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 0305204N: *Tactical Unmanned Aer Vehicles*							
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	20.480	9.353	9.066	-	9.066	8.387	8.546	8.670	8.826	Continuing	Continuing
2478: *Tactical Control System*	10.612	9.353	9.066	-	9.066	8.387	8.546	8.670	8.826	Continuing	Continuing
2501: *Medium Endurance Marinized UAS Technology Demonstration*	9.868	-	-	-	-	-	-	-	-	0.000	9.868

A. Mission Description and Budget Item Justification

Tactical Unmanned Aerial Vehicle is a Joint Military Intelligence Program

This Program Element (PE) includes non-lethal joint tactical Unmanned Aerial Vehicle system support for DoD to provide the warfighters with the capability for day/ night aerial Reconnaissance, Surveillance and Target Acquisition, intelligence, communications/data relay, and minefield detection in limited adverse weather. This PE includes the Tactical Control System (TCS) which provides a multi-level, scalable, and flexible control of the air vehicles and payloads, as well as direct receipt of unmanned aerial vehicles imagery.

B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	35.212	9.353	9.072	-	9.072
Current President's Budget	20.480	9.353	9.066	-	9.066
Total Adjustments	-14.732	-	-0.006	-	-0.006
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.664	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-0.007	-	-0.007
• Rate/Misc Adjustments	-	-	0.001	-	0.001
• Congressional General Reductions Adjustments	-0.096	-	-	-	-
• Congressional Directed Reductions Adjustments	-16.300	-	-	-	-

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 0305204N: *Tactical Unmanned Aer Vehicles*

Change Summary Explanation

Schedule:
2478- TCS
The schedule changes made are to aid in accelerating the fielding of the program. With a Joint Urgency of Needs Statement for the capability, the program will utilize a Rapid Deployment Capability instead of an Engineering Change Proposal to provide this quick reaction capability.

Updated Schedule to coincide with Vertical Take-off Unmanned Aerial Vehicle (VTUAV) schedule milestones.
Major Points:
- IOC moved from 1Q FY2012 to 3Q FY2012
- FRP moved from 2Q FY2015 to 4Q FY2012
- MRMUAS reviews moved from FY2013 and FY2016 to FY2011 and FY2012, respectively.
- Incorporated VTUAV Rapid Deployment Capability development efforts.
- Change MQ-8 ECP to MQ-8 RDC.
- Incorporated Maritime UAS reviews for Technical Information Management System.

2501 - Medium Endurance Marinized Unmanned Aerial System
Acquisition Milestone Schedule removed and is now reflected in the MRMUAS PE 0305237N exhibit.

Technical:
NONE

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 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2478: *Tactical Control System*	

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
2478: *Tactical Control System*	10.612	9.353	9.066	-	9.066	8.387	8.546	8.670	8.826	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program supports the Tactical Control System (TCS), a standards-based system that provides interoperability and commonality for Command and Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance interfaces, and Command and Control of Naval Unmanned Aircraft Systems (UAS). Capability to provide Interoperability across the Naval UAS Family of Systems through use of TCS software operating on Ground Control Station hardware utilizing North Atlantic Treaty Organization (NATO) Standardization Agreements (STANAG)-4586 architecture communicating across a Tactical Common Data Link.

TCS provides a full range of scalable UAS capabilities from passive receipt of air vehicle and payload data to full air vehicle and payload command and control. TCS offers the war fighter a common core operating environment to simultaneously receive, process, and disseminate data from different UAS types for reconnaissance, surveillance, and combat assessment.

This program supports enhancements and updates to TCS in order to continue to meet supported air vehicle enhancements, incorporation of new technologies that will be used to enhance overall system performance, incorporate new payloads and payload capabilities (such as advanced sensors and weapons), incorporate Multi-Vehicle Control, incorporate NATO STANAG-4586 and Command, Control, Communications, Computers and Intelligence enhancements, and alignment with OSD direction for UAS control segments.

TCS software will be incorporated into the MQ-8 Vertical Take-off and Landing Tactical Unmanned Air Vehicle (VTUAV) system, and will reach Initial Operational Capability in conjunction with MQ-8. TCS software addresses MQ-8 requirements validated by the Joint Requirements Oversight Council in the VTUAV Capability Production Document (May 2007).

