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 3: *Advanced Technology Development (ATD)*						**R-1 Program Element (Number/Name)** PE 0603270A *I Electronic Warfare Technology*						

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	-	33.249	41.458	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	74.707
CY3: *Offensive Cyber Operations Mirror Adv Tech*	-	0.000	6.475	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.475
K12: *EW Demonstrations (CA)*	-	3.000	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	13.000
K15: *Advanced Comm Ecm Demo*	-	9.038	2.439	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.477
K16: *Non-Commo Ecm Tech Dem*	-	21.211	22.544	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	43.755

Note

In Fiscal Year (FY) 2020 this Program Element (PE) is being realigned to the following PEs:
* 0603463A Network C3I Advanced Technology
* 0603465A Future Vertical Lift Advanced Technology Project:
* 0603462A Next Generation Combat Vehicle Advanced Technology
* 0603457A C3I Cyber Advanced Development

A. Mission Description and Budget Item Justification

In FY 2020 this PE is being eliminated, with continuity of effort realigned to other PEs as part of the United States (U.S.) Army's Science and Technology portfolio financial restructure. All FY 2020 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

This PE matures and demonstrates electronic warfare (EW) sensors and software intended to deny, disrupt, locate or destroy the enemy's command, control and communications (C3) systems and intelligence, surveillance and reconnaissance assets. This PE matures both countermeasures (CM) and counter-countermeasures (CCM) to deny the enemy the use of their systems while protecting United States (U.S.) assets from enemy deception and jamming. Project CY3 matures and demonstrates architecture, sensor and software techniques to provide operationally relevant capabilities for cyber support at Corps level and below and enables cyber situational awareness, command and control, mission rehearsal, observable reporting, and framework to incrementally advance cyber tool development. Project K15 matures and demonstrates capabilities to locate and exploit enemy communication systems including computer networks. Project K16 matures and demonstrates multifunctional EW capabilities (jamming) to enhance platform survivability and provide near real-time situational awareness to the Commander through the detection, identification and geo-location of emitters of interest.

Work in this PE complements PE 0602120A (Sensors and Electronic Survivability), PE 0602782A (Command, Control, Communications Technology), PE 0602270A (Electronic Warfare Technology), PE 0603772A (Advanced Tactical Computer Science) and PE 0603794A (Command, Control and Communications Advanced Technology), and is coordinated with PE 0602601A (Combat Vehicle and Automotive Technology), PE 0602618A (Ballistics Technology), PE 0603003A (Aviation

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 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603270A *I Electronic Warfare Technology*	

Advanced Technology), PE 0603004A (Weapons and Munitions Advanced Technology), PE 0603005A (Combat Vehicle and Automotive Advanced Technology), PE 0603313A (Missile and Rocket Advanced Technology) and PE 0603794A (Command, Control and Communications Advanced Technology).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by the U.S. Army Futures Command (AFC).

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	31.296	31.491	35.317	-	35.317
Current President's Budget	33.249	41.458	0.000	-	0.000
Total Adjustments	1.953	9.967	-35.317	-	-35.317
• Congressional General Reductions	-0.021	-0.033			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	3.000	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.026	-			
• Adjustments to Budget Years	-	-	-35.317	-	-35.317

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Project: K12: *EW Demonstrations (CA)*		
Congressional Add: *PACOM multi-domain battle exercise capabilities (CA)*	3.000	-
Congressional Add: *Tactical Cyber-Electronic Warfare Readiness*	-	10.000
Congressional Add Subtotals for Project: K12	3.000	10.000
Congressional Add Totals for all Projects	3.000	10.000

Change Summary Explanation
FY19 congressional add for tactical cyber-electronic warfare readiness initiative ($10.000 million).
FY20 decrease aligns program requirements with Army Modernization priorities in support of the National Defense Strategy as part of the S&T financial restructure.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army											Date: March 2019	

Appropriation/Budget Activity
2040 / 3

R-1 Program Element (Number/Name)
PE 0603270A / Electronic Warfare Technology

Project (Number/Name)
CY3 / Offensive Cyber Operations Mirror Adv Tech

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
CY3: *Offensive Cyber Operations Mirror Adv Tech*	-	0.000	6.475	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.475

Note

In Fiscal Year (FY) 2020 this Project is being realigned to:
Program Element (PE) 0603463A Network C3I Advanced Technology, Project:
*AQ4 Network Access and Effects
PE 0603457 C3I Cyber Advanced Development, Project:
* CB4 Offensive Cyber Operations (OCO) Mirror Advanced Technology

A. Mission Description and Budget Item Justification

This Project matures and demonstrates architecture, sensor and software techniques to provide operationally relevant capabilities for cyber support at Corps and Below. This Project enables cyber situational awareness, command and control, mission rehearsal, observable reporting, and framework to incrementally advance cyber tool development to realize the desired intent against any threat, to perform Cyber/EW/SIGINT operations and to assist in answering the commanders understanding of the battlespace in a hostile electromagnetic and cyber environment.

