

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5					R-1 ITEM NOMENCLATURE 0604234N, E-2 Advanced Hawkeye			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		107.043	343.306	597.015	609.197	526.927	623.515	280.509
3051 E-2 Advanced Hawkeye		107.043	343.306	597.015	609.197	526.927	623.515	280.509
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
<p>The Advanced Hawkeye will replace the existing E-2C fleet. The AHE program develops, demonstrates, tests, and procures the replacement of the AN/APS-145 radar system and other aircraft system components that modernize the E-2C weapon system to maintain open ocean mission capability while providing the United States Navy (USN) with an effective littoral surveillance and Theater Air and Missile Defense (TAMD) capability. Key radar technologies are space-time adaptive processing (STAP), electronically scanning array (ESA), solid state transmitter, high dynamic range digital receivers and Identification Friend or Foe (IFF)/radar aperture integration. The resultant detection system will provide a substantially improved overland performance by correcting current sensor shortfalls and enhancing all current required mission areas, while simultaneously contributing to the emerging TAMD mission requirements.</p> <p>The AHE program also upgrades or replaces aircraft system components that are either obsolete or becoming unsupportable, upgrades or replaces other aircraft systems as required to support the radar upgrade, and improves the producibility of the weapons system. The impact of the dominant battlefield awareness provided by this improved airborne early warning system will substantially contribute to the development of a single integrated air picture.</p> <p>These technologies were demonstrated in a ground environment in FY1999 and will continue to be refined through FY2003. This P.E. was utilized for RMP pre-system development and demonstration (Pre-SD&D) in FY2003, followed by SD&D beginning in 4th quarter FY2003. Program quickly ramps up in FY2004 and FY2005 to support a Preliminary Design Review (PDR) in 1st Qtr FY2005 and a Critical Design Review (CDR) in 1st Qtr FY2006. The program plan begins E-2 AHE Pilot Production in FY2007 (long lead on four aircraft), begins the production phase with a Low-Rate Initial Production (LRIP) Milestone C decision in FY2009, and achieves Initial Operational Capability (IOC) in FY2011. P.E. 0204152N, E-2 Squadrons, also supports the radar risk reduction effort on the NC-130H test bed aircraft.</p> <p>*Two Multi-Year Procurement E-2C aircraft will be modified to provide RDT&E assets for the AHE program.</p>								

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604234N, ADVANCED HAWKEYE			PROJECT NUMBER AND NAME 3051, E-2 ADVANCED HAWKEYE			
COST (\$ in Millions)			FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Project Cost			107.043	343.306	597.015	609.197	526.927	623.515
RDT&E Articles Qty							2*	4
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>The Advanced Hawkeye will replace the existing E-2C fleet. The AHE program develops, demonstrates, tests, and procures the replacement of the AN/APS-145 radar system and other aircraft system components that modernize the E-2C weapon system to maintain open ocean mission capability while providing the United States Navy (USN) with an effective littoral surveillance and Theater Air and Missile Defense (TAMD) capability. Key radar technologies are space-time adaptive processing (STAP), electronically scanning array (ESA), solid state transmitter, high dynamic range digital receivers and Identification Friend or Foe (IFF)/radar aperture integration. The resultant detection system will provide a substantially improved overland performance by correcting current sensor shortfalls and enhancing all current required mission areas, while simultaneously contributing to the emerging TAMD mission requirements.</p> <p>The AHE program also upgrades or replaces aircraft system components that are either obsolete or becoming unsupportable, upgrades or replaces other aircraft systems as required to support the radar upgrade, and improves the producibility of the weapons system. The impact of the dominant battlefield awareness provided by this improved airborne early warning system will substantially contribute to the development of a single integrated air picture.</p> <p>These technologies were demonstrated in a ground environment in FY1999 and will continue to be refined through FY2003. This P.E. was utilized for RMP pre-system development and demonstration (Pre-SD&D) in FY2003, followed by SD&D beginning in 4th quarter FY2003. Program quickly ramps up in FY2004 and FY2005 to support a Preliminary Design Review (PDR) in 1st Qtr FY2005 and a Critical Design Review (CDR) in 1st Qtr FY2006. The program plan begins E-2 AHE Pilot Production in FY2007 (long lead on four aircraft), begins the production phase with a Low-Rate Initial Production (LRIP) Milestone C decision in FY2009, and achieves Initial Operational Capability (IOC) in FY2011. P.E. 0204152N, E-2 Squadrons, also supports the radar risk reduction effort on the NC-130H test bed aircraft.</p> <p>*Two Multi-Year Procurement E-2C aircraft will be modified to provide RDT&E assets for the AHE program.</p>								

