QuickSpecs

Overview

Models

HP 560 Wireless Dual Radio 802.11ac (AM) Access Point	J9845A
HP 560 Wireless Dual Radio 802.11ac (WW) Access Point	J9846A
HP 560 Wireless Dual Radio 802.11ac (JP) Access Point	J9847A
HP 560 Wireless Dual Radio 802.11ac (IL) Access Point	J9848A

Key features

- Three-spatial stream 802.11acMIMOAP
- Up to 1.3 Gb/s on the 802.11ac radio and 450 Mb/s on the 2.4 GHz 802.11n radio
- Built-in spectral analysis scans the 2.4 GHz and 5 GHz bands to identify sources of RF
- Comprehensive WLAN security with intrusion detection offers threat protection
- Include lifetime hardware warranty 2.0 with 24x7 phone support for three years at no additional cost

Introduction

HP 560 802.11ac Dual Radio Access Points deliver 1.3 GbE performance, faster application processing and increased range, connecting wireless clients to the network and bringing intelligence to the network edge.

HP 560 802.11ac Dual Radio Access Point Series bring 1.3 GbE performance, faster application processing, and increased range to 802.11 clients. Ideal for dense client environments and high bandwidth applications, the access points can be powered by Power over Ethernet (PoE) and offer full compatibility with legacy 802.11 clients and existing HP wireless controllers.

The access points can be used in managed as well as autonomous* mode without a controller. The access points provide Radio Frequency spectrum analysis with detection and classification of non-IEEE 802.11 interference and has the ability to automatically avoid interference. Wireless security is comprehensive when operating with a controller; with integrated wireless IDS/IPS, support for internal and external authentication, authorization, and accounting (AAA) servers; built-in stateful firewall; per-user VLAN mapping; and authentication. Note: Autonomous mode support will be added later in 2014.

Features and benefits

Management

- **Wi-Fi Clear Connect**
  provides a system-wide approach to improving WLAN reliability by proactively determining and adjusting to changing RF conditions; helps optimize WLAN performance by detecting interference from Wi-Fi and non-Wi-Fi sources using spectrum analysis capabilities built into the access points, identifying rogue activity, and making decisions at a system-wide level.
- **Advanced radio resource management**
  - **Automatic radio power adjustments**
    include real-time power adjustments based on changing environmental conditions and signal coverage adjustment
  - **Automatic radio channel**
    provides intelligent channel switching and real-time Interference detection
  - **Intelligent client load balancing**
    determines number of clients across neighboring APs and adjusts client allocation to balance the load
  - **Airtime fairness**
    provides equal RF transmission time for wireless clients
- **Spectrum analysis**

Overview

- ○ **Power/frequency spectrum analysis**
  measures noise from IEEE 802.11 remote sources
- ○ **Signal detection/classification**
  identifies source of RF interference, for example, Bluetooth®, cordless phones, and microwave ovens
- ○ **Evaluation of channel quality**
  helps detect severe channel degradation and improve the reporting of poor RF performance
- **Integrated Wireless IDS/IPS**
  detects and locates and mitigates unknown and rogue devices (see controller datasheet for details)
- **Access point management**
  provides secure web browser (SSL and VPN), command-line interface, SNMP v2c, SNMP v3, MIB-II with traps, and RADIUS Authentication Client MIB (RFC 2618); offers embedded HTML management tool with secure access (SSL and VPN); implements scheduled configuration and firmware upgrades from a central controller
- **HP Intelligent Management Center and Wireless Services Manager Software**
  provides central management for discovery, logging, status, and configuration management
- **Diagnostics**
  records association, authentication, and DHCP events in client event log; packet capture tool for Ethernet and IEEE 802.11 interfaces (PCAP format); includes data rate matrix
- **Enhanced AP survivability**
  continues to operate using the old IP address while the AP searches for a new controller
- **Compatible with HP Unified Switches Controllers and Module**
  - ○ Refer to the HP Access Point—Controller Compatibility Matrix at http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA5-0345ENW&cc=us&lc=en
  - ○ Refer to the release notes for minimum version numbers required.
- **Compatible with HP MSM Controllers**
  - ○ HP MSM720, MSM760, MSM765 zl and MSM775 zl Controller support will come later in 2014.

