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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 Army **Date:** February 2020

<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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	9.510	-	9.510	9.665	7.073	7.076	7.080	0.000	40.404
635: <i>Joint Tact Grd Station-P3I(MIP)</i>	-	0.000	0.000	9.510	-	9.510	9.665	7.073	7.076	7.080	0.000	40.404

**Note**

Beginning in FY 2021, funding has been moved from PE 1208053A to PE 0208053A.

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

The Joint Tactical Ground Station (JTAGS) is a post-production, 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 (PACOM, CENTCOM, EUCOM), constitute DoD's only in-theater system providing space-based missile warning. The fifth CONUS system is used as an institutional trainer though 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 test to meet JTAGS Operational Requirement(s) Document (ORD) thresholds using improved sensors and algorithms as Pre-Planned Product Improvements (P3I). P3I Improvements upgrade JTAGS to a new Block II configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and improves warning tactical parameters and timeliness. JTAGS Block II is on contract for a two-Phase development effort. JTAGS Block II Phase 1 is complete. JTAGS Block II Phase 2 activities are broken into three spirals to expedite delivering critical capabilities sooner. Phase 2 Spiral 1 and Spiral 2 will be completed in FY 2020.

FY 2021 requested funding of \$9.510 million will allow for the integration of evolving cyber hardening advances, emerging threats, and planning of a JTAGS P3I Block II operational test.

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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 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	9.510	-	9.510
Total Adjustments	0.000	0.000	9.510	-	9.510
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	9.510	-	9.510

**Change Summary Explanation**

Beginning in FY 2021 Joint Tactical Ground System (JTAGS) requested funding has been realigned from PE 1208053A to PE 0208053A.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<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(MIP)			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
635: Joint Tact Grd Station-P3I(MIP)	-	0.000	0.000	9.510	-	9.510	9.665	7.073	7.076	7.080	0.000	40.404
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Beginning in FY 2021 Joint Tactical Ground System (JTAGS) requested funding has been realigned from PE 1208053A / FE7 to PE 0208053A.

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

The Joint Tactical Ground Station (JTAGS) is a post-production, 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 (PACOM, CENTCOM, EUCOM), constitute DoD's only in-theater system providing space-based missile warning. The fifth CONUS system is used as an institutional trainer though 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 test to meet JTAGS Operational Requirement(s) Document (ORD) thresholds using improved sensors and algorithms as Pre-Planned Product Improvements (P3I). P3I Improvements upgrade JTAGS to a new Block II configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and improves warning tactical parameters and timeliness. JTAGS Block II is on contract for a two-Phase development effort. JTAGS Block II Phase 1 is complete. JTAGS Block II Phase 2 activities are broken into three spirals to expedite delivering critical capabilities sooner. Phase 2 Spiral 1 and Spiral 2 will be completed in FY 2020.

FY 2021 requested funding of \$9.510 million will allow for the integration of evolving cyber hardening advances, emerging threats, and planning of a JTAGS P3I Block II operational test.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> JTAGS P3I Block II Phase 2	-	-	6.785
<b>Description:</b> Description: JTAGS Block II Phase 2 activities are broken into three spirals to expedite getting critical capabilities fielded sooner. Spiral 1 and 2 are complete. Effort continues on development/integration of evolving cyber hardening advances and emerging threats. (FY 2018-2021). JROC-Memos 197-12 and 113-13 supports the need to develop and field JTAGS Block II capabilities as soon as possible.			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<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(MIP)

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b><i>FY 2021 Plans:</i></b> Allows for the development and integration on evolving cyber hardening advances and emerging threats			
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> In FY 2021, funding has been moved from PE 1208053A to PE 0208053A .			
<b><i>Title:</i></b> JTAGS Test and Evaluation Support	-	-	2.725
<b><i>Description:</i></b> Test and evaluation support for the JTAGS P3I Block II program.			
<b><i>FY 2021 Plans:</i></b> Provides test planning support of the JTAGS P3I Block II development program; plan an operational test for JTAGS P3I Block II.			
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> In FY 2021, funding has been moved from PE 1208053A to PE 0208053A.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	9.510

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• BZ8420: JOINT TACTICAL GROUND STATION MODS (JTAGS)	5.434	-	0.000	-	0.000	-	6.387	-	-	0.000	11.821
• FE7: Joint Tact Grd Station-P3I(MIP)	7.400	7.677	0.000	-	0.000	-	-	-	-	0.000	15.077

**Remarks**  
Beginning in FY21 Joint Tactical Ground System (JTAGS) requested funding has been realigned from PE 1208053A to PE 0208053A to correctly align Major Force Program, National Security Space (MFP 12) resources.

**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. P3I Improvements will upgrade JTAGS to a new Block II configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, improving warning tactical parameters and timeliness. The acquisition of the

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<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(MIP)</i>

JTAGS Block II effort is being performed under contract W9113M-12-C-0055, awarded 23 Aug 2012. The contract's development efforts are Cost Plus Incentive Fee (CPIF), and the contract's production is Firm Fixed Price (FFP).

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<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-P31(MIP)
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	-		1.184	0.000	1.184	Continuing
<b>Subtotal</b>			-	-		-		1.184		-		1.184	0.000	1.184	N/A

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

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	Option/ C/PIF	Northrop-Grumman : Colorado Springs, Co	-	-		-		4.401	Oct 2020	-		4.401	0.000	4.401	34.100
System Engineering Support	C/CPFF	COLSA : Huntsville, AL	-	-		-		0.450	Nov 2020	-		0.450	0.000	0.450	Continuing
<b>Subtotal</b>			-	-		-		4.851		-		4.851	0.000	4.851	N/A

**Remarks**  
Completes Development of the JTAGS P3I Block II Phase 2 effort

<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	-		0.750	0.000	0.750	Continuing
<b>Subtotal</b>			-	-		-		0.750		-		0.750	0.000	0.750	N/A

**Remarks**  
Supports project office in management of the acquisition program

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<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-P31(MIP)
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Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	-		2.725	0.000	2.725	Continuing
<b>Subtotal</b>			-	-		-		2.725		-		2.725	0.000	2.725	N/A

**Remarks**  
Supports testing of the Phase 2 development effort and a Follow-on Test and Evaluation (FOT&E)

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	-	0.000	9.510	-	9.510	0.000	9.510	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<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-P31(MIP)

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 P31 Block II Phase 2																												
JTAGS P31 Block II evolving cyber hardening and emerging threats																												
JTAGS P31 Block II operational test planning																												
JTAGS Block III Capability Development Document																												
Post Blk II Emerging Threats and Future Sensor Integration																												
Limited User Test of Post Blk II Emerging Threat Capabilities																												
Pre Blk III Emerging Threats and Future Sensor Integration																												
Limited User Test of of Pre Blk III Emerging Threat Capabilities																												
JTAGS Block III Development Effort																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<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(MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JTAGS P3I Block II Phase 2	1	2021	4	2021
JTAGS P3I Block II evolving cyber hardening and emerging threats	1	2021	4	2021
JTAGS P3I Block II operational test planning	4	2021	4	2021
JTAGS Block III Capability Development Document	4	2021	4	2021
Post Blk II Emerging Threats and Future Sensor Integration	1	2022	2	2023
Limited User Test of Post Blk II Emerging Threat Capabilities	3	2023	3	2023
Pre Blk III Emerging Threats and Future Sensor Integration	4	2023	1	2025
Limited User Test of of Pre Blk III Emerging Threat Capabilities	2	2025	2	2025
JTAGS Block III Development Effort	3	2024	4	2025