Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Army											Date: March 2014	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	-	9.930	-	9.930	20.191	21.692	33.745	30.300	Continuing	Continuing
ED5: *Assured Positioning, Navigation and Timing (PNT)*	-	-	-	9.930	-	9.930	20.191	21.692	33.745	30.300	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Joint Requirements Oversight Council Memo (JROCM) 049-10, dated April 5th 2010, approved the Positioning, Navigation and Timing Assurance Initial Capabilities Document and designated the Army as the Lead Component for Assured PNT. The Material Development Decision (MDD) was approved on July 30th 2013. Positioning Navigation and Timing (PNT) is a critical enabler of many Army systems. The current capability, Global Positioning System (GPS), is a fixed frequency system which is vulnerable to current and emerging threats and field conditions which means that PNT access and integrity to the Warfighter cannot be guaranteed. This situation degrades mission performance to an unacceptable level. Therefore, current Army systems cannot operate at the required PNT Assurance Levels with GPS alone.

Assured PNT consists of a set of mutually dependent products that provide a cumulative effect to enable the Assured PNT capability. The Assured PNT program focuses on platform distribution of PNT, scalable PNT architectures that pace the threat, and the ability to upgrade to future technologies, including Military Code (M-Code), at a much lower cost than the current architecture of GPS user equipment (UE). M-code was designed to further improve the anti-jamming and secure access of the military GPS signals.

Assured PNT is a family of solutions which includes four subprograms: (1) The Pseudolites subprogram provides PNT Assurance in GPS denied environments by providing terrestrial radio navigation (GPS-like) service in electronically or physically challenged environments using a higher power signal. The Pseudolites subprogram enables continued operations of PNT-enabled systems such as Blue Force Tracker, Communications Networks and Precision Guided Munitions; (2) The Mounted PNT subprogram is the integration of multiple sensors and provides PNT platform distribution. The Mounted PNT subprogram incorporates a System of Systems architecture that acquires, protects and distributes secure PNT on stationary and vehicular platforms. The mounted materiel solution is a modular, scalable form-factor that paces the threats and enables PNT on the Vehicle Integration for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance/Electronic Warfare (C4ISR/EW) Interoperability also known as VICTORY and Future Airborne Capability Environment (FACE) Architecture; (3) The Dismounted PNT subprogram is the integration of multiple sensors for platform distribution of PNT on the Soldier. The Dismounted PNT subprogram incorporates a System of Systems architecture that acquires, protects and distributes secure PNT wirelessly on the soldier; (4) The Anti-Jam subprogram provides GPS signal protection and PNT Assurance in challenged environments through anti-jam technologies. Anti-jam enables tactical capabilities through assured signal acquisition in challenged environments.

FY 2015 Base funds in the amount of $9.930 million are provided as a new start for the Assured PNT Program to initiate the development of PNT system solutions for combating electronically and physically challenged electromagnetic environments.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Army					Date: March 2014
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	9.930	-	9.930
Total Adjustments	-	-	9.930	-	9.930
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	9.930	-	9.930

Exhibit R-2A, RDT&E Project Justification: PB 2015 Army			Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	Project (Number/Name) ED5 / *Assured Positioning, Navigation and Timing (PNT)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
ED5: *Assured Positioning, Navigation and Timing (PNT)*	-	-	-	9.930	-	9.930	20.191	21.692	33.745	30.300	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Joint Requirements Oversight Council Memo (JROCM) 049-10, dated April 5th 2010, approved the Positioning, Navigation and Timing Assurance Initial Capabilities Document and designated the Army as the Lead Component for Assured PNT. The Material Development Decision (MDD) was approved on July 30th 2013. Positioning Navigation and Timing (PNT) is a critical enabler of many Army systems. The current capability, Global Positioning System (GPS), is a fixed frequency system which is vulnerable to current and emerging threats and field conditions which means that PNT access and integrity to the Warfighter cannot be guaranteed. This situation degrades mission performance to an unacceptable level. Therefore, current Army systems cannot operate at the required PNT Assurance Levels with GPS alone.

Assured PNT consists of a set of mutually dependent products that provide a cumulative effect to enable the Assured PNT capability. The Assured PNT program focuses on platform distribution of PNT, scalable PNT architectures that pace the threat, and the ability to upgrade to future technologies, including Military Code (M-Code), at a much lower cost than the current architecture of GPS user equipment (UE). M-code was designed to further improve the anti-jamming and secure access of the military GPS signals.

