

CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5					R-1 ITEM NOMENCLATURE 0604777N NAVIGATION/ID SYSTEMS				
COST (\$ in Millions)		FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		22.317	45.579	45.726	28.788	48.525	46.976	48.429	49.329
F0253	Navigation and Electro-Optical Support	2.169	14.262	11.474	6.249	9.292	7.310	8.018	8.164
W0676	Improved ID Development	1.656	1.912	1.553	1.810	2.789	3.769	3.840	3.912
W1253	Combat ID System	5.686	10.693	10.572	5.750	14.482	13.480	13.732	13.986
X0921	NAVSTAR GPS Equipment	12.806	18.712	22.127	14.979	21.962	22.417	22.839	23.267

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

Reliable and secure Navigation and positive identification (ID) systems are essential elements of battle management in the naval environment. The Photonics Imaging System (F0253) is a non-hull penetrating replacement for existing optical periscopes. The Photonics Imaging System exploits a wide portion of the electro-magnetic spectrum utilizing advanced Electro-Optic/thermal imaging; and communications intercept/Electronic Warfare Support (ES). The Combat Identification System (CIS) project (W1253) for Mark XIIA, and Improved Identification Development (W0676) for AN/UPX-29, covers the Navy lead of a MK XIIA Mode5 upgrade to the existing Mark XII family of systems that is Joint and NATO interoperable. In addition to distinguishing friend from foe for weapons employment, the Navy requires secure, jam resistant Identification Friend or Foe (IFF) systems for battle group air defense management and air traffic control. Identification is multifaceted and includes information received from several sensors (both cooperative and non-cooperative systems).

NAVSTAR Global Positioning System (GPS), project (X0921) is a space-based radio positioning and navigation system that provides users with worldwide, all weather, three dimensional position, velocity and precise time data based on a constellation of 24 satellites. Navy Sensor System Interface (NAVSSI) is a system that provides an integrated navigation message structure for network distribution to support combat, information and other mission critical capabilities. Navy Navigation Warfare (NAVWAR) is a key element and subset of the GPS program and provides Air and Sea units with jam resistant GPS antennas and receivers to ensure the continued use of GPS information in a hostile environment.

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION / ID SYSTEMS			PROJECT NUMBER AND NAME F0253 Navigation and Electro-Optical Support			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	2.169	14.262	11.474	6.249	9.292	7.310	8.018	8.164
RDT&E Articles Qty	0	0	0	0	0	0	0	0
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Navigation and Electro-Optical Support program develops Submarine Electro-Optical and imagery systems and equipment that will improve submarine imaging capability in the areas of: ship safety, Intelligence, Surveillance and Reconnaissance (ISR), and tactical control (contact management in the littorals). The Photonics Imaging System, mounted on the Universal Modular Mast will provide imaging capability for the VIRGINIA class submarine. The Photonics Imaging System design exploits a wide portion of the electro-magnetic spectrum through advanced E-O and thermal imaging and Electronic Warfare Support (ES)/Communications intercept. It will provide significant improvements in submarine stealth and infrared imaging capability. The non-hull penetrating design provides freedom in ship design and space savings for VIRGINIA CLASS and future submarines designs. The system was designed to satisfy Operational Requirement #365-87-94. Specific efforts include: (1) Photonics Imaging System On-Board Team Trainer Development (2) Photonics Imaging System At Sea Test And Evaluation (3) Photonics Imaging System Sensors and image processing improvements. In November 2000, the Submarine Tactical Requirements Group (STRG) identified imaging capability shortfalls that must be corrected to support high intensity operations in the littoral and provide the submarine force with the tactical imaging systems necessary to safely and effectively employ its surveillance and weapons capabilities. Specific efforts undertaken to meet the STRG requirements are: (1) Type 18 Periscope Automated Range Finder development. (2) Submarine Common Imagery System Development.</p>								

R-1 SHOPPING LIST - Item No.

135

UNCLASSIFIED

Exhibit R-2a, RDTEEN Project Justification
(Exhibit R-2a, Page 2 of 37)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION / ID SYSTEMS	PROJECT NUMBER AND NAME F0253 Navigation and Electro-Optical Support		
(U) B. Accomplishments/Planned Program				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.908			
RDT&E Articles Quantity				
Complete Photonics On-Board Team Trainer development.				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.163	1.144		
RDT&E Articles Quantity				
FY02 - Perform EDM Removal/Deinstallation Planning. FY03 - Perform EDM Removal/Deinstallation.				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.098	0.933		
RDT&E Articles Quantity				
FY02 - Perform Photonics At Sea Test And Evaluation. FY03 - Complete Photonics At Sea Test And Evaluation.				

R-1 SHOPPING LIST - Item No.

135

UNCLASSIFIED

Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, Page 3 of 37)

UNCLASSIFIED

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<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 02</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 style="text-align: center;">3.344</td><td style="text-align: center;">2.581</td><td style="text-align: center;">2.450</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Initiate Submarine Common Imagery System development. Complete Submarine Common Imagery System development. Perform Advanced Processor Build (APB) Systems Engineering for Submarine Common Imagery System.</div>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost		3.344	2.581	2.450	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		3.344	2.581	2.450															
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		1.360	1.189																
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Accomplishments/Effort/Subtotal Cost		4.212	4.046	2.740															
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.

135

UNCLASSIFIED

Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, Page 4 of 37)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost			2.849																
RDT&E Articles Quantity																			
Perform Photonics Imaging System EDM Shock Test and convert to the configuration control model.																			
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		3.269	0.809	1.059															
RDT&E Articles Quantity																			
Photonics ESM Performance Improvement (PEPI) development.																			

R-1 SHOPPING LIST - Item No.

135

UNCLASSIFIED

UNCLASSIFIED

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(U) C. PROGRAM CHANGE SUMMARY:

	FY 2002	FY 2003	FY 2004	FY 2005
(U) Funding:				
FY2003 Pres Budget	2.271	14.584	0.000	0.000
FY2004 Pres Budget	2.169	14.262	11.474	6.249
Total Adjustments	-0.102	-0.322	11.474	6.249
Summary of Adjustments				
Inflation reduction	0.000	-0.155		
SBIR/STTR Transfer	-0.035	0.000		
Congressional Recissions	-0.011	-0.167		
Reprogrammings	-0.056	0.000		
Program Adjustments			11.474	6.249
Subtotal	-0.102	-0.322	11.474	6.249

(U) Schedule:
Not applicable

(U) Technical:
Not applicable

R-1 SHOPPING LIST - Item No. 135

UNCLASSIFIED

UNCLASSIFIED

DATE:	February 2003
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R-1 SHOPPING LIST - Item No. 135

Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, Page 7 of 37)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604777N NAVIGATION / ID SYSTEMS			F0253 Navigation and Electro-Optical Support						
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 Development	Various	Various	34.962	9.061	10/02	5.558	10/03	3.122	10/04	Continuing	Continuing	
Software Development	Various	Various		0.600	10/02	0.700	10/03	0.700	10/04	Continuing	Continuing	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	WR / RC	NUWC Newport, RI	5.922	4.050	10/02	1.109	10/03	1.904	10/04	Continuing	Continuing	
Training Development											0.000	
Licenses											0.000	
Miscellaneous	Various	Various	0.556	0.000	01/03	1.302	10/03	0.043		Continuing	Continuing	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			41.440	13.711		8.669		5.769		Continuing	Continuing	
Remarks:												
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	
Remarks:												