TCS maximizes the use of contractor and government off-the-shelf hardware and software whenever possible and incorporates software/hardware enhancements where appropriate to maintain growth potential and minimize hardware and operating system dependence. TCS software is interoperable, and is compliant with the OSD Command and Control, Communications, Intelligence Joint Technical Architecture, and Distributed Common Ground System standards, and NATO standards.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: TCS Development and Integration	9.178	8.592	8.307
Articles:	0	0	0
FY 2011 Accomplishments: Continue TCS integration with MQ-8 development. Continue new TCS capabilities to support requirements for Littoral Combat Ship integration. Continue TCS NATO STANAG 4586 compliance. Continue TCS Command and Control, Communications,			

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 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2478: *Tactical Control System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) interface testing for MQ-8 systems. Continue hardware and operating system independence initiatives. Start preliminary Medium Range Maritime Unmanned Aerial System (MRMUAS) design. ***FY 2012 Plans:*** Continue Tactical Control System (TCS) integration with MQ-8 development. Continue new TCS capabilities to support requirements for Littoral Combat Ship (LCS) integration. Continue TCS North Atlantic Treaty Organization (NATO) Standardization Agreements (STANAG) 4586 compliance. Continue TCS C4ISR interface testing for MQ-8 systems. Continue hardware and operating system independence initiatives. Start modifications for Unmanned Aerial System (UAS) weapons control, radar SOF payloads, Navy payload integration, and MQ-8 Endurance Upgrade. Continue preliminary MRMUAS trade studies. ***FY 2013 Plans:*** Continue TCS integration with MQ-8 development and Rapid Deployment Capability efforts. Continue new TCS capabilities to support requirements for LCS Integration. Continue TCS NATO STANAG 4586 compliance. Continue TCS C4ISR interface integration & testing. Complete flight testing of hardware and operating system independence initiatives. Complete modifications for UAS weapons control, RADAR, SOF payloads, Navy payload integration, and MQ-8 Endurance Upgrade. Complete MRMUAS trade studies.			
Title: Technical and Engineering Services	1.434	0.761	0.759
Articles:	0	0	0
FY 2011 Accomplishments: Continue government engineering support, contractor support, program support, and travel for the TCS program. ***FY 2012 Plans:*** Continue government engineering support, contractor support, program support, and travel for the TCS program. ***FY 2013 Plans:*** Continue government engineering support, contractor support, program support, and travel for the TCS program.			
Accomplishments/Planned Programs Subtotals	10.612	9.353	9.066

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 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2478: *Tactical Control System*

D. Acquisition Strategy

The TCS program is developing Government owned, non-proprietary software that supports multiple UAS control. The TCS program contunues to focus on Navy requirements and standards based on interoperability. Government-owned TCS software development toolkit is available to all UAS developers and manufacturers that allows a low-cost integration into the open architecture non-proprietary TCS system.

E. Performance Metrics

Successfully achieve Initial Operational Capability. Successfully complete Coastal Battlefield Reconnaissance and Analysis Integration. Support MQ-8 Endurance Upgrade Rapid Deployment Capability integrated test. Successfully complete Littoral Combat Ship Integration. Successfully complete Operational Test. Successfully complete MQ-8 Weapons Rapid Deployment Capability. Successfully complete payloads and Radar RDCs.

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 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2478: *Tactical Control System*

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
Primary Software Development	C/CPAF	Raytheon:Falls Church,VA	129.530	8.077	Nov 2011	8.307	Nov 2012	-		8.307	0.000	145.914	145.914
Award Fees	C/CPAF	Raytheon:Falls Church,VA	10.106	0.515	Jul 2012	-		-		-	0.000	10.621	10.621
		Subtotal	139.636	8.592		8.307		-		8.307	0.000	156.535	156.535

Remarks

Awarded 85.6% of award fees in past award fee periods.

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
Development Test and Evaluation	WR	Various:Various	1.194	0.030	Nov 2011	0.026	Nov 2012	-		0.026	Continuing	Continuing	Continuing
		Subtotal	1.194	0.030		0.026		-		0.026			

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 Engineering Support	Various	Various:Various	2.683	0.213	Nov 2011	0.213	Nov 2012	-		0.213	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various:Various	8.947	0.255	Nov 2011	0.257	Nov 2012	-		0.257	Continuing	Continuing	Continuing
Program Management Support	Various	Various:Various	3.806	0.218	Nov 2011	0.218	Nov 2012	-		0.218	Continuing	Continuing	Continuing
Travel	WR	NAVAIR:PAXRV, MD	0.233	0.045	Oct 2011	0.045	Nov 2012	-		0.045	Continuing	Continuing	Continuing
		Subtotal	15.669	0.731		0.733		-		0.733			

Remarks

Travel Contract Type is TO.

