Cisco Aironet Active Sensor

The Cisco Aironet Active Sensor is a dedicated wireless network sensor designed for assuring optimal performance across the network.

Figure 1. Cisco Aironet Active Sensor

Product overview

The Cisco® **Aironet**® **Active Sensor** (Figure 1) is a compact network sensor designed to monitor your wireless network.

With the Aironet Active Sensor, your IT department can simulate real-world client experiences so that it can validate wireless performance for critical venues and high-value locations such as conference halls and meeting rooms. Also, a scheduled test by the sensor helps make sure that your network can handle an influx of VIP clients so that they are able to have a smooth wireless experience free of drops and lag time. How does this device do all of this? Thanks to Cisco AirProbe, the Aironet Active Sensor can proactively test and accurately predict the user's experience.

This means that your wireless network won't be caught short when an increased number of devices connect to the network. You'll already know how much bandwidth is available immediately before the event, and you can adjust accordingly.

Not only does the Active Sensor brilliantly simulate and predict wireless performance, but it's also the perfect device for making sure that your network is running to its fullest potential. Using the Active Sensor, you can test your network with proactive monitoring capabilities. This capability allows you to learn about potential issues before it's too late.

Only Cisco can provide high-fidelity insight at the ground level.

The Active Sensor can be plugged in anywhere. Other sensor products are often at ceiling level, sometimes providing IT with a less-than-accurate network assessment, since most clients are at eye level. When installed at the level where most mobile devices are apt to be, the Active Sensor allows for a better understanding and a more comprehensive simulation of real clients.

The Aironet Active Sensor is fully compliant with the 802.11ac Wave 2 standard and has full Cisco DNA™ Assurance support with Cisco DNA Center. It comes with multiple powering options:

- Direct AC power plug
- Power over Ethernet (PoE)
- Micro USB power

Features and benefits

The Active Sensor supports reliable wireless connections that provide a robust, mobile end-user experience. Table 1 lists the sensor's features and benefits.

Table 1.   Features and benefits

Feature	Benefit
802.11ac Wave 2 support	The Active Sensor can simulate clients that support 802.11ac Wave 2 and multiuser multiple-input multiple-output (MU-MIMO). MU-MIMO allows simultaneous data transmission to multiple Wave 2–capable clients to improve the client experience. Prior to MU-MIMO, 802.11n and 802.11ac Wave 1 access points could transmit data to only one client at a time. This was typically referred to as single-user MIMO (SU-MIMO). The Active Sensor can also simulate clients that are 802.11ac Wave 1 compliant.
Integrated Bluetooth 4.1	Integrated Bluetooth Low Energy (BLE) 4.1 radio for location and asset tracking (future availability).

Product specifications

Table 2 lists the specifications for the Cisco Aironet Active Sensor. Table 3 lists the RF specifications.

Table 2.   Specifications

Item	Specification		
Authentication and security	• Advanced Encryption Standard (AES) for Wi-Fi Protected Access 2 (WPA2) • 802.1X, RADIUS authentication, authorization and accounting (AAA) • 802.11r • 802.11i		
Software	• Cisco Unified Wireless Network Software with AireOS Wireless Controllers Release 8.5 or later		
Maximum clients	• Wireless network sensor acts as a client		
802.11ac	• 2x2 single-user and multiuser MIMO with two spatial streams • Maximal ratio combining (MRC) • 20-, 40-, and 80-MHz channels • PHY data rates up to 866.7 Mbps (80 MHz on 5 GHz) • Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Rx) • 802.11 Dynamic Frequency Selection (DFS) • Cyclic shift diversity (CSD) support		
Ethernet ports	• When AIR-MOD-POE is installed, provides backhaul capability to Cisco DNA Center		
Bluetooth (future availability)	• Integrated Bluetooth 4.1 (including BLE) radio • Maximum transmit power: 4 dBm • Antenna gain: 2 dBi		
Data rates supported	**802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps**		
	802.11b/g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps		
	802.11n data rates on 2.4 GHz:		
	MCS index[1]	**GI[2] = 800 ns**	**GI = 400 ns**
		20-MHz rate (Mbps)	**20-MHz rate (Mbps)**
	0	6.5	7.2

Item	Specification					
	1	13		14.4		
	2	19.5		21.7		
	3	26		28.9		
	4	39		43.3		
	5	52		57.8		
	6	58.5		65		
	7	65		72.2		
	8	13		14.4		
	9	26		28.9		
	10	39		43.3		
	11	52		57.8		
	12	78		86.7		
	13	104		115.6		
	14	117		130		
	15	130		144.4		

802.11ac data rates on 5 GHz:

