Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force	Date: March 2024
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	-	120.186	74.023	78.480	0.000	78.480	85.439	137.907	94.451	96.210	Continuing	Continuing
655050: *TDL System Integration*	-	120.186	74.023	78.480	0.000	78.480	85.439	137.905	94.449	96.208	Continuing	Continuing
655262: *Family of Gateways**	-	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.002	Continuing	Continuing

*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2025

Note

N/A

A. Mission Description and Budget Item Justification

Air Force operations rely on secure communications capability for Command-and-Control messages, threat messages, target updates, etc. Adversaries continually attempt to detect, intercept, decrypt, defeat, disrupt, deny or degrade these communications capabilities--driving the Air Force to continuously upgrade its systems with enhanced encryption, increased technology for low probability of detection (LPD), low probability of interception (LPI), anti-jamming (AJ), increased security and performance engineering, and enhanced throughput and interoperability. These efforts ensure life-saving data can be transmitted before, during and after operations without adversary hostile intervention via secure and reliable communication paths. The communications paths utilized are often referred to as datalinks over which are transmitted messages via specific waveforms through radios, multi-function processors and affiliated and associated technologies in accordance with specifications and standards.

The Tactical Data Networks Enterprise (TDNE) program element analyzes and evaluates requirements, designs, develops, enhances, and fields prospective or needed systems. The TDNE focuses on the research, analysis, design, development, test, evaluation and fielding or other capability development of Tactical Datalink (TDL), gateway, radio, multi-function processor, antenna, multi-function aperture, license, waveform and other associated equipment, technology or capabilities. TDNE develops, enhances and fields technologies, architectures, documentation, tactics, techniques, procedures and capabilities. These efforts enhance Air Force communications capacity, efficiency, affordability, integration and optimization. TDNE supports interoperability of Air Force to: Air Force, Joint, Coalition, and NATO (Allied), and other partner platforms and systems; supports releasability engineering, cyber engineering, digital engineering, encryption and safety compliance, et al.

Tactical Data Links (TDL) System Integration provides for the study, analysis, enhancement, development, integration, demonstration, joint/coalition/NATO interoperability exercises, costing, test, trials, and evaluation of TDL as a subset of the broader aerial layer network. Products include interoperability standards and reports, waveform standards, and hardware/software technical solutions. The number of Air Force platforms hosting TDLs has expanded from C2 aircraft to the fighter, bomber, intelligence, surveillance, and reconnaissance (ISR), tanker, airlift and other tactical fleets as well as precision guided munitions. Utilization of TDLs in joint and international environments requires the integration of terminals into host platforms and interoperability of TDL networks across all deployed joint/ Coalition/NATO platforms. USAF mandates require additional studies and analysis to meet frequency reprogramming and cryptographic requirements. To deliver TDL capabilities to required platforms and users, Tactical Data Links (TDL) System Integration is broken into four main thrusts of Tactical Data Links and Gateways (TDL&G) Integration, Advanced Aerial Communication Technology (AACT), the Common Tactical Edge Network (CTEN) program (which evolved from and includes prior Agile Communications efforts), and Second-Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) activities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force	Date: March 2024
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*

Tactical Data Links and Gateways (TDL&G) Integration activities consist of TDL integration and waveform management to ensure host platforms and users have current TDL waveforms, network access, and interoperability. This includes enabling and supporting Joint Interoperability of Tactical Command and Control Systems (JINTACCS), joint/Coalition/NATO Interoperability, Link 16 enhancements, cybersecurity and performance testing, requirements analysis and fleet roadmapping efforts. In addition to integration efforts for new and existing TDLs, these activities require funding for test units and facilities, interoperability management systems, and assessment tools to implement waveform standards to meet system information exchange requirements.

Advanced Aerial Communication Technology (AACT) activities consist of developing and demonstrating new technologies to enable host platforms and users. This includes but is not limited to the development of capabilities to reduce the effects of advanced jamming in Anti-Access/Area Denial environments and increase communications resiliency for platforms and users. Technical solutions developed under this effort include, but are not limited to, Protected Tactical Waveform (PTW), Small Form Factor (SFF)/Digitally Assisted Close Air Support (DACAS), SPOC and Link 16 Enhancements.

