Extreme™
Customer-Driven Networking

Data Sheet

Highlights

High Density Environments

- Delivers exceptional end-user experience even in dense user environments such as stadiums, large public venues, convention centers and school auditoriums.

Connects More Users and Devices Simultaneously

- Improve user experience and device performance with 8 spatial streams (4x4:4 5 GHz, 4x4:4 2.4 GHz), with MU-MIMO and OFDMA technology.*

Latest in Secure Wi-Fi

- Includes the latest WPA3 Wi-Fi security standard with 192-bit encryption and delivering robust protections for users and IoT devices.

Optimizes RF for the Optimal User Experience

- ExtremeAI and SmartRF uses AI/ML technology to monitor and automatically adjust Wi-Fi radios to achieve the best coverage and greatest client performance, even in dynamic RF environments.

Integrated Bluetooth for IoT and Guest Engagement

- Leverage the integrated Bluetooth to connection to IoT devices with Thread™or engage loyalty customers with Apple iBeacon™. Enterprises can use Google Eddystone™ to send advertisements directly to shoppers, guests, and conference attendees, even without a loyalty app pre-installed. This makes it ideal for businesses to advertise their app-download pages, captive portals, or site-specific information

Adaptive Smart OmniEdge Management

- ExtremeCloud™ delivers a powerful user experience with simple and secure network management.
- ExtremeCloud™ Appliance is ideal for campus or private cloud requirements

New Security Lock

- Kensington lock and new security lock hook

* Available in future software release

ExtremeMobility™ AP505i 802.11ax Indoor AccessPoint

Setting New Standards in High-Performance Enterprise Wi-Fi 6

Product Overview

The mobile revolution is upon us. Enterprises are implementing digital transformation to connect with users, employees, guests, customers and IoT devices to help them better understand and manage their business, improve efficiencies, as well as the experience of their brand to customers and stock holders. However, today's Wi-Fi users have higher expectations, consume more bandwidth, and have less patience with a poor Wi-Fi experience. This is a challenge for every enterprise, as they struggle to keep pace with the seemingly exponential growth of Wi-Fi demand and data hungry applications – until now.

Designed to leverage the performance improvements delivered with 802.11ac wave 2, 802.11ax borrows key technology from cellular to increase device capacity and improve spectral efficiency, extracting more out of available Wi-Fi spectrum. Bottom line, 802.11ax will support more users and IoT devices, providing each the spectrum they require, future proofing enterprise wireless networks, while minimizing the upgrade fatigue they have been experiencing to date.

Purpose Built to Meet the Needs of Many

Extreme's AP505i is a high performance, enterprise class 802.11ax access point at the price/performance point that is ideal for many verticals, including; retail, education, hospitality and healthcare. These enterprises need to support a high density of users and IoT devices, while delivering an exceptional user experience.

The AP505i is managed by the Smart OmniEdge solution and powered by the WiNG 7 operating system. WiNG's legendary distributed architecture places the intelligence at the edge where it unleashes the true capabilities and performance of 802.11ax, without bottlenecks and limits. WiNG incorporates the functionality of a controller in each access point,

enabling network solutions with controller-less solutions using a virtual controller that supports up to 64 access points or distributed solutions comprised of branch sites with up to 256 access points per site. The solution can scale to 25,000 access points and are managed with a simple, cloud UI and workflow with ExtremeCloud or ExtremeCloud Appliance for campus and private cloud networks.

Managing the Complexity of RF

Network managers will appreciate a powerful choice of RF management for their 802.11 networks, with SmartRF or ExtremeAI. WiNG's SmartRF, is a robust RF management system with AI/ML 'like' functionality. Built on 10 years of experience across thousands of large scale networks and millions of access points, SmartRF's algorithms manage channels, radios, load balancing, band steering and many other attributes of the RF.

For enterprises with highly dynamic RF environments, ExtremeAI is a hosted service which delivers the latest in AI/ML technology for RF networks. ExtremeAI monitors and learns the behavior of all your Smart OmniEdge RF networks and applies artificial intelligence to auto tune the network to achieve optimum performance and user experience. Applied to 802.11ax, this technology will lessen the workload of network engineers, while ensuring their network users have the best experience.

