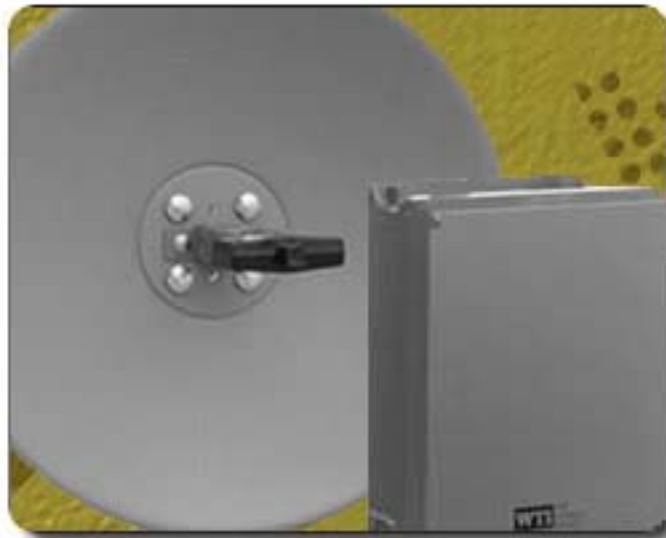


## **Wireless System Installation Tips** **Things to consider and tips for proper installation.**

When selecting a location for your WTI wireless video systems, there are a few important things you need to take into consideration.



### **1.) Line-of-Sight (LoS)**

To achieve optimal performance, from any high frequency wireless device, a clear line-of-sight is necessary. Line-of-sight refers to a clear, unobstructed path between the transmitter and receiver antennas. The antennas produce an invisible beam that can be compromised by building obstructions, ground and/or water reflection. Well designed RF products can withstand a 20% loss of this invisible beam before performance reduction is detectable.

To get the best possible signal with your WTI wireless system, you need to have LoS or transmit through the least amount of materials on the peripheral of the LoS. Problems will occur when you try to transmit through any type of metal or steel-reinforced concrete. If there is a significant amount of metal too close to the transmitter antenna, reflected RF may cancel some of the transmitted signal and reduce the range and the quality of the signal. For maximum radio frequency (RF) propagation, a clear LoS is best.

## 2.) Antenna Height

Antenna height and line-of-sight usually go hand in hand, though not always. Many times LoS is achieved but the consideration that traffic may pass through the RF path is not always thought through. This scenario occurs often at truck depots, airports and shipyard installations. Mounting the antennas above traffic not only eliminates intermittent signal loss it also helps a link achieve optimal performance. By mounting the antennas as high as possible it will allow the link to operate in air space that is less crowded with other RF noise. Mounting the antennas above other RF noise gives the receiver less to contend with by allowing it to hear the information it has transmitted more clearly, therefore processing that information more efficiently and accurately. The bottom line: make sure that your wireless system will be mounted high enough to prevent traffic from passing between the transmitter and receiver. If the system is placed too low, the quality of the signal will be reduced every time a large object passes between the two antennas.

## 3.) Antenna Mounting

Make sure that each system antenna is mounted to a solid structure that does not allow for antenna movement during strong winds. Although WTI's antenna design allows for small movements this tolerance lessens the further the RF signal must be propagated. A 30° movement on our 2 mile links with our patented phase array antenna would not affect the signal very much but the same movement on a 50 mile link could miss its target by miles. That being said: please keep in mind that our product mounting requirements dwarf when compared to the monstrous and rigorous concrete and steel mounting required for super higher frequency microwave, a simple solid pole will do.

## 4.) Testing

It is good practice to bench test your WTI system before installation. Even though WTI is an ISO 9001:2000 certified company with a strict quality control processes, equipment can be damaged during shipping or a miscommunication to what was ordered could take place. This is why the equipment should be tested at the shop. Bench testing allows for confirmation that the correct equipment was shipped, that it works properly, and it builds confidence in the overall system operation before the permanent installation.

We're not done yet! Before permanently mounting the system, we also recommend testing the system at the site where it will be permanently mounted. This will ensure that the system is working properly at that site and not affect by other RF that may be in the area.



These are just a few basic things that can be done to ensure a working installation. By following these tips we hope to reduce and/or eliminate the risk of your installation exceeding its estimated time and cost. WTI's products are designed for easy installation and we understand the temptation to just put it up and let it ROCK but it's always good practice to test before hand. In the long run this will save you money!

Here are two forms to help you plan your next WTI (Wireless Technology, Inc.) wireless system installation.

Wireless Application:

[http://www.gotowti.com/Info/WTI\\_WirelessSiteSurveyForm.pdf](http://www.gotowti.com/Info/WTI_WirelessSiteSurveyForm.pdf)

Ethernet/IP Application:

[http://www.gotowti.com/Info/WTI\\_EthernetSiteSurvey.pdf](http://www.gotowti.com/Info/WTI_EthernetSiteSurvey.pdf)

*~Eric Myers, Director of Wireless Products*

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