

Cisco Aironet 1140 Series Access Point



Performance with Investment Protection

- Six times faster than 802.11a/g networks
- Backward-compatible with 802.11a/b/g clients
- M-Drive technology optimizes RF

Easy Installation and Power Efficient

- 802.11n performance with existing PoE switches
- Sleek design blends into a variety of indoor environments

Secure Interoperability

- 802.11n compliant
- Intel Connect with Centrino Certified

Simplified Network Management

Controller-based or standalone deployment options

Secure Connections

- Supports rogue access point detection and denial of service attacks
- Management frame protection detects malicious users and alerts network administrators

Greater Network Capacity

Dynamic frequency selection 2 (DFS-2) compliant

Easy-to-Install, Multipurpose Mounting Bracket

- Designed for easy replacement of existing access points
- UL 2043 plenum rated for above ceiling installation options or suspended from drop ceilings
- · Locks for theft protection



Taking Business Mobility Mainstream

The Cisco® Aironet® 1140 Series Access Point is a business-ready, 802.11n access point designed for simple deployment and energy efficiency. The high-performance platform, which offers at least six times the throughput of existing 802.11a/g networks, prepares the business for the next wave of mobile devices and applications. Building on the Cisco Aironet heritage of RF excellence, the 1140 Series combines the industry's most widely deployed 802.11n technology with a sleek industrial design that blends seamlessly into any enterprise environment. Designed for sustainability, the 1140 Series delivers high performance from standard 802.3af Power over Ethernet while decreasing waste with multiunit ecopacks and Energy Star certified power supplies.

RF Excellence

Building on the Cisco Aironet heritage of RF excellence, the 1140 Series delivers industry-leading performance for secure and reliable <u>wireless</u> connections. Enterprise-class silicon and optimized radios deliver a robust <u>mobility</u> experience using Cisco M-Drive technology, which includes:

- <u>ClientLink</u> improves reliability and coverage for legacy clients
- BandSelect improves 5-GHz client connections in mixed client environments
- VideoStream uses multicast to improve rich-media applications

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

The Cisco Aironet 1140 Series is a component of the Cisco Unified Wireless Network, which can scale up to 18,000 access points with full Layer 3 mobility across central or remote locations on the enterprise campus, in branch offices, and at remote sites. The Cisco Unified Wireless Network is the industry's most flexible, resilient, and scalable architecture, delivering secure access to mobility services and applications and offering the lowest total cost of ownership and investment protection by integrating seamlessly with the existing wired network.

Access points can provide a simple wireless backhaul solution, which provides services to wireless LAN and wired clients.

Product Specifications

Table 1 lists the product specifications for Cisco Aironet 1140 Series Access Points.

Product Specifications for Cisco Aironet 1140 Series Access Points Table 1.