All FY 2020 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by the U.S. Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Offensive Operations	-	6.238	-
Description: This effort matures and demonstrates integrated electronic attack (EA) and cyberspace electromagnetic activities (CEMA) hardware and software to execute force protection (FP), EA, electronic surveillance (ES), signals intelligence (SIGINT), electronic warfare (EW) and cyber missions in a dynamic, distributed and coordinated fashion. This results in the capability to engage a multitude of diverse multi-node, multi-waveform, multi-platform and cyber (internetworked computers) targets while maximizing overall network efficiency and effectiveness, and preserving Blue Force and non-combatant communications. Work being accomplished under Program Element (PE) 0603270A/Projects K15 and K16 and PE 0602270A/Projects CYB and 906 complement this effort. In FY 2019 this effort was moved from Project K15 per an Office of the Secretary of Defense directive to identify cyber investments in cyber unique Projects.			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		**Date:** March 2019
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603270A / *Electronic Warfare Technology*	**Project (Number/Name)** CY3 / *Offensive Cyber Operations Mirror Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
FY 2019 Plans: Mature CEMA mission management software to augment the Commander's ability to build courses of action that achieve desired intent by allowing the Commander to choose the right cyber toolset for the mission based on availability of tools and computing resources on Blue Force platforms; optimize methods to employ tactical cyber/EW/SIGINT platforms as sensors to ascertain sufficient situational understanding of the mission space; demonstrate mature cyber and EW techniques against validated threats in support of and for transition to Programs of Record; use Modeling and Simulation to demonstrate how machine learning can be used to overcome technology hurdles, operational complexities, and enable timely Blue Force response; and use software and subsystem improvements to mature a simulated laboratory-based offensive cyber infrastructure for advanced EW/cyber development, tactical rehearsal, and training capabilities. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** PE 0603270A/Project CY3 realigned to PE 0603463A/Project AQ4 in FY20. The remainder realigned into a new Project CY2 effort (Offensive Cyber Operations (OCO) Mirror) in FY20.			
Title: FY 2019 SBIR / STTR Transfer ***Description:*** FY 2019 SBIR / STTR Transfer ***FY 2019 Plans:*** FY 2019 SBIR / STTR Transfer ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2019 SBIR / STTR Transfer	-	0.237	-
Accomplishments/Planned Programs Subtotals	-	6.475	-

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

E. Performance Metrics
 N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										**Date:** March 2019	
Appropriation/Budget Activity 2040 / 3				**R-1 Program Element (Number/Name)** PE 0603270A / Electronic Warfare Technology						**Project (Number/Name)** K12 / EW Demonstrations (CA)	

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
K12: EW Demonstrations (CA)	-	3.000	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	13.000

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Electronic Warfare Technology and Demonstrations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019
Congressional Add: PACOM multi-domain battle exercise capabilities (CA)	3.000	-
FY 2018 Accomplishments: PACOM multi-domain battle exercise capabilities (CA)		
Congressional Add: Tactical Cyber-Electronic Warfare Readiness	-	10.000
FY 2019 Plans: Tactical Cyber-Electronic Warfare Readiness		
Congressional Adds Subtotals	3.000	10.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army											Date: March 2019	

Appropriation/Budget Activity 2040 / 3				R-1 Program Element (Number/Name) PE 0603270A / Electronic Warfare Technology					Project (Number/Name) K15 / Advanced Comm Ecm Demo			

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
K15: Advanced Comm Ecm Demo	-	9.038	2.439	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.477

Note

In Fiscal Year (FY) 2020 this Project is being realigned to:
Program Element (PE) 0603463A Network C3I Advanced Technology, Projects:
* AN8 COE - Every Receiver is a Sensor Advanced Tech
* AO7 EW for Maneuver Operations (EMO) Adv Tech

A. Mission Description and Budget Item Justification

This Project matures and demonstrates sensor and software technologies to locate and identify modern tactical enemy and blue force (friendly) radio frequency (RF) communications, radars, signals of interest (SOI) and computer networks/nodes. This Project enables uninterrupted air and ground based intelligence collection and long range targeting operations in a hostile electromagnetic and cyber environment, and enables communications countermeasures (CM) and counter-countermeasures (CCM) to first intercept, identify and locate tactical communications; then degrade threat-computer networks and their components.

