AX411 WIRELESS LAN ACCESS POINT

Product Overview

The Juniper Networks AX411 is a high-performance, 802.11a/b/g/n wireless LAN (WLAN) access point. It is a dual band, dual radio solution that supports data rates up to 300 Mbps. The AX411 integrates with the award winning Juniper Networks SRX Series Services Gateways for the branch to deliver security throughput that leads in its category. The AX411 is fully managed by branch SRX Series devices using Juniper Networks Junos OS. The AX411 is an ideal wireless networking solution for branch offices with simple WLAN architectures.

Product Description

The Juniper Networks® AX411 Wireless Access Point, together with Juniper Networks SRX Series Services Gateways for the branch, extends the reach of Juniper Networks Junos® operating system to lower deployment and operational costs across wired and wireless environments. Using cluster cloning, operators can ease management tasks by automating the configuration of any AX411 joining a cluster of access points. The product's over-the-air packet capture capabilities support centralized monitoring that allows offsite experts to analyze traffic and resolve problems.

For locations with multiple access points, the branch SRX Series provides wireless controller capabilities. All branch SRX Series Services Gateways can manage up to two AX411 access points without the need to purchase additional software licenses. Additional access points can be managed with the purchase of a software licenses. The AX411 supports 802.3af Power over Ethernet (PoE) for cost-effective installations based on industry standard technologies.

By combining the SRX Series Services Gateways with the AX411 WLAN access point, designers can extend security and QoS architectures from wired networks to wireless networks. As a result, the overall infrastructure solution is consistent and secure. The AX411 can support a variety of user and device types with multiple unique SSIDs, each with specific security and QoS requirements.

The AX411 integrates with Juniper's integrated convergence services capabilities on branch SRX Series devices to extend enterprise voice over IP to untethered workers who are using Wi-Fi-enabled endpoints

AX411 configuration options include a command-line interface (CLI) and Juniper Networks J-Web Software on the SRX Series, in addition to centralized policy and device management from Juniper Networks Network and Security Manager.

Features and Benefits

- Easy to install and expand
  - Automatic access point cluster cloning*
  - Configuration on connect
- Ease to operate and manage
  - Remote packet capture*
  - Wireless PHY security integrated with Juniper zone-based security
- Excellent end user experience and security
  - End-to-end wireless QoS treatment for simplified low latency application support
  - Multiple SSID support for different security and application needs

* Features supported in the future

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Specifications

Draft 802.11n 2.0 capabilities

- 2x3 multiple-input multiple-output (MIMO) with two spatial streams
- Maximal-ratio combining (MRC)
- 20 MHz and 40 MHz channels
- PHY data rates up to 300 Mbps
- Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)
- Space-time block code (STBC) range enhancement support
- Reduced active power consumption (< 2.5 W per radio)

Data rates

- 802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps
- 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
- 802.11n:
  - 6.5, 13.5, 7.2, 15 Mbps
  - 13, 27, 14.4, 30 Mbps
  - 19.5, 40.5, 21.7, 45 Mbps
  - 26, 54, 28.9, 60 Mbps
  - 39, 8,1 43.3, 90 Mbps
  - 52, 108, 57.8, 120 Mbps
  - 58.5, 121.5, 65, 135 Mbps
  - 65, 135, 72.2, 150 Mbps
  - 13, 27, 14.4, 30 Mbps
  - 26, 54, 28.9, 60 Mbps
  - 39, 81, 43.3, 90 Mbps
  - 52, 108, 57.8, 120 Mbps
  - 78, 162, 86.7, 180 Mbps
  - 104, 216, 115.6, 240 Mbps
  - 117, 243, 130, 270 Mbps
  - 130, 270, 144.4, 300 Mbps

Antenna connector

- 3 x reverse polarity SMA (RPSMA)

Tx power capabilities

- TX power out B mode @ 11 Mbps: 20 dBm +/- 2
- TX power out G mode @ 54 Mbps: 18 dBm +/- 2
- TX power 11n mode @ 2.4 GHz (per chain): 16 dBm +/-2
- TX power out A mode @ 54 Mbps: 14 dBm +/- 2
- TX power 11n mode @ 5 GHz (per chain): 13 dBm +/- 2

RX power capabilities

RX sensitivity (8% PER) 11b mode @ different data rates	1 Mbps: –96 dBm 2 Mbps: –93 dBm 5.5 Mbps: –91dBm 11 Mbps: –88 dBm
RX sensitivity (10% PER) 11g mode @ different data rates	6 Mbps: –90 dBm, 9 Mbs: –89 dBm 12 Mbps: –89 dBm, 18 Mbps: –86 dBm 24 Mbps: –83 dBm, 36 Mbps: –79 dBm 48 Mbps: –75 dBm, 54 Mbps: –74 dBm Note that these numbers are without using external low-noise amplifier (LNA). With external LNA, the Rx sensitivity numbers improve by 1 to 2 dBm.

