POMEROY CHOOSES VENTEV ANTENNAS TO ENSURE NETWORK COVERAGE AND CAPACITY AT GLOBAL MANUFACTURER'S FACILITIES

EXECUTIVE SUMMARY

CLIENT

Pomeroy/Global Vehicle OEM Manufacturer

CLIENT GOALS

Bring state-of-the-art wireless connectivity to manufacturing plants across the country to meet demanding coverage and capacity requirements for high-performance voice and data transmission.

- Upgrade Wi-Fi networks to 2.4/5GHz technology for faster voice and data transmission rates
- Ensure seamless network connectivity throughout, even in high-ceiling areas with RF-blocking obstacles
- Reduce CAPEX and interference by limiting number of APs

PRODUCT SOLUTION

2.4 / 5 GHz 6 dBi Outdoor Omni Antenna
A Cisco AP-compatible antenna designed to operate with 802.11n/ac MIMO access points.

- Dual-band to support both 2.4 and 5 GHz
- 6 dBi gain provides ample signal strength to reach the floor from high ceilings.
- Rugged enclosure protects in harsh environments

Tessco SKU 577629

Industrial Beam Clamps
Allows quick, easy installation of antennas onto I-Beams.

Tessco SKU 306544

Six-foot Cable Assemblies
Extra-long cable assembly for flexible, precise placement.

Pomeroy, a leader in designing, managing and optimizing IT infrastructure, was recently hired by one of the world's largest manufacturers of vehicle OEM components to provide networking, telephony and wireless technology assessments and upgrades for their manufacturing plants across the U.S. The manufacturer required cutting-edge wireless network infrastructure in each plant to support increasing demands for high-performance voice and data transmission.

David King, Pomeroy's managing consultant for Enterprise Networking and Practice Manager for Mobility, and Hoyt Hamilton, a Pomeroy engineer, led the Pomeroy team in assessing the client's current network services and establishing a plan to provide the coverage and capacity needed.

CHALLENGE

Ensuring reliable Wi-Fi connectivity in manufacturing facilities can be challenging. These environments often have multiple, RF-blocking obstacles such as moving machinery and vehicles, rows of metal racks stacked with parts, and building structures. Also, the number of Wi-Fi devices connecting to the network have increased dramatically, and will require additional capacity. In addition, large buildings with high ceilings make it difficult to mount wireless equipment and transmit adequate signal throughout.

The Pomeroy team began the project by performing a detailed analysis of each manufacturing plant's networking infrastructure, number of users, physical structure and the application requirements for the coverage area. The manufacturing plants used older 2.4 GHz technology, Cisco access points and dipole antennas. These facilities had high ceilings, some in excess of 35 feet. Mounting APs lower than ceiling height was not possible because of the nature of the work done in the manufacturing facilities. The relatively low gain that dipole antennas offered caused insufficient signal strength at the floor level, which meant insufficient coverage and capacity. To compensate for higher ceilings and lower gain antennas, additional access points had been inserted into the network

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to ensure coverage. However, the additional access points actually increased interference and reduced capacity because the original channel mapping was affected and channel spacing decreased without an adjustment to AP power level.

"We wanted to provide ample coverage and signal strength to meet the customer's requirements," said King. "We also wanted to reduce the number of APs used."

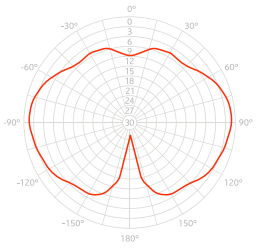
SOLUTION

First, Pomeroy recommended updating the single band 2.4 GHz technology to 2.4/5GHz technology to provide more capacity and additional speed. To accommodate the high ceilings, Pomeroy recommended switching from dipole antennas, which typically have relatively low gain (2-4 dBi) to higher gain 6 dBi omnidirectional antennas. The antenna they chose was Ventev's 2.4/5GHz 6 dBi 4-lead RPTNC, which is suitable for both industrial and outdoor environments. King refers to this antenna as his "go-to antenna" for outdoor, warehouse and manufacturing environments. The dual band characteristics of the antenna ensured that older devices would still be able to connect to the network at 2.4 GHz.

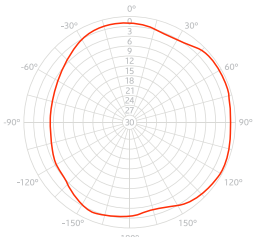
To simplify installation and allow flexible yet precise positioning of the antennas, King also chose Ventev's Industrial Beam Clamps and six-foot cable assemblies. A final site survey was performed to determine the exact number and placement of access points and antennas needed to provide seamless network coverage, with the least amount of interference.

"The customer is very happy with the results," says Hoyt. "The speed and versatility of their wireless network has been expanded greatly."

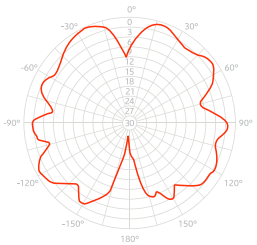
"The Ventev Omni Antenna actually allowed us to reduce the required AP count by 25 percent," said King. "In fact, the savings in the cost of the access points paid for the new antennas and then some."



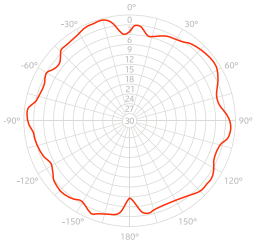
E-Plane Pattern *2.4 GHz*



H-Plane Pattern *2.4 GHz*



E-Plane Pattern *5 GHz*



H-Plane Pattern *5 GHz*

2.4/5 GHz 6 dBi Outdoor Omni Antenna
Tessco SKU 577629

Specifications:

Model: M6060060MO1D43602
Frequency Range: 2400-2500 / 5150-5850 MHz
Bandwidth: 100 / 700 MHz
Gain: 6 dBi
Vertical Beamwidth: 45"/20"
Horizontal Beamwidth: 360°
VSWR: ≤2.0 / ≤2.2
Nominal Impedance: 50 Ohms
Polarization: Vertical
Isolation: <-15dB
Max Power: 10W
Lightning Protection: Not DC Grounded
Connector: RPTNC Plug with 36" cable
Dimensions: 5.9"x7"
Weight: 3.60 lbs.
Mast Mount Diameter: 1.37"x1.97"
Operating Temperature Range: 40°F to + 158°F
Wind Load: 134 mph