TQ5403

Hybrid 3-radio 802.11ac Wave 2 Wireless Access Point

The Allied Telesis Enterprise-class TQ5403 Hybrid 3-radio Wireless Access Point features IEEE 802.11ac Wave 2 technology with two spatial streams to deliver a raw capacity of 2.133 Gigabits.

Wi Fi CERTIFIED®

Overview

The innovative Channel Blanket hybrid mode of the TQ5403 enables optimized wireless networking for all environments. Simultaneous multi-channel and single-channel Wi-Fi connectivity from the same access point, allows network administrators to combine maximum performance and seamless roaming for the best possible user experience.

The TQ5403 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. A comprehensive feature-set provides a superior solution for customers from SMBs to large Enterprises.

Smaller businesses can operate the TQ5403 in standalone mode, using its intuitive web-based interface. For medium and larger installations, Autonomous Wave Control (AWC) provides centralized management, and regularly analyses the wireless network, automatically optimizing AP settings to reduce interference and minimize coverage gaps—all with no user intervention. AWC-SC (Smart Connect)

enables simplified deployment, and a resilient wireless solution, using wireless uplink connectivity. AWC wireless management is available on our Vista Manager EX network management platform, and from Vista Manager mini running on a number of switch and firewall products.

Flexible deployment options include desktop use, and wall or ceiling mounting. Power can be supplied by Power over Ethernet, or by an optional AC power adapter.

Key Features

Channel Blanket Hybrid Operation

▶ The TQ5403 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 maximum performance for a superior user experience.

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 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 TQ5403 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.

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.

Virtual APs with Multiple SSIDs

▶ The TQ5403 supports Virtual AP functionality, with the assignment of different SSIDs and security policies for each VAP on the physical device.

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

Link Aggregation

▶ The TQ5403 features two 10/100/1000T Ethernet ports. These can be combined into a single virtual connection using static link aggregation, to double the bandwidth from the AP to the wired network.

Cascade Mode

▶ Adding deployment flexibility, one of the Ethernet ports may be used in cascade mode to connect an additional wired network device. This may be an end device such as a PC or printer, or a networking device, such as a switch or router.

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.

Key Features

Airtime Fairness
▶ Airtime Fairness equally assigns airtime to each connected client, to ensure fair and predictable sharing of bandwidth. This feature prevents any client from monopolizing the bandwidth when transferring a large amount of data, and ensures consistent performance for all users.

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.

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
TQ5403	215 x 215 x 48 mm (8.46 x 8.46 x 1.89 in)	700 g (24.69 oz)	2 (1 PoE-in port)

Power Characteristics

PRODUCT	POWER SUPPLY	POWER CONSUMPTION		MAX HEAT DISSIPATION
		AVERAGE	MAXIMUM	
TQ5403	100-240VAC	10W	20W	67 BTU/h
	POE	10W	19W	64 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 (up to 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
  IEEE 802.1X authentication and accounting
  IEEE 802.1X RADIUS support
  Shared Key Authentication
  WPA (Enterprise, Personal)
  WPA2 (Enterprise, Personal)
  WPA3 (Enterprise, Personal)
  Captive Portal (External RADIUS, Click-Through, Authentication Page Redirection, Virtual IP Address, RADIUS Accounting,[4] Walled Garden)
  Passpoint® [5]
▶ 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
▶ Kensington lock
▶ Threat isolation with AMF-Sec

Compliance
Certificates
▶ FCC
▶ CE

▶ RCM
▶ Wi-Fi certified (ID:WFA75927)
▶ IMDA   (For Singapore)
▶ KC   (For South Korea)
▶ MIC   (For Vietnam)
▶ NBTC   (For Thailand)
▶ BSMI/NCC (For Taiwan)
▶ OFCA   For Hong Kong)
▶ SIRIM   (For Malaysia)
▶ WPC   (For India)
▶ IC   (For Canada)
▶ SRRC   (For China)

Safety
▶ EN 60950-1
▶ EN 62368-1
▶ UL 60950-1
▶ UL 62368-1

ElectroMagnetic Compatibility
▶ AS/NZS 2772.2
▶ EN 301 489-1
▶ EN 301 489-17
▶ EN 55024
▶ EN 55032, Class B
▶ EN 60601-1-2:2015 (For Medical)
▶ EN 61000-3-2, Class A
▶ 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

[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 TQ5403, 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] Multi-channel operation only

[5] Wi-Fi Alliance certified Passpoint

NETWORK SMARTER

- FCC 47 CFR Part 15, Subpart B
- VCCI, class B

Radio equipment
- AS/NZS 4268
- EN 300 328
- EN 301 893
- FCC 47 CFR Part 15, Subpart C
- FCC 47 CFR Part 15, Subpart E[6]
- FCC part 2

