

TQ1402

Hybrid 2-radio 802.11ac Wave 2 Wireless Access Point

The Allied Telesis TQ1402 is a hybrid 2-radio wireless access point based on IEEE 802.11ac Wave 2 technology with two spatial streams to deliver a raw capacity of 1.167 Gigabits.



Overview

The innovative Channel Blanket¹ hybrid mode of the TQ1402 enables optimized wireless networking for all environments. By allowing simultaneous multi-channel and single-channel WLAN connectivity from the same access point, network administrators can combine the performance attributes of the two architectures to best suit their specific deployment requirements.

The TQ1402 has a single 2.4GHz radio and a single 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, the APs provide a superior wireless solution for customers from SMBs to large Enterprises.

Smaller businesses can operate the TQ1402 in standalone mode, using its intuitive web-based user interface. For larger installations it can be managed by Allied Telesis Autonomous Wave Control (AWC). With AWC, the wireless network is regularly analyzed, and APs are dynamically updated to reduce interference, minimize coverage gaps, and optimize performance—all with no user intervention. Allied Telesis network management platform, Vista Manager EX, has an AWC wireless management plugin that supports up to 3,000 APs.

Flexible deployment options enable easy installation, with the TQ1402 able to be used on the desktop or mounted on a wall or ceiling. Power may be supplied by Power over Ethernet, for the simplicity of having the Ethernet network connect and power the APs, or by an optional AC power adapter.

Key Features

Channel Blanket Hybrid Operation¹

- ▶ The TQ1402 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 for a superior user experience.

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; IEEE 802.11ac Wave 2 achieves efficiency and robustness, using Multi-user MIMO technology.
- ▶ Unlike traditional Single-user MIMO networks where devices are served sequentially, Multi-user MIMO simultaneously communicates to 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 for the best possible connection.

Dual-radio, with Band Steering

- ▶ The TQ1402 contains two IEEE 802.11 2ss radios to enable concurrent Wi-Fi communications: one at 2.4GHz band, and one 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) on the wireless network optimizes the performance of voice, video, and data applications, as each has different latency, bandwidth and performance requirements. QoS traffic prioritization ensures 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 TQ1402 supports Virtual AP (VAP) 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.

Captive Portal

- ▶ Manage user access to the Wi-Fi network with captive portal. New users are taken to a login page ensuring they must authenticate before gaining access to the wireless network, and any online resources and applications.

Dynamic VLANs

- ▶ Dynamic VLANs simplify management by enabling users to be separated on different VLANs according to rules defined in a centralized user database. When a user connects, their credentials are checked and the VLAN assigned automatically to the AP. An external RADIUS server is supported and a secondary RADIUS server can also be specified for redundancy.

Graphical User Interface

- ▶ The web-based user interface is user friendly and intuitive, minimizing training needs, and allowing easy management and monitoring of a single AP. AWC enables management of multiple APs, and automatic wireless network optimization.

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 with 802.11k, 802.11v, and 802.11r optimizes the process of discovering and selecting the best available AP in a Wi-Fi network, and establishes rapid connectivity for users to seamlessly move between APs.
- ▶ Users will experience a consistent wireless connection as the APs exchange security keys, so the client device does not need to re-authenticate on the RADIUS server as they roam.

¹ Channel Blanket operation available soon

Specifications

Physical Specifications

PRODUCT	WIDTH X DEPTH X HEIGHT	WEIGHT	10/100/1000T (RJ-45) COPPER PORTS
TQ1402	163 x 165 x 43 mm (6.42 x 6.50 x 1.69 in)	430 g (0.94 lb)	1 (PoE-in port)

Power Characteristics

PRODUCT	POWER SUPPLY	POWER CONSUMPTION		MAX HEAT DISSIPATION
		AVERAGE	MAXIMUM	
TQ1402	100-240VAC	7.4W	12W	41 BTU/h
	POE	7.7W	11.7W	44 BTU/h

Wireless

- ▶ Multi-channel, single-channel, or hybrid operation¹
- ▶ 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.

