



ExtremeWireless™

AP3935i & AP3935e Installation Guide

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About This Guide

The guide describes how to mount and connect cables to the ExtremeWireless AP3935 access point. In addition, this guide provides information on the product certifications and national approvals for the AP3935 access point.



NOTE

This guide does not provide information on configuration of the access points. For information on how to configure the access points, see the *ExtremeWireless User Guide*.

Who Should Use This Guide



WARNING

Electrical Hazard: Only qualified personnel should install or service this unit.

Riesgo Electrico: Nada mas personal capacitado debe de instalar o darle servicio a esta unida.

Elektrischer Gefahrenhinweis: Installationen oder Servicearbeiten sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

How to Use This Guide

Read through this guide completely to familiarize yourself with its contents and to gain an understanding of the features and capabilities of the AP3935 access point. A general working knowledge of data communications networks is helpful when setting up this product.

This preface provides an overview of this guide, defines the conventions used in this document, and instructs how to obtain technical support from Extreme Networks. To locate information about various subjects in this guide, refer to the following table.

For...	Refer to...
An overview of the AP3935 features.	Chapter 1, Introduction
Instructions to mount the AP3935, connect cables, and connect power. Instructions are also included to mount and connect the optional Power Supply.	Chapter 2, Installation
Specifications, environmental requirements, and physical properties of the AP3935 and optional Power Supply.	Appendix A, Specifications
Regulatory certifications and national approvals.	Appendix B, Regulatory Information

Related Documents

The following document can be obtained from the World Wide Web in Adobe Acrobat Portable Document Format (PDF) at the following location:

<https://extranet.extremenetworks.com/downloads/>

- *ExtremeWireless User Guide*

Typographical Conventions

The following typographical conventions and icons are used in this document.

Table 3-1 Typographical Conventions

blue type	Indicates a hypertext link. When reading this document online, click the text in blue to go to the referenced figure, table, or section.
Lowercase x	Indicates the general use of an alphanumeric character (for example, AP39xx, the x's indicate a combination of numbers or letters).
	Note: Calls the reader's attention to any item of information that may be of special importance.
	Caution: Contains information essential to avoid damage to the equipment. Precaución: Contiene información esencial para prevenir dañar el equipo. Achtung: Verweist auf wichtige Informationen zum Schutz gegen Beschädigungen.
	Warning: Warns against an action that could result in personal injury or death. Advertencia: Advierte contra una acción que pudiera resultar en lesión corporal o la muerte. Warnhinweis: Warnung vor Handlungen, die zu Verletzung von Personen oder gar Todesfällen führen können!

Getting Help

For additional support related to the AP3935 or this document, contact Extreme Networks using one of the following methods:

Web	www.Extreme Networks.com/support/
Phone	1-800-872-8440 (toll-free in U.S. and Canada) or 1-603-952-5000 For the Extreme Networks Support toll-free number in your country: www.Extreme Networks.com/support/

Before contacting Extreme Networks for technical support, have the following data ready:

- Your Extreme Networks service contract number
- A description of the failure
- A description of any action(s) already taken to resolve the problem (for example, changing mode switches or rebooting the unit)
- The serial and revision numbers of all involved Extreme Networks products in the network
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load and frame size at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any previous Return Material Authorization (RMA) numbers

Introduction

This installation guide provides an overview and installation instructions for the ExtremeWireless Access Points AP3935i and AP3935e.

For information about...	Refer to page...
About the AP3935i and AP3935e	1
AP3935 Overview	2
Architectural Features	5

About the AP3935i and AP3935e

The AP3935 is designed to extend your Wireless LAN around indoor locations. The AP3935 supports the 802.11ac and 802.11n wireless standards, with full backward compatibility with legacy 802.11a, and 802.11b/g devices.

The AP3935 interoperates fully with Wireless LANs, including support for VoWLAN, branch office mode, guest services, RTLS, availability, and mobility features. The operating Temperature: 0 - 50C.

The AP3935i and AP3935e have the following features in common:

- Both support two MIMO 4x4 (up to four 802.11ac spatial streams).
- They provide two single band radios for dual-band, concurrent operation, optimized for indoor antenna coverage:
 - 5 GHz (Radio 1) in any of the following modes: IEEE802.11ac, a/b/g and/or n
 - 2.4 GHz (Radio 2) in any of the following modes: IEEE802.11ac, a/b/g and/or n
- They are enclosed in a rectangular, compact case.
- Both models can be mounted on walls and drop/suspended ceilings.
- They provide 80 MHz Bandwidth at 2.4/5 GHz operation (Channel Bonding).
- Power is provided through two Ethernet ports (LAN port). This is the preferred method of powering the AP on ceiling and wall installations. The AP3935 can also be powered by an external DC power supply by plugging the supply's input jack into the DC-In port.



NOTE

The AP3935 comes in two models: the AP3935i has 8 internal single-band antennas while the AP3935e has 8 external RSMA connectors for connecting external antennas. Within this document, any reference to AP3935 applies to both models.

AP3935 Overview

The AP3935 access point is available in two models:

- AP3935i contains eight internal single-band antennas
- AP3935e contains eight external RSMA connectors for optional external antennas, for greater range and coverage versatility

[Figure 1-1](#) on page 2 shows the top view of the AP3935i and [Figure 1-2](#) on page 3 shows the top view of the AP3935e.

[Figure 1-3](#) on page 3 shows the bottom view of the AP3935e. The bottom view shows the location of the LAN ports, console port, external power supply connector, and reset switch. The bottom panel is the same for both models, but there are no external antenna RSMA connectors on the AP3935i.

[Figure 1-4](#) on page 4 illustrates the AP3935 LEDs.

Figure 1-1 ExtremeWireless AP3935i top view



Figure 1-2 ExtremeWireless AP3935e top view



Figure 1-3 AP3935 bottom view



- 1** Reset Button
2 Console Port

- 3** LAN Ethernet Ports 1 and 2
4 External Power DC 12V

AP3935 LED Indicators

Both models of the AP3935 have the LED indicators, shown in [Figure 1-4](#) below. The LEDs provide status information, described in [Table 1-1](#), on the current state of the AP3935. For more information, see the *ExtremeWireless User Guide*.