Item	Specification						
Part Numbers	Cisco Aironet 1140 Series Access Point AIR-LAP1142N-x-K9 - Dual-band Controller-based 802.11a/g/n AIR-LAP1141N-x-K9 - Single-band Controller-based 802.11g/n AIR-AP1142N-x-K9 - Dual-band Standalone 802.11a/g/n AIR-AP1141N-x-K9 - Single-band Standalone 802.11g/n AIR-AP1141N-x-K9 - Single-band Standalone 802.11g/n AIR-AP1142-xK9-PR - Eco-pack (dual-band 802.11a/g/n) 10 quantity Controller-based access points AIR-AP1142-xK9-PR - Eco-pack (dual-band 802.11a/g/n) 5 quantity Standalone access points 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, please visit http://www.cisco.com/qo/aironet/compliance . Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.						
Software	Cisco Unified Wireless Network Software Release 5.2 or later Cisco IOS® Software Release 12.4(21a)JA						
802.11n Capabilities	 2x3 multiple-input multiple-output (MIMO) with two spatial streams Maximal ratio combining (MRC) Legacy beamforming (hardware supports this capability; not yet enabled in software) 20- and 40-MHz channels PHY data rates up to 300 Mbps Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) 802.11 dynamic frequency selection (DFS) (Bin 5) Cyclic shift diversity (CSD) support 						
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 (2.4 GHz and 5 GHz):						
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz):					
Data Rates Supported	802.11g: 1, 2, 5.5,	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns	and 54 Mbps	GI = 400ns			
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps)	and 54 Mbps 40-MHz Rate (Mbps)	20-MHz Rate (Mbps)	40-MHz Rate (Mbps)		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns	and 54 Mbps		40-MHz Rate (Mbps) 15 30		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5	40-MHz Rate (Mbps)	20-MHz Rate (Mbps)	15		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13	and 54 Mbps 40-MHz Rate (Mbps) 13.5 27	20-MHz Rate (Mbps) 7.2 14.4	15 30		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹ 0 1	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5	40-MHz Rate (Mbps) 13.5 27 40.5	20-MHz Rate (Mbps) 7.2 14.4 21.7	15 30 45		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹ 0 1 2 3	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5 26	40-MHz Rate (Mbps) 13.5 27 40.5	20-MHz Rate (Mbps) 7.2 14.4 21.7 28.9	15 30 45 60		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹ 0 1 2 3 4	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5 26 39	40-MHz Rate (Mbps) 13.5 27 40.5 54	20-MHz Rate (Mbps) 7.2 14.4 21.7 28.9 43.3	15 30 45 60 90		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹ 0 1 2 3 4 5	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5 26 39 52	40-MHz Rate (Mbps) 13.5 27 40.5 54 81 108	20-MHz Rate (Mbps) 7.2 14.4 21.7 28.9 43.3 57.8	15 30 45 60 90 120		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹ 0 1 2 3 4 5	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5 26 39 52 58.5	40-MHz Rate (Mbps) 13.5 27 40.5 54 81 108 121.5	20-MHz Rate (Mbps) 7.2 14.4 21.7 28.9 43.3 57.8	15 30 45 60 90 120 135		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹ 0 1 2 3 4 5 6 7	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5 26 39 52 58.5 65	40-MHz Rate (Mbps) 13.5 27 40.5 54 81 108 121.5 135	20-MHz Rate (Mbps) 7.2 14.4 21.7 28.9 43.3 57.8 65 72.2	15 30 45 60 90 120 135		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹ 0 1 2 3 4 5 6 7	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5 26 39 52 58.5 65 13	40-MHz Rate (Mbps) 13.5 27 40.5 54 81 108 121.5 135 27	20-MHz Rate (Mbps) 7.2 14.4 21.7 28.9 43.3 57.8 65 72.2	15 30 45 60 90 120 135 150		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹ 0 1 2 3 4 5 6 7 8	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5 26 39 52 58.5 65 13 26	40-MHz Rate (Mbps) 13.5 27 40.5 54 81 108 121.5 135 27	20-MHz Rate (Mbps) 7.2 14.4 21.7 28.9 43.3 57.8 65 72.2 14.4 28.9	15 30 45 60 90 120 135 150 30		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹ 0 1 2 3 4 5 6 7 8 9 10	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5 26 39 52 58.5 65 13 26 39	40-MHz Rate (Mbps) 13.5 27 40.5 54 81 108 121.5 135 27	20-MHz Rate (Mbps) 7.2 14.4 21.7 28.9 43.3 57.8 65 72.2 14.4 28.9 43.3	15 30 45 60 90 120 135 150 30 60		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index 0 1 2 3 4 5 6 7 8 9 10	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5 26 39 52 58.5 65 13 26 39 52	40-MHz Rate (Mbps) 13.5 27 40.5 54 81 108 121.5 135 27 54 81	20-MHz Rate (Mbps) 7.2 14.4 21.7 28.9 43.3 57.8 65 72.2 14.4 28.9 43.3 57.8	15 30 45 60 90 120 135 150 30 60 90 120		
Data Rates Supported	802.11g: 1, 2, 5.5, 802.11n data rate MCS Index ¹ 0 1 2 3 4 5 6 7 8 9 10 11 12	6, 9, 11, 12, 18, 24, 36, 48, s (2.4 GHz and 5 GHz): GI ² = 800ns 20-MHz Rate (Mbps) 6.5 13 19.5 26 39 52 58.5 65 13 26 39 52 78	40-MHz Rate (Mbps) 13.5 27 40.5 54 81 108 121.5 135 27 54 81 108 1108 1108 1108	20-MHz Rate (Mbps) 7.2 14.4 21.7 28.9 43.3 57.8 65 72.2 14.4 28.9 43.3 57.8 86.7	15 30 45 60 90 120 135 150 30 60 90 120 180		

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

² GI: A **G**uard Interval **(GI)** between symbols helps receivers overcome the effects of multipath delays.