Assured PNT is a family of solutions which includes four subprograms: (1) The Pseudolites subprogram provides PNT Assurance in GPS denied environments by providing terrestrial radio navigation (GPS-like) service in electronically or physically challenged environments using a higher power signal. The Pseudolites subprogram enables continued operations of PNT-enabled systems such as Blue Force Tracker, Communications Networks and Precision Guided Munitions; (2) The Mounted PNT subprogram is the integration of multiple sensors and provides PNT platform distribution. The Mounted PNT subprogram incorporates a System of Systems architecture that acquires, protects and distributes secure PNT on stationary and vehicular platforms. The mounted materiel solution is a modular, scalable form-factor that paces the threats and enables PNT on the Vehicle Integration for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance/Electronic Warfare (C4ISR/EW) Interoperability also known as VICTORY and Future Airborne Capability Environment (FACE) Architecture; (3) The Dismounted PNT subprogram is the integration of multiple sensors for platform distribution of PNT on the Soldier. The Dismounted PNT subprogram incorporates a System of Systems architecture that acquires, protects and distributes secure PNT wirelessly on the soldier; (4) The Anti-Jam subprogram provides GPS signal protection and PNT Assurance in challenged environments through anti-jam technologies. Anti-jam enables tactical capabilities through assured signal acquisition in challenged environments.

FY 2015 Base funds in the amount of $9.930 million are provided as a new start for the Assured PNT Program to initiate the development of PNT system solutions for combating electronically and physically challenged electromagnetic environments.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Army		Date: March 2014
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** ED5 / *Assured Positioning, Navigation and Timing (PNT)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: Assured PNT	-	-	9.930
Description: Efforts include initiation of development effort for Pseudolite subprogram, Dismounted sub program Risk reduction efforts, preparation of Milestone documentation for the Assured PNT program, and associated Program Management Office (PMO) and support activities. ***FY 2015 Plans:*** Efforts include initiation of development effort for Pseudolite subprogram, Dismounted sub program Risk reduction efforts, preparation of Milestone documentation for the Assured PNT program, and associated Program Management Office (PMO) and support activities.			
Accomplishments/Planned Programs Subtotals	-	-	9.930

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Assured Positioning, Navigation and Timing (PNT) Acquisition Strategy is focused on the acquisition of a family of systems required to achieve the Assured PNT capability. The materiel solutions are partitioned into subprograms that are at various stages of technical maturity, and include Pseudolites, Mounted PNT, Dismounted PNT, and Anti-jam. The strategy for the Pseudolite subprogram includes technology development accomplished through two competitive, cost-plus incentive fee (CPIF) contracts; this includes development and testing of critical system technologies including command and control, anti-tamper, and PNT determination technologies following a MS A Decision in FY 2015. The Milestone B decision is planned for FY 2017. The strategy for the Mounted PNT subprogram includes technology development accomplished through two competitive CPIF contracts following a Milestone A decision in FY 2016; this includes open-system architecture development to enable industry to provide PNT solutions that "plug-in" to the Mounted PNT Hub, increasing competition and innovation across the life of the program. The strategy for the Dismounted PNT subprogram includes technology bridging activities to facilitate a small-business innovative research (SBIR) performer to support a Milestone B decision in FY 2017. The strategy for the Antijam subprogram consists of a Milestone B in FY 2016 to initiate Engineering and Manufacturing Development with two contractors, focused on size-weight, power and cost (SWAP-C) optimization of the anti-jam technologies. The above acquisition strategy is pending approval by the Milestone Decision Authority.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Army			Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	Project (Number/Name) ED5 / *Assured Positioning, Navigation and Timing (PNT)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Support	Allot	PD PNT Core : Various	0.000	-		-		0.490	Nov 2014	-		0.490	-	0.490	-
		Subtotal	0.000	-		-		0.490		-		0.490	-	0.490	-

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Develop Pseudolite Competitive Prototype Contractor 1	C/CPIF	Various : Various	0.000	-		-		3.615	Mar 2015	-		3.615	-	3.615	-
Develop Pseudolite Competitive Prototype Contractor 2	C/CPIF	Various : Various	0.000	-		-		3.615	Mar 2015	-		3.615	-	3.615	-
Dismounted Technical Risk Reduction and Integration	MIPR	Various : Various	0.000	-		-		0.440	Mar 2015	-		0.440	-	0.440	-
		Subtotal	0.000	-		-		7.670		-		7.670	-	7.670	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	Various : Various	0.000	-		-		0.850	Nov 2014	-		0.850	-	0.850	-
SETA Support	C/FFP	Various : Various	0.000	-		-		0.920	Mar 2015	-		0.920	-	0.920	-
		Subtotal	0.000	-		-		1.770		-		1.770	-	1.770	-

