Overview

Key features

- First three-spatial stream MIMO AP in the industry
- Up to 450 Mb/s per radio on MSM460 and MSM466/MSM466-R access points
- Support for a range of indoor and outdoor antennas for the MSM466 and outdoor MSM466-R access points
- Comprehensive WLAN security
- Indoor APs include Lifetime hardware Warranty 2.0 with 24x7 phone support for three years

Product overview

Working in unison with HP controllers, the HP 802.11n Dual Radio Access Point Series delivers high-performance networking solutions. The enhanced controller architecture scales to IEEE 802.11n without requiring a controller replacement. The controller provides advanced radio resource management (RRM), including client load balancing and interference mitigation. The HP wireless controllers support a fast-roaming capability—an important feature, especially for VoIP communications.

The access points can be used in managed as well as autonomous mode without a controller. The access points provide RF spectrum analysis with detection and classification of non-IEEE 802.11 interference and have the ability to automatically avoid interference. Wireless security is comprehensive with integrated Wireless IDS and support for internal and external authentication, authorization, and accounting (AAA) servers; built-in stateful firewall; per-user VLAN mapping; and authentication.

In addition to working with the HP MSM controllers, these access points work with the new HP 10500/7500 20G Unified Wired-WLAN Module, the HP 800 Series Unified Wired-WLAN Switch, and the HP WX5002/5004 wireless controllers.

Features and benefits

Management

- **Wi-Fi Clear Connect**
  provides a system-wide approach to improve 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**
  - **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 IDS (Premium Mobility version required)**

Overview

detects and locates unknown and rogue devices

- **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**
  client event log records association, authentication, and DHCP events; 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 controllers, unified switches, and modules**
  - HP MSM710, MSM720, MSM760, and MSM765 zl Controllers; min. software version 5.5
  - HP WX5000 Access Controllers; min. software version CMW520-R2308P18
  - HP 10500/7500 20G Unified Wired-WLAN Module; min. software version CMW520-R6708 on 7500 switch
  - HP 10500/7500 20G Unified Wired-WLAN Module; min. software version CMW520-R1208 on 10500 switch
  - HP 830 Unified Wired-WLAN Switch Series controllers, min. software version CMW520-R3308P19

Quality of Service (QoS)

- **Rate limiting**
  supports per-wireless client ingress-enforced maximums and per-wireless client, per-queue guaranteed minimums
- **Centralized traffic**
  Layer 2 and Layer 3 QoS settings are maintained when using Mobility Traffic Manager or guest access
- **IEEE 802.1p prioritization**
  delivers data to devices based on the priority and type of traffic
- **Wireless**
  - **L2/L3/L4 classification**
    IEEE 802.1p VLAN priority, SpectraLink SVP, and DiffServ
  - **Assigned by VSC**
    Wi-Fi MultiMedia (WMM), IEEE 802.11e EDCF, and Service-Aware priority
  - **Maximum VoIP call capacity**
    12 active calls on IEEE 802.11 a/b/g/n
- **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 802.3af Power over Ethernet (PoE) support**
  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
- **Auto-MDIX**
  automatically adjusts 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 450 Mbps of signaling per radio; delivers potentially more than a 50 percent increase in performance over any two spatial stream product

Overview

- **Beamforming**
  provides better coverage area and better performance at distances from the AP
- **Bandsteering**
  redirects 5 GHz-capable clients automatically to the less-congested 5 GHz spectrum
- **Concurrent operation in the 5 GHz band**
  provides the ability to run both radios in the 5 GHz band for outstanding performance (MSM466 and MSM466-R access points only)
- **MSM430 and MSM 460 AP antennas**
  embedded high-gain antennas (4 dBi antenna at 2.4 GHz and 7 dBi antenna at 5 GHz) provide excellent coverage without the added cost of external antennas
- **MSM466 and MSM466-R access points**
  - **Optional external antennas options**
    MSM466 access point includes six indoor RP-SMA connectors; MSM466-R access point includes six outdoor standard N connectors
  - **Two indoor ceiling mount antennas**
    provide good coverage when embedded antennas are not an option
  - **Outdoor IP67-rated antennas**
    two omnidirectional and two directional MIMO antennas are weatherproof IP67 tested for point-to-point, multipoint, mesh, and outdoor coverage
- **Anywhere, anytime wireless coverage**
  includes dual-radio IEEE 802.11a/b/g/n and 802.11a/n access points; 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 client devices; and IEEE 802.3af PoE
- **Medical standards**
  meets the European EN60601-1-2 standard for healthcare
- **Virtual Service Communities (VSCs)**
  includes up to 16 SSIDs, 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

- **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 location of the rogue device
  - **Flexible deployment models**
    supports time slicing or dedicating a radio to detect fulltime
- **IEEE 802.1X support**
  provides port-based user authentication with support for Extensible Authentication Protocol (EAP) MD5, TLS, TTLS, and PEAP

Overview

with choice of AES, TKIP, and static or dynamic WEP encryption for protecting wireless traffic between authenticated clients and the access point

- **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 standard
- **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**
  for indoor access points, advance hardware replacement for as long as you own the product with next-business-day delivery (available in most countries)†
- **Electronic and telephone support (for Lifetime Warranty 2.0)**
  for indoor access points, limited 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
- **1-year Warranty 2.0**
  for outdoor access points, advance hardware replacement with next-business-day delivery (available in most countries)
- **Electronic and telephone support (for Warranty 2.0)**
  for outdoor access points, limited electronic and 24x7 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 MSM765zl 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.

Configuration

Build To Order:

BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.

