Adaptive Radio Modules for the Cisco Aironet 3600 Series Access Point

The Cisco Adaptive Radio Modules for the Cisco Aironet® 3600 Series Access Point address diverse client needs and also provide investment protection through advanced technology support for 802.11ac, 3G small cell and dedicated security and monitoring capabilities. The Adaptive Radio Modules modules are a family of solutions in a modular form factor that allow customers to adapt their wireless network to their current and future needs. The modules provide a dedicated third radio that can be field-upgraded on the 3600 Series access point. These modules allow customers to integrate advanced technology into their existing network without having to replace equipment or install additional equipment. Also, by adding a third radio, the Adaptive Radio Modules expands the access point's performance and capacity.

Figure 1 shows The Cisco® Aironet 3600 Series with Internal Antennes (top left), 3600 Series with External Antennas (top right) and the Cisco Adaptive Radio Modules.

Figure 2 Shows how The Cisco Aironet 3600 Series fits with the Module.

Figure 1. 3600 Access Point with Module Showing Internal (Left) and External (Right) Antennas Options

Figure 2. 3600 Access Point Showing Field Upgradable Module Location

Cisco Adaptive Radio Module for High-Bandwidth Demands: The IEEE 802.11ac Adaptive Radio Module

The 802.11ac Adaptive Radio Module for the Cisco Aironet 3600 Series Access Point provides enterprise-class reliability and wired-network-like performance by supporting three spatial streams and 80-MHz wide channels for a maximum data rate of 1.3 Gbps. This is three times the maximum data rate of today's high-end enterprise 802.11n access point.

The 802.11ac Adaptive Radio Module is based on the IEEE 802.11ac Wave 1 standard. This module provides the following features:

- 802.11ac with 3 x 3 multiple-input multiple-output (MIMO) technology with three spatial streams, which sustains 1.3-Gbps rates over a greater range for more capacity and reliability than competing access points
- Dynamic channel access in 802.11ac, which can utilize an 80 MHz wide channel and dynamically contract in real-time based on network characteristics
- MIMO equalization optimized uplink performance and reliability by minimizing the impact of signal fade
- 256 quadrature amplitude modulation (QAM) providing a 30 percent more efficient use of the wireless spectrum
- Cisco CleanAir® technology, which provides proactive, high-speed spectrum intelligence to combat performance problems due to wireless interference
- Improved performance and battery life on mobile devices, such as smartphones and tablets with explicit compressed beamforming (ECBF) technology.

Cisco Adaptive Radio Module for Security: The Wireless Security and Spectrum Intelligence Module

The Cisco Wireless Security and Spectrum Intelligence (WSSI) Module for the Cisco Aironet 3600 Series can deliver superior security and spectrum analysis by integrating what typically requires at least two separate access points into the single, multipurpose Cisco Aironet 3600 Series Access Point. The WSSI Module can help customers to dramatically reduce infrastructure costs and simplify the day-to-day operations that would be required to deploy the same capability.

The WSSI module concurrently supports:

- Cisco CleanAir technology for spectrum intelligence
- Cisco Wireless Intrusion Prevention System (wIPS) scanning for threat detection and mitigation
- Rogue detection to prevent attempts to open unsecured holes into the network
- Location context-awareness to identify client devices, sources of interference, attacks, and locations of rogues

- Radio resource management (RRM) to continuously analyze the quality of the wireless spectrum
- Data serving, spectrum monitoring, threat detection, and mitigation in a single access point
- Reduction in TCO of up to 30 percent by eliminating Ethernet infrastructure ports required with a monitor mode overlay
- Always-on security monitoring, including 24-hour interference analysis and threat detection for all channels in 2.4 and 5 GHz
- Zero-touch configuration so you can install, power up, and run the system quickly

Together with the Cisco Aironet 3600 Series Access Point, the WSSI module dramatically simplifies how customers can deploy, monitor, and secure their enterprise-class wireless networks. In this solution, the focus is shifted away from how many extra access points to deploy and the role each access points will play. Instead, access point deployment can be determined by an operator's business need to deliver a secure, high-quality network connection to corporate users.

Adaptive Radio Module for 3G: The Cisco 3G Small-Cell Module for the Cisco Aironet 3600 Series

The Cisco 3G Small-Cell Module takes advantage of the flexible, modular design of the award-winning Cisco Aironet 3600 Series. It offers mobile operators a rapidly deployable, licensed radio network extension to the Cisco service provider Wi-Fi solution, creating a new platform for mobile broadband services.

Three key challenges face mobile operators interested in deploying licensed small cells: where to hang them, how to power them, and how to backhaul the traffic. Cisco solves these problems with innovation. Building on the Cisco Aironet heritage of robust, award-winning Wi-Fi access point design, the 3600 Series delivers extreme flexibility with its modular configuration.

The Cisco 3G Small-Cell Module is the first licensed radio module to take advantage of this flexibility by delivering a fully integrated, high-performance, low-cost 3G small cell for voice, data, and messaging services.

Benefits

- **Reduced network and operations costs.** With the integration of the 3G Small-Cell Module into the 3600 Series, network, power, and operating costs are dramatically reduced. The 3G Small-Cell Module appears as a new device in the existing management infrastructure, reducing support costs.
- **Reduced capital expenditures.** Reuse of a single Ethernet connection from the wired network to deploy a licensed radio can lower the capital expenditures required for wide scale small-cell deployment.
- **Install, power up, and go with zero-touch configuration.** There are no extra steps required to get the 3G Small-Cell Module up and running in a Dynamic Host Configuration Protocol (DHCP) environment. This approach can quickly provide 3G coverage to end users.
- **Highly secure, carrier-grade, 3G base station technology.** The 3G Small-Cell Module provides the technology equivalent of an in-building mini cell tower. The device is highly secure and fully managed by the mobile operator to provide for 3G signals inside an office or enterprise.
- **Standards-based.** The 3G access module operates as a Home Node B (HNB) in the standard 3GPP Architecture for small cells, and is connected to the network with the specified interface. This architecture provides for rapid deployment and multivendor interoperability.

The Cisco Advantage

Cisco has true enterprise-class RF technology designed to maximize 802.11n performance. Cisco technologies such as Cisco CleanAir Express*, Cisco ClientLink 2.0, and Cisco VideoStream, plus optimized access point radios and antennas, improve performance regardless of where client devices are located. All Cisco Aironet 802.11n access points support:

- A limited lifetime hardware warranty
- 5- or 10-unit Eco-Pack bundles with a single, easy-to-open carton that streamlines the staging and installation process and reduces packaging waste by 50 percent

The benefits of deploying Cisco Aironet access points with a Cisco Unified Wireless Network extend from investment protection and future-proofing to better scalability and reliability of the enterprise network. For more details, visit: www.cisco.com/go/wireless.

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