Item	Specification				
Frequency Band and 20-	A (A Regulatory Domain):		N (N Regu	latory Domain):	
MHz Operating Channels	• 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		
	• 5.500 to 5.700 GHz, 8 channels		• 5.745 to 5.825 GHz; 5 channels		
	(excludes 5.600 to 5.640 GHz)		P (P 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 5.745 to 5.825 GHz; 5 channels E (E Reg Domain): 2.412 to 2.472 GHz; 13 channels 		S (S Regulatory Domain):		
			• 2.412 to 2.472 GHz; 13 channels		
			• 5.180 to 5.320 GHz; 8 channels		
	• 5.180 to 5.320 GHz; 8 channels		• 5.745 to 5.825 GHz; 5 channels		
	• 5.500 to 5.700 GHz, 8 channels		T (T Regulatory Domain):		
	I (I 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		
	• 5.180 to 5.320 GHz; 8 channels		• 5.500 to 5.700 GHz, 11 channels		
	K (K Regulatory Domain):		• 5.745 to 5.825 GHz; 5 channels		
	• 2.412 to 2.472 GHz; 13 channels				
	• 5.180 to 5.320 GHz; 8 ch	annels			
	• 5.500 to 5.620 GHz, 7 ch	annels			
	• 5.745 to 5.805 GHz, 4 ch	annels			
Note: This varies by regulator	y domain. Refer to the product	documentation fo	r specific de	tails for each regulatory do	main.
Maximum Number of Non-	2.4 GHz		5 GHz		
Overlapping Channels	• 802.11b/g:		• 802.11	a:	
	∘ 20 MHz: 3		∘ 20 N	1Hz: 21	
	• 802.11n:		• 802.11	n:	
	。 20 MHz: 3			1Hz: 21	
			∘ 40 N	1Hz: 9	
Note: This varies by regulator	y domain. Refer to the product	documentation fo	r specific de	tails for each regulatory do	main.
Receive Sensitivity	802.11b	802.11g		802.11a	
	-91 dBm @ 1 Mb/s	-86 dBm @ 6 Mb		-90 dBm @ 6 Mb/s	
	-91 dBm @ 2 Mb/s	-86 dBm @ 9 Mb		-90 dBm @ 9 Mb/s	
	-91 dBm @ 5.5 Mb/s	-86 dBm @ 12 N		-90 dBm @ 12 Mb/s	
	-88 dBm @ 11 Mb/s	-86 dBm @ 18 N		-90 dBm @ 18 Mb/s	
		-85 dBm @ 24 N		-88 dBm @ 24 Mb/s	
		-83 dBm @ 36 N -78 dBm @ 48 N		-85 dBm @ 36 Mb/s -80 dBm @ 48 Mb/s	
	-76 dBii @ 46 N			-79 dBm @ 54 Mb/s	
	2.4.04-	77 02.11 @ 0 1 10			E CU-
	2.4-GHz 802.11n (HT20)			5-GHz 802.11n (HT20)	5-GHz 802.11n (HT40)
	-88 dBm @ MCS0			-91 dBm @ MCS0	-78 dBm @ MCS0
	-87 dBm @ MCS1			-91 dBm @ MCS1	-78 dBm @ MCS1
	-86 dBm @ MCS2			-90 dBm @ MCS2	-78 dBm @ MCS2
	-83 dBm @ MCS3			-87 dBm @ MCS3	-78 dBm @ MCS3
	-80 dBm @ MCS4			-84 dBm @ MCS4	-78 dBm @ MCS4
	-76 dBm @ MCS5			-79 dBm @ MCS5	-75 dBm @ MCS5
	-74 dBm @ MCS6			-77 dBm @ MCS6	-73 dBm @ MCS6
	-73 dBm @ MCS7			-76 dBm @ MCS7	-72 dBm @ MCS7
	-87 dBm @ MCS8			-90 dBm @ MCS8	-76 dBm @ MCS8
	-85 dBm @ MCS9			-89 dBm @ MCS9	-76 dBm @ MCS9
	-83 dBm @ MCS10			-86 dBm @ MCS10	-76 dBm @ MCS10
	-80 dBm @ MCS11			-83 dBm @ MCS11	-76 dBm @ MCS11
	-77 dBm @ MCS12			-80 dBm @ MCS12	-76 dBm @ MCS12
	-73 dBm @ MCS13			-75 dBm @ MCS13	-71 dBm @ MCS13
	-71 dBm @ MCS14			-74 dBm @ MCS14	-69 dBm @ MCS14
	-70 dBm @ MCS15			-72 dBm @ MCS15	-68 dBm @ MCS15