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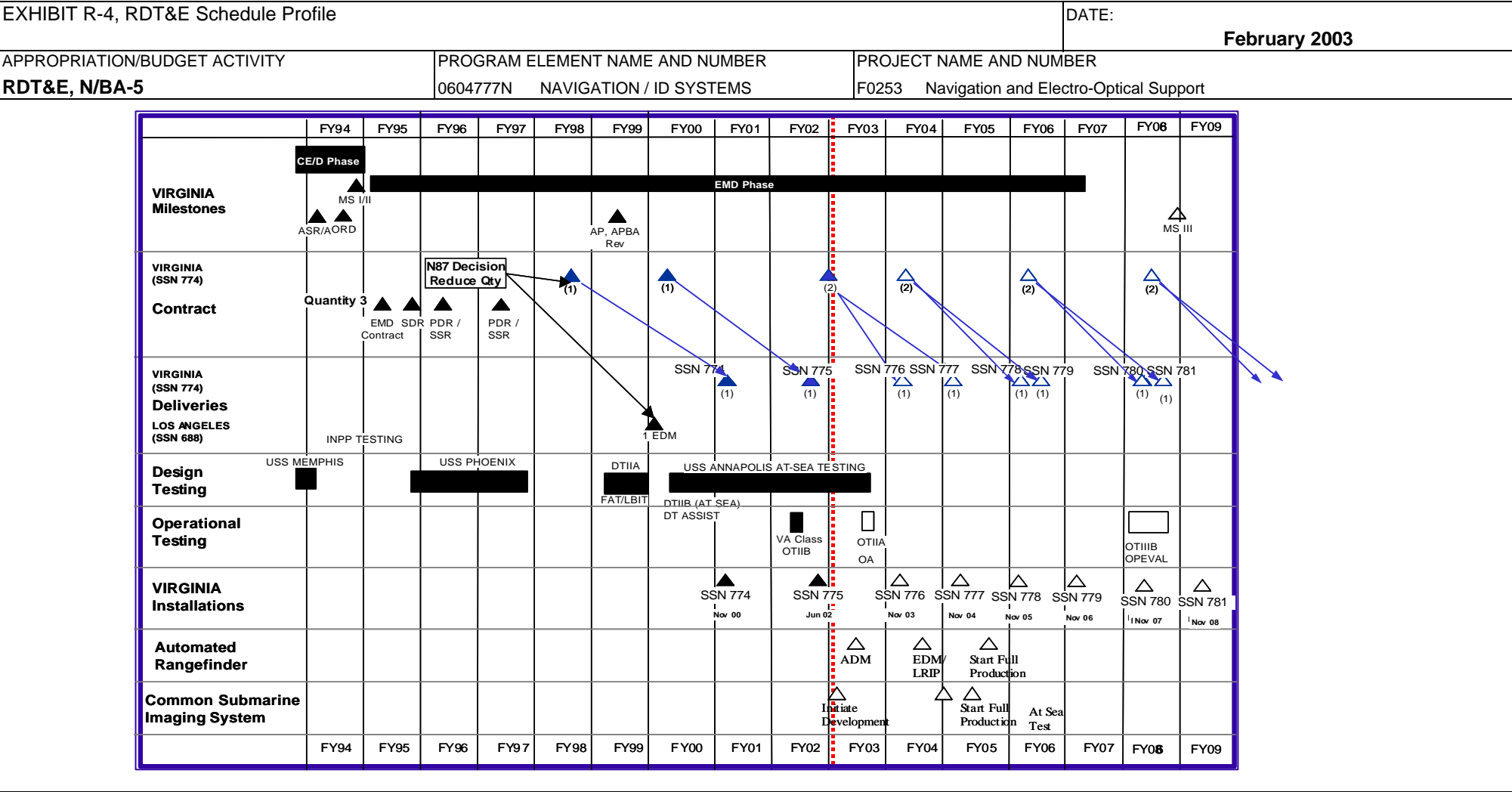
Exhibit R-3 Cost Analysis (page 2)										DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5			PROGRAM ELEMENT 0604777N NAVIGATION / ID SYSTEMS			PROJECT NUMBER AND NAME F0253 Navigation and Electro-Optical Support						
Cost Categories	Contract Method & Type	Performing Activity & Location	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											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	
Remarks:												
Contractor Engineering Support											0.000	
Program Management Support						2.395	10/03		10/04	Continuing	Continuing	
Management Support Services ETS	Various	Various	3.650	0.511	11/02	0.370		0.440		Continuing	Continuing	
Travel			0.457	0.040		0.040		0.040			0.577	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			4.107	0.551		2.805		0.480		Continuing	Continuing	
Remarks:												
Total Cost			45.547	14.262		11.474		6.249		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 135

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, Page 9 of 37)

CLASSIFICATION:



R-1 SHOPPING LIST - Item No. 135

UNCLASSIFIED

CLASSIFICATION:

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R-1 SHOPPING LIST - Item No. 135

UNCLASSIFIED

Exhibit R-4a, Schedule Detail
(Exhibit R-4a, Page 11 of 37)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION/ID SYSTEMS			PROJECT NUMBER AND NAME W0676 IMPROVED ID DEVELOPMENT			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	1.656	1.912	1.553	1.810	2.789	3.769	3.840	3.912
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Reliable and secure navigation and positive identification (ID) systems are essential elements of battle management in the naval environment. In addition to distinguishing friend from foe for weapons employment, the Navy requires secure, jam resistant Identification Friend or Foe (IFF) systems for battle group air defense management and air traffic control. Identification is multifaceted and includes information received from several sensors (both cooperative and non-cooperative systems). The Improved MK XII (W0676) addresses the Navy lead of a MK XIIA Mode 5 Upgrade to the existing Mark XII family of systems that is Joint and NATO interoperable. These funds provide for Mode 5 integration into the AN/UPX-29(V) IFF system which interfaces with the AEGIS baseline weapon system and for other AN/UPX-29(V) improvements.

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<p>(U) B. Accomplishments/Planned Program</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 40%;"></th> <th style="width: 15%;">FY 02</th> <th style="width: 15%;">FY 03</th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> </tr> <tr> <td>Mark XIIA Mode 5 Improvement for AN/UPX-29</td> <td style="text-align: center;">0.878</td> <td style="text-align: center;">1.385</td> <td style="text-align: center;">0.590</td> <td style="text-align: center;">1.384</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Initiated development of MARK XIIA Mode 5 Improvements modifications to the AN/UPX-29(V) for integration with the AEGIS weapons system baseline 7.1C in FY 02. Continue development and complete baseline testing of MARK XIIA Mode 5 Improvements to the AN/UPX-29(V) to include land based testing in FY 03. Continue engineering and integration development of MARK XIIA Improvements to the AN/UPX-29(V); initiate AN/UPX-29(V) Engineering Change Proposal in FY 04. Complete engineering and integration development of MARK XIIA Improvements to the AN/UPX-29(V) and AN/UPX-29(V) Engineering Change Proposal in FY 05.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 40%;"></th> <th style="width: 15%;">FY 02</th> <th style="width: 15%;">FY 03</th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> </tr> <tr> <td>AN/UPX-29(V) Software Developement</td> <td style="text-align: center;">0.778</td> <td style="text-align: center;">0.527</td> <td style="text-align: center;">0.663</td> <td></td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Initiated modification of the AN/UPX-29(V) software for interface with the AEGIS weapons system in FY 02. Continue development of AN/UPX-29(V) system software for interface with AEGIS weapons system in FY 03. Continue development of MARK XIIA Improvement to the AN/UPX-29(V) system software for interface with AEGIS weapon system and core ILS documents; formalize hardware/software configuration; update technical data as required in FY 04.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 40%;"></th> <th style="width: 15%;">FY 02</th> <th style="width: 15%;">FY 03</th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> </tr> <tr> <td>Mark XIIA Mode 5 Development and Operational Test</td> <td></td> <td></td> <td style="text-align: center;">0.300</td> <td style="text-align: center;">0.426</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p>Provide support for MARK XIIA Mode 5 DT/OA in FY 04. Provide test asset for MARK XIIA Mode 5 DT/OT in FY 04. Provide support for MARK XIIA Improvements to the AN/UPX-29(V) DT/OT in FY 05.</p> </div>					FY 02	FY 03	FY 04	FY 05	Mark XIIA Mode 5 Improvement for AN/UPX-29	0.878	1.385	0.590	1.384	RDT&E Articles Quantity						FY 02	FY 03	FY 04	FY 05	AN/UPX-29(V) Software Developement	0.778	0.527	0.663		RDT&E Articles Quantity						FY 02	FY 03	FY 04	FY 05	Mark XIIA Mode 5 Development and Operational Test			0.300	0.426	RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05																																												
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R-1 SHOPPING LIST - Item No. 135

