

ExtremeWireless™ 3965i/e Outdoor Access Point

Extends Ultra-High Performance and High-Density Outdoors

BENEFITS

BUSINESS ALIGNMENT

- Support for demanding voice/video/data applications to enhance mobile worker productivity and convenience
- Role-based grouping of users, devices, and applications
- To deliver priority, QoS, and security in accordance with business needs
- Seamless roaming across an entire multi-subnet
- Campus without the need for cumbersome client software
- Integrated management, security, and QoS features reduce operating cost and ensure a consistent user experience regardless of location

OPERATIONAL EFFICIENCY

- Centralized visibility and control from NetSight™ accelerates problem resolution, optimize network utilization, and automate management
- Adaptive architecture reduces complexity and optimizes information flow for each application
- Dynamic Radio Management when used for planning and monitoring ensures optimal spectrum coverage resulting in the best end-user quality of experience
- Flexible Client Access optimizes throughput for 802.11ac/n clients in today's mixed ac, n, and a/b/g client environments



Product Overview

The AP3965i/e is an ultra-high performance 802.11a/b/g/n/ac wave 2 outdoor access point that extends mobility beyond the walls. These outdoor access points are designed to operate in harsh environments such as warehouses, manufacturing plants, parks and stadiums. The AP3965 uses 802.3at Power over Ethernet (PoE+) for maximum performance and can operate within an 803.2af power budget with reduced performance.

The AP3965i/e is available in both internal and external antenna models. The AP3965i comes with an integrated eight port antenna array for ease of installation. The AP3965e requires professional installation and includes eight standard N-type antenna connectors with integrated lightning protection supporting both 2.4GHz and 5GHz band antennas.

The AP3965i/e is built on the latest Wi-Fi technology including 802.11ac wave2, dynamic radio management, and spectrum analysis with interference classification, beamforming, multi-user MIMO, self-forming and self-healing meshing, security, role-based authentication, authorization, and access control. The 4x4:4 platform is capable of delivering up to 2.5 Gbps over-the-air-performance and up to 90,000 packets per second on the wire port. Multiple antenna offerings (e.g., Omni, sector, and panel) for the AP3965e ensure that deployments can be optimized to meet any unique coverage or capacity needs.

Specifications

| PRODUCT FEATURES | AP3965i/e |
|--|--|
| GENERAL | |
| High performance enterprise class AP | ✓ |
| Number of radios | 2 |
| MIMO implementation for high performance 11ac & 11n throughputs | 4x4 |
| Number of spatial streams | 4 |
| Number of simultaneous users (MU-MIMO) | 3 |
| Maximum Throughput 2.4GHz Radio | 800 Mbps |
| Maximum Throughput 5GHz Radio | 1.732 Gbps |
| Maximum Throughput per AP | 2.532 Gbps |
| RFC2285 Wire/Wireless Forwarding Rate | 90,000 pps |
| Number of SSIDs supported per radio/total | 8/16 |
| Simultaneous users per radio/total | 240/480 Per AP |
| Simultaneous Voice calls(802.11b, G711, R>80) | 12 or greater |
| Mode of operation | Semi-autonomous |
| Plug and play operation/Zero touch deployment | ✓ |
| Security and Standards | WPA, WPA2 (AES), 802.11i, 802.1x, IPSec, SSL, IKEv2, PKCS #10, X509 DER / PKCS #12 |
| MULTIPLE OPERATING MODES | |
| Intelligent thin AP | Encryption, Security, QoS and RF management done on AP |
| Distributed and centralized data paths within same SSID | ✓ |
| Application based distributed and centralized data paths within same user/device session | ✓ |
| Simultaneous RF monitoring and client services | ✓ |
| In-channel WIDS | ✓ |
| In-channel WIPS | ✓ |
| Dedicated multi-channel WIDS (Guardian mode) | ✓ |
| Dedicated multi-channel WIPS (Guardian mode) | ✓ |
| Dedicated multi-channel RF spectrum analysis and fingerprinting | ✓ |
| Locates devices and threats via RF triangulation | ✓ |
| Self-forming and self-healing meshing | ✓ |
| Remote access point | ✓ |
| Hardware-based, end-to-end data and control plane encryption | ✓ |
| Private and public cloud deployments | ✓ |
| SSL | ✓ |
| HYBRID OPERATION | |
| Security scanning and serve clients on same radio | ✓ |
| Security scanning and spectrum analysis on same radio | ✓ |
| Spectrum analysis and serve clients on same radio | ✓ |
| Multi-channel dedicated security scanning and spectrum analysis | ✓ |
| RADIO CHARACTERISTICS | |
| MAX RADIATED POWER | |
| Radio 1 (5GHz) | 29 dBm (AP3965i) |
| Radio 2 (2.4GHz) | 29 dBm (AP3965i) |

