

# AT-TQ4400e

Outdoor Wireless Access Point  
with IEEE802.11a/b/g/n/ac Dual Radio



## Installation Guide

Copyright © 2016 Allied Telesis, Inc.

All rights reserved. No part of this publication may be reproduced without prior written permission from Allied Telesis, Inc.

Allied Telesis and the Allied Telesis logo are trademarks of Allied Telesis, Incorporated. All other product names, company names, logos or other designations mentioned herein are trademarks or registered trademarks of their respective owners.

Allied Telesis, Inc. reserves the right to make changes in specifications and other information contained in this document without prior written notice. The information provided herein is subject to change without notice. In no event shall Allied Telesis, Inc. be liable for any incidental, special, indirect, or consequential damages whatsoever, including but not limited to lost profits, arising out of or related to this manual or the information contained herein, even if Allied Telesis, Inc. has been advised of, known, or should have known, the possibility of such damages.

# Electrical Safety and Emissions Standards

---

This product meets the following standards:

## Federal Communications Commission Interference Statement

---

### Declaration of Conformity

Manufacturer Name: **Allied Telesis, Inc.**

Declares that the product: **Wireless access point with PoE+ powered device function**

Model Number: **AT-TQ4400e**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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



#### **Caution**

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. ⚡ E80

---



#### **Avertissement**

Avertissement de la FCC: Les changements ou modifications non expressément approuvés par la partie responsable de la conformité pourraient annuler l'autorité de l'utilisateur à utiliser cet équipement. ⚡ E80

---

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

The band from 5600-5650MHz will be disabled by the software during the manufacturing and cannot be changed by the end user. This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

### **Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 34cm between the radiator & your body.

## **European Union Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment**

---

This Allied Telesis RoHS-compliant product conforms to the European Union Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment. Allied Telesis ensures RoHS conformance by requiring supplier Declarations of Conformity, monitoring incoming materials, and maintaining manufacturing process controls.

---

### **Note**

For additional regulatory statements, refer to Appendix B, "Regulatory Statements" on page 73.

---

## **Safety and Electromagnetic Emissions Certificates**

---

### **Standard Compliance**

- RoHS compliant
- European Union RoHS (Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.)

### **Certificates**

- CE
- FCC/IC
- RCM
- Wi-Fi CERTIFIED

## **Electromagnetic Compatibility (EMC)**

- EN 301 489-1
- EN 301 489-17
- EN 55022
- EN 55024
- EN 61000-3-2
- EN 61000-3-3
- EN 61000-4-2
- EN 61000-4-3
- EN 61000-4-4
- EN 61000-4-5
- EN 61000-4-6
- EN 61000-4-8
- EN 61000-4-11
- AS/NZS CISPR 22
- FCC 47 CFR Part 15, Subpart B
- ICES-003

## **Radio Equipment**

- EN 300 328
- EN 301 893
- AS/NZS 4268
- FCC 47 CFR Part 15, Subpart C
- FCC 47 CFR Part 15, Subpart E
- RSS247
- RSS-Gen
- RSS-102
- FCC: OET Bulletin No. 65 Supplement C
- EN 50385


## **Safety**

- EN 60950-1
- IEC 60950-1
- TUV-T
- UL 60950-1
- UL 60950-22

- ❑ CAN/CSA C22.2 No. 60950-1-07
- ❑ CAN/CSA-C22.2 No. 60950-22-07
- ❑ IEC 60950-22
- ❑ IEC 60529

## Translated Safety Statements

---

**Important:** The  indicates that a translation of the safety statement is available in a PDF document titled *Translated Safety Statements* on the Allied Telesis website at [www.alliedtelesis.com/support](http://www.alliedtelesis.com/support).

# Contents

---

<b>Preface</b> .....	13
Safety Symbols Used in this Document .....	14
Contacting Allied Telesis .....	15
<b>Chapter 1: Product Description</b> .....	<b>17</b>
Overview .....	18
Features .....	20
LAN Port .....	22
Power over Ethernet (PoE) .....	22
Connector Type .....	22
Speed .....	22
Duplex Mode .....	22
Automatic MDIX Detection .....	22
Port Pinouts .....	23
Cable Specifications .....	24
Cable Requirements .....	24
Maximum Distance .....	24
Optional Antennas .....	25
Available Use Cases .....	25
Frequency Bands .....	25
<b>Chapter 2: Optional Antennas and Cables</b> .....	<b>27</b>
Optional Antennas .....	28
AT-AN2458-10DP Mini Panel Antenna .....	28
AT-AN5158-16DP Sector Antenna .....	30
AT-AN5158-19DP Flat Panel Antenna .....	32
Cables to Connect an Optional Antenna .....	34
Cable Specifications .....	34
<b>Chapter 3: Installing the Access Point</b> .....	<b>35</b>
Reviewing Safety Precautions .....	36
Unpacking the AT-TQ4400e Access Point .....	38
Optional Antennas .....	40
Attaching the Ground Cable to the Access Point .....	41
Guidelines .....	41
What to Prepare for Attaching the Ground Cable .....	41
Attaching the Ground Cable to the Access Point .....	41
Connecting the Access Point with the Ethernet Cable .....	43
Installing the Access Point on a Wall .....	45
Guidelines .....	45
What to Prepare for Wall Installation .....	45
Installing the Access Point on a Concrete Wall .....	46
Installing the Access Point on a Regular Wall .....	48
Installing the Access Point on a Pole .....	49
What to Prepare for Pole Installation .....	49
Installing the Access Point on a Pole .....	49

- Attaching the Antennas to the Access Point..... 52
- Starting the Initial Management Session on the Access Point ..... 53
  - Starting the Initial Management Session without a DHCP Server ..... 53
  - Starting the Initial Management Session with a DHCP Server ..... 54
- Setting the Country Setting..... 56
- Chapter 4: Installing the Optional Antennas ..... 59**
  - Overview..... 60
  - Installing the AT-AN2458-10DP Mini Panel Antenna ..... 61
  - Installing the AT-AN5158-16DP Sector Antenna..... 63
  - Installing the AT-AN5158-19DP Flat Panel Antenna..... 65
- Appendix A: Technical Specifications ..... 67**
  - Physical Specifications ..... 67
  - Environmental Specifications ..... 67
  - Power Specifications ..... 68
  - LAN Port..... 69
  - Safety and Electromagnetic Emissions Certifications ..... 71
- Appendix B: Regulatory Statements ..... 73**
  - Federal Communication Commission Interference Statement ..... 74
  - Industry Canada Statement..... 76
  - Europe - EU Declaration of Conformity ..... 79
    - Operating Frequencies and Maximum Transmission Power Levels ..... 79
    - Radiation Exposure Statement ..... 79
    - Importer ..... 79

# Figures

---

Figure 1: AT-TQ4400e Access Point Antenna Panel Top .....	18
Figure 2: AT-TQ4400e Access Point Antenna Panel Bottom .....	18
Figure 3: AT-TQ4400e Access Point Side Panel .....	19
Figure 4: AT-AN2458-10DP Mini Panel Antenna .....	28
Figure 5: AT-AN5158-16DP Sector Antenna.....	30
Figure 6: AT-AN5158-16DP Sector Antenna Adjustment.....	30
Figure 7: AT-AN5158-19DP Flat Panel Antenna.....	32
Figure 8: AT-AN5158-19DP Flat Panel Antenna Adjustment.....	32
Figure 9: Aligning the Access Point with Ground Cable .....	42
Figure 10: Removing the Sealing Nut, Clamping Claw, and Sealing Insert .....	43
Figure 11: Removing the Rubber Nail from the Sealing Insert .....	43
Figure 12: Applying the Sealing Parts to the LAN Cable .....	44
Figure 13: Connecting the LAN Cable and Attaching the Sealing Nut .....	44
Figure 14: Base Plate Hole Dimensions .....	46
Figure 15: Attaching the Mounting Base to the Access Point.....	47
Figure 16: Installing to the Wall Using Bolts .....	47
Figure 17: Installing to the Wall Using Tapping Screws .....	48
Figure 18: Pole Installation of the Access Point .....	49
Figure 19: Attaching the Pole-Mount Bracket to the Mounting Base.....	50
Figure 20: Attaching the O-Ring Clamp to the Pole-Mount Bracket .....	50
Figure 21: Installing Antennas to the Access Point .....	52
Figure 22: Logon Window.....	54
Figure 23: Modify Wireless Settings Window .....	56
Figure 24: Installing Mini Panel Antenna to the Pole.....	61
Figure 25: Installing Antennas to the Access Point .....	61
Figure 26: Installing Antennas for 2.4GHz to the Access Point.....	62
Figure 27: Installing Antennas for 5GHz to the Access Point.....	62
Figure 28: Installing Sector Antenna to the Pole .....	63
Figure 29: Installing Antennas to the Access Point .....	63
Figure 30: Installing Flat Panel Antenna to the Pole .....	65
Figure 31: Installing Antennas to the Access Point .....	65
Figure 32: Pin Layout for the RJ45 Connector on the LAN Port.....	69



# Tables

---

Table 1. Components of the Access Point .....	19
Table 2. Twisted Pair Cable for the LAN Port .....	24
Table 3. Available Use Case .....	25
Table 4. Available Frequency Bands per Antenna Complied by FCC .....	26
Table 5. Available Frequency Bands per Antenna Complied by IC .....	26
Table 6. Available Frequency Bands per Antenna Complied by CE .....	26
Table 7. Electrical Specifications for the Mini Panel Antenna .....	29
Table 8. Mechanical Specifications for the Mini Panel Antenna .....	29
Table 9. Electrical Specifications for the Sector Antenna .....	31
Table 10. Mechanical Specifications for the Sector Antenna .....	31
Table 11. Electrical Specifications for the Flat Panel Antenna .....	33
Table 12. Mechanical Specifications for the Flat Panel Antenna .....	33
Table 13. Cable Descriptions and Specifications .....	34
Table 14. Components in the Shipping Boxes .....	38
Table 15. AT-TQ4400e Physical Specifications .....	67
Table 16. Environmental Specifications .....	67
Table 17. AT-TQ4400e Maximum Power Consumption .....	68
Table 18. LAN Port Specifications .....	69
Table 19. MDI Pin Signals (10Base-T or 100Base-TX) .....	69
Table 20. MDI-X Pin Signals (10Base-T or 100Base-TX) .....	70
Table 21. 1000Base-T Connector Pinouts .....	70
Table 22. Safety and Electromagnetic Emissions Certificates .....	71



# Preface

---

This guide contains the hardware installation instructions for the AT-TQ4400e Outdoor Wireless Access Point. This preface contains the following sections:

- “Safety Symbols Used in this Document” on page 14
- “Contacting Allied Telesis” on page 15

## Safety Symbols Used in this Document

---

This document uses the following conventions.

