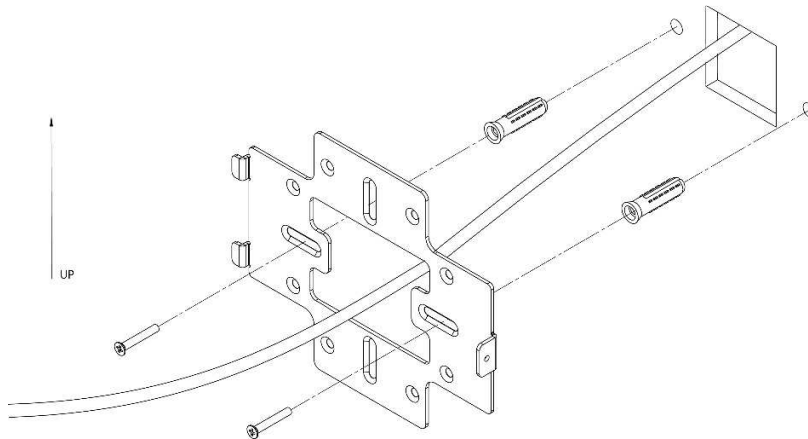
A: DOUBLE-GANG ELECTRICAL BOX, WALL

B: WALL, SINGLE-GANG ELECTRICAL BOX, EUROPEAN OUTLET BOX US 4" ROUND JUNCTION BOX, US 3.5" ROUND JUNCTION BOX

Vertical mount: Secure the wall bracket to the wall anchors using the included hardware.



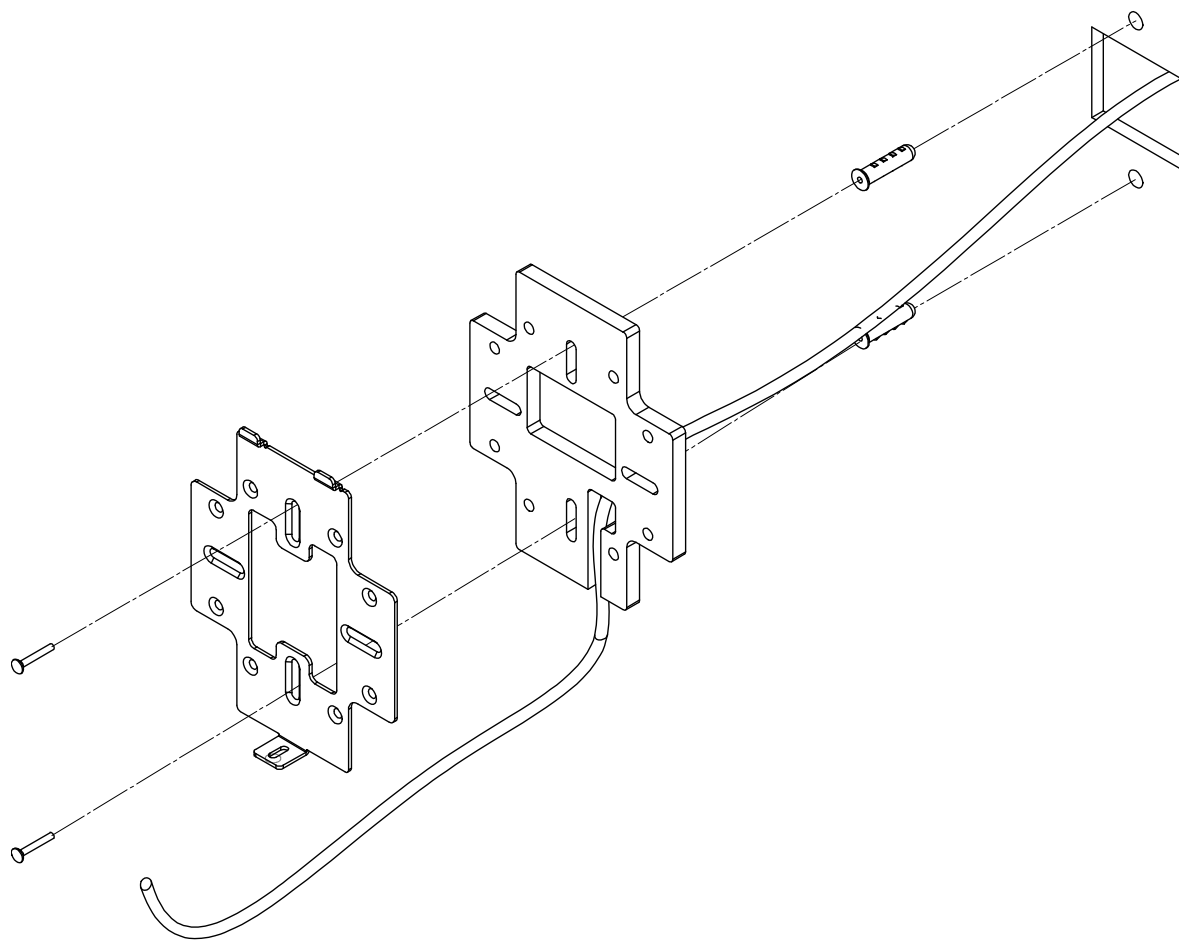
Horizontal mount: Line up the slots and secure the wall bracket to the wall anchors using the included hardware.



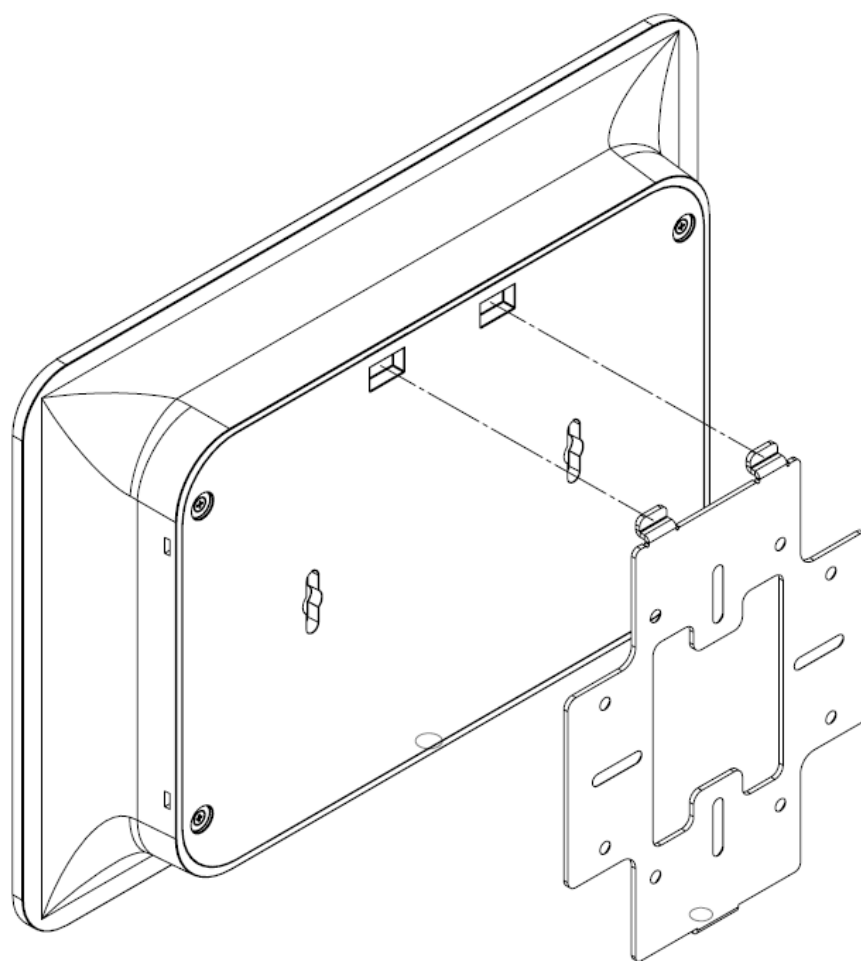
Using provide spacer to mount the Access Point (Optional)

In order to properly route the Ethernet cable to the unit use the provided spacer.

1. Attached the wall bracket to the spacer.
2. Route the cable through the spacer.
3. Screw the assembled unit to the wall.