MCS index	Spatial streams	GI = 800 ns			GI = 400 ns		
		20-MHz rate (Mbps)	40-MHz rate (Mbps)	80-MHz rate (Mbps)	20-MHz rate (Mbps)	40-MHz rate (Mbps)	80-MHz rate (Mbps)
0	1	6.5	13.5	29.3	7.2	15	32.5
1	1	13	27	58.5	14.4	30	65
2	1	19.5	40.5	87.8	21.7	45	97.5
3	1	26	54	117	28.9	60	130
4	1	39	81	175.5	43.3	90	195
5	1	52	108	234	57.8	120	260
6	1	58.5	121.5	263.3	65	135	292.5
7	1	65	135	292.5	72.2	150	325
8	1	78	162	351	86.7	180	390
9	1	–	180	390	–	200	433.3
0	2	13	27	58.5	14.4	30	65
1	2	26	54	117	28.9	60	130
2	2	39	81	175.5	43.3	90	195
3	2	52	108	234	57.8	120	260
4	2	78	162	351	86.7	180	390
5	2	104	216	468	115.6	240	520
6	2	117	243	526.5	130	270	585
7	2	130	270	585	144.4	300	650
8	2	156	324	702	173.3	360	780
9	2	–	360	780	–	400	866.7

Item	Specification	
Maximum number of non-overlapping channels	**A (A regulatory domain):** • 2.412 to 2.462 GHz; 11 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz; 8 channels • (excludes 5.600 to 5.640 GHz) • 5.745 to 5.825 GHz; 5 channels **B (B regulatory domain):** • 2.412 to 2.462 GHz; 11 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.720 GHz; 12 channels • 5.745 to 5.825 GHz; 5 channels **C (C regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.745 to 5.825 GHz; 5 channels **D (D regulatory domain):** • 2.412 to 2.462 GHz; 11 channels • 5.180 to 5.320 GHz; 8 channels • 5.745 to 5.825 GHz; 5 channels **E (E regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz) **F (F regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.745 to 5.805 GHz; 4 channels **G (G regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.745 to 5.865 GHz; 7 channels **H (H regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.745 to 5.825 GHz; 5 channels **I (I regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels	**K (K regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.620 GHz; 7 channels • 5.745 to 5.805 GHz; 4 channels **N (N regulatory domain):** • 2.412 to 2.462 GHz; 11 channels • 5.180 to 5.320 GHz; 8 channels • 5.745 to 5.825 GHz; 5 channels **Q (Q regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz; 11 channels **R (R regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.660 to 5.700 GHz; 3 channels • 5.745 to 5.805 GHz; 4 channels **S (S regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz; 11 channels • 5.745 to 5.825 GHz; 5 channels **T (T regulatory domain):** • 2.412 to 2.462 GHz; 11 channels • 5.280 to 5.320 GHz; 3 channels • 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz) • 5.745 to 5.825 GHz; 5 channels **Z (Z regulatory domain):** • 2.412 to 2.462 GHz; 11 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz) • 5.745 to 5.825 GHz; 5 channels
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.		
Available transmit power settings	**2.4 GHz** 20 dBm (100 mW) 17 dBm (50 mW) 14 dBm (25 mW) 11 dBm (12.5 mW) 8 dBm (6.25 mW) 5 dBm (3.13 mW) 2 dBm (1.56 mW) -1 dBm (0.78 mW)	**5 GHz** 20 dBm (100 mW) 17 dBm (50 mW) 14 dBm (25 mW) 11 dBm (12.5 mW) 8 dBm (6.25 mW) 5 dBm (3.13 mW) 2 dBm (1.56 mW) -1 dBm (0.78 mW)
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Integrated antennas	• 2.4 GHz, gain 2 dBi • 5 GHz, gain 3 dBi	
Interfaces	• 1 x 10/100/1000BASE-T autosensing (RJ-45), PoE (optional with AIR-MOD-POE) • Management console port (4-pin connector)	
Indicators	• Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader	

Item	Specification
	errors
Dimensions (W x L x H)	• Access point (without mounting bracket): 3.5 x 5.5 x 1.25 in (89 x 140 x 31.5 mm)
Weight	• Access point without mounting bracket or any other accessories: 10 oz (280 g)
Environmental	• Operating 　◦ Temperature: 32° to 104°F (0° to 40°C) 　◦ Humidity: 10% to 90% (noncondensing) 　◦ Maximum altitude: 9843 ft (3000 m) @ 104°F (40°C) • Nonoperating (storage and transportation) 　◦ Temperature: -22° to 158°F (-30° to 70°C) 　◦ Humidity: 10% to 90% (noncondensing) 　◦ Maximum altitude: 15,000 ft (4500 m) @ 77°F (25°C)
System	• 256 GB DRAM • 128 MB flash • 710 MHz quad-core
Powering options	• 802.3af/at Ethernet switch • AIR-MOD-AC-XX • AIR-MOD-USB-XX
Power draw	• 8.5W (maximum)
Physical security	• Kensington lock slot to lock device to mounting bracket.
Mounting	• Included with the access point: mounting bracket AIR-AP-BRACKET-NS or AIR-MOD-AC-XX
Accessories	• AIR-MOD-POE for Ethernet and PoE powering • AIR-MOD-AC-XX for direct electrical socket powering • AIR-MOD-USB-XX for power via USB power source Note: XX denotes destination country
Warranty	1-year limited hardware warranty
Compliance	• Safety: 　◦ UL 60950-1 　◦ CAN/CSA-C22.2 No. 60950-1 　◦ UL 2043 　◦ IEC 60950-1 　◦ EN 60950-1 • Radio approvals: 　◦ FCC Part 15.247, 15.407 　◦ RSS-247 (Canada) 　◦ EN 300.328, EN 301.893 (Europe) 　◦ ARIB-STD 66 (Japan) 　◦ ARIB-STD T71 (Japan) 　◦ EMI and susceptibility (Class B) 　◦ FCC Part 15.107 and 15.109 　◦ ICES-003 (Canada) 　◦ VCCI (Japan) 　◦ EN 301.489-1 and -17 (Europe) • IEEE standards: 　◦ IEEE 802.11a/b/g, 802.11n, 802.11h, 802.11d 　◦ IEEE 802.11ac • Security: 　◦ 802.11i, WPA2, WPA 　◦ 802.1X 　◦ AES • Extensible Authentication Protocol (EAP) types: 　◦ EAP-Transport Layer Security (TLS)