Quality of Service (QoS)

- **Rate limiting**
  supports per-wireless client ingress-enforced maximums and per-wireless client, per-queue guaranteed minimums
- **Centralized traffic**
  maintains Layer 2 and Layer 3 QoS settings when using centralized traffic or guest access
- **IEEE 802.1p prioritization**
  delivers data to devices based on the priority and type of traffic
- **Wireless**
  - ○ **L2/L3/L4 classification**
    supports IEEE 802.1p VLAN priority, SpectraLink SVP, and DiffServ
  - ○ **Virtual Service Community (VSC)**
    assigns Wi-Fi MultiMedia (WMM), IEEE 802.11e EDCF, and Service-Aware priority
  - ○ **VoIP call capacity**
    supports 12 active calls per radio, maximum
- **SpectraLink Voice Priority (SVP) support**
  prioritizes SpectraLink voice IP packets sent from a SpectraLink NetLink SVP server to SpectraLink wireless voice handsets to help ensure excellent voice quality

Connectivity

- **IEEE 802.3 Power over Ethernet (PoE)**
  - ○ simplifies deployment and dramatically reduces installation costs by helping to eliminate the time and cost involved in supplying local power at each access point location

Overview

- ○ 802.3at the AP will operate with both radios at full performance, 3x3:3 MIMO mode
  - ○ 802.3af the 802.11a/n/ac 5 GHz radio will operate at full performance 3x3:3, while the 802.11b/g/n 2.4 GHz radio will run in 2x2:2 MIMO mode
- **Auto-MDIX**
  adjusts automatically for straight-through or crossover cables on the Ethernet interface

Mobility

- **Three spatial stream MIMO technology**
  provides the latest in Wi-Fi technology, which allows for 1.3Gb/s in the 5GHz frequency band and 450 Mb/s in the 2.4GHz band of signaling
- **Bandsteering**
  redirects 5 GHz-capable clients automatically to the less-congested 5 GHz spectrum
- **HP 560 embedded antennas**
  provides excellent coverage through use of embedded high-gain antennas (5 dBi antenna at 2.4 GHz and 7 dBi antenna at 5 GHz); no need for the added cost of external antennas
- **Anywhere, anytime wireless coverage**
  dual-radio IEEE 802.11b/g/n and 802.11a/n/ac access point; per-radio software-selectable configuration of frequency bands; self-healing, self-optimizing local mesh that extends network availability; Wi-Fi Alliance Certifications for interoperability with all IEEE 802.11a/b/g/n/ac client devices
- **Medical standards**
  meets the European EN60601-1-2 standard for healthcare
- **Virtual Service Communities (VSCs)**
  includes up to 16 SSIDs per radio, each with unique MAC address and configurable SSID broadcasts; individual security and QoS profiles per VSC; configurable DTIM and minimum data rate per VSC; VSCs that can be mapped to separate IEEE 802.1Q VLANs; WMM and/or WMM-PS; a security filter; and an IP filter
- **AP client access control functions**
  - ○ offers IEEE 802.1X authentication using EAP-SIM, EAP-FAST, EAP-TLS, EAP-TTLS, and PEAP delivers MAC address authentication using local or RADIUS access lists
  - ○ provides RADIUS AAA using EAP-MD5, PAP, CHAP, and MS-CHAPv2
  - ○ supports RADIUS Client (RFC 2865 and 2866) with location-aware support
  - ○ provides Layer 2 wireless client isolation

Security

- **Integrated IDS support**
  - ○ **Automated AP and client classification**
    reduces manual effort (administrator can override AP classification)
  - ○ **Comprehensive detection capabilities**
    detects a wide range of attacks
  - ○ **Flexible event reporting**
    enables configuration of which events will result in notifications
  - ○ **Location tracking capabilities**
    helps identify the rogue device location
  - ○ **Flexible deployment models**
    supports time slicing or dedicating a radio to detect full-time
  - ○ see the controller datasheet for more detail
- **IEEE 802.1X support**
  provides port-based user authentication with support for Extensible Authentication Protocol (EAP) MD5, TLS, TTLS, and PEAP with choice of AES, TKIP, and static or dynamic WEP encryption for protecting wireless traffic between authenticated clients and the ccess point

Overview

- **Choice of IEEE 802.11i, WPA2, or WPA**
  locks out unauthorized wireless access by authenticating users prior to granting network access; robust Advanced Encryption Standard (AES) or Temporal Key Integrity Protocol (TKIP) encryption secures the data integrity of wireless traffic
- **TKIP/WEP encryption**
  is supported only on legacy IEEE 802.11a/b/g clients as it has been deprecated from the IEEE 802.11n and 802.11ac standards
- **Local wireless bridge client traffic filtering**
  prevents communication between wireless devices associated with the same access point

Additional information

- **RFC support**
  refer to the "Mobility Specification Sheet" for a list of RFCs and other industry standards supported by the MSM solution at
  http://h17007.www1.hp.com/docs/mobility/4AA3-3883ENW.pdf