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 14 of 37)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2003
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION/ID SYSTEMS	PROJECT NUMBER AND NAME W0676 IMPROVED ID DEVELOPMENT
<p>(U) E. ACQUISITION STRATEGY: *</p> <p>The acquisition strategy is to develop Mode 5 ECPs (Engineering Change Proposals) for modern Mark XII IFF (Identification Friend or Foe) equipment and integrate into all Navy Combat Weapons systems platforms and transition the Navy's Cooperative Identification Capability to Mode 5.</p>		

R-1 SHOPPING LIST - Item No. 135

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT 0604777N NAVIGATION/ID SYSTEMS			PROJECT NUMBER AND NAME W0676 IMPROVED ID DEVELOPMENT						
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 Development	WR	NAWCAD, MD	0.878								0.878	
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration	WR	NAWCAD, MD		0.300	11/02	0.160	11/03	0.300	11./04	Continuing	Continuing	
Ship Suitability												
Systems Engineering	WR	NAWCAD, MD		0.700	11/02	0.430	11/03	0.694	11/04	Continuing	Continuing	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.878	1.000		0.590		0.994		Continuing	Continuing	
Remarks:												
Development Support												
Software Development	WR	NAWCAD, MD	0.778	0.527	11/02	0.333	11/03			Continuing	Continuing	
Integrated Logistics Support	WR	NAWCAD, MD		0.285	11/02	0.192	11/03	0.350	11/04	Continuing	Continuing	
Configuration Management	WR	NAWCAD, MD				0.050	11/03	0.050	11/04	Continuing	Continuing	
Technical Data	WR	NAWCAD, MD		0.100	11/02	0.088	11/03	0.100	11/04	Continuing	Continuing	
Studies & Analyses												
GFE												
Award Fees												
Subtotal Support			0.778	0.912		0.663		0.500		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT 0604777N NAVIGATION/ID SYSTEMS				PROJECT NUMBER AND NAME W0676 IMPROVED ID DEVELOPMENT					
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	NAWCAD, MD				0.050	11/03	0.100	11/04	Continuing	Continuing	
Operational Test & Evaluation	WR	NAWCAD, MD						0.216	11/04	Continuing	Continuing	
Live Fire Test & Evaluation												
Test Assets	WR	NAWCAD, MD				0.250	11/03				0.250	
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		0.300		0.316		Continuing	Continuing	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel												
Transportation												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												
Total Cost			1.656	1.912		1.553		1.810		Continuing	Continuing	
Remarks:												

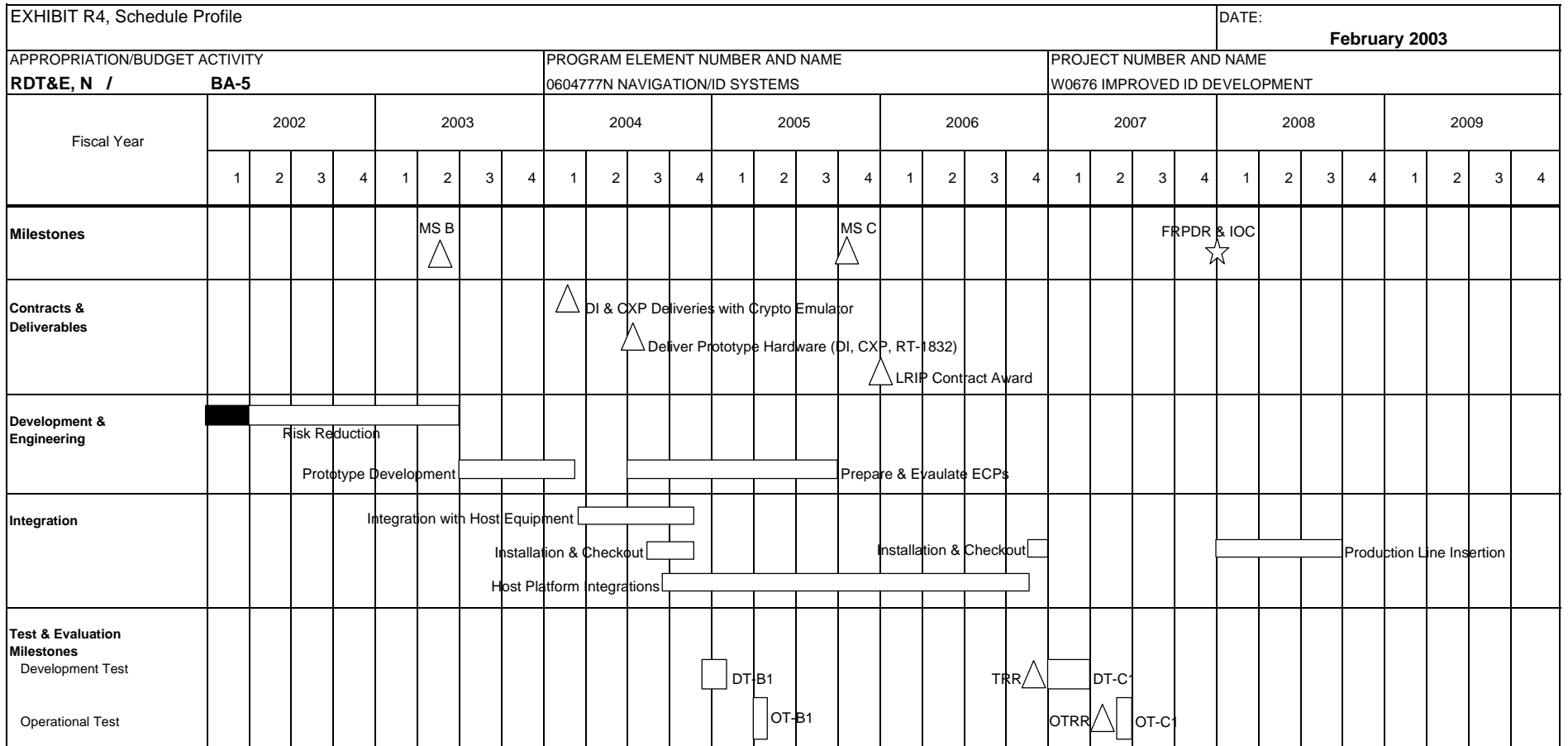
R-1 SHOPPING LIST - Item No. 135

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 17 of 37)

UNCLASSIFIED

CLASSIFICATION:



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R-1 SHOPPING LIST - Item No. 135

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 19 of 37)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION/ID SYSTEMS			PROJECT NUMBER AND NAME W1253 COMBAT ID SYSTEMS			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	5.686	10.693	10.572	5.750	14.482	13.480	13.732	13.986
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

