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**Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604261N / <i>Acoustic Search Sensors</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	552.155	41.395	47.013	47.182	-	47.182	48.049	51.932	51.001	52.024	Continuing	Continuing
0480: <i>ASW Sensors &amp; Proc</i>	430.992	37.635	43.045	43.215	-	43.215	44.001	47.557	46.705	47.641	Continuing	Continuing
3224: <i>High Altitude ASW</i>	121.163	3.760	3.968	3.967	-	3.967	4.048	4.375	4.296	4.383	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Includes RDT&E funds for engineering development and operational test and evaluation of acoustic search sensors/systems and complementary equipment for Anti-Submarine Warfare (ASW) aircraft.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

<b><u>B. Program Change Summary (\$ in Millions)</u></b>	<b><u>FY 2019</u></b>	<b><u>FY 2020</u></b>	<b><u>FY 2021 Base</u></b>	<b><u>FY 2021 OCO</u></b>	<b><u>FY 2021 Total</u></b>
Previous President's Budget	42.485	47.013	47.883	-	47.883
Current President's Budget	41.395	47.013	47.182	-	47.182
Total Adjustments	-1.090	0.000	-0.701	-	-0.701
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.090	0.000			
• Program Adjustments	0.000	0.000	-0.816	-	-0.816
• Rate/Misc Adjustments	0.000	0.000	0.115	-	0.115

**Change Summary Explanation**

Funding:

FY19 - -\$1.090 SBIR

FY21 - -\$0.816M reduction to fund higher priorities, \$0.115 Rate Adjustment

Technical: Not applicable.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604261N / <i>Acoustic Search Sensors</i>	
Schedule:  0480 Schedule 1. The updated schedule reflects better alignment with Program Element (PE) 0605504N ECP 6 delay and subsequent deferral of ECP 7 / MAC-E IOC.  0480 Schedule 2. Not applicable.  3224 Schedule. Not applicable.		

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604261N / <i>Acoustic Search Sensors</i>				<b>Project (Number/Name)</b> 0480 / <i>ASW Sensors &amp; Proc</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0480: <i>ASW Sensors &amp; Proc</i>	430.992	37.635	43.045	43.215	-	43.215	44.001	47.557	46.705	47.641	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Anti-Submarine Warfare (ASW) Sensors and Processing project provides the tools and methods necessary to maintain naval superiority by preventing threat submarines from disrupting the U.S. Navy's ability to control the sea lines of communication and completing their hostile missions. This project encompasses the Engineering & Manufacturing Development phase and the follow on Production and Deployment Phase of sensor systems to improve the mission effectiveness of airborne ASW platforms in cueing, searching, localizing, tracking, and attacking subsurface targets. Smaller and quieter threat submarines drive the requirement for continued advancement in ASW sensor capabilities for both blue water and littoral environments. The littoral regions of the world create an additional ASW challenge to overcome the increase in background clutter caused by the shallow water depth, high volume of shipping, and commercial radio frequency interference. Project 0480 provides funding to the passive and active ASW family of systems for the engineering development of solutions that detect, classify, and track threat submarines. The Multi-Static Active Coherent (MAC) program encompasses modifications to the active coherent (electronic) source sonobuoy, the Air Deployable Active Receiver sonobuoy, and the development, integration, and test of acoustics software products. It also provides upgrades to the Multi-static mission planning tool, the tactical crew trainers and the tactical ground replay system. This program includes MAC Enhancements (MAC-E) that will shorten the ASW kill chain by enabling the warfighter to search larger areas in less time with more precision. MAC-E is developed (within Program Element (PE) 0604261N) and integrated into the Acoustic Operational Flight Program (AOFPP). The AOFPP is integrated into the platform via PE 0605504N.

