



H3C WA2620X-AGNP Access Point Installation Guide

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Environmental protection

This product has been designed to comply with the environmental protection requirements. The storage, use, and disposal of this product must meet the applicable national laws and regulations.

Preface

The H3C WA2620X-AGNP AP Installation Guide describes the hardware specifications of the new generation WA2600 802.11n outdoor AP, preparations before installation, installation procedure, cabling and grounding, and login procedure. An appendix is included to describe how to crimp RJ-45 connectors.

The preface includes:

- [Audience](#)
- [Conventions](#)
- [About the H3C WA2620X-AGNP documentation set](#)
- [Obtaining documentation](#)
- [Technical support](#)
- [Documentation feedback](#)


Audience

This documentation is intended for:

- Network planners
- Field technical support and servicing engineers
- Network administrators working with the WA2620X-AGNP APs

Conventions

Symbols

Convention	Description
 CAUTION	An alert that calls attention to important information that if not understood or followed can result in data loss, data corruption, or damage to hardware or software.
NOTE	An alert that contains additional or supplementary information.

About the H3C WA2620X-AGNP documentation set

The H3C WA2620X-AGNP documentation set includes:

Category	Documents	Purposes
Product description and specifications	Marketing brochures	Describe product specifications and benefits.
	Technology white papers	Provide an in-depth description of software features and technologies.

Category	Documents	Purposes
Hardware specifications and installation	Compliance and safety manual	Provides regulatory information and the safety instructions that must be followed during installation.
	Installation guide	Provides a complete guide to hardware installation and hardware specifications.
Software configuration	Configuration guides	Describe software features and configuration procedures.
	Command references	Provide a quick reference to all available commands.
	Configuration examples	Describe typical network scenarios and provide configuration examples and instructions.
	Release notes	Provide information about the product release, including the version history, hardware and software compatibility matrix, version upgrade information, technical support information, and software upgrading.

Obtaining documentation

You can access the most up-to-date H3C product documentation on the World Wide Web at <http://www.h3c.com>.

Click the links on the top navigation bar to obtain different categories of product documentation:

[\[Technical Support & Documents > Technical Documents\]](#) – Provides hardware installation, software upgrading, and software feature configuration and maintenance documentation.

[\[Products & Solutions\]](#) – Provides information about products and technologies, as well as solutions.

[\[Technical Support & Documents > Software Download\]](#) – Provides the documentation released with the software version.

Technical support

customer_service@h3c.com

<http://www.h3c.com>

Documentation feedback

You can e-mail your comments about product documentation to info@h3c.com.

We appreciate your comments.

Contents

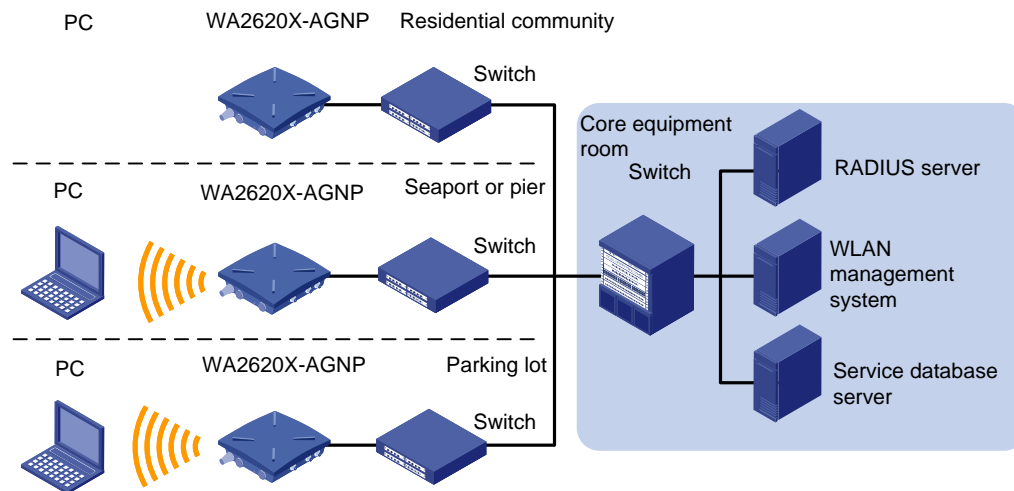
Product overview	1
Overview	1
Hardware specifications	1
LEDs	2
Ports	3
Preparing for installation	6
Preparing installation tools	6
Examining the installation site	6
Installation site selection	6
Temperature and humidity	6
Power supply	7
Grounding and lightning protection	7
Examining the AP	8
Installing the AP	9
Installing the AP	9
Installing the outdoor antennas	12
Installing a directional antenna on a pole	13
Connecting cables	15
Connecting the antenna cables	15
Connecting the Ethernet cable	15
Connecting the fiber cable	18
Connecting the AP to the power source	19
Connecting the grounding cable	20
Verifying the installation	20
Powering on the AP	20
Logging in to the AP	21
Appendix A Crimping an RJ-45 connector	22

Product overview

Overview

H3C WA2620X-AGNP access point (AP) is a new-generation AP that supports 802.11n and can work in fit or fat mode. A fit AP can work with an access controller (AC) or wireless switch to provide WLAN access. A fat AP can provide WLAN access alone. [Figure 1](#) shows a typical networking scenario for WA2620X-AGNP APs.

Figure 1 Deployment of WA2620X-AGNP APs (in fat mode)



Hardware specifications

The WA2620X-AGNP AP offers IP66 rated protection and allows for outdoor deployment. The following sections describe its hardware specifications, LEDs, and ports.

Table 1 Hardware specifications

Item	Description
Dimensions (H×W×D)	76 x 245 x 245 mm (2.99 x 9.65 x 9.65 in.)
Weight	2.35 kg (5.18 lb)
Power consumption	12 W (standby) to 24 W (maximum)
Protocols and materials	<ul style="list-style-type: none">IEEE802.11a/b/g/nWaterproof cast aluminum + plastic housing
802.at	Support for PoE+

