IdentiFi™ 376X Series Outdoor Access Point

Extends Wireless Mobility Beyond the Walls

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 Extreme Networks Wireless Management Suite and Extreme Networks NMS accelerate problem resolution, optimize network utilization, and automate management

- Adaptive architecture reduces complexity and optimizes information flow for each application

- Dynamic Radio Management ensures optimal AP coverage and maximizes the availability and quality of wireless service across the enterprise

- Flexible Client Access optimizes throughput for 802.11n clients in today's mixed a/b/g and n client environments

Product Overview

The AP376X Series are high-performance 802.11abgn outdoor access points that extend wireless mobility beyond the brick-and-mortar. These industrial grade access points are designed to operate in harsh environments such as warehouses, mines, manufacturing plants, and stadiums. The AP3765i comes with an integrated six antenna array for ease of installation. The AP3765e and AP3767e require professional installation and include six RP-SMA antenna connectors supporting both 2.4G and 5G band antennas. The 3765 access points can be powered via 802.3at power or an optional industrial-grade external power adapter, while the 3767 requires the external power adapter.

The AP376X Series come packed with the latest in Wi-Fi technology including dynamic radio management, spectrum analysis with interference classification and avoidance, selfforming and self-healing meshing, security, role-based authentication, authorization, and access control. The 3x3:3 platforms are capable of delivering 900Mbps over-the-airperformance and up to 60,000 packets per second on the wire port. Multiple antenna offerings (e.g., omni, sector, and panel) ensure that AP3765e and AP3767e deployments can be optimized to meet any range, coverage or capacity need.

Security

- Authentication and authorization functions include role-based access control (using 802.1X, MAC, and captive portal) and authentication at the AP

- Wireless Intrusion Prevention (WIPS) functions provide continuous scanning, threat classification, rogue AP detection, and countermeasures against possible attacks

- Integration of security policies (NAC, IPS) across the wired/ wireless networks enables quick diagnosing and resolution of security threats

- Integration of Policy Manager across the wired/ wireless networks dynamically oversees user access at the wireless network point of entry

Support and Service

- Industry-leading customer satisfaction and first call resolution rates

- Lifetime warranty for indoor access points

- Personalized services, including site surveys, network design, installation, and training

Technical Specifications

PRODUCT FEATURES	AP3765i/e	AP3767e
GENERAL		
High performance enterprise class AP	√	√
Number of radios	2	2
MIMO implementation for high performance 11n throughputs	3x3	3x3
Number of spatial streams	3	3
Maximum Throughput Per Radio / Total	450Mbps / 900Mbps	450Mbps / 900Mbps
Wired performance in packets per second (pps)	60,000 pps	60,000 pps
Number of SSIDs supported per radio / total	8 / 16	8 / 16
Simultaneous users per radio / total	127 / 254	127 / 254
Mode of operation	Semi-autonomous	Semi-autonomous
Simultaneous Voice calls (802.11b, G711, R>80)	12 or greater	12 or greater
Plug and play operation/Zero touch deployment	√	√
Security and Standards	WPA, WPA2 (AES), 802.11i, 802.1x, IPSec, IKEv2, PKCS #10, X509 DER / PKCS #12	WPA, WPA2 (AES), 802.11i, 802.1x, IPSec, IKEv2, PKCS #10, X509 DER / PKCS #12
MULTIPLE OPERATING MODES		
Clients serving access points	√	√
Intelligent thin AP	Encryption, Security, QoS and RF management done on 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 session	√	√
Simultaneous RF monitoring and client services	√	√
In-channel WIDS	√	√
In-channel WIPS	√	√
Remote access point	√	√
RF spectrum analysis and fingerprinting	√	√
Ready for locating 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	√	√