All FY 2020 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by the U.S. Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Offensive Operations	5.927	-	-
Description: This effort matures and demonstrates integrated electronic attack (EA) and cyberspace electromagnetic activities (CEMA) hardware and software to execute force protection (FP), EA, electronic surveillance (ES), signals intelligence (SIGINT), electronic warfare (EW) and cyber missions in a dynamic, distributed and coordinated fashion. This results in the capability to engage a multitude of diverse multi-node, multi-waveform, multi-platform and cyber (internetworked computers) targets while maximizing overall network efficiency and effectiveness, and preserving blue force and non-combatant communications. Work being accomplished under Program Element (PE) 0603270A/Projects CY3 and K16 and PE 0602270A/Projects CYB and 906 complement this effort. In FY 2019 this effort was moved to Project CY3 in accordance with Volume 2B, Chapter 18, of the DoD Financial Management Regulation (FMR), requiring all "cyberspace activities" funding move into pure budget Projects.			
Title: Stand-off Non-Cooperative Multi-Intelligence (Multi-INT) Technologies	3.111	2.439	-

Exhibit R-2A, **RDT&E Project Justification:** PB 2020 Army		**Date:** March 2019	
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603270A / *Electronic Warfare Technology*	**Project (Number/Name)** K15 / *Advanced Comm Ecm Demo*	

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2018**	**FY 2019**	**FY 2020**
Description: This effort matures and demonstrates hardware and software to conduct standoff electronic warfare (EW) intelligence, surveillance reconnaissance, planning and effects in a three dimensional urban battlespace. Work being accomplished under Program Element (PE) 0603270A/Project K16 and PE 0602270A/Project 906 complement this effort. *FY 2019 Plans:* Mature modeling & simulation (M&S) capabilities to analyze advanced threat scenarios to optimize future Blue Force multi-function EW sensor employment; conduct a laboratory demonstration of EW operations coordinated with other Warfighting functions (Fires, Maneuver, etc.) within the context of the EWPMT POR; demonstrate the implementation of ES and EA C2 functions in a laboratory environment to support future Terrestrial Layer Intelligence. Will support requirements development using EWPMT and/or surrogate sensors/systems; and mature and demonstrate software algorithms that optimize the planning of coordinated disparate airborne EW (i.e. the Air large increment of the Multifunction EW POR) and Intel assets (i.e. Enhanced Medium Altitude Reconnaissance and Surveillance System and Tactical SIGINT Payload PORs) with ground-based multi-function assets (i.e. dismounted/mounted Intel/EW systems) to illustrate the value of a combined Intel and CEMA common operating picture for enhanced situational understanding. *FY 2019 to FY 2020 Increase/Decrease Statement:* PE 063270A/Project K15 realigned to PE 063463A/Project AO7 (Electronic Warfare Maneuver Operations) in FY 2020.			
Accomplishments/Planned Programs Subtotals	9.038	2.439	-

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

E. Performance Metrics
 N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army											**Date:** March 2019	
Appropriation/Budget Activity 2040 / 3					**R-1 Program Element (Number/Name)** PE 0603270A / Electronic Warfare Technology					**Project (Number/Name)** K16 / Non-Commo Ecm Tech Dem		
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**
K16: *Non-Commo Ecm Tech Dem*	-	21.211	22.544	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	43.755

Note

In Fiscal Year (FY) 2020 this Project is being realigned to:
Program Element (PE) 0603465A Future Vertical Lift Advanced Technology, Project:
*AK3 Aviation Survivability Advanced Technology
PE 0603462A Next Generation Combat Vehicle Advanced Technology, Project:
*BG7 Ground Systems Active Defense (GSAD) Advanced Tech

A. Mission Description and Budget Item Justification

This Project matures and demonstrates non-communication, multi-functional electronic warfare (EW) capabilities that enhance the survivability of Army air and ground platforms and dismounted Soldiers. This Project matures and demonstrates radio frequency (RF), infrared (IR) and electro-optical (EO) sensors and jamming sources to detect, locate, deceive, and neutralize (jam) booby traps, radar-directed target acquisition systems, target-tracking sensors, surface-to-air missiles (SAMs), air-to-air missiles (AAMs), and top-attack and electronically-fuzed munitions. This Project also enables electronic support (ES) hardware and software to detect, identify and geolocate emitters of interest from an effective standoff distance to provide near real-time situational awareness.

