Cisco Aironet Access Point Module for Wireless Security

Cisco Aironet® Access Point Module for Wireless Security (WSM)

- Flexible add-on third radio module for the Cisco Aironet 3600 Series (3600i, 3600e) and 3700 Series (3700i, 3700e, 3700p) Access Points
- Self-contained, concurrent 2.4-GHz and 5- GHz radio
- Sleek design with internal antennas

Next-Generation Security and Spectrum Analysis

- Zero-touch configuration; installation, power-up, and go
- Always-on security scanning and spectrum intelligence scanning for all channels in both the 2.4- and 5-GHz bands
- Saves network costs by eliminating the need for:
  - A traditional, dedicated monitor mode overlay set of access points
  - Ethernet infrastructure (cable and port) required for a dedicated monitor mode overlay
  - Power supply or injector as appropriate
- WSM offloads concurrent support for:
  - Cisco CleanAir® spectrum analysis
  - wIPS security scanning
  - Rogue detection
  - Context-aware location
  - Radio resource management (RRM)
- Enables Wi-Fi client data serving, monitor- mode-like functionality, and wIPS security scanning concurrently with a 3600i/e or 3700i/e access point

CleanAir Spectrum Intelligence

- Classify over 20 different types of interference, including non-Wi-Fi interference within 5 to 30 seconds
- Automatic remedial action and less manual intervention
- Cisco Spectrum Expert Connect provides real-time, raw spectrum data to help with difficult-to-diagnose interference problems
- The Air Quality Index in Cisco CleanAir technology provides a snapshot of network performance and the impact of interference

Robust Security and Policy Enforcement

- Industry's first access point with non-Wi-Fi detection for off-channel rogues while serving data clients
- Supports rogue access point detection and detection of denial-of-service attacks
- Management frame protection detects malicious users and alerts network administrators
- Set policies to prohibit devices that interfere with the Wi-Fi network or jeopardize network security

The Cisco® Wireless Security module (WSM), taking advantage of the flexible modular design introduced with the Cisco Aironet® 3600 Series Access Points and carried forward with the Cisco Aironet® 3700 Series Access Points, delivers unprecedented, always-on security scanning and spectrum intelligence, which helps you avoid RF interference so that you get better coverage and performance on your wireless network.

- 24/7 full spectrum monitor and mitigation for adaptive wireless intrusion prevention system (AwIPS), CleanAir, Context Awareness, Rogue Detection and Radio Resource Management
- 24/7 on-channel AwIPS threat protection
- 23x more security and spectrum coverage
- 30%+ CAPEX cost savings versus dedicated monitor mode access point
- Zero touch configuration

The WSM is a field-upgradeable module dedicated radio that off loads all monitoring and security services from the client/data serving radios to the security monitor module. This not only allows for better client performance but also reduces costs by eliminating the need for dedicated monitor mode access points and the Ethernet infrastructure required to connect those devices into their network.

Together, the 3600 and 3700 Series access points and WSM enable the customer to concurrently provide state-of-the-art security and spectrum analysis functions for Wi-Fi clients on all channels, in both the 2.4- and 5-GHz bands.

