Data sheet

HP MSM-802.11n Dual Radio Access Point Series

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
• MSM430 AP is a two spatial stream 3x3 MIMO access point and is the price/performance leader
• Comprehensive WLAN security

Product overview

Working in unison with HP MSM controllers, the HP MSM 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 MSM controller provides advanced radio resource management (RRM), including client load balancing and interference mitigation. The MSM 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 these access points working with the MSM controllers, they also work with the new HP 10500/7500 20G Unified Wired-WLAN Module and the HP 830 Unified Wired-WLAN Switch. See the module and switch datasheets for more information on these new controllers and supported features.
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)**  
  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

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

• **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
  – 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-MDS, PAP, CHAP, and MS-CHAPv2
  – RADIUS Client (RFC 2865 and 2866) with location-aware support
  – Layer 2 wireless client isolation

Security
• Integrated IDS support (Premium Mobility version required)
  – 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) MDS, TLS, TTLS, and PEAP 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
  when enabled, 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
• TAA-compliant versions available
  for U.S. government manufactured sales requirements, order the TAA variant of the MSM430, MSM460, and MSM466 access point (all MSM466-R units are TAA approved)

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; 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 MSM465zl 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.
**Specifications**

**EN60601-1-2**

**EN 55022 Class B; EN 301 489-1; EN 301 489-17; ICES-003 Class B; FCC Part 15, Class B**

**UL 2043; UL 60950-1; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1**

**EN 300 328; ARIB STD-T66; EN 300 328; ARIB STD-T71 (Japan); EN 301 893 (EU); KCC approval (Korea)**

**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 serial console port

**AP characteristics**
- Radios: Dual (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

**Physical characteristics**
- Weight: 2.25 lb (1.02 kg) mounting bracket
- Enclosure: Indoor, plenum rated

**Memory and processor**
- Dual core @ 800 MHz, 128 MB SDRAM
- Includes two ceiling mounting clips

**Mounting**
- 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
- Antenna: (3) 4 dBi 2.4 GHz and (3) 7 dBi 5 GHz omnidirectional antennas
- Number of internal antennas: 6

**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 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 channels)
- 5.745 - 5.825 GHz (149 - 165 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 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)
- 5.745 - 5.825 GHz (149 - 165 channels)

**Israel**
- 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)

**Radio**
- FCC Part 15.247; FCC Part 15.407 (US); RSS-210 (Canada); EN 300 328; ARIB STD-T66; IDA Registration (Singapore); RSR STD-33; ARIB STD-T71 (Japan); EN 301 893 (EU); KCC approval (Korea)

**Safety**
- UL 2043; UL 60950-1; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1

**Emissions**
- EN 55022 Class B; EN 301 489-1; EN 301 489-17; IEC-003 Class B; FCC Part 15, Class B

**Medical**
- EN60601-1-2

**Entertainment**
- EN60601-1-2
HP MSM-802.11n Dual Radio Access Point Series
Specifications (continued)

| HP MSM430 Dual Radio 802.11n Access Point (AM) (J9650A) | HP MSM460 Dual Radio 802.11n Access Point (AM) (J9550A) |
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| HP MSM460 Dual Radio 802.11n Access Point (TAA) (J9654A) | HP MSM460 Dual Radio 802.11n Access Point (TAA) (J9655A) |

**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**

- Two spatial stream AP, supporting 300 Mb/s per radio.
- Maximum transmit power varies by country.
- Regulatory model number: MSLBB-1001

**Notes**

- Both radios operate at full power and full performance on IEEE 802.3af PoE/Gigabit Ethernet

**Services**

3-year, 4-hour onsite, 13x5 coverage for hardware: Unified Service (US013E)
3-year, 4-hour onsite, 13x5 coverage for hardware: Unified Service (US012E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US011E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US010E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US009E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US008E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US007E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US006E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US005E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US004E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US003E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US002E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US001E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US000E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US009E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US008E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US007E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US006E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US005E)
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3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US009E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US008E)
3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US007E)
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3-year, 4-hour onsite, 10x6 coverage for hardware: Unified Service (US004E)
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## HP MSM-802.11n Dual Radio Access Point Series

