| Exhibit R-2, PB 2010 Army RDT&E Budget Item Justification | | | | | | | | DATE: May 2009 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | | | | | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | | | | | |
| **COST ($ in Millions)** | **FY 2008 Actual** | **FY 2009 Estimate** | **FY 2010 Estimate** | **FY 2011 Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 55.257 | 62.353 | 50.458 | | | | | | Continuing | Continuing |
| TR1: TAC C4 TECHNOLOGY INT | 34.729 | 37.377 | 37.540 | | | | | | Continuing | Continuing |
| TR2: Secure Tactical Information Integration | 12.895 | 13.415 | 12.918 | | | | | | Continuing | Continuing |
| TR8: C3 DEMONSTRATIONS (CA) | 7.633 | 11.561 | .000 | | | | | | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

Efforts in this program element (PE) mature and demonstrate technologies for secure, mobile, wireless networks that will operate reliably in diverse and complex terrain, in all environments. Technologies are matured and demonstrated to address this challenge with distributed, mobile, secure, self-organizing communications networks. A key objective is to demonstrate seamlessly integrated communications technologies across all network tiers, ranging from unattended networks and sensors through maneuver elements and airborne and space assets. To accomplish the goal, this PE investigates and leverages external communication technologies and combines technology options in a series of Command, Control, Communications, and Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) On-The-Move (OTM) demonstrations to measure the battlefield effectiveness (project TR1). This PE also provides: protection technologies for tactical wireless networks against modern network attacks; and supports collaborative technologies for information sharing between battlefield functional communities (project TR2). Several tasks are conducted in conjunction with the Defense Advanced Research Projects Agency (DARPA) and the other Services. Project TR8 funds congressional special interest items.

Work in this PE is fully coordinated with PE 0602782A (Command, Control, Communications Technology), PE 0603772A (Advanced Tactical Computer Science and Sensor Technology), PE 0602120A (Sensors and Electronic Survivability) and 0602270A (EW Technology).

The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan.

Work is performed by the Army Research, Development, and Engineering Command, Communications-Electronics Research, Development, and Engineering Center (CERDEC), Fort Monmouth, NJ.

| Exhibit R-2, PB 2010 Army RDT&E Budget Item Justification | DATE: May 2009 |
|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | **R-1 ITEM NOMENCLATURE**<br>PE 0603008A Electronic Warfare Advanced Technology |

**B. Program Change Summary ($ in Millions)**

| | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
|---|---|---|---|---|
| Previous President's Budget | 56.591 | 50.961 | 51.967 | |
| Current BES/President's Budget | 55.257 | 62.353 | 50.458 | |
| Total Adjustments | -1.334 | 11.392 | -1.509 | |
| Congressional Program Reductions | .000 | -.208 | | |
| Congressional Rescissions | .000 | .000 | | |
| Total Congressional Increases | .000 | 11.600 | | |
| Total Reprogrammings | .017 | .000 | | |
| SBIR/STTR Transfer | -1.351 | .000 | | |

| Exhibit R-2a, PB 2010 Army RDT&E Project Justification | | | | | | | | DATE: May 2009 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | | | | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | | | | | PROJECT NUMBER<br>TR1 | |
| **COST ($ in Millions)** | **FY 2008 Actual** | **FY 2009 Estimate** | **FY 2010 Estimate** | **FY 2011 Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| TR1: TAC C4 TECHNOLOGY INT | 34.729 | 37.377 | 37.540 | | | | | | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

Efforts in this project mature and demonstrate key communications, mobile networking technologies to enable commanders and individual Soldiers to survive and fight by providing secure, reliable, mobile communications network solutions that function in complex and diverse terrain. The efforts here concentrate on three major goals: provide a series of technology demonstrations of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) capabilities to significantly reduce the risk associated with the networks of networks concept; provide critical links in the ability to communicate and move large amounts of information across the force structure in a seamless, integrated manner conducive to a highly mobile manned and unmanned force structure; and assess the Technology Readiness Level (TRL) of emerging network technologies in an operationally relevant environment.

The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan.

