

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)  
Future Space Transportation Systems Verification and In-Flight Experimentation (6)

Author: Mr. Jason Armstrong  
TriSept Corporation, United States, jarmstrong@trisept.com

ROCKETSTAR SMALL LAUNCH VEHICLE DEMONSTRATION FLIGHT RESULTS

**Abstract**

TriSept Corporation was founded in 1994 as a launch integration and engineering service provider to both government and commercial customers. TriSept and its personnel offer extensive experience in both large spacecraft and small satellite dedicated and rideshare missions. Direct participants in the launch of 200+ satellites on 70 missions using 21 different launch vehicles from 13 different launch sites. RocketStar, LLC is a small satellite launch provider, which uses its proprietary aerospike engine for full reusability with minimal turnaround times, unparalleled efficiency and industry-disrupting cost effectiveness. Additionally, RocketStar has co-developed the ConstantQ fusion thruster for satellites and spacecraft and hypersonic consulting services on a wide range of applications. The paper will focus on the new vehicle's innovative approach to rapid, reusable and low-cost production and launch coupled with TriSept's proven experience in small satellite integration and launch to help fill a much-needed gap within the small satellite industry for available, reliable, cost-effective space launch services. Additionally we will discuss the experimental payload onboard the flight provided by Lunasonde with TriSept Secure Embedded Linux (TSEL) operating system (OS) installed. It will address the following details: • Aerospike engine design, development and testing • Vehicle structure, rapid production approach, and flight test results • Sub-Orbital flight testing plan path to orbital • Multi-Payload accommodations • Manifesting and integration process • Current timeline for additional 2022 demonstration flights and path to orbital insertion missions