RX sensitivity (10% PER) 11n modes	BAND	RATE/BW	SENSITIVITY (DBM)
	2.4 GHz	1	–96
	2.4 GHz	11	–88
	2.4 GHz	6	–90
	2.4 GHz	54	–74
	2.4 GHz	mo/20 MHz	–86
	2.4 GHz	mo/40 MHz	–83
	2.4 GHz	m15/20 MHz	–67
	2.4 GHz	m15/40 MHz	–66
	5 GHz	6	–89
	5 GHz	54	–73
	5 GHz	mo/20 MHz	–85
	5 GHz	mo/40 MHz	–82
	5 GHz	m15/20 MHz	–64

Antenna Specification	Frequency range: 2.4-2.5 GHz/5.15-5.875 GHz
	Gain:
	  2.4-2.5 GHz, Gain = 3 dBi
	  5.15-5.875 GHz, Gain = 5 dBi
	VSWR: VSWR < 2
	Polarization: linear, vertical
	Half-power beam width (HPBW)/horizontal: 360º
	HPBW/vertical: 78º
	Maximum power rating: 2 W (CW)
	Impedance: 50 ohms (typical)

Interfaces

- 10/100/1000 Ethernet port
- Serial console port
- Optional power supply
- Locking connector

Management

- Junos OS CLI, J-Web
- Network and Security Manager

Indicators

- Power LED: Indicating power status of AX411
- Status LED: Indicating AX411 operational status
- Radio 1 LED: Indicating activity on 2.4 GHz radio
- Radio 2 LED: Indicating activity on 5 GHz radio

Dimensions

- 9.5 x 5.8 x 1.9 in (242 x 147 x 48 mm)

Weight

• 2 lb 6.3 oz (1.085 kg)

Mounting

• Wall mount
• Desk mount
• Ceiling tile

Environmental

• Nonoperating (storage) temperature: −40° to 149° F (−40° to 65° C)
• Operating temperature: −4° to +122° F (−20° to 50° C)
• Operating humidity: Up to 95% @ 25° C
• Mean time between failures (Telcordia model): > 30 years

System memory

• 2 MB NOR Flash
• 32 MB NAND Flash
• 64 MB DDRII RAM

Power options

• Power supply and power injector: 100 to 240 VAC; 50 to 60 Hz
• PoE: 802.3af

Power draw

• 12.4 W

Compliance

• EMC: FCC 15B, 15C, 15E, Canada RSS-210, EN300328, EN301893, EN301489-1, EN55022:2007, EN 55024, EN300386
• Safety: UL2043, CAN/CSA-C22.2 No. 60950-1 (2007), UL 60950-1, EN 60950-1, IEC 60950-1
• Radio Approvals: For a list of supported countries, refer to the AX411 Certification Listing Document
• IEEE Standard: IEEE 802.11a/b/g, IEEE 802.11n draft 2.0, IEEE 802.11h, IEEE 802.11d, IEEE 802.11e
• Security: 802.11i, WEP, WPA/WPA2, 802.1X, Advanced Encryption Standard (AES), Temporal Key Integrity Protocol (TKIP)
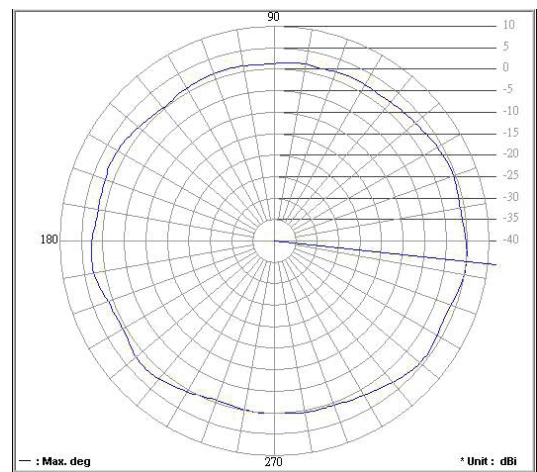
EAP types