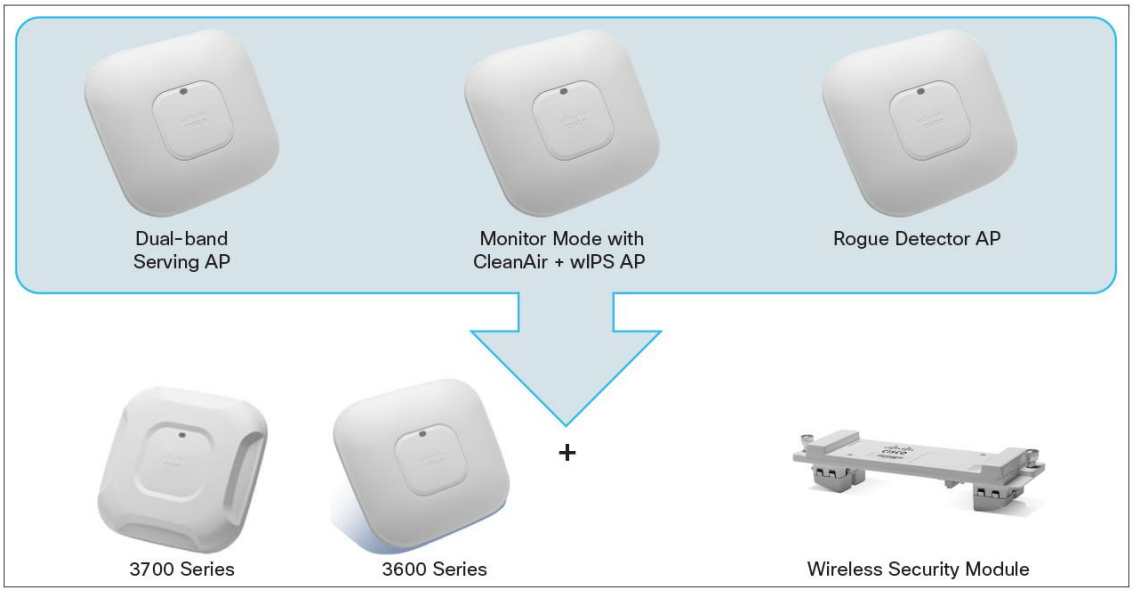
Once deployed, the module is constantly scanning all channels to help ensure the most secure and robust wireless experience available in the industry.

Modular Flexibility and Efficiency

Building on the Cisco Aironet heritage of award-winning and robust access point design, both the 3700 and 3600 Series Access Points deliver extreme flexibility with their modular design. The WSM is the first module to take advantage of this flexibility by delivering unparalleled security mitigation and spectrum analysis while enabling customers to dramatically reduce the infrastructure costs that would be required to deploy the same capability.

- **Reduce network costs and operations.** By integrating the WSM into the Aironet 3700 or 3600 Series Access Points, customers have the ability to replace up to three separate access points and their separate functions into a single, multipurpose access point (Figure 1).

Figure 1. Integrating Three Separate Functions into a Single WSM with Either the 3700 or 3600 Series Access Point



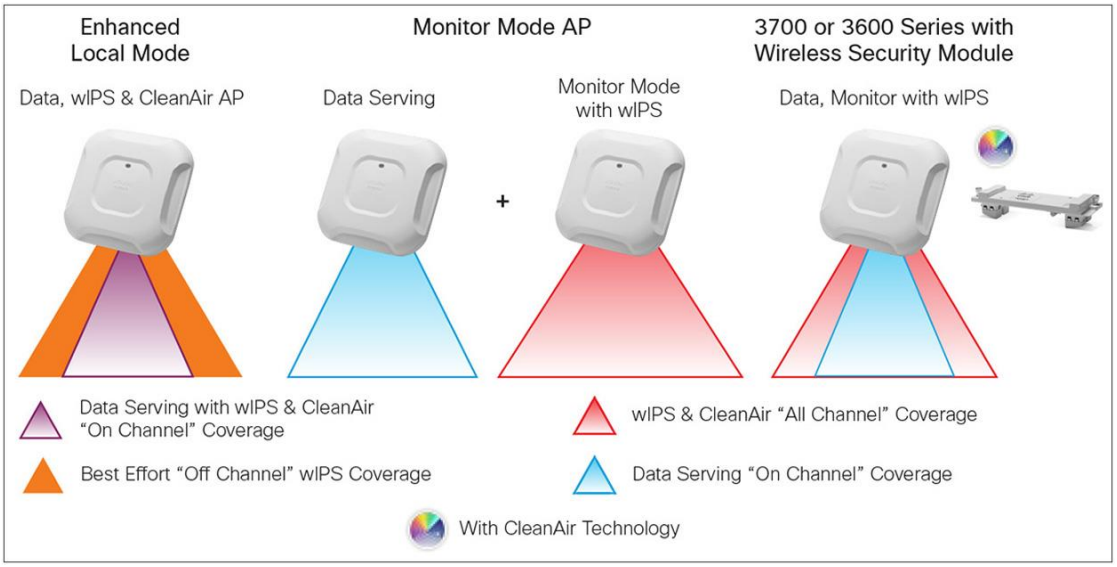
Customers can now use a single Ethernet connection (cable and port) into their wired network, in place of what would typically require up to three separate Ethernet cables and access ports into their wired network, significantly reducing their capital expenditures (CapEx).