Figure 1-4 AP3935 LEDs

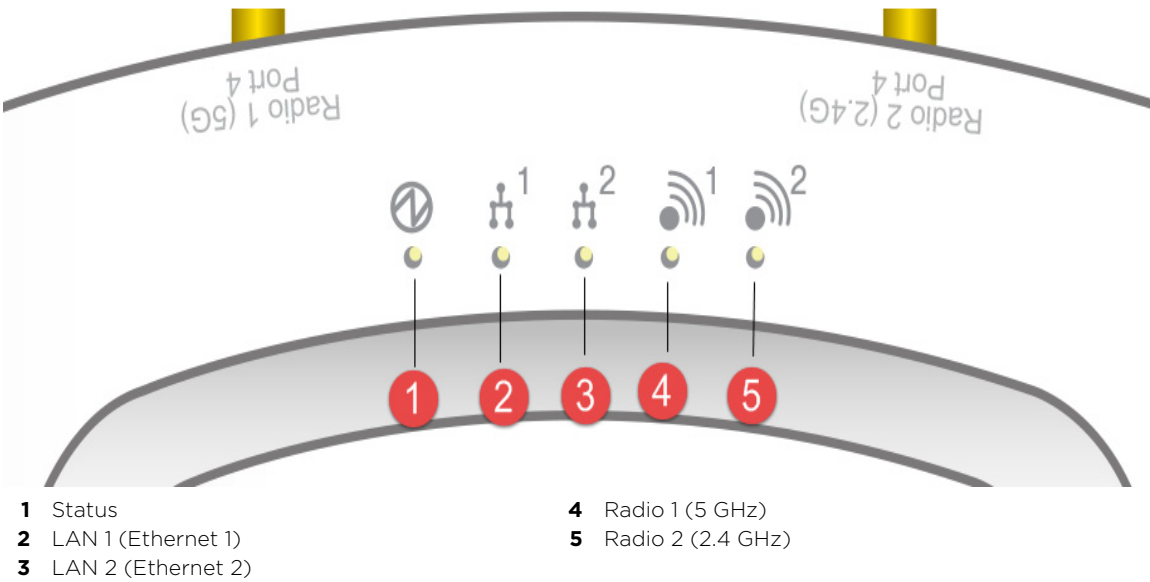


Table 1-1 AP3935 LED Indications

LED	Status	Description
1 (AP status)	On Green	Indicates the AP3935 is working normally.
	Flashing Green	Indicates: • running a self test • loading software program
	On Amber	Indicates a CPU/system failure.

Table 1-1 AP3935 LED Indications

LED	Status	Description
2 (Ethernet link state) LAN 1	On Green	Indicates a valid 10Mbps or 100Mbps Ethernet link.
	On Amber	Indicates a valid 1Gbps Ethernet link.
	Off	Indicates the link is down.
3 (Ethernet link state) LAN 2	On Green	Indicates a valid 10Mbps or 100Mbps Ethernet link.
	On Amber	Indicates a valid 1Gbps Ethernet link.
	Off	Indicates the link is down.
4 (Radio 2 status)	On Green	Indicates Radio 2 is enabled.
	Off	Indicates Radio 2 is not on.
5 (Radio 1 status)	On Green	Indicates Radio 1 is enabled.
	Off	Indicates Radio 1 is not on.

Architectural Features

Console Port

The AP3935 i and e models both include a single RJ45 console port (shown in [Figure 1-3](#) on page 3) for debug purposes. This port enables connection of a console device to the AP through a serial cable. The console device can be a PC or workstation running a VT-100 terminal adapter emulator, or a VT-100 terminal.

LAN Port

The AP3935 has two 10/100/1000BaseT RJ45 LAN ports (see [Figure 1-3](#) on page 3) that can be attached directly to a 10/100/1000BaseT LAN segment. This segment must conform to the IEEE 802.3 or 802.3u specifications.

The APs appear as Ethernet nodes and perform a bridging function by moving packets from the wired LAN to remote workstations on the wireless infrastructure.

The LAN ports also support power over Ethernet PoE 802.3at for full performance; (802.3af for low performance mode). Refer to [“Installation”](#) on page 7, for information on supplying power to the AP network port from a network device, such as a switch, that provides Power over Ethernet (PoE).

Reset Switch

The AP3935 provides a Reset Switch to reset or restore factory default configurations. Use a pointed object to press the switch button through the hole.(See [Figure 1-3](#) on page 3). If you hold down the button for less than 5 seconds, the AP performs a software interrupt, causing it to drop all connections and reset. If you hold the button down for 5 seconds or more, any configuration changes are removed, and the factory default configuration restores to the AP.

Kensington Lock Slot

There is a slot for a Kensington lock on the side of the AP ([Figure 1-5](#)). See the Kensington lock documentation for instructions on use of the lock.

Figure 1-5 Kensington Lock slot



Installation

This chapter provides installation instructions for the ExtremeWireless AP3935 access points and an optional AP power supply.

For information about...	Refer to page...
Unpacking the AP3935	7
Accessories	7
Access Point Installation Procedures	8
Configuring AP3935e Channel Settings	12

Unpacking the AP3935

To unpack the access point:

1. Open the box and remove the packing material protecting the AP.
2. Verify that the carton contains the items listed in [Table 2-1](#).

Table 2-1 AP3935 Package Contents

Quantity	Item
1	AP3935
1	Ceiling Mounting bracket
2	Wall mounting screws and plastic anchors
1	AP3935 Quick Reference Guide
1	Hardware bag

3. Perform a visual inspection of the AP for any signs of physical damage. Contact Extreme Networks if there are any signs of damage. Refer to [“Getting Help”](#) on page vii for details.

Accessories

The following accessories are available for the ExtremeWireless AP3935. For ordering information, contact your Extreme Networks sales representative.

- 12V DC power supply (see [“External Power Supplies”](#) on page 19)
- External antennas (AP3935e models only. See [“External Antennas”](#) on page 24)
- Optional Wall Bracket: WS-MBI-WALL03 (PN 30513).

Access Point Installation Procedures



WARNING

Electrical Hazard: Only qualified personnel should install or service this unit.

Riesgo Electrico: Nada mas personal capacitado debe de instalar o darle servicio a esta unida.

Elektrischer Gefahrenhinweis: Installationen oder Servicearbeiten sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

These procedures describe how to attach the AP3935 to a drop ceiling (flat or protruded), and how to mount the AP to a wall.

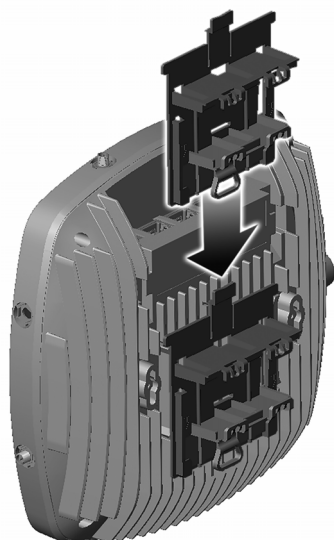
For information about...	Refer to page...
Mounting the AP3935 to a Drop Ceiling	8
Mounting the AP3935 to a Wall	9
LAN/Console Connections	11
The AP3935 has 2 LAN ports and a Console port. Power is provided through two Ethernet ports (LAN ports). This is the preferred method of powering the AP on ceiling and wall installations.	11
Connecting an External DC Power Supply to the AP3935	11

Mounting the AP3935 to a Drop Ceiling

To mount the AP to a drop ceiling, use the mounting bracket that is provided with the AP.

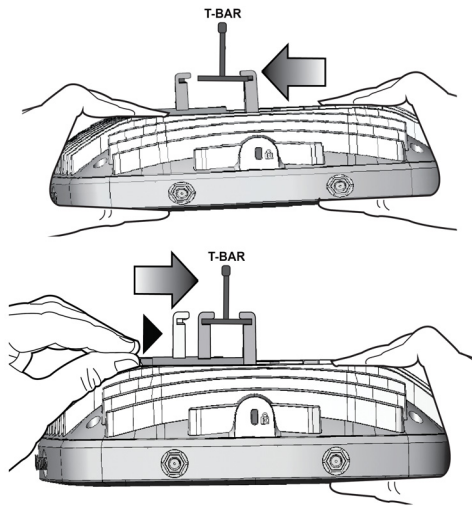
1. Slide the ceiling mount bracket base into the metal base. The locking tab fits into the groove in the fins. See [Figure 2-1](#).

