Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604777N *I Navigation/Id System*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	421.517	48.510	60.209	45.262	-	45.262	44.996	44.601	45.313	46.229	Continuing	Continuing
0253: *Nav & Electro-Optical Supt*	163.792	35.816	50.109	39.236	-	39.236	39.649	40.294	40.927	41.721	Continuing	Continuing
0676: *Improve ID Development*	65.451	10.104	1.244	3.710	-	3.710	3.219	2.266	2.307	2.371	Continuing	Continuing
1253: *Combat Ident System*	192.274	1.432	1.856	2.316	-	2.316	2.128	2.041	2.079	2.137	Continuing	Continuing
9999: *Congressional Adds*	0.000	1.158	7.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.158

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 (0253) 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 Integrated Submarine Imaging System (ISIS) (0253) is a back fit system to integrate all imaging capabilities on existing submarine classes. The Combat Identification System (CIS) project (1253) for Mark XIIA, and Improved Identification Development (0676) for AN/UPX-29(V), covers the Mark XIIA Mode 5 upgrade to the existing Mark XII family of systems that is Joint and North Atlantic Treaty Organization (NATO) interoperable. Per Office Secretary of Defense (OSD) direction, NATO participation is encouraged and performance data is exchanged to ensure the opportunity for interoperability with allied identification systems is maximized. 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).

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	50.037	53.209	45.063	-	45.063
Current President's Budget	48.510	60.209	45.262	-	45.262
Total Adjustments	-1.527	7.000	0.199	-	0.199
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	7.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.527	0.000			
• Program Adjustments	0.000	0.000	-0.041	-	-0.041
• Rate/Misc Adjustments	0.000	0.000	0.240	-	0.240

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604777N *I Navigation/Id System*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Navy micro interrogator*	1.158	0.000
Congressional Add: *Micro 5 IFF interrogator*	0.000	7.000
Congressional Add Subtotals for Project: 9999	1.158	7.000
Congressional Add Totals for all Projects	1.158	7.000

Change Summary Explanation

FY2024 decrease driven by the completion of the Signature Reduction Mast Prototype.

FY2022 decrease of $1.527 million due to SBIR.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*				Project (Number/Name) 0253 / *Nav & Electro-Optical Supt*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
0253: *Nav & Electro-Optical Supt*	163.792	35.816	50.109	39.236	-	39.236	39.649	40.294	40.927	41.721	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

AN/BVY-1 Integrated Submarine Imaging System (ISIS) will continue to add new capabilities via Technical Insertion (TI)/Advanced Processing Build (APB) process while working across Submarine Warfare Federated Tactical System (SWFTS) programs to develop according to Development Security Operations (DevSecOps) software processes and a cloud based architecture. The Navy is pursuing a transformation across SWFTS (PE 0604503N Project 0219, PE 0604562N Project 0236, PE 0604777N Project 0253 and PE 0604503N Project 0775) to maximize cyber-resiliency and the speed of capability delivery. The FY24 decrease is due to the completion of the Signature Reduction Mast prototype effort. FY24 maintains the investment in imaging sensors and algorithms to improve submarine operations in high intensity littoral environments, intelligence gathering, real time imagery, and supports the safe and effective employment of surveillance and weapons systems. Funding also supports the completion of the Type Mast 24 development, commencement of the Type 24 Mast Capability Enhancement development, improvements to inboard hardware for processing outboard mast data, and supports non-recurring inboard hardware engineering activities which develop the Technical Insertion kits installed in all submarine classes. Finally, FY24 funds the TI-20/APB21 DT, TI-20/APB21 OT and other tests that verify software improvements funded in previous fiscal years.

The Navigation and Electro-Optical (E-O) program enables littoral operations by procuring ISIS, production of low profile masts (Low Profile Photonics Mast (LPPM), Type 20, and Type 24), maintenance and sustainment of periscope and legacy photonic masts, production and sustainment of Universal Modular Mast Systems and Dip Loops, and development of the ISIS inboard processing component of Submarine Warfare Federated Tactical Systems (SWFTS). The Department of the Navy established the ISIS to rapidly field the Type 18 periscope, RADAR rangefinder, Type 8 Mod 4 Infra-Red (IR) periscope systems, and integrate existing periscope imagery systems into a single imaging system for installation on board SSN 688 class and SEAWOLF class submarines. The ISIS baseline also includes the Imaging System with the Photonics mast (PM) and all configurations of low profile masts onboard VIRGINIA and Photonics Mast Variant (PMV) onboard SSGN class submarines and ISIS on SSBN class submarines. The PM, LPPM, and PMV design exploit a wide portion of the electro-magnetic spectrum through advanced E-O and thermal imaging and Electronic Warfare Support (ES)/communications intercept. The Common Submarine Imaging System (CSIS) capability development document (CDD), that covers both ISIS and Legacy Imaging systems was approved 22 Dec 2011 with an updated CDD approved on 15 Mar 2018. The CDD Annex for Low Profile Digital Photonics Mast, approved on 02 Dec 2019, provides additional specifications for the development of low profile masts within the ISIS system.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: ISIS and Photonics common software and hardware capabilities development and obsolescence	26.373	26.742	29.284	0.000	29.284
Articles:	-	-	-	-	-
FY 2023 Plans: Commence the TI-24 capability development process which provides the necessary engineering, technical program, project and configuration management of the hardware and software baseline to incorporate additional sensitive software imaging algorithms, while concluding the development of TI-22. Continue the development					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0253 / *Nav & Electro-Optical Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
of the ISIS architecture with DEVSECOPS which will both rapidly insert of new war fighting capabilities and enhance cyber security protections. ***FY 2024 Base Plans:*** Continues the development of TI-24 capabilities which includes the engineering, technical program, project and configuration management for the hardware and software baseline and modifying the ISIS architecture to support rapid insertion of new war fighting capabilities and enhanced cyber security protection. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The $2.542M increase is due to development needed to increase capabilities for TI-24.					
Title: Type 24 Mast	5.502	11.173	9.158	0.000	9.158
Articles:	-	-	-	-	-
FY 2023 Plans: Expand the design, development, fabrication, and testing of the Type 24 mast effort begun in FY22. Specific efforts include: - Continue development of the Type 24 technical data package - Refine design reviews - Continue development of the test plans - Execute additional test events and environmental qualification testing ***FY 2024 Base Plans:*** Specific efforts include: - Continue the test plans and commencement of test activities - Completion of development activities - Commence enhancement development to be incorporated into Type 24 mast ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The $2.015M decrease in funding completes the Type 24 mast development and verification.					
Title: Type 20 Mast	3.203	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0253 / *Nav & Electro-Optical Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A					
Title: Imaging Systems Test Efforts	0.738	0.778	0.794	0.000	0.794
Articles:	-	-	-	-	-
FY 2023 Plans: Inflationary increase to fund ISIS and mast system testing including the TI-22/APB-21 DT. ***FY 2024 Base Plans:*** Inflationary increase to fund ISIS and mast system testing including the TI-20/APB21 DT and TI-20/APB21 OT. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The $0.016M increase is an inflation adjustment which will fund the design, management, and evaluation results of the TI-20/APB21 DT and TI-20/APB21 OT tests for modernizing boats.					
Title: Signature Reduction Mast Prototype	0.000	11.416	0.000	0.000	0.000
Articles:	-	1	-	-	-
FY 2023 Plans: Development and procurement of a prototype photonics mast which implements a holistic approach to susceptibility reduction in order to outpace adversary threats and minimize probability of counter detection throughout submarine operations. The effort funds new development of an engineering development model (EDM) in addition to tests and evaluations of various capabilities using advanced signature control techniques. Prototype will assess the capability and operational tradeoffs needed for reducing vulnerability to counter detection by implementing advanced signature control techniques not available on existing masts. Additional information is available at the classified level. ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*	Project (Number/Name) 0253 / *Nav & Electro-Optical Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The $11.416M decrease is due to completion of the Signature Reduction Mast Prototype effort.					
Accomplishments/Planned Programs Subtotals	35.816	50.109	39.236	0.000	39.236