Warranty and support

- **Lifetime Warranty 2.0**
  advance hardware replacement for as long as you own the product with next-business-day delivery (available in most countries)
- **Electronic and telephone support**
  24x7 telephone support is available from HP for the first 3 years; limited electronic and business hours telephone support is available from HP for the entire warranty period; to reach our support centers, refer to **www.hp.com/networking/contact-support**; for details on the duration of support provided with your product purchase, refer to **www.hp.com/networking/warrantysummary**
- **Software releases**
  to find software for your product, refer to **www.hp.com/networking/support**; for details on the software releases available with your product purchase, refer to **www.hp.com/networking/warrantysummary**

†HP warranty includes repair or replacement of hardware for as long as you own the product, with next business day advance replacement (available in most countries). The disk drive included with HP AllianceOne Advanced Services and Services zl Modules, HP Threat Management Services zl Module, HP AllianceOne Extended zl Module with Riverbed Steelhead, HP MSM765 zl Mobility Controller and HP Survivable Branch Communication zl Module powered by Microsoft® Lync has a five-year hardware warranty. For details, refer to the Software license and hardware warranty statements at www.hp.com/networking/warranty.

Technical Specifications

HP 560 Wireless Dual Radio 802.11ac (AM) Access Point (J9845A)
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I/O ports and slots	1 RJ-45 autosensing 10/100/1000 port (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	
Additional ports and slots	1 RJ-45 serial console port	
AP characteristics	Radios (built-in)	802.11b/g/n, a/n/ac
	Radio operation modes	Client access, Local mesh, Packet capture
	AP operation modes	Controlled
	Wi-Fi Alliance Certification	a/b/g/n/ac Wi-Fi Certified
	Antenna	(3) 5 dBi 2.4 GHz and (3) 7 dBi 5 GHz
	Number of internal antennas	6
Physical characteristics	Dimensions	8(w) x 6.75(d) x 2.62(h) in (20.32 x 17.15 x 6.65 cm)
	Weight	2.25 lb (1.02 kg) mounting bracket
Memory and processor	Dual core @ 800 MHz, 128 MB flash, 256 MB	
Mounting and enclosure	Indoor, plenum rated; Includes two ceiling mounting clips	
Environment	Operating temperature	32°F to 122°F (0°C to 50°C)
	Operating relative humidity	5% to 95%, noncondensing
	Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/ Storage relative humidity	5% to 95%, noncondensing
	Altitude	up to 10,000 ft (3 km)
Electrical characteristics	Description	IEEE 802.3af/802.3at PoE compliant for Gigabit Ethernet
	Maximum power rating	14 W
	PoE power	13 W PoE+
	Notes	With 802.3af PoE, the 2.4GHz radio will operate in 2x2:2 MIMO mode, < 12.9watts; With 802.3at PoE+, both radios will operate in 3x3:3 MIMO mode, < 14watts
Frequency band and Operating channels	Americas	2.412 - 2.462 GHz (1 - 11 channels) 5.180 - 5.320 GHz (36 - 64 channels) 5.500 - 5.700 GHz (100 - 144 (excluding 5600-5670 MHz) channels) 5.745 - 5.825 GHz (149 - 165 channels)
	European Union	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.320 GHz (36 - 64 channels) 5.500 - 5.700 GHz (100 - 140 (excluding 5600-5650 MHz) channels)
	Rest of World (Actual channels designated by selecting country in UI)	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.320 GHz (36 - 64 channels) 5.500 - 5.700 GHz (100 - 144 channels) 5.745 - 5.825 GHz (149 - 165 channels)