In 1995, the Under Secretary of Defense (Acquisition and Technology)/Vice Chairman, Joint Chiefs of Staff [USD(A&T)/VCJCS] tasked the Services to develop a high-level plan and long-range strategy for migrating to new digital Mark XII equipment. The services were also tasked to work with participating NATO Allies to develop a new MK XII waveform and document it in a NATO Standard Agreement (STANAG). The Navy took the lead in a waveform development effort conducted in coordination with a Five-Nation Technical Working Group (TWG), supported by Joint Services and Industry. The Navy, in conjunction with the TWG, designed, developed, modeled, and tested a new waveform – MK XIIA Mode 5. A separate Five-Nation Communication Security (COMSEC) group, led by the National Security Administration (NSA), developed a new cryptographic algorithm and associated Cryptographic Equipment Interoperability Requirements Specification. STANAG 4193, Part V has been ratified and promulgated to all NATO nations, and Part VI was approved for promulgation in January 2002.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA -5	PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION/ID SYSTEMS	PROJECT NUMBER AND NAME W1253 COMBAT ID SYSTEMS		
(U) B. Accomplishments/Planned Program				
	FY 02	FY 03	FY 04	FY 05
Mode 5 prototype hardware & cryptographic module	2.690	6.644	6.040	2.281
RDT&E Articles Quantity			28	
<div style="border: 1px solid black; padding: 5px;"> <p>Completed Stage Frequency assignment in FY02. Design and develop prototype Mode 5 ECP kits (Mode 5 processor card, software mode 5 cryptography and cryptographic emulator) in FY03. Design and develop lab-based Electronic Test Equipment (ETE) kits in FY03 to support integration and developmental test and evaluation . Continue development of kits for installation into existing fleet assets (AN/UPX-37 Interrogator, AN/APX-118 Common Digital Transponder, the RT-1832/APX Transponder) in FY04. Repair any deficiencies in identified during testing in FY05 to support Milestone C.</p> </div>				
	FY 02	FY 03	FY 04	FY 05
Mode 5 systems engineering	2.611	3.257	1.610	1.611
<div style="border: 1px solid black; padding: 5px;"> <p>Perform systems engineering in support of the Mode 5 hardware/software development efforts on the the AN/UPX-37 Interrogator, AN/APX-118 Common Digital Transponder, the RT-1832/APX Transponder, cryptographic module and ETE during FY03 through FY05.</p> </div>				
	FY 02	FY 03	FY 04	FY 05
Conduct DT & OT of the Mode 5 upgrade	0.385	0.792	2.922	1.858
<div style="border: 1px solid black; padding: 5px;"> <p>Conduct test preparations in FY02 & 03. Mode 5 Developmental and Operational test phases for the AN/UPX-37 Interrogator, AN/APX-118 Common Digital Transponder, the RT-1832/APX Transponder, cryptographic module and ETE in FY04 and FY05. Mode 5 TECHEVAL and OPEVAL in FY07.</p> </div>				

R-1 SHOPPING LIST - Item No.

135

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 21 of 37)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:		February 2003		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N / BA-5		0604777N NAVIGATION/ID SYSTEMS			W1253 COMBAT ID SYSTEMS					
(U) C. PROGRAM CHANGE SUMMARY:										
(U) Funding:		FY 2002	FY 2003	FY 2004	FY 2005					
FY2003 Pres Budget		6.023	10.934	0.000	0.000					
FY2004 Pres Budget		5.686	10.693	10.572	5.750					
Total Adjustments		-0.337	-0.241	10.572	5.750					
Summary of Adjustments										
Congressional program reductions										
Congressional undistributed reductions			-0.064							
SBIR/STTR Transfer		-0.015								
Economic Assumptions		-0.016	-0.177							
Reprogrammings										
Other Navy/OSD Adjustments		-0.306								
Program Adjustments				10.572	5.750					
Subtotal		-0.337	-0.241	10.572	5.750					
(U) Schedule:										
Program milestone changes reflect reduced development funding and extended cryptographic development/certification schedule.										
(U) Technical: Not applicable.										
(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	To Complete	Total Cost
Identification Systems - 42MT	17.698	31.163	21.829	17.582	25.499	27.265	27.405	27.873	Continuing	Continuing

R-1 SHOPPING LIST - Item No. 135

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 22 of 37)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2003
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION/ID SYSTEMS	PROJECT NUMBER AND NAME W1253 COMBAT ID SYSTEMS
<p>(U) E. ACQUISITION STRATEGY: *</p> <p>The acquisition strategy is to develop Mode 5 ECPs (Engineering Change Proposals) for modern Mark XII IFF (Identification Friend or Foe) equipment and integrate into all Navy Combat Weapons systems platforms and transition the Navy's Cooperative Identification Capability to Mode 5.</p>		

R-1 SHOPPING LIST - Item No. 135

UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604777N NAVIGATION/ID SYSTEMS			W1253 COMBAT ID SYSTEMS						
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 Development	VAR	VAR	2.735	6.644	05/03	6.040	12/03	2.281	12/04	Continuing	Continuing	
Primary Hardware Dev, Electronics												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering	WR	NAWCAD, MD	1.175	1.705	11/02	0.348	12/03	0.300	12/04	Continuing	Continuing	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			3.910	8.349		6.388		2.581		Continuing	Continuing	
Remarks:												
Development Support												
Software Development, Electronics			2.933								2.933	
Integrated Logistics Support	WR	NAWCAD, MD	0.145	0.172	11/02						0.317	
Configuration Management												
Technical Data			0.053								0.053	
Studies & Analyses												
GFE												
Award Fees												
Subtotal Support			3.131	0.172		0.000		0.000			3.303	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDTE, N / BA-5			0604777N NAVIGATION/ID SYSTEMS			W1253 COMBAT ID SYSTEMS						
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	NAWCAD, MD	0.850	0.792	11/02	2.922	12/03	1.358	12/04	Continuing	Continuing	
Operational Test & Evaluation	WR	NAWCAD, MD						0.500	12/04	Continuing	Continuing	
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.850	0.792		2.922		1.858		Continuing	Continuing	
Remarks:												
Contractor Engineering Support			0.450								0.450	
Government Engineering Support	WR	NAWCAD, MD	0.918	0.516	11/02	0.537	12/03	0.558	12/04	Continuing	Continuing	
Program Management Support	WR	NAVAIR, MD	0.605	0.799	11/02	0.685	12/03	0.713	12/04	Continuing	Continuing	
Travel	WR	NAVAIR, MD	0.060	0.065	11/02	0.040	12/03	0.040	12/04	Continuing	Continuing	
Transportation												
SBIR Assessment			0.015								0.015	
Subtotal Management			2.048	1.380		1.262		1.311		Continuing	Continuing	
Remarks:												
Total Cost			9.939	10.693		10.572		5.750		Continuing	Continuing	
Remarks:												