* Actual available power would vary based on local regulatory requirement and actual channels used for operation

Specifications (cont.)

| PRODUCT FEATURES | AP3965i/e |
|--|--|
| MAX ANTENNA GAIN (INTEGRATED ANTENNA) | |
| Radio 1 (5GHz) | 5 dBi (AP3965i) |
| Radio 2 (2.4GHz) | 3 dBi (AP3965i) |
| ADAPTIVE RADIO MANAGEMENT | |
| Dynamic Channel Control | 802.11h: DFS and TPC support (ETSI) |
| Efficient use of the spectrum with a multi-channel architecture | ✓ |
| Automatic transmit power and channel control | ✓ |
| Self-healing with coverage gap detection | ✓ |
| Band steering with multiple steering modes | ✓ |
| Spectrum load balancing of clients | ✓ |
| Airtime fairness | ✓ |
| Performance protection in congested RF environments | ✓ |
| Fast Transition Roaming (802.11k) | ✓ |
| Mitigates co-channel interference with coordinated access | ✓ |
| Mitigates adjacent channel interference with optimized receive sensitivity | ✓ |
| Efficient reuse of channels at shorter intervals | ✓ |
| Mitigates non 802.11 interference without dedicated radios | ✓ |
| Probe Suppression and client link monitoring | ✓ |
| Management Frame Protection (802.11w) | ✓ |
| Automatic discovery of networks by pre-authenticated devices (802.11u) | ✓ |
| QUALITY OF SERVICE | |
| Quality of Service (WMM, 802.11e) | ✓ |
| Power Save (U-APSD) | ✓ |
| Fast secure roaming and handover between APs (802.11r) | ✓ |
| Pre-Authentication (Pre-Auth) | ✓ |
| Opportunistic Key Caching (OKC) | ✓ |
| Bonjour/LLMNR/UPnP identification, containment and control | ✓ |
| Supports voice, video and data using the same SSID | ✓ |
| Prioritizes voice over data for both tagged and untagged traffic | ✓ |
| Rate limiting (rule and user-based) | ✓ |
| Rule and role based QoS processing | ✓ |
| MULTICAST RATE CONTROL | |
| Multicast to unicast Conversion | ✓ |
| Adaptable rate multicast | ✓ |
| Power save mode optimization for multicast | ✓ |
| WIRELESS SERVICES | |
| Media Access Protocol | CSMA/CA with ACK |
| Data Rates | <p>802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps 802.11 802.11n Performance Table below 802.11ac: See 802.11ac Performance Table below</p> <p>Receiver Sensitivity</p> <p>802.11a: • -92DdBm @ 6Mbps • -77DdBm @ 54Mbps</p> <p>802.11g: • -91DdBm @ 6Mbps • -78DdBm @ 54Mbps</p> <p>802.11n: See 802.11n Receiver Sensitivity Table below 802.11ac: See 802.11ac Receiver Sensitivity Table below</p> |

Specifications (cont.)

