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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0604827A I Soldier Systems - Warrior Dem/Val							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	15.490	10.382	5.803	-	5.803	3.917	3.140	4.464	3.823	Continuing	Continuing
DX7: TACTICAL COMMUNICATIONS AND PROTECTIVE SYSTEM	-	0.850	0.325	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.175
EY2: Integrated Soldier Power Data System - Core	-	6.671	2.859	1.439	-	1.439	1.243	0.000	0.000	2.506	Continuing	Continuing
EY3: Soldier Power Generator	-	0.000	0.318	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.318
EY4: Universal Battery Charger	-	1.663	1.406	1.433	-	1.433	1.461	0.901	0.916	0.000	0.000	7.780
FK4: Soldier Borne Sensor (SBS)	-	0.000	0.000	1.512	-	1.512	1.213	2.239	3.548	1.317	0.000	9.829
S65: Platoon Power Generator	-	6.306	5.474	1.419	-	1.419	0.000	0.000	0.000	0.000	0.000	13.199

A. Mission Description and Budget Item Justification

This program element contains five projects:

Project DX7 - Tactical Communications and Protective System (TCAPS): TCAPS enables Soldiers to communicate over radios in combat environments while simultaneously providing hearing protection from both steady state and impulse noise.Project

Project EY2 - Integrated Soldier Power Data System - Core: Integrated Soldier Power and Data System-Core, Conformal Wearable Battery, Squad Power Manager (SPI) fills the power and energy gaps created by the increase in mission essential, Soldier portable power consumers, such as situational awareness displays, GPS systems, weapon sensors, radios, and other devices.

Project EY3 - Soldier Power Generator (SPG) - fills the power and energy gap created by the increase in mission essential and power consuming devices, by providing a single charging solution capable of providing power to handheld communication devices and a suite of military batteries. SPG is intended for use in the most austere operating environments providing the Soldier with energy independency for extended mission duration. The system will provide the Soldier with a lightweight, worn or carried power generation capability, integrated within the warfighters combat load.

Project EY4 - Universal Battery Charger: Universal Battery Charger (UBC) fills the power and energy gap created by the increase in mission essential, Soldier portable power consumers, by providing a sole charging solution capable of providing power to handheld communication devices and a suite of military batteries.

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Project FK4 - Soldier Borne Sensor (SBS): The SBS is a small unmanned aerial vehicle. The SBS provides a near term solution to three Army War-fighting Challenges at the Infantry Squad level: develop situational understanding, conduct air-ground reconnaissance, and conduct joint combined arms maneuver. The system is simple to deploy and use to support the squad leader's decision-making process. The system allows Soldiers to obtain local situational awareness and understanding of their immediate surroundings while remaining in covered or concealed positions. Funding in this project aligns with the Army's priorities in support of the National Defense Strategy. This SBS project is not a new start: funding from this project transferred from PE: 06005053A / Grounds Robotics project 655053.FB8.						
S65 - Soldier Power: Soldier Power enables dismounted Soldiers to efficiently execute missions for longer durations by reducing the logistical burden associated with fuel and primary (disposable) batteries. Platoon Power Generation (PPG) - PM E2S2: This project supports the demonstration and development of a PPG. The Small Unit Power (SUP) PPG (1kW Generator) will provide small units with sufficient portable power to sustain Modified Table of Organizational Equipment (MTOE) unit power demand in support of 48 to 72 hour missions using a common logistical fuel (JP-8). It will be used for charging batteries and powering various types of Army communications and electronics devices.						
B. Program Change Summary (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget		16.127	10.395	6.237	-	6.237
Current President's Budget		15.490	10.382	5.803	-	5.803
Total Adjustments		-0.637	-0.013	-0.434	-	-0.434
• Congressional General Reductions		-0.013	-0.013			
• Congressional Directed Reductions		-	-			
• Congressional Rescissions		-	-			
• Congressional Adds		-	-			
• Congressional Directed Transfers		-	-			
• Reprogrammings		-	-			
• SBIR/STTR Transfer		-0.624	-			
• Adjustments to Budget Years		-	-	-0.434	-	-0.434

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val				Project (Number/Name) DX7 / TACTICAL COMMUNICATIONS AND PROTECTIVE SYSTEM			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
DX7: TACTICAL COMMUNICATIONS AND PROTECTIVE SYSTEM	-	0.850	0.325	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.175
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Description: The Tactical Communications and Protective System (TCAPS) and TCAPS-Lite provide Soldiers with advanced, active hearing protection that simultaneously protects Soldiers' hearing while enabling situational awareness and mission command. TCAPS protects Soldiers against harmful impulse and steady state noises characteristic of combat environments while also enabling Soldiers to communicate with each other using voice communications over a tactical radio, while TCAPS-Lite provides protection for Soldiers without a radio. Both systems enhance survivability and situational awareness by allowing Soldiers to amplify faint sounds that would not be otherwise audible or intelligible. TCAPS and TCAPS-Lite reduces Soldiers noise induced hearing damage and includes integration and interface of products on Soldiers.