MSM430 Dual Radio 802.11n AP (AM) — J9650B
- 1 RJ-45 autosensing 10/100/1000 port

HP MSM430 Dual Radio 802.11n Access Point (WW) — J9651A
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:2

MSM430 Dual Radio 802.11n AP (WW) — J9651B
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:2

HP MSM430 Dual Radio 802.11n Access Point (JP) — J9652A
- 1 RJ-45 autosensing 10/100/1000 port

MSM430 Dual Radio 802.11n AP (JP) — J9652B
- 1 RJ-45 autosensing 10/100/1000 port

HP MSM430 Dual Radio 802.11n Access Point (IL) — J9653A
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:3

MSM430 Dual Radio 802.11n AP (IL) — J9653B
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:3

HP MSM460 Dual Radio 802.11n Access Point (AM) — J9590A
- 1 RJ-45 autosensing 10/100/1000 port

MSM460 Dual Radio 802.11n AP (AM) — J9590B
- 1 RJ-45 autosensing 10/100/1000 port

HP MSM460 Dual Radio 802.11n Access Point (WW) — J9591A
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:2

MSM460 Dual Radio 802.11n AP (WW) — J9591B
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:2

HP MSM460 Dual Radio 802.11n Access Point (JP) — J9589A

Configuration

- 1 RJ-45 autosensing 10/100/1000 port

MSM460 Dual Radio 802.11n AP (JP) — J9589B
- 1 RJ-45 autosensing 10/100/1000 port

HP MSM460 Dual Radio 802.11n Access Point (IL) — J9618A
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:3

MSM460 Dual Radio 802.11n AP (IL) — J9618B
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:3

HP MSM466 Dual Radio 802.11n Access Point (AM) — J9621A
- 1 RJ-45 autosensing 10/100/1000 port

MSM466 Dual Radio 802.11n AP (AM) — J9621B
- 1 RJ-45 autosensing 10/100/1000 port

HP MSM466 Dual Radio 802.11n Access Point (WW) — J9622A
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:2

MSM466 Dual Radio 802.11n AP (WW) — J9622B
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:2

HP MSM466 Dual Radio 802.11n Access Point (JP) — J9620A
- 1 RJ-45 autosensing 10/100/1000 port

MSM466 Dual Radio 802.11n AP (JP) — J9620B
- 1 RJ-45 autosensing 10/100/1000 port

HP MSM466 Dual Radio 802.11n Access Point (IL) — J9619A
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:3

MSM466 Dual Radio 802.11n AP (IL) — J9619B
- 1 RJ-45 autosensing 10/100/1000 port

See Configuration Note:3

HP MSM466-R Dual Radio Outdoor 802.11n Access Point (AM) — J9715A
- 1 RJ-45 autosensing 10/100/1000 port

HP MSM466-R Dual Radio Outdoor 802.11n Access Point (WW) — J9716A

Configuration

- 1 RJ-45 autosensing 10/100/1000 port — See Configuration Note:2

HP MSM466-R Dual Radio Outdoor 802.11n Access Point (JP) — J9717A
- 1 RJ-45 autosensing 10/100/1000 port

HP MSM466-R Dual Radio Outdoor 802.11n Access Point (IL) — J9718A
- 1 RJ-45 autosensing 10/100/1000 port — See Configuration Note:3

Configuration Rules:

Note 2 Not available Israel. (Warning in Clic only)

Note 3 Only available in Israel. (Warning in Clic only)

Access Point Options

External Power Supplies	HP 1-port Power Injector	J9407B
External Antenna	HP Indoor Omnidirectional Dual Band 2.5/6dBi MIMO 6 Element Antenna	J9659A See Configuration Note:1
	HP Indoor Omnidirectional Dual Band 3/4dBi MIMO 3 Element Antenna	J9171A See Configuration Note:1
	HP Indoor-Outdoor Narrow Sector Dual Band 8/10dBi MIMO 3 Element Antenna	J9169A See Configuration Note:1, 4
	HP Indoor-Outdoor Point-to-Point Dual Band 10/13dBi MIMO 3 Element Antenna	J9170A See Configuration Note:1, 4
	HP Antenna Lightning Arrester	J8996A See Configuration Note:1

Configuration

HP Outdoor Omnidirectional 6dBi at 2.4GHz MIMO 3 Element Antenna	J9719A See Configuration Note:2, 3
HP Outdoor Omnidirectional 8dBi at 5GHz MIMO 3 Element Antenna	J9720A See Configuration Note:2, 3

Configuration Rules:

Note 1	This Antenna is supported on the following Access Points:	
	HP MSM466 Dual Radio 802.11n Access Point (JP)	J9620A
	MSM466 Dual Radio 802.11n AP (JP)	J9620B
	HP MSM466 Dual Radio 802.11n Access Point (AM)	J9621A
	MSM466 Dual Radio 802.11n AP (AM)	J9621B
	HP MSM466 Dual Radio 802.11n Access Point (WW)	J9622A
	MSM466 Dual Radio 802.11n AP (WW)	J9622B
	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (AM)	J9715A
	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (WW)	J9716A
	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (JP)	J9717A
	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (IL)	J9718A
	HP MSM466 Dual Radio 802.11n Access Point (IL)	J9619A
	MSM466 Dual Radio 802.11n AP (IL)	J9619B
Note 2	This Antenna is supported on the following Access Points:	
	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (AM)	J9715A
	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (WW)	J9716A
	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (JP)	J9717A
	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (IL)	J9718A
Note 3	If this Antenna is select then THREE of the following Lightning Arresters per sku ordered is required:	
	HP Antenna Lightning Arrester	J8996A
Note 4	If this Antenna is select then THREE of the following Lightning Arresters per sku ordered is required for Outdoor use:	
	HP Antenna Lightning Arrester	J8996A
Remarks:	If you plan on connecting an outdoor antenna to the unit make sure that proper lightning surge protection and grounding precautions are taken according to local electrical code.	

