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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0305236F I <i>Common Data Link Executive Agent (CDL EA)</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	-	39.221	43.881	37.460	0.000	37.460	32.487	33.095	33.791	34.543	Continuing	Continuing
641334: <i>Common Data Link (CDL)</i>	-	39.221	43.881	37.460	0.000	37.460	32.487	33.095	33.791	34.543	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Common Data Link Executive Agent (CDL EA) provides the DoD standard for interoperable, multi-service, multi-agency, Intelligence, Surveillance, and Reconnaissance (ISR) datalinks for 15,000 DoD manned/unmanned airborne and ground terminals. As the DoD CDL EA, the Air Force is responsible for cross-service application of CDL RDT&E Military Intelligence Program (MIP) funds facilitating compliance to DoD mandates. The CDL EA develops, modifies, distributes, and maintains specifications for the CDL waveform family; ensuring design configuration control, commonality, and interoperability among ISR platforms. Additionally, funds support managing resources allocated for development, maturation, and migration of CDL technologies.

CDL EA enables compliance with OSD mandates to effectively utilize spectrum, use approved cryptographic equipment, and provide direct support to current operations. CDL is a vital link in DoD's existing and emerging communication architectures, providing flexibility to accommodate Command and Control (C2) data and myriad types of Signals Intelligence (SIGINT), Geospatial Intelligence (GEOINT), and Full-Motion Video (FMV) data. The CDL specifications permit current and future ISR asset operations worldwide by providing sensor data directly via point-to-point and air-to-air or compatible satellite broadcast links to ground sites, airborne platforms, and dismounted users to support Joint All-Domain Command and Control (JADC2) warfare.

CDL EA's research and development activities support a broad array of tactical (including tactical data links (TDL) and high capacity backbone (HCB)), operational, and strategic ISR users. High priority investment activities support and include: achieving higher data rates, open architecture development, multi-access and multi-node network management, cryptographic modernization, advancements needed to operate in contested environments, terminal and antenna design enhancements, operations in other spectral bands for spectrum efficiency. Activities also include studies and analysis to support current and future requirements documentation, program planning and execution. CDL prototype terminal designs provide for future technology insertion and reduce non-recurring engineering and life-cycle costs to the user.

In addition, the Cryptographic Core Modernization (CCM) thrust enables CDL to develop a miniaturized gigabit rate cybersecurity devices capable of securing CDL data through improving Transportation Security (TRANSEC) capabilities. The miniaturized Cybersecurity device will allow faster throughput while reducing Size, Weight, and Power (SWaP) requirements.

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 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F,

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0606398F. In FY21 \$0.450M was expended for civilian pay expenses in this program element, and in FY22 \$0.338M is forecasted for civilian pay expenses in this program element.

The FY2023 funding request was reduced by \$7.01 million to account for the availability of prior year execution balances.

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.

B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	39.221	43.881	0.000	0.000	0.000
Current President's Budget	39.221	43.881	37.460	0.000	37.460
Total Adjustments	0.000	0.000	37.460	0.000	37.460
• 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	37.460	0.000	37.460

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
Title: Common Data Link (CDL) Technology Advancement	11.303	19.100	14.062
Description: CDL evolutionary concept development, exploratory prototyping, advanced technology demonstrations, and studies of emerging technologies and capability gaps.			
FY 2022 Plans:			
- Continue to research and evaluate technology developments for enhancing the CDL enterprise networking architecture, to include network management devices, applications and advanced algorithms.			
- Continue to research, evaluate and develop more spectrally efficient waveforms to support Combatant Command demand for higher bandwidth transmission and improved jam resistant capabilities.			

