Cisco Wireless Location Appliance

2710 Model Information

Q. **What is the difference between the Cisco® Wireless Location Appliance model numbers 2700 and 2710?**

A. The Cisco Wireless Location Appliance 2710 (AIR-LOC2710-L-K9) model is the successor to the 2700 (AIR-LOC2700-L-K9) model.

Q. **Are both the 2700 and 2710 models of the Cisco 2700 Series Wireless Location Appliance?**

A. Yes. Both the 2700 and 2710 are models of the Cisco 2700 Series Wireless Location Appliance.

Q. **Is there a functional difference between the 2700 and 2710 models?**

A. There is no functional difference between the 2700 and 2710 models. Both models support the same features and functionality.

Q. **When was the 2700 model End-of-Sale (EOS) and when was the 2710 model orderable?**

A. The 2700 model was EOS on May 24, 2006. The 2710 model was orderable on May 1, 2006. Learn more by reading the End-of-Sale and End-of-Life Announcement for the Cisco 2700 Wireless Location Appliance.

Overview

Q. **What is the Cisco Wireless Location Appliance?**

A. The Cisco Wireless Location Appliance is a component of the Cisco Unified Wireless Network. It is the industry's first location solution that simultaneously tracks thousands of 802.11 devices from directly within the WLAN infrastructure—bringing the power of a cost effective, high-resolution location solution to critical applications such as high-value asset tracking, network location services such as RF capacity management, troubleshooting, and location based security, and business policy enforcement. By providing the ability to integrate tightly with a spectrum of technology and application partners through a rich and open application programming interface (API), this innovative appliance facilitates the deployment of new and important business applications.

Q. **Why do customers need the Cisco Wireless Location Appliance?**

A. In a highly mobile business environment where people and assets are constantly on the move, insight into the location of resources is playing an increasing role in streamlining operations, raising customer satisfaction, enforcing security, and even saving lives. There is also an urgent need to more accurately identify the location of rogue (unauthorized) access points and rogue client devices within the WLAN. Customers who need to track Wi-Fi enabled devices and tags to improve asset visibility, enhance WLAN capacity management, increase WLAN security, and integrate their WLAN with business applications that take advantage of wireless location information need the Cisco Wireless Location Appliance.

Q. **Does the Cisco Wireless Location Appliance work with chokepoints?**

A. Yes. The Cisco Wireless Location Appliance supports applications and areas requiring very high fidelity and deterministic location to within a few feet or several centimeters with third party chokepoints. Third party chokepoints, triggered by Cisco Compatible Wi-Fi tags, can be used for a variety of use cases including theft prevention and entry or exit area notifications. Read more about chokepoints in the chokepoint section later in this document.

Q. **What types of customers will deploy the Cisco Wireless Location Appliance?**

A. A variety of enterprise businesses and vertical industries such as healthcare, finance, retail, manufacturing, and federal organizations will deploy the Cisco Wireless Location Appliance.

Q. **What are the challenges that customers face regarding Wi-Fi device location?**

A. Customers face the following challenges regarding Wi-Fi devices:

- Lack of visibility into the location of critical people and valuable equipment
- Inefficient allocation and use of people and equipment
- Excessive cost of leasing and purchasing equipment to offset losses and theft
- Inefficient service resulting from unnecessarily long wait times
- Time wasted in searching for people and equipment
- Security issues linked to the lack of insight into the location and movement of people and goods

Features and Benefits

Q. **How does the Cisco Wireless Location Appliance address the challenges that customers face regarding Wi-Fi device location?**

A. Location tracking is a critical component of enterprise-class WLANs today. Location tracking provides visibility and control of the RF environment, enabling IT staff to deploy wireless networks that are as efficient, effective, and easy to deploy as traditional wireline networks. The Cisco Wireless Location Appliance was purpose-built to address the challenges that a variety of industry segments face in conjunction with Wi-Fi device location. This device provides advanced scalable location tracking to simultaneously track thousands of wireless users and devices to within a few meters of their physical location using innovative RF printing location technology. It also supports chokepoint notifications to within several centimeters.

This helps companies improve the accuracy of WLAN planning and deployments to optimize ongoing network performance, enhance wireless security, and improve both the usefulness and value of critical business applications. Capital expenditures are also minimized with the Cisco Wireless Location Appliance because it is integrated into the WLAN and uses the same Cisco Aironet® lightweight access points and Cisco wireless LAN controllers that are delivering Wi-Fi traffic to deliver location services.

