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Exhibit R-2, PB 2010 Office of Secretary Of Defense RDT&E Budget Item Justification **DATE:** May 2009

APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE					
0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)					PE 0603122D8Z Combating Terrorism Technology Support					
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	110.534	123.012	81.868						Continuing	Continuing
P484: Combating Terrorism Technology Support (CTTS)	110.534	123.012	81.868						Continuing	Continuing

A. Mission Description and Budget Item Justification

The Combating Terrorism Technology Support (CTTS) program develops and delivers capabilities that address needs and requirements with direct operational application in the national effort to combat terrorism. Projects are distributed among 10 mission categories: Blast Effects and Mitigation; Chemical, Biological, Radiological, and Nuclear Countermeasures; Explosives Detection; Improvised Device Defeat; Investigative Support and Forensics; Physical Security; Surveillance, Collection, and Operations Support; Tactical Operations Support; Training Technology Development; and VIP Protection. This program is a diverse, advanced technology development effort that demonstrates the utility or cost reduction potential of technology when applied to combating terrorism requirements. It includes technology capability development, proof-of-principle demonstrations in field applications, and coordination to transition from development to operational use.

B. Program Change Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
Previous President's Budget	76.276	79.970	82.402	
Current BES/President's Budget	110.534	123.012	81.868	
Total Adjustments	34.258	43.042	-0.534	
Congressional Program Reductions				
Congressional Rescissions	-1.028	-0.678		
Total Congressional Increases	42.380	43.720		
Total Reprogrammings	-4.191			
SBIR/STTR Transfer	-2.668			
Undistributed reduction	-0.235			
Program Budget Review (PBR) 09 adjustments			-0.534	

Congressional Increase Details (\$ in Millions)

Project: P484, Biometric Terrorist Watch-List Database Management Development
Project: P484, Covert Sensing and Tagging System (CSTS)

	FY 2008	FY 2009
		1.600
		1.200

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Congressional Increase Details (\$ in Millions)	FY 2008	FY 2009	
Project: P484, Combating Terrorism Technology Support Office STAR-TEC Partnership Program		2.400	
Project: P484, Improved LAS Glass-Ceramic Laminated Armored Window Systems		1.600	
Project: P484, EDIT Technology for Counter-Tunnel Operations and Cache Detection		0.800	
Project: P484, Facial Recognition Technology Initiative		2.000	
Project: P484, Facility Security Using Tactical Surveys		3.000	
Project: P484, Low-Cost Stabilized Turret		1.600	
Project: P484, Machine Augmented Composite Armor		0.800	
Project: P484, Military/Law Enforcement Counterterrorism Test Bed		2.400	
Project: P484, Port and Hull Security 3D, Real Time Sonar System - Echoscope		1.600	
Project: P484, Roll-On, Roll-Off Reconnaissance, Surveillance, and Special Mission Palletized System		4.000	
Project: P484, Tactical Biometrics Operating and Surveillance System (TBOSS)		1.600	
Project: P484, Ultra Portable Unmanned Surveillance Helicopter		1.000	
Project: P484, Validation of an Enhanced Urban Air Blast Tool		2.400	
Project: P484, SOF Unattended Sensor Network (Note: only for SBIR SOCOM 03-004)		1.280	
Project: P484, Radio Inter-Operability system (RIOS)		0.800	
Project: P484, BOPPER (Bioterrorism Operation Policy for Public Emergency Response)		1.200	
Project: P484, Ex-RAD Radiation Protection Program Congressional Add in incorrect line of accounting ~ will be reprogrammed Feb 2009 to OASD(HA)/TMA less FFRDC and Econ Ass deductions.		5.000	
Project: P484, Full Scale Impact and Blast Loading Laboratory Testing Program		1.600	
Project: P484, Remote Sensor Network Services Platform		2.000	
Project: P484, Robotic Mobility Platform System		1.200	
Project: P484, Unmanned Aerial Vehicle Avionics Upgrade (UAVAU)		1.200	

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Congressional Increase Details (\$ in Millions)

Project: P484, Document and Media Search Discovery

FY 2008	FY 2009
	1.440

Change Summary Explanation

Reprogrammings:

1. Reprogramming to SOCOM - Comprehensive Maritime Domain Awareness (Congressional Add) -- (4.500)
2. Reprogramming from PE0603121D8Z - Adjustment reflecting internal realignment of funds to meet SO/LIC priorities -- 0.309

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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
P484: Combating Terrorism Technology Support (CTTS)	110.534	123.012	81.868						Continuing	Continuing

Note

President Obama's PB10 reduced this PE by (\$1,079).