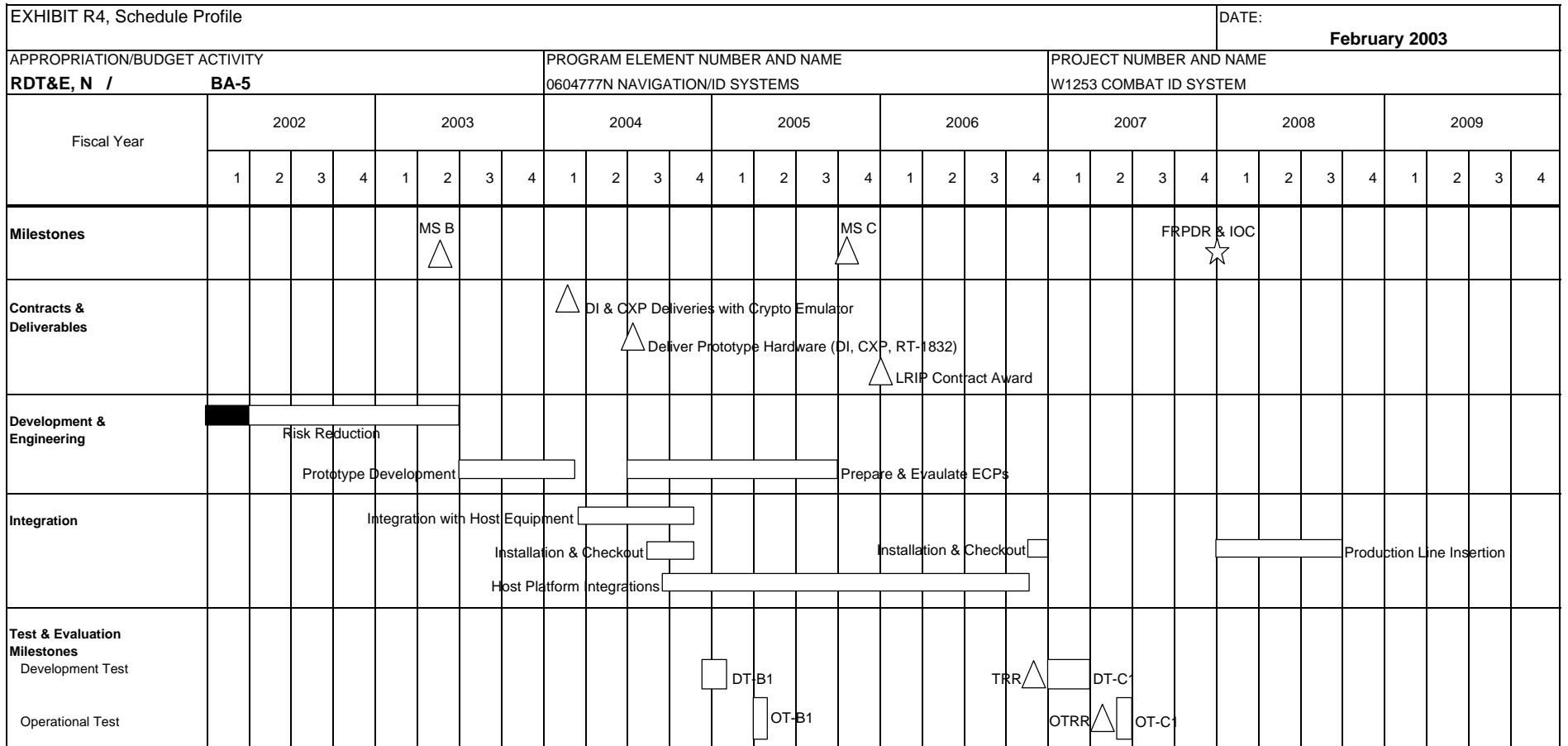
R-1 SHOPPING LIST - Item No. 135

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 25 of 37)

UNCLASSIFIED

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R-1 SHOPPING LIST - Item No. 135

UNCLASSIFIED

Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 27 of 37)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2003			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION/ID SYSTEMS				PROJECT NUMBER AND NAME X0921 NAVSTAR GPS EQUIPMENT					
COST (\$ in Millions)	Prior Years Cost	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	797.309	12.806	18.712	22.127	14.979	21.962	22.417	22.839	23.267	Continuing	Continuing
RDT&E Articles Qty											0
<p>A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission is to provide supported, affordable, integrated, and interoperable navigation solutions to the warfighters. RDT&E funds are used to perform all the non-recurring Global Positioning System (GPS) Surface Ship, Submarine and Aircraft Integration efforts. The Aircraft integration efforts are required for 102 different configurations of Navy, Marine Corps and Coast Guard aircraft in response to the CNO GPS Integration Guidance (GIG), the Public Law 103-160 and the Secretary of Defense As Soon As Possible direction of April 1996 (ASAP program). The GIG directs GPS design functional characteristics for the aircraft and Public Law 103-160 directs the schedule for completion of all installations by 30 September 2005.</p> <p>The GPS is a space-based radio positioning and navigation system that provides users with worldwide, all-weather, three-dimensional position, velocity and precise time data based on a constellation of 24 satellites. PMW/PMA-156 is the central office responsible for funding all GPS aircraft integration RDT&E efforts performed by over 20 NAVAIR program offices, dozens of DoD/Navy field activities and laboratories, and dozens of contractors. The aircraft installation recurring efforts are funded separately by PMW/PMA-156 and the platform program offices with APN dollars. The primary tasks to be accomplished for each of the 102 aircraft configurations include: GPS integration design studies; acquisition of aircraft and lab RDT&E assets; development of test aircraft hardware and/or software designs; development of Integrated Logistics Support (ILS) elements to support test (operator and maintenance training, technical manuals); and Formal Navy Test and Evaluation (Development and Operational Test). Other tasks include the development of: new hardware and software systems for over 3300 Naval Aircraft to meet GIG, GPS Flight In Controlled Airspace (FICA), CNS/ATM and JPALS requirements when existing systems are unsuitable; the Digital Data Set (DDS); the Control Display Navigation Unit (CDNU) and associated software for many different aircraft and modifications to the GPS Mission Planning Module for the Naval Mission Planning System (NAVMPS)/Joint Mission Planning System (JMPS).</p> <p>The Surface Ship and Submarine integration efforts include two vitally important navigation integration initiatives: NAVSSI and the AN/WRN-6 replacement. The first program is the Navigation Sensor System Interface (NAVSSI) development. The NAVSSI is the surface ship system with a requirement of integrating with over 54 systems/interfaces on 131 surface ship platforms. This operational requirement for the NAVSSI has two distinct functions. The first is the integration and distribution of real time navigation and time sources, primarily GPS, to combat systems, combat support systems, air alignment systems and support systems. The second is as the primary surface ship navigators' electronic workstation required to perform fully integrated Electronic Chart Display Information System for the Navy (ECDIS-N) navigation. NAVSSI is an evolutionary acquisition development. A low cost ECDIS-N system will also be developed to support non-NAVSSI ships. The second surface ship development program is the replacement of the AN/WRN-6, which is out of production and approaching obsolescence, with low cost GPS Versa Module Europa (VME) Receiver Card (GVRC) technology combined with fiber optic antenna capability and a new security chip. For NAVSSI ships, this integration will be done in conjunction with NAVSSI integrations. (For non-NAVSSI surface ships, PMW/PMA 156 is developing a low cost system to replace the AN/WRN-6.)</p> <p>For submarine systems, PMW/PMA 156 is supporting ongoing NAVSEA initiatives for the replacement of the AN/WRN-6 systems with the GVRC card technology. The National Defense Authorization Act for Fiscal Year 1999 included GPS language directing DoD to start "The development of an enhanced Global Positioning System [as] an urgent national security priority."</p>											

