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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Army **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0208053A / <i>Joint Tactical Ground System</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	9.510	13.379	8.813	-	8.813	15.074	7.266	7.268	7.343	0.000	68.653
635: <i>Joint Tact Grd Station-P3I</i>	-	9.510	13.379	8.813	-	8.813	15.074	7.266	7.268	7.343	0.000	68.653

**A. Mission Description and Budget Item Justification**

The Joint Tactical Ground Station (JTAGS) is a post-production, Acquisition Category (ACAT) III program. JTAGS provides missile warning message data for the Air and Missile Defense (AMD) architecture and improves performance for Integrated Air and Missile Defense Fire Control Systems/Composite Army Air and Missile Defense Brigades.

JTAGS disseminates near real time warning, alerting, and cueing information on ballistic missile launches and other tactical events of interest throughout the theater using existing communication networks, providing critical support to Combatant Commanders in their Areas of Responsibility (AOR). Four OCONUS deployed JTAGS units, which are deployed in three theaters (United States Pacific Command (PACOM), United States Central Command (CENTCOM), United States European Command (EUCOM)), constitute DoD's only in-theater system providing space-based missile warning. The fifth CONUS system is used as an institutional trainer, but is available as a deployable asset. JTAGS is designated as the in-theater element of the United States Strategic Command's Theater Event System (TES), supporting all Theater Missile Defense pillars, affording the shortest sensor-to-shooter connectivity. On 14 January 2016, the Army Acquisition Executive designated the JTAGS Pre-Planned Product Improvement (JTAGS P3I) program as a separate ACAT III modification program.

The JTAGS Program Element (PE) supports development and testing of the JTAGS Block II Preplanned Product Improvements (P3I) program based on the JTAGS Operational Requirements Document (ORD), additive Joint Requirements Oversight Council - Memorandum (JROC-M) requirements, and the formal JTAGS Block II Capability Development Document (CDD) thresholds. P3I upgraded JTAGS to a Block II configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and improved warning tactical parameters and timeliness. The JTAGS Block II P3I program based on the 2009 JTAGS ORD is on contract as a two phase development effort. JTAGS Block II P3I Phase 1 is complete. The final developmental efforts of JTAGS Block II P3I Phase 2 to achieve 2009 ORD requirements will be complete in FY2021 with Follow-on Test and Evaluation (FOTE) and Materiel Release efforts to be conducted in FY2022. JTAGS Block II Phase 2 fielding is planned for FY 2023. The JTAGS Block II CDD addresses evolving User-driven needs such as emerging threats and interface efforts that were not known at the time the JTAGS ORD was validated. Developmental efforts to achieve JTAGS Block II CDD threshold requirements and implementation of M-Code GPS (IAW PL 111-383) continue through FY28.

Fiscal Year 2023 (FY23) requested funding of \$8.508 million allows for the continued development of cyber compliance, defense against emerging threats, system materiel release, Assured Positioning, Navigation and Timing (A-PNT) and M-code GPS compliance, addresses obsolescence mitigation with Commercial Off The Shelf (COTS) hardware/software upgrades, and NextGen Polar Geosynchronous satellite interface efforts.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Army	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0208053A / <i>Joint Tactical Ground System</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	9.510	13.379	0.000	-	0.000
Current President's Budget	9.510	13.379	8.813	-	8.813
Total Adjustments	0.000	0.000	8.813	-	8.813
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	8.813	-	8.813

**Change Summary Explanation**

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Army **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208053A / Joint Tactical Ground System	<b>Project (Number/Name)</b> 635 / Joint Tact Grd Station-P3I
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
635: Joint Tact Grd Station-P3I	-	9.510	13.379	8.813	-	8.813	15.074	7.266	7.268	7.343	0.000	68.653
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Joint Tactical Ground Station (JTAGS) is a post-production, Acquisition Category (ACAT) III program. JTAGS provides missile warning message data for the Air and Missile Defense (AMD) architecture and improves performance for Integrated Air and Missile Defense Fire Control Systems/Composite Army Air and Missile Defense Brigades.

