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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604512N: Shipboard Aviation Systems							
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	350.525	47.903	55.826	69.615	-	69.615	25.668	19.374	20.189	20.394	Continuing	Continuing
2232: CV/CVN Launch and Recover	350.525	47.903	55.826	69.615	-	69.615	25.668	19.374	20.189	20.394	Continuing	Continuing
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
## The FY 2014 OCO Request will be submitted at a later date												
A. Mission Description and Budget Item Justification												
CV Launch & Recovery System - This Navy unique project addresses the System Development and Demonstration of all systems required to recover and launch Navy/ Marine Corps Aircraft (Fixed/Rotary Wing and Vertical/Short Take Off and Landing) operating aboard aircraft carriers, amphibious assault ships and air capable ships. This program element includes the following:												
(1) Advanced Arresting Gear												
(2) Aviation Data Management and Control System												
(3) Electromagnetic Aircraft Launch System												
(4) Compact Swaging Machine												
(5) Aircraft Launch & Recovery Equipment Modernization												
(6) Aircraft Launch and Recovery Equipment Service Life Management program												
This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.												

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APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>
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B. Program Change Summary (\$ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	45.445	55.826	30.354	-	30.354
Current President's Budget	47.903	55.826	69.615	-	69.615
Total Adjustments	2.458	0.000	39.261	-	39.261
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	3.472	0.000			
• SBIR/STTR Transfer	-1.014	0.000			
• Program Adjustments	0.000	0.000	39.485	-	39.485
• Rate/Misc Adjustments	0.000	0.000	-0.224	-	-0.224

Change Summary Explanation

Cost: Added funding in fiscal years 12 and 14 to the Advanced Arresting Gear effort to properly price the program. Cost increases are due to schedule delays reported above under schedule changes. Removed FY 14 funding for EMALS sensorless controls testing.

Schedule:

Advanced Arresting Gear (AAG) - During system integration and initial deadload arrestment testing, the AAG program experienced technical challenges. Required subcomponent redesigns delayed execution of the test program. Accordingly, a rebaseline of the program was completed, which moved Milestone C to 4th quarter FY15. Hence, the remaining test events, milestones and procurements were adjusted accordingly.

Aviation Data Management and Control System Block 3 - Block 3 schedule changes are a result of rework to the existing software baseline. Planned milestones and test events were adjusted accordingly.

Electromagnetic Aircraft Launch System (EMALS) - Due to higher Department priorities, the program will cancel the EMALS Sensorless Controls project. FY13 funds will be used for contract closeout costs.

Aircraft Launch & Recovery Equipment Modernization Improved Manually Operated Visual Landing Aid System - Program start date has moved from 3rd quarter FY12 to 1st quarter FY13 to ensure adequate definition of system requirements. The program's plan of action and milestones were adjusted accordingly.

Aircraft Launch and Recovery Equipment Service Life Management program - Initial findings during Service Life Assessment program has expanded the requirement to include follow-on analysis and testing. Both events have been extended into 4th Quarter of FY17.

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Advanced Prognostics for Steam Catapults - Program cancelled in order to fund higher priority programs within the program element.		
Technical: Not Applicable.		

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COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2232: CV/CVN Launch and Recover	350.525	47.903	55.826	69.615	-	69.615	25.668	19.374	20.189	20.394	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	2		2	0	0	0	0		

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This Navy unique project addresses the System Development and Demonstration (SDD) of all systems required to recover and launch Navy/Marine Corps Aircraft (Fixed/Rotary Wing and Vertical/Short Take-Off and Landing) operating aboard aircraft carriers (CVN), amphibious assault ships and air capable ships. This program includes the following systems under Project 2232, including the funding of production representative models for:

(1) Advanced Arresting Gear (AAG): The AAG program will design, develop, test and field an aircraft arrestment system to replace the legacy Mark 7 arresting gear. AAG systems will be installed on all new construction aircraft carriers. AAG will provide the U.S. Navy with improved operational capability, while reducing operating and support costs. The AAG system will recover all existing and projected carrier based tail hook-equipped air vehicles well into the 21st century. The AAG Program's SDD phase test articles will consist of a land based, single wire configured aircraft arresting system, which includes associated hardware and software needed to conduct system integrated testing by arresting both dead-loads and aircraft.

