

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2008	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7							R-1 ITEM NOMENCLATURE 0204152N, E-2 SQUADRONS	
COST (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
Total PE Cost	9.601	22.483	54.096	54.712	29.672	16.547	7.153	
0463 E-2C IMPROVEMENTS	1.515	22.483	54.096	54.712	29.672	16.547	7.153	
9999 CONGRESSIONAL ADDS	8.086							

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

E-2 Improvements (0463) provides for incorporation of innovative technologies for the evolution of E-2 Battle Management and Command and Control (BMC2) capabilities in support of naval warfare command and control requirements. It has previously funded developments for the modification or replacement of selected weapon replaceable assemblies of current installed subsystems, as well as provided for experimentation with narrowband and wideband internet protocol (IP) concepts, to include technologies such as High Frequency (HF) Secure IP Router Network (HF SIPRNET), VRC-99 digital IP radio as a surrogate to the Joint Tactical Radio System, machine-to-machine digital data communications, Advanced Digital Networking System (ADNS), Tactical Information Services (TIS), cooperative and non-cooperative identification, and open architecture hardware and software computing environments. These efforts have laid the foundation for growth to provide additional functional capabilities satisfying evolving operational requirements, e.g., Airborne Networking, Joint Sensor Netting, Tactical Decision Aids, Advanced communications, and permits the evolutionary growth of a Combat Identification (CI) and Theater Air and Missile Defense (TAMD) Capability. A new In Flight Refueling (IFR) capability allows the E-2 to receive fuel from various organic and strategic tanker aircraft. It will provide Expanded Battle Space Surveillance and Targeting through significantly enhanced persistence and increased flexibility (range & endurance). IFR will better enable the E-2 to fully support current Carrier Strike Group (CSG)/Joint 247 Theater Operations by providing more versatile stationing and/or forward basing options. Previous domestic E-2 concept demonstration effort successfully established the feasibility of tanking behind the F/A-18E/F and KC-130 aircraft. The Automatic Identification System (AIS) is a broadcast transponder system operating in the V-HF maritime band that provides data exchange from Ship to Ship, Ship to Shore and Shore to Ship. Broadcast parameters include Registry Number, Port of Origin, Latitude, Longitude, Course, Speed and other vessel characteristics. The current prototype E-2C AIS installation is integrated into the E-2C weapon system without a means to transfer information off board to other platforms/systems.

B. PROGRAM CHANGE SUMMARY

Funding:	FY 2007	FY 2008	FY 2009
FY2008 President's Budget:	9.803	22.691	54.511
FY2009 President's Budget:	9.601	22.483	54.096
Total Adjustments	-0.202	-0.208	-0.415

Summary of Adjustments			
Congressional Reductions			
Congressional Rescissions			
Congressional Undistributed Reductions	-0.202	-0.144	
Congressional Increases			
Economic Assumptions			-0.055
Miscellaneous Adjustments		-0.064	-0.360
Subtotal	-0.202	-0.208	-0.415

1. FY2008 funding totals do not include \$1.024 previously requested for current FY2008 GWOT requirements.

Schedule:

Project Unit 0463, E-2C Improvements - Schedule changes to MSI Phase 2 are due to development capability completing early and hardware unavailability. Changes to ABC2 are due to not participating in Trident Warrior 07, completing a Limited Objective Experiment (LOE) early and adding new LOE's to support events. Schedule changes to Core OA and HF IP are due to funding delays.  
Project Unit 9999, Congressional Adds - Not Applicable.

Technical:

Project Unit 0463, E-2C Improvements -Not Applicable.  
Project Unit 9999, Congressional Adds - Not Applicable.

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0204152N, E-2 SQUADRONS			PROJECT NUMBER AND NAME 0463, E-2C IMPROVEMENTS			
COST (\$ in Millions)		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0463 E-2C IMPROVEMENTS		1.515	22.483	54.096	54.712	29.672	16.547	7.153
RDT&E Articles Qty			*10					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

