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Boeing and the U.S. Navy's Joint Command and Control ship USS Mount Whitney (LCC 20) recently completed the first successful demonstration of a satellite-based digital television and data service using a phased array antenna system at sea.

The Boeing Aviation Information Services (AIS) antenna system was installed aboard the Mount Whitney, an amphibious command ship carrying a crew of more than 800, which provides command and control for fleet commanders.

Boeing demonstrated live digital broadcast television programming from commercial satellite services; receipt of custom video; and data transfer of large files at rates up to 4.5 megabits per second. Shipboard personnel were provided the opportunity to watch live broadcast television while in Atlantic waters off the coast of Virginia.

Lt. Cmdr. R. Scott Starsman, Mount Whitney's Electronics Maintenance Officer, said, "The test went extremely well. A system of this type would allow for high-bandwidth antenna systems on ships with limited room for conventional antennas."

Another aspect of the demonstration touted the benefit of using real-time video feeds from platforms such as unmanned air vehicles. Feeding live imagery to battle group commanders en route to a potentially hostile area could significantly improve the ability of commanders to make critical decisions real time and permit the warfighters to execute their mission more effectively.

"I found the Navy folks great to work with," Livingston L. Holder, Jr., AIS program manager, said.

"I'm very grateful for the opportunity to test our systems at sea and I'm absolutely ecstatic about how things worked out. Some of the capabilities that were demonstrated are still developmental, but this demonstration indicates that we are moving in the right direction."

The AIS information communication system is based on the phased-array technology developed by Boeing. The AIS antenna system electronically tracks satellites, avoiding the use of mechanical parts that inherently require regular maintenance. The antenna is only 1.2 inches thick, and 2 feet by 3 feet in size, so it can be mounted virtually anywhere. A three-antenna system design could provide horizon-to-horizon coverage without interfering with any of the ship's other sensor or communications systems.

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