R-1 SHOPPING LIST - Item No. 135

Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 28 of 37)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2003
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /BA-5	PROJECT NUMBER AND NAME X0921 NAVSTAR GPS EQUIPMENT	
<p>The Naval Research Advisory Committee (NRAC) GPS Vulnerability Study Panel tasked by OPNAV N6 and ASN(RD&A), assessed the Navy's GPS Vulnerabilities and recommended specific actions to resolve serious issues to ensure the continued availability of GPS information in a high risk hostile jamming environment. As a result, OPNAV N633 (now N611) and N880 (now N78) drafted the Navy Enhanced GPS User Equipment ORD to address operational requirements. These were validated and the ORD was approved on June 7, 2000. With this beginning, OSD directed the first phase of the Navy's overall GPS upgrade program with RDT&E leading to initial procurements of GPS anti-jam antennas beginning in 2001 for aircraft and 2002 for ships. RDT&E continues to support platform integration requirements, DT/OT, as well as the development of a smaller and a conformal low-observable anti-jam (AJ) antennas for aircraft with those requirements, and a new a technology AJ solution for submarines. Two similar but separate ACAT III programs (Air and Sea NAVWAR) have been established and have become the basis for the Navy's NAVWAR program.</p> <p>The second phase (referred to as Air and Sea GPS Modernization) of the Navy's overall GPS User Equipment upgrade, will require RDT&E to support the replacement of existing legacy GPS receivers with enhanced capability new receivers. These new receivers will incorporate GPS Joint Program Office (JPO) directed and developed technology enhancements to support new signals in space, enhanced receiver security, and aircraft operations within controlled airspace. All of these efforts will be directed, tasked, and funded through PMW/PMA-156.</p>		

R-1 SHOPPING LIST - Item No. 135

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 29 of 37)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 5	PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION/ID SYSTEMS	PROJECT NUMBER AND NAME X0921 NAVSTAR GPS EQUIPMENT		

(U) B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	3.700	2.071	0.000	0.000
RDT&E Articles Quantity	0	0	0	0

(U) FY02 ACCOMPLISHMENTS:
 (U) (\$3.700) Continued NAVSSI upgrade, integration engineering and testing with shipboard combat, weapons, navigation, and command and control systems. Evolutionary upgrades included all integrations required for the support of Aircraft Carrier, Destroyer and Amphibious Platform Integrations. Testing of evolutionary upgrades included collection/distribution of precise navigation and time data from/to Aircraft Carrier, Destroyer and Amphibious Systems. Continued the coordination of Electronic Charting (ECDIS) integration with the US Coast Guard developed programs. Developed interface support for LHD-8, LPD-18 and DDG-51 Navigation integration efforts. Began integrations with Hostile Force Integrated Targeting System (HITS), AEGIS LAN Interconnection System Local Area Network (ALIS LAN), Tactical Control System (TCS), Position Location Reporting Systems (PLRS) and weather tracking. Began development for integration into emerging combat, combat support and support systems including Joint Precision Approach Landing System (JPALS). Continued support of NSSN integration of GVRG. Continued development of Interactive Electronic Technical Manual (IETM) to meet the standards of the current NAVSSI Block. Transition of NAVSSI hardware/software into updated environment. Initiated precise time and time interval effort to support hot-starting GPS-guided munitions such as ERGM, Tomahawk, Standard Missile-3 (SM-3) and Land Attack Standard Missile (LASM). Restarted development of NAVSSI Computer Based Trainer (CBT) to meet the standards of the current NAVSSI Block. Developed a NAVSSI Lite system to support the acceleration of electronic charting systems for surface platforms.
 (u) FY03 PLANS:
 (U) (\$2.071) Complete NAVSSI integration engineering for shipboard combat, weapons, navigation, command and control systems and NAVSSI Lite development.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	7.656	12.445	15.698	10.009
RDT&E Articles Quantity				

(U) FY02 ACCOMPLISHMENTS:
 (U) (\$7.656) Air NAVWAR: Completed DT testing on the C-130 and P-3C. Continued integration and DT on the HH-60H. Continued integration efforts for the F/A-18C/D and AV-8B. Validated aircraft modeling/simulation data. Started NAVWAR anti-jam conformal antenna and MAGR 2000 receiver design integrations on F/A 18C/D/E/F. Continued GAS-1N and MAGR 2000 design integrations on the AV-8B. Began RDT&E efforts on the EA-6B and CH-53. Continued support to the GPS JPO for modernization Initiatives and coordinating JPO initiatives with the Navy's F/A-18 program which was selected as the air "lead the force" platform for future GPS Modernization development and integration.
 (U) FY03 PLANS:
 (U) (\$12.445) Air NAVWAR Begin integration testing on the F/A-18C/D/E/F, AV-8B, and EA-6B, HH-60H, CH-53. Begin DT/OT on the F/A-18C/D and AV-8B. Complete DT/OT on the HH-60H. Continue support to the GPS JPO for modernization Initiatives and coordinate JPO initiatives with the Navy's F/A-18 program as the selected air platform for "lead the force" GPS Modernization development and integration.
 (U) FY04 PLANS:
 (U) (\$15.698) Air NAVWAR: Complete DT/OT testing on AV-8B and F/A -18C/D. Continue development/qualification testing of the conformal array and begin evaluation of the Digital Antenna Electronics (DAE) integration efforts for potential application to the F/A-18E/F. Begin DT efforts on EA-6B and MH/CH-53 integrations. Begin DT efforts on additional aircraft T/M/S. Begin integration efforts on additional aircraft T/M/S.
 (U) FY05 PLANS:
 (U) (\$10.009) Air NAVWAR: Complete DT/OT testing on AV-8B, F/A-18 C/D, MH/CH-53. Begin DT/OT on the F/A-18 E/F. Continue development/qualification testing on the conformal array. Continue development/integration testing on the Digital Antenna Electronics (DAE) for potential application to the F/A-18E/F. Begin DT efforts on additional aircraft T/M/S. Begin integration efforts on additional aircraft T/M/S.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																															
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 5	PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION/ID SYSTEMS	PROJECT NUMBER AND NAME X0921 NAVSTAR GPS EQUIPMENT																																
<p>(U) B. Accomplishments/Planned Program</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 02</th> <th style="width: 15%;">FY 03</th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">1.450</td> <td style="text-align: center;">4.196</td> <td style="text-align: center;">4.929</td> <td style="text-align: center;">3.470</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>(U) FY02 ACCOMPLISHMENTS: (U) (\$1.450) Sea NAVWAR: Finalized Phase 1A groundplane design and baseline GAS-1 system interface requirements. Completed DT and planning OA on an MCM-Class ship. Continued initial integration efforts on selected platforms. Continued GAS-1 Antenna Electronics (AE) Fiber Optic Antenna Link (FOAL) design and analysis for the NAVSSI integration. Continued to evaluate anti-jam technologies for application to the submarine environment.</p> <p>(U) FY03 PLANS: (U) (\$4.196) Sea NAVWAR: Begin RDT&E modeling/simulation and integration analysis for MHC and L-class ships. Conduct a friendly emitter analysis on selected US ships. Complete the OA on the MCM. Complete DT on the LCAC and MHC. Begin integration and DT/OT preparations for additional Phase 1A platforms. Finalize the Fiber Optic Antenna Link and GAS-1 AE integration with NAVSSI. Begin integration efforts on Phase 1B platforms. Continue to evaluate anti-jam technologies for application to the submarine environment.</p> <p>(U) FY04 PLANS: (U) (\$4.929) Sea NAVWAR: Continue initial integration efforts (modeling and simulation) on selected Phase 1B platforms. Begin DT/OT efforts on selected Phase 1B ship classes. Begin initial submarine integration and development efforts.</p> <p>(U) FY05 PLANS: (U) (\$3.470) Sea NAVWAR: Continue initial integration efforts (modeling and simulation) on selected platforms. Begin NRE integration efforts on additional Phase 1B ship classes. Continue submarine AJ development and integration efforts.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 02</th> <th style="width: 15%;">FY 03</th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">1.500</td> <td style="text-align: center;">1.500</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>(U) FY04 PLANS: (U) (\$1.500) Continue support to the GPS JPO for modernization Initiatives (i.e. Digital Antenna Electronics (DAE)). Coordinate JPO and F/A-18 program office efforts on F/A-18 "lead the force" GPS Modernization efforts.</p> <p>(U) FY05 PLANS: (U) (\$1.500) Continue support to the GPS JPO for modernization Initiatives (i.e. Digital Antenna Electronics (DAE)). Coordinate JPO and F/A-18 program office efforts on F/A-18 "lead the force" GPS Modernization efforts.</p> </div>						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	1.450	4.196	4.929	3.470	RDT&E Articles Quantity						FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.500	1.500	RDT&E Articles Quantity				
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R-1 SHOPPING LIST - Item No.