(2) Aviation Data Management and Control System (ADMACS): ADMACS will use information technology and decision support systems to automate collection and distribution of information, enabling aviation operations on board aircraft carriers to be accomplished in a more efficient and effective manner. Capability beyond ADMACS Block 3 will be developed by using an evolutionary acquisition process.

(a) ADMACS Block 3: ADMACS Block 3 will integrate the EMALS and AAG interfaces into its baseline.

(3) Electromagnetic Aircraft Launch System (EMALS) Sensorless Controls: EMALS will be the fixed wing aircraft catapult for the CVN-78 class of aircraft carriers. The program will further the development and insertion of applicable emerging technologies into EMALS capitalizing on the full capability of the system. The EMALS system was developed under the carrier system development program element (0603512N).

(4) Compact Swaging Machine: Funded by ONR (OSD PE# 060051D8Z) in FY 2009. The current process of pouring zinc sockets to attach the arresting gear purchase cable will be replaced with a new swaged terminal design that will be pressed on by means of a high density, compact swaging machine.

(5) Aircraft Launch & Recovery Equipment (ALRE) Modernization:

(a) Improved Fresnel Lens Optical Landing System Phase 4 (IFLOLS): Control system processor and digital interfaces upgrades to support Built-In-Test, Aviation Data Management and Control System integration & maintenance /obsolescence reduction.

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(b) Improved Manually Operated Visual Landing Aid System (IMOVLAS): IMOVLAS will be the manual backup for IFLOLS which is the primary carrier Visual Landing Aid. IMOVLAS will be used in high sea states or if IFLOLS is inoperable, and will mirror current IFLOLS configuration in size & display. Two production representative models will be procured in FY14; the models will be utilized for environmental and developmental testing.				
(6) Aircraft Launch & Recovery Equipment (ALRE) Service Life Management Program (SLMP): The ALRE SLMP for Launcher and Recovery is required to sustain carrier aviation operations of higher energy aircraft launch and recoveries that are increasing loads on the ALRE systems, and that are affecting availability, maintainability and cost. This program will consist of service life assessment and extension initiatives and will establish the design foundation (structural, reliability, and maintainability analyses), permit appropriate assessment, track and focus design changes where most needed. Increase in funding from FY13 to FY14 is due to the implementation of the Cross Deck Pendants (CDP) Service Life Assessment effort in FY14.				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2012	FY 2013	FY 2014
Title: Advanced Arresting Gear (AAG) Articles: Description: The AAG program is designing, developing, testing and fielding an aircraft arrestment system to replace the legacy Mark 7 arresting gear. FY 2012 Accomplishments: Completed Commissioning Deadload tests and conduct Jet Car Track Site (JCTS) testing. FY 2013 Plans: Complete JCTS testing utilizing deadloads. Complete planning and site preparations for equipment installation at Runway Arrested Landing Site test facility. FY 2014 Plans: Conduct integrated testing. Support planning for test and evaluation. Execution of live aircraft arrestments at Runway Arrested Landing Site.		35.634 0	44.602 0	55.597 0
Title: Aviation Data Management and Control System (ADMACS) Block 3 Articles: Description: ADMACS provides real time, fault tolerant (redundant), tactical information management system. ADMACS Block 3 will integrate the Electromagnetic Aircraft Launch System and Advanced Arresting Gear interfaces into its baseline. FY 2012 Accomplishments: Completed preliminary System Design and Development. FY 2013 Plans:		4.201 0	2.813 0	0.643 0

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2012	FY 2013	FY 2014
Continue System Design and Development.				
FY 2014 Plans: Conduct system testing.				
Title: Electromagnetic Aircraft Launch Systems (EMALS) Sensorless Controls Articles: Description: Electromagnetic Aircraft Launch Systems (EMALS) will be the fixed wing aircraft catapult for the CVN-78 class of aircraft carriers. The program will further the development and insertion of applicable emerging technologies into EMALS capitalizing on the full capability of the system. Due to higher Department priorities, the program will cancel the EMALS Sensorless Controls project. FY 13 funds will be used for contract closeout costs. FY 2012 Accomplishments: Continued hardware development and integration at Advanced Linear Motor site. Construct/Test Electro Standard Laboratories Dual Test Bed. FY 2013 Plans: Fund contract closeout costs through second quarter 2013 associated with EMALS Sensorless Controls project cancellation.		1.000 0	1.131 0	0.000 0
Title: Compact Swaging Machine Articles: Description: Compact Swaging Machine - This program will replace the current process for attaching the terminal on the arresting gear purchase cable with a swaged terminal design that will be pressed on by means of a high density, compact, swaging machine. FY 2012 Accomplishments: Implemented design modifications into the test article and continue testing. FY 2013 Plans: Prepare the test article for installation and testing. FY 2014 Plans: Commence shipboard test and evaluation.		0.500 0	0.198 0	0.252 0
Title: Aircraft Launch & Recovery Equipment Modernization Articles:		1.600 0	0.906 0	1.662 2

