

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	174.812	20.740	20.746	43.282	-	43.282	25.647	9.644	7.715	7.560	Continuing	Continuing
0606: <i>Aircrew System Development</i>	174.812	15.935	17.672	35.802	-	35.802	17.824	2.688	2.317	2.321	Continuing	Continuing
9099: <i>Physiological Episodes</i>	0.000	4.805	3.074	7.480	-	7.480	7.823	6.956	5.398	5.239	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Aircrew Systems Development program provides Engineering and Manufacturing Development of Aviation Life Support Systems to protect aircrew and flight deck personnel from current and future threats including: directed energy weapons, chemical/biological/radiological agents/fallout, ballistic projectiles, temperature extremes, heat/fire, low concentration oxygen environments, high dynamic forces during emergency egress, hearing loss, and high "G" forces. The program also provides development for the following capabilities: night vision capability, hearing and head protection, aircrew endurance, aircrew performance, man mounted data display, communications, clothing, in flight restraint and stability, emergency egress and descent, escape and evasion, survival and rescue, crash protection, and anthropometric sizing for small aircrew. Acquisition initiatives include: competition, the application of streamlining initiatives, use of non-developmental items, joint and tri-service developments, and the pursuit of NATO/allied cooperative ventures, which expedite introduction of new products into Navy and Marine Corps fixed and rotary wing aircraft, reduce costs, and promote commonality.

Physiological Monitoring: This program provides funding to assure pilot performance integrity by developing and fielding a system that monitors pilot physiological parameters and warns of state of health or performance degradation that may result in loss of consciousness or the ability to safely conduct flight. There are several solutions undergoing evaluation.

Physiological Episodes (PE): Force Protection. The PE Root Cause & Corrective Action (RCCA) determined that an improved mask/regulator system was required to mitigate PE. This program determines what improvements are needed and develops the material solution.

FY23 budget funds requirements for Joint Helmet Mounted Cueing System (JHMCS), MH-60R/S Head & Neck Injury Mitigation (HNIM), Next Generation Survival Radio (NGSR), and Physiological Episodes Root Cause & Corrective Action (RCCA).

JUSTIFICATION FOR BUDGET ACTIVITY:

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

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>
--	---

B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	21.376	22.746	0.000	-	0.000
Current President's Budget	20.740	20.746	43.282	-	43.282
Total Adjustments	-0.636	-2.000	43.282	-	43.282
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.636	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	43.282	-	43.282

Change Summary Explanation

Schedule:

1. Due to low program risk, Laser Eye Protection (LEP) was able to move from a phased LRIP procurement strategy to a single Full Rate Production approach that accelerates the fielding of LEP units and ended the R&D program in FY21. This resulted in the following major changes:

- LEP FRP DR moved from Q4FY22 to Q4FY21
- LEP Production and Deployment Phase commencement moved from Q1FY22 to Q4FY21
- LEP TRR/IPRR moved from Q2FY21 to Q4FY21
- LEP FRP Award moved from Q4FY22 to Q4FY21
- LEP FRP Deliveries added commencing in Q3FY22

2. Enhanced Visual Acuity (EVA) IOC remains unchanged due to mitigations planned for the production schedule. However, the following schedule changes were made based on time required for resolution of issues identified during System Requirements Review, related updates to EVA Performance Specification and Interface Control Document, and preliminary design technical challenges:

- EVA Mass Models Delivery moved from Q3FY22 to Q2FY23
- EVA LCSP moved from Q1FY22 to Q3FY22
- EVA ILA moved from Q3FY22 to Q2FY26
- EVA Developmental Testing DT-B1 moved from Q3FY22 through Q4FY22 to Q2FY23 through Q4FY23

3. The following major changes were made to the Physiological Monitoring (PM) schedule based on technical discovery and maturation of requirements:

- PM Milestone C moved from Q3FY21 to Q2FY22

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	
<ul style="list-style-type: none">-PM IOC moved from Q4FY22 to Q3FY23-PM Engineering and Manufacturing Development Phase moved from Q1FY20 through Q3FY20 to Q1FY20 through Q4FY22-PM Lab/Ground Testing moved from Q1FY20 through Q4FY20 to Q1FY20 through Q4FY23-PM Adhoc Flight Tests moved from Q1FY20 through Q2FY21 to Q1FY20 through Q1FY22-PM Squadron Flight Test moved from Q3FY20 through Q4FY21 to Q1FY21 through Q1FY23-PM Ongoing Lab/Ground Testing moved from Q4FY22 through Q2FY26 to Q4FY23 through Q4FY27-PM Integration Contract Award moved from Q3FY22 to Q2FY23 <p>Technical: Not Applicable ---</p> <p>FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.</p>		

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>				Project (Number/Name) 0606 / <i>Aircrew System Development</i>			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
0606: <i>Aircrew System Development</i>	174.812	15.935	17.672	35.802	-	35.802	17.824	2.688	2.317	2.321	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

AIRCREW SYSTEMS: Laser Eye Protection (LEP), Enhanced Visual Acuity (EVA), and Aircrew Systems (AS), MH-60R/S Head and Neck Injury Mitigation (HNIM), Joint Helmet Mounted Cueing System (JHMCS), and Next Generation Survival Radio (NGSR).

