### **UNCLASSIFIED**

						DATE:	
						Februa	ry 2003
				R-1 ITEM NOMEN	CLATURE		
ION, NAVY /	BA-5			0604215N, Standa	rds Development	,	
FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
71.083	39.443	50.063	55.431	69.863	43.797	31.601	27.592
0.355							
7.328	1.742	5.016	6.297	4.930	6.141	6.688	6.994
2.654	1.175	0.960	0.891	0.916	1.105	1.125	1.145
4.754	4.203	1.266	1.388	1.405	1.697	1.721	1.750
55.992	32.323	42.821	46.855	62.612	34.854	22.067	17.703
	FY 2002  71.083  0.355  7.328  2.654  4.754	FY 2002 FY 2003  71.083 39.443  0.355  7.328 1.742  2.654 1.175  4.754 4.203	FY 2002 FY 2003 FY 2004  71.083 39.443 50.063  0.355  7.328 1.742 5.016  2.654 1.175 0.960  4.754 4.203 1.266	TON, NAVY / BA-5  FY 2002 FY 2003 FY 2004 FY 2005  71.083 39.443 50.063 55.431  0.355  7.328 1.742 5.016 6.297  2.654 1.175 0.960 0.891  4.754 4.203 1.266 1.388	FON, NAVY / BA-5         0604215N, Standar           FY 2002         FY 2003         FY 2004         FY 2005         FY 2006           71.083         39.443         50.063         55.431         69.863           0.355	FY 2002         FY 2003         FY 2004         FY 2005         FY 2006         FY 2007           71.083         39.443         50.063         55.431         69.863         43.797           0.355	R-1   ITEM NOMENCLATURE   0604215N, Standards Development   FY 2002

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project E2310, Flight Polynomials: The Navy - Portable Flight Planning Software (N-PFPS) is the basic flight planning system for the Navy and Marine Corps. One of the fundamental planning functions of any automated aviation mission planner is the ability to calculate fuel required and performance available corrected for both the aircraft's configuration (weight, drag, speed, etc.) and the environmental factors (altitude, wind, pressure, humidity, etc.) In order to provide accurate performance calculations, performance polynomials (drop-in polynomials) reflecting the performance delineated in the approved Naval Air Training & Operations Procedure & Standard (NATOPS) manuals must be developed, implemented and maintained for each supported type/model/series aircraft. The following type/model/series aircraft are supported by this PE: F/A-18 (400), F/A-18 (402), C-2R, E-2C (Block II), F-14 B/D, AH-1W, UH-1N, CH-46E, H-60F/H, S-3B, EA-6B, AV-8B (406), AV-8 (408), T-45, and KC-130 F/R/T. The developed drop-in performance polynomials will initially be implemented in Naval Portable Flight Planning Software (N-PFPS).

Project E2311, Stores Planning and Weaponeering Module: The Naval Stores Planning and Weaponeering (NSPW), now referred to as the Naval Aviation Weaponeering Component (NAWC) project is an incrementally developed software product that will provide a certified unit level weaponeering capability for Naval aircraft in the Joint Mission Planning Segment (JMPS). NAWC will provide current planning results for specific aircraft type and model that include store/weapon carriage authorizations, restrictions and limitations; store/weapon delivery restrictions and limitations (including safe-escape aspects of the planned delivery profile); and will provide mandatory weapons employment planning information including weapons optimization. Selected functions of the Automated Tactical Manual Supplement (ATACS) will be rehosted in a Windows 2000 environment and integrated with Joint Munitions Effectiveness Manual (JMEM) software, and target area planning functions to comprise NAWC. F/A-18A/B/C/D is the first platform to be introduced in the first increment of NAWC as a stand alone product, prior to migration to JMPS.

R-1 SHOPPING LIST - Item No.

90

UNCLASSIFIED Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 48)

#### CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE:
		February 2003
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5	0604215N, Standards Devel	opment

Project E2312, Common Helicopters: Automated mission planning systems to date have been developing targeting planning requirements for fixed-wing aircraft, while the unique planning requirements for helicopters have not been addressed. The unique and enhanced automated mission planning requirements that must be developed and implemented for helicopters include: data loading, an enhanced route editor (serpentine routing, hover, etc.) manipulation of higher fidelity (smaller scale) maps and imagery, enhanced performance tools (performance in and out of ground effect, performance degradation due to atmospheric conditions & elevation), and enhanced fidelity of landing zone, target zone, and threat analyses. The following type/model/series aircraft are supported by this PE: AH-1W, UH-1N, H-46D/E, H-53D/E, H-60B/F/H/R/S, and V-22. The developed common helicopter functionality will initially be implemented in Naval Portable Flight Planning Software (N-PFPS) then migrated to JMPS. Subsequent common helicopter functionality will be developed for implementation in the Joint Mission Planning Segment (JMPS) after JMPS initial fielding.

Project S1857, Calibration Standards: This project is a Navy-wide program to develop required calibration standards (hardware in all major measurement technology areas). It funds Navy lead-service responsibilities in the DOD and Joint Services Metrology RDT&E program.

Project W0572, Joint Services/Navy Standard Avionics Components and Subsystems: This project provides for the identification, design, development, test, evaluation and qualification of standard avionics for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Such air combat electronics developments include communications, navigation, flight avionics, safety systems, and flight mission information systems for both forward fit and retrofit aircraft. These efforts continue to maintain federated systems while encouraging transition of procurements to support a modular system for enhanced performance and affordability. Consideration is given up front to reduce acquisition costs through larger procurement quantities that satisfy multi-aircraft customer requirements and that reduce life cycle costs in the areas of reliability, maintainability, and training. Several examples of past successful tasks under this project include the Standard Central Air Data Computer, Solid State Barometric Altimeter, and Downed Aircraft Location System, jointly developed with the Air Force and Army and currently installed on numerous Navy, Air Force and Army aircraft. This project also funds Navy chairmanship and participation in the Joint Services Review Committee (JSRC) for Avionics Standardization. The RDT&E Articles include Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) Engineering Manufacturing Development (EMD) units, AMC&D EMD units which include Display Processors and Mission Processors, Display Heads, 8 x 10 displays, and Fiber Channel Switches, Joint Tactical Radio Systems (JTRS) EMD units, Aircraft Wireless Internal Communication Systems (AWICS) EMD units. Vector Product Format (VPF) software units and Terrain Awareness Warning Systems (TAWS) units. New Start for FY04 is JTRS.

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							Februa	ry 2003
APPROPRIATION/BUDGET ACTIVITY								
RDT&E, N / BA-5	0604215N Standa	Veaponeering Mo	dule					
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	7.328	1.742	5.016	6.297	4.930	6.141	6.688	6.994
RDT&E Articles Qty								

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project E2311, Stores Planning and Weaponeering Module: The Naval Stores Planning and Weaponeering (NSPW), now referred to as the Naval Aviation Weaponeering Component (NAWC) project is an incrementally developed software product that will provide a certified unit level weaponeering capability for Naval aircraft in the Joint Mission Planning Segment (JMPS). NAWC will provide current planning results for specific aircraft type and model that include store/weapon carriage authorization, restrictions and limitations; store/weapon delivery restrictions and limitations (including safe-escape aspects of the planned delivery profile); and will provide mandatory weapons employment planning information including weapons optimization. Selected functions of the Automated Tactical Manaual Supplement (ATACS) will be rehosted in a Windows 2000 environment and integrated with Joint Munitions Effectiveness Manual (JMEM) software, and target area planning functions to comprise NAWC. F/A-18A/B/C/D is the first platform to be introduced in the first increment of NAWC as a stand alone product, prior to migration to JMPS.