A. Mission Description and Budget Item Justification

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

	FY 2008	FY 2009	FY 2010	FY 2011
BLAST EFFECTS AND MITIGATION	6.833	5.291	5.488	
<p><i>FY 2008 Accomplishments:</i> Demonstrated state-of-the-art entry control point (ECP) technology in the Central Command Area of Responsibility (CENTCOM AOR). Upgraded the Warfighter Battle Damage Assessment program by displaying on digital bodies of different genders and morphological types, performance of "what if" analysis for increased body armor weight vs. increased protection, and integrating existing epidemiological data collection software. Determined that breacher injuries may incur during standard training practices. Result of the study are currently being used to direct future research into protective gear for breachers and improvement of existing blast standoff distances. Developed a covert, lightweight, & easily transportable high strength polymer applicator for the purpose of blast mitigation to structures and related collateral damage.</p>				

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
<p><i>FY 2009 Plans:</i> Develop entry control point design software to adapt to the current threat. Refine and provide critical blast information to military, industrial, and civil engineers by performing experiments in a configurable urban city test facility. Test and evaluate a lightweight polymer application apparatus that uses existing polymer materials for blast mitigation. Characterize and blast test homemade terrorist explosive mixtures. Develop commercial off-the-shelf (COTS) technologies for blast mitigation. Examine blast mitigation strategies to protect critical U.S. infrastructure to include electrical power sub-stations, dams, and maritime facilities. Demonstrate integrated systems to protect facilities from vehicle borne improvised explosive devices, suicide bombers on foot, and standoff weapons. Develop an advanced head form for measurements involving the effects of blast injury and head trauma. Convert the enhanced blast effects database into a web-based application.</p> <p><i>FY 2010 Plans:</i> Research new concepts in blast mitigation for expeditionary use to meet requirements for rugged, long lasting, and transportable entry control points and other security facilities. Promulgate standards for blast testing and simulation for both suicide bomber vests and vehicle bombs to support testing of commercial off the shelf products. Conduct Phase 2 development of the urban environment blast testing to better understand impact on facades, street furniture, tunnels, and infrastructure. Characterize and blast test homemade explosive mixes. Conduct Phase 2 assessments of the engineering aspects on human injury prediction and mitigation, with an emphasis on blast effects in an urban environment, and the effects of repeated blast exposure. Deploy a web-based blast effects database.</p>				
<p>CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR COUNTERMEASURES</p> <p><i>FY 2008 Accomplishments:</i> Completed lab testing and initiated user field evaluation of color-based sensor array for chemical agent detection. Conducted design testing of self-contained escape respirator in preparation for National Institute for Occupational Safety and Health (NIOSH) certification. Conducted performance testing to finalize design for a pocket-size, low-profile escape respirator capable of meeting NIOSH standards. Initiated testing for risk-based permeation criteria for Toxic Industrial Chemicals (TICs). Designed vehicle retrofit kit for emergency mass evacuation. Built a prototype total organic carbon detector for water. Built</p>	9.719	6.704	6.954	

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<p>and evaluated collection system for alpha and beta radiation detection in water. Populated database for chemical instrumental libraries for detection of threat agents. Developed a draft guide to assist explosive ordnance disposal and bomb squad personnel in recognizing radiological dispersion devices. Field tested a transportable gasifier unit for destruction of contaminated biomass. Finalized prototype for a portable test kit for collective protection filters. Conducted a personal protective equipment conference to determine needs of the emergency response and military communities. Evaluated additional potential food borne threats. Conducted operational field test of the personal hydration system water filter kit. Developed and tested optical fiber chemical indicators for two additional classes of chemicals with independent laboratory confirmation of performance. Conducted second subject matter expert workshop on environmental sampling. Initiated testing on bio-terrorism operations and related public health preparedness.</p> <p><i>FY 2009 Plans:</i> Evaluate performance of a pathogen- and puncture-resistant glove for military and law enforcement tactical operations. Design a tactical response boot with integrated chemical protection. Develop an air supply pass-through kit for Level A chemical protective ensembles. Design and test a pocket-size, low-profile escape respirator to meet National Institute of Occupational Safety and Health standards. Develop a test protocol to evaluate escape hoods for special-needs populations. Transition to end-users a chemical instrumental library database for detection and identification of chemical threat agents. Initiate development of a standoff chemical detection system. Develop a mass decontamination corridor water heating system. Design an advanced small-room chemical and biological filtration system. Design and develop an integrated carbon fiber and High-Efficiency Particulate Air (HEPA) filtration system. Develop an advanced adsorbent material to capture gaseous chemical threat agents. Develop a software decision support tool for determination of chemical agent filter life. Perform operational testing and evaluation of mass casualty evacuation bus retrofit kit.</p> <p><i>FY 2010 Plans:</i> Operationally test a tactical response boot with integrated chemical protection. Test and evaluate an air supply pass through kit for Level A chemical protective ensembles. Test and evaluate test protocol for special-needs populations escape hoods. Conduct operational testing of a standoff chemical detection</p>				