LEDs

Figure 2 WA2620X-AGNP LEDs

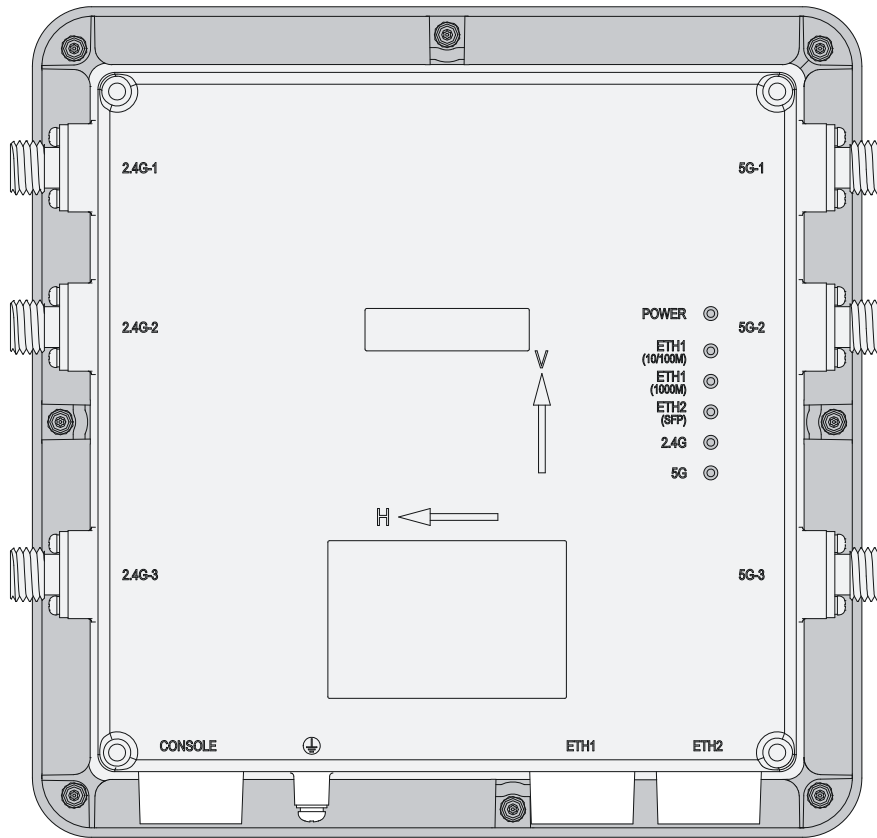


Table 2 LED description

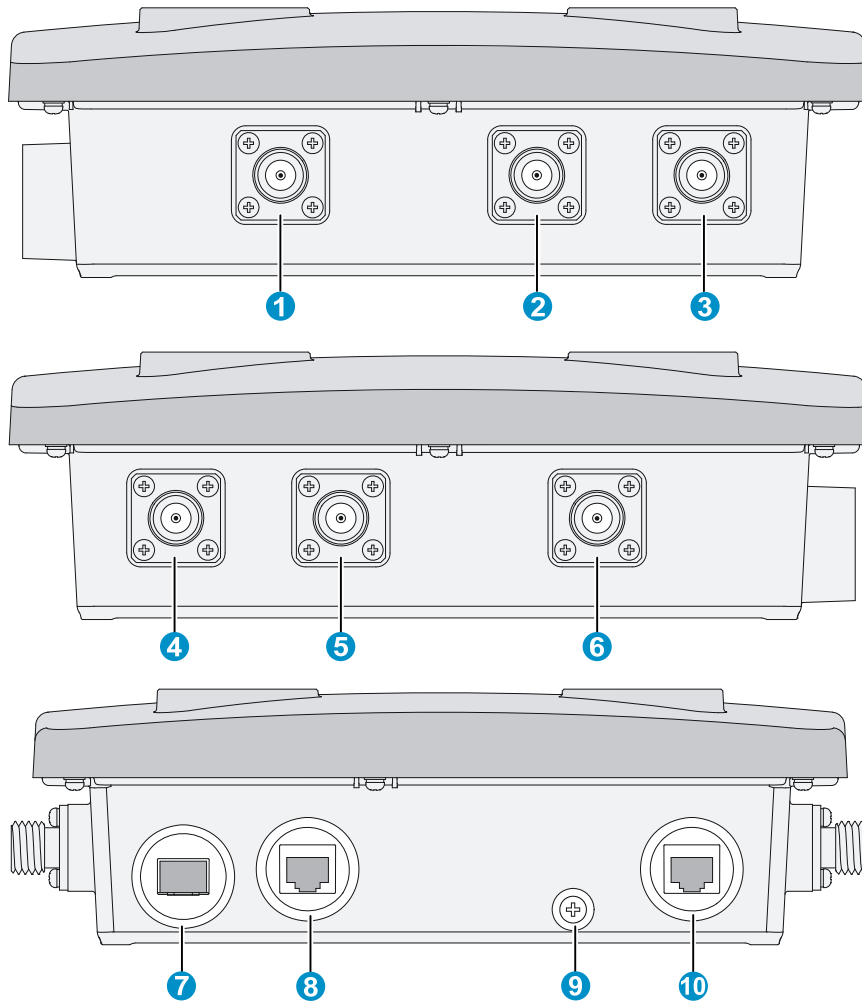
LED	Color	Quantity	Description
POWER (Power LED)	Green	1	Indicates power status: <ul style="list-style-type: none"> On: The AP is powered on. Off: The AP is powered off or operates abnormally.
ETH1 (10/100M) (10/100M Ethernet port LED)	Green	1	Indicates Ethernet port status: <ul style="list-style-type: none"> Steady on: A link is present on the port. Off: No link is present on the port. Blinking: The port is transmitting or receiving data.
ETH1 (1000M) (GE port LED)	Green	1	Indicates Ethernet port status: <ul style="list-style-type: none"> Steady on: A link is present on the port. Off: No link is present on the port. Blinking: The port is transmitting or receiving data.
ETH2 (SFP) (GE fiber port LED)	Green	1	Indicates fiber port status: <ul style="list-style-type: none"> Steady on: A link is present on the port. Off: No link is present on the port.

LED	Color	Quantity	Description
			<ul style="list-style-type: none"> Blinking: The port is transmitting or receiving data.
2.4G (802.11g/n LED)	Green	1	Indicates wireless link status: <ul style="list-style-type: none"> Off: The wireless link is down or fails. Slow blinking: The wireless link is normal. Fast blinking: Data is being transmitted or received.
5G (802.11a/n LED)	Green	1	Indicates wireless link status: <ul style="list-style-type: none"> Off: The wireless link is down or fails. Slow blinking: The wireless link is normal. Fast blinking: Data is being transmitted or received.

Ports

The WA2620X-AGNP AP provides three 2.4 GHz antenna ports and three 5.0 GHz antenna ports, a console port, Ethernet ports (fiber and copper), a power port, and a grounding terminal.

Figure 3 WA2620X-AGNP port layout



1: 2.4G-1 antenna port	2: 2.4G-2 antenna port	3: 2.4G-3 antenna port
4: 5G-1 antenna port	5: 5G-2 antenna port	6: 5G-3 antenna port
7: ETH2 (1000BASE-FX fiber port)	8: ETH 1 (10/100/1000BASE-TX copper port)	
9: Grounding terminal	10: Console port	

Table 3 Port description

Port	Standards and protocols	Function
ETH 2 1000BASE-FX fiber port	IEEE802.3 SFP MSA SFF-8472	Connects to the Internet or Metropolitan Area Network (MAN). NOTE: The SFP transceiver module (9/125µm single mode fiber) uses an LC connector and delivers a transmission speed of 1250 Mbps (central wavelength: 1310 nm; output power: -9.5 dBm to -3 dBm; receive sensitivity ≤ -20 dBm; light saturation: -3 dBm).

Port	Standards and protocols	Function
ETH 1 10/100/1000BASE-TX copper port	IEEE802.3 IEEE802.3u IEEE802.3at	Connects to the Internet or MAN and serves as a PoE port.
2.4G-1/2/3	IEEE802.11b/g/n	Antenna port for 2.4 GHz band
5G-1/2/3	IEEE802.11a/n	Antenna port for 5 GHz band
CONSOLE	RS/EIA-232	Console port for configuration and management

Preparing for installation

This chapter describes how to prepare for the installation of the AP, including the preparation of tools and installation site survey.

Preparing installation tools

When installing the AP, you may need the tools listed in [Table 4](#). Choose the appropriate tools according to the installation environment.

Table 4 List of installation tools

Type of tools	Tools
General tools	Digging tools, adjustable wrench, pliers, Phillips screwdriver
Special tools	Cable stripper, crimping pliers, RJ-45 crimping pliers, waterproof sealing tape, fiber fusion splicer
Auxiliary tools	Ladder

Examining the installation site

Before installation, examine the installation site to make sure that the AP will work in a good environment. You can examine the installation site from the following two aspects.

Installation site selection

Keep the AP away from high temperature, dust, harmful gases, inflammables, explosive substances, electromagnetic interference sources (heavy-duty radars, radio stations, or electrical substations), unstable voltage, heavy vibration, or loud noise. The installation site should be dry, without any leakage, dripping, or dew. The AP should be at least 500 m (0.31 miles) away from the seaside and should not face the direction of sea wind.

In engineering design, the site should be selected according to the network planning and technical requirements of the communications equipment, and the considerations such as climate, hydrology, geology, earthquake, electric power, and transportation.

Temperature and humidity

Table 5 Temperature and humidity requirements

Item	Range
Operating temperature	-40°C to +65°C (-40°F to 149°F)
Storage temperature	-40°C to +85°C (-40°F to 185°F)
Operating relative humidity (noncondensing)	0% to 100%
Storage relative humidity (noncondensing)	0% to 100%

Power supply

The AP can be powered by a power injector or through PoE+.

1. Power injector

You can use an H3C POE-5 power injector to power the AP. For more information about how to power the AP through the power injector, see ["Connecting the AP to a power injector."](#)

NOTE:

The input voltage of the POE-5 power injector must be 85 to 264 VAC (50/60 Hz). The power injector is not shipped with the AP and must be ordered separately.

2. PoE+

If the switch connected to the AP is PoE+ capable, the AP can be powered by the switch through the cable between the 10/100/1000BASE-TX port of the AP and the Ethernet port of the switch.

Grounding and lightning protection

Table 6 Grounding and lightning protection requirements

Item	Requirements
Grounding resistance	<ul style="list-style-type: none"> The grounding resistance is usually required to be less than 5 ohms, and less than 10 ohms in an area with less than 20 thunderstorm days a year. If a piece of angle steel is buried as the grounding conductor, the grounding resistance is required to be less than 10 ohms. In an area with a higher grounding resistance, reduce the grounding resistance by using brine or resistance reducing agent around the grounding conductor. The top of the grounding conductor should be at least 0.7 m (2.30 ft) away from the ground surface. In cold areas, the grounding conductor should be buried below the frozen soil layer.
Grounding connection	<ul style="list-style-type: none"> If a grounding strip is available, connect the yellow and green grounding cable of the AP to the grounding strip. To make a grounding cable, make sure the cable is with a cross-section area of at least 6 mm² (0.01 in.²) and a length of no longer than 3 m (9.84 ft). If no grounding strip is available, bury a piece of angle steel/steel tube at least 0.5 m (1.64 ft) long in the earth to serve as the grounding conductor. In the case of a piece of angle steel, the size should be at least 50 × 50 × 5 mm (1.97 × 1.97 × 0.20 in.); in the case of a piece of steel tube, it must be zinc-plated and have a wall thickness of at least 3.5 mm (0.14 in.). Weld the yellow and green grounding cable of the AP onto the grounding conductor and use anti-erosion treatment on the welding joint. The grounding cable should be as short as possible and must not be coiled. Make sure that the grounding terminals of all the lightning arresters of the AP and the peer device of the AP are well grounded.
Grounding lead-in	<p>A grounding lead-in is a metal conductor connecting a grounding net and a grounding strip. The grounding cable of the AP should be connected to the grounding strip. The grounding lead-in must be 30 m (98.43 ft) or shorter. A piece of zinc-coated flat steel with a cross-section area of 40 × 4 mm (1.57 × 0.16 in.) or 50 × 5 mm (1.97 × 0.20 in.) is recommended. Connect the grounding strip and the grounding lead-in of the AP through the yellow and green grounding cable with an area of 35</p>

