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

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	27.849	30.150	30.328	-	30.328	26.281	26.269	26.533	26.829	Continuing	Continuing
EF5: <i>Joint Tactical Network (JTN)</i>	-	9.644	10.714	10.240	-	10.240	4.222	4.226	4.272	4.319	Continuing	Continuing
EX6: <i>Waveforms</i>	-	18.205	19.436	20.088	-	20.088	22.059	22.043	22.261	22.510	Continuing	Continuing

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Priority.

EF5 project: This funding line is directly aligned to the Army Network Modernization Priority. This funding line supports the Army Network Modernization Strategy (LOE 1) and Unified Network and Joint Interoperability/Coalition Accessible (LOE 3). The Joint Enterprise Network Manager (JENM) software provides a single, converged network management tool allowing the Warfighter to plan, configure, load, and manage the Joint Services' Tactical Radios and their networks in the field - a capability not available in legacy planning systems. JENM funding supports several types of tactical radios, such as the Manpack and Rifleman, enabling them to utilize Mobile Ad Hoc Networking (MANET) and other waveforms to include: Mobile User Objective System (MUOS) waveform, Demand Assigned Multiple Access (DAMA) Satellite Communications (SATCOM), Integrated Waveform (IW), and Single Channel Ground and Airborne Radio System (SINCGARS) waveform. Using its Over-the-Air-Management (OTAM) functionality, JENM provides the Commander the ability to quickly reconfigure critical networks. JENM enhances the S6's ability to conduct Course of Action (COA) Analysis and the Military Decision Making Process (MDMP), providing commanders critical information regarding their ability to communicate.

FY 2024 funding will continue radio planner development efforts to design, engineer, integrate and test of planning and management capabilities for the Tactical Radio network in support of the Advanced Networking Waveform (ANWf). Continued development provides further integration of the Integrated Tactical Network (ITN) and Network Management of its emerging systems to enable Soldiers the ability to effectively manage the ITN. Radio planner development efforts will also support MUOS Waveform Planning Continuing System Improvements and rapid provisioning of MUOS end-user terminals.

Planning applications are deployed on, and critically tied to the Ruggedized Application Platform - Tactical Radios (RAP-TR) hardware from Division to the Company level.

EX6 project: Waveforms provides the transport technologies and capabilities necessary to support the overall connectivity of the Unified Network. Waveforms technology assessments, integration, and configuration management enable seamless updates and fluid communication between echelons of the Unified Network.

Waveforms delivers, maintains, and upgrades portable, interoperable, MANET waveforms, Advanced Networking Waveforms (ANWf), and network enterprise services in support of the Army's network modernization strategy.

Waveforms capabilities will remain agile to accommodate emerging warfighter needs by addressing the following:

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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>
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(1) Waveform (WF) analysis and system engineering activities for DoD as Lead Service Activity for Ground/Line of Sight (LoS) Waveforms (currently TSM, WREN, and SINCGARS) in accordance with DoD Instruction 4630.09, Communications Waveform Management and Standardization, 23 November 2020. (2) Development and/or integration efforts of Broadcast Waveforms (i.e. SINCGARS, WREN, ANWf) and Radio Services (i.e. enterprise Over The Air Management (eOTAM)) in support of Army Network modernization, and agile mission support initiatives. (3) Viability assessments of ANWf in support of the Integrated Tactical Network (ITN) and future capability sets to ensure waveform performance in advance of formal ITN experimentation and fielding activities.

FY 2024 RDT&E dollars will fund the continued development, integration, and testing of new capabilities and waveform enhancements for SINCGARS, WREN, TSM, and ANWf. As well as fund the next generation Government developed waveforms and Radio Service applications, system and architectural engineering for ANWf radio communications technologies, post deployment software support for fielded versions of the waveforms and radio services, program management support, and examine modular and open system architectures (MOSA) to for future integration and waveform porting efficiencies.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	28.905	30.169	24.697	-	24.697
Current President's Budget	27.849	30.150	30.328	-	30.328
Total Adjustments	-1.056	-0.019	5.631	-	5.631
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.056	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	5.631	-	5.631
• FFRDC Transfer	-	-0.019	-	-	-

Change Summary Explanation

Increase in FY 2024 funding request from Previous President's Budget to Current President's Budget to support further development efforts of Joint Tactical Network (JTN).