Under the above projects, LEP provides Fixed and Rotary wing pilots/aircrew with both self and threat multi-wavelength protection during day/night unaided and Night Vision Goggle aided missions. LEP will consist of a suite of products to include spectacles, goggles and visors. The LEP (visor, spectacle or goggle format) is being developed for compatibility with all required USN/USMC aircraft, Aviation Life Support Equipment, cockpit displays, night vision and fire control systems. EVA provides advanced day/night vision/Head Up Display (HUD) capability to address critical capability gaps in low and no light illumination levels (night vision). EVA will be integrated on current aircraft through a common interface allowing incremental, modular approach to fielding full capability and future upgrades. Future increments will provide enhanced aircrew situational awareness in degraded visual environment. Aircrew Systems includes State of the Art (SOA) and Survival Systems which enhance safety and survivability by providing for technology pacing through development and continuing evaluation of survival items, clothing, and other aircrew systems in order to fill capability gaps and increase aircrew endurance and performance. HNIM (FY23 start) will leverage work conducted during the Gunner Seat replacement program to reduce aircraft vibrations through incorporation of active and passive vibration damping into MH-60 R/S cockpit seats to reduce fatigue and enhance mission endurance. JHMCS replacement redesign (FY23 start) will integrate into legacy and future helmets to mitigate aircrew back/neck injury and replace the JHMCS Helmet Mounted Display (HMD) and Night Vision Cueing Device (NVCD) with a single day/night high-definition color display of critical flight parameters and expanded tactical data. NGSR (FY23 start) will address communication security (COMSEC) modernization directives and current obsolescence issues, providing a secure two-way Beyond Line-of-Sight (BLOS) communications capability between isolated personnel and rescue coordination and recovery forces.

AIRCRAFT SYSTEMS: Aircraft Systems include studies for Advanced Crash Protection, SOA, and Survival Systems. SOA provides for the yearly evaluation of survival systems performance, identifies capability gaps, and executes efforts to increase endurance, safety, and survivability.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Aircrew System Development	14.165	15.476	33.592	0.000	33.592
Articles:	-	-	-	-	-
Description: Laser Eye Protection (LEP) provides Spectacles (both multi-wavelength self and threat protection), goggles, and Laser Eye Protection Improvement Program (LEPIP) which monitors emerging threats and changes to technology. Enhanced Visual Acuity (EVA) provides advanced night vision/Head Up Display (HUD)					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022				
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 0606 / <i>Aircrew System Development</i>				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>capability to address critical capability gaps in low and no light illumination (Night Vision). Future increments will provide enhanced visibility in degraded visual environments. AS includes State of the Art (SOA).</p> <p>EVA IOC remains unchanged due to mitigations planned for the production schedule and execution of the approved budget. While the FY 2022 President's Budget request did not include out-year information, changes have since been made to the PB21 schedules due to time required for resolution of issues identified during System Requirements Review, related updates to EVA Performance Specification and Interface Control Document, and preliminary design technical challenges.</p> <p>FY 2022 Plans: Enhanced Visual Acuity (EVA): Complete Preliminary Design Review (PDR) and Critical Design Review (CDR). State of the Art (SOA): Continue a yearly evaluation and authorization of survival, clothing, and other aircrew systems items. Provide identification, testing, and approval of items that provide up-to-date technology to fill capability gaps, improve aircrew endurance, improve aircrew performance and safety, and enhance survivability.</p> <p>FY 2023 Base Plans: Enhanced Visual Acuity (EVA): Deliver four Engineering Mass Models and eight Engineering Development Models, conduct Developmental Testing DT-B1. State of the Art (SOA): Continue to enhance safety and survivability by providing for technology pacing through development and continuing evaluation of survival items, clothing, and other aircrew systems in order to fill capability gaps and increase aircrew endurance and performance. MH-60R/S Head and Neck Injury Mitigation (HNIM): Begin development and engineering of vibration-damping into cockpit seats on MH-60R/S leveraging prior work conducted on Gunner Seat replacement program to reduce fatigue and enhance mission endurance. Joint Helmet Mounted Cueing System (JHMCS): Begin development and redesign to modify, test, qualify, and field JHMCS Replacement to mitigate aircrew back/neck injury for F/A-18 E/F and EA18-G platforms. Next Generation Survival Radio (NGSR): Begin development and design to modify, test, qualify, and field NGSR in order to ensure secure two-way Beyond Line-of-Sight (BLOS) communications capability between isolated personnel and rescue coordination and recovery forces.</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement:</p>						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Increase from FY22 to FY23 due to Department of the Navy requirements for MH-60R/S Head and Neck Injury Mitigation (HNIM), Joint Helmet Mounted Cueing System (JHMCS), and Next Generation Survival Radio (NGSR).					
Title: Aircraft Systems Development	1.770	2.196	2.210	0.000	2.210
Articles:	-	-	-	-	-
Description: Aircraft Systems includes Advanced Crash Protection, State of the Art (SOA), and Survival Systems.					
FY 2022 Plans: State of the Art (SOA): Continue a yearly evaluation and authorization of survival, clothing, and other aircrew systems items. Provide identification, testing, and approval of items that provide up-to-date technology to fill capability gaps, improve aircrew endurance, improve aircrew performance and safety, and enhance survivability.					
FY 2023 Base Plans: State of the Art (SOA): Continue a yearly evaluation on the performance of survival systems, identify capability gaps, and execute efforts to increase endurance, safety, and survivability.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: Increase from FY2022 to FY2023 is due to changes in support and working capital fund rates.					
Accomplishments/Planned Programs Subtotals	15.935	17.672	35.802	0.000	35.802

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/4268: Aviation Life Support	22.180	34.451	45.855	-	45.855	49.235	50.537	53.878	54.008	Continuing	Continuing
• APN/0575: Aviation Life Support Mods	45.333	2.477	1.143	-	1.143	5.362	6.092	6.107	6.441	61.354	210.303
Remarks	Note: Aviation Life Support is only a portion of OPN Line Item 4268.										

