TQ5403e

Hybrid Outdoor 3-radio 802.11ac Wave 2 Wireless Access Point

The Allied Telesis Enterprise-class TQ5403e outdoor wireless Access Point (AP) features IEEE 802.11ac Wave 2 technology with two spatial streams, to deliver a raw capacity of 2.133 Gigabits.

PoE *plus*™   **WiFi** CERTIFIED®

Overview

The innovative Channel Blanket hybrid mode of the TQ5403e enables optimized wireless networking for all environments—indoors and outdoors. By allowing simultaneous multi-channel and single-channel WLAN connectivity from the same AP, network administrators can combine performance attributes of the two architectures to best suit their specific deployment requirements.

The TQ5403e has a single 2.4GHz radio and dual 5GHz IEEE 802.11ac radios, and supports Multi-User Multiple Input and Multiple Output

(MU-MIMO), allowing multiple clients to send and receive data at the same time—substantially increasing throughput. Combined with a comprehensive feature set, these APs provide superior wireless solutions for a wide range of customers, from SMBs to large Enterprises.

Smaller businesses can operate the TQ5403e in standalone mode, by using its intuitive web-based user interface. In larger installations it can be managed by Allied Telesis Autonomous Wave Control (AWC). AWC regularly analyzes the wireless network, and dynamically updates APs to reduce interference, minimize coverage

gaps and optimize performance—all with no user intervention. AWC-SC (Smart Connect) enables simplified deployment, and a resilient wireless solution, using wireless uplink connectivity. Further, the Allied Telesis robust network management platform Vista Manager EX has an AWC wireless management plugin that supports up to 3,000 APs.

The TQ5403e shines in harsh outdoor environments and is accompanied by a wall/pole mounting kit and six omni-directional antennas. Power is supplied via Power over Ethernet (IEEE 802.11at, PoE Plus).

Key Features

Channel Blanket Hybrid Operation

▶ The TQ5403e supports operation in multi-channel, single-channel (Channel Blanket) and hybrid (multi-channel and Channel Blanket) modes, for the most flexible wireless solution available.

▶ Multi-channel operation provides maximum throughput for high-bandwidth clients, while Channel Blanket operation supports seamless roaming for dynamic environments like warehouses and hospitals, as all APs appear as a single virtual AP.

▶ Hybrid mode combines the best of both architectures, enabling an innovative wireless solution that maximizes performance.

AWC Smart Connect (AWC-SC)

▶ AWC-SC enables plug-and-play wireless network growth, as new APs only need a power connection, and will then automatically create resilient wireless uplink connections to other APs.

▶ AWC-SC supports dynamic environments with multi-path uplinks, and provides an ideal solution for one-time deployments like conferences.

IEEE 802.11ac Wave 2

▶ IEEE 802.11ac Wave 2 wireless connectivity delivers Gigabit performance and throughput. In crowded wireless environments, efficient bandwidth distribution is important. Wave 2 uses Multi-user MIMO technology to simultaneously communicates with multiple clients at once,

reducing contention and improving capacity and throughput by up to three times.

▶ Multi-user MIMO uses beamforming, where the AP focuses wireless signal towards connected devices, rather than simply radiating the signal evenly. This improves range and speed for each user, and reduces interference.

Tri-radio, with Band Steering

▶ The TQ5403e contains three IEEE 802.11 2ss radios to enable concurrent Wi-Fi communications: one at 2.4GHz band, and two at 5GHz band. This alleviates network congestion and isolates any legacy client devices affecting performance.

▶ Band steering prompts newly connecting devices to use a band with little current congestion to distribute wireless traffic, provide maximum throughput, and the best user experience.

Virtual APs with Multiple SSIDs

▶ The TQ5403e supports Virtual AP (VAP) functionality, with the assignment of different SSIDs and security policies for each VAP on a device.

▶ VAPs can be mapped to VLANs for logical network separation and improved throughput. Enable communication by application, function or users.

Captive Portal

▶ Manage user access to the Wi-Fi network with captive portal. New users are taken to a login

page to authenticate before gaining access to any online resources and applications.

