

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

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 0303140F / <i>Information Systems Security Program</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	12.795	70.263	95.523	0.000	95.523	64.450	66.058	67.413	69.853	Continuing	Continuing
675100: <i>Cryptographic Modernization</i>	-	12.795	70.263	63.040	0.000	63.040	64.450	66.058	67.413	69.853	Continuing	Continuing
675200: <i>Cryptographic Modernization 2 (CM2)</i>	-	0.000	0.000	32.483	0.000	32.483	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Information Systems Security Program (ISSP) - Includes resources, manpower authorizations, necessary facilities and equipment required to perform INFOSEC research and development, to provide INFOSEC services, to procure INFOSEC products required to secure telecommunications and information systems when such products are separately procurable from host systems, and to provide INFOSEC maintenance and support. Also includes costs associated with the protection afforded to telecommunications and information systems which process sensitive data and efforts to ensure confidentiality, integrity, and availability of the information and the system.

The ISSP Element provides centrally-funded cradle-to-grave research, development, acquisitions, supply, sustainment, depot maintenance, and demilitarization of the Air Force (AF) cryptographic and key distribution/management systems. ISSP delivers on rising national, DoD, and AF priorities to address cyber security threats and increasing war-fighter dependence on cyberspace. The AF and the DoD require the capability to securely collect, process, store, and disseminate an uninterrupted flow of information, while denying an adversary the ability to intercept, collect, destroy, interpret, or manipulate our information flows. Secure communication allows the DoD to achieve and maintain decision superiority, the key to successful application of the military instrument of national power in modern, high-tempo, full-spectrum operations. AF Communications Security (COMSEC) equipment protects information such as war-fighter positions, mission planning, target strikes, commanders' orders, intelligence, force strength, and force readiness. When an adversary is capable of interpretation, manipulation, or destruction of the information used by the war-fighter, DoD military forces will suffer significant and/or devastating mission degradation that can result in loss of life and resources and/or exceptionally grave damage to national security.

The overall focus of the Research, Development, Test, and Evaluation (RDT&E) efforts within this program is to transform electronic key delivery and cryptographic devices to meet the next generation war-fighting requirements. These efforts are driven by the National Security Agency's (NSA) mandates to address decertifications, new requirements, and end of life issues. NSA requires an inventory of cryptographic devices that are more robust, modular, scalable, capable, net-centric, and durable. This enables more effective and efficient performance including reduced inventory, expanded data rates, simplified upgrades, lower life cycle costs, and ensured global information grid-compatibility.

This program element may include 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 element 0605831F. In FY22 0.780M was expended for civilian pay expenses in this program element, and in FY23 0.300M is forecasted for civilian pay expenses in this program element.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
--	-------------------------

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 0303140F / <i>Information Systems Security Program</i>
--	---

This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.

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.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	8.032	70.582	62.897	0.000	62.897
Current President's Budget	12.795	70.263	95.523	0.000	95.523
Total Adjustments	4.763	-0.319	32.626	0.000	32.626
• 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	5.000	0.000			
• SBIR/STTR Transfer	-0.237	0.000			
• Other Adjustments	0.000	-0.319	32.626	0.000	32.626

Change Summary Explanation

FY23 Other Adjustments was for FFRDC.

FY24 Other Adjustments was for higher DAF priority to address crypto vulnerabilities.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>				Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675100: <i>Cryptographic Modernization</i>	-	12.795	70.263	63.040	0.000	63.040	64.450	66.058	67.413	69.853	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AF Cryptographic Modernization (CM) effort modernizes cryptographic devices protecting critical national security information across multi-domain operations. This AF effort supports an integrated effort across the cyber domain to transform to next-generation cryptographic capabilities. It provides U.S. forces and multinational and interagency partners the multi-domain security needed to protect the flow and exchange of strategic, operational, and tactical information in accordance with national and international policy/standards, and the validated requirements of decision makers, warfighters, and the intelligence community. The AF Cryptographic Modernization 2 (CM2) effort is required by Chairman Joint Chiefs of Staff Notice (CJCSN) 6510 and NSA Decertification Messages (CED-31-15/037-21/032-16) for the need to add quantum resistance to the existing high assurance cryptographic products. This effort will allow protection against advanced & evolving quantum computing threats. All existing crypto devices will be vulnerable and must be modernized to be quantum resilient. The majority of the development effort includes hardware changes to the existing crypto devices.