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/0840: *Sub Periscope, Imaging Equip. and Supt Equip Program*	209.792	261.011	262.951	-	262.951	289.922	274.693	285.958	290.554	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Acquisition Strategy for AN/BVY-1 Integrated Submarine Imaging System (ISIS) is dated 07 Jul 2003. The Single Acquisition Management Plan (SAMP) for the LPPM is dated 01 Jul 2013. The ISIS will provide mission critical, all weather, visual, and electronic search, digital image management, indication, warning, and platform architecture interface capabilities for SSN 688, SSN 21, SSN 774 and SSGN class submarines. The Single Acquisition Management Plan (SAMP) for the Type 20 Mast is dated 07 Jul 2017.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*	Project (Number/Name) 0253 / *Nav & Electro-Optical Supt*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPIF	Lockheed Martin : Manassas, VA	42.396	10.703	Dec 2021	11.408	Dec 2022	12.627	Dec 2023	-		12.627	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC : Newport, RI	24.473	4.756	Nov 2021	4.973	Nov 2022	5.072	Nov 2023	-		5.072	Continuing	Continuing	Continuing
Hardware Development	C/CPIF	Lockheed Martin : Manassas, VA	34.117	10.864	Dec 2021	10.308	Dec 2022	11.531	Dec 2023	-		11.531	Continuing	Continuing	Continuing
Hardware Development - Type 20/Mast Capability Enhancements	C/CPIF	Lockheed Martin : Manassas, VA	50.250	3.203	Dec 2021	0.000		0.000		-		0.000	0.000	53.453	-
Hardware Development - Type 24/Mast Capability Enhancements	C/CPIF	L-3 KEO : Northampton, MA	0.000	5.502	Jun 2022	11.173	Jan 2023	9.158	Jan 2024	-		9.158	Continuing	Continuing	Continuing
Signature Reduction Mast Prototype	C/CPIF	L-3 KEO : Northampton, MA	0.000	0.000		11.416	Jan 2023	0.000		-		0.000	0.000	11.416	-
		Subtotal	151.236	35.028		49.278		38.388		-		38.388	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NUWC : Newport, RI	9.576	0.462	Oct 2021	0.487	Oct 2022	0.497	Oct 2023	-		0.497	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	COMOPTEVFOR : Norfolk, VA	2.211	0.276	Oct 2021	0.291	Oct 2022	0.297	Oct 2023	-		0.297	Continuing	Continuing	Continuing
		Subtotal	11.787	0.738		0.778		0.794		-		0.794	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	WR	NAVSEA : Washington, DC	0.769	0.050	Oct 2021	0.053	Oct 2022	0.054	Oct 2023	-		0.054	Continuing	Continuing	Continuing
		Subtotal	0.769	0.050		0.053		0.054		-		0.054	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*	Project (Number/Name) 0253 / *Nav & Electro-Optical Supt*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	163.792	35.816		50.109		39.236		-		39.236	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0253 / *Nav & Electro-Optical Supt*