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<tr>
<th>1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HV111E)</th>
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Refer to the HP website at [www.hp.com/networking/services](http://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 MSM-802.11n Dual Radio Access Point Series

#### Specifications (continued)

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#### Radio characteristics:

<table>
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<th>Channel</th>
<th>Data rate</th>
<th>Receiver sensitivity</th>
<th>Transmit power</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 GHz @ 40 MHz channel</td>
<td>MCS0, MCS8, MCS16</td>
<td>-97 dBm</td>
<td>24 dBm</td>
</tr>
<tr>
<td></td>
<td>MCS8</td>
<td>-80 dBm</td>
<td>19 dBm</td>
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<td></td>
<td>MCS16</td>
<td>-80 dBm</td>
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<td>2.4 GHz @ 40 MHz channel</td>
<td>MCS0, MCS8, MCS16</td>
<td>-97 dBm</td>
<td>20 dBm</td>
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<tr>
<td></td>
<td>MCS8</td>
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<td>20 dBm</td>
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<td>20 dBm</td>
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<td></td>
<td>MCS8</td>
<td>-84 dBm</td>
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<td></td>
<td>MCS16</td>
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<td>5 GHz</td>
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<td>25 dBm</td>
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<td>MCS8</td>
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<td>MCS16</td>
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<td>2.4 GHz</td>
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<td>MCS8</td>
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<td>MCS16</td>
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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
- Receiver sensitivity: -97 dBm
- Transmit power: 24 dBm

IEEE 802.11n 5 GHz @ 20 MHz channel
- Data rate: MCS0, MCS8, MCS16
- Receiver sensitivity: -100 dBm
- Transmit power: 20 dBm

IEEE 802.11n 2.4 GHz @ 40 MHz channel
- Data rate: MCS0, MCS8, MCS16
- Receiver sensitivity: -97 dBm
- Transmit power: 20 dBm

IEEE 802.11n 2.4 GHz @ 20 MHz channel
- Data rate: MCS0, MCS8, MCS16
- Receiver sensitivity: -100 dBm
- Transmit power: 20 dBm

IEEE 802.11a 5 GHz
- Data rate: 6 Mbps, 54 Mbps
- Receiver sensitivity: -100 dBm
- Transmit power: 25 dBm

IEEE 802.11b/g 2.4 GHz
- Data rate: 1 Mbps, 11 Mbps, 6 Mbps, 54 Mbps
- Receiver sensitivity: -100 dBm
- Transmit power: 20 dBm
### HP MSM-802.11n Dual Radio Access Point Series

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<td>IEEE 802.11a High Speed Physical Layer in the 5 GHz Band</td>
<td>IEEE 802.11g Further Higher Data Rate Extension in the 2.4 GHz Band</td>
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<td>IEEE 802.11b Higher-Speed Physical Layer Extension in the 2.4 GHz Band</td>
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<td>IEEE 802.11d Global Harmonization</td>
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### HP MSM-802.11n Dual Radio Access Point Series

**Specifications (continued)**

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| HP MSM430 Dual Radio 802.11n Access Point (JP) (J9652A) | HP MSM440 Dual Radio 802.11n Access Point (JP) (J9653A) |
| HP MSM430 Dual Radio 802.11n Access Point (IL) (J9654A) | HP MSM440 Dual Radio 802.11n Access Point (TAA) (J9655A) |

| 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) (J9588A) |
| HP MSM460 Dual Radio 802.11n Access Point (TAA) (J9588A) |

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### Specifications (continued)

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<th>HP MSM466-R Dual Radio Outdoor 802.11n Access Point (AM) (J9715A)</th>
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<tr>
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<td>HP MSM466-R Dual Radio Outdoor 802.11n Access Point (IL) (J9718A)</td>
</tr>
</tbody>
</table>

### 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)
- **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

### Physical characteristics
- **Antenna**: External antennas only; six RP-SMA connectors
- **Weight**: 4.92 lb (2.23 kg) mounting bracket
- **Enclosure**: Outdoor IP67 and NEMA 4X