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		9.930		-		9.930	-	9.930	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Army			Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	Project (Number/Name) ED5 / *Assured Positioning, Navigation and Timing (PNT)*	

	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Army		Date: March 2014
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** ED5 / *Assured Positioning, Navigation and Timing (PNT)*

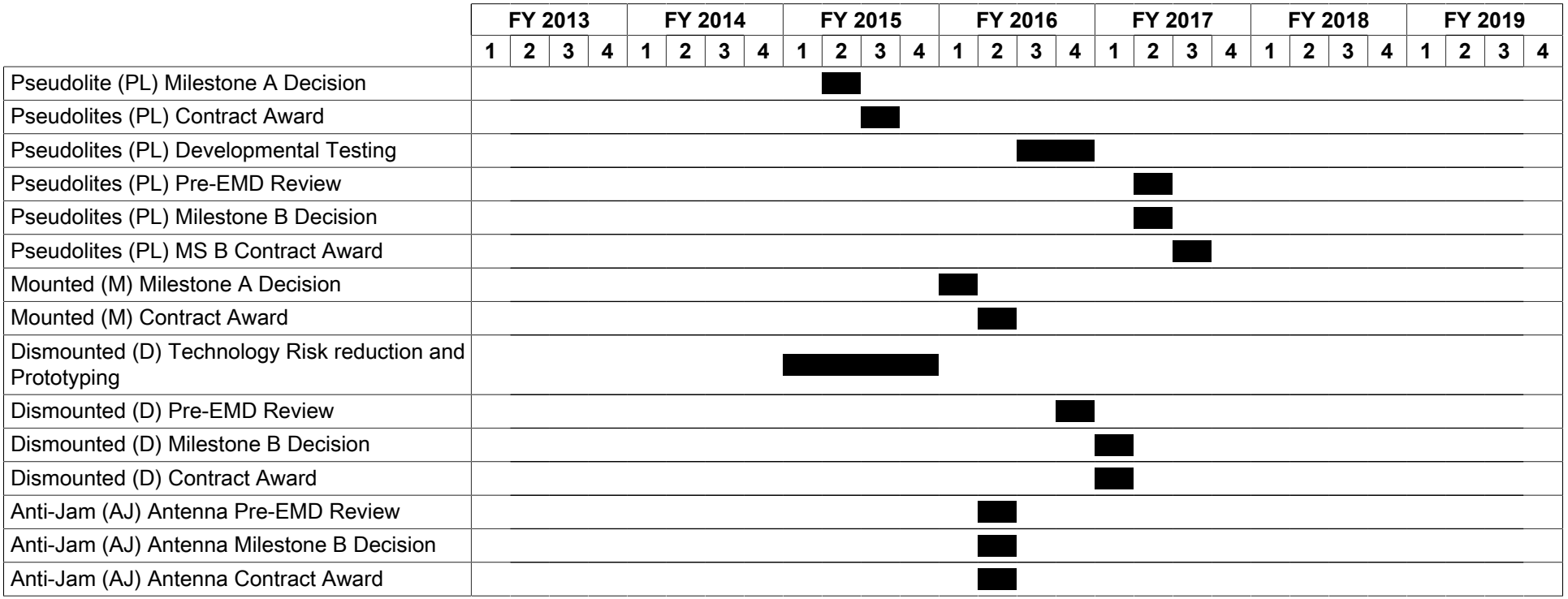

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Army		Date: March 2014
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** ED5 / *Assured Positioning, Navigation and Timing (PNT)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Pseudolite (PL) Milestone A Decision	2	2015	2	2015
Pseudolites (PL) Contract Award	3	2015	3	2015
Pseudolites (PL) Developmental Testing	3	2016	4	2016
Pseudolites (PL) Pre-EMD Review	2	2017	2	2017
Pseudolites (PL) Milestone B Decision	2	2017	2	2017
Pseudolites (PL) MS B Contract Award	3	2017	3	2017
Mounted (M) Milestone A Decision	1	2016	1	2016
Mounted (M) Contract Award	2	2016	2	2016
Dismounted (D) Technology Risk reduction and Prototyping	1	2015	4	2015
Dismounted (D) Pre-EMD Review	4	2016	4	2016
Dismounted (D) Milestone B Decision	1	2017	1	2017
Dismounted (D) Contract Award	1	2017	1	2017
Anti-Jam (AJ) Antenna Pre-EMD Review	2	2016	2	2016
Anti-Jam (AJ) Antenna Milestone B Decision	2	2016	2	2016
Anti-Jam (AJ) Antenna Contract Award	2	2016	2	2016