| PRODUCT FEATURES | | AP3965i/e |
|--|--|--|
| Frequency Bands | | 802.11ac/a/n: <ul style="list-style-type: none"> • 5.15 to 5.25 GHz (FCC/IC/ETSI) • 5.25 to 5.35 GHz (FCC/IC/ETSI)* • 5.47 to 5.725 GHz (FCC/IC/ETSI)* • 5.725 to 5.850 GHz (FCC/IC) 802.11b/g/n: <ul style="list-style-type: none"> • 2.400 to 2.4720 GHz (FCC/IC) • 2.400 to 2.4835 GHz (ETSI) *FCC/IC DFS certification in progress |
| Wireless Modulation | | 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM with OFDM 802.11ac Packet Aggregation: A-MPDU, A-MSDU 802.11ac Very High-Throughput (VHT): VHT20/40/80 802.11ac Advanced Features: LDPC, STBC, Maximum Likelihood (ML) Detection 802.11n: BPSK, QPSK, 16QAM, 64QAM with OFDM 802.11n High-throughput (HT) support: HT 20/40 802.11n Packet aggregation: A-MPDU, A-MSDU 802.11n Advanced Features: LDPC, STBC and TxBF 802.11a: BPSK, QPSK, 16QAM, 64QAM with OFDM 802.11g: DSSS and OFDM 802.11b: DSSS |
| INTERFACES | | |
| # 10/100/1000 Base T Ethernet autosensing link | | 2 |
| MOUNTING | | |
| Flat Wall Mounting (Included) | | ✓ |
| ENVIRONMENTAL | | |
| Environmental | | Protection: IP67 / NEMA6 Operating: Temperature -30° C to +60° C (-22° F to + 158° F) Humidity 0%-95% (noncondensing) Storage: Temperature --40° C to +70° C (-40° F to +158° F) Transportation: Temperature -40° C to +70° C (-40° F to +158° F) |
| WIRELESS AND EMC | | |
| Compliance | | <ul style="list-style-type: none"> • FCC CFR 47 Part 15, Class B • ICES-003 Class B • FCC Subpart C 15.247 • FCC Subpart E 15.407 • RSS-210 • EN 301 893 • EN 300 328 • EN 301 489 1 & 17 • EN50385 • EN 55022 (CISPR 22) • EN 60601-1-2 • AS/NZS4268 + CISPR22 |
| Safety | | <ul style="list-style-type: none"> • IEC 60950-1 • IEC60950-22 • EN 60950-1 • UL 60950-1 • UL 60950-22 • CSA 22.2 No.60950-1-03 • CSA 2.2 No. 60950-22 • AS/NZS 60950.1 |
| MECHANICAL | | |
| Dimensions (Outer Diameter x Height) | | 9.5" x 8.23" x 2.36" - AP3965i 9.5" x 8.23" x 2.36"- AP3965e (including lightning protectors) |
| Weight | | AP3965e - 4.4lbs (1.99 Kg) AP3965i - 3.4lbs (1.5 Kg) |
| Max Power Consumption | | 17 W (w/o PSE) |
| Warranty | | 1 Year Hardware Replacement |