The Common Tactical Edge Network (CTEN) program evolved from and incorporates prior Agile Communications efforts to enhance interoperability. It includes the capability to share tactically significant information within/to/from highly contested environments in support of the Air Superiority 2030 Flight Plan. It supports the application of open standards and advanced apertures over an Enterprise-wide Aerial Network, enabling all platforms to share combat-relevant data/info to, from and within the Highly Contested Environment (HCE). The CTEN program is primarily a software (SW) overlay network that routes data within and between permissive, contested, and highly contested environments through content routing to establish connections between heterogeneous networks across different media and domains. CTEN is considered a core enabling program for the DAF Battle Network and is a key enabler of the Advanced Battle Management System (ABMS). The CTEN efforts include the prior classified and unclassified Agile Communications efforts, along with their interoperability with affiliated cross-Service and Joint capabilities and efforts such as the Joint Tactical Edge Network (JTEN).

Second-Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) activities consist of executing the Waveform Sponsor role for SATURN as well supporting Headquarters Air Force in its Lead Service role for SATURN. Each role consists of several distinct engineering and development responsibilities, to include, but not limited to leading and overseeing the development, refinement, updating, and US interoperability of the SATURN Waveform and its associated development efforts such as, for example, the SATURN Enhanced Data Rate (SEDR) program.

Family of Gateways provides for the study (acquisitions current and proposed), analysis, enhancement, development, integration, costing, demonstration, test, and evaluation efforts that will allow joint combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, maritime, and space-based C4ISR networks producing operational effects not possible within individual networks. Gateway functions include enabling interoperability between data formats, protocols, and communication mediums. Additionally, gateway functions extend the connectivity range, consolidate data from multiple networks into high-capacity links for transmission to key C2ISR nodes, route information between disadvantaged users, and fuse/correlate data from multiple sources to improve accuracy. Gateway functions also provide application hosting, shared data storage, on-demand information access, smart data forwarding, and system monitoring and network management. Family of Gateways will support to enhance existing TDL performance, through upgrades and engineering analysis of system designs.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force	Date: March 2024
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*

This program element may include necessary civilian pay expenses required to support, manage, execute, and deliver weapon system capabilities across the BACN platforms, aerial network, and tactical data network enterprise. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2023, 0.900M was expended for civilian pay expenses in this program element. In FY2024, 1.272M is forecasted for civilian pay expenses in this program element.

FY 2023 includes 0 thousand in Overseas Operations Costs (OOC) Actuals. FY 2024 includes 1,792 in OOC Requested. FY 2025 includes 1,831 for the OOC Budget Estimate. OOC were financed previously with former Overseas Contingency Operations (OCO) funding.

Fiscal Year (FY) 2025 Overseas Operations Costs funding accounted for in the Base budget total 1,831.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	129.941	74.023	74.432	0.000	74.432
Current President's Budget	120.186	74.023	78.480	0.000	78.480
Total Adjustments	-9.755	0.000	4.048	0.000	4.048
• 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	-6.000	0.000			
• SBIR/STTR Transfer	-3.755	0.000			
• Other Adjustments	0.000	0.000	4.048	0.000	4.048

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: 655050: *TDL System Integration*		
Congressional Add: *Software Programmable Open Mission System (OMS) Compliant (SPOC)*	6.806	0.000
Congressional Add Subtotals for Project: 655050	6.806	0.000
Congressional Add Totals for all Projects	6.806	0.000

Change Summary Explanation

FY2025:

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force	Date: March 2024
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*

- PB increase from previous PB due to addition of SATURN enhanced data rate (SEDR) requirement into SATURN's waveform performance, increased program support costs, increased test costs, and inflation.

