



DATA SHEET

CISCO AIRONET® IEEE 802.11a 1200 SERIES ACCESS POINT UPGRADE KITS



PRODUCT OVERVIEW

Cisco® Aironet® IEEE 802.11a 1200 Series access point upgrade kits provide customers with an easy and cost-effective migration path to the 802.11a standard for high-speed and high-channel-capacity wireless networking. Cisco Aironet products set the enterprise standard for high-performance, secure, manageable, and flexible WLANs, and Cisco Aironet IEEE 802.11a 1200 Series access point upgrade kits deliver upon the Cisco Aironet commitment to protect customers' wireless network investment. Two versions of the upgrade kit are available. One offers an integrated antenna design that incorporates diversity omnidirectional and patch antennas. The second has dual antenna connectors for use with numerous Cisco 5 GHz antennas to achieve extended range and application-specific coverage. Both versions provide up to 19 nonoverlapping channels in the 5 GHz band (subject to local regulations). See <http://www.cisco.com/go/aironet/compliance> to determine the availability of the Cisco Aironet IEEE 802.11a 1200 Series Upgrade Kit for your country.

VERSATILITY

Cisco offers a wide variety of antenna options that enable flexibility in installation and deployment to meet specific application requirements. The 802.11a module version with integrated antennas incorporates an articulating antenna paddle containing both omnidirectional and patch antennas. For ceiling, desktop, or other horizontal installations, the 5dBi omnidirectional antennas provide coverage for optimal range and reliability. Selecting the module's integrated patch antenna activates the 9dBi gain patch antenna (Figure 1) for coverage and greater range suited for vertical or wall mounting of access points.

GREATER CAPACITY MADE EASY

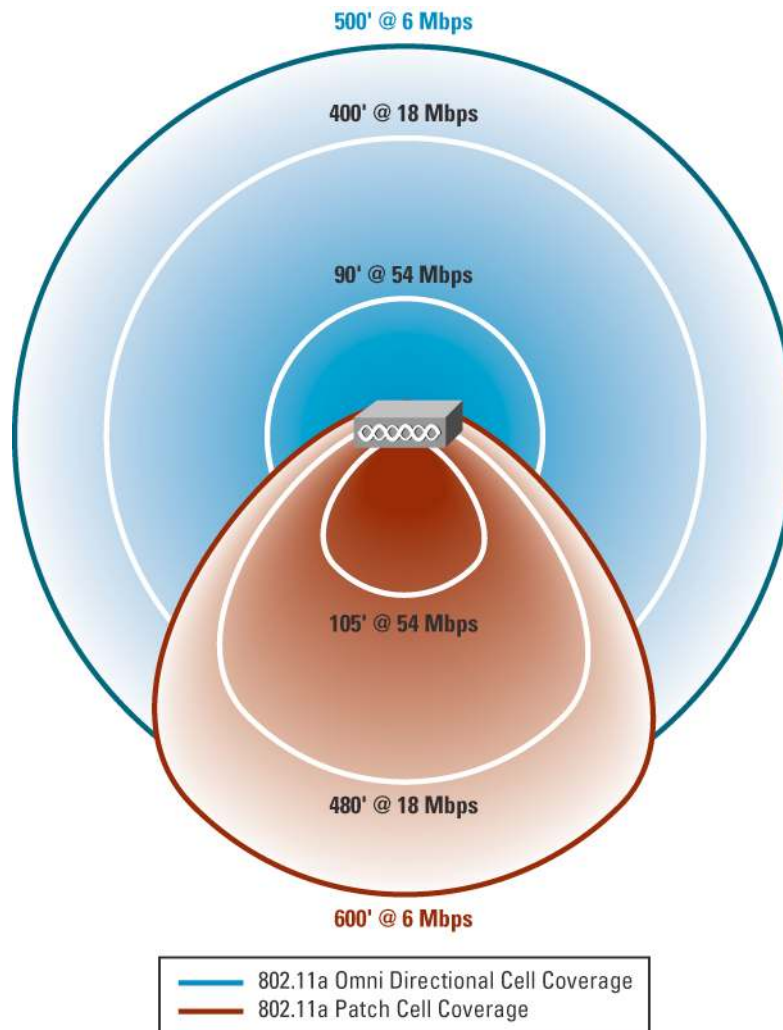
Cisco Aironet IEEE 802.11a 1200 Series access point upgrade kits provide an easy, cost-effective means to increase the capacity of your wireless network with a simple radio upgrade. An Allen wrench, supplied with the upgrade kit, is all you need to access the CardBus slot to upgrade a Cisco Aironet 1200 Series access point. Simply remove the existing 802.11a radio or remove the slot cover, and insert the new 802.11a module and