TCAPS and TCAPS-Lite contribute to the reduction of post-service disability compensation and limits lost in-service time related to hearing injuries. TCAPS Program of Record will continue to employ commercial-off-the-shelf (COTS) solutions that are evaluated periodically. The commercial solutions that meet the technical requirements and are rated the best by the Soldiers will transition to production and fielding.

Justification: No FY2020 funding requested.

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

	FY 2018	FY 2019	FY 2020
Title: TCAPS testing and evaluation.	0.654	0.261	-
Description: Test articles procurement and testing & evaluation.			
FY 2019 Plans: Conduct TCAPS-Lite Generation 2 developmental and operational testing.			
FY 2019 to FY 2020 Increase/Decrease Statement: FY20 funding reduced to zero.			
Title: System Engineering and Program Management (SEPM)	0.196	0.064	-
Description: TCAPS system engineering and program management support.			
FY 2019 Plans:			

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B. Accomplishments/Planned Programs (\$ in Millions)							FY 2018	FY 2019	FY 2020		
Continue development of performance parameters for TCAPS-Lite Generation 2.											
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Funding reduced to zero.											
Accomplishments/Planned Programs Subtotals							0.850	0.325	-		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• B55510: <i>Tactical Communications And Protective System</i>	4.411	10.368	0.000	-	0.000	-	-	-	-	0.000	14.779
Remarks											
D. Acquisition Strategy TCAPS is an ACAT IV program that leverages commercial-off-the-shelf (COTS) technology. TCAPS conducts periodic relook of commercial technology to seek improved capabilities, reduce costs and transition to production. Uses Defense Logistics Agency (DLA), General Services Administration (GSA) and other contracts to acquire products for evaluation and production.											
E. Performance Metrics N/A											

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Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>						Project (Number/Name) DX7 / <i>TACTICAL COMMUNICATIONS AND PROTECTIVE SYSTEM</i>			
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
SEPM	MIPR	PEO Soldier : Ft Belvoir, VA	0.674	0.196		0.064		-		-		-	0.000	0.934	-
Subtotal			0.674	0.196		0.064		-		-		-	0.000	0.934	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Test Articles (Engineering Assessment)	MIPR	DLA DSCP : Philadelphia, PA	0.082	-		-		-		-		-	0.000	0.082	-
Test Articles (Development Test)	MIPR	DLA DSCP : Philadelphia, PA	0.150	-		-		-		-		-	0.000	0.150	-
Test Articles (OT)	MIPR	DLA DSCP : Philadelphia, PA	0.405	-		-		-		-		-	0.000	0.405	-
Subtotal			0.637	-		-		-		-		-	0.000	0.637	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Annual Relook of Technology/Evaluation	MIPR	ATEC, AEC, OTC, ARL-SLAD : Various Locations	0.752	-		-		-		-		-	0.000	0.752	-
Developmental and Operational Test	Various	ATEC, AEC, OTC, ARL-SLAD : Various Locations	1.225	0.654		0.261		-		-		-	0.000	2.140	-
Customer Test	Various	Army Hearing Program Office : Various Locations	0.028	-		-		-		-		-	0.000	0.028	-
Subtotal			2.005	0.654		0.261		-		-		-	0.000	2.920	N/A

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	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.316	0.850		0.325		-		-		-	0.000	4.491	N/A
Remarks													

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army

Date: March 2019

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2040 / 5

[illegible]

PE 0604827A / Soldier Systems - Warrior
Dem/Val

Project (Number/Name)	Start Date	End Date	Duration (Days)	Project Manager	Status	Notes
101/Project Alpha	2023-01-15	2023-03-10	55	John Doe	Completed	Exceeded budget by 5%.
102/Project Beta	2023-02-01	2023-04-15	74	Jane Smith	In Progress	On track.
103/Project Gamma	2023-03-01	2023-05-20	79	Mike Johnson	On Hold	Waiting for client approval.
104/Project Delta	2023-04-01	2023-06-10	70	Sarah Lee	Planned	Initial planning phase.
105/Project Epsilon	2023-05-01	2023-07-15	75	David Kim	On Hold	Resource allocation pending.
106/Project Zeta	2023-06-01	2023-08-10	71	Emily White	Planned	Scope definition in progress.
107/Project Eta	2023-07-01	2023-09-15	76	Chris Brown	On Hold	Market research ongoing.
108/Project Theta	2023-08-01	2023-10-10	70	Alex Green	Planned	Vendor selection process.
109/Project Iota	2023-09-01	2023-11-15	75	Nora Black	On Hold	Legal review required.
110/Project Kappa	2023-10-01	2023-12-10	70	Benjamin Gray	Planned	Final budget review.

