

UNDERSTANDING WIRELESS

The first problem most people have with wireless is not understanding how spectrum works or how wireless links can be affected by an improper spectrum choice.

The majority of spectrum used today is in the 2.4GHz space; typically called 802.11b/g or b/g/n. This space has only 3 non-overlapping channels and is very widely used, and is also easily interfered with by other devices (whether that be something as simple as a microwave oven, or the electronic magnetic emissions field put out by electrical transmission lines.

People assume that if they are able to surface a 2.4Ghz link and make a connection, then that connection will be reliable and will work for video. Unfortunately what quite often happens is the interference that comes from other radiating devices is just enough to cause critical packets to drop, thereby creating a garbled frame. This means the video does not transmit.

The key here is to both understand the ambient RF environment and to also understand how to create links that are impervious to the WiFi noise in the area.

ClearPix's ClearWan wireless products do this by allowing you to choose subsets of the full spectrum channels which allow us to ignore noises that do not use those same subsets of channels. This is critical because not only is it able to deal better with interference in the same spectrum range, but it actually creates MORE non-overlapping channels for the integrator to use in the field. We can do this in the b/g/n range (2.4GHz), the 5.0-5.8GHz range (802.11a/n) and in the 900MHz range.

In addition to channel selection, understanding how and when to utilize the correct type of antennas - and the correct level of antenna and radio power gain - is critical in creating reliable links that will deliver robust video transmissions.