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2012	FY 2013	FY 2014	
Description: Improved Fresnel Lens Optical Landing System and Improved Manually Operated Visual Landing Aid System to improve carrier aviations operations. FY 2012 Accomplishments: Improved Fresnel Lens Optical Landing System - Conduct Technical Readiness Review and initiate integrated testing. FY 2013 Plans: Improved Manually Operated Visual Landing Aid System (IMOVLAS) - Commence System Design and Development. FY 2014 Plans: Improved Manually Operated Visual Landing Aid System - Continue System Design and Development of two production representative models.											
Title: Aircraft Launch & Recovery Equipment (ALRE) SLMP Description: ALRE SLMP analyzes launch and recovery equipment to determine feasible fielded equipment improvements. FY 2012 Accomplishments: Complete analysis on the Mark 7 (MK-7) arresting gear and the C13-2 Catapult. Commence design, development and testing for MK-7 components and subcomponents. FY 2013 Plans: Begin modeling and analysis of the C13-1 Catapult. Commence design, development and testing for C13-2 Catapult components and subcomponents. Continue design, development and testing for MK-7 components and subcomponents. FY 2014 Plans: Continue launch and recovery equipment design, development, analysis and testing as well as the implementation of the Cross Deck Pendants life analysis program.								Articles: 4.968 0	6.176 0	11.461 0	
Accomplishments/Planned Programs Subtotals								47.903	55.826	69.615	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/4216: Aircraft Launch & Recovery Equipment	19.777	82.618	59.502		59.502	52.049	70.393	86.604	83.104	Continuing	Continuing

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/9020: Aircraft Launch & Recovery Equipment Spares	0.014	3.694	9.536		9.536	0.360	0.273	0.055	6.405	0.000	23.492
• SCN/2001: Carrier Replacement Program	554.798	608.195	944.866		944.866	1,834.072	1,918.441	2,539.826	2,954.419	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
Advanced Arresting Gear (AAG): The Navy competitively awarded two Cost Plus Fixed Fee Technical Development phase contracts to develop the AAG system. Upon completion of the Preliminary Design and Integrated Baseline reviews, the Navy awarded a single Cost Plus Award Fee option to General Atomics for the System Development and Demonstration (SDD) phase to develop and demonstrate a production representative Advanced Arresting Gear (AAG) at the NAVAIR Lakehurst Jet Car Track Site and Runway Arrested Landing Site. In March 2009, the AAG program awarded a SDD contract modification to General Atomics for Transition to Production planning. Aviation Data Management and Control System (ADMACS): The Navy continues to design and develop ADMACS using commercially available servers, switches, workstations and database and communications software. One Engineering Development Model and 2 Low Rate Initial Production systems have been procured from a directed 8(a) Alaskan Native Corporation source. Compact Swaging Machine: The Navy amended an existing Small Business Technology Transfer Phase III contract in order to build and test a prototype high density swaging machine which has been developed under Defense Acquisition Challenge Program funding (OSD PE 060051D8Z). Aircraft Launch & Recovery Equipment Modernization: (a) Improved Fresnel Lens Optical Landing System Phase IV (IFLOLS): The Navy will develop IFLOLS using commercial equipment racks, processors and displays. (b) Improved Manually Operated Visual Landing Aid System (IMOVLAS): The Navy will develop IMOVLAS using commercial equipment racks, processors and displays. Aircraft Launch & Recovery Equipment Service Life Management Program: This program will consist of Service Life Assessment and Extension initiatives and will establish the design foundation (structural, reliability and maintainability analyses), permit appropriate assessment, track and focus design changes where most needed.											
E. Performance Metrics											
Advanced Arresting Gear (AAG) will complete System Development and Demonstration Integrated testing at Jet Car Track Site and Runway Arrested Landing Site. AAG will demonstrate its key performance parameters and readiness for operational test.											