DX7 / TACTICAL COMMUNICATIONS AND PROTECTIVE SYSTEM

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>	Project (Number/Name) DX7 / <i>TACTICAL COMMUNICATIONS AND PROTECTIVE SYSTEM</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Annual Relook of Technology for Evaluation/Integration Test for FY16 Fielding	1	2015	3	2015
Technical Gen 2 headset test	3	2015	4	2015
Operation Gen 2 headset test	4	2015	4	2015
Developmental and Operational Assessment for FY16 Fielding	2	2015	4	2015
TCAPS/TCAPS Lite Post Implementation Review	4	2016	4	2016
VIC3 cable test	4	2016	4	2016
Annual Relook of Technology for Evaluation/Integration Test for FY17 Fielding	1	2016	3	2016
Developmental and Operational Assessment for FY17 Fielding	2	2016	4	2016
Annual Relook of Technology for Evaluation/Integration for FY18 Fielding	1	2017	3	2017
Developmental and Operational Assessment for FY18	2	2017	4	2017
Annual Relook of Technology for Evaluation/Integration Test for FY19 Fielding	1	2018	3	2018
Developmental and Operational Assessment for FY19 Fielding	2	2018	4	2018
Annual Relook of Technology for Evaluation/Integration Test for FY20 Fielding	1	2019	3	2019
Developmental and Operational Assessment for FY20 Fielding	2	2019	4	2019

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Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val				Project (Number/Name) EY2 / Integrated Soldier Power Data System - Core			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
EY2: Integrated Soldier Power Data System - Core	-	6.671	2.859	1.439	-	1.439	1.243	0.000	0.000	2.506	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Integrated Soldier Power Data System - Core (ISPDS-C) funding was realigned from Program Element: 0604827A (Soldier Systems Warrior Dem/Val)/Project: S65 (Soldier Power) starting in FY2018.

A. Mission Description and Budget Item Justification

Soldier Power Integration (SPI) includes power and data managing/distribution devices, cutting-edge energy storage solutions, and power scavenging devices. These capabilities fill the power and energy gaps created by the increase in mission essential, Soldier portable power consumers, such as heads up displays, situational awareness displays, GPS systems, weapon sensors, radios, and other devices. This RDT&E line develops power sources and power management solutions for the individual Soldier and squad for use in the most austere operating environments. SPI systems will enable dismounted Soldiers to execute their missions more efficiently, for longer durations and with fewer battery resupplies while reducing the logistical and physical burden associated with moving fuel and primary (disposable) batteries, and allow dismounted Soldiers to operate independently for longer missions without being tethered to a large generator, vehicle, or supply train. This effort is consistent with the Soldier Protection Capability Development Document (CDD) (March 2011), Operational Energy Initial Capabilities Document (26 April 2012), the Small Unit Power CDD (26 September 2013), and the draft SPM, ISPDS-C with Conformal Central Power Source Capability Production Document (May 2017).

Justification: FY20 RDT&E develops and evaluates Intra-Soldier Wireless solutions, fuel cell based solutions and improved mission duration batteries.

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

	FY 2018	FY 2019	FY 2020
Title: Test and Evaluation	1.210	0.443	0.220
Description: Test and validate new battery chemistries and interfaces with the IPSDS-C and SPM.			
FY 2019 Plans: Will continue to evaluate intra-Soldier wireless technologies.			
FY 2020 Plans: Will continue to evaluate intra-Soldier wireless technologies and test and validate new battery chemistries.			
FY 2019 to FY 2020 Increase/Decrease Statement: HQDA re-prioritization			
Title: Test and Evaluation of E-textile integrated vest	-	0.061	0.131

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Description: Test and validate two new E-textile integrated IOTV Generation IV designs. These vest designs will interface with the Next Generation Hub, Command Center, and battery charger efforts. FY 2019 Plans: Receive vest prototypes for testing and evaluations. FY 2020 Plans: Integrate launderable E-textile connectors into existing E-textile vest designs for testing and evaluations. FY 2019 to FY 2020 Increase/Decrease Statement: HQDA re-prioritization					
Title: System Engineering & Program Management Description: Conduct system engineering and project management for ISDPS-C efforts and Intra-soldier wireless technologies. FY 2019 Plans: Will continue to evaluate intra-Soldier wireless technologies. FY 2020 Plans: Continue to conduct system engineering and project management for ISDPS-C efforts and Intra-soldier wireless technologies. FY 2019 to FY 2020 Increase/Decrease Statement: HQDA re-prioritization			1.889	0.787	0.173
Title: ISPDPS-C/CWB Capability Improvements Integration FY 2019 Plans: Continue to conduct integration of new lightweight, Soldier Power Generation, chargers / harvesters, and generators capable of supporting the variety of power devices used in tactical formations. FY 2020 Plans: Conduct integration of intra-Soldier wireless and fuel cells capable of supporting the variety of power devices used in tactical formations. FY 2019 to FY 2020 Increase/Decrease Statement: HQDA re-prioritization			3.572	0.662	0.694
Title: Second Source CWB qualification			-	0.814	0.221