Ordering Information

| PRODUCT FEATURES | AP3965i/e |
|--|--|
| ACCESS POINTS | |
| 31016 | WS-AP3965i_FCC (US, Puerto Rico, Colombia) Dual Radio 802.11ac/abgn, 4x4:4 MIMO outdoor access point with eight internal antenna array (Requires V10.01) |
| 31017 | WS-AP3965i-ROW (Verify country availability before ordering) Dual Radio 802.11ac/abgn, 4x4:4 MIMO outdoor access point with eight internal antenna array (Requires V10.01) |
| 31018 | WS-AP3965e-FCC (US, Puerto Rico, Colombia) Dual Radio 802.11ac/abgn, 4x4:4 MIMO outdoor access point with eight standard N connectors for external antenna array (Requires V10.01 or higher, and antennas must be ordered separately) |
| 31019 | WS-AP3965e-ROW (Verify country availability before ordering) Dual Radio 802.11ac/abgn, 4x4:4 MIMO outdoor access point with eight standard N connectors for external antenna array (Requires V10.01 or higher, and antennas must be ordered separately) |
| ANTENNAS (REQUIRED FOR AP3965e) | |
| 30711 | WS-AO-DQ05120N, Outdoor 2.4GHz/5GHz 4 feed, 5dBi, 120 degree sector Antenna with Standard N-type plug |
| 30712 | WS-AO-5Q04060N ,Outdoor, 4.9-6.1GHz 4-feed, 4dBi, 60 degree sector antenna with standard N-type plug |
| 30713 | WS-AO-2Q05060N, Outdoor, 2.3-2.7GHz 4-feed, 5dBi, 60 degree sector antenna with standard N-type plug connector |
| 30714 | WS-AO-DE07025N, Outdoor 2.4GHz/5GHz, eight feed, 6.5/5.5dBi, 25 degree sector antenna with standard N-type plug connector |
| 30715 | WS-AO-DE13025N, Outdoor 2.4GHz/5GHz, 8-feed, 13/11 dBi, 25 degree sector antenna with standard N-Type plug connector |
| 30716 | WS-AO-5Q05025N, Outdoor 5.15-5.875 GHz, 4-feed, 5 dBi, 25 degree sector antenna with standard N-Type plug connector |
| 30717 | WS-AO-5Q11025N, Outdoor 5.15-5.875 GHz, 4-feed, 11 dBi, 25 degree sector antenna with standard N-Type plug connector |
| 30718 | WS-AO-DE10055N, Outdoor, 2.4-2.5/5.15-5.875GHz, 8-feed, 10/6dBi, 55 degree panel antenna with standard N-type plug connector |
| 30720 | WS-AO-DE07100N, Outdoor, 2.4-2.5/5.15-5.875GHz, 8-feed, 7dBi, 100 degree panel antenna with standard N-type plug connector |
| 30724 | WS-AO-DQ04360N Outdoor, 2.4-2.5/5.15-5.875GHz, 4-feed 4dBi, Omni antenna with standard N-type plug connector |
| WS-AO-5D23009N | Outdoor, 5GHz, dual-polarization, 23 dBi, 9 deg, panel with two standard N-type plug connectors (not supported on 11n outdoor APs) |
| ACCESSORIES | |
| WS-CAB-6DBATN-SN | 6dB attenuator with standard N-type connector |
| WS-CAB-10DBATN-SN | 10dB attenuator with standard N-type connector |
| WS-CAB-NP-RPNP | RN type plug connector to connect existing antenna with RN jack connector to AP3965e. Only antennas of same type as certified with AP3965e shall be connected |
| WS-CAB-NP-RPNJ | RN type jack connector to connect existing antenna with RN plug connector to AP3965e. Only antennas of same type as certified with AP3965e shall be connected |
| WS-CAB-L200C20N | 20 foot LMR200 Cable With Standard N-type Jack and Plug Connectors |
| WS-CAB-L400C20N | 20 foot LMR400 Cable With Standard N-type Jack and Plug Connectors |
| WS-CAB-L400C06N | 6 foot LMR400 Cable With Standard N-type Jack and Plug Connectors |
| WS-CAB-L400C50N | 50 foot LMR400 Cable With Standard N-type Jack and Plug Connectors |
| WS-CAB-L400C75N | 75 foot LMR400 Cable With Standard N-type Jack and Plug Connectors |
| WS-CAB-L600C25N | 25 foot LMR600 Cable With Standard N-type Jack and Plug Connectors |
| WS-CAB-L600C50N | 50 foot LMR600 Cable With Standard N-type Jack and Plug Connectors |
| WS-CAB-NTERM | Standard N-type Plug Terminator |
| 30514 | WS-MBO-ART01 Articulating Mounting Bracket |
| 30515 | WS-MB-WALLEXT01 Extension Bracket Kit for Indoor and Outdoor antennas. Supports 30702, 30705, 30707, 30711, 30714, 30715, 30718, 30720 and WS-AO-5D23009N |
| MID-SPAN POE DEVICES | |
| PD-9001GO-ENT | Outdoor, Single port, 1 Gigabit 802.3at PoE Injector (30 W) |
| PD-9501GO-ENT | Outdoor, Single-Port, 1 Gigabit 802.at+ PoE Injector (60W) |

Data Rates

2.4 MHz RADIO (802.11n)

| DESCRIPTION | DATA STREAMS | HT20 | | HT40 | |
|-------------|--------------|-----------|----------|-----------|----------|
| | | NORMAL GI | SHORT GI | NORMAL GI | SHORT GI |
| MCS0 | 1 | 6.5 | 7.2 | 13.5 | 15 |
| MCS1 | 1 | 13 | 14.4 | 27 | 30 |
| MCS2 | 1 | 19.5 | 21.7 | 40.5 | 45 |
| MCS3 | 1 | 26 | 28.9 | 54 | 60 |
| MCS4 | 1 | 39 | 43.3 | 81 | 90 |
| MCS5 | 1 | 52 | 57.8 | 108 | 120 |
| MCS6 | 1 | 58.5 | 65 | 121.5 | 135 |
| MCS7 | 1 | 65 | 72.2 | 135 | 150 |
| MCS8 | 1 | 13 | 14.4 | 27 | 30 |
| MCS9 | 1 | 26 | 28.9 | 54 | 60 |
| MCS10 | 1 | 39 | 43.3 | 81 | 90 |
| MCS11 | 1 | 52 | 57.8 | 108 | 120 |
| MCS12 | 1 | 78 | 86.7 | 162 | 180 |
| MCS13 | 1 | 104 | 115.6 | 216 | 240 |
| MCS14 | 1 | 117 | 130 | 243 | 270 |