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Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HW Dev -AAG	C/CPAF	Gen Atomics:San Diego, CA	252.933	22.600	Feb 2012	27.513	Dec 2012	20.017	Dec 2013	-		20.017	5.000	328.063	324.263
Award Fees-AAG	C/CPAF	Gen Atomics:San Diego, CA	1.050	0.000		0.000		0.000		-		0.000	0.000	1.050	1.050
Primary HW Dev-AAG	WR	NAWCAD:Lakehurst, NJ	18.798	4.605	Nov 2011	5.025	Nov 2012	8.034	Nov 2013	-		8.034	7.722	44.184	
System Eng-AAG	WR	NAWCAD:Lakehurst, NJ	11.294	1.610	Nov 2011	2.244	Nov 2012	3.241	Nov 2013	-		3.241	2.610	20.999	
System Eng-AAG	C/CPFF	L3 Services,Inc.:Marlton, NJ	0.351	0.075	Jan 2012	0.000		0.000		-		0.000	0.000	0.426	0.426
Shipboard Intgrn-AAG	WR	NAWCAD:Lakehurst, NJ	3.044	0.480	Nov 2011	1.044	Nov 2012	1.055	Nov 2013	-		1.055	0.909	6.532	
Primary HW Dev-ADMACS BLK 3	WR	NAWCAD:Lakehurst, NJ	1.375	1.368	Nov 2011	0.775	Jan 2013	0.177	Nov 2013	-		0.177	0.000	3.695	
Primary S/W Dev-ADMACS BLK3	WR	NAWCAD:Lakehurst, NJ	0.400	2.133	Nov 2011	0.000		0.000		-		0.000	0.000	2.533	
System Eng-ADMACS Blk 3	WR	NAWCAD:Lakehurst, NJ	0.000	0.470	Nov 2011	0.200	Jan 2013	0.090	Nov 2013	-		0.090	0.000	0.760	
Shipboard Integration-ADMACS Blk 3	WR	NAWCAD:Lakehurst, NJ	0.000	0.000		0.545	Jan 2013	0.185	Nov 2013	-		0.185	0.000	0.730	
Primary HW Dev-EMALS Tech Insert	C/CPFF	Electro Standards Laboratories:Cranston, RI	1.261	0.635	Dec 2011	0.750	Apr 2013	0.000		-		0.000	0.000	2.646	2.646
System Eng-EMALS Tech Insert	WR	NAWCAD:Lakehurst, NJ	0.335	0.365	Nov 2011	0.355	Apr 2013	0.000		-		0.000	0.000	1.055	
Primary HW Dev-CSM	SS/CPFF	Creare Inc.:Hanover, NH	1.604	0.141	Mar 2012	0.000		0.000		-		0.000	0.000	1.745	1.745
System Eng-CSM	WR	NAWCAD:Lakehurst, NJ	0.462	0.129	Nov 2011	0.000		0.000		-		0.000	0.000	0.591	
Shipboard Integration-CSM	WR	NAWCAD:Lakehurst, NJ	0.000	0.000		0.198	Dec 2012	0.066	Nov 2013	-		0.066	0.000	0.264	

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Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HW Dev-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	3.124	0.914	Nov 2011	0.000		0.000		-		0.000	0.000	4.038	
System Eng-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	1.366	0.206	Nov 2011	0.000		0.000		-		0.000	0.000	1.572	
Primary HW Dev-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	0.000	0.000		0.720	Dec 2012	0.956	Nov 2013	-		0.956	1.086	2.762	
System Eng-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	0.000	0.000		0.096	Dec 2012	0.298	Nov 2013	-		0.298	0.254	0.648	
Primary HW Dev-SLMP	WR	NAWCAD:Lakehurst, NJ	2.581	0.000		3.290	Jan 2013	0.927	Nov 2013	-		0.927	6.171	12.969	
Prior Year Cost No Longer Funded in FYDP	Various	Various:Various	25.694	0.000		0.000		0.000		-		0.000	0.000	25.694	
Subtotal			325.672	35.731		42.755		35.046		0.000		35.046	23.752	462.956	
Remarks															
Note: \$1.05M (10.5%) in Award Fees have been paid out of the \$10M Award Fee Pool; the contractor Gen Atomics, San Diego, CA has waived remaining Award Fees. Target Value of Contract for Primary HW Dev-AAG is less than Total Cost due to the Cost Growth of the Contract.															
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ILS-AAG	WR	NAWCAD:Lakehurst, NJ	7.790	1.354	Nov 2011	3.329	Nov 2012	2.977	Nov 2013	-		2.977	Continuing	Continuing	Continuing
ILS-ADMACS BLK 3	WR	NAWCAD:Lakehurst, NJ	0.283	0.230	Nov 2011	0.259	Jan 2013	0.060	Nov 2013	-		0.060	0.000	0.832	
ILS-CSM	WR	NAWCAD:Lakehurst, NJ	0.132	0.084	Nov 2011	0.000		0.040	Nov 2013	-		0.040	0.000	0.256	
ILS-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	0.125	0.133	Nov 2011	0.000		0.000		-		0.000	0.000	0.258	
ILS-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	0.000	0.000		0.090	Dec 2012	0.258	Nov 2013	-		0.258	0.363	0.711	

