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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army **Date:** February 2016

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	10.209	20.515	12.649	-	12.649	10.130	11.515	10.772	11.055	Continuing	Continuing
635: <i>Joint Tact Grd Station-P3I(MIP)</i>	-	10.209	20.515	12.649	-	12.649	10.130	11.515	10.772	11.055	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Tactical Ground Station (JTAGS) is a post-production, ACAT III program and is designated as a DoD Space 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. The JTAGS Program Element (PE) supports development and test to meet JTAGS ORD thresholds using improved sensors and algorithms as Pre-Planned Product Improvements (P3I). Presently, JTAGS Block 1 is a transportable information processing system, receiving and processing in-theater, direct down-linked data from Defense Support Program (DSP) and other Infrared (IR) satellites. JTAGS then 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 constitute DoD's only in-theater system providing space-based missile warning. The fifth CONUS system is being used as an institutional trainer but is a deployable asset. JTAGS is designated as the in-theater element of the United States Strategic Command's Theater Event System (TES). JTAGS supports all Theater Missile Defense pillars and by being located in-theater, affords the shortest sensor to shooter connectivity. P3I Improvements will upgrade JTAGS to a new Block 2 configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and will improve warning tactical parameters and timeliness. JTAGS Block 2 P3I is on contract for a two-Phase development effort. Phase 1 deshelters five systems, adds SBIRS Geosynchronous (GEO) scanner capability (FY 2012-16) and updates hardware/software/communication systems. Phase 2 activities are broken into three spirals to expedite getting critical capabilities fielded sooner. Spiral 1 includes stereo SBIRS GEO starrer sensor and P/L 4 data, and Net Centric capabilities (FY 2015-17). Spiral 2 includes Cobra Brass and "Walkers" data (FY2017-18). Spiral 3 includes software tuning and testing to the Operational Requirements Document (ORD)(FY2018-19). JROC-Memos 197-12 and 113-13 directs fielding of JTAGS P3I Block 2 Phase 1 by FY15 and Phase 2 by FY 2017.

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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	10.209	20.515	15.560	-	15.560
Current President's Budget	10.209	20.515	12.649	-	12.649
Total Adjustments	0.000	0.000	-2.911	-	-2.911
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-2.911	-	-2.911

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Army										Date: February 2016		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0208053A / Joint Tactical Ground System				Project (Number/Name) 635 / Joint Tact Grd Station-P3I(MIP)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
635: Joint Tact Grd Station-P3I(MIP)	-	10.209	20.515	12.649	-	12.649	10.130	11.515	10.772	11.055	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Tactical Ground Station (JTAGS) is a post-production, ACAT III program and is designated as a DoD Space 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. The JTAGS Program Element (PE) supports development and test to meet JTAGS ORD thresholds using improved sensors and algorithms as Pre-Planned Product Improvements (P3I). Presently, JTAGS Block 1 is a transportable information processing system, receiving and processing in-theater, direct down-linked data from Defense Support Program (DSP) and other Infrared (IR) satellites. JTAGS then 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 constitute DoD's only in-theater system providing space-based missile warning. The fifth CONUS system is being used as an institutional trainer but is a deployable asset. JTAGS is designated as the in-theater element of the United States Strategic Command's Theater Event System (TES). JTAGS supports all Theater Missile Defense pillars and by being located in-theater, affords the shortest sensor to shooter connectivity. P3I Improvements will upgrade JTAGS to a new Block 2 configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and will improve warning tactical parameters and timeliness. JTAGS Block 2 P3I is on contract for a two-Phase development effort. Phase 1 deshelters five systems, adds SBIRS Geosynchronous (GEO) scanner capability (FY 2012-16) and updates hardware/software/communication systems. Phase 2 activities are broken into three spirals to expedite getting critical capabilities fielded sooner. Spiral 1 includes stereo SBIRS GEO starrer sensor and P/L 4 data, and Net Centric capabilities (FY 2015-17). Spiral 2 includes Cobra Brass and "Walkers" data (FY2017-18). Spiral 3 includes software tuning and testing to the Operational Requirements Document (ORD)(FY2018-19). JROC-Memos 197-12 and 113-13 directs fielding of JTAGS P3I Block 2 Phase 1 by FY15 and Phase 2 by FY 2017.