JTAGS disseminates near real time warning, alerting, and cueing information on ballistic missile launches and other tactical events of interest throughout the theater using existing communication networks, providing critical support to Combatant Commanders in their Areas of Responsibility (AOR). Four OCONUS deployed JTAGS units, which are deployed in three theaters (United States Pacific Command (PACOM), United States Central Command (CENTCOM), United States European Command (EUCOM)), constitute DoD's only in-theater system providing space-based missile warning. The fifth CONUS system is used as an institutional trainer, but is available as a deployable asset. JTAGS is designated as the in-theater element of the United States Strategic Command's Theater Event System (TES), supporting all Theater Missile Defense pillars, affording the shortest sensor-to-shooter connectivity. On 14 January 2016, the Army Acquisition Executive designated the JTAGS Pre-Planned Product Improvement (JTAGS P3I) program as a separate ACAT III modification program.

The JTAGS Program Element (PE) supports development and testing of the JTAGS Block II Preplanned Product Improvements (P3I) program based on the JTAGS Operational Requirements Document (ORD), additive Joint Requirements Oversight Council - Memorandum (JROC-M) requirements, and the formal JTAGS Block II Capability Development Document (CDD) thresholds. P3I upgraded JTAGS to a Block II configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and improved warning tactical parameters and timeliness. The JTAGS Block II P3I program based on the 2009 JTAGS ORD is on contract as a two phase development effort. JTAGS Block II P3I Phase 1 is complete. The final developmental efforts of JTAGS Block II P3I Phase 2 to achieve 2009 ORD requirements will be complete in FY2021 with Follow-on Test and Evaluation (FOTE) and Materiel Release efforts to be conducted in FY2022. JTAGS Block II Phase 2 fielding is planned for FY 2023. The JTAGS Block II CDD addresses evolving User-driven needs such as emerging threats and interface efforts that were not known at the time the JTAGS ORD was validated. Developmental efforts to achieve JTAGS Block II CDD threshold requirements and implementation of M-Code GPS (IAW PL 111-383) continue through FY28.

Fiscal Year 2023 (FY23) requested funding of \$8.508 million allows for the continued development of cyber compliance, defense against emerging threats, system materiel release, Assured Positioning, Navigation and Timing (A-PNT) and M-code GPS compliance, addresses obsolescence mitigation with Commercial Off The Shelf (COTS) hardware/software upgrades, and NextGen Polar Geosynchronous satellite interface efforts.

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

	FY 2021	FY 2022	FY 2023
<b>Title:</b> JTAGS P3I Block II Phase 2	6.785	0.861	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208053A / <i>Joint Tactical Ground System</i>	<b>Project (Number/Name)</b> 635 / <i>Joint Tact Grd Station-P3I</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> JTAGS Block II P3I Phase 2 activities seek to develop and test capabilities identified in the 2009 JTAGS Operational Requirements Document (ORD). Joint Requirements Oversight Council (JROC) Memos 197-12, 113-13, and 042-19 and PL 111-383 (Ike Skelton National Defense Authorization Act for Fiscal Year 2011) support the requirement to develop and field JTAGS Block II capabilities as soon as possible.</p> <p><b>FY 2022 Plans:</b> Funding required for efforts includes work on materiel release package for JTAGS Block II P3I system full materiel release</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY2023 decrease from FY2022 results from completing the ORD efforts for capability needs that have been developed.</p>				
<p><b>Title:</b> Development and Test of Block II CDD requirements</p> <p><b>Description:</b> JTAGS Block II program continues to focus on development/integration of evolving cyber hardening advances, defense against emerging threats, M-code GPS, and JTAGS Capability Development Document (CDD) threshold requirements. JROC-Memos 197-12, 113-13, and 042-19 and PL 111-383 (Ike Skelton National Defense Authorization Act for Fiscal Year 2011) require fielding of these capabilities as soon as possible.</p> <p><b>FY 2022 Plans:</b> Funding required for efforts including continued development of cyber security tools to be achieve compliance with cyber requirements; continues development of new capabilities detailed in the JTAGS Block II Capability Development Document (CDD) defense against emerging threats, system materiel release, Assure Positioning Navigation and Timing (A-PNT) and M-code GPS compliance; addresses obsolescence mitigation with Commercial Off The Shelf (COTS) hardware/software upgrades; and addresses NextGen Polar Geosynchronous satellite interface efforts.</p> <p><b>FY 2023 Plans:</b> Funding required continues to support the development efforts detailed in the JTAGS Block II CDD of A-PNT and M-Code GPS compliance and continues to address obsolescence mitigation and COTS hardware and software upgrades. The funding supports continued efforts to complete requirements in the Block II CDD.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY2023 decrease from FY2022 is a result of completion of the JTAGS Block II Phase II Spiral 2 effort.</p>		-	9.148	6.122
<p><b>Title:</b> JTAGS Test and Evaluation Support</p> <p><b>Description:</b> Test and evaluation support for the JTAGS program.</p> <p><b>FY 2022 Plans:</b></p>		2.725	3.370	2.691