ExtremeCloud and ExtremeCloud Appliance

The AP505i is the latest access point in the Smart OmniEdge portfolio. Network managers have a choice of cloud or premise-based solutions; both using the same UI and workflows. ExtremeCloud is a hosted cloud service, while ExtremeCloud Appliance is designed for premise-base solutions of campus and private cloud. Both support secure zero touch provisioning that significantly reduces deployment time connectivity via a single pane of glass for unified management of Extreme wired and wireless components in your network.

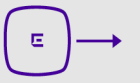
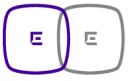
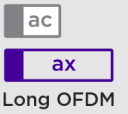
See the ExtremeCloud and ExtremeCloud Appliance data sheets for details and ordering part numbers.

802.11ax Technology

Whereas prior generations of 802.11n, 802.11ac wave 1 and 2, can be considered generational improvements, each building on the prior standard, the new PHY technology of 802.11ax adds a significant level of new technology which takes Wi-Fi networks to an entirely new level.

The following table provides a brief description of the various new elements in the 802.11ax standard. To learn more about 802.11ax, go to: https://www.extremenetworks.com/are-you-ready-for-802-11ax/

Key 802.11ax Client Technologies

		AP505i Features Supported
 OFDMA DL/UL	Central scheduling of 802.11ax clients reduces contention and overhead, which increases efficiency in scenarios of dense deployments	Future
 Supports up to 8 Clients/TxOP	Capable up supporting up to 8 clients simultaneously, uplink and downlink	Yes, dual 4x4:4 radios
 Up Link Scheduler	Scheduled Up Link access for increased capacity and efficiency	Future
 1024 QAM	Gigabit Wi-Fi with only 2x2 Delivering up to 25% higher data rate vs 256QAM	Yes
 Target Wake Time	Devices decide the frequency they wake to send or receive data, increasing sleep time, while conserving battery life	Future
 More Spatial Streams	Supports 8 spatial streams, 2X more than 11ac	Yes
 Extended Range	Extends range and performance for clients at the cell boundary	Yes
 BSS Coloring	Coloring enables devices to achieve better channel reuse in their own networks	Future
 Long OFDM Symbol	Enables larger coverage areas: E.g. outdoor deployments	Yes

Specifications

Product Features	AP 505i
General	
Fully-Featured Enterprise Class AP	✓
Number of Wi-Fi Radios	2
MIMO Implementation for High-Performance 11ax, 11ac & 11n Throughputs	4x4
Number of Spatial Streams	4 per radio
Number of Simultaneous Users (MU-MIMO)	**5 GHz radio:** - Four spatial stream Multi User (MU) MIMO for up to 4.8 Gbps wireless data rate to up to four 1 SS or two 2SS HE160 802.11ax DL-MU-MIMO capable client devices simultaneously (max)* - Four spatial stream Multi User (MU) MIMO for up to 2.4 Gbps wireless data rate to up to four 1 SS or two 2SS HE80 802.11ax DL-MU-MIMO capable client devices simultaneously (typical)* **2.4 GHz radio:** - Four spatial stream Multi User (MU) MIMO for up to 1.148 Gbps wireless data rate to up to four 1 SS or two 2SS HE40 802.11ax DL-MU-MIMO capable client devices simultaneously (max)* - Four spatial stream Multi User (MU) MIMO for up to 572Mbps wireless data rate to up to four 1 SS or two 2SS HE20 802.11ax DL-MU-MIMO capable client devices simultaneously (typical)*
Maximum Throughput 2.4 GHz Radio	1.148 Gbps (40 MHz)
Maximum Throughput 5 GHz Radio	4.8 Gbps (Full 5 GHz 160 MHz)
Number of SSIDs Supported Per Radio/Total	8/16
Simultaneous Users Per Radio/Total	256/512 Per AP
Mode of Operation	Semi-autonomous/Autonomous
Plug and Play Operation/Zero Touch Deployment	✓
Security and Standards	WPA, WPA2 (AES), WPA3, 802.11i, 802.1x, IPSec, IKEv2, PKCS #10, X509 DER / PKCS #12, SSL
Internet of Things (IoT) Radio	Dual mode selectable (2.4 GHz with coexistence): Bluetooth Low Energy (BTLE) 4.1 - Single and Dual mode operation (Classic and Low Power Profiles 802.15.4 -2011)
Multiple Operating Modes	
Centralized Data Paths Within Same SSID	✓
Application Based Distributed and Centralized Data Paths Within Same User / Device Session	✓
Simultaneous RF Monitoring and Client Services	✓
BYOD / Device Fingerprinting Visibility	✓
Application / Layer 7 Visibility and Control	✓
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	✓
Remote Access Point	✓

