



285 Newbury Street Peabody MA 01960 Tel: (978) 535-7310 Fax: (978) 535-7313

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## Avoiding Common Subscriber Installation Pitfalls.

There are a number of components that comprise your AES-IntelliNet network. Each subscriber unit, its corresponding antenna, and each unit's installation and placement, contribute to the overall health of your network.

- **Cable Quality & Connectors** Use only low loss coaxial cable rated for use with radio transmission. Don't scrimp on good quality connectors and always use the correct crimping tools. **We find poor connections to be the Number 1 cause of field service requirements or problems with an AES-IntelliNet network.**
- **Location** Both the location of the subscriber unit and the location of the antenna have a significant impact on the range of your individual subscriber units as well as the ability of other subscriber units to utilize multiple paths to send signals to the central station. Antenna location in particular is critical for range. If you can place the subscriber unit and antenna close to the rooftop or highest point keeping in mind that the cable connecting the subscriber unit and the antenna should be as short as possible. Avoid metal ductwork; foil faced insulation, silvered windows, or any metal surface that might impede radio performance.
- **Omni-Directional vs. Directional Antenna** AES recommends that you use only omni-directional antennas except in rare circumstances. Each deployed subscriber unit serves as a potential repeater for all existing subscriber units. An omni-directional antenna, which spreads the signal in all directions, will provide the greatest number of other units in your network to communicate and create new paths to the central receiver. A Yagi, or Directional antenna, will transmit and receive in only one direction generally, which would make it a less visible and effective part of the AES-IntelliNet network, thereby weakening the strength of the AES-IntelliNet network in that area.
- **Antennae** Be aware of the distance between the unit being installed and the central station, taking topography into consideration. Choose the antenna that works best to cover the distance. It should not be too big such that it becomes a collection point for subscriber units that should not otherwise be hopping to it. In many installation sites a large antenna is not practical. Most of our customers have found that a 3-6 db gain antenna offers good performance at a reasonable size.
- **Cable Length** Cable length between the subscriber unit and the antenna is also critical. The difference of a few feet can make a huge difference in performance.

A 10 foot cable may perform 3 times better than a 25 foot cable. Use low loss cable to minimize the impact of a longer cable run. Mount the radio transceiver as close as possible to the antenna but away from extremes of temperature and humidity.

- **Installation** First, set up the subscriber unit outside on battery power and know where your closest subscriber units are located as well as your central receiver. Then test the signal quality. If it s'good, then reposition the subscriber unit inside and test again before installing. If not, consider antenna placement. Move the antenna to get the best signal. Sometimes a move of only a few feet can make a significant difference. Don t be afraid to experiment with placement.

*Following these simple guidelines can make a difference in the communications quality of your network and the amount of time you have to dedicate to maintaining it on an ongoing basis.*