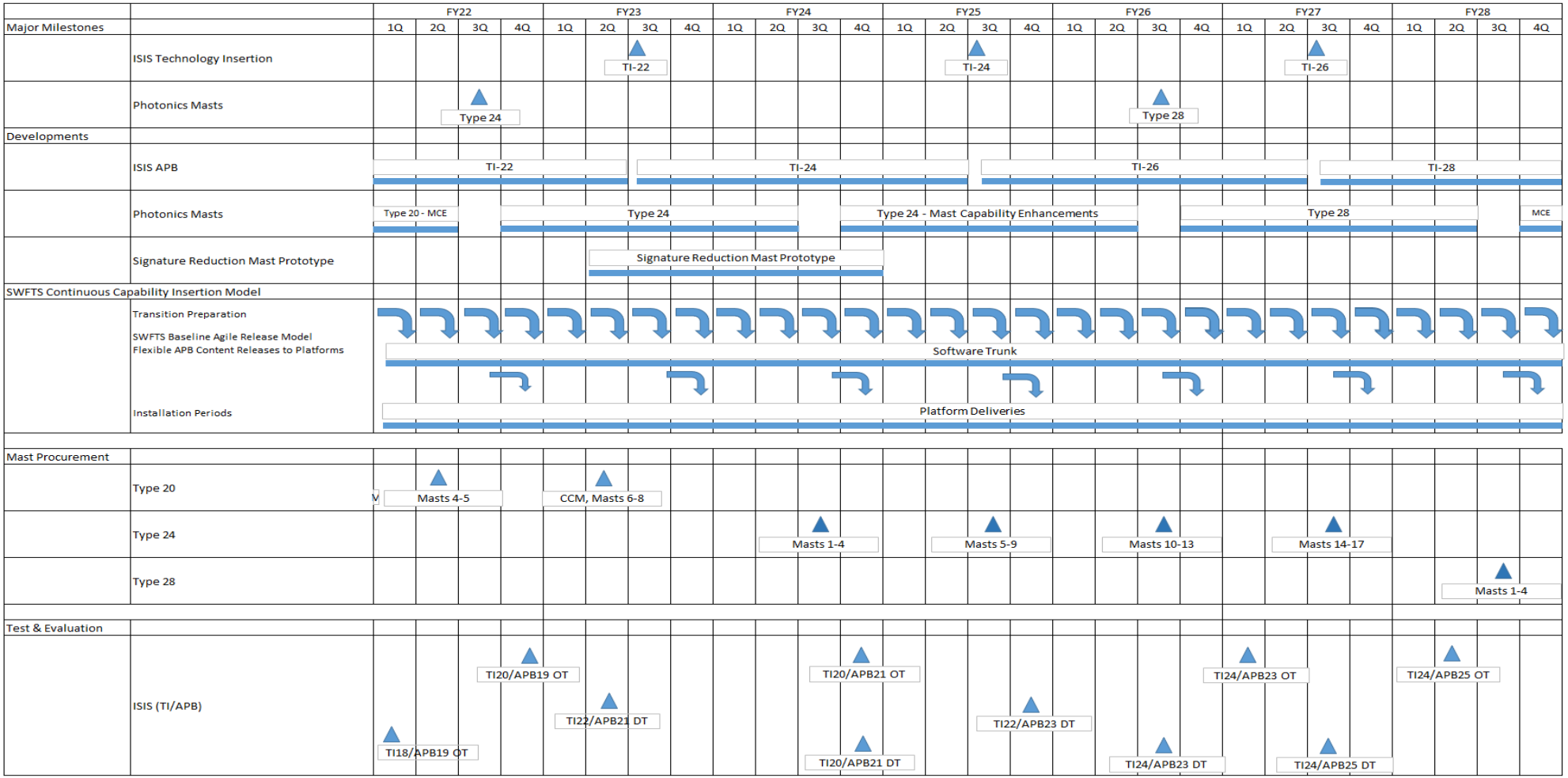

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0253 / *Nav & Electro-Optical Supt*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Nav & Electro-Optical Supt				
Major Milestones: ISIS Technology Insertion: ISIS Technology Insertion Fielding (TI-22)	3	2023	3	2023
Major Milestones: ISIS Technology Insertion: ISIS Technology Insertion Fielding (TI-24)	3	2025	3	2025
Major Milestones: ISIS Technology Insertion: ISIS Technology Insertion Fielding (TI-26)	3	2027	3	2027
Developments: ISIS APB: Schedule Detail	1	2022	1	2028
Developments: ISIS APB: ISIS TI-24	3	2023	2	2025
Developments: ISIS APB: ISIS TI-26	3	2025	2	2027
Developments: ISIS APB: ISIS TI-28	3	2027	4	2028
Developments: ISIS APB: Developments: Signature Reduction Mast Prototype	2	2023	4	2024
Developments: Mast Development: Type 24	4	2022	2	2024
Mast Procurement: Type 20 (Buy): POR Masts 4-5	2	2022	2	2022
Mast Procurement: Type 20 (Buy): CCM / POR Masts 6-8	2	2023	2	2023
Mast Procurement: Type 24 (Buy): POR Masts 1-4	3	2024	3	2024
Mast Procurement: Type 24 (Buy): POR Masts 5-9	3	2025	3	2025
Mast Procurement: Type 24 (Buy): POR Masts 10-13	3	2026	3	2026
Mast Procurement: Type 24 (Buy): POR Masts 14-17	3	2027	3	2027
Mast Procurement: Type 28 (Buy): POR Masts 1-4	3	2028	3	2028
Test & Evaluation: ISIS (TI/APB): TI-18/APB-19 OT	1	2022	1	2022
Test & Evaluation: ISIS (TI/APB): TI-20/APB-19 OT	4	2022	4	2022
Test & Evaluation: ISIS (TI/APB): TI-22/APB-21 DT	2	2023	2	2023
Test & Evaluation: ISIS (TI/APB): TI-20/APB-21 DT	4	2024	4	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0253 / *Nav & Electro-Optical Supt*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test & Evaluation: ISIS (TI/APB): TI-20/APB-21 OT	4	2024	4	2024
Test & Evaluation: ISIS (TI/APB): TI-22/APB-23 DT	4	2025	4	2025
Test & Evaluation: ISIS (TI/APB): TI-24/APB-23 DT	3	2026	3	2026
Test & Evaluation: ISIS (TI/APB): TI-24/APB-23 OT	1	2027	1	2027
Test & Evaluation: ISIS (TI/APB): TI-24/APB-25 DT	3	2027	3	2027
Test & Evaluation: ISIS (TI/APB): TI-24/APB-25 OT	2	2028	2	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*	Project (Number/Name) 0676 / *Improve ID Development*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0676: *Improve ID Development*	65.451	10.104	1.244	3.710	-	3.710	3.219	2.266	2.307	2.371	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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 providing platform identification 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. The Improved ID Development project addresses the Mark XIIA Mode 5 and Mode S upgrades to the existing AN/UPX-29(V) Mark XII family of systems that is Joint and North Atlantic Treaty Organization interoperable, as well as modernization of the DDG 1000 Zumwalt Class IFF Sensor Suite . The AN/UPX-29(V) Interrogator System is comprised of the Interrogator Set AN/UPX-24(V), OE-120()/UPX Antenna Group, and Mark XII or Mark XIIA equipment such as AN/UPX-37, AN/UPX-41(C) or AN/UPX-45(C) Digital Interrogators and associated equipment. The DDG 1000 IFF Sensor Suite is comprised of three electronically scanned array (ESA) antennas, one UPX-42(C) Interrogator, and three RT-1912(C)/APX Transponders. Additionally, the Improved ID Development project may include product improvements designed to be installed through upgrade and deficiency correction studies, which in turn become engineering changes to other IFF solutions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Mark XIIA Mode 5 and Mode S Improvement for AN/UPX-29(V)	0.692	0.229	0.463	0.000	0.463
Articles:	-	-	-	-	-
Description: Engineering, development, and integration of improvements to Mark XIIA Shipboard Identification Friend or Foe (IFF) Systems, including, but not limited to 1) AN/UPX-29(V) Interrogator System, which is comprised of the Interrogator Set AN/UPX-24, OE-120()/UPX Antenna Group, and Mark XII or Mark XIIA equipment such as AN/UPX-41, AN/UPX-45 or AN/UPX-50 Digital Interrogators, and 2) AN/UPX-46(V) Interrogator System which is comprised reduced form factor Interrogator Set, generic rotating IFF Antennas, and Mark XII or Mark XIIA equipment such as AN/UPX-41, AN/UPX-45 or AN/UPX-50 Digital Interrogators. Funds development and integration of Mark XIIA Mode 5 and Mode Select (S) Improvements to the AN/ UPX-29(V) systems on CG47, DDG51, LHD1, LPD17, LHA6, and CVN68, CVN78, and future ship classes. Funds development and integration of Mark XIIA Mode 5 and Mode Select (S) Improvements to the AN/UPX-46 Systems on LCS1, LCS2, LSD41 and LSD49 Ship Classes. Correct software and performance deficiencies from Integrated Test and Operational Test, Aegis, and other Combat System Integration events to support Combat System integration with Aegis Weapon Systems (AWS), Ship Self Defense System (SSDS), Component-Based Total-Ship System - 21st Century (COMBATSS-21), Advanced Combat Direction System (ACDS), or Air Traffic Control Systems using Mark XIIA equipment to include engineering investigations, Engineering Change Proposal development, and testing. Provides core Integrated Logistics Support documentation; formalizes					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0676 / *Improve ID Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
