

Department of the Navy SBIR/STTR Transition Program

STATEMENT A. Approved for public release; distribution is unlimited. ONR

Approval # 43-1256-16

Topic # N101-080

Multi Band SAL Seeker Read Out Integrated Circuit (ROIC)

Privatran

WHO

SYSCOM: ONR

Sponsoring Program: ONR Semi Active Laser (SAL) Seeker Technology Upgrade

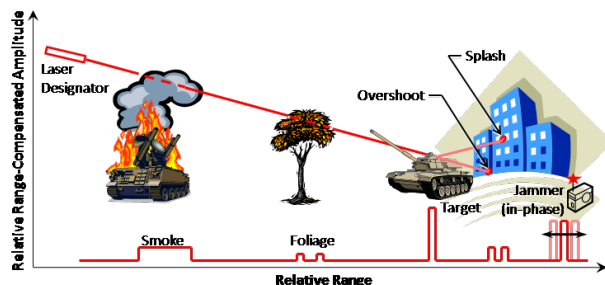
Transition Target: Navy SAL Seeker Weapon Systems

TPOC:

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Other transition opportunities: Next Generation SAL seekers, guidance systems, and designators, SAL and battlefield laser targeting sensors



SAL Seeker Engagement False Return Problem
(Copyright 2009 PrivaTran)

WHAT

Operational Need and Improvement: Currently deployed SAL seekers utilize quad detectors operating in eye-hazardous laser frequencies developed for rural open battle fields which endanger non-combatants eyesight in urban battle fields

Specifications Required: Dual-band, both eye-hazardous to be backward compatible, and eye safe. ROIC supports expansion to much larger detector arrays (8x8 to 128x128) in the same active optical area as the conventional quad-cell systems. Detector array integrated directly onto the ROIC resulting in a single chip integrated detector and processing electronics with reduced SWAP.

Technology Developed: SAL Seeker ROIC supporting multiple band operation and integration to larger detector arrays (8x8 to 128x128) backward compatible to existing systems.

Warfighter Value: Eye safe laser frequencies for urban battlefields, greater number of detectors on the target for high timing accuracy, precision guidance, improved weapons delivery accuracy, higher resistance to false targets, enhanced jammer discrimination, and increased overall weapon systems effectiveness.

WHEN

Contract Number: N00014-14-C-0297 Ending on: March 11, 2016

| Milestone | Risk Level | Measure of Success | Ending TRL | Date |
|--|------------|--|------------|---------------|
| Fabrication and Test of SAL Seeker ROIC - Base | Low | Breadboard demonstration of SAL Seeker ROIC functionality | 5 | February 2016 |
| Demonstration of SAL Seeker detector/ROIC in SAL missile - Option #1 | Med | Demonstrate SAL Seeker in Raytheon dSAL system | 6 | November 2016 |
| Fabrication and Test of SAL Seeker 32x32 detector / ROIC - Option #2 | Med | Breadboard demonstration of SAL Seeker 32x32 detector / ROIC functionality | 5 | May 2017 |
| Demonstration of SAL Seeker 32x32 detector / ROIC - Option #2 | Med | Demonstrate SAL Seeker 32x32 detector / ROIC in Raytheon dSAL system | 6 | November 2017 |

HOW

Projected Business Model: PrivaTran will purchase the detector arrays, fabricate the PrivaTran ROIC's, and then integrate the detector arrays onto the ROIC using bump bonding at a vendor. PrivaTran will then test the integrated detector arrays with ROIC, and deliver this tested SAL Seeker sensor to the Prime Contractor for further integration into a SAL Seeker weapon system. Funding in this NAVY Phase II SBIR will pay for the ROIC development during the Base Program, integration of an off the shelf detector array and the ROIC into the Raytheon dSAL system during the Option 1 program, and then the development of a custom 32x32 detector array and ROIC during the Option 2 program.

PrivaTran will seek development contracts from the Navy weapon systems programs and Prime Contractors to develop additional specific SAL Seeker Sensors (detector arrays integrated with PrivaTran ROICs for specific SAL Seeker Weapon system programs.

Company Objectives: PrivaTran will become the primary supplier for Next Gen SAL Seeker ROIC technologies for use in US Government SAL Seeker Weapon Systems using a standard ROIC cell design enabling use with detector array sizes 8x8 to 128x128, and multiple operating wavelengths.

Potential Commercial Applications: The development of eye-safe lasers could open up commercial applications of semi-active laser guidance packages, which are now restricted by safety concerns around the eye-hazardous 1.06 micron lasers.

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