

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2020 Air Force **Date:** February 2019

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	40.838	41.880	36.910	0.000	36.910	43.537	44.439	45.249	31.862	Continuing	Continuing
641334: <i>Common Data Link (CDL)</i>	-	40.838	41.880	36.910	0.000	36.910	43.537	44.439	45.249	31.862	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 10,000+ DoD manned/unmanned airborne and ground platforms. 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 Congressional and 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 and Congressional 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 broadcast to ground sites, airborne platforms and dismounted users. Also, CDL provides the capability to relay data via air-to-air or compatible satellite links when the asset and ground site are not in line-of-sight.

CDL EA's research and development activities support a broad array of tactical, operational, and strategic ISR users 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, and improving spectrum efficiency. Further, CDL development improves large area surveillance missions while supporting continuous improvements and implementation of line-of-sight platform and CDL terminal Command and Control (C2), plus increased ISR (C2ISR) capabilities. 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 Communications Security (COMSEC) device capable of managing CDL data. The miniaturized COMSEC device will allow faster throughput while reducing Size, Weight, and Power (SWaP) requirements.

The FY 2020 funding request was reduced by \$5.798 million to account for the availability of prior year execution balances.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2020 Air Force **Date:** February 2019

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
--	--

This program element may include necessary civilian pay expenses required to manage, execute, and deliver CDL Executive Agent capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
Previous President's Budget	41.509	41.880	42.708	0.000	42.708
Current President's Budget	40.838	41.880	36.910	0.000	36.910
Total Adjustments	-0.671	0.000	-5.798	0.000	-5.798
• 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	-0.671	0.000	-5.798	0.000	-5.798

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
<b>Title:</b> Common Data Link (CDL) Technology Advancement	10.000	10.165	17.010	0.000	17.010
<b>Description:</b> CDL evolutionary concept development, exploratory prototyping, advanced technology demonstrations, and studies of emerging technologies and capability gaps.					
<b>FY 2019 Plans:</b>					
- 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 an Open Systems Architecture with Common Control Interface (CCI) standards to improve CDL enterprise interoperability and security					

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2020 Air Force	<b>Date:</b> February 2019
--	----------------------------

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
--	--

**C. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<ul style="list-style-type: none"> <li>- Continue to research, evaluate and develop more spectrally efficient waveforms to support Combatant Command demand for higher bandwidth transmission and improved jam resistant capabilities</li> <li>- Continue exploratory prototyping efforts and advanced technology demonstrations in support of emerging communication backbone architecture development across air, space and terrestrial layers, to include agile high capacity data transport, assured communications and multi-mode access networks</li> <li>- Continue to research and evaluate technology developments for the reduction of size, weight and power (SWaP) for air, space and terrestrial terminal components</li> <li>- Continue development of enhanced, CDL-based Intelligence, Surveillance and Reconnaissance (ISR) communication capabilities across multiple platforms and echelons among U.S and allied partners</li> <li>- Continue development of a CDL Collaborative Application Space (C-CAS) as it applies to CDL Family of Waveform Specification maintenance, update and advancement</li> <li>- Continue to research and develop upgrades to support current and future specification employment profiles that deliver flexible waveform modes to support high data rates, antenna configuration, network management, fast network reconfiguration, and improve jam resistant capabilities</li> <li>- Continue to research and evaluate developing Artificial Intelligence (AI) technologies to support faster correlation and fusion of ISR and CDL network management processes</li> <li>- Continue to research and evaluate developing modeling and simulation technologies to support improved CDL enterprise advancement</li> <li>- 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</li> </ul> <p><b>FY 2020 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Will continue to research and evaluate technology developments for enhancing the CDL enterprise networking architecture, to include network management devices, applications and advanced algorithms</li> <li>- Will continue to research, evaluate and develop an Open Systems Architecture with Common Control Interface (CCI) standards to improve CDL enterprise interoperability and security</li> <li>- 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</li> <li>- Will continue exploratory prototyping efforts and advanced technology demonstrations in support of emerging communication backbone architecture development across air, space and terrestrial layers, to include agile high capacity data transport, assured communications and multi-mode access networks</li> </ul>					