hardware/software configuration: finalizes technical/ design data, resolves testing anomalies, and integrates with shipboard training systems. ***FY 2023 Plans:*** Continue AN/UPX-29(V) Interrogator System integration testing with Mode 5/Mode S Capable AN/UPX-45 Digital Interrogator obsolescence upgrades in preparation for deployment to Aegis and Ship Self Defense System (SSDS) Platforms. Commence AN/UPX-46(V) Interrogator System integration testing with Mode 5/ Mode S Capable AN/UPX-45 Digital Interrogator obsolescence upgrades in preparation for deployment to COMBATTS-21 Platforms. Evaluate inter-operability test data to validate planned combat systems design changes and capability updates. ***FY 2024 Base Plans:*** Continue AN/UPX-29(V) Interrogator System integration testing with Mode 5/Mode S Capable AN/UPX-45 Digital Interrogator obsolescence upgrades in preparation for deployment to Aegis and Ship Self Defense System (SSDS) Platforms. Commence AN/UPX-46(V) Interrogator System integration testing with Mode 5/ Mode S Capable AN/UPX-45 Digital Interrogator obsolescence upgrades in preparation for deployment to COMBATTS-21 Platforms. Evaluate inter-operability test data to validate planned combat systems design changes and capability updates. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase due to plans for oversight of Mode 5 and Mode S integration events and test data analysis for initial fielding on both variants of the LCS Ship Class, LSD 41 and LSD 49 Ship Classes, and US Coast Guard WMSL 750 Ship Class.					
Title: AN/UPX-29(V) Management Support	0.695	0.228	0.729	0.000	0.729
Articles:	-	-	-	-	-
Description: Engineering and Program Management of the AN/UPX 29(V) and AN/UPX-46(V) Interrogator Systems. Perform related system integration efforts. ***FY 2023 Plans:*** Continue logistics and technical data management for the AN/UPX 29(V) Mode 5/Mode S integration. Implement improved Cyber designs and cyber security controls. Resolve OE-120 and AN/UPX-45 retro-fit					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0676 / *Improve ID Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
related ship change document issues. Assume management of AN/UPX-46(V) ship change documents for LCS 1 and LCS 2 ship classes. ***FY 2024 Base Plans:*** Continue logistics and technical data management for the AN/UPX 29(V) Mode 5/Mode S integration. Implement improved Cyber designs and cyber security controls. Resolve OE-120 and AN/UPX-45 retro-fit related ship change document issues. Assume management of AN/UPX-46(V) ship change documents for LCS 1 and LCS 2 ship classes. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase due to conversion of Contractor Furnished Equipment IFF Systems to organic support. Increased oversight of host platform test and integration required in FY24 as both variants of the LCS Ship Class, LSD 41 and LSD 49 Ship Classes, and US Coast Guard WMSL 750 Ship Class transition to UPX-46 IFF Systems commencing in FY25.					
Title: DDG 1000 Modernization ***Articles:*** ***Description:*** The IFF System will transition from a Contractor Furnished Equipment (CFE) suite to a government (organically) supported IFF System. Establish engineering support and Integrated Product Support (IPS) elements for transition of the DDG 1000 ship class' Contractor Furnished Equipment (CFE) IFF sensor suite to an organically supported and documented system. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A	1.600 -	0.000 -	0.000 -	0.000 -	0.000 -
Title: UPX-36 Engineering Change Proposal - Mode 5 Capable ***Articles:***	1.817 -	0.183 -	0.796 -	0.000 -	0.796 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0676 / *Improve ID Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: Upgrade the AN/UPX-36(V) from Mark XII to Mark XIIA with Mode 5 capability. The AN/UPX-36(V) is a centralized Identification Friend or Foe (IFF) interrogator system consisting of a processor, dedicated IFF antennas, and Mark XII interrogation capability providing identification of friendly and neutral contacts via cooperative means. System installations are limited to the 12 LSD41/49 class ships currently in-service. ***FY 2023 Plans:*** Continue system integration efforts. Provide technical documentation to support combat system certification with SSDS or ACDS combat system for LSD 41 and LSD 49 ship classes as configured. ***FY 2024 Base Plans:*** Continue system integration efforts. Provide technical documentation to support combat system certification with SSDS or ACDS combat system for LSD 41 and LSD 49 ship classes as configured. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase due to transition from local development testing in FY23 to Land based test site integration in FY24 at Surface Combat Systems Center, Wallops Island, for Ship Self Defense System (SSDS) baselines. Testing will verify proper UPX-36 replacement to SSDS host platform integration prior to fielding in FY25.					
Title: Radar Track Discriminator System (RTDS) UPX-34A ECP Part I	5.300	0.604	1.722	0.000	1.722
Articles:	-	-	-	-	-
Description: Capability upgrades to the AN/UPX-34A(V) RTDS, which is installed on CG47 Class Aegis Cruisers and provides high fidelity, long range, Non-cooperative Target Recognition (NCTR) capability to support the Air-Sea battle by providing timely tactical engagement decisions by Aegis action officers. ***FY 2023 Plans:*** Conclude system integration efforts. Provide technical documentation to support combat system certification of RTDS upgrades with Aegis combat system on CG47 ship class. ***FY 2024 Base Plans:*** Provide technical documentation to support combat system certification of RTDS upgrades with Aegis combat system on CG47 ship class. ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0676 / *Improve ID Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase due to transition from local development testing in FY23 to Land based test site integration in FY24 at Surface Combat Systems Center, Wallops Island, for Aegis baselines. New capability updates require initial testing and integration to verify proper UPX-34A replacement to Aegis host platform integration.					
Accomplishments/Planned Programs Subtotals	10.104	1.244	3.710	0.000	3.710

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2851: *ID Systems*	46.918	59.226	59.234	-	59.234	60.444	61.763	62.967	64.407	116.736	917.577