▶ Login options include direct online access, external authentication, or redirection to third party services—for example social media sites like Facebook or Twitter.

Weather Resistant Enclosure

▶ The TQ5403e is equipped with high power radio transceivers (>20dBm) for best-in-class performances and lightning arresters/surge protector as recommended for outdoor installation. The metallic enclosure and the plastic cover are manufactured to repel ultraviolet (UV) radiation from the sun. These protective measures, the extended operating range (-40°C~65°C), and the vent for internal pressure equalization, make the TQ5403e ideal for any location including resorts, sports arenas, college and corporate campuses, indoor industrial environments and businesses located in snowy, rainy and arid climates.

Fast Roaming

▶ Fast roaming 802.11k, 802.11v, and 802.11r optimize discovering and selecting the best available AP in a Wi-Fi network. It establishes rapid connectivity for users to seamlessly move between APs, as the APs exchange security keys, so the client device does not need to re-authenticate on the RADIUS server as they roam.

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Key Features

Mounting Options

▶ The TQ5403e comes with wall/pole mounting and antenna kits. The external antenna kit has two (2) detachable antenna for the 2.4 GHz radio and four (4) detachable antennas for the 5 GHz radio.

▶ The N-type female connectors allow replacement of the supplied omni-directional antennas with the most appropriate for the use case.

IEEE 802.11e Wireless Multimedia (WMM)

▶ Quality of Service (QoS) optimizes the performance of voice, video, and data applications, as each has different latency, bandwidth and performance requirements. QoS traffic prioritization ensues the timely delivery of these services.

IEEE 802.11i Security

▶ This feature set facilitates strong encryption, authentication and key management strategies, guaranteeing data and system security. In addition to Counter Mode with Cipher Block Chaining Message Authentication Code Protocol (CCMP), IEEE 802.1X key distribution via RADIUS controls access to the network.

Passpoint® support

▶ Wi-Fi Alliance certified Passpoint enables auto-detection and connection of client devices, removing the need for users to find and authenticate on wireless networks.

SDN Ready

▶ Software Defined Networking (SDN) enables programmable networks that translate user requirements into dynamic network changes. As a powerful SDN security solution, the AMF-Security controller uses OpenFlow v1.3 or the AMF Application Proxy to communicate with Allied Telesis switches and wireless access points. This enables a seamless and automated security solution that protects the LAN from internal malware threats.

▶ OpenFlow is available on the TQ5403 and TQ5403e access points with a feature license, and requires firmware release 5.4.5 to operate.*
  *Requires AMF-Sec controller and OpenFlow licenses on TQ5403 to operate.

▶ AMF Application Proxy enables the AMF-Sec controller to communicate securely with the AWC controlled access point when a threat is detected, so it can take action to block the threat at the source by quarantining the infected device.

▶ AMF Application Proxy is available on the TQ5403, TQ5403e, TQm5403 access points, and requires firmware release 6.0.1-6.1 or later to operate.*
  *Requires AMF-Sec controller, Vista Manager EX, and AWC plugin to operate.

Specifications

Physical Specifications

PRODUCT	WIDTH X DEPTH X HEIGHT	WEIGHT	10/100/1000T (RJ-45) COPPER PORTS	PROTECTION RATING
TQ5403e	257 x 227 x 90 mm (10.12 x 8.94 x 3.54 in)	4.0 kg (1.81 lb)*	1 (PoE-in port)	IP67

*Main chassis, surge protector (x6) and antenna (x6) are included in this weight. Wall mountable and pole mountable kits are not included.