The CM effort is a holistic AF-wide "modern" cryptographic strategy to provide long-term, evolving protection of NC3, ISR, PKI, KME, and nearly all AF platforms and ground networks. CM will provide the required enhanced security for all AF voice, data, and video capabilities on the battlefield and throughout the DoD enterprise, and will enable the integration of new capabilities to AF users through development of a new DoD Cryptographic Modernization 2 (CM2) Initial Capabilities Document (ICD) dated 15 July 2021.

To accomplish this effort, it is executed in three phases: replacement, modernization, and transformation. The replacement phase of the program focused on updating and/or replacing out-of-date algorithms along with unsustainable cryptographic products. The modernization phase provides crypto devices with common solutions that are more robust, modular, scalable, and provide durability to existing cryptographic end items, as well as updating midterm aging/unsupportable crypto equipment. The third phase, transformation, provides common joint solutions which enable secure, transparent, multi-domain, network-centric capabilities. Activities also include studies and analysis to support both current program planning/execution and future program planning.

This program element may include 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 element 0605831F. In FY22 0.780M was expended for civilian pay expenses in this program element, and in FY23 0.300M is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
Title: Technology Development (TD)	7.386	45.345	33.317

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Description: Technology Development (TD) provides the initial development efforts needed to tackle the current and upcoming quantum computing threat for Crypto Modernization 2. TD will stand up all acquisition efforts for over 13 devices to become quantum resilient, reprogrammable architecture to ensure long service life. Capabilities slated for modernization include classified data at rest if data storage is comprised or captured; NC2 and NC3 requirements, secure voice and data, and remote rekey.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Establish and conduct multiple contract award activities using a pre-existing, pre-competed contract vehicle; efforts include crypto for Network Enabled Weapons, Strategic Deterrence, High Speed networks, Software Mods, Multi-Function Encryption, Beyond Line of Sight Comms, Crypto Situational Awareness, Remote ReKey-NexGen, and Space COMSEC ground operating equipment to enable quantum resilience - Work with NSA on implementation of new algorithms standards to share with defense contractors on CM2 efforts - Enable artificial intelligence and machine learning capabilities for the Joint All Domain Command and Control (JADC2) by developing and delivering NSA cryptologic solutions to secure communications and data for tactical and strategic level data - Conduct architectural modeling and simulation efforts that drive rapid algorithm and capability evolution to defend against evolving threats; these digital engineering efforts will provide the standardization across the AF - Begin Crypto Enterprise Management Software Acquisition Pathway Phase 0 (Planning Phase), conduct efforts to design, architect and define user stories for a Minimum Viable Product (MVP) that will enhance traceability, accountability, status and situational awareness of CCI <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Will execute development contract activities for Network Enabled Weapons, Strategic Deterrence, High Speed networks, software mods, Multi-Function Encryption, Crypto Situational Awareness and Space COMSEC ground operating equipment - Will award contract for Remote ReKey-NexGen for crypto development - Will continue to work with NSA on implementation of new algorithms standards to share with defense contractors on CM2 efforts - Will continue to further enable artificial intelligence and machine learning capabilities for the Joint All Domain Command and Control (JADC2) by developing and delivering NSA cryptologic solutions to secure communications and data for tactical and strategic level data - Will establish development contracts for incorporating quantum resilience for additional Network Enabled Weapons, Beyond Line-of-Sight Comms, and High Speed Crypto - Will execute Crypto Enterprise Management program to build infrastructure for crypto situational awareness <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased to support other higher priority Air Force requirements.</p>				
Title: IFF Mode 5		3.091	13.820	16.000