Project 0480 also provides funding for the Advanced Product Build (APB) program which integrates Office of Naval Research (ONR) Future Naval Capabilities (FNCs), Small Business Innovation Research (SBIR), and University Affiliated Research Center (UARC) products and other mature technologies into the processing baseline. Efforts incorporate clutter reduction, automation, improved displays and controls, as well as improved communication links resulting in reduced operator workload, increased target detection opportunities, and improved classification techniques. APB also includes an Air ASW Engineering Measurement Program (AAEMP) that collects ASW operational system performance data and identifies areas where beneficial improvements can be incorporated across all Air ASW platforms. APB will deliver a new software build nominally in two year increments following MAC-E. The sonobuoy test articles in FY19-FY25 will support software and hardware integration flight tests and Developmental Test/Follow-On Test & Evaluation for the MAC program.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> APB System Qualification Test/Fleet Release for P-3C. Rapid Capability Insertion (RCI)/Fleet Release for P-8A	10.426	12.807	9.102	0.000	9.102
<b>Articles:</b>	-	-	-	-	-
<b>FY 2020 Plans:</b>					

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Navy **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604261N / <i>Acoustic Search Sensors</i>	<b>Project (Number/Name)</b> 0480 / <i>ASW Sensors &amp; Proc</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Continue software development for RCI initiatives and AAEMP for P-8A RCI (2). Continue MAC FITs for P-8A squadrons.</p> <p><b>FY 2021 Base Plans:</b> Continue software development for RCI initiatives and AAEMP for P-8A RCI (2). Continue MAC FITs for P-8A squadrons.</p> <p><b>FY 2021 OCO Plans:</b> N/A</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY21 APB decrease is a result of maturation of particular APB technologies that transitioned into MAC-E software baseline.</p>					
<p><b>Title:</b> Multi-static Active Coherent (MAC)</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2020 Plans:</b> Continue MAC-E software development/integration into the P-8A ECP-7 AOFP software. MAC-E software includes, but is not limited to: MAC-E/ADAR Controller, Likelihood Ratio Tracker, Atlantis, and Active System Performance Estimate Computer Tool. Conduct MAC-E/SSQ-125A development tests.</p> <p><b>FY 2021 Base Plans:</b> Continue MAC-E software development/integration into the P-8A ECP-7 AOFP software. MAC-E software includes, but is not limited to: MAC-E/ADAR Controller, Likelihood Ratio Tracker, Atlantis, and Active System Performance Estimate Computer Tool. Conduct MAC-E/SSQ-125A development tests.</p> <p><b>FY 2021 OCO Plans:</b> N/A</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY21 increase funds the ramp-up of INC 3 MAC-E acoustics development/integration efforts and MAC-E test and evaluation.</p>	27.209 100	30.238 125	34.113 130	0.000 -	34.113 130
<b>Accomplishments/Planned Programs Subtotals</b>	37.635	43.045	43.215	0.000	43.215

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604261N / <i>Acoustic Search Sensors</i>	<b>Project (Number/Name)</b> 0480 / <i>ASW Sensors &amp; Proc</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN/4048: <i>Sonobuoys</i>	70.363	113.819	130.898	9.964	140.862	99.250	92.580	93.697	94.166	Continuing	Continuing
- AN/SSQ-125 ( <i>Multistatic Coherent Source</i> )											

**Remarks**

**D. Acquisition Strategy**

The Multistatic Active Coherent (MAC) ASW system and associated sonobuoys are fully integrated on the P-3C and P-8A ASW platforms. MAC Enhancements (MAC-E) is a development program associated with P-8A increment 3 that will significantly increase the wide area search capability through Engineering Change Proposals (ECPs) to the sonobuoys, aircraft software modifications to reduce clutter and improve processing, and OMI improvements to reduce operator workload. S&T and early R&D ASW improvement programs are matured through the APB process for periodic Fleet software releases.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604261N / <i>Acoustic Search Sensors</i>	<b>Project (Number/Name)</b> 0480 / <i>ASW Sensors &amp; Proc</i>
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<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hdw Development	SS/CPIF	ERAPSCO : FT. WAYNE IN	24.800	2.047	Dec 2018	0.000		0.000		-		0.000	17.500	44.347	44.347
Prior year Prod Dev no longer funded in the FYDP	Various	VARIOUS :	19.905	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development	C/CPIF	Boeing : Huntington Beach, CA	0.000	11.008	Dec 2018	14.452	Dec 2019	12.600	Dec 2020	-		12.600	0.000	38.060	25.460
Software Development	WR	NAWCAD : PATUXENT RIVER, MD	36.808	5.553	Dec 2018	6.036	Dec 2019	5.225	Dec 2020	-		5.225	Continuing	Continuing	Continuing
Software Development	SS/CPIF	LOCKHEED MARTIN : MANASSAS VA	13.572	1.750	Dec 2018	2.500	Dec 2019	3.568	Dec 2020	-		3.568	3.727	25.117	21.549
Software Development	Various	VARIOUS :	29.195	6.750	Dec 2018	7.330	Dec 2019	8.775	Dec 2020	-		8.775	Continuing	Continuing	Continuing
<b>Subtotal</b>			124.280	27.108		30.318		30.168		-		30.168	Continuing	Continuing	N/A