5.0 GHz RADIO (802.11n/ac)

| DESCRIPTION | DATA STREAMS | HT20 | | HT40 | | HT80 | |
|-------------|--------------|-----------|----------|-----------|----------|-----------|----------|
| | | NORMAL GI | SHORT GI | NORMAL GI | SHORT GI | NORMAL GI | SHORT GI |
| MCS0 | 1 | 6.5 | 7.2 | 13.5 | 15 | 29.3 | 32.5 |
| MCS1 | 1 | 13 | 14.4 | 27 | 30 | 58.5 | 65 |
| MCS2 | 1 | 19.5 | 21.7 | 40.5 | 45 | 87.8 | 97.5 |
| MCS3 | 1 | 26 | 28.9 | 54 | 60 | 117 | 130 |
| MCS4 | 1 | 39 | 43.3 | 81 | 90 | 175.5 | 195 |
| MCS5 | 1 | 52 | 57.8 | 108 | 120 | 234 | 260 |
| MCS6 | 1 | 58.5 | 65 | 121.5 | 135 | 263.3 | 292.5 |
| MCS7 | 1 | 65 | 72.2 | 135 | 150 | 292.5 | 325 |
| MCS8 | 1 | 78 | 86.7 | 162 | 180 | 351 | 390 |
| MCS9 | 1 | N/A | N/A | 180 | 200 | 390 | 433.3 |
| | | | | | | | |
| MCS0 | 2 | 13 | 14.4 | 27 | 30 | 58.5 | 65 |
| MCS1 | 2 | 26 | 28.9 | 54 | 60 | 117 | 130 |
| MCS2 | 2 | 39 | 43.3 | 81 | 90 | 175.5 | 195 |
| MCS3 | 2 | 52 | 57.8 | 108 | 120 | 234 | 260 |
| MCS4 | 2 | 78 | 86.7 | 162 | 180 | 351 | 390 |
| MCS5 | 2 | 104 | 115.6 | 216 | 240 | 468 | 520 |
| MCS6 | 2 | 117 | 130 | 243 | 270 | 526.5 | 585 |
| MCS7 | 2 | 130 | 144.4 | 270 | 300 | 585 | 650 |
| MCS8 | 2 | 156 | 173.3 | 324 | 360 | 702 | 780 |
| MCS9 | 2 | N/A | N/A | 360 | 400 | 780 | 866.7 |
| | | | | | | | |
| MCS0 | 3 | 19.5 | 21.7 | 40.5 | 45 | 87.8 | 97.5 |
| MCS1 | 3 | 39 | 43.3 | 81 | 90 | 175.5 | 195 |
| MCS2 | 3 | 58.5 | 65 | 121.5 | 135 | 263.3 | 292.5 |
| MCS3 | 3 | 78 | 86.7 | 162 | 180 | 351 | 390 |
| MCS4 | 3 | 117 | 130 | 243 | 270 | 526.5 | 585 |
| MCS5 | 3 | 156 | 173.3 | 324 | 360 | 702 | 780 |
| MCS6 | 3 | 175.5 | 195 | 364.5 | 405 | N/A | N/A |

| DESCRIPTION | DATA STREAMS | HT20 | | HT40 | | HT80 | |
|-------------|--------------|-----------|----------|-----------|----------|-----------|----------|
| | | NORMAL GI | SHORT GI | NORMAL GI | SHORT GI | NORMAL GI | SHORT GI |
| MCS7 | 3 | 195 | 216.7 | 405 | 450 | 877.5 | 975 |
| MCS8 | 3 | 234 | 260 | 486 | 540 | 1053 | 1170 |
| MCS9 | 3 | 260 | 288.9 | 540 | 600 | 1170 | 1300 |
| | | | | | | | |
| MCS0 | 4 | 26 | 28.9 | 54 | 60 | 117 | 130 |
| MCS1 | 4 | 52 | 57.8 | 108 | 120 | 234 | 260 |
| MCS2 | 4 | 78 | 86.7 | 162 | 180 | 351 | 390 |
| MCS3 | 4 | 104 | 115.6 | 216 | 240 | 468 | 520 |
| MCS4 | 4 | 156 | 173.3 | 324 | 360 | 702 | 780 |
| MCS5 | 4 | 208 | 231.1 | 432 | 480 | 936 | 1040 |
| MCS6 | 4 | 234 | 260 | 486 | 540 | 1053 | 1170 |
| MCS7 | 4 | 260 | 288.9 | 540 | 600 | 1170 | 1300 |
| MCS8 | 4 | 312 | 346.7 | 648 | 720 | 1404 | 1560 |
| MCS9 | 4 | N/A | N/A | 720 | 800 | 1560 | 1733.3 |

