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Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy	DATE: February 2012
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APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>				PE 0604512N: <i>Shipboard Aviation Systems</i>							
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	68.438	45.445	55.826	-	55.826	30.354	19.458	19.696	20.087	Continuing	Continuing
2232: <i>CV/CVN Launch and Recover</i>	68.438	45.445	55.826	-	55.826	30.354	19.458	19.696	20.087	Continuing	Continuing

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) Advanced Launch Control System
- (5) Compact Swaging Machine
- (6) Aircraft Launch & Recovery Equipment Modernization
- (7) Aircraft Launch and Recovery Equipment Service Life Management program
- (8) Advanced Prognostics for Steam Catapults

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APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
1319: Research, Development, Test & Evaluation, Navy		PE 0604512N: Shipboard Aviation Systems			
BA 5: Development & Demonstration (SDD)					
B. Program Change Summary (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	70.117	45.445	18.829	-	18.829
Current President's Budget	68.438	45.445	55.826	-	55.826
Total Adjustments	-1.679	-	36.997	-	36.997
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.300	-			
• SBIR/STTR Transfer	-1.022	-			
• Program Adjustments	-	-	36.958	-	36.958
• Rate/Misc Adjustments	-	-	0.039	-	0.039
• Congressional General Reductions Adjustments	-0.357	-	-	-	-
Change Summary Explanation					
Schedule:					
Aviation Data Management and Control System Blk 3 - Test dates realigned to coordinate with availability of test assets for Electromagnetic Aircraft Launch System (EMALS) and Advanced Arresting Gear.					
EMALS - The Sensorless Control for Linear Motors contract awarded in Sept. 2010. Based on this award date, the program's plan of action and milestone's (POA&M) were adjusted accordingly.					
Advanced Launch Control System - Program cancelled in order to fund higher priority programs within the program element.					
Compact Swaging Machine - Delay in test article completion resulted in performance testing starting in 2nd Qtr FY11. The test article will be delivered in 4th Qtr 2011, with electromagnetic interference and shock vibration testing being conducted in FY12. Shipboard testing and evaluation to commence in 3rd Qtr 2013.					
Aircraft Launch & Recovery Equipment Modernization Improved Fresnel Lens Optical Landing System - Due to enhanced Preliminary Design Review (PDR) requirements, the Critical Design Review (CDR) and Test Readiness Review moved from 2nd and 3rd Qtrs of FY11 to 4th Qtr FY11 and 1st Qtr of FY12. Subsequently, the integrated test period was adjusted accordingly.					
Aircraft Launch & Recovery Equipment Modernization Improved Manually Operated Visual Landing Aid System - Based on enhanced PDR and CDR requirements, the program's plan of action and milestones (POA&M) were adjusted accordingly.					

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Technical: Not Applicable. Cost: Added funding in FY 13 to the AAG effort to properly price the program. Cost increases are due to schedule delays reported in PB12. Added funding (\$9.9M) in FY 11 to properly price program (not included in above controls).		

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Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy									DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT			
1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)				PE 0604512N: Shipboard Aviation Systems				2232: CV/CVN Launch and Recover			
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2232: CV/CVN Launch and Recover	68.438	45.445	55.826	-	55.826	30.354	19.458	19.696	20.087	Continuing	Continuing
Quantity of RDT&E Articles	2	0	1	0	1	0	0	0	0		

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 (V/STOL)) 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 MK7 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 2: Is a shipboard aviation information management system providing CVN aviation planning, execution and readiness assessment using integrated decision aids and supporting systems built into a highly adaptive system. ADMACS Block 2 provides a real time, fault tolerant (redundant), tactical information management system. The Block 2

test article consists of network switches, servers, workstations and affiliated database and communications software.

(b). ADMACS Block 3: ADMACS Block 3 will integrate the EMALS and AAG interfaces into its baseline as well as automation of data input and introduction of intelligent agents and decision aides.