<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Studies & Analysis	Various	VARIOUS :	22.143	1.314	Dec 2018	2.156	Dec 2019	2.678	Dec 2020	-		2.678	Continuing	Continuing	Continuing
Technical Data	WR	NAWCAD : PATUXENT RIVER, MD	16.711	0.350	Dec 2018	0.431	Dec 2019	0.350	Dec 2020	-		0.350	Continuing	Continuing	Continuing
Training	WR	NAWCAD : PATUXENT RIVER, MD	6.569	2.528	Dec 2018	2.587	Dec 2019	2.574	Dec 2020	-		2.574	Continuing	Continuing	Continuing
<b>Subtotal</b>			45.423	4.192		5.174		5.602		-		5.602	Continuing	Continuing	N/A

**Remarks**  
 FY 2021 increase in studies & analysis directly correlates to the "MAC-E data collection and analysis" portion of the schedule. This data is gathered, analyzed and incorporated during the MAC-E software development phase.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604261N / <i>Acoustic Search Sensors</i>	<b>Project (Number/Name)</b> 0480 / <i>ASW Sensors &amp; Proc</i>
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Eval	Various	VARIOUS : VARIOUS	35.992	3.051	Dec 2018	3.506	Dec 2019	3.572	Dec 2020	-		3.572	Continuing	Continuing	Continuing
<b>Subtotal</b>			35.992	3.051		3.506		3.572		-		3.572	Continuing	Continuing	N/A

<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Eng Spt	Various	VARIOUS : VARIOUS	46.659	0.975	Dec 2018	1.293	Dec 2019	1.175	Dec 2020	-		1.175	Continuing	Continuing	Continuing
Contractor Eng Spt	C/CPFF	NAVMAR APPLIED SCIENCES CORP : WARMINSTER, PA	8.590	1.000	Dec 2018	1.173	Dec 2019	1.203	Dec 2020	-		1.203	2.810	14.776	13.573
Government Eng Spt	WR	NAWCAD : PATUXENT RIVER, MD	98.868	0.300	Dec 2018	0.380	Dec 2019	0.344	Dec 2020	-		0.344	Continuing	Continuing	Continuing
Eng & Tech Spt Srvc (NON-FFRDC)	Various	VARIOUS : VARIOUS	60.294	1.009	Dec 2018	1.201	Dec 2019	1.151	Dec 2020	-		1.151	Continuing	Continuing	Continuing
Mgt & Prof SptT Srvc (FFRDC)	Various	VARIOUS : VARIOUS	10.018	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Prior Years Mgmt Svcs no longer funded in the FYDP	Various	VARIOUS : VARIOUS	0.868	0.000		0.000		0.000		-		0.000	0.000	0.868	0.868
<b>Subtotal</b>			225.297	3.284		4.047		3.873		-		3.873	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
<b>Project Cost Totals</b>		430.992	37.635	43.045	43.215	-	43.215	Continuing	Continuing	N/A