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2020 Air Force **Date:** February 2019

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
--	--

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<ul style="list-style-type: none"> <li>- Will continue to research and evaluate technology developments for the reduction of size, weight and power (SWaP) for air, space and terrestrial terminal components</li> <li>- 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</li> <li>- Will continue development of a CDL Collaborative Application Space (C-CAS) as it applies to CDL Family of Waveform Specification maintenance, update and advancement</li> <li>- Will continue to research and develop upgrades to support current and future specification employment profiles that deliver flexible waveform modes to support high data rates, antenna configuration, network management, fast network reconfiguration, and improve jam resistant capabilities</li> <li>- Will continue to research and evaluate developing Artificial Intelligence (AI) technologies to support faster correlation and fusion of ISR and CDL network management processes</li> <li>- Will continue to research and evaluate developing modeling and simulation technologies to support improved CDL enterprise advancement</li> <li>- 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</li> </ul> <p><b>FY 2020 OCO Plans:</b> Not Applicable</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase in FY20 funding due to inflation adjustment.</p>					
<p><b>Title:</b> Common Data Link (CDL) Specification Development, Validation, Test and Maintenance</p> <p><b>Description:</b> 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.</p> <p><b>FY 2019 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue development and testing of Higher Data Rate technology solutions, prototyping terminal development that combines Size, Weight and Power (SWaP) improvements whenever feasible</li> </ul>	24.019	24.715	13.800	0.000	13.800

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2020 Air Force	<b>Date:</b> February 2019
--	----------------------------

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
--	--

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<ul style="list-style-type: none"> <li>- Continue adding capabilities required to support the Joint Aerial Layer Network (JALN) High Capacity Backbone (HCB) development, Low Probability of Detect (LPD)/Low Probability of Intercept(LPI)/Anti-Jam (AJ) capabilities to better operate in future Anti-Access/Area-Denial(A2/AD) airspace</li> <li>- Commence evaluation, analysis and study of multi-beam airborne antenna technology to further improve CDL networking and LPD/LPI/AJ capabilities</li> <li>- 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</li> <li>- Commence evaluation, analysis and study of Artificial Intelligence (AI) and advanced algorithm technologies that can assist in enabling CDL network discovery, spectrum efficient communications, near-optimal network topology formation and resource allocation for future ad hoc, near-mesh and mesh networks</li> <li>- Continue evaluating developing technology solutions that improve CDL data transmissions rates at lower power levels</li> <li>- Continue development and advancement of spectrally efficient CDL waveform specification(s)</li> <li>- Continue to work with CDL industry partners and DoD Services and Agencies to document, validate and implement common terminal control interfaces through use of commercially recognized standards</li> <li>- Continue configuration control of the CDL architecture, standards, specifications and modules</li> <li>- Continue development of CDL test equipment capable of compliance testing to the latest, validated version of CDL specifications</li> </ul> <p><b>FY 2020 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Will continue development and testing of Higher Data Rate technology solutions, prototyping terminal development that combines Size, Weight and Power (SWaP) improvements whenever feasible</li> <li>- Will continue adding capabilities required to support the Joint Aerial Layer Network (JALN) High Capacity Backbone (HCB) development, Low Probability of Detect (LPD)/Low Probability of Intercept(LPI)/Anti-Jam (AJ) capabilities to better operate in future Anti-Access/Area-Denial(A2/AD) airspace</li> <li>- Will commence evaluation, analysis and study of multi-beam airborne antenna technology to further improve CDL networking and LPD/LPI/AJ capabilities</li> <li>- 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</li> </ul>					

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2020 Air Force **Date:** February 2019