Work in this project is performed by the Army Research, Development, and Engineering Command, Communications-Electronics Research, Development, and Engineering Center (CERDEC), Fort Monmouth, NJ.

| **B. Accomplishments/Planned Program ($ in Millions)** | **FY 2008** | **FY 2009** | **FY 2010** | **FY 2011** |
|---|---|---|---|---|
| Proactive Integrated Link Selection for Network Robustness:<br>This effort demonstrates proactive link selection algorithms to optimize use of all available networked communications link types, maximizes network throughput and simplifies network planning and maintenance.<br>In FY08, continued modeling and simulation and design of enhanced implementation of deployed mode link selection algorithms; implemented first level integration among link selection algorithms; collaborated with the Naval Research Lab (NRL) on an implementation of data dissemination filtering between heterogeneous multicast routing architectures; conducted functional, performance characterization and scalability testing of mature link selection algorithms within laboratory and relevant field environments.<br>In FY09, complete implementation of deployed mode link selection algorithms; conduct final architecture, design maturation, and integration of planning and deployed mode link selection algorithms; conduct performance testing in a relevant field environment of all planning and deployed mode link selection technologies with representative hardware and transition to PM WIN-T. | 7.848 | 8.811 | .000 | |

| Exhibit R-2a, PB 2010 Army RDT&E Project Justification | | DATE: May 2009 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | PROJECT NUMBER<br>TR1 |

| B. Accomplishments/Planned Program ($ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
|---|---|---|---|---|
| Cognitive Networking:<br>This effort matures and demonstrates technologies enabling wireless networks to sense network and spectrum conditions and automatically adapt for more efficient use.<br>In FY10, will mature cognitive radio policy software by standardizing Dynamic Spectrum Access (DSA) policy language to allow interoperability of disparate Next Generation (XG) radio communications platforms; will mature spectrum sensors interoperable with cognitive antennas to increase spectrum efficiency and allow opportunity for use of spectrum gray spaces leading to more efficient use of current spectral resources; will mature wafer antenna technology and superconducting microelectronics based all digital transceiver and digital signal processing (DSP) components to provide an increase in SATCOM channel and throughput capacity; will mature cooperative SATCOM network routing technology to provide for SATCOM signal blockage mitigation.<br>Work related to this effort is also being accomplished under PE 0602782A/project H92. | .000 | .000 | 3.065 | |
| Small Business Innovative Research/Small Business Technology Transfer Programs | .000 | .942 | .000 | |
| Antenna Technologies:<br>This effort matures and demonstrates low cost, power efficient, antenna technologies for terrestrial and tactical satellite ground.<br>In FY08, completed demonstration of Ku and Ka band power amplifiers for integration into SATCOM antenna assemblies; completed investigation on phased array technologies applicable to very low profile SATCOM on the move (OTM) antennas; developed and demonstrated affordable terrestrial directional antenna for PM WIN-T; completed development and ruggedization of survivable 2 port low profile and triband antenna prototypes and transitioned to JTRS and FCS programs; developed and demonstrated broadband low cost low profile directional antenna prototypes for application to PM Signal Warfare requirements for reduced cosite interference; developed low cost C-band terrestrial directional antenna; designed phase II distributed antenna array prototypes; conducted platform antenna study testing of algorithm for optimized antenna placement of tactical vehicles.<br>In FY09, mature and demonstrate a low profile Ku/Ka single beam SATCOM antenna; mature single beam low profile hybrid Ka/Q band SATCOM OTM antenna.<br>In FY10, will complete development of low profile Ka/Ku single beam SATCOM OTM antenna and conduct field demonstration; will integrate Ka/Q band power amplifiers into a single prototype and conduct lab testing; will mature and evaluate single beam low profile hybrid Ka/Q band SATCOM OTM antenna; will mature small aperture Blue Force | 7.598 | 3.943 | 5.992 | |

| Exhibit R-2a, PB 2010 Army RDT&E Project Justification | | DATE: May 2009 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | PROJECT NUMBER<br>TR1 |