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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 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
<ul style="list-style-type: none"> - Continue to research, evaluate and develop improvements to CDL waveforms to lower probability of detection and interception to support Combatant Command demand for improved covertness of ground and airborne forces. - Continue development of enhanced, CDL-based Intelligence, Surveillance and Reconnaissance (ISR) communication capabilities across multiple platforms and echelons among U.S and allied partners. - Continue development of a collaborative CDL modeling and simulation environment using Navy Research Lab's Extendable Mobile Ad-Hoc Network Emulator (EMANE) framework for CDL performance analysis and waveform advancements. The CDL EMANE environment will be the baseline for joint Service and vendor collaboration as the community modernizes CDL for the future fight. - Continue waveform performance analysis of current CDL capabilities and future enhancements on their ability to achieve mission success in National Defense Strategy (NDS) derived scenarios to focus future CDL modernization efforts to update the CDL specifications. - Continue analysis and study of multi-beam antenna technology to further improve CDL networking and Low Probability of Interception / Low Probability of Detection / Anti-Jam (LPI/LPD/AJ) capabilities in future contested battlespace. - Continue antenna array modernization with the Extremely Wideband Operations (EWO) antenna array research and development. - Continue to research, evaluate and develop an Open Systems Architecture to improve CDL enterprise interoperability and terminal design flexibility. - Continue prototyping and advanced technology demonstrations in support of emerging communication backbone architecture, including high capacity backbone (HCB) development, across multi-domains. - Continue requirements and design improvements for more robust BE-CDL support to smaller Group 1 UAV. - Continue exploratory prototyping efforts and advanced technology demonstrations in support of emerging communication backbone architecture, including HCB development, across air, space and terrestrial layers, to include agile high capacity data transport, assured communications and multi-mode access network. - Continue research and evaluate developing Artificial Intelligence (AI) technologies to support faster correlation and fusion of ISR and CDL network management processes. - Continue to research and evaluate developing technologies to minimize the National Security Agency (NSA) required certification requirements for terminals while standardizing Communications Security (COMSEC) and Transmission Security (TRANSEC) implementation. <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Will continue to research and evaluate technology developments for enhancing the CDL enterprise networking architecture, to include network management devices, applications and advanced algorithms. - Will continue to research, evaluate and develop more spectrally efficient waveforms to support Combatant Command demand for higher bandwidth transmission and improved jam resistant capabilities. 			

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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 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<ul style="list-style-type: none"> - Will continue to research, evaluate and develop improvements to CDL waveforms to lower probability of detection and interception to support Combatant Command demand for improved covertness of ground and airborne forces. - Will continue development of enhanced, CDL-based Intelligence, Surveillance and Reconnaissance (ISR) communication capabilities across multiple platforms and echelons among U.S and allied partners. - Will continue development of a collaborative CDL modeling and simulation environment using Navy Research Lab's Extendable Mobile Ad-Hoc Network Emulator (EMANE) framework for CDL performance analysis and waveform advancements. The CDL EMANE environment will be the baseline for joint Service and vendor collaboration as the community modernizes CDL for the future fight. - Will continue waveform performance analysis of current CDL capabilities and future enhancements on their ability to achieve mission success in National Defense Strategy (NDS) derived scenarios to focus future CDL modernization efforts to update the CDL specifications. - Will continue analysis and study of multi-beam antenna technology to further improve CDL networking and Low Probability of Interception / Low Probability of Detection / Anti-Jam (LPI/LPD/AJ) capabilities in future contested battlespace. - Will continue antenna array modernization with the Extremely Wideband Operations (EWO) antenna array research and development. - Will continue to research, evaluate and develop an Open Systems Architecture to improve CDL enterprise interoperability and terminal design flexibility. - Will continue prototyping and advanced technology demonstrations in support of emerging communication backbone architecture, including high capacity backbone (HCB) development, across multi-domains. - Will continue requirements and design improvements for more robust BE-CDL support to smaller Group 1 UAV. - Will continue exploratory prototyping efforts and advanced technology demonstrations in support of emerging communication backbone architecture, including HCB development, across air, space and terrestrial layers, to include agile high capacity data transport, assured communications and multi-mode access network. - Will continue research and evaluate developing Artificial Intelligence (AI) technologies to support faster correlation and fusion of ISR and CDL network management processes. - Will continue to research and evaluate developing technologies to minimize the National Security Agency (NSA) required certification requirements for terminals while standardizing Communications Security (COMSEC) and Transmission Security (TRANSEC) implementation. <p>FY 2022 to FY 2023 Increase/Decrease Statement: Decrease in technology advancement funding relates to transfer of funds to test and evaluation funding to prepare for formal publication of updated CDL Specification advancements in late FY2023.</p>				
Title: Common Data Link (CDL) Specification Development, Validation, Test and Maintenance		20.318	15.000	15.298

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
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Description: Systems engineering lifecycle for CDL and NATO STANAG 7085 specification development: requirement decomposition, specification development (modeling, maturation, documentation), specification validation (and associated component prototyping), testing, configuration management, and process maintenance.

