Cisco Aironet 1830 Series Access Points

Contents

Product overview

Ideal for small and medium-sized networks, the Cisco® Aironet® 1830 Series delivers industry-leading wireless performance with support for the latest Wi-Fi standard, IEEE's new 802.11ac Wave 2 specification, and meets the growing requirements of wireless networks by delivering a better user experience. The 1830 Series extends support to a new generation of Wi-Fi clients, such as smartphones, tablets, and high-performance laptops that have integrated 802.11ac Wave 1 or Wave 2 support.

Features and benefits

With 802.11ac Wave 2, the 1830 Series provides a data rate of up to 867 Mbps on the 5-GHz radio, exceeding the data rates offered by today's high-end 802.11n access points. It also enables a total aggregate dual-radio data rate of up to 1 Gbps, providing the necessary foundation for enterprise and service provider networks to stay ahead of the performance and bandwidth expectations and needs of their wireless users.

Due to its convenience, wireless access is increasingly the preferred form of network connectivity for corporate users. Along with this shift, there is an expectation that wireless should not slow down users' day-to-day work, but should enable a high-performance experience while allowing users to move freely. The 1830 Series delivers industry-leading performance for highly secure and reliable wireless connections and provides a robust mobility experience that includes:

- 802.11ac Wave 2 with 3x3 Multiple-Input Multiple-Output (MIMO) technology with two spatial streams when operating in single-user or multiuser MIMO mode, offering 867-Mbps rates for more capacity and reliability than competing access points.
- Multiuser MIMO (MU-MIMO) allows transmission of data to multiple 802.11ac Wave 2 capable clients simultaneously to improve 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, typically referred to as single-user MIMO.
- Transmit beamforming technology improves downlink performance to mobile devices, including one- and two-spatial-stream devices on 802.11ac, while improving battery life on mobile devices such as smartphones and tablets.
- Flexible deployment mode through the Mobility Express Solution is ideal for small to medium-sized deployments that require multiple access points. Easy setup allows the 1830 Series to be deployed on networks without a physical controller.

All of these features help ensure the best possible end-user experience on the wireless network.

Product specifications

Table 1. Product specifications

Feature	Specifications
Software	Cisco Unified Wireless Network Software Release with AireOS wireless controllers: • 8.1.121.0 or later for the Cisco Aironet 1830 Series Access Points
Deployment modes	Centralized, standalone, sniffer**, Cisco FlexConnect™, monitor**, OfficeExtend**, mesh**
Supported wireless LAN controllers	• Cisco 2500 Series Wireless Controllers, Cisco 3500 series Wireless Controllers, Cisco Wireless Controller Module for ISR G2, Cisco Wireless Services Module 2 (WiSM2) for Cisco Catalyst® 6500 Series Switches, Cisco 5500 Series Wireless Controllers, Cisco Flex® 7500 Series Wireless Controllers, Cisco 8500 Series Wireless Controllers, Cisco 9800 series Wireless Controllers, Cisco 5760 Wireless LAN Controller,** Cisco Catalyst 3650 and 3850 Series Switches with integrated controller** • Cisco Mobility Express
802.11n version 2.0 (and related) capabilities	• 3x3 MIMO with two spatial streams • Maximal Ratio Combining (MRC) • 20- and 40-MHz channels • PHY data rates up to 300 Mbps (40 MHz with 5 GHz) • Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) • 802.11 Dynamic Frequency Selection (DFS) • Cyclic Shift Diversity (CSD) support
802.11ac Wave 1 and 2 capabilities	• 3x3 MIMO with two spatial streams, single-user or multiuser MIMO • MRC • 802.11ac beamforming (transmit beamforming) • 20-, 40-, and 80-MHz channels • PHY data rates up to 867 Mbps (80 MHz in 5 GHz) • Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) • 802.11 DFS • CSD support