---

**Note**

Notes provide additional information.

---



---

**Caution**

Cautions inform you that performing or omitting a specific action may result in equipment damage or loss of data.

---



---

**Warning**

Warnings inform you that performing or omitting a specific action may result in bodily injury.

---

## Contacting Allied Telesis

---

If you need assistance with this product, you may contact Allied Telesis technical support by going to the Support & Services section of the Allied Telesis web site at [www.alliedtelesis.com/support](http://www.alliedtelesis.com/support). You can find links for the following services on this page:

- ❑ 24/7 Online Support — Enter our interactive support center to search for answers to your product questions in our knowledge database, check support tickets, learn about Return Merchandise Authorizations (RMAs), and contact Allied Telesis technical experts.
- ❑ USA and EMEA phone support — Select the phone number that best fits your location and customer type.
- ❑ Hardware warranty information — Learn about Allied Telesis warranties and register your product online.
- ❑ Replacement Services — Submit an RMA request via our interactive support center.
- ❑ Documentation — View the most recent installation and user guides, software release notes, white papers, and data sheets for your products.
- ❑ Software Downloads — Download the latest software releases for your managed products.

For sales or corporate information, go to [www.alliedtelesis.com/purchase](http://www.alliedtelesis.com/purchase).



## Chapter 1

# Product Description

---

This chapter describes the hardware components of the AT-TQ4400e Wireless Access Point. This chapter contains the following sections:

- ❑ “Overview” on page 18
- ❑ “Features” on page 20
- ❑ “LAN Port” on page 22
- ❑ “Cable Specifications” on page 24
- ❑ “Optional Antennas” on page 25

## Overview

---

The AT-TQ4400e Access Point is an enterprise-class wireless access point designed to expand wireless networks to outdoor venues, such as ski and beach resorts, sports arenas, college and corporate campuses. The access point comes with one PoE+ capable LAN port to connect to the network as well as the power supply.

The top panel components of the AT-TQ4400e Access Point are illustrated in Figure 1.

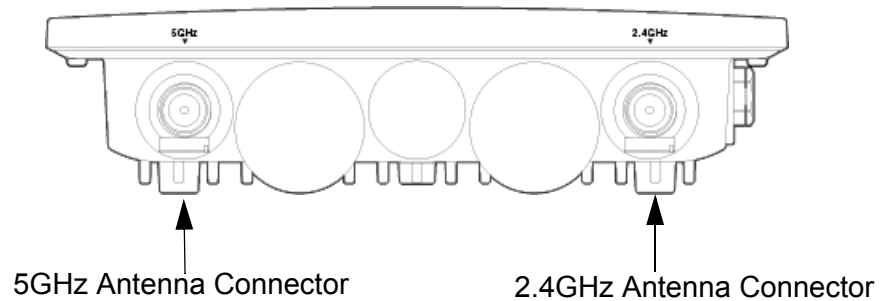


Figure 1. AT-TQ4400e Access Point Antenna Panel Top

The bottom panel components of the AT-TQ4400e Access Point are illustrated in Figure 2.

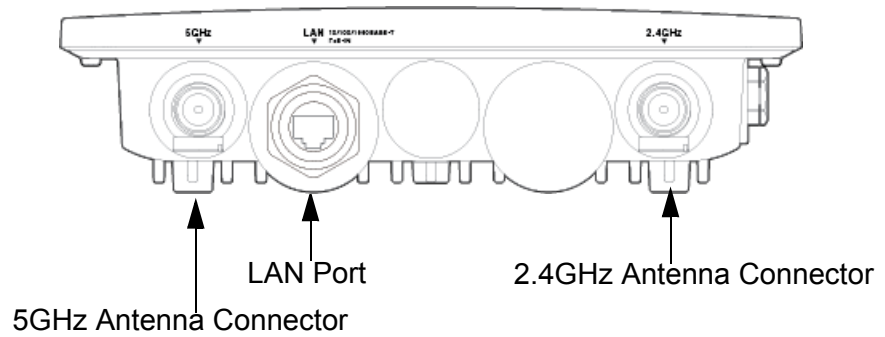


Figure 2. AT-TQ4400e Access Point Antenna Panel Bottom

Figure 3 on page 19 shows the side view of the AT-TQ4400e Access Point.

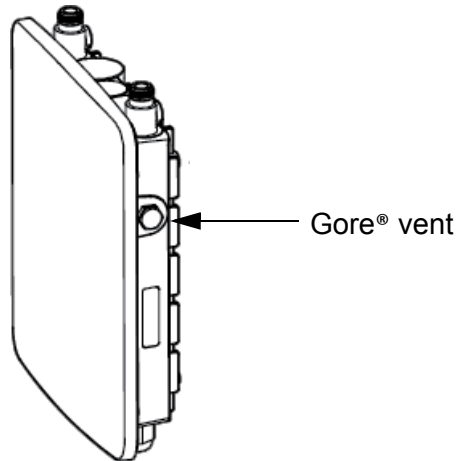


Figure 3. AT-TQ4400e Access Point Side Panel

The components are listed in Table 1.

Table 1. Components of the Access Point

Component	Description
5 GHz Antenna Connector	N-type female connector for the 5 GHz antenna
2.4 GHz Antenna Connector	N-type female connector for the 2.4 GHz antenna
LAN 1 Port (PoE Input)	The LAN port connects the access point to your wired network. It supports PoE+. The PoE+ capable LAN port is the only way to supply power to this access point. You must connect this LAN port to a PoE switch.
Gore® vent	The vent equalizes housing pressures, protects against dirt, dust, humidity and water, and reduces condensation.

**Note**

Do not remove the Gore® vent plug from the access point.

## Features

---

The main features of the product are listed here:

- Dual radio: 2.4 GHz and 5 GHz
- IEEE 802.11a/b/g/n/ac
- 2x2:2ss MIMO
- Maximum capacity 2.4 GHz: 300 Mbps
- Maximum capacity 5 GHz: 867 Mbps
- Wireless Distribution System (WDS) bridges
- Access point clustering
- Rogue access point detection
- Multiple SSIDs
- One 10/100/1000Base-T Ethernet port with Auto-Negotiation, auto MDI/MDIX, and IEEE 802.3at Power over Ethernet (PoE+)
- IEEE 802.3 (10Base-T), IEEE 802.3u (100Base-TX), and IEEE 802.3ab (1000Base-T) compliance on the Ethernet port
- MAC address filtering for wireless access security
- Broadcast and multicast rate limiting
- Virtual access points for multiple broadcast domains
- DHCP client
- RADIUS accounting with external RADIUS server
- Network Time Protocol (NTP) client
- Domain name server (DNS) client
- IEEE 802.1x authentication
- WPA-Personal and WPA-Enterprise with WPA, WPA2, TKIP, and CCMP (AES) authentication and encryption
- Static WEP encryption
- HTTP and HTTPS web browser management
- SNMPv1 and v2c management
- Quality of Service
- Event log
- Syslog client
- Outdoor installation on a wall or pole
- Antenna connectors with surge protection

- ❑ N-type female antenna connectors for replacing antennas
- ❑ Metallic chassis with plastic cover to repel ultraviolet (UV) radiation from the sun

## LAN Port

---

The AT-TQ4400e wireless access point has one LAN port to connect to your Local Area Network (LAN), typically through an Ethernet switch.

### **Power over Ethernet (PoE)**

The AT-TQ4400e Access Point supports Power over Ethernet Plus (PoE+) on the LAN port. The access point is a PoE+ class 4 powered device with a maximum power consumption of 16 watts. When the port is connected to a PoE+ Ethernet switch, the access point receives its power over the network cable that carries the network traffic. The LAN port is the only way to supply the power to the device.

### **Connector Type**

The LAN port has an eight-pin RJ45 connector. The port uses four pins at 10 or 100 Mbps and all eight pins at 1000 Mbps. The pin assignments are listed in “LAN Port” on page 69.

### **Speed**

The LAN port can operate at 10, 100, or 1000 Mbps. The speed is set automatically with Auto-Negotiation. You cannot disable Auto-Negotiation on the port.

---

#### **Note**

The LAN port should be connected to a network device that also adjusts its speed with Auto-Negotiation. If the network device does not support Auto-Negotiation, the LAN port operates at 10 Mbps, which may reduce network performance.