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B. Accomplishments/Planned Programs (\$ in Millions)							FY 2018	FY 2019	FY 2020		
Description: Qualify one or more vendors for an alternative method of procuring CWBs. FY 2019 Plans: Compete and award an alternative source of procuring the CWB. Conduct Preliminary Design Review (PDR). FY 2020 Plans: Conduct Critical Design Review (CDR) and first article testing. Take delivery of minimum contractual quantity of CWBs. FY 2019 to FY 2020 Increase/Decrease Statement: HQDA re-prioritization											
Title: FY2019 SBIR / STTR Transfer Description: FY2019 SBIR / STTR Transfer FY 2019 Plans: FY2019 SBIR / STTR Transfer FY 2019 to FY 2020 Increase/Decrease Statement: FY2019 SBIR / STTR Transfer							-	0.092	-		
Accomplishments/Planned Programs Subtotals							6.671	2.859	1.439		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• S65: <i>Platoon Power Generator</i>	6.306	5.474	1.419	-	1.419	-	-	-	-	0.000	13.199
• EY4: <i>Universal Battery Charger</i>	1.663	1.406	1.433	-	1.433	1.461	0.901	0.916	-	0.000	7.780
• EY3: <i>Soldier Power Generator</i>	-	0.318	0.000	-	0.000	-	-	-	-	0.000	0.318
• R09103: <i>Universal Battery Charger</i>	1.898	8.456	9.865	-	9.865	10.076	-	-	-	0.000	30.295
• R08090: <i>Integrated Soldier Power Data System - Core</i>	4.533	22.318	17.495	-	17.495	17.837	-	-	-	0.000	62.183
Remarks											
D. Acquisition Strategy											
Pursue a variety of Soldier power products under full and open competition. Initiatives range from Commercial-Off-The-Shelf (COTS) solutions to developmental efforts. The type of solicitation depends on the maturity of the technology. The power initiatives will be evaluated through scheduled test and evaluation events, and if											

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<p>successful, selected for procurement and subsequent fielding and sustainment. The acquisition strategy varies by product. For example, the CWB acquisition strategy consists of two phases: Phase one includes the purchase of test articles using the Defense Logistics Agency (DLA) Special Operational (Spec Ops) Equipment Tailored Logistic Support Program (TLSP) and General Services Administration (GSA) contracts. Phase two includes the procurement of additional test articles through Indefinite Delivery Indefinite Quantity (IDIQ) contracts established through the Army Contracting Command (ACC). The Project Manager office will establish IDIQ contracts to support the SPI requirements over time. Each SPI system will be procured under purchase orders for production quantities that will be awarded on a Firm Fixed Price (FFP) contract. Developmental contracts for intra-soldier wireless technology are awarded through the Army Research, Development and Engineering Command.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
System Engineering & Program Management Support	MIPR	Various : Various	-	1.889		0.787		0.173		-		0.173	Continuing	Continuing	-
Subtotal			-	1.889		0.787		0.173		-		0.173	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
ISPDS-C, CWB Capability Improvements Integration	MIPR	Various : Various	-	3.572		1.476		0.915		-		0.915	0.000	5.963	-
Subtotal			-	3.572		1.476		0.915		-		0.915	0.000	5.963	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
FY2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		0.092		-		-		-	0.000	0.092	-
Subtotal			-	-		0.092		-		-		-	0.000	0.092	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Test & Evaluation	MIPR	Various : Various	-	1.210		0.504		0.351		-		0.351	0.000	2.065	-
Subtotal			-	1.210		0.504		0.351		-		0.351	0.000	2.065	N/A

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					Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals					-	6.671		2.859		1.439		-		1.439	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army			Date: March 2019	
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>		Project (Number/Name) EY2 / <i>Integrated Soldier Power Data System - Core</i>

Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Annual Relook of Technology																												
Testing of Product Improvements																												
Annual Relook of Technology 2 (Fuel Cells, ISW, higher energy batteries)																												
Testing of Product Improvements 2 (Fuel Cells, ISW, higher energy batteries)																												
Power Scavenger Performance Improvements																												
Second Source CWB Qualification																												
E-Textile Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>	Project (Number/Name) EY2 / <i>Integrated Soldier Power Data System - Core</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone C	1	2017	1	2017
CWB Development Testing 1	3	2017	3	2017
Annual Relook of Technology	3	2018	4	2018
Testing of Product Improvements	3	2019	4	2019
Annual Relook of Technology 2 (Fuel Cells, ISW, higher energy batteries)	3	2020	4	2020
Testing of Product Improvements 2 (Fuel Cells, ISW, higher energy batteries)	3	2021	4	2021
Power Scavenger Performance Improvements	2	2019	4	2020
Second Source CWB Qualification	2	2019	2	2020
E-Textile Development	2	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val				Project (Number/Name) EY3 / Soldier Power Generator			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
EY3: Soldier Power Generator	-	0.000	0.318	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.318
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY19, funding for Soldier Power Generator was realigned from Program Element: 0604827A (Soldier Systems - Warrior Dem/Val)/Project: S65 (Soldier Power).

A. Mission Description and Budget Item Justification

Soldier Power Generation (SPG) fills the power and energy gap created by the increase in mission essential and power consuming devices, by providing charging solutions capable of providing power to handheld communication devices and a suite of military batteries. SPG is intended for use in the most austere operating environments providing the Soldier with energy independency for extended mission duration. The system will provide the Soldier with a lightweight, worn or carried power generation capability, integrated within the warfighters combat load.

Justification: Program has no FY20 RDTE funding.

