Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force											Date: May 2017	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305236F / *Common Data Link Executive Agent (CDL EA)*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	43.709	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
674819: *Common Data Link (CDL)*	-	43.709	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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 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 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 swath of tactical, operational, and strategic ISR users and include achieving higher data rates, multi-access and multi-node network management, crypto upgrade, 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 Gigabit Encryption thrust enables CDL to develop a miniaturized gigabit rate Communication Security (COMSEC) device capable of managing CDL data. The miniaturized COMSEC device will allow faster throughput while reducing Size, Weight, and Power (SWaP) requirements.

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

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B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	43.796	0.000	0.000	0.000	0.000
Current President's Budget	43.709	0.000	0.000	0.000	0.000
Total Adjustments	-0.087	0.000	0.000	0.000	0.000
• 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	-0.087	0.000	0.000	0.000	0.000

C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Common Data Link (CDL) Technology Advancement	31.709	0.000	0.000
Description: CDL evolutionary terminal development, advanced technology insertion, demonstrations and studies per CDL Integrated Product Team (IPT) direction to the CDL Executive Agent (CDL EA). ***FY 2016 Accomplishments:*** Continue development and testing of Higher Data Rates to existing and emerging terminals, while also prototyping terminal development that combines Size, Weight and Power (SWaP) improvements with higher data rate capability. Continue development of technology that allows for adapting and testing of networking, as well as more effective ground and lightweight airborne terminal components. Continue to move forward with development of multispectral operations flexibility, increased spectrum efficiency and integration of improved transmission components. Continue development of enhanced, CDL-based ISR communications capabilities across multiple platforms and rapid prototyping efforts. Continue 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. ***FY 2017 Plans:*** In FY17 these activities will be reported in Budget Activity 4, PE 0305236F, Project 641334, CDL ***FY 2018 Plans:*** In FY18 these activities will be reported in Budget Activity 4, PE 0305236F, Project 641334, CDL			
Title: Common Data Link (CDL) Specification Maintenance and Development	5.000	0.000	0.000

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Description: CDL specification testing, maintenance, development, validation, configuration control, and distribution per CDL Integrated Product Team (IPT) direction to CDL Executive Agent (EA). ***FY 2016 Accomplishments:*** Continue to research and development upgrades of current and future specification employment profiles that include the adding of capabilities required to support the Joint Aerial Layer Network (JALN) High Capacity Backbone (HCB), A2AD requirements, and other emerging operational capabilities. Continue the development of spectrally efficient CDL waveform specification, while gathering requirements and planning for future mesh networking enhancements. Continue to work with CDL industry partners and DoD Services to document, validate and implement common terminal control interfaces through the use of commercially recognized standards. Maintain configuration control of the CDL architecture, standards, specifications and modules. Continue the development of CDL test equipment capable of compliance testing to the latest, validated version of CDL specifications. ***FY 2017 Plans:*** In FY17 these activities will be reported in Budget Activity 4, PE 0305236F, Project 641334, CDL ***FY 2018 Plans:*** In FY18 these activities will be reported in Budget Activity 4, PE 0305236F, Project 641334, CDL			
Title: Gigabit Encryption ***Description:*** Develop a miniaturized gigabit rate COMSEC device capable of handling CDL data rates. Miniaturizing COMSEC components will enable faster data throughput (greater than 12 GBPS) and reduce size, weight, and power. Once developed, CDL users will have to procure COMSEC components and fund installation/integration. ***FY 2016 Accomplishments:*** Continue the development effort for small form factor modular COMSEC devices capable of gigabit rates. Conduct prototyping and testing of the second generation crypto core and design/development of the third generation crypto core. ***FY 2017 Plans:*** In FY17 these activities will be reported in Budget Activity 4, PE 0305236F, Project 641334, CDL ***FY 2018 Plans:*** In FY18 these activities will be reported in Budget Activity 4, PE 0305236F, Project 641334, CDL	7.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	43.709	0.000	0.000

D. Other Program Funding Summary ($ in Millions)

N/A

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D. Other Program Funding Summary ($ in Millions)

Remarks

E. Acquisition Strategy

The Air Force, designated as the Common Data Link (CDL) Executive Agent, supported by each of the Services' CDL program's Service laboratories, the Airborne Network Division (AFLCMC/HNA), and the Defense Information Systems Agency (DISA), provide for development of interoperable ISR data links as mandated by the Assistant Secretary of Defense (Networks and Information Integration) (ASD(NII)) policy. Once CDL technology development matures, platforms are responsible for program CDL procurement, National Security Agency (NSA), Joint Interoperability Test Command (JITC), and DISA certifications, integration, and installation. Acquisition strategy varies by contract. When 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.