Figure 2-1 Attaching Mount Bracket to the Access Point



2. Remove the ceiling panels around the drop ceiling T-bar rail and verify that the Ethernet cable can reach the AP at the mounting point.
3. Slightly lift the movable T-bar locking tab to increase the space between the stationary and the movable T-bar sides of the bracket. Then hook the stationary end of the T-bar bracket onto the T-bar, as shown in [Figure 2-2](#).
4. While holding the AP with one hand, reach the other hand over the T-bar and grasp both the stationary and movable sides of the bracket. Push the bracket parts together so they both grasp the T-bar and the locking tab clicks into place.
5. While still holding the AP, rock it back and forth to ensure that it is securely mounted.

Figure 2-2 Attaching the AP3935i on a drop ceiling T-bar rail



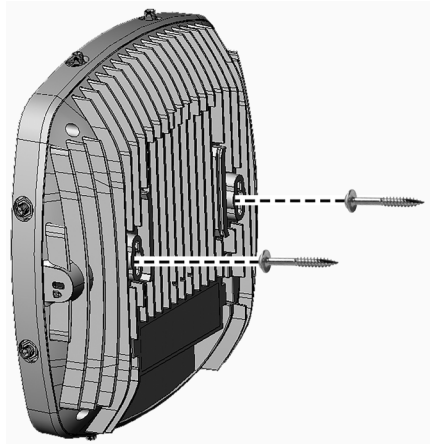
6. Make a hole through the ceiling panel closest to the power slot on the AP. Run the Ethernet cable through the hole and into an RJ45 LAN port in the recessed connector bay.
7. If necessary, cut the tiles for the cables, attach the cables to the AP, and replace the tiles.
8. Replace the displaced ceiling panels.

Mounting the AP3935 to a Wall

Screws for attaching the AP to a wall are supplied with the product. Use the following procedure to mount the AP3935 to a flat wall:

1. Determine the spot on the wall to mount the AP. Pick a spot near the ceiling, but in reach of the Ethernet cable and if you are using external power, near a wall power outlet.
2. To mount the AP directly on the wall with two screws, use the provided template and mark the two drill holes on the wall. In drywall, the drill holes should be 6MM to 0.250" in diameter.
3. Drill two holes in the wall to match the center of the two keyhole slots in the back of the AP bracket.
4. Screw the anchors into the holes until they are flush with the wall.
5. Screw the provided mounting screws into the anchors with the head protruding about 5/32" from the anchor to the top of the screw.

Figure 2-3 Mounting the AP3935 to a Flat Wall.



6. Place the back of the AP against the wall with the protruding mounting screw heads fitting through the keyhole slots on the back of the AP. Slide the AP down until the AP rests on the mounting screw heads.
7. When mounting the AP on a wall or flat ceiling, a Kensington lock provides extra stability.



NOTE

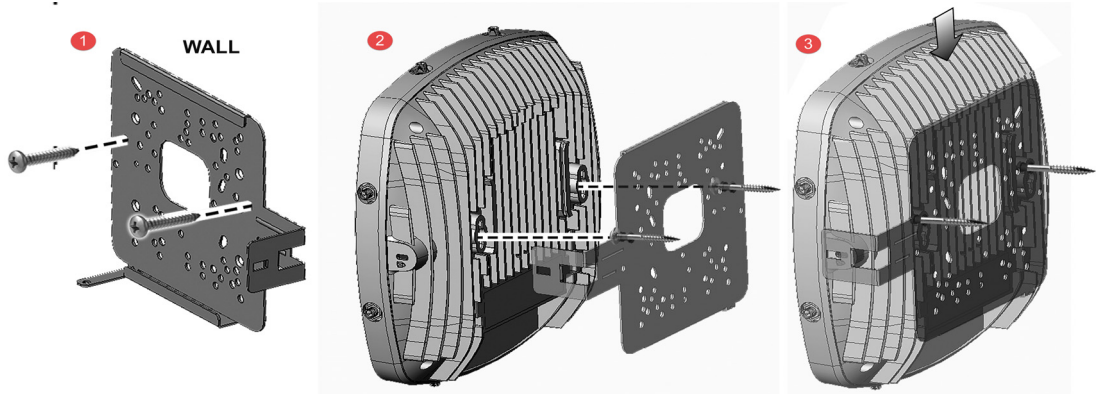
The mounting bracket (30513, WS-MBI-WALL03) is optional when mounting the AP on a wall. If mounting the AP on a flat ceiling, we recommend using the mounting bracket (30513, WS-MBI-WALL03) for added security.

Mounting the AP using the Optional Mounting Bracket

When mounting the AP to a flat ceiling (or a wall), use the mounting bracket (30513, WS-MBI-WALL03) and two metal screws. [Figure 2-4](#) shows an exploded view of the mounting bracket method:

1. The wall bracket provides four attachment holes. Using the bracket as a template, place the bracket and mark the drill holes.
2. Hold the AP/bracket assembly so the drilled holes are in the center of the bracket holes.
3. Insert and thread the screws so they support the bracket.

Figure 2-4 Mounting sequence with mounting bracket (30513, WS-MBI-WALL03)



4. Align the AP on the posts and slide down.

5. Use a magnetic screw driver to attach the small screw. Do NOT exceed 12 in-lbs of torque.
6. Use a Kensington lock for added security (see [Figure 1-5](#) on page 6).

LAN/Console Connections



NOTE

LAN/Console connectors with shrouds will not fit into the ports. An optional jumper cable may be used or the shroud removed.

The AP3935 has 2 LAN ports and a Console port. Power is provided through two Ethernet ports (LAN ports). This is the preferred method of powering the AP on ceiling and wall installations.

The AP can be powered in one of the following ways:

- Power over Ethernet (PoE)

Power is provided through the RJ45 Ethernet port (LAN port) on the top of the AP. This is the preferred method of powering the AP on ceiling and high wall installations.

- Power by external power supply

Where a PoE-capable Ethernet connection is unavailable or impractical, an external 12V DC power supply may be ordered separately to power the AP from a standard AC wall outlet.

Figure 2-5 3935e Access Point bottom view



1 Reset Button

2 Console Port

3 LAN Ethernet Ports 1 and 2

4 External Power DC 12V

Connecting an External DC Power Supply to the AP3935

There are no wall mounts for the 12V DC power supplies. To connect a power supply to the AP for everyday operation, mount the AP and plug the power supply into the DC-IN port (Callout 4 in [Figure 2-5](#)). If you have taken the AP off its mount for configuration and maintenance, the AP still needs power during the maintenance. Provide power from a DC power supply or PoE LAN connector.

Configuring AP3935e Channel Settings

The AP3935e must be installed by a professional installer. Before starting the installation, the installer needs to determine and configure the following:

- [Determine the Antenna Model](#)
- [Configure Radio RF Port](#)
- [Configure Radio Channel](#)
- [Configure Radio Transmit \(Tx\) Power](#)

Determine the Antenna Model

The professional installer needs to determine antenna models and the number of antenna ports for that model. The number of ports can be determined from visual inspection of the antenna or from the antenna model. For information about antenna models, see [Certified External Antennas for AP3935e](#), [Table A-4](#) on page 24.

