Tests show wireless network could jam GPS systems

June 11 2011, By JOELLE TESSLER , AP Technology Writer

New government test results show that a proposed high-speed wireless broadband network being launched by a company called LightSquared could jam GPS systems used for aviation, public safety, military operations and other uses.

The results released this week by a federal working group come amid mounting concern that LightSquared's planned network could cripple GPS systems embedded throughout the nation's infrastructure. And they raise questions about whether the government will allow LightSquared to turn its network on as scheduled next year.

In January the Federal Communications Commission gave LightSquared approval to build a nationwide fourth-generation wireless network that would compete with super-fast systems being rolled out by AT&T and Verizon. The new network will wholesale access to other companies that will rebrand the service under their own names.

The FCC sees the LightSquared network as one part of a broad government push to bring high-speed Internet connections to all Americans. It would cover at least 92 percent of the U.S. by 2015.

But the company's plans have set off alarm bells among GPS equipment makers and the many government agencies and companies that rely on GPS systems, because LightSquared's network would use airwaves right next to those already set aside for GPS. They warn that sensitive satellite receivers - designed to pick up relatively weak signals coming from

space - could be overwhelmed when LightSquared starts sending high-powered signals from as many as 40,000 transmitters on the ground.

"LightSquared's network could cause devastating interference to all different kinds of GPS receivers," said Jim Kirkland, vice president and general counsel of Trimble Navigation Ltd., which makes GPS systems.

Faced with these concerns, the FCC has made clear that LightSquared cannot launch its network until the interference problems are resolved. It is requiring the company to participate in a technical working group with GPS manufacturers and users to study the matter. That group conducted GPS interference tests using LightSquared equipment in Las Vegas last month and will report the results to the FCC next week.

The agency will then seek public comments on the matter. In a statement Friday, the FCC said it "will not allow LightSquared's commercial service to proceed if that would cause widespread harmful interference with GPS."

In the meantime, other test results are coming out.

Results compiled by a working group of the National Executive Committee for Space-Based Positioning, Navigation, and Timing - a government organization that advises and coordinates among federal agencies that rely on GPS technology - found potential for widespread GPS interference. The tests showed that wireless signals from LightSquared's planned network interfered with GPS receivers used by the Coast Guard and NASA and caused Federal Aviation Administration GPS receivers to stop functioning altogether.

The tests - most of which were conducted by various federal agencies at Holloman Air Force Base and White Sands Missile Range in New Mexico in April - also caused GPS receivers used by New Mexico state

police and by fire and ambulance crews to lose reception. In addition, GPS receivers built into farm equipment made by John Deere lost signals, as did most General Motors' OnStar navigation systems.

Last week RTCA, a nonprofit group that advises the FAA, released the results of its own interference tests and found that LightSquared's use of airwaves closest to the GPS spectrum would cause a "complete loss of GPS receiver function" over large metropolitan areas.

Despite the test results released so far, the FCC insists the interference questions are far from settled. "Some of the tests to date may have relied on different assumptions, metrics and mitigation assumptions, and so may not accurately reflect the potential for interference as a result of how the network may be operated," the agency said.

LightSquared executive vice president Jeffrey Carlisle said he remains confident that the company's new network and GPS systems can co-exist. After all, he noted, findings of interference do not come as a surprise. What matters, he said, is what can be done about the interference.

Among the solutions outlined by the government working group: modifying LightSquared's antenna patterns and reducing the power levels of its base stations; limiting the slices of airwaves that LightSquared can use or moving the company to a different part of the spectrum; and installing better filters on GPS receivers to screen out LightSquared's signals.

GPS makers and users are particularly concerned about the final option since they say it could take many years - and possibly billions of dollars - to upgrade all of the GPS receivers in use.

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