Power Characteristics

PRODUCT	POWER SUPPLY	POWER CONSUMPTION		MAX HEAT DISSIPATION
		AVERAGE	MAXIMUM	
TQ5403e	POE	9.3W	16W	54 BTU/h

Wireless

▶ Multi-channel, single-channel, or hybrid operation
▶ Airtime fairness
▶ Automatic channel selection
▶ Automatic control of transmission power
▶ Band Steering
▶ Fast roaming
▶ RF load balancing
▶ Wireless Distribution System (WDS)
▶ Wi-Fi Multimedia (WMM) for traffic prioritization
▶ Deploy with no data cables using AWC-SC[1]

Operational Modes

▶ Centrally managed in multi-channel mode by Vista Manager EX (up to 3,000 APs)
▶ Centrally managed in single-channel or hybrid mode (multi-channel and single-channel) by Vista Manager EX (100 APs per Channel Blanket[2])
▶ Standalone[3]

Management

▶ Graphical User Interface (HTTP/HTTPS)
▶ Simple Network Management Protocol (SNMPv1, v2c, v3)
▶ Firmware upgrade
▶ Backup/restore settings
▶ Syslog notification
▶ DHCP client
▶ NTP client

Security

▶ Authentication and accounting
  Captive Portal (External RADIUS, Click-Through)
  IEEE 802.1X authentication and accounting
  IEEE 802.1X RADIUS support
  Shared Key Authentication
  WPA (Enterprise, Personal)
  WPA2 (Enterprise, Personal)
  WPA3 (Enterprise, Personal)
  Passpoint®[4]

▶ Encryption
  WEP: 64/128 bit (IEEE 802.11a/b/g only)
  WPA/WPA2: CCMP (AES), TKIP
  WPA3 (Enterprise): GCMP (AES)
  WPA3 (Personal): CCMP (AES)
▶ MAC address filtering (Up to 2048 MAC address)
▶ SSID hiding/ignoring
▶ Client isolation
▶ Neighbor AP detection
▶ Threat isolation with AMF-Sec

Compliance
Certificates
▶ FCC
▶ CE
▶ RCM
▶ Wi-Fi certified (ID:WFA75927)
▶ IC   (For Canada)
▶ IMDA   (For Singapore)
▶ KC   (For South Korea)
▶ MIC   (For Vietnam)
▶ BSMI/NCC   (For Taiwan)
▶ OFCA   (For Hong Kong)
▶ SIRIM   (For Malaysia)

[1] AWC-SC (deployment with no data cables) supports up to 2 wireless hops. Each hop can have up to 4 APs

[2] Supports 6 Channel Blankets total per TQ5403e, 3 VAPs each at 2.4GHz and 5GHz (W52). Supports 500 clients maximum per Channel Blanket.

[3] In standalone mode, supports up to 200 clients per radio

[4] Wi-Fi Alliance certified Passpoint

NETWORK SMARTER

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Safety approvals
- AS/NZS 60950.1
- AS/NZS 62368.1
- CAN/CSA C22.2 No. 60950-1
- CAN/CSA C22.2 No. 62368-1
- CAN/CSA C22.2 No. 60950-22
- EN 60950-1
- EN 62368-1
- EN 60950-22
- IEC 60950-1
- IEC 62368-1
- IEC 60950-22
- UL 60950-1
- UL 62368-1
- UL 60950-22

EMC approvals
- EN 301 489-1
- EN 301 489-17
- EN 55024 / EN55035
- EN 55032 Class B
- FCC Part 15 Subpart B Class B
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- RCM AS/NZS CISPR 32 Class B
- VCCI Class B

Outdoor Enclosure approvals
- IEC 60068-2-52 (Salt Mist test)
- IEC 60068-2-5 (Solar Radiation (Sunshine) test / Ultraviolet test)
- IEC 60068-2-5 (Sun Exposure test)
- IEC 60529 (IP67 test)

Radio equipment
- 47 CFR FCC Part 15, Subpart C (Section 15.247)
- 47 CFR FCC Part 15, Subpart E (Section 15.407)[5]
- ARIB STD-T66
- ARIB STD-T71
- AS/NZS 4268
- EN 300 328 V2.1.1
- EN 301 893 V2.1.1

[5] Supported frequencies: 5.150 ~ 5.250 GHz
5.725 ~ 5.850 GHz

[6] Values listed for gain and data rate are maximums, and the actual values will vary depending on use.