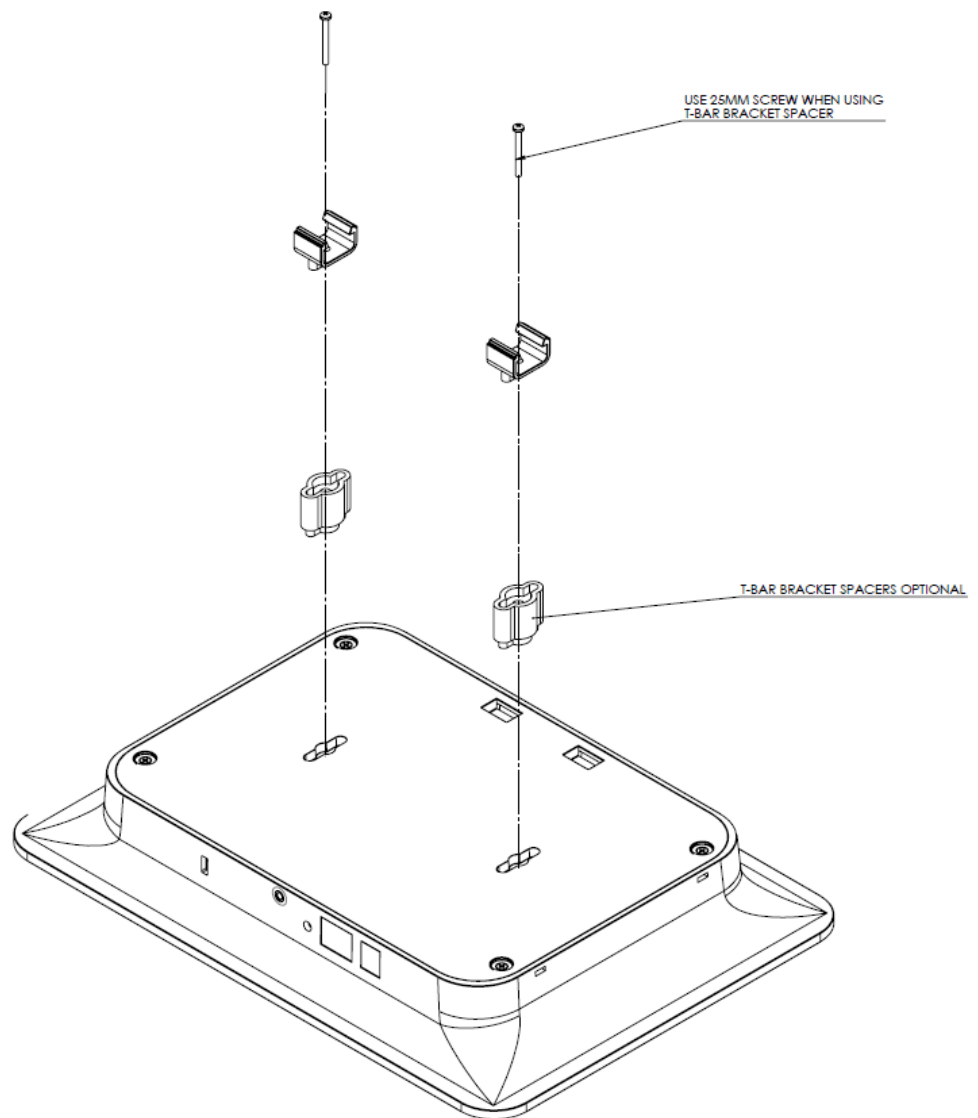


Line the two tabs on the top of the wall bracket with the two pockets on the back of the access point. Slide the WAP downwards to lock it in place and secure with security screw.

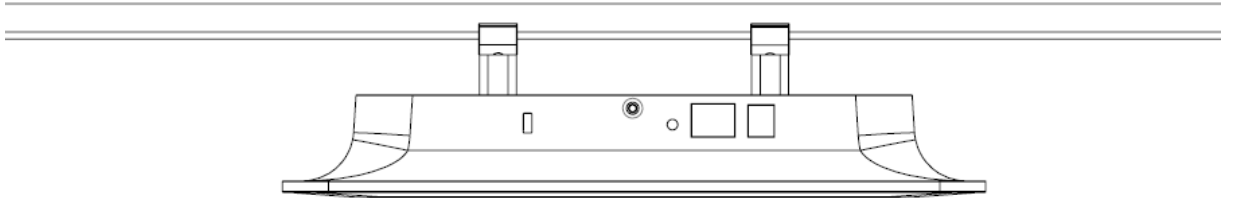


Using Provided T-bar

1. Place the T-bar bracket into the slots on the back of the WAP and line up the two holes on the T-Bar Bracket with the two mounting points on the back of the WAP. Using the supplied hardware, mount the T-bar bracket to the WAP.



2. Line up the T-bar brackets with the T-Bar. Press down until the T-bar brackets snap on.

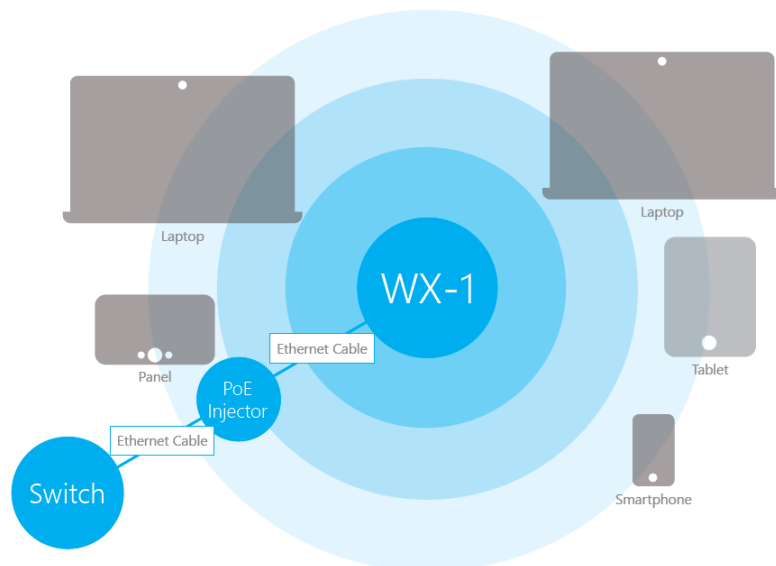


Power Method for the WX-1

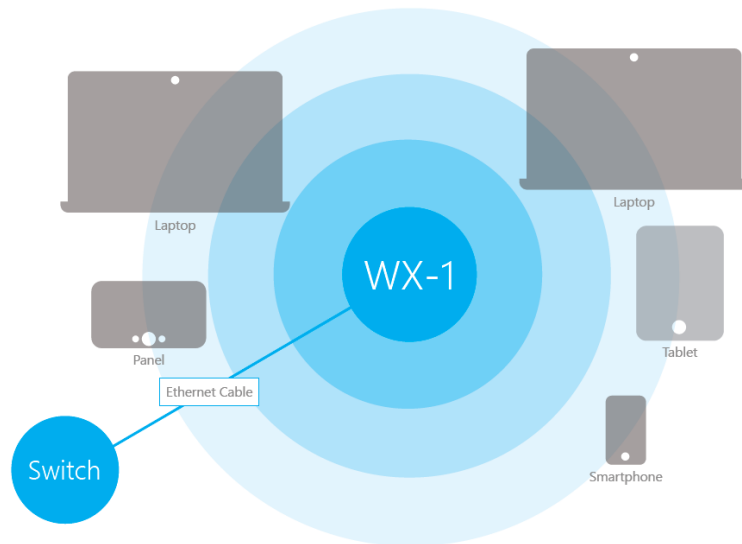
The diagrams below show using a PoE+ injector or a PoE+ switch to power the WX-1x.