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	√	√
RADIO CHARACTERISTICS		
Max transmit power		
Radio 1 (5GHz)	23 dBm (AP3765e)	23 dBm
Radio 2 (2.4GHz)	23 dBm (AP3765e)	23 dBm
Max antenna gain (integrated antenna)		
Radio 1 (5GHz)	3 dBi (AP3765i)	N/A
Radio 2 (2.4GHz)	3 dBi (AP37165i)	N/A
ADAPTIVE RADIO MANAGEMENT		
Dynamic Channel Control	802.11h: DFS & TPC support (ETSI)	802.11h: DFS & 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	√	√
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 inference without dedicated radios	√	√
QOS FOR APPLICATIONS		
Quality of Service (WMM, 802.11e)	√	√
Call Admission Control (TSPEC)	√	√
Power Save (U-APSD)	√	√
Fast secure roaming and handover between APs	√	√
Pre-Authentication (Pre-Auth)	√	√
Opportunistic Key Caching (OKC)	√	√
Bonjour/LLMNR/UPnP identification, containment and control	√	√
Support voice, video and data using the same SSID	√	√
Prioritize 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	CSMA/CA with ACK
Data Rates	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 802.11n: See 802.11n Performance table below Receive Sensitivity **802.11a:** • -94dBm @ 6Mbps • -80dBm @ 54Mbps **802.11g:** • -95dBm @ 6Mbps • -80dBm @ 54Mbps **802.11b:** • -98dBm @ 1Mbps • -90dBm @ 11Mbps 802.11n: See 802.11n Receive Sensitivity Table below	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 802.11n: See 802.11n Performance table below Receive Sensitivity **802.11a:** • -94dBm @ 6Mbps • -80dBm @ 54Mbps **802.11g:** • -95dBm @ 6Mbps • -80dBm @ 54Mbps **802.11b:** • -98dBm @ 1Mbps • -90dBm @ 11Mbps 802.11n: See 802.11n Receive Sensitivity Table below
Frequency Bands	**802.11a/n:** • 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:** • 2.400 to 2.4835 GHz (FCC / IC / ETSI)	**802.11a/n:** • 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:** • 2.400 to 2.4835 GHz (FCC / IC / ETSI)
Wireless Modulation	802.11a: OFDM 802.11b: DSSS 802.11g: DSSS and OFDM 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 and STBC	802.11a: OFDM 802.11b: DSSS 802.11g: DSSS and OFDM 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 and STBC
INTERFACES		
Wired Interface	1 x 10/100/1000 E/N	2 x SFP GE
Console port for the ease of installation and management	√	√
MOUNTING		
Direct wall mounting	√	√
Removable wall mounting bracket	Optional	Optional
Pole mounting bracket	Optional	Optional
Environmental	**Operating:** Temperature -40º C to +60º C (-40º F to +140º F) Humidity 0% -95% (noncondensing) **Storage:** Temperature -40º C to +70º C (-40º F to +158º F) **Transportation:** Temperature -40º C to +70º C (-40º F to +158º F) **Protection:** IP65, NEMA4, UL HAZLOC, FM, ATXEX	**Operating:** Temperature -40º C to +60º C (-40º F to +140º F) Humidity 0% -95% (noncondensing) **Storage:** Temperature -40º C to +70º C (-40º F to +158º F) **Transportation:** Temperature -40º C to +70º C (-40º F to +158º F) **Protection:** IP65, NEMA4, UL HAZLOC, FM, ATXEX

Compliance	• 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 • EN 50385 • EN 55011 (CISPR 11) Class B Group • 1 ISM • EN 55022 (CISPR 22) • AS/NZS3548 (CISPR22) **International (including China)** • IEC 60950-1 • IEC 60825 **Europe** • EN 60950-1 • EN 60825 **USA / Canada / Mexico (NAFTA)** • UL 60950-1 • CSA 22.2 No.60950-1-03 **Australia** • AS/NZS 60950.1	• 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 • EN 50385 • EN 55011 (CISPR 11) Class B Group • 1 ISM • EN 55022 (CISPR 22) • AS/NZS3548 (CISPR22) **International (including China)** • IEC 60950-1 • IEC 60825 **Europe** • EN 60950-1 • EN 60825 **USA / Canada / Mexico (NAFTA)** • UL 60950-1 • CSA 22.2 No.60950-1-03 **Australia** • AS/NZS 60950.1
MECHANICAL		
Dimensions (W x H x L)	(W x H x D) 9.9" x 9.9" x 2.8" (251 mm x 251 mm x 72 mm)	(W x H x D) 9.9" x 9.9" x 2.8" (251 mm x 251 mm x 72 mm)
Weight	Without optional PS adapter: 79.1 oz. (2241 g) With optional AC PS adapter: 85.8 oz. (2433 g)	Without optional PS adapter: 79.1 oz. (2241 g) With optional AC PS adapter: 85.8 oz. (2433 g)
Power consumption	15.6W Max / 15W Typical with 2 radios	15.6W Max / 15W Typical with 2 radios
Warranty	1 Year	1 Year

