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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army **Date:** March 2024

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 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	-	29.050	30.328	31.214	-	31.214	25.763	31.032	31.322	31.586	Continuing	Continuing
EF5: <i>Joint Tactical Network (JTN)</i>	-	10.323	10.240	9.669	-	9.669	4.234	4.280	4.327	4.370	Continuing	Continuing
EX6: <i>Waveforms</i>	-	18.727	20.088	21.545	-	21.545	21.529	26.752	26.995	27.216	Continuing	Continuing

A. Mission Description and Budget Item Justification

EF5 project: 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 2025 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:

- (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

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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 2025 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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	30.150	30.328	26.281	-	26.281
Current President's Budget	29.050	30.328	31.214	-	31.214
Total Adjustments	-1.100	0.000	4.933	-	4.933
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.100	-			
• Adjustments to Budget Years	-	-	4.933	-	4.933

Change Summary Explanation

FY 2025 increase for Joint Tactical Network (JTN) development and testing of the Joint Enterprise Network Management (JENM).

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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) EF5 / <i>Joint Tactical Network (JTN)</i>
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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
<i>EF5: Joint Tactical Network (JTN)</i>	-	10.323	10.240	9.669	-	9.669	4.234	4.280	4.327	4.370	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Joint Tactical Network (JTN) 0605031A is funded using a Joint budget strategy. Each Military Department (MILDEP) budgets for approximately one-third of the total program RDT&E requirements for joint efforts. The Joint budget strategy provides annual realignments, through the Program Decision Memorandum (PDM) process, from Navy and Air Force to the Army for execution.

Fiscal Year (FY) 2023 to FY 2025 funding reflects post realignments from Navy and Air Force in support of Joint Enterprise Network Management (JENM) software development to the Army for execution as the Lead Service. Funding in FY 2026 and out reflects the Army's portion of funds. Out-year funding is programmed within the Army PE 0605031A, Navy PE 0605031N, and Air Force PE 0605031F.

A. Mission Description and Budget Item Justification

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

FY 2025 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 Advanced Networking Waveform (ANWF). JENM development provides integration of the Integrated Tactical Network (ITN) and Network Management of emerging systems that enable Soldiers the ability to effectively manage ITN. Radio Planner development supports MUOS waveform planning continuous system improvements and rapid provisioning of the MUOS end-user terminals. These planning applications are deployed on and are critically tied to the Ruggedized Applications Platform - Tactical Radios (RAP-TR) hardware from Division to the Company level.

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

	FY 2023	FY 2024	FY 2025
Title: JENM Program Office Support	3.053	3.028	2.859
Description: Program Management Office support in the development of the JENM software.			
FY 2024 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024		
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 2023	FY 2024	FY 2025
<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 2025 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 2024 to FY 2025 Increase/Decrease Statement: JENM PMO reduced from FY24 to FY25 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 2024 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 2025 Plans:</p>		7.270	7.212	6.810

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<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><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Funding decreased FY 2024 to FY 2025 due to reduced software development contract costs.</p>			
Accomplishments/Planned Programs Subtotals	10.323	10.240	9.669

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• B99318: <i>Joint Network Management System</i>	1.367	1.987	2.010	-	2.010	2.018	2.019	2.020	2.040	Continuing	Continuing

Remarks

Total funding for Joint Enterprise Network Management (JENM) software development includes Joint Service contributions provided through the annual Program Decision Memorandum (PDM). The Joint Service agreement provides that each service will budget for approximately one-third of the total program RDTE funds. Joint Service funding has been realigned into the Army PE 0605031A funding line from the Navy PE 0605031N and Air Force PE 0605031F.

The Joint Network Management System (JNMS) BA9301 / B99318 funding line supports JENM software deployment activities to Army users.

D. Acquisition Strategy

Joint Tactical Network (JTN) is a Joint Services program supporting the development, testing, and integration of the Joint Enterprise Network Management (JENM) capabilities, with Army designated as the Lead Service for this effort.

The Army manages a Government Owned, Government Operated (GOGO) Software Development and Integration facility which employs competitive contracting strategies for continues development and continuous improvement of network management components.

