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SMC EXPLORES 'LARGE APERTURE SPACECRAFT' FOR INTEL, COMMS MISSIONS

By Amy Butler

Officials at Air Force Space Command are devising a concept called the Large Aperture Spacecraft that could satisfy a number of Air Force and intelligence community control and communications requirements while reducing the footprint necessary for support, according to officials at the California-based Space and Missile Systems Center.

The concept is in its infancy, and it is not considered a formal Air Force program, according to Col. Mike Mantz, SMC's Satellite and Launch Control Office program manger. However, it piqued the interest of Lt. Gen. Brian Arnold, SMC commander and program executive officer for space, who touted the effort as a potential success for space transformation during an April speech at the 18th National Space Symposium in Colorado Springs, CO.

Mantz said the Large Aperture Spacecraft could be used to support the transmission of radio frequency communications from the growing number of Air Force airborne intelligence, surveillance and reconnaissance assets being used in the field.

Transmission of images collected by such aircraft as the Global Hawk unmanned air vehicle and the U-2 and digital television from the Predator UAV uses large amounts of bandwidth. Senior Air Force officials have said the service must find a way to satisfy the bandwidth requirements to deliver the data and to handle command and control for the burgeoning fleet of UAVs in order to properly field them.

"Bringing the data collected by these aircraft to where it can be exploited is a gap in the [tasking, processing, exploitation and dissemination] process," Mantz said in written answers to questions from *Inside the Air Force*. "LAS closes this gap by transporting the collected data back to [the continental United States] and also relays the data to the theater commander (in the field) by providing tactical downlink to a Humvee-towed aperture at a tactical command post in theater."

SMC officials flirted last year with a similar multimission concept called the Global Multimission Service Platform, which would have added a narrowband and wideband communications capability onto the GPS satellite. However, the concept has gained neither traction nor funding. The Large Aperture Spacecraft would also "augment" the advanced narrowband communications mission with L-band "commercial-like" cellular services, Mantz said.

The concept satellites would also be able to maintain continuous contact with launch vehicles and spacecraft from the time they leave the launch pad until the time they are in early orbit, satisfying some of the Air Force's "Space Based Range" requirements, Mantz said. This capability would be a "significant improvement over today's capabilities," he added.

A unique capability that could be tackled by the concept is called the "blue relay" capability. According to Mantz, the Large Aperture Spacecraft could provide "on-demand" communication with spacecraft in low-Earth orbit, medium-Earth orbit and potentially some satellites in geosynchronous orbit.

"This allows zero-delay commanding of spacecraft, and may allow a substantial reduction in the number of Air Force Satellite Control Network (AFSCN) remote tracking stations," Mantz added. "By performing the blue relay mission, LAS may also enable the elimination of crosslinks for [Global Positioning System] III and other programs."