

- Antenna placement is crucial for any installation. Site surveys and pre-planning can be very beneficial in wireless implementation. The radios embedded in our wireless devices have the highest output in compliance with FCC guidelines.
- There are two ways to increase distance across a given terrain; more *transmission strength* or more *reception sensitivity*. **Antenna cable length should be kept as short as possible.** Cable attenuation is a phenomenon caused by excessively long cable runs. Even though *transmission strength* can be regained through the use of a higher gain antenna, *reception sensitivity* is forever lost. The latter condition results in the signal from the remote radio not being heard by the near radio. There is no magic formula to calculate how much loss is acceptable for any given site due to the intricacies and uniqueness of each installation. There is however a formula, that follows, to calculate cable loss by itself. It is the installers' responsibility to use discretion and knowledge when deploying a wireless system. AIC recommends no more than 6' of an LMR-195 style cable or 30' of an LMR-600 style cable. These figures are minimum requirements and every sight is different. Also, keep in mind that any additional RF connector adds an additional 0.1 dB of attenuation. Antenna gain is an extremely important factor when engineering a wireless installation. Distance and terrain or obstructions must be considered when selecting the antenna.

Cable Attenuation (loss) = (dB loss per foot of cable) x (feet of cable used) + (0.1 dB for every connector)

Example: A given cable with 0.18 dB per foot in a 6' length equals 1.08 dB of attenuation. Add the 2 connectors on the ends and you now have a cable with a total *transmission strength* loss of 1.28 dB. This in affect means that the 3 dB antenna used is now a 1.72 dB gain antenna, not to mention the non-recoverable 1.28 dB worth of *reception sensitivity* which is lost.

- When in doubt of how to install the WLD series of products and accompanying antennas ASK FIRST. AIC Wireless is committed to maintaining 100% customer and user satisfaction, by offering technical support and pre-job engineering assistance within reasonable limits. One of the goals of AIC Wireless is to equip our customers with the knowledge necessary to install the products with success the first time. The WLD product has been placed in service with great success in various applications within the building automation market and we attribute that success to the close customer support that we strive to maintain.

Any deviation from the above stated recommendations can adversely affect radio signal and reliability.