Remarks

D. Acquisition Strategy

The acquisition strategy is to develop Mode 5 Engineering Change Proposals for modern Mark XII Identification Friend or Foe (IFF) equipment and integrate into all Navy Combat Weapons systems platforms and augment the Navy's Cooperative Identification Capability to include Mode 5.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*	Project (Number/Name) 0676 / *Improve ID Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NAWCAD : St Inigoes, MD	10.743	0.625	Nov 2021	0.200	Nov 2022	0.850	Nov 2023	-		0.850	Continuing	Continuing	Continuing
Ship Integration	WR	NAWCAD : St Inigoes, MD	2.699	0.122	Nov 2021	0.124	Nov 2022	0.200	Nov 2023	-		0.200	0.000	3.145	-
Systems Engineering	WR	NAWCAD : St Inigoes, MD	7.307	0.789	Nov 2021	0.204	Nov 2022	0.392	Nov 2023	-		0.392	0.000	8.692	-
DDG 1000 Development	C/FFP	Raytheon : Tewksbury, MA	1.262	1.287	Nov 2021	0.000		0.000		-		0.000	0.000	2.549	-
OE-120 Tech Refresh	SS/FFP	BAE : Nashua, NH	18.810	0.000		0.000		0.000		-		0.000	0.000	18.810	15.483
RTDS UPX-34A ECP Part I	WR	NAWCAD : St Inigoes, MD	4.842	4.863	Nov 2021	0.125	Nov 2022	0.130	Nov 2023	-		0.130	0.000	9.960	-
UPX-36 ECP Part I	WR	NAWCAD : St Inigoes, MD	1.283	1.239	Nov 2021	0.171	Nov 2022	0.178	Nov 2023	-		0.178	0.000	2.871	-
		Subtotal	46.946	8.925		0.824		1.750		-		1.750	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Configuration Management	WR	NAWCAD : St Inigoes, MD	0.169	0.000		0.000		0.000		-		0.000	0.000	0.169	-
ILS	WR	NAWCAD : St Inigoes, MD	3.015	0.080	Nov 2021	0.082	Nov 2022	0.083	Nov 2023	-		0.083	0.000	3.260	-
Software Development	WR	NAWCAD : St Inigoes, MD	6.230	0.303	Nov 2021	0.108	Nov 2022	0.117	Nov 2023	-		0.117	0.000	6.758	-
Technical Data	WR	NAWCAD : St Inigoes, MD	2.272	0.105	Nov 2021	0.076	Nov 2022	0.080	Nov 2023	-		0.080	0.000	2.533	-
Training	WR	NAWCAD : St Inigoes, MD	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	-
Engineering	WR	NAWCAD : PAX River, MD	0.244	0.000		0.000		0.917	Nov 2023	-		0.917	0.000	1.161	-
		Subtotal	12.130	0.488		0.266		1.197		-		1.197	0.000	14.081	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*	Project (Number/Name) 0676 / *Improve ID Development*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	NAWCAD : St Inigoes, MD	2.559	0.000		0.000		0.000		-		0.000	0.000	2.559	-
		Subtotal	2.559	0.000		0.000		0.000		-		0.000	0.000	2.559	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	Various : California, MD	3.816	0.691	Nov 2021	0.154	Nov 2022	0.763	Nov 2023	-		0.763	0.000	5.424	2.813
		Subtotal	3.816	0.691		0.154		0.763		-		0.763	0.000	5.424	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	65.451	10.104		1.244		3.710		-		3.710	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0676 / *Improve ID Development*

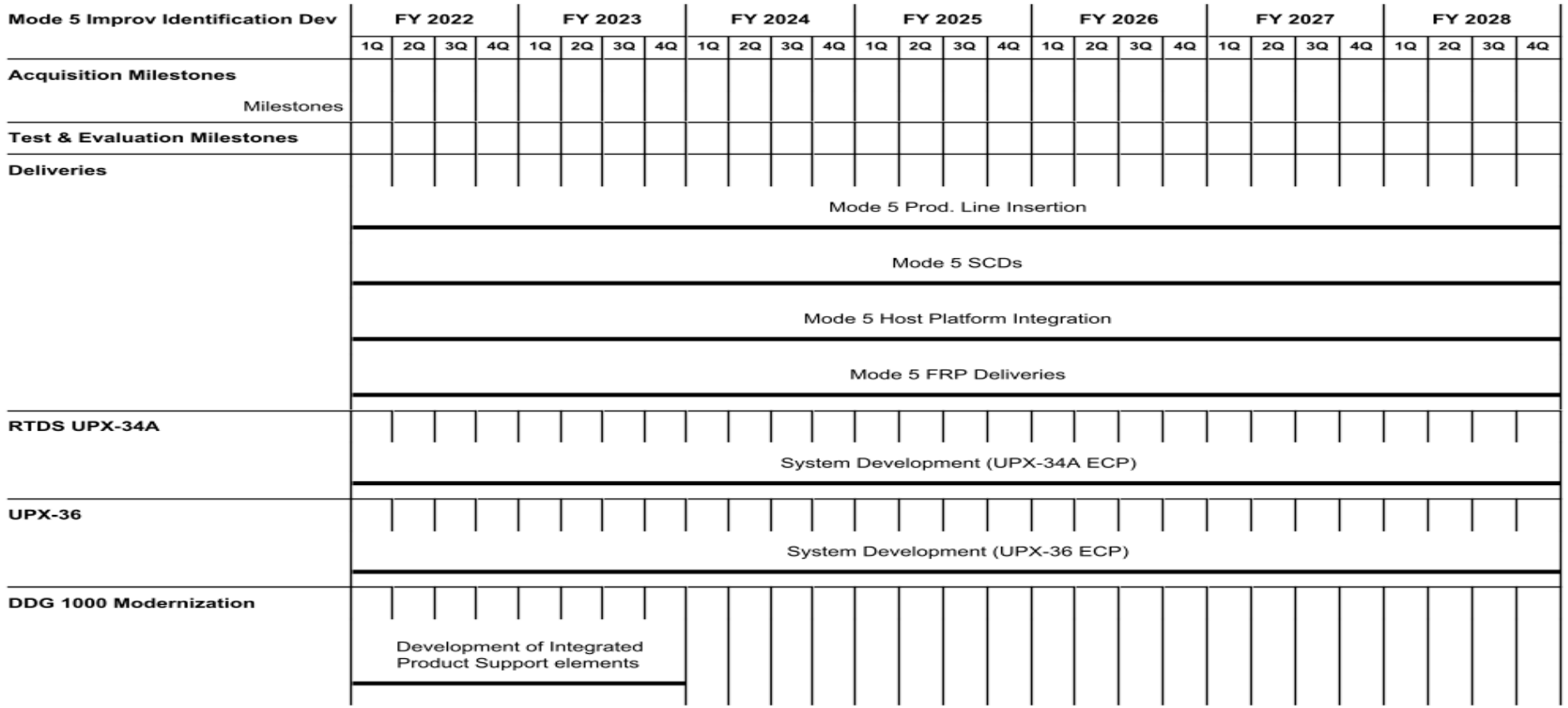

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 0676 / *Improve ID Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Mode 5 Improv Identification Dev				
Deliveries: Mode 5 - Production Line Insertion	1	2022	4	2028
Deliveries: Mode 5 - Prepare and Evaluate ECPs/SCDs	1	2022	4	2028
Deliveries: Mode 5 - Host Platform Integrations	1	2022	4	2028
Deliveries: Mode 5 - FRP Deliveries	1	2022	4	2028
RTDS UPX-34A: System Development (UPX-34A ECP)	1	2022	4	2028
UPX-36: System Development (UPX-36 ECP)	1	2022	4	2028
DDG 1000 Modernization: Development of Integrated Product Support elements	1	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*	Project (Number/Name) 1253 / *Combat Ident System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1253: *Combat Ident System*	192.274	1.432	1.856	2.316	-	2.316	2.128	2.041	2.079	2.137	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