Item	Specification				
Maximum Transmit Power	2.4GHz	5GHz			
	• 802.11b	• 802.11a			
	∘ 20 dBm with 1 antenna	 20 dBm with 2 antennas 			
	• 802.11g	802.11n non-HT duplicate (802.11a duplicate) mode			
	∘ 20 dBm with 2 antennas	 20 dBm with 2 antennas 			
	• 802.11n (HT20)	• 802.11n (HT20)			
	∘ 20 dBm with 2 antennas	 20 dBm with 2 antennas 			
		• 802.11n (HT40)			
		∘ 20 dBm with 2 antennas			
Note: The maximum power se specific details.	etting will vary by channel and according to individual count	ry regulations. Refer to the product documentation for			
Available Transmit Power	2.4GHz	5GHz			
Settings	20 dBm (100 mW)	20 dBm (100 mW)			
	17 dBm (50 mW)	17 dBm (50 mW)			
	14 dBm (25 mW)	14 dBm (25 mW)			
	11 dBm (12.5 mW)	11 dBm (12.5 mW)			
	8 dBm (6.25 mW)	8 dBm (6.25 mW)			
	5 dBm (3.13 mW)	5 dBm (3.13 mW)			
	2 dBm (1.56 mW)	2 dBm (1.56 mW)			
	-1 dBm (0.78 mW)	-1 dBm (0.78 mW)			
Note: The maximum power so specific details.	etting will vary by channel and according to individual countries.				
Integrated Antenna	• 2.4 GHz, Gain 4.0 dBi, horizontal beamwidth 360°				
	• 5 GHz, Gain 3 dBi, horizontal beamwidth 360°				
Interfaces	10/100/1000BASE-T autosensing (RJ-45) Management console port (RJ45)				
Indicators	Status LED indicates boot loader status, association serrors	status, operating status, boot loader warnings, boot loader			
Dimensions (W x L x H)	Access point (without mounting bracket): 8.7 x 8.7 x 1.84 in. (22.1 x 22.1 x 4.7 cm)				
Weight	• 2.3 lbs (1.04 kg)				
Environmental	Nonoperating (storage) temperature: -22 to 185°F (-30 to 85°C)				
	Operating temperature: 32 to 104°F (0 to 40°C)				
	Operating humidity: 10 to 90% percent (non-condens)	ing)			
System Memory	• 128 MB DRAM				
System Memory					
	• 32 MB flash				
Input Power Requirements	AP1140: 44 to 57 VDC				
	 Power Supply and Power Injector: 100 to 240 VAC; 5 	0 to 60 Hz			
Powering Options	802.3af Ethernet Switch				
	Cisco AP1140 Power Injectors (AIR-PWRINJ4=)				
	Cisco AP1140 Local Power Supply (AIR-PWR-B=)				
Power Draw	• AP1140: 12.95 W				
	Note: When deployed using PoE, the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power may be as high as 2.45W, bringing the total system power draw (access point + cabling) to 15.4W.				
Warranty	Limited Lifetime Hardware Warranty				

Item	Specification				
Compliance	Standards				
	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-210 (Canada)				
	 EN 300.328, EN 301.893 (Europe) 				
	ARIB-STD 33 (Japan)				
	ARIB-STD 66 (Japan)				
	ARIB-STD T71 (Japan)				
	AS/NZS 4268.2003 (Australia and New Zealand)				
	 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 Standard:				
	∘ IEEE 802.11a/b/g, IEEE 802.11n, IEEE 802.11h, IEEE 802.11d				
	• Security:				
	 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA 				
	∘ 802.1X				
	 Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP) 				
	• EAP Type(s):				
	 Extensible Authentication Protocol-Transport Layer Security (EAP-TLS) 				
	 EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2) 				
	 Protected EAP (PEAP) v0 or EAP-MSCHAPv2 				
	 Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST) 				
	PEAPv1 or EAP-Generic Token Card (GTC)				
	EAP-Subscriber Identity Module (SIM)				
	Multimedia:				
	∘ Wi-Fi Multimedia (WMM [™])				
	• Other:				
	∘ FCC Bulletin OET-65C				
	。 RSS-102				
Calculated Mean Time Between Failure (MTE	· ·				

Service and Support

Cisco and Cisco Wireless LAN Specialized Partners offer a broad portfolio of end-to-end services based on proven methodologies for planning, designing, implementing, operating, and optimizing the performance of your wireless network. Cisco recommends the following services for the Cisco Aironet 1140 Series Access Points implementation:

Cisco Wireless LAN 802.11n Readiness Assessment Service

Prevent common challenges and reduce deployment costs by determining the readiness of your wired and wireless infrastructure.

Cisco Wireless LAN 802.11n Migration Service

Simplify the migration to high-performance, next generation 802.11n.

Cisco Wireless LAN Optimization Service

Evolve your 802.11n network to meet ever-changing network demands through planning and assessments, design, performance tuning, and ongoing support for system changes.

For more information about Cisco 802.11n planning and deployment services, visit http://www.cisco.com/go/wirelesslanservices.

Limited Lifetime Hardware Warranty

This Cisco Aironet 1140 Series Access Point comes 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 is defect-free for 90 days. For more details, visit: http://www.cisco.com/go/warranty.

For More Information

For more information about the Cisco Aironet 1140 Series, visit http://www.cisco.com/go/wireless or contact your local account representative.



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