Environmental Specifications
- Operating temperature range:
  PoE: 0°C to 50°C (32°F to 122°F)
  AC adapter: 0°C to 45°C (32°F to 113°F)
- Storage temperature range:
  -25°C to 70°C (-13°F to 158°F)
- Operating relative humidity range:
  90% non-condensing
- Storage relative humidity range:
  95% non-condensing

Embedded Antennas[7]
Omni-directional
- Frequency band: 2.4 GHz
- Max. peak gain: 3.95dBi[8]
- Supports Channel Blanket

Omni-directional
- Frequency band: 5GHz (5.2-5.3GHz)

- Max. peak gain: 4.20dBi[8]
- Supports Channel Blanket

Omni-directional
- Frequency band: 5GHz (5.6-5.8GHz)
- Max. peak gain: 4.83dBi[8]

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[8]
- 802.11a/g:
  54/48/36/24/18/12/9/6Mbps
- 802.11b: 11/5.5/2/1Mbps
- 802.11n: 6.5 - 400Mbps[9] (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 802.1AX-2008 Link Aggregation (static)
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

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

[7] Radiation Pattern of Antenna is in the Installation Guide

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

[9] Using 256 Quadrature Amplitude Modulation

Wireless Management Licenses

Wireless management of the TQ5403 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**[10]	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**[11]	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**[10]	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**[11]	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**[10]	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**[11]	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**[12]	AMF-Sec base license for 10 access points	
AMF-Sec controller	**AT-FL-SESC-ADD10-1YR/5YR**[13]	AMF-Sec license for an additional 10 access points	
AMF-Sec controller	**AT-FL-SESC-ADD50-1YR/5YR**[13]	AMF-Sec license for an additional 50 access points	
AMF-Sec controller	**AT-FL-SESC-ADD100-1YR/5YR**[13]	AMF-Sec license for an additional 100 access points	
AMF-Sec controller	**AT-FL-SESC-ADD200-1YR/5YR**[13]	AMF-Sec license for an additional 200 access points	

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

[11] 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

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

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

Wireless Management Licenses continued

PLATFORM	LICENSE NAME	DESCRIPTION	MAX SUPPORTED APs
SwitchBlade x908 GEN2	AT-SW-AWC10-1/5YR[14]	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	305
SwitchBlade x908 GEN2	AT-SW-CB10-1/5YR-2022[15]	Cumulative AWC Channel Blanket and AWC Smart Connect license for up to 10 access points	300
x950 Series	AT-SW-AWC10-1/5YR[14]	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	185
x950 Series	AT-SW-CB10-1/5YR-2022[15]	Cumulative AWC Channel Blanket and AWC Smart Connect license for up to 10 access points	180
x930 Series	AT-SW-AWC10-1/5YR[14]	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	125
x930 Series	AT-SW-CB10-1/5YR-2022[15]	Cumulative AWC Channel Blanket and AWC Smart Connect license for up to 10 access points	120
x550 Series	AT-SW-AWC10-1/5YR[14]	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	45
x550 Series	AT-SW-CB10-1/5YR-2022[15]	Cumulative AWC Channel Blanket and AWC Smart Connect license for up to 10 access points	40
x530 Series	AT-SW-AWC10-1/5YR[14]	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	45
x530 Series	AT-SW-CB10-1/5YR-2022[15]	Cumulative AWC Channel Blanket and AWC Smart Connect license for up to 10 access points	40
AR4050S UTM Firewall	AT-RT-AWC5-1/5YR[14]	Cumulative Autonomous Wave Controller (AWC) license for up to 5 access points	25
AR4050S UTM Firewall	AT-RT-CB5-1/5YR-2022[15]	AWC Channel Blanket and AWC Smart Connect license for up to 5 access points	5

[14] 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

[15] 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

Feature Licenses

NAME	DESCRIPTION
AT-FL-TQ5400-OF13-1/5YR[16]	OpenFlow license for TQ5403 or TQ5403e

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

Ordering Information

AT-TQ5403-xx
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
 [none] Regulatory Domain: Other countries[17, 18]

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

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

Related Products

AT-MWS0091
AC adapter

AT-6101GP-yy
Gigabit Ethernet PoE+ (802.3at) injector

AT-7101GHTm-yy
Multi-Gigabit Ethernet PoE++ (802.3bt) injector

AT-BRKT-CONV-AP1
Replacement bracket converter for the TQ5403 AP

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