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development

D. Acquisition Strategy

Leverage Commercial-Off-The-Shelf/Non-Developmental Items where possible. Full and open competition, utilizing negotiated best value procedures, was utilized for the EVA engineering, development and manufacturing contract. Due to the technical complexity and uncertainty associated with design and development, EVA is utilizing a cost plus fixed fee contract. The LEP program has conducted a full and open competition resulting in the award of a Cost Plus Fixed Fee contract for development/Non-Recurring Engineering with Fixed Price options for production units and technical data. Due to low program risk, LEP was able to move from a phased LRIP procurement strategy to a single Full Rate Production approach that accelerates the fielding of LEP units.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development
--	--	---

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Systems Eng Laser Eye Protection (LEP)	WR	NAWCAD : Patuxent River, MD	13.547	0.908	Nov 2020	0.000		0.000		-		0.000	0.000	14.455	14.837
Systems Eng Laser Eye Protection (LEP)	C/FFP	NAVAIR : Patuxent River, MD	3.590	0.000		0.000		0.000		-		0.000	0.000	3.590	3.590
Systems Eng Aircrew Systems	WR	Various : Various	18.973	0.500	Dec 2020	3.626	Dec 2021	8.791	Dec 2022	-		8.791	Continuing	Continuing	Continuing
Systems Eng Aircraft Systems	WR	Various : Various	49.804	1.770	Dec 2020	2.196	Dec 2021	2.210	Nov 2022	-		2.210	Continuing	Continuing	Continuing
Systems Eng Enhanced Visual Acuity (EVA)	C/CPFF	NAVAIR : Patuxent River, MD	2.351	9.249	Nov 2020	6.929	Nov 2021	10.869	Nov 2022	-		10.869	Continuing	Continuing	Continuing
Systems Eng Enhanced Visual Acuity (EVA)	WR	NAWCAD : Patuxent River, MD	25.603	2.701	Nov 2020	4.871	Nov 2021	1.965	Nov 2022	-		1.965	Continuing	Continuing	Continuing
Systems Eng MH-60R/S Head and Neck Injury Mitigation (HNIM)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.650	Nov 2022	-		1.650	3.200	4.850	-
Systems Eng Joint Helmet Mounted Cueing System Replacement (JHMCS)	C/FFP	TBD : TBD	0.000	0.000		0.000		8.643	Dec 2022	-		8.643	5.411	14.054	-
Systems Eng Joint Helmet Mounted Cueing System Replacement (JHMCS)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.157	Nov 2022	-		1.157	2.405	3.562	-
Prior year Prod Dev cost no longer funded in the FYDP	Various	Various : Various	47.602	0.000		0.000		0.000		-		0.000	0.000	47.602	-
Subtotal			161.470	15.128		17.622		35.285		-		35.285	Continuing	Continuing	N/A

Remarks
 Increase of \$5.165M from FY22 to FY23 under Aircrew Systems SE (WR/Various) is to fund approved requirements for Next Generation Survival Radio (NGSR). Once contract vehicles have been approved by MDA, a more detailed plan for this program will be provided. Increase of \$3.94M from FY22 to FY23 under EVA SE (C/CPFF Contract) is due to scheduled delivery of four Engineering Mass Models and eight Engineering Development Models. Decrease of \$2.906M from FY22 to FY23 under EVA SE (WR/NAWC-AD) is due to transition to Procurement funding. Increase from FY22 to FY23 of \$1.65M under HNIM SE (WR/NAWC-AD), \$8.643M under JHMCS SE (C/FFP Contract), and \$1.157M under JHMCS SE (WR/NAWC-AD) is to fund those approved programs starting in FY23.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development
--	--	---

LEP Program	FY21				FY22				FY23				FY24				FY25				FY26				FY27			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Milestones Phases	MSC FRP DR				★ IOC																							
	Engineering and				Production and Deployment Phase																							
					Operations and Support Phase																							
Program Management	CARD/ LCCE				CARD/ LCCE																							
Contracts	Design and				FRP AWD				FRP Contract																			
Deliveries	RX Test Assets				Test Assets				FRP																			
Engineering	TRR/IPRR				SVR/PRR PCA																							
Logistics	ILA LRFS LCSP				Fielding Plan				ILA LCSP				MSD															
Test and Evaluation					DT-B1 Gov't Qual Test DT-B2 (VX-20) Ground Test DT-B2 (HX-21) Ground Test DT-B2 (VX-23) Ground Test DT-B2 (HX-21) Flight Test																							

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development
--	--	---

EVA Program	FY2021				FY2022				FY2023				FY2024				FY2025				FY2026				FY2027			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Milestones Phases	Engineering and Manufacturing Development												Production and Deployment															
Program Management	IBR △																											
Contracts																												
Deliveries																												
Engineering																												
Logistics																												
Test and Evaluation																												

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development
--	--	---

SOA Program	FY21				FY22				FY23				FY24				FY25				FY26				FY27							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Milestones Phases																																
Program Management				SOA Catalog Update △				SOA Catalog Update △				SOA Catalog Update △				SOA Catalog Update △				SOA Catalog Update △				SOA Catalog Update △				SOA Catalog Update △				SOA Catalog Update △
Contracts						RFI △		Procure Test Assets △		RFI △		Procure Test Assets △		RFI △		Procure Test Assets △		RFI △		Procure Test Assets △		RFI △		Procure Test Assets △		RFI △		Procure Test Assets △		RFI △		Procure Test Assets △
Deliveries								Test Asset Deliveries △				Test Asset Deliveries △				Test Asset Deliveries △				Test Asset Deliveries △				Test Asset Deliveries △				Test Asset Deliveries △				Test Asset Deliveries △
Engineering																																
Logistics																																
Test and Evaluation	Developmental Testing				Developmental Testing				Developmental Testing				Developmental Testing				Developmental Testing				Developmental Testing											
	Operational Testing				Operational Testing				Operational Testing				Operational Testing				Operational Testing				Operational Testing											
	Flight Clearance Testing				Flight Clearance Testing				Flight Clearance Testing				Flight Clearance Testing				Flight Clearance Testing				Flight Clearance Testing											

*SOA provides continual yearly identification, evaluation/testing, and authorization of items that provide up-to-date technology to fill capability gaps, improve aircrew endurance, improve aircrew performance and safety, and enhance survivability