(3). Electromagnetic Aircraft Launch System (EMALS) Technology Insertion: 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 test article (FY13) will be manufactured, installed at the EMALS System Functional Demonstration site and tested. The EMALS system was developed under the carrier system development program element (0603512N).

(4). Advanced Launch Control System (ALCS): ALCS will introduce control, prognostics and health monitoring technology into the steam catapult; providing a common operator interface, reduced maintenance, and enhanced availability. The insertion of an array of sensors into the steam catapult, an information technology infrastructure, algorithm

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APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604512N: Shipboard Aviation Systems	PROJECT 2232: CV/CVN Launch and Recover		
development, and integration with ADMACS will provide health monitoring and prognostics, as well as maintenance and workload reductions. Program cancelled in order to fund higher priority programs within the PE.				
(5). 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.				
(6). Aircraft Launch & Recovery Equipment (ALRE) Modernization: (a). Improved Fresnel Lens Optical Landing System (IFLOLS) Phase 4: Control system processor and digital interfaces upgrades to support Built-In-Test (BIT), Aviation Data Management and Control System integration & maintenance /obsolescence reduction. (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 (VLA). IMOVLAS will be used in high sea states or if IFLOLS is inoperable, and will mirror current IFLOLS configuration in size & display.				
(7). ALRE Service Life Management Program (SLMP): The ALRE SLMP for Catapult and Arresting Gear Systems is required to sustain carrier aviation operations of higher energy aircraft launch and recoveries that are increasing loads on the Launcher & Arresting Systems, 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.				
(8). Advanced Prognostics for Steam Catapults (APSC): This program was previously funded under Office of Naval Research PE 0203761N Technology Insertion Program for Savings (TIPS). APSC Waterbrake Monitoring Systems is intended to introduce diagnostics that assess the health of the catapult water brake by leveraging lessons learned from engineering investigations and an algorithm already in development.				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2011	FY 2012	FY 2013
Title: Advanced Arresting Gear (AAG)		54.410	29.345	44.342
Articles:		0	0	0
Description: The AAG program will design, develop, test and field an aircraft arrestment system to replace the MK7 arresting gear.				
FY 2011 Accomplishments: Continued Jet Car Track Site (JCTS) commissioning. Conducted JCTS system checkout deadloads. Initiated JCTS integrated testing/performance deadloads. Prepared Runway Arrested Landing Site (RALS) test site.				
FY 2012 Plans: Conduct and complete JCTS integrate testing/performance deadloads. Remove test system from JCTS in preparation for installation at RALS. Install, integrate and commission test system at RALS site.				
FY 2013 Plans:				

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2011	FY 2012	FY 2013
Conduct integrated testing at RALS. Conduct system maintenance demonstration at RALS. Support Initial Operational Test & Evaluation (IOT&E) efforts.				
Title: Aviation Data Management and Control System (ADMACS) Block 2 Description: Aviation Data Management and Control System Block 2 provides real time, fault tolerant (redundant), tactical information management system. FY 2011 Accomplishments: Completed installation onboard CVN-69. Completed Technical and Operational Evaluation.		0.102 0 Articles:	-	-
Title: Aviation Data Management and Control System (ADMACS) Block 3 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 as well as automation of data input and introduction of intelligent agents and decision aides. FY 2011 Accomplishments: Completed Systems Requirement Review (SRR). Conducted Preliminary Design Review (PDR). FY 2012 Plans: Conduct Critical Design Review (CDR). FY 2013 Plans: Conduct Test Readiness Review (TRR). Commence interface and functional qualification testing of Block 3 interfaces.		2.058 0 Articles:	4.712 0	2.313 0
Title: Electromagnetic Aircraft Launch Systems (EMALS) Technology Insertion Description: 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. A test article (FY13) will be manufactured, installed at the EMALS System Functional Demonstration (SFD) site and tested. FY 2011 Accomplishments: Conducted Post Award Conference; Completed concurrent System Requirements Review (SRR) and System Functional Review (SFR); Initiated hardware development and integration at Advanced Linear Motor (ALM) site. FY 2012 Plans:		1.621 0 Articles:	1.788 0	1.131 1