135

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 31 of 37)

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003																																																																																	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 5	PROGRAM ELEMENT NUMBER AND NAME 0604777N NAVIGATION/ID SYSTEMS	PROJECT NUMBER AND NAME X0921 NAVSTAR GPS EQUIPMENT																																																																																		
<p>(U) C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 10%;">FY 2002</th> <th style="text-align: right; width: 10%;">FY 2003</th> <th style="text-align: right; width: 10%;">FY 2004</th> <th style="text-align: right; width: 10%;">FY 2005</th> </tr> </thead> <tbody> <tr> <td>(U) Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY2003 Pres Budget</td> <td style="text-align: right;">13.745</td> <td style="text-align: right;">19.144</td> <td></td> <td></td> </tr> <tr> <td>FY2004 Pres Budget</td> <td style="text-align: right;">12.806</td> <td style="text-align: right;">18.712</td> <td style="text-align: right;">22.127</td> <td style="text-align: right;">14.979</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.939</td> <td style="text-align: right; border-top: 1px solid black;">-0.432</td> <td style="text-align: right; border-top: 1px solid black;">22.127</td> <td style="text-align: right; border-top: 1px solid black;">14.979</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Section 8123: Management Reform Initiative</td> <td style="text-align: right;">-0.121</td> <td></td> <td></td> <td></td> </tr> <tr> <td> SBIR Assessment</td> <td style="text-align: right;">-0.211</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Section 313, PL 107-206: Revised Economic Assuptions</td> <td style="text-align: right;">-0.029</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Section 8135: Economic Assumptions</td> <td style="text-align: right;">-0.036</td> <td style="text-align: right;">-0.107</td> <td></td> <td></td> </tr> <tr> <td> Section 8100: Business Process Reform</td> <td></td> <td style="text-align: right;">-0.076</td> <td></td> <td></td> </tr> <tr> <td> Section 8109: IT Growth</td> <td></td> <td style="text-align: right;">-0.035</td> <td></td> <td></td> </tr> <tr> <td> Section 8029, PL 107-248: FY03 FFRDC Reduction</td> <td></td> <td style="text-align: right;">-0.011</td> <td></td> <td></td> </tr> <tr> <td> Miscellaneous Navy Adjustments</td> <td style="text-align: right;">-0.542</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Miscellaneous Department Adjustments</td> <td></td> <td style="text-align: right;">-0.203</td> <td style="text-align: right;">22.127</td> <td style="text-align: right;">14.979</td> </tr> <tr> <td> Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">-0.939</td> <td style="text-align: right; border-top: 1px solid black;">-0.432</td> <td style="text-align: right; border-top: 1px solid black;">22.127</td> <td style="text-align: right; border-top: 1px solid black;">14.979</td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) Schedule:</p> <p style="margin-left: 20px;">Air Phase 1: Schedule now includes F/A-18 C/D which was previously a Phase 2B candidate platform. This will extend the Phase 1 integration & test schedule out through FY 05 for that platform.</p> <p style="margin-top: 20px;">(U) Technical:</p> <p style="margin-left: 20px;">Air Phase 1: Engineering and Technical analysis determined that the F/A-18 C/D is a good candidate for Phase 1 GAS-1 integration and this platform is now a priority for Air NAVWAR RDT&E integration and test.</p>						FY 2002	FY 2003	FY 2004	FY 2005	(U) Funding:					FY2003 Pres Budget	13.745	19.144			FY2004 Pres Budget	12.806	18.712	22.127	14.979	Total Adjustments	-0.939	-0.432	22.127	14.979	Summary of Adjustments					Section 8123: Management Reform Initiative	-0.121				SBIR Assessment	-0.211				Section 313, PL 107-206: Revised Economic Assuptions	-0.029				Section 8135: Economic Assumptions	-0.036	-0.107			Section 8100: Business Process Reform		-0.076			Section 8109: IT Growth		-0.035			Section 8029, PL 107-248: FY03 FFRDC Reduction		-0.011			Miscellaneous Navy Adjustments	-0.542				Miscellaneous Department Adjustments		-0.203	22.127	14.979	Subtotal	-0.939	-0.432	22.127	14.979
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EXHIBIT R-2a, RDT&E Project Justification		DATE:	February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA 5	0604777N NAVIGATION/ID SYSTEMS	X0921 NAVSTAR GPS EQUIPMENT	

(U) D. OTHER PROGRAM FUNDING SUMMARY:

										To	Total	
<u>Line Item No. & 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>	<u>Cost</u>	
(U)	OPN Line #2657	FY	13.952	11.162	15.674	11.803	13.321	12.626	12.865	13.107	Continuing	Continuing
(U)	APN - Common Avionics	PY	6.995	4.443	0.000	0.000	18.114	22.372	22.770	23.157	Continuing	Continuing

(U) E. ACQUISITION STRATEGY:

(NAVWAR) Participate in GPS Joint Program Office and Warner Robbins ALC FY01 - FY07 procurements for the GAS-1 anti-jam antenna. Initiate Navy contracting options for smaller array anti-jam antennas and conformal/low observable arrays for selected aircraft. Initiate Navy contracting for the shipboard ground plane and submarine array. Participate with the GPS JPO in their development of a Digital Antenna Electronics (DAE) LRU and identify potential Navy candidate platforms. Support the GPS JPO in their F/A-18 "lead the force" GPS Modernization efforts. Participate in GPS JPO procurements wherever practicable for GPS Modernization Enhancements. See attached Milestone chart.

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003					
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				PROGRAM ELEMENT 0604777N NAVIGATION/ID SYSTEMS				PROJECT NUMBER AND NAME X0921 NAVSTAR GPS EQUIPMENT					
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	
Product Development	Various	Product Venders	263.979	3.687	Various	4.650	Various	3.101	Various	Continuing	Continuing		
Product Development SSC-SD	WX	SSC-SD	64.678	0.700	10/02	0.492	10/03	0.371	10/04	Continuing	Continuing		
Prod Dev (other in house)	WX	Various Field Activities	440.748								440.748		
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			769.405	4.387		5.142		3.472		Continuing	Continuing		
Remarks:													