E-2 Improvements (0463) provides incorporation of innovative technologies for the evolution of E-2 Battle Management and Command and Control (BMC2) capabilities in support of naval warfare command and control requirements. It has previously funded developments for the modification or replacement of selected weapon replaceable assemblies of current installed subsystems, as well as provided for experimentation with narrowband and wideband internet protocol (IP) concepts, to include technologies such as High Frequency (HF) Secure IP Router Network (HF SIPRNET), VRC-99 digital IP radio as a surrogate to the Joint Tactical Radio System, machine-to-machine digital data communications, Advanced Digital Networking System (ADNS), Tactical Information Services (TIS), cooperative and non-cooperative identification, and open architected hardware and software computing environments. These efforts have laid the foundation for growth to provide additional functional capabilities to satisfy evolving operational requirements, e.g., Airborne Networking, Joint Sensor Netting, Tactical Decision Aids, Advanced communications, and permits the evolutionary growth of a Combat Identification (CID) and Theater Air and Missile Defense (TAMD) Capability. An In Flight Refueling (IFR) capability allows the E-2 to receive fuel from various organic and strategic tanker aircraft. It will provide Expanded Battle Space Surveillance and Targeting through significantly enhanced persistence and increased flexibility (range & endurance). IFR will better enable the E-2 to fully support current Carrier Strike Group (CSG) Joint 24/7 Theater Operations by providing more versatile stationing and/or forward basing options. Previous domestic E-2 concept demonstration effort successfully established the feasibility of tanking behind the F/A-18E/F and KC-130 aircraft. The Automatic Identification System (AIS) is a broadcast transponder system operating in the VHF maritime band that provides data exchange from Ship to Ship, Ship to Shore and Shore to Ship. Broadcast parameters include Registry Number, Port of Origin, Latitude, Longitude, Course, Speed and other vessel characteristics. The current prototype E-2C AIS installation is integrated into the E-2C weapon system with out a means to transfer information off board to other platforms/systems.

\* Quantity reflects number of Core Open Architecture (5) and High Frequency Internet Protocol (5) test article sets to be procured. For each, 3 sets will be used for laboratory development efforts at both the Contractor and Government sites, 1 set will be installed in the test aircraft, and 1 set will serve as a spare for both laboratory and aircraft use.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Multi-Source Integration (MSI) Phase II	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	.085		
RDT&E Articles Qty			

Funded software architecture analysis and design for incorporation of diverse applications in the E-2 Weapon System, including MSI, Combat ID, and Distributed Weapons Coordination. Funded all-source data fusion in the E-2 including radar, Identification Friend or Foe (IFF), Electronic Surveillance (ES), Link 16, Link 11, and Cooperative Engagement Capability (CEC). Funded requirements analysis for development of integrated communication system architecture to support advanced sensor networking. Fund Fleet Battle Group interoperability testing and evaluation for the E-2.

Single Integrated Air Picture (SIAP) Block 0	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	.214		
RDT&E Articles Qty			

Funding supported test and fielding of SIAP Block 0 software.

Airborne Battlefield Command and Control (ABC 2)	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	1.216	4.851	6.789
RDT&E Articles Qty			

Funding will be used to conduct development and demonstrations of E-2 airborne Joint Sensor Netting (including Network Centric Collaborative Targeting (NCCT)), IP networking concepts (including Advanced Digital Networking Systems, Tactical Information Services, and IP enabled communications systems), machine-to-machine interface, open architected computing environment, network applications, tactical decision aids, combat identification technologies, on and off-board data fusion capabilities, and advanced mission computer and communications technologies airborne demonstrations.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204152N, E-2 SQUADRONS	PROJECT NUMBER AND NAME 0463, E-2C IMPROVEMENTS

In Flight Refueling (IFR)	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost			8.879
RDT&E Articles Qty			

Funding provides for the system development and testing to support the incorporation of In Flight Refueling (IFR) technology into the E-2 aircraft. Emphasis during system development will be on design drawing updates, fuel system design, human systems integration and design, including interior/lighting modifications and seat replacement. Flight testing is required to evaluate field of view, aerodynamic performance, loads, and handling qualities.

Universal Automatic Information System (UAIS)	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost			4.166
RDT&E Articles Qty			

Funding will integrate Universal Automatic Information System (UAIS) into the E-2C and E-2D mission computer and provide for a means to transfer Automatic Information System (AIS) data from the aircraft inflight to the warships. The integration will include non-recurring engineering, logistics and test and evaluation to integrate UAIS control features and output into the E-2C and E-2D weapons system and to standardize and document the UAIS hardware already installed on E-2C aircraft, and integrate UAIS hardware on the E-2D. It will integrate other enhancing identification technologies complimentary to UAIS into the E-2C and E-2D.