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2011	FY 2012	FY 2013
Continue hardware development and integration at Advanced Linear Motor (ALM) site. Construct/Test Electro Standard Laboratories Dual Test Bed. FY 2013 Plans: Conduct concurrent Preliminary and Critical Design Reviews; Procure test article for incorporation into the System Functional Demonstration site.				
Title: Advanced Launch Control System (ALCS) Articles: Description: ALCS- Introduce control, prognostics and health monitoring technology into the steam catapult, providing a common operator interface, reduced maintenance and enhanced availability. Program cancelled in order to fund higher priority programs within the PE. FY 2011 Accomplishments: Completed the functional baseline for legacy controls system, with interfaces; Completed notional architecture for ALCS; Completed draft CONOPS and draft test and evaluation strategy. Performed Diminishing Manufacturing Sources and Material Shortages (DMSMS) analysis.		1.780 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 2011 Accomplishments: Implemented design modifications into the test article unit and conducted performance testing, consisting of various bench testing to support entrance criteria requirements for shore based jet car track and aircraft testing. FY 2012 Plans: Conduct Electromagnetic Interference (EMI) and shock vibration testing. FY 2013 Plans: Commence shipboard test and evaluation.		1.953 1	0.500 0	0.198 0
Title: Aircraft Launch & Recovery Equipment (ALRE) Modernization Articles:		3.507 1	1.600 0	0.906 0

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2011	FY 2012	FY 2013
Description: Improved Fresnel Lens Optical Landing System (IFLOLS) and Improved Manually Operated Visual Landing Aid System (IMOVLAS) to improve carrier aviations operations. FY 2011 Accomplishments: IFLOLS - Completed Preliminary Design Review (PDR) and completed Critical Design Review (CDR). FY 2012 Plans: Improved Fresnel Lens Optical Landing System - Conduct Technical Readiness Review (TRR) and initiate integrated testing. Improved Manually Operated Visual Landing Aid System (IMOVLAS) - Commence Systems Design and Development (SDD). FY 2013 Plans: IMOVLAS - Conduct System Readiness Review (SRR) and Preliminary Development Review (PDR).				
Title: Aircraft Launch & Recovery Equipment (ALRE) SLMP Description: ALRE SLMP is to study the C-13 catapult and MK-7 arresting gear to determine where to design fielded equipment improvement. Address fielding of higher energy aircraft. FY 2011 Accomplishments: Completed solid modeling of the entire C13-2 Catapult and MK-7 arresting gear. Completed analysis on the MK-7 crosshead component. Completed In-Process Review (IPR) for the Catapult Water Brake. Started Analysis on the Catapult Improved Piston Assembly (IPA). FY 2012 Plans: Complete analysis on the 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.		Articles: 3.007 0	5.400 0	6.177 0
Title: Advanced Prognostics for Steam Catapults (APSC) Description: APSC: This program was previously funded under Office of Naval Research PE 0203761N Technology Insertion Program for Savings (TIPS). The APSC Waterbrake Monitoring Systems WBMS is intended to introduce diagnostics that assess		Articles: -	2.100 0	0.759 0

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2011	FY 2012	FY 2013
the health of the catapult water brake by leveraging lessons learned from engineering investigations and an algorithm already in development.											
FY 2012 Plans: Commence Design and Development.											
FY 2013 Plans: Complete Critical Design Review (CDR) and Test Readiness Review's (TRR). Conduct land based/shipboard testing.											
Accomplishments/Planned Programs Subtotals									68.438	45.445	55.826
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/4216: Aircraft Launch & Recovery Equipment	28.724	19.777	82.618	0.000	82.618	65.088	48.613	55.584	56.603	Continuing	Continuing
• OPN/9020: Aircraft Launch & Recovery Equipment Spares	0.568	0.014	3.694	0.000	3.694	0.879	0.198	0.176	0.173	0.000	8.289
D. Acquisition Strategy											
Advanced Arresting Gear (AAG): The Navy competitively awarded two Cost Plus Fixed Fee Technical Development phase contracts to develop the AAG. 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 SDD phase to develop and demonstrate a production representative 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 (EDM) and 2 Low Rate Initial Production (LRIP) systems have been procured from a directed 8(a) Alaskan Native Corporation source.											
Electromagnetic Aircraft Launch System (EMALS): Technology Insertion: The Navy will develop emerging technologies for insertion into EMALS and has awarded a contract to develop, manufacture, and install a test article at the EMALS System Functional Demonstration (SFD) site at Lakehurst, N.J.											
Compact Swaging Machine (CSM): The Navy amended an existing Small Business Technology Transfer (STTR) 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).											