MARK (MK) XIIA Mode 5 provides improved secure cooperative combat identification via Identification Friend or Foe (IFF). Mode 5 is developed in cooperation with North Atlantic Treaty Organization, with the DoD implementation governed by AIMS 03-1000A, AIMS 03-1000B and USN requirements defined in ORD # 577-06-01. IFF product improvements are designed to be installed through upgrade and deficiency correction studies, which in turn become engineering changes to IFF interrogators and transponders and their associated cryptographic material.

The Navy MK XIIA Mode 5 program was approved for entry in Systems Development and Demonstration phase in August 2003 and into the Production and Deployment Phase and Low Rate Initial Production in July 2006, and Full Rate Production July 2012. The Navy Mode 5 program achieved Initial Operational Capability (IOC) in 2012 in accordance with the ORD. Mode 5 capable equipment was fielded in USN/USMC platforms in accordance with Joint Requirements Oversight Council Memorandums (047-07, 122-08 and 108-13) in support of Joint Mode 5 IOC in 2014 and Joint Full Operational Capability in FY2020.

RDT&E articles include Mode 5 cryptographic modules and associated hardware and software changes for IFF interrogators and transponders, including, but not limited to: AN/APX-118/123, AN/APX-119, AN/APX-111, and AN/ZPX-2087 Micro Transponder equipment. RDT&E units are required for government and contractor labs to support aircraft and ship integrations, test sites, test aircraft, and unmanned aircraft systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Mode 5 Systems Engineering and Integrated Logistics Support (ILS)	0.239	0.241	0.808	0.000	0.808
Articles:	-	-	-	-	-
Description: Performed systems engineering and analysis in support of Mode 5 hardware/software development and engineering change proposals on Identification Friend or Foe (IFF) interrogators and transponders, including but not limited to: AN/APX-123 Common Digital Transponder, AN/APX-119 Transponder, AN/APX-111 Combined Interrogator Transponder, AN/ZPX-2087 Micro Transponder, Cryptographic Modules, Mode 5 Engineering Test Equipment, and Mode 5 support equipment.					
FY 2023 Plans: Continue research and development of APX-123 modernization to address cyber security, protective technologies, compliance with updated standards, and hardware obsolescence redesign.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 1253 / *Combat Ident System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue research and development of APX-123 modernization to address cyber security, protective technologies, compliance with updated standards, and hardware obsolescence redesign. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase due to adding Engineering and ILS support for AN/APX-2087 Micro Transponder.					
Title: Mode 5 Upgrade Developmental Test & Operational Test	1.193	1.615	1.508	0.000	1.508
Articles:	-	-	-	-	-
Description: Perform Mode 5 integrated and operational test phases for AN/APX-123 Common Transponder, AN/APX-119 Transponder, small form factor IFF for unmanned aircraft systems, and AN/APX-111 Combined Interrogator Transponder. ***FY 2023 Plans:*** Continue small form factor IFF transponder testing. Continue testing of Mode 5 mitigating solutions for deploying platforms that did not meet Joint Full Operational Capability (JFOC). ***FY 2024 Base Plans:*** Continue small form factor IFF transponder testing. Continue testing of Mode 5 mitigating solutions for deploying platforms that did not meet Joint Full Operational Capability (JFOC). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease due cost sharing of IFF Micro Transponder DT & OT funding requirement with the Small Business Innovative Research (SBIR) Program.					
Accomplishments/Planned Programs Subtotals	1.432	1.856	2.316	0.000	2.316

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2851: *ID Systems*	46.918	59.226	59.234	-	59.234	60.444	61.763	62.967	64.407	116.736	917.577
• APN/0582: *ID Sys*	13.100	3.828	13.085	-	13.085	7.047	3.457	3.763	3.905	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 1253 / *Combat Ident System*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The Acquisition Strategy is to develop Mode 5 Engineering Change Proposals to modernize Mark XII Identification Friend or Foe (IFF) equipment or insert Mode 5 into existing platforms by JROC memorandums (047-07, 122-08 and 108-13). After integration into all Navy Combat Weapons systems platforms, the Navy will transition Cooperative Identification Capability to Mode 5.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*	Project (Number/Name) 1253 / *Combat Ident System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD : PAX River, MD	16.102	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : St Inigoes, MD	15.712	0.239	Nov 2021	0.241	Nov 2022	0.808	Nov 2023	-		0.808	Continuing	Continuing	Continuing
Primary Hardware Development	Various	Sikorsky : Stratford, CT	3.872	0.000		0.000		0.000		-		0.000	0.164	4.036	4.200
Prior Year Prod Dev Services costs no longer funded in FYDP	Various	Various : Various	90.857	0.000		0.000		0.000		-		0.000	0.000	90.857	43.213
		Subtotal	126.543	0.239		0.241		0.808		-		0.808	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ILS	Various	Various : Various	5.344	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Prior Year Support Services costs no longer funded in FYDP	Various	Various : Various	2.761	0.000		0.000		0.000		-		0.000	0.000	2.761	2.761
		Subtotal	8.105	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : PAX River, MD	32.860	1.193	Nov 2021	1.615	Nov 2022	1.508	Nov 2023	-		1.508	7.705	44.881	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	Various	Various : Various	20.370	0.000		0.000		0.000		-		0.000	0.000	20.370	3.456
		Subtotal	53.230	1.193		1.615		1.508		-		1.508	7.705	65.251	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*	Project (Number/Name) 1253 / *Combat Ident System*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Increase from FY22 to FY23 is due to increased testing requirements of the small form factor IFF transponder.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Mgmt Services costs no longer funded in FYDP	Various	Various : Various	4.396	0.000		0.000		0.000		-		0.000	0.000	4.396	4.396
		Subtotal	4.396	0.000		0.000		0.000		-		0.000	0.000	4.396	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	192.274	1.432		1.856		2.316		-		2.316	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 1253 / *Combat Ident System*

