Small Business Innovation Research/Small Business Tech Transfer

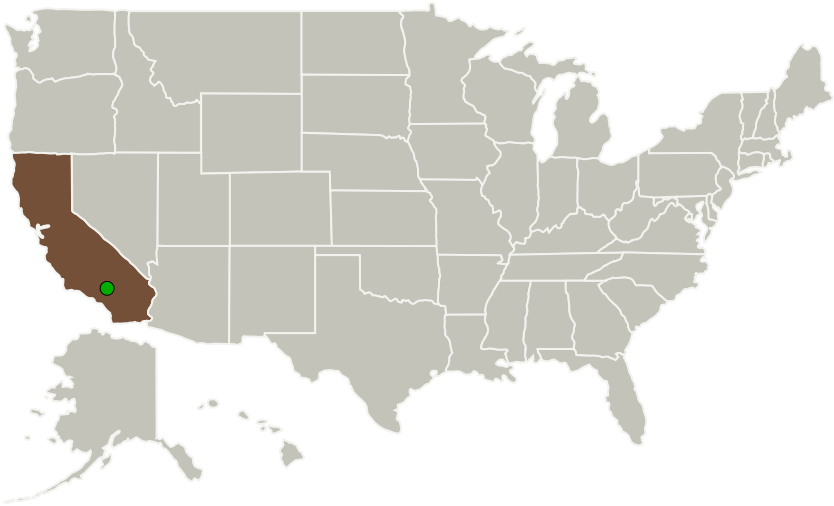
Rugged, Compact, and Inexpensive Airborne Fiber Sensor Interrogator Based on a Monolithic Tunable Laser, Phase I

Completed Technology Project (2015 - 2015)

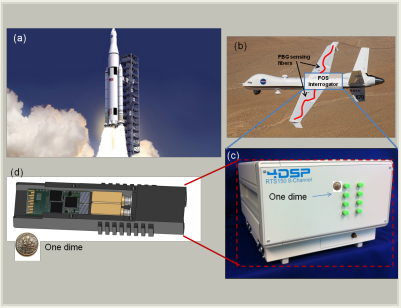
Project Introduction

In this program, Freedom Photonics will develop and build a robust, low C-SWaP laser source with improved performance over current technology, to be incorporated into improved FOS interrogator systems. The laser will be 40nm continuously tunable around C-band, with fast sweep rate. The laser interrogator module to be developed will be based on our advanced monolithic, fast-tunable laser and receiver technology, leading to ultra-low SWaP with smaller FOS laser interrogator module, two orders of magnitude smaller than existing technology, and interrogator mass less than 100 grams. The configuration will be rugged, compatible with fuel, fuel vapor, shock, and vibration.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Freedom Photonics, LLC	Lead Organization	Industry	Santa Barbara, California
Armstrong Flight Research Center(AFRC)	Supporting Organization	NASA Center	Edwards, California



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Rugged, Compact, and Inexpensive Airborne Fiber Sensor Interrogator Based on a Monolithic Tunable Laser, Phase I

Completed Technology Project (2015 - 2015)

Primary U.S. Work Locations

California

Project Transitions

June 2015: Project Start

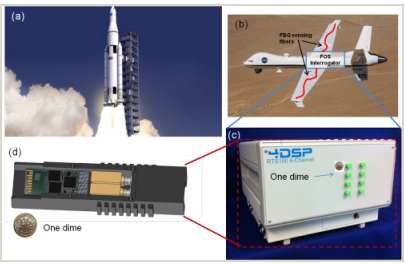
December 2015: Closed out

Closeout Summary: Rugged, Compact, and Inexpensive Airborne Fiber Sensor Interrogator Based on a Monolithic Tunable Laser, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/139302)*

Images



Briefing Chart Image
Rugged, Compact, and Inexpensive Airborne Fiber Sensor Interrogator Based on a Monolithic Tunable Laser, Phase I *(https://techport.nasa.gov/image/130114)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Freedom Photonics, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

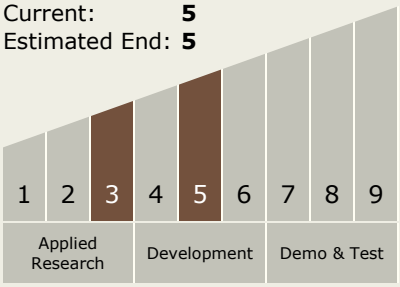
Carlos Torrez

Principal Investigator:

Daniel Renner

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  └ TX08.3 In-Situ Instruments and Sensors
    └ TX08.3.4 Environment Sensors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System