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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force **Date:** March 2024

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604001F / NC3 Advanced Concepts
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	-	5.098	10.011	10.148	0.000	10.148	10.180	10.260	10.266	10.469	0.000	66.432
646020: <i>NC3 Advanced Concepts</i>	-	5.098	10.011	10.148	0.000	10.148	10.180	10.260	10.266	10.469	0.000	66.432
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Nuclear Command, Control, and Communications (NC3) Advanced Concepts are required for analysis, development and prototyping of next generation NC3 systems and subsystems. This program ensures a responsive design and development engineering infrastructure to address evolving Nuclear Deterrence Operations (NDO) mission requirements; emerging issues and technology insertion/technology application on the NC3 Weapon System (WS), future strategic systems/capability, and other common strategic areas where appropriate; and develop enhanced multi-use capabilities. The NC3 Advanced Concepts Program will provide technology maturation and risk reduction activities to support the AF NC3 Weapon System (AN/USQ-225). Activity will reduce life cycle costs, inform technology maturation & risk reduction efforts, improve system performance, mitigate evolving threats, and ensure both viability and durability of the AF NC3 Weapon System.

Additional details can be provided at a higher classification.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605831F and 0605833F. In FY24 0.000M was expended for civilian pay expenses in this program element, in FY25 0.000M is forecasted for civilian pay expenses in this program element.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	5.098	10.011	10.131	0.000	10.131
Current President's Budget	5.098	10.011	10.148	0.000	10.148
Total Adjustments	0.000	0.000	0.017	0.000	0.017
• 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	0.000	0.000	0.017	0.000	0.017

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Title: NC3 Advanced Concepts	5.098	10.011	10.148
<p>Description: NC3 Advanced Concepts activities will include, but are not limited to: conducting studies, analysis, and prototyping; test bed activities; exercise participation; developing modeling and simulation of identified NC3 WS architecture; integrated NC3 WS testing, validation, and certification; and direct mission support contracts in support of next generation NC3 systems and sub-systems. NC3 Advanced Concepts ensures a responsive design and development engineering infrastructure to address evolving NDO.</p> <p>FY 2024 Plans: Continue studies, analysis, and prototyping; test bed activities; exercise participation; develop modeling and simulation of identified NC3 WS architecture; integrated NC3 WS testing, validation, and certification; direct mission support contracts in support of next generation NC3 systems and sub-systems; rapidly respond to evolving warfighter priorities and warfighter requirements.</p> <p>Additionally, FY24 funding will support early development and risk reduction of emerging applicable technologies in such areas as antenna improvements, cyber resiliency, and software defined radio (SDR) enhancements which will inform evolving NC3 requirements as well as provide viable prototyping for testing and demonstration of technical capability. Funds will also support High Frequency (HF) engineering analysis to reduce technical risk and schedule for potential future program of record/requirement. Details can be provided at higher classification levels.</p> <p>FY 2025 Plans:</p>			

UNCLASSIFIED

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Continue studies, analysis, and prototyping; test bed activities; exercise participation; develop modeling and simulation of identified NC3 WS architecture; integrated NC3 WS testing, validation, and certification; direct mission support contracts in support of next generation NC3 systems and sub-systems; rapidly respond to evolving warfighter priorities and warfighter requirements.</p> <p>Additionally, FY25 funding will continue to support early development and risk reduction of emerging applicable technologies in such areas as antenna improvements, cyber resiliency, and network communications services which will inform evolving NC3 requirements as well as provide viable prototyping for testing and demonstration of technical capability. Funds will also continue to support High Frequency (HF) engineering analysis to reduce technical risk and schedule for potential future program of record/requirement. Details can be provided at higher classification levels.</p> <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Funding increase from FY24 to FY25 is due to inflation.</p>			
Accomplishments/Planned Programs Subtotals	5.098	10.011	10.148

D. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

E. Acquisition Strategy
To conduct NC3 Advanced Concepts essential activities, a combination of competitively awarded contracts, sole source contracts, and/or other transaction authority, may be used to augment Air Force organic capabilities with technical skill sets from Federally Funded Research and Development Centers (FFRDCs), research laboratories, University-Affiliated Research Centers (UARCs), and industry Advisory and Assistance Services (A&AS) providers. All NC3 Advanced Concepts activities will be evaluated for promising technologies and considered for tech transition into the Air Force NC3 Weapon System.

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force **Date:** March 2024

Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604001F / <i>NC3 Advanced Concepts</i>	Project (Number/Name) 646020 / <i>NC3 Advanced Concepts</i>
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FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
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

<i>NC3 Advanced Concepts</i>	
Studies, analysis, and prototyping	
Test bed activities and exercise participation	
Develop modeling and simulation of identified NC3 WS architecture	

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604001F / <i>NC3 Advanced Concepts</i>	Project (Number/Name) 646020 / <i>NC3 Advanced Concepts</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>NC3 Advanced Concepts</i>				
Studies, analysis, and prototyping	1	2023	4	2029
Test bed activities and exercise participation	1	2023	4	2029
Develop modeling and simulation of identified NC3 WS architecture	1	2023	4	2029

Note
NC3 Advanced Concepts (Level of Effort)