By integrating all these features into a single access point, customers also simplify the day-to-day management and monitoring of their wireless infrastructure and network with a greatly reduced number of access points. The WSM appears to the wireless LAN controller and management systems as an additional radio, supporting all channels in both the 2.4- and 5-GHz spectrums within any 3700 or 3600 Series access point.

- **Zero-touch configuration, installation, power-up, and go.** Absolutely no configuration is required to get the WSM up and running and immediately monitoring and securing your wireless network. The WSM is inserted and secured into any Aironet 3600 or 3700 Series access point.

  When the access point is powered back up, the module is initialized, along with the other radios in the access point, and immediately begins monitoring all channels on both 2.4 and 5 GHz for any potential sources of interference.
- Adaptive wIPS (AwIPS),[1] providing accurate and efficient threat detection on all channels from over-the-air attacks, rogue access points, clients, and ad hoc connections, as well as the ability to classify, notify, mitigate and report for constant monitoring and proactive management. Works in conjunction with the Cisco Mobility Services Engine (MSE).

Figure 2. Different Modes wIPS Detection Supported



Enhanced Local mode (ELM):

- Adds wIPS security scanning for 7x24 on-channel scanning (2.4 and 5 Ghz), with best-effort off -channel support.
- The Aironet access point is additionally serving clients and with the G2 Series of access points enables CleanAir spectrum analysis on channel (2.4 and 5 GHz).

Monitor mode:

- The Aironet access point is dedicated to operate in Monitor mode and has the option to add wIPS security scanning of all channels (2.4 and 5 GHz).
- The G2 Series of access points enable CleanAir spectrum analysis of all channels (2.4 and 5 GHz).
- Monitor mode access points do not serve clients.

Aironet 3700 or 3600 Series access point with WSM: The evolution of wireless security and spectrum:

[1] wIPS Monitor Mode license per WSM required, and Cisco Prime Infrastructure 1.3 and above required to enable wIPS.

- The industry's first access point that provides the ability to simultaneously serve clients and perform wIPS security scanning and spectrum analysis with Cisco CleanAir technology.
- Dedicated 2.4- and 5-GHz radio with its own antennas, enabling around-the-clock scanning of all wireless channels in the 2.4- and 5-GHz bands.
- A single Ethernet infrastructure provides simplified operation with fewer devices to manage and optimized return on investment of the wireless infrastructure and the Ethernet wired infrastructure.

Table 1. Specifications for Various Type of wIPS Options Available

Features	Enhanced Local Mode	Monitor Mode AP	AP3600 or AP3700 with WSM
Deployment Density (#WSSI: #AP)	1:1	1:5	1:5 - CleanAir 2:5 - wIPS
Serving Wireless data clients while Securing and Monitoring	Y	N	Y
Shared Ethernet Infrastructure for Wireless Data and Monitoring	Y	N (Requires a separate Ethernet connection for a Data AP and for Monitoring AP)	Y
wIPS Security Scanning	· 7x24 **On-Channel** · Best effort Off-Channel	· 7x24 **All Channels** on 2.4 and 5 GHz	· 7x24 **All Channels** on 2.4 and 5 GHz
CleanAir Spectrum Intelligence	· 7x24 **On-Channel**	· 7x24 **All Channels** on 2.4 and 5 GHz	· 7x24 **All Channels** on 2.4 and 5 GHz
Feature off-load – eliminating jitter from off channel scanning	N	N	Y

