HP MSM-802.11n Dual Radio Access Point Series

Data sheet

Product overview

This highest-performance family of access points improves productivity. HP is the first in the industry to offer three spatial stream MIMO technology to enterprise businesses. This brings IEEE 802.11n near Gigabit Ethernet performance to 900 Mbps and enhances coverage areas with beamforming technology. These APs deliver the highest performance in 802.11n AP technology with outstanding price and performance. Each dual radio 802.11n access point operates in the 2.4 GHz and 5 GHz bands, providing backward compatibility for IEEE 802.11a/b/g legacy client devices. These APs can operate with or without a wireless controller and support all the same enterprise features as the prior HP MSM wireless products, in addition to new features, such as beamforming, bandsteering, and concurrent 5 GHz operation. The MSM466 and MSM466-R access points also support a range of MIMO antennas, while the MSM466-R access point is in an outdoor enclosure and is designed to work under adverse conditions.

Key features

- First three spatial stream MIMO AP in the industry
- Up to 450 Mbps per radio on MSM460, MSM466/466-R
- Support for range of antennas on MSM466/466-R AP
- MSM430 AP is two stream, price/performance leader
- All APs use standard IEEE 802.3af PoE power

Features and benefits

Quality of Service (QoS)

- **IEEE 802.1p prioritization:** delivers data to devices based on the priority and type of traffic

- **Wireless:** has the L2/L3/L4 classifications of IEEE 802.1p VLAN priority, SpectraLink SVP, and DiffServ; Wi-Fi MultiMedia (WMM), IEEE 802.11e EDCF, and Service-Aware priority are assigned by VSC; has a maximum VoIP call capacity of 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

- **Network management:** is fully manageable using HP Manager and HP Mobility Manager; has SNMP v2c, SNMP v3, MIB-II with Traps, and RADIUS Authentication Client MIB (RFC 2618); has embedded HTML management tool with secure access (SSL and VPN); provides scheduled configuration and firmware upgrades from central server

- **Diagnostic:**
  - Client event log records association, authentication, and DHCP events
  - Packet capture tool for Ethernet and IEEE 802.11 interfaces (PCAP format)
  - Data rate matrix

Intrusion detection/prevention system (IDS/IPS)

- **Protection against rogue IEEE 802.11a/b/g/n access points and wireless clients:** HP RF Manager and MSM415 RF Security Sensors continuously scan for detection, classification, and prevention of wireless threats on IEEE 802.11a/b/g and 802.11n wireless networks

- **24 x 7 detection, classification, and prevention capabilities:** HP RF Manager and MSM415 RF Security Sensors continuously protect your wireless network from security threats

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 a more than 50 percent increase in performance over any two spatial stream product

- **Beamforming:** provides better coverage area and better performance at distances from the AP

- **Bandsteering:** steers wireless clients to the 5 GHz band for outstanding performance

- **Concurrent operation in the 5 GHz band:** provides ability to run both radios in the 5 GHz band for outstanding performance (MSM466 and MSM466-R access points only)

- **MSM430/460 antenna:** high-gain embedded 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; two indoor ceiling-mountable antennas and two pole-/wall-mountable indoor/outdoor antennas fit specific needs

- **MSM460 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 antennas:** supply options for point-to-point, multipoint, and outdoor coverage
  - **Outdoor IP67 rated:** omnidirectional and directional MIMO antennas are weather proof and tested to meet the IP67 rating

- **Anywhere, anytime wireless coverage:**
  - 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 extends network availability
  - Wi-Fi Alliance Certified for interoperability with all IEEE 802.11a/b/g/n client devices
  - 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
  - Each VSC can be mapped to separate IEEE 802.1Q VLANs
  - WMM and/or WMM-PS
  - Security filter
  - IP filter
- **AP client access control functions:**
  - IEEE 802.1X authentication using EAP-SIM, EAP-FAST, EAP-TLS, EAP-TTLS, and PEAP
  - MAC address authentication using local or RADIUS access lists
  - RADIUS AAA using EAP-MD5, PAP, CHAP, and MS-CHAPv2
  - RADIUS Client (RFC 2865 and 2866) with location-aware support
  - Layer 2 wireless client isolation
- **Auto Channel Select (ACS):** helps reduce radio co-channel interference by automatically selecting an unoccupied radio channel