| B. Accomplishments/Planned Program ($ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
|---|---|---|---|---|
| Tracking (BFT) SATCOM terminal to enable accurate position location dissemination using military satellite to replace costly commercial satellite services.<br>Work related to this effort is also being accomplished under PE 0602782A/project H9 | | | | |
| Communications Planner for Operational and Simulation Effects with Realism (COMPOSER):<br>This effort matures technologies to observe and predict the performance of wireless tactical networks at faster than real time.<br>In FY08, integrated and tested the communications effects simulator, network visualizer, and spectrum management software modules to support the baseline architecture for Coalition Joint Spectrum Management Planning Tool effort. | 2.628 | .000 | .000 | |
| Wireless Information Assurance (IA):<br>This effort matures and demonstrates technologies to protect wireless tactical networks against computer network attacks with an emphasis on defending against attack methods not previously seen.<br>In FY09, mature and demonstrate IA technologies enabling information exchange across activity domains ensuring survivability of tactical networks and critical information against information warfare attacks; mature and demonstrate network management/information assurance fault correlation engine that reduces the software footprint by creating an integrated suite of network operations tools.<br>In FY10, will mature and demonstrate a Mobile Ad Hoc Networking (MANET) malicious code detection service to thwart zero day attacks; will demonstrate a response system that receives the root cause analysis from the correlation engine then develops and recommends a response plan to address the security problem; will mature autonomous adaptive middleware and evaluate in a lab environment.<br>Work related to this effort is also being accomplished under PE 0602782A/project H92. | .000 | 3.736 | 9.895 | |
| Applied Communications and Information Networking (ACIN):<br>This effort adapts and matures emerging commercial wireless, networked communications technologies for military use.<br>In FY09, mature and demonstrate commercial networking and communications technology in intelligent agents and mobile networking; provide rapid adaptation of commercial communications equipment for military use through the development of new architectures combining commercial and military unique technologies; provide modeling and simulation and planning tools for communications/network planning.<br>In FY10, will adapt and mature emerging commercial 802.16e, 802.22 and 802.11n wireless networking technology for military use by adapting the technology for use in military frequency bands and assessing security vulnerabilities; | .000 | 1.346 | 1.970 | |

| Exhibit R-2a, PB 2010 Army RDT&E Project Justification | | DATE: May 2009 | | |
|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | | PROJECT NUMBER<br>TR1 | |
| **B. Accomplishments/Planned Program ($ in Millions)** | **FY 2008** | **FY 2009** | **FY 2010** | **FY 2011** |
| will mature radio frequency propagation modeling and simulation and planning tools for use in urban environments and complex terrain; will assess and adapt commercial software defined radios with cognitive radio technology. | | | | |
| C4ISR On-The-Move (OTM):<br>In FY08, assessed the capability, functionality, and performance of current and emerging radio waveforms from the JTRS Joint Program Office on JTRS Handheld, Manpack, Small Form Fit (HMS) and Ground Mobile Radio representative hardware; conducted relevant technical demonstrations in support of PM FCS BCT focused on the interaction of FCS software applications and the transport layer as well as evaluating Spin Out 2 designs; assessed the Technical Readiness Level (TRL) of Army Science and Technology (S&T) efforts maturing in the FY08 timeframe in an operationally relevant field environment; assessed the performance of the baseline and alternative C4ISR on-the-move architectures and various network configurations to inform the current and future forces; utilized high performance computing (HPC) and non-HPC tools and techniques using the FCS baseline architecture as the starting point to stimulate the live demonstration environment with modeling and simulation (M&S) via distributed connectivity; and employed data collection, reduction and analysis techniques facilitating early assessment of emerging C4ISR technologies in a system of systems construct.<br>In FY09, assess the capability, functionality, and performance of the FY09 programmed increments of JTRS HMS for dismount Soldiers, unmanned ground sensors, non-line of sight launch system and intelligent munitions systems; assess WIN-T increment 2 and 3 functionality including enhanced quality of service architecture, information assurance solutions to enable network security across a wide area network using multiple encryption devices with minimal loss of data, and selected network operations management functions; assess the TRL of Army S&T efforts maturing in the FY09 timeframe in an operationally relevant field environment; continue to support FCS technical evaluations to explore FY09 programmed increments of Army Battle Command. | 12.586 | 10.848 | .000 | |
| C4ISR Network Mining:<br>Large-scale information technology has been evolving separate transaction and analytical systems, data mining provides the link between the two. Data mining consists of five major elements: extract, transform, and load transaction data onto the data warehouse system; storing, and managing the data in a multidimensional database system; providing data access; analyzing the data by application software; and presenting the data in a useful format.<br>In FY08, performed vulnerability assessments on commercial wireless solutions and transitioned reports to PEO C3T; matured data mining software, and performed a voice architecture analysis which was transitioned to PM FCS; performed analysis to understand the types and patterns of data being passed between coalition networks; performed an examination on battle command systems and their impact on logistics which was transitioned to the logistics community. | 4.069 | 5.304 | 5.405 | |

