

TOPIC NUMBER:

AF132-001

TOPIC TITLE:

Aircraft Mission
Planning Equipment
Obsolescence

CONTRACT

NUMBER:

FA8750-15-C-0151
FA8750-14-C-0218

SBIR

COMPANY

NAME:

Physical Optics
Corp.,
Torrance, CA

TECHNICAL

PROJECT

OFFICE:

AFRL Information
Directorate
Rome, NY

PUBLISHED:

June 2016



Support from the Air Force SBIR/STTR Program helped small business tackle a looming problem aboard the F-15 and the solution may also be applicable to other aircraft platforms. (Courtesy photo)

EMERGING TECHNOLOGY

ENSURES DELIVERY OF MISSION CRITICAL DATA

As commercial market support for devices to upload mission data in older aircraft ground to a halt, the Air Force faced a critical issue.

The devices, based on aging PC technology, were quickly becoming obsolete. That prompted a collaboration between the Air Force Life Cycle Management Center Engineering Avionics Division and the Air Force Research Laboratory.

Traditional development methods could have taken many years to produce results, so officials turned to the Air Force Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program to form a partnership – and find an innovative fix – with California-based Physical Optics Corp.

In less than three years, the company provided a low-risk strategy to mitigate immediate obsolescence issues and outlined an optional, longer-term path to a fully modern digital storage solution.

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BEHIND THE TECHNOLOGY

Physical Optics, a women-owned small business, worked to address the Air Force's need for a data transfer device that maintained compatibility with existing mission planning equipment and aircraft data recording sources. The company examined several platforms, focusing on the interfaces, to develop an open-systems architecture.

The result was Digital Aircraft Data Storage, also known as DADS, a promising new solution that requires no aircraft harness rewiring or operational flight program modifications. Additionally, DADS addressed outdated data transmission speeds and storage limitations while providing functionality that supports newer system developments, such as radar upgrades.

SBIR/STTR SUPPORT WAS VITAL

The Air Force SBIR/STTR Commercialization Readiness Program provided a transition agent for the company through the process. This personal guide was a consistent and engaged champion to ensure Physical Optics and its government customers kept moving towards successful transition.

Additional funding through the Commercialization Readiness Program allowed Physical Optics to mature the product in a shorter time. Without this support, company officials say it is possible the results would not have met the same performance standards or the project could have come to a halt.

The company has since built prototypes for testing and integration validation.

POISED TO MAKE AN EVEN BIGGER IMPACT

Physical Optics' new DADS product has attracted millions of dollars in Phase III funding - investments coming from beyond the Air Force SBIR program - and is in the process of being transitioned to the F-15.

The Air Force Life Cycle Management Center Engineering Avionics Division was the technical lead on the transition effort and the primary connection to the F-15 program office.

However, the even bigger impact is the potential for this flexible solution to be adopted beyond the F-15. Physical Optics' modular design and open standards make DADS a prime candidate for a common Air Force data transfer and recording solution that can be used with slight modification for other platforms.



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AFRL/SB | 1864 4TH STREET | WRIGHT-PATTERSON AIR FORCE BASE | OHIO | 45433
COMM: 800-222-0336 | FAX: 937-255-2219 | INFO@AFSBIRSTTR.COM | WWW.AFSBIRSTTR.COM