Security

- **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
- **Local wireless bridge client traffic filtering:** when enabled, prevents communication between wireless devices associated with the same access point

- **IEEE 802.1X Authentication:** provides port-based user authentication with support for Extensible Authentication Protocol (EAP) MD5, TLS, TTLS, and PEAP with the choice of AES and TKIP encryption to protect wireless traffic between authenticated clients and the access point

Warranty and support

- **Lifetime warranty:** for indoor access points, for as long as you own the product with advance replacement and next-business-day delivery (available in most countries)*
- **1-year warranty:** for outdoor access points, with advance replacement and next-business-day delivery (available in most countries)
- **Electronic and telephone support:** limited electronic and telephone support is available from HP; refer to www.hp.com/networking/warranty for details on the support provided and the period during which support is available
- **Software releases:** refer to www.hp.com/networking/warranty for details on the software releases provided and the period during which software releases are available for your product(s)

†Hardware warranties replacement for as long as you own the product, with next business day advance replacement (available in most countries). The disk drive included with HP Alliance One Advanced Services and Services zl Modules, HP Threat Management Services zl Module, HP AllianceOne Ext zl Mod w/Rvrbd Stlhd, HP E-MSM765zl Mobility Controller and HP Surv Brch Com zl Mod pwrby Msft Lync has a five-year hardware warranty. For details, refer to the Software license and hardware warranty statements at www.hp.com/networking/warranty.

HP MSM-802.11n Dual Radio Access Point Series

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 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) (J9589A) HP MSM460 Dual Radio 802.11n Access Point (IL) (J9618A)
Ports	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	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
	1 RJ-45 serial console port	1 RJ-45 serial console port
AP characteristics		
Radios	Dual (a/n + b/g/n)	Dual (a/n + b/g/n)
Radio operation modes	Client access, Local mesh, Packet capture	Client access, Local mesh, Packet capture
AP operation modes	Autonomous and controlled	Autonomous and controlled
Wi-Fi Alliance Certification	a/b/g/n Wi-Fi Certified	a/b/g/n Wi-Fi Certified
Physical characteristics		
Dimensions	8(d) x 6.75(w) x 2.62(h) in. (20.32 x 17.15 x 6.65 cm)	8(d) x 6.75(w) x 2.62(h) in. (20.32 x 17.15 x 6.65 cm)
Weight	2.25 lb. (1.02 kg) mounting bracket	2.25 lb. (1.02 kg) mounting bracket
Enclosure	Indoor, plenum rated	Indoor, plenum rated
Memory and processor		
	Dual core @ 800 MHz, 128 MB flash, 256 MB SDRAM	Dual core @ 800 MHz, 128 MB flash, 256 MB SDRAM
Mounting	Includes two ceiling mounting clips	Includes two ceiling mounting clips
Environment		
Operating temperature	32°F to 122°F (0°C to 50°C)	32°F to 122°F (0°C to 50°C)
Operating relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing
Electrical characteristics		
Description	IEEE 802.3af PoE compliant for Gigabit Ethernet	IEEE 802.3af PoE compliant for Gigabit Ethernet
Maximum power rating	12.9 W	12.9 W
Antenna	(3) 4 dBi 2.4GHz and (3) 7 dBi 5 GHz omnidirectional antennas	(3) 4 dBi 2.4GHz and (3) 7 dBi 5 GHz
Number of internal antennas	6	6
Frequency band and operating channels		
Americas	2.412 - 2.462 GHz (1 - 11 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 (excluding 120, 124, 128 & 132) channels) 5.745 - 5.825 GHz (149 - 165 channels)	2.412 - 2.462 GHz (1 - 11 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 (excluding 120, 124, 128 & 132) channels) 5.745 - 5.825 GHz (149 - 165 channels)
European Union	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 channels)	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 channels)
Rest of World (Actual channels designated by selecting country in UI)	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 channels) 5.745 - 5.825 GHz (149 - 165 channels)	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 channels) 5.745 - 5.825 GHz (149 - 165 channels)
Radio	FCC Part 15.247; FCC Part 15.407 (US); RSS-210 (Canada); EN 300 328; ARIB STD-T66; IDA Registration (Singapore); MIC approval (Korea); RCR STD-33; ARIB STD-T71 (Japan); EN 301 893 (EU)	FCC Part 15.247; FCC Part 15.407 (US); RSS-210 (Canada); EN 300 328; ARIB STD-T66; IDA Registration (Singapore); MIC approval (Korea); RCR STD-33; ARIB STD-T71 (Japan); EN 301 893 (EU)
Safety	UL 2043; UL 60950-1; IEC 60950-1; EN 60950-1; EN 60601-1-2; CAN/CSA-C22.2 No. 60950-1	UL 2043; UL 60950-1; IEC 60950-1; EN 60950-1; EN 60601-1-2; CAN/CSA-C22.2 No. 60950-1
Emissions	EN 55022 Class B; EN 60601-1-2; EN 301 489-1; EN 301 489-17; ICES-003 Class B; FCC Part 15, Class B	EN 55022 Class B; EN 60601-1-2; EN 301 489-1; EN 301 489-17; ICES-003 Class B; FCC Part 15, Class B
Medical	EN60601-1-2	EN60601-1-2
RF Exposure	FCC Bulletin OET-65C; RSS-102	FCC Bulletin OET-65C; RSS-102
Features	Dual radio: IEEE 802.11a/n for high-throughput applications and IEEE 802.11ab/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	Dual radio: IEEE 802.11a/n for high-throughput applications and IEEE 802.11ab/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