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208053A / Joint Tactical Ground System	<b>Project (Number/Name)</b> 635 / Joint Tact Grd Station-P3I

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>Conducts test planning/support for interoperability, cyber compliance confirmation, and new capabilities for the JTAGS Block II program as detailed in the JTAGS Block II Capability Development Document (CDD). Conducts a Follow-on Operational Test and Evaluation (FOTE) for JTAGS Block II P3I.</p> <p><b>FY 2023 Plans:</b> Funding provides for A-PNT Cooperative Vulnerability &amp; Penetration Assessment (CVPA) and Technical Manual Delta Validation and Verification Certification and of the JTAGS Block II system.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY2023 decrease from FY2022 is a result of completion of the JTAGS Block II Phase II Spiral 2 effort.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	9.510	13.379	8.813

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• BZ8420: JOINT TACTICAL GROUND STATION MODS (JTAGS)	-	8.088	0.349	-	0.349	0.591	-	-	-	0.000	9.028

**Remarks**

**D. Acquisition Strategy**  
 This program element develops critical software intensive improvements, while continuing to make maximum use of Non-Developmental Items (NDI)/Commercial Off-The-Shelf (COTS) components and Government Furnished Equipment (GFE). After design and integration, the system will be subject to thorough developmental and validation/verification testing to verify performance, operational effectiveness and suitability. The JTAGS Block II Pre-planned Product Improvement (P3I) program was initiated based on a 2009 JTAGS Operational Requirements Document (ORD) and upgrades JTAGS to a Block II configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, improving warning tactical parameters and timeliness. The JTAGS Block II P3I contract was a full and open competition, but only the incumbent JTAGS contractor submitted a proposal, resulting in a sole-source contract on 26 Aug 2012. The contract's development options are Cost Plus Incentive Fee; its production options are Firm Fixed Price, and its Sustainment options are Cost Plus Fixed Fee. The JTAGS Block II contract's period of performance is from 1 October 2012 through 30 September 2021 with a contract extension to March 2022. As threats continue to evolve and change as well as new satellite sensors become available, the JTAGS Users in conjunction with the Army Capabilities Manager have developed a JTAGS Block II Capability Development Document (CDD), requiring JTAGS to address new/changing threats that were not addressed in the 2009 JTAGS ORD. The acquisition of the continued JTAGS Block II efforts based on the JTAGS Block II CDD will be performed under a sole source follow-on contract to be awarded 2QFY22 to the current JTAGS contractor.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208053A / Joint Tactical Ground System	<b>Project (Number/Name)</b> 635 / Joint Tact Grd Station-P3I
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<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Government Program Management	Allot	Various (AMC, AMCOM, CCDC) : Redstone Arsenal, AL	-	1.184	Oct 2020	1.143	Oct 2021	1.166	Oct 2022	-		1.166	0.000	3.493	Continuing
<b>Subtotal</b>			-	1.184		1.143		1.166		-		1.166	0.000	3.493	N/A

