Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy											Date: February 2015	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603925N *I Directed Energy and Electric Weapon System*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	4.349	55.696	67.360	-	67.360	66.865	84.677	78.438	56.768	Continuing	Continuing
3370: *Railgun*	0.000	-	47.005	57.896	-	57.896	57.603	75.220	69.076	47.216	Continuing	Continuing
9823: *Lasers for Navy applicat*	0.000	4.349	8.691	9.464	-	9.464	9.262	9.457	9.362	9.552	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element will transition Directed Energy and Electric Weapon Systems (DE&EWS) technology from Science and Technology (S&T) research through Technology Development into System Development and Demonstration, leading to acquisition initiation for the Surface/Subsurface Navy.

DE&EWS consist of multiple breakthrough technologies including: laser weapons that provide for speed-of-light engagements at tactically significant ranges resulting in savings realized by minimizing the use of defensive missiles and projectiles; electromagnetic launch of projectiles that will significantly increase firing ranges imposing greater cost to adversaries of ballistic and air defense missile engagements; enhance the land attack mission; and fielding of high power radio frequency systems for non-kinetic electronic attack and active denial technology, allowing for non-lethal determination of threat intent beyond small arms fire ranges.

Development of DE&EWS incldues: Weapons Grade High Energy Lasers, Free Electron Lasers, Electromagnetic Railgun (EMRG) Weapon Systems, High Power Radio Frequency Weapon/Sensor Systems, and other systems/capabilities.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	58.696	34.964	-	34.964
Current President's Budget	4.349	55.696	67.360	-	67.360
Total Adjustments	4.349	-3.000	32.396	-	32.396
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	4.500	-			
• SBIR/STTR Transfer	-0.151	-			
• Program Adjustments	-	-	29.500	-	29.500
• Rate/Misc Adjustments	-	-	2.896	-	2.896

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy	Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603925N *I Directed Energy and Electric Weapon System*

Change Summary Explanation

FY16 funding in the amount of $5.3M was provided to begin transition development of a Naval Surface Fire Support (NSFS) Hyper Velocity Projectile (HVP) for the Mk 34 Gun Weapon System. Also funding in the amount of $27.5M was provided to conduct a Railgun demonstration aboard a Joint High Speed Vessel (JHSV) in FY19.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603925N / *Directed Energy and Electric Weapon System*	Project (Number/Name) 3370 / *Railgun*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
3370: *Railgun*	-	-	47.005	57.896	-	57.896	57.603	75.220	69.076	47.216	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Electromagnetic Railgun (EMRG): Provides ship-based program/technical commonality with the Office of the Secretary of Defense (OSD) Strategic Capabilities Office (SCO) Land Based Rail Gun (LBRG) Experimental Campaign. The Navy will leverage the LBRG development to produce a common Railgun and mount for use onboard Navy warships.

Railgun provides increased capability for the following mission sets: Naval Surface Fire Support (NSFS), Integrated Air and Missile Defense (IAMD), Fast Attack Craft and Fast Inshore Attack Craft (FAC/FIAC), and future potential for Anti-Surface Warfare (ASuW). Funding increases in FY16 are to support the time-phased transition of the HVP from a Future Naval Capability (FNC) to a program of record while keeping aligned with Railgun development and to achieve a second, more robust at-sea demonstration by FY19.

The EMRG will launch the Hyper Velocity Projectile (HVP), currently in development as a Future Naval Capability (FNC).

EMRG uses electromagnetic energy, vice traditional chemical propellant (i.e. gun powder), to launch projectiles providing: greatly increased range (110nm vice 13nm for chemical propellant); increased ammunition storage capacity; increased ship safety; increased layered point defense; decreased costs when compared to current missiles. The net effect is an increased capacity against multiple simultaneous threats at a lower operational cost.