* Available in future software release

Product Features	AP505i
Hardware-Based, End-to-End Data and Control Plane Encryption	✓
Private and Public Cloud Deployments	✓
SSL	✓
Policy Enforcement for Wired Clients (L2-L7 Access Control, QoS, Rate Limiting, and VLAN Containment)	✓
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	✓
Max Antenna Gain (Integrated Antenna)	
Radio 1 (2.4 GHz)	4 dBi
Radio 2 (5 GHz)	6 dBi
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)	✓
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	✓

Product Features	AP 505i
Wireless Services	
Media Access Protocol	CSMA/CA with ACK
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps 802.11n: (2.4 GHz); 6.5 to 300 (MCS0 to MCS15, HT20 to HT40) 802.11n: (5 Ghz); 6.5 to 300 (MCS0 to MCS15, HT20 to HT40) 802.11ac: 6.5 to 3467 (MCS0 to MCS9, NSS=1 to 4, VHT20 to VHT160) 802.11ax: (2.4 GHz): 3.6 to 574(MSC0 to MSC11, NSS = 1 to 2, HE20 to HE40) 802.11ax: (5 GHz): 3.6 to 4803 (MSC0 to MSC11, NSS = 1 to 4, HE20 to HE160) See 802.11n Receiver Sensitivity Table below See 802.11ac Receiver Sensitivity Table below See 802.11ax Receiver Sensitivity Table below
Frequency Bands	802.11ax/ac/a/n/g: 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 2.4720 GHz (FCC/ IC) 2.400 to 2.4835 GHz (ETSI) *FCC/ IC DFS certification in progress
Wireless Modulation	802.11ax: OFDMA (1024-QAM) 802.11ac: OFDM(BPSK, QPSK, 16-QAM, 64QAM, 256-QAM) 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: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 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: OFDM(BPSK, QPSK, 16-QAM, 64-QAM) 802.11g: DSSS and OFDM 802.11b: DSSS

Wireless and EMC	
Compliance	FCC CFR 47 Part 15, Class B ICES-003 Class B FCC Subpart C 15.247 FCC Subpart E 15.407 RSS-247 EN 301 893 EN 300 328 EN 301 489 1 & 17 EN50385 EN 55022 (CISPR 22) EN 60601-1-2 AS/NZS4268 + CISPR22 IEC 60950-1, 62368-1
Safety	EN 60950-1, 62368-1 UL 60950-1, 62368-1 CAS 22.2 No. 60950-1-03, 62368-1 AS/NZS 60950.1, 62368-1

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

Physical Characteristics	
Dimensions	8.26 " x 8.26 " x 1.89" (210 mm x 210 mm x 48mm)
Weight	3.21 lbs - 1.45 kg
Housing	UL2043 (plenum-Rated)
Power Consumption (RMS)	5 dBi 5 GHz
Warranty	Limited Lifetime Warranty
MTBF	395,961 hrs @ 25° C
Mounting	WING bracket compatible, Extreme, Muit-Tbar (see mounting section below)
Configurations	Above drop ceiling under ceiling or on wall
LAN Ethernet	1 x 2.5 Gbps Ethernet port, RJ45 1 x 10/100/1000 Mpbs auto-sensing Ethernet port, RJ45
Console port	RJ 45
USB Port	USB 3.0 port , Type A for purpose built modules
LEDs Activity Indication	Two top mounted LEDs - multiple LED radio Indicators
Energy Efficient	Energy-Efficient Ethernet 802.3az
Anti-Theft Locks	Kensington Lock Security Hanger Lock

