

Application Note



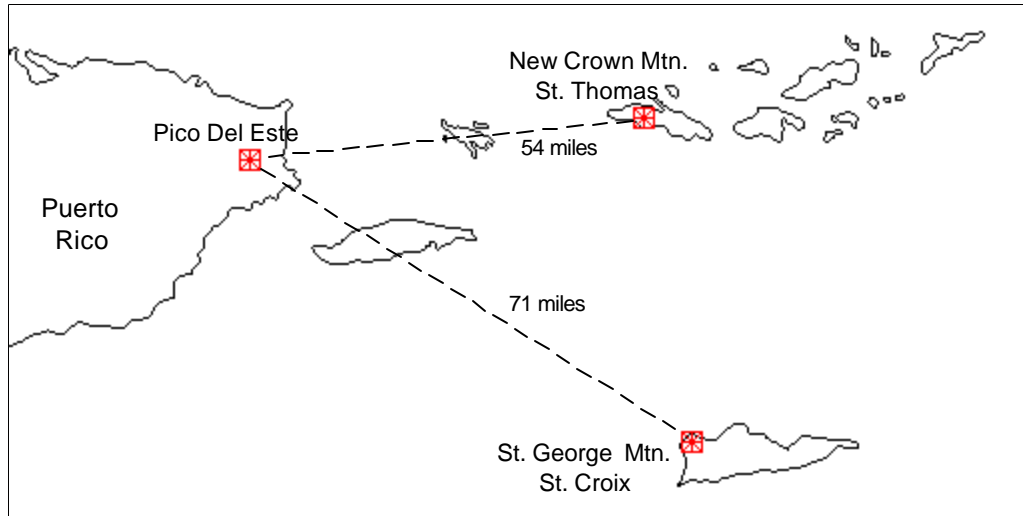
NovaRoam 900

Wireless Router

Application Note:
70-Mile IP Router Link

NovaRoam Wireless Router Closes 70-Mile Ethernet Link

As part of a US Naval training facility GPS tracking system, a set of *NovaRoam 900* Wireless Routers were used to provide a data link between St. George Mountain, in St. Croix, USVI, and Pico Del Este, Puerto Rico; a distance of over **71 miles**. This long-range wireless link supports transfer of Ethernet data packets at a channel rate of 159 kbps with a dropped packet rate of less than 3%. A second link was also established between Pico Del Este and Crown Mountain, St. Thomas, USVI, a distance of 54 miles, with equal success.



Using the land-based NovaRoams as repeaters, the complete network, designed and installed by Integrated GPS Technologies of Stafford, Texas (www.gpsgis.com), includes mobile-based nodes on ships and aircraft. Each mobile node is equipped with a GPS receiver and NovaRoam Wireless Router. This system uses the NovaRoam mobile wireless network to provide real-time positioning information to the Atlantic Fleet Weapons Training Facility Headquarters near Pico Del Este for monitoring of training exercises in the area covering over 15,000 square miles of open sea.

This application illustrates the extraordinary potential of the NovaRoam 900 radios under nearly ideal conditions. The primary site at Pico Del Este is at an elevation of 3500 ft, while St. George Mountain and Crown Mountain are 1550 ft and 389 ft, respectively, with no line-of-sight obstructions or interfering signals. However, no additional amplifiers or exotic antennas were required. Therefore, the system adhered



to the FCC rule for license-free wireless devices.

The NovaRoam 900 Wireless Router is a spread spectrum data transceiver with standard 10Base-T (Ethernet) and RJ-232 (Serial) connections operating in the license-free 900 MHz radio band. Data rate can be as high as 1.008 Mbps with output power of 590 mW for long range. The 159 kbps mode used in this application operates at 800 mW for extremely long range. Numerous features allow the NovaRoam to be customized as needed to get the most out of every wireless link.

Additionally, NovaRoam is available with the TORA routing feature, which allows true dynamic mobile networks without the need for fixed relays. TORA automatically established and maintains network connections between all nodes even as the nodes change position. TORA enabled NovaRoams automatically discover each other, and maintain connectivity even in the most dynamic networks.

For more information on this NovaRoam application or a particular project you have for NovaRoam, contact Nova Engineering.

About Nova Engineering

Nova Engineering, a 100% employee owned digital and wireless communication systems company, designs, develops and manufactures high speed data processing and transmission equipment. In ten years of operation, Nova Engineering, Inc. has pioneered a variety of leading edge projects in both the commercial and government sectors.

Designs include miniature, low power RF communications equipment, waveform development software, high performance modems, ultra-low phase noise synthesizers, embedded real-time signal processing systems and communication products development tools.

Nova supports the total development cycle from systems engineering, analysis and computer simulation to printed circuit board design, prototyping, production, and automated testing.



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