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

	FY 2015	FY 2016	FY 2017
Title: JTAGS Test and Evaluation Support	1.743	1.413	1.778
Description: Funding is provided for the following effort			
FY 2015 Accomplishments: JTAGS Block 2 Phase 1 Testing			
FY 2016 Plans: JTAGS Block 2 Phase 1 Testing			
FY 2017 Plans:			

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
JTAGS Block 2 Phase 2 Testing			
Title: JTAGS P3I Block 2 Phase 1 Development	8.466	6.300	-
Description: Funding is provided for the completion of development in de-sheltering systems, upgrading hardware/software and meeting Information Assurance compliance requirements.			
FY 2015 Accomplishments: Continuation of P3I Phase 1 Development			
FY 2016 Plans: Completion of P3I Phase 1 Development			
Title: JTAGS P3I Block 2 Phase 2 Spiral Development	-	12.802	10.871
Description: Phase 2 activities include a three spiral approach which will provide stereo SBIRS GEO starrer sensor data and Net Centric capabilities, per JROC Memos 197-12 and 113-13.			
FY 2016 Plans: Begin Development of Phase 2 Spiral 1 (stereo SBIRS GEO starrer sensor data capabilities)			
FY 2017 Plans: Development of Phase 2 Spiral 1 (Stereo SBIRS GEO starrer)/Spiral 2 capabilities (Cobra Brass and Walkers)			
Accomplishments/Planned Programs Subtotals	10.209	20.515	12.649

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• SSN BZ8401: <i>SSN BZ8401, Joint Tactical Ground Station (JTAGS)</i>	5.286	3.906	4.417	-	4.417	-	5.434	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Under this program element, critical improvements will be developed making maximum use of Non-Developmental Items (NDI)/Commercial Off-The-Shelf (COTS) components. 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 2 configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and will improve warning tactical parameters and timeliness. JTAGS Block 2 P3I is on contract for a two-Phase development effort. Phase

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<p>1 deshelters five systems, adds SBIRS Geosynchronous (GEO) scanner capability (FY 2012-16) and updates hardware/software/communication systems. Phase 2 activities are broken into three spirals to expedite getting critical capabilities fielded sooner. Spiral 1 includes stereo SBIRS GEO starer sensor and P/L 4 data, and Net Centric capabilities (FY 2015-17). Spiral 2 includes Cobra Brass and "Walkers" data (FY2017-18). Spiral 3 includes software tuning and testing to the Operational Requirements Document (ORD)(FY2018-19). JROC-Memos 197-12 and 113-13 directs fielding of JTAGS P3I Block 2 Phase 1 by FY15 and Phase 2 by FY 2017.</p>		
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army												Date: February 2016			
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0208053A / Joint Tactical Ground System				Project (Number/Name) 635 / Joint Tact Grd Station-P31(MIP)							
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Program Management	Various	various : various	54.075	2.599		2.779		2.653		-		2.653	Continuing	Continuing	Continuing
Subtotal			54.075	2.599		2.779		2.653		-		2.653	-	-	-
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JTAGS Block 1 Engineering Services Hardware/Software	SS/CPFF	Northrop Grumman : Colorado Springs, CO/Various	39.882	-		-		-		-		-	Continuing	Continuing	Continuing
P31 Phase 1 Development	SS/CPIF	Northrop Grumman : Colorado Springs, CO/Various	40.897	4.598		6.300		-		-		-	Continuing	Continuing	Continuing
P31 Phase 2 Development	SS/CPIF	Northrop Grumman : Colorado Springs, CO/Various	7.400	-		8.733		6.907	Jan 2017	-		6.907	Continuing	Continuing	Continuing
Government Furnished Equipment	TBD	Various : Various	1.510	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			89.689	4.598		15.033		6.907		-		6.907	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	various : various	29.766	1.269		1.290		1.311	Dec 2016	-		1.311	Continuing	Continuing	Continuing
Subtotal			29.766	1.269		1.290		1.311		-		1.311	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army **Date:** February 2016

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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Test Support (ATEC/JITC/ETC)	Various	various : various	7.960	1.743		1.413		1.778		-		1.778	Continuing	Continuing	Continuing
Subtotal			7.960	1.743		1.413		1.778		-		1.778	-	-	-

Remarks
N/A-Not Applicable

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	181.490	10.209	20.515	12.649	-	12.649	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army **Date:** February 2016

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i>	Project (Number/Name) 635 / <i>Joint Tact Grd Station-P3I(MIP)</i>
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Event Name	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
P3I JTAGS Block 2	P3I JTAGS Block 2 Upgrade																											
P3I H/W & S/W Block 2 Phase 1 Deshelterization and Geosynchronous	P3I Phase 1 Hardware/Software																											
P3I GEO Starer and Net Centric Upgrade (P3I Block 2 Phase 2 Spirals)	P3I Phase 2 Spirals 1,2,3																											
Future Sensor Integration and Technology Refresh	Future Sensor Integration																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
P3I JTAGS Block 2	3	2012	2	2019
P3I H/W & S/W Block 2 Phase 1 Deshelterization and Geosynchronous (GEO) Scanner	4	2012	1	2017
P3I GEO Starer and Net Centric Upgrade (P3I Block 2 Phase 2 Spirals)	4	2015	2	2019
Future Sensor Integration and Technology Refresh	3	2019	4	2021

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