Funding increase in FY16 is due to the nature of the time-phased requirements to support the execution strategy for the program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Electromagnetic Railgun	-	47.005	57.896	-	57.896
Articles:	-	-	-	-	-
Description: Electromagnetic Railgun (EMRG): Provides ship-based program/technical commonality with the Office of the Secretary of Defense (OSD) Strategic Capabilities Office (SCO) Land Based Rail Gun (LBRG) Experimental Campaign. The Navy will leverage the LBRG development to produce a common Railgun and mount for use onboard Navy warships.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 3370 / *Railgun*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Funding increase in FY 2016 supports the Railgun JHSV operational test in FY19, begins transition development of a Hyper Velocity Projectile, and supports software development necessary to integrate the future Railgun system into a Combat System. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** Commonality: Engineer/manage commonality with the OSD Experimental Campaign for mount, power, projectile, weapon, and combat interface/control; conduct sensor/shooter engineering trade studies, define interface and control requirements; design/develop ship-based hardware/software for shipboard gun mount; design/develop ship-based prime power components/subsystems; design/develop ship-based pulsed power components/subsystems; design/develop/certify ship-based battery and charging components/subsystems; define/design projectile critical components, develop/conduct flight simulations, conduct lethality analyses; conduct airframe simulations and analyses; define/develop projectile electronics components/subsystems. ***FY 2016 Base Plans:*** Commonality and Near-Term Demonstration: Continue engineering/management of shipboard commonality with the shore based OSD SCO Experimental Campaign for the Electromagnetic Railgun Weapon System and associated subsystems and components initiated in FY 15. Additionally, provide the engineering/technical support, material buys, and test event planning and execution for an at-sea test of a 20MJ Railgun on board a JHSV in FY 16. Initiate software development for the improved Naval Surface Fire Support capabilities and their interface to the AEGIS Combat System. Initiate the development and qualification process for the Mk 34 GWS ORDALT and propellant to support HVP use by existing gun system. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	-	47.005	57.896	-	57.896

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 3370 / *Railgun*

D. Acquisition Strategy

The development and acquisition strategy will transition the capabilities developed/demonstrated by ONR's Science & Technology efforts, along with earlier Congressionally funded efforts, into the BA-4 funded Technology Development Phase, which leads to Engineering & Manufacturing Development and production/fielding in the early 2020's.