FY2023:
- KC-135 Advanced Intel Gateway has been reprogrammed out of PE 0604281F -6M to PE 0401218F.
- SBIR -3.755M

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604281F / *Tactical Data Networks Enterprise*	Project (Number/Name) 655050 / *TDL System Integration*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
655050: *TDL System Integration*	-	120.186	74.023	78.480	0.000	78.480	85.439	137.905	94.449	96.208	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Tactical Data Networks Enterprise (TDNE) program element analyzes and evaluates requirements, designs, develops, enhances, and fields prospective or needed systems. The TDNE focuses on the research, analysis, design, development, test, evaluation and fielding or other capability development of Tactical Datalink (TDL), gateway, radio, multi-function processor, antenna, multi-function aperture, license, waveform and other associated equipment, technology or capabilities. TDNE develops, enhances and fields technologies, architectures, documentation, tactics, techniques, procedures and capabilities. These efforts enhance Air Force communications capacity, efficiency, affordability, integration and optimization. TDNE supports interoperability of Air Force to: Air Force, Joint, Coalition, and NATO (Allied), and other partner platforms and systems; supports releasability engineering, cyber engineering, digital engineering, encryption and safety compliance, et al.

Tactical Data Links (TDL) System Integration provides for the study, analysis, enhancement, development, integration, demonstration, joint/coalition/NATO interoperability exercises, costing, test, trials, and evaluation of TDL as a subset of the broader aerial layer network. Products include interoperability standards and reports, waveform standards, and hardware/software technical solutions. The number of Air Force platforms hosting TDLs has expanded from C2 aircraft to the fighter, bomber, intelligence, surveillance, and reconnaissance (ISR), tanker, airlift and other tactical fleets as well as precision guided munitions. Utilization of TDLs in joint and international environments requires the integration of terminals into host platforms and interoperability of TDL networks across all deployed joint/ Coalition/NATO platforms. USAF mandates require additional studies and analysis to meet frequency reprogramming and cryptographic requirements. To deliver TDL capabilities to required platforms and users, Tactical Data Links (TDL) System Integration is broken into four main thrusts of Tactical Data Links and Gateways (TDL&G) Integration, Advanced Aerial Communication Technology (AACT), the Common Tactical Edge Network (CTEN) program (which evolved from and includes prior Agile Communications efforts), and Second-Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) activities.

Tactical Data Links and Gateways (TDL&G) Integration activities consist of TDL integration and waveform management to ensure host platforms and users have current TDL waveforms, network access, and interoperability. This includes enabling and supporting Joint Interoperability of Tactical Command and Control Systems (JINTACCS), joint/Coalition/NATO Interoperability, Link 16 enhancements, cybersecurity and performance testing, requirements analysis and fleet roadmapping efforts. In addition to integration efforts for new and existing TDLs, these activities require funding for test units and facilities, interoperability management systems, and assessment tools to implement waveform standards to meet system information exchange requirements.

Advanced Aerial Communication Technology (AACT) activities consist of developing and demonstrating new technologies to enable host platforms and users. This includes but is not limited to the development of capabilities to reduce the effects of advanced jamming in Anti-Access/Area Denial environments and increase communications resiliency for platforms and users. Technical solutions developed under this effort include, but are not limited to, Protected Tactical Waveform (PTW), Small Form Factor (SFF)/Digitally Assisted Close Air Support (DACAS), Software Programmable Open Mission System (OMS) Compliant (SPOC) radio and Link 16 Enhancements.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

The Common Tactical Edge Network (CTEN) program evolved from and incorporates prior Agile Communications efforts to enhance interoperability. It includes the capability to share tactically significant information within/to/from highly contested environments in support of the Air Superiority 2030 Flight Plan. It supports the application of open standards & advanced apertures over an Enterprise-wide Aerial Network, enabling all platforms to share combat-relevant data/info to, from and within the Highly Contested Environment (HCE). The CTEN program is primarily a software (SW) overlay network that routes data within and between permissive, contested, and highly contested environments through content routing to establish connections between heterogeneous networks across different media and domains. CTEN is considered a core enabling program for the DAF Battle Network and is a key enabler of the Advanced Battle Management System (ABMS). The CTEN efforts include the prior classified and unclassified Agile Communications efforts, along with their interoperability with affiliated cross-Service and Joint capabilities and efforts such as the Joint Tactical Edge Network (JTEN).

