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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0303354N / <i>ASW Systems Development - MIP</i>
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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	72.811	9.151	8.536	9.856	-	9.856	10.149	10.115	10.256	10.370	Continuing	Continuing
0490: <i>Airborne Acoustic Intelligence (AAI)</i>	72.811	9.151	8.536	9.856	-	9.856	10.149	10.115	10.256	10.370	Continuing	Continuing

A. Mission Description and Budget Item Justification

The mission of Airborne ASW Intelligence (AAI) (CNO Project K-0416) is to provide advanced Anti-Submarine Warfare (ASW) capabilities through rapid development of new technology and prototype mechanisms for the collection and analysis of ASW related intelligence. This includes full spectrum intelligence collections, analysis, and cataloging of current peer and near peer adversaries. The program develops and swiftly deploys disruptive technologies to counter emerging threats in order to maintain the United States' current undersea warfare superiority. AAI employs the capability to quickly collect, reconstruct, and analyze passive and active measurements of current generation and next generation submarine vulnerabilities providing actionable intelligence to fleet commanders and the Intelligence Community (IC). The AAI data collection program provides full spectrum, measured intelligence data essential for the design and development of advanced sensors, weapon systems, environmental models, and tactical decision aids. AAI collection systems are installed and employed on uniquely configured platforms, specially configured ground support facilities, ships, and other assets as required for the collection, processing, exfiltration, and dissemination of undersea intelligence. AAI develops advanced components and system prototype for advanced detection and tracking systems, specially designed sensors, advanced processing systems and techniques, and specially derived tactics.

This is a Military Intelligence Program (MIP).

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	9.151	8.571	0.000	-	0.000
Current President's Budget	9.151	8.536	9.856	-	9.856
Total Adjustments	0.000	-0.035	9.856	-	9.856
• Congressional General Reductions	-	-0.035			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	0.000	-	0.000

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• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	9.856	-	9.856

Change Summary Explanation

 FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

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Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0303354N / ASW Systems Development - MIP				Project (Number/Name) 0490 / Airborne Acoustic Intelligence (AAI)			
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
0490: Airborne Acoustic Intelligence (AAI)	72.811	9.151	8.536	9.856	-	9.856	10.149	10.115	10.256	10.370	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The mission of Airborne ASW Intelligence (AAI) (CNO Project K-0416) is to provide advanced Anti-Submarine Warfare (ASW) capabilities through rapid development of new technology and prototype mechanisms for the collection and analysis of ASW related intelligence. This includes full spectrum intelligence collections, analysis, and cataloging of current peer and near peer adversaries. The program develops and swiftly deploys disruptive technologies to counter emerging threats in order to maintain the United States' current undersea warfare superiority. AAI employs the capability to quickly collect, reconstruct, and analyze passive and active measurements of current generation and next generation submarine vulnerabilities providing actionable intelligence to fleet commanders and the Intelligence Community (IC). The AAI data collection program provides full spectrum, measured intelligence data essential for the design and development of advanced sensors, weapon systems, environmental models, and tactical decision aids. AAI collection systems are installed and employed on uniquely configured platforms, specially configured ground support facilities, ships, and other assets as required for the collection, processing, exfiltration, and dissemination of undersea intelligence. AAI develops advanced components and system prototype for advanced detection and tracking systems, specially designed sensors, advanced processing systems and techniques, and specially derived tactics.

This is a Military Intelligence Program (MIP).