### Memory and processor
- **Memory and processor**: Dual core @ 800 MHz, 128 MB flash, 256 MB SDRAM

### Environment
- **Operating temperature**: 32°F to 122°F (0°C to 50°C)
- **Operating relative humidity**: 5% to 95%, noncondensing
- **Nonoperating/Storage temperature**: -4°F to 131°F (-20°C to 55°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 PoE power is required.
- **Maximum power rating**: 12.9 W
- **Antenna**: External antennas only; six RP-SMA connectors
- **Number of external antennas**: 6

### Frequency and band operating channels
- **America**: 2.412 - 2.462 GHz (1 - 11 channels)
- **Europe**: 2.412 - 2.462 GHz (1 - 13 channels)
- **Rest of the World (Actual channels designated by selecting country in UI)**: 2.412 - 2.462 GHz (1 - 13 channels)
- **Taiwan**: 2.412 - 2.462 GHz (1 - 13 channels)
- **Japan**: 2.412 - 2.472 GHz (1 - 13 channels)
- **Israel**: 2.412 - 2.472 GHz (1 - 13 channels)

### Frequency and band operating channels
- **Radio**: FCC Part 15.247; FCC Part 15.407 (US); RSS-210 (Canada); EN 300 328; ARIB STD-T66; IDA-Registration (Singapore); RCM STD-33; ARIB STD-T77 (Japan); EN 301 893 (EU); KCC approval (Korea)

### Safety
- **FCC Part 15.247; FCC Part 15.407 (US); RSS-210 (Canada); EN 300 328; ARIB STD-T66; IDA Registration (Singapore); RCM STD-33; ARIB STD-T77 (Japan); EN 301 893 (EU); KCC approval (Korea)
- **UL 60950-1; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1**
Specifications (continued)

HP MSM-802.11n Dual Radio Access Point Series

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.

Regulatory model number: MRLBB-1002

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 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
- EN 55011

Features

- Both IEEE radios, supporting three spatial streams and 3x3 MIMO reaching 450 Mbps 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

- Both IEEE radios, supporting three spatial streams and 3x3 MIMO reaching 450 Mbps 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

Emissions

EN 55022 Class B; 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.

FCC Bulletin OET-65C; RSS-102; EN 300-328; EN 301 893; CFR 47, Part 2, Subpart J; ANSU/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.

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 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.

Field (EMF) standards, this device should only be operated with HP-approved antennas for legacy support and high-speed applications.

- IP67 rate
- NEMA 4X rated
- -40°F (-40°C) to 131°F (55°C)

-40°F (-40°C) to 131°F (55°C)

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 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.

Additional Regulatory model number: MRLBB-1102

Additional Railway EMC emission standards

- EN 55011
- EN 50121-3-2

References

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 MSM-802.11n Dual Radio Access Point Series
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<td>HP MSM466-R Dual Radio Outdoor 802.11n Access Point (IL) (J9718A)</td>
</tr>
</tbody>
</table>

- 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, 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 (UY965E)
- 4 Yr 6 hr Call-to-Repair Onsite (UY975E)
- 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 + 4 hour 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](http://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 MSM-802.11n Dual Radio Access Point Series

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### Radio characteristics:

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<th>IEEE 802.11n 5 GHz @ 20MHz channel</th>
<th>IEEE 802.11n 2.4 GHz @ 40MHz channel</th>
<th>IEEE 802.11n 2.4 GHz @ 20MHz channel</th>
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<th>IEEE 802.11a 2.4 GHz</th>
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</table>

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

**IEEE 802.11n 5 GHz @ 40MHz channel**

- **Data rate**
  - MCS0, MCS8, MCS16: 45 Mbps
  - 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
  - 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
  - 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
  - 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
## HP MSM-802.11n Dual Radio Access Point Series

### Specifications (continued)

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<th>HP MSM466-R Dual Radio Outdoor 802.11n Access Point (AM) (J9715A)</th>
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**Standards and protocols** (applies to all products in series)

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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)
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