



AT-TQ2450

2.4 and 5 GHz Wireless Access Point



Installation Guide

613-001820 Rev. A



Review Draft - March 18, 2012

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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** Model Number: **AT-TQ2450**

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.

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

This 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 20cm 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 59.

Safety and Electromagnetic Emissions

Standard Compliance	RoHs compliant
Electromagnetic Compatibility (EMC)	ETSI EN 61000-6-3:2007 ETSI EN 301 489-17 v2.11 FCC 47 CFR Part 15, Subpart B FCC 47 CFR Part 15, Subpart C
Medical (EMC)	ETSI EN 60601-1-2:2007
Radio Equipment	EN 300 328 V1.7.1 EN 301 893 V1.5.1 FCC 47 CFR Part 15, Subpart E
Safety	EN 60950-1:2006+A12:2011 IEC 60950-1:2006+A11:2009+A1: 2010 UL 2043:1996+A1:1998 C-Tick CCC KCC SRMC TUV-T
Wi-Fi CERTIFIED™	Certification ID: WFA8879

Translated Safety Statements

Important: The *G* 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/software**. After you have accessed this website, enter the model number in the **Search by Product Name** box and then click **Find** to view the current list of documents.

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Preface

This guide contains the hardware installation instructions for the AT-TQ2450 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.



Warning

Laser warnings inform you that an eye or skin hazard exists due to the presence of a Class 1 laser device.

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**. 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, to check support tickets, to learn about RMAs, and to 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 a Return Merchandise Authorization (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**.

Chapter 1 Overview

This chapter describes the hardware components of the AT-TQ2450 Chassis. This chapter contains the following sections:

- □ "Features" on page 18
- □ "Front and Rear Panels" on page 19
- □ "2.44 and 5 GHz Antenna Connectors" on page 21
- □ "LAN Port" on page 22
- □ "LEDs" on page 24
- □ "Reset Button" on page 25

Features

The main features of the product are listed here:

- □ Independent 2.4 and 5 GHz radios
- □ IEEE 802.11a/b/g
- □ IEEE 802.11n 2x2 MIMO chains with antenna diversity
- □ Up to 600 Mbps throughput
- 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 802.3af Power over Ethernet (PoE)
- MAC address filtering for wireless access security
- Broadcast and multicast rate limiting
- Virtual access points for multiple broadcast domains
- DHCP client
- RADIUS client
- 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
- **Table**, wall, or ceiling installation

Front and Rear Panels



The front and rear panels of the unit are illustrated in Figure 1 and Figure 2.

Figure 1. Front Panel

The LEDs are described in "LEDs" on page 24.



Figure 2. Rear Panel

The rear panel components are listed in Table 1 on page 20.

Field	Description
Console Port	The Console Port is for manufacturing purposes only.
Rest Button	The Reset button returns the parameter settings on the access point to their default settings. For information, refer to "Reset Button" on page 25.
LAN Port	The LAN port connects the access port to your wired network. It supports PoE. If you connect the port to an Ethernet switch that supports PoE, you do not have to use the AC/DC adapter to power the device. For information, refer to "LAN Port" on page 22
DC Power Connector	The DC Power Connector connects to the AC/DC power adapter included with the access point. You have to use the adapter if you do not connect the LAN port to an Ethernet switch that supports PoE.

Table 1. Rear Panel Components

2.44 and 5 GHz Antenna Connectors

The access point has two independent radios that operate ar 2.4 and 5 GHz. Each radio has three connectors on the side and rear panels of the device. Refer to Figure 3. The antennas are installed during the installation procedure.



Figure 3. 2.4 and 5 GHz Antenna Connectors

LAN Port

The LAN port is used to connect your wireless network to your wired network, typically through an Ethernet switch.

Power over Ethernet The AT-TQ2450 Access Point supports Power over Ethernet on the LAN port. The unit is a PoE class 3 device with a maximum power consumption of 11 watts. When the port is connected to an PoE Ethernet switch, the unit receives its power over the network cable that carries the network traffic. If you use the PoE feature, you do not need to use the AC/DC power adapter that comes with the access point.