Receiver Sensitivity

2.4 GHz RADIO

| 2.4GHz, 11g | RECEIVER SENSITIVITY AT ANTENNA CONNECTOR | TYPICAL SENSITIVITY AT EACH RF CHAIN. FRAME (1000-BYTE PDUS) ERROR RATE <10% AT ROOM TEMP. 25° C (802.11G: IEEE STD 802.11G/D8.2-APR 2003 PART 11 PARAGRAPH 19.5.1) | |
|-------------|---|---|---------|
| | | 54Mbps | -80 dBm |
| | | 48Mbps | -81 dBm |
| | | 36Mbps | -85 dBm |
| | | 24Mbps | -88 dBm |
| | | 18Mbps | -92 dBm |
| | | 11Mbps | -94 dBm |
| | | 9Mbps | -95 dBm |
| | | 6Mbps | -97 dBm |

| 2.4GHz, 11n | RECEIVER SENSITIVITY AT ANTENNA CONNECTOR | TYPICAL SENSITIVITY AT EACH RF CHAIN. FRAME (1000-BYTE PDUS) ERROR RATE <10% AT ROOM TEMP. 25° C (SHOULD COMPLY TO 802.11N: IEEE P802.11N-SEP 2009 TABLE 20.22) MCS0 TO MCS7 ARE MEASURED ON THE AP3935E HW, MCS8-MCS23 ARE INTERPOLATED FROM THE MCS0-MCS7 MEASUREMENTS. | | |
|-------------|---|---|--------------|--------------|
| | | RATE | 20 MHZ (DBM) | 40 MHZ (DBM) |
| | | (MCS0) | -96 | -94 |
| | | (MCS1) | -94 | -92 |
| | | (MCS2) | -92 | -90 |
| | | (MCS3) | -88 | -86 |
| | | (MCS4) | -85 | -83 |
| | | (MCS5) | -80 | -78 |
| | | (MCS6) | -79 | -77 |
| | | (MCS7) | -77 | -75 |
| | | (MCS8) | -93 | -91 |
| | | (MCS9) | -91 | -89 |
| | | (MCS10) | -89 | -87 |
| | | (MCS11) | -85 | -83 |
| | | (MCS12) | -82 | -80 |
| | | (MCS13) | -77 | -75 |
| | | (MCS14) | -76 | -74 |
| | | (MCS15) | -74 | -72 |

Receiver Sensitivity (cont.)

2.4 GHz RADIO

| 2.4GHz, 11n | RECEIVER SENSITIVITY AT ANTENNA CONNECTOR | TYPICAL SENSITIVITY AT EACH RF CHAIN. FRAME (1000-BYTE PDUS) ERROR RATE <10% AT ROOM TEMP. 25° C (SHOULD COMPLY TO 802.11N: IEEE P802.11N-SEP 2009 TABLE 20.22) MCS0 TO MCS7 ARE MEASURED ON THE AP3935E HW, MCS8-MCS23 ARE INTERPOLATED FROM THE MCS0-MCS7 MEASUREMENTS. | | |
|-------------|---|---|--------------|--------------|
| | | RATE | 20 MHZ (DBM) | 40 MHZ (DBM) |
| | | (MCS16) | -90 | -88 |
| | | (MCS17) | -88 | -86 |
| | | (MCS18) | -86 | -84 |
| | | (MCS19) | -82 | -80 |
| | | (MCS20) | -79 | -77 |
| | | (MCS21) | -74 | -72 |
| | | (MCS22) | -73 | -71 |
| | | (MCS23) | -71 | -69 |
| | | (MCS24) | -87 | -85 |
| | | (MCS25) | -85 | -83 |
| | | (MCS26) | -83 | -81 |
| | | (MCS27) | -79 | -77 |
| | | (MCS28) | -76 | -74 |
| | | (MCS29) | -71 | -69 |
| | | (MCS30) | -70 | -68 |

