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

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0604114A / Lower Tier Missile Defense (LTAMD) Capability
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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	-	0.000	0.000	35.132	-	35.132	93.208	78.820	87.128	84.826	Continuing	Continuing
EX2: Lower Tier Missile Defense (LTAMD) Capability	-	0.000	0.000	35.132	-	35.132	93.208	78.820	87.128	84.826	Continuing	Continuing

Note

Realigned funding from PE 0607865A, PATRIOT Product Improvement (Project DV8).

A. Mission Description and Budget Item Justification

Lower Tier Missile Defense (LTAMD) Capability program will integrate a competitively selected Gallium Nitride (GaN) array antenna onto the baseline PATRIOT RS, replacing the Passive Electronic Scanned Array (PESA) technology. The Active Electronic Scanned Array (AESA) antenna configuration change, using GaN-based technology, will enable increased radar operating ranges thereby maximizing the inherent PAC-3 Missile Segment Enhanced (MSE) capabilities to engage threats.

Lower Tier Missile Defense (LTAMD) Capability tasks include all the programmatic and engineering activities needed for the LTAMD-C Materiel Development Decision, Analysis of Alternatives, and Business Case Analyses/Trades. Once the material solution has been determined, the development effort for LTAMD Capability will be accomplished. These activities will continue through the Technology Maturation and Risk Reduction(TMRR) and Engineering and Manufacturing Development(EMD) phase to enable the prototyping, development, and testing of the LTAMD Capability.

FY2017 base dollars in the amount of \$35.132 million initiates Lower Tier Missile Defense Capability to include programmatic and engineering activities needed for the Material Development, Analysis of Alternatives (AoA) and Business Case Analyses/Trades.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	35.132	-	35.132
Total Adjustments	0.000	0.000	35.132	-	35.132
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	35.132	-	35.132

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Army										Date: February 2016		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604114A / Lower Tier Missile Defense (LTAMD) Capability				Project (Number/Name) EX2 / Lower Tier Missile Defense (LTAMD) Capability			
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
EX2: Lower Tier Missile Defense (LTAMD) Capability	-	0.000	0.000	35.132	-	35.132	93.208	78.820	87.128	84.826	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Realigned funding beginning in FY2017 from PE 0607865A, PATRIOT Product Improvement (Project DV8).

A. Mission Description and Budget Item Justification

Lower Tier Missile Defense (LTAMD) Capability program will integrate a competitively selected Gallium Nitride (GaN) array antenna onto the baseline PATRIOT RS, replacing the Passive Electronic Scanned Array (PESA) technology. The Active Electronically Scanned Array (AESAs) antenna configuration change, using GaN-based technology, will enable increased radar operating ranges thereby maximizing the inherent PAC-3 Missile Segment Enhanced (MSE) capabilities to engage threats.

Lower Tier Missile Defense (LTAMD) Capability tasks include all the programmatic and engineering activities needed for the LTAMD-C Materiel Development Decision, Analysis of Alternatives, and Business Case Analyses/Trades. Once the material solution has been determined, the development effort for LTAMD Capability will be accomplished. These activities will continue through the Technology Maturation and Risk Reduction and Engineering and Manufacturing Development phase to enable the prototyping, development, and testing of the LTAMD Capability.

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

	FY 2015	FY 2016	FY 2017
Title: Lower Tier Missile Defense Capability	-	-	35.132
Description: Begins Lower Tier Missile Defense Capability.			
FY 2017 Plans:			
-Begins Lower Tier Missile Defense Capability to include programmatic and engineering activities needed for the Material Development, Analysis of Alternatives (AoA) and Business Case Analyses/Trades.			
-Perform requirements analysis of the PATRIOT Antenna Transmitter Upgrade (ATU), Performance Specification and requirements allocation to hardware and software components.			
-Conduct a Systems Requirements Review (SRR) and a System Functional Review (SFR) to demonstrate readiness for hardware and software designs.			
-Initiate planning for demonstration of the Subscale Active Electronically Scanned Array (AESAs) Prototype Antenna and Preliminary Design Review (PDR) for the full-scale LTAMDS AESAs Antenna.			
Accomplishments/Planned Programs Subtotals	-	-	35.132

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Army		Date: February 2016
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• 0607865A Project: DV8: <i>Patriot Product Improvement</i>	57.962	89.816	49.482	-	49.482	119.426	53.442	30.850	63.422	Continuing	Continuing

Remarks

D. Acquisition Strategy

The objective of the Lower Tier Air & Missile Defense Capability is to provide studies for initial concepts and performance capabilities related to the implementation of an Active Electronically Scanned Array (AESA) transmitter/antenna into the PATRIOT radar. These assessments are needed to refine user community expectations and requirements, to provide overmatch capability against the emerging threat, and to prepare a viable set of requirements to support a competitive modernization competition.

E. Performance Metrics

N/A

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604114A / Lower Tier Missile Defense (LTAMD) Capability	Project (Number/Name) EX2 / Lower Tier Missile Defense (LTAMD) Capability
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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												
(1) Milestone A																	MS A																							
(2) TMRR Contract Award																					TMMR CA				2															
Preliminary Design Review																									PDR															
Technology Maturation and Risk Reduction																									TMRR															
(3) Milestone B																																	3 MS B							

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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
Milestone A	3	2016	4	2016
TMRR Contract Award	3	2017	4	2017
Preliminary Design Review	3	2017	4	2017
Technology Maturation and Risk Reduction	3	2017	3	2019
Milestone B	3	2019	4	2019