Item	Specification

	◦ EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2)
	◦ Protected EAP (PEAP) v0 or EAP-MSCHAPv2
	◦ EAP-Flexible Authentication via Secure Tunneling (FAST)
	◦ PEAP v1 or EAP-Generic Token Card (GTC)
	◦ EAP-Subscriber Identity Module (SIM)
	● Multimedia:
	  ◦ Wi-Fi Multimedia (WMM)
	● Other:
	  ◦ FCC Bulletin OET-65C
	  ◦ RSS-102

[1] MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, and the coding rate and data rate values.

[2] A guard interval (GI) between symbols helps receivers overcome the effects of multipath delay spreads.

Table 3.　RF specifications

Transmit power and receive sensitivity (1800S)					
		2.4-GHz radio		5-GHz radio	
	Spatial streams	Total Tx power (dBm)	Rx sensitivity (dBm)	Total Tx power (dBm)	Rx sensitivity (dBm)
802.11/11b					
1 Mbps	1	17	-98	NA	NA
11 Mbps	1	17	-89	NA	NA
802.11a/g					
6 Mbps	1	20	-94	17	-94
24 Mbps	1	20	-87	20	-87
54 Mbps	1	20	-78	18	-78
802.11n HT20					
MSC0	1	20	-93	20	-93
MSC4	1	20	-83	18	-82
MSC7	1	20	-75	16	-75
MSC8	2	20	-90	20	-90
MSC12	2	20	-80	18	-79
MSC15	2	20	-72	16	-72
802.11n HT40					
MSC0	1			20	-90
MSC4	1			18	-79
MSC7	1			16	-72
MSC8	2			20	-87
MSC12	2			18	-76
MSC15	2			16	-69
802.11ac VHT20					
MSC0	1			20	-93
MSC4	1			18	-82
MSC7	1			16	-75
MSC8	1			15	-71
MSC0	2			20	-90

Transmit power and receive sensitivity (1800S)					
MSC4	2			18	-79
MSC7	2			16	-72
MSC8	2			15	-68
802.11ac VHT40					
MSC0	1			20	-90
MSC4	1			18	-79
MSC7	1			16	-72
MSC8	1			15	-68
MSC9	1			15	-66
MSC0	2			20	-87
MSC4	2			18	-76
MSC7	2			16	-69
MSC8	2			15	-65
MSC9	2			15	-63
802.11ac VHT80					
MSC0	1			20	-87
MSC4	1			18	-77
MSC7	1			16	-69
MSC8	1			15	-65
MSC9	1			15	-63
MSC0	2			20	-84
MSC4	2			18	-74
MSC7	2			16	-66
MSC8	2			15	-62
MSC9	2			15	-60

Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.

Ordering information

Table 4 provides ordering information for the Cisco Aironet Active Sensor. To place an order, visit the Cisco Ordering Home Page. To download software, visit the Cisco Software Center.

Table 4.   Ordering information

Product name	Part number and description
Cisco Aironet Active Sensor	• AIR-AP1800S-x-K9: dual-band, controller-based 802.11a/g/n/ac, Wave 2 ◦ Regulatory domains: Customers are responsible for verifying approval for use in their individual countries. To verify approval that corresponds to a particular country or the regulatory domain used in a specific country, visit https://www.cisco.com/go/aironet/compliance. Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.

Cisco Services

Realize the full business value of your technology investments faster with intelligent, customized services. Cisco Services offers a comprehensive lifecycle of services for the new WLAN infrastructure innovations and associated WLAN solutions, including advisory, implementation, optimization, technical, managed, and training services. With unmatched wireless networking expertise, industry-leading best practices, and innovative automation tools and contextual data, we can help reduce overall upgrade, refresh, and migration costs as you introduce new wireless infrastructure, sensors, and software into your wireless network. Learn more.

Warranty information

The Cisco Aironet Active Sensor comes with a 1-year limited warranty that provides full warranty coverage of the hardware. The warranty includes 10-day advance hardware replacement and ensures that software media is defect-free for 90 days. For more details, visit https://www.cisco.com/go/warranty.

Find warranty information on Cisco.com at the Product Warranties page.

Cisco Capital

Financing to help you achieve your objectives

Cisco Capital® can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. Learn more.

Printed in USA

C78-740053-01   02/18