The Army will continue to lead the Joint Services effort to deliver planning, configuration, loading, and management of the Joint Services' tactical radios and networks.

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

With the sunsetting of JENM v3.5.X software in FY 2029, the Army has engaged the Joint Services on the transition to the Next Generation Radio Planner software. A Memorandum of Agreement (MOA) is being staffed through the Joint Services documenting the transition plan and continuation of the Joint Budget Strategy with each service contributing approximately one-third of the software development costs.

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army **Date:** March 2024

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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Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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	[Redacted]				[Redacted]																							
JENM v3.5.x Continuing System Improvements	[Redacted]								[Redacted]																			
JENM v3.4 Logistics and Training Support	[Redacted]				[Redacted]																							
JENM v3.4 Sunset	[Redacted]								[Redacted]																			
JENM v3.5 Logistics and Training Support	[Redacted]				[Redacted]																							
JENM v3.5 Sunset	[Redacted]								[Redacted]																			
Next Generation Radio Planner Development	[Redacted]				[Redacted]																							
Next Generation Radio Planner Logistics and Training Support	[Redacted]								[Redacted]																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army **Date:** March 2024

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 v3.4 Logistics and Training Support	4	2019	1	2023
JENM v3.4 Sunset	2	2023	2	2023
JENM v3.5 Logistics and Training Support	4	2021	4	2026
JENM v3.5 Sunset	4	2026	4	2026
Next Generation Radio Planner Development	3	2023	4	2029
Next Generation Radio Planner Logistics and Training Support	1	2027	4	2029

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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>			
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
EX6: <i>Waveforms</i>	-	18.727	20.088	21.545	-	21.545	21.529	26.752	26.995	27.216	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 2025 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 2023	FY 2024	FY 2025
Title: Program Management Office Support	2.532	2.968	3.710
Description: Waveform matrix and contractor support, including technical, logistics, and business staff oversight			
FY 2024 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 2023	FY 2024	FY 2025
<p>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 2025 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 2024 to FY 2025 Increase/Decrease Statement: FY 2025 increased as a result of additional contractor and matrix personnel required to support SINCGARS FH4 requirements analysis and development.</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 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 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 2025 Plans: Funding will support the Single Channel Ground and Airborne Radio System (SINCGARS) Frequency Hopping 4 (FH4) waveform preliminary system requirements analysis and development; Warrior Robust Enhanced Network (WREN) developmental Release B maturation, hardening and problem fixes; enterprise Over The Air Management (eOTAM) 2.2 development and final release as well as eOTAM 2.2.1 development contract award. Support will include efforts to alleviate Cyber Electro-Magnetic Activities (CEMA) threats for SINCGARS and WREN, including Lead Service activities, and Radio Services.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2025 increase is due to initial SINCGARS FH4 requirements analysis and development.</p>		9.815	10.528	11.395
<p>Title: Waveforms Test and Evaluation</p>		3.686	4.273	3.945

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
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<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>			
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<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>			
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<p>FY 2025 Plans: Funding will validate continued design and system engineering activities of SINCGARS Frequency Hopping (FH) 3. Validate and test the enhancements and problem fixes of the WREN waveforms in support of future releases. Validate implementation of fielded eOTAM versions and provide performance characterization and analysis of waveforms to meet current and future warfighter's requirements. Conduct analysis of Advanced Networking Waveforms (ANWf) / Non-Developmental Items (NDI).</p>			
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<p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to a reduction of SINCGARS FH3 testing requirements.</p>			
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<p>Title: Waveforms Software Support and System Engineering</p>	2.694	2.319	2.495
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<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 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>			
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<p>FY 2024 Plans:</p>			
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>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><i>FY 2025 Plans:</i> 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><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Increase due to the release of eOTAM 2.2 and support required to integrate into Manpack and Leader Radios.</p>			
Accomplishments/Planned Programs Subtotals	18.727	20.088	21.545

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

Remarks

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 ANWfs. 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 2025 Army **Date:** March 2024

