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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Office of Secretary Of Defense	Date: March 2014
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603923D8Z I <i>Coalition Warfare</i>
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COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	11.389	10.559	9.827	10.139	-	10.139	10.420	10.531	11.013	11.310	Continuing	Continuing
P923: <i>Coalition Warfare</i>	11.389	10.559	9.827	10.139	-	10.139	10.420	10.531	11.013	11.310	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Current U.S. military strategy and the global security environment make coalition warfare and multinational operations fundamental features of the U.S. national security strategy. Coalitions provide a broad base of technological, operational, and logistical support for military operations and ease the U.S. financial and manpower burdens associated with meeting military goals and objectives. U.S. strategic guidance confirms that coalitions and relationships with international partners are high priorities for the nation and the Department of Defense.

The Coalition Warfare Program (CWP) responds to this guidance by supporting DoD organizations that: 1) work with foreign partners to collaboratively address strategic technology gaps for current and future missions; 2) develop interoperability solutions for coalition operations; and 3) develop and strengthen defense relationships. CWP is the only Office of the Secretary of Defense (OSD) program with this mission. CWP supplements a U.S. Government proponent's funding for cooperative efforts, ensuring U.S. funds are sufficient to complete the engagement with the foreign partner(s). When CWP funds are used to help fund a cooperative project, that project leverages technical and financial contributions of the foreign partner(s) and speeds up the development and delivery of technical solutions to the warfighter. In its thirteen-year history, CWP has leveraged \$4 of foreign partner funding for every \$1 of U.S. Government investment, and \$3 of other U.S. Government funding for every \$1 CWP has invested in cooperative projects.

CWP funding enables DoD project teams to move a technology into the next stage of development or to complete and transition a technology to operational forces. These projects may also form the basis for future cooperation with international partners.

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Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
0400: Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)		PE 0603923D8Z / Coalition Warfare			
B. Program Change Summary (\$ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	11.398	9.842	12.438	-	12.438
Current President's Budget	10.559	9.827	10.139	-	10.139
Total Adjustments	-0.839	-0.015	-2.299	-	-2.299
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-0.594	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.245	-			
• Efficiency Savings	-	-	-0.860	-	-0.860
• Strategic Efficiency Reductions	-	-	-1.439	-	-1.439
• FFRDC	-	-0.015	-	-	-

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Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603923D8Z / <i>Coalition Warfare</i>				Project (Number/Name) P923 / <i>Coalition Warfare</i>			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
P923: <i>Coalition Warfare</i>	11.389	10.559	9.827	10.139	-	10.139	10.420	10.531	11.013	11.310	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
A. Mission Description and Budget Item Justification												
Current U.S. military strategy and the global security environment make coalition warfare and multinational operations fundamental features of the U.S. national security strategy. Coalitions provide a broad base of technological, operational, and logistical support for military operations and ease the U.S. financial and manpower burdens associated with meeting military goals and objectives. U.S. strategic guidance confirms that coalitions and relationships with international partners are high priorities for the nation and the Department of Defense.												
The Coalition Warfare Program (CWP) responds to this guidance by supporting DoD organizations that: 1) work with foreign partners to collaboratively address strategic technology gaps for current and future missions; 2) develop interoperability solutions for coalition operations; and 3) develop and strengthen defense relationships. CWP is the only Office of the Secretary of Defense (OSD) program with this mission. CWP supplements a U.S. Government proponent’s funding for cooperative efforts, ensuring U.S. funds are sufficient to complete the engagement with the foreign partner(s). When CWP funds are used to help fund a cooperative project, that project leverages technical and financial contributions of the foreign partner(s) and speeds up the development and delivery of technical solutions to the warfighter. In its thirteen-year history, CWP has leveraged \$4 of foreign partner funding for every \$1 of U.S. Government investment, and \$3 of other U.S. Government funding for every \$1 CWP has invested in cooperative projects.												
CWP funding enables DoD project teams to move a technology into the next stage of development or to complete and transition a technology to operational forces. These projects may also form the basis for future cooperation with international partners.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2013	FY 2014	FY 2015	
Title: Previous Year Continuing Projects									8.805	3.105	-	
Description: Program provided additional funding to projects that began in earlier selection cycles.												
FY 2013 Accomplishments: Completion of efforts that will result in delivery of: an improved small directional battlefield antenna; a portable power system utilizing renewable energy; fused data from sensor networks to characterize the ionosphere over the African continent; and a satellite angular mapping tool to characterize coastlines for targeting and for shore assault operations technologies.												
FY 2014 Plans:												