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
system. Test and evaluate a mass decontamination corridor water heating system. Test and evaluate an advanced small-room chemical and biological filtration system. Test and evaluate a prototype integrated carbon fiber HEPA filtration system. Test and evaluate an advanced adsorbent material to capture gaseous chemical threat agents. Test and evaluate a software decision support tool for determination of chemical agent filter life.				
CONCEPT DEVELOPMENT <i>FY 2009 Plans:</i> Moved to VIP	0.000	0.000	0.000	
EXPLOSIVES DETECTION <i>FY 2008 Accomplishments:</i> Assessed the feasibility of an X-ray system for real time imaging of vehicles for vehicle-borne improvised explosive device detection. Evaluated prototype systems for standoff detection of explosives worn on the body. <i>FY 2009 Plans:</i> Evaluate prototype X-ray system for real time imaging of vehicles for vehicle-borne improvised explosive device detection. Develop active illumination upgrade to imaging and anomaly detection systems for personnel screening. Develop a prototype system for standoff detection of suicide bombers, which combines ultrasound and lasers. Develop a database of chemical and physical signatures of improvised explosive devices to enhance standoff explosives detection capabilities. Conduct test and evaluation of current hardened handheld explosive detection prototypes. <i>FY 2010 Plans:</i> Incorporate fusion and detection algorithms, synchronize electronics, and demonstrate feasibility of an active illumination upgrade to imaging and anomaly detection system. Conduct a side-by-side evaluation of sensors for suicide bomber detection. Investigate spectra of chemical compounds related to the presence of explosives or physical signatures of components for database. .Modify size and weight of	8.313	7.164	7.431	

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the hardened handheld explosive detection systems. Prototype the ruggedized vehicle X-ray system for field operations.				
<p>IMPROVISED DEVICE DEFEAT</p> <p><i>FY 2008 Accomplishments:</i> Manufactured the final prototypes and conducted bench test of the Multiple IED Disruption System. Built an initial prototype of the Single Sided Imaging System. Designed and fabricated a utility cart with custom interface for the Single Sided Imaging System. Characterized additional sets of general disruption tools designed for use against VBIEDs. Populated the electronic tool characterization decision-making database and guide with characterization data. Developed new tools and end effectors for integration with current EOD robotic platforms. Developed a low cost user-friendly robotics package that allows integration with currently available all-terrain vehicles. Tested, evaluate, and commercialize the EOD Tool Cart. Demonstrated, tested, and evaluated new classes of affordable mid-sized, two and four wheeled unmanned ground vehicles for military and homeland security applications. Demonstrated a plug-and-play capability for the integration of a JAUS compliant X-ray targeting system and components with a Joint Architecture for Unmanned Systems (JAUS) compliant robotic platform.</p> <p><i>FY 2009 Plans:</i> Evaluate and transition new tools and end effectors for integration with EOD robotic platforms. Conduct final modifications to, and operational evaluation of the Multiple IED Disruption System. Design and begin development on a WMD response-capable bomb suit with integrated ballistic, overpressure, and CBRN protection. Integrate a utility-cart-carried Single Sided X-ray Imaging System with a fielded robotics platform. Conduct explosive tool characterization and testing of select IED/VBIED disruption charges and populate the Tool Characterization Guide. Integrate Joint Architecture for Unmanned Systems compliant Multiple IED Disruption Systems with a fielded robotics platform, and conduct field demonstrations. Design and develop nonexplosive IED defeat tools for VBIED operations. Integrate and test a fielded robotic system with a JAUS compliant interface for visual and X-ray targeting. Develop a ruggedized field-portable, digital X-ray imaging system for military and homeland security applications. Evaluate emerging RCIED threats to aid in the development, design, and testing of ECM-related bomb disposal tools and equipment.</p>	6.551	6.174	6.404	