Q. **What are the benefits of the Cisco Wireless Location Appliance?**

A. The Cisco Wireless Location Appliance delivers a host of tangible benefits to enterprises running business-critical WLANs, including:

- **Increased Accuracy**: The Cisco Wireless Location Appliance uses the Cisco patent-pending RF fingerprinting technology to determine the location of wireless devices. Cisco has the only WLAN infrastructure that correlates known RF characteristics of a building (for example, multipath or attenuation) with user information to track mobile devices to within a

few meters. The solution also supports the reduction of position jitter for a stable Wi-Fi device.

- **Scalability**: With the Cisco Wireless Location Appliance, thousands of wireless clients and Wi-Fi tags can be tracked simultaneously, helping ensure that location services can be applied to an entire enterprise environment.

- **Location-Based Alerts:** This feature provides the ability to proactively send location notifications based on device movement, device absence, zone entry and exit of tracked devices, Wi-Fi tag battery level, Wi-Fi device position change, emergency groups and chokepoint information. The Wi-Fi tag battery level notification indicates the Wi-Fi tag's power level. The Wi-Fi device position change notification sends an alert when the position of a device changes. The emergency groups notifications indicate panic and device tampering. The chokepoint notification indicates alerts about temperature, pressure, humidity, device status, fuel, quantity, distance, and motion probability. All of these notifications can be delivered over multiple transport types: syslog, Simple Network Management Protocol (SNMP) traps, e-mail, and Simple Object Access Protocol (SOAP) XML API.

- **Expedited alert notifications:** The Cisco location protocol (LOCP) supports expedited notifications for emergency and chokepoint trigged events such as when an item passes through a security check point or when a doctor needs to be located quickly during a hospital emergency.

- **Lowered Total Cost of Ownership**: The Cisco solution reduces operating expenses by using the existing Cisco WLAN network infrastructure in conjunction with the location appliance. This approach is more cost-effective than proprietary or single-purpose location tracking solutions because it uses standard 802.11 components and does not require dedicated access points for location tracking.

- **Transparent Integration**: Cisco is the only vendor to integrate location tracking directly into the existing WLAN infrastructure. The same Cisco access points that deliver data traffic also are used to locate wireless devices. This minimizes capital expenditures, helps ensure better visibility, and helps enable the WLAN to act upon location information for better security and capacity management.

- **Flexibility**: Cisco offers the only WLAN system that can track 802.11 clients, such as a laptop or PDA, alongside other, non-Wi-Fi mobile devices equipped with active radio frequency identification (RFID) tags (tags supplied by Cisco partners such as PanGo, WhereNet, AeroScout, or Appear Networks). This helps IT staff track any mobile item.

- **Easy Deployment of Business Applications**: Asset tracking, inventory management, location-based security, automated workflow management, and other new business applications can be easily deployed with the Cisco Wireless Location Appliance.

- **Cisco Compatible Extensions Wi-Fi Tag Specification:** The Cisco Compatible Extensions Wi-Fi Tag specification defines a common format across a variety of manufacturers' Wi-Fi tags for interoperability. Having a standardized Wi-Fi tag specification will give customers more choices by giving them the ability to mix and match Wi-Fi tags from different vendors as well as implement mixed-vendor applications that integrate with the Cisco Wireless Location Appliance application programming interface (API). Cisco has been working with a variety of Wi-Fi tag vendors, including PanGo, WhereNet, AeroScout, and G2, to create this extensible specification for 802.11 Wi-Fi based tags.

Q. **What is the difference between the location capability in the Cisco Wireless Control System (WCS) and the Cisco Wireless Location Appliance?**

A. Cisco WCS can be deployed with high accuracy location for "on demand" lookups of the most recent location information for a given Wi-Fi device or rogue device. In comparison, each Cisco Wireless Location Appliance, deployed in conjunction with Cisco WCS scales to a location solution for up to 2500 simultaneous devices for true asset visibility, and adds historical location trending and replay capabilities for detailed audit trails and enhanced RF capacity management. Moreover, the Cisco Wireless Location Appliance has a rich and robust Simple Object Access Protocol/Extensible Markup Language (SOAP/XML) based application programming interface (API) for third-party application integration, greatly extending the value of important business applications. This makes the Cisco Wireless Location Appliance an ideal part of any end-to-end enterprise solution. The Cisco Wireless Location Appliance requires the concurrent deployment of a Cisco WCS license that supports location services.

