Quick Tips

Successful Implementation of Industrial Wireless

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Harsh Environment Tips

Vibration:

Use industrial designed hardware that has vibration certifications (i.e. IEC 60068-2-6) to ensure the equipment will withstand the rigors of the industrial environment.

Extreme Temperatures:

Choose industrial grade hardware that can tolerate extreme temperatures as the industrial space is seldom air-conditioned.

Look for Power Isolation Technology:

Choose wireless devices with built-in power isolation technology so they can handle power spikes or produce an Uninterrupted Power Supply (UPS) with power regulation capabilities. In addition to the UPS, you can also use a DC-DC power isolator for any power fluctuation and poor grounding.

Mounting:

Avoid mounting wireless devices near EMI sources like cell towers, other radios, poorly shielded motors, and ignition systems unless the wireless device has RF isolation.

Communication Reliability Tips

Site Survey:

Conduct a site survey to look for interference sources and to determine the optimal position for Access Points (APs).

Channel Alternation:

For APs that are adjacent to each other, use channel alternation so that the APs are using separate, non-overlapping channels unless you use a self-configuration technology. If using the 2.4 GHz channel spectrum, try to stay within channels 1,6, or 11 to reduce the chance of using overlapping channels.

Signal:

Check that you have adequate signal, ideally around -45 to -65 dB.

MIMO:

Take advantage of MIMO (multiple-in, multiple-out) where both antenna inputs are used on the radio for the best bandwidth and signal reliability.

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Deployment Tips

Power:

Figure out how you want to power your radio (i.e. power buses, Power over Ethernet, etc.). Ensure proper grounding unless the product has power isolation.

Antenna:

Choose the right antenna for your application. Directional antennas are great for security and to expand range at a given direction. However, they do sacrifice overall coverage.

Wire Length:

Minimize the length of antenna wire. Use low-loss antenna cable whenever possible, especially if doing a long run.

MIMO Antenna:

Consider using a MIMO antenna to simplify installation. These antennas have more than one antenna in a single enclosure.

Configuration:

Choose the most appropriate avenue to configure your radios (i.e. one-by-one, wireless controller, or mass deployment tools). If deploying multiple devices make sure you have a mass deployment/configuration tool.

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