All FY 2020 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by the U.S. Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2018**	**FY 2019**	**FY 2020**
Title: Multispectral Threat Detection and Countermeasure Technologies *Description:* This effort matures and demonstrates countermeasure technologies that provide platform protection and integrated cueing against electro-optical (EO), infrared (IR) and radio frequency (RF) guided threats. Work accomplished under Program Element (PE) 0602270A/Project 906 complements this effort. *FY 2019 Plans:* Develop demonstrator sensor system leveraging previously developed digital readout integrated circuit for threat warning, advanced focal plane array, and processing; use demonstrator sensor to collect threat signatures and background data; will integrate new sensor model into the M&S environment; assess algorithm performance with prior data sets and additionally with	5.650	6.274	-

PE 0603270A: *Electronic Warfare Technology*
Army

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019	
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603270A / Electronic Warfare Technology	Project (Number/Name) K16 / Non-Commo Ecm Tech Dem	

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
newly collected data from demonstrator sensor system; evaluate algorithm performance using models of projected threats with modified signature characteristics; and analyze function and capability of demonstrator sensor system as part of an integrated survivability suite and demonstrate end-to-end functionality of demonstrator sensor system in laboratory environment. **FY 2019 to FY 2020 Increase/Decrease Statement:** PE 0603270A/Project K16 realigned to PE 0603465A/Project AK3 in FY 2020.			
Title: Advanced Tactical EW Countermeasure Technologies **Description:** This effort matures and demonstrates integrated electronic warfare (EW)/direction finding technologies that provide protection of ground and dismounts from emerging radio frequency (RF) threats at standoff distances. Work accomplished under Program Element (PE) 0602270A/Project 906 and PE 0603270A/Project K15 complements this effort. **FY 2019 Plans:** Develop functions to intelligently identify threat, assess effectiveness, and optimize soft-kill (SK) countermeasure response for Homing and Laser Beam Rider threat variants; refine threat and system models that enable training of cognitive algorithms; conduct hardware breadboarding and techniques development of advanced SK countermeasure system; provide feedback to Open Standards Community of Interest on EW requirements; demonstrate integrated SK countermeasure hardware and intelligent software in simulation environment; perform technology assessment of the advanced SK countermeasure performance in the areas of identification, effectiveness assessment, optimization, improvements to total survivability, and extensibility to unknown threats. **FY 2019 to FY 2020 Increase/Decrease Statement:** PE 0603270A/Project K16 realigned to PE 0603462A/Project BG7 in FY 2020.	5.056	4.922	-
Title: EW Counter Countermeasures **Description:** This effort matures and demonstrates hardware and software to counter emerging electronic warfare threats to command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) platforms. Work being accomplished under PE 0603772A/Project 243 and PE 0602270A/Project 906 complements this effort. **FY 2019 Plans:** Continue maturation and integration of EP software and algorithms in open standards and open architecture designs with a focus on different classes of radar systems across the Army portfolio; continue to conduct hardware in the loop (HWIL) analysis of prioritized emerging threat interference techniques; assess potential interactions on emerging Blue Force systems, (i.e. communication, radar) and apply EP algorithms to mitigate the electromagnetic interference caused by these effects; mature and complete EP algorithms for detection, localization and neutralization of electronic interference, and will demonstrate their performance against a current threat; leverage HWIL assessment capabilities to support a future threat analysis and develop	3.502	3.382	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019	
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603270A / *Electronic Warfare Technology*	**Project (Number/Name)** K16 / *Non-Commo Ecm Tech Dem*	