Note: the product must be powered by 802.3at - compliant Power over Ethernet (PoE+) injector or switch

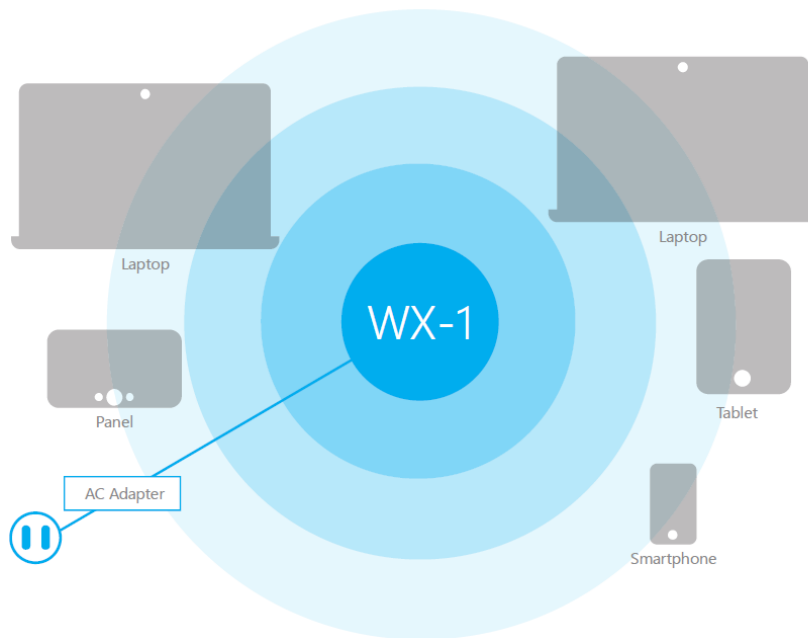
Power via PoE+ Injector



Power via PoE+ Switch



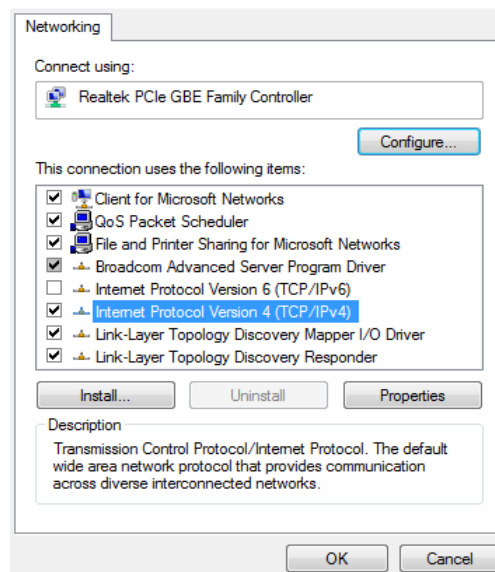
Power using the included power adapter



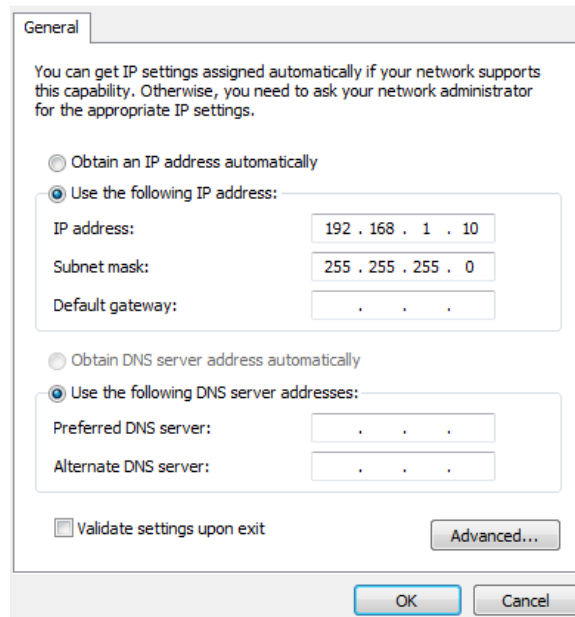
The WX-1x can be configured in several modes: Access Point, WDS Root Access Point, WDS Repeater or WDS Bridge. When shipped from the factory, the WX-1x is set to Access Point mode. The default IP address of the WX-1x is **192.168.1.250** and username/password of **pakedge/pakedgea**.

In order to log into the WX-1x, you must first configure the TCP/IP settings of your PC/Notebook. Follow these steps:

1. Under **Control Panel**, double-click **Network Connections** and double-click the connection of your Network Interface Card (NIC). The Local Area Connection Properties dialog appears:



2. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**. The Internet Protocol (TCP/IP) dialog appears where you can configure the TCP/IP settings of your PC.

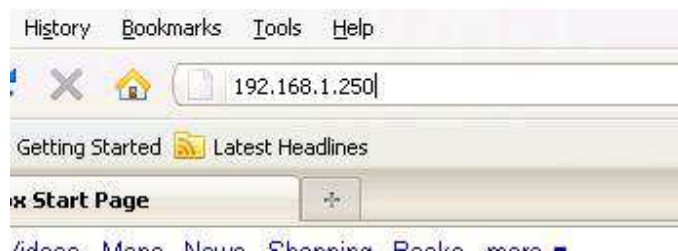


3. Select **Use the following IP Address** and type the IP address and subnet mask, as in the example below. (Be sure the IP address and subnet mask are on the same subnet as the WX-1x.)

WX-1x IP address: 192.168.1.250
PC IP address: 192.168.1.10
PC subnet mask: 255.255.255.0

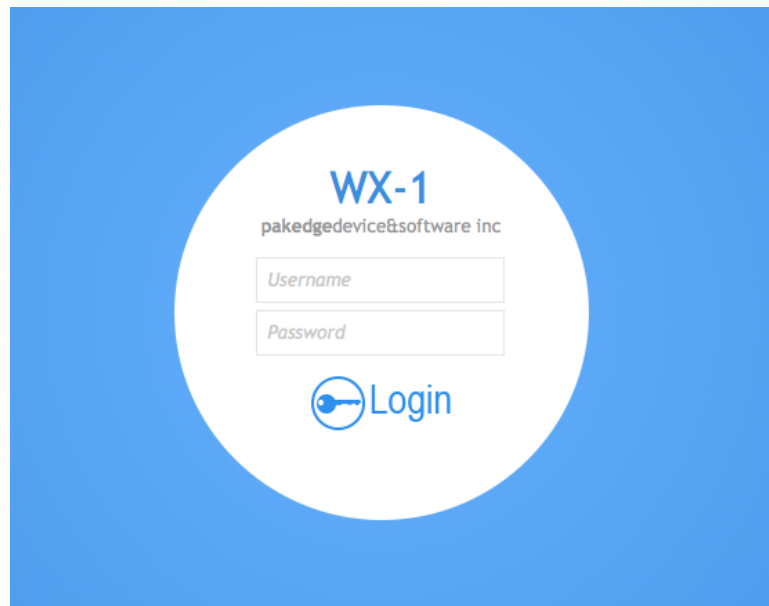
WX-1x Start Up

To configure the WX-1x through a web browser, type the IP address of the WX-1x (default **192.168.1.250**) and press **Enter**.



NOTE: Make sure the WX-1x and your computer are configured on the same subnet. To configure the IP address of your computer, follow the steps in the previous section.

The WX-1x login dialog appears.



In the username box, type **pakedge**. In the password box, type **pakedgea** and click **Login**.

The WX-1x main menu appears (see figure below). The main menu displays the current status of WX-1x and general information such as the IP address, subnet mask, and MAC addresses. The 2.4 GHz and 5 GHz sections display the device operating mode, wireless mode, channel bandwidth and channel settings. The WX-1x supports multiple SSIDs along with details and security settings for each SSID.

WX-1

Network
 Management
 Maintenance

Logout

Sun 03/22/2015
Welcome to your
WX-1
WX-1T041500001

Wireless

LAN

LAN MAC

90:A7:C1:08:20:10

Wireless LAN - 2.4GHz MAC

90:A7:C1:08:20:10

Wireless LAN - 5GHz MAC

90:A7:C1:08:20:11

IP Address

192.168.100.250

Subnet Mask

255.255.255.0

Gateway

192.168.100.99

2.4 GHz

Wireless LAN Information

Operation Mode

Access Point

Wireless Mode

802.11 B/G/N

Channel Bandwidth

20/40 MHz

Channel

auto

5 GHz

Wireless LAN Information

Operation Mode

Access Point

Wireless Mode

802.11 A/N/AC

Channel Bandwidth

80 MHz

Channel

auto

SSID	Profile	Security	VID	802.1Q	SSID	Profile	Security	VID	802.1Q
PakedgeGuest2.4	Pakedge Default	None	guest		PakedgeGuest5	Pakedge Default	None	guest	
Pakedge2.4-1	Pakedge Default	None	1		Pakedge5-1	Pakedge Default	None	1	

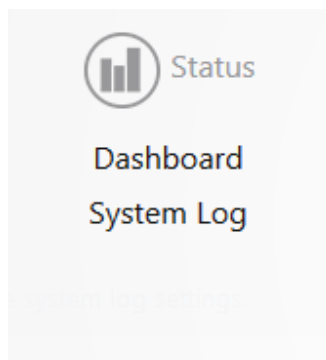
Menu Options



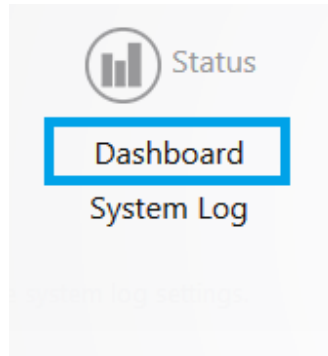
The navigation bar on the top of the window comes with 4 options:

- **Status:** Shows the dashboard and logs of the WX-1x access point. The dashboard is the default page that comes up when you log into the WX-1x GUI.
- **Network:** User can make changes to the network settings, such as the LAN, wireless settings, and transmit power settings.
- **Management:** View diagnostics, enable SNMP, and control your LEDs.
- **Maintenance:** Modify your personal account settings and upgrade your firmware.

