

## University of Alaska

### Rugged Application

*The University of Alaska's Geophysical Institute now owns its private data network thanks to EION's affordable wireless solution. The atmospheric research data collected by sounding rockets can be transferred to the university quicker than ever.*

#### BACKGROUND

The Poker Flat Research Range (PFRR), owned & operated by the University of Alaska's Geophysical Institute, is primarily dedicated to the launch of sounding rockets for a variety of federal agencies, including NASA, and universities throughout the world conducting research, such as studies on the aurora, ozone layer, solar protons, the electric and magnetic fields, and ultraviolet radiation. The advanced equipment used generates substantial amount of data to be collected from various experiments. A private data network is required to effectively transfer the field data back to university for further analysis.

#### CHALLENGES

The challenges faced by this project are much more than the other typical wireless projects due to the extreme environment, distance and other factors. It is required that equipment works reliably under severe condition like Alaska's winter. The Non-Line-of-Sight (NLOS) condition created by the mountainous terrain also demands a technological solution. The distance between field sites and the university campus ranges from 22 km (14 miles) to 99 km (62 miles). The cost, including both installation and maintenance, is also major factor for the university.

#### PRODUCT

The PFRR chose EION's VIP 110-24 over the traditional wire solution for more basic reasons such as low cost, reliability, convenience, high-speed, long link and VINE capabilities that overcomes the NLOS problems in the links.

With 8 Megabits/sec of effective data throughput, EION's VIP 110-24 sets the standard in anypoint-to-multipoint broadband wireless networking by overcoming line of sight limitations in networks using VINE technology. Operating in the 2.4 GHz license-exempt frequency band, the VIP 110-24 wireless Ethernet Bridge offers solutions for quick installation and true quality of service.

#### COST- EFFECTIVENESS

Keeping a close eye on the bottom-line, the PFRR tackle the connectivity challenges using the VIP 110-24 product. The wireless capital outlay and maintenance is far less expensive than the leased data line over the long term. The cost for a leased line is \$18,000 annually, in comparison of the \$3,000 annually for the wireless network. Over a ten-year period, the PFRR can save a total of \$150,000.

#### RELIABILITY

It is crucial that the network remains operating at all times, even during the severe winter in Alaska. The temperature of Alaska's harsh climate can go down as low as -46 °C (-50 °F). EION's VIP 110-24's at most of the repeater sites are put to the test with such extreme environment, as they are installed in outdoors



environment.

**QUICK DEPLOYMENT**

With the weatherproof design and audible alignment tool, installation of the network is rather simple. The actual installation only takes a matter of hours for each radio site, which majority of the time is used for an installed power source.

**CONVENIENCE**

The VINE design of the VIP 110-24 makes the wireless network deployment simple and easy. The mountains often cause NLOS environment for the project. Using the VINE technology not only reduces the cost of repeater site, but also simplifies the network design. The VINE technology also helps to extend the coverage range in the longer applications.

“The biggest selling point for us when comparing similar wireless systems was the fact that only Wi-LAN ( now EION) would rate the equipment to reliably operate at minus 40 degrees.”

**Brian Lawson**  
*Science Facility Technician*  
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EION Wireless, a division of EION Inc., is a global provider of Broadband Wireless Access products that enable effective, economic and secure wireless high-speed communications solutions. EION is a Principal Member of the WIMAX Forum and was named one of the fastest fifty growing wireless companies in North America by Deloitte and Touche. With over ten thousand broadband wireless installations worldwide, the company's licensed and unlicensed frequency products are used by wireless ISPs, private network operators, and remote rural networks and in voice and data backhaul applications to solve last mile challenges. EION Wireless works with more than 165 worldwide channel partners to support its diverse global customer base.