Specifications (continued)

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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. 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. Two spatial stream AP, supporting 300 Mbps per radio. Maximum transmit power varies by country.	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. 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 Mbps per radio. Maximum transmit power varies by country.
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (UN683E)	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, 13x5 coverage for hardware (UY961E)
	3-year, 4-hour onsite, 24x7 coverage for hardware (UY967E)	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 (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 (UY963E)
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UN686E)	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 (UY964E)
	3-year, 24x7 SW phone support, software updates (UN685E)	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, 13x5 coverage for hardware (HR619E)
	1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR625E)	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 (HR626E)	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 (US013E)
	4-year, 4-hour onsite, 13x5 coverage for hardware (UY976E)	4-year, 4-hour onsite, 13x5 coverage for hardware (UY971E)
	4-year, 4-hour onsite, 24x7 coverage for hardware (UY977E)	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 (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 (UY973E)
	4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (US015E)	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 (UY974E)
	4-year, 24x7 SW phone support, software updates (US016E)	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 (US017E)
	5-year, 4-hour onsite, 13x5 coverage for hardware (UY986E)	5-year, 4-hour onsite, 13x5 coverage for hardware (UY981E)
	5-year, 4-hour onsite, 24x7 coverage for hardware (UY987E)	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 (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 (UY983E)
	5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (US019E)	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 (UY984E)
	5-year, 24x7 SW phone support, software updates (US020E)	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 (UW416E)
	3 Yr 6 hr Call-to-Repair Onsite (UY970E)	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 (UW417E)
	4 Yr 6 hr Call-to-Repair Onsite (UY980E)	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 (UW418E)
	5 Yr 6 hr Call-to-Repair Onsite (UY990E)	5 Yr 6 hr Call-to-Repair Onsite (UY985E)
	1-year, 6 hour Call-To-Repair Onsite for hardware (HR628E)	1-year, 6 hour Call-To-Repair Onsite for hardware (HR623E)
	1-year, 24x7 software phone support, software updates (HR627E)	1-year, 24x7 software phone support, software updates (HR622E)
	1-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV110E)	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 (HV111E)	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 (HV112E)	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 (HV113E)	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 (HV114E)	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 (HV115E)	4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HV123E)

Specifications (continued)

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	5-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HV116E)	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 (HV117E)	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.	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.