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Systems Engineering / Active Acoustic Program	1.426	1.445	1.559	0.000	1.559
Articles:	-	-	-	-	-
FY 2022 Plans:					
Engineering support of Acoustic Intelligence (ACINT) Collection Sensors and Systems as well as Anti-Submarine Warfare Mission Planning and Reconstruction System (AMPRS) for certified AAI collection platforms and management of full spectrum database. Engineering support for design upgrades to ACINT Collection Suites for certified AAI collection platforms. Enhance P-8 aircraft adjunct sensor station for prototyping of in-flight analysis and dissemination of ACINT. Continue evaluation of Fleet software releases for Office of Naval Intelligence (ONI) certification aboard ASW collection platforms. Continue upgrades and development of hardware and software for unique airborne avionics and sensors. Continue fielding Airborne Collection Suite (ACS) kits in support of P-8A deployments.					
FY 2023 Base Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Continue engineering support of ACINT as well as AMPRS for certified AAI collection platforms and management of full spectrum database. Engineering support for design upgrades to ACINT Collection Suites for certified AAI collection platforms. Enhance P-8 aircraft adjunct sensor station, Mighty Orion (MO), for prototyping of in-flight analysis and dissemination of ACINT. Continue evaluation of Fleet software releases for ONI certification aboard ASW collection platforms. Continue upgrades and development of hardware and software for unique airborne avionics and sensors. Continue fielding ACS kits in support of P-8A deployments.</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: The Systems Engineering Cost has been increased to provide hardware solutions to support the increase in ACINT data package delivery.</p>					
<p>Title: Data Collection and Analysis</p> <p align="right">Articles:</p> <p>FY 2022 Plans: Data collection support at Operational Wings and Tactical ASW commands. Ongoing collection of high interest current and future generation target acoustic data in support of Measurement and Signatures Intelligence(MASINT)/Office of Naval Intelligence (ONI) threat assessment and trend analysis requirements for further development of future USN Undersea Warfare Warfighting (USW) capabilities. Characterization, analysis, and certification of the upgraded Fleet MASINT collection assets. Data reduction, Analysis and Fleet Rapid Feedback. Conduct special operations support. Provide essential performance modeling and evaluation for advanced technology sensor systems design and Fleet tactics development. Develop in mission and post mission analysis hardware, software, and processes in response to evolving enemy capabilities.</p> <p>FY 2023 Base Plans: Data collection support at Operational Wings and Tactical ASW commands. Ongoing collection of high interest current and future generation target acoustic data in support of MASINT/ONI threat assessment and trend analysis requirements for further development of future USN USW capabilities. Characterization, analysis and certification of the upgraded Fleet MASINT collection assets. Data reduction, Analysis and Fleet Rapid Feedback. Conduct special operations support. Provide essential performance modeling and evaluation for</p>	1.120	1.143	1.248	0.000	1.248
	-	-	-	-	-

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Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0303354N / ASW Systems Development - MIP	Project (Number/Name) 0490 / Airborne Acoustic Intelligence (AAI)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>advanced technology sensor systems design and Fleet tactics development. Develop in mission and post mission analysis hardware, software, and processes in response to evolving enemy capabilities.</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: The Ancillary Hardware Development cost has been increased to allow for the development of additional ACINT data packages.</p>					
<p>Title: Active Measurement Validation</p> <p align="right">Articles:</p> <p>FY 2022 Plans: Active Measurement Validation of targets of interest effort complete.</p> <p>FY 2023 Base Plans: N/A</p> <p>FY 2023 OCO Plans: N/A</p>	0.148	0.000	0.000	0.000	0.000
	-	-	-	-	-
<p>Title: Navy Underwater Active Multiple Ping (NUAMP) Product Development</p> <p align="right">Articles:</p> <p>FY 2022 Plans: Continue sonic frequency design, development, integration, and test for remaining sonic frequencies of the NUAMP sonobuoy family. Procure prototype systems for data collection activities.</p> <p>FY 2023 Base Plans: NUAMP effort is transitioning from the sonic frequency design and development efforts and is purchasing Research and Development assets for the collection of active target strength measurements and data.</p> <p>FY 2023 OCO Plans: NA</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement:</p>	5.209	3.757	2.719	0.000	2.719
	-	-	-	-	-

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Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0303354N / ASW Systems Development - MIP	Project (Number/Name) 0490 / Airborne Acoustic Intelligence (AAI)			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
The decrease in funding is because the NUAMP effort is transitioning from the design and development efforts and is purchasing Research and Development assets for collection of active target strength measurements.					
Title: Passive Extended Range Sonobuoy System (PERSS) Product Development					
Articles:					
	1.248	2.191	3.330	0.000	3.330
	-	-	-	-	-
FY 2022 Plans: Continue development of disruptive innovative sensors required for the PERSS System of Systems by experimenting and prototyping in a high fidelity and realistic operating environment. Transition various laboratory sonobuoy subsystems by proving the subsystems maturity in real world environments. Perform risk reduction technology demonstration efforts using high gain beamforming sonobuoy transducer assemblies. Transition Extended Range - Directional Frequency and Recording (ER-DIFAR) Office of Naval Research (ONR) Future Naval Capability (FNC) to AAI Program of Record for platform integration. ER-DIFAR IOC FY 2025.					
FY 2023 Base Plans: Continue development of disruptive innovative sensors required for the PERSS System of Systems by experimenting and prototyping in a high fidelity and realistic operating environment. Transition various laboratory sonobuoy subsystems by proving the subsystems maturity in real world environments. Perform risk reduction technology demonstration efforts using high gain beamforming sonobuoy transducer assemblies. The transition of Extended Range - Directional Frequency and Recording (ER-DIFAR) Office of Naval Research (ONR) Future Naval Capability (FNC) to AAI Program of Record for platform integration will occur in FY 2023. ER-DIFAR IOC FY 2025.					
FY 2023 OCO Plans: NA					
FY 2022 to FY 2023 Increase/Decrease Statement: Increase is due to the program ramp up of ER-DIFAR for integration effort and will be performing additional qualification tests on ER-DIFAR sonobuoys.					
Title: Furious Krypton					
Articles:					
	0.000	0.000	1.000	0.000	1.000
	-	-	-	-	-
FY 2022 Plans: NA					
FY 2023 Base Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Furious Krypton: Demonstration of disruptive innovative method to provide Tactical ASW data to multiple users both Beyond Line of Sight (BLOS) and via Satellite Communications (SATCOM). FY 2023 OCO Plans: NA FY 2022 to FY 2023 Increase/Decrease Statement: Resume Furious Krypton in accordance with established funding profile.					
Accomplishments/Planned Programs Subtotals	9.151	8.536	9.856	0.000	9.856