- **Cisco CleanAir technology**: Proactive, high-speed spectrum intelligence to combat performance problems due to wireless interference. The industry's first state-of-the-art radio frequency analysis technology that inspects and classifies the energy patterns (signatures) of devices that can significantly impact the quality of a wireless network.
- **Radio resource management (RRM):** Simplified, advanced RF management that automatically adapts to the wireless network environment based on the information received from Cisco's CleanAir technology. Once interferers are identified, RRM is able to move client devices to channels away from the interference and also adjust the transit power away from the source of interference.
- **Rogue detection:** Detects and reports back-door network access and access to wireless clients.
- **Location and context awareness:** Provides real-time awareness and the ability to track wireless endpoints.

With these features, the Cisco WSM, along with the Cisco Aironet 3600 and 3700 Series Access Points provides the most secure and robust enterprise-class wireless network possible for your corporate users and corporate data.

Product Specifications

Table 2 lists the product specifications for Cisco Aironet Wireless Security Module.

Table 2. Product Specifications for Cisco Aironet Wireless Security Module

Item	Specification	
Part Numbers	**Cisco Aironet Access Point Module for Wireless Security** • AIR-RM3000M=: Wireless Security and Spectrum Intelligence Module • AIR-RM3000M-10=: Wireless Security and Spectrum Intelligence Module, 10 Pack **Wireless Intrusion Prevention System (wIPS) Licenses - to enable full wIPS support with the WSM** • L-WIPS-MM-1AP 1 AP WIPS MM License • L-WIPS-MM-100AP 100 AP WIPS MM License • L-WIPS-MM-1000AP 1000 AP WIPS MM License **Cisco SMARTnet® Service for the Cisco Aironet Access Point Module for Wireless Security Modeule** **CON-SNT-RM3000M: SMARTnet 8x5xNBD WSM(dual-band 2.4 and 5 GHz)** • CON-SNT-RM3000M - SMARTnet 8x5xNBD Wireless Security Module (dual-band 2.4 and 5 GHz) • Qty(10) CON-SNT-RM3000M - SMARTnet 8x5xNBD 10 quantity eco-pack WSM (dual-band 2.4 and 5 GHz) **Cisco Wireless LAN Services** • AS-WLAN-CNSLT: Cisco Wireless LAN Network Planning and Design Service • AS-WLAN-CNSLT: Cisco Wireless LAN 802.11n Migration Service • AS-WLAN-CNSLT: Cisco Wireless LAN Performance and Security Assessment Service	
Software	With the Aironet 3600 Series Access Point: Cisco Unified Wireless Network Software Release 7.4 or later Mobility Services Engine Release 7.4 or later - to visualize and track CleanAir, wIPS, location results Cisco Prime™ Infrastructure Release 1.3 or later - to enable wIPS capability	
	With the Aironet 3700 Series Access Point: Cisco Unified Wireless Network Software Release 7.6 or later Mobility Services Engine Release 7.6 or later - to visualize and track CleanAir, wIPS, location results Cisco Prime Infrastructure Release 1.4.1 or later - to enable wIPS capability	
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 Virtual Wireless Controller	
Regulatory	• The WSM is a receive-only 2.4-GHz and 5-GHz radio, compatible with all regulatory domains	
Operating Frequency Range	**2.4 GHz** 2400–2483.5 MHz	**5 GHz** 5150–5350, 5470–5850 MHz
Frequency Band and 20-MHz Operating Channels	**A (A regulatory domain):** • 2.412 to 2.462 GHz; 11 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz) • 5.745 to 5.825 GHz; 5 channels **C (C regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.745 to 5.825 GHz; 5 channels **E (E regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz) **I (I regulatory domain):** • 2.412 to 2.472 GHz, 13 channels • 5.180 to 5.320 GHz; 8 channels **K (K regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.620 GHz, 7 channels • 5.745 to 5.805 GHz, 4 channels	**N (N regulatory domain):** • 2.412 to 2.462 GHz; 11 channels • 5.180 to 5.320 GHz; 8 channels • 5.745 to 5.825 GHz; 5 channels **Q (Q regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz; 11 channels **R (R regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5,660 to 5,805 GHz, 7 channels **S (S regulatory domain):** • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.745 to 5.825 GHz; 5 channels **T (T regulatory domain):** • 2.412 to 2.462 GHz; 11 channels • 5.280 to 5.320 GHz; 3 channels • 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz) • 5.745 to 5.825 GHz; 5 channels