Feature	Specifications				
Data rates supported	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 data rates on 2.4 GHz (only 20 MHz and MCS 0 to MCS 23) and 5 GHz:				
	MCS index[1]	GI[2] = 800 ns	GI = 800 ns	GI = 400 ns	GI = 400 ns
		20-MHz rate (Mbps)	40-MHz rate (Mbps)	20-MHz rate (Mbps)	40-MHz rate (Mbps)
	0	6.5	13.5	7.2	15
	1	13	27	14.4	30
	2	19.5	40.5	21.7	45
	3	26	54	28.9	60
	4	39	81	43.3	90
	5	52	108	57.8	120
	6	58.5	121.5	65	135
Data rates supported	MCS index[3]	GI[4] = 800 ns	GI = 800 ns	GI = 400 ns	GI = 400 ns
		20-MHz rate (Mbps)	40-MHz rate (Mbps)	20-MHz rate (Mbps)	40-MHz rate (Mbps)
	7	65	135	72.2	150
	8	13	27	14.4	30
	9	26	54	28.9	60
	10	39	81	43.3	90
	11	52	108	57.8	120
	12	78	162	86.7	180
	13	104	216	115.6	240
	14	117	243	130	270
	15	130	270	144.4	300

	802.11ac data rates (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] MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.

[2] GI: A Guard Interval (GI) between symbols helps receivers overcome the effects of multipath delay spreads.

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

[4] GI: A Guard Interval (GI) between symbols helps receivers overcome the effects of multipath delay spreads.

Feature	Specifications							
	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
	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)**
	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

Maximum number of nonoverlapping 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):

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):

Feature	Specifications	
	• 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 **H (H regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.150 to 5.350 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	• 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.660 to 5,805 GHz; 7 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: Customers are responsible for verifying approval for use in their individual countries. To verify approval that corresponds to a particular country, visit https://www.cisco.com/go/aironet/compliance.		
Maximum number of nonoverlapping channels	**2.4 GHz** • 802.11b/g: ◦ 20 MHz: 3 • 802.11n: ◦ 20 MHz: 3 ◦ 40 MHz: 1 (hardware capable)	**5 GHz** • 802.11a: ◦ 20 MHz: 25 • 802.11n: ◦ 20 MHz: 25 ◦ 40 MHz: 12 • 802.11ac: ◦ 20 MHz: 21 ◦ 40 MHz: 12 ◦ 80 MHz: 6
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.		

