Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy										DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*							
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	258.069	198.251	142.282	-	142.282	41.158	-	-	-	0.000	639.760
3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	230.797	198.251	142.282	-	142.282	41.158	-	-	-	0.000	612.488
3191: *UCAS Technical Maturation*	27.272	-	-	-	-	-	-	-	-	0.000	27.272

A. Mission Description and Budget Item Justification

The 2005 Quadrennial Defense Review published February 2006 and OSD Advanced Technology & Logistics Executive Committee Memorandum of February 2006 supported direction to restructure the Joint Unmanned Combat Air System (UCAS) program into a new Navy UCAS program. The Navy UCAS program will develop an unmanned, longer-range, carrier-based aircraft capable of being air-refueled to provide greater standoff capability, to expand payload and launch options, and to increase naval reach and persistence. The Navy was directed to demonstrate carrier operations, including Autonomous Aerial Refueling, of a Low Observable (LO) planform UCAS and to mature required technologies to a Technology Readiness Level-6; which, is required for a potential follow on acquisition program.

The Navy UCAS designed for autonomous launch and recovery as well as operations in the Carrier Control Area, is comprised of an Air Vehicle Segment, a Mission Control Segment (MCS) and a government led Aircraft Carrier Integration Segment. The scope of the Navy UCAS effort includes design, development, integration, and validation of an unmanned, LO planform Air Vehicle Segment and MCS in the land-based and shipboard environments. Evaluations will be conducted to investigate MCS interfaces with shipboard systems such as Primary Flight Control displays, Landing Safety Officer displays, and Carrier Air Traffic Control Center stations.

The Navy UCAS program will be structured to match program resources to United States Navy objectives and constraints with the goals of identifying and maturing critical technologies and reducing the risk of carrier integration of a UCAS. Candidate Technology Maturation efforts include transformational communications, advanced integrated propulsion, aircraft carrier suitable materials, LO sensors and apertures, sense and avoid functionality (in an LO environment), autonomous operations (software algorithms and interfaces), and computer resource data storage and access systems. Modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs are being developed as a result of the demonstration. Maturation of candidate technologies support the evaluation of alternatives needed for a future milestone decision.

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy					DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*			R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*		
B. Program Change Summary ($ in Millions)	**FY 2011**	**FY 2012**	**FY 2013 Base**	**FY 2013 OCO**	**FY 2013 Total**
Previous President's Budget	266.368	198.298	143.142	-	143.142
Current President's Budget	258.069	198.251	142.282	-	142.282
Total Adjustments	-8.299	-0.047	-0.860	-	-0.860
• Congressional General Reductions	-	-0.047			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-6.904	-			
• Program Adjustments	-	-	-1.024	-	-1.024
• Rate/Misc Adjustments	-	-	0.164	-	0.164
• Congressional General Reductions Adjustments	-1.395	-	-	-	-

Change Summary Explanation

Technical: N/A

Schedule: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	

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
3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	230.797	198.251	142.282	-	142.282	41.158	-	-	-	0.000	612.488
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Navy Unmanned Combat Air System (UCAS), designed for autonomous launch and recovery as well as operations in the Carrier Control Area, is comprised of an Air Vehicle Segment, a Mission Control Segment (MCS) and a government led Aircraft Carrier Integration Segment. The scope of the Navy UCAS effort includes design, development, integration, and validation of an unmanned, Low Observable (LO) planform Air Vehicle Segment and MCS in the land-based and shipboard environments. Evaluations will be conducted to investigate MCS interfaces with shipboard systems such as Primary Flight Control displays, Landing Safety Officer (LSO) displays, and Carrier Air Traffic Control Center (CATCC) stations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Product Development	208.357	168.497	122.721
Articles:	0	0	0

Description: The primary effort in the Navy UCAS program is design, development, integration and validation of Air Vehicle Segment, MCS and government led Aircraft Carrier Segment leading to a Carrier demonstration of an unmanned, LO planform UCAS system, and development of internal/external interface documents. In addition, design and development of hardware/ software to support Autonomous Aerial Refueling (AAR) will be conducted. Shipboard evaluation of the Navy UCAS includes integration of the Navy UCAS with shipboard systems such as Primary Flight Control displays, LSO displays and CATCC stations.

FY 2011 Accomplishments:

Continued efforts in the Navy UCAS program designing, developing, integrating and validating the Navy UCAS Air Vehicle Segment, MCS and government led Aircraft Carrier Integration Segment. Completed integration and checkout of Air Vehicle 2. Installed UCAS-D shipboard components on Nimitz class aircraft carrier. Continued design and development of hardware/ software to support AAR.