Connector Type The LAN port has an 8-pin RJ-45 connector. The port uses four pins at 10 or 100 Mbps and all eight pins at 1000 Mbps. The pin assignments are listed in "Port Pinouts" on page 224.

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

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 halfduplex mode. This may result in a duplex mode mismatch if the network device is operating at full duplex.

MaximumThe port has a maximum operating distance of 100 meters (328 feet).Distance

CableThe cable requirements for the LAN port are listed in Table 2 on page 23.Requirements

	10Mbps		100Mbps		1000Mbps	
Cable Type	Non- PoE	ΡοΕ	Non- PoE	ΡοΕ	Non- PoE	ΡοΕ
Standard TIA/EIA 568- B-compliant Category 3 shielded or unshielded cabling with 100 ohm impedance and a frequency of 16 MHz.	Yes	No	Yes	No	No	No
Standard TIA/EIA 568- A-compliant Category 5 shielded or unshielded cabling with 100 ohm impedance and a frequency of 100 MHz.	Yes	Yes	Yes	Yes	Yes	No
Standard TIA/EIA 568- B-compliant Enhanced Category 5 (Cat 5e) shielded or unshielded cabling with 100 ohm impedance and a frequency of 100 MHz.	Yes	Yes	Yes	Yes	Yes	Yes
Standard TIA/EIA 568- B-compliant Category 6 or 6a shielded cabling.	Yes	Yes	Yes	Yes	Yes	Yes

Table 2.	Twisted Pair	Cable for the	LAN Port
----------	--------------	---------------	----------

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 11 on page 55 for the port pinouts of the LAN port when it is operating at 10 or 100 Mbps in the MDI configuration and Table 12 on page 55 for the MDI-X configuration. Refer to Table 13 on page 56 for the port pinouts when the port is operating at 1000 Mbps.

The LEDs on the AT-TQ2450 Access Port are described in Table 3.

Table 3.	LEDs on the AT-TQ2450 Access Point
----------	------------------------------------

LED	State	Description
Power	Solid Green	The unit is receiving DC power that is within the normal operating range.
	Off	The power supply is not receiving power from either the AC/DC power adapter or a PoE Ethernet switch.
System	Amber	The access point is loading its firmware.
	Off	The unit is operating normally.
10M and 100M	10M: On 100M: Off	The Ethernet port is operating at 10 Mbps.
	10M: Off 100M: On	The Ethernet port is operating at 100 Mbps.
	10M: On 100M: On	The Ethernet port is operating at 1000 Mbps.
Radio1	Green	The 2.4GHz radio and antennas are sending and receiving network traffic.
Radio2	Green	The 5GHz radio and antennas are sending and receiving network traffic.

Re

Reset Button

The Reset button on the rear panel is used to return the parameter settings of the unit to their default values. You might use the button if you want to discard the current configuration of the device or cannot manage the unit because you forgot the password to the manager account.

You may disable the button using the management software. If the unit is installed in a non-secure area, you might want to disable the button to prevent unauthorized individuals from pressing it and potentially disrupting the operations of your wireless network.

The Reset button is recessed to prevent it from being accidentally pressed. To press the button, use a pointed object, such as the end of a straightened paperclip. Hold the button for two seconds and release. The access point resets and loads its default configuration in a process that takes one minute to complete. In its default configuration, the access point attempts to contact a DHCP server from its LAN port for its IP address configuration. If it receives a response, it configures its IP address according to the settings from the DHCP server. If it does not receive a response, it uses the default address 192.168.1.230 and subnet mask 255.255.255.0. For instructions on how to start a management session when the access point is at its default configuration, refer to "Starting the Initial Management Session on the Access Point" on page 50.