Technical Specifications

HP MSM430 Dual Radio 802.11n Access Point (AM) (J9650A) **HP MSM430 Dual Radio 802.11n Access Point (WW)** (J9651A) **HP MSM430 Dual Radio 802.11n Access Point (JP)** (J9652A) **HP MSM430 Dual Radio 802.11n Access Point (IL)** (J9653A) **HP MSM430 Dual Radio 802.11n Access Point** (TAA) (J9654A)	**Ports**	1 RJ-45 autosensing 10/100/1000 port; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T) 1 RJ-45 serial console port	
	AP characteristics	**Radios (built-in)**	802.11 a/n, b/g
		Radio operation modes	Client access, Local mesh, Packet capture
		AP operation modes	Autonomous and controlled
		Wi-Fi Alliance Certification*	a/b/g/n Wi-Fi Certified
		Antenna	(3) 4 dBi 2.4 GHz and (3) 7 dBi 5 GHz omnidirectional ant
		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 SDRAM	
	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
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
	Electrical characteristics	**Description**	IEEE 802.3af PoE compliant for Gigabit Ethernet
		Maximum power rating	12.9 W
	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 - 140 (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 - 140 channels) 5.745 - 5.825 GHz (149 - 165 channels)

	Taiwan	2.412 - 2.462 GHz (1 - 11 channels) 5.280 - 5.320 GHz (56 - 64 channels) 5.500 - 5.700 GHz (100 - 140 (excluding 5600-5670 MHz) 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
Emissions		EN 55022 Class B; EN 301 489-1; EN 301 489-17; ICES-003 Class B; FCC Part 15, Class B
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 for high-throughput applications and IEEE 802.11b/g/n for legacy support and high-speed applications - Integrated antennas for both IEEE radios, supporting two spatial streams and 3x3 MIMO - Six embedded antennas - Both radios operate at full power and full performance on IEEE 802.3af PoE/Gigabit Ethernet
Notes		The MSM430 and MSM460 access point power information listed includes the embedded antenna. Review the HP documentation for your AP to understand the maximum output setting for your AP based on your country's regulations. Two spatial stream AP, supporting 300 Mb/s per radio. Maximum transmit power varies by country. Regulatory model number: MRLBB-1001
Services		3-year, 4-hour onsite, 13x5 coverage for hardware (UN683E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UY966E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UY967E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UN684E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UY968E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UN686E) 3-year, 24x7 SW phone support, software updates (UY969E) 3-year, 24x7 SW phone support, software updates (UN685E) 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR624E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR625E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR626E) 4-year, 4-hour onsite, 13x5 coverage for hardware (US013E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UY976E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UY977E)

4-year, 4-hour onsite, 24x7 coverage for hardware (US014E)
4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UY978E)
4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (US015E)
4-year, 24x7 SW phone support, software updates (UY979E)
4-year, 24x7 SW phone support, software updates (US016E)
5-year, 4-hour onsite, 13x5 coverage for hardware (US017E)
5-year, 4-hour onsite, 13x5 coverage for hardware (UY986E)
5-year, 4-hour onsite, 24x7 coverage for hardware (UY987E)
5-year, 4-hour onsite, 24x7 coverage for hardware (US018E)
5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UY988E)
5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (US019E)
5-year, 24x7 SW phone support, software updates (UY989E)
5-year, 24x7 SW phone support, software updates (US020E)
3 Yr 6 hr Call-to-Repair Onsite (UW416E)
3 Yr 6 hr Call-to-Repair Onsite (UY970E)
4 Yr 6 hr Call-to-Repair Onsite (UW417E)
4 Yr 6 hr Call-to-Repair Onsite (UY980E)
5 Yr 6 hr Call-to-Repair Onsite (UW418E)
5 Yr 6 hr Call-to-Repair Onsite (UY990E)
1-year, 6 hour Call-To-Repair Onsite for hardware (HR628E)
1-year, 24x7 software phone support, software updates (HR627E)
1-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV110E)
1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HV111E)
3-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV112E)
3-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HV113E)
4-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV114E)
4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HV115E)
5-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV116E)
5-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HV117E)

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.

Technical Specifications

NOTE: These radio characteristics apply to the MSM430 and MSM460 access points, including the embedded antenna.

IEEE 802.11n 5 GHz @ 40 MHz channel		
Data rate	MCS0, MCS8, MCS16 45 Mbps	MCS7, MCS15, MCS23 450 Mbps
Receiver sensitivity	-97 dBm	-80 dBm
Transmit power	24 dBm	19 dBm
802.11n 5 GHz @ 20 MHz channel		
Data rate	MCS0, MCS8, MCS16 21.7 Mbps	MCS7, MCS15, MCS23 216.7 Mbps
Receiver sensitivity	-100 dBm	-84 dBm
Transmit power	24 dBm	19 dBm
IEEE 802.11n 2.4 GHz @ 40 MHz channel		
Data rate	MCS0, MCS8, MCS16 45 Mbps	MCS7, MCS15, MCS23 450 Mbps
Receiver sensitivity	-95 dBm	-80 dBm
Transmit power	25 dBm	21dBm
IEEE 802.11n 2.4 GHz @ 20 MHz channel		
Data rate	MCS0, MCS8, MCS16 21.7 Mbps	MCS7, MCS15, MCS23 216.7 Mbps
Receiver sensitivity	-98 dBm	-82 dBm
Transmit power	25 dBm	22 dBm
IEEE 802.11a 5 GHz		
Data rate	6 Mbps	54 Mbps
Receiver sensitivity	-100 dBm	-87 dBm
Transmit power	27 dBm	25 dBm

Technical Specifications

IEEE 802.11b/g 2.4 GHz

Data rate	1 Mbps	11 Mbps	6 Mbps	54 Mbps
Receiver sensitivity	-100 dBm	-95 dBm	-99 dBm	-85 dBm
Transmit power	20 dBm	20 dBm	20 dBm	20 dBm