Radio characteristics:
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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

IEEE 802.11n 5 GHz @ 20 MHz channel

Data rate	MCS0, MCS8, MCS16 45 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	-97 dBm	-82 dBm
Transmit power	20 dBm	20 dBm

IEEE 802.11n 2.4 GHz @ 20 MHz channel

Data rate	MCS0/8/16 Mbps	MCS7/15/23 3 Mbps
Receiver sensitivity	-100 dBm	-84 dBm
Transmit power	20 dBm	20 dBm

IEEE 802.11a 5 GHz

Data rate	6 Mbps	54 Mbps
Receiver sensitivity	-100 dBm	-87 dBm
Transmit power	25 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

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

Specifications (continued)

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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

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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

Specifications (continued)

	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-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)
Ports	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	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
	1 RJ-45 serial console port	1 RJ-45 serial console port
AP characteristics		
Radios	Dual (a/b/g/n)	Dual (a/b/g/n)
Radio operation modes	Client access, Local mesh, Packet capture	Client access, Local mesh, Packet capture
AP operation modes	Autonomous and controlled	Autonomous and controlled
Wi-Fi Alliance Certification	a/b/g/n Wi-Fi Certified	a/b/g/n Wi-Fi Certified
Physical characteristics		
Dimensions	8(d) x 6.75(w) x 2.62(h) in. (20.32 x 17.15 x 6.65 cm)	4.92(d) x 8.27(w) x 9.84(h) in. (12.5 x 21.01 x 25 cm)
Weight	2.25 lb. (1.02 kg) mounting bracket	6.06 lb. (2.75 kg) mounting bracket
Enclosure	Indoor, plenum rated	Outdoor IP67 and NEMA 4X
Memory and processor		
	Dual core @ 800 MHz, 128 MB flash, 256 MB SDRAM	Dual core @ 800 MHz, 128 MB flash, 256 MB SDRAM
Mounting	Includes two ceiling mounting clips	Includes hardware for pole and wall mount applications
Environment		
Operating temperature	32°F to 122°F (0°C to 50°C)	-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	5% to 95%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing
Electrical characteristics		
Description	IEEE 802.3af PoE compliant for Gigabit Ethernet	IEEE 802.3af PoE compliant for Gigabit Ethernet for operation down to -20°C. For operation down to -40°C, 802.3at power is required.
Maximum power rating	12.9 W	12.9 W
Antenna	External antennas only; six RP-SMA connectors	External antennas only; six Type N connectors
Number of external antennas	6	6
Notes	Antenna is purchased separately.	Antenna is purchased separately. 802.3at power is required to run the embedded heater for temperatures below -20°C (max power draw is 25 W).
Frequency band and operating channels		
Americas	2.412 - 2.462 GHz (1 - 11 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 (excluding 120, 124, 128 & 132) channels) 5.745 - 5.825 GHz (149 - 165 channels)	2.412 - 2.462 GHz (1 - 11 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 (excluding 120, 124, 128 & 132) channels) 5.745 - 5.825 GHz (149 - 165 channels)
European Union	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 channels)	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 channels)
Rest of World (Actual channels designated by selecting country in UI)	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 channels) 5.745 - 5.825 GHz (149 - 165 channels)	2.412 - 2.472 GHz (1 - 13 channels) 5.180 - 5.240 GHz (36 - 48 channels) 5.260 - 5.320 GHz (52 - 64 channels) 5.500 - 5.700 GHz (100 - 140 channels) 5.745 - 5.825 GHz (149 - 165 channels)
Radio	FCC Part 15.247; FCC Part 15.407 (US); RSS-210 (Canada); EN 300 328; ARIB STD-T66; IDA Registration (Singapore); MIC approval (Korea); RCR STD-33; ARIB STD-T71 (Japan); EN 301 893 (EU)	FCC Part 15.247; FCC Part 15.407 (US); RSS-210 (Canada); EN 300 328; ARIB STD-T66; IDA Registration (Singapore); MIC approval (Korea); RCR STD-33; ARIB STD-T71 (Japan); EN 301 893 (EU)
Safety	UL 2043; UL 60950-1; IEC 60950-1; EN 60950-1; EN 60601-1-2; CAN/CSA-C22.2 No. 60950-1	UL 60950-1; IEC 60950-1; EN 60950-1; EN 60601-1-2; CAN/CSA-C22.2 No. 60950-1
Emissions	EN 55022 Class B; EN 60601-1-2; EN 301 489-1; EN 301 489-17; ICES-003 Class B; FCC Part 15, Class B	EN 55022 Class B; EN 60601-1-2; EN 301 489-1; EN 301 489-17; ICES-003 Class B; FCC Part 15, Class B
Medical	EN60601-1-2	EN60601-1-2
RF Exposure	FCC Bulletin OET-65C; RSS-102	FCC Bulletin OET-65C; RSS-102
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 RP-SMA connectors for external MIMO antennas	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