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2013	FY 2014
Continuation of efforts that will result in delivery of: a new fast running model for blast propagation through failing blast doors in tunnels; a micro-scale vibrational energy harvester capable of operating at low frequency; new body armor design with enhanced protection; and a GPS anti-jam antenna system for submarines.			
Title: Project Selections Description: Program will conduct competitive nomination process to identify new projects. FY 2014 Plans: Projects selected based on COCOM, Service, Joint Staff, OSD, and DoD Agency priorities and requirements. FY 2015 Plans: Projects selected based on COCOM, Service, Joint Staff, OSD, and DoD Agency priorities and requirements.		-	0.650
Title: Advanced Refractive Effects Prediction System Radar Modeling Enhancement/Validation Description: A project to improve radar modeling as affected by current meteorological and oceanographic conditions, enabling improved situational awareness of the actual detection capability of current radars. FY 2013 Accomplishments: Collaboration with foreign partners and project initiation. FY 2014 Plans: Laboratory analyses and software development. FY 2015 Plans: Continued software development, afloat demonstration/assessment preparation, execution, and analysis.		0.040	0.230
Title: Broadband Infrared - Active Standoff Detection System Description: A project to develop a rugged all fiber-optic, high power, broadly tunable long wavelength infrared prototype for standoff detection of explosives, chemical warfare agents, and non-traditional agents, on environmental surfaces. FY 2013 Accomplishments: Initial program planning; preliminary design and fabrication of hardware. FY 2014 Plans: Continued hardware development and initial testing of components. FY 2015 Plans:		0.260	0.490
			0.750

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2013	FY 2014	FY 2015
Final development and testing of system to include testing for stand-off detection of chemical warfare agents/chemical warfare agent simulants and explosives.					
Title: Cipher-Text Coalition Agility in Protected Environment Description: A project to enable network interoperability between submarine forces by developing secure coalition interoperability between Cipher-Text networks. FY 2014 Plans: Project management, engineering labor, design planning, development and testing. FY 2015 Plans: Project management, information assurance accreditation, operational demonstration, engineering labor, system integration, documentation and reports.			-	0.675	0.675
Title: Enhanced Urban Propagation Modeling Description: A project to develop a software tool that improves how the Brigade level Spectrum Manager obtains accurate, real-time communications connectivity information in dense urban settings. FY 2013 Accomplishments: Begin to enhance the current urban propagation model and to define the coalition deployment scenario. FY 2014 Plans: Continue enhancements to enable models to run on small devices at ground level. Complete the definition of the coalition deployment scenario. FY 2015 Plans: Define laptop devices requirements for communications capabilities via advanced spectrum management capabilities. Consolidate the results of spectrum management studies and provide recommendations.			0.054	0.125	0.071
Title: H-1 Navigation Warfare for GPS Anti-jam Description: A project to develop a small GPS anti-jam solution for the H-1 Cobra helicopter that protects GPS in a fast helicopter rotor blade environment. FY 2013 Accomplishments: Project management and initial coordination. FY 2014 Plans:			0.035	0.265	0.180