---

### **Duplex Mode**

The LAN port can operate in either half- or full-duplex mode at 10 or 100 Mbps, and full-duplex mode at 1000 Mbps. The port is IEEE 802.3u-compliant and uses Auto-Negotiation to set the duplex mode. (You cannot disable Auto-Negotiation on the port.)

---

#### **Note**

The LAN port should be connected to a network device that also sets its duplex mode with Auto-Negotiation. If the network device does not support Auto-Negotiation, the LAN port operates at half-duplex mode. This may result in a duplex mode mismatch if the network device is operating at full duplex.

---

### **Automatic MDIX Detection**

The 10/100/1000 Mbps twisted-pair port is IEEE 802.3ab compliant and features automatic MDIX detection when operating at 10 or 100 Mbps. (Automatic MDIX detection does not apply to 1000 Mbps.) This feature automatically configures the port to MDI or MDI-X depending on the wiring configuration of the port on the Ethernet switch.

You may not disable automatic MDIX detection. For automatic MDIX detection to work properly, it must also be present on the Ethernet switch. The LAN port defaults to MDIX if it is connected to a network device that does not support automatic MDIX detection.

**Port Pinouts**

Refer to Table 19 on page 69 for the port pinouts of the LAN port when it is operating at 10 or 100 Mbps in the MDI configuration and Table 20 on page 70 for the MDI-X configuration. Refer to Table 21 on page 70 for the port pinouts when the port is operating at 1000 Mbps.

## Cable Specifications

---

To connect the AT-TQ4400e wireless access point to your LAN, you must provide cables. Here are cable requirements and options.

### Cable Requirements

The cable requirements for the LAN port are listed in Table 2.

Table 2. Twisted Pair Cable for the LAN Port

Cable Type	10Mbps	100Mbps	1000Mbps
	PoE+	PoE+	PoE+
Standard TIA/EIA 568-A-compliant Category 5 shielded or unshielded cabling with 100 ohm impedance and 100 MHz frequency.	Yes	Yes	No
Standard TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) shielded or unshielded cabling with 100 ohm impedance and 100 MHz frequency.	Yes	Yes	Yes
Standard TIA/EIA 568-B-compliant Category 6 or 6a shielded cabling.	Yes	Yes	Yes

### Maximum Distance

The LAN port has a maximum operating distance of 100 meters (328 feet).

## Optional Antennas

The AT-TQ4400e access point is shipped with a set of antennas. In addition to the antennas, you may use optional antennas. For more information, see Chapter 2, “Optional Antennas and Cables” on page 27.

**Available Use Cases** Table 3 shows five available combinations of antennas including optional antennas for the AT-TQ4400e access point.

Table 3. Available Use Case

Case	Regulatory Domain	2.4GHz	5GHz	Description
1	Any	Default antennas	Default antennas	The dual band, omni-directional antennas to access WiFi
2	Any	AT-AN2458-10DP	AT-AN2458-10DP	The dual band, panel antennas to access WiFi
3	Any	AT-AN2458-10DP	AT-AN5158-16DP	The panel antenna to access 2.4GHz WiFi and the sector antennas to access 5GHz WiFi
4	Any	Default antennas	AT-AN5158-19DP	The omni-directional antenna to access 2.4GHz WiFi and the panel antenna for backhaul in the 5GHz band
5	Any	AT-AN2458-10DP	AT-AN5158-19DP	The panel antennas to access 2.4GHz WiFi and the panel antenna for backhaul in the 5GHz band

**Frequency Bands** This sections shows the optional antennas’ available frequency bands by FCC, IC, and CE.

Table 4 on page 26 shows the frequency bands permitted by FCC (Federal Communications Commission) available for each antenna.

Table 4. Available Frequency Bands per Antenna Complied by FCC

	2.4GHz ISM		5GHz U-NII-1		5GHz U-NII-2A		5GHz U-NII-2C		5GHz U-NII-3	
	Indoor Use (In)	Outdoor Use (Out)	In	Out	In	Out	In	Out	In	Out
<b>AT-AN2458-10DP</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>AT-AN5158-16DP</b>	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>AT-AN5158-19DP</b>	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes

Table 5 shows the frequency bands permitted by IC (Industry Canada) available for each antenna.

Table 5. Available Frequency Bands per Antenna Complied by IC

	2.4GHz ISM		5GHz U-NII-1		5GHz U-NII-2A		5GHz U-NII-2C		5GHz U-NII-3	
	Indoor Use (In)	Outdoor Use (Out)	In	Out	In	Out	In	Out	In	Out
<b>AT-AN2458-10DP</b>	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
<b>AT-AN5158-16DP</b>	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
<b>AT-AN5158-19DP</b>	No	No	No	No	No	No	Yes	Yes	Yes	Yes

Table 6 shows the frequency bands permitted by CE (European Conformity) available for each antenna.

Table 6. Available Frequency Bands per Antenna Complied by CE

	2.4GHz ISM		5GHz U-NII-1		5GHz U-NII-2A		5GHz U-NII-2C		5GHz U-NII-3	
	Indoor Use (In)	Outdoor Use (Out)	In	Out	In	Out	In	Out	In	Out
<b>AT-AN2458-10DP</b>	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	No
<b>AT-AN5158-16DP</b>	No	No	No	No	No	No	Yes	Yes	No	No
<b>AT-AN5158-19DP</b>	No	No	No	No	No	No	Yes	Yes	No	No

## Chapter 2

# Optional Antennas and Cables

---

This chapter describes supported optional antennas and cables to connect these antennas and the AT-TQ4400e Access Point. This chapter contains the following sections:

- ❑ “Optional Antennas” on page 28
- ❑ “Cables to Connect an Optional Antenna” on page 34

## Optional Antennas

---

The AT-TQ4400e access point is shipped with a set of antennas. In addition to the antennas, you may use the following optional antennas:

- ❑ "AT-AN2458-10DP Mini Panel Antenna"
- ❑ "AT-AN5158-16DP Sector Antenna" on page 30
- ❑ "AT-AN5158-19DP Flat Panel Antenna" on page 32

---

**Note**

For how to install the optional antennas, see Chapter 4, "Installing the Optional Antennas" on page 59.

---

### **AT-AN2458-10DP Mini Panel Antenna**

The AT-AN2458-10DP Mini Panel Antenna features two independent dual-band, vertically and horizontally polarized antennas in a single housing. The housing has drain holes to help prevent moisture build-up inside the antenna. See Figure 4.



Figure 4. AT-AN2458-10DP Mini Panel Antenna

The Antenna is supplied with a mast mount kit. It allows the antenna to be mounted to a 1 inch (25.4 mm) to 1.7" (43.2 mm) diameter mast and adjusted upward or downward up to 30°.

#### **Features**

- ❑ All weather operations
- ❑ Dual polarity feed system in single enclosure
- ❑ MIMO: Multiple Input and Multiple Output

## Electrical Specifications

Table 7 shows the electrical specifications for the Mini Panel Antenna.

Table 7. Electrical Specifications for the Mini Panel Antenna

Item	Value
Frequency Range	2400-2500/4900-5850 MHz
Gain	8 dBi@2.4 GHz / 10 dBi@4.9-5.8 GHz
Polarization	Vertical and Horizontal
Vertical Beamwidth	57° @2.4 GHz / 42° @4.9-5.8 GHz
Horizontal Beamwidth	90° @2.4 GHz / 70° @4.9-5.8 GHz
Maximum Power	50 watts
Impedance	50 Ohm
Isolation	> 28 dB
Voltage Standing Wave Ratio (VSWR)	< 2.0 (V-Pol) / < 2.3 (H-Pol)
Front to Back Ratio	≥ 15 dB
Lightning Protection	DC Ground

## Mechanical Specifications

Table 8 shows the mechanical specifications for the Mini Panel Antenna.

Table 8. Mechanical Specifications for the Mini Panel Antenna

Item	Description
Connectors	2 Integral N-Female
Mounting	1 to 1.7 in. (25.4 to 43.2 mm) diameter mast
Vertical Tilt	0-30
Radome Material	UV-Protected ABS
Dimensions	4 x 4 x 3.5 in.(104 x 104 x 90 mm)
Antenna Weight	1.1 lbs (0.5kg)
Mounting Bracket Weight	0.4 lbs (0.18 kg)
Operating Temperature	-40° C to 60° C (-40° F to 131° F)
Rated Wind Velocity	130 mph/h (210 km/h)
RoHS Compliant	Yes

### **AT-AN5158-16DP Sector Antenna**

The AT-AN5158-16DP Sector Antenna combines vertical and horizontal polarization with high gain over a broadband frequency in a single enclosure. See Figure 5.



Figure 5. AT-AN5158-16DP Sector Antenna

The Sector Antenna is supplied with a stainless steel tilt and swivel mast mount kit. It allows the antenna to be mounted to a 1.2 inch (30 mm) to 2.0" (50 mm) diameter mast and adjusted tilt from 0° to 17°. See Figure 6.



Figure 6. AT-AN5158-16DP Sector Antenna Adjustment

#### **Features**

- All weather operations
- Dual polarity feed system in single enclosure
- MIMO: Multiple Input and Multiple Output

## Electrical Specifications

Table 9 shows the electrical specifications for the Sector Antenna.

