

## China's anti-satellite test impacts comments on Loran need

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China's test last week of an anti-satellite missile reinforced the need to continue operation of the ground-based long-range radio navigation (Loran) electronic navigation system as backup to the space-based Global Positioning System, according to public comments on a Transportation Department Web site.

Earlier this month DOT, in conjunction with the Homeland Security Department, asked for public input on whether to shut down the 24-station Loran system operated by the Coast Guard, part of DHS, or to develop a fully deployed enhanced Loran (eLoran) system that could serve as a GPS backup. Comments are due Feb. 7.

Congress has provided the Coast Guard with \$160 million in funding to modernize the 1997 Loran system, and upgraded eLoran stations can provide location accuracies as good as GPS, according to a recent United Kingdom study.

The Chinese test moved the vulnerability of GPS from a theoretical consideration to a real possibility, Nickolaus Leggett told DOT in a comment filed Jan. 22.

The GPS satellites "are a very tempting target for attacks" especially if the United States disables Loran, Leggett said in his comment. The Coast Guard needs to seriously consider the national security value of retaining the Loran in active service, he added.

Mark Wiggins, another commenter, told DOT that GPS is accurate but vulnerable to jamming, spoofing and interference. Wiggins said China's tests show that the GPS satellites are vulnerable to an attack. He urged continued operation of the Loran system. If GPS ever goes down without a backup, "those who pushed for Loran to be shut down will face the music in a very public manner," he said.

Zachariah Conover, president of CrossRate Technology, a start-up company developing eLoran receivers, told Federal Computer Week that since China conducted its test, it has been the most often cited reason to keep eLoran as a GPS backup on the DOT public comment Web page.

Conover said China's test focused a spotlight on a long list of GPS vulnerabilities, "and this is just one more sign that upgrading to eLoran and maintaining the system as a backup to GPS is the right thing to do."

Loran receivers help users determine their locations based on the time interval of signals received from different transmitters. ELoran stations transmit a data channel with as many as 16 messages, including station identification, absolute time and differential correction messages, and are as accurate as GPS, according to a recent U.K. study.

The General Lighthouse Authorities of the United Kingdom and Ireland, which operates Loran stations, said eLoran demonstrated horizontal position accuracy of better than 30 feet, or as accurate as GPS signals available to civil users.