[7] Using 256 Quadrature Amplitude Modulation

Environmental Specifications
- Operating temperature range:
  -40°C to 65°C (-40°F to 149°F)
- Storage temperature range:
  -40°C to 80°C (-40°F to 176°F)
- Operating relative humidity range:
  5 to 95% non-condensing
- Storage relative humidity range:
  5 to 95% non-condensing
- Operating altitude:
  3,048 m (10,000 ft)

Supplied External Antennas
Omni-directional
- Frequency band: 2.4 GHz
- Max. peak gain: 5.2 dBi[6]
- Supports Channel Blanket

Omni-directional
- Frequency band: 5GHz (5.2-5.3GHz)
- Max. peak gain: 6.91 dBi[6]
- Supports Channel Blanket

Omni-directional
- Frequency band: 5GHz (5.6-5.8GHz)
- Max. peak gain: 7.08 dBi[6]

Radio Characteristics
Supported Frequencies:
- 2.400 ~ 2.4835 GHz
- 5.150 ~ 5.250 GHz
- 5.250 ~ 5.350 GHz
- 5.470 ~ 5.725 GHz
- 5.725 ~ 5.850 GHz

Modulation Technique
- 802.11a/g/n/ac: OFDM
- 802.11b: DSSS, CCK, DQPSK, DBPSK
- 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
- 802.11a/g/n: BPSK, QPSK, 16QAM, 64QAM, 256QAM

Data Rate[6]
- 802.11a/g:
  54/48/36/24/18/12/9/6Mbps
- 802.11b: 11/5.5/2/1Mbps
- 802.11n: 6.5 - 400Mbps[7] (MCS 0 - 15)
- 802.11n: 6.5 - 300Mbps (MCS 0 - 15)
- 802.11ac: 6.5 – 866.7Mbps (MCS 0 - 9, NSS 1 - 2)

Media Access
- CSMA/CA + Ack with RTS/CTS

Diversity
- Spatial diversity

Standards

Ethernet
IEEE 802.3 10BASE-T
IEEE 802.3u 100BASE-TX
IEEE 802.3ab 1000BASE-T
IEEE 802.3x Flow Control
IEEE 802.3at Power over Ethernet+
IEEE 802.1Q VLAN Tagging

Wireless
IEEE 802.11 a/b/g/n/ac (Wave 2) 2x2:2ss MU-MIMO
IEEE 802.11d Regulatory Domain
IEEE 802.11h DFS/TPC
IEEE 802.11k Radio Resource Measurement of Wireless LANs
IEEE 802.11v Basic Service Set Transition Management Frames
IEEE 802.11r Fast Basic Service Set Transition
IEEE 802.11e WMM for Quality of Service
IEEE 802.11i WPA/WPA2/WPA3 802.1x for Security

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Wireless Management Licenses

Wireless management of the TQ5403e is available from the Vista Manager EX network management platform, and from Vista Manager mini running on our SwitchBlade x908 GEN2, x950, x930, x550, x530 Series switches or AR4050S UTM firewall.