Table 9. Electrical Specifications for the Sector Antenna

Item	Value
Frequency Range	5150-5850 MHz
Gain	16 dBi
Polarization	Vertical and Horizontal (Dual)
Maximum Voltage Standing Wave Ratio (VSWR)	<1.8
Horizontal Beamwidth (-6 dB)	120°
Vertical Beamwidth (-6 dB)	11°
Front to Back Ratio	> 25 dB
Port to Port Isolation	< -28 dB
Maximum Input Power	100 watts
Input Impedance	50 Ohm
Lightning Protection	DC Ground

## Mechanical Specifications

Table 10 shows the mechanical specifications for the Sector Antenna.

Table 10. Mechanical Specifications for the Sector Antenna

Item	Description
Connector Interface	N-Female x 2
Rated Wind Velocity	130 mph (210 km/h)
Vertical Tilt	0-17°
Dimensions	31.3 x 4.5 x 2.5 in. (795 x 115 x 65 mm)
Weight including Bracket	6.0 lbs (2.75 kg)
Mounting Mast Size (diameter)	1.2 to 2.0 in. (30 -50 mm)
RoHS Compliant	Yes

### **AT-AN5158-19DP Flat Panel Antenna**

The AT-AN5158-19DP Flat Panel Antenna combines vertical and horizontal polarization with high gain over a broadband frequency in a single enclosure. It operates in the 4.9 to 5.8 GHz frequency bands. See Figure 7.



Figure 7. AT-AN5158-19DP Flat Panel Antenna

The Flat Panel Antenna is fed via two N-female ports, one for the vertically polarized signal and one for the horizontally polarized signal.

The Antenna is supplied with a mast mount kit. It allows the antenna to be mounted to a 0.75 inch (19 mm) to 2 inch (50 mm) diameter mast and adjusted upward up to 60° and downward to 10°. See Figure 8.

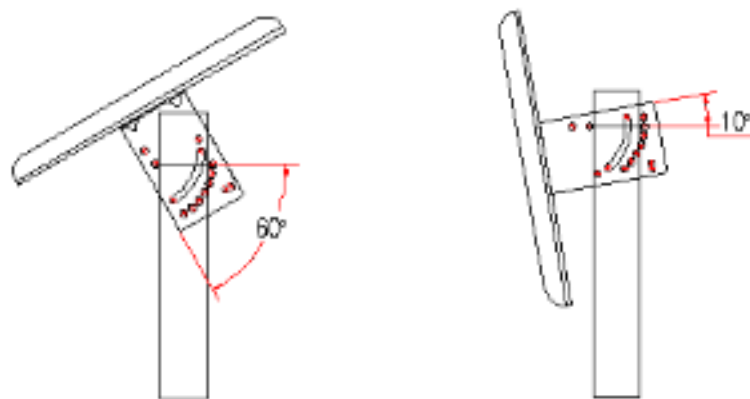


Figure 8. AT-AN5158-19DP Flat Panel Antenna Adjustment

#### **Features**

- UV-resistant radome for all-weather operations
- Dual polarity feed system in single enclosure
- MIMO: Multiple Input and Multiple Output

## Electrical Specifications

Table 11 shows the electrical specifications for the Flat Panel Antenna.

Table 11. Electrical Specifications for the Flat Panel Antenna

Item	Value
Frequency Range	4900-5850 MHz
Gain	19 dBi
Polarization	Vertical and Horizontal
Maximum Voltage Standing Wave Ratio (VSWR)	<1.8
V Polarization Horizontal Beamwidth	86°
H Polarization Horizontal Beamwidth	75°
Vertical Beamwidth	23°
Front to Back Ratio	≥ 25 dB
Cross Polarization Isolation	> 28 dB
Maximum Input Power	10 watts
Input Impedance	50 Ohm
Lightning Protection	DC Ground

## Mechanical Specifications

Table 12 shows the mechanical specifications for Flat Panel Antenna.

Table 12. Mechanical Specifications for the Flat Panel Antenna

Item	Description
Connector Interface	N-Female x 2
Radome Material	Gray ASA (acrylic ester-styrene-acrylonitrile)
Dimensions	12.40 x 12.40 x 0.98 in.(315 x 315 x 25 mm)
Weight including the bracket	3.5 lbs (1.6kg)
Mounting Mast Size (diameter)	0.75-2.00 in. (19-50 mm)
Rated Wind Velocity	130 mph/h (210 km/h)
RoHS Compliant	Yes

## Cables to Connect an Optional Antenna

---

To connect the optional antenna and the AT-TQ4400e access point, you need to use one of the following cables:

- AT-AN0001 RF Coax Cable
- AT-AN0002 RF Coax Cable
- AT-AN0003 RF Coax Cable

---

**Note**

You need two cables to connect the optional antenna and the access point.

---

### Cable Specifications

Here are the descriptions and specifications of the cables.

Table 13 shows the descriptions and specifications of the cables.

Table 13. Cable Descriptions and Specifications

Cable Model	Connector	Cable Diameter	Length
AT-AN0001	N-male to N-male	0.24 in. (6.1mm)	4.0 ft. (1.2m)
AT-AN0002	N-male to N-male	0.41 in. (10.3mm)	10.0 ft. (3.0m)
AT-AN0003	N-male to N-male	0.41 in. (10.3mm)	20.0 ft. (6.1m)

## Chapter 3

# Installing the Access Point

---

This chapter describes how to install the AT-TQ4400e Wireless Access Point. This chapter contains the following sections:

- ❑ “Reviewing Safety Precautions” on page 36
- ❑ “Unpacking the AT-TQ4400e Access Point” on page 38
- ❑ “Attaching the Ground Cable to the Access Point” on page 41
- ❑ “Connecting the Access Point with the Ethernet Cable” on page 43
- ❑ “Installing the Access Point on a Wall” on page 45
- ❑ “Installing the Access Point on a Pole” on page 49
- ❑ “Attaching the Antennas to the Access Point” on page 52
- ❑ “Starting the Initial Management Session on the Access Point” on page 53
- ❑ “Setting the Country Setting” on page 56

---

### **Note**

The non-US model of this product has a country code setting that must be set during the initial management session of the unit. The setting ensures that the unit operates in compliance with the laws and regulations of your country or region.

For the US model, the country code is preset and cannot be changed. Per FCC regulations, the country code setting for all WiFi products marketed in the US must be fixed to US operational channels only.

---

## Reviewing Safety Precautions

---

Please review the following safety precautions before you begin to install the access point.

---

### Note

The  indicates that a translation of the safety statement is available in a PDF document titled *Translated Safety Statements* on the Allied Telesis website at [www.alliedtelesis.com/support](http://www.alliedtelesis.com/support).

---



---

### Warning

To prevent electric shock, do not remove the cover. No user-serviceable parts inside. This unit contains hazardous voltages and should only be opened by a trained and qualified technician. To avoid the possibility of electric shock, disconnect electric power to the product before connecting or disconnecting the LAN cables.


 **E1**

---



---

### Warning

Do not work on equipment or cables during periods of lightning activity.  **E2**

---



---

### Warning

Operating Temperature. This product is designed for a maximum ambient temperature of 65°C  **E50**

---



---


### Caution

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.  **E80**

---

---

### Note

All Countries: Install product in accordance with local and National Electrical Codes.  **E8**

---

---

**Note**

You should verify that your PoE network adheres to the standards of a separated extra-low voltage (SELV) circuit before using the PoE feature on the wireless access point.

---



---

**Warning**

Only trained and qualified personnel are allowed to install or to replace this equipment. ⚡ **E14**

---



---

**Warning**

This equipment shall be installed in a Restricted Access location. ⚡ **E45**

---



---

**Warning**

**Hot Surface, Do Not Touch!** - The finned surface on the back of the chassis is a heat sink and can become dangerously hot when the unit is operating. ⚡ **E114**

---

## Unpacking the AT-TQ4400e Access Point

To unpack the AT-TQ4400e access point, perform the following procedure:

1. Remove all components from the shipping boxes.

---

**Note**

Store the packaging material in a safe location. You must use the original shipping material if you need to return the unit to Allied Telesis.

---

2. Verify that all components listed in Table 14 are included in your shipping boxes.

Table 14. Components in the Shipping Boxes

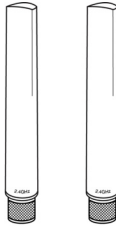

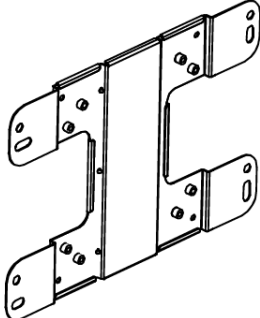

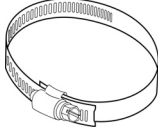
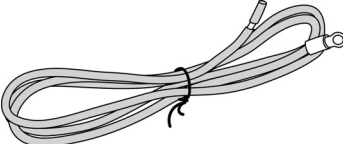




Name	Component
2 x 5GHz Antenna	
2 x 2.4GHz Antenna	
Mounting Base	

Table 14. Components in the Shipping Boxes (Continued)

Name	Component
Pole-mount bracket	
O-ring clamp	
Ground cable	
2 x Antenna connector cap	
4 x Screw for the mounting base	
4 x Screw for the pole-mount bracket	
1 x Screw for the ground cable	

- If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.

## Optional Antennas

---

The AT-TQ4400e access point comes with a set of antennas. In addition to the antennas, you may use the following optional antennas:

- ❑ Mini Panel Antenna: AT-AN2458-10DP
- ❑ Sector Antenna: AT-AN5158-16DP
- ❑ Flat Panel Antenna: AT-AN5158-19DP

## Attaching the Ground Cable to the Access Point

---

To protect the device from lightning strikes and against electrostatic discharge (ESD), attach the ground cable to the access point.