Development Support	Various	Various	12.710							Continuing	Continuing	
Software Development	Various	SSC-SD/Platfrom Primes	3.250	1.650	10/02	2.039	10/03	1.157	10/04	Continuing	Continuing	
Integrated Logistics Support	Various	SSC-SD/NAWC/SIR/DCS		0.750	10/02	1.000	10/03	1.000	10/04	Continuing	Continuing	
Training Development	WX	SSC-SD/NAWC	0.450	0.500	10/02	0.500	10/03	0.275	10/04	Continuing	Continuing	
Technical Data	Various	Platform PMO's		0.500	10/02	0.500	10/03	0.300	10/04	Continuing	Continuing	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			16.410	3.400		4.039		2.732		Continuing	Continuing	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-5			0604777N NAVIGATION/ID SYSTEMS			X0921 NAVSTAR GPS EQUIPMENT						
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
Test & Evaluation (NAWC PAX)	WX	NAWC PAX	10.969	0.700	10/02	0.670	10/03	0.500	10/04	Continuing	Continuing	
Test & Evaluation (DCS)	CPAF	DCS CORP PAX	1.427	0.334	10/02	0.350	10/03	0.365	10/04	Continuing	Continuing	
Test & Evaluation (SSC-SD)	WX	SSC-SD	1.145	0.600	10/02	0.800	10/03	0.686	10/04	Continuing	Continuing	
Test & Evaluation Platform Testing	Various	VARIOUS CONTRACTORS	1.379	4.213	Various	5.126	Various	3.147	Various	Continuing	Continuing	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			14.920	5.847		6.946		4.698		Continuing	Continuing	
Remarks:												
Contractor Engineering Support	Various	DCS, SAIC, ARINC	1.500	1.813	10/02	2.122	10/03	1.455	10/04	Continuing	Continuing	
Government Engineering Support	WX	SSC, NAWC, WR	0.700	1.120	10/02	1.330	10/03	0.899	10/04	Continuing	Continuing	
Program Management Support	CPAF	DCS, Price Systems	7.180	2.145	10/02	2.548	10/03	1.723	10/04	Continuing	Continuing	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			9.380	5.078		6.000		4.077		Continuing	Continuing	
Remarks:												
Total Cost			810.115	18.712		22.127		14.979		Continuing	Continuing	
Remarks:												

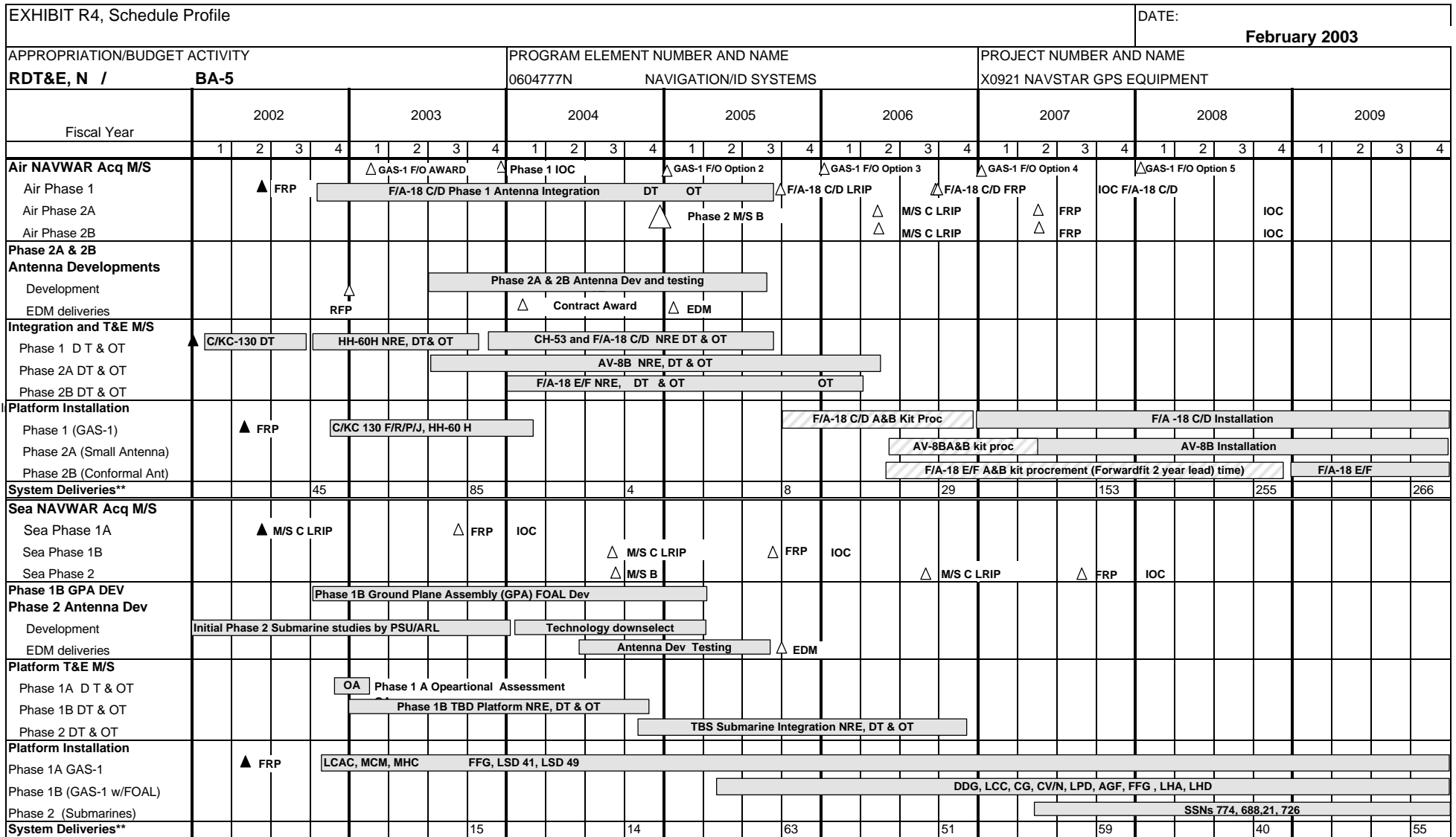
R-1 SHOPPING LIST - Item No. 135

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 35 of 37)

UNCLASSIFIED

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R-1 SHOPPING LIST - Item No. 135

* Not required for Budget Activities 1, 2, 3, and 6

** Quantities are approximate year-end total number of NAVWAR system deliveries including those projected for new construction aircraft and ships. Quantities do not include RDT&E units or Spares.

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 36 of 37)

UNCLASSIFIED

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Exhibit R-4a, Schedule Detail						DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&E, N / BA 5	0604777N NAVIGATION/ID SYSTEMS				X0921 NAVSTAR GPS EQUIPMENT			
Air Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Phase 1 FRP	3Q							
Phase 1 1st production platform integration	4Q							
HH-60 H DT/OT	4Q	1Q						
Phase 1 IOC		4Q						
Phase 2A Milestone B		4 Q						
AB-8B DT/OT				4Q	1-2Q			
Phase 2A Milestone C LRIP					2Q			
Phase 2A 1st platform production integration					4Q			
Phase 2A FRP						2Q		
Phase 2A IOC							4Q	
Phase 2B Milestone B		4 Q						
F/A-18 E/F					1-2Q			
Phase 2A Milestone C LRIP					2Q			
Phase 2A 1st platform production integration						2Q		
Phase 2A FRP						2Q		
Phase 2A IOC							4Q	
Sea Profile								
Phase 1A LRIP	3Q							
Phase 1A Operational Assessment (OA)		1Q						
MCM 1st production installation		2Q						
Phase 1A FRP		2Q						
Phase 1A IOC			1Q					
Phase 1B LRIP			3Q					
Phase 1B Operational Assessment (OA)			3Q					
Phase 1 Platform 1st production installation				2Q				
Phase 1B FRP				3Q				
Phase 1B IOC					1Q			
Phase 2 M/S B			4Q					
Phase 2 LRIP					3Q			
Phase 2 Operational Assessment (OA)					3Q			
Phase 2 Platform 1st production installation						2Q		
Phase 2 FRP						3Q		
Phase 2 IOC							1Q	

R-1 SHOPPING LIST - Item No.

135

UNCLASSIFIED

Exhibit R-4a, Schedule Detail

(Exhibit R-4a, page 37 of 37)