Surveying for Cell Capacity and Channel Re-Use

This chapter describes how to perform a site survey to design a wireless LAN for cell capacity and channel re-use.

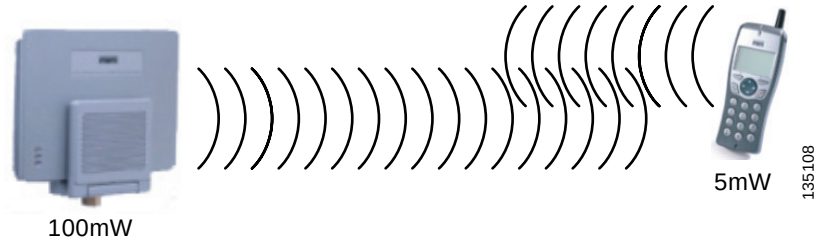
Survey Design for Cell Capacity

Cisco recommends that you install enough access points to provide all users with quality calls. Maintaining high call quality might require small coverage cells that limit the number of calls per access point to 7 to meet the QBSS level on access points below 35. With a recommended RSSI level of 20 dB throughout the RF network, the access point transmit powers could be as low as 20mW, with low-gain antennas on the access points. You should consider these design factors to ensure adequate capacity and coverage:

- removing interfering devices
- configuring older 802.11 devices to lower transmit power
- configuring older 802.11 devices to the highest possible data rate

When you configure the access points for higher data rates and lower transmit power, the cell coverage from the access point becomes smaller. However, if you adjust the access points for high data rates and low transmit power but you do not make similar adjustments on the clients, the cell might be unbalanced, as in Figure 3-1, except that the client signal exceeds the access point signal.

Figure 3-1 Unbalanced Cell Due to Mismatched Transmit Power and Data Rate Settings



Depending on the configurable and non-configurable parameters of the client, it might continue to transmit packets at a 1 Mbps data rate. The transmit coverage of a client could be 400 feet when the transmit coverage of the access point is 100 feet. This mismatch could affect the call capacity and QBSS of an access point several cells away from the access point to which the client is associated.

Note If the Cisco access point is configured to disable data rates 1, 2, and 5.5, clients are not required to transmit only at 11 Mbps. In fact, older client devices might not be programmed to recognize the access point configuration for data rates.

Cisco recommends that customers update their 802.11 clients to run the newest firmware and drivers available. Vendors generally update power and data rate options as their products mature.