Cisco Aironet 1830 Series Access Points



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 <u>Mobility Express Solution</u> is ideal for small to medium-sized deployments that that require 25 or fewer 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
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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	e, sniffer ^{**} , Cisco FlexCor	nect [™] , monitor ^{**} , OfficeE	xtend ^{**} ,mesh ^{**}			
Supported wireless LAN controllers	 Cisco 2500 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 5520 Series Wireless Controllers, Cisco Flex[®] 7500 Series Wireless Controllers, Cisco 8500 Series Wireless Controllers, Cisco 8540 Series Wireless Controllers, Cisco Virtual Wireless Controller, 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	 Maximal ratio comb 20- and 40-MHz cha PHY data rates up t Packet aggregation 802.11 dynamic free 	 Sisco Mobility Express 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	 MRC 802.11ac beamform 20-, 40-, and 80-MH PHY data rates up to the second seco	 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 					
Data rates supported	802.11a: 6, 9, 12, 18, 2	4, 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	Gl 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		

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.

Feature	Specificatio	ns									
Data rates supported	MCS Index ³		Gl ⁴ = 800 ns		GI = 800	ns	GI = 400 ns		GI = 400 ns		
	20		20-MI	20-MHz Rate (Mbps)		Rate (Mbps)	20-MHz Rate (Mbps)		40-MHz Rate (Mbps		
	7	65		135			72.2		150		
	8	13		27			14.4		30	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 da	ta 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-MH (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	
	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-MH (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	

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	
Maximum number of	A (A regulatory domain):	K (K regulatory domain):
nonoverlapping channels	• 2.412 to 2.462 GHz; 11 channels	• 2.412 to 2.472 GHz; 13 channels
channels	• 5.180 to 5.320 GHz; 8 channels	• 5.180 to 5.320 GHz; 8 channels
	• 5.500 to 5.700 GHz; 8 channels	• 5.500 to 5.620 GHz; 7 channels
	(excludes 5.600 to 5.640 GHz)	• 5.745 to 5.805 GHz; 4 channels
	• 5.745 to 5.825 GHz; 5 channels	N (N regulatory domain):
	B (B regulatory domain):	• 2.412 to 2.462 GHz; 11 channels
	• 2.412 to 2.462 GHz; 11 channels	• 5.180 to 5.320 GHz; 8 channels
	• 5.180 to 5.320 GHz; 8 channels	• 5.745 to 5.825 GHz; 5 channels
	• 5.500 to 5.720 GHz; 12 channels	Q (Q regulatory domain):
	• 5.745 to 5.825 GHz; 5 channels	• 2.412 to 2.472 GHz; 13 channels
	C (C regulatory domain):	• 5.180 to 5.320 GHz; 8 channels
	• 2.412 to 2.472 GHz; 13 channels	• 5.500 to 5.700 GHz; 11 channels
	• 5.745 to 5.825 GHz; 5 channels	R (R regulatory domain):
	D (D regulatory domain):	• 2.412 to 2.472 GHz; 13 channels
	• 2.412 to 2.462 GHz; 11 channels	• 5.180 to 5.320 GHz; 8 channels
	• 5.180 to 5.320 GHz; 8 channels	• 5.660 to 5,805 GHz; 7 channels
	• 5.745 to 5.825 GHz; 5 channels	S (S regulatory domain):
	E (E regulatory domain):	• 2.412 to 2.472 GHz; 13 channels
	• 2.412 to 2.472 GHz; 13 channels	• 5.180 to 5.320 GHz; 8 channels
	 5.180 to 5.320 GHz; 8 channels 	• 5.500 to 5.700 GHz;, 11 channels
	• 5.500 to 5.700 GHz; 8 channels	• 5.745 to 5.825 GHz; 5 channels
	(excludes 5.600 to 5.640 GHz)	T (T regulatory domain):
	F (F regulatory domain):	• 2.412 to 2.462 GHz; 11 channels
	• 2.412 to 2.472 GHz; 13 channels	• 5.280 to 5.320 GHz; 3 channels
	• 5.745 to 5.805 GHz; 4 channels	• 5.500 to 5.700 GHz; 8 channels
	H (H regulatory domain):	(excludes 5.600 to 5.640 GHz)
	• 2.412 to 2.472 GHz; 13 channels	• 5.745 to 5.825 GHz; 5 channels
	• 5.150 to 5.350 GHz; 8 channels	Z (Z regulatory domain):
	• 5.745 to 5.825 GHz; 5 channels	• 2.412 to 2.462 GHz; 11 channels
	I (I regulatory domain):	• 5.180 to 5.320 GHz; 8 channels
	• 2.412 to 2.472 GHz; 13 channels	• 5.500 to 5.700 GHz; 8 channels
	• 5.180 to 5.320 GHz; 8 channels	(excludes 5.600 to 5.640 GHz)
		 5.745 to 5.825 GHz; 5 channels