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Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ILS-SLMP	WR	NAWCAD:Lakehurst, NJ	0.092	0.000		0.096	Jan 2013	0.098	Nov 2013	-		0.098	0.306	0.592	
Studies & Analysis-SLMP	WR	NAWCAD:Lakehurst, NJ	0.000	3.774	Nov 2011	2.220	Jan 2013	2.428	Nov 2013	-		2.428	7.309	15.731	
Prior Year Cost No Longer Funded in FYDP	Various	Various:Various	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	
Subtotal			8.672	5.575		5.994		5.861		0.000		5.861			
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Test & Eval-AAG	WR	NAWCAD:Lakehurst, NJ	11.812	4.471	Nov 2011	4.996	Dec 2012	19.830	Dec 2013	-		19.830	9.638	50.747	
Operational T&E-AAG	WR	Various:Various	1.313	0.240	Nov 2011	0.250	Dec 2012	0.250	Dec 2013	-		0.250	0.250	2.303	
Dev Test Lab-ADMACS BLK 3	WR	NAWCAD:Lakehurst, NJ	0.000	0.000		0.534	Jan 2013	0.131	Nov 2013	-		0.131	0.000	0.665	
Integrated Testing ADMACS BLK 3	WR	NAWCAD:Lakehurst, NJ	0.000	0.000		0.500	Jan 2013	0.000		-		0.000	0.000	0.500	
Dev Test & Eval-EMALS Tech Insert	WR	NAWCAD:Lakehurst, NJ	0.025	0.000		0.026	Apr 2013	0.000		-		0.000	0.000	0.051	
Performance Test-CSM	WR	NAWCAD:Lakehurst, NJ	1.655	0.146	Nov 2011	0.000		0.146	Nov 2013	-		0.146	0.000	1.947	
Dev Test & Eval-Modern IFOLS	WR	NAWCAD:Lakehurst, NJ	0.324	0.347	Nov 2011	0.000		0.000		-		0.000	0.000	0.671	
Integrated Testing-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	0.000	0.000		0.000		0.150	Nov 2013	-		0.150	0.301	0.451	
Materials/Validation Testing-SLMP	WR	NAWCAD:Lakehurst, NJ	0.000	1.194	Nov 2011	0.570	Jan 2013	8.008	Nov 2013	-		8.008	Continuing	Continuing	Continuing
Prior Year Cost No Longer Funded in FYDP	Various	Various:Various	0.102	0.000		0.000		0.000		-		0.000	0.000	0.102	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy													DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>							R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>					PROJECT 2232: <i>CV/CVN Launch and Recover</i>			

Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			15.231	6.398		6.876		28.515		0.000		28.515			

Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prgm Mgnt Supt	C/CPFF	Sierra:California, MD	0.629	0.163	Dec 2011	0.170	Dec 2012	0.170	Dec 2013	-		0.170	0.800	1.932	1.932
Travel	Reqn	NAVAIR:Pax River, MD	0.321	0.036	Nov 2011	0.031	Nov 2012	0.023	Nov 2013	-		0.023	0.180	0.591	
Subtotal			0.950	0.199		0.201		0.193		0.000		0.193	0.980	2.523	

			All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			350.525	47.903		55.826		69.615		0.000		69.615			

Remarks

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PE 0604512N: *Shipboard Aviation Systems*
Navy