Chapter 2 Installing the Access Point

This chapter describes how to install the AT-TQ2450 Access Point. This chapter contains the following sections:

- □ "Reviewing Safety Precautions" on page 28
- □ "Unpacking the AT-TQ2450 Access Point" on page 30
- □ "Installing the Access Point on a Table" on page 32
- "Installing the Access Point on a Wall of Ceiling with the AT-BRKT-J26 Bracket" on page 36
- □ "Installing Anti-theft Devices" on page 49
- "Starting the Initial Management Session on the Access Point" on page 50

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 for viewing in the "Translated Safety Statements" document on our web site at http://www.alliedtelesis.com/support.



Warning

To prevent electric shock, do not remove the cover. No userserviceable 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. \approx E1



Warning

Do not work on equipment or cables during periods of lightning activity. $\mathcal{C}\mathcal{P}$ E2



Warning

Power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord. Ger E3

Note

Pluggable Equipment. The socket outlet shall be installed near the equipment and shall be easily accessible. & E5



Caution

Air vents must not be blocked and must have free access to the room ambient air for cooling. \mathcal{C} E6



Warning

Operating Temperature. This product is designed for a maximum ambient temperature of 40° degrees C. ${\rm Ger}$ E7

Note

All Countries: Install product in accordance with local and National Electrical Codes. \mathscr{A} E8

Note

This product is not approved for use in a computer room as defined in the Standard for Protection of Electronic Computer/Data Processing Equipment, ANSI/NFPA 75.

Note

If you are not using PoE to power to the unit, use only the AC/DC adapter that ships with the product to ensure compatibility.

Unpacking the AT-TQ2450 Access Point

As you unpack the access point, check the shipping container for the components listed in Figure 4. If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.



Figure 4. AT-TQ2450 Access Point Items

The shipping container also contains either one North American power cord or four regional power cords, shown in Figure 5 on page 31.



Either one North American power cord







Or four regional power cords (North America, Europe, Australia, and United Kingdom)



Figure 5. AT-TQ2450 Access Point Power Cords

- 1. Do one of the following:
 - To install the unit on a table, go to "Installing the Access Point on a Table" on page 32.
 - To install the unit in a wall or ceiling, go to "Installing the Access Point on a Wall of Ceiling with the AT-BRKT-J26 Bracket" on page 36

Installing the Access Point on a Table

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

- 1. Place the access point upside down on a table.
- 2. Affix the four rubber feet included with the access point to the four corners of the bottom panel of the unit. Refer to Figure 6.



Figure 6. Installing the Rubber Feet

- 1. Turn the access point right side up on the table.
- Install the three 2.4 GHz and three 5 GHz antennas to the corresponding connectors on the sides of the unit. The connectors are labelled. Refer to Figure 7.



Figure 7. Installing the Antenna

3. Attach a network cable to the LAN port. Refer to Figure 8 on page 33.



Figure 8. Attaching the Network Cable to the LAN Port

4. Connect the other end of the network cable to a port on an Ethernet switch.

If you are not using the PoE feature on the Ethernet port to power the unit, continue with this procedure to attach the AC/DC power adapter.

Note

If you are using the PoE feature on the LAN Port to power the access point, the installation procedure is complete. Go to "Starting the Initial Management Session on the Access Point" on page 50.

5. Connect the power cord to the AC/DC adapter. Refer to Figure 9.



Figure 9. Connecting the Power Cord to the AC/DC Adapter

6. Connect the DC cable on the AC/DC adapter to the 12VDC connector on the access point. Refer to Figure 10.



Figure 10. Attaching the DC Power Cable

7. Secure the DC cable to the anchor on the unit with the tie wrap that comes with the access point. Refer to Figure 11 on page 35.



Figure 11. Securing the DC Power Cord to the Access Point with the Tie Wrap

8. Connect the AC plug on the power cord to an appropriate AC power source. Refer to Table 8 on page 54 for the power specifications of the power adapter.

Note

Do not perform step 8 at this time if your network has a DHCP server and you want to configure it before powering on the access point. The access point is identified by the DHCP server by its MAC address, which is found on a label on the bottom panel of the unit.