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Aircraft Launch & Recovery Equipment (ALRE) Modernization: (a) Improved Fresnel Lens Optical Landing System (IFLOLS) Phase IV: The Navy will develop IFLOLS using commercial equipment racks, processors, & 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 (ALRE) 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. Advanced Prognostics for Steam Catapults (APSC): The Navy will design and develop the APSC system utilizing commercially available sensors, data acquisition systems and computer processors. The Navy will award a contract(s) to procure components for System Functional Demonstration (SFD) site at Lakehurst, N.J., shipboard demonstration and for final system implementation. <u>E. Performance Metrics</u> Advanced Arresting Gear will complete System Development and Demonstration integrated testing at Jet Car Track Site and Runway Arrested Landing Site. Demonstrating key performance parameters and readiness for operational test.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy										DATE: February 2012			
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Product Development (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HW Dev-AAG	C/CPFF	Northrop Grum:Sunnyvale, CA	12.418	-		-		-		-	0.000	12.418	12.418
Primary HW Dev -AAG	C/CPAF	Gen Atomics:San Diego, CA	232.889	12.811	Dec 2011	26.686	Dec 2012	-		26.686	0.000	272.386	272.386
Award Fees-AAG	C/CPAF	Gen Atomics:San Diego, CA	2.149	5.300	Aug 2012	0.187	Aug 2013	-		0.187	0.000	7.636	15.030
Primary HW Dev-AAG	WR	NAWCAD:Lakehurst, NJ	29.051	1.240	Nov 2011	2.501	Nov 2012	-		2.501	3.430	36.222	
System Eng-AAG	WR	NAWCAD:Lakehurst, NJ	11.757	1.262	Nov 2011	2.050	Nov 2012	-		2.050	4.639	19.708	
System Eng-AAG	C/CPFF	L3 Services,Inc.:Marlton, NJ	0.351	-		-		-		-	0.000	0.351	5.700
Shipboard Intgrn-AAG	WR	NAWCAD:Lakehurst, NJ	3.309	0.264	Nov 2011	0.795	Nov 2012	-		0.795	1.992	6.360	
Systems Engineering -AAG	C/CPFF	Wyle Lab, Inc:Huntsville, AL	0.103	-		-		-		-	0.000	0.103	0.103
Primary HW Dev-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	7.034	-		-		-		-	0.000	7.034	
Product Dev-ADMACS BLK 2	C/CPFF	Specialty Sys:Tom River ,NJ	0.508	-		-		-		-	0.000	0.508	0.508
Product Dev Supt-ADMACS BLK 2	C/CPFF	Sabre Sys:Warminster, PA	3.203	-		-		-		-	0.000	3.203	3.203
Shipboard Integ-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	1.200	-		-		-		-	0.000	1.200	
Shipboard Integ-ADMACS BLK 2	WR	PSNS:Bremerton, WA	0.100	-		-		-		-	0.000	0.100	
System Eng-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	0.140	-		-		-		-	0.000	0.140	
Primary HW Dev-ADMACS BLK 3	WR	NAWCAD:Lakehurst, NJ	0.983	2.171	Nov 2011	0.775	Nov 2012	-		0.775	0.100	4.029	