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EF5 / <i>Joint Tactical Network (JTN)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
EF5: <i>Joint Tactical Network (JTN)</i>	-	9.644	10.714	10.240	-	10.240	4.222	4.226	4.272	4.319	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

JENM 655031EF5 funding is aligned with the Joint Service Agreement established with the Army, Navy and Air Force. Since contributions from other Services are received annually, \$10,240K reflects the Army, Navy and Air Force funding in FY24, while FY25 and out reflects only the Army funding.

A. Mission Description and Budget Item Justification

EF5 project: This funding line is directly aligned to the Army Network Modernization Priority. This funding line supports the Army Network Modernization Strategy (LOE 1) and Unified Network and Joint Interoperability/Coalition Accessible (LOE 3).

The Joint Enterprise Network Manager (JENM) software provides a single, converged network management tool allowing the Warfighter to plan, configure, load, and manage the Joint Services' Tactical Radios and their networks in the field - a capability not available in legacy planning systems. JENM funding supports several types of tactical radios, such as the Manpack and Rifleman, enabling them to utilize Mobile Ad Hoc Networking (MANET) and other waveforms to include: Mobile User Objective System (MUOS) waveform, Demand Assigned Multiple Access (DAMA) Satellite Communications (SATCOM), Integrated Waveform (IW), and Single Channel Ground and Airborne Radio System (SINCGARS) waveform. Using its Over-the-Air-Management (OTAM) functionality, JENM provides the Commander the ability to quickly reconfigure critical networks. JENM enhances the S6's ability to conduct Course of Action (COA) Analysis and the Military Decision Making Process (MDMP), providing commanders critical information regarding their ability to communicate.

FY 2024 funding will continue radio planner development efforts to design, engineer, integrate and test of planning and management capabilities for the Tactical Radio network in support of the Advanced Networking Waveform (ANWf). Continued development provides further integration of the Integrated Tactical Network (ITN) and Network Management of its emerging systems to enable Soldiers the ability to effectively manage the ITN. Radio planner development efforts will also support MUOS Waveform Planning Continuing System Improvements and rapid provisioning of MUOS end-user terminals.

Planning applications are deployed on, and critically tied to the Ruggedized Application Platform - Tactical Radios (RAP-TR) hardware from Division to the Company level.

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

	FY 2022	FY 2023	FY 2024
Title: JENM Program Office Support	2.608	3.280	3.028
Description: Program Management Office support in the development of the JENM software.			
FY 2023 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EF5 / <i>Joint Tactical Network (JTN)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>The JENM program office will continue to support the expansion of JENM design, engineering, integration and test of planning and management capabilities for the Tactical Radio Network in support of Joint Service requirements through the use of Matrix and Contractor support. The JENM program office supports the vision of integrating lower and mid-tier Network Management capabilities to enable Soldiers to manage their entire consolidated tactical network in conjunction with network elements managed by Sailors, Marines, and Airmen. Program office funding will also support completion of MUOS waveform planning simplification and rapid provisioning of MUOS end-user terminals and expansion for deployment onto the Top Secret Enclave.</p> <p>FY 2024 Plans: The JENM program office will continue to support the expansion of JENM design, engineering, integration and test of planning and management capabilities for the Tactical Radio Network in support of Joint Service requirements through the use of Matrix and Contractor support. The JENM program office supports the vision of integrating lower and mid-tier Network Management capabilities to enable Soldiers to manage their entire consolidated tactical network in conjunction with network elements managed by Sailors, Marines, and Airmen. Program office funding will also support completion of MUOS waveform planning simplification and rapid provisioning of MUOS end-user terminals and expansion for deployment onto the Top Secret Enclave.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: JENM PMO reduced from FY23 to FY24 as the result of reduced contract costs for PMO activities.</p>				
<p>Title: JENM Development</p> <p>Description: JENM provides consolidated communications planning, network configuration, network activation, position reporting, fault management, security management, and network health and status reporting needed to establish and maintain a mobile wireless network comprised of SW defined network waveforms. JENM interfaces with other external network managers, mission planning systems, network planning systems, key management systems, and spectrum planning systems. JENM is considered a mission essential system. JENM is also considered a critical element within the Ruggedized Application Platform - Tactical Radios (RAP-TR) hardware configuration management tool kit.</p> <p>FY 2023 Plans: Development funding will continue design, engineering, integration and test of planning and management application for the Tactical Radio network. Support to align with Army Network Modernization to provide further integration of the lower and mid-tier Network Management for Integrated Tactical Network (ITN) to enable Soldiers the ability to manage the entire consolidated tactical network in conjunction with network elements managed by Sailors, Marines, and Airmen. Development funding will also support completion of MUOS waveform planning simplification and rapid provisioning of MUOS end-user terminals for joint service requirements.</p> <p>JENM planning applications are deployed on, and critically tied to the RAP-TR hardware from Division to the Company level.</p> <p>FY 2024 Plans:</p>		7.036	7.043	7.212