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

	FY 2018	FY 2019	FY 2020
Title: Test and Evaluation	-	0.318	-
Description: Test emerging technologies.			
FY 2019 Plans: Evaluate emerging power generation technologies.			
FY 2019 to FY 2020 Increase/Decrease Statement: HQDA re-prioritization			
Accomplishments/Planned Programs Subtotals	-	0.318	-

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• S65: <i>Platoon Power Generator</i>	6.306	5.474	1.419	-	1.419	-	-	-	-	0.000	13.199
• EY2: <i>Integrated Soldier Power Data System - Core</i>	6.671	2.859	1.439	-	1.439	1.243	-	-	2.506	Continuing	Continuing
• EY4: <i>Universal Battery Charger</i>	1.663	1.406	1.433	-	1.433	1.461	0.901	0.916	-	0.000	7.780

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019	
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>				Project (Number/Name) EY3 / <i>Soldier Power Generator</i>			
C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2020</u>	<u>FY 2020</u>	<u>FY 2020</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Complete</u>	<u>Total Cost</u>
• R09103: <i>Universal Battery Charger</i>	1.898	8.456	9.865	-	9.865	10.076	-	-	-	0.000	30.295
Remarks											
D. Acquisition Strategy											
Develop a range of Soldier Power Generation technologies, based on technical tests and Soldier feedback, to determine the best material solution and then award a competitive contract to pursue test articles. Any follow on production for successful test articles will be through competitively awarded contracts.											
E. Performance Metrics											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val				Project (Number/Name) EY3 / Soldier Power Generator					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
System Engineering and Prgram Management (SEPM)	MIPR	PEO Soldier, Ft. Belvoir, VA : TBD	-	-		0.045		-		-		-	0.000	0.045	-
Subtotal			-	-		0.045		-		-		-	0.000	0.045	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Development Test	TBD	Various : TBD	-	-		0.273		-		-		-	0.000	0.273	-
Subtotal			-	-		0.273		-		-		-	0.000	0.273	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		0.318		-		-		-	0.000	0.318	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army																Date: March 2019												
Appropriation/Budget Activity 2040 / 5								R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val								Project (Number/Name) EY3 / Soldier Power Generator												
Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Test and Evaluation					Emerging Technologies																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val	Project (Number/Name) EY3 / Soldier Power Generator

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Test and Evaluation	1	2019	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019			
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val				Project (Number/Name) EY4 / Universal Battery Charger				
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
EY4: Universal Battery Charger	-	1.663	1.406	1.433	-	1.433	1.461	0.901	0.916	0.000	0.000	7.780	
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-			
Note Beginning in FY18, funding for Universal Battery Charger realigned from Program Element: 0604827A (Soldier Systems - Warrior Dem/Val)/Project S65 (Soldier Power).													
A. Mission Description and Budget Item Justification The Universal Battery Charger (UBC) fills the power and energy gap created by the increase in mission essential and power consuming devices, by providing a charging solution capable of recharging conformal wearable batteries and a wide variety of handheld communication devices and a suite of military batteries. The UBC is suited for the company and below formations in the most austere operating environments. The system can draw power from wall outlets, vehicle power, and solar power sources. The UBC enables dismounted Soldiers to execute their missions with fewer battery resupplies, thus reducing the logistical burden associated with moving fuel, primary (disposable) batteries, and rechargeable batteries. The UBC capability allows dismounted Soldiers to operate independently for longer missions without being tethered to a large generator, vehicle, or supply train. The UBC can be mounted on wheeled and tracked vehicles. This effort is consistent with the Operational Energy ICD (26 April 2012) and the Universal Battery Charger CPD (27 May 2015). Full Rate Production decision occurred 17 July 2017. Justification: FY20 RDTE funding increases UBC capability by increasing battery recharge performance, reducing size and also tests and evaluates the increased UBC capability.													
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020		
Title: Test & Evaluation									1.345	1.115	1.171		
FY 2019 Plans: Reduction of Universal Battery Charger size and weight as well as increase the battery recharging performance.													
FY 2020 Plans: Continue to evaluate reduction of UBC and weight as well as increase the battery recharging performance.													
FY 2019 to FY 2020 Increase/Decrease Statement: HQDA re-prioritization													
Title: System Engineering & Program Management									0.318	0.246	0.262		
FY 2019 Plans:													

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army							Date: March 2019				
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>			Project (Number/Name) EY4 / <i>Universal Battery Charger</i>				
B. Accomplishments/Planned Programs (\$ in Millions)											
Continue to develop the UBC Vehicle Integration Kit (VIK) and alternate dismounted charging solutions to reduce Soldier bulk and load. FY 2020 Plans: Conduct design and development of next generation UBC. FY 2019 to FY 2020 Increase/Decrease Statement: HQDA re-prioritization							FY 2018	FY 2019	FY 2020		
							-	0.045	-		
							1.663	1.406	1.433		
Accomplishments/Planned Programs Subtotals											
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• R09103: <i>Universal Battery Charger</i>	1.898	8.456	9.865	-	9.865	10.076	-	-	-	0.000	30.295
• S65: <i>Platoon Power Generator</i>	6.306	5.474	1.419	-	1.419	-	-	-	-	0.000	13.199
• EY2: <i>Integrated Soldier Power Data System - Core</i>	6.671	2.859	1.439	-	1.439	1.243	-	-	2.506	Continuing	Continuing
• EY3: <i>Soldier Power Generator</i>	-	0.318	0.000	-	0.000	-	-	-	-	0.000	0.318
• R08090: <i>Integrated Soldier Power Data System - Core</i>	4.533	22.318	17.495	-	17.495	17.837	-	-	-	0.000	62.183
Remarks											
D. Acquisition Strategy											
Competitive development and production contracts will be awarded to test, evaluate, and procure the next generation family of battery chargers to meet the increased power demand on the Soldier. A full and open, five year Indefinite Delivery Indefinite Quantity (IDIQ) production contract was awarded 27 January 2016 to procure the UBC.											