FY 2012 Plans:

Continue efforts in the Navy UCAS program designing, developing, integrating and validating the Navy UCAS Air Vehicle Segment, MCS and government led Aircraft Carrier Integration Segment. Installation of UCAS-D shipboard components on Nimitz class aircraft carrier. Continue AAR integration efforts.

FY 2013 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Continue efforts in the Navy Unmanned Combat Air System (UCAS) program designing, developing, integrating and validating the Navy UCAS Air Vehicle Segment, Mission Control Segment and government led Aircraft Carrier Integration Segment. Finalize temporary installations of UCAS-D shipboard components on Nimitz class aircraft carrier. Continue AAR integration efforts.			
Title: Test and Evaluation Support	10.897	15.443	8.650
Articles:	0	0	0
FY 2011 Accomplishments: Air Vehicle 1 successfully completed 3-flight initial envelope expansion testing at Edwards AFB. Air Vehicle 2 conducted its first flight and conducted airworthiness and envelope expansion testing at Edwards AFB. Conducted verification testing of the CVN Segment. Demonstrated autonomous systems operation and precision navigation capability at NAWCAD and on a Nimitz class aircraft carrier with surrogate aircraft. ***FY 2012 Plans:*** After airworthiness and envelope expansion test completion, Air Vehicles 1 and 2 will transfer to NAWCAD Patuxent River, MD for shore-based carrier suitability testing. Conduct shore-based carrier suitability testing with Air Vehicles 1 and 2. Conduct the final verification testing of the CVN segment. ***FY 2013 Plans:*** Continue shore-based carrier suitability testing with Air Vehicles 1 and 2 at NAWCAD Patuxent River, MD. Conduct Sea Trial testing, including ship landings, for Air Vehicles 1 and 2 aboard a Nimitz class aircraft carrier.			
Title: Management	11.543	14.311	10.911
Articles:	0	0	0
FY 2011 Accomplishments: Government management, engineering, and contract support. ***FY 2012 Plans:*** Government management, engineering, and contract support. ***FY 2013 Plans:*** Government management, engineering, and contract support.			
Accomplishments/Planned Programs Subtotals	230.797	198.251	142.282

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

D. Acquisition Strategy

In the 2005 Quadrennial Defense Review, the Navy was directed to restructure the Joint Unmanned Combat Air System (UCAS) program and develop an unmanned, longer-range carrier-based aircraft capable of being air-refueled to provide greater aircraft carrier standoff capability, to expand payload and launch options, and to increase naval reach and persistence. The primary goal is risk reduction for carrier integration while developing the critical data necessary to support a potential follow on acquisition milestone decision. The Navy UCAS effort will focus on designing, developing, and evaluating the core capabilities which safely demonstrate carrier interoperability. Currently, primary hardware development for the Navy UCAS effort is being performed under a Federal Acquisition Regulation based, cost plus incentive fee-type contract competitively awarded to a single contractor.