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Development funding will continue design, engineering, integration and test of planning and management application for the Tactical Radio network. Support to align with Army Network Modernization to provide further integration of the lower and mid-tier Network Management for Integrated Tactical Network (ITN) to enable Soldiers the ability to manage the entire consolidated tactical network in conjunction with network elements managed by Sailors, Marines, and Airmen. Development funding will also support completion of MUOS waveform planning simplification and rapid provisioning of MUOS end-user terminals for joint service requirements.</p> <p>JENM planning applications are deployed on, and critically tied to the RAP-TR hardware from Division to the Company level.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase reflects planned life cycle of this effort.</p>			
<p>Title: SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC §638</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638</p>	-	0.391	-
Accomplishments/Planned Programs Subtotals	9.644	10.714	10.240

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• B99318: <i>Joint Network Management System</i>	0.930	1.967	1.987	-	1.987	2.066	2.075	2.075	2.076	Continuing	Continuing

Remarks
PE 0605031A contains only the JTN (PdM Waveforms and PdM TCNO (JENM)) RDTE funding. Funding of the Joint Enterprise Network Manager (JENM) is achieved in total using Joint contributions to the Army budget shown here. The Joint contributions are provided in the year of execution and not reflected in the Army's request. Each Military Department (MILDEP) budgets for approximately one-third of the total program RDT&E requirements for joint efforts. Out-year funding is programmed in PE 0605031A by the Army, PE 0605031N by the Navy and PE 0605031F by the Air Force. JENM and baseline planning applications are deployed on the RAP-TR hardware from Division to the Company level. JENM Logistics & Training capabilities are captured under the Joint Network Management System OPA-2 line (JNMS B99318)

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D. Acquisition Strategy

Product Manager Tactical Cyber & Network Operations (TCNO) manages a Government Owned, Government Operated (GOGO) Software Development & Integration Facility which employs competitive contracting strategies for software development & sustainment of the network manager components to ensure warfighter access to the best technology and innovative capabilities while addressing emerging threats and future requirements via an affordable, operationally effective, and timely framework.

The Army will continue a radio planner effort that will plan, manage, and provision capabilities for simplified workflow based planning solutions to rapidly meet emerging capability requirements.

JENM will support continuing system improvements for JENM v3.5.X development, which includes upgrades of MUOS, upgrades to JENM Public Key Infrastructure (PKI) certificate management, and cyber enhancements.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army **Date:** March 2023

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / Joint Tactical Network (JTN)	Project (Number/Name) EF5 / Joint Tactical Network (JTN)
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Event Name	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JENM v3.5 Continuing System Improvements																												
JENM v3.5.x Continuing System Improvements																												
JENM v3.4 Logistics and Training Support																												
JENM v3.4 Sunset																												
JENM v3.5 Logistics and Training Support																												
JENM v3.5 Sunset																												
APB Expiration																												
Future Joint Software																												
Future Contracts																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army **Date:** March 2023