Configure Radio RF Port

The professional installer configures Radio RF ports where antenna ports will be connected.

To Configure Radio RF Ports through the ExtremeWireless Assistant

1. Log into the Wireless Assistant.
2. From the top menu, click **AP**. The Wireless AP screen is displayed.
3. Select **APs** in the left pane, then in the Wireless AP list, click the Wireless AP whose properties you want to modify. The **AP Properties** tab displays Wireless AP information.

Figure 2-6 AP Properties for the AP3935e

AP Properties	WLAN Assignment	Radio 1	Radio 2	Static Configuration	802.1x
Serial #: 11111111113935e					
Host Name: AP3935e-111111111113935e					
Name¹: 3935e					
¹ Change of name will cause interruption of service if DHCP is enabled					
Location: ▶					
Zone: ▶					
Description:					
Topology: Inactive AP					
AP Environment²: Indoor					
² Change of Environment will cause interruption of service					
Hardware Version: Wireless AP3935e-FCC External					
Application Version: 10.01.01.0128					
Status: Approved					
Active Clients: 0					
Role: Traffic forwarder (AP)					
Country³: United States					
³ Change of Country may cause AP to reboot.					
Professional install Advanced...					

- When configuring the AP3935e, click **Professional Install**. The Professional Install dialog displays to configure the external antennas.

Professional install [?] [X]

Radio 1 Port 1 Antenna Type⁴: WS-ANT-5DIP-4 Dipole ▼

Radio 1 Port 2 Antenna Type⁴: WS-ANT-5DIP-4 Dipole ▼

Radio 1 Port 3 Antenna Type⁴: WS-ANT-5DIP-4 Dipole ▼

Radio 1 Port 4 Antenna Type⁴: WS-ANT-5DIP-4 Dipole ▼

Radio 2 Port 1 Antenna Type⁴: WS-AI-DQ05120 5dBi 120deg Sector ▼

Radio 2 Port 2 Antenna Type⁴: WS-AI-DQ05120 5dBi 120deg Sector ▼

Radio 2 Port 3 Antenna Type⁴: WS-AI-DQ05120 5dBi 120deg Sector ▼

Radio 2 Port 4 Antenna Type⁴: WS-AI-DQ05120 5dBi 120deg Sector ▼

⁴ Change of Antenna Type may cause AP to reboot.

Radio1 Attenuation: 0 ▼

Radio2 Attenuation: 0 ▼

Close

- Modify the Radio Antenna Type as follows:
 - If attaching quad port antennas, configure all four RF ports with the same antenna type.
 - If attaching triple port antennas, configure ports 1, 2, and 3 with the same antenna type and configure port 4 (non-active port) to **No Antenna**.
 - If attaching dual port antennas, configure ports 1 and 2 with the same antenna type and configure ports 3 and 4 (non-active ports) to **No Antenna**.
 - If attaching single port antennas, configure port 1 to the selected antenna type and configure ports 2-4 (non-active ports) to **No Antenna**.
- Modify Radio Attenuation as follows:
 - Add any attenuation (dBm non-negative) due to cable loss or attenuator added to the line between AP port and the antenna.
 - Same attenuator loss is assumed and is required for all 4 ports of the radio except when one or more ports is not connected to the antenna and is properly terminated as describe in next step.
 - The professional installer is responsible for accurately configuring port Attenuation. Never configure port attenuation higher than the actual attenuation between the AP port and the antenna.
- Install a terminator (rf 50 Ohm) on all ports where an antenna is not connected.

Configure Radio Channel

- Click **APs** in the left pane, then in the Wireless AP list, click the Wireless AP whose properties you want to modify. The **AP Properties** tab displays Wireless AP information.

2. Click the **Radio 1** tab.
3. Configure the desired **Radio Mode**, and **Channel Width**.

Figure 2-7 AP3935e Radio 1 Properties: Base Settings

AP Properties	WLAN Assignment	Radio 1	Radio 2	Static Configuration	802.1x
Base Settings		BSS Info			
		Admin Mode	Off	▼	
		Radio Mode	a/n/ac	▼	
		Channel Width	40MHz	▼	
Basic Radio Settings					
		RF Domain	MyDomain		
		Current Channel ¹	None		
		Last Requested Channel	Auto		
		Request New Channel	-		
		Auto Tx Power Ctrl (ATPC)	☐		
		Current Tx Power Level	Off		
		Max Tx Power	18 dBm		
		Channel Plan	All Non-DFS-Channels		
		View			
¹ AP may take up to 90 seconds to report the current channel					
Advanced...					

4. From the **Request a New Channel** drop-down menu, select a channel according to the site channel plan, or request the AP to auto select the channel from the channel list set in the **Channel Plan** setting.

Figure 2-8 AP3935e Radio 1 Properties: Channel Plan setting

Basic Radio Settings	
Admin Mode	Off
Radio Mode	a/n/ac
Channel Width	40MHz
RF Domain	MyDomain
Current Channel ¹	None
Last Requested Channel	Auto
Request New Channel	Auto
Auto Tx Power Ctrl (ATPC)	☐
Current Tx Power Level	Off
Max Tx Power	18 dBm
Channel Plan	All Non-DFS-Channels
	View

¹ AP may take up to 90 seconds to report the current channel

[Advanced...](#)

5. Repeat the process for **Radio 2**.

Configure Radio Transmit (Tx) Power

Based on the configured mode, channel, channel plan, and channel width for the specific antenna, the professional installer must enter the corresponding Transmit Power (Tx Power) for the desired Radio using the Extreme Networks Wireless Assistant.

1. Log into the Wireless Assistant.
2. From the top menu, click **AP**. The Wireless AP screen is displayed.
3. Click the AP button in the left pane, then in the Wireless AP list, click the Wireless AP whose properties you want to modify. The **AP Properties** tab displays Wireless AP information.
4. Click the **Radio 1** tab.
5. **Max Tx Power** is automatically determined based on regulatory domain/country, antenna selected, line attenuation configured, channel and certification testing.

Figure 2-9 AP3935e Radio 1 Properties: Max TX Power setting

AP Properties	WLAN Assignment	Radio 1	Radio 2	Static Configuration	802.1x
Base Settings		BSS Info			
		Admin Mode	Off ▼		
		Radio Mode	a/n/ac ▼		
		Channel Width	40MHz ▼		
Basic Radio Settings					
		RF Domain	MyDomain		
		Current Channel ¹	None		
		Last Requested Channel	Auto		
		Request New Channel	Auto ▼		
		Auto Tx Power Ctrl (ATPC)	☐		
		Current Tx Power Level	Off		
		Max Tx Power	18 dBm ▼		
		Channel Plan	All Non-DFS-Channels ▼		
		View			
¹ AP may take up to 90 seconds to report the current channel Advanced...					

6. The professional installer is responsible for accurately configuring port Attenuation. Port attenuation should never be configured higher than the actual attenuation between the AP port and the antenna.
7. Repeat the process for **Radio 2**.