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B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 35%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">FY 03</td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 20%; text-align: center;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td></td> <td style="text-align: center;">69.404</td> <td></td> <td></td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>							FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost		69.404			RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		69.404																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>Pre-System Development and Demonstration (Pre SD&D)</p> <p>Award/Extend E-2 AHE Sole Source Pre-SD&D contract to Northrop Grumman Corporation. Began E-2 AHE system architecture trade studies, requirements analysis, radar system demonstration/validation, producibility enhancement and life cycle costs reduction efforts. Fund Radar/Identification Friend or Foe integration, and demonstration/validation of other mission avionics systems.</p> </div>																			
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Accomplishments/Effort/Subtotal Cost		24.296	282.219	562.949															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>System Development and Demonstration (SD&D)</p> <p>Awarded of SD&D contract with Northrop Grumman Corporation. Enter into SD&D for E-2 AHE program; conduct engineering and development efforts in preparation for System Functional Review for the AHE weapons system. Continue SD&D effort. Conduct engineering and development efforts in preparation for Preliminary/Critical Design Reviews.</p> </div>																			
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		FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost				4.109															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>Fund Government Furnished Equipment</p> </div>																			

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B. Accomplishments/Planned Program (Cont.)																			
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		FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		8.220	58.987	29.957															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p>NAWCAD Support Fund Government Engineering and Contractor Engineering Support. Perform Government oversight. Engineering and loads analysis, design, preparation, installation and ground test calibration of instrumentation and for A-123 Loads Test. Test program risk reduction effort. Fund Ramp up for the Software Functional Review/Preliminary Design Review/Critical Design Review. Develop and perform wind tunnel testing, and design and develop digital engine control system for obsolescence, weight reduction, and to improve performance.</p></div>																			
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Accomplishments/Effort/Subtotal Cost		5.123																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 40px;">Funded Classified Development efforts.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;"></th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td style="text-align: center;">2.100</td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>							FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost			2.100		RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost			2.100																
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p>NC-130H Provide support for the NC-130H engineering risk reduction efforts. Fund Classified Development efforts. Fund NC-130H AHE Advanced Development Model (ADM) system flight test & test analysis.</p></div>																			

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C. PROGRAM CHANGE SUMMARY:

	FY 2003	FY 2004	FY 2005
Funding:			
Previous President's Budget:	111.186	352.298	537.837
Current BES/President's Budget:	107.043	343.306	597.015
Total Adjustments	-4.143	-8.992	59.178
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-3.992	
Congressional rescissions			
SBIR/STTR Transfer	-2.696		
Reprioritization		-5.000	61.249
Economic Assumptions			-2.071
Reprogrammings	-1.447		
Congressional increases			
Subtotal	-4.143	-8.992	59.178

Funding:

PB05 maintains an IOC in FY11, fields single aircraft configuration, minimizes new builds for the Hawkeye 2000, and provides a fly before LRIP buy strategy. Final cost estimate from the OSD Cost Analysis Improvement Group (CAIG) was completed with concurrence from Defense Acquisition Board (DAB) on 6 June 03.

Schedule:

DT/DT Assist in FY05/FY06 and 1Q-2Q of FY07 includes NC-130/A-123/lab integration dedicated for weapon system development and air vehicle testing. DT/DT Assist in FY07-FY09 includes efforts for weapon system development and air vehicle testing on SD&D #1 and SD&D #2 aircraft. Schedule changes reflect a more clearly defined and discretely identified test evolution developed in cooperation with COTF and DOT&E in progress to MS B in June 2003. Schedule was approved in Acquisition Strategy on 21 March 03.

Technical:

Technical approach was approved in Acquisition Strategy on 21 March 03.