PLATFORM	LICENSE NAME	DESCRIPTION	MAX SUPPORTED APs
Vista Manager EX	AT-FL-VISTA-BASE-1/5YR	Vista Manager EX network monitoring and management software license	NA
Vista Manager EX (Windows)	AT-FL-VISTA-AWC10-1/5YR[8]	Vista Manager AWC plug-in license for managing up to 10 access points	3000
Vista Manager EX (Windows)	AT-FL-VISTA-CB10-1/5YR-2022[9]	Vista Manager AWC-Channel Blanket and AWC-Smart Connect license for managing up to 10 access points	3000
Vista Manager EX (Virtual (VRT))	AT-FL-VISTA-AWC10-1/5YR[8]	Vista Manager AWC plug-in license for managing up to 10 access points	500
Vista Manager EX (Virtual (VRT))	AT-FL-VISTA-CB10-1/5YR-2022[9]	Vista Manager AWC-Channel Blanket and AWC-Smart Connect license for managing up to 10 access points	500
Vista Manager EX (Network Appliance)	AT-FL-VISTA-AWC10-1/5YR[8]	Vista Manager AWC plug-in license for managing up to 10 access points	500
Vista Manager EX (Network Appliance)	AT-FL-VISTA-CB10-1/5YR-2022[9]	Vista Manager AWC-Channel Blanket and AWC-Smart Connect license for managing up to 10 access points	500
AMF-Sec controller	AT-FL-SESC-BASE-1YR/5YR[10]	AMF-Sec base license for 10 access points	
AMF-Sec controller	AT-FL-SESC-ADD10-1YR/5YR[11]	AMF-Sec license for an additional 10 access points	
AMF-Sec controller	AT-FL-SESC-ADD50-1YR/5YR[11]	AMF-Sec license for an additional 50 access points	
AMF-Sec controller	AT-FL-SESC-ADD100-1YR/5YR[11]	AMF-Sec license for an additional 100 access points	
AMF-Sec controller	AT-FL-SESC-ADD200-1YR/5YR[11]	AMF-Sec license for an additional 200 access points	
SwitchBlade x908 GEN2	AT-SW-AWC10-1/5YR[12]	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	305
SwitchBlade x908 GEN2	AT-SW-CB10-1/5YR-2022[13]	Cumulative AWC Channel Blanket and AWC Smart Connect license for up to 10 access points	300
x950 Series	AT-SW-AWC10-1/5YR[12]	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	185
x950 Series	AT-SW-CB10-1/5YR-2022[13]	Cumulative AWC Channel Blanket and AWC Smart Connect license for up to 10 access points	180
x930 Series	AT-SW-AWC10-1/5YR[12]	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	125
x930 Series	AT-SW-CB10-1/5YR-2022[13]	Cumulative AWC Channel Blanket and AWC Smart Connect license for up to 10 access points	120
x550 Series	AT-SW-AWC10-1/5YR[12]	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	45
x550 Series	AT-SW-CB10-1/5YR-2022[13]	Cumulative AWC Channel Blanket and AWC Smart Connect license for up to 10 access points	40
x530 Series	AT-SW-AWC10-1/5YR[12]	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	45
x530 Series	AT-SW-CB10-1/5YR-2022[13]	Cumulative AWC Channel Blanket and AWC Smart Connect license for up to 10 access points	40
AR4050S UTM Firewall	AT-RT-AWC5-1/5YR[12]	Cumulative Autonomous Wave Controller (AWC) license for up to 5 access points	25
AR4050S UTM Firewall	AT-RT-CB5-1/5YR-2022[13]	AWC Channel Blanket and AWC Smart Connect license for up to 5 access points	5

[8] The AWC plug-in requires an AWC license, and a Vista Manager EX base license to operate on Vista Manager EX

[9] Channel Blanket and Smart Connect requires an AWC-CB license, an AWC license, and a Vista Manager EX base licenses to operate on Vista Manager EX

[10] Requires AMF-Sec controller, Vista Manager EX, and AWC plugin

[11] Add on licenses for more APs are supported when using OpenFlow

[12] 5 APs can be managed for free. Purchase one license per 10 additional APs on switches, or one license per 5 additional APs on the AR4050S Firewall

[13] Channel Blanket and Smart Connect are not available as free services. Both an AWC-CB license and an AWC license are required for Channel Blanket and/or Smart Connect to operate. Purchase one AWC-CB license per 10 APs on switches, or one license to manage 5 APs on the AR4050S Firewall

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Feature Licenses

NAME	DESCRIPTION
AT-FL-TQ5400-0F13-1/5YR[14]	OpenFlow license for TQ5403 or TQ5403e

[14] OpenFlow is available on TQ firmware release 5.4.5.

Ordering Information

AT-TQ5403e-xx

Advanced Enterprise-Class 802.11ac Wave 2 Wireless Access Point with 3 radios and embedded antenna

Where xx =

01 Regulatory Domain: United States Reserved
02 Regulatory Domain: Taiwan
03 Regulatory Domain: Canada
00 Regulatory Domain: Other countries[15, 16]

[15] Please check the Compliance section on page 2 to see which countries are certified to use this access point.

[16] To order this access point for use in Japan, please see the Japanese datasheet.

Related Products

AT-6101GP-yy

Gigabit Ethernet PoE+ (802.3at) injector

Where yy = 10 for US power cord
30 for UK power cord
40 for Australian power cord
50 for European power cord