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EF5 / <i>Joint Tactical Network (JTN)</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JENM v3.5 Continuing System Improvements	2	2021	2	2023
JENM v3.5.x Continuing System Improvements	3	2023	4	2026
JENM v3.5 FQT	2	2020	2	2020
Next Generation Planner v1.0	4	2018	4	2019
Next Generation Planner v1.1	3	2019	4	2020
MUOS MOT&E 1	4	2019	4	2019
JENM v3.3.2 Sunset	4	2020	4	2020
JENM v3.4 Logistics and Training Support	4	2019	1	2023
JENM v3.4 Sunset	1	2023	1	2023
JENM v3.5 Logistics and Training Support	4	2021	4	2026
JENM v3.5 Sunset	4	2026	4	2026
APB Expiration	4	2026	4	2026
Future Joint Software	1	2027	1	2029
Future Contracts	1	2027	1	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army										Date: March 2023		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>				Project (Number/Name) EX6 / <i>Waveforms</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
EX6: <i>Waveforms</i>	-	18.205	19.436	20.088	-	20.088	22.059	22.043	22.261	22.510	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Priority.

This project provides the transport technologies necessary to support the overall connectivity of the Unified Network. Waveforms technology assessments, integration, and configuration management enable seamless updates and fluid communication between echelons of the Unified Network.

Waveforms delivers, maintains, and upgrades portable, interoperable, Mobile Ad-hoc Networking (MANET) waveforms, Advanced Networking Waveforms (ANWf), and network enterprise services in support of the ARMY network modernization strategy. These waveforms and services are deployed by technical insertion into production of Program of Record (PoR) radios and field upgrades to existing tactical radios.

Waveforms will remain agile to accommodate emerging warfighter needs by addressing the following:

- 1) Waveform (WF) analysis and system engineering activities for DoD as Lead Service Activity for Ground/Line of Sight (LoS) Waveforms (currently TSM), Warrior Robust Enhanced Network (WREN), and Single Channel Ground and Airborne Radio System (SINGARS)) in accordance with (IAW) Deputy Secretary of Defense memo for Enhancing DoD's Joint Tactical Networks and Datalink Modernization, 29 March 2019
- 2) Development and/or integration efforts of Broadcast Waveforms (i.e. SINGARS, WREN, ANWf) and Radio Services (i.e. enterprise Over The Air Management (eOTAM)) in support of Army Network modernization, and agile mission support initiatives
- 3) Viability assessments of ANWf in support of the Integrated Tactical Network (ITN) and future capability sets to ensure waveform performance in advance of formal ITN experimentation and fielding activities

FY 2024 RDT&E dollars will fund the continued development, integration, and testing of new capabilities and waveform enhancements for SINGARS, WREN, TSM, and ANWf. Additionally, funding supports the next generation Government developed waveforms and Radio Service applications, system and architectural engineering for ANWf radio communications technologies, post deployment software support for fielded versions of the waveforms and radio services, program management support, and examine modular and open system architectures (MOSA) to make future integration and waveform porting more efficient.

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

	FY 2022	FY 2023	FY 2024
Title: Program Management Office Support	2.979	2.732	2.968
Description: Waveform matrix and contractor support, including technical, logistics, and business staff oversight			
FY 2023 Plans:			