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

N/A

Remarks

D. Acquisition Strategy

Airborne ASW Intelligence (AAI) is a CNO Special Project. The included technology developments are primarily in-house with contractor participation through existing vehicles. FY23 continuation of Furious Krypton in accordance with funding profile. Furious Krypton will be completed by 4th quarter of FY2024.

The change in delivery of prototypes depicted in the R4 and R4A is a result of the following: During the Design Development, Integration and Test efforts of the Naval Underwater Active Multi-Ping (NUAMP) sonobuoys required 180 items per NUAMP variant being tested. These items were consumed for air worthiness and developmental testing. The program plan calls for one Lot of NUAMP sonobuoys per annum to meet the fleet need for NUAMP data collection events beginning in FY21 and continuing into the out years.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy											Date: April 2022				
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0303354N / ASW Systems Development - MIP					Project (Number/Name) 0490 / Airborne Acoustic Intelligence (AAI)				

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Active Measurement Validation	WR	NAWCAD : PATUXENT RIVER, MD	2.320	0.148	Dec 2020	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Ancillary Hdw Development	WR	NAWCAD : PATUXENT RIVER, MD	7.529	0.525	Dec 2020	0.325	Dec 2021	0.429	Dec 2022	-		0.429	Continuing	Continuing	Continuing
Ancillary Hdw Development Cont	Various	VARIOUS : VARIOUS	3.324	0.612	Dec 2020	1.280	Dec 2021	1.798	Dec 2022	-		1.798	Continuing	Continuing	Continuing
Systems Eng	WR	NAWCAD : PATUXENT RIVER, MD	7.849	0.699	Dec 2020	0.703	Dec 2021	0.741	Dec 2022	-		0.741	Continuing	Continuing	Continuing
Systems Eng Cost	Various	VARIOUS : VARIOUS	4.498	0.727	Dec 2020	1.169	Dec 2021	1.277	Dec 2022	-		1.277	0.000	7.671	-
Primary Hdw Development	SS/CPIF	ERAPSCO : COLUMBIA CITY, IN	42.213	6.182	Dec 2020	4.801	Dec 2021	5.344	Dec 2022	-		5.344	Continuing	Continuing	Continuing
Subtotal			67.733	8.893		8.278		9.589		-		9.589	Continuing	Continuing	N/A

Remarks
 The Ancillary/Primary Hardware Development Continued and the Systems Engineering Continued categories increase in FY 2023 in accordance with the increase in PERSS efforts. The Ancillary Hardware Development cost has been increased to allow for the development of additional ACINT data packages. The Systems Engineering cost has been increased to provide hardware solutions to support the increase in ACINT data package delivery.

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Mgt & Prof Spt Svcs (Non-FFRDC)	Various	VARIOUS : VARIOUS	4.089	0.213	Dec 2020	0.213	Dec 2021	0.217	Dec 2022	-		0.217	Continuing	Continuing	Continuing
Travel	Various	VARIOUS : VARIOUS	0.370	0.045	Dec 2020	0.045	Dec 2021	0.050	Dec 2022	-		0.050	Continuing	Continuing	Continuing
Prior year Mgmt Svcs no longer funded in the FYDP	Various	VARIOUS : VARIOUS	0.619	0.000		0.000		0.000		-		0.000	0.000	0.619	-
Subtotal			5.078	0.258		0.258		0.267		-		0.267	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy							Date: April 2022				
Appropriation/Budget Activity 1319 / 4			R-1 Program Element (Number/Name) PE 0303354N / ASW Systems Development - MIP				Project (Number/Name) 0490 / Airborne Acoustic Intelligence (AAI)				

	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	72.811	9.151	8.536	9.856	-	9.856	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy

Date: April 2022

Appropriation/Budget Activity
1319 / 4

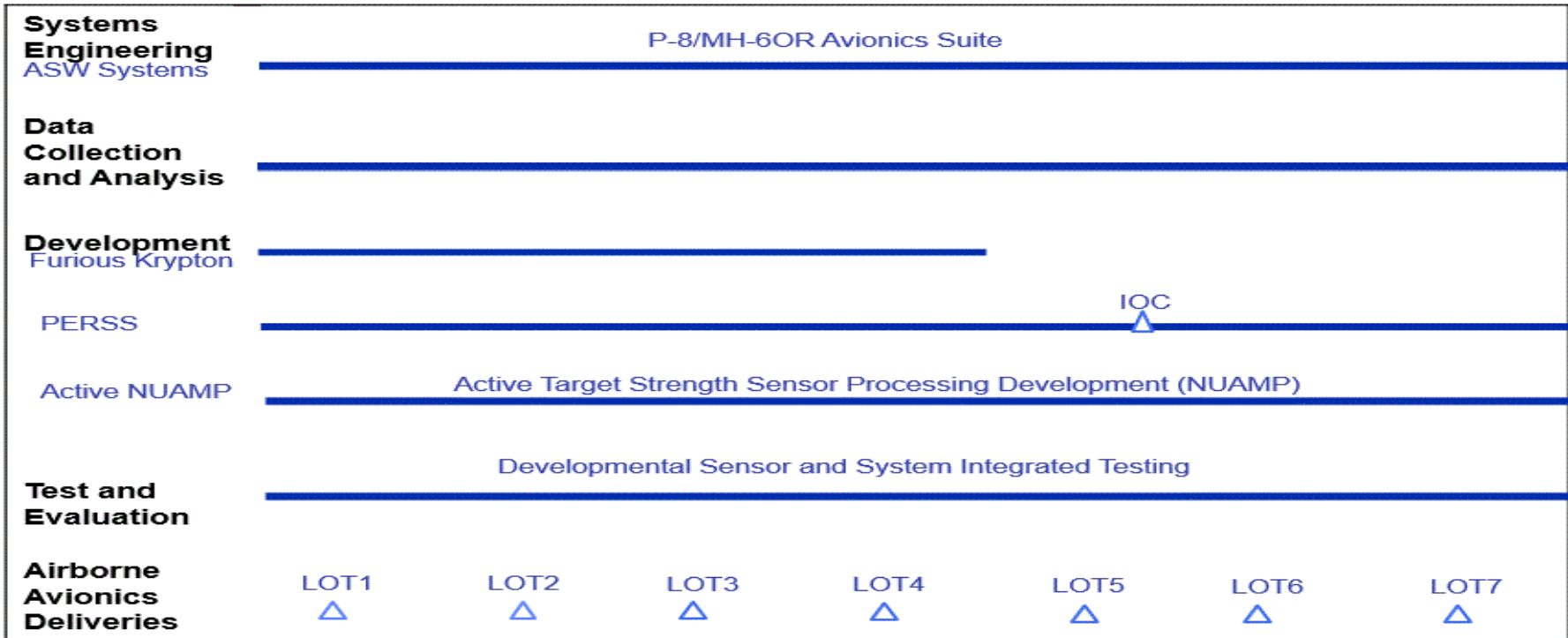
R-1 Program Element (Number/Name)
PE 0303354N / ASW Systems Development - MIP

Project (Number/Name)
0490 / Airborne Acoustic Intelligence (AAI)



PB-23 Program Schedule Airborne Acoustic Intelligence (0490)

FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
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 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0303354N / ASW Systems Development - MIP	Project (Number/Name) 0490 / Airborne Acoustic Intelligence (AAI)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj: 0490 Airborne Acoustic Intelligence (AAI)				
Systems Engineering: ASW Systems: P-8/MH-60R Avionics Suite/ASW Systems	1	2021	4	2027
Data Collection and Analysis:	1	2021	4	2027
Product Development: Furious Krypton	1	2021	4	2024
Product Development: Passive Extended Range Sonic Sensor	1	2021	4	2027
Product Development: Initial Operation Capability (IOC)	4	2025	4	2025
Product Development: Active Target Strength Sensor Processing Development	1	2021	4	2027
Test & Evaluation: Developmental Sensor & System Integrated Testing	1	2021	4	2027
Airborne Avionics Deliveries: LOT 1	2	2021	2	2021
Airborne Avionics Deliveries: LOT 2	2	2022	2	2022
Airborne Avionics Deliveries: LOT 3	2	2023	2	2023
Airborne Avionics Deliveries: LOT 4	2	2024	2	2024
Airborne Avionics Deliveries: LOT 5	2	2025	2	2025
Airborne Avionics Deliveries: LOT 6	2	2026	2	2026
Airborne Avionics Deliveries: LOT 7	2	2027	2	2027