Q. **Where can I learn more about RF Fingerprinting?**

A. Read the [Wi-Fi Based Real-Time Location Tracking: Solutions and Technology White Paper](#).

Chokepoints

Q. **What chokepoint products does the Cisco Wireless Location Appliance support?**

A. The Cisco Wireless Location Appliance currently supports 125 kHz-based chokepoints using [AeroScout Exciters](#) or [WhereNet WherePorts](#). Support for other third-party chokepoint products is planned in the future.

Q. **Where can I find more information about AeroScout Exciters or WhereNet WherePorts?**

A. AeroScout Exciters support configurable ranges of accuracy from several centimeters to up to 19 feet. For exact accuracy specifications, please read the Aeroscout Exciter data sheets at: http://www.aeroscout.com/content.asp?page=exciter. WhereNet WherePorts support configurable ranges of accuracy from 3 feet to 25 feet. For exact accuracy specifications, please read the WhereNet WherePort data sheet at: http://www.wherenet.com/products_whereport.shtml.

Q. **Do chokepoints and Wi-Fi tags need to be purchased from the same vendor?**

A. To ensure interoperability between Wi-Fi tags and chokepoints, it is best to purchase these items from the same vendor.

Q. **What actions can trigger a chokepoint notification?**

A. Notifications from chokepoints can be triggered by a variety of Wi-Fi tag actions, including entry or exit of a tag from a specified zone, doorway, or gate; and process control events such as those used in manufacturing environments.

Q. **Can chokepoints be configured by Cisco WCS or the Cisco Wireless Location Appliance?**

A. No. All chokepoints must be configured and brought online with the vendor's chokepoint management software in order to ensure proper network connectivity and set device ranges. Chokepoints should be added to Cisco WCS only after they have been configured by the vendor's chokepoint management software. Chokepoints that are added to Cisco WCS without configuration by the vendor's chokepoint management software will not operate.

Q. **Can chokepoints be upgraded by Cisco WCS or the Cisco Wireless Location Appliance?**

A. No. Upgrades of chokepoints must be completed in the vendor's chokepoint management software. Cisco WCS can not perform chokepoints upgrades.

Q. How does the chokepoint architecture work?

A. A device with a Wi-Fi tag moves into a zone with a chokepoint. The Wi-Fi tag "triggers" the chokepoint using its 125kHz radio. The chokepoint sends a message back to the Wi-Fi tag using its 125kHz radio. The Wi-Fi tag then sends the chokepoint information to the access point using its 802.11 Wi-Fi radio. The access point sends information on to the wireless LAN controller which consolidates the information and asynchronously sends it on to the location appliance using LOCP. The location appliance sends the chokepoint's location and any other information to Cisco WCS or a third party solution.

Cisco Compatible Extensions Wi-Fi Tag specification

Q. What is the Cisco Compatible Extensions Wi-Fi Tag specification?

A. The Cisco Compatible Extensions Wi-Fi Tag Specification is an extensible specification for 802.11 Wi-Fi based tags that defines a common format across a variety of manufacturers' Wi-Fi tags for interoperability. Cisco has been working with a variety of Wi-Fi tag vendors, including PanGo, WhereNet, AeroScout, and G2, to create this specification.

Q. Why is the Cisco Compatible Extensions Wi-Fi Tag specification important?

A. Having a standardized Wi-Fi tag specification will give customers more choices by giving them the ability to mix and match Wi-Fi tags from different vendors as well as implement mixed-vendor applications that integrate with the Cisco Wireless Location Appliance application programming interface (API).

Q. What does the Cisco Wireless Location Appliance do with the information received from a Wi-Fi tag?

A. The Cisco Wireless Location Appliance API makes the information received from a Wi-Fi tag available to any application that uses its API, including Cisco WCS and third party applications.

Q. What are the baseline set of Cisco Compatible Extensions Wi-Fi Tag specification features?

A. The Cisco Compatible Extensions Wi-Fi Tag specification defines a common format across a variety of manufacturers' Wi-Fi tags for interoperability with a baseline set of Wi-Fi tag features that include basic telemetry; location fields (received signal strength indication [RSSI] and fields for future Global Positioning System [GPS] and electronic product code [EPC] global enhancements); battery information; and advanced fields for emergency groups and chokepoints.

Q. Can additional functions be added to the Cisco Compatible Extensions Wi-Fi Tag base specification?

A. Yes. Wi-Fi tag manufacturers can add vendor-specific advanced Wi-Fi tag functions to the base specification to meet specific customer needs or environments.