- Guidelines** Review the following guidelines before attaching the ground cable to the access point:
- Before installing the mounting base to the access point, attach the ground cable to the access point.
  - Connect the ground cable straight to the earth ground; cut off the extra length of the ground cable.
  - Prevent the ground cable from being sharply bent, looped, or coiled.
  - Connect the surge protector ground cable and the equipment ground to a single common ground. The equipment ground includes power ground and telecommunications ground.
  - The recommended earth ground impedance is less than 1.0 ohm.
  - Measure the ground impedance at the point where the surge protector ground cable, not at the ground rod.
  - If you provide your own ground cable, use a 10 AWG or larger stranded wire as a ground cable.

- What to Prepare for Attaching the Ground Cable** You need the following items to attach the ground cable to the access point:
- AT-TQ4400e Access Point
  - Ground cable
  - One screw for the ground cable
  - Phillips-head screwdriver

- Attaching the Ground Cable to the Access Point** To attach the ground cable to the access point, perform the following procedure:
1. Align the ground cable hole on the access point with the ring terminal of the ground cable as shown in Figure 9 on page 42.

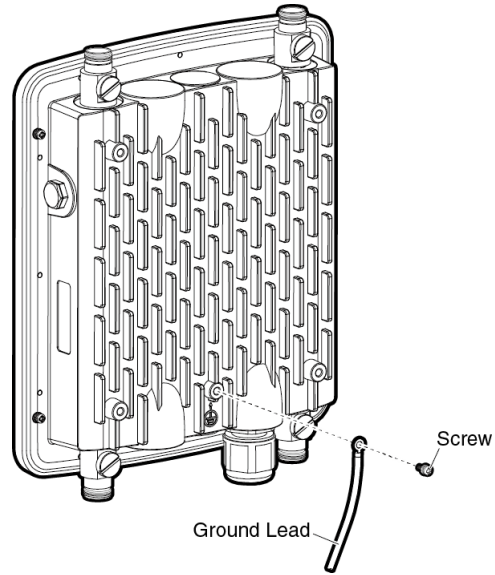


Figure 9. Aligning the Access Point with Ground Cable

2. Drive the screw through the holes to attach the ground cable to the access point.
3. Cut off the extra length of the ground cable to make it connected straight to the ground point.
4. Attach the other terminal of the ground cable to a circuit breaker, ground rod, or earth ground.

## Connecting the Access Point with the Ethernet Cable

---

To connect the access point with the Ethernet cable, perform the following procedure:

1. Unscrew the sealing nut at the LAN port on the access point and remove the clamping claw and sealing insert. See Figure 10.

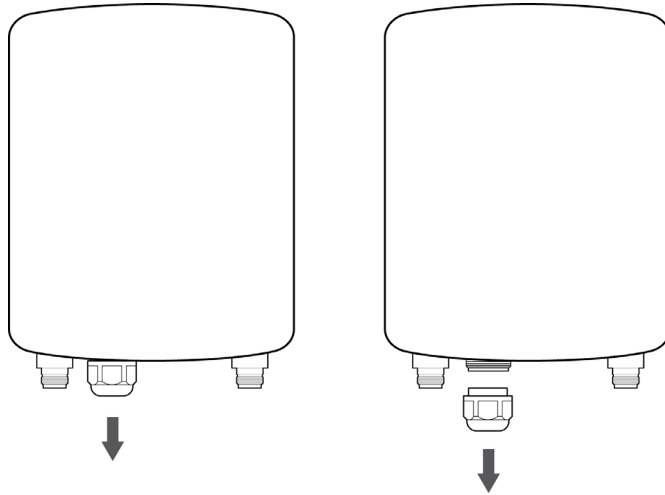


Figure 10. Removing the Sealing Nut, Clamping Claw, and Sealing Insert

2. Remove the rubber nail from the sealing insert. See Figure 11.

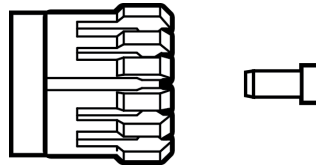


Figure 11. Removing the Rubber Nail from the Sealing Insert

3. Pass the LAN cable through the sealing nut, and attach the sealing insert and clamping claw to the cable as shown in Figure 12 on page 44.

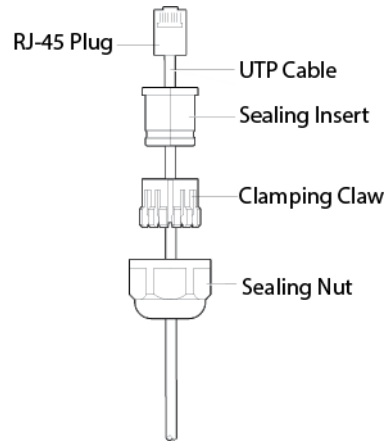


Figure 12. Applying the Sealing Parts to the LAN Cable

4. Connect the RJ-45 plug into the LAN port and screw the sealing nut to the access point as shown in Figure 13.

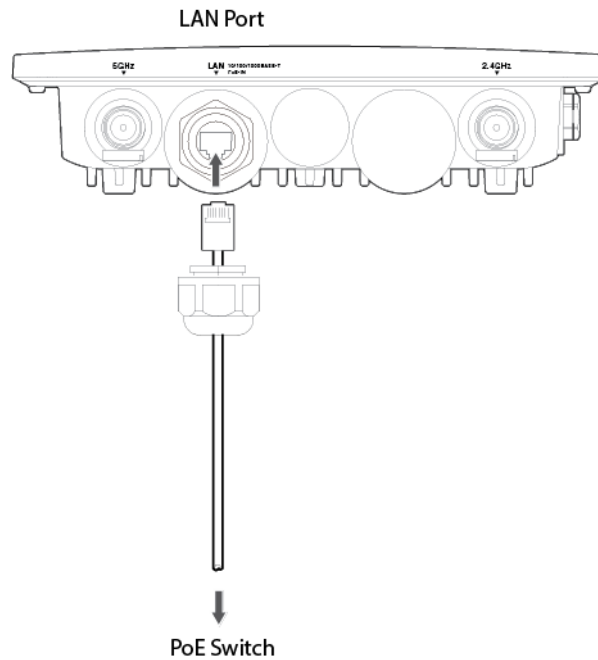


Figure 13. Connecting the LAN Cable and Attaching the Sealing Nut

5. Connect the other RJ-45 plug to the PoE switch.

## Installing the Access Point on a Wall

---

The AT-TQ4400e access point can be mounted on a concrete or regular wall. To install the access point, perform one of the following procedures:

- ❑ “Installing the Access Point on a Concrete Wall” on page 46
- ❑ “Installing the Access Point on a Regular Wall” on page 48

### Guidelines

Review the following guidelines before installing the access point on a wall:

- ❑ Attach the ground cable before attaching the mounting base to the access point.
- ❑ Connect the Ethernet cable to the access point before installing the access point on a wall or pole if connecting the Ethernet cable will be difficult after the access point is installed.
- ❑ Attach the antennas to the access point before installing it on a wall or pole if attaching the antennas will be difficult after the access point is installed.
- ❑ If you are *not* installing the access point on a concrete wall, provide four tapping screws. They are *not* included in the shipping box.

### What to Prepare for Wall Installation

You need the following items to install the access point on a wall:

- ❑ AT-TQ4400e Access Point
- ❑ Mounting base
- ❑ Four screws for the mounting base
- ❑ Screws for the wall, one of the following:
  - Four sets of the bolt, nut, washer, and wall anchor for a concrete wall
  - Four tapping screws for a regular wall
- ❑ Drill
- ❑ Phillips-head screwdriver
- ❑ Pencil

---

#### Note

Screws for the wall, drill, Phillip-head screwdriver, and pencil are *not* included in the shipping box.

---



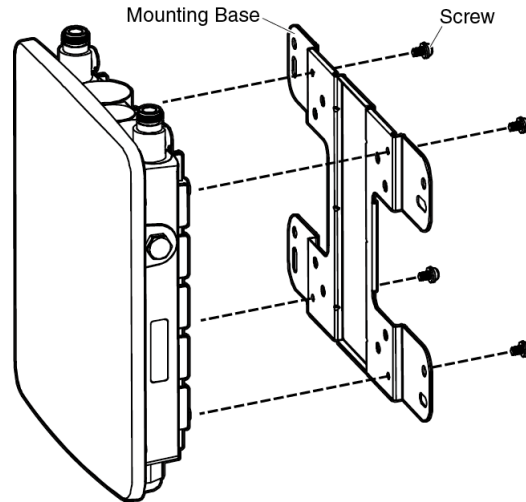


Figure 15. Attaching the Mounting Base to the Access Point

5. Install the four sets of bolts and wall anchors into the holes you made in Step 3.
6. Attach the nuts and washers to the bolts in the concrete wall to install the access point. See Figure 16.