Status



Dashboard



The Dashboard is the default landing page of the access point. You can also access this page by hovering over the **Status** icon and clicking **Dashboard**. This page displays the MAC and IP addresses, operation mode, WLAN information, SSIDs and connected clients.

The dashboard is divided into several sections. At the top is a navigation bar with icons for Status, Network, Management, and Maintenance, along with a 'Logout' link. Below this is a large blue header area with the date 'Sat 07/11/2015', the device name 'WX-1', and its MAC address '154280324'. There are also icons for 'Wireless' and 'LAN'. The main content area is divided into two columns. The left column shows 'Wireless LAN Information' for the 2.4 GHz band, including 'Operation Mode: Access Point', 'Wireless Mode: 802.11 B/G/N-Mixed', and 'Channel Bandwidth: 40 MHz'. The right column shows 'Wireless LAN Information' for the 5 GHz band, including 'Operation Mode: Access Point', 'Wireless Mode: 802.11 AC-Only', and 'Channel Bandwidth: 80 MHz'. Below these are two tables of SSIDs and profiles. The bottom section is a 'Statistics' table showing network activity for various interfaces.

SSID	Profile	Security	VID	802.1Q
hbwkGuest2.4	Pakedge Default	None	guest	
hbwkqa2.4	Pakedge Default	None	1	
hbwkGuest5	Pakedge Default	None	guest	
hbwkqa5.0	Pakedge Default	None	1	

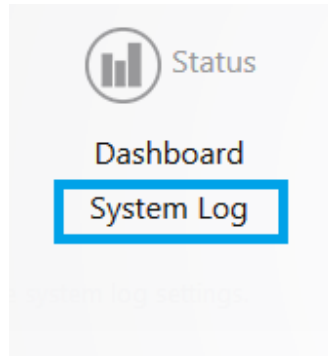
SSID	MAC Address	TX	RX	RSSI	Block
hbwkqa2.4	92:A7:C1:08:01:D8	0B	0B		
hbwkqa5.0	92:A7:C1:08:01:D9	0B	0B		
LAN1	90:A7:C1:08:01:DA	137MB	60MB		
LAN2	90:A7:C1:08:01:DB	0B	0B		

Statistics

Interface	MAC	RX(Byte)	TX(Byte)
hbwkqa2.4	92:A7:C1:08:01:D8	0B	0B
hbwkqa5.0	92:A7:C1:08:01:D9	0B	0B
LAN1	90:A7:C1:08:01:DA	137MB	60MB
LAN2	90:A7:C1:08:01:DB	0B	0B

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System Log



The System Log page has an activity log that can be used by Pagedge Technical Support for troubleshooting purposes.

A screenshot of the 'System Log' configuration page. The title 'System Log' is at the top left. Below it, a subtitle reads 'This page allows you to configure system log settings.' The main content area contains three input fields: 'System log buffer size' with the value '10240', 'External system log server' with the value '0.0.0.0', and 'External system log server port' with the value '514'. A checkbox labeled 'Buffer size is in KB' is checked. Below the input fields are two blue buttons: 'Download' and 'Apply'.

- **System log buffer size:** Maximum value of the buffer is 10240 KB (10MB), which is also the default setting.
- **External system log server:** An external server may be set up to receive log activity. Enter the IP address of the external server.
- **External system log port:** A port number for the external server may be entered here.
- **Download:** Download the encrypted log.

Network



LAN



Hover over the **Network** icon and click **LAN**. This page displays the LAN settings for the WX-1x. To configure the IP address of your WX-1x, you can configure the WX-1x with a static IP address or obtain an IP address automatically by using a DHCP client.

LAN

IP Network Setting: Static address

IP Address: 192.168.1.250

Subnet Mask: 255.255.255.0

Gateway: 192.168.1.99

Use custom DNS servers: 192.168.1.99

Management VLAN

Enable: ☐

VLAN ID: 2-4095

Apply

LAN

- **IP Network Setting:** If your WX-1x is connected to a DHCP server (such as a router), choose “**Obtain an IP address automatically**”. Your WX-1x will be assigned an IP address from the DHCP pool (**Not recommended**).
- **Specify an IP address (default):** Select this option if you want to use a static IP address. Type the appropriate entries in the text boxes for **IP Address**, **IP Subnet Mask**, **Default Gateway**, **Primary** and **Secondary DNS**.
- Click “**Apply**” to apply the changes.

Management VLAN

Warning: Do not enable this feature unless you need to tag the default VLAN on the access point. If configured incorrectly, the access point will become inaccessible and will need to be reset to factory default. VLAN tagging can only be set on a managed switch capable of using VLANs.

- **VLAN ID for Management:** To turn on VLAN Management, check Enable under Management VLAN.
- In the **VLAN ID** text box, enter the number of the VLAN you want to access the administrative functions of the WX-1x through. For example, if VLAN3 is used for management, type in 3.
- Click **Apply** to save your changes.

Wireless



Radio

Hover over **Network** and click on **Wireless**, you will be directed to the Radio configuration page under the **Radio** tab.

A screenshot of the 'Wireless' configuration page. The page has a header 'Wireless' and a tabbed interface with 'Radio' selected. Below the tabs are two columns of settings for 2.4GHz and 5GHz bands. The 2.4GHz column includes settings for Country Code (US - United States), Operation Mode (Access Point), Wireless Mode (G/N-Mixed), Channel Mode (HT 20/40 MHz), and Channel (Auto). The 5GHz column includes settings for Operation Mode (Access Point), Wireless Mode (A/N/AC-Mixed), Channel Mode (VHT 80 MHz), and Channel (Auto). Both columns have 'Scan' buttons for AP Detection. A red warning message states: 'Country Code will be locked after you click Apply button.' An 'Apply' button is at the bottom center.

- **Country Code:** Selecting your country is required for proper functionality of this device and may be required by law. After selecting your country and clicking Apply, the Country Code feature will become locked. To regain access to Country Code, the access point must be reset to factory default.

- **Band Steering:** Band steering steers 5GHz capable clients to that frequency. By enabling this function, the 2.4GHz SSID and settings will be copied to the 5GHz band.
- **Operation Mode:** Both the 2.4 and the 5 GHz band have the following operating modes: Access Point, WDS Root Access Point, WDS Repeater and WDS Bridge.
 - o **Access Point:** Standard mode of operation. Allows a wireless connection to the LAN.
 - o **WDS Root Access Point:** The access point with this mode set will be the “root” device that access points configured with WDS Repeater and WDS Bridge will connect to.
 - o **WDS Repeater:** This mode allows the access point to connect to a WDS Root Access Point. This setting will take the SSID broadcasted by the WDS Root Access Point and rebroadcast it to end user devices.
 - o **WDS Bridge:** This mode allows the access point to connect to a WDS Root Access Point. This mode takes in the SSID broadcasted by the WDS Root Access Point and turns it into Ethernet connectivity for client devices.
- **Wireless Mode:** Choose the setting that corresponds to the type of wireless clients connected to your network: B-Only, G-Only, B/G-Mixed, N/G-Mixed or B/G/N-Mixed (on the 2.4GHz) or A-Only, N-Only, N/A-Mixed, AC-Only, AC/N-Mixed or A/AC/N-Mixed (on the 5GHz). If you aren’t sure which type(s) of clients will access the wireless networks, it’s recommended to choose B/G/N-Mixed on the 2.4GHz and A/AC/N-Mixed on the 5GHz for best performance.

NOTE: When set to a mixed mode, ALL devices connected to the wireless will use the mode that is compatible for ALL devices. Example – If you have the 2.4GHz Wireless set to B/G/N Mixed and all connected devices use G, the speeds will slow accordingly.

- **Channel Mode:** By default, the **Channel Mode** is set to HT 20/40 MHz (when using 2.4GHz) and HT 80 MHz (when using 5GHz). Selecting the HT 40 MHz channel mode on 2.4 GHz will allow for greater speeds, but at the risk of also increasing interference.
 - o **Example:** When using the 20 MHz channel width on the 2.4GHz band, channel 6 would bleed into channels 4, 5, 7 and 8 giving you three non-overlapping channels (1, 6 and 11). When using 40MHz channel width on the 2.4GHz radio, channel 6 would bleed into channels 2, 3, 4, 5, 7, 8, 9, and 10.
- **Channel** – Using the default setting (**Auto**), the WX-1x automatically selects the channel with best performance for the wireless network. To select a channel manually, click the drop-down list and select a channel. The channel options available depend on the Country Code selected.