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Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Continue Program Management support for PdM Waveforms, including contractors. Funding will provide for matrix and contractor support for Waveforms engineering development, testing, and program oversight.</p> <p>FY 2024 Plans: Program Management support for PdM Waveforms. Funding will provide for matrix and contractor support for Waveforms engineering development, testing, and program oversight.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to an expected increase in matrix and contractor support for the Next Generation Waveform/SINCGARS replacement effort and annual inflation.</p>				
<p>Title: Waveforms Software Development</p> <p>Description: PdM Waveforms provides software development and waveforms support for tactical radios operational and networking requirements for the following: 1) Single Channel Ground and Airborne Radio System (SINCGARS) - Develop NexGen SINCGARS waveform to combat the adversary's near, mid, and far-term Electronic Attack/Electronic Warfare (EA/EW) capabilities 2) Warrior Robust Enhanced Network (WREN) Waveform will enhance range, scalability, and Electronic Protection (EP) for a unified transport to Army tactical networks. 3) Radio Services (i.e. enterprise Over The Air Management (eOTAM) in support of Army Network modernization, and agile mission support initiatives.</p> <p>FY 2023 Plans: Funding will support the requirement and initial design development of SINCGARS NexGen, WREN problem fixes and hardening the capability in support of the ITN and CS25. Support will include effort to alleviate Cyber Electro-Magnetic Activities (CEMA) threats for SINCGARS and WREN, including Lead Service activities, and Radio Services (i.e. enterprise Over The Air Management (eOTAM)).</p> <p>FY 2024 Plans: Funding will support the requirement and initial design development of SINCGARS NexGen, WREN problem fixes and hardening the capability in support of the ITN and CS25, design and development of WREN enhancements for ITN and CS27. Support will include effort to alleviate Cyber Electro-Magnetic Activities (CEMA) threats for SINCGARS and WREN, including Lead Service activities, and Radio Services (i.e. enterprise Over The Air Management (eOTAM)).</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>		8.940	10.009	10.528

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
Decrease due to maintenance software development work in FY24 which requires less work as full software development for eOTAM and WREN. Increased resources were allocated for eOTAM 2.1 and WREN Release B Lab and Field Based Risk Reductions, and Formal Qualification Testing (FQT) under test and evaluation.				
<p>Title: Waveforms Test and Evaluation</p> <p>Description: PdM Waveforms performs test and evaluation activities to address interoperability, range, scalability, resiliency, Electronic Warfare (EW)/Cyber Electromagnetic Activities (CEMA), and readiness. Advanced Networking Waveforms (ANWf) assessments support inclusion and/or integration of technologies into Army experimentation and Capability Sets (CS's) Viability and Readiness Assessments including Technology Readiness Level (TRL) assessment, test and evaluation of EW and cyber capabilities in support of Integrated Tactical Network (ITN), performance and behavior analysis of waveforms against topologies, architectures, operational use cases and fielding activities.</p> <p>FY 2023 Plans: Funding will validate continued design and system engineering activities of the NexGen of Single Channel Ground and Airborne Radio System (SINCGARS), validate and test the enhancements and problem fixes of the Warrior Robust Enhanced Network (WREN) waveforms, validate implementation of fielded enterprise Over The Air Management (eOTAM), and provide performance characterization and analysis of waveforms to meet current and future warfighter's requirements.</p> <p>FY 2024 Plans: Funding will validate continued design and system engineering activities of the NexGen of Single Channel Ground and Airborne Radio System (SINCGARS), validate and test the enhancements and problem fixes of the Warrior Robust Enhanced Network (WREN) waveforms, validate implementation of fielded enterprise Over The Air Management (eOTAM), and provide performance characterization and analysis of waveforms to meet current and future warfighter's requirements. Conduct analysis on Advanced Networking Waveforms (ANWf) / Non-Developmental Items (NDI).</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase is due to additional resources required for eOTAM 2.1 and WREN Release B Lab and Field Based Risk Reductions, and Formal Qualification Testing (FQT).</p>		3.973	3.697	4.273
<p>Title: Waveforms Software Support and System Engineering</p> <p>Description: PdM Waveforms software support and systems engineering for waveforms and network manager applications provides the following: 1) Radio Services applications that enable over-the-air (OTA) NSA cryptographic key, radio and network configuration tools and bandwidth efficient OTA protocols supporting the Unified Network Line of Effort (LOE) for CSs 2) eOTAM will enhance radio health services, Common Management Information Base (MIB) integration, integration with Army network management systems and comply with NSA security standards</p>		2.313	2.289	2.319