FY 2022 Plans:

- Continue development of vendor and government owner reference implementation of the new LPI/LPD/AJ waveform to perform future test and validation to ensure the CDL specification is accurate and can be built by multiple vendors in the future, therefore keeping the market space open.
- Continue evaluation, analysis and study of network management devices, network and waveform configuration tool development; transition improved technologies into CDL Specification baseline that increases data sharing across Service-specific networks.
- Continue validation of Bandwidth Efficient CDL's (BE-CDL) new Direct Sequence Spread Spectrum (DSSS) capability that improves CDL data transmissions rates at lower power levels.
- Continue development and advancement of dynamical control algorithms to enable terminals to more efficiently use CDL spectrum. This work is also to validate the CDL Common Control Interface.
- Continue to work with CDL industry partners and DoD Services and Agencies to document, validate, test and implement common terminal control interfaces through use of commercially recognized standards.
- Continue configuration control of the CDL architecture, standards, specifications and reference artifacts to support open interoperability and open competition.
- Continue development of CDL test equipment capable of compliance testing to the latest, validated version of CDL specifications.

FY 2023 Plans:

- Will continue development of vendor and government owner reference implementation of the new LPI/LPD/AJ waveform to perform future test and validation to ensure the CDL specification is accurate and can be built by multiple vendors in the future, therefore keeping the market space open.
- Will continue evaluation, analysis and study of network management devices, network and waveform configuration tool development; transition improved technologies into CDL Specification baseline that increases data sharing across Service-specific networks.
- Will complete validation of Bandwidth Efficient CDL's (BE-CDL) Direct Sequence Spread Spectrum (DSSS) capability that improves CDL data transmissions rates at lower power levels.
- Will continue development and advancement of dynamical control algorithms to enable terminals to more efficiently use CDL spectrum. This work is also to validate the CDL Common Control Interface.

FY 2021	FY 2022	FY 2023

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<ul style="list-style-type: none"> - Will continue to work with CDL industry partners and DoD Services and Agencies to document, validate, and test common terminal control interfaces through use of commercially recognized standards. - Will continue configuration control of the CDL architecture, standards, specifications and reference artifacts to support open interoperability and open competition. - Will continue development of CDL test equipment capable of compliance testing to the latest, validated version of CDL specifications. <p>FY 2022 to FY 2023 Increase/Decrease Statement: Additional funds will be utilized for final test and evaluation activities of new CDL advancements in preparation for formal publication of updated CDL Specifications in late FY2023.</p>				
<p>Title: Common Data Link (CDL) Cryptographic Modernization</p> <p>Description: Phased development effort to modernize CDL Communications Security (COMSEC) and Transmission Security (TRANSEC) devices and standards to maximize performance and reduce Size Weight and Power (SWaP) requirements while supporting interoperability, commonality, modularity, portability, remote management, multi-level security and release to Allied and Coalition partners.</p> <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> - Continue to research and evaluate developing technologies to minimize the National Security Agency (NSA) required certification requirements for terminals while standardizing Communications Security (COMSEC) implementation. - Continue to incorporate data Transmission Security (TRANSEC) support, data handling capabilities, and new cryptographic algorithms into all cryptographic core form factors (i.e., Nano, Mini and Mega). - Continue to upgrade Nano and Mini crypto cores with customer requested Engineering Change Proposals (ECP) and complete Security Validation Testing (SVT) and subsequent National Security Agency (NSA) Cyber Security Certification. - Continue to ensure CDL family of waveforms meet developing Transmission Security (TRANSEC) requirements as outlined by the Office of Secretary of Defense Chief Information Officer (DoD CIO). - Continue development, prototyping, and First Implementer integration testing of multi-channel, gigabit data rate (Mega) cryptographic cores. - Continue to conduct an Analysis of Alternatives to identify and develop a Type 1 cryptographic solution for Group 1 Unmanned Aerial Vehicles (UAVs) that provides algorithmic interoperability for Full Motion Video (FMV) datalinks with existing manned and unmanned ISR platforms and ground stations using CCM cryptography. - Continue development and design of common End Cryptographic Units (ECUs) for use with medium- and large-sized ISR terminals. - Continue development of a reference ECU using the Mega CCM crypto core for hardware/software and interface documentation validation. 		7.600	9.781	8.100