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	IAME
RDT&E, N / BA 5	0604215N Standard Development	E2311 Navy Stores Plann	ing and Weaponeering Module

### B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	3.206	0.311	3.816	0.000
RDT&E Articles Quantity				

Continued NAWC Construct Phase. Begin Functional Qualification Test and certification testing on F/A-18A/B/C/D product. Plan for NAWC transition to Fleet Users. Release NAWC Version 1 for F/A-18A/B/C/D as stand alone product.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	3.161	0.569	0.000	4.997
RDT&E Articles Quantity				

Initiate development of the JMPS integrated version of NAWC and F/A-18E/F functionality. Continue JMPS/NAWC integration. Integrate NAWC F/A-18/A/B/C/D/E/F functionality into JMPS.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.511	0.862	0.710	0.746
RDT&E Articles Quantity				

Provide essential updates to ATACS until NAWC is released. Provide essential updates to NAWC. Develop and certify common components for TACMAN (CUWCE, GTWTS,ATACS) & JMEM (PC effects and Common Computer). Continue to develop and certify common components for TACMAN.

### **CLASSIFICATION:**

XHIBIT R-2a, RDT&E Project Justifica	tion			DATE:			
POPPIATION/PLIDGET ACTIVITY	PROGRAM ELEMENT NU	MRED AND NAME	PROJECT NUMBER AND N	February 2003			
			E2311 Navy Stores Planning and Weaponeering Module				
T&E, N / BA 5	0604215N Standard Devel	opment					
PRIATION/BUDGET ACTIVITY  E, N / BA 5  Complishments/Planned Program (Cont.)  Complishments/Effort/Subtotal Cost  T&E Articles Quantity  pport domain engineering (Separation, Loa  complishments/Effort/Subtotal Cost  T&E Articles Quantity							
	FY 02	FY 03	FY 04	FY 05			
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.365	0.400			
RDT&E Articles Quantity							
	FY 02	FY 03	FY 04	FY 05			
Accomplishments/Effort/Subtotal Cost	FY 02 0.000	FY 03 0.000	FY 04 0.125	FY 05 0.154			
Accomplishments/Effort/Subtotal Cost RDT&E Articles Quantity							
	0.000						
RDT&E Articles Quantity	0.000 DITSCAP)	0.000	0.125	0.154			

### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification		DATE:						
						February 2003		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER	AND NAME		PROJECT NUM	BER AND NAME			
RDT&E, N / BA-5	0604215N Standard Developmen	t		E2311 Navy St	tores Planning and W	Veaponeering Module		
C. PROGRAM CHANGE SUMMARY:								
Funding:	FY 2002	FY 2003	FY 2004	FY 2005				
Previous President's Budget:	7.498	1.781	1.680	0.572				
Current BES/President's Budget	7.328	1.742	5.016	6.297				
Total Adjustments	-0.170	-0.039	3.336	5.725				
Summary of Adjustments								
Congressional program reductions								
Congressional undistributed reductions	3	-0.010						
Congressional rescissions								
SBIR/STTR Transfer								
Economic Assumptions	-0.020	-0.029	-0.170	-0.180				
Reprogrammings	-0.150							
Other Adjustment			3.506	5.905				
Congressional increases								
Subtotal	-0.170	-0.039	3.336	5.725				
Schedule:								
ATACS scheduel eas ajusted from 3Q/02 to 1Q	/02 due to the late completion of ch	angos mada t	o tho TACM	M				
ATACS scrieduci eas ajusted from SQ/02 to TQ	703 due to the late completion of ch	ianges made t	U IIIE TACIVIA	MN.				
Technical: Not Applicable								
1								

### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification		DATE:									
									Februa	ry 2003	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM EI	EMENT NUM	BER AND NAM	1E	PROJECT NUMBER AND NAME					
RDT&E, N / BA-5 0604215N Standard Development							E2311 Navy Stores Planning and Weaponeering Module				
D. OTHER PROGRAM FUNDING SUMMARY:									т-	Tatal	
Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To <u>Complete</u>	Total <u>Cost</u>	

144.059

BLI 287600 TAC A/C Mission Planning System PE2806F Air Force Mission Support System Related RDT&E:

13.159 6.458 17.300 16.540 8.639 9.797

62.348

8.113 144.544

11.934 247.154 12.152

98.609

Continuing

Continuing

12.370

96.164

Continuing

Continuing

P.E. 0604231N (Mission Planning)

#### E. ACQUISITION STRATEGY:

Naval Aviation Weaponeering Component (NAWC) software applications are being built by a software development team composed of government and contractor entities. Engineers provide domain expertise in the areas of platform specific stores compatibility and weapons separation, load validation, drag counts, fusing, delivery and safe escape, unguided trajectory modeling, guided weapons models, weapon effects, and aerodynamic flutter to the software development team. NAWC management and the test team for IV & V and Certification Testing are also combined teams of United States Government (USG) and contractor entities. Contractor efforts are procured predominately through fixed-price GSA or BPA contracts.

### CLASSIFICATION:

										DATE:				
Exhibit R-3 Cost Analysis (pa	ge 1)											February 200	03	
APPROPRIATION/BUDGET ACTIV	/ITY		ROGRAM EL						JMBER AND N					
RDT&E, N / BA-5				andard Develo	pment			E2311 Navy Stores Planning and Weaponeering Module						
Cost Categories	Contract Method	Performing Activity &		Total PY s	FY 03		FY 03 Award	FY 04	FY 04 Award	FY 05	FY 05 Award	Cost to	Total	Target Value
	& Type	Location		Cost	Cost		Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Primary Software Development	WR	NAWCAD, PAX		11.541	_	0.235		0.405		0.639		Continuing	1	
Primary Software Development	GSA/FP	Various		11.747		0.355		1.813		2.254	11//04	Continuing		
Aircraft Integration							0.70=				,, .		0.000	
Ship Integration													0.000	
Ship Suitability													0.000	
Systems Engineering	Various	Various		5.163	3	0.181	11/03	0.475	11/03	0.626	11/04	Continuing	Continuing	
Training Development												Ĭ	0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development				28.451	ı	0.771		2.693	3	3.519		Continuing	Continuing	
Development Support													0.000	
Software Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
Studies & Analyses													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support				0.000	)	0.000		0.000		0.000			0.000	
Remarks:														
				D_1 SHO	DDING	ICT.	Itam No Q	Λ						

### **CLASSIFICATION:**

										DATE:				
Exhibit R-3 Cost Analysis (pag	e 2)											February 200	)3	
APPROPRIATION/BUDGET ACTIV	ITY		PROGRAM E	LEMENT				PROJECT NU	JMBER AND N	NAME		•		
RDT&E, N / BA-5			0604215N St	andard Deve	opment	t		E2311 Navy Stores Planning and Weaponeering Module						
Cost Categories	Contract	Performing		Total			FY 03		FY 04		FY 05			
	Method	Activity &		PY s	FY 0		Award	FY 04	Award		Award	Cost to		Target Value
	& Type	Location		Cost	Cost		Date	Cost	Date		Date	Complete		of Contract
Developmental Test & Evaluation	Various	Various		4.63	9	0.470	11/02	0.687	11/03	0.832	11/04	Continuing	Continuing	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E				4.6	39	0.470		0.687		0.832		Continuing	Continuing	
Contractor Engineering Support													0.000	
Government Engineering Support	WR	NAWCAD, PAX	RIVER, MD			0.296	11/02	1.203	11/03	1.448	11/04	Continuing	Continuing	
Program Management Support	Various	Various		2.0	34	0.075	11/02	0.337	11/03	0.385	11/04	Continuing	Continuing	
Travel	WR	NAWCAD, PAX	RIVER, MD	0.9	90	0.130	11/02	0.096	11/03	0.113	11/04	Continuing	Continuing	
Transportation													0.000	
SBIR Assessment													0.000	
Subtotal Management				3.0	'4	0.501		1.636		1.946		Continuing	Continuing	
Remarks:														
Total Cost				36.1	64	1.742		5.016		6.297		Continuing	Continuing	
Remarks:														