5.0 GHz RADIO

| 5GHz, 11ac | RECEIVER SENSITIVITY AT ANTENNA CONNECTOR | TYPICAL SENSITIVITY AT EACH RF CHAIN. FRAME (1000-BYTE PDUS) ERROR RATE <10% AT ROOM TEMP. 25° C (SHOULD COMPLY TO 802.11AC) MCS0,1 TO MCS9,1 ARE MEASURED ON THE AP3935E HW, MCS0,-MCS9 FOR 2 AND 3 SS ARE INTERPOLATED FROM THE MCS0,1-MCS9,1 MEASUREMENTS | | | |
|------------|---|--|--------------|--------------|--------------|
| | | RATE | 20 MHZ (DBM) | 40 MHZ (DBM) | 80 MHZ (DBM) |
| | | (MCS0, 1) | -95 | -92 | -89 |
| | | (MCS1, 1) | -93 | -90 | -87 |
| | | (MCS2, 1) | -90 | -87 | -84 |
| | | (MCS3, 1) | -86 | -83 | -80 |
| | | (MCS4, 1) | -83 | -80 | -77 |
| | | (MCS5, 1) | -79 | -76 | -73 |
| | | (MCS6, 1) | -78 | -75 | -72 |
| | | (MCS7, 1) | -76 | -73 | -70 |
| | | (MCS8, 1) | -72 | -69 | -66 |
| | | (MCS9, 1) | NA | -67 | -64 |
| | | (MCS0, 2) | -92 | -89 | -86 |
| | | (MCS1, 2) | -90 | -87 | -84 |
| | | (MCS2, 2) | -87 | -84 | -81 |
| | | (MCS3, 2) | -83 | -80 | -77 |
| | | (MCS4, 2) | -80 | -77 | -74 |
| | | (MCS5, 2) | -76 | -73 | -70 |
| | | (MCS6, 2) | -75 | -72 | -69 |
| | | (MCS7, 2) | -73 | -70 | -67 |
| | | (MCS8, 2) | -69 | -66 | -63 |
| | | (MCS9, 2) | NA | -64 | -61 |
| | | (MCS0, 3) | -89 | -86 | -83 |
| | | (MCS1, 3) | -87 | -84 | -81 |
| | | (MCS2, 3) | -84 | -81 | -78 |

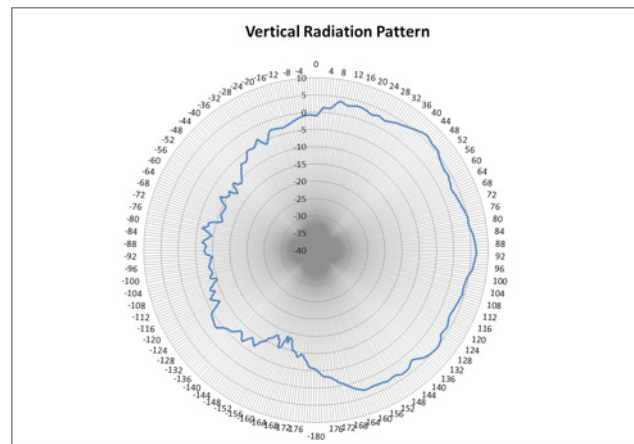
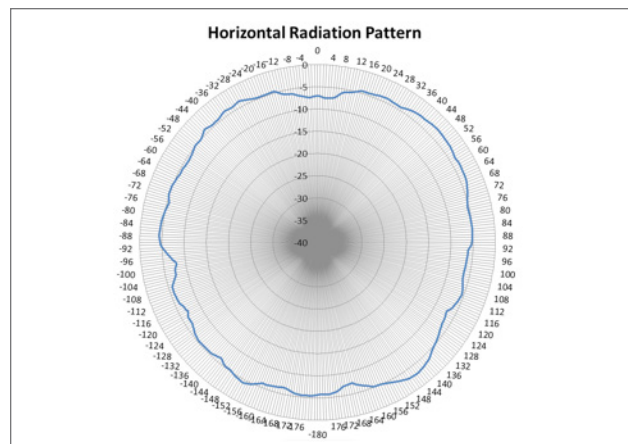
Receiver Sensitivity (cont.)