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
techniques for mitigating future threats; expand efforts into developing advanced EA capabilities based on predicted future threats to create a red-team / blue-team EA/EP optimization loop for development of more advanced EP techniques. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** PE 0633270A/Project K16 realigned to a Classified program in FY 2020.			
Title: Active Protection System (APS) Soft Kill (SK)/Hard Kill (HK) Sensors (formerly titled Active Protection System (APS) Soft Kill) ***Description:*** This effort matures and demonstrates hardware, software and techniques to provide an electronic warfare (EW) soft kill, and cueing/tracking capability to the APS suite. This effort supports the Army's APS program to mature and demonstrate technologies to reduce vehicle weight by reducing reliance on armor through the use of other means such as sensing, warning, hostile fire detection, and active countermeasures to achieve increased protection against current and emerging threats. Work being accomplished under PE 0602601A/Project C05, PE 0602618A/Project H80, PE 0603004A/Project 232, PE 0603005A/Project 221 and PE 0603313A/Project 263 complements this effort. ***FY 2019 Plans:*** Demonstrate soft-kill (SK) and hard-kill (HK) capability and perform system analysis of their respective passive electro-optic/infrared and active radar sensors, SKCM, and Modular APS (MAPS) Controller on the MAPS platform demonstrator and MAPS Virtual software and hardware integration laboratories; passive and active sensor interface designs will be verified with modular active protection framework by demonstrating real time cueing, tracking and handoff of the threat message to the SKCM and hard-kill countermeasure (HKCM); develop, integrate and demonstrate the message pass through of multiple subsystems (cueing and tracking sensors, controller, SKCM and HKCM); continue integration of the passive and active sensors into the additional SK and HK APS; integrate new passive and active sensor techniques into the SKCM and HKCM software/hardware to address a wider list of current and emerging threats. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** PE 06033270A/K16 realigned to PE 06033462A/Project BG7 in FY 2020.	3.251	3.345	-
Title: Modeling Simulation and Technique Maturation for Integrated RF Operations (formerly titled Integrated RF Operations) ***Description:*** This effort matures and demonstrates a capability to perform modeling and simulation (M&S) of geographically dispersed radio frequency (RF) systems to provide a coordinated, collaborative and interoperable suite of electronic warfare (EW) capabilities. A modular software architecture will allow for rapid, cost effective technique development and integration of new EW capabilities, target signals of interest and environmental simulations. Work being accomplished under PE 0602270A/Project 906 and PE 0603794A/Project EL4 complements this effort. ***FY 2019 Plans:***	1.751	1.207	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603270A / Electronic Warfare Technology	**Project (Number/Name)** K16 / Non-Commo Ecm Tech Dem

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Mature and extend the collaborative sensor M&S environment to be capable of assessing system of systems performance for EW and other sensors across various scenarios to support analysis of performance requirements and development of concepts of employment; mature EW techniques and methods (i.e. active, reactive, surgical and protocol based software) developed in FY 18 under the Multi-Function Electronic Warfare (MFEW) Technique Development effort. *FY 2019 to FY 2020 Increase/Decrease Statement:* PE 06033270A/K16 has been realigned to PE 06033463A/AO7 in FY 2020.			
Title: Intelligence Processing and Architecture Modernization *Description:* This effort will leverage Intelligence Community investments in software frameworks and exploits against threat SOIs to develop a library of open, modular, and scalable software solutions to address identified capability gaps and to provide the commander with electronic situational awareness while at the same time protecting his assets from enemy deception and jamming. Work accomplished under PE 0602270A/Project 906 and PE 0603772A/Project 243 complements this effort. *FY 2019 Plans:* Integrate electronic situational awareness assets into a multifunction system capable of demonstrating integrated intelligence, surveillance and reconnaissance (ISR)/electronic warfare (EW) enabling enhanced performance through sensor fusion and agility to changing threat environments; integrate distributed sensing algorithms with the high frequency (HF) software defined radio within a modular multifunction open radio frequency (RF) architecture and will demonstrate single sensor geolocation techniques in a laboratory environment for use within existing ES and EW sensors; demonstrate mitigation techniques for noise within the HF frequency band from small unmanned air systems to facilitate deployment of HF applications on platforms. *FY 2019 to FY 2020 Increase/Decrease Statement:* Work in PE 0603270A/Project K16 is realigned to 0603463A/Project AN8 in FY 2020.	2.001	2.654	-
Title: FY 2019 SBIR / STTR Transfer *Description:* FY 2019 SBIR / STTR Transfer *FY 2019 Plans:* FY 2019 SBIR / STTR Transfer *FY 2019 to FY 2020 Increase/Decrease Statement:* FY 2019 SBIR / STTR Transfer	-	0.760	-
Accomplishments/Planned Programs Subtotals	21.211	22.544	-

Exhibit R-2A, **RDT&E Project Justification:** PB 2020 Army		**Date:** March 2019
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603270A / *Electronic Warfare Technology*	**Project (Number/Name)** K16 / *Non-Commo Ecm Tech Dem*

C. Other Program Funding Summary ($ in Millions)
 N/A

Remarks

D. Acquisition Strategy
 N/A

E. Performance Metrics
 N/A