

TQ1402

Hybrid 2-radio 802.11ac Wave 2 Wireless Access Point

The Allied Telesis TQ1402 is a 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 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

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 communicate 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.

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.

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.

Easy setup

- ▶ Setup the AP easily with simple settings for the wired network connection, wireless radios, and security.

QR code publishing for easy user connectivity

- ▶ The AP can display and publish a QR code with a unique SSID and security key set, which simplifies wireless network setup for administrators. Wi-Fi users then only need to read the published QR code with their mobile device to connect to the wireless network.

AWC-SCL (Smart Cluster)

- ▶ AWC Smart Cluster enables up to 5 APs to create one virtual AP running on a single-channel, so users can enjoy seamless roaming anywhere around the premises. Allied Telesis innovative hybrid mode enables simultaneous multi-channel and single channel operation from the APs for the best possible performance.
- ▶ When using AWC Smart Cluster in single channel mode, a newly powered up TQ1402 AP will automatically detect other TQ1402 APs, and synchronize with them to create a smart cluster. Any changes to AP configuration are automatically synchronized to all members of the cluster.

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 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.

Operational Modes

- ▶ Centrally managed in multi-channel mode by Vista Manager EX (up to 3,000 APs)
- ▶ Standalone¹
- ▶ Single channel mode: AWC-SCL (Smart Cluster)

Management

- ▶ Graphical User Interface (HTTP/HTTPS)
- ▶ Simple Network Management Protocol (SNMP v1, v2c, v3)
- ▶ Firmware upgrade
- ▶ Backup/restore settings
- ▶ Syslog notification
- ▶ DHCP client
- ▶ NTP client
- ▶ Automatic configuration synchronization when using AWC-SCL in single channel mode

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 (Enterprise², Personal)
 - Captive Portal
- ▶ Encryption
 - WEP: 64/128 bit (IEEE 802.11a/b/g only)
 - WPA/WPA2: CCMP (AES), TKIP
 - WPA3: CCMP (AES/CNSA)
- ▶ 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)
- ▶ WPC (For India)
- ▶ NBTC (For Thailand)

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 E³

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:
 - 0% to 90% non-condensing
- ▶ Storage relative humidity range:
 - 0% to 95% non-condensing

Embedded Antennas⁴

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

Omni-directional

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

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

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

¹ Supports up to 200 clients using the 5GHz band
Supports up to 120 clients using the 2.4GHz band (when clients use WEP encryption only)
Supports up to 120 clients using the 2.4GHz band (when clients use CCMP encryption only)
Supports up to 60 clients using the 2.4GHz band (when clients use TKIP encryption only)
Supports up to 40 clients using the 2.4GHz band (when clients use a mix of encryption types)

² WPA3 Enterprise is only supported when using the 5GHz band. WPA3 Personal operates at both the 5GHz and 2.4GHz bands.

³ Supported frequencies: 5.150 ~ 5.250 GHz
5.725 ~ 5.850 GHz

⁴ Radiation Pattern of Antenna is in the Installation Guide

Wireless Management Licenses

Wireless management of the TQ1402 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 AR-Series firewalls and routers.

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 ⁵	Vista Manager AWC plug-in license for managing up to 10 access points	3000
Vista Manager EX (Virtual (VRT))	AT-FL-VISTA-AWC10-1/5YR ⁵	Vista Manager AWC plug-in license for managing up to 10 access points	500
Vista Manager EX (Network Appliance)	AT-FL-VISTA-AWC10-1/5YR ⁵	Vista Manager AWC plug-in license for managing up to 10 access points	500
SwitchBlade x908 GEN2	AT-SW-AWC10-1/5YR ⁶	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	305
x950 Series	AT-SW-AWC10-1/5YR ⁶	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	185
x930 Series	AT-SW-AWC10-1/5YR ⁶	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	125
x550 Series	AT-SW-AWC10-1/5YR ⁶	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	45
x530 Series	AT-SW-AWC10-1/5YR ⁶	Cumulative Autonomous Wave Controller (AWC) license for up to 10 access points	45
AR4050S UTM Firewall	AT-RT-AWC5-1/5YR ⁶	Cumulative Autonomous Wave Controller (AWC) license for up to 5 access points	25

⁵ The AWC plug-in requires an AWC license, and a Vista Manager EX base license to operate on Vista Manager EX
⁶ 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

Ordering Information

AT-TQ1402-xx
 Cost effective 802.11ac Wave 2 Wireless Access Point with 2 radios and embedded antenna

Where xx =
 01 Regulatory Domain: United States Reserved
 [none] Regulatory Domain: Other countries^{7,8}

⁷ Please check the Compliance section on page 2 to see which countries are certified to use this access point.

⁸ 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

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