| Exhibit R-2a, PB 2010 Army RDT&E Project Justification | | DATE: May 2009 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | PROJECT NUMBER<br>TR1 |

| B. Accomplishments/Planned Program ($ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
|---|---|---|---|---|
| In FY09, mature network data mining software to analyze security concerns and systems vulnerability via (1) vulnerability analysis at the waveform and networking layers and (2) development of software and/or hardware to secure systems for deployment; analyze spectrum availability and utilization; investigate cognitive networking technologies and its impacts on current and future force networks.<br>In FY10, will conduct analysis and perform modeling and simulation (M&S) of various fidelity of ISR performance over restricted bandwidth networks; will examine and represent in models and simulations varying fidelity carrier to noise radio and voice over Internet protocol (IP) solutions for future force networks. | | | | |
| C4ISR On-The-Move (OTM):<br>In FY10, will assess increments of JTRS HMS and Ground Mobile Radio (GMR) for mounted & dismounted Soldiers, unmanned ground and aerial sensors, non-line of sight launch systems and intelligent munitions systems: will continue to assess WIN-T functionality including quality of service architecture, information assurance solutions to enable network security with minimal data loss, selected network operations management functions, and associated networks; will assess the TRL of S&T efforts in an operationally relevant environment; will continue to support tech evaluations to explore programmed increments of Battle Command and Unified Battle Command. | .000 | .000 | 9.248 | |
| Dismounted Communications in Urban Terrain:<br>This effort matures and demonstrates technologies that enable dismounted soldier wireless networked communications in complex terrain such as urban environments and inside buildings.<br>In FY09, mature communications capabilities for dismounted Soldier operating in highly complex communications environments through the use of adaptive processing, networking algorithms, and network security features such as employing random noise waveforms and policy based network management, fault correlation low probability of intercept, low probability of detection technologies to reduce communications systems vulnerability and improve reliability.<br>In FY10, will adapt and mature space time adaptive processing for use on dismounted Soldiers radio equipment. | .000 | 2.447 | 1.965 | |
| Total | 34.729 | 37.377 | 37.540 | |

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

N/A

**D. Acquisition Strategy**

N/A

| Exhibit R-2a, PB 2010 Army RDT&E Project Justification | | DATE: May 2009 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | PROJECT NUMBER<br>TR1 |

**E. Performance Metrics**

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

| Exhibit R-2a, PB 2010 Army RDT&E Project Justification | | | | | | | | DATE: May 2009 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | | | | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | | | | | PROJECT NUMBER<br>TR2 | |
| **COST ($ in Millions)** | **FY 2008 Actual** | **FY 2009 Estimate** | **FY 2010 Estimate** | **FY 2011 Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| TR2: Secure Tactical Information Integration | 12.895 | 13.415 | 12.918 | | | | | | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

Efforts in this project mature and demonstrate technologies with enhanced capabilities to analyze, plan, execute, and assess operations, at tactical and strategic operational levels, by integrating decision support and intelligence based software to provide a more comprehensive understanding of a given adversary and the environment. Efforts mature and demonstrate technologies to improve mission execution success by providing software to more tightly couple operations and intelligence and to better facilitate collaboration between individuals and teams. Efforts in tactical cross domain solutions demonstrate software based technologies enabling information sharing across operations and intelligence security domains that replace current application specific hardware solutions.

The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan.

Work in this project is performed by the Army Research, Development, and Engineering Command, Communications-Electronics Research Development and Engineering Center (CERDEC), Fort Monmouth, NJ, and the Army Research Laboratory (ARL), Adelphi, MD.

| **B. Accomplishments/Planned Program ($ in Millions)** | **FY 2008** | **FY 2009** | **FY 2010** | **FY 2011** |
|---|---|---|---|---|
| Collaborative Battle Management:<br>This effort matures and demonstrates technologies to improve sharing and understanding of data between the intelligence and operations communities.<br>In FY10, will leverage existing net-centric data strategies and extend by adding concept-based data meta-tagging; will mature portability framework and develop implementations for the Force XXI Battle Command, Brigade and Below (FBCB2), and Distributed Common Ground Station-Army (DCGS-A) environments; will mature a universal collaboration bridge permitting disparate collaboration schemes such as mIRC, Jabber, and SameTime to interoperate; will mature a digital mission representation and its data, information and decision requirements to enable the ability to share and understand data between communities of interest (Intel/Ops/Geospatial); will mature software to associate Intel requirements, geospatial data needs and collection opportunities with operational mission tasks for Intel and Battle Command (BC) communities; will mature integrated Intel/Ops decision support tools to include planning and execution software support services, priority information requests management, and collection/sensor management. | .000 | .000 | 6.472 | |