E. Performance Metrics

Complete airworthiness and envelope expansion testing. Conduct shore-based carrier suitability testing. Conduct F/A-18D surrogate aircraft testing with Nimitz class aircraft carrier. Conduct final sea trials of X-47B air vehicles. Demonstrate Autonomous Aerial Refueling.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aviation/ Ship Integration	C/CPFF	Rockwell/AFRL:Rome, NY	8.535	2.000	Nov 2011	1.638	Nov 2012	-		1.638	0.500	12.673	12.673
Aviation/ Ship Integration	C/CPFF	L-3 Com Titan:MD	10.278	2.000	Dec 2011	1.400	Dec 2012	-		1.400	1.340	15.018	15.018
Aviation/Ship Integration	WR	NAWCAD:MD	39.626	15.580	Nov 2011	14.443	Nov 2012	-		14.443	4.279	73.928	
Aviation/Ship Integration	C/CPIF	Various:Various	4.242	0.900	Jan 2012	0.843	Jan 2013	-		0.843	0.500	6.485	6.485
Primary Hardware Development	C/CPIF	Northrop Grumman Corporation:CA	752.550	129.140	Dec 2011	87.187	Dec 2012	-		87.187	13.212	982.089	982.089
Systems Engineering	WR	NAWCAD:MD	29.786	15.310	Nov 2011	12.857	Nov 2012	-		12.857	6.315	64.268	
Product Development	Various	Various:Various	97.551	3.567	Dec 2011	4.353	Dec 2012	-		4.353	1.231	106.702	
		Subtotal	942.568	168.497		122.721		-		122.721	27.377	1,261.163	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Support	Various	Various:Various	20.861	-		-		-		-	0.000	20.861	
		Subtotal	20.861	-		-		-		-	0.000	20.861	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	Edwards AFB:CA	9.475	4.737	Nov 2011	-	Nov 2012	-		-	0.000	14.212	
Developmental Test & Evaluation	WR	NAWCAD:MD	16.374	10.338	Nov 2011	8.345	Nov 2012	-		8.345	5.404	40.461	
Test & Evaluation	Various	Various:Various	1.006	0.368	Nov 2011	0.305	Nov 2012	-		0.305	0.100	1.779	
		Subtotal	26.855	15.443		8.650		-		8.650	5.504	56.452	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor SEPM Support	C/CPIF	Various:Various	18.745	3.487	Dec 2011	2.805	Dec 2012	-		2.805	2.970	28.007	28.007
Government Engineering Support	WR	NAWCAD:MD	14.642	5.676	Nov 2011	4.846	Nov 2012	-		4.846	2.640	27.804	
Program Management Support	WR	NAWCAD:MD	11.115	5.148	Nov 2011	3.260	Nov 2012	-		3.260	2.740	22.263	
Management	Various	Various:Various	2.746	-		-		-		-	0.000	2.746	
		Subtotal	47.248	14.311		10.911		-		10.911	8.350	80.820	

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,037.532	198.251		142.282		-		142.282	41.231	1,419.296	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**PROJECT** 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

