

Extreme Networks Altitude 4521

Cost Effective Single Radio Independent
802.11n abgn Wireless Access Point



Performance

- 2x2 MIMO
- 802.11n abgn (2.4 / 5GHz)
- 27 dBm Max Output Power
- GigE Uplink with PoE

Form Factor

- Single Radio
- Independent AP
- Wall or Ceiling Mount

Features

- Compact
- Cost Effective
- Layer 2-7 Stateful Packet Filtering Firewall
- Wireless IPS
- VPN Gateway
- SMART RF
- Internal and External Antenna Options Virtual Controller Functionality
- Continues to provide service even if connectivity to controller is lost.

The Altitude™ 4521 is an independent, cost-effective access point. As a single radio independent AP, the Altitude 4521 can be used as a standalone AP or with a wireless controller, this AP also can become a virtual controller and control up to 24 additional Altitude 4521 Access Points. This access point is targeted at Enterprise and Campus deployments that are looking to lower the cost of deploying and operating a secure, reliable 802.11n wireless LAN (WLAN) but are also looking for a more robust solution than a pure dependent AP approach. The Altitude 4521 can continue to provide service if a connection to the controller is lost, for example by a cable cut or power failure. The Altitude 4521 is equipped with a 2x2 MIMO 802.11n abgn (2.4 and 5GHz) band unlocked radio with a combined output power of a maximum 27 dBm. The 4521 supports local bridging and has a single Gigabit Ethernet uplink port. The device has a small form factor and is easily mounted on a wall or ceiling with included hardware. The Altitude 4521 can be powered via the Gigabit Ethernet uplink port with standard 802.3af PoE. There are two versions of the Altitude 4521, an internal integrated antenna version and an external antenna version with connectors for standard paddle antennas.

Security: The AP includes a layer 2-7 stateful packet filtering firewall. AAA Radius client services, built in wireless IPS, VPN Gateway, and location based access control are also included.

Deployment: The Altitude 4521 supports wireless controller autodiscovery. Upon activation it communicates with the controller and automatically downloads configuration parameters and firmware. This reduces installation, maintenance and troubleshooting costs for layer 2 and layer 3 deployments.

Intelligence: The Altitude 4521 uses SMART RF to adjust power and channel selection to prevent channel overlap or co-channel interference. This is done automatically reduces the chance of human error or interference. SMART RF is a standard feature on the Altitude 4521.

Direct Forwarding: The Altitude 4521 allows for direct forwarding of data traffic. That means no bottleneck at the wireless controller, which reduces latency and jitter issues for voice and video applications.

Internal and External Antenna options: The Altitude 4521 comes with either internal or external antennas. The internal antenna model has a white plastic facia. The external antenna model contains two external paddle antenna connectors. Both versions support both wall and ceiling mounting, for maximum deployment flexibility.

Virtual Controller Functionality: The Altitude 4521 has the capability to act as a virtual controller AP, allowing a single Altitude 4521 to control up to 24 other of the same type of AP.

Altitude 4521 SPECIFICATIONS CHART

PHYSICAL CHARACTERISTICS	INTERNAL ANTENNA	EXTERNAL ANTENNA
Dimensions:	6.0 in. L x 5.5 in. W x 1.63 in. H 15.24 cm L x 13.97 cm W x 4.11 cm H	6.0 in. L x 5.5 in. W x 1.63 in. H 15.24 cm L x 13.97 cm W x 4.11 cm H
Weight:	0.60 lbs./0.272 kg	0.60 lbs./0.272 kg
Available mounting configurations:	Ceiling-mount (to suspended ceiling T-bars, below tile); wall mount	Ceiling-mount (above tile); wall-mount
Plenum rated:	Yes, certified to UL 2043	
LED indicators:	2 LED indicators with multiple modes indicating 2.4GHz/5 GHz Activity	