E. Performance Metrics

Quarterly Reviews, Monthly Reports, Periodic Design Reviews.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603925N / *Directed Energy and Electric Weapon System*	Project (Number/Name) 3370 / *Railgun*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware - Gun Mount Requirements/ Development	C/CPFF	BAE via ARDEC : Washington, D.C. Dahlgren, VA	0.000	-		6.200	Jan 2015	4.000	Jan 2016	-		4.000	Continuing	Continuing	Continuing
Hardware - Gun Mount Requirements/ Development	C/CPFF	NAVSEA PMS405 Contract : Washington,D.C., Dahlgren, VA	0.000	-		1.000	Jan 2015	1.000	Jan 2016	-		1.000	-	2.000	-
Hardware - Prime Power Development	C/CPFF	NAVSEA PMS 320 Contract : Washington, D.C.	0.000	-		1.000	Feb 2015	1.500	Feb 2016	-		1.500	Continuing	Continuing	Continuing
Hardware - PrimePower Development	WR	NAVSSESS : Philadelphia, PA	0.000	-		0.500	Feb 2015	0.500	Feb 2016	-		0.500	-	1.000	-
Hardware - Pulsed Power Development	C/CPFF	NAVSEA PMS 320 Contract : Washington, D.C.	0.000	-		5.000	Feb 2015	6.000	Feb 2016	-		6.000	Continuing	Continuing	Continuing
Hardware - Battery and Charging Supply Development/Certification	C/CPFF	NAVSEA PMS 320 Contract : Washington, D.C.	0.000	-		5.668	Mar 2015	5.398	Mar 2016	-		5.398	Continuing	Continuing	Continuing
Hardware - Projectile Development	C/CPFF	Contractor via ARDEC : Washington,D.C., Dahlgren, VA	0.000	-		1.500	Jan 2015	4.150	Jan 2016	-		4.150	Continuing	Continuing	Continuing
Hardware - Projectile Development	WR	NSWC/DD : Dahlgren, VA	0.000	-		1.500	Jan 2015	4.150	Jan 2016	-		4.150	-	5.650	-
Software - Combat System & Fire Control Engineering	WR	NSWC/DD : Dahlgren, VA	0.000	-		-		1.000	Mar 2016	-		1.000	Continuing	Continuing	Continuing
Software - Combat System & Fire Control System	C/CPFF	PEO IWS Contract : Washington,D.C.	0.000	-		-		0.500	Mar 2016	-		0.500	-	0.500	-
Software - Combat System & Fire Control Engineering	C/CPFF	AEGIS BMD Contract : Washington, D.C.	0.000	-		-		0.500	Mar 2016	-		0.500	-	0.500	-
Software Weapon System	WR	NSWC/DD : Dahlgren, VA	0.000	-		-		4.000	Mar 2016	-		4.000	-	4.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603925N / *Directed Energy and Electric Weapon System*	Project (Number/Name) 3370 / *Railgun*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Fire Control System	WR	NSWC/DD, NSWC Corona : Dahlgren, VA, Corona, CA	0.000	-		6.387	Mar 2015	3.698	Mar 2016	-		3.698	-	10.085	-
		Subtotal	0.000	-		28.755		36.396		-		36.396	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering/ Management	WR	NSWC/DD : Dahlgren, VA	0.000	-		8.000	Feb 2015	8.000	Dec 2015	-		8.000	Continuing	Continuing	Continuing
Systems Engineering/ Management	WR	NSWC CD : Bethesda, MD	0.000	-		1.000	Feb 2015	1.000	Dec 2015	-		1.000	-	2.000	-
		Subtotal	0.000	-		9.000		9.000		-		9.000	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Airframe Analysis	C/CPFF	NAVSEA PMS 405 Contractor : Washington, D.C.	0.000	-		0.140	Mar 2015	-		-		-	Continuing	Continuing	Continuing
Airframe Analysis	C/CPFF	JHU/APL : Washington, D.C.	0.000	-		1.200	Mar 2015	-		-		-	-	1.200	-
High G Electronics Engineering	C/CPFF	MDA : Washington, D.C.	0.000	-		0.160	Mar 2015	-		-		-	Continuing	Continuing	Continuing
High G Electronics Engineering	WR	NSWC DD : Dahlgren, VA	0.000	-		0.500	Mar 2015	-		-		-	-	0.500	-
JHSV Plan/Install/Conduct	WR	NSWC/DD : Dahlgren, VA, Corona, CA	0.000	-		3.000	Feb 2015	4.000	Dec 2015	-		4.000	-	7.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603925N / *Directed Energy and Electric Weapon System*	Project (Number/Name) 3370 / *Railgun*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JHSV Plan/Install/Conduct	C/CPFF	HM&E Contractor TBA : Washington, D.C.	0.000	-		-		3.500	Dec 2015	-		3.500	-	3.500	-
JHSV Plan/Install/Conduct	C/CPFF	CSC via SEAPORT : Washington, D.C.	0.000	-		0.500	Mar 2015	0.500	Dec 2015	-		0.500	-	1.000	-
JHSV Plan/Install/Conduct	WR	NAVSSESS : Philadelphia, PA	0.000	-		1.500	Feb 2015	2.000	Dec 2015	-		2.000	-	3.500	-
		Subtotal	0.000	-		7.000		10.000		-		10.000	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Engineering/ Management	C/CPFF	NAVSEA PMS 405 Contractor : Washington, D.C.	0.000	-		2.250	Mar 2015	2.500	Mar 2016	-		2.500	Continuing	Continuing	Continuing
		Subtotal	0.000	-		2.250		2.500		-		2.500	-	-	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		47.005		57.896		-		57.896	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 3370 / *Railgun*