Q. What type of information can be received by the Cisco Wireless Location Appliance from Cisco Compatible Extensions Wi-Fi Tags?

A. Receipt of the following information from properly enabled Cisco Compatible Extensions Wi-Fi Tags is supported by the Cisco Wireless Location Appliance:

- Telemetry: Notifications for temperature, pressure, humidity, device status, fuel, quantity, distance, and motion probability.
- Battery: Information on percentage of power remaining, days remaining, and battery age.
- Emergency Group: Notifications for panic, device tampering, and device detachment from its carrier.

Each Wi-Fi tag manufacturer determines the information that is supported by its Wi-Fi tag offerings. The Cisco Unified Wireless Network can receive and display information or notifications through third-party specialized applications that are receiving information from the Cisco Wireless Location Appliance API or in some instances, information can be displayed on the Cisco WCS Location Notifications Summary.

Cisco Wireless Location Appliance API

Q. **What external systems can be tied to the Cisco Wireless Location Appliance?**

A. The Cisco Wireless Location Appliance can be rapidly and easily integrated with any number and variety of external systems for enhanced functions with its standards-based SOAP/XML interface. The Cisco Wireless Location Appliance API is already integrated with Cisco WCS for network management, security, planning and asset visibility purposes and to a variety of third party applications for advanced asset-management capabilities. The Cisco Wireless Location Appliance also supports 125 kHz-based chokepoints using AeroScout Exciters or WhereNet WherePorts. Many more applications will be integrated with the Cisco Wireless Location Appliance in the future.

Q. **Where can I learn more about the Cisco Wireless Location Appliance API Program?**

A. The Cisco Location Appliance API Program allows Cisco customers and partners to interface with the Cisco Wireless Location Appliance API to create customized location applications and solutions. Organizations can join this program by accepting the Web-based license agreement. The API is available for free. Optional integration and development support is available on a fee-basis.

Business Applications

Q. **What types of applications does the Cisco Wireless Location Appliance support?**

A. The Cisco Wireless Location Appliance supports some key applications that are immediately available through its tight integration with Cisco WCS and the WLAN infrastructure such as the ability to enhance RF capacity management; location based security; and asset visibility for WLAN devices. This location information is also easily used by the API for integration and display by third-party applications, creating an extensible foundation for a host of rich location based applications including E911, asset management, enterprise resource planning (ERP) tools, and workflow and automation systems.

Q. **How will businesses deploy the Cisco Wireless Location Appliance?**

A. The Cisco Wireless Location Appliance can be deployed in a wide variety of environments and situations across multiple industries. Some of the primary usage scenarios include:

- **Visibility and Tracking of Mobile Devices**: Operating and capital expenses can be reduced by preventing loss or theft of valuable mobile assets such as wheelchairs and infusion pumps in a healthcare environment and overhead projectors, laptops, and voice handsets in an enterprise. Individuals and assets can be quickly located anywhere within a wireless environment.

- **Workflow Automation and People Tracking**: Inventory use and e-workflow and dispatch processes are optimized. In a retail environment, store layout and queue management can be optimized based on tracking customer shopping "patterns." In amusement parks, children can be tracked, allowing parents to know where they are at all times, and security personnel can be tracked in any relevant facility. In healthcare facilities where caregivers are severely short-staffed, hospitals can track caregivers during normal operations or during emergency code blue situations where the "nearest" caregiver on call is most desirable. Other healthcare facilities with special-purpose needs may need to track infants or the elderly sick such as those suffering from Alzheimer's who may accidentally wander off premises.

- **Telemetry**: Wi-Fi tags with serial interfaces can be attached to a piece of equipment to relay important information about the device directly to business applications. For instance, car rental businesses often want telemetric information relating to mileage and fuel level of returned cars, whereas customers want location information that will help them find vehicles faster. Pharmaceuticals, manufacturing plants, and retailers want information about batch numbers, expiration dates, product or serial numbers, and out-of-specification information about components. Additionally, in healthcare, knowing the location of an infusion pump is valuable, but knowing whether or not it is in use (on or off) is even more valuable.

- **Chokepoints:** Notifications triggered by the entry or exit of a tag from a specified zone, doorway, or gate; and process control events such as those used in manufacturing can be used to deliver a variety of solutions. Logistics yard and manufacturing facility gates can turn tags on and off when they enter or leave a zone to conserve tag power. This facilitates tag communication with no human interaction. Healthcare, manufacturing, retail, and general enterprises can use Wi-Fi tags to reduce theft attempts and issue alerts or page security guards. High-value or custom-produced inventory can be easily tracked as it moves through a manufacturing process, and inventory records can be automatically updated as inventory enters and leaves a warehouse.