- **AP Detection** – Click “Scan” to perform an automatic site survey. A new window will open and display the site survey utility. The WX-1x will scan the frequency for devices currently broadcasting their SSID, and then will display them in the table.

AP Detection			
100%	FiOS-9T6IP Channel:153	BSSID: C8:A7:0A:9E:90:1C	Encryption:WPA2 - PSK
100%	Pakedge5-1 Channel:44	BSSID: 90:A7:C1:08:02:91	Encryption:open
100%	PakedgeGuest2.4 Channel:40	BSSID: B2:A7:C1:08:02:95	Encryption:WPA2 - PSK
100%	PakedgeManagment2.4 Channel:40	BSSID: 90:A7:C1:08:02:95	Encryption:WPA2 - PSK
100%	PakedgeNetwork2.4 Channel:40	BSSID: A2:A7:C1:08:02:95	Encryption:WPA2 - PSK
100%	PakedgeVOIP2.4 Channel:40	BSSID: 92:A7:C1:08:02:95	Encryption:mixed WPA/WPA2 - PSK
100%	Support Lab 5GHz Channel:36	BSSID: 90:A7:C1:08:02:A1	Encryption:WPA2 - PSK
100%	TAS Channel:149	BSSID: 02:18:5A:59:22:30	Encryption:mixed WPA/WPA2 - PSK
100%	TAS_ALFs Channel:149	BSSID: 02:18:5A:59:22:32	Encryption:WPA2 - PSK
100%	TAS_Guest Channel:149	BSSID: 02:18:5A:59:22:31	Encryption:WPA2 - PSK
100%	Training WK Channel:36	BSSID: 90:A7:C1:08:05:F1	Encryption:WPA2 - PSK
100%	WK-Rack1 Channel:44	BSSID: 90:A7:C1:08:0D:4D	Encryption:WPA2 - PSK
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Security Profiles

Under the **Security Profiles** tab, you will be able to configure security profiles that can be used when creating SSIDs under the configuration tab.

The screenshot shows the 'Wireless' configuration page with the 'Security Profiles' tab selected. The interface includes a table with columns for Profile Name, Encryption, Password, and Manage. The 'Pakedge Default' profile is marked as 'In Use'. Three test profiles are listed with WPA2 PSK and WPA PSK encryption options. A 'Delete' button is available for each test profile. An 'Add Wireless Security Profile' button is located below the table, and an 'Apply' button is at the bottom.

Profile Name	Encryption	Password	Manage
Pakedge Default	No Encryption		In Use
Test 1	WPA2 PSK		Delete
Test 2	WPA2 PSK		Delete
Test 3	WPA PSK		Delete

[Add Wireless Security Profile](#)

[Apply](#)

- **Profile Name:** Create a name for the security profile.
- **Encryption:** Select an encryption type for your security profile. The four available options are, No Encryption, WPA PSK, WPA2 PSK, and WPA/WPA2 PSK.
 - o **No Encryption:** This will leave your profile without security (not recommended).
 - o **WPA PSK:** Password must be at least 8 characters long. This is a legacy encryption protocol (not recommended).
 - o **WPA2 PSK:** Password must be at least 8 characters long. AES-only encryption. (Recommended)
 - o **WPA/WPA2 PSK:** Password must be at least 8 characters long. This feature is also known as Mixed Mode and uses TKIP encryption.

NOTE: Passwords may only contain numbers and letters. Special characters are not allowed. Examples of special characters: (!@#\$%&^&*).

Configuration

To configure SSIDs for both the 2.4 GHz and 5 GHz bands, go to the **Configuration** tab. The WX-1x can set up to 8 SSIDs per band for a total of 16 SSIDs.

The screenshot displays the 'Wireless' configuration page with the 'Configuration' tab selected. It shows settings for two frequency bands: 2.4 GHz and 5 GHz. Each band has a table for SSID configuration and a button to add a new profile.

2.4 GHz Band:

On Off	Wireless Name (SSID)	Security Profile	Hide SSID	Client Isolation	Pakedge Zone (VLAN)	Manage
☒	Pakedge2.4-1	Pakedge Default	☐	☐	1	

[Add 2.4GHz Wireless Profile](#)
1 / 8 Used

5 GHz Band:

On Off	Wireless Name (SSID)	Security Profile	Hide SSID	Client Isolation	Pakedge Zone (VLAN)	Manage
☒	Pakedge5-1	Pakedge Default	☐	☐	1	

[Add 5GHz Wireless Profile](#)
1 / 8 Used

[Apply](#)

- **On Off:** The SSID may be turned on or turned off using this checkbox.
- **Wireless Name (SSID):** The SSID is the name associated with the Wi-Fi network. An SSID cannot exceed 32 characters.
- **Security Profile:** The profiles created under the Security Profiles tab may be applied to the SSID here.
- **Hide SSID:** Enabling this feature will keep the SSID name from being broadcast. The SSID will still be available for client access, provided the SSID is turned on. This is not a security feature.
- **Client Isolation:** This feature is also referred to as "station separation". This feature prevents clients on the same SSID from being able to access other clients on the network.

- **Pakedge Zone (VLAN):** This option defines the VLAN that on which the SSID will reside. To change the VLAN, select the grey circle with the number 1 inside it. A selection ring will appear with the available VLAN options.
- **Manage:** This column displays the management settings that were configured under Management VLAN. Management VLAN is located on the LAN page under Network.

Guest Network Settings

The Guest Network feature is designed for networks that do not have a guest VLAN. The Guest Network acts as its own network and only has access to the internet. Each access point's guest network is independent from the guest networks of other access points.

To enable the Guest Network, select On/Off. By default, the guest network name is Pakedge-Guest and the IP scheme is set to 192.168.200.X. You have the option to change the default settings, if desired. You can change the SSID, IP address, subnet, starting IP address and ending IP address. Once changes are complete, click **Apply** to save them.

Wireless

Radio
Security Profiles
Configuration
Guest Network

SSID

Radio	On/Off	Wireless Name (SSID)	Security Profile
2.4GHz	☐	PakedgeGuest2.4	Pakedge Default No Encryption
5GHz	☐	PakedgeGuest5	Pakedge Default No Encryption

Manual IP Settings

IP Address
192.168.200.1
Subnet Mask
255.255.255.0

Automatic DHCP Server Settings

Starting IP Address
192.168.200.100
Ending IP Address
192.168.200.250
DNS Server IP
8.8.8.8

Apply

SSID

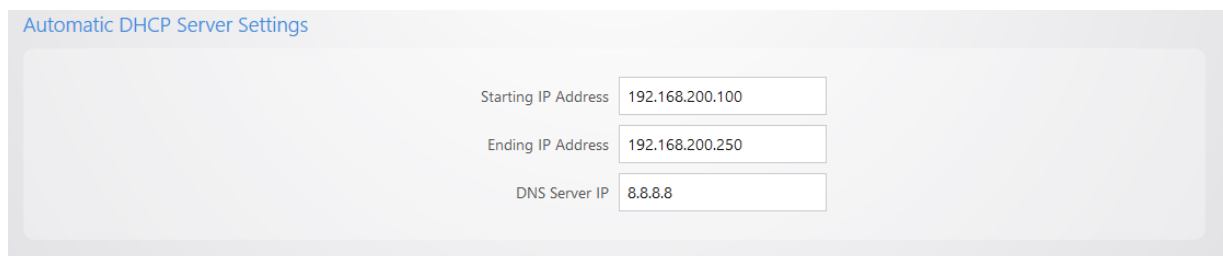
- **Radio:** There is a guest network available on both the 2.4 GHz and 5 GHz band.
- **On/Off:** This option turns the Guest Network on and off.
- **Wireless Name (SSID):** The SSID of the Guest Network can be entered in this textbox.
- **Security Profile:** Select a security profile that has already been defined under the Security Profiles tab.

Manual IP Settings

A screenshot of a web interface titled "Manual IP Settings". It contains two input fields: "IP Address" with the value "192.168.200.1" and "Subnet Mask" with the value "255.255.255.0" and a dropdown arrow.

- **IP Address:** Enter in the IP address the access point will be used on.
- **Subnet Mask:** Select the class of the guest network. 255.255.255.0 is the standard setting and is selected by default.

Manual IP Settings

A screenshot of a web interface titled "Automatic DHCP Server Settings". It contains three input fields: "Starting IP Address" with the value "192.168.200.100", "Ending IP Address" with the value "192.168.200.250", and "DNS Server IP" with the value "8.8.8.8".

