

USMC-SPONSORED GBAD CAPABILITY DEMONSTRATION (USGCD) STATEMENT OF WORK (SOW)

1.0 SCOPE. The objective of the United States Marine Corps (USMC) Ground Based Air Defense (GBAD) Capability Demonstration (USGCD) is to collect data on the demonstrated capability of short range, ground based air defense systems as described in this Statement of Work (SOW) and the USGCD Performance Specification. This capability is to be demonstrated at a government specified exercise. This SOW specifies the tasks necessary to accomplish these objectives. The Contractor is responsible for the transportation of a contractor-owned USGCD system, the demonstration of interoperability of the USGCD with both the Control System (CS) and a tactical launch platform, and the successful intercept of a representative threat UAS.

2.0 APPLICABLE DOCUMENTS. The Government will accept contractor formatted written deliverables and will permit the use of Contractor processes. Although electronic delivery is required, this does not imply that every document must be in electronic format. The use of commercial specifications and standards is encouraged. The following documents are cited, as guidance only, for use on the USGCD effort.

2.1 MILITARY SPECIFICATIONS & STANDARDS

MIL-HDBK-881B

2.2 COMMERCIAL STANDARDS

- ANSI/EIA 632, *Processes for Engineering a System*
- IEEE 1220, *Application and Management of the Systems Engineering*

3.0 REQUIREMENTS

3.1 SYSTEM DEVELOPMENT. The contractor shall provide all engineering, design, manufacturing, procurement, integration, test, and support efforts for the USGCD, prior to start of the demonstration. This effort shall provide a contractor-owned USGCD system that meets the requirements of the USGCD Performance Specification and is safe and adequate for live fire during the demonstration.

3.1.1 PROTOTYPES. The contractor shall provide at least one (1) contractor-owned end item prototype system to be delivered for demonstration.

3.1.2 OPERATIONAL PROCEDURES. The contractor shall develop procedures for the safe control and launch of the system at the USGCD. These procedures shall include all efforts necessary to implement and execute the negation effort. For example, for a missile system, these procedures shall include loading and unloading procedures and instructions. Where applicable, procedures may require execution by Government representatives. An example of Government execution would

be loading and unloading of live ordnance. These procedures shall be implemented by the contractor and observed by the Government during the demonstration.

3.2 SYSTEMS ENGINEERING. The Contractor shall employ a systems engineering process. The process employed shall include technical and technical management processes, as appropriate.

3.2.1 DESIGN SOLUTION, IMPLEMENTATION AND INTEGRATION/VERIFICATION. During the course of this contract, the contractor shall develop a detailed USGCD design and build a contractor-owned prototype USGCD that meets the requirements detailed in the Performance Specification.

3.2.2 SYSTEMS ENGINEERING TECHICAL MANAGEMENT.

3.2.2.1 COST AS AN INDEPENDENT VARIABLE (CAIV). As part of systems engineering technical management activities, the Contractor shall estimate target unit procurement cost for a production USGCD and deliver to the government in the final report.

3.2.2.2 RISK MANAGEMENT. The Contractor shall implement a risk management program. The risk management program shall include an analysis, identification, and outline of specific areas of risk and associated mitigation strategies. The contractor shall have a risk management plan on hand two weeks after a rough test plan and rough schedule of events is provided. The contractor shall update the plan as necessary as well as provide a copy to the government anytime during the period of performance. The period of performance for this effort is for one year after date of contract award.

3.3 MANAGEMENT AND TECHNICAL REVIEWS. The Contractor shall prepare for and conduct design reviews In Accordance With (IAW) internal processes.

3.3.1 COMBINED MANAGEMENT/TECHNICAL REVIEW. The contractor shall prepare a presentation suitable for a formal review containing elements of both a Management and Technical Review In Order To (IOT) ensure system and personnel readiness to participate in the demonstration. This review shall include an assessment of system safety, and shall be conducted with government representatives in attendance.

3.3.2 IN PROGRESS REVIEW (IPR). The contractor shall prepare a presentation suitable for a formal IPR Not Later Than (NLT) February 2011. The IPR shall be conducted at the Contractor's facility.

3.4 PROGRAM MANAGEMENT. The Contractor shall provide the management effort necessary to ensure the on-schedule completion of the design and construction of the contractor-owned USGCD system and all reporting requirements.

The Contractor shall identify and resolve all problems arising during contract performance that could impact the on-schedule completion of the USGCD effort.