**Remarks**  
Provides Other Government Agency (OGA) support to the JTAGS acquisition program

<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
JTAGS P3I Block II Phase 2 Development	SS/CPPIF	Northrop-Grumman : Colorado Springs, Co	-	4.401	Oct 2020	-		-		-		-	0.000	4.401	34.100
Development and Test Block II CDD requirements	SS/ Various	Northrop-Grumman : Colorado Springs, Co	-	-		7.407	Mar 2022	4.028	Nov 2022	-		4.028	0.000	11.435	Continuing
System Engineering Support	C/CPFF	COLSA : Huntsville, AL	-	0.450	Nov 2020	0.558	Jan 2022	0.569	Jan 2023	-		0.569	0.000	1.577	Continuing
<b>Subtotal</b>			-	4.851		7.965		4.597		-		4.597	0.000	17.413	N/A

**Remarks**  
Continues development of the JTAGS Block II capabilities based on the JTAGS Block II Capability Development Document (CDD)

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
System Engineering Technical Assistance	C/CPFF	COLSA : Huntsville, AL	-	0.750	Nov 2020	0.739	Jan 2022	0.754	Jan 2023	-		0.754	0.000	2.243	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army** **Date:** April 2022

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Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
<b>Subtotal</b>			-	0.750		0.739		0.754		-		0.754	0.000	2.243	N/A

**Remarks**  
Provides technical assistance in implementing the JTAGS Block II CDD

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
JTAGS Test Support (ATEC/AIC/JITC)	Allot	Various (ATEC, AIC, JITC) : Various locations	-	2.725	Oct 2020	3.532	Oct 2021	2.296	Oct 2022	-		2.296	0.000	8.553	Continuing
<b>Subtotal</b>			-	2.725		3.532		2.296		-		2.296	0.000	8.553	N/A

**Remarks**  
Conducts a JTAGS Block II Follow-on Test and Evaluation (FOTE) and supports testing of JTAGS Block II development efforts based on the JTAGS Block II CDD.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	9.510	13.379	8.813	-	8.813	0.000	31.702	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Army</b>		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208053A / Joint Tactical Ground System	<b>Project (Number/Name)</b> 635 / Joint Tact Grd Station-P3I

Event Name	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
JTAGS P3I Block II Phase 2	[Redacted]				[Redacted]																							
JTAGS P3I Block II operational test planning	[Redacted]				[Redacted]																							
JTAGS Follow-on Operational Test and Evaluation	[Redacted]				[Redacted]																							
JTAGS Block II Phase 2 Fielding (OPA Funded)	[Redacted]				[Redacted]																							
JTAGS Block II CDD driven emerging threats and cyber hardening	[Redacted]				[Redacted]																							
JTAGS Block II Engineering Service Follow-On Contract	[Redacted]				[Redacted]																							
Limited User Test of Block II CDD Emerging Threat Capabilities	[Redacted]				[Redacted]																							
Continued Block II CDD Emerging Threats and Future Sensor Integration	[Redacted]				[Redacted]																							
Limited User Test of of Block II CDD Emerging Threat Capabilities	[Redacted]				[Redacted]																							
JTAGS Block II Engineering Services Contract Extension	[Redacted]				[Redacted]																							

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<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Army</b>		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208053A / <i>Joint Tactical Ground System</i>	<b>Project (Number/Name)</b> 635 / <i>Joint Tact Grd Station-P3I</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JTAGS P3I Block II Phase 2	1	2021	4	2021
JTAGS P3I Block II operational test planning	2	2021	4	2021
JTAGS Follow-on Operational Test and Evaluation	2	2022	3	2022
JTAGS Block II Phase 2 Fielding (OPA Funded)	4	2022	3	2023
JTAGS Block II CDD driven emerging threats and cyber hardening	1	2022	2	2023
JTAGS Block II Engineering Service Follow-On Contract	2	2022	2	2027
Limited User Test of Block II CDD Emerging Threat Capabilities	3	2023	3	2023
Continued Block II CDD Emerging Threats and Future Sensor Integration	4	2023	1	2025
Limited User Test of of Block II CDD Emerging Threat Capabilities	2	2025	2	2025
JTAGS Block II Engineering Services Contract Extension	2	2027	4	2028