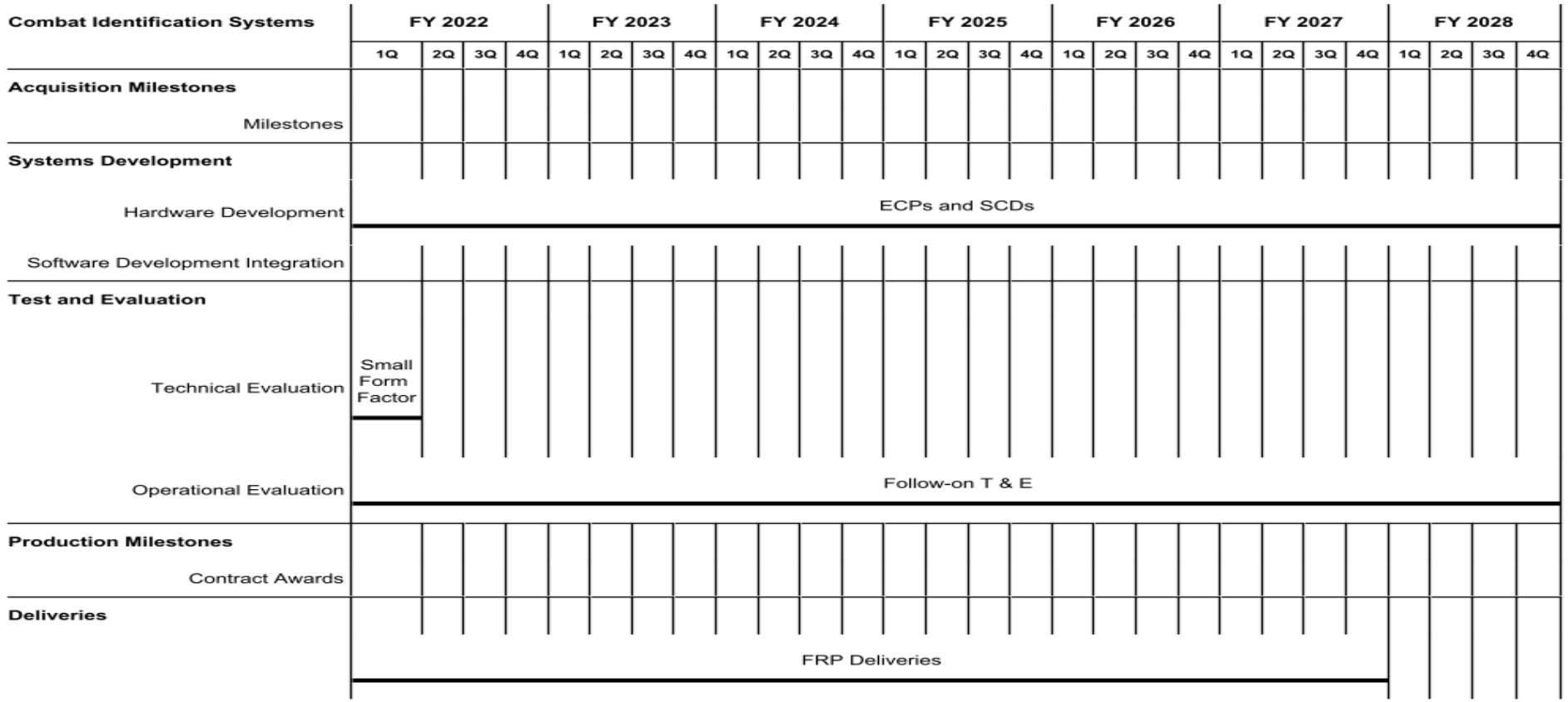

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 1253 / *Combat Ident System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Combat Identification Systems				
Systems Development: Hardware Development: Prepare & Evaluate ECPs/SCDs	1	2022	4	2028
Test and Evaluation: Technical Evaluation: Small Form Factor	1	2022	1	2022
Test and Evaluation: Operational Evaluation: Follow-on Test and Evaluation	1	2022	4	2028
Deliveries: FRP Deliveries	1	2022	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / *Navigation/Id System*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	1.158	7.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.158
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

MARK (MK) XIIA Mode 5 provides improved secure cooperative combat identification via Identification Friend or Foe (IFF). Mode 5 is developed in cooperation with North Atlantic Treaty Organization, with the DoD implementation governed by AIMS 03-1000A, AIMS 03-1000B and USN requirements defined in ORD # 577-06-01. Research, development, and acquisition to support a micro IFF transponder/interrogator with Mode 5 in order to meet the space, weight, and power (SWaP) requirements for Group 2 and 3 Unmanned Aerial Vehicles (UAVs), and other unmanned systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Navy micro interrogator ***FY 2022 Accomplishments:*** Phase 3 Small Business Innovation Research (SBIR) Contract award ***FY 2023 Plans:*** N/A	1.158	0.000
Congressional Add: Micro 5 IFF interrogator ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** Small Business Innovation Research (SBIR) Contract award. Establish Baseline configuration of Micro Interrogator Lay-in Logistics support for Micro Transponder & Interrogator to provide for Fleet sustainability and operator training.	0.000	7.000
Congressional Adds Subtotals	1.158	7.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Acquisition Strategy is to develop a micro IFF transponder/interrogator solution through Small Business Innovation Research (SBIR) and other government development organizations.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 9999 / *Congressional Adds*