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
--	--

**C. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<ul style="list-style-type: none"> <li>- Will commence evaluation, analysis and study of Artificial Intelligence (AI) and advanced algorithm technologies that can assist in enabling CDL network discovery, spectrum efficient communications, near-optimal network topology formation and resource allocation for future ad hoc, near-mesh and mesh networks</li> <li>- Will continue evaluating developing technology solutions that improve CDL data transmissions rates at lower power levels</li> <li>- Will continue development and advancement of spectrally efficient CDL waveform specification(s)</li> <li>- Will continue to work with CDL industry partners and DoD Services and Agencies to document, validate and implement common terminal control interfaces through use of commercially recognized standards</li> <li>- Will continue configuration control of the CDL architecture, standards, specifications and modules</li> <li>- Will continue development of CDL test equipment capable of compliance testing to the latest, validated version of CDL specifications</li> </ul> <p><b>FY 2020 OCO Plans:</b> Not Applicable</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase in FY20 funding due to inflation adjustment.</p>					
<p><b>Title:</b> Common Data Link (CDL) Cryptographic Modernization</p> <p><b>Description:</b> Phased development effort to modernize CDL Communications Security (COMSEC) devices and standards to maximize performance and reduce SWaP requirements while supporting interoperability, commonality, modularity, portability, remote management, multi-level security and releasability.</p> <p><b>FY 2019 Plans:</b></p> <ul style="list-style-type: none"> <li>- Complete development of generation two (Gen 2) Nano and Mini cryptographic core modernization (CCM) modules for US and NATO release</li> <li>- Complete Nano and Mini CCM Security Validation Testing (SVT) and subsequent National Security Agency (NSA) information assurance (IA) certification</li> <li>- Continue development of multi-channel, gigabit data rate (Mega) cryptographic cores with Gen 2 advances</li> <li>- Continue development and design of common End Cryptographic Units (ECUs) for use with medium- and large-sized ISR terminals</li> <li>- 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</li> </ul>	6.819	7.000	6.100	0.000	6.100

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2020 Air Force **Date:** February 2019

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
--	--

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
<ul style="list-style-type: none"> <li>- 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</li> <li>- 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</li> </ul> <p><b><i>FY 2020 Base Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Will develop software and firmware upgrades for generation two (Gen 2) Nano and Mini cryptographic core modernization (CCM) modules for US and NATO release</li> <li>- Will submit Engineering Change Proposals (ECP) for Nano and Mini CCM Security Validation Testing (SVT) and subsequent National Security Agency (NSA) information assurance (IA) certification</li> <li>- Will continue development of multi-channel, gigabit data rate (Mega) cryptographic cores with Gen 2 advances</li> <li>- Will continue development and design of common End Cryptographic Units (ECUs) for use with medium- and large-sized ISR terminals</li> <li>- Will 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</li> <li>- 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</li> <li>- 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</li> </ul> <p><b><i>FY 2020 OCO Plans:</i></b> Not Applicable</p> <p><b><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i></b> Increase in FY20 funding due to inflation adjustment.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	40.838	41.880	36.910	0.000	36.910

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

**Remarks**

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force Date: February 2019

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
--	--

**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 the Airborne Network Division (AFLCMC/HNA). The CDL EA develops interoperable ISR data links mandated for use by Assistant Secretary of Defense (Networks and Information Integration) (ASD(NII)) 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.

**F. Performance Metrics**  
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force** **Date:** February 2019

<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>	<b>Project (Number/Name)</b> 641334 / <i>Common Data Link (CDL)</i>
--	--	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Air Force Information Assurance Modernization / Network Management	MIPR	NSA : Ft Meade, MD	-	7.000	Jan 2018	7.000	Jan 2019	6.100	Nov 2019	-		6.100	Continuing	Continuing	-
Generic ECU	C/Variou	MIT/LL : TBD	-	-		-		1.250	Dec 2019	-		1.250	Continuing	Continuing	-
Air Force Network Modernization	MIPR	Air Force : Various	-	7.000	Nov 2017	5.000	Nov 2018	1.200	Jan 2020	-		1.200	Continuing	Continuing	-
Marine CDL for Tactical UAS	Variou	Various : Various	-	0.000		-		-		-		-	Continuing	Continuing	-
Terminal Database	C/CPFF	Booze Allen : McClean, VA	-	0.700	Nov 2017	0.700	Nov 2018	0.700	Dec 2019	-		0.700	Continuing	Continuing	-
Compliance Test Tool	C/Variou	Various : Various	-	3.000	Mar 2018	3.000	Mar 2019	1.540	Feb 2020	-		1.540	Continuing	Continuing	-
Under Threshold Combined	Variou	Various : Various	-	4.981	Nov 2017	5.131	Nov 2018	1.872	Jan 2020	-		1.872	Continuing	Continuing	-
A2AD Waveform Analysis Demo	C/CPAF	Various : Various	-	-		-		6.325	Jan 2020	-		6.325	Continuing	Continuing	-
Navy Multi Beam	C/Variou	Navy : Various	-	-		-		1.200	Jan 2020	-		1.200	Continuing	Continuing	-
BE-CDL SDR	C/Variou	AFRL : Various	-	-		-		0.200	Dec 2019	-		0.200	Continuing	Continuing	-
<b>Subtotal</b>			-	22.681		20.831		20.387		-		20.387	Continuing	Continuing	N/A

