

COMMUNICATION PROBLEM

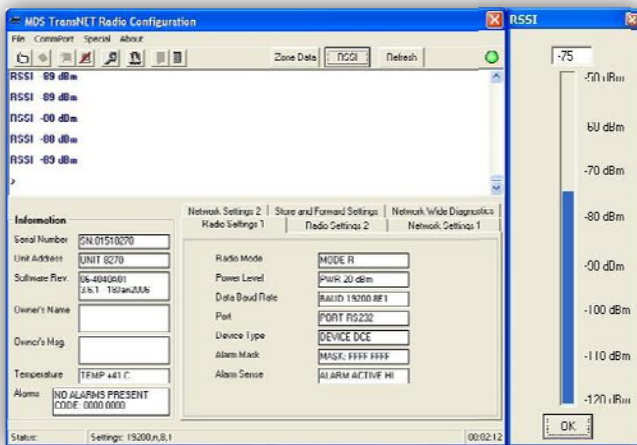
In today's heavily automated world, the capability to remotely monitor and control field devices is crucial. Traditional methods use cables to communicate to remote sites but this method can become expensive and time consuming to implement. An alternative to these traditional methods is wireless communication. Wireless communication reduces installation time, and is generally more economical. One of the first steps in considering a wireless communication system is to have a radio survey and analysis performed on site.

SOLUTION

Quantum can provide radio telemetry analysis on new or pre-existing SCADA systems. Quantum has several years of experience performing radio telemetry analysis on various point-to-point and multiple point mesh topologies.



QUANTUM'S RADIO SURVEY TOWER – UP TO 100'



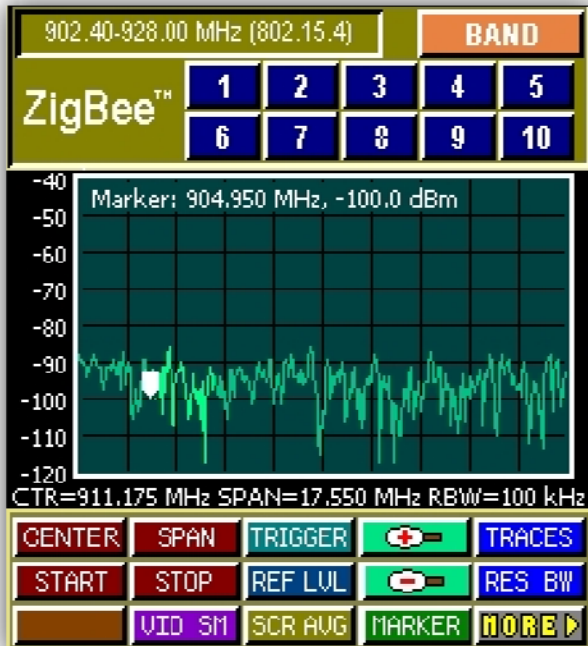
SIGNAL STRENGTH TEST

Quantum has provided radio surveys using MDS, Phoenix Contact, ProSoft and ESTeem radios. Quantum owns its own test equipment, antennas, radios, 100ft portable radio survey tower and truck for conducting radio telemetry analyses.

SERVICES

Typical services performed include receive signal strength indication (RSSI) and RF spectrum analysis. Data collected from this radio telemetry analysis is compiled and presented in a comprehensive radio analysis report. This report will detail the radio telemetry analysis results and give hardware design recommendations. In addition, we include radio, antenna and transmission line specifications. Some of the additional services that Quantum can provide within a radio telemetry analysis are:

- ✓ Spectrum Analysis
 - 900MHz
 - 2.4GHz
 - 5.8GHz
- ✓ Signal Strength Analysis
- ✓ Radio Relay Path Design
- ✓ Equipment Recommendations
- ✓ Design Recommendations



SPECTRUM ANALYSIS



QUANTUM'S REMOTE SURVEY TRUCK

ADDITIONAL SERVICES

Quantum provides many additional industrial automation applications. Listed below are some additional engineering services provided by Quantum.

- ✓ Electrical Engineering and Design Services
- ✓ Process P&ID Design
- ✓ Project Construction Management
- ✓ Licensed General Engineering Contractor (AZ)
- ✓ Professional Engineering Services
- ✓ SCADA and HMI design
 - Intellution – iFix
 - Intellution – iHistorian
 - Wonderware – System Platform
 - Rockwell – FactoryTalk
 - General Electric – Cimplicity
- ✓ DCS System Design and Configuration
 - Delta-V
- ✓ PLC Programming Design
 - Allen-Bradley
 - Modicon
 - General Electric
 - Siemens
- ✓ SCADA Video Surveillance Design and Installation
- ✓ General Construction Contracting
- ✓ Industrial Networking Design
- ✓ Panel Design and Fabrication