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 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	6.134	0.701	Jan 2023	1.940	Jan 2024	1.562	Jan 2025	-		1.562	Continuing	Continuing	Continuing
Program Management Support - SETA	C/CPFF	SEV1-Tech : Woodbridge, VA	11.014	1.831	Nov 2022	1.828	Nov 2023	2.148	Nov 2024	-		2.148	Continuing	Continuing	Continuing
Subtotal			17.148	2.532		3.768		3.710		-		3.710	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	39.664	4.023	Nov 2022	2.391	Mar 2024	2.449	Mar 2025	-		2.449	Continuing	Continuing	Continuing
Software Development - eOTAM (MA-IDIQ)	C/CPFF	MA - IDIQ : Various Locations	23.761	-		3.213	Mar 2024	3.863	Apr 2025	-		3.863	Continuing	Continuing	Continuing
Software Development - WREN/TSM (ACC- PICA/ OTA)	C/CPFF	Advanced Technology International : Summerville, SC	3.523	5.792	Apr 2023	-		4.518	Mar 2025	-		4.518	Continuing	Continuing	Continuing
Software Development - WREN/TSM (IDIQ)	TBD	TBD : TBD	-	-		4.124	Mar 2024	-		-		-	Continuing	Continuing	Continuing
Subtotal			66.948	9.815		9.728		10.830		-		10.830	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	2.608	0.380	Dec 2022	0.470	Nov 2023	0.636	Nov 2024	-		0.636	Continuing	Continuing	Continuing
Software Support - C5ISR	MIPR	C5ISR Center : APG, MD	7.846	2.314	Nov 2022	1.849	Nov 2023	2.424	Mar 2025	-		2.424	Continuing	Continuing	Continuing
Subtotal			10.454	2.694		2.319		3.060		-		3.060	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army **Date:** March 2024

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 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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 Engineering and Technical Support (SINCRIL)	[Blue bar spanning all years]																											
SINGGARS Frequency Hopping (FH)4 Waveform Development	[Blue bar: FY25 Q3 - FY27 Q2]																											
SINGGARS FH4 Waveform Integration & Test	[Blue bar: FY27 Q1 - FY28 Q1]																											
SINGGARS FH4 FQT	[Blue bar: FY28 Q3]																											
SINGGARS FH4 Release	[Blue triangle: FY28 Q4]																											
SINGGARS FH5 Waveform Development	[Blue bar: FY28 Q3 - FY29 Q2]																											
WREN/TSM Engineering and Technical Support (WRENRL)	[Blue bar spanning all years]																											
Warrior Robust Enhanced Network (WREN) A Maintenance/ LB...	[Blue bar: FY23 Q2 - FY24 Q4]																											
Warrior Robust Enhanced Network (WREN) A Release	[Blue triangle: FY23 Q1]																											
Warrior Robust Enhanced Network (WREN) B Development	[Blue bar: FY23 Q2 - FY24 Q4]																											
Warrior Robust Enhanced Network (WREN) B PR Fixes	[Blue bar: FY24 Q2 - FY26 Q1]																											
Warrior Robust Enhanced Network (WREN) B Maintenance/ LB...	[Blue bar: FY26 Q2 - FY28 Q4]																											
Warrior Robust Enhanced Network (WREN) B Release	[Blue triangle: FY27 Q4]																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army **Date:** March 2024

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 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
Warrior Robust Enhanced Network (WREN) C Development																	WREN Dev Release C Development, Porting & FQT											
Warrior Robust Enhanced Network (WREN) C PR Fixes																	WREN Dev Release C Hardening, Enhancements											
Warrior Robust Enhanced Network (WREN) C Maintenance/ LB...																												
Warrior Robust Enhanced Network (WREN) Integration - A	2 WREN Release A Integration - MP/LR																											
Warrior Robust Enhanced Network (WREN) Integration - B													15 WREN Release B Integration - MP/LR															
TSM Engineering Evaluations, Integration & RMF	TSM Engineering Evaluations, Integration & RMF																											
Software In Service Support (SwISS) MA/IDIQ - Contract Award	SwISS Contract Award - 5 YR Base & 5 YR Option - \$249.6M																											
Enterprise Over The Air Management (eOTAM) 2.1 Development																	eOTAM 2.1 Development & Maintenance											
Enterprise Over The Air Management (eOTAM) 2.1 FQT					3 eOTAM 2.1 FQT																							
Enterprise Over The Air Management (eOTAM) 2.1 Release					4 eOTAM 2.1 Release																							
Enterprise Over The Air Management (eOTAM) 2.2 Task Orde...					5 eOTAM 2.2 TO Award																							
Enterprise Over The Air Management (eOTAM) 2.2 Development					eOTAM 2.2 Development & Maintenance																							
Enterprise Over The Air Management (eOTAM) 2.2 FQT									6 eOTAM 2.2 FQT																			