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

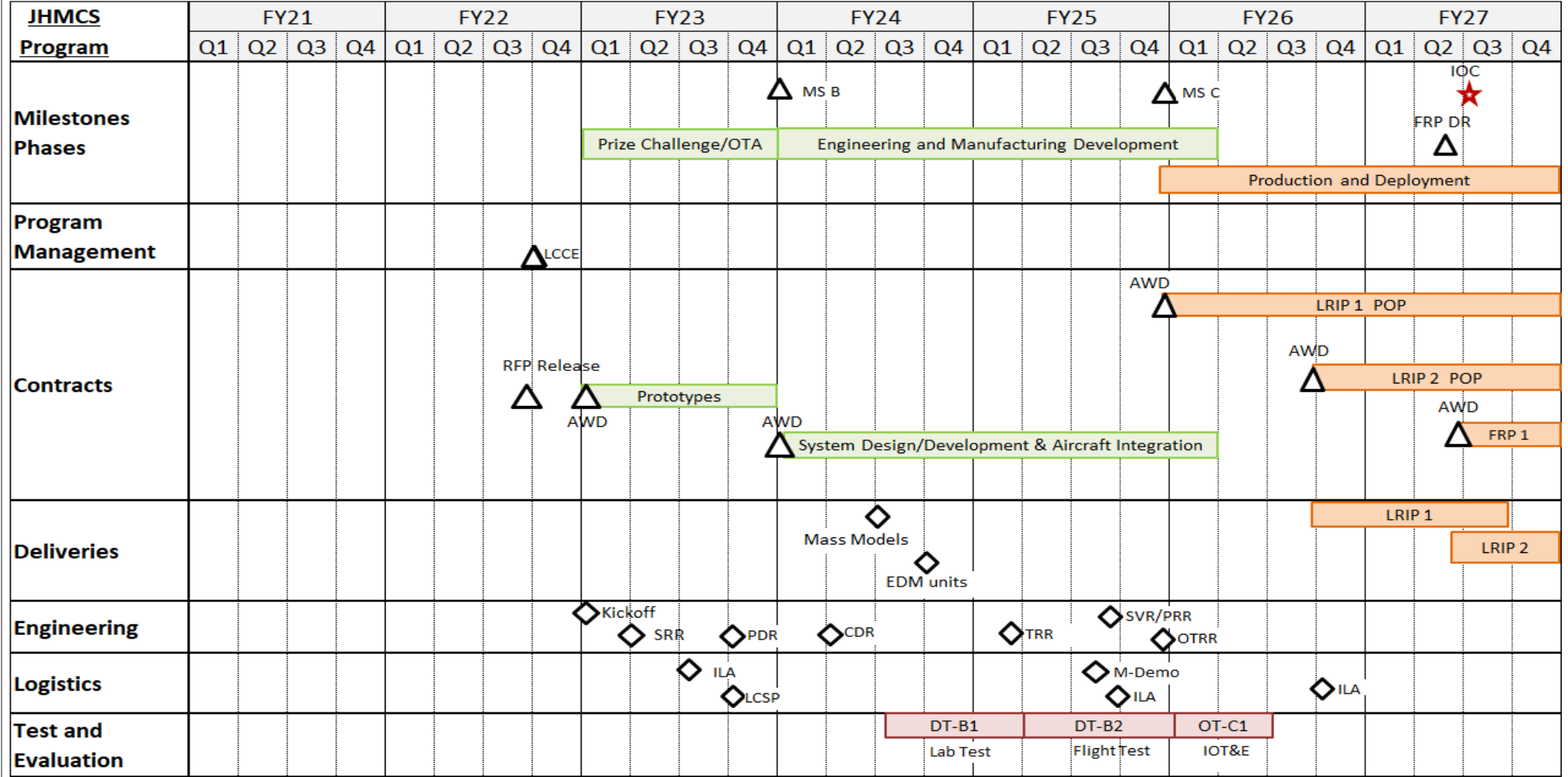
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development
--	--	---

HNIM Program	FY21				FY22				FY23				FY24				FY25				FY26				FY27															
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4												
Milestones Phases													△ MS C				★ IOC				△ FRP DR																			
	Engineering and Manufacturing Development												Production and Deployment																											
Program Management													△ IBR																											
Contracts	AWD												△ Design and Development				AWD				△ LRIP 1				AWD				△ LRIP 2				AWD				△ FRP			
													AWD				A-kit Modification H-60																							
Deliveries													4 Test Units				8 EDM units				4 OT-C1 units				LRIP 1 (150)				LRIP 2 (150)				FRP (240)							
Engineering													◇ PDR				◇ CDR				TRR				◇															
Logistics													◇ LCSP								◇ Maintenance Demo				◇ ILA															
Test and Evaluation													DT-B1 Lab/SIL/ Ground				Flight IT-B2				OT-C1				IT-C2 (H-60)															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development
--	--	---



UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Laser Eye Protection (LEP)				
Acquisition Milestones: Milestones: LEP Milestone C	4	2021	4	2021
Acquisition Milestones: Milestones: LEP FRP DR	4	2021	4	2021
Acquisition Milestones: Milestones: LEP IOC	3	2022	3	2022
Acquisition Milestones: Phases: LEP Engineering & Manufacturing Development Phase	1	2021	4	2021
Acquisition Milestones: Phases: LEP Production & Deployment Phase	4	2021	4	2024
Acquisition Milestones: Phases: LEP Operations & Support Phase	4	2022	4	2025
System Development: Reviews: LEP TRR	4	2021	4	2021
System Development: Reviews: LEP SVR/PRR	1	2022	1	2022
System Development: Reviews: LEP PCA	3	2022	3	2022
System Development: Reviews: LEP MSD	4	2024	4	2024
Test & Evaluation: DT	3	2021	3	2021
Production Milestones: Contract Awards: LEP FRP (OPN)	4	2021	4	2021
Deliveries: LEP EMD	2	2021	3	2021
Deliveries: LEP FRP	3	2022	1	2024
Enhanced Visual Acuity (EVA)				
Acquisition Milestones: Milestones: EVA Milestone C	4	2024	4	2024
Acquisition Milestones: Milestones: EVA IOC	2	2026	2	2026
Acquisition Milestones: Milestones: EVA FRP DR	3	2026	3	2026
Acquisition Milestones: Phases: EVA Engineering & Manufacturing Development Phase	1	2021	4	2024
Acquisition Milestones: Phases: EVA Production & Deployment Phase	1	2025	4	2027

