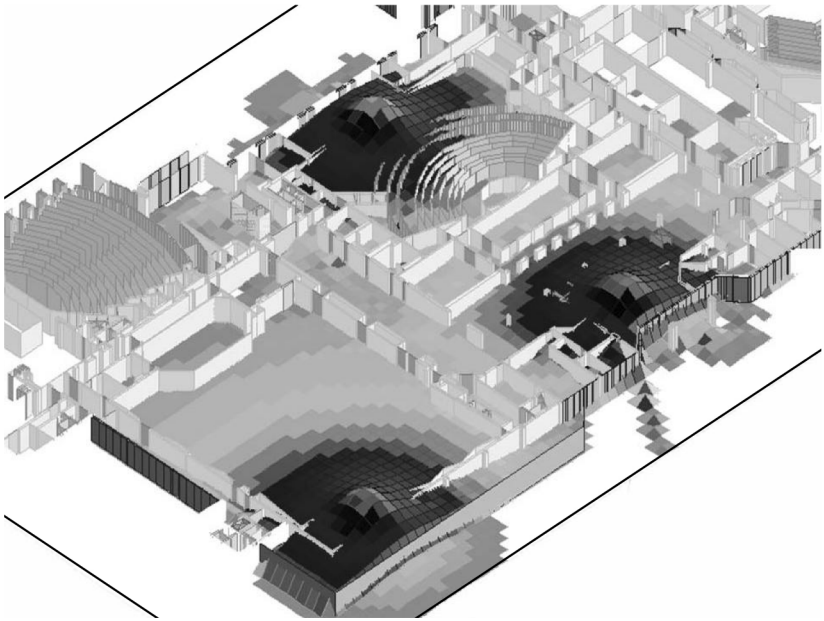

Figure 2.13 A predicted coverage plot for three access points in a modern large lecture hall. (Courtesy of Wireless Valley Communications, Inc., ©2000, all rights reserved.)

strawman design of the WLAN system and visited the building to place the access points, and verified the design by measuring network performance with the CAD product as he walked throughout the building. In under 30 minutes, the student was able to verify his strawman design and had completely measured and archived the true user throughput and delays experienced at specific locations throughout the building (due to both propagation loss and interference) with all access points in operation. During the validation field test, the student was able to keep track of actual field measurements directly on an electronic blueprint while storing all measurements, all predictions, and all system parameters (such as the channelization scheme used and physical location of access points). In [Hen01], the *SitePlanner* design environment was used with WLAN measurement products (*LANFielder* and *SiteSpy*) to enable new and efficient methods for collecting and using in-the-field network measurements for rapid network validation and tuning for optimal WLAN design. As WLANs proliferate and interference levels rise, having a design and archiving environment that can be tuned to measurements will be increasingly important. Figure 2.14 illustrates one of the measurement experiments conducted in [Hen01] in order to model the end user's throughput data as a function of signal strength and interference.

In Europe in the mid 1990s, the *High Performance Radio Local Area Network* (HIPERLAN) standard was developed to provide a similar capability to IEEE 802.11. HIPERLAN was intended to provide individual wireless LANs for computer communications and used the 5.2 GHz and the 17.1 GHz frequency bands. HIPERLAN provides asynchronous user data rates