

Topic: N141-007

Mechanical Solutions, Inc.

Automated Warhead Characterization System (AWCS)

MSI's Automated Warhead Characterization System (AWCS) is an optical software / hardware solution for enhanced arena testing. The AWCS will acquire stereoscopic video of fragments, and will correlate fragments with parameters of interest through advanced post-test image processing. Enhanced data and reduced turnaround with streamlined operation will be enabled by the AWCS for arena tests. The enhanced data will facilitate expanded battlefield targeting opportunities, a sustained competitive advantage. AWCS target markets include the China Lake (NAVAIR), Eglin (Air Force) and Aberdeen (Army) arena test facilities. Extensive engineering design, development and analysis services, and product solutions comprise MSI's capabilities. Potential collaborators will be well versed in arena test data acquisition/ analysis, and/ or will have developed applicable optical data acquisition/ processing systems for DoD.

Technology Category Alignment:

Sensors

Weapons Technologies

Modeling, Simulation & Test Infrastructure

Ordnance

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SYSCOM: NAVAIR

Contract: N68936-15-C-0042

 Corporate Brochure: https://navystp.com/vtm/open_file?type=brochure&id=N68936-15-C-0042

Department of the Navy SBIR/STTR Transition Program

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NAVAIR 2016-851

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WHO

SYSCOM: NAVAIR

Sponsoring Program: PEO (U&W), PMA-201

Transition Target: Arena Testing, NAWCWD

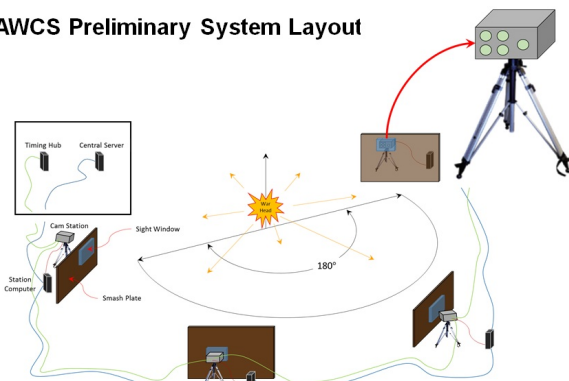
TPOC:
(760)939-3942

Other transition opportunities:

Navy NSWCCD, E41; Army ATEC; Air Force AFMC 96 RANSS/RNRI, AFMC 96 RANSS/RNRS and AFMC 780 TS/OGMTT

Notes: NAVAIR PMA-242, PMA-241 and PMA-257 are interested; the AGM-154 Joint Standoff Weapon (JSOW) and AGM-88E Advanced Anti-Radiation Guided Missile Weapon platforms will benefit initially. Small to large munitions and air-to-ground, air-to-air, and surface-to-surface weapons all can gain enhanced warhead characterizations that expand targeting prospects for the warfighter.

AWCS Preliminary System Layout



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WHAT

Operational Need and Improvement: Due to potential collateral damage, desirable targets may become off-limits. The modern warfighter needs expanded targeting opportunities. The enhanced warhead characterizations enabled by the AWCS will achieve this goal.

Specifications Required:

Technology Developed: MSI's AWCS is a revolutionary hardware/software-based, high performance video imaging solution to enhance warhead characterizations. Advanced image processing algorithms, largely automated calibration, a built-in test planning tool, and camera hardware extensibility are key AWCS attributes.

Warfighter Value: Widely expanded targeting opportunities for the modern warfighter will be possible through the enhanced warhead characterizations enabled by the AWCS.

WHEN

Contract Number: N68936-15-C-0042 **Ending on:** September 15, 2017

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Phase II Completion	Med	Delivered/ demonstrated P2 AWCS.	6+	September 2017
Phase II Option Completion	Med	Enhanced performance/ coverage.	7	September 2018
Phase II/ CRP Completion	Med	MIL-Hardened w/ optimal performance/ coverage.	8-9	September 2020

HOW

Projected Business Model: NAWC-WD's Warhead Test Facility (Navy) is the initial AWCS customer. Potential DoD sales customers include Eglin (Air Force), Dahlgren (Navy), Aberdeen Proving Ground (Army) and Huntsville (Army). Government agencies and defense contractors which operate similar test ranges also are potential future AWCS sales customers. To expand this market, MSI will investigate AWCS variants with feature sets tailored to individual customer requirements. Initially MSI intends to manufacture the AWCS, and for future commercialization phases MSI is investigating the licensing of the AWCS technology.

Company Objectives: After the technical development and delivery of the Phase II AWCS to NAVAIR, MSI will refine and expand the AWCS technology via the Phase II Option and the Navy CRP, achieve DoD commercialization, and establish commercial sales while broadening the DoD business

Potential Commercial Applications: Potential commercial applications include test facilities for automotive and architectural glass fragmentation behavior. With tightly defined standards for glass fragmentation characteristics, MSI estimates this is a \$40M+ global market.

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