

RF Coverage: Each Access Point propagates spread spectrum RF over a specific “cell” within a designated area of a site. Cells add up to provide RF coverage over the required area. RF coverage is affected by:

- Site Characteristics
- Placement of Access Points/Antennas
- Transmitter output of Access Points, Antenna, and Mobile units
- Wireless Data rate (DSSS 2Mbps vs. FHSS 11Mbps equipment backbone)

Unless contracted otherwise (to increase data throughput or provide additional fault tolerance for example), BCI surveys and designs installations so that sites with multiple cells have coverage overlap of approximately 30% between adjacent cells.

Data Throughput: RF LAN data throughput is defined by the maximum volume of data to be transmitted over the wireless LAN in a specific coverage area during any given moment. Data throughput is a function of type and quantity of LAN Infrastructure Components (Access Points, ect.) and Mobile Units. Adding additional Access Points in expected areas increases data throughput of the Wireless LAN systems. Note that high data rate Direct Sequence systems (DSSS 802.11b) are not as scalable as Frequency Hopping (FHSS 802.11) systems.

Fault Tolerance: If an Access Point fails, coverage in the area is lost. To ensure coverage in case of Access Point failure, the system can be designed to provide redundant coverage by adding extra Access Points. Dual (multiple) Access Points are placed in the same general location, so that if one operational Access Point malfunctions, another takes over without loss of data. An additional benefit of this type of design is the increased data throughput provided due to the design of the WLAN products. For a minimal investment, RF management and administration software can also be used to notify administrators of Access Point issues such as general use state, number of terminals connected, IP addresses associated, etc. Added benefits of such tools include general reduction in overall WLAN cost of ownership by elimination of on-site support requirements, reduction of support travel costs, reduction of wireless deployment time, increased speed of IS response time, and overall improved operations efficiency.

Lightening and General Protection: Wireless LAN installations are normally designed with no special consideration for protection from lightening or other disasters. If this is of concern, consult with your BCI service representative and RF technician to recommend additional equipment that can be added to a Wireless LAN installation to limit potential lightening damage. NEMA rated and other case enclosures (such as splash and washdown types) are also available to protect against the ingress of dust, water or other fine and powdery like substances.

Wireless LAN Installation Services are as follows:

- **Installation and Configuration of RF Infrastructure:**
Wireless Installation services include:
 - Mounting of access points
 - Installation of NEMA enclosures (case-by-case basis as required – see below)
 - Mounting of antennas
 - Connection of antennas to access points
 - Connection of backbone LAN to access points
 - Connection of power to access points
 - Installation and connection of remote power system
 - Configuration of access points to include:
 - Proper firmware level, Radio information (system ID, channel, bit rate)
 - IP addresses (provided by customer), Filtering
 - Verification of coverage
 - Verification of backbone connectivity:
 - Pinging access points, pinging host



Qualified electricians or the customer's on-site maintenance crew normally install heated NEMA enclosures. Heated NEMA enclosures require special power wiring for the internal heaters. Non-heated NEMA enclosures are typically installed by the customer's in-house maintenance department and don't have special power considerations.

Please Note: All local area cabling must be terminated and ready for connection by the RF installer. Power must also be active and located where defined in the site survey or indicated in the walkthrough. Installation issues not part of the actual RF infrastructure are the responsibility of the customer. BCI cannot be held responsible for an RF system that cannot be used due to troubles on the customer's backbone caused by devices not part of the actual RF system, nor installed or obtained from BCI, Inc.