Specifications

This appendix lists the specifications for the AP3935i and AP3935e access points and an external 12V DC power supply.

Table A-1 Specifications for the AP3935i and AP3935e

Item	Specification
Enclosure material	Metal base, plastic cap
Power source	PoE 802.3at for full performance; (802.3af for low performance mode) DC power supply.
Power consumption	20W (Max.) 17.0W (Average)
Outside dimensions (max)	Length: 215 mm (8.46") Width: 215 mm (8.46") Thickness (not including mounting bracket): AP3935i: 56 mm (2.2") AP3935e: 57 mm (2.23")
Antenna (AP3935i only)	8 ports: 4 (Radio1) ports (5GHz antenna), 4 (Radio 2) ports (2.4GHz antenna)
Uplink Interface	GbE Ethernet x1 with PoE
RoHS compliant	Yes
Radio Configuration	Dual Band Dual Concurrent 802.11ac and 802.11n Radio 1 IEEE 802.11ac, 5GHz, 4x4:4 MU-MIMO, 20/40/80MHz channel (up to 1733 Mbps per radio) Radio 2 IEEE 802.11n, 2.4GHz, 4x4:4, MCS8, MCS9, 20/40MHz channel (up to 800 Mbps per radio)
Operating temperature	32° F to 122° F (0° C to +50° C)

External Power Supplies

AP3935 APs may be powered by IEEE 802.3af compliant PoE cables connected to the Ethernet ports in the connector bay. This is usually the preferred method of powering for users that plan to mount the devices on ceilings or high up on walls. You can also power these APs with optional, certified, external power supplies.

Table A-2 Universal Specifications for an External Power Supply

Item	Specification
Enclosure material	Plastic housing
AC Input	100-240V
DC output	12V
Output current (max)	2A
Output power (max)	24W

Power supply 30512 (part number WS-PSI12V-MR2), which includes six regional adapters, is recommended for use with all AP3935 APs.

Internal Antenna APs

Internal Antenna Access Points

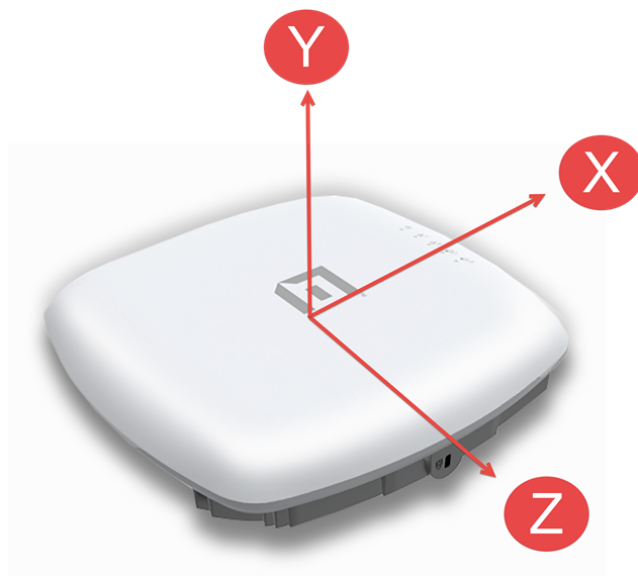
The AP3935i is an indoor access with eight integrated internal antennas. The following specifications are for the internal antennas:

Table A-3 AP3935i Internal Antennas

Model Type	Application	Description	Gain (dBi)	Frequency (GHz)	Connector
AP3935i	Indoor	MIMO, Single-band	5dBi	2.4	None
			6dBi	5	None

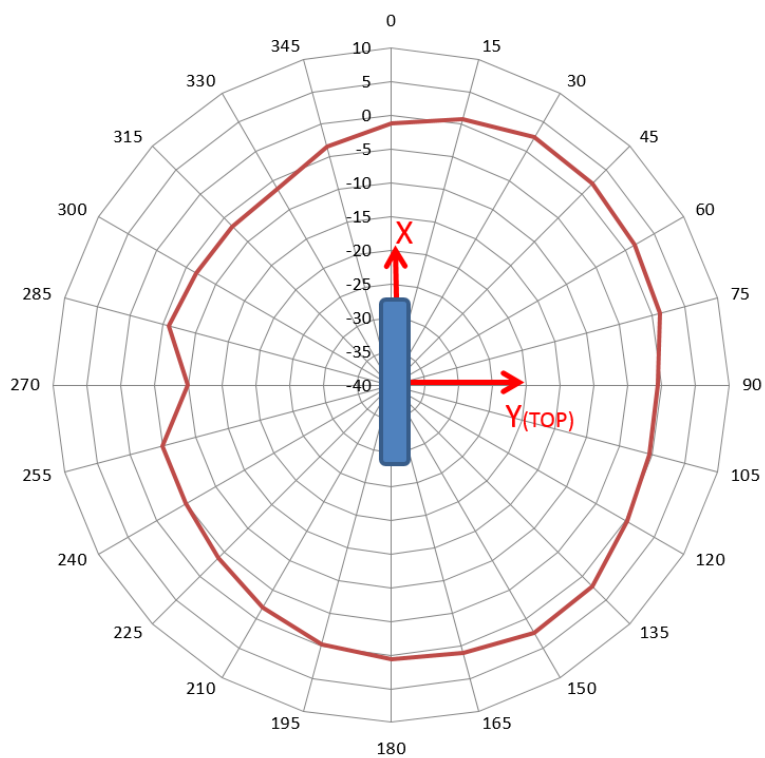
The following radiation patterns apply to the antennas in the AP3935i only. In these diagrams, 0 degree is the AP's front and +/- 180 degree is the AP's back.

The diagrams show radiation patterns along one horizontal plane (XZ) and two vertical planes (XY and YZ). The X, Y, and Z axes are defined as follows.

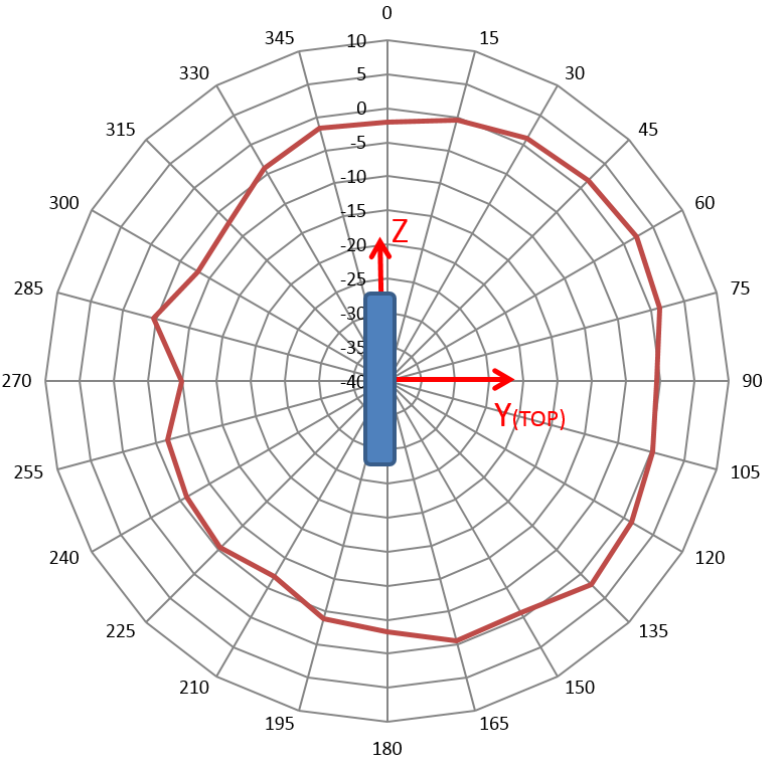


Horizontal Radiation Pattern 2.4 GHz (XZ Plane)

