Boeing, Air Force Research Laboratory Sodium Guide Star Laser Enhancing Space Situational Awareness Mission

Improving capability to capture images of objects in Earth orbit

KIRTLAND AIR FORCE BASE, N.M., Oct. 16, 2012 -- A sodium guide star laser built by Boeing [NYSE: BA] and the Air Force Research Laboratory (AFRL) began operating recently on a telescope at Kirtland Air Force Base, greatly increasing the ability of AFRL scientists to acquire detailed images of objects in Earth orbit.

The 50-watt laser, installed on a 3.5-meter telescope at Kirtland's Starfire Optical Range, illuminates sodium atoms in the atmosphere with an intense laser beam. The laser creates an artificial guide star, which is used to measure the blurring effect caused by turbulence in the Earth's atmosphere; an adaptive optics (AO) system uses this measurement to correct the blurring effect. The guide star laser will increase the detail of the images captured from this telescope.

"The addition of this sodium guide star laser, along with improvements to the AO system sensitivity, will make it possible for us to reliably obtain satellite images with more accurate and precise details than ever before," said AFRL Principal Investigator Dennis Montera. "This is a critically important step in increasing our capabilities in space situational awareness."

Boeing has supported the telescopes at Starfire Optical Range for more than 30 years. Under the AFRL's Innovative Research and Optical Support Services contract, Boeing is responsible for improving the site's capability in atmospheric compensation, laser communications, and other technical areas.

"This new guide star laser is an evolutionary step in the maturing of adaptive optics technology. It is much more reliable than the device that has been in use for the past eight years. This improved laser will enable the future development of adaptive optics technology," said David DeYoung, director of Laser Technical Services for Boeing Directed Energy Systems. "The team's achievement of 'first light' is a testament to our close working relationship with the Air Force and our commitment to support current and future missions."

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