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Product Development (\$ in Millions)					FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
System Eng-ADMACS Blk 3	WR	NAWCAD:Lakehurst, NJ	0.750	1.000	Nov 2011	0.545	Nov 2012	-		0.545	0.100	2.395		
Shipboard Integration-ADMACS Blk 3	WR	NAWCAD:Lakehurst, NJ	-	-		0.200	Nov 2012	-		0.200	0.200	0.400		
Primary HW Dev-EMALS Tech Insert	C/CPFF	Electro Standards Laboratories:Cranston, RI	1.261	1.423	Dec 2011	0.750	Dec 2012	-		0.750	4.084	7.518	9.184	
System Eng-EMALS Tech Insert	WR	NAWCAD:Lakehurst, NJ	0.335	0.339	Nov 2011	0.355	Nov 2012	-		0.355	0.510	1.539		
System Eng-ALCS	WR	NAWCAD:Lakehurst, NJ	1.652	-		-		-		-	0.000	1.652		
Primary HW Dev-CSM	SS/CPFF	Creare Inc.:Hanover, NH	1.604	-		-		-		-	0.000	1.604	4.300	
System Eng-CSM	WR	NAWCAD:Lakehurst, NJ	0.362	0.100	Nov 2011	-		-		-	0.000	0.462		
Shipboard Integration-CSM	WR	NAWCAD:Lakehurst, NJ	-	-		0.198	Nov 2012	-		0.198	0.228	0.426		
Primary HW Dev-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	3.393	0.300	Nov 2011	-		-		-	0.000	3.693		
System Eng-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	1.686	-		-		-		-	0.000	1.686		
Primary HW Dev-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	-	-		0.720	Nov 2012	-		0.720	2.280	3.000		
System Eng-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	-	0.200	Nov 2011	0.096	Nov 2012	-		0.096	0.000	0.296		
Primary HW Dev-SLMP	WR	NAWCAD:Lakehurst, NJ	0.080	1.189	Nov 2011	3.290	Nov 2012	-		3.290	17.023	21.582		
Primary HW Dev-APSC	WR	NAWCAD:Lakehurst, NJ	-	2.065	Nov 2011	0.109	Nov 2012	-		0.109	0.000	2.174		
Subtotal			316.318	29.664		39.257		-		39.257	34.586	419.825		
Remarks Award Fee is 10% of estimated cost of SDD contract.														