R-1 Line #110

R-1 ITEM NOMENCLATURE

PE 0604512N: *Shipboard Aviation Systems*

2232: CV/CVN Launch and Recover

ADVANCED ARRESTING GEAR (AAG)		FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018						
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q			
Aquisition Milestones																																
	Milestones																															
Systems Development																																
	Hardware Development	SDD																														
	Software Development																															
	Reviews/Assessments																															

2014PB - 0604512N - 2232

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy																							DATE: April 2013					
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)												R-1 ITEM NOMENCLATURE PE 0604512N: Shipboard Aviation Systems												PROJECT 2232: CV/CVN Launch and Recover				
AVIATION DATA MANAGEMENT & CONTROL SYSTEM (ADMACS) BLK 3	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
Systems Development																												
Software and Hardware Design	Design & Dev Phase																											
Reviews							CDR		TRR																			
Test & Evaluation																												
Technical Evaluation																												
Production Milestone																												
Contract Awards																												
Deliveries																												
2014PB - 0604512N - 2232																												

2014PB - 0604512N - 2232

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy																								DATE: April 2013							
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)												R-1 ITEM NOMENCLATURE PE 0604512N: Shipboard Aviation Systems												PROJECT 2232: CV/CVN Launch and Recover							
ELECTROMAGNETIC AIRCRAFT LAUNCH SYSTEM (EMALS) - SENSORLESS CONTROLS				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
				1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																															
Milestones																															
System Development																															
Hardware/Software Development				SD&T																											
Reviews																															
Test and Evaluation																															
Technical Evaluation																															
Operational Evaluation																															
Production Milestones																															
Contract Awards																															
Deliveries																															
2014PB - 0604512N - 2232																															

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PE 0604512N: *Shipboard Aviation Systems*
Navy

R-1 Line #110

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy
BA 5: System Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604512N: *Shipboard Aviation Systems*

PROJECT	
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2232: CV/CVN Launch and Recover

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2014PB - 0604512N - 2232

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy																							DATE: April 2013									
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)												R-1 ITEM NOMENCLATURE PE 0604512N: Shipboard Aviation Systems												PROJECT 2232: CV/CVN Launch and Recover								
ALRE MODERNIZATION-Improved Fresnel Lens Optical Landing Sys (IFLOLS)					FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
					1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																																
Milestones																																
Systems Development																																
Hardware/Software Development					SDD																											
Review					TRR																											
					■																											
Test and Evaluation																																
Operational Evaluation																																
Technical Evaluation					IT																											
Production Milestones																																
Contract Awards																																
Deliveries																																
2014PB - 0604512N - 2232																																

2014PB - 0604512N - 2232

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy																DATE: April 2013																					
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)										R-1 ITEM NOMENCLATURE PE 0604512N: Shipboard Aviation Systems								PROJECT 2232: CV/CVN Launch and Recover																			
ALRE MODERNIZATION - Improved Manually Operated Visual Landing Aide Sys (IMOVLAS)										FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
										1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																																					
Milestones																																					
Systems Development																																					
Hardware/Software Development										SDD																											
Review																																					
Test and Evaluation																																					
Operational Evaluation																																					
Technical Evaluation																																					
Production Milestones																																					
Contract Awards																																					
Deliveries																																					
2014PB - 0604512N - 2232																																					

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy																DATE: April 2013													
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)												R-1 ITEM NOMENCLATURE PE 0604512N: Shipboard Aviation Systems								PROJECT 2232: CV/CVN Launch and Recover									
ALRE SERVICE LIFE MANAGEMENT PROGRAM (SLMP)		FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquistion Milestones																													
Milestones																													
Systems Development																													
Hardware/Software Development		Eng Analysis																											
		SDD																											
Test & Evaluation																													
Technical Evaluation		Material/Validation Testing																											
Operational Evaluation																													
Production Milestones																													
Contract Awards																													
Deliveries																													
2014PB - 0604512N - 2232																													