E-2 Core Open Architecture (OA)	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		11.738	25.776
RDT&E Articles Qty		*5	

Funding supports the development, integration and test of an open architected distributed computing environment and Internet Protocol networking infrastructure, which includes Advanced Digital Networking System and Tactical Information Services.

\* Quantity reflects number of Core OA test article sets to be procured. 3 sets will be used for laboratory development efforts at both the Contractor and Government sites. 1 set will be installed in the test aircraft, and 1 set will serve as a spare for both laboratory and aircraft use.

E-2 High Frequency (HF) Internet Protocol (IP)	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost		5.894	8.486
RDT&E Articles Qty		*5	

Funds the development, integration and test of High Frequency (HF) radio and Mission Computer hardware and software modifications and additions to provide an E-2 HF digital data communications path, allowing for E-2 connectivity with other HF Internet Protocol (IP) users.

\* Quantity reflects number of HF IP test article sets to be procured. 3 sets will be used for laboratory development efforts at both the Contractor and Government sites. 1 set will be installed in the test aircraft, and 1 set will serve as a spare for both laboratory and aircraft use.

C. OTHER PROGRAM FUNDING SUMMARY:	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
APN-1/E-2C/D (LI# 15 & 16)	202.717	52.220	589.123	685.951	777.566	795.552	778.315	9,712.023	13,593.467
APN-5/E-2 (LI# 37)	15.916	8.986	11.489	19.194	17.550	21.081	31.592	115.397	241.205
APN-6/E-2C/D (LI# 55)	0.364		36.882	37.606	29.801	31.555	26.431	79.499	242.138

APN-1/APN-6 funding after FY07 is related to P.E. 0604234N, P.U. 3051, E-2 Advanced Hawkeye.

D. ACQUISITION STRATEGY:  
Not Applicable.

E. MAJOR PERFORMERS:  
Not Applicable.

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-7			PROGRAM ELEMENT 0204152N, E-2 SQUADRONS			PROJECT NUMBER AND NAME 0463, E-2C IMPROVEMENTS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Aircraft Integration	VARIOUS	VARIOUS				2.147	VARIOUS	3.776	VARIOUS	4.075	9.998	
Ancillary Hdw Development	TBD	TBD				.200	12/07	.400	12/08	1.800	2.400	
Primary Hdw Development	VARIOUS	VARIOUS	.759								.759	
Primary Hdw Development - ABC2	VARIOUS	VARIOUS	1.616			.405	VARIOUS	.573	VARIOUS	3.261	5.855	
Primary Hdw Development	VARIOUS	VARIOUS				2.034	VARIOUS	10.475	VARIOUS	23.012	35.521	
Primary Hdw Development - MSI	VARIOUS	VARIOUS	1.497	.085	VARIOUS						1.582	
Systems Eng - ABC2	TBD	TBD				.200	VARIOUS	.200	VARIOUS	.800	1.200	
SUBTOTAL PRODUCT DEVELOPMENT			3.872	.085		4.986		15.424		32.948	57.315	

Remarks:  
Totals may not add due to rounding.

SUPPORT												
Development Support ABC2	VARIOUS	VARIOUS	.405			.556	11/07	.623	11/08	2.795	4.379	
Eng & Tech Serv	VARIOUS	VARIOUS	1.191			.110	12/07	.591	12/08	1.368	3.260	
Government Engineering Support	WX	NAWCAD, PATUXENT RIVER MD		.268	11/06	.395	11/07	1.173	11/08	4.022	5.858	
Government Engineering Support	VARIOUS	VARIOUS	7.354			.207	11/07	.707	11/08	.113	8.381	
Government Eng Spt - SIAP	VARIOUS	VARIOUS	.516	.214	01/07						.730	
Integrated Logistics Support	VARIOUS	VARIOUS				1.431	11/07	1.947	11/08	1.854	5.232	
Software Development	VARIOUS	VARIOUS				9.191	12/07	19.847	12/08	25.194	54.232	
Studies & Analyses	TBD	TBD				.100	12/07	.100	12/08	.900	1.100	
SUBTOTAL SUPPORT			9.466	.482		11.990		24.988		36.246	83.172	

Remarks:  
Totals may not add due to rounding.