EXHIBIT R4, Schedule Pr																				DATE		F	ebrua	ary 20	03							
APPROPRIATION/BUDGET A RDT&E, N /	CTIV BA-											ENT N ard Dev			MAN C	E					PROJ E231						Weap	oneer	ing Mo	odule		
Fiscal Year		20	002			20	03			20	04			20	05			20	06			20	07			20	08			200	)9	
	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	1	2	3	4
Acquisition Milestones																																
ATACS 2.3 Final Release					Δ	_																										
NAWC V.1 Release (F/A-18A/B/C NAWC V.2 Release (F/A-18A/E		/E/F)/、	JMPS II	ntegra	ation														Δ													
Test & Evaluation Milestones NAWC V.1 Cert Test (F/A-18A/B/																																
NAWC V.2 FQT & Cert Test (F/A-	-18A/E	B/C/D/E	E/F)																													
Production Milestones																																
NAWC V.1 Dev (F/A-18A/B/C/D) NAWC V.2 Development (F/A-18A/B/C/D)	A/B/C/	D/E/F)						[																								
Deliveries																																

<sup>\*</sup> Not required for Budget Activities 1, 2, 3, and 6

### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail						DATE:		
							February 2	2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM E				PROJECT NU			
RDT&BA-5	0604215N St	andard Develop	ment		E2311 Navy	Stores Planni	ng and Weapo	neering Module
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Acquisition Milestones		1Q-2Q			3Q			
Technical Evaluation (TECHEVAL)		1Q-2Q			1Q-3Q			
Production Milestones	1Q-3Q		1Q-4Q	1Q-4Q	1Q			
					+			
		<u> </u>						
		-			+			
					+			
		-			-			

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							Februa	ry 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	ENT NUMBER AND	NAME		PROJECT NUMBE	R AND NAME		
RDT&E, N / BA-5	0604215N Standa	rd Development			E2312 Common I	Helicopters		
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	2.654	1.175	0.960	0.891	0.916	1.105	1.125	1.145
RDT&E Articles Qty								

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project E2312, Common Helicopters: Automated mission planning systems to date have been developing targeting planning requirements for fixed-wing aircraft, while the unique planning requirements for helicopters have not been addressed. The unique and enhanced automated mission planning requirements that must be developed and implemented for helicopters include: data loading, an enhanced route editor (serpentine routing, hover, etc.) manipulation of higher fidelity (smaller scale) maps and imagery, enhanced performance tools (performance in and out of ground effect, performance degradation due to atmospheric conditions & elevation), and enhanced fidelity of landing zone, and threat analyses. The following type/model/series aircraft are supported by PE: AH-1W, UH-1N, H-46D/E, H-53D/E, H-60B/F/H/R/S, and V-22. The developed common helicopter functionally will initially be implemented in Naval Portable Flight Planning Software (N-PFPS) then migrated to JMPS. Subsequent common helicopter functionality will be developed for implementation in the Joint Mission Planning Segment (JMPS) after JMPS initital fielding.

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	NAME
RDT&E, N / BA-5	0604215N Standard Development	E2312 Common Helicopte	ers

### B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.654	1.175	0.960	0.891
RDT&E Articles Quantity				

Continue development of Common Helicopter until functionality and implementation into N-PFPS, N-PFPS Version 3.2, 3.3, and 3.4 are to be released.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

(HIBIT R-2a, RDT&E Project Justification					DATE:
PROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER	AND NAME		PROJECT NUMBER A	February 2003
OT&E, N / BA-5	0604215N Standard Developmen	t		E2312 Common Heli	copters
C. PROGRAM CHANGE SUMMARY:					
Funding:	FY 2002	FY 2003	FY 2004	FY 2005	
Previous President's Budget:	2.715	1.202	1.249		
Current BES/President's Budget	2.654	1.175	0.960		
Total Adjustments	-0.061	-0.027	-0.289		
Summary of Adjustments					
Congressional program reductions	-0.006				
Congressional undistributed reductions		-0.007			
Congressional rescissions					
SBIR/STTR Transfer					
Economic Assumptions	-0.007	-0.020	-0.022	-0.019	
Reprogrammings	-0.048	0.020	0.022	0.0.0	
Other Adjustment	0.010		-0.267	-0.176	
Congressional increases			0.207	0.110	
Subtotal	-0.061	-0.027	-0.289	-0.195	
Schedule: Not Applicable					
Technical, Not Applicable					
Technical: Not Applicable					

D. OTHER PROGRAM FUNDING SUMMARY:   Line   Item   No. & Name   FY 2002   FY 2003   FY 2004   FY 2005   FY 2006   FY 2007   FY 2008   FY 2009   Complete	
To <u>Line Item No. &amp; Name</u> <u>FY 2002</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>Complete</u> BLI 287600 TAC A/C Mission Planning Syster 13.159 6.458 8.639 9.797 8.113 11.934 12.152 12.370 Continuing Cor	
<u>Line Item No. &amp; Name</u> <u>FY 2002</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>Complete</u> BLI 287600 TAC A/C Mission Planning Syster 13.159 6.458 8.639 9.797 8.113 11.934 12.152 12.370 Continuing Cor	Total
	Cost
E. ACQUISITION STRATEGY:	inuing
E. ACQUISITION STRATEGY:	
E. ACQUISITION STRATEGY:	
E. ACQUISITION STRATEGY:	

Exhibit R-3 Cost Analys	is (naga 1)								DATE:		February 200	าง	
APPROPRIATION/BUDGET	ACTIVITY		DDOGDAN	1 ELEMENT			PROJECT NU	IMBED AND I	NAME		rebluary 200	<i>J</i> 3	
	<b>A-5</b>			Standard Deve	alonment		E2312 Comm						
Cost Categories	Contract	Performing	000421314	Total	Johnent	FY 03	LZ31Z OOIIII	FY 04		FY 05			
out categoco	Method	Activity &		PY s	FY 03	Award	FY 04	Award	FY 05	Award	Cost to	Total	Target Value
	& Type	Location		Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract
Primary Software Developme	ent MP	Eglin AFB,Florida		3.083	0.974	11/02	0.727	11/03	0.723	11/04	Continuing	Continuing	
Primary Software Developme	ent											0.000	)
Aircraft Integration												0.000	)
Ship Integration												0.000	
Ship Suitability												0.000	
Systems Engineering												0.000	
Training Development												0.000	)
Licenses												0.000	)
Tooling												0.000	)
GFE												0.000	
Award Fees												0.000	
Subtotal Product Development				3.083	0.974	1	0.727		0.723		Continuing		
Development Support												0.000	)
Software Development												0.000	)
Integrated Logistics Support												0.000	)
Configuration Management												0.000	)
Technical Data												0.000	)
Studies & Analyses												0.000	)
GFE												0.000	)
Award Fees												0.000	)
Subtotal Support				0.000	0.000	)	0.000		0.000		0.000	0.000	)
Damada													
Remarks:													

								DATE:				
Exhibit R-3 Cost Analysis (pag	e 2)									February 200	)3	
APPROPRIATION/BUDGET ACTIV	ITY	PROGRAM E	LEMENT			PROJECT NU	JMBER AND	NAME		-		
RDT&E, N / BA-5			tandard Develo	pment		E2312 Com		oters				
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	7, -										0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.0	00	0.000	0.000	
Contractor Engineering Support											0.000	
Government Engineering Support	WX	NAWCAD, PAX RIVER, MD	2.138	0.171	11/02	0.193	11/03	0.1	38 11/04	Continuing	Continuing	
Program Management Support	Various	Various	0.918	5							0.000	
Travel	WX	NAWCAD, PAX RIVER, MD	0.215	0.030	11/02	0.040	11/03	0.0	30 11/04	Continuing	Continuing	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			3.271	0.201		0.233	1	0.1	68	Continuing	Continuing	
Remarks:												
Total Cost			6.354	1.175		0.960		0.8	91	Continuing	Continuing	
Remarks:												

EXHIBIT R4, Schedule	Profile																	DATE	:	Fe	ebrua	ry 20	03									
APPROPRIATION/BUDGE															NAM	E					PROJ											
RDT&E, N /	BA-5	<u> </u>							06042	15N S	Standa	rd Dev	/elopm	ent							E231	2 Con	nmon	Helic	opters 							
Fiscal Year		2	002			20	03			20	04	1		20	05			20	06	ı		20	07	ı		200	08			200	)9	1
	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	1	2	3	4
Acquisition Milestones																																
Prototype Phase																																
PFPS v3.3 PFPS v4.0 PFPS v4.1 CMDL v2.0																																
CMDL v2.0 CMDL v2.01 CMDL v2.1 CMDL UPC		]																														
Test & Evaluation Milestones																																
PFPS v3.3					DT																											
PFPS v4.0								DT																								
N-PFPS v4.1											DT			]																		
CMDL v2.0		DT																														
CMDL v2.01						100																										
CMDL v2.1							[	DT																								
Production Milestones																																
CMDL UPC								DT			]																					
Deliveries																																

