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Introduction: As the United States and the National Aeronautics and Space Administration (NASA) embark on a new phase of space exploration, Aegis Aerospace continues to blaze a trail for commercial, academic, and government entities to understand the Low-Earth Orbit (LEO) and lunar environments. The Space Science & Technology Evaluation Facility-First Flight (SSTEF-1) project, Aegis Aerospace's latest mission, is a fully-funded 10-kilogram payload scheduled to launch in the first quarter of 2025 with seven technology experiment partners. SSTEF-1 is a unique lunar testbed that will allow these aerospace companies and research institutions to progress their Technology Readiness Level (TRL) to 7 or 8 through lunar surface testing. As a pioneer of commercial lunar testing as a service, SSTEF-1 enables both active and passive experiments to experience the extreme lunar environment and understand its impacts. This allows SSTEF customers to analyze collected experiment data and potentially increase the reliability of their technologies. During development, Aegis Aerospace and our experiment partners are conducting trade studies to enhance lunar operations in extreme environments, thermal control, radiation exposure, regolith mitigation, and other lunar challenges. In addition to environmental trade studies, SSTEF-1 will explore additive materials to minimize the structural mass of the testbed since commercial lunar surface delivery prices are over \$1MM/kg. SSTEF-1 will optimize its power and data resources via efficient avionics, novel electronics designs, and innovative software algorithms to maximize capacity without impacting volume or mass. SSTEF-1 will continue to evolve mission operation adaptability and flexibility by leveraging the Aegis Aerospace Payload Operations Control Center (POCC), which has served for several years operating space platforms and experiments. With this project, SSTEF-1 and future SSTEFs will facilitate further contributions from our aerospace partners to the exploration and development of the Moon while providing NASA with tangible engineering data, technology development, and the lunar environment exposure necessary to safely and successfully carry out sustained human exploration of the Moon.