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Cisco Aironet 1700 Series Access Points

Dual-Band APs with 802.11ac Wave 1 Support on the Integrated 5-GHz Radio

Ideal for Office Environments

- Sleek design with internal antennas
- Automatic remedial action
- UL 2043 plenum-rated for above-ceiling installation or suspension from drop ceilings
- Controller-based and standalone deployments

Troubleshooting Forensics

- Historic interference information for back-intime analysis and faster problem solving
- 24x7 monitoring
- Air quality index provides a snapshot of network performance and interference impact

Robust Security and Policy Enforcement

- Rogue AP detection and detection of denial-ofservice attacks
- Management frame protection detects malicious users and alerts network administrators
- Policies prohibit devices that interfere or jeopardize network security



Product Overview

If you operate a small or medium-sized enterprise network, deploy the Cisco[®] Aironet[®] 1700 Access Point for the latest 802.11ac Wi-Fi technology at an attractive price. The Aironet 1700 Series meets the growing requirements of wireless networks by delivering better performance than 802.11n and providing key RF management features for improved wireless experiences.

The 1700 series supports 802.11ac Wave 1 standard capabilities. That includes a theoretical connection rate of up to 867 Mbps. The added throughput lets you stay ahead of growing bandwidth requirements as:

- · More wireless clients associate with the network
- · Users tap into bandwidth-heavy multimedia applications
- Mobile workers increasingly use multiple Wi-Fi devices

Features and Benefits

Building on the Cisco Aironet heritage of RF excellence, the 1700 Series APs run on a purpose-built, innovative chipset with a best-in-class RF architecture. The 1700 is a component of Cisco's series of flagship, 802.11ac-enabled Aironet Series Access Points that deliver robust mobility experiences.

Table 1 describes several of the 1700 AP features and benefits.

Table 1. Primary Capabilities and How You Benefit

Feature	Description/Benefit(s)
802.11ac Wave 1 support with 3x3 MIMO and two spatial streams	Delivers higher rates over a greater range for more capacity and reliability than competing APs. Provides bandwidth up to three times more than 802.11n networks
Cisco CleanAir [®] Express Spectrum Intelligence	Detects RF interference and provides basic spectrum analysis capabilities while simplifying ongoing operations across 20-, 40-, and 80-MHz-wide channels
Optimized AP Roaming	Directs client devices to associate with the AP in their coverage range offering the fastest data rate available
Multiple input, multiple output (MIMO) equalization	Boosts uplink performance and reliability by reducing the impact of signal fade

Product Specifications

Table 2 lists the specifications for the Cisco Aironet 1700 Series Access Points.

 Table 2.
 Product Specifications

Item	Specification
Part numbers	Cisco Aironet 1700i Access Point: Indoor environments, with internal antennas
	• AIR-CAP1702I-x-K9: Dual-band, controller-based 802.11a/g/n/ac
	• AIR-CAP1702I-xK910: Eco-pack (dual-band 802.11a/g/n/ac) 10 quantity access points
	Cisco SMARTnet [®] Service for the Cisco Aironet 1700i Access Point with internal antennas
	 CON-SNT-C172Ix: SMARTnet 8x5xNBD for 1700i access point (dual-band 802.11a/g/n/ac)
	• CON-SNT-C172Ix10: SMARTnet 8x5xNBD for 10-quantity eco-pack 1700i access point (dual-band 802.11a/g/n/ac)
	Regulatory domains: (x = regulatory domain)
	Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit http://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 Wireless LAN Services
	 AS-WLAN-CNSLT: <u>Cisco Wireless LAN Network Planning and Design Service</u>
	AS-WLAN-CNSLT: <u>Cisco Wireless LAN 802.11n Migration Service</u>
	 AS-WLAN-CNSLT: <u>Cisco Wireless LAN Performance and Security Assessment Service</u>
Software	Cisco Unified Wireless Network Software Release 8.0 or later
Supported wireless LAN controllers	Cisco 2500 Series Wireless Controllers, Cisco Wireless Controller Module for ISR G2, Cisco Wireless Services Module 2 (WiSM2) for Catalyst [®] 6500 Series Switches, Cisco 5500 Series Wireless Controllers, Cisco Flex [®] 7500 Series Wireless Controllers, Cisco 8500 Series Wireless Controllers, Cisco 5760 Wireless LAN Controller, Cisco Catalyst 3850 Series Switches, Cisco Catalyst 3650 Series Switches
802.11n version 2.0 (and related) capabilities	 3x3 MIMO with two spatial streams Maximal ratio combining (MRC) 802.11n and 802.11a/g beamforming 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 capabilities	 3x3 MIMO with two spatial streams MRC 802.11ac-standard explicit 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