MCS Index	**800 nS Guard Interval**		**400 nS Guard Interval**	
	20 MHz Rate (Mbps)	40 MHz Rate (Mbps)	20 MHz Rate (Mbps)	40 MHz Rate (Mbps)
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	157.5
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300
16	19.5	40.5	21.7	45
17	39	81	43.4	90
18	58.5	121.5	65	135
19	78	162	86.7	180
20	117	243	130	270
21	156	324	173.3	360
22	178.5	364	195	405
23	195	405	216.7	450

HP MSM460 Dual Radio 802.11n Access Point (AM) (J9590A)

HP MSM460 Dual Radio 802.11n Access Point (WW) (J9591A)

HP MSM460 Dual Radio 802.11n Access Point (JP) (J9592A)

Ports

1 RJ-45 autosensing 10/100/1000 port; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T)

1 RJ-45 serial console port

AP characteristics

Radios (built-in)	802.11 a/n, b/g/n
Radio operation modes	Client access, Local mesh, Packet capture
AP operation modes	Autonomous and controlled
Wi-Fi Alliance Certification	a/b/g/n Wi-Fi Certified

Technical Specifications

(J9589A)

HP MSM460 Dual Radio 802.11n Access Point (IL) (J9618A)

HP MSM460 Dual Radio 802.11n Access Point (TAA) (J9655A)

	Antenna	(3) 4 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 SDRAM	
Mounting	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
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 95%, noncondensing
Electrical characteristics	**Description**	IEEE 802.3af PoE compliant for Gigabit Ethernet
	Maximum power rating	12.9 W
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 - 140 (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 - 140 channels) 5.745 - 5.825 GHz (149 - 165 channels)
	Taiwan	2.412 - 2.462 GHz (1 - 11 channels) 5.280 - 5.320 GHz (56 - 64 channels) 5.500 - 5.700 GHz (100 - 140 (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	

Technical Specifications

Emissions	EN 55022 Class B; EN 301 489-1; EN 301 489-17; ICES-003 Class B; FCC Part 15, Class B
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 for 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 reaching 450 Mb/s per radio - Six embedded antennas - Both radios operate at full power and full performance on IEEE 802.3af PoE/Gigabit Ethernet
Notes	The MSM430 and MSM460 access point power information listed includes the embedded antenna. Review the HP documentation for your AP to understand the maximum output setting for your AP based on your country's regulations. Three spatial stream AP, supporting 450 Mb/s per radio. Maximum transmit power varies by country. Regulatory model number: MRLBB-1001
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (UN683E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UY961E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UY962E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UN684E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UY963E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UN686E) 3-year, 24x7 SW phone support, software updates (UY964E) 3-year, 24x7 SW phone support, software updates (UN685E) 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR619E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR620E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR621E) 4-year, 4-hour onsite, 13x5 coverage for hardware (US013E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UY971E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UY972E) 4-year, 4-hour onsite, 24x7 coverage for hardware (US014E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UY973E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (US015E) 4-year, 24x7 SW phone support, software updates (UY974E) 4-year, 24x7 SW phone support, software updates (US016E) 5-year, 4-hour onsite, 13x5 coverage for hardware (US017E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UY981E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UY982E) 5-year, 4-hour onsite, 24x7 coverage for hardware (US018E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UY983E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (US019E)

5-year, 24x7 SW phone support, software updates (UY984E)
5-year, 24x7 SW phone support, software updates (US020E)
3 Yr 6 hr Call-to-Repair Onsite (UW416E)
3 Yr 6 hr Call-to-Repair Onsite (UY965E)
4 Yr 6 hr Call-to-Repair Onsite (UW417E)
4 Yr 6 hr Call-to-Repair Onsite (UY975E)
5 Yr 6 hr Call-to-Repair Onsite (UW418E)
5 Yr 6 hr Call-to-Repair Onsite (UY985E)
1-year, 6 hour Call-To-Repair Onsite for hardware (HR623E)
1-year, 24x7 software phone support, software updates (HR622E)
1-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV118E)
1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HV119E)
3-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV120E)
3-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HV121E)
4-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV122E)
4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HV123E)
5-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV124E)
5-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HV125E)

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.

NOTE: These radio characteristics apply to the MSM430 and MSM460 access points, including the embedded antenna.

IEEE 802.11n 5 GHz @ 40 MHz channel		
Data rate	MCS0, MCS8, MCS16 45 Mbps	MCS7, MCS15, MCS23 450 Mbps
Receiver sensitivity	-97 dBm	-80 dBm
Transmit power	24 dBm	19 dBm
802.11n 5 GHz @ 20 MHz channel		
Data rate	MCS0, MCS8, MCS16 21.7 Mbps	MCS7, MCS15, MCS23 216.7 Mbps
Receiver sensitivity	-100 dBm	-84 dBm
Transmit power	24 dBm	19 dBm
IEEE 802.11n 2.4 GHz @ 40 MHz channel		

Technical Specifications

Data rate	MCS0, MCS8, MCS16 45 Mbps	MCS7, MCS15, MCS23 450 Mbps
Receiver sensitivity	-95 dBm	-80 dBm
Transmit power	25 dBm	21dBm
IEEE 802.11n 2.4 GHz @ 20 MHz channel		
Data rate	MCS0, MCS8, MCS16 21.7 Mbps	MCS7, MCS15, MCS23 216.7 Mbps
Receiver sensitivity	-98 dBm	-82 dBm
Transmit power	25 dBm	22 dBm
IEEE 802.11a 5 GHz		
Data rate	6 Mbps	54 Mbps
Receiver sensitivity	-100 dBm	-87 dBm
Transmit power	27 dBm	25 dBm

IEEE 802.11b/g 2.4 GHz				
Data rate	1 Mbps	11 Mbps	6 Mbps	54 Mbps
Receiver sensitivity	-100 dBm	-95 dBm	-99 dBm	-85 dBm
Transmit power	20 dBm	20 dBm	20 dBm	20 dBm

