

Hams 'revolutionize' high-speed technology HSMM

Club's recent success will eventually change high-speed multimedia

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John Champa

The Livingston County Amateur Radio Klub's recent success in extending a wireless signal 82 miles and bouncing it off a building to an unseen spot will eventually "revolutionize" high speed multimedia service, said John Champa, organization president.

"We're moving quickly and we're bringing to this emergency communication support," he said. "What we're essentially doing is a much more robust package radio communications network which will handle traffic 5,000 times faster. With that kind of speed, you can send back e-mails, JPEG both ways . . . and voice traffic in a package so you have a recorded message."

"The idea is to be able to transmit photographs, text, etc from any disaster scene – for example, a plane crash in the California desert – to a command center that may be located hundreds or thousands of miles away, such as Washington, DC."

John Champa

In addition to Livingston County, amateur radio groups in San Antonio, Texas, Tampa Bay, Fla., and Racine, Wis., are working on the high-speed network. Future plans include linking the four groups together in one network.

"It's pretty spotty right now depending on where we have test networks set up," Champa said.

In January 2001, the American Radio Relay League (ARRL) Board of Directors voted unanimously that the ARRL

should proceed with the development of high-speed digital networks for the amateur service. Its subcommittee, the High Speed MultiMedia group, is working to set up networks and infrastructure to make coast-to-coast continuous wireless possible.

This charter encourages the use of spread spectrum modes of communications such as wireless, known as IEEE 802.11b, on amateur radio frequencies, bringing a new meaning to the term "radio relay."

"We learned how to bounce a signal off a building to a spot we can't see," Champa said, noting this is a significant step forward. "We're developing this and training people on how to do it."

Today, anyone with wireless Internet access in their home can operate a laptop from anywhere within their house or a certain area outside the home. The hams, however, are working to extend that wireless capability from coast to coast so anyone with wireless at home could use their laptop and home Internet access anywhere in the country.

Champa said the group began by taking the antennas off a home wireless device and connecting those antennas to towers. In doing this, hams have discovered how to extend the connection up to 82 miles.

"Once we learned how to handle that," he said, "we grew to OFDM modem."

OFDM is Orthogonal Frequency Division Multiplexing, which is a special piece of equipment using existing amateur radio equipment. It is similar to a modem for a personal computer, but allows hams to send data at an even higher speed over their ham frequencies.

"We've been working on it for several months," Champa said. "We are starting to finish it this month. We will post it on the Web site for public comment and review, and this fall, we hope to build the hardware for it and after that send it to commercial circles or manufacturers who can build it and market it."

Champa said this new technology "will revolutionize" amateur radio into the digital world.

"We're exploiting existing technology to make hams more effective," he said.

As the hams continue developing their high-speed network, the general public "will not see us coming," Champa said.

"We may use existing ham radio towers or share with other wireless companies," he said. "It's not that you'll see us coming. We're already there. We're just redeploying or utilizing existing equipment in a digital way."

Champa receives ARRL award

Livingston County's amateur radio club president was recently named the 2003 ARRL Microwave Development Award winner.

The National Association for Amateur Radio group bestowed the award to John Champa, president of Livingston County Amateur Radio Klub, on July 20.

The award recognizes contributions

to microwave equipment design and development.

The board recognized Champa, an ARRL Life Member, for his leadership as chairman of the ARRL High Speed Multimedia Committee and for the development of practical IEEE 802.11 Wi-Fi technology for amateur radio. Wi-Fi is wireless fidelity and is used for wireless networking standards.