WIRELESS DATA COMMUNICATIONS AND NETWORKING

Data rates supported	802.11b/g: 1,2,5.5,11,6,9,12,18,24,36,48, and 54Mbps 802.11a: 6,9,12,18,24,36,48, and 54Mbps 802.11n: MCS 0-15 up to 300Mbps
Network Standard:	802.11a, 802.11b, 802.11g, 802.11n
Wireless Medium	Direct Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Division Multiplexing (OFDM), and Spatial Multiplexing (MIMO)
VLANs/WLANs supported:	VLANs and WLANs are controller-Dependent
Uplink	Auto-sensing 10/100/1000Base-T ETHERNET

RADIO CHARACTERISTICS

Operating channels:	5GHz: All channels from 5180 MHz to 5825 MHz 2.4GHz: 2412-2472 MHz Actual operating frequencies depend on national regulatory limits
Maximum available transmit power:	24dBm
Transmit power Adjustment:	1dB increments
Antenna configuration:	2x2 MIMO (transmit on two and receive on two antennas)
Operating bands:	FCC EU 2.412 to 2.462 GHz 2.412 to 2.472 GHz 5.150 to 5.250 (UNII -1) 5.150 to 5.250 GHz 5.725 to 5.825 (UNII -3) 5.150 to 5.350 GHz 5.725 to 5.850 (ISM) 5.470 to 5.725 GHz

USER ENVIRONMENT	INTERNAL ANTENNA	EXTERNAL ANTENNA
Operating temperature:	32°F to 104° F/0°C to 40° C	
Storage temperature:	40°F to 158° F/-40°C to 70°	
Operating humidity:	5%-95% (non-condensing)	
Operating altitude:	8,000 ft./2438 m	
Storage altitude:	15,000 ft./4572 m	
Electrostatic discharge:	+/- 15 kV (Air), +/- 8 kV (contact)	

POWER SPECIFICATIONS

Operating voltage:	802.3af supply: 48 VDC @ 12.95W (typical), 36 VDC to 57 VDC (range)
Operating current:	270mA rms at 48V
Integrated Power-over-Ethernet support:	Standards-based IEEE 802.3af
Typical Operational RMS Power Consumption:	10W (209mA at 48V)



MAXIMUM RADIO TRANSMIT POWER:

BAND	SINGLE ANTENNA COMPOSITE TRANSMIT POWER	DUAL ANTENNA COMPOSITE TRANSMIT POWER
2400MHZ	+24 dBm	+27 dBm
5200MHZ	+20 dBm	+23 dBm

ANTENNA PORT SPECIFICATON

Type:	Integrated 2.4 GHz and 5.2 GHz Dual-Antenna Elements Two RP-SMA connectors for external antennas (not included)
Band:	2.4 GHz to 2.5 GHz; 5.180 GHz to 5.850 GHz (actual operating frequencies depend on regulatory rules and certification agency)

INTERNAL ANTENNA INFORMATION

INTERNAL ANTENNA DESCRIPTION	VALUES
Peak gain, 2.4GHz band	3.0dBi
Peak gain, 5.2GHz band	6.0dBi

REGULATORY

Product safety certifications:	UL 60950, cUL, EU EN 60950, TUV and UL 2043 (external antenna)
Radio approvals:	FCC (USA), Industry Canada, CE (Europe)

CONDUCTED RECEIVER SENSITIVITY

(ANTENNA ELEMENT NOT INCLUDED)
(typical) at antenna housing connector,
2400MHz band

Rate/MCS	Mode	Sensitivity (dBm)
1	Legacy	-95
2	Legacy	-95
5.5	Legacy	-95
11	Legacy	-92
6	Legacy	-96
9	Legacy	-96
12	Legacy	-95
18	Legacy	-93
24	Legacy	-89
36	Legacy	-86
48	Legacy	-82
54	Legacy	-81
MCS0	HT20	-96
MCS1	HT20	-94
MCS2	HT20	-91
MCS3	HT20	-88
MCS4	HT20	-85
MCS5	HT20	-81
MCS6	HT20	-79
MCS7	HT20	-78
MCS8	HT20	-93
MCS9	HT20	-90
MCS10	HT20	-87
MCS11	HT20	-85
MCS12	HT20	-82
MCS13	HT20	-77
MCS14	HT20	-76
MCS15	HT20	-74
MCS0	HT40	-92
MCS1	HT40	-90
MCS2	HT40	-88
MCS3	HT40	-85
MCS4	HT40	-82
MCS5	HT40	-78
MCS6	HT40	-76



CONDUCTED RECEIVER SENSITIVITY

(ANTENNA ELEMENT NOT INCLUDED)
(typical) at antenna housing connector,
2400MHz band (Cont.)