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 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2478: *Tactical Control System*

	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	156.499	9.353		9.066		-		9.066			

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 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2478: *Tactical Control System*

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 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2478: *Tactical Control System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Tactical Control System				
Acquisition Milestones: VTUAV Milestones: Initial Operational Capability (IOC)	3	2012	3	2012
Acquisition Milestones: VTUAV Milestones: Full Rate Production	4	2012	4	2012
Acquisition Milestones: MRMUAS Milestones: MRMUAS Gate 1	2	2011	2	2011
Acquisition Milestones: MRMUAS Milestones: MRMUAS Gate 2	3	2012	3	2012
Systems Development: RDC MQ-8B: Radar RDC	2	2012	3	2013
Systems Development: RDC MQ-8B: Radar Integration Preliminary Design	1	2011	1	2012
Systems Development: RDC MQ-8C: MQ-8C Radar, Weapons, and other payloads	2	2012	1	2015
Systems Development: Engineering and Manufacturing Development: VTUAV	1	2011	3	2012
Systems Development: Engineering and Manufacturing Development: Coastal Battlefield Reconnaissance and Analysis Integration	1	2011	2	2012
Systems Development: Engineering and Manufacturing Development: Littoral Combat Ship Integration	1	2011	4	2013
Systems Development: Engineering and Manufacturing Development: Payload, Obsolescence, Software, Analysis, and SOF RDC	1	2011	2	2015
Reviews: MQ-8C RDC: System Readiness Review	1	2012	1	2012
Reviews: MQ-8C RDC: Preliminary Design Review	2	2012	2	2012
Reviews: MQ-8C RDC: Critical Design Review	3	2012	3	2012
Reviews: MQ-8C RDC: Quick Reaction Assessment 1 Endurance MQ-8C	4	2013	4	2013
Reviews: MQ-8C RDC: Quick Reaction Assessment 2 MQ-8C radar, weapons, and payloads	1	2015	1	2015
Reviews: MUAS: Technical Information Management System 1	1	2012	1	2012
Reviews: MUAS: Technical Information Management System 2	2	2012	2	2012

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 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2478: *Tactical Control System*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Reviews: MUAS: Technical Information Management System 3	3	2012	3	2012
Reviews: MUAS: Technical Information Management System 4	4	2012	4	2012
Reviews: MUAS: Technical Information Management System 5	1	2013	1	2013
Test & Evaluation: Specialty Payloads Review	1	2011	4	2014
Test & Evaluation: Integrated Payload T&E: Coastal Battlefield Reconnaissance and Analysis IT-D-1	4	2011	4	2011
Test & Evaluation: MQ-8 Operational Evaluation: MQ-8 OT-C1	3	2011	2	2012
Test & Evaluation: MQ-8 Operational Evaluation: Littoral Combat Ship Integration Review	1	2011	4	2013
Production Milestones: Software Updates: TCS 3.0	1	2011	3	2012
Production Milestones: Software Updates: TCS 4.0	2	2012	3	2015
Production Milestones: Software Updates: TCS 5.0	2	2015	4	2016

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 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2501: *Medium Endurance Marinized UAS Technology Demonstration*	

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
2501: *Medium Endurance Marinized UAS Technology Demonstration*	9.868	-	-	-	-	-	-	-	-	0.000	9.868
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

A new start program for FY11.

A. Mission Description and Budget Item Justification

The Medium Endurance Marinized Unmanned Aircraft System (UAS) Technology Demonstration - This demonstration was going to evaluate medium endurance Vertical Take Off and Landing UAS at sea. On August 10, 2010 the CNO signed a Utilization Plan for FY11 Medium Endurance Maritime Unmanned Air System Demonstration funding in conjunction with the initiation of a new start Medium Range Maritime UAS (MRMUAS) follow-on program. MRMUAS will provide the long term capability for the ship based Beyond Line of Sight SOF and Navy Missions. MRMUAS is a potential joint program with the Army.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Hardware and System Development ***Articles:*** ***FY 2011 Accomplishments:*** Commence planning and execution of an Analysis of Alternatives (AoA) for the MRMUAS program. Commence drafting of the MRMUAS Concept of Operations. Prepare and award up to five (5) studies and analysis contracts in support of MRMUAS concept refinement. Data received from these contracts will be used to support AoA analyses and drafting of initial Key Performance Parameters/Key System Attributes for the MRMUAS Capability Development Document.	7.768 0	-	-
Title: Engineering and Technical Services ***Articles:*** ***FY 2011 Accomplishments:*** Begin engineering management, program technical management, and management support. Begin preparation of Milestone A required documentation. Begin program office personnel travel and contract support services.	2.100 0	-	-
Accomplishments/Planned Programs Subtotals	9.868	-	-

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 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2501: *Medium Endurance Marinized UAS Technology Demonstration*

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
• RDT&E, 0305237N: *Medium Range Maritime UAS*	0.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.000

D. Acquisition Strategy

Conduct full and open competition for up to five (5) Trade Studies and analysis contracts. Initiated industry trade studies and Analysis of Alternatives. Transition to Medium Range Maritime Unmanned Aerial System PE 0305237N.

E. Performance Metrics

Successfully complete trade studies and analysis.