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
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<ul style="list-style-type: none"> - Continue advancement of standardized CCM interface specifications for modularity to ease future systems upgrades, facilitate competitive terminal procurements, promote innovation, and maintain backward compatibility with existing Intelligence, Surveillance and Reconnaissance (ISR) systems. - Continue development, advancement and instantiation of CCM algorithms to support FIVE EYE (FVEY), North Atlantic Treaty Organization (NATO), and Coalition operations for secure encrypted and interoperable ISR data exchange among allied and partner nations. - Continue participating in FVEY, NATO and Coalition forums, testing venues and exercises (including live-fly) to ensure secure encrypted and interoperable ISR data exchange among allied and partner nations. <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Will continue to research and evaluate developing technologies to minimize the National Security Agency (NSA) required certification requirements for terminals while standardizing Communications Security (COMSEC) implementation. - Will continue incorporating data Transmission Security (TRANSEC) support, data handling capabilities, and new cryptographic algorithms into all cryptographic core form factors (i.e., Nano, Mini and Mega). - Will continue to upgrade Nano and Mini crypto cores with customer requested Engineering Change Proposals (ECP) and complete Security Validation Testing (SVT) and subsequent National Security Agency (NSA) Cyber Security Certification. - Will continue to ensure CDL family of waveforms meet developing Transmission Security (TRANSEC) requirements as outlined by the Office of Secretary of Defense Chief Information Officer (DoD CIO). - Will continue development, prototyping, and First Implementer integration testing of multi-channel, gigabit data rate (Mega) cryptographic cores. - Will continue to conduct an Analysis of Alternatives to identify and develop a Type 1 cryptographic solution for Group 1 Unmanned Aerial Vehicles (UAVs) that provides algorithmic interoperability for Full Motion Video (FMV) datalinks with existing manned and unmanned ISR platforms and ground stations using CCM cryptography. - Will continue development and design of common End Cryptographic Units (ECUs) for use with medium- and large-sized ISR terminals. - Will continue development of a reference ECU using the Mega CCM crypto core for hardware/software and interface documentation validation. - Will continue the advancement of standardized CCM interface specifications for modularity to ease future systems upgrades, facilitate competitive terminal procurements, promote innovation, and maintain backward compatibility with existing Intelligence, Surveillance and Reconnaissance (ISR) systems. - Will continue development, advancement and instantiation of CCM algorithms to support FIVE EYE (FVEY), North Atlantic Treaty Organization (NATO), and Coalition operations for secure encrypted and interoperable ISR data exchange among allied and partner nations. 			
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
- Will continue participating in FVEY, NATO and Coalition forums, testing venues and exercises (including live-fly) to ensure secure encrypted and interoperable ISR data exchange among allied and partner nations.			
<i>FY 2022 to FY 2023 Increase/Decrease Statement:</i> Decrease in funding due to completion of baseline development and production of Nano, Mini and Mega core processors. Future funding focused on maintaining and advancing Nano, Mini and Mega core capabilities and reducing SWaP for possible support to Group 1 assets.			
Accomplishments/Planned Programs Subtotals	39.221	43.881	37.460

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

N/A

Remarks

E. Acquisition Strategy

The Air Force serves as the DoD Common Data Link Executive Agent, with support from each Service's designated CDL lead and AFLCMC/HNA (Airborne Network Division). The CDL EA develops interoperable ISR data links mandated for use by DoD CIO policy. Once CDL technology development matures and a specification is published, services are responsible for CDL compliant platform and terminal procurement; National Security Agency (NSA) and Joint Interoperability Test Command (JITC) ensure compliance certifications; integration; and installation. Acquisition strategy varies by contract. Whenever possible, contracts are awarded under full and open competition.

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

Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>	Project (Number/Name) 641334 / <i>Common Data Link (CDL)</i>
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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			
Cryptographic Modernization	MIPR	NSA : Ft Meade, MD	-	7.600	Jun 2021	8.100	Dec 2021	8.100		-		8.100	Continuing	Continuing	-
Generic ECU	C/Various	MIT/LL : San Antonio, TX	-	1.300	Dec 2020	-		-		-		-	Continuing	Continuing	-
CDL Network Modernization	MIPR	Air Force and Navy : Various	-	3.905	Oct 2020	4.750	Apr 2022	4.216		-		4.216	Continuing	Continuing	-
A2AD Waveform Advancement	C/CPAF	Army : Various	-	4.100	Apr 2021	2.500	Apr 2022	2.500		-		2.500	Continuing	Continuing	-
CDL Multi Beam Survey and Demonstration	C/Various	Navy : Various	-	1.275	Jun 2021	-		-		-		-	Continuing	Continuing	-
CDL Cognitive Radio Networking Element (CRNE)	C/Various	Navy : Various	-	0.225	Oct 2020	1.330	Feb 2022	0.500		-		0.500	Continuing	Continuing	-
CDL Resource Management and Bridging Network	C/CPAF	Navy : Various	-	1.100	Oct 2020	-		-		-		-	Continuing	Continuing	-
CDL Performance Analysis	SS/FP	JHU/APL : Various	-	1.000	Oct 2020	-		-		-		-	Continuing	Continuing	-
CDL Life Cycle Cost Analysis	C/CPAF	Various : Various	-	0.250	Dec 2020	-		-		-		-	Continuing	Continuing	-
Flexible Ku-Band Adaptive Coding and Group 1/2 UAV CDL and Cryptographic SWaP	C/CPAF	Marine Corps : Various	-	-		2.100	Jan 2022	1.100		-		1.100	Continuing	Continuing	-
Pseudorandom Noise (PM) Code Generation	C/CPAF	Air Force : Various	-	-		0.700	Jan 2022	0.700		-		0.700	Continuing	Continuing	-
CDL Network Control Application	C/CPAF	Air Force : TBD	-	-		1.950	Feb 2022	1.950		-		1.950	Continuing	Continuing	-
Open Systems Architecture Framework	C/CPAF	Navy : Various	-	-		1.000	Jan 2022	0.500		-		0.500	Continuing	Continuing	-
Antenna Array Modernization	C/CPAF	Various : Various	-	-		1.500	Oct 2021	1.500		-		1.500	Continuing	Continuing	-
Over the Air Parameter Administration	C/CPAF	Various : Various	-	-		1.000	Jan 2022	0.250		-		0.250	Continuing	Continuing	-