<b>Support (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Service Tech Support & Spec Development	MIPR	Various : Various	-	8.900	Dec 2017	9.000	Dec 2018	5.725	Nov 2019	-		5.725	Continuing	Continuing	-
<b>Subtotal</b>			-	8.900		9.000		5.725		-		5.725	Continuing	Continuing	N/A

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force** **Date:** February 2019

<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>	<b>Project (Number/Name)</b> 641334 / <i>Common Data Link (CDL)</i>
--	--	--

<b>Test and Evaluation (\$ in Millions)</b>				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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 Center (JITC)	MIPR	JITC : Ft Huachuca, AZ	-	0.800	Mar 2018	1.000	Mar 2019	0.800	Feb 2020	-		0.800	Continuing	Continuing	-
46 Test Squadron	PO	46 TS/OGEX : Eglin AFB, FL	-	0.369	Nov 2017	0.369	Nov 2018	0.318	Mar 2020	-		0.318	Continuing	Continuing	-
<b>Subtotal</b>			-	1.169		1.369		1.118		-		1.118	Continuing	Continuing	N/A

<b>Management Services (\$ in Millions)</b>				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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			
PMA-MITRE Engineering Support (FFRDC)	SS/T&M	MITRE Corp : Bedford, MA	-	0.000		-		-		-		-	Continuing	Continuing	-
PMO/Service- MITRE Engineering Direct Mission Support (FFRDC)	SS/T&M	MITRE Corp. : Bedford, MA	-	5.650	Nov 2017	5.650	Nov 2018	5.521	Oct 2019	-		5.521	Continuing	Continuing	-
PMA - PMO Support (A&AS)	C/CPFF	PE Systems : Littleton, MA	-	0.860	Jul 2018	0.860	Jul 2019	1.250	Nov 2019	-		1.250	Continuing	Continuing	-
PMA - Under Threshold Program Mgmt/Tech Support	Various	Various : Various	-	1.578	Dec 2017	4.170	Dec 2018	2.909	Dec 2019	-		2.909	Continuing	Continuing	-
<b>Subtotal</b>			-	8.088		10.680		9.680		-		9.680	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
<b>Project Cost Totals</b>		-	40.838	41.880	36.910	-	36.910	Continuing	Continuing	N/A

**Remarks**



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force		<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>	<b>Project (Number/Name)</b> 641334 / <i>Common Data Link (CDL)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Common Data Link</b>				
CDL Technology Advancement	1	2018	4	2024
- Spectrum efficient/Frequency agile CDL	1	2018	4	2022
- Capability Gap Analysis / Roadmap Update	1	2018	3	2019
- Multi-access / Mesh Network Advancements	1	2018	4	2024
CDL Specification Development, Validation, Test and Maintenance	1	2018	4	2024
- SUAS SWAP Constrained Rev B Terminals	1	2018	4	2019
- CDL Compliance Test Set	1	2018	4	2020
CDL Cryptographic Modernization	1	2018	4	2022
- Multi-algorithm US/Coalition crypto core modules (Generation 2)	1	2018	3	2019
- End Cryptographic Unit (ECUs) design	3	2018	4	2020