Ordering Information

| PART NUMBER	DESCRIPTION
ACCESS POINTS	
WS-AP3765i	Dual Radio 802.11a/b/g/n, 3x3:3, industrial outdoor access point with six internal antenna array
WS-AP3765e	Dual Radio 802.11a/b/g/n, 3x3:3, industrial outdoor access point with six reverse polarity SMA connectors for external antennas (requires antennas to be ordered separately)
WS-AP3767e	Dual Radio 802.11a/b/g/n, 3x3:3 with redundant SFP E/N ports, industrial outdoor access point with six reverse polarity SMA connectors for external antennas (requires antennas and external power adapter to be ordered separately)
ACCESSORIES	
WS-MB376X-01	Wall and pole mounting kit for AP376X
WS-PS376X-MR	Outdoor power supply for AP376X
MGBICS (FOR AP3767E ONLY)	
I-MGBIC-GLX	Industrial grade, -40°C to +60°C, 1 Gb, 1000Base-LX, MM - 550 M, SM - 10 KM, 1310 nm Long Wave Length, LC SFP
I-MGBIC-LC03	Industrial grade, -40°C to +60°C, 1 Gb, 1000Base-LX, MM, 1310 nm Long Wave Length, 2Km w/62.5 MMF, 1 Km w/50 MMF, LC SFP
I-MGBIC-GSX	Industrial grade, -40°C to +60°C, 1 Gb, 1000BASE-SX, IEEE 802.3 MM, 850 nm Short Wave Length, 220/550 m, LC SFP
ANTENNAS	
WS-AO-DT05120-1	Outdoor, 2.3-2.7/4.9-6.1 GHz, Triple-feed, 5 dBi, 120 deg, sector with reverse polarity type-N plug connector
WS-AIO-2S18018	Indoor/Outdoor, 2.3-2.5 GHz, 18 dBi, 18 deg, panel antenna with reverse polarity type-N jack connector
WS-AO-2S10360	Outdoor, 2.4 GHz, 10 dBi, Omni baton with reverse polarity type-N jack connector
WS-AO-5S10360	Outdoor, 5.7-5.8 GHz, 10dBi, Omni baton with reverse polarity type-N jack connector
WS-AO-DS05360	Outdoor, 2.4-2.5/5.15-5.875 GHz, 5 dBi, Omni baton antenna with reverse polarity type-N jack connector
WS-AO-5D16060	Outdoor, 5.15-5.875 GHz, Dual-polarization 16 dBi, 60 deg, sector antenna with reverse polarity type-N jack connector
WS-AO-5D23009	Outdoor, 5.15-5.875 GHz, Dual-polarization, 23 dBi, 9 deg, panel antenna with reverse polarity type-N jack connector
WS-AO-DX13025	Outdoor, 2.4-2.5/5.15-5.875 GHz, Six-feed, 12/11 dBi, 27/30 deg, panel with reverse polarity type-N plug connector
WS-AO-DX10055	Outdoor, 2.4-2.5/5.15-5.875 GHz, Six-feed, 10/6 dBi, 55 deg, panel with reverse polarity type-N plug connector
CABLES / CONNECTORS	
WS-CAB-6DBATTN	6db attenuator with RSMA connectors
WS-CAB-10DBATTN	10db attenuator with RSMA connectors
WS-CAB240-PT20P	20 inch LMR240 pigtail with reverse polarity type-N plug to connect AP to lightning protector or directly to antenna.
WS-CAB-PT20J	20 inch pigtail with reverse polarity type-N jack used to connect AP to the LMR cables
WS-CAB-LPM	Dual-band lightning protector with reverse polarity type-N jack on both ends
WS-CAB-L200C20	20 foot LMR200 cable with reverse polarity type-N plugs on both ends
WS-CAB-L400C06	6 foot LMR400 cable with reverse polarity type-N plugs on both ends
WS-CAB-L400C50	50 foot LMR400 cable with reverse polarity type-N plugs on both ends
WS-CAB-L400C75	75 foot LMR400 cable with reverse polarity type-N plugs on both ends
WS-CAB-L600C25	25 foot LMR600 cable with reverse polarity type-N plugs on both ends
WS-CAB-L600C50	50 foot LMR600 cable with reverse polarity type-N plugs on both ends