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2013	FY 2014	FY 2015
Prototype testing of multiple small GPS anti-jam systems. Evaluation of GPS anti-jam algorithms.					
FY 2015 Plans: Development of GPS anti-jam algorithms for operation in a fast rotor environment. Refinement of H-1 antenna location model based upon previous year test results.					
Title: High Speed Multi Hull Vessel Optimization Description: A project to conduct parametric experiments to systematically assess impacts on operability, and to provide validation data for optimization algorithms and numerical tools used for design and performance assessment of multi-hull naval ships. FY 2013 Accomplishments: Begin test planning, detailed scaled-model design for construction, and instrumentation selection. FY 2014 Plans: Test planning, model construction, test preparation and execution of scaled-physical model experiments, to obtain parametric data of hydrodynamic performance (maneuvering). FY 2015 Plans: Analysis of scaled-physical model experiment test data, correlation to numerical simulations, and delivery of a technical report of the results.			0.150	0.600	0.750
Title: Integrated Autonomous Undersea Warfare Surveillance Description: A project to research the synergistic effects of multi-phenomenological sensors by developing a system that integrates a miniature magnetic sensor with an acoustic line array deployable on an unmanned underwater vehicle. FY 2013 Accomplishments: Initial hardware and software checkout and updating. FY 2014 Plans: Build and test resource interface. Research, develop and implement algorithms. FY 2015 Plans: Pretest testing and checkout. Conduct exercise and post test retrieve data,			0.075	0.075	0.150
Title: Laser Dazzle			-	0.500	0.500

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2013	FY 2014	FY 2015
Description: A project to quantify atmospheric effects on laser propagation; characterize human behavioral response to laser dazzle in land and maritime scenarios; provide a human systems integration (HSI) model to predict human behavioral response to laser dazzle. FY 2014 Plans: Experimental design, protocol preparation, optical and HSI engineering, data collection and analysis, and integration/interpretation to develop and commence validation of the laser model. FY 2015 Plans: Conduct field experiments to validate the laser dazzle model. Develop a computational visual obscuration calculator. Complete reports documenting all results.					
Title: Next-Gen Nuclear Flash Blindness Optical Protection Technology Description: A project to develop and demonstrate battery-operated optical protection technologies on curved substrates (sand-wind-dust (SWD) goggle, spectacle) that meet existing protection requirements. FY 2013 Accomplishments: Research and development fast-switching twisted nematic optical elements. FY 2014 Plans: Research and development of design consideration of twisted nematic optical elements on curved substrates. FY 2015 Plans: Manufacture prototype spectacles and SWD goggles. Laboratory and field testing.			0.120	0.380	0.500
Title: North America Arctic Next Generation Over-the-Horizon Radar Description: A project to develop a scalable solution for persistent wide-area, low-altitude air and maritime surveillance in the northern latitudes of North America. FY 2013 Accomplishments: Negotiate land-lease agreements for suitable real estate for multi-static receive site. FY 2014 Plans: Design and assemble monostatic transmit/receive system; develop program test plan and conduct monostatic clutter measurement test in border region; construct receive site; and development of advance signal processing algorithms. FY 2015 Plans:			0.075	0.465	0.423

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2013	FY 2014
Plan and conduct bi-static test and analyze data; plan and conduct multi-static test, as well as conduct additional seasonal mono-static and bi-static data collection and analysis; refine and evaluate advanced signal processing algorithms; US assessment of clutter reduction on detection capability and write, coordinate, and publish final report, and develop recommendations for further work.			
Title: Radar Obstructions Evaluation Model/Simulator (ROEMS) Description: A project to further develop and test the prototype 3D radar modeling tool designed to predict the impact of proposed wind farms on radar system performance and air defense mission capability. FY 2014 Plans: Develop an APG-68 radar model compatible with the ROEMS environment. Develop a 3D airborne modeling capability to integrate the APG-68 into an analysis scenario.		-	0.150
Title: Raman Agent Monitoring System (RAMS) for Coalition Force Protection Description: A project to further develop, dismantle and modularize components of the current Joint Contaminated Surface Detector system to provide advanced capabilities, reduce size and weight, and allow use on multiple platforms. FY 2014 Plans: Refurbish Joint Contaminated Surface Detector system as U.S. test bed for modularization and laser evaluation. Develop modularization plans, designs, and performance testing. FY 2015 Plans: Collect library spectra of an additional 50 chemical threats as well as background materials to expand the UV Raman detection library. Refine existing algorithms to address additional chemical threats materials.		-	0.400
Title: Surface Persistent Ocean Target TrackER) Project - Automatic Target Detection and Tracking using Maritime Surveillance Video Description: A Navy project with Singapore to develop an improved video processing capability to both detect and track small targets at stand-off distances, and then use those results to help build an improved MDA picture FY 2014 Plans: Optimize and test RAPIER full motion video for a small target set. Integrate and Experiment with live sequential processing. FY 2015 Plans: Final analysis and report.		-	0.213
Title: Tactical Infrastructure Enterprise Services		-	0.500