ltem	Specificat	Specification											
Data rates supported	802.11a: 6	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps											
	802.11g: 1	802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps											
	802.11n da	802.11n data rates on 2.4 GHz:											
	MCS Index	MCS Index ¹		Gl ² = 800 ns) ns							
				20-MHz Rate (Mbps)		Rate (Mbps)							
	0	0		6.5									
	1		13		7.2								
	2		19.5		21.7								
	3		26										
	4		39		43.3								
	5		52		57.8								
	6		58.5		65								
	7		65		72.2								
	8			13									
	9	9		26									
	10	10			43.3								
	11	11		52									
	12	12		78									
	13	13		104									
	14	14		117									
	15	15			144.4								
	802.11ac c	15 130 144.4 802.11ac data rates (5 GHz):											
	MCS Index ³	MCS Spatial		GI ⁴ =			GI = 400ns						
			20-MHz Rate (Mbps)	40-MH (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				

 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 delays.
 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 delays.

tem	Specificati	on						
	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
Frequency band and 20-MHz operating channels Note: Customers are domain that correspor Maximum number of nonoverlapping channels	 2.412 ti 5.180 ti 5.500 ti (exclud) 5.745 ti C (C regula) 2.412 ti 5.745 ti D (D regula) 2.412 ti 5.745 ti E (E regula) 2.412 ti 5.180 ti 5.500 ti (exclud) 2.412 ti 5.180 ti 5.745 ti H (H regula) 2.412 ti 5.180 ti 5.745 ti I (I regula) 2.412 ti 5.180 ti 5.745 ti I (I regula) 2.412 ti 5.180 ti 5.500 ti 5.745 ti I (K regula) 2.412 ti 5.180 ti 5.500 ti 5.745 ti I (a regula) 2.412 ti 5.180 ti 5.500 ti 5.745 ti 5.745 ti 10 ti and ti and	o 5.320 GHz o 5.700 GHz les 5.600 to 5 o 5.825 GHz atory domain o 2.472 GHz o 5.825 GHz atory domain o 2.462 GHz o 5.320 GHz o 5.825 GHz atory domain o 2.472 GHz o 5.320 GHz o 5.320 GHz o 5.300 GHz les 5.600 to 5 ttory domain o 2.472 GHz o 5.300 GHz o 5.805 GHz o 5.825 GHz o 5.825 GHz o 5.825 GHz o 5.825 GHz o 5.825 GHz o 5.320 GHz o 5.320 GHz o 5.320 GHz o 5.320 GHz o 5.320 GHz o 5.320 GHz o 5.620 GHz o 5.620 GHz o 5.605 GHz o 5.805	 11 channels 8 channels 8 channels 640 GHz) 5 channels 640 GHz) 5 channels 6 channels 7 channels 8 channels 8 channels 8 channels 8 channels 8 channels 640 GHz) 13 channels 640 GHz) 13 channels 5 channels 5 channels 6 channels 7 channels 7 channels 7 channels 4 channels 7 channels 7 channels 4 channels 7 channels 		 2.412 5.180 5.745 Q (Q regu 2.412 5.180 5.500 R (R regu 2.412 5.180 5.660 S (S regul 2.412 5.180 5.500 S (S regul 2.412 5.180 5.500 5.745 T (T regul 2.412 5.280 5.500 (exclu 5.745 Z (Z regul 2.412 5.180 5.500 (exclu 5.745 Z (Z regul 2.412 5.180 5.500 (exclu 5.745 	1a: 1Hz: 24	1 channels channels channels 3 channels 1 channels 3 channels channels channels channels 1 channels channels channels channels channels channels d0 GHz) channels channels d0 GHz) channels	regulatory