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val	Project (Number/Name) EY4 / Universal Battery Charger
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val				Project (Number/Name) EY4 / Universal Battery Charger					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
System Engineering/ Program Management Support	MIPR	Various : Various	-	0.250		0.246		0.262		-		0.262	0.318	1.076	-
Subtotal			-	0.250		0.246		0.262		-		0.262	0.318	1.076	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
FY2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		0.045		-		-		-	0.000	0.045	-
Subtotal			-	-		0.045		-		-		-	0.000	0.045	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Test & Evaluation	MIPR	Various : Various	-	1.413		1.115		1.171		-		1.171	1.139	4.838	-
Subtotal			-	1.413		1.115		1.171		-		1.171	1.139	4.838	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.663		1.406		1.433		-		1.433	1.457	5.959	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army																Date: March 2019													
Appropriation/Budget Activity 2040 / 5										R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val										Project (Number/Name) EY4 / Universal Battery Charger									
Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				
	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	
Alternative Dismounted Charging Solutions Development	█				█																								
UBC-Lite Development and Evaluation	█				█																								
Evaluation of modernized battery chargers	█				█				█																				
Battery charger performance improvements	█				█				█				█																
UBC kit configuration reevaluation	█				█				█																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>	Project (Number/Name) EY4 / <i>Universal Battery Charger</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Alternative Dismounted Charging Solutions Development	1	2018	1	2018
UBC-Lite Development and Evaluation	1	2019	4	2019
Evaluation of modernized battery chargers	2	2019	4	2020
Battery charger performance improvements	2	2019	4	2021
UBC kit configuration reevaluation	2	2020	4	2020

Note

Beginning in FY18, funding for Universal Battery Charger was realigned from Program Element: 0604827A (Soldier Systems - Warrior Dem/Val)/Project S65/Soldier Power. Prior to this realignment Soldier and Small Unit Power initiated developmental and test power solutions for the UBC technologies.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val				Project (Number/Name) FK4 / Soldier Borne Sensor (SBS)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
FK4: Soldier Borne Sensor (SBS)	-	0.000	0.000	1.512	-	1.512	1.213	2.239	3.548	1.317	0.000	9.829
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not a New Start: funding for this project was previously funded in PE: 0605053A / Grounds Robotics project, FB8.

A. Mission Description and Budget Item Justification

Project FK4 - Soldier Borne Sensor (SBS): The SBS is a small unmanned aerial vehicle. The SBS provides a near term solution to three Army War-fighting Challenges at the Infantry Squad level: develop situational understanding, conduct air-ground reconnaissance, and conduct joint combined arms maneuver. The system is simple to deploy and use to support the squad leader's decision-making process. The system allows Soldiers to obtain local situational awareness and understanding of their immediate surroundings while remaining in covered or concealed positions. Funding in this project aligns with the Army's priorities in support of the National Defense Strategy.

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

	FY 2018	FY 2019	FY 2020
Title: Soldier Borne Sensor (SBS)	-	-	1.512
Description: The SBS provides the small unit a "quick look" capability providing Situational Awareness (SA).			
FY 2020 Plans: The program will utilize other transaction authority (OTA) prototype projects to rapidly incorporate new technologies including GPS-denied operation and integration with the Adaptive Soldier Architecture into prototypes for evaluation. The OTA scope of work (technologies integrated) will be determined based on affordability. OTAs will be established with multiple manufacturers if affordable.			
FY 2019 to FY 2020 Increase/Decrease Statement: In FY20, this SBS project and funding transitions from PE: 0605053A / Ground Robotics project 655053.FB8 to PE: 0604827A / Soldier Systems - Warrior Dem/Val project 654827.FK4.			
Accomplishments/Planned Programs Subtotals	-	-	1.512

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019	
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>				Project (Number/Name) FK4 / <i>Soldier Borne Sensor (SBS)</i>			
C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2020</u>	<u>FY 2020</u>	<u>FY 2020</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Complete</u>	<u>Total Cost</u>
• W63798: <i>Soldier Borne Sensor (SBS)</i>	24.000	21.680	23.362	-	23.362	25.927	11.160	19.101	25.293	0.000	150.523
• FD2: <i>Soldier Robotics Systems</i>	1.477	2.105	2.771	-	2.771	3.261	3.290	3.352	3.423	0.000	19.679
• FB8: <i>Soldier Borne Sensor (SBS)</i>	2.197	3.465	0.000	-	0.000	-	-	-	-	0.000	5.662
Remarks											
Funding for this project was previously funded in PE: 0605053A / Grounds Robotics project, FB8.											
D. Acquisition Strategy											
SBS achieved Milestone C September 2017. The program office is utilizing Defense Logistics Agency - Tailored Logistics Support contracts to procure Tranche 1 systems in FY18, FY19, and FY20.											
SBS will initiate one, or more, prototype project via other transaction agreement in FY19. The Tranche 2 SBS solution will be selected from these prototypes in FY21.											
E. Performance Metrics											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val				Project (Number/Name) FK4 / Soldier Borne Sensor (SBS)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Improved Imaging	MIPR	Night Vision Electronic Sensors Directorate (NVESD) : Fort Belvoir, Virginia 22060	-	-		-		0.010	Feb 2020	-		0.010	Continuing	Continuing	-
Tranche 2 Prototype	TBD	TBD : TBD	-	-		-		0.953	Feb 2020	-		0.953	Continuing	Continuing	-
Subtotal			-	-		-		0.963		-		0.963	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Matrix Support	Various	Various : Multiple	-	-		-		0.549	Nov 2019	-		0.549	Continuing	Continuing	-
Subtotal			-	-		-		0.549		-		0.549	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		0.000		1.512		-		1.512	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army