<sup>\*</sup> Not required for Budget Activities 1, 2, 3, and 6

### **CLASSIFICATION:**

PROGRAM E 0604215N St				IDDO IECT NILI	MDED AND NA	February 2	003			
				DDO IECT NIII	ADED AND NA	February 2003				
0604215N St			PROJECT NUMBER AND NAME							
0604215N Standard Development E2312 Comm						'S				
FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009			
1Q-4Q	1Q-4Q	1Q-4Q								
2Q-4Q	1Q-4Q	1Q-4Q								
4Q	2Q-4Q	4Q								
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#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
	February 2003							
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	ENT NUMBER ANI	NAME		PROJECT NUMBE	R AND NAME		
RDT&E, N / BA-5	Program Element (	PE) No. 0604215N	; Title: Standards D	evelopment	Project Unit (PU) N	lo. S1857, Calibrati	on Standards	
COST (\$ in Millions)	FY 2002 FY 2003 FY 2004 FY 2005 FY 2006 FY 2007						FY 2008	FY 2009
Project Cost	4.754	4.203	1.266	1.388	1.405	1.697	1.721	1.750
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project is a Navy-wide program to develop required calibration standards (hardware) in all major measurement technology areas. It funds Navy lead-service responsibilities in the DOD and Joint Services Metrology RDT&E program. This project supports the military requirement to verify the performance of all test systems used to validate the operation of Navy systems with calibration standards traceable to the National Institute of Standards and Technology.

R-1 SHOPPING LIST - Item No.

90

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justifica	ation			DATE:	
				Feb	ruary 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMI	BER AND NAME	PROJECT NUMBER AND N	AME	
RDT&E, N / BA-5	Program Element (PE) 06042	215N Standards Developr	ne Project Unit (PU) No. S1857	, Calibration Standards	
B. Accomplishments/Planned Program	FY 02	FY 03	FY 04	FY 05	٦
Accomplishments/Effort/Subtotal Cost	4.754	4.203	1.266	1.388	
RDT&E Articles Quantity					7

FY-2002 Accomplishments: \$43,000 of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) (\$ 1.903) Completed 19 calibration standards (hardware) in support of fiber optic systems, Watt Meter calibrators, shipboard gage calibration, composite material testing, microwave power measurements, laser power measurements, fiber optic hydrophones, infrared imaging systems (8 – 12 um), infrared target designators (3 – 5 um), 3 modeling and simulation projects begun in FY 00 to develop tools for reducing the cost of maintenance and optimizing test decisions, radar cross section measurements, optical systems, fuel measurement systems, multifunction electrical test equipment, electronic internet systems, new technology for reduced crew size, and capacitance measurement systems.

(U) (\$ 1.669) Continued development of 6 calibration standards (hardware) in support of laser power measurements, broadband communication systems, Forward Looking infrared systems, chemical/biological sensors, missile guidance systems, and a modeling and simulation project.

(U) (\$ 1.139) Began development of a suite of standards to reduce cumbersome work practices on board ships.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	4.754	4.203	1.266	1.388
RDT&E Articles Quantity				

### FY 2003 Plan:

(U) (\$ 2.955) Complete 21 calibration standards (hardware) in support of reducing shipboard workload, CBD sensors, aircraft EMI/EMC evaluation, broadband communication communication systems, laser power measurements, missile guidance systems, Forward Looking infrared systems, and a modeling and simulation project.

(U) (\$ 1.248) Continue development of 5 calibration standards to reduce cumbersome work practices on board ships; and to support MEMS shipboard instatlatins, and Missile guidance systems.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	4.754	4.203	1.266	1.388
RDT&E Articles Quantity				

### FY 2004 Plan:

(U) (\$ 1.071) Complete 5 calibration standards (hardware) in support of reducing shipboard workload, broadband communication systems, missile guidance systems.

(U) (\$ .195) Begin development of calibration standard system to replace aging Navy-Marine Corbs Lab Calibration Systems.

### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	ÎAME
RDT&E, N / BA-5	Program Element (PE) 0604215N Standards Developme	Project Unit (PU) No. S1857	, Calibration Standards

### B. Accomplishments/Planned Program (Cont.)

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	4.754	4.203	1.266	1.388
RDT&E Articles Quantity				

### FY 2005 Plan:

(U) (\$ 1.000) Continue development of calibration standards to replace aging Navy-Marine Corps Lab Calibration Systems (MECCA).

(U) (\$ .388) Begin development of calibration standards in support of broadband communication systems, torque systems for aircraft safety, and reduce cumbersome shipboard work practices.

### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:	
·							February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NU	MBER AN	ND NAME		PROJECT NUMBER AND	NAME	
RDT&E, N / BA-5	Program Element (PE) 060	4215N St	tandards Dev	velopment	Project Unit (PU) No. S185	57, Calibration Standards	
C. PROGRAM CHANGE SUMMARY:							
Funding:	FY 2	2002	FY 2003	FY 2004	FY 2005		
Previous President's Budget: (FY 03 Pres Controls			1,698.000	1,516.000	1,508.000		
Current BES/President's Budget: (FY04/05 OSD/O	MB Controls) 4,75	4.00	4,203.000	1,266.000	1,388.000		
Total Adjustments	-6	3.00	2,505.000	-250.000	-120.000		
Summary of Adjustments							
Congressional program reductions							
Congressional undistributed reductions	-10	.000	-8.000	0.000	0.000		
Congressional rescissions							
SBIR/STTR Transfer							
Economic Assumptions		.000	-24.000	0.000	0.000		
Reprogrammings		.000	0.000	0.000	0.000		
Other Adjustment		3.000	-63.000	-250.000	-120.000		
Congressional increases			2,600.000	0.000	0.000		
Subtotal	-63	3.000	2,505.000	-250.000	-120.000		
Schedule:							
Not applicable							
Technical:							
Not applicable							

### CLASSIFICATION:

EXHIBIT R-2a, RDT&E P	Project Justification								DATE:			
										F	ebruary 2003	
APPROPRIATION/BUDGET A					BER AND NAN		PROJECT NU					
RDT&E, N /	BA-5		Program Elem	ent (PE) 06042	215N Standard	s Developmen	Project Unit (P	PU) No. S1857,	Calibration St	andards		
D. OTHER PROGRAM	FUNDING SUMMARY:									т-	Tatal	
Line Item No. & Nam	<u>1e</u>	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To <u>Complete</u>	Total <u>Cost</u>	
Not Applicable												
E. ACQUISITION STRAT	FECV·*											
	iLO1.											
Not Applicable												

### CLASSIFICATION:

ontract Performethod Activity Type Location R NSWC	ming / &	ment (PE) 06042 Total	FY 03 Cost 3.413	FY 03 Award Date	PROJECT NU nt Project Unit (I FY 04 Cost 0.911	PU) No. S18 FY 04 Award Date	D NAME 57, Calibration St FY 05 Cost 1.028	FY 05 Award Date	Cost to Complete	Total Cost 5.352	Target Value of Contract
ontract Performethod Activity Type Location	Program Elei ming / & on	ment (PE) 06042 Total PY s	FY 03 Cost	FY 03 Award Date	FY 04 Cost	PU) No. S18 FY 04 Award Date	57, Calibration St FY 05 Cost	FY 05 Award Date		Cost 5.352	of Contract
ethod Activity Type Location	ming / & on	Total PY s	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date		Cost 5.352	of Contract
ethod Activity Type Location	/ & on	PY s	Cost	Award Date	Cost	Award Date	Cost	Award Date		Cost 5.352	of Contract
Type Location	on		Cost	Date	Cost	Date	Cost	Date		Cost 5.352	of Contract
		Cost	1	1		1			Complete	5.352	+
Nowe	, colona bivision		3.410		0.311		1.020				•
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### CLASSIFICATION:

