



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

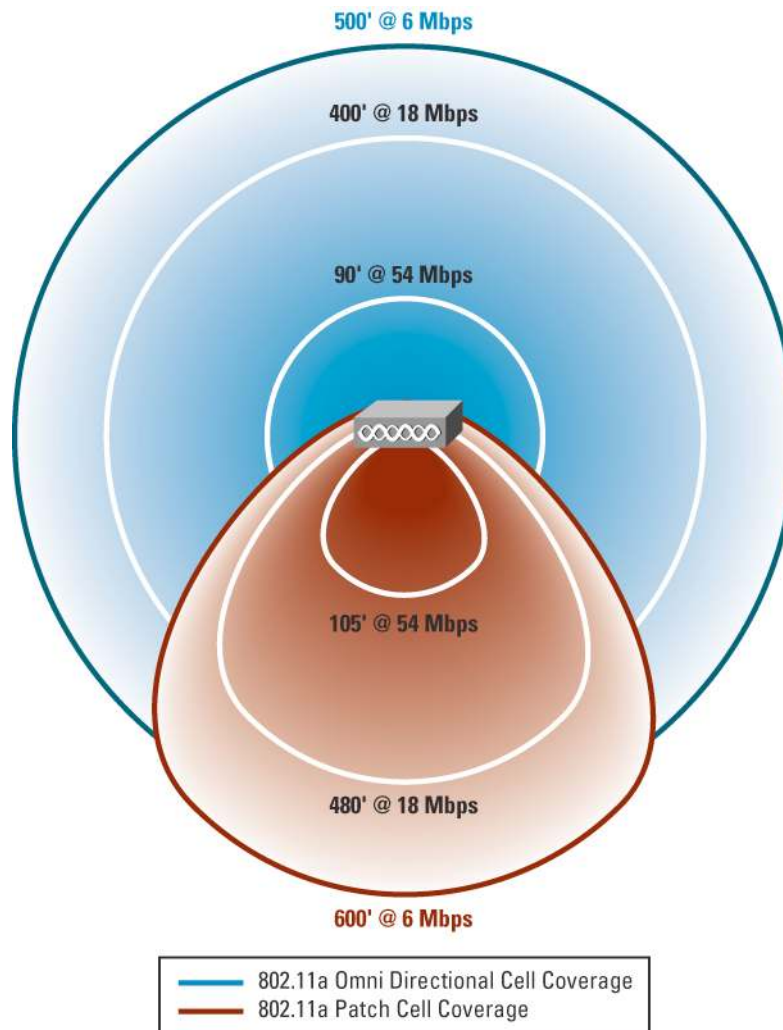
Cisco Aironet IEEE 802.11a 1200 Series access point upgrade kits provide an easy, cost-effective means to increase the capacity of your wireless network with a simple radio upgrade. An Allen wrench, supplied with the upgrade kit, is all you need to access the CardBus slot to upgrade a Cisco Aironet 1200 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	Cisco Aironet Enhanced IEEE 802.11a CardBus Radio Module with dual integrated antennas: • 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 Cisco Aironet Enhanced IEEE 802.11a CardBus Radio Module with dual RP-TNC connectors: • 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 Regulatory domains: • A = Americas • C = China • E = ETSI • J = Japan (TELEC) • N = North America • S = Singapore • T = Taiwan 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.
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 (±0.5V)

Wireless Medium	802.11a: Orthogonal Frequency Divisional Multiplexing (OFDM)
Modulation	• 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	• FCC – 5.15 to 5.35 GHz and 5.725 to 5.825 GHz, 12 channels • China – 5.725 to 5.825 GHz, 4 channels • Europe (ETSI) – 5.15 to 5.725 GHz, 19 channels • Japan (TELEC) – 5.15 to 5.25 GHz, 4 channels • North America – 5.15 to 5.35 GHz and 5.725 to 5.825 GHz, 12 channels • Singapore – 5.15 to 5.25 GHz and 5.725 to 5.825 GHz, 8 channels • Taiwan – 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

	300 ft @ 36 Mbps 350 ft @ 24 Mbps 400 ft @ 18 Mbps 450 ft @ 12 Mbps 475 ft @ 9 Mbps 500 ft @ 6 Mbps Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ.
Compliance	Standards Safety • UL 60950 • CAN/CSA C22.2 No. 60950 • IEC 60950 Radio Approvals • 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) Security • 802.1X and Temporal Key Integrity Protocol (TKIP) • Wi-Fi Protected Access (WPA) and WPA2 • AES Other • 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	• Hardware-based algorithms for encryption • Supports Cisco Wireless Security Suite

Dimensions	AIR-RM21A-x-K9: • 4.9 x 3.5 x 1.6 in. (L x W x H) or 12.5 x 8.9 x 4.0 cm AIR-RM22A-x-K9: • 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	• AIR-RM21A-x-K9: 0.23 lb or 0.104 kg • AIR-RM22A-x-K9: 0.35 lb or 0.854 kg
Environmental	• 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	

SERVICE AND SUPPORT

Cisco offers a wide range of services programs to accelerate customer success. These innovative programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you to protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services, see [Cisco Technical Support Services](#) or [Cisco Advanced Services](#).

**Corporate Headquarters**

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters

Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters

Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia • Cyprus
Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland • Israel
Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal
Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden • Switzerland • Taiwan
Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

Copyright © 2005 Cisco Systems, Inc. All rights reserved. CCSP, CCVP, the Cisco Square Bridge logo, Follow Me Browsing, and StackWise are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn, and iQuick Study are service marks of Cisco Systems, Inc.; and Access Registrar, Aironet, ASIST, BPX, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Empowering the Internet Generation, Enterprise/Solver, EtherChannel, EtherFast, EtherSwitch, Fast Step, FormShare, GigaDrive, GigaStack, HomeLink, Internet Quotient, IOS, IP/TV, iQ Expertise, the iQ logo, iQ Net Readiness Scorecard, LightStream, Linksys, MeetingPlace, MGX, the Networkers logo, Networking Academy, Network Registrar, Packet, PIX, Post-Routing, Pre-Routing, ProConnect, RateMUX, ScriptShare, SlideCast, SMARTnet, StrataView Plus, TeleRouter, The Fastest Way to Increase Your Internet Quotient, and TransPath are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0502R)

205248.m_ETMG_LS_4.05