Department of the Navy SBIR/STTR Transition Program

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NAVWAR HQCA-2023-A-146 N68335-22-C-0216 Advanced Radio Frequency (RF) Photonic Integrated Circuit (PIC

Topic # N203-149
Advanced Radio Frequency (RF) Photonic Integrated Circuit (PIC)
Phase Sensitive Innovations, Inc.

WHO

SYSCOM: NAVWAR

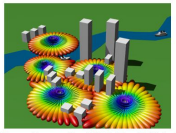
Sponsoring Program: NAVWAR

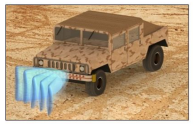
Transition Target: Phase III Luneburg Lens Project

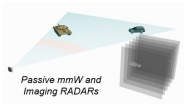
TPOC: (564) 226-7339

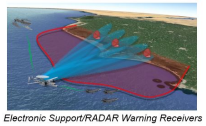
Other Transition Opportunities: Communications (5G/6G, RF Photonic Links)

Notes:


Cell tower/Comms Spatial Division Multiplexing


Next Generation Autonomous Sensors


Passive mmW and Imaging RADARs


Electronic Support/RADAR Warning Receivers

PSI

WHAT

Operational Need and Improvement: General purpose RF Photonic links from Photonic Integrated Circuit technology allow for wideband operation in a small form factor.

Specifications Required: Frequency coverage 1 to 40 GHz (minimum) 5dB/K G/T (Gain over System Noise Temperature 30-35 dBW EIRP (effective isotropic Radiative Power).

Technology Developed: We are developing photonic integrated circuit technology as enabling components in support of broadband RF communications systems.

Warfighter Value: Agile, broadband spectrum coverage to support communications across multiple platforms and frequencies in SWaP constrained environments. Imaging of the environment provides real-time views of spatial locations of signals in congested environments and supports identification and tracking of critical signals.

WHEN

Contract Number: N68335-22-C-0216 **Ending on:** Sep 30, 2023

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Single Channel RF Photonic Transmit and Receive Module development	Medium	Single channel test which demonstrates close to or exceeding the required specifications	6	TBD

HOW

Projected Business Model: Leverage trade shows and STP primes to commercialize single module (SATCOM Transceiver). Utilize upcoming Phase III program to develop multi-channel Luneburg Lens based RF Photonic link.

Company Objectives: To develop Passive millimeter wave and RF Photonic imaging technology for DoD and commercial applications.

Potential Commercial Applications: Terrestrial RF Photonic links, 5G/6G Remote heads/optical backhaul, and RADAR.

Contact: Mr. Chase Stine, Dr. Timothy Creazzo, Photonic Integrated Circuit Engineer, Director of Photonics
stine@phasesensitiveinc.com (302) 286-5191