upgrade the access point's IOS image. The access point does not need to be removed from the installed position and the installer does not need to be grounded while performing the upgrade. No other steps are required.

INDUSTRY-LEADING PERFORMANCE

The Cisco Aironet IEEE 802.11a 1200 Series Access Point Upgrade Kits allow customers to take advantage of the next generation of 802.11a technology, with hardware-assisted Advanced Encryption Standard (AES) encryption support, as well as higher transmit power, receive sensitivity, and delay spread for high-multipath environments.

Figure 1. Cisco Aironet 802.11a Radio Module with Dual Integrated Antennas (Air-RM-21A-x-K9) Provides Two Distinct Coverage Patterns



PRODUCT SPECIFICATIONS

Table 1 lists product specifications for the Cisco Aironet IEEE 802.11a 1200 Series access point upgrade kits.


Table 1. Product Specifications

Part Number	<p>Cisco Aironet Enhanced IEEE 802.11a CardBus Radio Module with dual integrated antennas:</p> <ul style="list-style-type: none">• AIR-RM21A-A-K9• AIR-RM21A-C-K9• AIR-RM21A-E-K9• AIR-RM21A-J-K9• AIR-RM21A-N-K9• AIR-RM21A-S-K9• AIR-RM21A-T-K9 <p>Cisco Aironet Enhanced IEEE 802.11a CardBus Radio Module with dual RP-TNC connectors:</p> <ul style="list-style-type: none">• AIR-RM22A-A-K9• AIR-RM22A-C-K9• AIR-RM22A-E-K9• AIR-RM22A-J-K9• AIR-RM22A-N-K9• AIR-RM22A-S-K9• AIR-RM22A-T-K9 <p>Regulatory domains:</p> <ul style="list-style-type: none">• A = Americas• C = China• E = ETSI• J = Japan (TELECOM)• N = North America• S = Singapore• T = Taiwan <p>Customers are responsible for verifying approval for use in their particular countries. Please see http://www.cisco.com/go/aironet/compliance to verify approval and to identify the regulatory domain that corresponds to a particular country.</p>
Software	Cisco IOS Software Release 12.3(4)JA or later
Radio Module Form Factor	CardBus (32-bit)
Data Rates Supported	6, 9, 12, 18, 24, 36, 48, and 54 Mbps
Network Standard	IEEE 802.11a
Operating Voltage	5V ($\pm 0.5V$)

Wireless Medium	802.11a: Orthogonal Frequency Divisional Multiplexing (OFDM)
Modulation	<ul style="list-style-type: none"> • Binary Phase Shift Keying (BPSK) @ 6 and 9 Mbps • Quadrature Phase Shift Keying (QPSK) @ 12 and 18 Mbps • 16-Quadrature Amplitude Modulation (QAM) @ 24 and 36 Mbps • 64-QAM @ 48 and 54 Mbps
Frequency Band and Operating Channels	<ul style="list-style-type: none"> • FCC <ul style="list-style-type: none"> – 5.15 to 5.35 GHz and 5.725 to 5.825 GHz, 12 channels • China <ul style="list-style-type: none"> – 5.725 to 5.825 GHz, 4 channels • Europe (ETSI) <ul style="list-style-type: none"> – 5.15 to 5.725 GHz, 19 channels • Japan (TELEC) <ul style="list-style-type: none"> – 5.15 to 5.25 GHz, 4 channels • North America <ul style="list-style-type: none"> – 5.15 to 5.35 GHz and 5.725 to 5.825 GHz, 12 channels • Singapore <ul style="list-style-type: none"> – 5.15 to 5.25 GHz and 5.725 to 5.825 GHz, 8 channels • Taiwan <ul style="list-style-type: none"> – 5.25 to 5.35 GHz and 5.725 to 5.825 GHz, 8 channels
Media Access Protocol	Carrier-sense multiple access with collision avoidance (CSMA/CA)
Nonoverlapping Channels	12 (FCC and North America)
Receive Sensitivity (typical)	6 Mbps: -87 dBm 9 Mbps: -87 dBm 12 Mbps: -85 dBm 18 Mbps: -84 dBm 24 Mbps: -81 dBm 36 Mbps: -78 dBm 48 Mbps: -73 dBm 54 Mbps: -72 dBm