Power Specifications	
Operating Temperature	Temperature 0° C to +40 ° C (+32° F to +104° F) @ 6000ft Temperature 0° C to +45 ° C (+32° F to +113° F) @ Sea Level
Humidity	0 - 95% (noncondensing)
Storage and Transportation	Temperature -40 ° C to +70 ° C (-40 ° F to + 158° F)
Operating Voltage	PoE-PD: 48-57VDC, Wall brick 12VDC
Operating Current	PoE-PD: 500mA at 48V, Wall brick 2A
PoE PD Class	802.3at
Power consumption	Max: 22 W (without USB) Idle (radios ON) : 9.5 W Typical 18 W; Max 22 W

Ordering Information

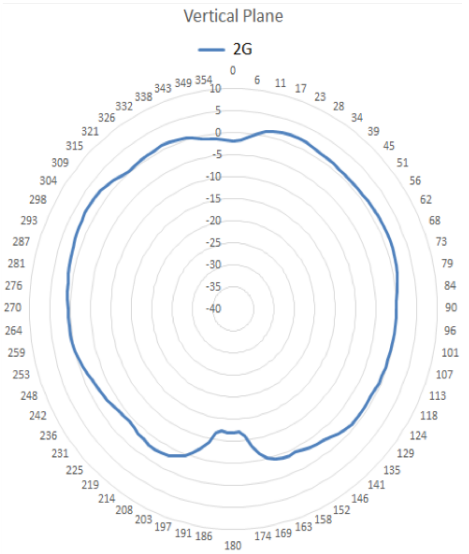
Access Points	
Part Number	**Description**
AP505i-FCC	Cloud-Ready, Dual Radio 802.11ax/ac/abgn, 4x4:4 MIMO Indoor 11ax access point. Internal Antenna Domain: US, Puerto Rico, and Colombia
AP505i-WR	Cloud-Ready, Dual Radio 802.11ax/ac/abgn, 4x4:4 MIMO Indoor 11ax access point. Internal Antenna Domain: EMEA and Rest Of World
AP505i-FCC-TAA	Cloud-Ready, Dual Radio 802.11ax/ac/abgn, 4x4:4 MIMO Indoor 11ax access point. Internal Antenna Domain: US, Puerto Rico, and Colombia TAA Compliant

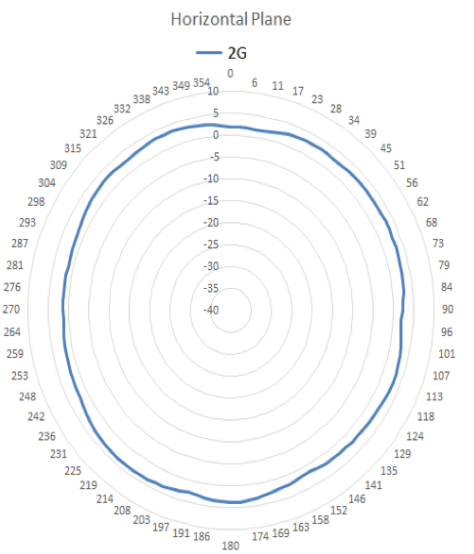
Mid-Span PoE Devices	
Part Number	**Description**
PD-9001GR-ENT	Single Port, 1 Gigabit 802.3at PoE Midspan
37219	PWR 12VDC, 3A, 2.5mm x 5.5mm connector

Mounting Options	
Part Number	**Description**
37201	Mounting Plate for Indoor APs (incuded in box)
KT-135628-01	Universal Mounting Kit for WLAN APs Requires (37201) bracket for mounting
30518	WS-MBI-DCMTR01 bracket
30516	WS-MBI-WALL04
37211	WS-MBI-DCFLUSH
BRKT-000147A-01	Beam Clip Accessory