Item	Requirements
	mm ² (0.05 in. ²), or weld them directly. Use anti-erosion treatment on the welding joint.
Power grounding (AC)	<ul style="list-style-type: none"> • Use a power cord with a protective earth (PE). Do not use a power cord with only an L line and an N line. • The neutral line of the power cord should not be connected with the PGND of other communications equipment. The L and N lines cannot be connected.
Lightning rod	In plain areas, the shielding angle of the lightning rod should be less than 45 degrees. In mountainous areas or lightning areas, the shielding angle should be less than 30 degrees. The lightning protection grounding (for example, the grounding of the lightning rod) should be connected to the grounding conductor of the equipment room.
Antenna	<ul style="list-style-type: none"> • The antenna support is already prepared according to the design requirements. • The AP is well grounded according to design requirements.
Network cable	Use a shielded twisted pair cable for outdoor installation. Make sure that the devices at the two ends of the cable are well grounded.

Examining the AP

Before installing the AP, connect the AP to the power source (if a power injector is used) and the Ethernet and check the status of the LEDs to ensure that the AP is functional. Save the MAC address of the AP for future use.

Installing the AP

The WA2620X-AGNP AP can be mounted on a pole. To ensure the radio coverage, have the AP installed by professionals. The installation involves the following procedures:

Installing the AP

Installing the outdoor antennas

Connecting cables

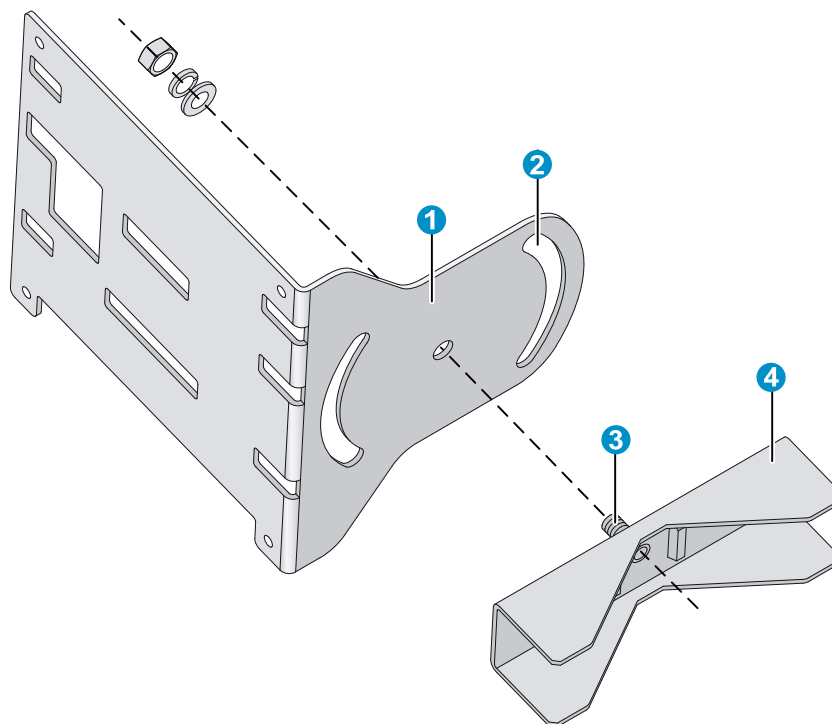
Verifying the installation

Powering on the AP

Installing the AP

The AP can be fixed to a vertical or horizontal pole whose outer diameter is between 60 mm and 110 mm (2.36 in. and 4.33 in.). The mounting kit includes a pair of V-shaped brackets, a mounting plate, bolts, and nuts, as shown in [Figure 4](#).

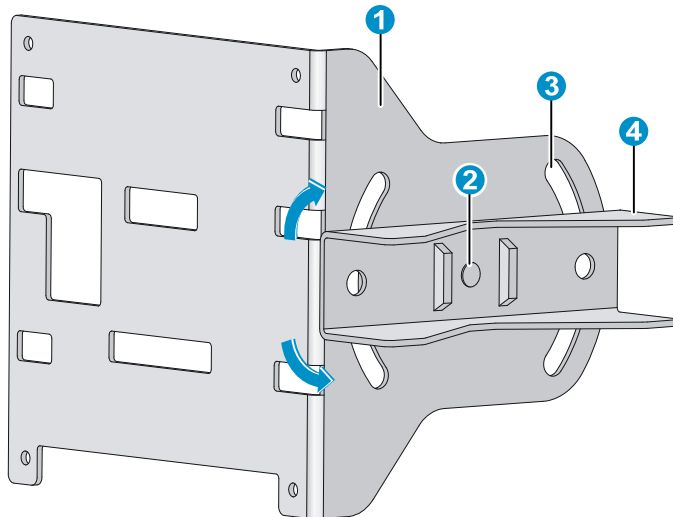
Figure 4 Mounting plate and V-shaped bracket



1: Mounting plate 2: Mounting slot (allows bracket rotation) 3: Bolt 4: V-shaped bracket

You can adjust the tilt of the AP by rotating the mounting plate around the bolt to help installation, as shown in [Figure 5](#).

Figure 5 Adjust the tilt of the AP



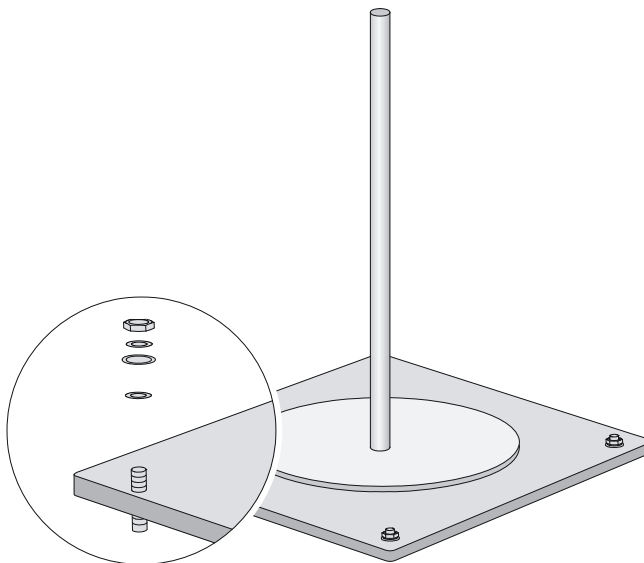
1: Mounting plate 2: Bolt 3: Mounting slot (allows bracket rotation) 4: V-shaped bracket

Pole mounting is suitable for rooftop installation.

Follow these steps to install the AP on a pole:

- Step1** Vertically fix the pedestal of the pole to the rooftop or a cement pier on the rooftop with expansion screws, as shown in [Figure 6](#).

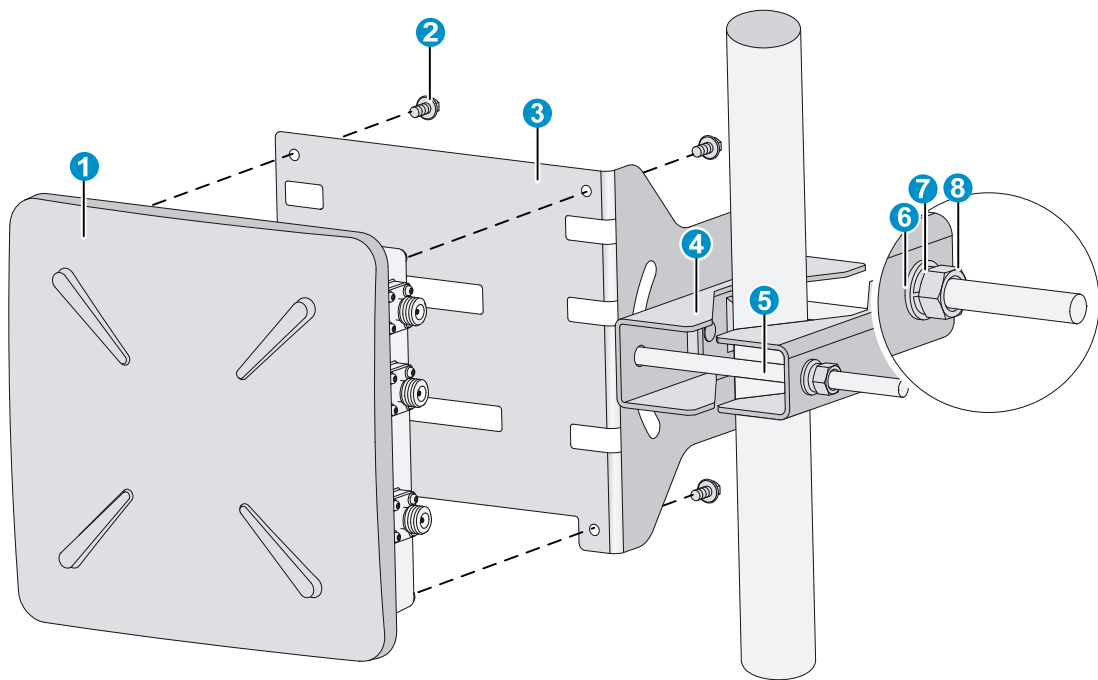
Figure 6 Pole and pedestal



- Step2** Fix the V-shaped bracket onto the mounting plate with the bolt.