After installing the access point on the table, go to "Starting the Initial Management Session on the Access Point" on page 50.

Installing the Access Point on a Wall of Ceiling with the AT-BRKT-J26 Bracket

This section contains the procedure for installing the access point on a wall or ceiling with the optional AT-BRKT-J26 bracket.

The bracket consists of top and bottom panels. Refer to Figure 12. The bottom panel attaches to the wall or ceiling and the top panel secures the access point to the bottom panel.



Top Panel

Bottom Panel

Figure 12. Top and Bottom Panels of the AT-BRKT-J26 Bracket

Guidelines Please review the following guidelines before you begin to install the access point:

If you are installing the access point on a wall, you may orient the unit such that the LED panel is facing to the left, right, or down. However, you may not install the unit with the LED panel facing up because that could impede heat dissipation from the unit, which could result in overheating.

When the access point is assembled on the bracket, the LED panel faces the metal flange on the bottom panel. Refer to Figure 13 on page 37. When installing the bottom panel on the selected wall location, you may orient it such that the flange is to the left, right, or down.



Figure 13. Flange on the Bottom Panel of the AT-BRKT-J26 Bracket

- You should verify that the wall or ceiling material is strong enough to support the weight of the bracket and access point.
- If you will not be using the PoE feature, there needs to be an AC power source near the place chosen for the access point.
- You have to provide the four screws and, if necessary, the wall anchors, that are used to secure the bottom panel to the wall or ceiling.
- The base panel has eight screw holes. Refer to Figure 14 on page 38. The holes are grouped in pairs. The unit should be secured to the wall or ceiling with a minimum of four screws. You may use either screw hole in a pair to secure the panel.



Figure 14. Screw Holes on the Bottom Panel of the AT-BRKT-J26 Bracket

□ The holes have a diameter of 4.5 mm (0.2 in.). Refer to Figure 15.



Figure 15. Hole Dimensions

The MAC address of the access point is printed on a label on the base of the unit. You might want to write the address on a piece of paper and attach it to the top panel of the bracket after the installation so that you can easily identify the unit after it is mounted on the wall or ceiling.

Attaching the Bottom Panel to the Wall or Ceiling

To attach the bottom panel of the bracket to the wall or ceiling, preform the following procedure:

Note

Please review "Guidelines" on page 36 before performing this procedure.

Note

If you are using wall anchors, start with step 1. If you are not using wall anchors, start with step 4.

1. To install wall anchors, hold the bottom panel at the selected wall or ceiling location and with a pencil or pen mark the locations of the four screw holes that are to be used to secure the panel. Refer to Figure 16.



Figure 16. Marking the Locations of the Bottom Panel Holes on the Wall or Ceiling

- 2. If necessary, predrill the holes for the anchors.
- 3. Install the wall anchors.

4. Have someone hold the panel at the selected wall or ceiling location while you secure it to with four self-tapping screws (not provided with the access point). Refer to Figure 17.



Figure 17. Attaching the Bottom Panel to the Wall or Ceiling

Attaching the Access Point to the Top Panel

The following procedure explains how to attach the access point to the top panel of the AT-BRKT-J26 Bracket.

Note

In the following instructions, the antennas are not installed until the access point is installed on the wall or ceiling. However, you may install the antennas at any point in the installation. In fact, if you are installing the access point in a corner, it may be necessary to install the antennas earlier, such as immediately after the unit is installed on the top panel, but before it is installed on the bottom panel on the wall or ceiling.

1. Place the AT-TQ2450 Access Point upside down on a table or desk, with the rear panel facing you. Refer to Figure 18 on page 41.



Figure 18. Rear Panel Upside Down

2. Locate the two screw holes on the rear panel. The holes are used to secure the top panel to the access point. Refer to Figure 19.



