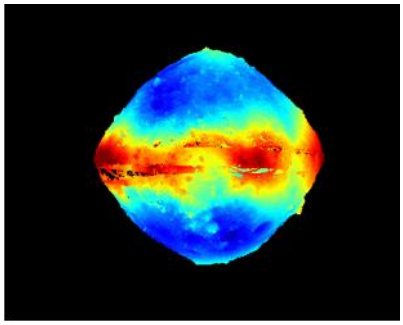
Excelitas Technologies' Avalanche Photodiode (APD) Enables Surface Mapping of Bennu Asteroid by NASA's OSIRIS-REx Spacecraft

Topographical Maps Will Help Identify Sites for Sample Collection



Courtesy of NASA/University of Arizona/CSA/York/MDA

WALTHAM, Mass, April 9, 2019 – Excelitas Technologies® Corp., a global technology leader delivering innovative, customized photonic solutions, which contributed technology to NASA's OSIRIS-REx spacecraft, congratulates NASA, the Canadian Space Agency, the OLA Science Team led by Michael Daly (York University, OLA Instrument Scientist), and MDA (a business unit of Maxar) for the final assembly helping enable the space mission's notable success.

OSIRIS-REx was used to map the surface of Bennu, a near-Earth asteroid. On April 5, NASA released a three-dimensional view of Bennu, created on the spacecraft by the OSIRIS-REx Laser Altimeter (OLA). In February, OLA made more than 11 million measurements of the distance between OSIRIS-REx and Bennu's surface as the spacecraft flew less than 1.2 miles (2 km) above the surface – the closest orbit ever achieved by spacecraft.

"We're proud and humbled to have provided one component that's being used in this historic project," said Eric Desfonds, Excelitas' Product Line Manager, Sensors – Defense and Aerospace. "Dedicated collaboration between the contributing agencies and technology developers makes great scientific achievements possible, as we are beginning to see in the mission's early success."

Excelitas' avalanche photodiode (APD) is the main detector enabling the OSIRIS-REx Laser Altimeter to scan and map the asteroid's entire surface and provide higher-resolution topographical information than ever before possible. The resulting 3-D topographical maps of Bennu, the most detailed ever to be captured of an asteroid, will provide fundamental and unprecedented data to help study asteroid shape and topography and will allow the mission team to select potential sites for sample collection.

Excelitas YAG-enhanced avalanche photodiodes

When sample sites are selected after about sixteen months of comprehensive surface mapping, the spacecraft will deploy a robotic arm to reach out (without landing) and collect at least a 2.1-ounce sample that will be brought back to Earth for study in 2023. NASA's website says the mission "will help scientists investigate how planets formed and how life began, as well as improve our understanding of asteroids that could impact Earth."

The Excelitas APD used for OLA is its C30954EH, a 0.8mm active diameter silicon photodiode that features high quantum efficiency at the YAG-wavelength (1064nm), fast response time, and

wide operating temperature range. This standard product was successfully qualified through the extensive requirements of a deep-space probe.

Excelitas has a long heritage of designing and producing YAG-enhanced APDs used in several space surveying missions. “We look forward to this mission’s conclusion and OSIRIS REx’s safe return to Earth of a sample from the asteroid’s surface – currently targeted for 2023,” said Desfonds.

Excelitas Technologies is exhibiting at SPIE Defense + Commercial Sensing in the Baltimore Convention Center, April 16-18, 2019 (Booth 438). Attendees may visit Excelitas’ booth to learn more, and to discuss their requirements for optical LiDAR payloads and other mission-critical optoelectronics and advanced electronic systems.

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About Excelitas Technologies
Excelitas Technologies® Corp. is a global technology leader focused on delivering innovative, high-performance, market-driven photonic solutions to meet the lighting, optronics, detection and optical technology needs of global customers. Serving a vast array of applications across biomedical, scientific, safety, security, consumer products, semiconductor, industrial manufacturing, defense and aerospace sectors, Excelitas Technologies stands committed to enabling our customers’ success in their end-markets. Excelitas Technologies has approximately 6,700 employees in North America, Europe and Asia, serving customers across the world. Connect with Excelitas on Facebook, LinkedIn and Twitter.

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