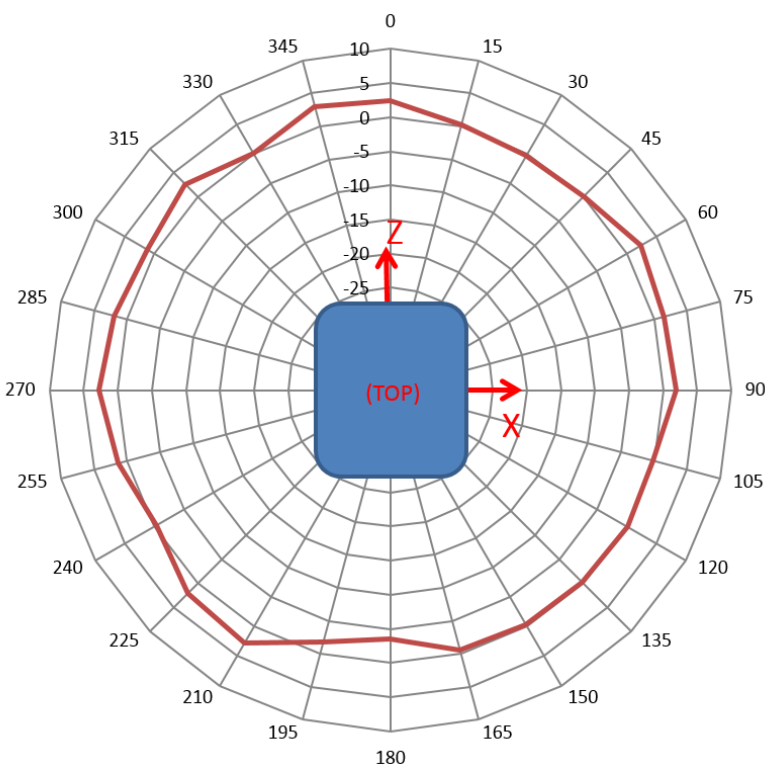
Vertical Radiation Pattern 2.4 GHz (XY Plane)



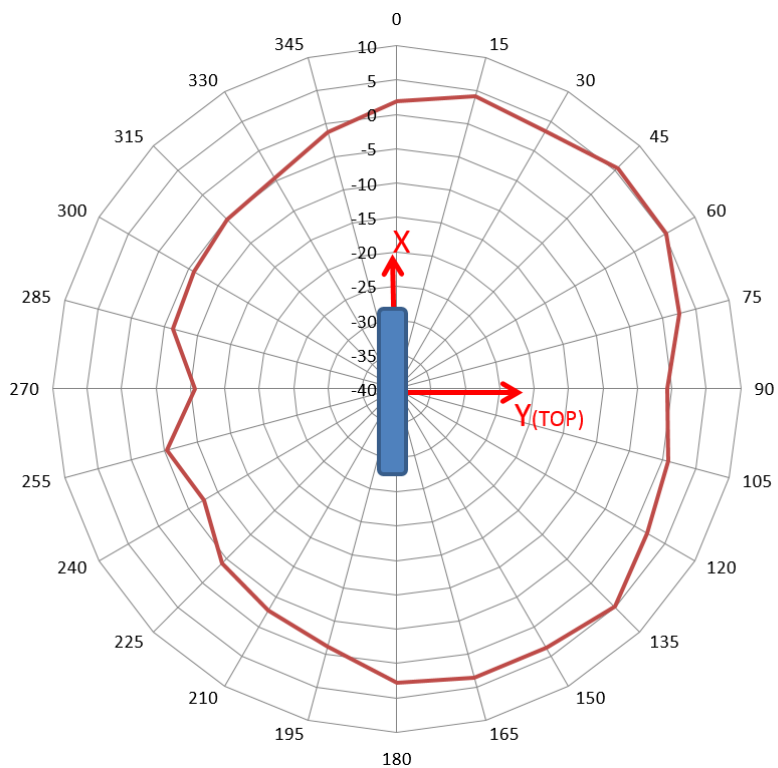
Vertical Radiation Pattern 2.4 GHz (YZ Plane)



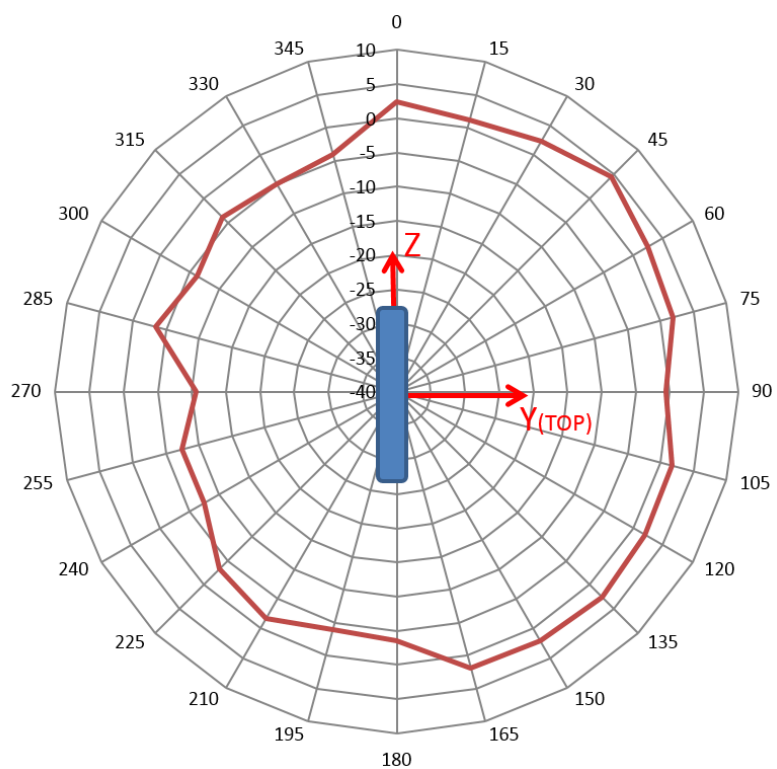
Horizontal Radiation Pattern 5 GHz (XZ Plane)



Vertical Radiation Pattern 5 GHz (XY Plane)



Vertical Radiation Pattern 5 GHz (YZ Plane)



External Antennas

Table A-4 lists the certified external antennas for AP3935e. For more detailed specifications and radiation pattern diagrams, see the *ExtremeWireless External Antenna Site Preparation and Installation Guide*.



NOTE

Only certified antennas must be used with the AP3935e Access Point.