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army **Date:** March 2024

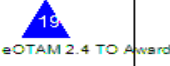
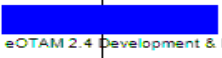



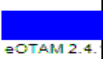

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>
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Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029							
	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) 2.2 Release									7 eOTAM 2.2 Release																							
Enterprise Over The Air Management (eOTAM) 2.2.1 Task Or...									8 eOTAM 2.2.1 TO Award																							
Enterprise Over The Air Management (eOTAM) 2.2.1 Development									[Redacted]				eOTAM 2.2.1 Development & Maintenance																			
Enterprise Over The Air Management (eOTAM) 2.2.1 FQT																	9 eOTAM 2.2.1 FQT															
Enterprise Over The Air Management (eOTAM) 2.2.1 Release																	10 eOTAM 2.2.1 Release															
Enterprise Over The Air Management (eOTAM) 2.3 Task Orde...																	11 eOTAM 2.3 TO Award															
Enterprise Over The Air Management (eOTAM) 2.3 Development																	[Redacted]				eOTAM 2.3 Development & Maintenance											
Enterprise Over The Air Management (eOTAM) 2.3 FQT																					14 eOTAM 2.3 FQT											
Enterprise Over The Air Management (eOTAM) 2.3 Release																					15 eOTAM 2.3 Release											
Enterprise Over The Air Management (eOTAM) 2.3.1 Task Or...																					16 eOTAM 2.3.1 TO Award											
Enterprise Over The Air Management (eOTAM) 2.3.1 Development																	[Redacted]				eOTAM 2.3.1 Development & Maintenance											
Enterprise Over The Air Management (eOTAM) 2.3.1 FQT																									17 eOTAM 2.3.1 FQT							
Enterprise Over The Air Management (eOTAM) 2.3.1 Release																									18 eOTAM 2.3.1 Release							

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army **Date:** March 2024

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 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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) 2.4 Task Orde...																												
Enterprise Over The Air Management (eOTAM) 2.4 Development																												
Enterprise Over The Air Management (eOTAM) 2.4 FQT																												
Enterprise Over The Air Management (eOTAM) 2.4 Release																												
Enterprise Over The Air Management (eOTAM) 2.4.1 Task Or...																												
Enterprise Over The Air Management (eOTAM) 2.4.1 Development																												
Advanced Networking Waveforms (ANWF) Analysis																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army **Date:** March 2024

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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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SINCGARS 3.1.1 Waveform	1	2022	1	2022
SINCGARS Engineering and Technical Support (SINCRIL)	1	2023	4	2033
SINCGARS Frequency Hopping (FH)4 Waveform Development	3	2025	2	2028
SINCGARS FH4 Waveform Integration & Test	2	2027	3	2028
SINCGARS FH4 FQT	3	2028	3	2028
SINCGARS FH4 Release	4	2028	4	2028
SINCGARS FH5 Waveform Development	3	2028	2	2031
SINCGARS FH5 Waveform Integration & Test	2	2030	3	2031
SINCGARS FH5 FQT	3	2031	3	2031
SINCGARS FH5 Release	4	2031	4	2031
WREN/TSM Engineering and Technical Support (WRENRL)	1	2023	4	2033
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 Release	1	2023	1	2023
Warrior Robust Enhanced Network (WREN) B Development	1	2023	4	2024
Warrior Robust Enhanced Network (WREN) B PR Fixes	1	2024	1	2026
Warrior Robust Enhanced Network (WREN) B Maintenance/ LBRR/ FBRR	1	2026	4	2028
Warrior Robust Enhanced Network (WREN) B Release	1	2027	1	2027
Warrior Robust Enhanced Network (WREN) C Development	1	2028	4	2028
Warrior Robust Enhanced Network (WREN) C PR Fixes	1	2028	1	2030
Warrior Robust Enhanced Network (WREN) C Maintenance/ LBRR/ FBRR	1	2030	4	2032
Warrior Robust Enhanced Network (WREN) C Release	1	2031	1	2031