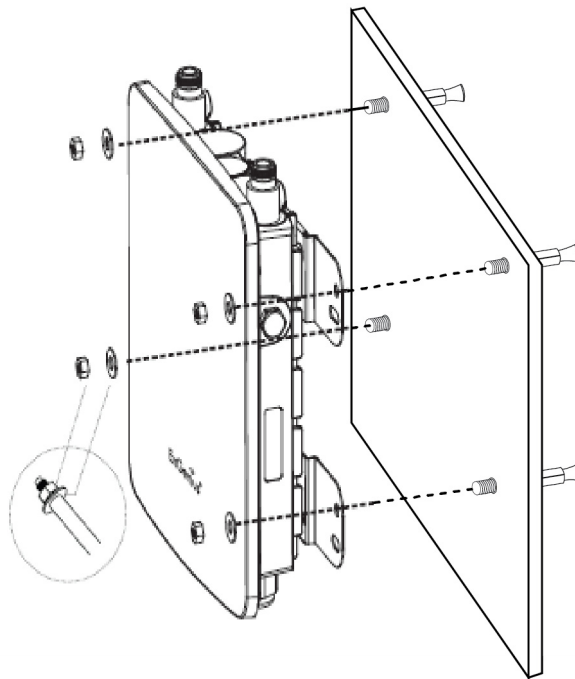


Figure 16. Installing to the Wall Using Bolts

7. Proceed to “Attaching the Antennas to the Access Point” on page 52.

## Installing the Access Point on a Regular Wall

To install the access point on a regular wall, perform the following procedure:

1. Using the mounting base as a template, mark four holes with a pencil. See Figure 14 on page 46 for hole dimensions.
2. Pre-drill the marked locations on the wall.
3. Attach the mounting base to the access point with the screws using a Phillips-head screwdriver, as shown in Figure 15 on page 47.

---

### Note

Attach the ground cable to the access point before attaching the mounting base to the access point. See “Attaching the Ground Cable to the Access Point” on page 41.

---

4. Drive the tapping screws into the holes made in Step 2 to install the access point. See Figure 17 on page 48.

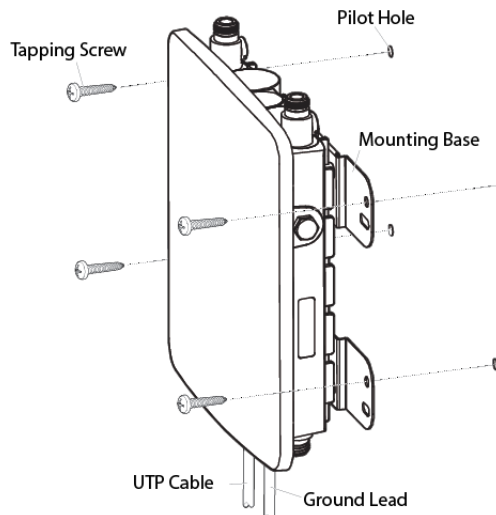


Figure 17. Installing to the Wall Using Tapping Screws

5. Proceed to “Attaching the Antennas to the Access Point” on page 52.

## Installing the Access Point on a Pole

The AT-TQ4400e access point can be mounted on a vertical pole or horizontal pole as shown in Figure 18.

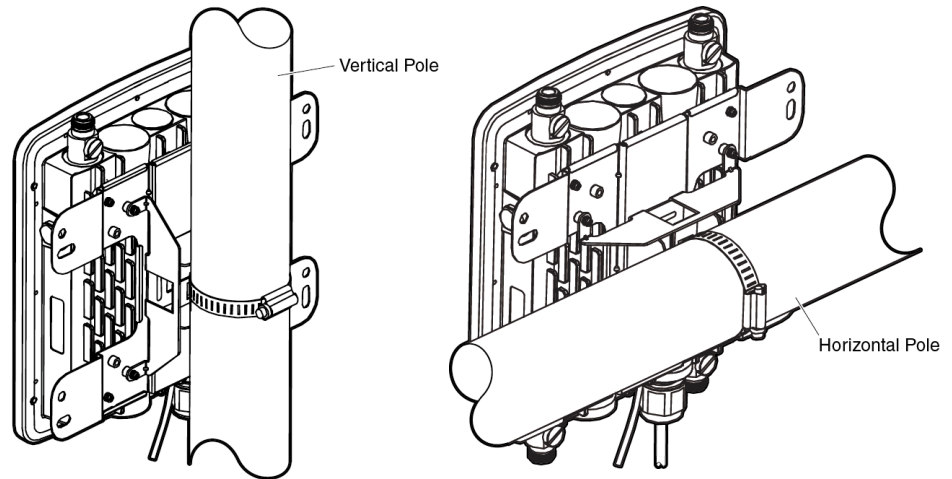


Figure 18. Pole Installation of the Access Point

### What to Prepare for Pole Installation

You need the following items to install the access point on a pole:

- AT-TQ4400e Access Point
- Mounting base
- Four screws for the mounting base
- Pole-mounting bracket
- Four screws for the pole-mounting bracket
- O-ring clamp
- Phillips-head screwdriver
- Flat-head screwdriver

---

#### Note

Phillip-head and flat-head screwdrivers are *not* included in the shipping box.

---

### Installing the Access Point on a Pole

To install the access point on a pole, perform the following procedure:

1. Review “Guidelines” on page 45.
2. Attach the mounting base to the access point with the screws using a Phillips-head screwdriver. See Figure 15 on page 47.

**Note**

Attach the ground cable to the access point before attaching the mounting base to the access point. See “Attaching the Ground Cable to the Access Point” on page 41.

3. Orient the pole-mount bracket for installing to either a vertical pole or a horizontal pole. See Figure 19.

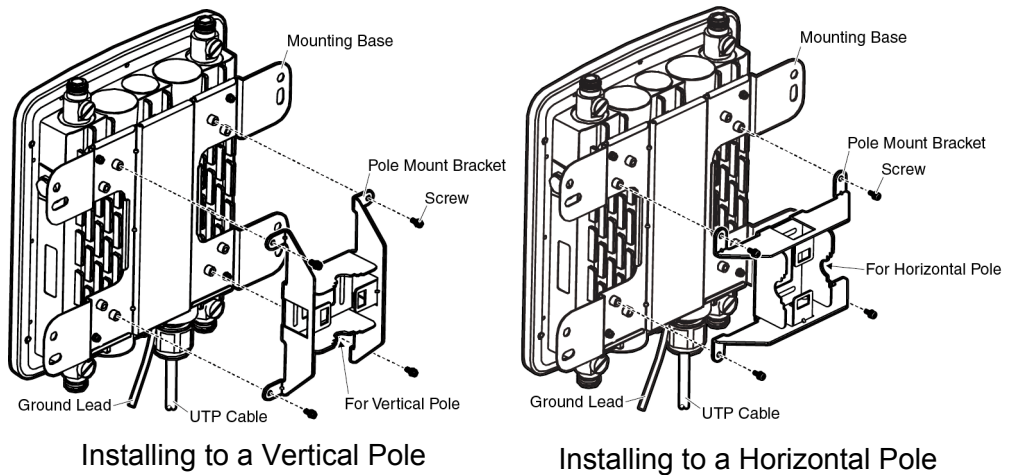


Figure 19. Attaching the Pole-Mount Bracket to the Mounting Base

4. Drive the screws to attach the pole-mount bracket to the mounting base using a Phillips-head screwdriver.
5. Attach the O-ring clamp to the pole-mount bracket. See Figure 20.

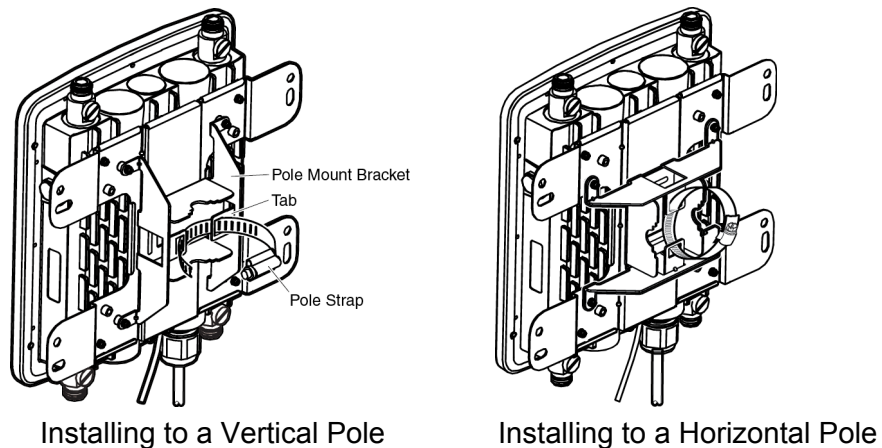


Figure 20. Attaching the O-Ring Clamp to the Pole-Mount Bracket

6. Install the unit to the pole and tighten the O-ring clamp using the flat-head screwdriver.

7. Proceed to “Attaching the Antennas to the Access Point” on page 52.

## Attaching the Antennas to the Access Point

---

In addition to the antennas that came with the access point, Allied Telesis supports three optional antennas.

---

**Note**

To install the optional antennas, see Chapter 4, “Installing the Optional Antennas” on page 59.

---

To install the antennas that is shipped with the access point, perform the following procedure:

1. Screw a 5GHz antenna into the 5GHz antenna connector on the top panel of the access point. See Figure 21.

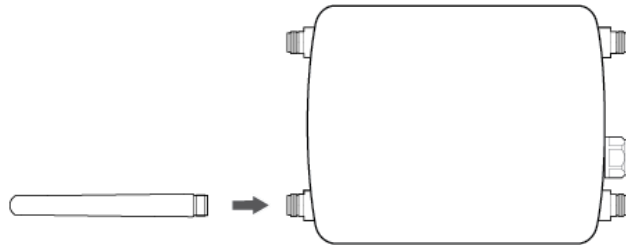


Figure 21. Installing Antennas to the Access Point

2. Repeat Step 1 for the second 5GHz antenna to screw into the 5GHz antenna connector on the bottom panel of the access point.
3. Screw a 2.4GHz antenna into the 2.4GHz antenna connector on the top panel of the access point. See Figure 21.
4. Repeat Step 3 for the second 2.4GHz antenna to screw into the 2.4GHz antenna connector on the bottom panel of the access point.