5.0 GHz RADIO

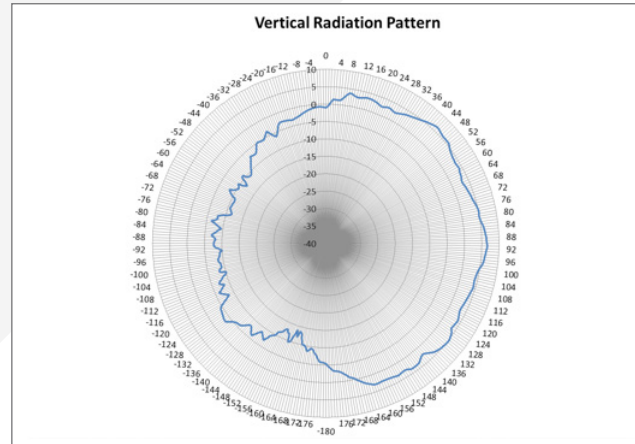
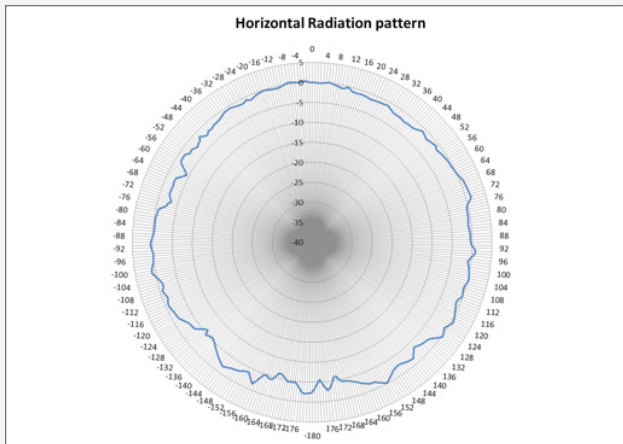
| 5GHz, 11ac | RECEIVER SENSITIVITY AT ANTENNA CONNECTOR | TYPICAL SENSITIVITY AT EACH RF CHAIN. FRAME (1000-BYTE PDUS) ERROR RATE <10% AT ROOM TEMP. 25° C (SHOULD COMPLY TO 802.11AC) MCS0,1 TO MCS9,1 ARE MEASURED ON THE AP3935E HW, MCS0,-MCS9 FOR 2 AND 3 SS ARE INTERPOLATED FROM THE MCS0,1-MCS9,1 MEASUREMENTS | | | |
|------------|---|--|--------------|--------------|--------------|
| | | RATE | 20 MHZ (DBM) | 40 MHZ (DBM) | 80 MHZ (DBM) |
| | | (MCS3, 3) | -80 | -77 | -74 |
| | | (MCS4, 3) | -77 | -74 | -71 |
| | | (MCS5, 3) | -73 | -70 | -67 |
| | | (MCS6, 3) | -72 | -69 | -66 |
| | | (MCS7, 3) | -70 | -67 | -64 |
| | | (MCS8, 3) | -66 | -63 | -60 |
| | | (MCS9, 3) | NA | -61 | -58 |
| | | (MCS0, 4) | -86 | -83 | -80 |
| | | (MCS1, 4) | -84 | -81 | -78 |
| | | (MCS2, 4) | -81 | -78 | -75 |
| | | (MCS3, 4) | -77 | -74 | -71 |
| | | (MCS4, 4) | -74 | -71 | -68 |
| | | (MCS5, 4) | -70 | -67 | -64 |
| | | (MCS6, 4) | -69 | -66 | -63 |
| | | (MCS7, 4) | -67 | -64 | -61 |
| | | (MCS8, 4) | -63 | -60 | -57 |
| | | (MCS9, 4) | NA | -58 | -55 |

| 5GHz, 11a | RECEIVER SENSITIVITY AT ANTENNA CONNECTOR | TYPICAL SENSITIVITY (DBM) AT EACH RF CHAIN. FRAME (1000-BYTE PDUS) ERROR RATE <10% AT ROOM TEMP. 25° C (SHOULD COMPLY TO 802.11A: IEEE STD 802.11A-1999 PART 11 PARAGRAPH 17.3.10.1) | |
|-----------|---|--|-----|
| | | | |
| | | 54Mbps | -79 |
| | | 48Mbps | -80 |
| | | 36Mbps | -84 |
| | | 24Mbps | -87 |
| | | 18Mbps | -91 |
| | | 11Mbps | -93 |
| | | 9Mbps | -94 |
| | | 6Mbps | -96 |

3965i Antenna Radiation Patterns – 2.4GHz



3965i Antenna Radiation Patterns — 5.0GHz



Warranty

As a customer-centric company, Extreme Networks is committed to providing quality products and solutions. In the event that one of our products fails due to a defect, we have developed a comprehensive warranty that protects you and provides a simple way to get your products repaired or media replaced as soon as possible.

For full warranty terms and conditions please go to: support.extremenetworks.com

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