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 0606 / <i>Aircrew System Development</i>
--	---	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
System Development: Reviews: EVA PDR	1	2022	1	2022
System Development: Reviews: EVA CDR	4	2022	4	2022
System Development: Reviews: EVA TRR	1	2024	1	2024
System Development: Reviews: EVA SVR/PRR	3	2024	3	2024
System Development: Reviews: EVA OTRR	4	2024	4	2024
System Development: Reviews: EVA PCA	4	2025	4	2025
Test and Evaluation: EVA Developmental Testing DT-B1	2	2023	4	2023
Test and Evaluation: EVA Integrated Testing IT-B2	1	2024	3	2024
Test and Evaluation: EVA Integrated Testing IT-C2	2	2026	4	2026
Test and Evaluation: EVA Integrated Testing IT-C3	2	2027	3	2027
Test and Evaluation: EVA Operational Testing OT-C1	2	2025	4	2025
Production Milestones: Contract Awards: EVA LRIP 1 (OPN)	4	2024	4	2024
Production Milestones: Contract Awards: EVA LRIP 2 (OPN)	1	2026	1	2026
Production Milestones: Contract Awards: EVA FRP (OPN)	1	2027	1	2027
Deliveries: EVA Mass Models	2	2023	2	2023
Deliveries: EVA EDM (QTY 8)	2	2023	3	2023
Deliveries: EVA EDM (QTY 4)	2	2024	2	2024
Deliveries: EVA LRIP 1	1	2026	1	2027
Deliveries: EVA LRIP 2	1	2027	4	2027
State of the Art (SOA)				
Program Management: Milestones: SOA FY21 Catalog Update	4	2021	4	2021
Program Management: Milestones: SOA FY22 Catalog Update	4	2022	4	2022
Program Management: Milestones: SOA FY23 Catalog Update	4	2023	4	2023
Program Management: Milestones: SOA FY24 Catalog Update	4	2024	4	2024
Program Management: Milestones: SOA FY25 Catalog Update	4	2025	4	2025

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 0606 / <i>Aircrew System Development</i>
--	---	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Program Management: Milestones: SOA FY26 Catalog Update	4	2026	4	2026
Program Management: Milestones: SOA FY27 Catalog Update	4	2027	4	2027
Program Management: Milestones: SOA FY21 Requirements Identification	4	2021	4	2021
Program Management: Milestones: SOA FY22 Requirements Identification	4	2022	4	2022
Program Management: Milestones: SOA FY23 Requirements Identification	4	2023	4	2023
Program Management: Milestones: SOA FY24 Requirements Identification	4	2024	4	2024
Program Management: Milestones: SOA FY25 Requirements Identification	4	2025	4	2025
Program Management: Milestones: SOA FY26 Requirements Identification	4	2026	4	2026
Program Management: Milestones: SOA FY27 Requirements Identification	4	2027	4	2027
Contracts: Milestones: SOA FY22 RFI	1	2022	1	2022
Contracts: Milestones: SOA FY23 RFI	1	2023	1	2023
Contracts: Milestones: SOA FY24 RFI	1	2024	1	2024
Contracts: Milestones: SOA FY25 RFI	1	2025	1	2025
Contracts: Milestones: SOA FY26 RFI	1	2026	1	2026
Contracts: Milestones: SOA FY27 RFI	1	2027	1	2027
Contracts: Milestones: SOA FY22 Procure Test Assets	1	2022	1	2022
Contracts: Milestones: SOA FY23 Procure Test Assets	2	2023	2	2023
Contracts: Milestones: SOA FY24 Procure Test Assets	2	2024	2	2024
Contracts: Milestones: SOA FY25 Procure Test Assets	2	2025	2	2025
Contracts: Milestones: SOA FY26 Procure Test Assets	2	2026	2	2026
Contracts: Milestones: SOA FY27 Procure Test Assets	2	2027	2	2027
Deliveries: Milestones: SOA FY22 Test Assets Delivery	2	2022	2	2022
Deliveries: Milestones: SOA FY23 Test Assets Delivery	2	2023	2	2023
Deliveries: Milestones: SOA FY24 Test Assets Delivery	2	2024	2	2024
Deliveries: Milestones: SOA FY25 Test Assets Delivery	2	2025	2	2025

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 0606 / <i>Aircrew System Development</i>
--	---	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: Milestones: SOA FY26 Test Assets Delivery	2	2026	2	2026
Deliveries: Milestones: SOA FY27 Test Assets Delivery	2	2027	2	2027
Test & Evaluation: SOA FY21 Developmental Testing	1	2021	4	2021
Test & Evaluation: SOA FY21 Operational Testing	1	2021	4	2021
Test & Evaluation: SOA FY21 Flight Clearance Testing	1	2021	4	2021
Test & Evaluation: SOA FY22 Developmental Testing	1	2022	4	2022
Test & Evaluation: SOA FY22 Operational Testing	1	2022	4	2022
Test & Evaluation: SOA FY22 Flight Clearance Testing	1	2022	4	2022
Test & Evaluation: SOA FY23 Developmental Testing	1	2023	4	2023
Test & Evaluation: SOA FY23 Operational Testing	1	2023	4	2023
Test & Evaluation: SOA FY23 Flight Clearance Testing	1	2023	4	2023
Test & Evaluation: SOA FY24 Developmental Testing	1	2024	4	2024
Test & Evaluation: SOA FY24 Operational Testing	1	2024	4	2024
Test & Evaluation: SOA FY24 Flight Clearance Testing	1	2024	4	2024
Test & Evaluation: SOA FY25 Developmental Testing	1	2025	4	2025
Test & Evaluation: SOA FY25 Operational Testing	1	2025	4	2025
Test & Evaluation: SOA FY25 Flight Clearance Testing	1	2025	4	2025
Test & Evaluation: SOA FY26 Developmental Testing	1	2026	4	2026
Test & Evaluation: SOA FY26 Operational Testing	1	2026	4	2026
Test & Evaluation: SOA FY26 Flight Clearance Testing	1	2026	4	2026
Test & Evaluation: SOA FY27 Developmental Testing	1	2027	4	2027
Test & Evaluation: SOA FY27 Operational Testing	1	2027	4	2027
Test & Evaluation: SOA FY27 Flight Clearance Testing	1	2027	4	2027
<i>MH-60 R/S Head & Neck Injury Mitigation (HNIM)</i>				
Acquisition Milestones: Milestones: HNIM Milestone C	2	2025	2	2025