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Support (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	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	7.977	1.505	Nov 2011	2.377	Nov 2012	-		2.377	7.540	19.399		
ILS-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	0.150	-		-		-		-	0.000	0.150		
ILS-ADMACS BLK 3	WR	NAWCAD:Lakehurst, NJ	0.325	0.341	Nov 2011	0.259	Nov 2012	-		0.259	0.100	1.025		
ILS-ALCS	WR	NAWCAD:Lakehurst, NJ	0.128	-		-		-		-	0.000	0.128		
ILS-CSM	WR	NAWCAD:Lakehurst, NJ	0.132	0.030	Nov 2011	-		-		-	0.000	0.162		
ILS-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	0.117	0.200	Nov 2011	-		-		-	0.000	0.317		
ILS-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	-	-		0.090	Nov 2012	-		0.090	0.362	0.452		
ILS-SLMP	WR	NAWCAD:Lakehurst, NJ	0.092	0.094	Nov 2011	0.096	Nov 2012	-		0.096	0.510	0.792		
Studies & Analysis-SLMP	WR	NAWCAD:Lakehurst, NJ	2.313	2.417	Nov 2011	2.220	Nov 2012	-		2.220	46.945	53.895		
ILS-APSC	WR	NAWCAD:Lakehurst, NJ	-	0.035	Nov 2011	0.036	Nov 2012	-		0.036	0.200	0.271		
Subtotal			11.234	4.622		5.078		-		5.078	55.657	76.591		
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	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	9.954	0.816	Nov 2011	9.283	Dec 2012	-		9.283	7.540	27.593		
Operational T&E-AAG	WR	Various:Various	1.323	0.230	Dec 2011	0.250	Dec 2012	-		0.250	2.300	4.103		
Facility Test-JCTS/RALS AAG	WR	NAWCAD:Lakehurst, NJ	8.764	5.704	Nov 2011	-		-		-	9.650	24.118		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy											DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE				PROJECT					
1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)					PE 0604512N: Shipboard Aviation Systems				2232: CV/CVN Launch and Recover					
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Dev Test Lab-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	0.450	-		-		-		-	0.000	0.450		
Integrated Test-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	0.235	-		-		-		-	0.000	0.235		
Dev Test Lab-ADMACS BLK 3	WR	NAWCAD:Lakehurst, NJ	-	1.200	Nov 2011	0.534	Nov 2012	-		0.534	0.151	1.885		
Dev Test & Eval-EMALS Tech Insert	WR	NAWCAD:Lakehurst, NJ	0.025	0.026	Nov 2011	0.026	Nov 2012	-		0.026	2.566	2.643		
Dev Test & Eval-ALCS	WR	NAWCAD:Lakehurst, NJ	-	-		-		-		-	0.000	0.000		
Performance Test-CSM	WR	NAWCAD:Lakehurst, NJ	1.655	0.370	Nov 2011	-		-		-	0.000	2.025		
Dev Test & Eval-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	-	0.900	Nov 2011	-		-		-	0.000	0.900		
Integrated Testing-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	-	-		-		-		-	0.460	0.460		
Materials/Validation Testing-SLMP	WR	NAWCAD:Lakehurst, NJ	0.522	1.700	Nov 2011	0.570	Nov 2012	-		0.570	4.538	7.330		
Land Based/Shipboard Testing-APSC	WR	NAWCAD:Lakehurst, NJ	-	-		0.614	Nov 2012	-		0.614	0.000	0.614		
Subtotal			22.928	10.946		11.277		-		11.277	27.205	72.356		
Management Services (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	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	0.800	1.762	1.762	
Travel	Reqn	NAVAIR:Pax River, MD	0.327	0.050	Nov 2011	0.044	Nov 2012	-		0.044	0.180	0.601		
Subtotal			0.956	0.213		0.214		-		0.214	0.980	2.363		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy								DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604512N: Shipboard Aviation Systems				PROJECT 2232: CV/CVN Launch and Recover			
	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	351.436	45.445		55.826		-		55.826	118.428	571.135	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>	PROJECT 2232: <i>CV/CVN Launch and Recover</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>	PROJECT 2232: <i>CV/CVN Launch and Recover</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>	PROJECT 2232: <i>CV/CVN Launch and Recover</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>	PROJECT 2232: <i>CV/CVN Launch and Recover</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>	PROJECT 2232: <i>CV/CVN Launch and Recover</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>	PROJECT 2232: <i>CV/CVN Launch and Recover</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>	PROJECT 2232: <i>CV/CVN Launch and Recover</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>	PROJECT 2232: <i>CV/CVN Launch and Recover</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604512N: <i>Shipboard Aviation Systems</i>	PROJECT 2232: <i>CV/CVN Launch and Recover</i>

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Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>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	2	2013	2	2013
Systems Development: Hardware Development: System Design & Development (SDD Phase)	1	2011	1	2013
Systems Development: Reviews/Assessments: Integrated Logistic Assessment (ILA)	4	2012	4	2012
Systems Development: Reviews/Assessments: Physical Configuration Assessment (PCA)	3	2015	3	2015
Systems Development: Reviews/Assessments: Technical Readiness Review (TRR2A) JCTS Commissioning Deadload	2	2011	2	2011
Systems Development: Reviews/Assessments: Technical Readiness Review (TRR) RALS	3	2012	3	2012
Test & Evaluation: Technical Evaluation: Jet Car Test Site (JCTS) Test	1	2011	1	2012
Test & Evaluation: Technical Evaluation: Environmental Qualification Test (EQT)	1	2011	3	2012
Test & Evaluation: Technical Evaluation: Extended Reliability Testing (ERT2)	3	2012	2	2013
Test & Evaluation: Technical Evaluation: Runway Arrested Landing Site Test (RALS)	4	2012	1	2013
Test & Evaluation: Technical Evaluation: Integrated Testing (ITC1)	1	2013	4	2015
Test & Evaluation: Technical Evaluation: Shipboard Test	3	2013	4	2013
Test & Evaluation: Technical Evaluation: JCTS Development Test Report (DTR)	2	2012	2	2012
Test & Evaluation: Technical Evaluation: RALS Development Test Report (DTR)	2	2013	2	2013
Production Milestones: Contract Award: Low Rate Initial Production (LRIP) OPN	1	2013	1	2013
Production Milestones: Deliveries: Low Rate Initial Production (LRIP) OPN Qty 3	1	2015	1	2015
AVIATION DATA MANAGEMENT & CONTROL SYSTEM (ADMACS) BLK 3				