Receiver Delay Spread	120 ns at 54 Mbps 140 ns at 48 Mbps 180 ns at 36 Mbps 230 ns at 24 Mbps 240 ns at 18 Mbps 280 ns at 12 Mbps 320 ns at 9 Mbps 360 ns at 6 Mbps
Available Transmit Power Settings	17 dBm (50 mW) 15 dBm (30 mW) 14 dBm (25 mW) 11 dBm (12 mW) 8 dBm (6 mW) 5 dBm (3 mW) 2 dBm (2 mW) -1 dBm (1 mW)
Range	Outdoor 170 ft @ 54 Mbps 350 ft @ 48 Mbps 550 ft @ 36 Mbps 700 ft @ 24 Mbps 800 ft @ 18 Mbps 875 ft @ 12 Mbps 925 ft @ 9 Mbps 950 ft @ 6 Mbps Indoor 90 ft @ 54 Mbps 225 ft @ 48 Mbps

	<p>300 ft @ 36 Mbps</p> <p>350 ft @ 24 Mbps</p> <p>400 ft @ 18 Mbps</p> <p>450 ft @ 12 Mbps</p> <p>475 ft @ 9 Mbps</p> <p>500 ft @ 6 Mbps</p> <p>Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ.</p>
Compliance	<p>Standards</p> <p>Safety</p> <ul style="list-style-type: none"> • UL 60950 • CAN/CSA C22.2 No. 60950 • IEC 60950 <p>Radio Approvals</p> <ul style="list-style-type: none"> • FCC Part 15.401-15.407 • RSS-210 (Canada) • EN 301.893 (Europe) • ARIB STD-T71 (Japan) • AS 4268.2 (Australia) • AS/NZS 3548 (Australia and New Zealand) <p>Security</p> <ul style="list-style-type: none"> • 802.1X and Temporal Key Integrity Protocol (TKIP) • Wi-Fi Protected Access (WPA) and WPA2 • AES <p>Other</p> <ul style="list-style-type: none"> • IEEE 802.11a • FCC Bulletin OET-65C • RSS-102
Integrated Antenna	5 dBi omnidirectional and 9 dBi patch antennas (AIR-RM-21A-x-K9)
Antenna Connectors	Dual RP-TNC (AIR-RM22A-x-K9)
Security	<ul style="list-style-type: none"> • Hardware-based algorithms for encryption • Supports Cisco Wireless Security Suite

Dimensions	<p>AIR-RM21A-x-K9:</p> <ul style="list-style-type: none"> • 4.9 x 3.5 x 1.6 in. (L x W x H) or 12.5 x 8.9 x 4.0 cm <p>AIR-RM22A-x-K9:</p> <ul style="list-style-type: none"> • Antenna up: 4.7 x 3.4 x 1.6 in. (L x W x H) or 12 x 8.6 x 4.1 cm • Antenna down: 4.2 x 3.4 x 5.7 in. (L x W x H) or 10.7 x 8.6 x 14.5 cm
Weight	<ul style="list-style-type: none"> • AIR-RM21A-x-K9: 0.23 lb or 0.104 kg • AIR-RM22A-x-K9: 0.35 lb or 0.854 kg
Environmental	<ul style="list-style-type: none"> • Nonoperating (storage) temperature: -40 to 70°C (-40° to 150°F) • Operating temperature: -20 to 50°C (-4° to 122°F) • Humidity (noncondensing): 10 to 90 percent
Warranty	One year
Wi-Fi Certification	

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