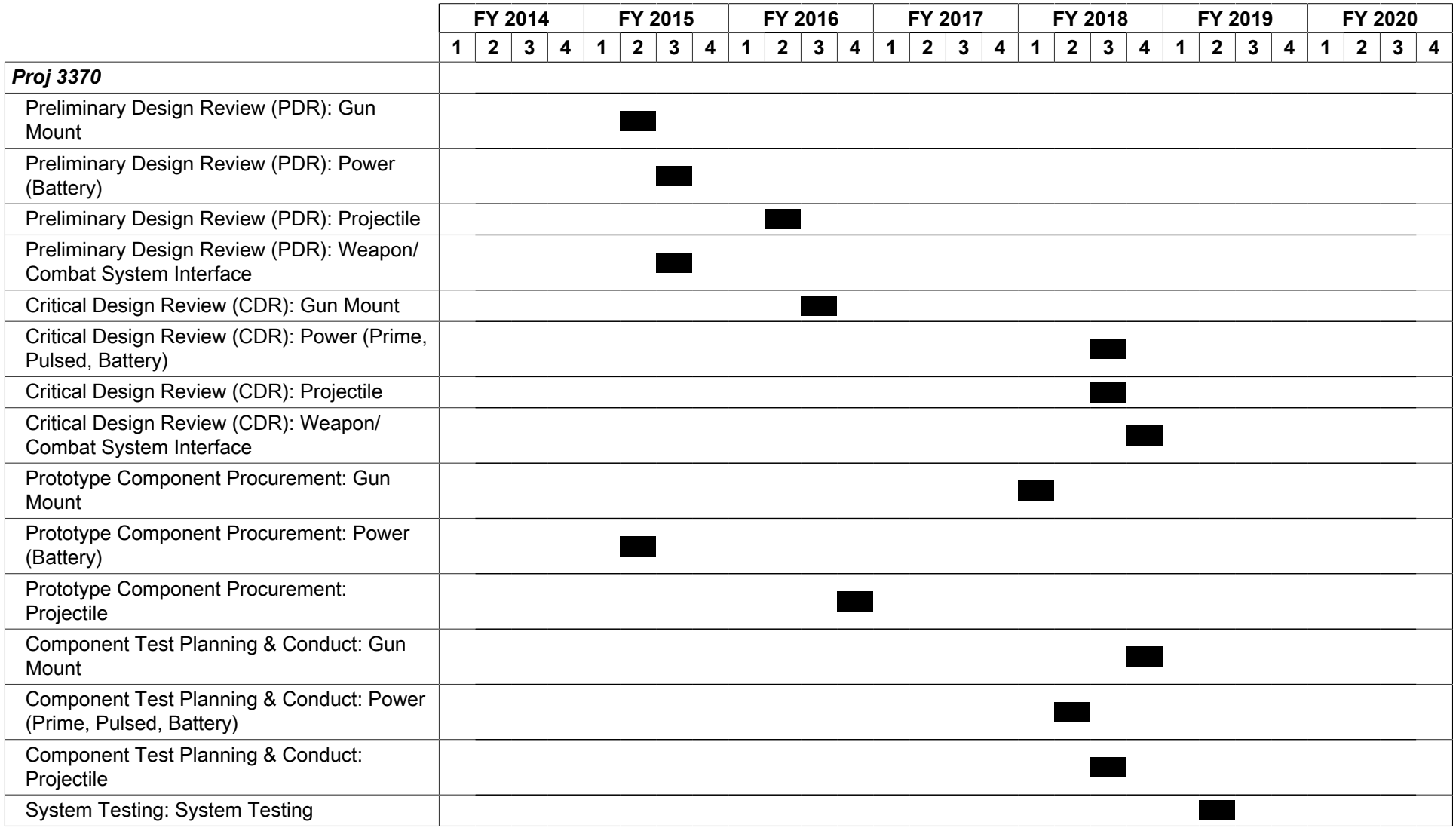

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 3370 / *Railgun*

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
System Analysis: System Analysis																								■				