Second-Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) activities consist of executing both the Waveform Sponsor role for SATURN as well supporting Headquarters Air Force in its Lead Service role for SATURN. Each role consists of several distinct engineering and development responsibilities, to include, but not limited to leading and overseeing the development, refinement, updating, and US interoperability of the SATURN Waveform and its associated development efforts such as, for example, the SATURN Enhanced Data Rate (SEDR) program.

This program element may include necessary civilian pay expenses required to support, manage, execute, and deliver weapon system capabilities across platforms, aerial network, and tactical data network enterprise. 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, 0606398F. In FY2023, 0.900M was expended for civilian pay expenses in this program element. In FY2024, 1.272M is forecasted for civilian pay expenses in this program element.

FY 2023 includes 0 thousand in Overseas Operations Costs (OOC) Actuals. FY 2024 includes $1,792 in OOC Requested. FY 2025 includes $1,831 for the OOC Budget Estimate. OOC were financed previously with former Overseas Contingency Operations (OCO) funding.

Fiscal Year (FY) 2025 Overseas Operations Costs funding accounted for in the Base budget total $1,831.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Tactical Data Links and Gateways (TDL&G) Integration	26.169	23.139	23.429
Description: TDL&G Integration activities include but are not limited to, Data Link Test Facility (DTF), Air Force Participating Test Unit (AFPTU), Network Centric Capability Assessment (NCCA), Joint/Coalition/NATO Interoperability, Analysis of Alternatives (AoA) follow-on, gateway planning as well as Joint Interoperability of Tactical Command and Control Systems (JINTACCS) ensures interoperability of TDL systems with associated joint, allied, and Coalition systems. It includes configuration management of TDL Military Standards (MIL-STDs), TDL message development, interoperability test/certification, and TDL message standard implementation using interoperable System Management and Requirements Transformation (iSMART) for Link 16, Link 22, Intra-flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), and others.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Efforts also include AFPTU will purchase hardware and software in support for testing Link 16 updates made by contractors and MAJCOMs to ensure they are in compliance with MIL STD 6016, the Link 16 specification. JINTACCS reviews changes requested to the MIL STD Link16 specification to support various MAJCOM and coalition engagements that present new changes to the specification or changes to the message formats along with other documentation that could also impact the specification. Requirement analysis includes engagements with contractors and Federally Funding R&D Centers (FFRDC) regarding future capabilities/initiatives by conducting studies and analysis that will then feed into future requirements and capabilities. ***FY 2024 Plans:*** -Manage the development, certification, training and logistics plans for individual TDL implementations to Joint/ allied standards. -Provide the necessary engineering, technical, and administrative support required to add and/or update Air Force platform and system information exchange requirements. -Ensure compatibility and interoperability of TDLs by funding required Air Force/joint MIL-STD compliance and interoperability tests. -Ensure compatibility and interoperability of TDLs by developing TDL messaging capability to address new or updated operational requirements. ***FY 2025 Plans:*** -Will continue to manage the development, certification, training and logistics plans for individual TDL implementations to Joint/ allied standards. -Will continue to provide the necessary engineering, technical, and administrative support required to add and/or update Air Force platform and system information exchange requirements. -Will continue to ensure compatibility and interoperability of TDLs by funding required Air Force/joint MIL-STD compliance and interoperability tests. -Will continue to ensure compatibility and interoperability of TDLs by developing TDL messaging capability to address new or updated operational requirements ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY2025 increased due to estimated program support costs, testing costs and inflationary increases across TDN Integration efforts.			
Title: High Capacity Backbone (HCB)	7.522	0.000	0.000
Description: High Capacity Backbone (HCB) is an expeditionary dynamic network made up of aerial and ground nodes that augment existing communication networks to greatly increase connectivity, network capacity, and information sharing at all			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
security levels in order to effectively employ military capability across the range of military operations. HCB reduces joint forces reliance on limited, relatively fixed/static satellite and surface line-of-sight communication components. HCB rapid prototyping is a demonstration of HCB network transport installed in existing USAF aircraft and deployable ground entry points that meets this Rapid Prototyping Requirements Document's threshold technical and functional requirements while operating as an integral part of an aerial layer network in a realistic operational environment. HCB capabilities are required to close four specific capability gaps: network connectivity, network capacity, share information and data, and network management. ***FY 2024 Plans:*** No FY2024 funding. ***FY 2025 Plans:*** -HCB contract was terminated in April 2023. No further activities planned.			