Figure 19. Screws Holes for Securing the Top Panel to the Access Point

3. Lower the top panel over the access point as shown in Figure 20 on page 42 and secure it by tightening the two retaining screws into the two corresponding holes on the rear panel of the access point.



Figure 20. Attaching the Top Panel to the Access Point

4. Place the top panel and access point over the bottom panel on the wall or ceiling such that the two anchor pins on the bottom panel fit into the holes on the top panel. Then slide the top panel to lock the pins into the holes. Refer to Figure 21 on page 43.



Figure 21. Attaching the Top Panel and Access Point to the Bottom Panel

5. Secure the top panel and access point to the bottom panel by tightening the two captive screws on the top panel. Refer to Figure 22.



Figure 22. Tightening the Screws to Secure the Top Panel and Access Port to the Bottom Panel

 Install the three 2.4 GHz and three 5 GHz antennas to the corresponding connectors on the sides of the unit. The connectors are labelled. Refer to Figure 23 on page 45.



Figure 23. Installing the Antennas

7. Attach a network cable to the LAN port. Refer to Figure 24.



Figure 24. Attaching the LAN Cable

- 8. Connect the other end of the network cable to a port on an Ethernet switch.
- 9. If you are not using the PoE feature on the Ethernet port to power the unit, continue with this procedure to attach the AC/DC power adapter.

Note

If you are using the PoE feature to power the access point, the installation procedure is complete. Go to "Starting the Initial Management Session on the Access Point" on page 50.

10. Connect the power cord to the AC/DC adapter. Refer to Figure 25.



Figure 25. Connecting the Power Cord to the AC/DC Adapter

11. Connect the DC cable on the AC/DC adapter to the 12VDC connector on the access point. Refer to Figure 26 on page 47.



Figure 26. Attaching the DC Power Cable

12. Secure the DC cable to one of the anchors on the bottom panel with the tie wrap that comes with the access point. Refer to Figure 27 on page 48.



Figure 27. Securing the DC Power Cord to the AT-BRKT-J26 Bracket with the Tie Wrap

13. Connect the AC plug on the power cord to an appropriate AC power source. Refer to Table 8 on page 54 for the power specifications of the power adapter.

Note

Do not perform step 8 if your network has a DHCP server and you want to configure it before powering on the access point. The access point is identified by the DHCP server by its MAC address, which is found on a label on the bottom panel of the unit.

After installing the access point, go to "Starting the Initial Management Session on the Access Point" on page 50.

Installing Anti-theft Devices

The bracket has three holes for anti-theft devices. You may want to install one or more anti-theft devices if the access point is installed in a nonsecure area. When an anti-theft device is installed on the bracket, the top panel and access point cannot be removed from the bottom panel. The holes are identified in Figure 28.



Figure 28. Holes for Anti-theft Devices on the AT-BRKT-J26 Bracket

Starting the Initial Management Session on the Access Point

When you power on the access point 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 unit uses the IP address the server assigns to it. If there is no DHCP server, the access point uses the default IP address 192.168.1.230.

There are a several ways to start the initial management session on the access point. One way is to establish a direct connection between your computer and the unit by connecting an Ethernet cable to the Ethernet port on the computer and the LAN port on the access point. This procedure requires changing the IP address on your computer to make it a member of the same subnet as the default IP address on the access point. You might perform this procedure if your network does not have a DHCP server and you want to configure the access point before connecting it to your network.

The initial management session may also be performed while the device is connected to your network. However, If your network does not have a DHCP server, you still have to change the IP address of your computer to match the subnet of the default address of the access point. Furthermore, if your network is divided into virtual LANs (VLANs), you have to be sure to connect the access port and your computer to ports on an Ethernet switch that are members of the same VLAN.