Table A-4 Certified External Antennas for AP3935e

Part No. (Short Description)	Frequency Band	Antenna Type	2.4G Gain	5G Gain
30702 (WS-AI-DQ05120)	2.4G/5G	Sector	5.5	5.5
30703 (WS-AI-5Q04060)	5G	Sector	N/A	4
30704 (WS-AI-2Q05060)	2.4G	Sector	5	N/A
30705 (WS-AI-DE07025)	2.4G/5G	Sector	7.5	6.5
30706 (WS-AI-5Q05025)	5G	Sector	N/A	4.5
30707 (WS-AI-DE10055)	2.4G/5G	Sector	10.5	7.5
30709 (WS-ANT-2DIP-4)	2.4G	Dipole	4.66	N/A
30710 (WS-ANT-5DIP-4)	5G	Dipole	N/A	4.67
WS-AI-DQ04360 (WS-AI-DQ04360)	2.4G/5G	Ceiling Mount Omni	4	7

Regulatory Information



Warning

Warnings identify essential information. Ignoring a warning can lead to problems with the application.

This appendix provides regulatory information for the ExtremeWireless AP3935i and AP3935e access points.



NOTE

Throughout this appendix, the term ExtremeWireless AP3935 refers to the AP models AP3935i, and AP3935e. Specific AP models are identified in this appendix only where it is necessary to do so.



Warning

Changes or modifications made to the ExtremeWireless AP3935 that are not expressly approved by Extreme Networks could void the user's authority to operate the equipment.

Only authorized Extreme Networks service personnel are permitted to service the system. Procedures that should be performed only by Extreme Networks personnel are clearly identified in this guide.

ExtremeWireless AP3935i and AP3935e

The following regulatory information applies to the ExtremeWireless access points AP3935i and AP3935e.

United States

FCC Declaration of Conformity Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.

-
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

USA Conformance Standards

This equipment meets the following conformance standards:

Safety

- UL 60950-1

EMC

- FCC CFR 47 Part 15, Class B

Radio transceiver

- CFR 47 Part 15.247, Subpart C
- CFR 47 Part 15.407, Subpart E

Other

- IEEE 802.11ac (5 GHz)
- IEEE 802.11b/g (2.4 GHz)
- IEEE 802.11n
- IEEE 802.3at (PoE)
- IEEE 802.3af (PoE)



Warning

The ExtremeWireless AP3935 must be installed and used in strict accordance with the manufacturer's instructions as described in this guide and related documentation for the device to which the ExtremeWireless AP3935 is connected. Any other installation or use of the product violates FCC Part 15 regulations.

This Part 15 radio device operates on a non-interference basis with other devices operating at the same frequency when using the antennas provided or other Extreme Networks-certified antennas. Any changes or modifications to the product not expressly approved by Extreme Networks could void the user's authority to operate this device.

For the product available in the USA market, only channels 1 to 11 can be operated. Selection of other channels in the 2.4 GHz band is not possible.

FCC RF Radiation Exposure Statement

The ExtremeWireless AP3935 complies with FCC RF radiated exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This device has been tested and has demonstrated compliance when simultaneously operated in the 2.4 GHz and 5 GHz frequency ranges. This device must not be co-located or operated in conjunction with any other antenna or transmitter.

The radiated output power of the ExtremeWireless AP3935 is below the FCC radio frequency exposure limits as specified in "Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields" (OET Bulletin 65, Supplement C). This equipment should be installed and operated with a minimum distance of 25 cm between the radiator and your body or other co-located operating antennas.

Canada

Industry Canada Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques," NMB-003 édictée par le Industrie Canada.

This device complies with RSS-247 of the Industry Canada Rules. Operation is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.
- This Class B digital apparatus complies with Canadian ICES-003.
- Operation in the 5150-5250 MHz band is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.
- Users are advised that high power radars are allocated as primary users (meaning they have priority) and can cause interference in the 5250-5350 MHz and 5470-5850 MHz bands of LE-LAN devices.
- For the product available in the Canadian market, only channels 1 to 11 can be operated. Selection of other channels in the 2.4 GHz band is not possible.
- Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux conditions suivantes:

- Le dispositif ne doit pas produire de brouillage préjudiciable.
- Ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.
- Ce dispositif est conforme à la norme NMB-003 édictée par le Industrie Canada.

- Les dispositifs fonctionnant dans la bande 5 150-5 250 MHz 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.
- 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 5470-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.
- Pour le produit disponible sur le marché canadien, seuls les canaux 1 à 11 peuvent être utilisés. Il est impossible de sélectionner d'autres canaux dans la bande de 2.4 GHz.
- Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Canada Conformance Standards

This equipment meets the following conformance standards:

Safety

- C22.2 No.60950-1-03

EMC

- ICES-003, Class B

Radio transceiver

- RSS-247 (2.4 GHz and 5 GHz)

Other

- IEEE 802.11ac (5 GHz)
- IEEE 802.11b/g (2.4 GHz)
- IEEE 802.11n
- IEEE 802.3at (PoE)
- IEEE 802.3af (PoE)

RF Safety Distance

The antennas used for this transmitter must be installed to provide a separation distance of at least 34 cm from all persons and must not be co-located or operating in conjunction with another antenna or transmitter.

Les antennes de ce transmetteur doivent être installées à une distance d'au moins 34 cm de toute personne et ne doivent pas être en placées à proximité immédiate ou utilisées conjointement avec une autre antenne ou un autre transmetteur

European Community

The ExtremeWireless AP3935 is designed for use in the European Union and other countries with similar regulatory restrictions where the end user or installer is allowed to configure the ExtremeWireless AP3935 for operation by entry of a country code relative to a specific country.

After the country code is selected, the ExtremeWireless AP3935 uses the proper frequencies and power outputs for that country code.

The ExtremeWireless AP3935 is intended for indoor use and must be installed in a proper indoor location. Contact local Authority for procedure to follow and regulatory information. For more details on legal combinations of frequencies, power levels and antennas, contact Extreme Networks.

Declaration of Conformity with R&TTE Directive of the European Union 1999/5/EC

The following symbol indicates compliance with the Essential Requirements of the R&TTE Directive of the European Union (1999/5/EC).



Declaration of Conformity in Languages of the European Community

English	Hereby, Extreme Networks, declares that this Radio LAN device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Finnish	Valmistaja Extreme Networks vakuuttaa täten että Radio LAN device tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Dutch	Hierbij verklaart Extreme Networks dat het toestel Radio LAN device in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG. Bij deze verklaart Extreme Networks dat deze Radio LAN device voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC.
French	Par la présente Extreme Networks déclare que l'appareil Radio LAN device est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE. Par la présente, Extreme Networks déclare que ce Radio LAN device est conforme aux exigences essentielles et aux autres dispositions de la directive 1999/5/CE qui lui sont applicables.
Swedish	Härmed intygar Extreme Networks att denna Radio LAN device står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Danish	Undertegnede Extreme Networks erklærer herved, at følgende udstyr Radio LAN device overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
German	Hiermit erklärt Extreme Networks die Übereinstimmung des "WLAN Wireless Controller bzw. Access Points" mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG.
Greek	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Extreme Networks ΔΗΛΩΝΕΙ ΟΤΙ Radio LAN device ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Icelandic	Extreme Networks lýsir her með yfir að þessi bunadur, Radio LAN device, uppfyllir allar grunnkröfur, sem gerðar eru í R&TTE tilskipun ESB nr 1999/5/EC.
Italian	Con la presente Extreme Networks dichiara che questo Radio LAN device è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Spanish	Por medio de la presente Extreme Networks declara que el Radio LAN device cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Portuguese	Extreme Networks declara que este Radio LAN device está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