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D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>To Complete</u>	<u>Total Cost</u>
APN-1/E-2C (LI# 12 & 13)	286.594	226.811	247.950	249.059	208.579	175.895	733.639	10283.83	14917.757
APN-5/E-2C (LI# 36)	25.001	50.274	15.124	13.785	9.444	9.338	8.561	349.280	923.011
APN-6/E-2C (LI# 53)	20.970	2.947	1.148	0.000	0.000	0.000	11.925	287.622	430.515

Related RDT&E
 (U) 0603658N (Ship Self Defense, CEC)
 (U) 0204152N (E2 Squadrons)

E. ACQUISITION STRATEGY:

Acquisition Strategy was signed by the MDA, USD (AT&L) on 21 March 2003. Milestone B approval to proceed with System Development and Demonstration was given 6 June 2003 by the Defense Acquisition Board (DAB).

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604234N, ADVANCED HAWKEYE				3051, E-2 Advanced Hawkeye						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Dev (Pre-SD&D)	SS/CPFF	CLASSIFIED	15.694								15.694	15.694	
Ancillary Hardware Development													
Aircraft Integration													
Ship Integration													
Ship Suitability													
Systems Engineering (Pre-SD&D)	SS/CPFF	NGC, NY	50.639	69.404	10/02						120.043	120.043	
Trainer/Trainer Development	TBD	TBD								131.000	131.000	131.000	
Licenses													
Tooling													
GFE	SS/CPFF	VARIOUS						4.109	11/04	77.790	81.899	81.899	
Primary Hardware Dev (SD&D)	SS/CPAF	NGC, NY		24.296	06/03	282.219	10/03	562.949	10/04	1,783.565	2,653.029	2,653.029	
Contractor Engineering Support	CPFF	TBD	0.671			2.100	10/03				2.771	2.771	
Subtotal Product Development			67.004	93.700		284.319		567.058		1,992.355	3,004.436		

Remarks:

Successful DAB to enter SD&D completed 6 June 03, ADM and APBA approved 13 June 03.

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 7 of 11)

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Exhibit R-3, Project Cost Analysis
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Exhibit R-3 Cost Analysis (page 2)									DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5			PROGRAM ELEMENT 0604234N, ADVANCED HAWKEYE			PROJECT NUMBER AND NAME 3051, E-2 Advanced Hawkeye						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR/WX	NAWCAD, PAX RIVER, MD	2.127			26.954	10/03	3.182	10/04	Continuing	Continuing	
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Subtotal T&E			2.127	0.000		26.954		3.182		Continuing	Continuing	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Management Support	WX/RX	NAWCAD, PAX RIVER, MD	2.575	2.493	01/03	7.815	10/03	5.451	10/04	Continuing	Continuing	
Travel	WX	NAWCAD, PAX RIVER, MD	0.015	0.250	01/03	0.354	10/03	0.250	10/04	Continuing	Continuing	
Transportation												
Subtotal Management			2.590	2.743		8.169		5.701		Continuing	Continuing	
Remarks:												
Total Cost			74.166	107.043		343.306		597.015		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 9 of 11)

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EXHIBIT R4, Schedule Profile																								DATE:				February 2004							
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-5												0604234N, ADVANCED HAWKEYE												E3051, E-2 Advanced Hawkeye											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009						
	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							
Acquisition Milestones							MS B ▲																					MS C △							
AHE System Development								SFR △	SFR ▲		PDR △			CDR △																					
SDD AHE Systems Installation																						Two Units △													
Test & Evaluation Milestones																																			
Development Test*																																			
Operational Test																																			
Production Milestones																																			
Deliveries																																			

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* DT/DT Assist in FY05/FY06 and 1Q-2Q of FY07 includes NC-130/A-123/lab integration dedicated for weapon system development and air vehicle testing.

* DT/DT Assist in FY07-FY09 includes efforts for weapon system development and air vehicle testing on SD&D #1 and SD&D #2 aircraft.

* Schedule updated from Feb 03 submission to reflect a more clearly defined and discretely identified test evolution developed in cooperation with COTF and DOT&E in progress to MS B in June 2003.

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Exhibit R-4a, Schedule Detail
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