									DATE:				1
Exhibit R-3 Cost Analysis (pag	ie 2)								271121		February 200	3	
APPROPRIATION/BUDGET ACTIV	ITY		PROGRAM EL	EMENT			PROJECT NU	JMBER AND N	IAME			·-	
RDT&E, N / BA-5			Program Eleme	ent (PE) 06042	15N Standard	s Development	Program Elem	nent (PE) 0604	215N Standard	s Development			
Cost Categories	Contract Method & Type	Performing Activity & Location			FY 03 Cost	FY 03 Award Date		FY 04 Award Date		FY 05 Award Date		Total Cost	Target Value of Contract
Developmental Test & Evaluation												0.000	
Operational Test & Evaluation												0.000	
Live Fire Test & Evaluation												0.000	
Test Assets												0.000	
Tooling												0.000	
GFE												0.000	
Award Fees												0.000	
Subtotal T&E				0.000	0.000		0.000		0.000		0.000	0.000	
	1	T				Γ	T	Γ			I		T
Contractor Engineering Support					0.290		0.125		0.122			0.537	
Government Engineering Support					0.430		0.200		0.208			0.838	
Program Management Support												0.000	
Travel					0.070		0.030		0.030			0.130	
Labor (Research Personnel)												0.000	
SBIR Assessment												0.000	
Subtotal Management  Remarks:	1			0.000	0.790		0.355		0.360		0.000	1.505	
Total Cost				0.000	4.203		1.266		1.388		0.000	6.857	
Remarks:													

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justificat	ion						DATE:			
							Februa	ry 2003		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEME	NT NUMBER AND	NAME		PROJECT NUMBE	R AND NAME				
RDT&E, N / BA-5	0604215N, Standa	rds Development			W0572, Joint Services/Navy Standard Avionics Components and Subsyste					
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2006 FY 2007 FY 2008				
Project Cost	55.992	32.323	42.821	46.855	62.612	34.854 22.067				
RDT&E Articles Qty	22		21	2	1					

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Joint Services/Navy Standard Avionics Components and Subsystems project provides for the identification, design, development, test, evaluation and qualification of standard avionics and mandatory safety improvements for Navy use, and wherever practicable, use across all services. Standard avionics systems under development include the Terrain Awareness Warning System (TAWS), Tactical Aircraft Moving Map Capability (TAMMAC), Midair Collision Avoidance System (MCAS), Communication Navigation Surveillance Air Traffic Management (CNS/ATM), Advanced Mission Computer & Displays (AMC&D), Vector Product Format (VPF), Aircrew Wireless Internal Communication Systems (AWICS), and the Joint Tactical Radio System (JTRS). Participation in Human Factors Quality Management Board (HFQMB) ensures Navy safety upgrades and mandatory safety improvements for naval aircraft. New Start for FY04 is JTRS.

The RDT&E Articles include Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) Engineering Manufacturing Development (EMD) units, AMC&D EMD units which include Display Processors and Mission Processors, Display Heads, 8 x 10 displays, and Fiber Channel Switches, Joint Tactical Radio Systems (JTRS) EMD units, Aircrew Wireless Internal Communication Systems (AWICS) EMD units, Vector Product Format (VPF) software units and Terrain Awareness Warning Systems (TAWS) units.

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	NAME
RDT&E, N / BA-5	0604215N, Standards Development	W0572, Joint Services/Navy	Standard Avionics Components and Subsystems

### (U) B. Accomplishments/Planned Program

AMC&D	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	44.365	27.425	12.222	6.103
RDT&E Articles Quantity	16			

Conducted PDR and CDR for 8 X10 display. Continued development and obtain production approval for Advanced Multi-Purpose Color Display (AMPCD) for AV-8B and F/A-18C/D. For F/A-18E/F system: completed DT-IIA-2; conducted OT-IIA-1 (OA); continued development of 8X10 display, Fibre Channel Network Switch (FCNS) and AMC; begin and complete DT-IIA-3; conduct TECHEVAL and DT-IIA-4; conduct OPEVAL and Operational Test of Type 2 AMC; and achieve MS III. For AV-8B: completed DT-IIB-1 and DT-IIB-2 (TECHEVAL); continued development of AMC; begin and complete OT-IIB (OPEVAL; and achieve MS III. Complete development of 8X10 display, FCNS and AMC. RDT&E Article Quantity in FY02 are being purchased to allow parallel development and testing to meet demanding schedule requirements.

JSRC	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.116	0.941	1.046	0.795
RDT&E Articles Quantity				

Continue to provide leadership in support of the Navy interest to the JSRC tri-service committee promoting commonality and joint programs with focus on interoperability communications, and CNS/ATM. Support and participate in Avionics OAG panels and HFQMB.

MCAS	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.537	0.000	0.000	0.000
RDT&E Articles Quantity				

Safety: Integrated unit on MCAS lead test platform and conducted MCAS developmental testing. Performed platform studies to determine integration impacts on other platforms.

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification	on		DATE:
			February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	NAME
RDT&E, N / BA-5	0604215N, Standards Development	W0572, Joint Services/Navy	Standard Avionics Components and Subsystems

### (U) B. Accomplishments/Planned Program

TAWS	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.824	0.472	0.000	0.000
RDT&E Articles Quantity	2			

Safety: Completed DT and commenced OT of the Terrain Awareness Warning System (TAWS) for F/A-18 OFP 17C/18E. Evaluated data and test results from simulator and flight testing of industry based TAWS and sensors which supplement TAWS performance. Support fleet release of the TAWS for F/A-18 OFP 18E with fleet briefs and training. Monitor initial fleet acceptance of the TAWS for F/A-18 OFP 18E. Begin development of program plans based on research of commercial based TAWS and sensors and applicability to other Navy platforms. Two AMU test articles were purchased for lab use at NAWCAD PAX.

TAMPS (TAMMAC)	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.224	0.000	0.000	0.000
RDT&E Articles Quantity				

Completed functional testing efforts for TAMMAC/N-PFPS map planning capabilities. Conducted CDR, software coding and unit testing efforts for TAMMAC/JMPS (UPC).

JMPS	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.549	0.896	1.166	0.000
RDT&E Articles Quantity				

Second software release of ARC-210 AFP as partially JMPS-integrated package utilizing JMPS common database input (and correcting Software Trouble Reports (STRs) from first release). Third software release for ARC-210 AFP as fully integrated JMPS software segment (with corrected STRs from previous release). Complete software coding and unit testing. Conduct Functional/developmental testing efforts for TAMMAC/JMPS Map planning capability. Conduct SRR and produce software build of the TAMMAC Joint Mission Planning System (JMPS) Unique Planning Component (UPC) to resolve any deficiencies from Operational Test. Incorporate any common requirements from the TAMMAC integration of the MH-60S and AV-8B platforms.

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	NAME
RDT&E, N / BA-5	0604215N, Standards Development	W0572, Joint Services/Navy	Standard Avionics Components and Subsystems

### (U) B. Accomplishments/Planned Program

CNS/ATM	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	5.377	1.322	11.938	16.471
RDT&E Articles Quantity	4			

Continued CNS/ATM integration of Mode S and Required Navigation Performance (RNP)-4 functional integration and certification efforts into naval aircraft. Achieve MS III decision for Mode S. Perform naval aircraft platform functional integration for F/A-18E/F, KC-130J, MH-60S, MH-60R and E-2C in the areas of communications, navigation, surveillance, processing and displays. (Mode S, 8.33khz, FM Immunity, RNP/RNAV). Continue CNS/ATM requirements definition. RDT&E articles in FY02 required for Mode S integration and test.

VPF	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.795	3.432	2.378
RDT&E Articles Quantity			1	

Conduct Vector Product Format (VPF) integration study for TAMMAC. Perform VPF software and hardware integration into TAMMAC. Complete VPF Integration Systems Design Review (SDR). Award VPF development contract. Conduct SRR, PDR and CDR review on VPF. Conduct VPF Developmental Testing (DT). Conduct VPF Systems Qualification Testing (SQT). Conduct VPF Operational Test. One DMC TAMMAC unit will be procured to conduct T&E of the VPF software in TAMMAC.