• EAP-TLS
• EAP-TTLS/MSCHAPv2
• PEAPv0/EAP-MSCHAPv2
• PEAPv1/EAP-GTC
• EAP-SIM
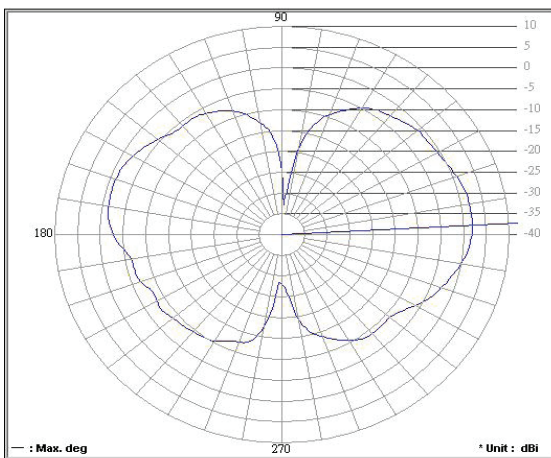
Antenna pattern 2.4 GHz - vertical
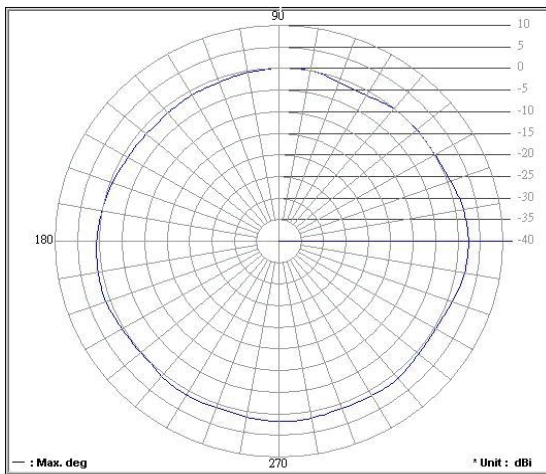
Frequency (MHz) :	2400.00	Antenna Polarity :	Vertical	Average Gain (dB) :	0.58
Maximum Gain (dB) :	2.35	Maximum Gain (degree) :	360		
Minimum Gain (dB) :	-1.43	Minimum Gain (degree) :	135		

Antenna pattern 5 Ghz - vertical

Frequency (MHz) :	5150.00	Antenna Polarity :	Vertical	Average Gain (dB) :	2.29
Maximum Gain (dB) :	5.02	Maximum Gain (degree) :	354		
Minimum Gain (dB) :	-0.59	Minimum Gain (degree) :	252		

Antenna pattern 2.4 GHz – horizontal

Frequency (MHz) :	2400.00	Antenna Polarity :	Horizontal	Average Gain (dB) :	-4.15
Maximum Gain (dB) :	2.05	Maximum Gain (degree) :	3		
Minimum Gain (dB) :	-32.82	Minimum Gain (degree) :	87		

Antenna pattern 5 Ghz - Horizontal
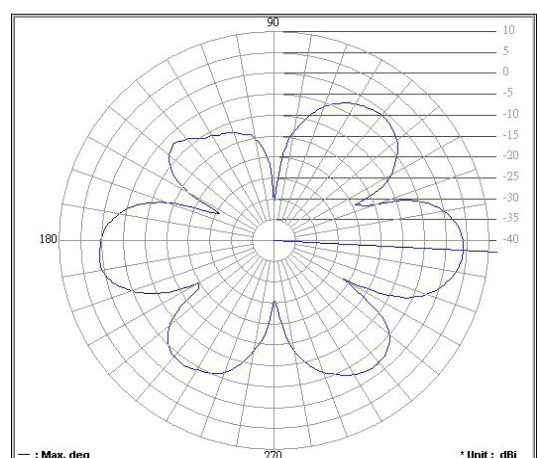
Frequency (MHz) :	5150.00	Antenna Polarity :	Horizontal	Average Gain (dB) :	-3.81
Maximum Gain (dB) :	4.11	Maximum Gain (degree) :	357		
Minimum Gain (dB) :	-31.34	Minimum Gain (degree) :	90		

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services and support, which are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to bring revenue-generating capabilities online faster so you can realize bigger productivity gains and faster rollouts of new business models and ventures. At the same time, Juniper Networks ensures operational excellence by optimizing your network to maintain required levels of performance, reliability, and availability. For more details, please visit **www.juniper.net/us/en/products-services/.**

Ordering Information

PART NUMBER	DESCRIPTION
AX411 Wireless LAN Access Point	
AX411-MNT	Wall/ceiling mount bracket for AX411
AX411-SPARE-XXX [1]	AX411 spare power supply and power cord
AX411-XXX[2]	Dual radio, 802.11abgn access point
SRX Series (SRX200 line, SRX650) AX411 Software Licenses	
AX411-2	License support for management of up to 2 AX411 access points in a L2 Cluster
AX411-4	License support for management of up to 4 AX411 access points in a L2 Cluster
AX411-8	License support for management of up to 8 AX411 access points in a L2 Cluster
AX411-14	License support for management of up to 14 AX411 access points in a L2 Cluster

[1] See price list for country-specific power cord model numbers.
[2] See price list for country-specific AX411 SKUs.

About Juniper Networks

Juniper Networks, Inc. is the leader in high-performance networking. Juniper offers a high-performance network infrastructure that creates a responsive and trusted environment for accelerating the deployment of services and applications over a single network. This fuels high-performance businesses. Additional information can be found at **www.juniper.net**.

To purchase Juniper Networks solutions, please contact your Juniper Networks representative at 1-866-298-6428 or authorized reseller.

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