3.4.1 PROGRAM SCHEDULE. The contractor shall develop a schedule depicting task relationships, order, and duration for USGCD development, integration, and management activities. The contractor shall deliver a program schedule two weeks after a rough test plan and rough schedule of events is provided. The contractor shall update the schedule as necessary and provide a copy to the Government. The contractor shall notify the Government immediately when there is a change to the program schedule.

3.5 SYSTEM DEMONSTRATION AND EVALUATION. The contractor shall implement a demonstration and evaluation strategy for the contractor-owned USGCD system that complies with all policies, rules, and regulations associated with the demonstration. The contractor is responsible for attendance at all government directed USGCD planning conferences and any/all additional coordination with demonstration organizers. The contractor shall provide all equipment and be responsible for recording and analyzing all data. The contractor shall provide personnel to operate and support the USGCD system during the demonstration. Additionally, the contractor shall provide for adequate work space (i.e., tables, chairs, tent/trailer, etc...) for contractor personnel and up to five government representatives on site at the demonstration.

3.5.1 INITIAL PLANNING CONFERENCE (IPC). The Contractor shall attend the IPC, currently scheduled for December 2010.

3.5.2 FINAL PLANNING CONFERENCE (FPC). The Contractor shall attend the FPC, currently scheduled for March 2011.

3.5.3 CONDUCT OF DEMONSTRATION. The Contractor shall conduct the demonstration of the contractor-owned USGCD system during the USGCD event in July/August 2011. System effectiveness will be demonstrated against a government approved target flying a government approved profile.

3.5.3.1 KINETIC ENERGY EFFECTOR. If the Contractor demonstrates a kinetic energy solution, the results of the kinetic energy effector demonstration shall be further extrapolated via modeling and simulation to provide an assessment of its P_k against the UAS representative threats. Analyses shall pay close attention to the existence / non-existence of a warhead, the capabilities of any fusing function and how it may or may not require modification to effectively prosecute engagements and intercepts of this target class.

3.5.3.2 NON-KINETIC ENERGY EFFECTOR. If the Contractor demonstrates a non-kinetic energy solution, the Contractor shall provide an assessment of the type of kill and/ or kill mechanisms and the demonstrated capabilities of the weaponized system to accomplish these kills. This assessment shall be provided in two steps: first, as an integral portion of the exercise, the offeror shall provide a real-time or near-real-time assessment of its weaponized system's performance; and second, as part of the post exercise data analyses, the Contractor shall provide an assessment of its real-time

/ near-real-time assessment capabilities and identify limitations. For its limitations, the Contractor shall identify at least one and / or more risk reduction path(s) to a tactical configuration.

3.5.4 DATA COLLECTION AND FINAL REPORT. The Contractor shall make all data collected during the USGCD event available to the government. Additionally, the Contractor shall provide the quick-look report no later than 30 days of the completion of the USGCD live fire event and a final report no later than 90 days after the completion of the USGCD live fire event. The quick look report will follow the format specified at the event planning conferences. The final report may follow a Contractor specified and government approved format, and shall include an evaluation of system performance, to include the results of post demonstration analysis and any modeling and simulation. All data and data reduction programs, tools and techniques shall be provided to Government as deliverables. Data reduction programs, tools and techniques shall be based on commercially available software packages and shall be adequately and comprehensively documented for their utilization.

3.5.5 LOG BOOKS. Engineering log books and system records shall be maintained by the Contractor and made available to the Government during the USGCD to characterize the capabilities and limitations of the system.

3.6 SUPPORT SYSTEM. The Contractor shall supply the government with a written document detailing support system requirements no later than 60 days prior to the beginning of the demonstration. Support system requirements are items such as generators, wireless/wired network equipment, etc. Support system equipment may be provided by the Government if available on site, otherwise the Contractor shall be responsible for all support system requirements for the USGCD.

3.7 SYSTEM TRAINING. The contractor shall establish the manpower and training requirements for operation and support of the USGCD system at the demonstration and provide training for Contractor personnel upon request.

3.7.1 TRAINING OF GOVERNMENT PERSONNEL. The system shall be trainable to a Low Altitude Air Defense (LAAD) Battalion Marine. The Contractor shall provide a ½ day training class to the USMC Air Defense Weapons Systems Program Office and clearly and unequivocally identify and / or demonstrate the activities associated with safe and successful operation of the Contractor's system, for both threat tracking and engagement exercises. The Contractor shall identify any unique activities associated with the track and engagement of each threat class.

3.8 QUALITY ASSURANCE. The Contractor shall ensure the quality of all workmanship and services performed under this contract.

4.0 PERIOD OF PERFORMANCE. The period of performance for this effort is for one year after date of contract award.