

WHO

SYSCOM: ONR
Sponsoring Program:
Transition Target: PEO IWS 2.0 (Directed Energy)
TPOC:
Mr. Peter Morrison
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Other transition opportunities: Other High Energy Laser Programs
Notes: This image shows the high power isolator prototype.

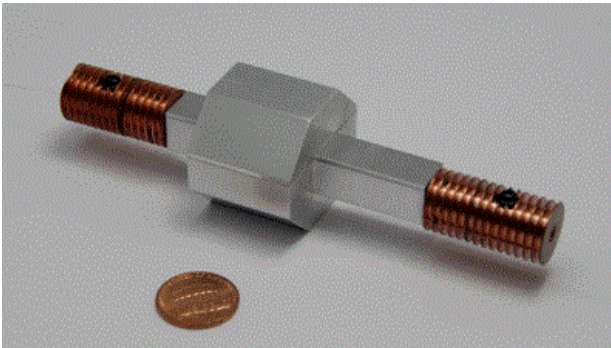


Image courtesy Photonwares, Inc.

WHAT

Operational Need and Improvement: Development of fiber coupled optical isolators with high power handling capability, low insertion loss, and high isolation, while minimizing volume and weight over current state-of-the-art.

Specifications Required: This solicitation seeks improvements in the backward power handling capability to reach values greater than or equal to 40 W. Also desired is a reduction by half in mass and volume over current state-of-the-art (currently 20x14x50mm, 57g), with an insertion loss of less than 1.5 dB, and isolation greater than or equal to 25 dB.

Technology Developed: in order to enhance the high power handle capability and compact package size, we developed several novel technologies such as beam expanding, cladding mode stripping, efficient heat dissipation and new core configuration as well as backward light dumping.

Warfighter Value: By using this kind of high power optical isolator, the high energy laser source output power can be increased into multi-kW level or higher. Also, its miniature and light weight package and high reliability is good for airborne platform applications.

WHEN

Contract Number: N68335-19-C-0593 Ending on: July 6, 2023

Milestone	Risk Level	Measure of Success	Ending TRL	Date
miniature isolator core development	Med	low loss and high isolation	4	3rd QTR FY20
high power fiber collimator development	High	low insertion loss and high power handling	4	1st QTR FY21
high power isolator prototype	High	optical performance and high power test	4	2nd QTR FY21
optical performance improvement	Med	low insertion loss and high power test	4	3rd QTR FY21

HOW

Projected Business Model: We will manufacture this new class isolators in our production line. Lockheed Martin is waiting for samples to high power test and several customers have ordered isolators for their high power fiber laser projects.

Company Objectives: Photonwares will merge this technology into our current high power optical isolator production line and gradually increase sales revenue, Meanwhile, we will continue to develop this class isolator to become an industry leader in this product.

Potential Commercial Applications: This new class high power isolator will be used in Navy high energy laser systems. and it can also be widely used in commercial fiber laser industry such as laser welding, marking, and cutting application.