Specifications (continued)

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-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)
- 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	- 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 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. 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 Mbps 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.	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. 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 Mbps per radio. Maximum transmit power varies by country. When used with an HP MIMO indoor 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. Dimensions do not include the additional space required for cables.

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)	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.

Specifications (continued)

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-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)**
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.	

Specifications (continued)

HP MSM466 Dual Radio 802.11n Access Point (AM) (J9621A)	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (AM) (J9715A)
HP MSM466 Dual Radio 802.11n Access Point (WW) (J9622A)	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (WW) (J9716A)
HP MSM466 Dual Radio 802.11n Access Point (JP) (J9620A)	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (JP) (J9717A)
HP MSM466 Dual Radio 802.11n Access Point (IL) (J9619A)	HP MSM466-R Dual Radio Outdoor 802.11n Access Point (IL) (J9718A)

Radio characteristics:
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)

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 @ 20MHz 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 @ 40MHz 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 @ 20MHz 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

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

Specifications (continued)

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-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 (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)

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	175.5	364.5	195	405
23	195	405	216.7	450

Specifications (continued)

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-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-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)

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	175.5	364.5	195	405
23	195	405	216.7	450

HP MSM-802.11n Dual Radio Access Point Series accessories

Power Supply

HP 1-port Power Injector (J9407B)

HP MSM466 Dual Radio 802.11n Access Point (AM) (J9621A)

HP Indoor Omnidirectional Dual Band 2.5/6dBi MIMO 6 Element Antenna (J9659A)

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

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

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

HP Antenna Lightning Arrester (J8996A)

HP MSM466 Dual Radio 802.11n Access Point (WW) (J9622A)

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

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

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

HP Indoor Omnidirectional Dual Band 2.5/6dBi MIMO 6 Element Antenna (J9659A)

HP Antenna Lightning Arrester (J8996A)

HP MSM466 Dual Radio 802.11n Access Point (JP) (J9620A)

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

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

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

HP Indoor Omnidirectional Dual Band 2.5/6dBi MIMO 6 Element Antenna (J9659A)

HP Antenna Lightning Arrester (J8996A)

HP MSM466 Dual Radio 802.11n Access Point (IL) (J9619A)

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

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

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

HP Indoor Omnidirectional Dual Band 2.5/6dBi MIMO 6 Element Antenna (J9659A)

HP Antenna Lightning Arrester (J8996A)

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

HP Antenna Lightning Arrester (J8996A)

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

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

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

HP Indoor Omnidirectional Dual Band 2.5/6dBi MIMO 6 Element Antenna (J9659A)

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

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

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

HP Antenna Lightning Arrester (J8996A)

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

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

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

HP Indoor Omnidirectional Dual Band 2.5/6dBi MIMO 6 Element Antenna (J9659A)

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

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

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

HP Antenna Lightning Arrester (J8996A)

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

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

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

HP Indoor Omnidirectional Dual Band 2.5/6dBi MIMO 6 Element Antenna (J9659A)

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

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

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

HP Antenna Lightning Arrester (J8996A)

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

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

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