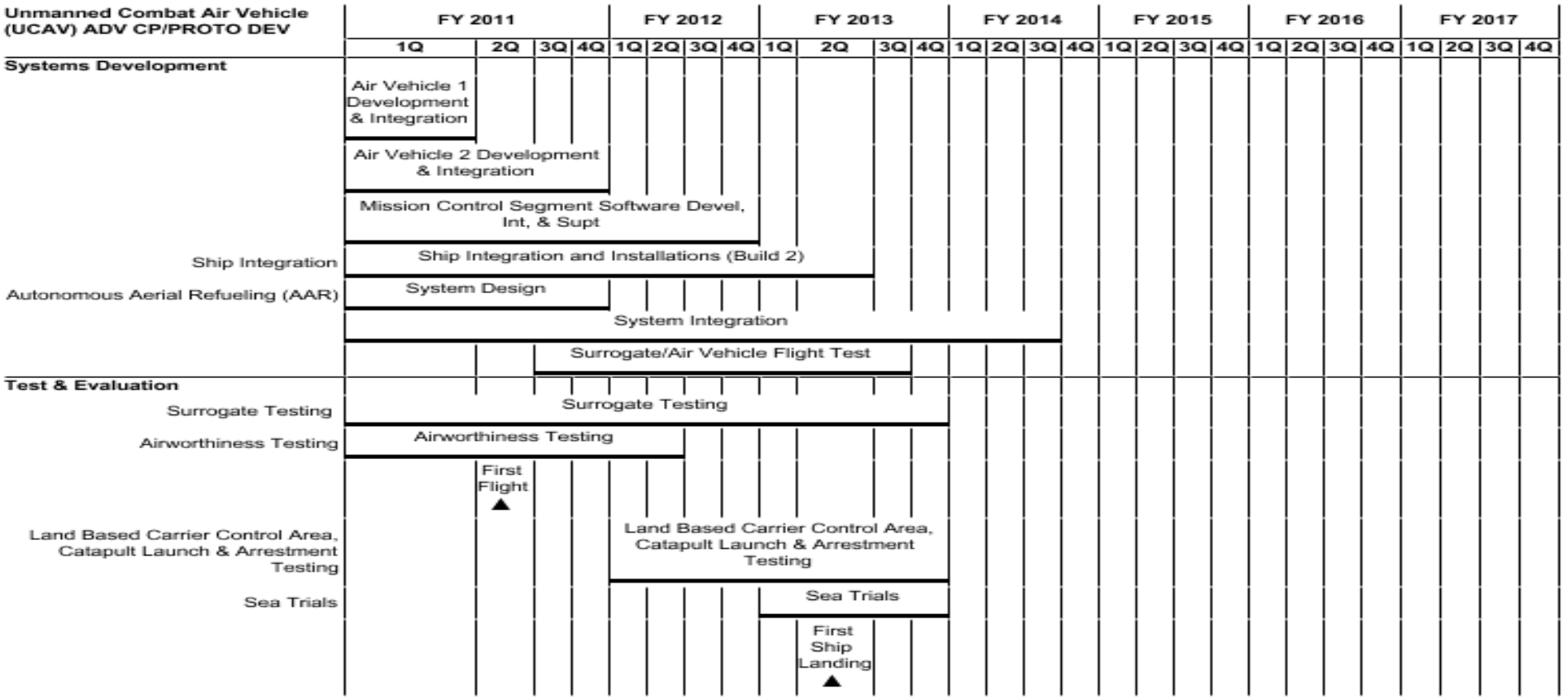

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Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**PROJECT** 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Unmanned Combat Air Vehicle (UCAV) ADV CP/PROTO DEV				
Systems Development: Air Vehicle 1	1	2011	1	2011
Systems Development: Air Vehicle 2	1	2011	4	2011
Systems Development: Software Devel, Int, & Supt	1	2011	4	2012
Systems Development: Ship Integration: Build 2	1	2011	2	2013
Systems Development: Autonomous Aerial Refueling (AAR): System Design - AAR	1	2011	4	2011
Systems Development: Autonomous Aerial Refueling (AAR): System Integration - AAR	1	2011	3	2014
Systems Development: Autonomous Aerial Refueling (AAR): Surrogate/Air Vehicle Flight Test - AAR	3	2011	3	2013
Test & Evaluation: Surrogate Testing: Surrogate Testing	1	2011	4	2013
Test & Evaluation: Airworthiness Testing: Airworthiness Testing	1	2011	2	2012
Test & Evaluation: Airworthiness Testing: Airworthiness Testing - First Flight	2	2011	2	2011
Test & Evaluation: Land Based Carrier Control Area, Catapult Launch & Arrestment Testing: Land Based Carrier Control Area, Catapult Launch & Arrestment Testing	1	2012	4	2013
Test & Evaluation: Sea Trials: Sea Trials	1	2013	4	2013
Test & Evaluation: Sea Trials: First Ship Landing	2	2013	2	2013

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3191: *UCAS Technical Maturation*	

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
3191: *UCAS Technical Maturation*	27.272	-	-	-	-	-	-	-	-	0.000	27.272
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Navy Unmanned Combat Air System (UCAS) program is an Advanced Development effort. The Navy UCAS program will be structured to match program resources to United States Navy objectives/constraints with the goals of identifying and maturing critical technologies and reducing the risk of carrier integration of a UCAS. Candidate technology maturation efforts include transformational communications, advanced integrated propulsion, aircraft carrier suitable materials, Low Observable (LO) sensors and apertures, sense and avoid functionality (all operating in a LO environment), autonomous operations (software algorithms and interfaces), and computer resource data storage and access systems. Modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs are being developed as a result of the demonstration. Maturation of candidate technologies support the evaluation of alternatives needed for a future milestone decision.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Product Development ***Articles:*** ***Description:*** Identification and maturation of technologies required to support the demonstration of an unmanned, LO planform Navy UCAS on an aircraft carrier including modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs to support the evaluation of alternatives needed for a future milestone decision. ***FY 2011 Accomplishments:*** Continued technology maturation, modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs.	11.380 0	-	-
Title: Support ***Articles:*** ***FY 2011 Accomplishments:*** Performed activities that support the evaluation of alternatives needed for a future milestone decision and subsequent entry into Engineering and Manufacturing Development (EMD).	15.892 0	-	-
Accomplishments/Planned Programs Subtotals	27.272	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3191: *UCAS Technical Maturation*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

In the 2005 Quadrennial Defense Review, the Navy was directed to restructure the Joint Unmanned Combat Air System (UCAS) program and develop an unmanned, longer-range carrier-based aircraft capable of being air-refueled to provide greater aircraft carrier standoff capability, to expand payload and launch options, and to increase naval reach and persistence. The primary goal is risk reduction for maturation of critical technologies, while developing the critical data necessary to support a potential follow on acquisition milestone decision. The Navy UCAS effort will focus on designing, developing, and evaluating the core capabilities which safely demonstrate carrier interoperability. As part of this effort, individual contracts will be awarded either competitively or sole sourced in a firm fixed price or cost plus arrangement to evolve various technologies to meet the Technology Readiness Level-6 to support the Advanced Development effort.

E. Performance Metrics

The goal of the Technology Maturation Project Unit is to identify and mature critical technologies and reduce the risk of carrier integration of a UCAS.