- **WLAN security and Network Control**: IT staff can rapidly locate security threats, such as rogue access points and rogue client devices. IT managers also can use the appliance to establish a framework for location-based security, whereby the physical security in a building is used to control WLAN access—enhancing WLAN security.

- **RF Capacity Management and Visibility**: Integrating location tracking into the WLAN allows IT staff to do more than just track users. With this appliance they can generate location-based trend reports and drill down into usage behavior to accommodate changes in traffic patterns, helping enable better RF capacity management.

- **Voice over WLAN (VoWLAN)**: Many states have a regulatory requirement for E911 calls that require emergency dispatch personnel to identify the location of a distressed caller. E911 services can be enabled through granular location tracking for wireless voice devices.

Client Device Information

Q. **What types of Wi-Fi enabled devices can be tracked?**

A. Wi-Fi enabled laptops, PDAs, voice handsets, Wi-Fi tags, Cisco devices, Cisco Compatible client devices, rogue devices, and rogue access points and non-Wi-Fi mobile devices equipped with active RFID tags (tags supplied by Cisco partners) can all be tracked to within a few meters by the Cisco Wireless Location Appliance. Wi-Fi tags can be tracked to within a few centimeters when chokepoints are used.

Q. **How accurate is the Cisco Wireless Location Appliance tracking mechanism?**

A. The Cisco Wireless Location Appliance can track Wi-Fi enabled devices and tags to within a few meters of their actual location. Wi-Fi tags can be tracked to within a few centimeters when chokepoints are used.

Q. **What type of client information can be reviewed with the Cisco Wireless Location Appliance?**

A. The Cisco Wireless Location Appliance allows quick drill down into detailed client information for rapid troubleshooting and simplified device management. IT managers can review audit trails, statistics, usage data, and behavior patterns, switch port attachment, Service Set Identifier (SSID), MAC addresses, and more.

Q. **Does the Cisco Wireless Location Appliance provide historical information about client activities?**

A. Yes. The Cisco Wireless Location Appliance provides up to 30 days of location and statistical wireless device audit trail information that can be archived and replayed. Log files and information about longer archival periods is easily exported.

Deployment and Licensing Information

Q. **Which Cisco WCS licenses support the Cisco Wireless Location Appliance?**

A. The Cisco Wireless Location Appliance must be deployed in conjunction with a properly licensed Cisco WCS. The following Cisco WCS licenses support the Cisco Wireless Location Appliance: WCS-APLOC-XX, WCS-WLSE-APL-XX, WCS-APLOC-UPG-XX, and WCS-ENT-XX. The following Cisco WCS licenses **do not** support the Cisco Wireless Location Appliance: WCS-APBASE-XX and WCS-WLSE-XX. (XX = number of access points)

Q. **Is the Cisco Wireless Location Appliance flexible and easy to deploy?**

A. Yes. The Cisco Wireless Location Appliance facilitates rapid deployment with "out-of-the-box" RF models and predictive technology that correlates known RF characteristics of buildings with user information to track mobile devices accurately. Increased deployment flexibility is provided through template-based RF models that can be edited to fit specific RF environments as well as support for reusable, custom RF calibration models.

Q. **How is the Cisco Wireless Location Appliance managed and setup?**

A. The Cisco Wireless Location Appliance is managed by Cisco WCS which provides an intuitive and visually rich centralized management interface for the Cisco Wireless Location Appliance. One or multiple Cisco Wireless Location Appliances can be managed by Cisco WCS. Cisco wireless LAN controllers must be associated with the Cisco Wireless Location Appliances to collect location data. RF predictions and heatmaps can be generated by adding network maps and access points. The location of thousands of devices is graphically displayed on floor plans within Cisco WCS.

Cisco WCS periodically polls the Cisco Wireless Location Appliance for its status and for changes to maintain synchronized control data such as network maps. Cisco WCS also is used for access control setup for the location appliance; definition of content and frequency of polls; and configuration of archive parameters as well as for logging and viewing server events and severity levels.

Q. **Can multiple Cisco Wireless Location Appliances be managed?**

A. Yes. Cisco WCS has a very intuitive management GUI that allows IT staff to centrally and easily add, remove, configure, manage, and upgrade single or multiple Cisco Wireless

Location Appliances from Cisco WCS with minimal training. The converse is also true; a specific location appliance can also be managed by one or more Cisco WCS platforms. For added flexibility, the location appliance can be managed both directly through Cisco WCS and through remote, browser-based consoles using HTTPS.