Maximum number of	2.4 GHz		5 GHz	
nonoverlapping channels	• 802.11b/g:		• 802.11a:	
Channels	 20 MHz: 3 		 20 MHz: 25 	
	• 802.11n:		• 802.11n:	
	 20 MHz: 3 		 20 MHz: 25 	
			 40 MHz: 12 	
			• 802.11ac:	
			 20 MHz: 21 	
			 40 MHz: 12 	
			 80 MHz: 6 	
Note: This varies by reg	gulatory domain. Refer to the pr	oduct documentation for speci	fic details for each regulatory do	omain.
Receive sensitivity	• 802.11b (CCK)	 802.11g (non HT20) 	• 802.11a (non HT20)	
	 -101 dBm @ 1 Mbps 	 -96 dBm @ 6 Mbps 	 -96 dBm @ 6 Mbps 	
	 -98 dBm @ 2 Mbps 	 -95 dBm @ 9 Mbps 	 -95 dBm @ 9 Mbps 	
	∘ -92 dBm @ 5.5 Mbps	 -94 dBm @ 12 Mbps 	 -94 dBm @ 12 Mbps 	
	 -89 dBm @ 11 Mbps 	 -92 dBm @ 18 Mbps 	 -92 dBm @ 18 Mbps 	
		 -88 dBm @ 24 Mbps 	 -88 dBm @ 24 Mbps 	
		 -85 dBm @ 36 Mbps 	 -85 dBm @ 36 Mbps 	
		 -81 dBm @ 48 Mbps 	 -80 dBm @ 48 Mbps 	
		 -79 dBm @ 54 Mbps 	 -79 dBm @ 54 Mbps 	