802.11n Performance Data Rates (Mbps)

	SPATIAL STREAMS	HT20 NORMAL GI	HT20 SHORT GI	HT40 NORMAL GI	HT40 SHORT GI
2.4GHZ/5GHZ					
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	2	13	14.4	27	30
MCS9	2	26	28.9	54	60
MCS10	2	39	43.3	81	90
MCS11	2	52	57.8	108	120
MCS12	2	78	86.7	162	180
MCS13	2	104	115.6	216	240
MCS14	2	117	130	243	270
MCS15	2	130	144.4	270	300
MCS16	3	19.5	21.7	40.5	45
MCS17	3	39	43.3	81	90
MCS18	3	58.5	65	121.5	135
MCS19	3	78	86.7	162	180
MCS20	3	117	130	243	270
MCS21	3	156	173.3	324	360
MCS22	3	175.5	195	364.5	405
MCS23	3	195	216.7	405	450

Receive Sensitivity (dBm)

	SPATIAL STREAMS	2.4GHZ		5GHZ	
		HT20 (20MHZ)	HT40 (40 MHZ)	HT20 (20MHZ)	HT40 (40 MHZ)
MCS0	1	-95	-89	-94	-91
MCS1	1	-93	-90	-94	-90
MCS2	1	-91	-89	-93	-89
MCS3	1	-87	-85	-88	-85
MCS4	1	-85	-82	-86	-83
MCS5	1	-80	-78	-82	-78
MCS6	1	-79	-77	-80	-76
MCS7	1	-78	-75	-78	-74
MCS8	2	-93	-90	-94	-90
MCS9	2	-90	-88	-91	-88
MCS10	2	-88	-86	-89	-86
MCS11	2	-85	-82	-86	-83
MCS12	2	-82	-79	-83	-79
MCS13	2	-78	-75	-78	-74
MCS14	2	-76	-74	-76	-72
MCS15	2	-76	-72	-75	-69
MCS16	3	-93	-89	-93	-90
MCS17	3	-90	-87	-90	-88
MCS18	3	-87	-84	-88	-85
MCS19	3	-83	-81	-85	-81
MCS20	3	-82	-76	-81	-72
MCS21	3	-77	-74	-76	-71
MCS22	3	-75	-72	-74	-66
MCS23	3	-74	-70	-68	-63