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army **Date:** March 2024

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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Events	Start		End	
	Quarter	Year	Quarter	Year
Warrior Robust Enhanced Network (WREN) Integration - A	2	2023	2	2023
Warrior Robust Enhanced Network (WREN) Integration - B	2	2027	2	2027
Warrior Robust Enhanced Network (WREN) Integration - C	2	2031	2	2031
TSM Engineering Evaluations, Integration & RMF	2	2022	4	2029
Software In Service Support (SwISS) MA/IDIQ - Contract Award	4	2018	4	2028
Enterprise Over The Air Management (eOTAM) 2.0 Release	1	2021	1	2021
Enterprise Over The Air Management (eOTAM) 2.1 Task Order Award	4	2022	4	2022
Enterprise Over The Air Management (eOTAM) 2.1 Development	4	2022	4	2023
Enterprise Over The Air Management (eOTAM) 2.1 FQT	4	2023	4	2023
Enterprise Over The Air Management (eOTAM) 2.1 Release	4	2023	4	2023
Enterprise Over The Air Management (eOTAM) 2.2 Task Order Award	3	2024	3	2024
Enterprise Over The Air Management (eOTAM) 2.2 Development	3	2024	3	2025
Enterprise Over The Air Management (eOTAM) 2.2 FQT	3	2025	3	2025
Enterprise Over The Air Management (eOTAM) 2.2 Release	3	2025	3	2025
Enterprise Over The Air Management (eOTAM) 2.2.1 Task Order Award	3	2025	3	2025
Enterprise Over The Air Management (eOTAM) 2.2.1 Development	3	2025	3	2026
Enterprise Over The Air Management (eOTAM) 2.2.1 FQT	3	2026	3	2026
Enterprise Over The Air Management (eOTAM) 2.2.1 Release	3	2026	3	2026
Enterprise Over The Air Management (eOTAM) 2.3 Task Order Award	3	2026	3	2026
Enterprise Over The Air Management (eOTAM) 2.3 Development	3	2026	3	2027
Enterprise Over The Air Management (eOTAM) 2.3 FQT	3	2027	3	2027
Enterprise Over The Air Management (eOTAM) 2.3 Release	3	2027	3	2027
Enterprise Over The Air Management (eOTAM) 2.3.1 Task Order Award	3	2027	3	2027
Enterprise Over The Air Management (eOTAM) 2.3.1 Development	3	2027	3	2028
Enterprise Over The Air Management (eOTAM) 2.3.1 FQT	3	2028	3	2028
Enterprise Over The Air Management (eOTAM) 2.3.1 Release	3	2028	3	2028

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army **Date:** March 2024

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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Events	Start		End	
	Quarter	Year	Quarter	Year
Enterprise Over The Air Management (eOTAM) 2.4 Task Order Award	3	2028	3	2028
Enterprise Over The Air Management (eOTAM) 2.4 Development	3	2028	3	2029
Enterprise Over The Air Management (eOTAM) 2.4 FQT	3	2029	3	2029
Enterprise Over The Air Management (eOTAM) 2.4 Release	3	2029	3	2029
Enterprise Over The Air Management (eOTAM) 2.4.1 Task Order Award	3	2029	3	2029
Enterprise Over The Air Management (eOTAM) 2.4.1 Development	3	2029	3	2030
Enterprise Over The Air Management (eOTAM) 2.4.1 FQT	3	2030	3	2030
Enterprise Over The Air Management (eOTAM) 2.4.1 Release	3	2030	3	2030
Advanced Networking Waveforms (ANWf) Analysis	1	2021	4	2030