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy			Date: April 2022	
Appropriation/Budget Activity	R-1 Program Element (Number/Name)		Project (Number/Name)	
1319 / 5	PE 0604264N / Air Crew Systems Development		0606 / Aircrew System Development	
Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: Milestones: HNIM IOC	1	2026	1	2026
Acquisition Milestones: Milestones: HNIM FRP DR	1	2027	1	2027
Acquisition Milestones: Phases: HNIM Engineering & Manufacturing Development Phase	1	2023	1	2025
Acquisition Milestones: Phases: HNIM Production & Deployment Phase	2	2025	4	2027
System Development: Reviews: HNIM PDR	4	2023	4	2023
System Development: Reviews: HNIM CDR	1	2024	1	2024
System Development: Reviews: HNIM TRR	4	2024	4	2024
Test and Evaluation: HNIM Developmental Testing DT-B1	4	2023	2	2024
Test and Evaluation: HNIM Integrated Testing IT-B2	3	2024	1	2025
Test and Evaluation: HNIM Operational Testing OT-C1	2	2025	3	2025
Test and Evaluation: HNIM Integrated Testing IT-C2	1	2026	2	2026
Production Milestones: Contract Awards: HNIM Design and Development Contract	1	2023	1	2023
Production Milestones: Contract Awards: HNIM LRIP 1 (OPN)	2	2025	2	2025
Production Milestones: Contract Awards: HNIM LRIP 2 (OPN)	2	2026	2	2026
Production Milestones: Contract Awards: HNIM A-Kit Mod H-60 Award	3	2026	3	2026
Production Milestones: Contract Awards: HNIM FRP 1 (OPN)	2	2027	2	2027
Deliveries: HNIM Test Units	4	2023	4	2023
Deliveries: HNIM EDM Units	2	2024	2	2024
Deliveries: HNIM OT-C1 Units	4	2024	1	2025
Deliveries: HNIM LRIP 1	4	2025	4	2026
Deliveries: HNIM LRIP 2	4	2026	4	2027
Deliveries: HNIM FRP	4	2027	4	2027
JHMCS (Joint Helmet Mounted Cueing System)				
Acquisition Milestones: Milestones: JHMCS Milestone B	1	2024	1	2024
Acquisition Milestones: Milestones: JHMCS Milestone C	4	2025	4	2025

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 0606 / <i>Aircrew System Development</i>
--	---	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: Milestones: JHMCS FRP DR	2	2027	2	2027
Acquisition Milestones: Milestones: JHMCS IOC	3	2027	3	2027
Acquisition Milestones: Phases: JHMCS Prize Challenge/OTA Phase	1	2023	4	2023
Acquisition Milestones: Phases: JHMCS Engineering & Manufacturing Development Phase	1	2024	1	2026
Acquisition Milestones: Phases: JHMCS Production & Deployment Phase	4	2025	4	2027
System Development: Reviews: JHMCS Kickoff	1	2023	1	2023
System Development: Reviews: JHMCS SRR	2	2023	2	2023
System Development: Reviews: JHMCS PDR	4	2023	4	2023
System Development: Reviews: JHMCS CDR	2	2024	2	2024
System Development: Reviews: JHMCS TRR	1	2025	1	2025
System Development: Reviews: JHMCS SVR/PRR	3	2025	3	2025
System Development: Reviews: JHMCS OTRR	4	2025	4	2025
Test and Evaluation: JHMCS Developmental Testing DT-B1	3	2024	2	2025
Test and Evaluation: JHMCS Developmental Testing DT-B2	2	2025	1	2026
Test and Evaluation: JHMCS Operational Testing OT-C1	1	2026	3	2026
Production Milestones: Contract Awards: JHMCS Prototypes	1	2023	1	2023
Production Milestones: Contract Awards: JHMCS System Design/Development & Aircraft Integration	1	2024	1	2024
Production Milestones: Contract Awards: JHMCS LRIP 1 (OPN)	4	2025	4	2025
Production Milestones: Contract Awards: JHMCS LRIP 2 (OPN)	3	2026	3	2026
Production Milestones: Contract Awards: JHMCS FRP 1 (OPN)	2	2027	2	2027
Deliveries: JHMCS Mass Models	3	2024	3	2024
Deliveries: JHMCS EDM Units	4	2024	4	2024
Deliveries: JHMCS LRIP 1	3	2026	3	2027
Deliveries: JHMCS LRIP 2	2	2027	4	2027

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 9099 / <i>Physiological Episodes</i>
--	---	--

COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
9099: <i>Physiological Episodes</i>	0.000	4.805	3.074	7.480	-	7.480	7.823	6.956	5.398	5.239	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Proj 9099 PHYSIOLOGICAL EPISODES:

Physiological Episodes includes Physiological Monitoring (PhysMon) and Physiological Episodes (PE).

PhysMon: This program provides funding to assure pilot performance integrity by developing and fielding a system that monitors pilot physiological parameters and warns of state of health or performance degradation that may result in loss of consciousness or the ability to safely conduct flight. There are several solutions undergoing evaluation.