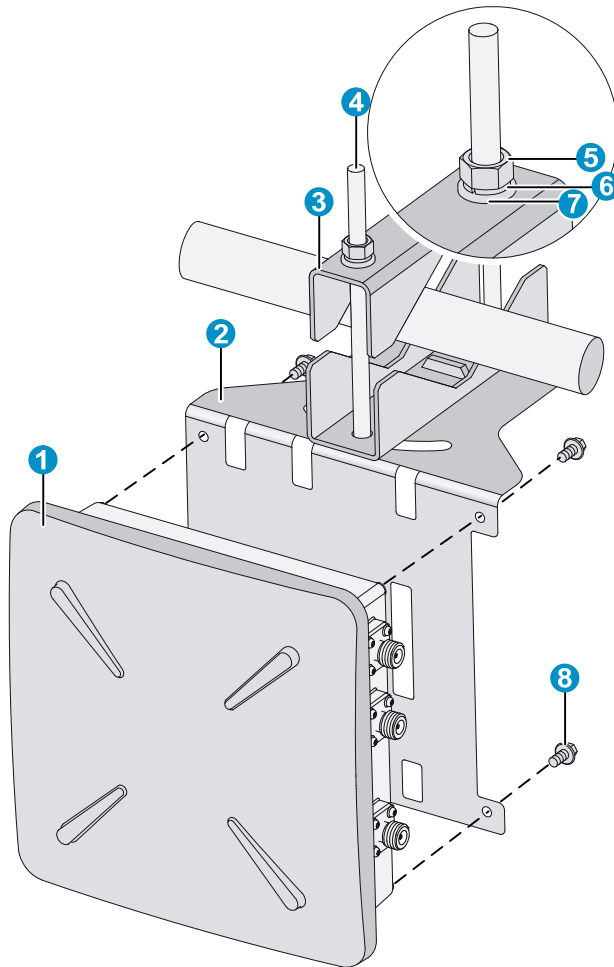
- Step3** Attach another V-shaped bracket to the pole, making sure that the two V-shaped bracket are level. Insert two long bolts through the screw holes on the two brackets and attach the bolts, nuts, and flat and spring washers, as shown in [Figure 7](#) and [Figure 8](#).

Figure 7 Mount the AP on the pole (vertical)



1: AP	2: Screw (M6 x 12)	3: Mounting plate	4: V-shaped bracket
5: Long bolt	6: #10 flat washer	7: #10 spring washer	8: M10 nut

Figure 8 Mount the AP on the pole (horizontal)



1: AP	2: Mounting plate	3: V-shaped bracket	4: Long bolt
5: M10 nut	6: #10 spring washer	7: #10 flat washer	8: Screw (M6 x 12)

Step4 Fix the AP onto the mounting plate with screws and fasten the screws, as shown in [Figure 7](#) and [Figure 8](#).

NOTE:

You can fix the mounting plate on the pole with brackets before or after fixing the AP onto the mounting plate, whichever is more convenient.

Installing the outdoor antennas

Installing a directional antenna on a pole

NOTE:

Ensure that the location of the pole does not hamper the adjustment of antenna direction and tilt.

Before you install a directional antenna on the pole, make sure that the pole is vertical to the rooftop surface.

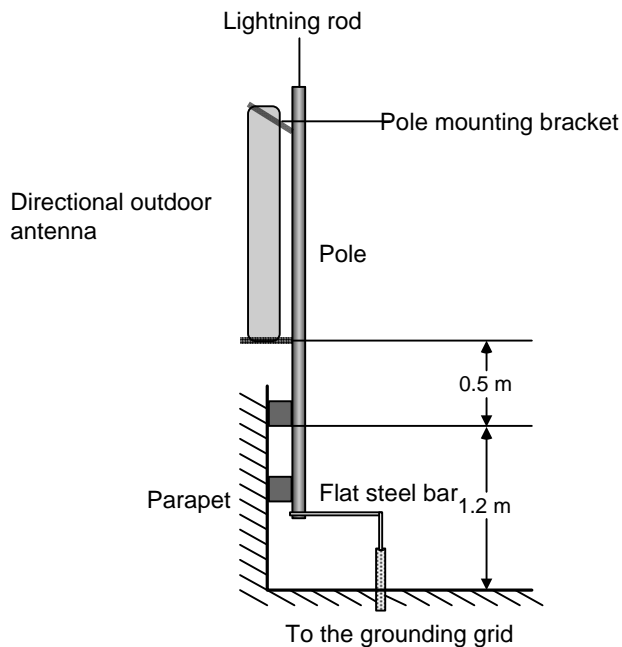
Follow these steps to install a directional antenna:

Step1 Weld the lightning rod to the tip of the pole.

Step2 Install the pole on a parapet or cement pier.

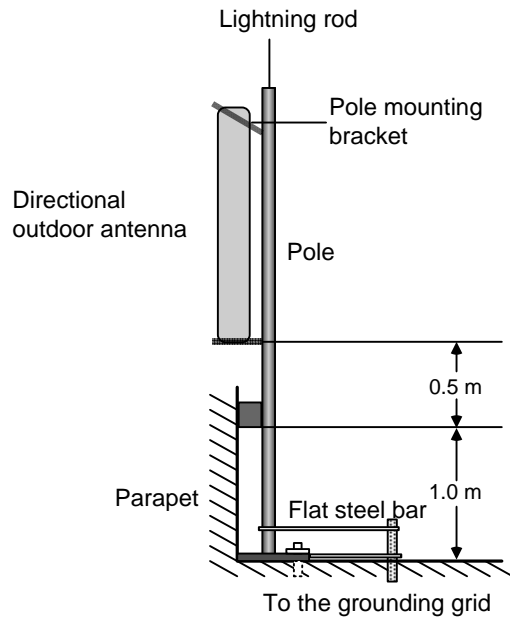
- If there are parapets on the rooftop and the height of the parapets is no less than 1.2 m (3.94 ft), you can fix the pole on a parapet with expansion screws and fix the directional antenna on the pole with the pole mounting bracket, as shown in [Figure 9](#).

Figure 9 Install a directional antenna on a parapet (I)



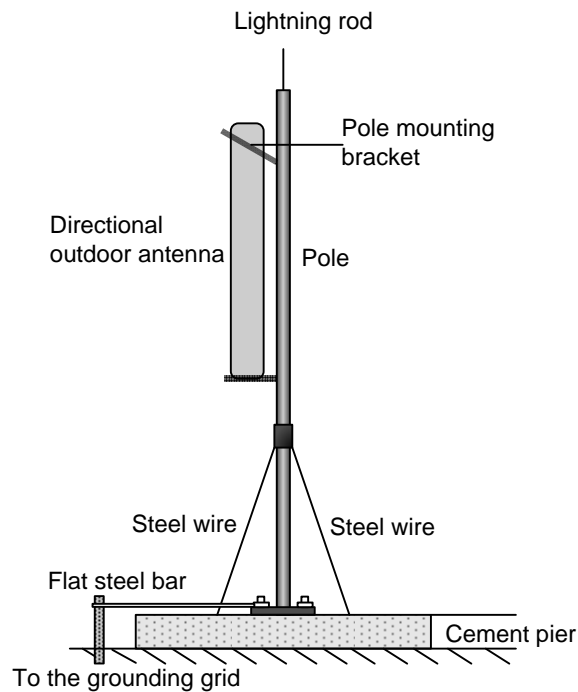
- If there are parapets on the rooftop and the height of the parapets is less than 1.2 m (3.94 ft), you can fix the pole on a parapet at one point with expansion screws and fix the bottom end of the pole to the rooftop surface, and then fix the directional antenna on the pole with the pole mounting bracket, as shown in [Figure 10](#).

Figure 10 Install a directional antenna on a parapet (II)



- If there is no parapet on the rooftop, fix the pole to the rooftop surface or a cement pier on the rooftop with expansion screws and stabilize the pole with steel wires. Then, install the directional antenna on the pole, as shown in Figure 11.