AWICS	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.472	2.137	0.000
RDT&E Articles Quantity			18	

Safety: Produce request for proposal (RFP) for candidate AWICS. Conduct operational assessment (OA) to down-select to one system. Achieve Milestone B for AWICS. Perform initial developmental testing on lead platform (H-53). Achieve Milestone C for AWICS. RDT&E articles are used for environmental, integration, EMI, EMC, TEMPEST and flight testing.

### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justificat	DATE: February 2003				
PPROPRIATION/BUDGET ACTIVITY	AME				
DT&E, N / BA-5	PROGRAM ELEMENT NUMBI 0604215N, Standards Develop			Standard Avionics Components ar	nd Subsystems
) B. Accomplishments/Planned Program					
JTRS	FY 02	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	10.880	21.108	
RDT&E Articles Quantity	3.000	0.000	2	2	
JTRS is an Air Force lead program. The Navy	is utilizing an Air Force contract vehic	le for navy unique req	uirements and a Navy vehicle for in	ntegration efforts on the lead platfo	orm.
	FY 02	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	
RDT&E Articles Quantity					
Accomplishments/Effort/Subtotal Cost RDT&E Articles Quantity	FY 02 0.000	FY 03 0.000	FY 04 0.000	FY 05 0.000	

### **CLASSIFICATION:**

XHIBIT R-2a, RDT&E Project Justification					DATE:
					February 2003
PPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER	AND NAME	P	ROJECT NUMBER A	AND NAME
DT&E, N / BA-5	0604215N, Standards Developme	nt	W	/0572, Joint Services	/Navy Standard Avionics Components and Subsystems
(U) C. PROGRAM CHANGE SUMMARY:					
(U) Funding:	FY 2002	FY 2003	FY 2004	FY 2005	
Previous President's Budget:	53.943	33.076	18.961	9.602	
Current BES/President's Budget	55.992	32.323	42.821	46.855	
Total Adjustments	2.049	-0.753	23.860	37.253	
Summary of Adjustments					
Congressional program reductions					
Congressional undistributed reductions	3	-0.217			
Congressional rescissions	-0.115				
SBIR/STTR Transfer	-1.057				
Economic Assumptions	-0.156	-0.536	-1.025	-1.031	
Reprogrammings	3.304				
Other Adjustments	0.073		24.885	38.284	
Congressional increases					
Subtotal	2.049	-0.753	23.860	37.253	

### (U) Schedule:

LPIA Milestone III decision changed from 2Q/02 to 2Q/03 due to required corrections of minor deficiencies identified in operational test.

AMC&D OPEVAL from 4Q/03 to 2Q/03 due to a change in the F/A-18E/F test schedule and fleet deployment schedule. AMC&D MS III (AV-8B) changed from 2Q/03 to 3Q/03 to align with the OSCAR schedule. AMC&D TECHEVAL removed from 3Q/03 and combined with 4Q/03 DT-11A-4 to align with the F/A-18E/F Flight Test Schedule. AMC&D OT changed from 1Q/04 to 2Q/04 to align with the F/A-18E/F overarching test plan.

CNS/ATM Mode S Milestone III decision changed from 4Q/02 to 2Q/03 due to VH-3 aircraft availability.

CCP Milestones removed because CCP is planned as a NDI system for CNS/ATM integrated solution.

JTRS development contract in 3Q/04 is not reflected in the schedule. The Navy is utilizing an Air Force contract vehicle for navy unique requirements (development contract).

### (U) Technical:

Not Applicable.

#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&E	Project Justification		DATE:
			February 2003
APPROPRIATION/BUDGET	T ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	BA-5	0604215N, Standards Development	W0572, Joint Services/Navy Standard Avionics Components and Subsystems

### (U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Complete	Cost
Common Avionics, APN 0702207N, Depot Maintenance, RDT&E AN/ARC-210 RT-1794(C)	67.899 0.694	61.774 0	148.627 0	169.44 0	227.755 0	202.918 0	183.59 0	174.596 0	Continuing 0	Continuing 8.462

#### (U) E. ACQUISITION STRATEGY: \*

Advanced Mission Computer & Display (AMC&D) is utilizing a Sole source to McDonnell Douglas Corp. (MDC), a wholly owned subsidiary of the Boeing Company, for prototype design using an 845 Other Transaction Agreement (OTA) and Cost Plus Contract for EMD and Fixed Price Incentive contract for LRIP. MDC conducted a competition to potential suppliers and selected General Dynamics Information Systems for the AMC, Honeywell for Displays, and Harris for Fibre Channel Network Switch. The Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) program is a systems of systems. The program will encompass the integration of various systems that are currently post-MS III. Systems will be procured utilizing existing Navy contracts for integration on forward-fit and retrofit platforms to provide CNS/ATM functionality. Joint Tactical Radio System (JTRS) is an Air Force lead program. The Navy is utilizing an Air Force contract vehicle for navy unique requirements and a Navy vehicle for integration efforts on the lead platform. TAMMAC Vector Product Format (VPF) is utilizing a Sole source to Harris Corporation, to incorporate the NIMA VPF data into the the existing TAMMAC FRP Hardware. Aircrew Wireless Internal Communication System (AWICS) is employing a full and open competition to procure a common system for use aboard multiple assault, logistics, Rotary Wing and Fixed Wing aircraft.

### CLASSIFICATION:

								DATE:				
Exhibit R-3 Cost Analysis (page 1	February 2003											
APPROPRIATION/BUDGET ACTIVITY	PROJECT NUMBER AND NAME											
RDT&E, N / BA-5		0604215N, ST	ANDARD DEVI			W0572, Joint	W0572, Joint Services/Navy Standard Avionics Components and Subsystems					
Cost Categories	Contract	Performing	Total		FY 03		FY 04		FY 05			
	Method & Type	Activity &	PY s Cost	FY 03 Cost	Award Date	FY 04 Cost	Award Date	FY 05 Cost	Award Date	Cost to	Total Cost	Target Value of Contract
Deine Heli Davider AMORD OTAGAE		Location			Date	Cost	Date	Cost	Date	Complete		
		Boeing, St. Louis, MO	54.516		44/00	0.000	11/00	4 000	44/04		54.516	
Prime Hdw Develop, AMC&D EMD	SS/CP	Boeing, St. Louis, MO	113.179		11/02	8.890	11/03	4.629	11/04		149.038	
Prime Hdw Develop, LPIA EMD	C/CS	BAE Systems, Wayne, NJ	7.264								7.264	_
Prime Hdw Develop, TAMMAC EMD	SS/CPIF	Boeing, St. Louis, MO	26.332								26.332	+
Prime Hdw Develop, CNS/ATM EMD	SS/BOA	Litton, Woodland Hills, CA	2.032								2.032	+
Prime Hdw Develop, CNS/ATM EMD	SS/CPIF	Rockwell, Cedar Rapids, IA	3.064								3.064	
Prime Hdw Develop, CNS/ATM EMD	C/FPIF	BAE Systems, Greenlawn, NY	2.157								2.157	2.157
Prime Hdw Develop, MCAS EMD	SS/CPFF	BAE Systems, Greenlawn, NY	1.969								1.969	1.969
Prime Hdw Develop, VPF	SS/TBD	Harris, Melbourne, FL		0.493	12/02	2.837	12/03	0.672	12/04		4.002	4.002
Prime Hdw Develop, JTRS	TBD	TBD				5.096	12/03				5.096	i
Primary Hardware Development	TBD	TBD		0.100	12/02	0.250	03/04				0.350	j
Ancillary Hardware Development												
Training Development												
Aircraft/Ship Integration	WX	NAWCs		0.150	03/03	0.320	03/04	0.199	03/05	Continuing	Continuing	J
Aircraft/Ship Integration, CNS/ATM	WX	NAWCs				9.278	04/04	12.493	04/05	Continuing	Continuing	J
Aircraft/Ship Integration, JTRS	WX	NAWCs				4.776	03/04	19.879	11/04	Continuing	Continuing	J
Ship Suitability												
Systems Engineering	WX	NAWCs		2.276	12/02	3.097	12/03	2.646	12/04	Continuing	Continuing	1
Licenses												
Tooling												
GFE												
Award Fees												
Misc			61.470								61.470	)
Subtotal Product Development			271.983	25.359		34.544	1	40.518		Continuing	Continuing	1