<table>
<tr><th>Feature</th><th colspan="4">Specifications</th></tr>
<tr><td>Receive sensitivity</td><td>• 802.11b (CCK)
◦ -101 dBm @ 1 Mbps
◦ -98 dBm @ 2 Mbps
◦ -92 dBm @ 5.5 Mbps
◦ -89 dBm @ 11 Mbps</td><td>• 802.11g (non HT20)
◦ -96 dBm @ 6 Mbps
◦ -95 dBm @ 9 Mbps
◦ -94 dBm @ 12 Mbps
◦ -92 dBm @ 18 Mbps
◦ -88 dBm @ 24 Mbps
◦ -85 dBm @ 36 Mbps
◦ -81 dBm @ 48 Mbps
◦ -79 dBm @ 54 Mbps</td><td>• 802.11a (non HT20)
◦ -96 dBm @ 6 Mbps
◦ -95 dBm @ 9 Mbps
◦ -94 dBm @ 12 Mbps
◦ -92 dBm @ 18 Mbps
◦ -88 dBm @ 24 Mbps
◦ -85 dBm @ 36 Mbps
◦ -80 dBm @ 48 Mbps
◦ -79 dBm @ 54 Mbps</td><td></td></tr>
<tr><td>Receive sensitivity</td><td>2.4 GHz
• 802.11n (HT20)
◦ -96 dBm @ MCS0
◦ -93 dBm @ MCS1
◦ -90 dBm @ MCS2
◦ -87 dBm @ MCS3
◦ -84 dBm @ MCS4
◦ -79 dBm @ MCS5
◦ -78 dBm @ MCS6
◦ -76 dBm @ MCS7
◦ -93 dBm @ MCS8
◦ -90 dBm @ MCS9
◦ -87 dBm @ MCS10
◦ -84 dBm @ MCS11
◦ -81 dBm @ MCS12
◦ -76 dBm @ MCS13
◦ -75 dBm @ MCS14
◦ -73 dBm @ MCS15</td><td></td><td>5 GHz
• 802.11n (HT20)
◦ -96 dBm @ MCS0
◦ -92 dBm @ MCS1
◦ -90 dBm @ MCS2
◦ -86 dBm @ MCS3
◦ -83 dBm @ MCS4
◦ -79 dBm @ MCS5
◦ -77 dBm @ MCS6
◦ -76 dBm @ MCS7
◦ -93 dBm @ MCS8
◦ -89 dBm @ MCS9
◦ -87 dBm @ MCS10
◦ -83 dBm @ MCS11
◦ -80 dBm @ MCS12
◦ -76 dBm @ MCS13
◦ -74 dBm @ MCS14
◦ -73 dBm @ MCS15</td><td>5 GHz
• 802.11n (HT40)
◦ -93 dBm @ MCS0
◦ -90 dBm @ MCS1
◦ -87 dBm @ MCS2
◦ -84 dBm @ MCS3
◦ -80 dBm @ MCS4
◦ -76 dBm @ MCS5
◦ -75 dBm @ MCS6
◦ -73 dBm @ MCS7
◦ -90 dBm @ MCS8
◦ -87 dBm @ MCS9
◦ -84 dBm @ MCS10
◦ -81 dBm @ MCS11
◦ -77 dBm @ MCS12
◦ -73 dBm @ MCS13
◦ -72 dBm @ MCS14
◦ -70 dBm @ MCS15</td></tr>
<tr><td></td><td colspan="4">802.11ac receive sensitivity
802.11ac (non HT80)
• -89 dBm @ 6 Mbps
• -73 dBm @ 54 Mbps</td></tr>
<tr><td></td><td colspan="4"><table>
<tr><th>MCS index</th><th>Spatial streams</th><th colspan="3"></th></tr>
<tr><th></th><th></th><th>VHT20</th><th>VHT40</th><th>VHT80</th></tr>
<tr><td>0</td><td>1</td><td>-96 dBm</td><td>-93 dBm</td><td>-89 dBm</td></tr>
<tr><td>7</td><td>1</td><td>-76 dBm</td><td>-73 dBm</td><td>-70 dBm</td></tr>
<tr><td>8</td><td>1</td><td>-71 dBm</td><td>-69 dBm</td><td>-66 dBm</td></tr>
<tr><td>9</td><td>1</td><td>NA</td><td>-67 dBm</td><td>-64 dBm</td></tr>
<tr><td>0</td><td>2</td><td>-93 dBm</td><td>-90 dBm</td><td>-86 dBm</td></tr>
<tr><td>7</td><td>2</td><td>-73 dBm</td><td>-70 dBm</td><td>-67 dBm</td></tr>
<tr><td>8</td><td>2</td><td>-68 dBm</td><td>-66 dBm</td><td>-63 dBm</td></tr>
<tr><td>9</td><td>2</td><td>NA</td><td>-64 dBm</td><td>-61 dBm</td></tr>
</table></td></tr>
<tr><td>Maximum transmit</td><td colspan="2">2.4 GHz</td><td colspan="2">5 GHz</td></tr>
</table>