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Description: Modernization of the Identification Friend or Foe (IFF) Mode 5 devices enables the warfighter to engage and accurately identify friendly or enemy forces as friend or foe. It prevents fratricide during target engagements and provides authentication and encryption/decryption services. The modernized devices will be quantum resilient and prevent enemy disruption of IFF functions. They will enhance the needed security for interrogations and response. These encryption devices operate within military aircraft, fixed, and transportable ground stations when connected to an interrogator and/or transponder. The Identification Friend or Foe (IFF) Mode 5 crypto models KIV-77 and KIV-78 require permanent modification. The modification of these devices are required to address quantum threats, produce-ability and algorithm re-programmability mandated by the National Security Agency (NSA) and the 2019 Chairman of the Joint Chiefs of Staff Notice (CJCSN) 6510.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Award and execute the new development contract for the KIV-77A IFF Mode 5 device to address quantum threats, produce-ability and algorithm re-programmability and obtain NSA certification in support of the CM2 ICD (dated Jul 2021) - Finalize development of the KIV-78A IFF Mode 5 device to address quantum threats, produce-ability and algorithm re-programmability and obtain NSA certification <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue development for the KIV-77A IFF Mode 5 device to address quantum threats, produce-ability and algorithm re-programmability and obtain NSA certification in support of the CM2 ICD (dated Jul 2021) <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> <ul style="list-style-type: none"> - Funding increased due to awarding development contract for the KIV-77A IFF Mode 5 device 				
<p>Title: Algorithm Transition Compliance and Support</p> <p>Description: Supports Air Combat Command (AF lead for Cyber Superiority) in Algorithm Transition Compliance and provides Information Assurance (IA) support by investigating and analyzing all utilized cryptographic algorithms and hundreds of cryptographic equipment types to support the transformation effort in becoming quantum resilient. This includes the development of prototyping efforts to include the development of a software program of a centralized near real-time accountability of AF COMSEC equipment that reports compliance to AF/DoD Leadership. In addition, it will provide automated software updates to crypto devices (networked & non-networked), and field modernized cryptography, replacing outdated inventory, algorithms, and quantum computing.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Conduct tech maturation for the new NSA algorithm integrations across all crypto devices 		2.118	3.700	3.780

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>- Work across all MAJCOMs to ensure the Department of the Air Force is implementing enterprise crypto solutions to reduce logistical footprints and sustainment costs</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Will continue tech maturation efforts to reduce risk on the new algorithm integrations across all crypto devices - Will continue to work across all MAJCOMs to ensure the Department of the Air Force is implementing enterprise crypto solutions to reduce logistical footprints and sustainment costs <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY23 to FY24 increase due to projected support inflation rates</p>				
<p>Title: Space Modular Common Crypto (SMCC)</p> <p>Description: The SMCC architecture is being studied for quantum resilient impacts underneath the CM2 TD line.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Continue performance assessments and perform quantum resilience studies <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Will continue performance assessments and perform quantum resilience studies 		0.100	0.100	0.100
<p>Title: Classified Data At Rest (CDAR)</p> <p>Description: CDAR will provide the capability to render classified data at rest unusable to adversaries if data storage is captured or compromised, eliminating policy compliance shortfalls. The development of CDAR is a NSA approved modernized cryptographic solution(s) for use in 30 ISR, C2, and EW platforms exposed to hostile/uncontrolled environments. The enterprise cryptographic solution will encrypt/decrypt Top Secret and Below (TSAB) data at rest residing in a variety of data storage environments.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Continue 3-year development contract effort for Increment 1: Single-channel device - Begin 3-year development contract effort for Increment 2: Multi-channel device <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Will complete 3-year development contract for Increment 1: Single-channel device 		0.100	7.298	9.843

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
- Will continue 3-year development contract for Increment 2: Multi-channel device			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding increased to ramp up development for Increment 2: Multi-channel device			
Accomplishments/Planned Programs Subtotals	12.795	70.263	63.040

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPAF 03 831010: <i>COMSEC Equipment</i>	66.792	91.817	98.600	-	98.600	63.192	64.789	67.170	68.593	Continuing	Continuing

Remarks
Remarks: Other Program Funding reflects Crypto Modernization (CM) portion of Information Systems Security Program (ISSP) OPAF total.