| Exhibit R-2a, PB 2010 Army RDT&E Project Justification | | DATE: May 2009 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | PROJECT NUMBER<br>TR2 |

| B. Accomplishments/Planned Program ($ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
|---|---|---|---|---|
| Work related to this effort is also being accomplished under PE 0603772A/project 101, PE 0602120A/project H15, PE 0602270A/project 442. | | | | |
| Theater Effects Based Operations (TEBO) Advanced Concept Technology Demonstration (ACTD):<br>The TEBO ACTD demonstrates an Effects-based Operations (EBO) process and provides United Stated Forces Korea with enhanced capabilities to analyze, plan, execute, and assess effects-based operations at the strategic-theater and operational levels by integrating a framework of processes, tools, and tactics, techniques and procedures.<br>In FY08, matured TEBO software to spiral V configuration; matured and solidified capabilities demonstrated in spirals I-IV to provide full spectrum support for effects-based operations including semi-automated knowledge acquisition and operational modeling and simulations; matured human interfaces and scalability of the TEBO toolset, demonstrated TEBO capabilities in Joint Forces Command (JFCOM) exercises in coordination with United Stated Forces Korea.<br>In FY09, initiate the sixth and final developmental spiral; participate in the two annual Korean exercises - Key Resolve (2QFY09) and Ulchi Forward Guardian (4QFY09) as well as participate in Pacific Command's (PACOM) Terminal Fury exercise; transition activities from the TEBO toolset to Defense Information Systems Agency (DISA) and Net-Centric Enterprise Services (NCES). | 12.895 | 13.195 | .000 | |
| Small Business Innovative Research/Small Business Technology Transfer Programs | .000 | .220 | .000 | |
| Tactical Cross Domain Solutions:<br>This effort matures and demonstrates Service Oriented Architecture (SOA) Cross Domain Solution (CDS) to enable assured sharing of information across multiple security domains.<br>In FY10, will mature and demonstrate cross domain web services on high assurance operating systems (e.g., Green Hills Integrity, Lynux Works Lynx OS) that provide trusted labeling service (applies security labeling classification and releasability labels to data), data regarding service (used to sanitize security labeled messages before they cross security domain boundaries), and domain boundary service (ensures that cross security domain requirements are fulfilled before information is released from one security domain to another). | .000 | .000 | 6.446 | |
| Total | 12.895 | 13.415 | 12.918 | |

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

N/A

| Exhibit R-2a, PB 2010 Army RDT&E Project Justification | | DATE: May 2009 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | PROJECT NUMBER<br>TR2 |

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

| Exhibit R-2a, PB 2010 Army RDT&E Project Justification | | | | | | | | DATE: May 2009 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD) | | | | R-1 ITEM NOMENCLATURE<br>PE 0603008A Electronic Warfare Advanced Technology | | | | | PROJECT NUMBER<br>TR8 | |
| **COST ($ in Millions)** | **FY 2008 Actual** | **FY 2009 Estimate** | **FY 2010 Estimate** | **FY 2011 Estimate** | **FY 2012 Estimate** | **FY 2013 Estimate** | **FY 2014 Estimate** | **FY 2015 Estimate** | **Cost To Complete** | **Total Cost** |
| TR8: C3 DEMONSTRATIONS (CA) | 7.633 | 11.561 | .000 | | | | | | Continuing | Continuing |

**A. Mission Description and Budget Item Justification**

Congressional Interest Item funding for C3 Demonstrations.

| B. Accomplishments/Planned Program ($ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
|---|---|---|---|---|
| Portable Mobile Emergency Broadband Systems (PMEBS) | 3.285 | 3.875 | .000 | |
| Advanced Wireless Technologies | .483 | 1.163 | .000 | |
| Applied Communications and Information Networking (ACIN) | 3.865 | 3.100 | .000 | |
| Maritime C4ISR System | .000 | .775 | .000 | |
| Networked Dynamic Spectrum Access Investigation Enhanced MBITR | .000 | 2.325 | .000 | |
| SBIR/STTR | .000 | .323 | .000 | |
| Total | 7.633 | 11.561 | .000 | |

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.