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 3370 / *Railgun*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3370				
Preliminary Design Review (PDR): Gun Mount	2	2015	2	2015
Preliminary Design Review (PDR): Power (Battery)	3	2015	3	2015
Preliminary Design Review (PDR): Projectile	2	2016	2	2016
Preliminary Design Review (PDR): Weapon/Combat System Interface	3	2015	3	2015
Critical Design Review (CDR): Gun Mount	3	2016	3	2016
Critical Design Review (CDR): Power (Prime, Pulsed, Battery)	3	2018	3	2018
Critical Design Review (CDR): Projectile	3	2018	3	2018
Critical Design Review (CDR): Weapon/Combat System Interface	4	2018	4	2018
Prototype Component Procurement: Gun Mount	1	2018	1	2018
Prototype Component Procurement: Power (Battery)	2	2015	2	2015
Prototype Component Procurement: Projectile	4	2016	4	2016
Component Test Planning & Conduct: Gun Mount	4	2018	4	2018
Component Test Planning & Conduct: Power (Prime, Pulsed, Battery)	2	2018	2	2018
Component Test Planning & Conduct: Projectile	3	2018	3	2018
System Testing: System Testing	2	2019	2	2019
System Analysis: System Analysis	4	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603925N / *Directed Energy and Electric Weapon System*	Project (Number/Name) 9823 / *Lasers for Navy applicat*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
9823: *Lasers for Navy applicat*	-	4.349	8.691	9.464	-	9.464	9.262	9.457	9.362	9.552	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Lasers for Navy Applications, Solid State Laser (SSL) Development: The SSL provides a capability to support existing Gaps (JROC EW ICD 177-09; MAMDJF ICD; IAMD JCD; USPACOM FY 10-15 IPL - Gap 6; SAG V SAG Roadmap; 3rd Fleet IPCLs; 7th Fleet IPCLs; JUONS: Counter-Boat Swarm///UAV) with the ability to dazzle, damage, and/or destroy asymmetric threats including rockets, missiles, fast attack craft, and Unmanned Aerial Systems (UASs). An SSL Weapon System, at varying power levels, can deter or blind ISR systems at low powers, as well as, destroy the platforms (UAS, small boat) that carry them. SSL leverages the Office of Naval Research (ONR) efforts on the SSL Quick Reaction Capability (QRC) and SSL Technology Maturation (TM) efforts. SSL will transition this capability from Science and Technology (S&T) development to a Program of Record (PoR).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Solid State Laser (SSL) Low Power Module (LPM) Development	4.349	8.691	9.464	-	9.464
Articles:	-	-	-	-	-
Description: Lasers for Navy Applications, Solid State Laser (SSL) Development provides the ability to dazzle, damage, and/or destroy asymmetric threats including rockets, missiles, fast attack craft, and Unmanned Aerial Systems (UASs). The funding increase from FY 15 to FY 16 supports the compilation/assembly of components into a prototype LPM for testing. Systems Management Engineering funding decreases in FY 16 as a majority of the systems engineering is required to be accomplished in FY15, with the focus shifting to prototype test execution. ***FY 2014 Accomplishments:*** Solid State Laser (SSL) Low Power Module (LPM) Specification/Capability Requirements Development: Develop the overall system and test bed architecture of the Low Power Module (LPM) Counter-Electro Optic Infra-Red (EO/IR) capability. Manage/systems engineer development of the LPM EO/IR and Mid-Wave Infra-Red (MWIR) system specifications and the hardware/software/firmware module that will interface to the SSL TM System and/or future weapon system configurations. This will provide the capability to dazzle ISR sensors at tactically significant ranges. The modular nature of the LPM will allow it to be more easily integrated onto pointing and tracking mounts, if required. ***FY 2015 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 9823 / *Lasers for Navy applicat*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Solid State Laser (SSL) Low Power Module (LPM) Development: Procure the modeling and simulation software (1 time buy) that is required to be run in order to determine the operational capabilities that need to be built into the LPM. Manage/system engineer product development of the Low Power Module (LPM) Counter-Electro Optic Infra-Red (EO/IR) and MWIR hardware/software/firmware module, along with the associated test and control equipment to interface with Laser Weapon System(s). ***FY 2016 Base Plans:*** Continue Low Power Module management, engineering, design, development, and integration of test bed components. Conduct lab/field testing of the Low Power Module: accomplish test planning for preparation/ conduct of the Low Power Module prototype integrated testing in FY 16. ***FY 2016 OCO Plans:*** N/A.					
Accomplishments/Planned Programs Subtotals	4.349	8.691	9.464	-	9.464

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The development and acquisition strategy will transition the capabilities developed/demonstrated by ONR's Science & Technology efforts, along with PMS 405's Congressionally funded efforts, into the BA-4 funded Technology Development Phase, which leads to Engineering & Manufacturing Development and production/fielding in the early 2020's.

Task Planning Sheets for government entities and Statements of Work for contractors will delineate the requisite development, engineering, integration, and test/ demonstration requirements for designated components/subsystems as approved by the Program Office.