D. Acquisition Strategy
Implement AF portion of the DoD's Cryptographic Modernization (CM) Initiative through modernization/modification efforts, in varying stages of the acquisition cycle, with focus on minimizing life cycle costs. The CM portfolio of component acquisition projects is executing using a variety of approaches that vary from an evolutionary acquisition strategy using spiral development (for new component development) to incremental improvement leveraging leading-edge, certified non-developmental items (for modernization). Contract type is selected for each of the individual projects based upon its acquisition approach and its unique technology risks. A mixture of fixed-price and cost-reimbursement contracts have been selected which maximize the best value for the Government.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0303140F / Information Systems Security Program				675100 / Cryptographic Modernization							
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Tech Development	Various	MULTIPLE : MULTIPLE	-	5.177	Jan 2022	29.817	Feb 2023	10.071	Feb 2024	-		10.071	Continuing	Continuing	-
IFF Mode 5	Various	MULTIPLE : MULTIPLE	-	1.955	Feb 2022	11.332	Feb 2023	13.080	Feb 2024	-		13.080	Continuing	Continuing	-
Space Modular Common Crypto (SMCC)	Various	MULTIPLE : MULTIPLE	-	0.100	Feb 2022	0.100	Feb 2023	0.100	Feb 2024	-		0.100	Continuing	Continuing	-
Algorithm Transition Compliance and Support	Various	MULTIPLE : MULTIPLE	-	3.466	Apr 2022	3.700	Nov 2022	3.780	Nov 2023	-		3.780	Continuing	Continuing	-
CDAR	Various	MULTIPLE : MULTIPLE	-	0.100	Jun 2022	7.298	Feb 2023	9.843	Feb 2024	-		9.843	Continuing	Continuing	-
Subtotal			-	10.798		52.247		36.874		-		36.874	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
IFF Mode 5	C/CPAF	Not specified. : TBD	-	0.422	Jan 2022	2.488	Jan 2023	2.920	Jan 2024	-		2.920	Continuing	Continuing	-
Subtotal			-	0.422		2.488		2.920		-		2.920	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Program Management Administration (PMA)	Various	Various : Various	-	1.575	Dec 2021	15.528	Dec 2022	23.246	Dec 2023	-		23.246	Continuing	Continuing	-
Subtotal			-	1.575		15.528		23.246		-		23.246	Continuing	Continuing	N/A
Project Cost Totals			-	12.795		70.263		63.040		-		63.040	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	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>Cryptographic Modernization APPN 3600, BA07, PE 0303140F, BPAC 675100</i>																												
Technology Development																												
IFF Mode 5																												
Algorithm Transition Compliance and Support																												
Space Modular Common Crypto (SMCC)																												
CDAR																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Cryptographic Modernization APPN 3600, BA07, PE 0303140F, BPAC 675100</i>				
Technology Development	1	2022	4	2028
IFF Mode 5	3	2022	4	2027
Algorithm Transition Compliance and Support	1	2022	4	2028
Space Modular Common Crypto (SMCC)	1	2022	4	2027
CDAR	1	2022	4	2027

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program				Project (Number/Name) 675200 / Cryptographic Modernization 2 (CM2)			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675200: Cryptographic Modernization 2 (CM2)	-	0.000	0.000	32.483	0.000	32.483	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AF Cryptographic Modernization 2 (CM2) effort modernizes cryptographic devices protecting critical national security information across multi-domain operations. This Department of the Air Force (DAF) effort supports an integrated effort across the cyber domain to transform to next-generation cryptographic capabilities. It provides U.S. forces and multinational and interagency partners the multi-domain security needed to protect the flow and exchange of strategic, operational, and tactical information in accordance with national and international policy/standards, and the validated requirements of decision makers, warfighters, and the intelligence community. The CM2 modernization effort is required by Chairman Joint Chiefs of Staff Notice (CJCSN) 6510 and NSA Decertification Messages (CED-31-15/037-21/032-16) from FY23 for the need to add Quantum Resilience to the existing high assurance cryptographic products. This effort will allow protection against advanced & evolving quantum computing threats. All existing crypto devices will be vulnerable and must be modernized to be quantum resilient. Most of the development effort includes hardware changes to the existing crypto devices.