Date: March 2019

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2040 / 5

R-1 Program Element (Number/Name)	Program Element Description	Program Element Status	Program Element Comments

PE 0604827A / Soldier Systems - Warrior

Dem/Val

Project (Number/Name)	Start Date	End Date	Duration (Days)	Project Manager	Status	Notes
101	2023-01-01	2023-01-15	14	John Doe	Completed	Project completed successfully.
102	2023-01-16	2023-02-01	16	Jane Smith	In Progress	On track for completion.
103	2023-02-02	2023-02-15	13	John Doe	On Hold	Waiting for client feedback.
104	2023-02-16	2023-03-01	15	Jane Smith	Completed	Project completed successfully.
105	2023-03-02	2023-03-15	13	John Doe	In Progress	Minor delays, but on track.
106	2023-03-16	2023-03-31	15	Jane Smith	On Hold	Waiting for client feedback.
107	2023-04-01	2023-04-15	14	John Doe	Completed	Project completed successfully.
108	2023-04-16	2023-05-01	15	Jane Smith	In Progress	On track for completion.
109	2023-05-02	2023-05-15	13	John Doe	On Hold	Waiting for client feedback.
110	2023-05-16	2023-06-01	15	Jane Smith	Completed	Project completed successfully.

FK4 / Soldier Borne Sensor (SBS)

Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
System Technology Improvements and Integration													<div>Improvements & Integration</div>															
Soldier Touch Points (STP)					<div>2 STP Tranche 1</div>																							
Full Rate Production (FRP) Decision					<div>1 FRP</div>																							
First Unit Equiped (FUE)					<div>3 FUE</div>																							
Tranche 2 - Technology Development					<div>Tranche 2 - Tech Dev</div>																							
Tranche 2 - Technology Integration and Testing									<div>Tranche 2 - Tech Integr & Testing</div>																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>	Project (Number/Name) FK4 / <i>Soldier Borne Sensor (SBS)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
System Technology Improvements and Integration	2	2020	4	2024
Soldier Touch Points (STP)	2	2019	2	2019
Full Rate Production (FRP) Decision	1	2019	1	2019
First Unit Equiped (FUE)	3	2019	3	2019
Tranche 2 - Technology Development	4	2018	4	2020
Tranche 2 - Technology Integration and Testing	4	2019	1	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val				Project (Number/Name) S65 / Platoon Power Generator			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S65: Platoon Power Generator	-	6.306	5.474	1.419	-	1.419	0.000	0.000	0.000	0.000	0.000	13.199
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Soldier and Small Unit Power (SUP) enables dismounted Soldiers to efficiently execute missions for longer durations by reducing the logistical burden associated with fuel and primary (disposable) batteries. Power solutions address energy deficits resulting from increased power demands associated with providing the Soldier with increased situational awareness displays, Global Positioning System (GPS) systems, weapon sensors, radios, and other devices. The Soldier and Small Unit Power system develops and tests power sources and solutions suited for the individual Soldier, team, squad, and platoon in the most austere operating environments. Develops and evaluates additional sources of power such as individual Soldier worn systems, renewable energy, and kinetic energy harvesting technologies. This effort is consistent with the Sep 2013 Small Unit Power CDD, the Dec 2011 Operational Energy ICD, and the Mar 2011 Soldier Protection CDD, and the Universal Battery Charger CPD (May 2015).												
Platoon Power Generation - PM E2S2: This project supports the demonstration and development of a Platoon Power Generation (PPG). The Small Unit Power PPG will provide small units with no less than 900 Watts of portable power to sustain Modified Table of Organizational Equipment (MTOE) unit power demand in support of 48 to 72 hour missions using a common logistical fuel (JP-8). It will be used for charging batteries and powering various types of Army communications and electronics devices. It will provide sufficient power to recharge and power all Platoon equipment and fulfill residual power gaps at the Squad and Soldier level. The generator will provide Platoon power for charging batteries when away from vehicles in all Brigade Combat Teams (Stryker, Armor and Infantry), Rangers and Special Forces in austere environments. FY 2020 funds will be used to complete the Engineering and Manufacturing Development (EMD) Phase.												
Funding supports modernization of the current power generation for Soldier borne sensors by investigating technology insertions including, but not limited to a modified COTS generator concept and proprietary fuel atomization. Funding also supports developing initial prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational energy concepts.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: Platoon Power Generation (PPG) - PM E2S2									6.306	5.273	1.419	
Description: Manage an EMD phase R&D contract for the PPG.												
FY 2019 Plans: Continue with EMD Phase. Support Critical Design Review (CDR) and Developmental Testing.												
FY 2020 Plans: Complete EMD Phase and Developmental Testing, which culminates in a user test.												
FY 2019 to FY 2020 Increase/Decrease Statement:												