E. Performance Metrics

Quarterly Reviews, Monthly Progress/Status Reports, Scheduled Design/Program Reviews.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 9823 / *Lasers for Navy applicat*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Low Power Module	WR	NSWC DD : DAHLGREN, VA	0.000	0.636	Nov 2014	0.536	Feb 2015	0.652	Jan 2016	-		0.652	-	1.824	-
Low Power Module	WR	SSC PAC : SAN DIEGO, CA	0.000	0.475	Nov 2014	0.500	Feb 2015	0.500	Jan 2016	-		0.500	-	1.475	-
Low Power Module	WR	NSWC CRANE : CRANE, IN	0.000	0.380	Nov 2014	0.500	Feb 2015	0.644	Jan 2016	-		0.644	-	1.524	-
Low Power Module	WR	NRL : WASHINGTON, D.C.	0.000	0.045	Nov 2014	0.250	Feb 2015	0.250	Jan 2016	-		0.250	-	0.545	-
Low Power Module	C/CPFF	BOEING : SAN DIEGO, CA	0.000	1.349	Feb 2015	0.651	Mar 2015	0.250	Mar 2016	-		0.250	-	2.250	-
MSM Testbed	WR	NSWC DD : DAHLGREN, VA	0.000	-		1.227	Feb 2015	0.219	Jan 2016	-		0.219	Continuing	Continuing	Continuing
MSM Testbed	C/CPFF	PSU EOC : FREEPORT, PA	0.000	-		0.500	Mar 2015	-		-		-	-	0.500	-
Platform Integration	WR	NSWC DD : DAHLGREN, VA	0.000	-		-		0.997	Feb 2016	-		0.997	-	0.997	-
Platform Integration	WR	SSC PAC : SAN DIEGO, CA	0.000	-		-		0.300	Feb 2016	-		0.300	-	0.300	-
Platform Integration	WR	NSWC CRANE : CRANE, IN	0.000	-		-		0.299	Feb 2016	-		0.299	-	0.299	-
		Subtotal	0.000	2.885		4.164		4.111		-		4.111	-	-	-

Remarks

The hardware for this development effort consists of a mount, beam director, laser power, and the development of a Weapon Control Console. Software consists of the development, integration & validation of Weapon, Fire Control, and Combat System Engineering.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 9823 / *Lasers for Navy applicat*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems/Mgmt Engineering	C/CPFF	NAVSEA PMS 405 Contract : WASHINGTON, D.C.	0.000	0.640	Feb 2015	1.207	Mar 2015	1.150	Dec 2015	-		1.150	-	2.997	-
Systems/Mgmt Engineering	C/CPFF	PSU EOC : FREEPORT, PA	0.000	0.485	Dec 2014	1.000	Mar 2015	0.350	Jan 2016	-		0.350	-	1.835	-
Modeling & Simulation	WR	NSWC DD : DAHLGREN, VA	0.000	-		0.889	Feb 2015	-		-		-	-	0.889	-
		Subtotal	0.000	1.125		3.096		1.500		-		1.500	-	5.721	-

Remarks

If there is a Continuing Resolution (CR) starting in FY 15, all First Quarter Start or planned/projected Award Dates will be delayed by the length of the CR, as this is a new start effort in FY 15.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Planning & Execution	C/CPFF	NSWC DAHGREN : DAHLGREN, VA	0.000	-		0.200	Mar 2015	0.612	Mar 2016	-		0.612	Continuing	Continuing	Continuing
Test Planning & Execution	WR	PHD NSWC : PORT HUENEME, CA	0.000	0.150	Nov 2014	0.442	Feb 2015	0.997	Dec 2015	-		0.997	-	1.589	-
Test Planning & Execution	WR	NSWC DD : DAHLGREN, VA	0.000	-		0.100	Feb 2015	0.997	Jan 2016	-		0.997	-	1.097	-
Test Planning & Execution	WR	NSWC CRANE : CRANE, IN	0.000	-		0.100	Feb 2015	0.498	Feb 2016	-		0.498	-	0.598	-
		Subtotal	0.000	0.150		0.842		3.104		-		3.104	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603925N / *Directed Energy and Electric Weapon System*	Project (Number/Name) 9823 / *Lasers for Navy applicat*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Safety, Product Support, Security, Operations	WR	NSWC DD : DAHLGREN, VA	0.000	0.189	Jan 2015	0.400	Feb 2015	0.449	Jan 2016	-		0.449	Continuing	Continuing	Continuing
Safety, Product Support, Security, Operations	C/CPFF	NSWC DD : DAHGREN, VA	0.000	-		0.189	Mar 2015	0.300	Mar 2016	-		0.300	-	0.489	-
		Subtotal	0.000	0.189		0.589		0.749		-		0.749	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	4.349		8.691		9.464		-		9.464	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 9823 / *Lasers for Navy applicat*

