

Lockheed Martin Recreates STORRM In Earthbound Lab

DENVER, Sept. 2, 2011 [PRNewswire/](#) -- Lockheed Martin's [NYSE:LMT] state-of-the-art Space Operations Simulation Center (SOSC) has completed its first orbital simulation test with hardware and data that was flown on NASA's STS-134 space shuttle Endeavour mission to the International Space Station. The test for [STORRM](#) (Sensor Test for Orion Relative Navigation Risk Mitigation) demonstrated the center's ability to replicate on-orbit conditions that affect relative navigation, lighting and motion control in space -- providing a simulated space dynamics and lighting environment that is unparalleled in the space industry.

During STS-134, the Endeavour crew successfully tested the STORRM unit's Vision Navigation Sensor (VNS) and Docking Camera during docking and undocking operations with the space station. The flight test represented the first and only opportunity for in-flight collaboration of NASA's three human spaceflight programs -- Space Shuttle, International Space Station and the Orion Multi-Purpose Crew Vehicle ([MPCV](#)).

"The test went perfectly and we were able to recreate the STS-134 STORRM test in a flight-like environment right here on Earth," said John Karas, Vice President and General Manager, Human Space Flight, Lockheed Martin Space Systems Company. "We'll compare the data and telemetry we collected in the lab with the on-orbit data and telemetry to calibrate the SOSC to a real space environment, further increasing the fidelity of this extraordinary facility for future simulations."

The on-orbit test validated the performance of an innovative navigation sensor suite developed for [Orion](#) and other future spacecraft. STORRM demonstrates a robust relative navigation design that provides the required docking accuracy and range capability necessary to meet crew safety, mass, volume and power requirements for a wide variety of future NASA missions, including those into deep space.

The VNS, an eye-safe laser ranging system, was mounted on the SOSC's large motion base carriage which is capable of providing the six degrees of spacecraft motion at equivalent rates in the identical approach and departure trajectories of STS-134. A full-scale, high fidelity mockup of a space station docking port equipped with reflective sensors served as the target environment for this demonstration.

Lockheed Martin's SOSC test environment was used to accurately replicate the hardware, lighting conditions and vehicle motion that was observed on orbit, and validated its ability to provide an on-orbit simulation environment for critical risk mitigation for the Orion spacecraft.

The SOSC represents part of Lockheed Martin's multi-million dollar investment in testing and validating future human spaceflight programs to ensure safe, affordable and sustainable space exploration. This system and other cutting edge capabilities demonstrate how Lockheed Martin employs full-scale motion to test and verify multiple mission scenarios.

STORRM is an innovative technology development effort led by NASA's Multi-Purpose Crew Vehicle Program Office at NASA Johnson Space Center in partnership with NASA Langley Research Center, Lockheed Martin Space Systems Company, and Ball Aerospace & Technologies Corporation. This technology has Earth-bound applications for terrain mapping, robotics, military operations and transportation, including collision avoidance systems for vehicles.

Lockheed Martin is the prime contractor to NASA for the Orion MPCV Program and leads the industry team that includes major subcontractors as well as a nationwide network of minor subcontractors and small businesses. In addition, Lockheed Martin contracts with hundreds of small and disadvantaged business suppliers across the United States through an expansive supply chain network.

Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 126,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The Corporation's 2010 sales from continuing operations were \$45.8 billion.

Photos and Videos are available for download at: www.lockheedmartin.com/orion

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