MCS Index	**800 nS Guard Interval**		**400 nS Guard Interval**	
	20 MHz Rate (Mbps)	40 MHz Rate (Mbps)	20 MHz Rate (Mbps)	40 MHz Rate (Mbps)
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	157.5
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300
16	19.5	40.5	21.7	45
17	39	81	43.4	90

Technical Specifications

18	58.5	121.5	65	135
19	78	162	86.7	180
20	117	243	130	270
21	156	324	173.3	360
22	178.5	364	195	405
23	195	405	216.7	450

HP MSM466 Dual Radio 802.11n Access Point (AM) (J9621A) **HP MSM466 Dual Radio 802.11n Access Point (WW)** (J9622A) **HP MSM466 Dual Radio 802.11n Access Point (JP)** (J9620A) **HP MSM466 Dual Radio 802.11n Access Point (IL)** (J9619A) **HP MSM466 Dual Radio 802.11n Access Point (TAA)** (J9656A)	**Ports**	1 RJ-45 autosensing 10/100/1000 port; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T) 1 RJ-45 serial console port	
	AP characteristics	**Radios (built-in)**	802.11 a/n, a/b/g/n
		Radio operation modes	Client access, Local mesh, Packet capture
		AP operation modes	Autonomous and controlled
		Wi-Fi Alliance Certification	a/b/g/n Wi-Fi Certified
		Antenna	External antennas only; six RP-SMA connectors
		Number of external 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 SDRAM	
	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
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
	Electrical characteristics	**Description**	IEEE 802.3af PoE compliant for Gigabit Ethernet
		Maximum power rating	12.9 W
	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 - 140 (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 - 140 channels) 5.745 - 5.825 GHz (149 - 165 channels)
	Taiwan	2.412 - 2.462 GHz (1 - 11 channels) 5.280 - 5.320 GHz (56 - 64 channels) 5.500 - 5.700 GHz (100 - 140 (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
Emissions		EN 55022 Class B; EN 301 489-1; EN 301 489-17; ICES-003 Class B; FCC Part 15, Class B
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.; To ensure compliance with various national and international Electromagnetic Field (EMF) standards, this device should only be operated with HP-approved antennas and accessories.
Features		Dual radio: IEEE 802.11a/n for high-throughput applications and IEEE 802.11a/b/g/n for legacy support and high-speed applications - Both IEEE radios, supporting three spatial streams and 3x3 MIMO reaching 450 Mb/s per radio. - Six RP-SMA connectors for external MIMO antennas - Both radios operate at full power and full performance on IEEE 802.3af PoE/Gigabit Ethernet - Both radios can operate in the 5 GHz band for the highest performance
Notes		The MSM466 and MSM466-R access point power information listed does not include an antenna. Review the HP documentation for your AP to understand the maximum output setting for your AP based on your country's regulations. Three spatial stream AP, supporting 450 Mb/s per radio. Maximum transmit power varies by country. When used with an HP MIMO outdoor antenna, the AP requires a RP-SMA to N Type adapter/cable (available separately). Outdoor antennas should be installed by a professional installer with proper grounding and lightning protection. Regulatory model number: MRLBB-1002
Services		3-year, 4-hour onsite, 13x5 coverage for hardware (UN683E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UY961E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UY962E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UN684E)

3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UY963E)
3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UN686E)
3-year, 24x7 SW phone support, software updates (UY964E)
3-year, 24x7 SW phone support, software updates (UN685E)
1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR619E)
1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR620E)
1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR621E)
4-year, 4-hour onsite, 13x5 coverage for hardware (US013E)
4-year, 4-hour onsite, 13x5 coverage for hardware (UY971E)
4-year, 4-hour onsite, 24x7 coverage for hardware (UY972E)
4-year, 4-hour onsite, 24x7 coverage for hardware (US014E)
4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UY973E)
4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (US015E)
4-year, 24x7 SW phone support, software updates (UY974E)
4-year, 24x7 SW phone support, software updates (US016E)
5-year, 4-hour onsite, 13x5 coverage for hardware (US017E)
5-year, 4-hour onsite, 13x5 coverage for hardware (UY981E)
5-year, 4-hour onsite, 24x7 coverage for hardware (UY982E)
5-year, 4-hour onsite, 24x7 coverage for hardware (US018E)
5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UY983E)
5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (US019E)
5-year, 24x7 SW phone support, software updates (UY984E)
5-year, 24x7 SW phone support, software updates (US020E)
3 Yr 6 hr Call-to-Repair Onsite (UW416E)
3 Yr 6 hr Call-to-Repair Onsite (UY965E)
4 Yr 6 hr Call-to-Repair Onsite (UW417E)
4 Yr 6 hr Call-to-Repair Onsite (UY975E)
5 Yr 6 hr Call-to-Repair Onsite (UW418E)
5 Yr 6 hr Call-to-Repair Onsite (UY985E)
1-year, 6 hour Call-To-Repair Onsite for hardware (HR623E)
1-year, 24x7 software phone support, software updates (HR622E)
1-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV118E)
1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HV119E)
3-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV120E)
3-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HV121E)
4-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV122E)
4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HV123E)
5-year, 24x7 software phone support, software updates + Next Business Day

Hardware Exchange (HV124E)
5-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HV125E)

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.

NOTE: These radio characteristics apply to the MSM466 and MSM466-R access points and exclude any external antenna.