PE: Force Protection. The PE Root Cause & Corrective Action (RCCA) determined that an improved helmet mask/regulator system was required to mitigate PE. This program determines what improvements are needed and develops the material solution. Through RCCA, it has been determined that measuring the gas contents and pressure within the oxygen mask is a key part to understanding a sub-set of physiological conditions of Naval Aviators in flight. The integration of a single piece of hardware containing an oxygen sensor, a carbon dioxide sensor, and a mask pressure sensor into the Navy's existing MBU-23 oxygen mask assembly to collect data will inform a helmet mask/regulator system redesign, and improvements covered under this issue. The closeout of RCCA action items is paramount to the Naval Aviation Enterprise's efforts in mitigating PE, restoring confidence in the aircraft, and most importantly, keeping our USN and USMC aircrew safe.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Physiological Monitoring	4.805	3.074	7.480	0.000	7.480
Articles:	-	-	-	-	-
FY 2022 Plans:					
PhysMon: Mitigate risk of loss of aircrew and Tactical and Training jet platforms due to Physiological Episodes using a monitoring and alert system(s). Develop, prototype, and test a physiological monitoring system that detects physiological episodes and provides a warning in time to enable the aircrew to execute emergency procedures and recover safely. Meet Milestone C requirements for single sensor unit and award LRIP 1 contract. Down selection of prototypes for integrated system will occur this FY.					
PE: Continuation of CRADA efforts established in FY21 with the purpose of developing an in-mask sensor to aid requirements definition, technology maturation and risk reduction.					
FY 2023 Base Plans:					
PhysMon: Award integration contract and begin development of integrated system. Award LRIP 2 production contract.					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 9099 / Physiological Episodes

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
PE: Award EMD contract for an improved mask, regulator, and helmet system to comply with the RCCA recommendations and mitigate Physiological Episodes. FY 2023 OCO Plans: N/A FY 2022 to FY 2023 Increase/Decrease Statement: Increase from FY22 to FY23 is due to approved Department of the Navy requirements to address and correct the Root Cause & Corrective Action (RCCA) Action Items necessary to adequately mitigate PE risk.					
Accomplishments/Planned Programs Subtotals	4.805	3.074	7.480	0.000	7.480

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/4268: Aviation Life Support	0.000	3.600	4.300	-	4.300	9.900	10.373	22.300	29.700	Continuing	Continuing

Remarks
Note: Physiological Monitoring and Root Cause & Corrective Action (RCCA) is only a portion of Aviation Life Support, LI 4268.

D. Acquisition Strategy
PhysMon: Of the six prototyping contracts awarded using Other Transaction Authority (OTA) through the Army Contracting Command (ACC NJ) via the Defense Innovation Unit (DIU), four OTAs remain as candidates for integration and production follow-on; strategy will depend on further prototyping results.
PE: Cooperative Research and Development Agreements (CRADAs) have been established with the purpose of developing an in-mask sensor to aid requirements definition for the PE RCCA new helmet/mask/regulator program. An EMD contract would follow utilizing full and open competition.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 9099 / Physiological Episodes
--	--	---

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Systems Eng Physiological Episodes	WR	Various : Various	0.000	0.207	Dec 2020	0.213	Dec 2021	0.220	Dec 2022	-		0.220	Continuing	Continuing	Continuing
Systems Eng Physiological Episodes	WR	NAWCAD : Patuxent River, MD	0.000	4.598	Nov 2020	2.416	Nov 2021	7.260	Nov 2022	-		7.260	Continuing	Continuing	Continuing
Subtotal			0.000	4.805		2.629		7.480		-		7.480	Continuing	Continuing	N/A

Remarks
Increase of \$4.844M from FY22 to FY23 under Physiological Episodes SE (WR/NAWCAD) is due to Naval Aviation requirements to address and correct the Root Cause & Corrective Action (RCCA) Action Items necessary to adequately mitigate PE risk.

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
T&E Physiological Episodes	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.445	Nov 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.445		0.000		-		0.000	Continuing	Continuing	N/A

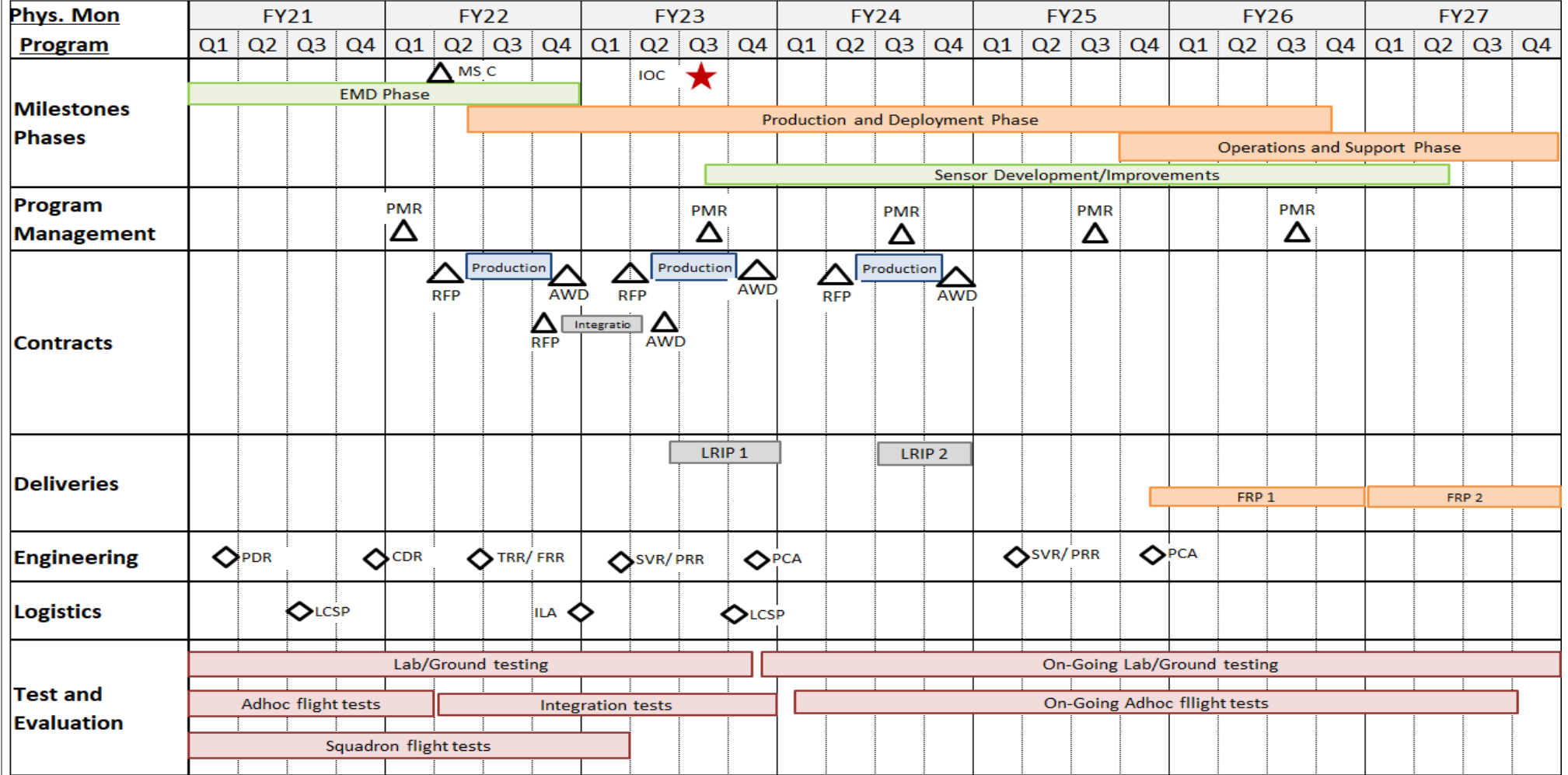
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	4.805	3.074	7.480	-	7.480	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 9099 / Physiological Episodes
--	--	---



UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 9099 / Physiological Episodes
--	--	---

PE Program	FY21				FY22				FY23				FY24				FY25				FY26				FY27						
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Milestones Phases									MS B									MS C					IOC								
Program Management									PMR					PMR					PMR					PMR							
Contracts									RFP	EMD	AWD									RFP	Production	AWD									
Deliveries																	Test Assets									LRIP 1	LRIP 2				
Engineering					SFR	PDR					PDR	CDR	TRR/ FRR					SVR/ PRR	PCA												
Logistics													LCSP					ILA					LCSP								
Test and Evaluation																	Lab/Ground testing					Flight tests					Squadron flight tests				

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 9099 / <i>Physiological Episodes</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Physiological Monitoring</i>				
Acquisition Milestones: Milestones: PM Milestone C	2	2022	2	2022
Acquisition Milestones: Milestones: PM IOC	3	2023	3	2023
Acquisition Milestones: Phases: PM Engineering & Manufacturing Development Phase	1	2021	4	2022
Acquisition Milestones: Phases: PM Production & Deployment Phase	2	2022	4	2026
Acquisition Milestones: Phases: PM Operations & Support Phase	3	2025	4	2027
System Development: Reviews: PM PDR	1	2021	1	2021
System Development: Reviews: PM CDR	4	2021	4	2021
System Development: Reviews: PM TRR/FRR	2	2022	2	2022
System Development: Reviews: PM SVR/PRR 1	1	2023	1	2023
System Development: Reviews: PM SVR/PRR 2	1	2023	1	2023
System Development: Reviews: PM PCA 1	4	2023	4	2023
System Development: Reviews: PM PCA 2	4	2025	4	2025
Test & Evaluation: PM Lab/Ground Testing	1	2021	4	2023
Test & Evaluation: PM Adhoc Flight Tests	1	2021	1	2022
Test & Evaluation: PM Squadron Flight Tests	1	2021	1	2023
Test & Evaluation: PM Integration Tests	2	2022	4	2023
Test & Evaluation: PM Ongoing Lab/Ground Testing	4	2023	4	2027
Test & Evaluation: PM Ongoing Adhoc Flight Tests	1	2024	4	2027
Production Milestones: Contract Award: PM Integration Contract Award	2	2023	2	2023
Production Milestones: Contract Award: PM Production Contract Award 1	4	2022	4	2022
Production Milestones: Contract Award: PM Production Contract Award 2	4	2023	4	2023

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 9099 / Physiological Episodes
--	--	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Milestones: Contract Award: PM Production Contract Award 3	4	2024	4	2024
Deliveries: PM LRIP 1 (OPN)	2	2023	1	2024
Deliveries: PM LRIP 2 (OPN)	3	2024	4	2024
Deliveries: PM FRP 1	4	2025	4	2026
Deliveries: PM FRP 2	1	2027	4	2027
Physiological Episodes				
Acquisition Milestones: Milestones: PE Milestone B	4	2022	4	2022
Acquisition Milestones: Milestones: PE Milestone C	1	2026	1	2026
Acquisition Milestones: Milestones: PE IOC	4	2027	4	2027
Acquisition Milestones: Phases: PE Tech Maturation & Risk Reduction Phase	2	2021	4	2022
Acquisition Milestones: Phases: PE Engineering & Manufacturing Development Phase	1	2023	4	2025
Acquisition Milestones: Phases: PE Production & Deployment Phase	3	2024	4	2027
Acquisition Milestones: Phases: PE Operations & Support Phase	4	2026	4	2027
System Development: Reviews: PE SFR	4	2021	4	2021
System Development: Reviews: PE PDR 1	2	2022	2	2022
System Development: Reviews: PE PDR 2	2	2023	2	2023
System Development: Reviews: PE CDR	4	2023	4	2023
System Development: Reviews: PE TRR/FRR	3	2024	3	2024
System Development: Reviews: PE SVR/PRR	1	2025	1	2025
System Development: Reviews: PE PCA	4	2025	4	2025
Test & Evaluation: PE Lab/Ground Testing	1	2024	4	2024
Test & Evaluation: PE Flight Tests	4	2024	1	2026
Test & Evaluation: PE Squadron Flight Tests	2	2026	2	2027
Production Milestones: Contract Award: PE EMD Contract Award	2	2023	2	2023
Production Milestones: Contract Award: PE Production Contract Award	2	2026	2	2026

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 9099 / <i>Physiological Episodes</i>
--	---	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: PE Test Assets	2	2024	3	2024
Deliveries: PE LRIP 1 (OPN)	4	2026	3	2027
Deliveries: PE LRIP 2 (OPN)	3	2027	4	2027