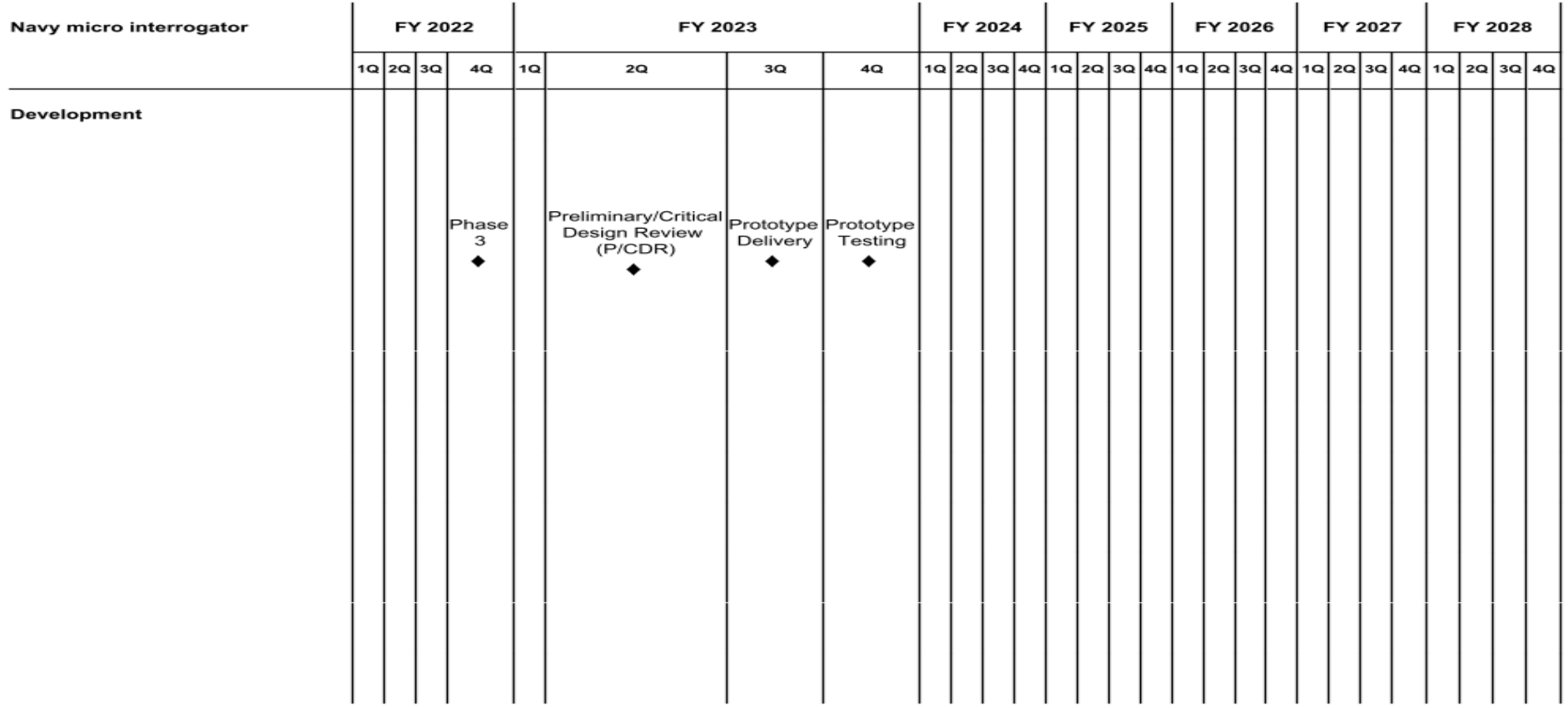
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development - SBIR	Various	R-Cubed Engineering : Palmetto, FL	0.000	1.158	Sep 2022	7.000	Jul 2023	0.000		-		0.000	0.000	8.158	-
		Subtotal	0.000	1.158		7.000		0.000		-		0.000	0.000	8.158	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.158		7.000		0.000		-		0.000	0.000	8.158	N/A

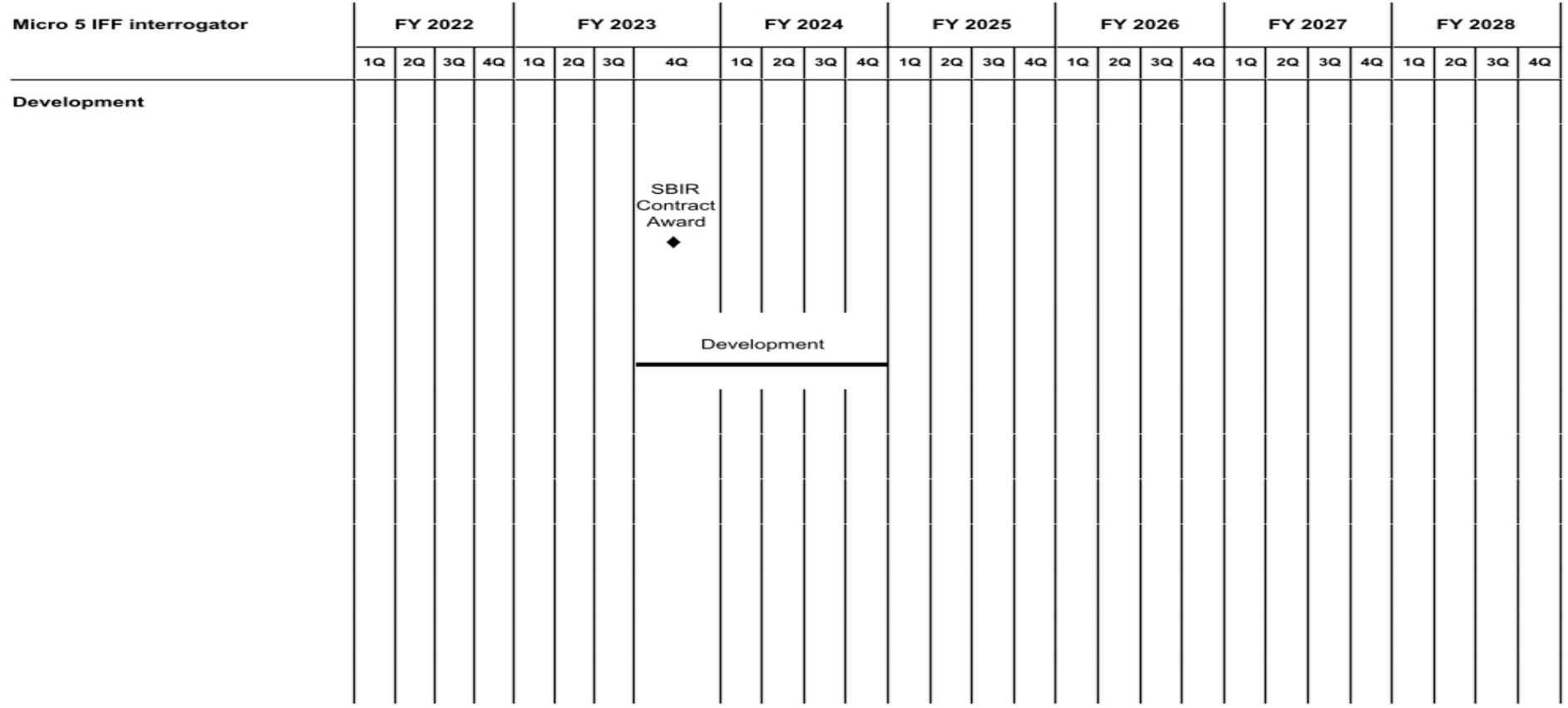
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024PB - 0604777N - 9999

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024PB - 0604777N - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604777N / *Navigation/Id System*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Navy micro interrogator				
Development: Preliminary/Critical Design Review (P/CDR)	2	2023	2	2023
Development: Phase 3 Contract	4	2022	4	2022
Development: Prototype Delivery	3	2023	3	2023
Development: Prototype Testing	4	2023	4	2023
Micro 5 IFF interrogator				
Development: SBIR Contract Award	4	2023	4	2023
Development: Development Baseline configuration of Micro Interrogator	4	2023	4	2024