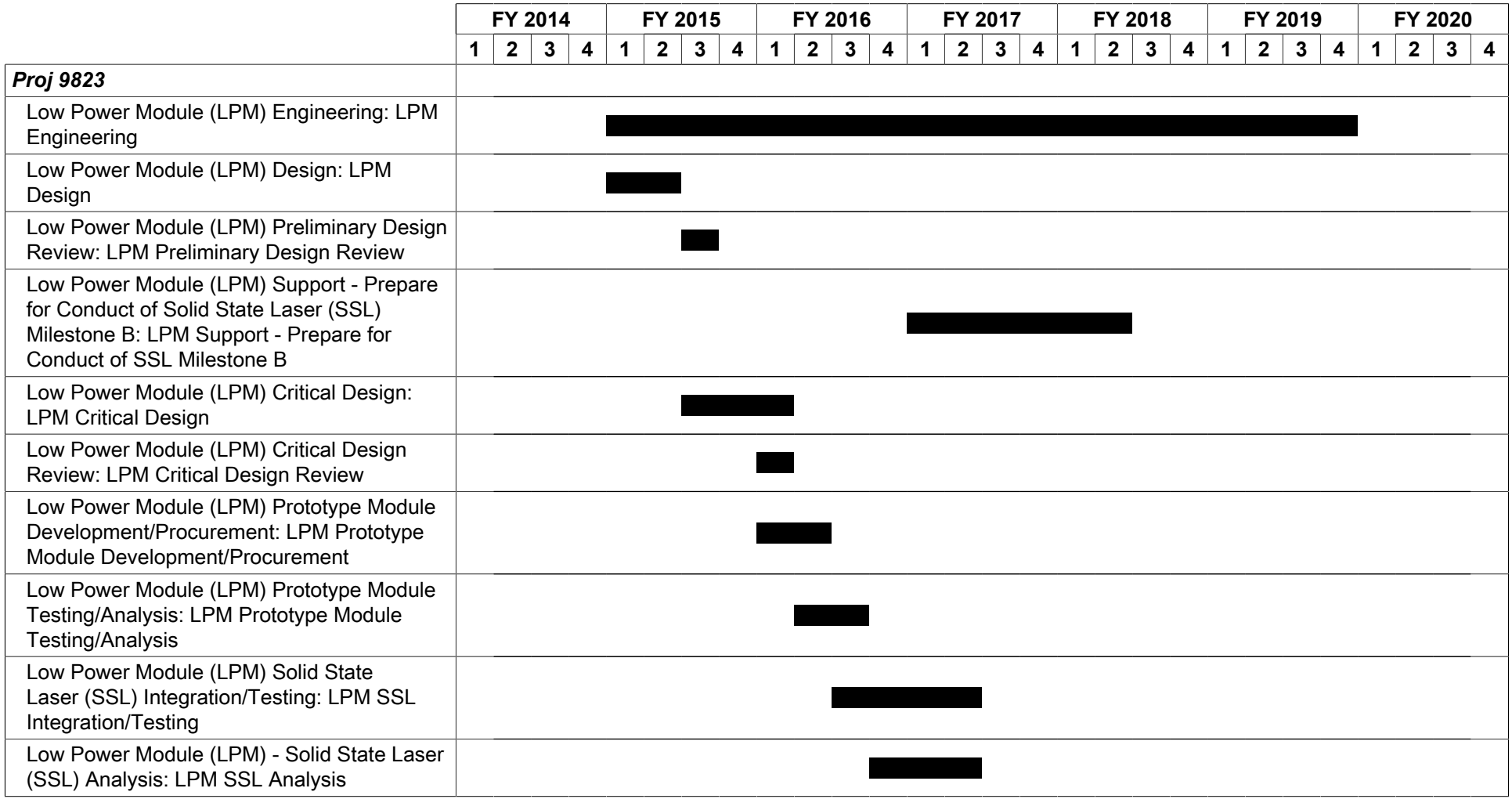

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 9823 / *Lasers for Navy applicat*