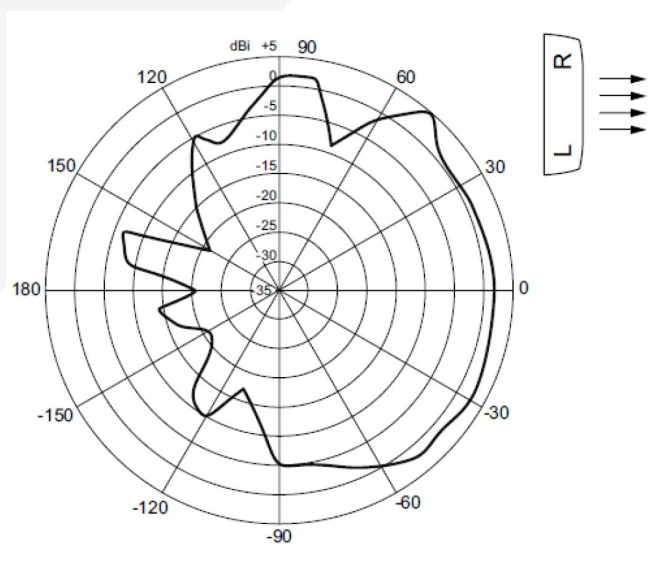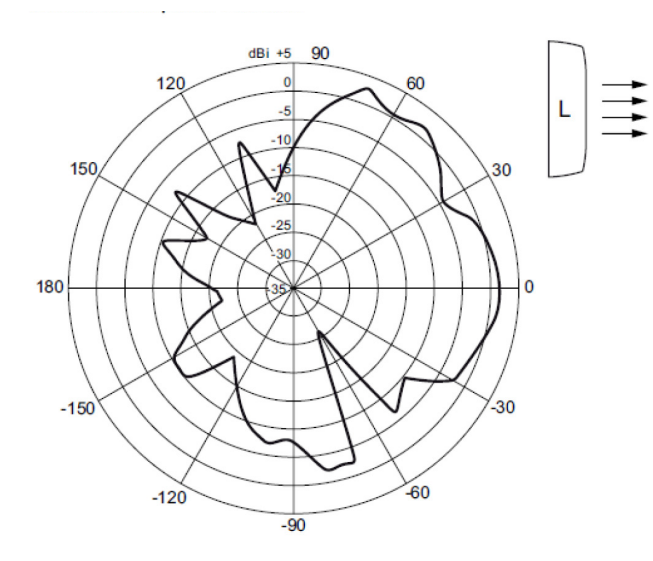# 3765i Antenna Radiation Patterns
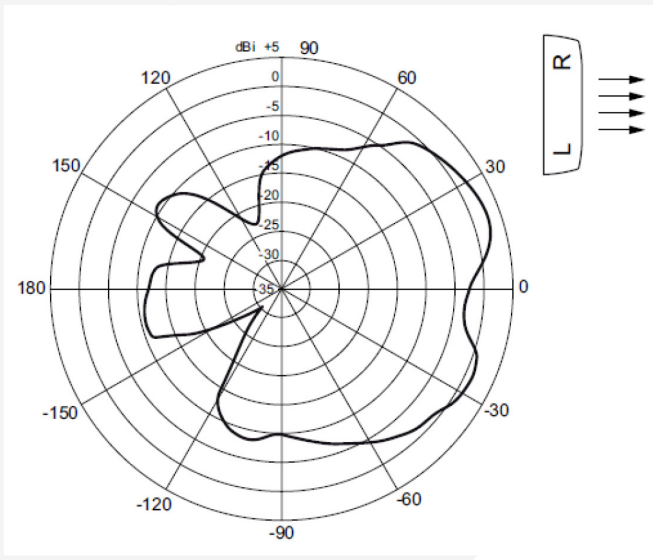
Horizontal Radiation Pattern 2500 MHz
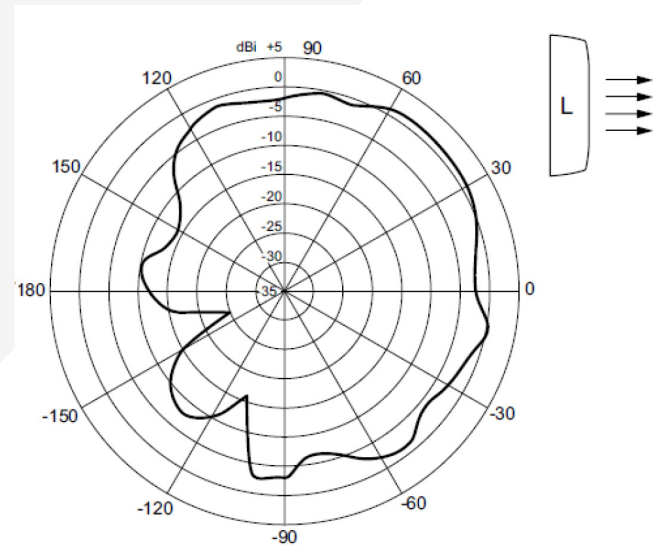
Vertical Radiation Pattern 2500 MHz

Horizontal Radiation Pattern 5800 MHz

Vertical Radiation Pattern 5800 MHz

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: http://www.extremenetworks.com/support/enterasys-support/how-to/warranty/.

Service & Support

Extreme Networks Networks provides comprehensive service offerings that range from Professional Services to design, deploy and optimize customer networks, customized technical training, to service and support tailored to individual customer needs. Please contact your Extreme Networks account executive for more information about Extreme Networks Service and Support.

http://www.ExtremeNetworks.com/contact / Phone +1-408-579-2800