Figure 11 Install a directional antenna on a cement pier



Step3 Connect the pole to a grounding grid with a flat steel bar (40 x 4 mm or 1.57 x 0.16 in.).

Step4 Fix the antenna on the pole with the pole mounting bracket.

Connecting cables

WARNING!

Before connecting any cable, make sure that all power lines are disconnected and locked out and that no hazardous voltage is present on the neutral (N) line.

CAUTION:

Make sure that the outer sheath of cables is intact and does not absorb moisture to protect the AP from water leak.

External cables may include antenna cable, Ethernet cable, fiber cable, grounding cable, and power cord.

Connecting the antenna cables

The antenna cables connect the antenna ports (2.4 GHz and 5 GHz) to the outdoor antennas.

Follow these steps to connect the antenna cables:

- Step1** Connect the antenna cables to the antenna ports of the AP at one end and to the outdoor antennas at the other end.
- For 2 x 2 MIMO antennas, connect the cables to the 2.4 G-1/3 and 5G-1/3 antenna ports on the AP.
 - For 2 x 3 MIMO antennas, connect the cables to the 2.4 G-1/2/3 and 5G-1/2/3 antenna ports on the AP, respectively.
- Step2** Wrap the connections with insulating tape and apply several layers of waterproof sealing tape over the insulating tape.
-

NOTE:

- No antenna arrester is needed. The WA2620X-AGNP AP provides lightning arresting function.
 - Make sure that the grounding cables are well grounded during outdoor deployment.
 - You have the option to order the standard ready-made antenna cables, or order cables of desired lengths and N-type antenna connectors and make antenna cables on-site as needed.
 - Stretch the waterproof sealing tape till the width of the tape is reduced to 3/4 of the original width and wrap the waterproof sealing tape around the cable to achieve desired waterproof performance.
-

Connecting the Ethernet cable

△ CAUTION:

Observe the following procedure when connecting the copper cable. Otherwise, the AP might be damaged.

Step1 Route the Ethernet cable with waterproof sheath from the equipment room to the AP.

Figure 12 Connect a copper cable

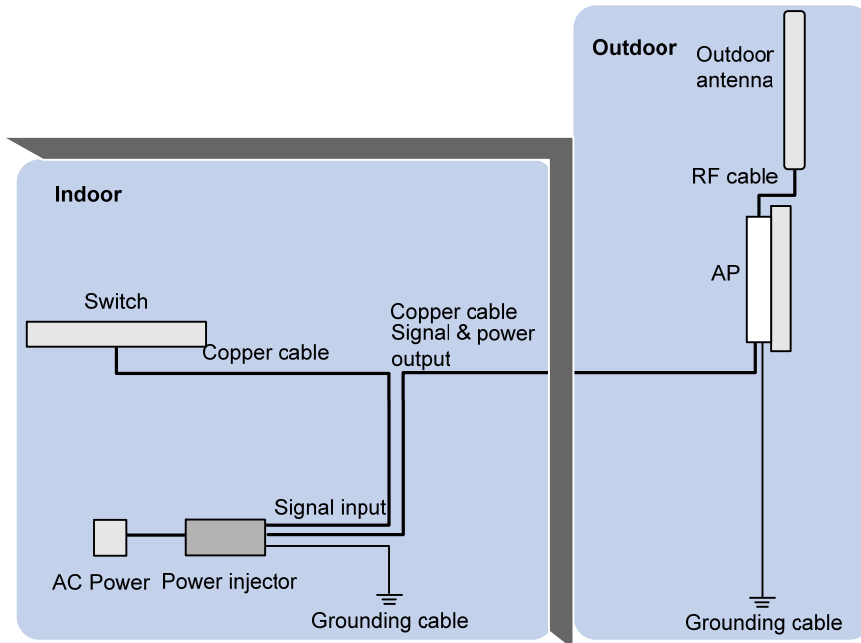


Figure 13 Connect a fiber cable

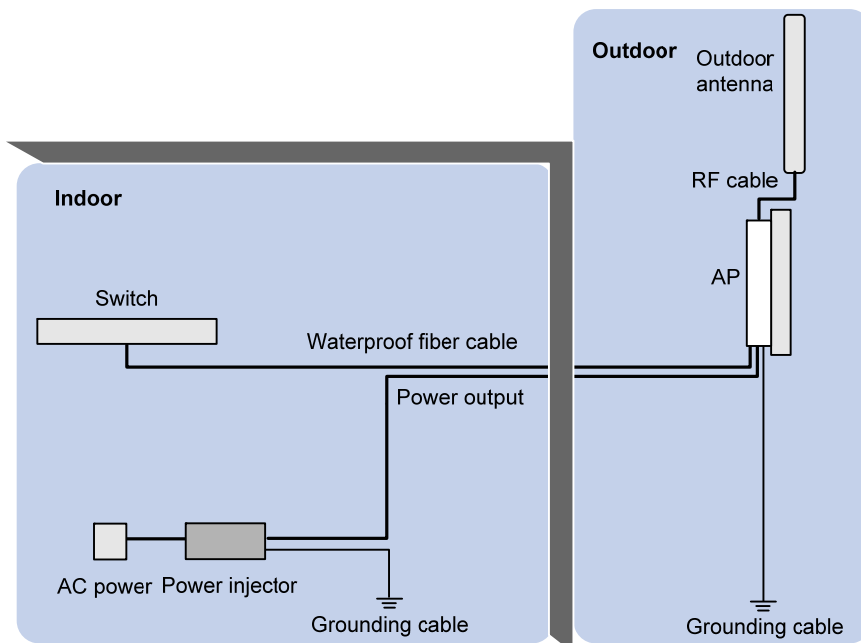
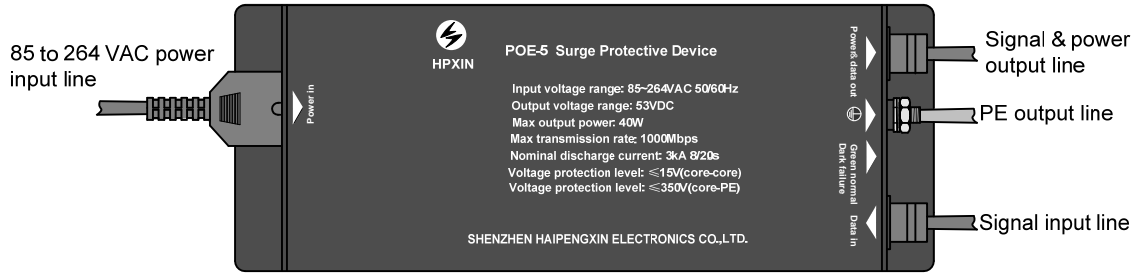


Figure 14 Power injector



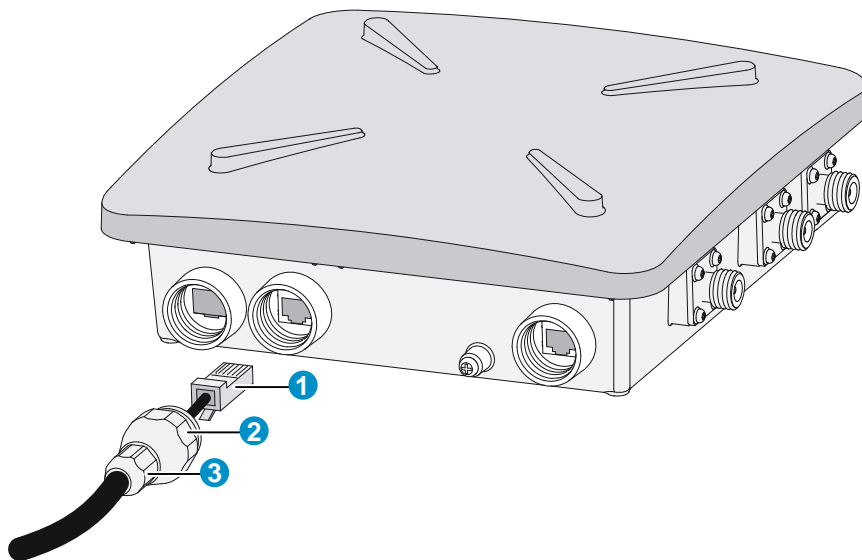
NOTE:

- If the AP is powered by a PoE+ switch, no power injector is needed. Make sure that the PoE+ switch can support the maximum power consumption of the AP.
- If a fiber cable is used to transmit data, the copper cable only provides power and does not transmit data.
- The Ethernet port marked with “Signal & power output” on the power injector must be connected to the AP.
- Make sure that the installation of the AP is complete before powering on the AP, regardless of whether the AP is powered through PoE+ or by a power injector.

Step2 Insert the copper cable through the liquid tight adapter and crimp an RJ-45 connector on the end of the cable. For more information about how to crimp an RJ-45 connector on a cable, see “Appendix A Crimping an RJ-45 connector”.

Step3 Connect the cable to the copper port of the AP.