IEEE 802.11n 5 GHz @ 40 MHz channel		
Data rate	MCS0, MCS8, MCS16 45 Mbps	MCS7, MCS15, MCS23 450 Mbps
Receiver sensitivity	-90 dBm	-73 dBm
Transmit power	17 dBm	12 dBm
IEEE 802.11n 5 GHz @ 20 MHz channel		
Data rate	MCS0, MCS8, MCS16 21.7 Mbps	MCS7, MCS15, MCS23 216.7 Mbps
Receiver sensitivity	-93 dBm	-77 dBm
Transmit power	17 dBm	12 dBm
IEEE 802.11n 2.4 GHz @ 40 MHz channel		
Data rate	MCS0, MCS8, MCS16 45 Mbps	MCS7, MCS15, MCS23 450 Mbps
Receiver sensitivity	-90 dBm	-75 dBm
Transmit power	20 dBm	16 dBm
IEEE 802.11n 2.4 GHz @ 20 MHz channel		
Data rate	MCS0, MCS8, MCS16 21.7 Mbps	MCS7, MCS15, MCS23 216.7 Mbps
Receiver sensitivity	-93 dBm	-77 dBm
Transmit power	20 dBm	17 dBm
IEEE 802.11a 5 GHz		
Data rate	6 Mbps	54 Mbps
Receiver sensitivity	-93 dBm	-80 dBm
Transmit power	20 dBm	18 dBm
Radio characteristics: IEEE 802.11a 2.4 GHz		
Data rate	1 Mbps	54 Mbps
Receiver sensitivity	-100 dBm	-80 dBm

Technical Specifications

Transmit power	20 dBm	18 dBm

Standards and protocols (applies to all products in series)

Mobility

IEEE 802.11a High Speed Physical Layer in the 5 GHz Band
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 802.11i Medium Access Control (MAC) Security Enhancements
IEEE 802.11n WLAN Enhancements for Higher Throughput

MCS Index	800 nS Guard Interval		400 nS Guard Interval	
	20 MHz Rate (Mbps)	40 MHz Rate (Mbps)	20 MHz Rate (Mbps)	40 MHz Rate (Mbps)
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	157.5
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300
16	19.5	40.5	21.7	45
17	39	81	43.4	90
18	58.5	121.5	65	135
19	78	162	86.7	180
20	117	243	130	270
21	156	324	173.3	360
22	178.5	364	195	405
23	195	405	216.7	450

HP MSM466-R Dual Radio Outdoor 802.11n Access Point (AM) (J9715A)

HP MSM466-R Dual Radio Outdoor 802.11n Access Point (WW) (J9716A)

Ports

1 RJ-45 autosensing 10/100/1000 port; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T)

1 RJ-45 serial console port

AP characteristics

Radios (built-in) 802.11 a/n, a/b/g/n

Radio operation modes Client access, Local mesh, Packet capture

Technical Specifications

Point (WW) (J9718A)

HP MSM466-R Dual Radio Outdoor 802.11n Access Point (JP) (J9717A)

HP MSM466-R Dual Radio Outdoor 802.11n Access Point (IL) (J9718A)

	AP operation modes	Autonomous and controlled
	Wi-Fi Alliance Certification	a/b/g/n Wi-Fi Certified
	Antenna	External antennas only; six Type N connectors
	Number of external antennas	6
Physical characteristics	**Dimensions**	4.92(w) x 8.27(d) x 9.84(h) in (12.5 x 21.01 x 24.99 cm)
	Weight	6.06 lb (2.75 kg) mounting bracket
Memory and processor	Dual core @ 800 MHz, 128 MB flash, 256 MB SDRAM	
Mounting and enclosure	Outdoor IP67 and NEMA 4X;Includes hardware for pole and wall mount applications	
Environment	**Operating temperature**	-40°F to 131°F (-40°C to 55°C); Below -20°C requires 802.3at PoE power to run embedded heater
	Operating relative humidity	5% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 95%, noncondensing
Electrical characteristics	**Description**	IEEE 802.3af PoE compliant for Gigabit Ethernet for operation down to -4°F (-20°C). For operation down to -40°F (-40°C), IEEE 802.3at power is required.
	Maximum power rating	12.9 W
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 - 140 (excluding 5600-5650 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 - 140 channels) 5.745 - 5.825 GHz (149 - 165 channels)
	Taiwan	2.412 - 2.462 GHz (1 - 11 channels) 5.280 - 5.320 GHz (56 - 64 channels) 5.500 - 5.700 GHz (100 - 140 (excluding 5600-5650 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)
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 60950-1; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; EN62479
Emissions		EN 55022 Class B; EN 301 489-1; EN 301 489-17; ICES-003 Class B; FCC Part 15, Class B
Medical		EN60601-1-2
RF Exposure		FCC Bulletin OET-65C; RSS-102; EN 300-328; ETS 301 893; CFR 47, Part 2, Subpart J; ANSI/IEEE C95.1 (99); Ministry of Health Safety Code 6; Australian Radiation Protection Std.; To ensure compliance with various national and international Electromagnetic Field (EMF) standards, this device should only be operated with HP-approved antennas and accessories.
Features		Dual radio: IEEE 802.11a/n for high-throughput applications and IEEE 802.11ab/g/n for legacy support and high-speed applications - Both IEEE radios, supporting three spatial streams and 3x3 MIMO reaching 450 Mb/s per radio - Six Type N connectors for external MIMO antennas - Both radios operate at full power and full performance on IEEE 802.3af PoE/Gigabit Ethernet - Run both radios at 5 GHz for outstanding performance Outdoor enclosure - IP67 rate - NEMA 4X rated - -40°C to +55°C
Notes		The MSM466 and MSM466-R access point power information listed does not include an antenna. Review the HP documentation for your AP to understand the maximum output setting for your AP based on your country's regulations. Three spatial stream AP, supporting 450 Mb/s per radio. Maximum transmit power varies by country. When used with an HP MIMO indoor antenna, the AP requires an RP-SMA to N Type adapter/cable (available separately). Outdoor antennas should be installed by a professional installer with proper grounding and lightning protection. Wind speeds are supported up to 165 m/h (265 km/h). Dimensions do not include the additional space required for cables. Regulatory model number: MRLBB-1102 Additional Railway EMC emission standards • EN 55011 • EN 50121-3-2
Services		3-year, 4-hour onsite, 13x5 coverage for hardware (UN683E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UN684E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UN686E)