The CM2 effort is a holistic AF-wide "modern" cryptographic strategy to provide long-term, evolving protection of NC3, ISR, PKI, KME, and nearly all AF platforms and ground networks. CM2 will provide the required enhanced security for all AF voice, data, and video capabilities on the battlefield and throughout the DoD enterprise. This effort requires studies, proof of concepts, and prototype efforts to accurately address the evolving quantum computing threats in the years to come and ramp up efforts accordingly.

In FY24 PB \$32.5M of CM Technology Development moved from BPAC 675100 (CM) to BPAC 675200 (CM2).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
Title: Technology Development (TD)	-	0.000	32.483
Description: Cryptographic Modernization 2 (CM2) will provide crypto devices with common solutions that are more robust, modular, scalable, and provide durability to existing cryptographic end items, as well as updating midterm aging/unsupportable crypto equipment. All existing crypto devices will be vulnerable and must be modernized to be Quantum Resilient. The development efforts includes hardware and software changes to the existing crypto devices while identifying new efforts necessary for development to address the refined CM2 Minimum Threshold Requirements.			
FY 2023 Plans: No FY2023 plans			
FY 2024 Plans:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675200 / <i>Cryptographic Modernization 2 (CM2)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> -Will execute development contract activities for Network Enabled Weapons, Strategic Deterrence, High Speed networks, software mods, Multi-Function Encryption, Crypto Situational Awareness and Space COMSEC ground operating equipment - Will award contract for Remote ReKey-NexGen for crypto development - Will continue to work with NSA on implementation of new algorithms standards to share with defense contractors on CM2 efforts - Will continue to further enable artificial intelligence and machine learning capabilities for the Joint All Domain Command and Control (JADC2) by developing and delivering NSA cryptologic solutions to secure communications and data for tactical and strategic level data - Will establish development contracts for incorporating quantum resilience for additional Network Enabled Weapons, Beyond Line-of-Sight Comms, and High Speed Crypto - Will execute Crypto Enterprise Management program to build infrastructure for crypto situational awareness <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased from FY2023 to FY2024 by \$32.483M to focus on Crypto Modernization 2 (CM2) efforts.</p>			
Accomplishments/Planned Programs Subtotals	-	0.000	32.483

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

N/A

Remarks

D. Acquisition Strategy

Implement AF portion of the DoD's Cryptographic Modernization 2 (CM2) Initiative through modernization/modification efforts, in varying stages of the acquisition cycle, with focus on minimizing life cycle costs. The CM portfolio of component acquisition projects is executing using a variety of approaches that vary from an evolutionary acquisition strategy using spiral development (for new component development) to incremental improvement leveraging leading-edge, certified non-developmental items (for modernization). Contract type is selected for each of the individual projects based upon its acquisition approach and its unique technology risks. A mixture of fixed-price and cost-reimbursement contracts have been selected which maximize the best value for the Government.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program	Project (Number/Name) 675200 / Cryptographic Modernization 2 (CM2)
--	--	--

Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Technology Development (TD)	C/CPAF	Not specified. : TBD	-	-		-		32.483	Jan 2024	-		32.483	Continuing	Continuing	-
Subtotal			-	-		-		32.483		-		32.483	Continuing	Continuing	N/A

Remarks
In FY24 PB we we anticipate all development funding from 675100 will transfer to 675200

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-	-	32.483	-	32.483	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675200 / <i>Cryptographic Modernization 2 (CM2)</i>

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	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>Cryptographic Modernization 2 (CM2)</i>																												
Technology Development																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675200 / <i>Cryptographic Modernization 2 (CM2)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Cryptographic Modernization 2 (CM2)</i>				
Technology Development	1	2024	4	2028