Figure 15 Connect the copper cable to the copper port of the AP



1: RJ-45 connector

2: Liquid tight adapter

3: Sealing nut

Step4 Make sure the sealing nut is loose. Tighten the liquid tight adapter, and then tighten the sealing nut.

Step5 Seal the connection with waterproof sealing tape.

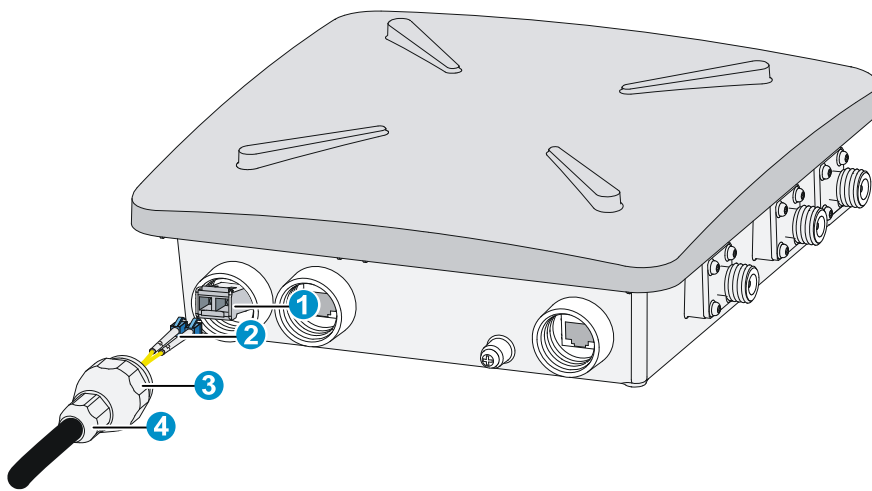
Connecting the fiber cable

⚠ CAUTION:

- Observe the following procedure when connecting the fiber cable. Otherwise, the AP might be damaged.
- When a fiber cable is used to transmit data, both ends of the cable must use appropriate SFP transceiver modules. The SFP transceiver modules provided by H3C meet the outdoor deployment requirements, use single mode fiber, and have a transmission distance of 15 km (9.32 mi).

If the AP is connected to the switch through a fiber cable, an SFP transceiver module and a liquid tight adapter are required at the AP side, as shown in [Figure 16](#).

Figure 16 Connect the fiber cable to the fiber port of the AP



1: SFP transceiver module	2: Fiber connector	3: Liquid tight adapter	4: Sealing nut
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Follow these steps to connect a fiber cable:

- Step1** Insert an SFP transceiver module into the fiber port of the AP.
- Step2** Insert an LC fiber connector with liquid tight adapter to the SFP transceiver module.
- Step3** Make sure the sealing nut is loose. Tighten the liquid tight adapter, and then tighten the sealing nut.
- Step4** Seal the connection with waterproof sealing tape.

NOTE:

- The optional fiber cable is a 10-meter pigtail with waterproof sheath. One end of the pigtail uses an LC connector and a liquid tight adapter and is inserted into the fiber port of the AP and the other end uses an SC connector and is connected to an end user terminal or switch.
 - If the fiber is connected to a fiber termination box, connect the SC connector to a pair of SC sockets. The one marked as A is the receiving port (RX) of the AP and must be connected to the transmitting port (TX) of the peer device; the one marked as B is the TX port of the AP and must be connected to the RX port of the peer device. Usually, fiber termination boxes are not waterproof. Put the fiber termination box indoor or in a waterproof cabinet.
 - If the fiber is connected to a fiber connector box, cut off the SC connector and splice the fiber end with the connector on the connector box. The pigtail marked as A is connected to the RX port of the AP and the TX port of the peer device; the pigtail marked as B is connected to the TX port of the AP and the RX port of the peer device. Fiber connector boxes are usually waterproof and can be buried underground or mounted on a pole.
-

Connecting the AP to the power source

The WA2620X-AGNP AP can be powered by a power injector or a PoE+ switch.

Connecting the AP to a power injector

As shown in [Figure 14](#), follow these steps to connect the power injector to the AP:

- Step1** Connect the power input line to an AC power source.
- Step2** Connect the signal & power output line to the copper port of the AP.
- Step3** Connect the signal input line to a switch or an access controller.
- Step4** Ground the PE output line of the power injector.

Connecting the AP to a PoE+ capable switch

To power the AP by using a PoE+ capable switch, connect the 10/100/1000BASE-TX port of the AP to an Ethernet port of the switch through an Ethernet cable.

NOTE:

- If the AP is powered by a PoE+ switch, the power injector is not needed. Make sure that the PoE+ port can support the maximum power consumption of the AP.
 - If the AP is powered by a power injector, put the power injector at the switch side, and the switch connected to the power injector does not need to be PoE+ capable.
 - Make sure that the installation of the AP is complete before powering on the AP, regardless of whether the AP is powered through PoE+ or by a power injector.
-

Connecting the grounding cable

Connect the grounding terminal of the AP to the grounding point with the yellow and green grounding cable shipped with the AP, as shown in [Figure 3](#). For more information about the procedure, see “[Grounding and lightning protection](#)”.

NOTE:

If the AP is powered by a power injector, the PE output line of the power injector must also be grounded.

Verifying the installation

After the installation and cabling, check the following items before powering on the AP:

- The power source meets the power specification of the AP;
- The AP is well grounded;
- The power input cable and the Ethernet cables are correctly connected;
- The outdoor antennas are installed;
- If the AP is powered by a PoE+ switch, an Ethernet lightning arrester (which is not shipped with the AP) is installed on the AP.

Powering on the AP

Make sure that all the cables are correctly connected. Then, switch on the external power source and check the power LED of the AP against [Table 2](#).

CAUTION:

If the AP is installed outdoor, the Ethernet cable must be waterproof and the connection at the AP port must be sealed with waterproof sealing tape.

Logging in to the AP

NOTE:

A fit AP is zero-configuration and is managed by an access controller or wireless switch. This chapter describes how to log in to a fat AP on a web interface.

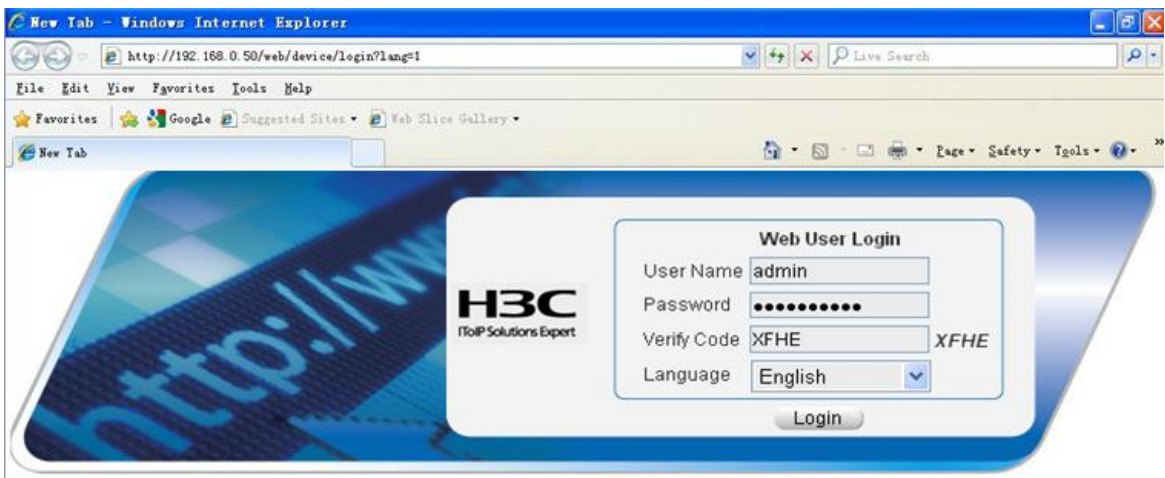
Use the following factory default settings to log in to a fat AP on a web interface:

- Username: admin
- Password: h3capadmin
- IP address: 192.168.0.50 (mask: 255.255.255.0)

Follow these steps to log in to the AP:

- Step1** Connect the AP to a computer with an Ethernet cable.
- Step2** Set the IP address of the computer to an address (such as 192.168.0.100 with a mask of 255.255.255.0) that is in the same subnet as the AP.
- Step3** Launch the web browser and input the address (<http://192.168.0.50>) of the AP in the address bar and press **Enter**. The login interface appears, as shown in [Figure 17](#). On the web interface, enter the default username and password and the verification code, and click **Login**.