## Starting the Initial Management Session on the Access Point

---

When you connect the access point to the PoE switch for the first time, it queries the subnet on the LAN port for a DHCP server. If a DHCP server responds to its query, the access point uses the IP address the server assigns to it. If there is no DHCP server, it uses the default IP address 192.168.1.230.

If your network does not have a DHCP server, you must change the IP address of your management PC to match the subnet of the default address of the access point. If your network is divided into virtual LANs (VLANs), be sure to connect the access point and your management PC to ports on a PoE switch that are members of the same VLAN.

If your network has a DHCP server, use the IP address the server assigns it to start the management session.

To start the initial management session, perform one of the following:

- “Starting the Initial Management Session without a DHCP Server” on page 53
- “Starting the Initial Management Session with a DHCP Server” on page 54

---

### Note

The initial management session of the access point has to be conducted through the LAN port because the default setting for the radios is off.

---

### Starting the Initial Management Session without a DHCP Server

This procedure explains how to start the initial management session on the access point when the LAN port is connected to a PoE switch on a network that does not have a DHCP server.

To start the management session, perform the following procedure:

1. Connect the access point to a PoE switch.

If your network has VLANs, the access point must be connected to a port on the PoE switch that belongs to the same VLAN as the port where your management PC is connected.

You may need to access the management software on the PoE switch to list the VLANs and their port assignments. For example, if the access point is connected to a port that is a member of the Sales VLAN, your management PC must be connected to a port that is also a member of that VLAN. If your network is small and does not have VLANs or routers, you may connect your management PC to any port on the PoE switch.

2. Change the IP address on your management PC to 192.168.1.*n*.  
The *n* is any number from 1 to 254, except 230. Refer to the documentation that accompanies your PC for instructions on how to set the IP address.
3. Set the subnet mask on your management PC to 255.255.255.0.
4. Start the web browser on your management PC.
5. Enter the IP address 192.168.1.230 in the URL field of the browser.

The logon window appears as shown in Figure 22.



Figure 22. Logon Window

6. Enter “manager” for the username and “friend” for the password.

The username and password are case-sensitive.

### Starting the Initial Management Session with a DHCP Server

This procedure explains how to start the initial management session on the access point when the LAN port is connected to a network that has a DHCP server. This procedure assumes that you have already configured the DHCP server to assign the access point all the necessary configuration information (for example, IP address and default gateway) for your network.

To start the management session, perform the following procedure:

1. Connect the access point to a PoE switch.
2. Start the web browser on your management PC.
3. Enter the IP address of the access point in the URL field of the browser.

---

**Note**

Use the IP address assigned to the access point by the DHCP server. If you do not know the address, refer to the DHCP server.

---

The logon window appears as shown in Figure 22 on page 54.

4. Enter “manager” for the username and “friend” for the password.

The username and password are case-sensitive.

## Setting the Country Setting

You should set the country setting during the initial management session of the access point to ensure that the device operates in compliance with the codes and regulations of your region or country.

### Note

The non-US model of this product has a country code setting that must be set during the initial management session of the unit. The setting ensures that the unit operates in compliance with the laws and regulations of your country or region.

For the US model, the country code is preset and cannot be changed. Per FCC regulations, the country code setting for all WiFi products marketed in the US must be fixed to US operational channels only.

To set the country setting, perform the following procedure:

1. Select Wireless Settings from the Manage menu.

The access point displays the Modify wireless settings window, shown in Figure 23.

Basic Settings Manage Cluster Status Services Maintenance

### Modify wireless settings

Country JP - Japan

**Radio 1**  On  Off  
MAC Address 00:1A:EB:39:85:20  
Mode IEEE 802.11b/g/n  
Channel 3  
Station Isolation

**Radio 2**  On  Off  
MAC Address 00:1A:EB:39:85:30  
Mode IEEE 802.11a/n  
Channel Auto  
Station Isolation

Click "Update" to save the new settings.  
Update

Figure 23. Modify Wireless Settings Window

2. Select the Country pull-down menu and select your country or region.

---

**Note**

If the Country pull-down menu is deactivated and cannot be changed, the country parameter was set when the unit was manufactured. If the setting is not correct for your country or region, contact your Allied Telesis sales representative for assistance.

---

The access point displays a confirmation prompt.

3. Click OK to change the country setting or Cancel to cancel the procedure.

If you click OK, the access point changes the country setting and disables both radios on the access point.

This procedure does not require clicking the Update button.

You must now reboot the access point. The new country setting is not active until the unit is rebooted. To reboot the unit, either power off and on the unit or continue with these steps:

4. From the Maintenance menu, select Configuration.
5. Click the Reboot button in the To Reboot the Access Point section of the "Manage the Access Point's Configuration" window.
6. When the access point displays a confirmation prompt, click OK to reboot the unit or Cancel to cancel the procedure.
7. To resume managing the unit, wait for it to complete initializing its management software and then start a new management session.

For more instructions on how to configure the features of the access point, refer to the *AT-TQ Wireless Access Point Series User's Guide*.



## Chapter 4

# Installing the Optional Antennas

---

This chapter describes how to attach the optional antennas to the Wireless Access Point. This chapter contains the following sections:

- ❑ “Overview” on page 60
- ❑ “Installing the AT-AN2458-10DP Mini Panel Antenna” on page 61
- ❑ “Installing the AT-AN5158-16DP Sector Antenna” on page 63
- ❑ “Installing the AT-AN5158-19DP Flat Panel Antenna” on page 65

## Overview

---

In addition to the antennas that come with the AT-TQ4400e access point, Allied Telesis supports three optional antennas.

To install one of the optional antennas, you need two cables to connect the antenna and the access point. For more information about the cables, see “Cables to Connect an Optional Antenna” on page 34.

To install one of the optional antennas, perform one of the following procedures:

- ❑ “Installing the AT-AN2458-10DP Mini Panel Antenna” on page 61
- ❑ “Installing the AT-AN5158-16DP Sector Antenna” on page 63
- ❑ “Installing the AT-AN5158-19DP Flat Panel Antenna” on page 65

## Installing the AT-AN2458-10DP Mini Panel Antenna

---

To install the AT-AN2458-10DP Mini Panel Antenna, perform the following procedure:

1. Find an adequate place to install the antenna.
2. Install the mounting panel attached to the antenna onto the pole as shown in Figure 24.



Figure 24. Installing Mini Panel Antenna to the Pole

3. Connect cables to the connectors on the back panel of the antenna as shown in Figure 25.

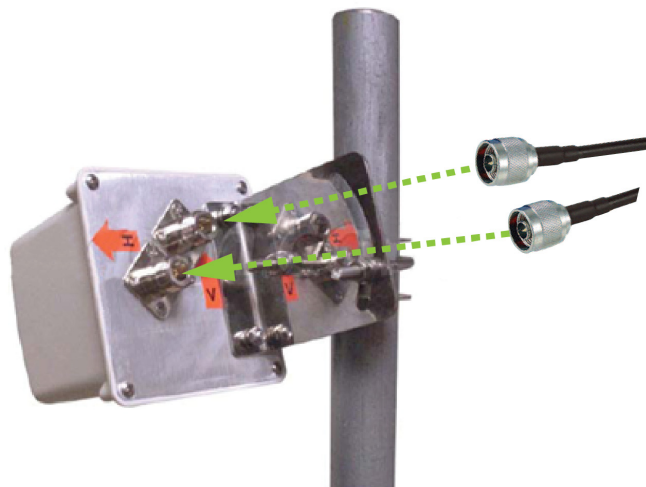


Figure 25. Installing Antennas to the Access Point

4. Connect cables to the connectors on the top and back panels of the antenna.

When you use the 2.4GHz band, see Figure 26; when you use the 5Ghz band, see Figure 27.

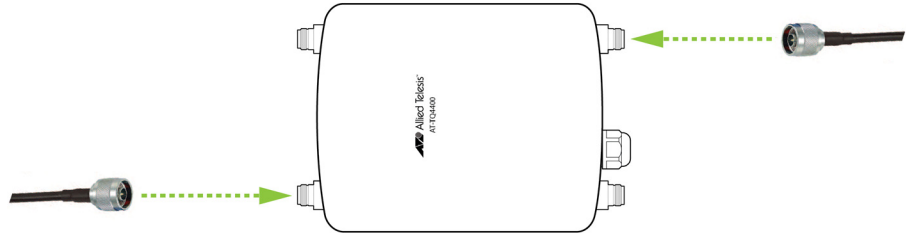


Figure 26. Installing Antennas for 2.4GHz to the Access Point

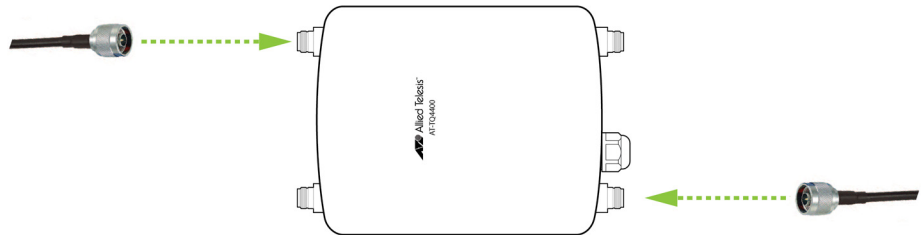


Figure 27. Installing Antennas for 5GHz to the Access Point

## Installing the AT-AN5158-16DP Sector Antenna

---

To install the AT-AN5158-16DP Sector Antenna, perform the following procedure:

1. Find an adequate place to install the antenna.
2. Install the mounting hardware attached to the antenna onto the pole as shown in Figure 28.