Technical Specifications

	Taiwan	2.412 - 2.462 GHz (1 - 11 channels) 5.280 - 5.320 GHz (56 - 64 channels) 5.500 - 5.700 GHz (100 - 144 (excluding 5600-5670 MHz) channels) 5.745 - 5.825 GHz (149 - 165 channels)
	Japan	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.320 GHz (36 - 64 channels) 5.500 - 5.700 GHz (100 - 140 channels)
	Israel	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.320 GHz (36 - 64 channels)
Radio		FCC Part 15.247; FCC Part 15.407 (US); RSS-210 (Canada); EN 300 328; ARIB STD-T66; IDA Registration (Singapore); RCR STD-33; ARIB STD-T71 (Japan); EN 301 893 (EU); KCC approval (Korea)
Safety		UL 2043; UL 60950-1; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1
Medical		EN60601-1-2
RF Exposure		FCC Bulletin OET-65C; RSS-102; CFR 47, Part 2, Subpart J; ANSI/IEEE C95.1 (99); Ministry of Health Safety Code 6; Australian Radiation Protection Std.
Features		Dual radio: IEEE 802.11a/n/ac for very high-throughput applications and IEEE 802.11b/g/n for legacy support and high-speed applications - Integrated antennas for both IEEE radios, supporting three spatial streams and 3x3 MIMO - Six embedded antennas - Both radios operate at full functionality with IEEE 802.3at PoE+ power - The 2.4GHz 802.11b/g/n radio operates at 2x2:2 mode with 802.3af power, while the 5GHz 802.11ac radio operates at full fuinctionality
Revise Series Specs (Web only)		1 RJ-45 autosensing 10/100/1000 port 802.11b/g/n, a/n/ac IEEE 802.11 a/b/g/n/ac (3) 5 dBi 2.4 GHz and (3) 7 dBi 5 GHz 6
Emissions		55022 Class B; EN 301 489-1; EN 301 489-17; ICES-003 Class B; FCC Part 15, Class B
Notes		Supported data rates • 802.11b: 1, 2, 5.5, 11 Mbps • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: 6.5 to 450 Mbps (MCS0 to MCS23, 1 to 3 spatial streams) • 802.11ac: 6.5 Mbps to 1.3Gbps (MCS0 to MCS9, 1 to 3 spatial streams) • 802.11n high-throughput (HT) 20/40 • 802.11ac very high throughput (VHT) 20/40/80 • 802.11n/ac packet aggregation A-MPDU and A-MSDU The HP 560 access point power information listed includes the embedded antenna. The software will automatically adjust the maximum power levels based on the country of operation. Three spatial stream AP, supporting 450 Mb/s on the 2.4GHz band and 1.3GHz on the 5GHz band. Maximum transmit power varies by country. Regulatory model number for the HP 560 Access Point - MRLBB-1304 • 802.11n Radio - MRLBB-1003 • 802.11ac Radio - MRLBB-1303
Services		Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

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Radio characteristics
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Note: This transmit power data is EIRP and includes the embedded antennas. The receiver sensitivity also includes the antenna gain.

IEEE 802.11ac 5GHz @ 80MHz channel	Data rate	MCS9 - 1300 Mbps	MCS0 - 97.5 Mbps		
	Receiver sensitivity	-67 dBm	-94 dBm		
	Transmit power	25 dBm	29 dBm		
IEEE 802.11n 5GHz @ 40MHz channel	Data rate	MCS23 - 450 Mbps	MCS16 - 45 Mbps		
	Receiver sensitivity	-77 dBm	-97 dBm		
	Transmit power	27 dBm	29 dBm		
IEEE 802.11n 5GHz @ 20MHz channel	Data rate	MCS23 - 144 Mbps	MCS16 - 14.4 Mbps		
	Receiver sensitivity	-80 dBm	-100 dBm		
	Transmit power	27 dBm	29 dBm		
IEEE 802.11n 2.4GHz @ 40MHz channel	Data rate	MCS23 - 450 Mbps	MCS16 - 45 Mbps		
	Receiver sensitivity	-82 dBm	-97 dBm		
	Transmit power	20 dBm	20 dBm		
IEEE 802.11n 2.4GHz @ 20MHz channel	Data rate	MCS23 - 144 Mbps	MCS16 - 14.4 Mbps		
	Receiver sensitivity	-84 dBm	-100 dBm		
	Transmit power	20 dBm	20 dBm		
IEEE 802.11a 5GHz	Data rate	54 Mbps	6 Mbps		
	Receiver sensitivity	-83 dBm	-100 dBm		
	Transmit power	29 dBm	29 dBm		
IEEE 802.11b/g 2.4 GHz	Data rate	54 Mbps	11 Mbps	6 Mbps	1 Mbps
	Receiver sensitivity	-85 dBm	-99 dBm	-95 dBm	-100 dBm
	Transmit power	20 dBm	20 dBm	20 dBm	26 dBm

Technical Specifications

Standards and Protocols
(applies to all products in series)

Mobility
IEEE 802.11a High Speed Physical Layer in the 5 GHz Band
IEEE 802.11ac WLAN Enhancements for Very High Throughput
IEEE 802.11b Higher-Speed Physical Layer Extension in the 2.4 GHz Band
IEEE 802.11d Global Harmonization
IEEE 802.11g Further Higher Data Rate Extension in the 2.4 GHz Band
IEEE 802.11h Dynamic Frequency Selection
IEEE 802.11i Medium Access Control (MAC) Security Enhancements
IEEE 802.11n WLAN Enhancements for Higher Throughput

Accessories

HP 560 802.11ac Dual Radio Access Point Series accessories

Power Supply

HP 1-port Power Injector	J9407B
HP Single-Port 802.3at Gigabit PoE In-Line Power Supply	J9867A

To learn more, visit www.hp.com/networking