Q. How do I search for only specific assets and users I am interested in?

A. The Cisco Wireless Location Appliance allows easy, targeted searches through a very flexible set of search criteria that can be adapted to specific user interests. These search criteria include, but are not limited to, asset categories such as tags, clients, rogues as well as customized and logical asset names; physical location such as campus, building and floor areas; time detected; and MAC and/or IP address.

Q. How does the Cisco Wireless Location Appliance work?

A. The Cisco Wireless Location Appliance uses Cisco lightweight access points that act as location "readers" for 802.11 wireless clients and Wi-Fi tags. These access points collect received-signal-strength-indication (RSSI) information from all Wi-Fi devices, including Wi-Fi enabled laptops, PDAs, voice handsets, Wi-Fi tags, Cisco devices, Cisco Compatible devices, rogue devices, and rogue access points. The collected RSSI information is then sent through the Lightweight Access Point Protocol (LWAPP) to the Cisco wireless LAN controllers or certain wired or wireless integrated switches or routers. The Cisco wireless LAN controllers then aggregate the RSSI information and send it to the Cisco Wireless Location Appliance (LOCP is used for expedited alerts). The location information is relayed from the controllers to the location appliance through Simple Network Management Protocol. The Cisco Wireless Location Appliance then computes the location information that is displayed by Cisco WCS. This location information can also be used by the location API for integration and display by third-party location-based applications.

Q. What is LOCP?

A. The Cisco location protocol (LOCP) supports expedited notifications for emergency and chokepoint trigged events such as when an item passes through a security check point or when a doctor needs to be located quickly during a hospital emergency.

Q. What products are required and which are optional for use with the Cisco Wireless Location Appliance?

A. The Cisco Wireless Location Appliance must be used with Cisco WCS. The correct Cisco WCS license that supports location services must be running Cisco WCS release 3.0 or later running Internet Explorer 6.0/Service Pack 1 or later. Cisco wireless LAN controllers and Cisco Aironet lightweight access points are also required. Wi-Fi enabled laptops, PDAs, voice handsets, Wi-Fi tags, Cisco Compatible client devices, Cisco client devices, and non-Wi-Fi mobile devices equipped with active RFID tags (tags supplied by Cisco partners) and selected chokepoints can all be used with the Cisco Wireless Location Appliance.

Q. Does the Cisco Wireless Location Appliance support deployment in irregularly shaped buildings?

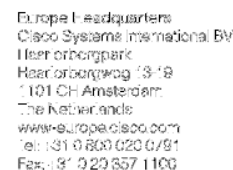**A.** Yes. Drawing of irregularly shaped buildings using polygons is supported to help organizations easily design and support WLAN deployments in such buildings.

Q. **Does the Cisco Wireless Location Appliance include tools for pre and post deployment?**

A. Yes. The Cisco Wireless Location Appliance includes a variety of pre and post deployment tools that simplify the deployment and management of location services.

Pre-Deployment Tools:

- **Planning Mode Tool**: This tool provides recommendations for access point placement and density to create a WLAN deployment that supports location accuracy within the specifications of the location appliance. Drawing of irregularly shaped buildings using polygons is supported by this tool.
- **Location Readiness Assessment Tool**: This tool helps customers determine if their current WLAN deployment is sufficient to support location accuracy within the specifications of the location appliance.
- **Voice Planning Tool**: This tool provides recommendations for access point placement and density to create a WLAN deployment that supports a quality voice deployment.

Post Deployment Tools:

- **Calibration Tool**: Customers can choose to perform a post-deployment calibration of their network if the network's location accuracy becomes out of specification. During this calibration, an 802.11 wireless client device is used to take RSSI measurements in the environment. The measured RSSI is then used by the location appliance to fine tune the location accuracy of the location device. Improvements in location accuracy can be visualized using the Location Inspector Tool.
- **Location Inspector Tool**: This tool is used post-deployment to determine the location accuracy throughout the WLAN. It provides a visual representation of the quality of location accuracy. It can also be used for on-going performance tuning of the network.
- **Location Troubleshooting**: When location accuracy does not conform to specifications, the location debug feature can be enabled. This feature displays the access points that contributed to the location calculations, the signal strength of these devices and a time stamp of when the signal strength measurement was last received. Screenshots of this display can be sent to the Cisco Technical Assistance Center to help with location services troubleshooting.