Item	Specificat	ion						
Receive sensitivity	∘ -99 c ∘ -93 c	Ib (CCK) dBm @ 1 Mbps iBm @ 2 Mbps iBm @ 5.5 Mbps iBm @ 11 Mbps	 -93 c -92 c -92 c -92 c -91 c -88 c -85 c -80 c 	g (non HT20) IBm @ 6 Mbps IBm @ 9 Mbps IBm @ 12 Mbps IBm @ 18 Mbps IBm @ 24 Mbps IBm @ 36 Mbps IBm @ 48 Mbps IBm @ 54 Mbps	 802.11a (non HT20) -93 dBm @ 6 Mbps -92 dBm @ 9 Mbps -92 dBm @ 12 Mbps -91 dBm @ 18 Mbps -88 dBm @ 24 Mbps -85 dBm @ 36 Mbps -80 dBm @ 48 Mbps 			
	 -93 c -92 c -90 c -87 c -84 c -79 c -78 c -78 c -77 c -92 c -90 c -88 c -85 c -82 c -78 c -78 c -78 c -78 c -76 c 	In (HT20) IBm @ MCS0 IBm @ MCS1 IBm @ MCS2 IBm @ MCS3 IBm @ MCS4 IBm @ MCS5 IBm @ MCS7 IBm @ MCS7 IBm @ MCS10 IBm @ MCS11 IBm @ MCS113 IBm @ MCS14 IBm @ MCS14 IBm @ MCS15	• -79 dBm @ 54 Mbps		 -79 dBm @ 54 Mbps 5 GHz 802.11n (HT20) -93 dBm @ MCS0 -92 dBm @ MCS1 -90 dBm @ MCS2 -87 dBm @ MCS3 -84 dBm @ MCS5 -78 dBm @ MCS6 -77 dBm @ MCS7 -92 dBm @ MCS9 -88 dBm @ MCS10 -85 dBm @ MCS11 -82 dBm @ MCS12 -77 dBm @ MCS13 -76 dBm @ MCS14 -74 dBm @ MCS15 		 -90 c -88 c -87 c -84 c -81 c -76 c -76 c -76 c -74 c -89 c -87 c -82 c -78 c -74 c -73 c 	n (HT40) IBm @ MCS0 IBm @ MCS1 IBm @ MCS2 IBm @ MCS3 IBm @ MCS4 IBm @ MCS5 IBm @ MCS7 IBm @ MCS10 IBm @ MCS11 IBm @ MCS12 IBm @ MCS13 IBm @ MCS14 IBm @ MCS15
	802.11ac(● -86 dB	Receive Sensitivity (non HT80) Im @ 6 Mbps Im @ 54 Mbps	, 					
	MCS Index⁵	Spatial Streams					1	
	muex		VHT20	VHT40	VHT80	VTH20-STBC	VHT40-STBC	VHT80-STBC
	0	1	-92 dBm	-89 dBm	-85 dBm	-92 dBm	-89 dBm	-85 dBm
	8	1	-73 dBm			-73 dBm		
	9	1		-68 dBm	-65 dBm		-68 dBm	-65 dBm
	0	2	-91 dBm	-87 dBm	-84 dBm			
	8	2	-71 dBm					
	9	2	1	-66 dBm	-62 dBm			
Maximum transmit power2.4 GHz 					5 GHz • 802.11a • 22 dBm, 3 antennas • 802.11n (HT20) • 22 dBm, 3 antennas • 802.11n (HT40) • 22 dBm, 3 antennas • 802.11ac • non-HT80: 22 dBm, 3 antennas • VHT20 22 dBm, 3 antennas			

⁵ MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.