Item	Specification			
Receive Sensitivity	• 802.11b (CCK) ◦ –101 dBm @ 1 Mb/s ◦ –98 dBm @ 2 Mb/s ◦ –92 dBm @ 5.5 Mb/s ◦ –89 dBm @ 11 Mb/s	• 802.11g (non HT20) ◦ –91 dBm @ 6 Mb/s ◦ –91 dBm @ 9 Mb/s ◦ –91 dBm @ 12 Mb/s ◦ –90 dBm @ 18 Mb/s ◦ –87 dBm @ 24 Mb/s ◦ –85 dBm @ 36 Mb/s ◦ –80 dBm @ 48 Mb/s ◦ –79 dBm @ 54 Mb/s	• 802.11a (non HT20) ◦ –90 dBm @ 6 Mb/s ◦ –90 dBm @ 9 Mb/s ◦ –90 dBm @ 12 Mb/s ◦ –89 dBm @ 18 Mb/s ◦ –86 dBm @ 24 Mb/s ◦ –83 dBm @ 36 Mb/s ◦ –78 dBm @ 48 Mb/s ◦ –77 dBm @ 54 Mb/s	
	2.4-GHz • 802.11n (HT20) ◦ –90 dBm @ MCS0 ◦ –90 dBm @ MCS1 ◦ –90 dBm @ MCS2 ◦ –88 dBm @ MCS3 ◦ –85 dBm @ MCS4 ◦ –80 dBm @ MCS5 ◦ –78 dBm @ MCS6 ◦ –77 dBm @ MCS7 ◦ –90 dBm @ MCS8 ◦ –90 dBm @ MCS9 ◦ –89 dBm @ MCS10 ◦ –86 dBm @ MCS11 ◦ –82 dBm @ MCS12 ◦ –78 dBm @ MCS13 ◦ –77 dBm @ MCS14 ◦ –75 dBm @ MCS15 ◦ –90 dBm @ MCS16 ◦ –89 dBm @ MCS17 ◦ –87 dBm @ MCS18 ◦ –84 dBm @ MCS19 ◦ –81 dBm @ MCS20 ◦ –76 dBm @ MCS21 ◦ –75 dBm @ MCS22 ◦ –74 dBm @ MCS23		**5-GHz** • 802.11n (HT20) ◦ –91 dBm @ MCS0 ◦ –90 dBm @ MCS1 ◦ –89 dBm @ MCS2 ◦ –86 dBm @ MCS3 ◦ –83 dBm @ MCS4 ◦ –78 dBm @ MCS5 ◦ –77 dBm @ MCS6 ◦ –75 dBm @ MCS7 ◦ –91 dBm @ MCS8 ◦ –89 dBm @ MCS9 ◦ –87 dBm @ MCS10 ◦ –84 dBm @ MCS11 ◦ –80 dBm @ MCS12 ◦ –76 dBm @ MCS13 ◦ –75 dBm @ MCS14 ◦ –73 dBm @ MCS15 ◦ –90 dBm @ MCS16 ◦ –88 dBm @ MCS17 ◦ –85 dBm @ MCS18 ◦ –82 dBm @ MCS19 ◦ –79 dBm @ MCS20 ◦ –74 dBm @ MCS21 ◦ –73 dBm @ MCS22 ◦ –72 dBm @ MCS23	**5-GHz** • 802.11n (HT40) ◦ –88 dBm @ MCS0 ◦ –87 dBm @ MCS1 ◦ –86 dBm @ MCS2 ◦ –82 dBm @ MCS3 ◦ –80 dBm @ MCS4 ◦ –75 dBm @ MCS5 ◦ –73 dBm @ MCS6 ◦ –72 dBm @ MCS7 ◦ –88 dBm @ MCS8 ◦ –86 dBm @ MCS9 ◦ –84 dBm @ MCS10 ◦ –80 dBm @ MCS11 ◦ –77 dBm @ MCS12 ◦ –73 dBm @ MCS13 ◦ –71 dBm @ MCS14 ◦ –70 dBm @ MCS15 ◦ –87 dBm @ MCS16 ◦ –84 dBm @ MCS17 ◦ –82 dBm @ MCS18 ◦ –78 dBm @ MCS19 ◦ –75 dBm @ MCS20 ◦ –71 dBm @ MCS21 ◦ –69 dBm @ MCS22 ◦ –68 dBm @ MCS23
Integrated Antenna	• 2.4 GHz, gain 2.5 dBi, internal omni, horizontal beamwidth 360° • 5 GHz, gain 5.5 dBi, internal omni, horizontal beamwidth 360°			
Dimensions (W x L x H)	• 8.46 x 2.5 x 1.97 in. (21.48 x 6.35 x 5 cm)			
Weight	• 1 lb (0.45 kg)			
Environmental	**Cisco Aironet 3700i and 3600i with the WSM installed** • 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 (noncondensing) • Operating Altitude Test -40˚C, 9843 ft. **Cisco Aironet 3700e/3700p and 3600e with the WSM installed** • Nonoperating (storage) temperature: –22 to 158°F (–30 to 70°C) • Nonoperating (storage) Altitude Test – 25˚C, 15,000 ft. • Operating temperature: -4 to 118°F (-20 to 48°C) with module • Operating humidity: 10 to 90 percent (noncondensing) • Operating Altitude Test –40˚C, 9843 ft.			