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>	PROJECT 2232: <i>CV/CVN Launch and Recover</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ADVANCED ARRESTING GEAR (AAG)				
Aquisition Milestones: Milestones: Milestone C	4	2015	4	2015
Systems Development: Hardware Development: System Design & Development (SDD Phase)	1	2012	4	2015
Systems Development: Reviews/Assessments: Integrated Logistic Assessment (ILA)	3	2014	3	2015
Systems Development: Reviews/Assessments: Physical Configuration Assessment (PCA)	1	2012	4	2014
Systems Development: Reviews/Assessments: Technical Readiness Review (TRR1) JCTS Commissioning Deadload	1	2012	1	2012
Systems Development: Reviews/Assessments: Technical Readiness Review (TRR2) JCTS Performance Deadload	1	2013	1	2013
Systems Development: Reviews/Assessments: Technical Readiness Review (TRR3) RALS	2	2014	2	2014
Test & Evaluation: Technical Evaluation: Jet Car Test Site (JCTS) Test	1	2012	3	2013
Test & Evaluation: Technical Evaluation: Environmental Qualification Test (EQT)	1	2012	2	2015
Test & Evaluation: Technical Evaluation: Runway Arrested Landing Site Test (RALS)	3	2014	1	2015
Test & Evaluation: Technical Evaluation: Shipboard Test / OPEVAL	2	2016	1	2018
Test & Evaluation: Technical Evaluation: JCTS Development Test Report (DTR)	3	2013	3	2013
Test & Evaluation: Technical Evaluation: RALS Development Test Report (DTR)	1	2015	1	2015
Production Milestones: Contract Award: Low Rate Initial Production (LRIP) OPN	3	2013	3	2013
Production Milestones: Deliveries: Low Rate Initial Production (LRIP) OPN Qty 3	1	2015	1	2015
AVIATION DATA MANAGEMENT & CONTROL SYSTEM (ADMACS) BLK 3				
Systems Development: Software and Hardware Design: Design and Development Phase	1	2012	1	2014

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy			DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)		R-1 ITEM NOMENCLATURE PE 0604512N: Shipboard Aviation Systems		PROJECT 2232: CV/CVN Launch and Recover
		Start		End
Events by Sub Project		Quarter	Year	Quarter Year
Systems Development: Reviews: Critical Design Review (CDR)		3	2013	3 2013
Systems Development: Reviews: Test Readiness Review (TRR)		1	2014	1 2014
Test & Evaluation: Technical Evaluation: Interface Testing		1	2014	4 2014
Test & Evaluation: Technical Evaluation: Functional Qualification Testing		1	2014	3 2014
ELECTROMAGNETIC AIRCRAFT LAUNCH SYSTEM (EMALS) - SENSORLESS CONTROLS				
System Development: Hardware/Software Development: System Desgin, Development and Testing		1	2012	2 2013
COMPACT SWAGING MACHINE (CSM)				
Systems Development: Reviews: Program Readiness Review (PRR)		2	2015	2 2015
Systems Development: Reviews: Configuration Control Board (CCB)		3	2015	3 2015
Test and Evaluation: Technical Evaluation: Electromagnetic Interference (EMI)		2	2012	2 2012
Test and Evaluation: Technical Evaluation: Shock Vibration Test		3	2012	3 2012
Test and Evaluation: Technical Evaluation: Shipboard Test & Eval		3	2013	4 2014
ALRE MODERNIZATION-Improved Fresnel Lens Optical Landing Sys (IFLOLS)				
Systems Development: Hardware/Software Development: Design and Development		1	2012	4 2012
Systems Development: Review: Test Readiness Review (TRR)		1	2012	1 2012
Test and Evaluation: Technical Evaluation: Integrated Test		1	2012	4 2012
ALRE MODERNIZATION - Improved Manually Operated Visual Landing Aide Sys (IMOVLAS)				
Systems Development: Hardware/Software Development: Design and Development		1	2013	4 2015
Systems Development: Hardware/Software Development: System Readiness Review		3	2013	3 2013
Systems Development: Review: Preliminary Design Review (PDR)		4	2013	4 2013
Systems Development: Review: Critical Design Review (CDR)		2	2014	2 2014
Systems Development: Review: Test Readiness Review (TRR)		1	2015	1 2015
Test and Evaluation: Technical Evaluation: Integrated Test		1	2015	4 2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy			DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)		R-1 ITEM NOMENCLATURE PE 0604512N: Shipboard Aviation Systems		PROJECT 2232: CV/CVN Launch and Recover
		Start		End
Events by Sub Project		Quarter	Year	Quarter Year
ALRE SERVICE LIFE MANAGEMENT PROGRAM (SLMP)				
Systems Development: Hardware/Software Development: Engineering Analysis		1	2012	4 2017
Systems Development: Hardware/Software Development: System Design and Development		1	2012	4 2017
Test & Evaluation: Technical Evaluation: Material and Validation Testing		1	2012	4 2017