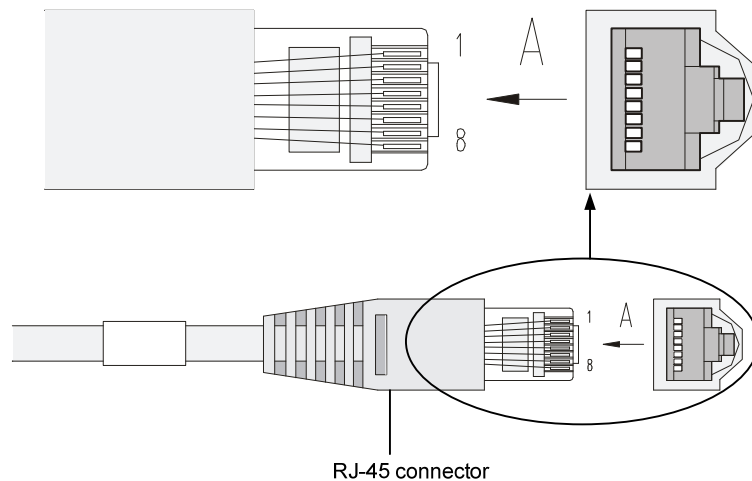
Figure 17 Web interface



Appendix A Crimping an RJ-45 connector

You must insert the Ethernet cable through the liquid tight adapter before crimping an RJ-45 connector on the end of the cable (usually category 5 or category 5E cable).

Figure 18 RJ-45 connector



The following describes two common types of cables and how to make them.

- Straight-through cable: The colored wires are of the same sequence at the two ends of the cable. A straight-through cable is usually used to connect these devices: PC to hub or switch, router to hub or switch.
- Crossover cable: The colored wires are of different sequences at the two ends of the cable. A crossover cable is usually used to connect these devices: PC to PC, router to router, or PC to router.

Table 7 Straight-through cable pin-outs

RJ45 pin	Signal	Wire	Signal direction	RJ45 pin
1	TX+	White-orange	→	1
2	TX-	Orange	→	2
3	RX+	White-green	←	3
4	-	Blue	-	4
5	-	White-blue	-	5
6	RX-	Green	←	6
7	-	White-brown	-	7
8	-	Brown	-	8

Table 8 Crossover cable pin-outs

RJ45 pin	Signal	Wire	Signal direction	RJ45 pin
1	TX+	White-orange	→	3
2	TX-	Orange	→	6
3	RX+	White-green	←	1
4	-	Blue	-	4
5	-	White-blue	-	5
6	RX-	Green	←	2
7	-	White-brown	-	7
8	-	Brown	-	8

NOTE:

- The Ethernet ports of the AP are autosensing and can recognize both types of cables.
- When making a cable, follow the exact sequence listed in [Table 7](#) or [Table 8](#).
- When the AP is installed outdoors, the cable must be waterproof. If possible, use waterproof tubing to protect the cable.

Compliance and Safety Manual

Contents

Safety Information Sicherheitsinformationen 安全信息	1
Conventions Used Symbole Erläuterung 应用惯例	1
Important Safety Information/Wichtige Sicherheitshinweise/重要安全信息	2
Electricity Safety Elektrische Sicherheit 用电安全	3
Regulatory Compliance Information	5
Regulatory compliance standards (标题 2)	5
Support Antennas & Accessories information	6
EU Compliance information	6
CE Marking	6
EU Country Restriction in 2.4GHz band	9
EU Country Restriction in 5GHz band	10
WEEE Directive–2002/96/EC	11
USA regulatory compliance	11
FCC Part 15	11
Canada regulatory compliance	13
ICES-003	13
RF Compliance	13
Brazil RF Compliance	14
Korea RF Compliance	14
Taiwan regulatory statement	14

List of Tables

Table 1 Safety symbol and description	1
Table 2 Regulatory compliance standards.....	5
Table 3 Authorized Antennas & Accessories	6
Table 4 Equipment may be operated in the following country:	6
Table 5 R&TTE declaration statements:	7
Table 6 Europe-Restrictions for Use of 5GHz Frequencies in European Community Countries.....	10

Safety Information Sicherheitsinformationen 安全信息

Conventions Used Symbole Erläuterung 应用惯例




The symbols in this manual are shown in the following table. They are used to remind the reader of the safety precautions during equipment installation and maintenance.

Die Symbole in diesem Handbuch verwendeten sind in der folgenden Tabelle dargestellt. Diese Symbole sollen das Personal während der Installation und Instandhaltung der Ausrüstung an die Wichtigkeit der im Handbuch aufgeführten Sicherheitsvorschriften erinnern.

以下表格中的安全标识，是用来提示读者在进行设备安装和维护时的安全预防要求。

Table 1 Safety symbol and description

Sicherheitssymbole und Beschreibung 安全标识和描述

Safety Symbol Symbole 安全标识	Description Erläuterung 描述
	Generic alarm symbol: To suggest a general safety concern Alarm: Hinweis auf ein generelles Sicherheitsproblem 一般注意标识：用于一般安全提示
	ESD protection symbol: To suggest electrostatic-sensitive equipment. ESD-Schutz: Hinweis auf Beschädigung infolge elektrostatischer Entladung 防静电标识：用于表示静电敏感的设备
	Electric shock symbol: To suggest a danger of high voltage

Safety Symbol	Description
Symbole	Erläuterung
安全标识	描述
	Elektrischer Schlag: Hinweis auf Gefährdung durch Hochspannung 电击防护标识：用于表示高压危险

Important Safety Information/Wichtige Sicherheitshinweise/重要安全信息

Caution: You must read all of the installation instructions in the Installation Guide supplied with your equipment and the following safety instructions before installation or operation.



Achtung: Sie müssen vor der Installation oder Bedienung das mit Ihrer Anlage mitgelieferten Installationshandbuch und die folgende Sicherheitshinweise lesen.

注意: 在安装和操作本设备时，务必阅读设备安装手册的内容，以及下文的所有安全说明。

Caution: Do not block ventilation openings while the system is on, and keep at least 5 cm distance from ventilation openings and walls or other things which may block the openings.



Achtung: Blockieren Sie die Lüftungsmündungen nicht, wenn das System läuft. Stellen Sie die Lüftungsmündungen mindestens 5 cm entfernt von der Wände oder anderen Sachen, die die Mündungen blockieren können.

注意: 设备在工作时必须确保通风口的畅通，确保设备离墙壁或是其它的可能堵塞通风口的物体的间距至少 5cm。

WARNING: Before the power cable is installed or removed, the power switch must be turned off.



Warnung: Das System muss stets abgeschaltet werden, bevor die Zuleitung angebracht oder entfernt wird.

警告: 在安装、移动线缆之前，请切断电源。



WARNING: Before the power cable is connected, it must be confirmed that the power cable and label comply with the requirements of the

actual installation.

Warnung: Überprüfen Sie vor dem Anbringen der Zuleitung immer, ob das von Ihnen verwendete Kabel den Anforderungen entspricht.

警告: 在进行线缆连接前, 请确认线缆和线缆的标识与实际安装要求是一致的。

WARNING: The unit must be permanently connected to the protective ground before operation. The cross-sectional area of the protective earthing / grounding conductor shall be at least 0.75 mm².



Warnung: Diese Anlage muss vor der Inbetriebnahme ständig an die Schutzleiter angeschlossen werden. Die Querschnittsfläche des Schutzerdungsleiters soll mindestens 0.75 mm² betragen.

警告: 进行设备/系统操作前, 请确保永久接地, 并且用于进行保护接地连接的接地线截面不小于0.75 mm²。

WARNING: To ensure the equipment mounted on the wall firmly, please use nail at least 4.2 mm diameter and the nail cap at least 8 mm diameter.



Warnung: Um die Sicherheit der Ausrüstung auf der Wand, der Nagel in der Wand muss einen Durchmesser 4.2 mm mindestens haben und der Durchmesser von der Nagelkappe muss grösser als 8 mm sein.

警告: 为确保设备紧固的安装墙上, 请用直径最小是4.2mm钉子, 并且钉子帽的直径要大于8mm。

Electricity Safety Elektrische Sicherheit 用电安全

- Conducting articles, such as watch, hand chain, bracelet and ring are prohibited during the operation.
- Es ist nicht erlaubt während dieser Arbeiten leitende Gegenstände wie Uhren, Armbänder, Armreifen und Ringe am Körper zu tragen.
- 在操作中不能穿戴导电性的物品, 如: 手表, 手链, 手镯和项链等。
- When water is found in the rack, or the rack is damp, please immediately switch off the power supply.