Title: Advanced Aerial Communication Technology (AACT) ***Description:*** The AACT effort is not new, but a regrouping of prior efforts and evolving similar activities. It includes all technology developments efforts required to enhance the execution of combat in contested and highly contested environments. It includes areas of prior investment such as the Protected Tactical Waveform (PTW), the Small Form Factor Efforts (SFF), the Software Programmable Open Mission Systems (OMS) Compliant (SPOC) multi-function processor (MFP), and other similar activities such as new MFP development, or incorporation or integration of advanced communications technology efforts. Protected Tactical Waveform (PTW) is a waveform designed to mitigate the effects of advanced jamming in Anti- Access/Area Denial environments, and prior efforts included the HAAM-R and BiFrost projects. Small Form Factor (SFF) efforts support the development and demonstration of Small Form Factor (SFF) technologies that can support Digitally Assisted Close Air Support (DACAS) and other missions across the full spectrum of operating environments. This effort considers System-of-Systems (SoS) engineering, technical analysis/performance, platform integration, and Tactics, Techniques, and Procedures (TTPs) to best utilize technologies and acquisition approaches for enterprise modernization. SFF Phase II (TURTLE) is a rapid prototyping and demonstration effort. Link 16 Enhancements develop and field Link 16 Anti Jam (AJ) capabilities on 4th and 5th generation platforms to address Link 16 jamming threats in the contested and highly contested environments. This effort implements Link 16 technologies into TDL terminals and investigates integration of additional baseline(s) to efficiently execute development and enhancements. Emerging technologies are developed and evaluated for efficacy; recommendations are identified for appropriate terminal fielding/upgrades to platforms and will be considered when evaluating enterprise TDL capabilities/gaps.	32.354	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Early development of Software Programmable Open mission system Compliant (SPOC) radio was completed within Link 16 Enhancements efforts. An FY23 Congressional Add for this effort is geared to integrating and testing new waveforms and pursuing platform integration. ***FY 2024 Plans:*** No FY2024 funding requested. . ***FY 2025 Plans:*** No FY2025 funding requested.			
Title: Agile Comms - Common Tactical Edge Network (CTEN)	47.335	49.094	49.309
Description: Agile Comms supports the application of open standards, multi-function processors, and advanced apertures over an Enterprise-wide Aerial Network, enabling all platforms to share combat-relevant data/info to, from and within the Highly Contested Environment (HCE) regardless of the data link and messages format that they are operating on, to include supporting the development of airborne gateways. Agile Comms also supports initial integration of advanced communications and networking capabilities onto tactically-relevant aircraft. Finally, this effort supports planning, data collection, development and analysis for initial technology maturation experimentation campaign. Common Tactical Edge Network (CTEN) effort within Agile Comms addresses unique challenges of DoD networks by using content routing to establish connections between heterogeneous networks across different media and domains. It is a software (SW) overlay network that routes data within and between permissive, contested, and highly contested environments. CTEN is being developed for integration on various platforms, allowing the flexibility to support various missions, to meet the needs of the DoD Network in the future. The effort will also continue to support message translation and extensible markup languages (XMLs) development. Additional work will continue to support advanced non proprietary antenna apertures supporting various missions. Work will continue in the study/analysis of a ATDL waveform to meet the needs of the modern warfighter. ***FY 2024 Plans:*** -Continue to develop and demonstrate the Common Tactical Edge Network (CTEN) Minimum Viable Product (MVP) through release of MVP 1.0 and MVP 2.0. -Continue the development of the software architecture and support advanced non-proprietary antenna apertures necessary to mature the Enterprise Approach to the Joint Aerial Network and deliver reference architecture for use in follow-on CTEN Software Development and Integration.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
-Begin development of enterprise waveforms capabilities in direct support of connect the quad initiative to include the study/ analysis of associated waveforms to meet the needs of the modern/future warfighters. ***FY 2025 Plans:*** -Will continue to develop and demonstrate the Common Tactical Edge Network (CTEN) Minimum Viable Product (MVP) through release of MVP 3.0. -Will complete systems architecting and continue to support advanced non proprietary antenna apertures necessary to mature the Enterprise Approach to the Joint Aerial Network. -Will continue development of enterprise waveforms capabilities in direct support of connect the quad initiative to include the study/analysis of associated waveforms to meet the needs of the modern/future warfighters. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY2025 funding increase due to minor inflationary impacts.			
Title: Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) ***Description:*** SATURN is a fast frequency hopping waveform that was developed as a replacement for the Have Quick waveform. The upgrade to SATURN will provide an improved radio resistant to jamming through fast frequency hopping and digital modulation techniques. ***FY 2024 Plans:*** -Continue to update the waveform specification complying with NATO STANAG and testing utilizing the Reference Implementation Lab (RIL). ***FY 2025 Plans:*** -Will continue to update the waveform specification complying with NATO STANAG and testing utilizing the Reference Implementation Lab (RIL). -Will perform SEDR analysis and evaluation activities to enable porting SEDR on Air-to-Air and Air-to-Ground radios to incorporate text/data capability. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** -FY2025 increase due to integration of SATURN enhanced data rate (SEDR) with SATURN's waveform performance standard to incorporate text/data capability and efforts to port SEDR on Air-to-Air & Ground-to-Air Radios.	-	1.790	5.742
Accomplishments/Planned Programs Subtotals	113.380	74.023	78.480