3-year, 24x7 SW phone support, software updates (UN685E)
4-year, 4-hour onsite, 13x5 coverage for hardware (US013E)
4-year, 4-hour onsite, 24x7 coverage for hardware (US014E)
4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (US015E)
4-year, 24x7 SW phone support, software updates (US016E)
5-year, 4-hour onsite, 13x5 coverage for hardware (US017E)
5-year, 4-hour onsite, 24x7 coverage for hardware (US018E)
5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (US019E)
5-year, 24x7 SW phone support, software updates (US020E)
3 Yr 6 hr Call-to-Repair Onsite (UW416E)
4 Yr 6 hr Call-to-Repair Onsite (UW417E)
5 Yr 6 hr Call-to-Repair Onsite (UW418E)

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.

NOTE: These radio characteristics apply to the MSM466 and MSM466-R access points and exclude any external antenna.

IEEE 802.11n 5 GHz @ 40 MHz channel		
Data rate	MCS0, MCS8, MCS16 45 Mbps	MCS7, MCS15, MCS23 450 Mbps
Receiver sensitivity	-90 dBm	-73 dBm
Transmit power	17 dBm	12 dBm
IEEE 802.11n 5 GHz @ 20 MHz channel		
Data rate	MCS0, MCS8, MCS16 21.7 Mbps	MCS7, MCS15, MCS23 216.7 Mbps
Receiver sensitivity	-93 dBm	-77 dBm
Transmit power	17 dBm	12 dBm
IEEE 802.11n 2.4 GHz @ 40 MHz channel		
Data rate	MCS0, MCS8, MCS16 45 Mbps	MCS7, MCS15, MCS23 450 Mbps
Receiver sensitivity	-90 dBm	-75 dBm
Transmit power	20 dBm	16 dBm
IEEE 802.11n 2.4 GHz @ 20 MHz channel		
Data rate	MCS0, MCS8, MCS16 21.7 Mbps	MCS7, MCS15, MCS23 216.7 Mbps
Receiver sensitivity	-93 dBm	-77 dBm

Technical Specifications

Transmit power	20 dBm	17 dBm
IEEE 802.11a 5 GHz		
Data rate	6 Mbps	54 Mbps
Receiver sensitivity	-93 dBm	-80 dBm
Transmit power	20 dBm	18 dBm
Radio characteristics: IEEE 802.11a 2.4 GHz		
Data rate	1 Mbps	54 Mbps
Receiver sensitivity	-100 dBm	-80 dBm
Transmit power	20 dBm	18 dBm

Standards and protocols (applies to all products in series)

Mobility
IEEE 802.11a High Speed Physical Layer in the 5 GHz Band
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 802.11i Medium Access Control (MAC) Security Enhancements
IEEE 802.11n WLAN Enhancements for Higher Throughput

MCS Index	800 nS Guard Interval		400 nS Guard Interval	
	20 MHz Rate (Mbps)	40 MHz Rate (Mbps)	20 MHz Rate (Mbps)	40 MHz Rate (Mbps)
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	157.5
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300
16	19.5	40.5	21.7	45
17	39	81	43.4	90
18	58.5	121.5	65	135
19	78	162	86.7	180
20	117	243	130	270
21	156	324	173.3	360
22	178.5	364	195	405

23	195	405	216.7	450

Accessory Product Details

NOTE: Details are not available for all accessories. The following specifications were available at the time of publication.

HP 1-port Power Injector (J9407B)	**Physical characteristics**	**Dimensions**	5.71(d) x 2.36(w) x 1.22(h) in. (14.5 x 6 x 3.1 cm)
		Weight	1 lb. (0.45 kg)
	Environment	**Operating temperature**	32°F to 104°F (0°C to 40°C)
		Operating relative humidity	5% to 93%, noncondensing
		Nonoperating/Storage temperature	-4°F to 158°F (-20°C to 70°C)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**Voltage**	100-240 VAC
		Current	0.3/0.2 A
		Frequency	50/60 Hz
		Notes	IEEE 802.3af compliant
	Safety	UL 60950; EN 60950	
	Emissions	EN 55024; EN 55022 (CISPR 22) Class B with FTP Cabling; FCC Part 15, Class B with FTP cabling	
	Notes	The 1-port power converter has 1 AC power cord input, 1 RJ-45 10/100/1000 Mbps port for data coming from the network infrastructure, and 1 RJ-45 for data plus IEEE 802.3af-compliant PoE for Gigabit Ethernet to power the access point.	
	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.	

HP Indoor Omnidirectional Dual Band 2.5/6dBi MIMO 6 Element Antenna (J9659A)		
Electrical characteristics	**Frequency range 1**	2400 - 2500
	Gain 1 dBi (with antenna cable)	2.5
	Frequency range 2	5150 - 5850
	Gain 2 dBi (with antenna cable)	5.9
	VSWR max	2:0
	H-Plane (3 dB beamwidth)	Omnidirectional
	Polarization	Linear (vertical)
	Impedance (Ohms)	50
	RF connector	Reverse SMA (male)
	Cable length	2.75 ft. (0.84 m)

Accessory Product Details

Physical characteristics	**Dimensions**	8.58(d) x 1.69(h) in. (21.79 x 4.29 cm)
	Weight	1.5 lb. (0.68 kg)
	Mounting style	Single 1 inch diameter hole
	Enclosure	Polycarbonate
Environment	**Operating temperature**	-22°F to 131°F (-30°C to 55°C)
	Nonoperating/Storage temperature	-40°F to 149°F (-40°C to 65°C)
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.	

