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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603925N: <i>Directed Energy and Electric Weapon System</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	18.989	-	-	-	-	-	-	-	-	0.000	18.989
9823: <i>Lasers for Navy applicat</i>	4.748	-	-	-	-	-	-	-	-	0.000	4.748
9999: <i>Congressional Adds</i>	14.241	-	-	-	-	-	-	-	-	0.000	14.241

A. Mission Description and Budget Item Justification

In accordance with NAVSEA Notice 5400, Ser 09B/240, Subj: ESTABLISHMENT OF THE NAVY DIRECTED ENERGY (DE) WEAPONS PROGRAM OFFICE (PMS 405), dated 4 Jan 02 and NAVSEA 5400.101, Ser SEA 06/058, Subj: DIRECTED ENERGY AND ELECTRIC WEAPONS PROGRAM OFFICE (PMS 405) CHARTER, dated 21 Jul 04 - COMNAVSEASYS COM (PMS 405) was assigned as the single Point of Contact for matters related to Directed Energy and Electric Weapon Systems development and acquisition initiation for the Navy and for those matters being coordinated with other Federal agencies and military services. The Naval Directed Energy and Electric Weapon Systems Program Office's (PMS 405) mission is to transition technology from the laboratory to prototype/advanced development/test for operational development and use. This will change the way the Navy fights in the 21st century by providing the war fighter with additional tools to fight today's and tomorrow's wars. This requires the effective management of Technology Development (BA-4) initiatives into System Development and Demonstration. PMS 405 will manage development of Directed Energy and Electric Weapon Systems onboard future naval surface ships that incorporate: Weapons Grade High Energy Lasers, Free Electron Lasers (Megawatt class), Electromagnetic Rail Gun (EMRG) Weapon Systems, High Power Microwave Weapon/Sensor Systems, and other systems/capabilities.

In FY 10, \$4,748K was provided under Project Unit 9823 to support Pacific Sail Proof of Concept prototype system development and demonstration. Congressional funding was provided for the following projects: \$1,494K was provided under Project Unit (PU) 10C132 to support technology development for Counter-Narcotics efforts as part of Global Law Enforcement; \$1,593K was provided under PU 10C133 to support Joint Technology Insertion and Accelerated System Integration Capability for Electronic Warfare; \$1,195K was provided under PU 10C134 to support Maritime Directed Energy Test Center (MDETC) efforts; \$9,959K was provided under PU 9823A to support Laser Weapon System (LaWS) technology development and test efforts in support of the Advanced Development Model (ADM) effort.

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B. Program Change Summary (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	19.223	-	-	-	-
Current President's Budget	18.989	-	-	-	-
Total Adjustments	-0.234	-	-	-	-
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.172	-			
• Program Adjustments	-	-	-	-	-
• Section 219 Reprogramming	-0.061	-	-	-	-
• Congressional General Reductions Adjustments	-0.001	-	-	-	-

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: Congressional Adds

- Congressional Add: *Global Law Enforcement Support for Counter-Narcotics*
- Congressional Add: *Joint Tech Insertion and Accelerated System Integration Capability for Electroni*
- Congressional Add: *Maritime Directed Energy Test and Evaluation Center*
- Congressional Add: *LASERS FOR NAVY APPLICATIONS*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2010	FY 2011
	1.494	-
	1.593	-
	1.195	-
	9.959	-
Congressional Add Subtotals for Project: 9999	14.241	-
Congressional Add Totals for all Projects	14.241	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603925N: <i>Directed Energy and Electric Weapon System</i>	PROJECT 9823: <i>Lasers for Navy applicat</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
9823: <i>Lasers for Navy applicat</i>	4.748	-	-	-	-	-	-	-	-	0.000	4.748
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Pacific Sail effort utilizes Lasers for Navy Applications to develop a gyro-stabilized, multi-mission, optical system as a "Proof of Concept" capability for at-sea evaluation in support of tactical ship defense requirements.

Funding was established in FY 2010 under this project unit to support prototype laser system development and system concept demonstration onboard a surface platform. This at-sea test and analysis will demonstrate operational effectiveness in support of Information Operations (IO), short-range ship defense/force protection, tracking and imaging, combat identification, and threat assessment.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2010	FY 2011	FY 2012
<p>Title: Lasers for Navy Applications</p> <p style="text-align: right;">Articles:</p> <p>Description: The Pacific Sail effort utilizes Lasers for Navy Applications to develop a gyro-stabilized, multi-mission, optical system as a "Proof of Concept" capability for at-sea evaluation in support of tactical ship defense requirements.</p> <p>FY 2010 Accomplishments: Funding was established in FY 2010 under this project unit to support laser prototype system development and system concept demonstration onboard a surface platform. This at-sea test and analysis will demonstrate operational effectiveness in support of Information Operations, short-range ship defense/force protection, long-range tracking and imaging, combat identification, and threat assessment.</p>	4.748 0	-	-
Accomplishments/Planned Programs Subtotals	4.748	-	-

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

Government Field Activities: Technology development and demonstration/test of capabilities for designated Directed Energy and Electric Weapon System components, subsystems, system(s). Program Office approved design, development, and demonstration/test efforts.

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603925N: <i>Directed Energy and Electric Weapon System</i>	9823: <i>Lasers for Navy applicat</i>

Non-Government Activities: Technology development and demonstration/test of capabilities for designated Directed Energy and Electric Weapon System components, systems(s), subsystems. Program Office approved design, development, and demonstration/test efforts.

E. Performance Metrics

Quarterly Program Reviews.

