

The purpose of this application is to facilitate the development of a new wireless broadband data delivery system. Wireless technology is creating a revolution in communications. Broadband wireless is the first broadband delivery mechanism that can be deployed quickly and cheaply outside business districts and compete with cable and PSTN-based services. It can offer high quality, high-speed digital services 50% cheaper than fiber alternatives at low penetration rates and is a low-risk solution for new entrants.

The experimental system will be deployed in the San Francisco Bay Area. It will be a point-to-multipoint system with the headend transmitter located on Mt. Allison which is situated in Milpitas, CA. This headend system will engage in two-way communications with subscriber units that are situated in a 30-mile radius of Mt. Allison.

We have monitored the frequencies in the proposed bands for nearly two years and have found no communications equipment operating in these spectral regions. The interference with ham radio operators is unlikely given the lack of standard manufactured ham radio equipment in these regions.

The equipment used will consist of a cable modem headend system which can deliver data rates of 27 Mbps in the downstream and 2 Mbps in the upstream direction. The modulation methods used in the downstream is 64QAM and the upstream is QPSK. The headend system is currently known as the ComUnity System ComCONTROLLER and the cable modem unit as the ComUnity ComPORT. Further detailed technical information on this basic system can be found on the company's website at <http://www.com21.com> and is not included with this application since the most up-to-date information is available on our website.

The objective of this program of research will be to investigate what will be required to develop a new generation of equipment that can operate at higher data rates at greater spectral efficiencies and lower transmit power levels. If this program of research is successful, then it should be possible to market such systems in the future with much better levels of price/performance than are available in the market today. Com21 is very interested in developing equipment which may be applicable to the Universal Service fund for the deployment of these systems into rural and low-income, low-density areas of the U.S. which do not enjoy the communications services available to those in metropolitan and more highly-developed areas.