- **Starting IP Address:** This is the beginning of the DHCP range used on the guest network. If you have multiple access points, you can give them the same DHCP range because the guest network of each access point will be independent of one another.
- **Ending IP Address:** This is the last IP address available on the DHCP range.
- **DNS Server IP:** The DNS Server IP can be set to an external DNS or to the router's IP address if the router provides a DNS server.

Advanced



On the **Advanced** page, you can configure:

Transmit Power: The power depends on the distance of the devices in your wireless network. From the drop-down list, select the desired power. You can use this feature to limit the coverage area of the wireless network.

- o **Maximum:** This setting will broadcast at the maximum allowed mW for the channel selected if Obey Regulatory Power is checked. If Obey Regulatory Power is not checked, then the maximum 30 dBm (1000 mW) will be broadcast.
- o **Automatic:** This setting will adjust the power of the access point based on the distance to the furthest client device. The access point will lower its power if the furthest client is 10 feet away and will raise the power if the furthest client is 100 feet away.
- o **1 dBm (1 mW) – 30 dBm (1000 mW):** These are static power settings. The access point will broadcast at the selected power level.

Obey Regulatory Power: This feature will enable government mandated power levels per channel based on the access point's Country Code.

- **RTS/CTS Threshold:** Enter the packet size threshold for RTS/CTS (Request to Send/Clear to Send) to occur. The primary reason for implementing this function is to minimize the collision between hidden stations, which occurs when access points and wireless users are spread out in a location and there is a high occurrence of retransmissions on the wireless LAN. Default setting is 2347.
- **Beacon Interval:** Adjusting Beacon Interval will allow clients to sleep longer. Clients have to wake up for every beacon, so this setting tells your client how many milliseconds it can sleep for (e.g., if BP = 100 your stations are allowed to sleep for up to 100 ms).

Advanced

2.4 GHz

Transmit Power

Obey Regulatory Power ☐

RTS/CTS Threshold (0-2347)

Beacon interval

5 GHz

Transmit Power

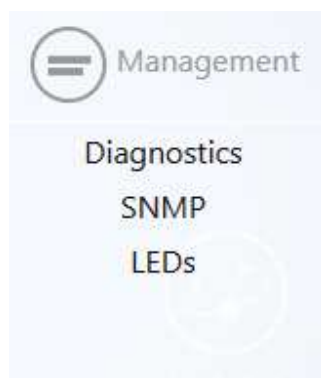
Obey Regulatory Power ☐

RTS/CTS Threshold (0-2347)

Beacon interval

Apply

Management



Diagnostics



Ping

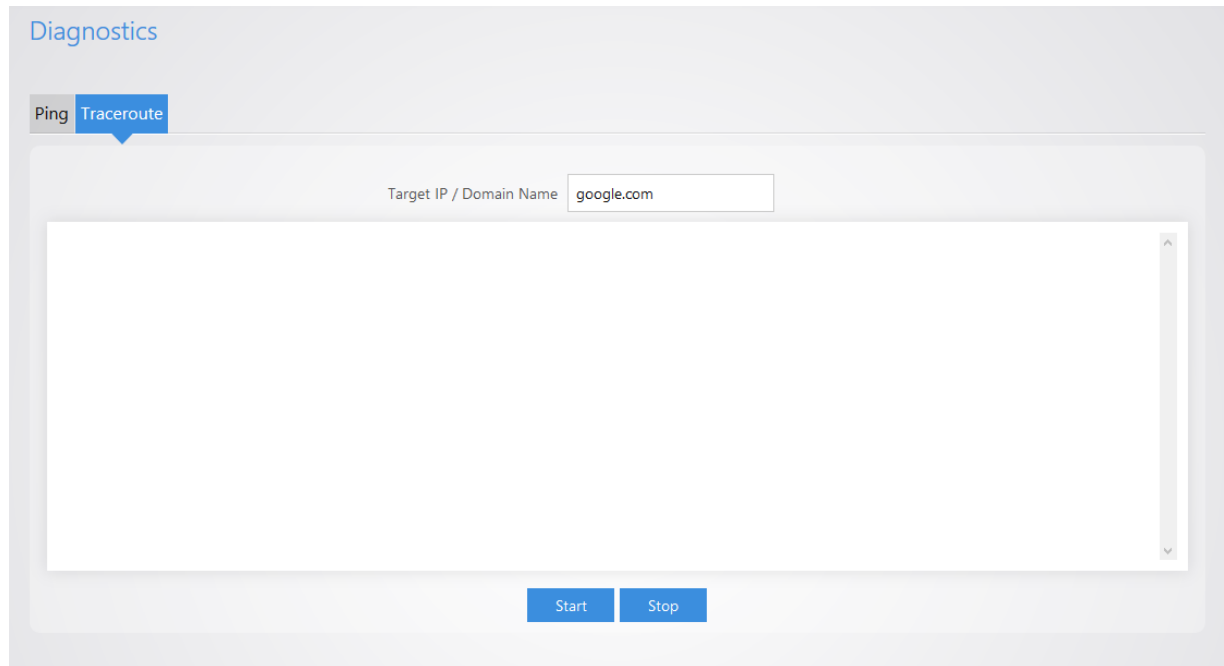
Hover over **Management** and click on **Diagnostics**. You will be directed to the ping test under the **Ping** tab:

A screenshot of the 'Diagnostics' section in a network management tool. The title 'Diagnostics' is at the top left. Below it are two tabs: 'Ping' (active, highlighted in blue) and 'Traceroute'. The main area contains a text input field labeled 'Target IP / Domain Name' with the value '8.8.8.8'. Below the input field is a large, empty rectangular area for results. At the bottom right of this area is a blue button labeled 'Start'.

- Ping –
 - o **Target IP / Domain Name:** Enter the IP Address of a location to ping. 8.8.8.8 is a Google DNS server.
 - o Click **Start** to start the test.

Traceroute

Click on the **Traceroute** tab.



The screenshot shows a web-based diagnostics interface. At the top, the word "Diagnostics" is displayed in blue. Below it, there are two tabs: "Ping" and "Traceroute". The "Traceroute" tab is currently selected and highlighted with a blue background. Inside the "Traceroute" tab, there is a text input field labeled "Target IP / Domain Name" containing the text "google.com". Below the input field is a large, empty white rectangular area, likely for displaying the test results. At the bottom of the interface, there are two blue buttons: "Start" and "Stop".

A Traceroute test can help you identify obstacles you may have in the network. The Traceroute test maps the path for packets moving between the WX-1x and the target location. To run a Traceroute test, enter an IP Address or Domain Name into the **Target IP / Domain Name** textbox and click **Start** to begin the test. If the test fails to complete or takes too long, click **Stop**.

SNMP



Hover over **Management** and click on SNMP.

SNMP

SNMP is a standard TCP/IP protocol for network management.

Location	MyLocation
Contact	MyContact
Description	Pakedge WK-1 WAP

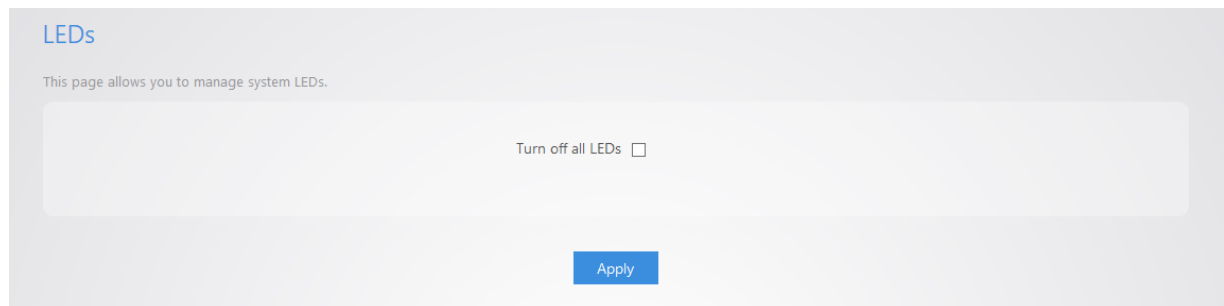
[Apply](#)

- **Location:** Enter the physical location of the WX-1x as a reference.
- **Contact:** Enter the contact information of the installer or network administrator for the SNMP manager.
- **Description:** Enter in a description of the device. The default description is Pakedge WX-1 WAP.