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>3) Evaluate the Technology Readiness Level (TRL) of ANWf in support of the ITN, and CS' requirements and architectures. 4) Oversight and inform policy for SINCGARS, WREN, TSM, eOTAM, and related products for DoD, including Lead Service activities</p> <p>FY 2023 Plans: Funding will support radio services software, product enhancement, and systems engineering & integration (SE&I) as described above in support of PdM Waveforms. Support will include: release of enterprise Over The Air Management (eOTAM); Lead Service activities for the integration of existing and emerging waveforms in the DoD; analysis of TSM capabilities for Warrior Robust Enhanced Network (WREN) integration to Manpack and Leader Radios, and release to DoD, NATO and ABCANZ ensuring interoperability between the US and Coalition partners, including Lead Service activities.</p> <p>FY 2024 Plans: Funding will support radio services software, product enhancement, and systems engineering & integration (SE&I) as described above in support of PdM Waveforms. Support will include: release of enterprise Over The Air Management (eOTAM) and integration into Integrated Network Battalion and Below (INB2) and Unified Network Operations (UNO); Lead Service activities for the integration of existing and emerging waveforms in the DoD; analysis of TSM capabilities for Warrior Robust Enhanced Network (WREN) integration to Manpack and Leader Radios, Risk Management Framework(RMF) for new WREN capabilities, and release to DoD, NATO and ABCANZ ensuring interoperability between the US and Coalition partners, including Lead Service activities.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding change reflects planned life cycle of this effort.</p>				
<p>Title: SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC §638</p> <p>FY 2023 Plans: SBIR/STTR Transfer</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: SBIR/STTR Funding to be transferred in accordance with Title 15 USC §638</p>		-	0.709	-
Accomplishments/Planned Programs Subtotals		18.205	19.436	20.088
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				

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D. Acquisition Strategy

PdM Waveforms is responsible for core activities, includes analyzing, developing, and updating legacy and current waveforms that operate on multiple radio sets supporting network-centric operational warfare. Waveform developments (upgrading, developing, and maintaining) will generally be procured through full and open contract competitions or through leveraging other government agencies.

While maintaining legacy and current networking waveforms, PdM Waveforms implemented a strategy which focuses on vetting and analyzing ANWf. The product office continues to establish working relationships with industry partners within the waveform market. The strategy consists of conducting initial analysis of commercial waveforms, identifying implementation strategies, documenting and remediating vulnerabilities, and making recommendations to senior leadership on potential Army and other Services' use cases.

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

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>
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Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support - Matrix	MIPR	C5ISR Center : APG, MD	5.350	0.784	Jan 2022	1.575	Jan 2023	1.940	Jan 2024	-		1.940	Continuing	Continuing	Continuing
Program Management Support - SETA	C/CPFF	SEV1-Tech : Woodbridge, VA	8.819	2.195	Dec 2021	1.866	Nov 2022	1.828	Nov 2023	-		1.828	Continuing	Continuing	Continuing
Subtotal			14.169	2.979		3.441		3.768		-		3.768	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development - C5ISR Center	MIPR	C5ISR Center : APG, MD	38.376	1.288	Apr 2022	4.527	Nov 2022	2.391	Mar 2024	-		2.391	Continuing	Continuing	Continuing
Software Development - Technical/Coding (MA-IDIQ)	C/CPAF	MA - IDIQ : Various Locations	19.632	4.129	Sep 2022	-		3.213	Mar 2024	-		3.213	Continuing	Continuing	Continuing
Software Development - WREN/TSM (ACC- PICA/ OTA)	C/CPFF	Advanced Technology International : Summerville, SC	-	3.523	Sep 2022	5.482	Apr 2023	-		-		-	0.000	9.005	-
Software Development - WREN/TSM (IDIQ)	TBD	TBD : TBD	-	-		-		4.124	Mar 2024	-		4.124	Continuing	Continuing	Continuing
Subtotal			58.008	8.940		10.009		9.728		-		9.728	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering - SSC NIWC	MIPR	SSC LANT/PAC : Charleston, SC; San Diego, CA	2.148	0.460	Dec 2021	0.418	Dec 2022	0.470	Nov 2023	-		0.470	Continuing	Continuing	Continuing
Software Support - WREN	MIPR	C5ISR Center : APG, MD	5.993	1.853	Nov 2021	1.871	Nov 2022	1.849	Nov 2023	-		1.849	Continuing	Continuing	Continuing
Subtotal			8.141	2.313		2.289		2.319		-		2.319	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army **Date:** March 2023