Feature	Specifications								
Receive sensitivity	2.4 GHz			5 GHz		5 GHz			
	• 802.11n (HT20)			• 802.11	n (HT20)	• 802.11n (HT40)			
	 -96 dBm @ MCS0)		∘ -96 0	Bm @ MCS0	 -93 dBm @ MCS0 			
	 -93 dBm @ MCS1 		∘ -92 (dBm @ MCS1	∘ -90 dBm @ MCS1				
	 -90 dBm @ MCS2 		∘ -90 (dBm @ MCS2	 -87 dBm @ MCS2 				
	 -87 dBm @ MCS3 	3		· -86 (dBm @ MCS3	 -84 dBm @ MCS3 			
	 -84 dBm @ MCS4 			 -83 dBm @ MCS4 		 -80 dBm @ MCS4 			
	 -79 dBm @ MCS5 	5		• -79 (dBm @ MCS5	∘ -76 dBm @ MCS5			
	 -78 dBm @ MCS6 	;		 -77 dBm @ MCS6 		 -75 dBm @ MCS6 			
	 -76 dBm @ MCS7 	,		∘ -76 0	dBm @ MCS7	 -73 dBm @ MCS7 			
	 -93 dBm @ MCS8 	3		∘ -93 (dBm @ MCS8	 -90 dBm @ MCS8 			
	 -90 dBm @ MCS9)		∘ -89 (dBm @ MCS9	 -87 dBm @ MCS9 			
	 -87 dBm @ MCS1 	0		∘ -87 (dBm @ MCS10	 -84 dBm @ MCS10 			
	 -84 dBm @ MCS1 	1		∘ -83 (dBm @ MCS11	 -81 dBm @ MCS11 			
	 -81 dBm @ MCS1 				dBm @ MCS12	 -77 dBm @ MCS12 			
	 -76 dBm @ MCS1 				dBm @ MCS13	 -73 dBm @ MCS13 			
	 -75 dBm @ MCS1 				dBm @ MCS14	 -72 dBm @ MCS14 			
	 -73 dBm @ MCS1 	5		• -73 (dBm @ MCS15	 -70 dBm @ MCS18 			
	802.11ac Receive Sensitivity								
	802.11ac (non HT80)								
	• -89 dBm @ 6 Mbps								
	• -73 dBm @ 54 Mbps								
	MCS Index	Spatial Streams							
			VHT20		VHT40	VHT80			
	0	1	-96 dBm		-93 dBm	-89 dBm			
	7	1	-76 dBm		-73 dBm	-70 dBm			
	8	1	-71 dBm		-69 dBm	-66 dBm			
	9	1	NA		-67 dBm	-64 dBm			
	0	2	-93 dBm		-90 dBm	-86 dBm			
	7	2	-73 dBm		-70 dBm	-67 dBm			
	8	2	-68 dBm		-66 dBm	-63 dBm			
	9	2	NA		-64 dBm	-61 dBm			
Maximum transmit	2.4 GHz			5 GHz					
power	• 802.11b			• 802.11					
	 22 dBm, 3 antenna 	as	 23 dBm, 3 antennas 						
	• 802.11g			• 802.11n (HT20)					
	 22 dBm, 3 antennas 			 23 dBm, 3 antennas 					
	• 802.11n (HT20)			• 802.11n (HT40)					
	 22 dBm, 3 antennas 			 23 dBm, 3 antennas 					
		• 802.11ac							
				 non-HT80: 23 dBm, 3 antennas 					
					20 23 dBm, 3 ante				
				∘ VHT	40: 23 dBm, 3 ante	ennas			
					80: 23 dBm, 3 ante				

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

Feature	Specifications				
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 p specific details.	ower setting will vary by channel and acco	rding to individual country regulations. Refer to the product documentation for			
Integrated antenna	 2.4 GHz, gain 3 dBi, internal omni, h 5 GHz, gain 5 dBi, internal omni, hoi 				
Interfaces	 1 x 10/100/1000BASE-T autosensin Management console port (RJ-45) USB 2.0 (enabled via future software 				
Indicators	Status LED indicates boot loader sta	tus, association status, operating status, boot loader warnings, boot loader errors			
Dimensions (W x L x H)	Access point (without mounting brac	ket): 8.3 x 8.3 x 2 in. (210.8 x 210.8 x 50.8 mm)			
Weight	• 3.12 lb (1.41 kg)				
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 DRAM256 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	 16W 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 Cisco power injector, AIR-PWRINJ5 Note: If 802.3af PoE is the source of po 	= (Note: This injector supports 802.3af only)			
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 771 (Japan) EMI and susceptibility (Class B) FCC Part 15.107 and 15.109^{**} ICES-003 (Canada) VCCI (Japan))			

Feature	Specifications
	 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) 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

^{*} 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 <u>http://www.cisco.com/go/warranty</u>.

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
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Product Name	Part Number
Cisco Aironet	Cisco Aironet 1832i Access Point: Indoor environments, with internal antennas
1830 Series	• 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 <u>http://www.cisco.com/go/aironet/compliance</u> .
	Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.

Cisco Services

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Cisco Wireless LAN Services

- AS-WLAN-CNSLT: Cisco Wireless LAN Network Planning and Design Service
- AS-WLAN-CNSLT: <u>Cisco Wireless LAN 802.11n Migration Service</u>
- 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 <u>http://www.cisco.com/go/wireless</u> or contact your local account representative.



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