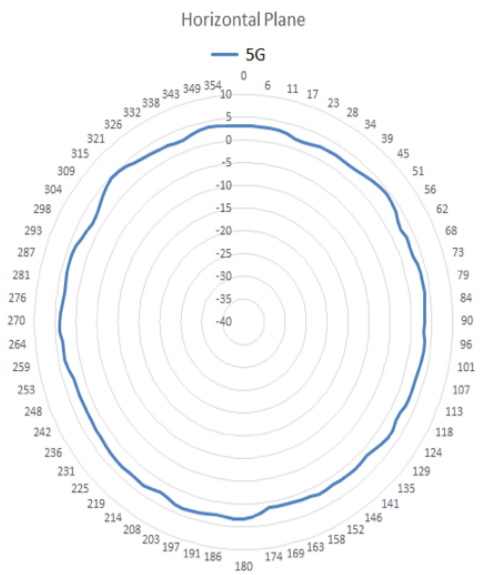
AP505i Antenna Radiation Patterns

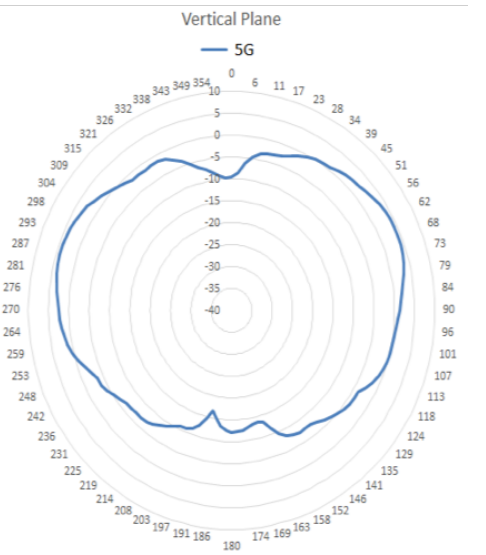
2.4 GHz





5 GHz – Radio 2





IoT Radio Sensitivity

Typical Receiver Sensitivity	dBm
BlueTooth Low Energy	-90
802.15.4	-100

Radio RF Performance

2.4 GHz

	Max Transmit Power (dBm) per Transmit Chain	Receiver Sensitivity (dBm) per Receiver Chain
802.11b		
1 Mbps	19	-98
11 Mbps	19	-90
802.11g		
6 Mbps	19	-96
54 Mbps	17	-77
802.11n HT20		
MCS 0	19	-94
MCS 7	17	-76
802.11ax HE20		
MCS 0	19	-94
MCS 11	15	-64

Radio RF Performance

5 GHz

	Max Transmit Power (dBm) per Transmit Chain	Receiver Sensitivity (dBm) per Receiver Chain
802.11a		
6 Mbps	20	-93
54 Mbps	19	-76
802.11n HT20		
MCS 0	20	-93
MCS 7	18	-74
802.11n HT40		
MCS 0	20	-91
MCS 7	18	-71
802.11ac VHT20		
MCS 0	20	-93
MCS 8	17	-70
802.11ac VHT40		
MCS 0	20	-91
MCS 8	17	-65
802.11ac VHT80		
MCS 0	20	-88
MCS 9	17	-62
802.11ac VHT160		
MCS 0	20	-83
MCS 9	16	-59
802.11ac VHT160		
MCS 0	20	84
MCS 11	15	-54

Warranty

As a customer-centriccompany, Extreme Networks is committed to providing quality products and solutions. In theeventthatoneofourproductsfailsduetoadefect,we have developed a comprehensive warranty that protectsyou and provides a simple way to get your products repaired or media replaced as soon aspossible.

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

Service and Support

Extreme Networks provides comprehensive service offerings that range from Professional Services to design,deploy and optimization of 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.

Extreme™
Customer-Driven Networking

http://www.extremenetworks.com/contact