	FY 2023	FY 2024
Congressional Add: Software Programmable Open Mission System (OMS) Compliant (SPOC)	6.806	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

	FY 2023	FY 2024
FY 2023 Accomplishments: -Completed development and demonstration of the two prototypes. -Began Phase 2 to update the SPOC radio to meet cryptological, environmental and airworthiness compliance. ***FY 2024 Plans:*** -Develop and port two classified waveforms onto the SPOC radio for the F-35 using Service-requested realignment of funds. -Develop and port a classified, government-owned waveform onto SPOC using both FY23 congressional funds and FY24 Service-requested realignment of funds; expecting FY24 internal DAF reprogramming of $5M and $6.5M congressional add.		
Congressional Adds Subtotals	6.806	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• RDTE 07 PE 0207448F: *C2ISR TDL*	1.616	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing
• APAF 05 Line Item F01500: *F-15*	21.310	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• APAF 05 Line Item F01600: *F-16*	8.851	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• APAF 05 Line Item B00200: *B-2A*	0.213	0.216	0.221	-	0.221	-	-	-	-	Continuing	Continuing
• APAF 05 Line Item B01B00: *B-1B*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• OPAF 03 Line Item 834010: *General Information Technology*	1.731	36.164	0.815	-	0.815	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Airborne Networking Directorate provides for common development, integration, and interoperability across the entire airborne network and ensures that data links are procured and maintained as a joint, end-to-end command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604281F / *Tactical Data Networks Enterprise*	Project (Number/Name) 655050 / *TDL System Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TDL&G Integration	Various	Various : Various	-	11.451	May 2023	13.165	Jan 2024	9.526	Jan 2025	-		9.526	Continuing	Continuing	-
High Capacity Backbone (HCB)	C/TBD	Various : Various	-	7.522	Feb 2023	-		-		-		-	0.000	7.522	-
SATURN	C/Various	Not specified. : TBD	-	-		1.790	Mar 2024	5.742	Apr 2025	-		5.742	Continuing	Continuing	-
CTEN Agile Comms	Various	Various : Various	-	44.681	May 2023	46.424	Jan 2024	46.920	Jan 2025	-		46.920	Continuing	Continuing	-
AACT -SFF/DACAS Modernization and SoS Enterprise	Various	Various : Various	-	4.632	Feb 2023	-		-		-		-	0.000	4.632	-
AACT - Protected Tactical Waveform (PTW)	C/TBD	Not specified. : TBD	-	16.702	Oct 2023	-		-		-		-	0.000	16.702	-
AACT - Link 16 Enhancements	Various	Not specified. : TBD	-	11.020	Mar 2023	-		-		-		-	0.000	11.020	-
AACT -Software Programmable Open Mission System (OMS) Compliant (SPOC)	C/CPAF	Not specified. : TBD	-	6.806	Aug 2023	-		-		-		-	0.000	6.806	-
		Subtotal	-	102.814		61.379		62.188		-		62.188	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TDL&G Integration A&AS support	Various	Not specified. : TBD	-	6.819	May 2023	3.031	May 2024	3.773	Aug 2025	-		3.773	Continuing	Continuing	-
CTEN A&AS support	Various	Not specified. : TBD	-	2.654	Apr 2023	2.670	Apr 2024	2.389	Apr 2025	-		2.389	Continuing	Continuing	-
		Subtotal	-	9.473		5.701		6.162		-		6.162	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TDL&G Integration - DTF	PO	46th Test Squadron : Eglin AFB, FL	-	1.500	Nov 2022	1.500	Jan 2024	2.000	Nov 2024	-		2.000	Continuing	Continuing	-
TDL&G Integration - JINTACCS	C/FFP	TBD : Various	-	3.722	Mar 2023	3.412	Mar 2024	4.825	Mar 2025	-		4.825	Continuing	Continuing	-
TDL&G Integration - AFPTU	Various	Various : Various	-	2.083	Sep 2023	1.870	Mar 2024	2.500	May 2025	-		2.500	Continuing	Continuing	-
		Subtotal	-	7.305		6.782		9.325		-		9.325	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TDL&G Coalition	C/CPAF	MITRE : Bedford MA	-	0.594	Mar 2023	0.161	Mar 2024	0.805	Mar 2025	-		0.805	Continuing	Continuing	-
TDL&G Nato	C/CPAF	MITRE : Bedford MA	-	-		-		-		-		-	0.000	0.000	-
		Subtotal	-	0.594		0.161		0.805		-		0.805	Continuing	Continuing	N/A