Rate/MCS	Mode	Sensitivity (dBm)
MCS7	HT40	-75
MCS8	HT40	-89
MCS9	HT40	-86
MCS10	HT40	-84
MCS11	HT40	-81
MCS12	HT40	-78
MCS13	HT40	-73
MCS14	HT40	-72
MCS15	HT40	-70

CONDUCTED RECEIVER SENSITIVITY

(ANTENNA ELEMENT NOT INCLUDED)
(typical) at antenna housing connector,
5200MHz band

Rate/MCS	Mode	Sensitivity (dBm)
6	Legacy	-94
9	Legacy	-93
12	Legacy	-93
18	Legacy	-91
24	Legacy	-87
36	Legacy	-84
48	Legacy	-80
54	Legacy	-79
MCS0	HT20	-94
MCS1	HT20	-92
MCS2	HT20	-90
MCS3	HT20	-86
MCS4	HT20	-84
MCS5	HT20	-79
MCS6	HT20	-78
MCS7	HT20	-76
MCS8	HT20	-91
MCS9	HT20	-88
MCS10	HT20	-86
MCS11	HT20	-83

CONDUCTED RECEIVER SENSITIVITY

(ANTENNA ELEMENT NOT INCLUDED)
(typical) at antenna housing connector,
5200MHz band (Cont.)

Rate/MCS	Mode	Sensitivity (dBm)
MCS12	HT20	-80
MCS13	HT20	-75
MCS14	HT20	-74
MCS15	HT20	-72
MCS0	HT40	-90
MCS1	HT40	-88
MCS2	HT40	-86
MCS3	HT40	-83
MCS4	HT40	-80
MCS5	HT40	-76
MCS6	HT40	-74
MCS7	HT40	-73
MCS8	HT40	-88
MCS9	HT40	-85
MCS10	HT40	-82
MCS11	HT40	-80
MCS12	HT40	-76
MCS13	HT40	-72
MCS14	HT40	-71
MCS15	HT40	-69



Ordering Information

Part Number	Description	Information
15789	AP4521i int ant US	Altitude AP4521i single-radio Independent indoor Access Point for US regulatory domain, 802.11 abgn, 2x2 MIMO, Includes internal omni-directional antennas. Powered by 802.3af/at PoE or by use of a PoE injector.
15790	AP4521i int ant ROW	Altitude AP4521i single-radio Independent indoor Access Point for the Rest of the World regulatory domain, 802.11 abgn, 2x2 MIMO, Includes internal omni-directional antennas. Powered by 802.3af/at PoE or by use of a PoE injector.
15791	AP4521e ext ant US	Altitude AP4521i single-radio Independent indoor Access Point for US regulatory domain, 802.11 abgn, 2x2 MIMO, External antennas not included-must order separately up to 4 paddle antennas. Powered by 802.3af/at PoE or by use of a PoE injector.
15793	AP4521e ext ant ROW	Altitude AP4521i single-radio independent indoor Access Point for the Rest of World regulatory domain, 802.11 abgn, 2x2 MIMO, External antennas not included-must order separately up to 4 paddle antennas. Powered by 802.3af/at PoE or by use of a PoE injector.

Third Party Accessories:

Accessories for the Altitude 4521 include external power supplies, PoE injectors and external antennas for the external antenna model. Ordering information can be found below.

Part Number	Description	Information
PWRS-147376-01R	AP4521 external PSU	External Power Supply for Altitude 4521 access points
ML-2452-APA2-01	AP4521e external antenna, black	External antenna for Altitude 4521, black
ML-2452-APAG2A1-02	AP4521e external antenna, white	External antenna for Altitude 4521, white
AP-PSBIAS-2P2-AFR	AP4521 PoE Injector	Power over Ethernet Injector for Altitude 4521



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