Remarks:

### CLASSIFICATION:

											DATE:				
Exhibit R-3 Cost Analysis (page 1)  APPROPRIATION/BUDGET ACTIVITY PROGRAM ELEMENT   F												February 200	03		
APPROPRIATION/BUDGET ACTIVITY PROGRAM ELEMENT F						PROJECT NUMBER AND NAME									
RDT&E, N / BA-5 0604215N, STANDARD DEVELOPMENT				W0572, Joint Services/Navy Standard Avionics Components and Subsystems											
Cost Categories		Performing		Total			FY 03			FY 04		FY 05			
	Method & Type	Activity &		PY s Cost	FY 03 Cost		Award Date	FY 04 Cost		Award Date	FY 05 Cost	Award Date		Total Cost	Target Value of Contract
Davidan are and Commont	WX	Location NAWCs		Cosi		0.690	12/02		.666	12/03	0.259		Complete		
Development Support											0.259	12/04	Continuing		·
Software Development	WX	NAWCs				0.581	03/03		.364	12/03	0.000	40/04	Cantinuina	0.945	
Integrated Logistics Support	WX	NAWCs				0.338	11/02	0.	.610	11/03	0.298	12/04	Continuing	Continuing	
Configuration Management															+
Technical Data	1407						44/00	_		4.4/0.0	0.000	11/01	0 " '	0	
Studies & Analysis	WX	NAWCs				0.266	11/02	0	).266	11/03	0.266	11/04	Continuing	Continuing	<u> </u>
GFE															1
Award Fees				04 400										04.400	
Misc				21.486										21.486	1
															+
															1
															+
															<u> </u>
															1
															1
															+
Subtotal Support				21.486		1.875		1	1.906		0.823		Continuing	Continuing	
			•		!				•		•				4
Remarks:															

### CLASSIFICATION:

									DATE:					
Exhibit R-3 Cost Analysis (page 2)								February 2003						
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT					PROJECT NUMBER AND NAME								
RDT&E, N / BA-5						W0572, Joint Services/Navy Standard Avionics Components and Subsystems								
Cost Categories	Contract	Performing		Total	E) / 00	FY 03	E) / 0 /	FY 04	<b>5</b> 1/05	FY 05				
	Method & Type	Activity & Location		PY s Cost	FY 03 Cost	Award Date	FY 04 Cost	Award Date	FY 05 Cost	Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation, AMC&D	WX	NAWCs		1.733		11/02	1.569	1	0.326		Continuing	Continuing	or contract	
Developmental Test & Evaluation, VPF	WX	NAWCs		1.755	1.547	11/02	0.299		1.232		Continuing	1.531		
Developmental Test & Evaluation, VFI  Developmental Test & Evaluation, AWICS	WX	NAWCs					0.299		1.232	01/03		0.887		
Operational Test & Evaluation	WX	NAWCs			0.748	11/02	0.086	1			Continuing	Continuing		
Live Fire Test & Evaluation	VVA	NAVVCS			0.746	11/02	0.066	01/04			Continuing	Continuing		
Test Assets														
Tooling GFE														
Award Fees				00.400								00.400		
Misc				22.162								22.162		
Subtotal T&E				23.895	2.695		2.841		1.558		Continuing	Continuing		
Contractor Engineering Support	WX	NAWCs			0.963	02/03	2.099	02/04	2.668	02/05	Continuing	Continuing		
Government Engineering Support	WX	NAWCs			0.564	12/02	0.805	12/03	0.594	12/04	Continuing	Continuing		
Program Management Support	WX	NAWCs			0.811	11/02	0.576	11/03	0.644	11/04	Continuing	Continuing		
Travel	WX	NAWCs			0.056	11/02	0.050	11/03	0.050	11/04	Continuing	Continuing		
Transportation														
SBIR Assessment				1.057								1.057		
Subtotal Management				1.057	2.394		3.530		3.956		Continuing	Continuing		
Remarks:														
Total Cost				318.421	32.323		42.821		46.855		Continuing	Continuing		
Remarks:	•	•		•			•	•	•	•	-		•	
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APPROPRIATION/BUDGET A	ACTIVIT	TY							PROG			NT N	JMBEI	R AND	NAME						PROJ	ECT N	IUMBE	R AN	D NAM	1E		CDIU	ii y 20	03		
RDT&E, N /	BA-5	5							06042	15N, S	Standa	rd Dev	elopm	ent							W057	2, Join	t Serv	ices/N	lavy Sta	andard	Avioni	cs Con	nponer	nts and	Subsy	ystems
Fiscal Year		20	02			20	03			200	04			200	05			200	06			20	07			20	08			200	9	
	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	1	2	3	4
Acquisition Milestones							MS	III (A\	(-8B)	MS I	II (F/A	·18)																				
Test & Evaluation Milestones	DT-II.				T-IIA-:	3		DT	Г-IIA-4																							
Development Test Operational Test		DT-III		OT-11/ A		PEVA	F/A	-18 OF	PEVAL			Opera	ational	Test																		
Production Milestones	$\Diamond$																															
LRIP II FY02				$\Diamond$	>																											
LRIP III FY03							$\Diamond$			•																						
FRP FY04										$\Diamond$																						
Deliveries			<u> </u>			<u> </u>								DDIN																		

### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail						DATE:		
AMC&D							February 20	03
APPROPRIATION/BUDGET ACTIVITY	PROGRAM EI	LEMENT			PROJECT NU	MBER AND NA		
RDT&E, N / BA-5	0604215N, Sta	andards Develo	pment		W0572, Joint	Services/Navy	Standard Avion	ics Components
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
AMC&D Operational Testing (OT-IIA-1) F/A-18E/F	3Q							
AMC&D Developmental Testing (DT-IIA-3) F/A-18E/F	3Q	2Q						
AMC&D Operational Evaluation (OPEVAL) AV-8B	4Q	2Q						
AMC&D MSIII (AV-8B)		3Q						
AMC&D Operational Évaluation (OPEVAL) F/A-18E/F		2Q-4Q						
AMC&D Developmental Testing (DT-IIA-4) F/A-18E/F		3Q	2Q					
AMC&D MSIII (F/A-18E/F)			2Q					
AMC&D Operational Testing F/A-18E/F			2Q-4Q					
LRIP I	1Q							
LRIP II	4Q							
LRIP III		3Q						
FRP			2Q					

#### CLASSIFICATION:

EXHIBIT R4, Schedul										JMP															DATE <b>F</b> e	ebrua	ıry 20	03				
APPROPRIATION/BUDGE										GRAM					NAM (	E									D NAN							
RDT&E, N /	BA-5	•			1				06042	215N, S	Standa	irds De	evelopr	nent							W0572	2, Joint	Servic	es/Nav	y Stand	lard Av	ionics (	Compon	ents an	id Subs	ystems	<u>;</u>
Fiscal Year		20	002	ı		20	03			200	04	1		20	05			20	06	ı		20	07			20	08	1		20	09	1
	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	1	2	3	4
Acquisition Milestones																																
TAMMAC JUMPS UPC Development		SDR F	DR CI	DR						SRR																						
Test & Evaluation Milestones							DT																									
Development Test									ОТ																							
Operational Test																																
Production Milestones																																

### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail						DATE:		
JMPS							February 20	03
APPROPRIATION/BUDGET ACTIVITY	PROGRAM EI	LEMENT			PROJECT NU	MBER AND NA	AME	
RDT&E, N / BA-5	0604215N, Sta	andards Develo	pment					nics Components
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006			FY 2009
System Design Review (SDR)	2Q							
Preliminary Design Review (PDR)	3Q							
Critical Design Review (CDR)	3Q							
Developmental Testing (DT)		2Q-4Q						
Systems Requirements Review (SRR)			2Q					
Operational Testing (OT)			1Q-2Q					
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APPROPRIATION/BUDGET														R AND	NAM	E									ID NAN		-					
RDT&E, N /	BA-5	<u> </u>			1				06042	15N, S	Standa	rds De	evelopr	ment			1				W0572	2, Joint	Service	es/Nav	y Stand	lard Av	ionics C	compor	nents ar	d Subs	ystem	S
Fiscal Year		20	002			20	03			200	04	_		200	05			20	06			20	07			20	08			200	09	
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Acquisition Milestones				Pr	oductio	on																										
Mode S				&	Install	MS III																										
F/A-18E/F Integration										Syste	em In	tegatio		abTest			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	& V														
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KC-130J Integration													,	System	Integ	ation					5.											
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E-2C Integration														Syster	n Inte	gation					1											
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Production Milestones																																
Platform Procurements																																
Deliveries																																

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Exhibit R-4a, Schedule Detail						DATE:		
CNS/ATM							February 20	03
APPROPRIATION/BUDGET ACTIVITY	PROGRAM EI	EMENT			PROJECT NU	MBER AND NA	ME	
RDT&E, N / BA-5	0604215N, Sta	andards Develo	pment		W0572, Joint	Services/Navy	Standard Avion	ics Components
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone III ( For Mode S)		2Q			†			
Low-Rate Initial Production II (Mode S)		1Q						
F18 System Integration			1Q-4Q	1Q-4Q	1Q			
MH-60S System Integration			1Q-4Q	1Q-4Q	1Q			
MH-60R System Integration			1Q-4Q	1Q-4Q	1Q			
F18 Lab Integration Test				1Q				
KC-130J System Integration				1Q-4Q	1Q-4Q	1Q		
E2C System Integration				1Q-4Q	1Q-4Q	1Q		
MH-60S Lab Integration Test				2Q				
MH-60R Lab Integration Test				2Q				
KC-130J Lab Integraion Test					2Q			
E-2C Lab Integration Test					2Q			
Initial Platform Procurements					2Q			
Follow-on Procurements						2Q -4Q	1Q-4Q	1Q - 4Q
System Installations						2Q -4Q	1Q - 4Q	1Q - 4Q

#### CLASSIFICATION:

APPROPRIATION/BUDGET A RDT&E, N / Fiscal Year	CTIVI								7D DE		CT E		A T															1	E.	h	20	02
RDT&E, N /							V		PROG					R AND	NAM	F					PRO.II	FCT N	IUMBE	R AN	I D NAM	1F			re	brua	y 200	J3
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Fiscal Year																																
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Acquisition Milestones															Fleet	Introdu	ction															
mestones																$\triangle$																
/PF Integration Study																																
Contract Award						Δ		SDR	SRR	PDR	CDR																					
ector Product Development								$\triangle$	$\triangle$	$\triangle$	$\triangle$																					<u></u>
Software /PF S/W to H/W Intragration																																
est & Evaluation filestones													DT/S	QT.																		
Development Test															ОТ																	
Operational Test																																
Production Milestones																																
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Exhibit R-4a, Schedule Detail						DATE:		
VECTOR PRODUCT FORMAT							February 20	03
APPROPRIATION/BUDGET ACTIVITY	PROGRAM EI	LEMENT			PROJECT NU	MBER AND NA	AME	
RDT&E, N / BA-5	0604215N, Sta	andards Develo	opment		W0572, Joint	Services/Navy	Standard Avion	ics Components
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
VPF Development Contract Award		2Q						
System Design Review (SDR)		4Q						
System Requirements Review (SRR)			1Q					
Preliminary Design Review (PDR)			2Q					
Critical Design Review (CDR)			3Q					
Developmental Testing (DT)				1Q-2Q				
System Qualification Testing (SQT)				1Q-2Q				
Operational Testing (OT)				2Q-3Q				
Fleet Introduction				4Q				

#### CLASSIFICATION:

EXHIBIT R4, Schedule												AW														ebrua	ıry 20	03				
APPROPRIATION/BUDGET									PROG						NAME						PROJ											
RDT&E, N /	BA-5	)			1				06042	15N, S	Standa	ards De	velopn	nent							W0572	2, Joint	Service	es/Nav	y Stand	lard Av	ionics C	Compor	nents ar	nd Subs	ystem	S
Fiscal Year		20	002	ı		20	03			200	04	1		200	)5			200	06			20	07	ı		20	08			20	09	
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Acquisition Milestones									MSB $\triangle$			MSC																				
Request for Proposals Development						)																										
Operational Assessment to Downselect to Winner																																
Contract Award									Δ																							
Test & Evaluation Milestones										Δ																						
Test Readiness Review H53 Developmental Test																																
Production Milestones																																
LRIP 1 FY04															FRP																	
Procurements															$\Delta$																	
Deliveries												18																				

### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail						DATE:		
AWICS							February 20	03
APPROPRIATION/BUDGET ACTIVITY	PROGRAM EI	LEMENT			PROJECT NU	MBER AND NA	AME	
RDT&E, N / BA-5		andards Develo	ppment			ervices/Navy Sta		Components
Schedule Profile	FY 2002		FY 2004	FY 2005	FY 2006			FY 2009
Request for Proposals Development	1 1 2002	1Q	1 1 2004	1 1 2003	1 1 2000	1 1 2001	1 1 2000	1 1 2009
Operational Assessment to Downselect to Winner		3Q-4Q						
Contract Award		<u> </u>	1Q					
Milestone B (MS B)			1Q					
Milestone C (MS C)			4Q					
Test Readiness Review (TRR)			2Q					
Developmental Testing (DT-IIA)			3Q-4Q					
Low-Rate Initial Production (LRIP 1)			4Q					
LRIP 1 Deliveries			4Q					
Procurements			3Q					
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				-				

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EXHIBIT R4, Schedul										JTR														[	DATE <b>F</b> e	: ebrua	ry 20	03				
APPROPRIATION/BUDGE														R AND	NAM	E					PROJ	ECT N	NUMBER	RAND	NAM	ΙE						
RDT&E, N /	BA-	5							06042	215N, S	Standa	rds De	evelopi	ment			1				W0572	2, Joint	Services	/Navy	Stand	ard Avi	onics C	ompon	ents an	d Subs	ystems	
Fiscal Year		20	002			20	03			20	04			200	05			20	06			20	07			20	08			200	9	
	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	1	2	3	4
Acquisition Milestones Air Force Milestones							MS _	1															мѕс	1	P Dec			IOC	$\searrow$			
JTRS Prototype Phase																																
Air Force Milestones JTRS Development Milestones								F	DR			CE Z	R																			
EDM JTRS Delivery													Lab1	<u></u>			Flt T	est 			$\triangle$											
Aircraft Integration Efforts																																
Test & Evaluation Milestones  Development Test																		Co Lead	mbine Platfor						Blo TE	ck 1 CHEV	AL				Blod OPE	k 1
Operational Test																																
Production Milestones Air Force Milestones LRIP I FY 05																					L	RIP I	Award				LI	RIP del	iveries			
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Exhibit R-4a, Schedule Detail						DATE:		
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APPROPRIATION/BUDGET ACTIVITY	PROGRAM EI	LEMENT			PROJECT NU	MBER AND NA	AME	
RDT&E, N / BA-5	0604215N, Sta	andards Develo	pment		W0572, Joint	Services/Navy	Standard Avior	ics Components
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase		4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Milestone B (MS B)		3Q						
Preliminary Design Review (PDR)			1Q					
Critical Design Review (CDR)				1Q				
Eng Dev Model (EDM) - Lab				1Q-2Q				
Eng Dev Model (EDM) - Flt Test					1Q-2Q			
Milestone C (MS C)						3Q		
Full Rate Production (FRP) Decision							1Q	
Combined DT/OT					2Q-4Q	1Q-2Q		
Low-Rate Initial Production Award (LRIP I)						3Q		
Block 1 TECHEVAL						3Q-4Q	1Q-4Q	
Low-Rate Initial Production Deliveries							3Q-4Q	1Q-2Q
Block 1 OPEVAL								3Q-4Q
IOC								1Q
							-	