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>
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Event Name	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
SINGGARS 3.1.1 Waveform	▲ 1																																			
SINGGARS NexGen Waveform Development									■ SINC NexGen Development																											
SINGGARS NexGen Waveform Problem Report (PR) Fixes									■ SINC NexGen PR fixes																											
SINGGARS NexGen Waveform													▲ 4																							
SINGGARS NexGen Waveform FQT																					▲ 8															
Warrior Robust Enhanced Network (WREN) PR Fixes	■ WREN Hardening, Minor Enhancements, PR Fixes																																			
Warrior Robust Enhanced Network (WREN) A Maintenance/ LB...	■ WREN Release A Maintenance, PR Fixes & LBR/FBRR																																			
Warrior Robust Enhanced Network (WREN) A									▲ 2																											
Warrior Robust Enhanced Network (WREN) B Development									■ WREN Dev Release B Development & Porting																											
Warrior Robust Enhanced Network (WREN) B PR Fixes																	■ WREN Dev Release B Hardening, Enhancements, PR Fixes.																			
Warrior Robust Enhanced Network (WREN) B Maintenance/ LB...																	■ WREN Release B Maintenance, PR Fixes & LBR/FBRR																			
Warrior Robust Enhanced Network (WREN) B																					▲ 7															
Warrior Robust Enhanced Network (WREN) C Development																																				

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army **Date:** March 2023

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>
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Event Name	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Enterprise Over The Air Management (eOTAM) 2.1													3 eOTAM 2.1 Release																			
Enterprise Over The Air Management (eOTAM) 2.2																	5 eOTAM 2.2 Release															
Enterprise Over The Air Management (eOTAM) 2.2.1																					6 eOTAM 2.2.1 Release											
Enterprise Over The Air Management (eOTAM) 2.3																									9 eOTAM 2.3 Release							
Enterprise Over The Air Management (eOTAM) 2.3.1																													10 eOTAM 2.3.1 Release			
Advanced Networking Waveforms (ANWF) Analysis																																
MA/IDIQ - Contract Award																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SINCGARS 3.1.1 Waveform	1	2022	1	2022
SINCGARS NexGen Waveform Development	1	2024	3	2028
SINCGARS NexGen Waveform Problem Report (PR) Fixes	4	2024	3	2025
SINCGARS NexGen Waveform	2	2025	2	2025
SINCGARS NexGen Waveform FQT	1	2027	1	2027
Warrior Robust Enhanced Network (WREN) C5ISR Transition	4	2020	4	2020
Warrior Robust Enhanced Network (WREN) PR Fixes	1	2021	4	2022
Warrior Robust Enhanced Network (WREN) A Maintenance/ LBRR/ FBRR	1	2022	4	2024
Warrior Robust Enhanced Network (WREN) A	1	2023	1	2023
Warrior Robust Enhanced Network (WREN) B Development	1	2023	4	2024
Warrior Robust Enhanced Network (WREN) B PR Fixes	1	2025	1	2026
Warrior Robust Enhanced Network (WREN) B Maintenance/ LBRR/ FBRR	1	2026	4	2028
Warrior Robust Enhanced Network (WREN) B	1	2027	1	2027
Warrior Robust Enhanced Network (WREN) C Development	1	2028	4	2028
Enterprise Over The Air Management (eOTAM) 2.0	1	2021	1	2021
Enterprise Over The Air Management (eOTAM) 2.1	4	2024	4	2024
Enterprise Over The Air Management (eOTAM) 2.2	4	2025	4	2025
Enterprise Over The Air Management (eOTAM) 2.2.1	4	2026	4	2026
Enterprise Over The Air Management (eOTAM) 2.3	4	2027	4	2027
Enterprise Over The Air Management (eOTAM) 2.3.1	4	2028	4	2028
Advanced Networking Waveforms (ANWf) Analysis	1	2021	4	2028
MA/IDIQ - Contract Award	4	2018	4	2028