- Sollte sich Wasser im Baugruppenträger befinden oder der Baugruppenträger feucht sein, ist die Energiezufuhr sofort zu unterbrechen und das System abzuschalten.
- 当有液体进入机架或机架有损坏时，请立即切断电源。
- When operation is performed in a damp environment, make sure that water is kept off the equipment.
- Muss in einem feuchten Umgebung gearbeitet werden, ist sicherzustellen, dass kein Wasser in die Ausrüstung dringen kann.
- 在潮湿环境下进行安装时，请避免液体进入设备。

Regulatory Compliance Information

Regulatory compliance standards

Table 2 Regulatory compliance standards

Discipline	Standards
EMC	FCC Part 15 (CFR 47) Subpart B section 15.107&15.109 Class B
	ICES-003 Class B
	EN 61000-3-2
	EN 61000-3-3
	EN55024
	EN55022
	EN 301 489-1 EN 301 489-17
Safety	UL 60950-1
	CAN/CSA C22.2 No 60950-1
	IEC 60950-1
	EN 60950-1
	AS/NZS 60950-1
RF	FCC Part 15 subpart C section 15.207 & 15.209 & 15.247& 15.205; subpart D section 15.407
	FCC Bulletin OET-65C
	RSS-210
	EN 300 328
	EN 301 893

Support Antennas & Accessories information

This product can be used with the following antennas and accessories:

Table 3 Authorized Antennas & Accessories

Item	Description	Exclusions
	Supplied Antenna	None
JG291A	HP 2.4GHz 12dBi MIMO 3-element Outdoor/Indoor Panel Antenna	None
JG292A	HP 5GHz 11dBi MIMO 3-element Outdoor/Indoor Panel Antenna	None

This product does not contain any user serviceable components. Any unauthorized product changes or modifications will invalidate the warranty and all applicable regulatory certifications and approvals.

This product must be installed by a professional technician/ installer.

EU Compliance information

CE Marking



Table 4 Equipment may be operated in the following country:

AT	BE	CY	CZ	DK	EE	FI	FR
DE	GR	HU	IE	IT	LV	LT	LU
MT	NL	PL	PT	SK	SI	ES	SE
GB	IS	LI	NO	CH	BG	RO	TR

1. Select the country in which the product is installed to ensure product operation is in compliance with local regulations. For more information about how to select the country, see command about country-code in "WLAN Command Reference".
2. Intended use: IEEE 802.11 a/b/g/n radio LAN device.
3. This product must maintain a minimum body to antenna distance of 20cm. Under these conditions this product will meet the Basic Restriction limits of 1999/519/EC (Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0Hz-300GHz)).

Table 5 R&TTE declaration statements:

Česky [Czech]	HP Coporation tímto prohlašuje, že tento RLAN je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish]	Undertegnede HP Corporation erklærer herved, at følgende udstyr RLAN overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German]	Hiermit erklärt HP Corporation, dass sich das Gerät RLAN in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Eesti [Estonian]	Käesolevaga kinnitab HP Corporation seadme RLAN vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, HP Corporation, declares that this RLAN is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]	Por medio de la presente HP Corporation declara que el RLAN cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ ΗΡ Corporation ΔΗΛΩΝΕΙ ΟΤΙ RLAN ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Français	Par la présente HP Corporation déclare que l'appareil RLAN est conforme aux exigences essentielles et aux autres dispositions

[French]	pertinentes de la directive 1999/5/CE.
Italiano [Italian]	Con la presente HP Corporation dichiara che questo RLAN è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo HP Corporation deklarē, ka RLAN atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo HP Corporation deklaruoja, kad šis RLAN atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Nederlands [Dutch]	Hierbij verklaart HP Corporation dat het toestel RLAN in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese]	Hawnhekk, HP Corporation, jiddikjara li dan RLAN jikkonforma mal-htigijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian]	Alulírott, HP Corporation nyilatkozom, hogy a RLAN megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
Polski [Polish]	Niniejszym HP Corporation oświadcza, że RLAN jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Português [Portuguese]	HP Corporation declara que este RLAN está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Slovensko [Slovenian]	HP Corporation izjavlja, da je ta RLAN v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	HP Corporation týmto vyhlasuje, že RLAN spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]	HP Corporation vakuuttaa täten että RLAN tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar HP Corporation att denna RLAN står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

Íslenska [Icelandic]	Hér með lýsir HP Corporation yfir því að RLAN er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC.
Norsk [Norwegian]	HP Corporation erklærer herved at utstyret RLAN er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.

A copy of the signed Declaration of Conformity can be downloaded from:

- <http://www.hp.eu/certificates>

Table 6 Overview of Regulatory Requirements for Wireless LANs

Frequency Band (MHz)	Max Power Level	(EIRP) (mW) Indoor ONLY	Indoor and Outdoor
2400 – 2483.5	100 mW		X
5150 – 5350	200 mW	X	
5470 – 5725	1000 mW		X

NOTE:

Dynamic Frequency Selection and Transmit Power Control is required in the 5250- to 5350-MHz and 5470- to 5725-MHz frequency range.

EU Country Restriction in 2.4GHz band

The products may be used indoors or outdoors in all countries of the European Community using the 2.4GHz band: Channel 1-13, except where noted below.

In France, the output power is restricted to 10 mW EIRP when the product is used outdoors in the band 2454 - 2483.5 MHz. There are no restrictions when used in other parts of the 2.4 GHz band.

EU Country Restriction in 5GHz band

1. In Italy the end-user must apply for a license from the national spectrum authority to operate this device outdoors.
2. To remain in conformance with European spectrum usage laws for Wireless LAN operation, the above 2.4GHz and 5GHz channel limitations apply. The user should check the current channel of operation. If operation is occurring outside of the allowable frequencies as listed above, the user must cease operating the product at that location and consult the local technical support staff responsible for the wireless network.
3. This device must be used with the radar detection feature required for European Community operation in the 5GHz bands. This device will avoid operating on a channel occupied by any radar system in the area. The presence of nearby radar operation may result in temporary interruption in communications of this device. The Access Point's radar detection feature will automatically restart operation on a channel free of radar. You may consult with the local technical support staff responsible for the wireless network to ensure the Access Point device(s) are properly configured for European Community operation.

Table 7 Europe-Restrictions for Use of 5GHz Frequencies in European Community Countries

Allowed Frequency Bands	Allowed Channel Numbers	Countries
5.15-5.35& 5.470-5.725GHz	36,38,40,44,46,48,52,54, 56,60,62,64,100,102,104 ,108,110,112,116,118,12 0,124,126,128,132,134,1 36,140	Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, U.K.

WEEE Directive–2002/96/EC



The products this manual refers to are covered by the Waste Electrical & Electronic Equipment (WEEE) Directive and must be disposed of in a responsible manner.

USA regulatory compliance

FCC Part 15

US Federal Communications Commission (FCC) EMC Compliance

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

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This device 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 device 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 device does cause harmful interference to

radio/television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and the 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.

Note:

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

RF Requirements

1. RF exposure Hazard Warning

This device generates and radiates radio-frequency energy. In order to comply with FCC radio-frequency exposure guidelines for an uncontrolled environment, this equipment must be installed and operated while maintaining a minimum body to antenna distance of 20 cm (approximately 8 in.)

2. RF Frequency Requirements

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other unauthorized antenna or transmitter.

For outdoor use: the equipment is with frequency band in 2400 - 2483.5 MHz and 5725-5850 MHz.

Antennas

Only use the supplied antenna. Unauthorized antennas, modifications or change to the antennas could violate FCC regulations and void the user's authority to operate the equipment.

Canada regulatory compliance

ICES-003

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

RF Compliance

This device complies with Industry Canada licence-exempt RSS standard(s).

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

L' utilisation de ce dispositif est autorisée seulement aux conditions suivantes: (1) il ne doit pas produire de brouillage et (2) l' utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

The term "IC" before the equipment certification number only signifies that the Industry Canada technical specifications were met.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication. To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Pour empêcher que cet appareil cause du brouillage au service faisant l'objet d'une licence, il doit être utilisé à l'intérieur et devrait être placé loin des fenêtres afin de fournir un écran de blindage maximal. Si le matériel (ou son antenne d'émission) est installé à l'extérieur, il doit faire l'objet d'une licence.

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

For outdoor use: the equipment is with frequency band in 2400 - 2483.5 MHz, 5250-5350 MHz, and 5725-5850 MHz.

Brazil RF Compliance

Este produto está homologado pela ANATEL, de acordo com os procedimentos regulamentados pela Resolução 242/2000 e atende aos requisitos técnicos aplicados.

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário.

Para maiores informações, consulte o site da ANATEL – www.anatel.gov.br

Korea RF Compliance

This device may cause radio interference during its operation. Therefore service in relation to human life security is not available.

“ 당해 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없음 ”

Taiwan regulatory statement

1. 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
2. 射頻電信終端設備之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。所謂合法通信，係指依電信法規定作業之無線電信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。
3. 輸入、製造射頻電信終端設備之公司、商號或其使用者違反本辦法規定，擅自使用或變更無線電頻率、電功率者，除依電信法規定處罰外，電信總局並得撤銷其審驗合格證明。
4. 本機限在不干擾合法電台與不受被干擾保障條件下於室內使用。
5. 在 5.25-5.35 兆赫頻帶內操作之無線資訊傳輸設備，限於室內使用。
6. 無線資訊傳輸設備的製造廠商應確保頻率穩定性，如依製造廠商使用手冊上所述正常操作，發射的信號應維持於操作頻帶中。
7. 為減少電磁波干擾，請妥適使用。