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603925N: <i>Directed Energy and Electric Weapon System</i>	PROJECT 9823: <i>Lasers for Navy applicat</i>
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	FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 9823																												
Prototype																												
Test Conduct																												
Test Report																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603925N: <i>Directed Energy and Electric Weapon System</i>	PROJECT 9823: <i>Lasers for Navy applicat</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 9823</i>				
Prototype	3	2010	1	2011
Test Conduct	1	2011	2	2011
Test Report	2	2011	4	2011

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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	14.241	-	-	-	-	-	-	-	-	0.000	14.241
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

10C132 - Global Law Enforcement Support for Counter-Narcotics - Funding was provided to support the development and deployment of wireless intercept technology to aid in counter-narcotics operations in foreign countries.

10C133 - Joint Technology Insertion and Accelerated System Integration Capability for Electronic Warfare (EW) - Funding was provided for the development of an Electronic Warfare (EW) Capabilities Analysis Tool that can conduct 'capability versus threat' analyses using multiple, networked, Joint/Coalition EW Threat Databases.

10C134 - Maritime Directed Energy Test Center (MDETC) - Funding was provided for maritime-based Directed Energy (DE) testing and facility utilization at Pacific Missile Range Facility in Hawaii. Laser propagation test conduct and analysis, facility requirements/utilization planning and agreements, and addressing of environmental considerations associated with DE testing are integral to the overall operational DE test strategy for the Surface Navy.

9823A - Lasers for Navy Applications (Laser Weapon System) - Funding was provided to support the acceleration of technology development and testing of the Laser Weapon System (LaWS), to provide for Navy-funded development, production, and fielding in the near future. FY 10 funding supports the acceleration of LaWS engineering and development of the Advanced Development Model (ADM) to include: operational and employment concept requirements/definition; ADM test planning, coordination, and conduct; mechanical design of system components; LaWS-specific software development; CIWS integration; ship integration including space, weight, power, and cooling.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2010	FY 2011
Congressional Add: Global Law Enforcement Support for Counter-Narcotics	1.494	-
FY 2010 Accomplishments: 10C132 - Global Law Enforcement Support for Counter-Narcotics: Funding provided to support the development and deployment of wireless intercept technology to aid in counter-narcotics operations in foreign countries.		
Congressional Add: Joint Tech Insertion and Accelerated System Integration Capability for Electroni	1.593	-
FY 2010 Accomplishments: 10C133 - Joint Technology Insertion and Accelerated System Integration Capability for Electronic Warfare: Funding provided for the development of an Electronic Warfare (EW) Capabilities Analysis Tool that can conduct 'capability versus threat' analyses using multiple, networked, Joint/Coalition EW Threat Databases.		
Congressional Add: Maritime Directed Energy Test and Evaluation Center	1.195	-

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011
<i>FY 2010 Accomplishments:</i> 10C134 - Maritime Directed Energy Test Center (MDETC): Funding provided for maritime-based Directed Energy (DE) testing and facility utilization at Pacific Missile Range Facility in Hawaii. Laser propagation test conduct and analysis, facility requirements/utilization planning and agreements, and addressing of environmental considerations associated with DE testing are integral to the overall operational DE test strategy for the Surface Navy.		
<i>Congressional Add:</i> LASERS FOR NAVY APPLICATIONS	9.959	-
<i>FY 2010 Accomplishments:</i> 9823A - Lasers for Navy Applications (Laser Weapon System): Funding provided to support the acceleration of technology development and testing of the Laser Weapon System (LaWS), to provide for Navy-funded development, production, and fielding in the near future. FY 10 funding supports the acceleration of LaWS engineering and development of the Advanced Development Model (ADM) to include: operational and employment concept requirements/definition; ADM test planning, coordination, and conduct; mechanical design of system components; LaWS-specific software development; CIWS integration; ship integration including space, weight, power, and cooling.		
Congressional Adds Subtotals	14.241	-

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Quarter Reviews, Monthly Reports.

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603925N: <i>Directed Energy and Electric Weapon System</i>	PROJECT 9999: <i>Congressional Adds</i>

	FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 9999																												
10C132 Preliminary Design Review (PDR)				■																								
10C132 Critical Design Review (CDR)					■																							
10C132 Prototype System Development						■	■	■	■																			
10C132 Field Evaluation								■	■	■																		
10C133 Preliminary Design Review (PDR)				■																								
10C133 Critical Design Review (CDR)					■																							
10C133 Prototype System Development						■	■	■	■																			
10C134 Preliminary Test Plan				■																								
10C134 Final Test Plan					■																							
10C134 Test Conduct						■																						
10C134 Test Analysis							■	■	■																			
10C134 Final Report									■																			
9823A Preliminary Design Review (PDR) Components/Integration				■	■	■																						
9823A Component Testing				■	■	■																						
9823A Critical Design Review (CDR) Components/Integration					■	■																						
9823A Prototype Components Procured						■	■	■																				
9823A System Testing									■																			

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
10C132 Preliminary Design Review (PDR)	4	2010	4	2010
10C132 Critical Design Review (CDR)	1	2011	1	2011
10C132 Prototype System Development	2	2011	3	2011
10C132 Field Evaluation	3	2011	4	2011
10C133 Preliminary Design Review (PDR)	4	2010	4	2010
10C133 Critical Design Review (CDR)	1	2011	1	2011
10C133 Prototype System Development	2	2011	4	2011
10C134 Preliminary Test Plan	4	2010	4	2010
10C134 Final Test Plan	1	2011	1	2011
10C134 Test Conduct	2	2011	2	2011
10C134 Test Analysis	3	2011	4	2011
10C134 Final Report	4	2011	4	2011
9823A Preliminary Design Review (PDR) Components/Integration	4	2010	1	2011
9823A Component Testing	4	2010	2	2011
9823A Critical Design Review (CDR) Components/Integration	1	2011	2	2011
9823A Prototype Components Procured	2	2011	3	2011
9823A System Testing	4	2011	4	2011