Department of the Navy SBIR/STTR Transition Program

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NAVWAR HQCA-2022-A-008

Topic # N193-149
Satellite Communications Antenna Pointing for Positioning (SCAPP)
Caliola Engineering LLC

WHO

SYSCOM: NAVWAR

Sponsoring Program: NAVWAR, Program Executive Office Command, Control, Communications, Computers, and Intelligence (PEO C4I)

Transition Target: Global Positioning System (GPS)-Based Positioning, Navigation, and Timing System (GPNTS)

TPOC: (619) 524-4519

Other Transition Opportunities: Defense Advanced GPS Receivers (DAGR), Mounted Assured Positioning, Navigation, and Timing System (MAPS), Naval Computer and Telecommunication Station (NCTS)

Image Courtesy of Caliola 2022

Notes: SATCOM Antenna Pointing for Positioning (SCAPP) as alternative to GPS

WHAT

Operational Need and Improvement: Alternative Position, Navigation, and Timing (A-PNT) for GPS denied environment

Specifications Required: Provide accurate position and timing estimate to enable navigation in GPS denied environment consistent to the platform performance requirement.

Technology Developed: Caliola developed Satellite Communications (SATCOM) Antenna Pointing for Positioning (SCAPP) to use existing satellite communication infrastructure for position determination in GPS denied environment.

Alternative technologies to provide equivalent solution require extensive hardware and software development. The associated cost and time required for new hardware & software development is substantially higher than the software only solution provided by SCAPP. The unique approach of using existing communication satellite infrastructure for positioning when GPS is denied address a critical need to provide alternative solution for navigation.

Warfighter Value: SCAPP is a software solution that enables navigation without GPS using existing SATCOM and Position, Navigation, and Timing (PNT) infrastructure

WHEN

Contract Number: N68335-21-C-0771 **Ending on:** Oct 07, 2022

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Risk Reduction Demonstration	Low	Successfully demonstrated functional software prototype in lab	4	4th QTR FY22
Real-Time Demonstration	Low	Successfully demonstrated functional software prototype in relevant environment	5	4th QTR FY23
Integrated Demonstration	Medium	Successfully demonstrated functional software prototype in an operational environment	6	4th QTR FY24

HOW

Projected Business Model: SCAPP is an alternative PNT source which can be integrated with enterprise PNT engines to provide robust and resilient PNT solution when GPS is not available. Caliola intends to integrate SCAPP technology with the Navy GPNTS with a goal of establishing presence in the alternative PNT market.

Company Objectives: SCAPP capability extension to Low Earth Orbit (LEO) satellites and integration with other PNT engines either directly through DoD or prime system integrators.

Focused Research & Development (R&D) in Alternative Position, Navigation, and Timing (A-PNT) algorithm and architecture development for GPS denied environment with systems design and development for functional verification & capability demonstration

Potential Commercial Applications: Trucking and Delivery companies

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