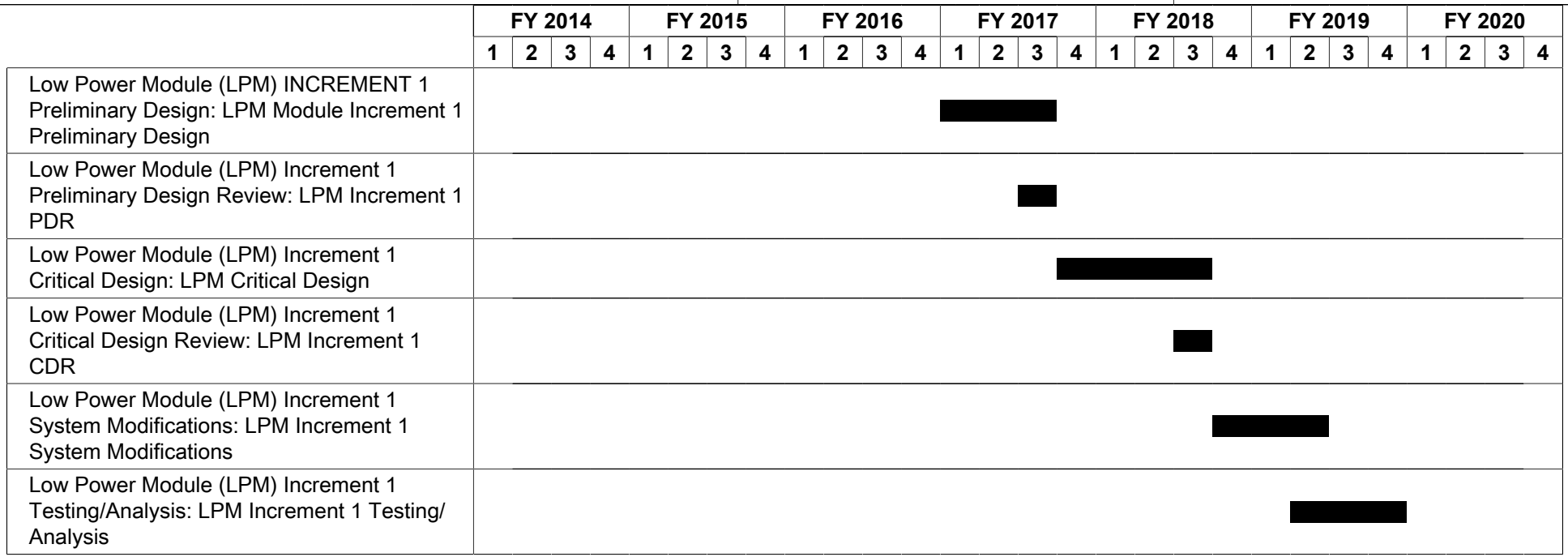

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 9823 / *Lasers for Navy applicat*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9823				
Low Power Module (LPM) Engineering: LPM Engineering	1	2015	4	2019
Low Power Module (LPM) Design: LPM Design	1	2015	2	2015
Low Power Module (LPM) Preliminary Design Review: LPM Preliminary Design Review	3	2015	3	2015
Low Power Module (LPM) Support - Prepare for Conduct of Solid State Laser (SSL) Milestone B: LPM Support - Prepare for Conduct of SSL Milestone B	1	2017	2	2018
Low Power Module (LPM) Critical Design: LPM Critical Design	3	2015	1	2016
Low Power Module (LPM) Critical Design Review: LPM Critical Design Review	1	2016	1	2016
Low Power Module (LPM) Prototype Module Development/Procurement: LPM Prototype Module Development/Procurement	1	2016	2	2016
Low Power Module (LPM) Prototype Module Testing/Analysis: LPM Prototype Module Testing/Analysis	2	2016	3	2016
Low Power Module (LPM) Solid State Laser (SSL) Integration/Testing: LPM SSL Integration/Testing	3	2016	2	2017
Low Power Module (LPM) - Solid State Laser (SSL) Analysis: LPM SSL Analysis	4	2016	2	2017
Low Power Module (LPM) INCREMENT 1 Preliminary Design: LPM Module Increment 1 Preliminary Design	1	2017	3	2017
Low Power Module (LPM) Increment 1 Preliminary Design Review: LPM Increment 1 PDR	3	2017	3	2017
Low Power Module (LPM) Increment 1 Critical Design: LPM Critical Design	4	2017	3	2018
Low Power Module (LPM) Increment 1 Critical Design Review: LPM Increment 1 CDR	3	2018	3	2018
Low Power Module (LPM) Increment 1 System Modifications: LPM Increment 1 System Modifications	4	2018	2	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 9823 / *Lasers for Navy applicat*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Low Power Module (LPM) Increment 1 Testing/Analysis: LPM Increment 1 Testing/ Analysis	2	2019	4	2019