Feature	Specifications	
power	• 802.11b ◦ 22 dBm, 3 antennas • 802.11g ◦ 22 dBm, 3 antennas • 802.11n (HT20) ◦ 22 dBm, 3 antennas	• 802.11a ◦ 23 dBm, 3 antennas • 802.11n (HT20) ◦ 23 dBm, 3 antennas • 802.11n (HT40) ◦ 23 dBm, 3 antennas • 802.11ac ◦ non-HT80: 23 dBm, 3 antennas ◦ VHT20 23 dBm, 3 antennas ◦ VHT40: 23 dBm, 3 antennas ◦ VHT80: 23 dBm, 3 antennas
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Available transmit power settings	**2.4 GHz** • 22 dBm • 19 dBm • 16 dBm • 13 dBm • 10 dBm • 7 dBm • 4 dBm • 1 dBm	**5 GHz** • 23 dBm • 20 dBm • 17 dBm • 14 dBm • 11 dBm • 8 dBm • 5 dBm • 2 dBm
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Integrated antenna	• 2.4 GHz, gain 3 dBi, internal omni, horizontal beamwidth 360° • 5 GHz, gain 5 dBi, internal omni, horizontal beamwidth 360°	
Interfaces	• 1 x 10/100/1000BASE-T autosensing (RJ-45), Power over Ethernet (PoE) • Management console port (RJ-45) • USB 2.0 (enabled via future software)	
Indicators	• Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader errors	
Dimensions (W x L x H)	• Access point (without mounting bracket): 8.3 x 8.3 x 2 in. (210.8 x 210.8 x 50.8 mm)	
Weight	• 2.05 lb (930 grams)	
Environmental	**Cisco Aironet 1830i** • Nonoperating (storage) temperature: -22° to 158°F (-30° to 70°C) • Nonoperating (storage) altitude test: 25˚C, 15,000 ft. • Operating temperature: 32° to 104°F (0° to 40°C) • Operating humidity: 10% to 90% (noncondensing) • Operating altitude test: 40˚C, 9843 ft.	
System memory	• 1 GB DRAM	

Feature	Specifications
	• 256 MB flash
Input power requirements	• AP1830: 44 to 57 VDC • Power supply and power injector: 100 to 240 VAC; 50 to 60 Hz
Power draw	• 15.4W **Note:** When deployed using a PoE specification, the power drawn from the power sourcing equipment will be higher by some amount, depending on the length of the interconnecting cable.
Powering options	• 802.3af/802.3at • Enhanced PoE • Cisco local power supply, AIR-PWR-C= • Cisco power injector, AIR-PWRINJ5= (**Note:** This injector supports 802.3af only), AIR-PWRINJ6= **Note:** If 802.3af PoE is the source of power, the USB port is disabled.
Warranty	Limited lifetime hardware warranty
Compliance standards	◦ 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-210 (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 Draft 5 • Security: ◦ 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA ◦ 802.1X ◦ Advanced Encryption Standard (AES) • Extensible Authentication Protocol (EAP) types: ◦ EAP-Transport Layer Security (TLS) ◦ EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2) ◦ Protected EAP (PEAP) vo or EAP-MSCHAPv2 ◦ EAP-Flexible Authentication via Secure Tunneling (FAST) ◦ PEAP v1 or EAP-Generic Token Card (GTC) ◦ EAP-Subscriber Identity Module (SIM) • Multimedia:

Feature	Specifications
	◦ Wi-Fi Multimedia (WMM) • Other: ◦ FCC Bulletin OET-65C ◦ RSS-102

* Supported via Cisco Mobility Express with controller function running on the access point - not Cisco IOS® Software Autonomous based.

** Future.

Warranty information

The Cisco Aironet 1830 Series Access Points come with a limited lifetime warranty that provides full warranty coverage of the hardware for as long as the original end user continues to own or use the product. The warranty includes 10-day advance hardware replacement and ensures that software media are defect-free for 90 days. For more details, visit https://www.cisco.com/go/warranty.

Ordering information

To place an order, visit the Cisco How to Buy page. To download software, visit the Cisco Software Center.

Table 2. Ordering information

Product name	Part number
Cisco Aironet 1830 Series	**Cisco Aironet 1832i Access Point: Indoor environments, with internal antennas** • AIR-AP1832I-x-K9: Dual-band, controller-based 802.11a/g/n/ac, Wave 2 • AIR-AP1832I-x-K9C: Dual-band, controller-based 802.11a/g/n/ac, Wave 2, configurable, with default software Mobility Express ◦ Regulatory domains: (x = regulatory domain) ◦ For Mobility Express, part number AIR-AP1832I-x-K9C offers default software option Mobility Express 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.

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Cisco Wireless LAN services

- AS-WLAN-CNSLT: Cisco Wireless LAN Network Planning and Design Service
- AS-WLAN-CNSLT: Cisco Wireless LAN 802.11n Migration Service

- AS-WLAN-CNSLT: Cisco Wireless LAN Performance and Security Assessment Service

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For more information

For more information about the Cisco Aironet 1830 Series, visit https://www.cisco.com/go/wirelesslanservices or contact your local account representative.

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