Operational Modes

- ▶ Centrally managed in multi-channel mode by Vista Manager EX (up to 3,000 APs)
- ▶ Centrally managed in single-channel or hybrid¹ mode (multi-channel and single-channel) by Vista Manager EX (100 APs per Channel Blanket²)
- ▶ Standalone³

Management

- ▶ Graphical User Interface (HTTP/HTTPS)
- ▶ Simple Network Management Protocol (SNMPv1, v2c)
- ▶ 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)
 - Captive Portal
- ▶ Encryption
 - WEP: 64/128 bit (IEEE 802.11a/b/g only)
 - WPA/WPA2: CCMP (AES), TKIP
- ▶ MAC address filtering (Up to 1024 MAC address)
- ▶ SSID hiding/ignoring
- ▶ Client isolation
- ▶ Neighbor AP detection

Compliance

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

Safety

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

ElectroMagnetic Compatibility

- ▶ EN 301 489-1
- ▶ EN 301 489-17
- ▶ EN 55024
- ▶ EN 55032, Class B
- ▶ 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
- ▶ 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 E⁴

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

- Omni-directional
- ▶ Frequency band: 2.4 GHz
 - ▶ Max. peak gain: 1.9 dBi
 - ▶ Supports Channel Blanket¹

Omni-directional

- ▶ Frequency band: 5 GHz
- ▶ Max. peak gain: 3.7 dBi
- ▶ Supports Channel Blanket¹

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,

Data Rate

- ▶ 802.11a/g:
 - 54/48/36/24/18/12/9/6Mbps
- ▶ 802.11b: 11/5.5/2/1Mbps
- ▶ 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

¹ Channel Blanket operation available soon

² Supports 4 Channel Blankets per TQ1402

500 clients maximum per Channel Blanket

³ 200 clients maximum using the 5GHz band

120 clients maximum using the 2.4GHz band (when clients

use WEP encryption only)

120 clients maximum using the 2.4GHz band (when clients

use CCMP encryption only)

60 clients maximum using the 2.4GHz band (when clients

use TKIP encryption only)

40 clients maximum using the 2.4GHz band (when clients

use a mix of encryption types)

⁴ Supported frequencies: 5.150 ~ 5.250 GHz

5.725 ~ 5.850 GHz

Wireless Management Licenses

Wireless management of the TQ1402 is available from the Vista Manager EX network management platform, and from the Vista Manager Mini running on our SwitchBlade x908 GEN2 switch or AR-Series firewalls and routers.

PLATFORM	LICENSE NAME	DESCRIPTION
Vista Manager EX	AT-FL-VISTA-BASE-1/5YR	Vista Manager EX network monitoring and management software license
Vista Manager EX	AT-FL-VISTA-AWC10-1/5YR ⁵	Autonomous Wave Controller (AWC) plug-in license for Vista Manager
Vista Manager EX	AT-FL-VISTA-CB10-1/5YR ⁶	Channel Blanket Hybrid (multi-channel and single-channel) license for AWC plug-in
SwitchBlade x908 GEN2	AT-FL-GEN2-AWC40-1/5YR ⁷	Autonomous Wave Controller (AWC) plug-in license for SBx908 GEN2 (Up to 40 nodes)
SwitchBlade x908 GEN2	AT-FL-GEN2-AWC80-1/5YR ⁷	Autonomous Wave Controller (AWC) plug-in license for SBx908 GEN2 (Up to 80 nodes)
SwitchBlade x908 GEN2	AT-FL-GEN2-AWC120-1/5YR ⁷	Autonomous Wave Controller (AWC) plug-in license for SBx908 GEN2 (Up to 120 nodes)
SwitchBlade x908 GEN2	AT-FL-GEN2-AWC250-1/5YR ⁷	Autonomous Wave Controller (AWC) plug-in license for SBx908 GEN2 (Up to 250 nodes)
x950 Series	AT-FL-x950-AWC40-1/5YR ⁷	Autonomous Wave Controller (AWC) plug-in license for x950 (Up to 40 nodes)
x950 Series	AT-FL-x950-AWC80-1/5YR ⁷	Autonomous Wave Controller (AWC) plug-in license for x950 (Up to 80 nodes)
x950 Series	AT-FL-x950-AWC120-1/5YR ⁷	Autonomous Wave Controller (AWC) plug-in license for x950 (Up to 120 nodes)
AR4050S UTM Firewall	AT-FL-AR4-AWC20-1/5YR ⁷	Autonomous Wave Controller (AWC) plug-in license for AR4050S (Up to 20 nodes)

⁵ The AWC license also requires the Vista Manager EX license to operate
⁶ The Channel Blanket license requires both the AWC and Vista Manager EX licenses to operate
⁷ 5 APs can be managed for free. 25 APs (max) can be managed with the addition of the 20 node license

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 802.11k 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/WPA2/802.1x for Security

AT-TQ1402-xx
 Cost effective 802.11ac Wave 2 Wireless Access Point with 2 radios and embedded antenna
 Where xx = [none] Regulatory Domain: Worldwide (except United States)
 01 Regulatory Domain: United States Reserved

Related Products
AT-MWS0091
 AC adapter

Ordering Information



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