HP Indoor Omnidirectional Dual Band 3/4dBi MIMO 3 Element Antenna (J9171A)

Electrical characteristics	**Frequency range 1**	2400 - 2500
	Gain 1 dBi (with antenna cable)	3
	Frequency range 2	4900 - 5900
	Gain 2 dBi (with antenna cable)	4
	VSWR max	2:1
	E-Plane (3 dB beamwidth)	60 degrees
	H-Plane (3 dB beamwidth)	Omnidirectional
	Polarization	Linear (vertical)
	Impedance (Ohms)	50
	RF connector	Reverse SMA (male)
	Cable length	2.75 ft. (0.84 m)
Physical characteristics	**Dimensions**	3.6(d) x 12.14(w) x 0.87(h) in. (9.14 x 30.84 x 2.21 cm)
	Weight	0.86 lb. (0.39 kg)
	Mounting style	Ceiling
	Enclosure	White ASA IP-67 rated
Environment	**Operating temperature**	-22°F to 131°F (-30°C to 55°C)
	Nonoperating/Storage temperature	-40°F to 149°F (-40°C to 65°C)
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.	

Accessory Product Details

HP Indoor-Outdoor Sector Dual Band 8/10dBi MIMO 3 Element Antenna (J9169A)

Electrical characteristics	**Frequency range 1**	2400 - 2500
	Gain 1 dBi (with antenna cable)	8
	Frequency range 2	5100 - 5900
	Gain 2 dBi (with antenna cable)	10.7
	VSWR max	2:1
	E-Plane (3 dB beamwidth)	75/55
	H-Plane (3 dB beamwidth)	70/60
	Polarization	Linear (vertical)
	Impedance (Ohms)	50
	RF connector	N (male)
	Cable length	2.75 ft. (0.84 m)
Physical characteristics	**Dimensions**	3.6(d) x 12.14(w) x 0.87(h) in. (9.14 x 30.84 x 2.21 cm)
	Weight	0.86 lb. (0.39 kg)
	Mounting style	Ceiling
	Enclosure	White ASA IP-67 rated
Environment	**Operating temperature**	-22°F to 149°F (-30°C to 65°C); IP-67 rated for outdoor use
	Nonoperating/Storage temperature	-40°F to 149°F (-40°C to 65°C)
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.	

HP Indoor-Outdoor Point-to-Point Dual Band 10/13dBi MIMO 3 Element Antenna (J9170A)

Electrical characteristics	**Frequency range 1**	2400 - 2500
	Gain 1 dBi (with antenna cable)	10.9
	Frequency range 2	5100 - 5900
	Gain 2 dBi (with antenna cable)	13.5
	VSWR max	2:1
	E-Plane (3 dB beamwidth)	45/20 degrees
	H-Plane (3 dB beamwidth)	45/20 degrees
	Polarization	Linear (vertical)
	Impedance (Ohms)	50
	RF connector	N (male)
	Cable length	2.75 ft. (0.84 m)

Accessory Product Details

Physical characteristics	**Dimensions**	1.4(d) x 16.2(w) x 14.7(h) in. (3.56 x 41.15 x 37.34 cm)
	Weight	2.43 lb. (1.1 kg)
	Mounting style	Pole Mount
	Enclosure	White ASA IP-67 rated
Environment	**Operating temperature**	-22°F to 149°F (-30°C to 65°C); IP-67 rated for outdoor use
	Nonoperating/Storage temperature	-40°F to 149°F (-40°C to 65°C)
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.	

HP Dual-Band Antenna Lightning Arrester (J8996A)	**Electrical characteristics**	**VSWR max**	1.4:1
	Physical characteristics	**Dimensions**	2.4(d) x 0.9(w) x 1.2(h) in. (6.1 x 2.29 x 3.05 cm)
	Notes	Input RF power, 100 MHz/6000 MHz: 250 W/10 W 50 Meg Ohm insulation resistance Maximum insertion loss of 0.4 dB	
	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.	

HP Outdoor Omnidirectional 6dBi at 2.4GHz MIMO 3 Element Antenna (J9719A)

Electrical characteristics	**Frequency range 1**	2400 - 2500
	Gain 1 dBi (with antenna cable)	6
	Impedance (Ohms)	50
	RF connector	N Type (Male) x 3
	Cable length	3 ft. (.9 m)
Physical characteristics	**Dimensions**	8.25(d) x 10(h) in. (20.96 x 25.4 cm)
	Wind surface area	.32 sq. ft. (0.03 sq. m)
	Wind survival	125 mph (201.13 km/hr)
	Wind gust surival	165 mph (266 km/h)
	Mounting style	Pole or Wall
Environment	**Operating temperature**	-40°F to 158°F (-40°C to +70°C) (Cable Install Low Temp -20°C)
	Nonoperating/Storage temperature	-40°F to 185°F (-40°C to 85°C)
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.	

Accessory Product Details

HP Outdoor Omnidirectional 8dBi at 5GHz MIMO 3 Element Antenna (J9720A)

Electrical characteristics	**Frequency range 1**	5150 - 5875
	Gain 1 dBi (with antenna cable)	8
	Impedance (Ohms)	50
	RF connector	N Type (Male) x 3
	Cable length	3 ft. (.9 m)
Physical characteristics	**Dimensions**	8.25(d) x 10(h) in. (20.96 x 25.4 cm)
	Wind surface area	.32 sq. ft. (0.03 sq. m)
	Wind survival	125 mph (201.13 km/hr)
	Wind gust survival	165 mph (266 km/h)
	Mounting style	Pole or Wall
Environment	**Operating temperature**	-40°F to 158°F (-40°C to +70°C) (Cable Install Low Temp -20°C)
	Nonoperating/Storage temperature	-40°F to 185°F (-40°C to 85°C)
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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