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Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy			DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: 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: Software and Hardware Design: Design and Development Phase		1	2011	1	2014
Systems Development: Reviews: System Requirement Review (SSR)		2	2011	2	2011
Systems Development: Reviews: Preliminary Design Review (PDR)		4	2011	4	2011
Systems Development: Reviews: Critical Design Review (CDR)		2	2012	2	2012
Systems Development: Reviews: Test Readiness Review (TRR)		1	2013	1	2013
Test & Evaluation: Technical Evaluation: Interface Testing		1	2013	1	2014
Test & Evaluation: Technical Evaluation: Functional Qualification Testing		1	2013	2	2013
EMALS TECHNOLOGY INSERTION (EMALS)					
System Development: Hardware/Software Development: System Desgin, Development and Testing		1	2011	4	2017
System Development: Reviews: System Requirements Review/System Functional Review		2	2011	2	2011
System Development: Reviews: Preliminary Design Review (PDR)/Critical Design Review (CDR)		3	2013	3	2013
System Development: Reviews: Test Readiness Review (TRR)		1	2014	1	2014
ADVANCED LAUNCH CONTROL SYSTEM (ALCS)					
Systems Development: Hardware/Software Development: Requirements Analysis & Trade Studies		1	2011	3	2011
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
Systems Development: Development Deliveries: Deliver Test Unit		4	2011	4	2011
Test and Evaluation: Technical Evaluation: Functional Testing		2	2011	2	2011
Test and Evaluation: Technical Evaluation: Performance Testing		2	2011	4	2011
Test and Evaluation: Technical Evaluation: Electromagnetic Interference (EMI)		1	2012	1	2012
Test and Evaluation: Technical Evaluation: Shock Vibration Test		2	2012	2	2012

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Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy			DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: 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
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	2011	4	2012
Systems Development: Review: Preliminary Design Review (PDR)	3	2011	3	2011
Systems Development: Review: Critical Design Review (CDR)	4	2011	4	2011
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	3	2012	1	2015
Systems Development: Hardware/Software Development: System Readiness Review	1	2013	1	2013
Systems Development: Review: Preliminary Design Review (PDR)	3	2013	3	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
ALRE SERVICE LIFE MANAGEMENT PROGRAM (SLMP)				
Systems Development: Hardware/Software Development: Engineering Analysis	3	2011	4	2014
Systems Development: Hardware/Software Development: System Design and Development	3	2011	4	2017
Test & Evaluation: Technical Evaluation: Material and Validation Testing	3	2011	3	2014
ADVANCED PROGNOSTICS FOR STEAM CATAPULTS (APSC)				
Systems Development: Hardware/Software Development: System Design and Development	1	2012	4	2013
Systems Development: Review: Critical Design Review (CDR)	1	2013	1	2013
Systems Development: Review: Technical Readiness Review (TRR1) (Landbased)	1	2013	1	2013
Systems Development: Review: Technical Readiness Review (TRR2) (Shipboard)	3	2013	3	2013

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Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy			DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: 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
Test & Evaluation: Technical Evaluation: Land-Based Test		1	2013	2 2013
Test & Evaluation: Technical Evaluation: Shipboard Test		3	2013	4 2013