LEDs

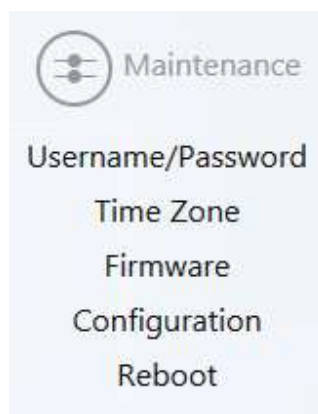


Hover over **Management** and click on LEDs.

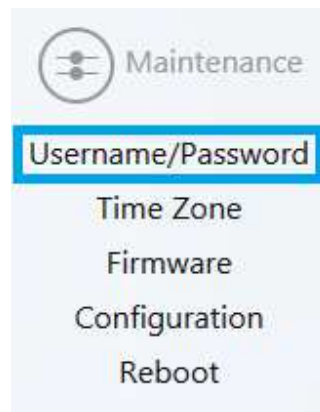


- **Turn off all LEDs:** Check to turn LEDs off.

Maintenance



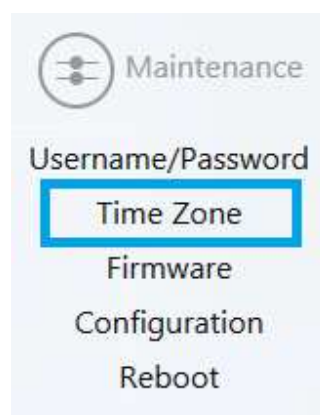
Username/Password



Hover over **Maintenance** and click on **Username/Password**. You can change the username and password for the device here.

A screenshot of the 'Administration' page. The title 'Administration' is in blue. Below it, a subtitle reads 'Change the administrative username/password for the device.' The main content area contains four input fields: 'Administrator Username' (with 'pakedge' entered), 'Current Password', 'New Password', and 'Verify Password'. Each password field has a small red square icon to its right. At the bottom center is a blue 'Apply' button.

Time Zone



Hover over **Maintenance** and click on **Time Zone**. This page allows you to set up the timezone.

Time Zone

This page allows you to setup time zone.

Local Time

Thu Apr 16 16:00:48 2015

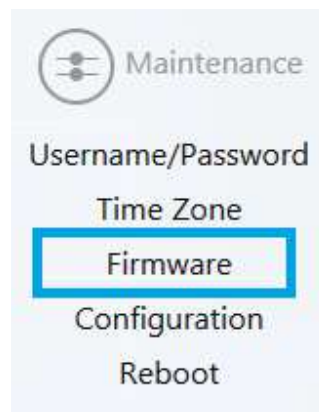
Timezone

America/Los Angeles

▼

Apply

Firmware



Allows you to update the firmware for the unit.

- **Keep Settings:** Selecting this will preserve your current configurations after the firmware update.
- **Local Image:** Click Choose File to select the firmware file.
- **Local Update:** Updates the firmware with the file you selected.
- **Check Update:** This feature will only work if the WX-1x is connected to the internet.

Firmware

To update firmware, Browse to the firmware image in your local disk and click Local Update or just click Check Update.

Keep settings ☒

Local Image No file selected.

Get new firmware from internet

Configuration

 **Maintenance**

Username/Password

Time Zone

Firmware

Configuration

Reboot

Hover over **Maintenance** and click on **Configuration**:

Configuration

Click Download Configuration to backup the configuration to your computer.

Download backup :

Reset to defaults :

To restore a configuration file click Browse and choose the configuration file and then click Restore.

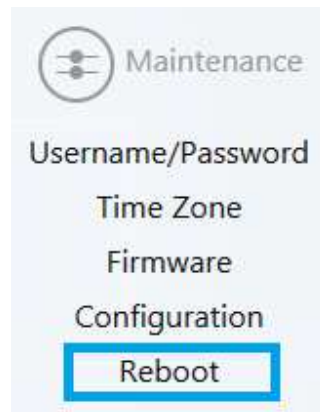
Restore backup : No file selected.

- **Download backup:** Click Download Configuration to save and export the current settings of the WX-1x.
- **Reset to defaults:** Click Factory Default to reset the the WX-1x back to its factory default settings.

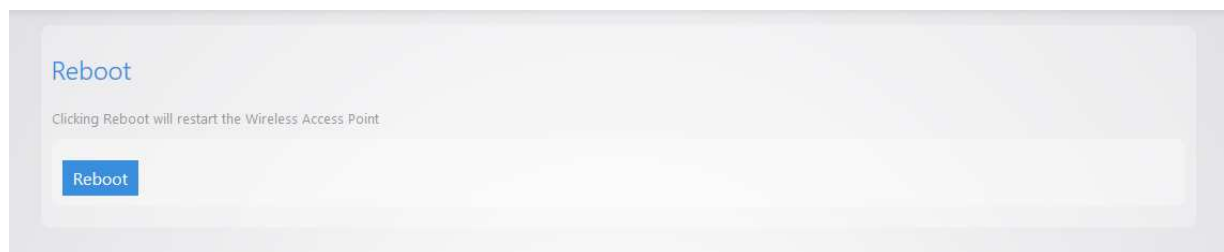
- **Restore backup** – Load a configuration file using the Browse button to restore the WX-1x to a previous configuration.

Reboot

Hover over **Maintenance** and click on Reboot.



Clicking the Reboot Button allows you to reboot the device.



Appendix A – Specs

HARDWARE SPECIFICATIONS

- 1 x 10/100/1000 Gigabit Ethernet RJ-45 port with IEEE 802.3at Power over Ethernet (PoE+) support
- Configurable LED Indicators for Power, Ethernet, 2.4GHz Wireless and 5GHz Wireless
- Power over Ethernet (PoE+) IEEE802.3at compliant
- Power Supply: 100 to 240 VDC $\pm$ 10%, 50/60 Hz (depends on different countries)
- DC input: 12V/2A

RF INFORMATION

- Frequency Band:
 - o 802.11 B/G/N on 2.4 to 2.462GHz, which can be programed based on country regulations.
 - o 802.11 A/N/AC on 5 to 5.805GHz, which can be programed based on country regulations.
- Operating Channels:
 - o 2.4 GHz - 11 for North America, 13 for Europe, 14 for Japan
 - o 5 GHz – 24 channels depending on country

OPERATIONS

- Operation Modes:
 - o 2.4/5 GHz have independent operation modes
 - o Access Point/ WDS Bridge/WDS AP/Repeater
- Up to 16 SSIDs
- Supports 802.1q VLANs
- Spanning Tree Supports 802.1d Spanning Tree Protocol
- IP Auto-configuration – DHCP client
- Transmission rate options:

- o 2.4 GHZ – B-ONLY, G-ONLY, B/G-MIXED, N-ONLY, G/N-MIXED, B/G/N-MIXED
- o 5 GHZ – A-ONLY, N-ONLY, A/N MIXED, AC-ONLY, N/AC-MIXED, A/N/AC-MIXED

MANAGEMENT AND SECURITY

- User can adjust power by dBm
- Web-based configuration (HTTP)
- Upgrade firmware via web browser/internet
- Auto-channel selects the least congested channel
- Backup and restoration settings available through web interface
- QoS WMM
- WPA-PSK/WPA2-PSK/ WPA/WPA2 Mixed using TKIP or AES
- SSID broadcast can be enabled or disabled
- WLAN L2 Isolation (AP mode only)
- List of connected wireless clients available

ENVIRONMENT

- Temperature Range
 - o Operating: 0°C to 45°C (32° to 113°F)
 - o Storage: -20°C to 60°C (-4F° to 140°F)
- Humidity (non-condensing)
 - o Operating: 90% or less
 - o Storage: 90% or less

MECHANICAL

Enclosure: 9.81 inches X 7.05 inches

- o Depth: 1.51 inches
- o Base 7.76 inches X 5.55 inches

Appendix B – Accessory List

WX-1, WX-1-B

- Quick Start Guide
- AC100-240V, 50-60Hz DC12V 2A power adapter
- CAT5e cable
- Mounting bracket
- T-bar mount
- Screws

Appendix C – Technical Support

Please visit our website for up-to-date support information:

Website: www.pakedge.com

Email: support@pakedge.com

CONTACT INFORMATION:

Northern California Office

Pakedge Device & Software
3847 Breakwater Avenue
Hayward, CA 94545-3606

Southern California Office:

Pakedge Device & Software
17011 Beach Blvd. Suite 600
Huntington Beach, CA 92647-5946

Appendix D – Limited Warranty

Model WX-1x

Congratulations on your purchase of a Pakedge Device & Software wireless product! Pakedge designs and manufactures the finest home networking products. With proper installation, setup, and care, you

should enjoy many years of unparalleled performance. Please read this consumer protection plan carefully and retain it with your other important documents.