Item	Specification
Power Draw	3700i/3700e/3700p with the WSM requires 18W 3600i/3600e with the WSM requires 17W
Powering Options	3600 Series access point with the WSM – requiring 17W • 802.3at Power over Ethernet Plus (PoE+): 25.5W delivered to the access point • Enhanced Power over Ethernet (PoE): up to 20W configurable on an Ethernet port basis • Cisco 3600 Series Power Injectors (AIR-PWRINJ4=) • Cisco 3600 Series Local Power Supply (AIR-PWR-B=) 3700 Series access point with the WSM module – requiring 18W • 802.3at PoE+: 25.5W delivered to the access point • Enhanced Power over Ethernet (PoE): up to 20W configurable on an Ethernet port basis • Cisco Aironet power injectors (AIR-PWRINJ4=) • Cisco Aironetocal power supply (AIR-PWR-B=) **Note:** If 802.3af PoE is the source of power, the access point with module will dynamically shift from 4x4 to 2x2 on both 2.4- and 5-GHz radios and will bring up the module and come up under 802.3af PoE
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 • EN 50155 • 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 • Multimedia: ◦ Wi-Fi Multimedia (WMM™) • Other: ◦ FCC Bulletin OET-65C ◦ RSS-102

Limited Lifetime Hardware Warranty

The Cisco Aironet Access Point Wireless Security Module 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.

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 enables rich media collaboration while improving the operational efficiency gained from a converged wired and wireless network infrastructure based on the Cisco Unified Wireless Network. Together with our partners, we offer expert plan, build, and run services to accelerate your transition to advanced mobility services while continuously optimizing the performance, reliability, and security of that architecture after it is deployed. For more details, visit: http://www.cisco.com/go/wirelesslanservices.

For More Information

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

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