**Remarks**

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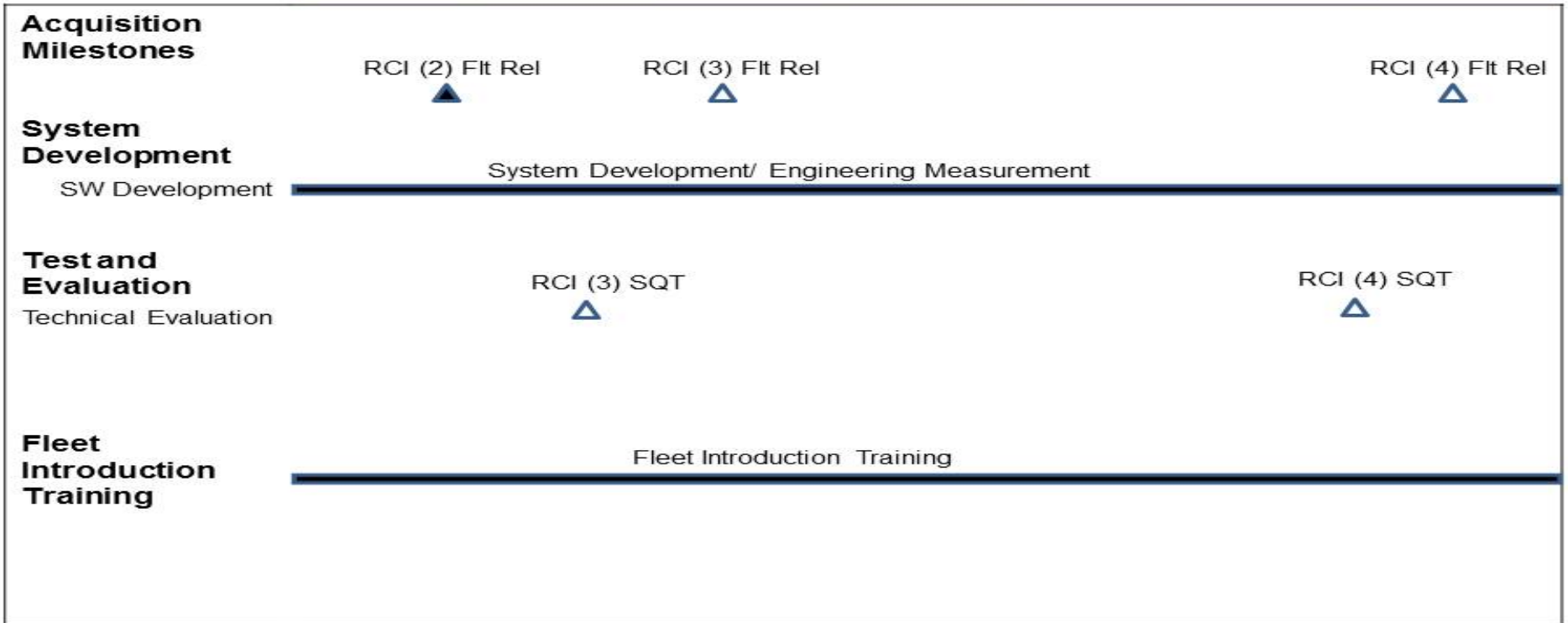
Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy Date: February 2020

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 0480 / <i>ASW Sensors &amp; Proc</i>
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### PMA-264 ASW Sensors & Processing (0480 APB)

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4





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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Navy **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604261N / <i>Acoustic Search Sensors</i>	<b>Project (Number/Name)</b> 0480 / <i>ASW Sensors &amp; Proc</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Proj: 0480 ASW Sensors &amp; Processors - Multistatic Active Coherent</i></b>				
Acquistion Milestones: Reviews and Milestones: Critical Design Review	1	2019	1	2019
Acquistion Milestones: Reviews and Milestones: Initial Operational Capability	3	2025	3	2025
System Development: Capability Development and Integration: MAC-E Data Collection & Analysis	1	2019	3	2021
System Development: Next Gen MAC-E Data Collection & Analysis	4	2021	4	2025
System Development: MAC-E System of Systems Software Development	1	2019	2	2022
System Development: Next Gen MAC-E System of Systems Software Development	2	2022	4	2025
System Development: MAC-E AOFP S/W Development	1	2019	2	2022
System Development: Next Gen MAC-E AOFP S/W Development	2	2023	4	2025
Test & Evaluation: Technical Evaluation: MAC-E & Next Gen MAC-E Data Gathering Events	1	2019	4	2025
Test & Evaluation: Developmental and Operational Test: MAC-E Operational Test	4	2023	3	2025
Production Milestones: Contract Awards: Sonobuoy Production Contract Award	1	2019	1	2019
Production Milestones: Contract Awards: Next Gen MAC-E Contract Award	3	2022	3	2022
<b><i>Proj: 0480 ASW Sensors &amp; Processors - Advanced Product Builds (APB)</i></b>				
Acquisition Milestones: Milestones: RCI (2) Fleet Release	4	2019	4	2019
Acquisition Milestones: Milestones: RCI (3) Fleet Release	2	2021	2	2021
Acquisition Milestones: Milestones: RCI (4) Fleet Release	2	2025	2	2025
System Development: Software Development: System Development/Engineering Measurement	1	2019	4	2025
Test & Evaluation: Technical Evaluation: RCI (3) SQT	3	2020	3	2020
Test & Evaluation: Technical Evaluation: RCI (4) SQT	4	2024	4	2024
Fleet Introduction Training: Fleet Intro Trng	1	2019	4	2025