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
<p><i>FY 2010 Plans:</i> Incorporate a Self Contained Breathing Apparatus (SCBA) with the WMD response-capable bomb suit and integrate technician/command post communication capability. Conduct explosive tool characterization of select IED/VBIED disruption charges for population of the Tool Characterization Guide. Develop non-dynamic access and disruption tools for remote-manual and robotic operations. Enhance, test, and evaluate state of the art electronic countermeasure systems for IED neutralization and disruption. Integrate nonexplosive IED defeat tools for VBIED operations with a robotic platform. Ruggedize, test, and perform user-defined modifications to the robotically employed Single-Sided X-ray Imaging System. Develop advance power solutions for conducting sustained robotics operations and employment of EOD-peculiar equipment. Design and develop ECM tools and equipment to counter emerging Radio Control Improvised Explosive Device) RCIED threats.</p>				
<p>INFRASTRUCTURE PROTECTION</p> <p><i>FY 2009 Plans:</i> Moved to Physical Security.</p>	0.000	0.000	0.000	
<p>INVESTIGATIVE SUPPORT AND FORENSICS</p> <p><i>FY 2008 Accomplishments:</i> Fielded a 3-D Ear ID system that identifies persons in videos from their ear pattern. Fielded a two-way multifunctional encrypted radio that provides law enforcement with the capability to monitor and record a body wire channel while simultaneously providing a command channel. Distributed a system for the automatic analysis of text for author attribution. Fielded 10 heated and cooled canine kennels that protect and extend the effective operational period of dogs in harsh environments by keeping them at their ideal temperatures. Improved the performance and scientific defensibility of dog teams by improving the absorption materials used for collecting human scent. Fielded Sensitive Site Exploitation kits that provided combatants greater ability to collect and analyze forensic type evidence and information in hazardous combat areas. Distributed a forensic audio spectral analysis tool allowing forensic examiners and aircraft investigators the capability to analyze noise signals to determine information about crashes</p>	3.526	4.178	4.334	

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<p>and other transportation incidents. Deployed three master trainers to Special Operations Forces in order to retain and augment the current canine and handler abilities in theater.</p> <p><i>FY 2009 Plans:</i> Produce a canine human scent identification working protocol. Improve the protocols for remote biometric assessment. Improve forensic capabilities for retrieving data from electronic equipment. Distribute new protocols for fingerprint recovery from improvised explosive devices. Improve the performance and scientific defensibility of dog teams by improving the absorption materials used for collecting human scent and enhance operational canine technology. Distribute an upgraded system for identification of automobiles. Evaluate interview and elicitation methods and techniques in field settings. Field multilingual site exploitation training.</p> <p><i>FY 2010 Plans:</i> Field improved questioned document analysis techniques for analyzing disguised handwriting. Field advance interview techniques based on cognitive load principles. Field automated credibility assessment procedures. Deliver a remote viewer for evidence manipulation and comparison for use between theater and U.S.-based labs. Expand human scent collection from forensic evidence research. Develop tools for the extraction of digital evidence from commonly used electronic equipment. Identify shortcomings within deployment, training, and training aids for military working dogs.</p>				
<p>PHYSICAL SECURITY</p> <p><i>FY 2008 Accomplishments:</i> Conducted crash tests of domestic and international, nonstandard installation techniques of vehicle security barriers and updated existing vehicle barrier guide. Conducted an international conference on Maritime Security Technologies. Completed an in-flight test of a secure means of data communications between military/commercial aircrafts and ground stations. Fielded a prototype early warning system for critical drinking water infrastructure. Developed an integrated cyber and physical assessment tool. Deployed and evaluated the performance of the evacuation simulation-planning tool. Tested and fielded remotely operated underwater screening to detect anomalies on submerged facilities and ship hulls.</p>	13.146	11.050	11.460	

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<p>Tested and fielded ruggedized, high payoff commercial systems to enhance protection for coalition forces.</p> <p><i>FY 2009 Plans:</i> Develop an integrated personnel-screening system with remote capability to detect metallic, nonmetallic, and improvised explosive devices. Assess and demonstrate entry point screening and force protection technology. Construct facility to test and compare deployable and tactical prescreening and surveillance equipment that is usable by security forces in high threat urban entry control point operations. Integrate novel sensors to extend perimeter/border capabilities to increase situational awareness and provide earlier warning of potential adversary attack. Develop critical infrastructure dependency modeling standards and tools. Investigate capabilities to detect, locate, surveil, and disrupt subterranean operations in semi-permissive and non-permissive environments, allowing tactical forces to conduct operations.</p> <p><i>FY 2010 Plans:</i> Develop deployable, tactical electronic security system concepts to fuse data to support security forces in urban combat environments. Test and compare deployable and tactical prescreening and surveillance equipment that is usable by security forces in high threat urban entry control point operations. Test vehicle barriers and blast walls against complex attacks. Explore enhanced video assessment and tracking techniques. Identify research and development projects that satisfy interagency and international requirements to address the adaptive threat associated with homemade explosives. Develop a compact system to enhance Maritime Situational Awareness (MSA) for small to medium sized vessels. Develop capabilities to detect, locate, surveil, and disrupt subterranean operations in semi-permissive and non-permissive environments, allowing tactical forces to conduct operations.</p>				
<p>PROGRAM MANAGEMENT</p> <p><i>FY 2008 Accomplishments:</i> Provided program management oversight and technical support for CTTS R&D projects. Augmented the CTTS program office with contract, financial, and security management personnel. Managed an additional \$101 million in funds from other agencies. Managed international cooperative R&D</p>	11.869	7.197	7.465	

