

Topic: N142-109

Tethers Unlimited, Inc.

Micro MAD Sensor Towing System Phase II

The Tethers Unlimited, Inc. (TUI) Micro MAD-Tow System combines next-generation Magnetic Anomaly Detection (MAD) sensors with a state-of-the-art reeling machine for Anti-Submarine Warfare (ASW) operations. The MAD system – including MAD auto-detection processing – is contained within the MAD pod and easily integrates with MQ-8C, MH60R/S, or any platform with a 14-inch bomb rack and communicates via standard data busses. The System offers a tenfold improvement in detection performance and weighs a fraction of the legacy AN/ASQ-81 due to significant reductions in SWaP. Tethers Unlimited provides capability enhancements and cost savings for aerospace and defense customers, successfully completing over 100 contracts to bring new technologies to market. TUI is interested in licensing the technology to Northrop Grumman and performing Low-Rate Initial Production for up to 50 units.

Technology Category Alignment:

Rotary Wing Vehicles

Unmanned Ground and Sea Vehicles

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SYSCOM: NAVAIR

Contract: N68335-16-C-0128

Department of the Navy SBIR/STTR Transition Program

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WHO

SYSCOM: NAVAIR

Sponsoring Program: PMA 266

Transition Target: MQ-8C Firescout

TPOC:

(301)342-2552

Other transition opportunities:

MH-60R/S



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WHAT

Operational Need and Improvement: This technology will enhance ASW capabilities by providing significant improvements in Size, Weight and Power (SWaP) for a towed Magnetic Anomaly Detector (MAD) System that will deploy, tow, and recover a small MAD sensor compatible with rotary-wing manned (MH-60R/S) and Vertical Take-Off Unmanned Aerial Vehicle (VTUAV) (Fire Scout MQ-8C) platforms.

Specifications Required: System Mass: Less than 50 lbs

Tow cable deployment distance: up to 300 feet

Tow body roll, pitch, yaw excursions: less than +/- 0.5 degrees

Tow body altitude excursions: less than +/- 6 inches

Operational Airspeed: 50-140 knots

Tow body and cable must be not-magnetic

Command Interface: MIL-STD 1553 or Ethernet

Electrical Interface: MIL-STD 1760-E

Mechanical Interface: MIL-STD-8591 (100 lb weight class)

Technology Developed: The Micro MAD-Tow System builds upon next-generation ultra-compact MAD sensors, enabling flow-down reductions in size, weight, power and cost of each sub-system, resulting in order of magnitude improvement in the towed body's SWaP and dramatically reduced overall system weight.

Warfighter Value: The Micro MAD-Tow System will have many benefits for the US Navy Warfighter. Its podded design will enable a wide variety of rotary wing aircraft to perform ASW missions while improving detection performance over legacy systems. The system SWaP is low enough for integration with the MQ-8C platform, which is capable of much longer mission duration than manned rotary wing ASW platforms. Operated in concert with acoustic sensors, the system offers more persistent, effective, and versatile ASW capabilities, in order to increase US Navy maritime dominance and warfighter safety.

WHEN

Contract Number: N68335-16-C-0128 **Ending on:** January 6, 2018

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Phase II Year 1	Med	Integrated system functional testing	5	January 2017
Phase II Year 2	Med	Flight testing of pre-production prototype	6	January 2018
Phase II Option	Med	Qualification of pre-production prototype	7	January 2019
Phase III	Med	Transition to low rate initial production	8	January 2020

HOW

Projected Business Model: Tethers Unlimited, Inc. (TUI) is interested in licensing this technology to Northrop Grumman for integration with the MQ-8C. TUI can perform Low-Rate Initial Production of up to 50 units in the Phase III with a plan for full-rate production by the end of the Phase III.

Company Objectives: Tethers Unlimited, Inc. (TUI) is interested in working with NAVAIR and industry primes to develop spin-off applications for the Micro MAD-Tow System technologies, which could include towing radar and IR decoys, radiological atmospheric sampling, and naval mine-hunting acoustic sensors and LIDAR sensors.

Potential Commercial Applications: The Micro MAD-Tow System can be utilized for commercial applications including magnetic resource assessment surveys, unexploded ordnance (UXO) detection and location surveys, and pipeline and power-line aerial surveys.

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