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604261N / Acoustic Search Sensors				Project (Number/Name) 3224 / High Altitude ASW			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
3224: High Altitude ASW	121.163	3.760	3.968	3.967	-	3.967	4.048	4.375	4.296	4.383	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The High Altitude Anti-Submarine Warfare (HAASW) program increases P-8A operational flexibility and effectiveness throughout the kill chain at higher than traditional ASW altitudes. The NATO compatible digital telemetry will improve sonobuoy communication performance in high Radio Frequency Interference environments, increase Air Deployable Active Receiver (SSQ-101) channel availability. FY18/19 activities included the integration of an algorithm that adjusted sonobuoy release/drop points for more accurate sonobuoy placement. FY19 also initiated analysis of encryption for sonobuoy communications. FY20-FY25 activities include continued testing of the encryption/GPS into the SSQ-125A to support the P-8A aircraft.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<b>Title:</b> High Altitude Enablers	3.760	3.968	3.967	0.000	3.967
<b>Articles:</b>	-	-	-	-	-
<b>FY 2020 Plans:</b> Continue improved sonobuoys capability in support of P-8 Inc 2. Continue digital telemetry/encryption requirements analysis.					
<b>FY 2021 Base Plans:</b> Continue improved sonobuoys capability in support of P-8 Inc 2. Continue digital telemetry/encryption requirements analysis.					
<b>FY 2021 OCO Plans:</b> N/A					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> No significant change from FY 2020 to FY 2021.					
<b>Accomplishments/Planned Programs Subtotals</b>	3.760	3.968	3.967	0.000	3.967

**C. Other Program Funding Summary (\$ in Millions)**

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• OPN/4048: Sonobuoys - All Types	237.347	313.554	237.639	26.196	263.835	260.183	267.096	267.905	271.585	Continuing	Continuing

**Remarks**

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604261N / <i>Acoustic Search Sensors</i>	<b>Project (Number/Name)</b> 3224 / <i>High Altitude ASW</i>
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**D. Acquisition Strategy**

A 15 March 12 Acquisition Decision Memorandum (ADM) from PEO(A) (Milestone Decision Authority) approved the transition from a planned Acquisition Category (ACAT) Program to a series of Engineering Change Proposal (ECP) modifications to the AN/SSQ-36, AN/SSQ-53, AN/SSQ-62, AN/SSQ-101 and SSQ-125 sonobuoys. Affordability deferred the digital telemetry requirement in the SSQ-36, SSQ-53, and SSQ-62 sonobuoys to FY19-FY25. All major contracts (ERAPSCO & Boeing) to meet P-8A Inc 2 ECP 2 and ECP 3 requirements have been awarded. FY19 initiated cyber protection analysis.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604261N / Acoustic Search Sensors				3224 / High Altitude ASW							
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Development	C/CPFF	VARIOUS : VARIOUS	2.750	1.000	Nov 2018	1.031	Nov 2019	0.600	Nov 2020	-		0.600	2.600	7.981	7.381
Prior year Prod Dev no longer funded in the FYDP	Various	VARIOUS : VARIOUS	44.280	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Primary Hdw Development	C/CPFF	FLIGHTLINE : VICTOR NY	0.000	0.000		0.000		1.000	Nov 2020	-		1.000	0.000	1.000	-
INC 3 A/C Software Integration	C/CPFF	BOEING : SEATTLE WA	1.500	1.368	Nov 2018	1.388	Nov 2019	1.000	Nov 2020	-		1.000	0.000	5.256	4.256
<b>Subtotal</b>			48.530	2.368		2.419		2.600		-		2.600	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior year Support cost no longer funded in the FYDP	Various	VARIOUS : VARIOUS	35.380	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			35.380	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Eval	Various	VARIOUS : VARIOUS	6.147	0.750	Nov 2018	0.754	Nov 2019	0.749	Nov 2020	-		0.749	Continuing	Continuing	Continuing
<b>Subtotal</b>			6.147	0.750		0.754		0.749		-		0.749	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Eng Spt	Various	VARIOUS : VARIOUS	3.474	0.200	Nov 2018	0.199	Nov 2019	0.148	Nov 2020	-		0.148	Continuing	Continuing	Continuing