	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	120.186		74.023		78.480		-		78.480	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

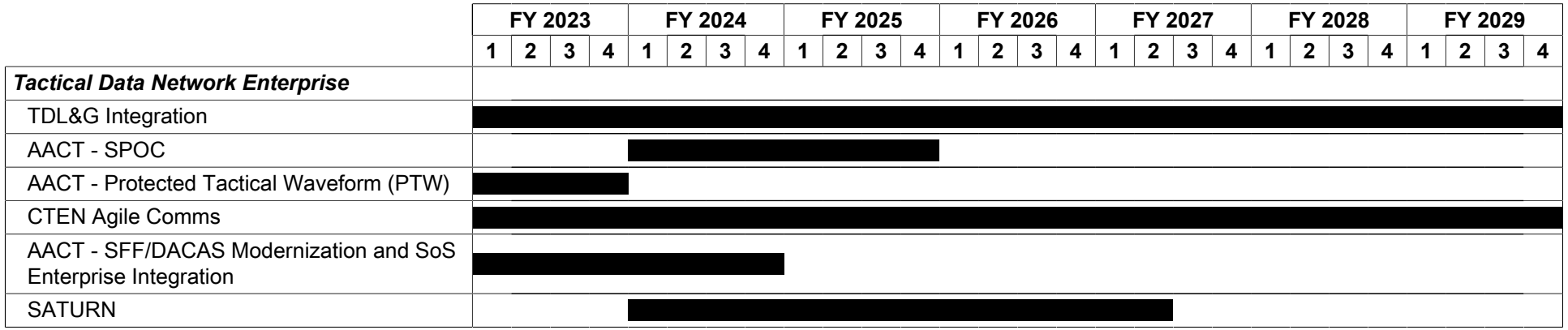

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Tactical Data Network Enterprise				
TDL&G Integration	1	2023	4	2029
AACT - SPOC	1	2024	4	2025
AACT - Protected Tactical Waveform (PTW)	1	2023	4	2023
CTEN Agile Comms	1	2023	4	2029
AACT - SFF/DACAS Modernization and SoS Enterprise Integration	1	2023	4	2024
SATURN	1	2024	2	2027