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2008		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E,N / BA-7		0204152N, E-2 SQUADRONS				0463, E-2C IMPROVEMENTS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY s Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
TEST & EVALUATION												
Dev T&E ETS	TBD	TBD						.389	12/08	6.855	7.244	
Dev Test & Eval - ABC2	VARIOUS	VARIOUS	1.440			1.100	11/07	2.100	11/08	8.050	12.690	
Dev Test & Eval - ABC2	VARIOUS	VARIOUS	.647	.100	12/06						.747	
Dev Test & Eval	VARIOUS	VARIOUS	4.560	.197	12/06			1.878	11/08	12.697	19.332	
Dev Test & Eval - MSI	WX	NAWCAD, PATUXENT RIVER MD	.169								.169	
Dev Test & Eval - MSI	VARIOUS	VARIOUS	.561								.561	
Test Assets	TBD	TBD				1.756	VARIOUS	2.107	VARIOUS	2.589	6.452	
SUBTOTAL TEST & EVALUATION			7.377	.297		2.856		6.474		30.191	47.195	

Remarks:  
Totals may not add due to rounding.

MANAGEMENT												
Gov't Eng Spt - AIS	TBD	TBD						.105	12/08	.172	.277	
Government Eng Sup	VARIOUS	VARIOUS	.042			1.122	11/07	4.094	11/08	2.472	7.730	
Program Management Support ABC2	VARIOUS	VARIOUS	2.993	.617	11/06	.500	11/07	.601	11/08	2.200	6.911	
Program Mgmt Spt ETS	TBD	TBD						.373	12/08	1.249	1.622	
Program Mgmt Sup	WX	NAWCAD, PATUXENT RIVER MD				.976	11/07	1.891	11/08	2.231	5.098	
Travel	VARIOUS	VARIOUS	.249	.035	11/06	.053	11/07	.146	11/08	.376	.859	
SUBTOTAL MANAGEMENT			3.284	.652		2.651		7.210		8.700	22.497	

Remarks:  
Totals may not add due to rounding.

Total Cost			23.999	1.515		22.483		54.096		108.085	210.178	
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Remarks:  
Totals may not add due to rounding.

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:							
APPROPRIATION/BUDGET ACTIVITY																								PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME			
RDT&E,N / BA-7																								0204152N, E-2 SQUADRONS				0463, E-2C IMPROVEMENTS			
Fiscal Year	FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
<b>Acquisition Milestones</b>																															
Air Ops Dec Supp							▲																								
Multiple Source Integ PH I							▲																								
Single Integ Air Pict Blk 0							▲																								
Airborne Battlefield C2							▲																								
Multi Source Integ PH 2																															
Core Open Arch																															
High Frequency Internet Proto																															
In Flight Refueling																															
Universal Automatic Info System																															
Deliveries																															



EXHIBIT R-2a, RDT&E Project Justification							DATE:	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME		
RDT&E,N / BA-7			0204152N, E-2 SQUADRONS			9999, Congressional Adds		
COST (\$ in Millions)			FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
9999 CONGRESSIONAL ADDS			8.086					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Congressional Adds

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

9418C - E-2C Open Architecture Computing Framework	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	1.265		
RDT&E Articles Qty			

Supported development and test of a Model Driven Architecture for the E-2 Advanced Control Indicator Set software. This included modeling the applications using the Unified Modeling Language with initial emphasis on associated interfaces.

9420C - Makaha Ridge FORCENet Lab	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	3.115		
RDT&E Articles Qty			

Conducted research and development efforts at the Makaha Ridge FORCENet Laboratory, which served as the Battle Management Command and Control test center which developed capabilities for FORCENet oriented technologies and systems. Integrated a Cooperative Engagement Capability (CEC) into the FORCENet lab and enabled participation in the CEC network with live assets.

9744C - Airborne Advanced Network	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	2.148		
RDT&E Articles Qty			

Demonstrated the Internet Protocol network waveform Tactical Targeting Network Technology (TTNT). Provided insight into the network architecture of TTNT and a realistic software and radio frequency environment that enabled a Single Integrated Air Picture. Provided a means to measure and compare performance against legacy Tactical Digital Information Links and validate the requirements for the Joint Tactical Radio System waveform.

9A70N - E-2C/Advanced Hawkeye Transmitter Technologies	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	1.558		
RDT&E Articles Qty			

Designed, developed and tested the E-2C replacement APS-145 Radar Transmitter (ATR). Developed a prototype that provided aircraft with reliable radar transmitter that was capable of detecting airborne and surface targets within the E-2C operational environment to meet the required situational awareness of the E-2 operator.