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

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101122F / <i>Air-Launched Cruise Missile (ALCM)</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	-	1.377	0.453	0.571	0.000	0.571	0.529	0.538	0.550	0.562	Continuing	Continuing
674797: <i>ALCM Upgrades</i>	-	1.377	0.453	0.571	0.000	0.571	0.529	0.538	0.550	0.562	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AGM-86B, Air Launched Cruise Missile (ALCM), is a subsonic, air-to-surface strategic nuclear missile, operational since 1982. Armed with a W-80 warhead, it is designed to evade air and ground-based defenses in order to strike targets at any location within any enemy's territory. The ALCM is designed for B-52H internal and external carriage.

RDT&E funds support development of new tests and evaluation procedures, software, and equipment. RDT&E funds also provide sustainment solutions for Line Replaceable Units (LRU) and technology insertion to ensure ALCM sustainability supports Air Force strategic nuclear deterrence and Global Strike mission requirements through 2030. Additionally, RDT&E funds support aging and surveillance analysis to pro-actively identify components which will degrade system reliability.

The ALCM Test Plan Development and Evaluation program develops plans and procedures for testing nuclear systems, and implements those procedures as directed by the Chairman, Joint Chiefs of Staff (CJCS) and to satisfy the recurring requirements to test Chemical, Biological, Radiological, and Nuclear (CBRN) susceptibility.

An extensive Service Life Extension Program (SLEP) is in place to address age related issues and to ensure reliability and sustainability through 2030. Technology insertion is anticipated to address serviceability of components at or near end of life.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY21 no funding was expended for civilian pay expenses in this program element, and in FY22 no funding is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	1.430	0.453	0.000	0.000	0.000
Current President's Budget	1.377	0.453	0.571	0.000	0.571
Total Adjustments	-0.053	0.000	0.571	0.000	0.571
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.053	0.000	0.571	0.000	0.571

Change Summary Explanation

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
<p>Title: Inertial Navigation Element (INE)</p> <p>Description: Conducting analysis and engineering efforts to ensure short and long term supportability of the ALCM Inertial Navigation Element (INE).</p> <p>FY 2022 Plans: N/A</p> <p>FY 2023 Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: N/A</p>	1.147	0.000	0.000
<p>Title: ALCM Test Plan Development and Evaluation</p> <p>Description: Develop test procedures to implement CJCS-directed requirement for Electromagnetic (EM) testing for nuclear systems.</p> <p>FY 2022 Plans:</p>	0.230	0.453	0.571

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
Support test plan development for Pylon/CSRL Neutron Testing			
<i>FY 2023 Plans:</i> Execution of Pylon/CSRL Neutron Test			
<i>FY 2022 to FY 2023 Increase/Decrease Statement:</i> Increase used in support of CBRN Test Planning beginning in FY22			
Accomplishments/Planned Programs Subtotals	1.377	0.453	0.571

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF 03 Line Item MALCBG: <i>ALCM, Missile Modifications</i>	52.924	46.799	36.976	-	36.976	27.116	27.102	21.676	22.096	Continuing	Continuing
• MPAF 04 Line Item MALCBG: <i>ALCM, Replenishment Spares</i>	2.303	2.369	2.508	-	2.508	2.563	2.609	2.641	2.684	Continuing	Continuing
• MPAF 04 Line Item 999/Replen <i>Spa...: ALCM, Initial Spares</i>	0.328	0.428	0.452	-	0.452	0.358	0.362	0.367	0.373	Continuing	Continuing

Remarks

E. Acquisition Strategy
 Previously, the Air Launched Cruise Missile (ALCM) was assessed in the nuclear environment for Chemical, Biological, Radiological and Nuclear (CBRN) Survivability for High Altitude Electromagnetic Pulse (HEMP) and Total Ionizing Dose at White Sands Missile Range (WSMR).

Follow-on test development will assess the neutron and gamma component in the nuclear environment for CBRN survivability. Test development and execution will utilize organic and contractor agencies.

Inertial Navigation Element (INE) Service Life Extension Program (SLEP) plans for a three phase reliability assessment with comprehensive plan to address short and long term supportability.
 Phase 1 - Short-term parts shortage mitigation analyses with Tomahawk Reference Measuring Unit and Computer
 Phase 2 - Definition of scope of efforts and establishing the manufacturing methodology
 Phase 3 - Delivery of working engineering samples, certification of production, and production of INE's equal to the function and reliability of 'like new' devices

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101122F / Air-Launched Cruise Missile (ALCM)	Project (Number/Name) 674797 / ALCM Upgrades
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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			
INE Prototype	SS/ Various	NG : UT	-	1.147	Aug 2021	-		-		-		-	Continuing	Continuing	-
CBRN Test Plan Development & Evaluation	Various	WSMR, Boeing : NV	-	0.000		0.333	Mar 2022	0.446	Mar 2023	-		0.446	Continuing	Continuing	-
Subtotal			-	1.147		0.333		0.446		-		0.446	Continuing	Continuing	N/A

Management Services (\$ 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			
Management and Engineering Services for research, development, test and evaluation on ALCM	C/CPAF	Not specified. : TBD	-	0.210	Jul 2021	0.100	Jul 2022	0.105	Jul 2023	-		0.105	Continuing	Continuing	-
PMA - Government Costs	Various	Various : Various	-	0.020	Jun 2021	0.020	Jun 2022	0.020	Jul 2023	-		0.020	Continuing	Continuing	-
Subtotal			-	0.230		0.120		0.125		-		0.125	Continuing	Continuing	N/A

Remarks
Test Development and Evaluation PMA is for Supplies and Travel in support of project number 674797

	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	-	1.377	0.453	0.571	-	0.571	Continuing	Continuing	N/A

Remarks

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

INE Sustainment	
INE CCA Development	██████████
CBRN Test	
CBRN Test Plan Development	████████████████████████████████████████
CBRN Test Execution	████████████████████████████████████████

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

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>INE Sustainment</i>				
INE CCA Development	4	2021	2	2022
<i>CBRN Test</i>				
CBRN Test Plan Development	2	2022	4	2024
CBRN Test Execution	2	2023	4	2024