**UNCLASSIFIED**

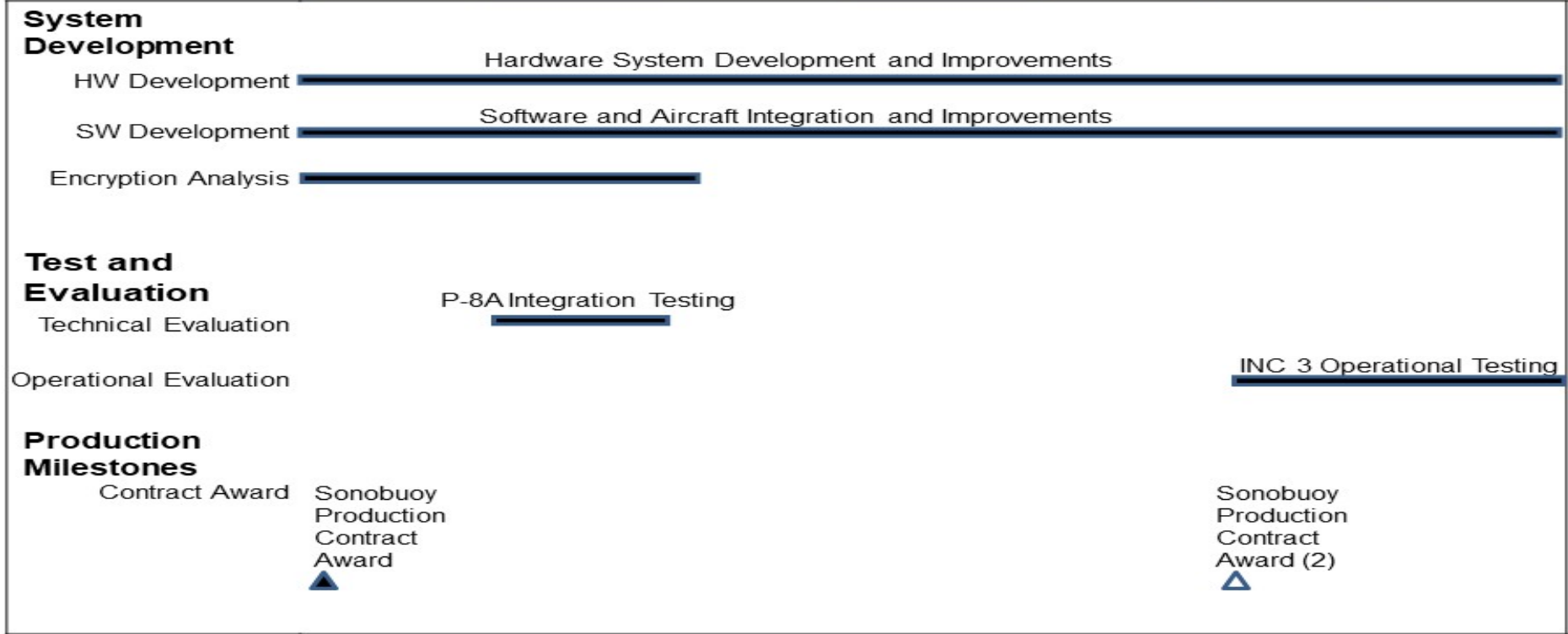
Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy Date: February 2020

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 3224 / <i>High Altitude ASW</i>
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### PMA-264 High Altitude ASW (3224)

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4



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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Navy **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604261N / <i>Acoustic Search Sensors</i>	<b>Project (Number/Name)</b> 3224 / <i>High Altitude ASW</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Proj: 3224 High Altitude ASW</i></b>				
System Development: Hardware Development: Hardware System Development	1	2019	4	2025
System Development: Software Development: Aircraft Software Development/ Integration	1	2019	4	2025
System Development: Encryption Analysis: Encryption Analysis	1	2019	1	2021
Test & Evaluation: Technical Evaluation: INC 2 Integrated Testing	1	2020	4	2020
Test & Evaluation: Operational Evaluation: INC 3 Operational Testing	1	2024	4	2025
Production Milestones: Contract Awards: Sonobuoy Production Contract Award	1	2019	1	2019
Production Milestones: Contract Awards: Sonobuoy Production Contract Award (2)	1	2024	1	2024