Figure 28. Installing Sector Antenna to the Pole

3. Connect cables to the connectors on the back panel of the antenna as shown in Figure 29.

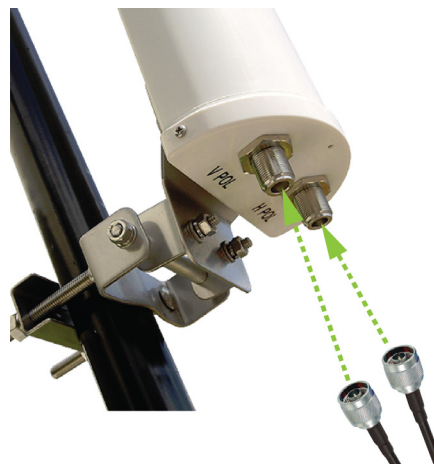


Figure 29. Installing Antennas to the Access Point

4. Connect cables to the connectors on the back panel of the antenna as shown in Figure 27 on page 62.

## Installing the AT-AN5158-19DP Flat Panel Antenna

---

To install the AT-AN5158-19DP Flat Panel Antenna, perform the following procedure:

1. Find an adequate place to install the antenna.
2. Install the mounting panel attached to the antenna onto the pole as shown in Figure 30.



Figure 30. Installing Flat Panel Antenna to the Pole

3. Connect cables to the connectors on the back panel of the antenna as shown in Figure 31.

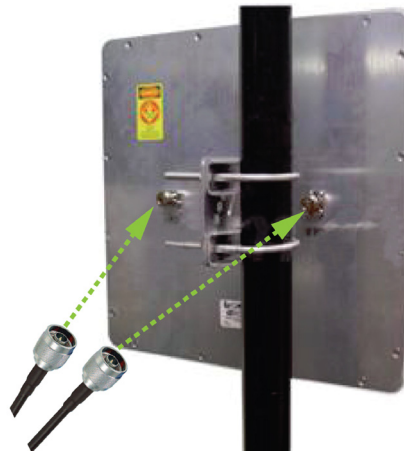


Figure 31. Installing Antennas to the Access Point

4. Connect cables to the connectors on the back panel of the antenna as shown in Figure 27 on page 62.



## Appendix A

# Technical Specifications

---

This appendix contains the following sections:

- ❑ “Physical Specifications”
- ❑ “Environmental Specifications”
- ❑ “Power Specifications” on page 68
- ❑ “LAN Port” on page 69
- ❑ “Safety and Electromagnetic Emissions Certifications” on page 71

## Physical Specifications

---

Table 15. AT-TQ4400e Physical Specifications

Dimensions (W x D x H)	218 mm x 250 mm x 55.5 mm (8.6 in. x 9.8 in. x 2.2 in.)
Weight	2 kg (4.4 lb.)

## Environmental Specifications

---

Table 16. Environmental Specifications

Operating Temperature of the Access Point	-40° C to 65° C (32° F to 104° F)
Storage Temperature	-40° C to 70° C (-4° F to 140° F)
Operating Humidity	0% to 95% non-condensing
Storage Humidity	0% to 95% non-condensing
Altitude of operation	Up to 2000m

## Power Specifications

---

Table 17. AT-TQ4400e Maximum Power Consumption

AT-TQ4400e	19.4 watts
------------	------------

## LAN Port

Table 18. LAN Port Specifications

Connector	RJ45
Standards	IEEE 802.3 (10Base-T) IEEE 802.3u (100Base-TX) IEEE 802.3ab (1000Base-T)
PoE standard	IEEE 802.3at (class 4)

Figure 32 illustrates the pin layout of the LAN port.

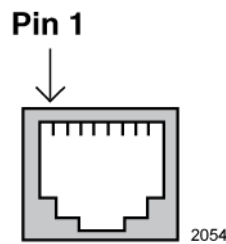


Figure 32. Pin Layout for the RJ45 Connector on the LAN Port

Table 19 lists the pin signals when the port is operating in the MDI configuration at 10 or 100 Mbps.

Table 19. MDI Pin Signals (10Base-T or 100Base-TX)

Pin	Signal
1	TX+
2	TX-
3	RX+
6	RX-

Table 20 lists the pin signals for the MDI-X configuration at 10 or 100 Mbps.

Table 20. MDI-X Pin Signals (10Base-T or 100Base-TX)

Pin	Signal
1	RX+
2	RX-
3	TX+
6	TX-

Table 21 lists the pin signals when the LAN port is operating at 1000 Mbps.

Table 21. 1000Base-T Connector Pinouts

Pin	Pair	Signal
1	1	TX and RX
2	1	TX and RX-
3	2	TX and RX+
4	3	TX and RX+
5	3	TX and RX-
6	2	TX and RX-
7	4	TX and RX+
8	4	TX and RX-

## Safety and Electromagnetic Emissions Certifications

Table 22. Safety and Electromagnetic Emissions Certificates

Standard Compliance	RoHS compliant European Union RoHS (Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.)
Certificates	CE FCC/IC RCM Wi-Fi CERTIFIED
Electromagnetic Compatibility (EMC)	EN 301 489-1 EN 301 489-17 EN 55022 EN 55024 EN 61000-3-2 EN 61000-3-3 EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-8 EN 61000-4-11 AS/NZS CISPR 22 FCC 47 CFR Part 15, Subpart B ICES-003
Radio Equipment	EN 300 328 EN 301 893 AS/NZS 4268 FCC 47 CFR Part 15, Subpart C FCC 47 CFR Part 15, Subpart E RSS247 RSS-Gen RSS-102 FCC: OET Bulletin No. 65 Supplement C EN 50385

Table 22. Safety and Electromagnetic Emissions Certificates (Continued)

Safety	EN 60950-1 IEC 60950-1 TUV-T UL 60950-1 UL 60950-22 CAN/CSA C22.2 No. 60950-1-07 CAN/CSA-C22.2 No. 60950-22-07 IEC 60950-22 IEC 60529
--------	---

## Appendix B

# Regulatory Statements

---

This appendix contains the following regulatory statements:

- ❑ “Federal Communication Commission Interference Statement” on page 74
- ❑ “Industry Canada Statement” on page 76
- ❑ “Europe - EU Declaration of Conformity” on page 79

## Federal Communication Commission Interference Statement

---

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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



### Caution

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. ⚡ E80

---



### Caution

Avertissement de la FCC: Les changements ou modifications non expressément approuvés par la partie responsable de la conformité pourraient annuler l'autorité de l'utilisateur à utiliser cet équipement. ⚡ E80

---

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

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

## **Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 34cm between the radiator & your body.

## Industry Canada Statement

---

This device complies with ISED's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

### **Caution:**

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

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

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

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

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

### **Avertissement:**

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

(i) les dispositifs fonctionnant dans la bande 5150-5250 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;

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

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

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

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

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

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 36cm between the radiator & your body.

#### **Déclaration d'exposition aux radiations:**

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 36cm de distance entre la source de rayonnement et votre corps.

#### **Professional Installation Instruction:**

##### 1. Installation personal

This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

##### 2. Installation location

The product shall be installed at a location where the radiating antenna can be kept 36cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.

### 3. External antenna

Use only the antennas which have been approved by the applicant. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC/IC limit and is prohibited.

### 4. Installation procedure

Please refer to user's manual for the detail.

### 5. Warning

Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.

## **Instructions d'installation professionnelle:**

### 1. Installation

Ce produit est destine a un usage specifique et doit etre installe par un personnel qualifie maitrisant les radiofrequences et les regles s'y rapportant. L'installation et les réglages ne doivent pas etre modifiés par l'utilisateur final.

### 2. Emplacement d'installation

En usage normal, afin de respecter les exigences reglementaires concernant l'exposition aux radiofrequences, ce produit doit etre installe de facon a respecter une distance de 36cm entre l'antenne emettrice et les personnes.

### 3. Antenn externe.

Utiliser uniiquement les antennes approuvees par le fabricant. L'utilisation d'autres antennes peut conduire a un niveau de rayonnement essentiel ou non essentiel depassant les niveaux limites definis par FCC/IC, ce qui est interdit.

### 4. Procedure d'installation

Consulter le manuel d'utilisation.

### 5. Avertissement

Choisir avec soin la position d'installation et s'assurer que la puissance de sortie ne depasse pas les limites en vigueur. La violation de cette regle peut conduire a de serieuses penalites federales.

## Europe - EU Declaration of Conformity

---

### Operating Frequencies and Maximum Transmission Power Levels

This device complies with Directive 2014/53/EU issued by the Commission of the European Community.

The operating frequencies and maximum transmission power levels for wireless devices operated in the EU are listed below:

2412 - 2472 MHz: 19.91 dBm

5180 - 5240 MHz: 22.78 dBm

5260 - 5320 MHz: 19.8 dBm

5500 - 5700 MHz: 26.91 dBm

Operations in the 5.15 - 5.35 GHz band are restricted to indoor usage only.

### Radiation Exposure Statement

This equipment complies with EU radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 21cm between the radiator and your body.



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

### Importer

Allied Telesis International BV

Incheonweg 7, 1437 EK Rozenburg

---

#### Note

Contact Allied Telesis for the EU conformity statement. To contact Allied Telesis, visit our web site at [www.alliedtelesis.com/contact](http://www.alliedtelesis.com/contact).

---

