



Summary of CMX Radio Frequency and Location Based Design

September 4, 2014

This part of the CVD includes the following chapters:

- [Chapter 9, “Radio Operating Frequencies and Data Rates”](#)—Discusses radio operating frequencies that are used for WLAN networks. Also briefly discussed are 802.11 a/b/n/ac modulation techniques and the role of TPC and DCA in a radio frequency (RF) network.
- [Chapter 10, “Radio Frequency Fundamentals”](#)—Explains various RF concepts like spectrum bands, power level, signal strength, RSSI, etc. and provides a simple example using these concepts to illustrate how RF impacts a client and Access Point perceived signal strength level. These components include Cisco wireless LAN controllers (WLCs), Cisco Prime Infrastructure (PI), and the Cisco Mobility Services Engine (MSE). In addition, the configuration of CMX services, specifically CMX Analytics and CMX Visitor Connect, are discussed.
- [Chapter 11, “Antenna Fundamentals”](#)—Discusses antennas, which are a fundamental part of any WLAN deployment since selecting the right type of antenna for deployment greatly enhances not just coverage, but also location readiness.
- [Chapter 12, “802.11 Fundamentals”](#)—Discusses 802.11 Fundamentals, namely the role of beacons, probe requests, and probe responses.
- [Chapter 13, “Location Fundamentals”](#)—This part of the CVD discusses location fundamentals, including the definition of a location ready point, location currency, location accuracy, and location latency. We also discuss two methods of getting location from a client, i.e., the Probe RSSI method and the FastLocate method.
- [Chapter 14, “Pre-Deployment Radio Frequency Site Survey”](#)—A good Cisco WLAN deployment is dependent on a good RF design, which includes doing a thorough site survey of the location, determining the best location for access points, making the right channel plans, planning for AP capacity, and lastly performing a regular post deployment RF site survey. The chapter discusses pre-deployment site survey topics.
- [Chapter 15, “Access Point Placement and Separation”](#)—Discusses AP placement and AP capacity planning, including core concepts regarding the distance between APs in a network and its impact on location, data, and voice.
- [Chapter 16, “Predictive Radio Frequency Planning”](#)—Discusses predictive RF planning that should be undertaken after a pre-deployment RF site survey is completed and two tools to perform RF planning, the Cisco Prime Infrastructure RF Planner tool and the Ekahau Site Survey tool.

- [Chapter 17, “Multi-Floor Deployments”](#)—Discusses challenges in deployments that involve multiple floors. Recommendations on what to keep in mind while designing for RF network are also discussed.
- [Chapter 18, “Capacity Planning and High Density”](#)—Discusses planning a network while keeping capacity and application requirements in mind.
- [Chapter 19, “Location Voice and Data Co-Existence”](#)—Discusses the pertinent characteristics of voice and data designs only as they relate to co-existence with the location tracking capabilities of the Cisco UWN.
- [Chapter 20, “Post-Deployment Radio Frequency Tuning”](#)—Discusses post deployment RF tuning that should be done regularly on the deployment and includes using RRM for channel planning, CleanAir to mitigate RF interference, and a regular post-site survey assessment to ensure that optimum RF health is maintained.
- [Chapter 21, “Best Practices Checklist”](#)—Discusses the best practices check list while deploying a CMX solution.