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

The instructions for starting the initial management session are found in the following sections:

- "Starting the Initial Management Session with a Direct Connection" on page 51
- "Starting the Initial Management Session without a DHCP Server" on page 51
- "Starting the Initial Management Session with a DHCP Server" on page 52

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 with a Direct Connection

To start the management session with a direct Ethernet connection between your computer and the access port, perform the following procedure:

Note

If the access point is using PoE, you may not perform this procedure because it involves a direct connection between your computer and the LAN port on the access point. You may either temporarily attach the power supply to the unit until after you have completed the initial management session or you may instead perform one of the other procedures for starting the initial management session.

- Connect one end of a network cable to the LAN port on the access point and the other end to the Ethernet network port on your computer. (This requires removing the LAN cable you connected earlier in the hardware installation instructions.)
- 2. Change the IP address on your computer to 192.168.1.*n*, where *n* is a number from 1 to 254, but not 230. Refer to the documentation that accompanies your computer for instructions on how to set the IP address.
- 3. Set the subnet mask on your computer to 255.255.255.0.
- 4. Power on the access point.
- 5. Start the web browser on your computer.
- 6. Enter the IP address 192.168.1.230 in the URL field of the browser.

You should now see the logon window.

7. Enter "manager" for the username and "password" for the password. The username and password are case-sensitive.

Starting the Initial Management Session without a DHCP Server This procedure explains how to start the initial management session on the access port when the LAN port is connected to an Ethernet switch on a network that does not have a DHCP server. To start the management session, perform the following procedure:

 If your network has VLANs, check to be sure that your computer and the access port are connected to ports on the Ethernet switch that are members of the same VLAN. This may require accessing the management software on the switch and listing the VLANS. For example, if the access port is connected to a port that is a member of the Sales VLAN, your computer 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 computer to any port on the Ethernet switch.

- 2. Change the IP address on your computer to 192.168.1.*n*, where *n* is a number from 1 to 254, but not 230. Refer to the documentation that accompanies your computer for instructions on how to set the IP address.
- 3. Set the subnet mask on your computer to 255.255.255.0.
- 4. Power on the access point.
- 5. Start the web browser on your computer.
- 6. Enter the IP address 192.168.1.230 in the URL field of the browser.

You should now see the logon window.

7. Enter "manager" for the username and "password" 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 port 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 necessary configuration information (e.g., IP address and default gateway) for your network. To start the management session, perform the following procedure:

- 1. Power on the access point.
- 2. Start the web browser on your computer.
- 3. Enter the IP address of the access point in the URL field of the browser. This is the IP address assigned to the access point by the DHCP server. If you do not know the address, refer to the DHCP server.

You should now see the logon window.

4. Enter "manager" for the username and "password" for the password. The username and password are case-sensitive.

Appendix A Technical Specifications

Physical Specifications

Dimensions (W x D x H)	228 mm x 160 mm x 44 mm (8.98 in. x 6.3 in. x 1.74 in.)
Weight (kilograms)	1 kg (2.2 lbs)

Table 4. AT-TQ2450 Physical Specifications

Table 5. AT-BRKT-J26 Physical Specifications

Dimensions (W x D x H)	270 mm x 206 mm x 52 mm (10.63 in. x 8.11 in. x 2.05 in.)
Weight (kilograms)	850 g (1.87 lbs)

Environmental Specifications

Operating Temperature of the Access Point When Using PoE	0° C to 50° C (32° F to 122° F)
Operating Temperature of the Access Point When Using the AC/ DC Adapter	0° C to 40° C (32° F to 104° F)
Storage Temperature	-20° C to 60° C (-4° F to 140° F)
Operating Humidity	5% to 80% non-condensing
Storage Humidity	5% to 95% non-condensing
Operating Altitude Range	Up to 3,000 m (9,843 ft)

Table 6. Environmental Specifications

Power Specifications

Table 7. AT-TQ2450 Maximum Power Consumption

AT-TQ2450	11.0 W
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 Table 8.
 Power Adapter Input

Input Range	100-240 AC @ 47-63 Hz
Input Connector	IEC320-C14 (3-Pole AC inlet)

Table 9. Power Adapter Output

Minimal Output	9 VDC
Nominal Output	12 VDC
Maximum Output	15 VDC
Maximum Current	1.5A @ 12 VDC
Output Connector	Coaxial Female Barrel Inner Diameter: 2.5 mm Outer Diameter: 5.5 mm

LAN Port

Table 10. LAN Port Specifications

Connector	RJ-45
Standards	IEEE 802.3 (10Base-T) IEEE 802.3u (100Base-TX) IEEE 802.3ab (1000Base-T)
PoE standard	IEEE 802.3af (class 3)

Figure 29 illustrates the pin layout of the LAN port.