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army								Date: March 2019			
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>				Project (Number/Name) S65 / <i>Platoon Power Generator</i>			
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2018	FY 2019	FY 2020	
Reduced funding in FY20 is due to the EMD Phase and Developmental Testing ending in 2nd Qtr of 2020.											
Title: FY 2019 SBIR / STTR Transfer								-	0.201	-	
FY 2019 Plans: FY 2019 SBIR / STTR Transfer											
FY 2019 to FY 2020 Increase/Decrease Statement: FY 2019 SBIR / STTR Transfer											
Accomplishments/Planned Programs Subtotals								6.306	5.474	1.419	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• R08090: <i>Integrated Soldier Power Data System - Core</i>	4.533	22.318	17.495	-	17.495	17.837	-	-	-	0.000	62.183
• R09103: <i>Universal Battery Charger</i>	1.898	8.456	9.865	-	9.865	10.076	-	-	-	0.000	30.295
• EY2: <i>Integrated Soldier Power Data System - Core</i>	6.671	2.859	1.439	-	1.439	1.243	-	-	2.506	Continuing	Continuing
• EY4: <i>Universal Battery Charger</i>	1.663	1.406	1.433	-	1.433	1.461	0.901	0.916	-	0.000	7.780
• EY3: <i>Soldier Power Generator</i>	-	0.318	0.000	-	0.000	-	-	-	-	0.000	0.318
Remarks											
D. Acquisition Strategy PEO CS/CSS Effort on the Platoon Power Generation - PM E2S2: Utilizing Other Transactional Agreement (OTA) contract vehicle culminating in an EMD award of three (3) Firm Fixed Price (FFP) contracts supporting an 18-24 month Engineering and Manufacturing Development (EMD) phase. Three selected contractors have been awarded EMD contracts and will separately fabricate and produce the minimum order of 15 Small Unit Power Platoon Power Generation (>900 Watts) systems (5 per vendor). The selected vendors will produce 5 additional systems to undergo developmental test (DT), a logistics demonstration (LD), pre-production qualification test, and limited user / operational test (LUT/OT). Upon successful completion of these tests and completion of logistics supportability, the performance data and Soldier's feedback will be utilized in preparation for Milestone C (MS C) 3rd Qtr FY20.											
E. Performance Metrics N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>						Project (Number/Name) S65 / <i>Platoon Power Generator</i>			
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Platoon Power Generation	Various	PM E2S2 : Fort Belvoir, VA	-	0.225		0.230		0.070		-		0.070	0.000	0.525	-
Subtotal			-	0.225		0.230		0.070		-		0.070	0.000	0.525	N/A
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Platoon Power Generation	C/FFP	Picatinny : Contractor Sites	1.500	4.618		4.263		0.500		-		0.500	1.500	12.381	-
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		0.201		-		-		-	0.000	0.201	-
Subtotal			1.500	4.618		4.464		0.500		-		0.500	1.500	12.582	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Platoon Power Generation	MIPR	APG : APG	1.356	1.463		0.230		0.449		-		0.449	0.600	4.098	-
Subtotal			1.356	1.463		0.230		0.449		-		0.449	0.600	4.098	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Platoon Power Generation	MIPR	Ft. Benning : Ft. Benning	0.220	-		0.550		0.400		-		0.400	0.220	1.390	-
Subtotal			0.220	-		0.550		0.400		-		0.400	0.220	1.390	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army											Date: March 2019				
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val					Project (Number/Name) S65 / Platoon Power Generator					
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			3.076	6.306		5.474		1.419		-		1.419	2.320	18.595	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army			Date: March 2019		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0604827A / Soldier Systems - Warrior Dem/Val		Project (Number/Name) S65 / Platoon Power Generator	

Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Milestone B (PPG)					1																							
Milestone B Platoon Power Generation (PPG)																												
EMD Contract Award (PPG)					2																							
Contract Award (PPG)																												
EMD Contract (PPG)																												
EMD Contract (PPG)																												
Critical Design Review (CDR) (PPG)					3																							
CDR (PPG)																												
Developmental Testing (PPG)																												
DT (PPG)																												
Limited User Test (LUT) (PPG)													4															
LUT (PPG)																												
Milestone C/LRIP (PPG)																												
Milestone C (PPG)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604827A / <i>Soldier Systems - Warrior Dem/Val</i>	Project (Number/Name) S65 / <i>Platoon Power Generator</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone B (PPG)	1	2019	1	2019
EMD Contract Award (PPG)	2	2019	2	2019
EMD Contract (PPG)	2	2019	2	2020
Critical Design Review (CDR) (PPG)	2	2019	2	2019
Developmental Testing (PPG)	3	2019	1	2020
Limited User Test (LUT) (PPG)	2	2020	2	2020
Milestone C/LRIP (PPG)	3	2020	3	2020