Malti	Hawnhekk, Extreme Networks, jiddikjara li dan Radio LAN device jikkonforma mal-htigijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
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New Member States Requirements of Declaration of Conformity

Estonian	Käesolevaga kinnitab Extreme Networks seadme Radio LAN device vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
Hungary	Alulírott, Extreme Networks nyilatkozom, hogy a Radio LAN device megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
Slovak	Extreme Networks týmto vyhlasuje, že Radio LAN device spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Czech	Extreme Networks tímto prohlašuje, že tento Radio LAN device je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES."
Slovenian	Šiuo Extreme Networks deklaruoja, kad šis Radio LAN device atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Latvian	Ar šo Extreme Networks deklarē, ka Radio LAN device atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem
Lithuanian	Extreme Networks deklaruoja, kad Radio LAN device atitinka 1999/5/EC Direktyvos esminius reikalavimus ir kitas nuostatas".
Polish	Niniejszym, Extreme Networks, deklaruję, że Radio LAN device spełnia wymagania zasadnicze oraz stosowne postanowienia zawarte Dyrektywie 1999/5/EC.

European Conformance Standards

This equipment meets the following conformance standards:

Safety

- 2006/95/EC Low Voltage Directive (LVD)
- IEC/EN 60950-1 + National Deviations

EMC (Emissions / Immunity)

- 2004/108/EC EMC Directive
- EN 55011/CISPR 11, Class B, Group 1 ISM
- EN 55022/CISPR 22, Class B
- EN 55024/CISPR 24, includes IEC/EN 61000-4-2,3,4,5,6,11
- EN 61000-3-2 and -3-3 (Harmonics and Flicker)
- EN 60601-1-2 (EMC immunity for medical equipment)
- EN 50385 (EMF)
- ETSI/EN 301 489-1 & -17

Radio transceiver

- R&TTE Directive 1999/5/EC
- ETSI/EN 300 328 (2.4 GHz)
- ETSI/EN 301 893 (5 GHz)

Other

- IEEE 802.11ac (5 GHz)
- IEEE 802.11b/g (2.4 GHz)
- IEEE 802.11n
- IEEE 802.3at (PoE)
- IEEE 802.3af (PoE)

RoHS

- European Directive 2002/95/EC

Conditions of use in the European Community

Some EU countries allow outdoor operation with limitations and restrictions, which are described in this section. It is the responsibility of the end user to ensure operation in accordance with these rules, frequencies, and transmitter power output. The ExtremeWireless AP3935 must not be operated until configured for the customer's geographic location.



CAUTION

The user or installer is responsible to ensure that the ExtremeWireless AP3935 is operated according to channel limitations, indoor / outdoor restrictions, license requirements, and within power level limits for the current country of operation. A configuration utility has been provided with the Wireless AP to allow the end user to check the configuration and make necessary configuration changes to ensure proper operation in accordance with the spectrum usage rules for compliance with the European R&TTE directive 1999/5/EC.



CAUTION

Please follow the instructions in this user guide to configure the ExtremeWireless AP3935.

Each Wireless AP is configured with a default group of settings. There is the ability to change these settings. The user or installer is responsible to ensure that each ExtremeWireless AP3935 is configured properly.

The software within the Wireless AP automatically limits the allowable channels and output power determined by the selected country code. Selecting the incorrect country of operation or misidentifying the antenna being used, may result in illegal operation and may cause harmful interference to other systems.

This device employs a radar detection feature required for European Community operation in the 5 GHz band. This feature is automatically enabled when the country of operation is correctly configured for any European Community country. The presence of nearby radar operation may result in temporary interruption of operation of this device. The radar detection feature will automatically restart operation on a channel free of radar.

The 5150- 5350 MHz band, channels 36, 40, 44, 48, 52, 56, 60, or 64, are restricted to indoor use only.

The 2.4 GHz band, channels 1 - 13, may be used for indoor use but there may be some channel restrictions.

European Spectrum Usage Rules

The AP configured with approved internal antennas can be used for indoor transmissions throughout the European community as displayed in [Table B-1](#). Some restrictions apply in France, Greece, and Italy.

Table B-1 European Spectrum Usage Rules

Country	5.15-5.25 (GHz) Channels: 36,40,44,48	5.25-5.35 (GHz) Channels: 52,56,60,64	5.47-5.725 (GHz) Channels: 100,104,108,112,116, 132,136,140	2.4-2.4835 (GHz) Channels: 1 to 13 (Except Where Noted)
Austria	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Belgium	Indoor only	Indoor only	Indoor or outdoor *	Indoor or outdoor
Bulgaria	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Croatia	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Cyprus	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Czech Rep.	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Denmark	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Estonia	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Finland	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
France	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor

Table B-1 European Spectrum Usage Rules (continued)

Country	5.15-5.25 (GHz) Channels: 36,40,44,48	5.25-5.35 (GHz) Channels: 52,56,60,64	5.47-5.725 (GHz) Channels: 100,104,108,112,116, 132,136,140	2.4-2.4835 (GHz) Channels: 1 to 13 (Except Where Noted)
Germany	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Greece	Indoor only	Indoor only	Indoor (Outdoor w/License)	Indoor (Outdoor w/license)
Hungary	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Iceland	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Ireland	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Italy	Indoor only	Indoor only	Indoor or outdoor	Indoor (Outdoor w/license)
Latvia	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Liechtenstein	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Lithuania	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Luxembourg	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Malta	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Netherlands	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Norway	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Poland	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Portugal	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Romania	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Slovak Rep.	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Slovenia	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Spain	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Sweden	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Switzerland	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
Turkey	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor
U.K	Indoor only	Indoor only	Indoor or outdoor	Indoor or outdoor

Certifications of Other Countries

The ExtremeWireless AP3935 has been certified for use in various other countries. Once the correct country code is selected, the Wireless AP automatically uses the proper frequencies and power outputs for that country code.

It is the responsibility of the end user to select the proper country code for the country within which the device will be operated, or run the risk violating local laws and regulations.

.Other Country Specific Compliance Standards, Approvals and Declarations

- IEC 60950-1 CB Scheme + National Deviations
- AS/NZS 60950.1 (Safety)
- AS/NZS 3548 (Emissions via EU standards – ACMA)

-
- AS/NZS 4288 (Radio via EU standards)
 - EN 300 328 (2.4 GHz)
 - EN 301 893 (5 GHz)
 - EN 301 489-1 & -17 (RLAN)
 - IEEE 802.11ac (5 GHz)
 - IEEE 802.11b/g (2.4 GHz)
 - IEEE 802.11n
 - IEEE 802.3at (PoE)
 - IEEE 802.3af (PoE)

RF Safety Distance

The antennas used for this transmitter must be installed to provide a separation distance of at least 34 cm from all persons and must not be co-located or operating in conjunction with another antenna or transmitter.

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