Figure 29. Pin Numbers for the RJ-45 Connector on the LAN Port

Table 11 lists the pin signals when the port is operating in the MDI configuration at 10 or 100 Mbps.

Table 11. MDI Pin Signals (10Base-T or 100Base-TX)

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

Table 12 lists the pin signals for the MDI-X configuration at 10 or 100 Mbps.

Table 12. MDI-X Pin Signals (10Base-T or 100Base-TX)

Pin	Signal
1	RX+
2	RX-

Table 12. MDI-X Pin Signals (10Base-T or 100Base-TX) (Continued)

Pin	Signal
3	TX+
6	TX-

Table 13 lists the pin signals when the LAN port is operating at 1000 Mbps.

Table 13. 1000Base-T Connector Pinor

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-

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Safety and Electromagnetic Emissions Certifications

Safety and Electromagnetic Emissions:

Table 14. Ce	ertificates
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Standard Compliance	RoHs compliant
Electromagnetic Compatibility (EMC)	ETSI EN 61000-6-3:2007 ETSI EN 301 489-17 v2.11 FCC 47 CFR Part 15, Subpart B FCC 47 CFR Part 15, Subpart C
Medical (EMC)	ETSI EN 60601-1-2:2007
Radio Equipment	EN 300 328 V1.7.1 EN 301 893 V1.5.1 FCC 47 CFR Part 15, Subpart E
Safety	EN 60950-1:2006+A12:2011 IEC 60950-1:2006+A11:2009+A1: 2010 UL 2043:1996+A1:1998 C-Tick CCC KCC SRMC TUV-T
Wi-Fi CERTIFIED™	Certification ID: WFA8879

Quality and Reliability - MTBF @ 30°C:

Table 15. Quality and Reliability - MTBF @ 30° C

AT-TQ2450	50,000 hours

Appendix B Regulatory Statements

This appendix contains the following regulatory statements:

- "Federal Communication Commission Interference Statement" on page 60
- □ "Industry Canada Statement" on page 61
- □ "Europe EU Declaration of Conformity" on page 63

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:

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

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

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

For operation within $5.15 \sim 5.25$ GHz / $5.47 \sim 5.725$ GHz 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 20cm between the radiator & your body.

Industry Canada Statement

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

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

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 comply with the e.i.r.p. limit; and

(iii) the maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

(iv) 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 5 150-5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;

(ii) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5 250-5 350 MHz et 5 470-5 725 MHz doit se conformer à la limite de p.i.r.e.;

(iii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5 725-5 825 MHz) doit se conformer à la limite de p.i.r.e. spécifiée

pour l'exploitation point à point et non point à point, selon le cas.

(iv) 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 5 250-5 350 MHz et 5 650-5 850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

Radiation Exposure Statement:

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

Déclaration d'exposition aux radiations:

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

Europe - EU Declaration of Conformity

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

□ EN60950-1

Safety of Information Technology Equipment

□ EN50385

Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz - 300 GHz).

□ EN 300 328

Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive,

EN 301 893

Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive

□ EN 301 489-1

Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements.

□ EN 301 489-17

Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

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

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services. This device may not be used for setting up outdoor radio links in France and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 - 2483.5 MHz. For detailed information the end-user should contact the national spectrum authority in France.

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

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

Svenska [Swedish]	Härmed intygar Allied Telesis att denna wireless access point står I överensstämmelse med de väsentliga
	egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.