Item	Specification						
		 VHT80: 22 dBm, 3 antennas 					
		 VHT20-STBC: 22 dBm, 3 antennas 					
		 VHT40-STBC: 22 dBm, 3 antennas 					
		 VHT80-STBC: 22 dBm, 3 antennas 					
Note: The maximum specific details.	power setting will vary by channel and according t	o individual country regulations. Refer to the product documentation for					
Available transmit	2.4 GHz	5 GHz					
power settings	• 22 dBm (160 mW)	• 22 dBm (160 mW)					
	• 19 dBm (80 mW)	• 19 dBm (80 mW)					
	• 16 dBm (40 mW)	• 16 dBm (40 mW)					
	• 13 dBm (20 mW)	• 13 dBm (20 mW)					
	• 10 dBm (10 mW)	• 10 dBm (10 mW)					
	• 7 dBm (5 mW)	• 7 dBm (5 mW)					
	• 4 dBm (2.5 mW)	• 4 dBm (2.5 mW)					
	• 2 dBm (1.25 mW)	• 1 dBm (1.25 mW)					
Note: The maximum specific details.	power setting will vary by channel and according t	o individual country regulations. Refer to the product documentation for					
Integrated antenna	• 2.4 GHz, gain 4 dBi, internal omni, horizont	al beamwidth 360°					
	 5 GHz, gain 4 dBi, internal omni, horizontal 						
Interfaces	 2x10/100/1000BASE-T autosensing (RJ-45)					
	Management console port (RJ-45)	7					
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): 8.69 x 8.69 x 1.99 in. (22.1 x 22.1 x 5.1 cm)						
Weight	• 2.2 lb (1.0 kg)						
Environmental	Cisco Aironet 1702i						
	 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% percent (n	oncondensing)					
	 Operating altitude test: 40°C, 9843 ft. 						
System memory	• 512 MB DRAM						
	• 64 MB flash						
Input power	• AP1700: 44 to 57 VDC						
requirements	 AP 1700: 44 to 57 VDC Power supply and power injector: 100 to 240 VAC; 50 to 60 Hz 						
Power draw	• AP1700: 15W						
Powering options	• 802.3at PoE+						
Fowering options	Enhanced PoE						
	Cisco AP1700 power injectors (AIR-PWRIN	15=)					
	Cisco AP1700 local power supply (AIR-PW	,					
Warranty	Limited lifetime hardware warranty						
Compliance	• UL 60950-1						
standards	 CAN/CSA-C22.2 No. 60950-1 						
	 UL 2043 						
	 OL 2043 IEC 60950-1 						
	• EN 60950-1						
	 EN 50155 						
	Radio approvals:						
	 FCC Part 15.247, 15.407 						
	* FCC Fail 15.247. 15.407						
	 RSS-210 (Canada) 						
	 RSS-210 (Canada) 						

Item	Specification
	 EMI and susceptibility (Class B)
	 FCC Part 15.107 and 15.109
	 ICES-003 (Canada)
	 VCCI (Japan)
	 EN 301.489-1 and -17 (Europe)
	 EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC
	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 Standards (AES), Temporal Key Integrity Protocol (TKIP)
	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

Limited Lifetime Hardware Warranty

The Cisco Aironet 1700 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 makes sure that software media are defect-free for 90 days. For more details, visit http://www.cisco.com/go/warranty.

Cisco Wireless LAN Services

Realize the full business value of your technology investments faster with intelligent, customized services from Cisco and our partners. Backed by deep networking expertise and a broad ecosystem of partners, Cisco Wireless LAN Services enable you to deploy a sound, scalable mobility network that fosters rich media collaboration. At the same time, you can improve the operational efficiency gained from a converged wired and wireless network infrastructure based on the Cisco Unified Wireless Network. Together with partners, we offer expert plan, build, and run services to accelerate your transition to advanced mobility services. Then, we help you continuously optimize the performance, reliability, and security of that architecture after deployment. For more details, visit http://www.cisco.com/go/wirelesslanservices.

Ordering Information

To place an order, visit the Cisco Ordering Home Page. To download software, visit the Cisco Software Center.

Table 3. Ordering Information

Product Name/Description	Part Number
Cisco Aironet 1702i access point; dual-band, controller-based 802.11a/g/n/ac (individual)	AIR-CAP1702I-x-K9
Cisco Aironet 1702i access point; dual-band, controller-based 802.11a/g/n/ac ecopack (10-quantity)	AIR-CAP1702I-xK910

For More Information

For more information about the Cisco Aironet 1700 Series, visit <u>http://www.cisco.com/go/wireless</u> or contact your local account representative.



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