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2013	FY 2014	FY 2015
Description: A Joint Staff, J7 and Army project with France to develop a federated identity management to verify the identity of an individual, organization or device, and an automated element level metadata tagging solution that is interoperable between US and NATO FY 2014 Plans: Develop data transformation software and CONOPS. Conduct technical tests and demonstrations. FY 2015 Plans: Analyze test data. Develop identity management and access control software. Conduct final test and draft documentation.					
Title: Coalition Warfare Program (CWP) Support Description: Program funds contractors to support CWP program management, which includes: ensuring CWP projects are consistent with the policies and principles articulated in Department of Defense directives and regulations; monitoring project progress toward goals and objectives as well as tracking project budget execution; providing assessment of program status and risk to higher authorities; briefing and providing recommendations to the Director, International Cooperation concerning new and continuing CWP projects; supporting periodic CWP meetings to foster international cooperation and improve U.S. interoperability with foreign partners; supporting CWP proposal selection process and coordinating financial activities at the OUSD(AT&L) level; briefing program stakeholders on the status of CWP projects and interoperability initiatives; educating Combatant Command, Service, Agency, and OSD personnel about the CWP and the opportunity to improve coalition interoperability. FY 2013 Accomplishments: Contractor provided management support of the CWP, to include evaluating proposals for FY14 funding, attending RDT&E meetings and events, and monitoring and managing projects' technical and financial performance. FY 2014 Plans: Contractor will continue to provide management support of the CWP, to include evaluating proposals for FY15 funding, attending RDT&E meetings and events, and monitoring and managing projects' technical and financial performance. FY 2015 Plans: Contractor will continue to provide management support of the CWP, to include evaluating proposals for FY15 funding, attending RDT&E meetings and events, and monitoring and managing projects' technical and financial performance.			0.511	0.521	0.531
Title: Interoperability and Collaboration Initiatives Description: Program provides funds in support of new or planned acquisition programs with the aim of 1) promoting coalition interoperability early in the requirements or technical development phases, 2) harmonizing common goals between U.S. and			0.434	0.483	0.548

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2013	FY 2014
foreign partners, 3) improving management of collaborative efforts. Funds support workshops, risk reduction efforts, standards development, architecture analysis, and information management initiatives.			
FY 2013 Accomplishments: Program funded efforts aimed at improving U.S. interoperability with foreign partners and improving collaborative project processes.			
FY 2014 Plans: Program will fund efforts aimed at improving U.S. interoperability with foreign partners and improving collaborative project processes.			
FY 2015 Plans: Program will fund efforts aimed at improving U.S. interoperability with foreign partners and improving collaborative project processes.			
Accomplishments/Planned Programs Subtotals		10.559	9.827
C. Other Program Funding Summary (\$ in Millions)			
N/A			
Remarks			
D. Acquisition Strategy			
The Combatant Commands, Services, Defense Agencies, and the Office of the Secretary of Defense nominate candidate projects on an annual basis. CWP provides selected projects one to two years of funding. The Program selects projects that address DoD priorities and meet the needs and requirements specified by the Joint Staff and the Combatant Commanders. Projects have equitable contributions from international partners, strong potential for transition, and contribute to allied interoperability and/or meet a user need.			
E. Performance Metrics			
After successful completion of the competitive nomination process, initial project funding is dependent on receipt of project documentation, which includes financial information, project plan, description of project team, etc. Continued project funding is dependent on compliance with CWP requirements, which include: adequate progress toward each project's stated goals, timely reporting on financial status and project activities, provision of updated project plans and charts, and progress towards transition goals.			