This is a LIMITED WARRANTY as defined by the U.S. Consumer Product Warranty and Federal Trade Commission Improvement Act.

What Is Covered Under the Terms of This Warranty

SERVICE LABOR: Pakedge will pay for service labor by an approved Pakedge service center when needed as a result of manufacturing defect for a period of one (3) year from the effective date of delivery to the end user.

PARTS: Pakedge will provide new or rebuilt replacement parts for parts that fail due to defects in materials or workmanship for a period of one (1) year from the effective date of delivery to the end user. Such replacement parts are then subsequently warranted for the remaining portion (if any) of the original warranty period.

What Is Not Covered Under the Terms of This Warranty

This warranty only covers failure due to defects in materials and workmanship that occur during normal use and does not cover normal maintenance. This warranty does not cover any appearance item; any damage to living structure; failure resulting from accident (for example: flood, electrical shorts, insulation); misuse, abuse, neglect, mishandling, misapplication, faulty or improper installation or setup adjustments; improper maintenance, alteration, improper use of any input signal and/or power, damage due to lightning or power line surges, spikes and brownouts; damage that occurs during shipping or transit; or damage that is attributed to acts of God.

The foregoing limited warranty is Pakedge's sole warranty and is applicable only to Products sold as new by Authorized Dealers. The remedies provided herein are in lieu of a) any and all other remedies and warranties, whether expressed, implied or statutory, including but not limited to, any implied warranty of merchantability, fitness for a particular purpose or non-infringement, and b) any and all obligations and liabilities of Pakedge for damages including but not limited to incidental, consequential or special damages, or any financial loss, lost profits or expense, or loss of network connection arising out of or in connection with the purchase, use or performance of the Product, even if Pakedge has been advised of the possibility of such damages.

CAUTION: DAMAGE RESULTING DIRECTLY OR INDIRECTLY FROM IMPROPER INSTALLATION OR SETUP IS SPECIFICALLY EXCLUDED FROM COVERAGE UNDER THIS WARRANTY. IT IS IMPERATIVE THAT INSTALLTION AND SETUP WORK BE PERFORMED ONLY BY AN AUTHORIZED PAKEDGE DEALER TO PROTECT YOUR RIGHTS UNDER THIS WARRANTY. THIS WILL ALSO ENSURE THAT YOU ENJOY THE FINE PERFORMANCE YOUR PAKEDGE PRODUCT IS CAPABLE OF PROVIDING.

Rights, Limits, and Exclusions

Pakedge limits its obligation under any implied warranties under state laws to a period not to exceed the warranty period. There are no express warranties. Pakedge also excludes any obligation on its part for incidental or consequential damages related to the failure of this product to function properly. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages. In this case, the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

Effective Warranty Date

This warranty begins on the effective date of delivery to the end user. For your convenience, keep the original bill of sale as evidence of the purchase date from your authorized dealer.

Important- Warranty Registration

Please register your product at www.pakedge.com. It is imperative that Pakedge knows how to reach you promptly if we should discover a safety problem or product update for which you must be notified. In addition, you may be eligible for discounts on future upgrades as new networking standards come about.

To Obtain Service, Contact Your Pakedge Dealer.

Repairs made under the terms of the Limited Warranty covering your Pakedge product will be performed by an Authorized Pakedge Service Center. These arrangements must be made through the selling Pakedge Dealer. If this is not possible, contact Pakedge directly for further instructions. Prior to returning a defective Product directly to Pakedge, you must obtain a Return Material Authorization number and shipping instructions. Return shipping costs will be the responsibility of the owner.

For additional information about this warranty, visit our website at www.pakedge.com.

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.

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

For operation within 5.15 ~ 5.25GHz / 5.47 ~ 5.725GHz frequency range, it is restricted to indoor environment. The band from 5600-5650MHz will be disabled by the software during the manufacturing and cannot be changed by the end user. This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

IMPORTANT NOTE:

FCC 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 **25cm** between the radiator & your body.

Industry Canada statement:

This device complies with RSS-247 of the Industry Canada 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.

Ce dispositif est conforme à la norme CNR-247 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.

Caution :

(i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

(ii) the maximum antenna gain permitted for devices in the bands 5250-5350MHz and 5470-5725MHz shall be such that the equipment still complies with the e.i.r.p. limit;

(iii) the maximum antenna gain permitted for devices in the band 5725-5850MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate; and

(iv) the worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in Section 6.2.2(3) shall be clearly indicated.

(v) Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350MHz and 5650-5850MHz and that these radars could cause interference and/or damage to LE-LAN devices.

Avertissement:

Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :

(i) les dispositifs fonctionnant dans la bande 5150-5250MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;

(ii) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes de 5250 à 5350MHz et de 5470 à 5725MHz doit être conforme à la limite de la p.i.r.e.;

(iii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande de 5725 à 5850MHz) doit être conforme à la limite de la p.i.r.e. spécifiée pour l'exploitation point à point et l'exploitation non point à point, selon le cas;

(iv) les pires angles d'inclinaison nécessaires pour rester conforme à l'exigence de la p.i.r.e. applicable au masque d'élévation, et énoncée à la section 6.2.2 3), doivent être clairement indiqués.

(v) De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

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 minimum distance **30cm** between the radiator & your body.

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 **30cm** de distance entre la source de rayonnement et votre corps.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

- EN60950-1
Safety of Information Technology Equipment
- EN50385
Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz - 300 GHz)
- EN 300 328
Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
- EN 301 893
Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive
- EN 301 489-1
Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
- EN 301 489-17
Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

This device is a 5GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.

CE 0560



Česky

[Jméno výrobce] tímto prohlašuje, že tento [typ zařízení] je ve shodě se základními

[Czech]	požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
 Dansk [Danish]	Undertegnede [<i>fabrikantens navn</i>] erklærer herved, at følgende udstyr [<i>udstyrets typebetegnelse</i>] overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
 Deutsch [German]	Hiermit erkläre [<i>Name des Herstellers</i>], dass sich das Gerät [<i>Gerätetyp</i>] in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
 Eesti [Estonian]	Käesolevaga kinnitab [<i>tootja nimi = name of manufacturer</i>] seadme [<i>seadme tüüp = type of equipment</i>] vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
 English	Hereby, [<i>name of manufacturer</i>], declares that this [<i>type of equipment</i>] is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
 Español [Spanish]	Por medio de la presente [<i>nombre del fabricante</i>] declara que el [<i>clase de equipo</i>] cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
 Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ [<i>name of manufacturer</i>] ΔΗΛΩΝΕΙ ΟΤΙ [<i>type of equipment</i>] ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/EK.
 Français [French]	Par la présente [<i>nom du fabricant</i>] déclare que l'appareil [<i>type d'appareil</i>] est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
 Italiano [Italian]	Con la presente [<i>nome del costruttore</i>] dichiara che questo [<i>tipo di apparecchio</i>] è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo [<i>name of manufacturer / izgatavotāja nosaukums</i>] deklarē, ka [<i>type of equipment / iekārtas tips</i>] atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]]	Šiuo [<i>manufacturer name</i>] deklaruojama, kad šis [<i>equipment type</i>] atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
 Nederlands [Dutch]	Hierbij verklaart [<i>naam van de fabrikant</i>] dat het toestel [<i>type van toestel</i>] in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.

 Malti [Maltese]	Hawnhekk, <i>[isem tal-manifattur]</i> , jiddikjara li dan <i>[il-mudel tal-prodott]</i> jikkonforma mal- ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
 Magyar [Hungarian]	Alulírott, <i>[gyártó neve]</i> nyilatkozom, hogy a <i>[... típus]</i> megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
 Polski [Polish]	Niniejszym <i>[nazwa producenta]</i> oświadczam, że <i>[nazwa wyrobu]</i> jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
 Português [Portugues e]	<i>[Nome do fabricante]</i> declara que este <i>[tipo de equipamento]</i> está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
 Slovensko [Slovenian]	<i>[Ime proizvajalca]</i> izjavlja, da je ta <i>[tip opreme]</i> v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	<i>[Meno výrobcu]</i> týmto vyhlasuje, že <i>[typ zariadenia]</i> spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
 Suomi [Finnish]	<i>[Valmistaja = manufacturer]</i> vakuuttaa täten että <i>[type of equipment = laitteen tyyppimerkintä]</i> tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
 Svenska [Swedish]	Härmed intygar <i>[företag]</i> att denna <i>[utrustningstyp]</i> står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

Statement on UL certification

“This product is listed to applicable UL Standards and requirements by UL.”



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