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

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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			
Subtotal			-	20.755		24.930		21.316		-		21.316	Continuing	Continuing	N/A

Support (\$ 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			
Service Tech Support & Spec Development	MIPR	Various : Various	-	4.194	Dec 2020	4.200	Dec 2021	3.000		-		3.000	Continuing	Continuing	-
Joint Staff CDL Requirements Support	MIPR	Joint Staff - J6 : Arlington, VA	-	0.225	Oct 2020	-		0.225		-		0.225	Continuing	Continuing	-
NATO STANAG 7085 Support	MIPR	Air Force : Various	-	0.225	Oct 2020	0.500	Feb 2022	0.500		-		0.500	Continuing	Continuing	-
Fielded Terminals Database	C/CPFF	Booz Allen : McLean, VA	-	0.750	Feb 2021	0.800	Jan 2022	0.500		-		0.500	Continuing	Continuing	-
Subtotal			-	5.394		5.500		4.225		-		4.225	Continuing	Continuing	N/A

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			
Joint Interoperability Test Command Support	Various	Not specified. : TBD	-	0.800	Feb 2021	0.800	Feb 2022	0.800		-		0.800	Continuing	Continuing	-
CDL Exercise Support	MIPR	Various : Various	-	0.500	Dec 2020	0.500	Apr 2022	0.500		-		0.500	Continuing	Continuing	-
CDL Mode 303/304 Security Validation	C/CPAF	Various : Various	-	-		1.200	Feb 2022	1.200		-		1.200	Continuing	Continuing	-
Compliance Test Tool	C/CPAF	Various : Various	-	2.600	Nov 2020	1.500	Feb 2022	1.000		-		1.000	Continuing	Continuing	-
Cyber Security Initiative	C/CPAF	Navy : San Diego, CA	-	-		0.650	Jan 2022	0.650		-		0.650	Continuing	Continuing	-
Subtotal			-	3.900		4.650		4.150		-		4.150	Continuing	Continuing	N/A

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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
Common Data Link																												
CDL Technology Advancement																												
- CDL Protective Waveform (LPD/AJ) Advancement																												
- Networking (Multi-Access) Advancement																												
- Antenna Modernization (Networking and LPD/AJ)																												
- BE CDL to Group 1 UAV																												
CDL Specification Development, Validation, Test and Maintenance																												
- CDL Compliance Test Set																												
CDL Cryptographic Modernization																												
- US/Coalition Multi-algorithm Crypto Core Modules (Generation 2/3)																												
- US Multi-algorithm Crypto Core Modules (Generation 2/3)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>	Project (Number/Name) 641334 / <i>Common Data Link (CDL)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Common Data Link</i>				
CDL Technology Advancement	1	2021	4	2027
- CDL Protective Waveform (LPD/AJ) Advancement	1	2021	4	2027
- Networking (Multi-Access) Advancement	1	2021	4	2027
- Antenna Modernization (Networking and LPD/AJ)	1	2021	4	2024
- BE CDL to Group 1 UAV	1	2021	3	2026
CDL Specification Development, Validation, Test and Maintenance	1	2021	4	2027
- CDL Compliance Test Set	1	2021	4	2023
CDL Cryptographic Modernization	1	2021	4	2027
- US/Coalition Multi-algorithm Crypto Core Modules (Generation 2/3)	1	2021	4	2023
- US Multi-algorithm Crypto Core Modules (Generation 2/3)	1	2021	4	2023