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<p>programs including the United Kingdom, Canada, Israel, Australia, and Singapore. Established goals, objectives, and plans to reinforce interagency participation for the identification and prioritization of CTTS mission area requirements. Solicited proposals via BAA for new projects and tasks based on prioritized requirements. Directed the program, planning, and execution of projects and associated contracts, including the daily management and reporting for more than 500 separate contracts and tasks. Developed and implemented improvements for the BAA Information Delivery System (BIDS) solicitation process including enhanced outreach via training to potential submitters on BIDS use. Developed and implemented process improvement initiatives for the Business Information System processes.</p> <p><i>FY 2009 Plans:</i> Provide program management and technical support for CTTS R&D projects including funds from other agencies and management of international cooperative R&D programs. Establish goals, objectives, and immediate revisions to plans that will reinforce interagency participation for the identification and prioritization of CTTS mission area requirements. Direct the program, planning, and execution for projects and associated contracts using direct and indirect budget allocations. Review and revise existing process and execution plans for CTTS mission area management and reporting responsibilities.</p> <p><i>FY 2010 Plans:</i> Provide program management and technical support for CTTS R&D projects including funds from other agencies and management of international cooperative R&D programs. Establish goals, objectives, and immediate revisions to plans that will reinforce interagency participation for the identification and prioritization of CTTS mission area requirements. Direct the program, planning, and execution for projects and associated contracts using direct and indirect budget allocations. Review and revise existing process and execution plans for CTTS mission area management and reporting responsibilities.</p>				
<p>SURVEILLANCE, COLLECTION AND OPERATIONS SUPPORT</p> <p><i>FY 2008 Accomplishments:</i> Improved access to open source media through new language processing technologies for multimedia information from degraded input sources. Continued to develop biometric and novel technology areas to improve tagging, tracking, and locating. Applied the gains in facial recognition technology to long-</p>	27.369	10.707	11.105	

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<p>range video surveillance. Continued to investigate and improve biometric fusion techniques. Investigate methods and concepts for increasing the effectiveness of human identification at a distance when a person is aided by automated facial recognition algorithms. Continued to develop automated tools and techniques to aid deployed forces in foreign language and cultural awareness skills. Developed simulation tools for deployable units operational efforts. Continued to improve technology for airborne threat detection. Investigated and improved tunnel detection technology. Field-tested of hand-emplaced and Unmanned Aerial Vehicle (UAV) delivered sensor systems configured for aero-bodies in jungle environment. Continued to develop ISR package in roll-on/roll-off platform. Established prototype ISR testbed for sensor development and evaluation. Improved surveillance of borders in high risk through remote sensors.</p> <p><i>FY 2009 Plans:</i> Enhance open source media through new language processing technologies for degraded input sources. Improve biometric and novel technology areas for tagging, tracking, and locating. Increase performance of facial recognition technology for long-range video surveillance and human identification at a distance. Transition language processing techniques including increasing support for additional languages and domains to deployable systems for use. Enhance geolocation and targeting capabilities. Develop simulation tools for deployable units and operational efforts. Improve biometric handheld devices to enroll, identify, and verify persons of interest during operational efforts. Research and develop various methods and tools that enhance biometric collection, verification, and identification processes and technologies.</p> <p><i>FY 2010 Plans:</i> Continue to enhance various technologies for precise geolocation of targets of interest. Improve tagging, tracking and locating infrastructure including development of smart tags that can alert preset conditions. Develop tools to assist in the tactical triage of collected Cellular exploitation micro-electronic device exploitation (CELEX/MEDEX), especially in languages of particular interest. Develop exfil capabilities for real-time audio and video surveillance.</p>				
TACTICAL OPERATIONS SUPPORT	11.238	9.338	9.686	

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
<p><i>FY 2008 Accomplishments:</i> Delivered integrated level IIIA Ballistic Helmets for operational test and evaluation. Delivered a portable countermeasure for remote controlled garage doors and conducted test and evaluation. Finalized the design for an improved small laser target designator prototype. Delivered a portable, high bandwidth universal communications converter for testing and evaluation. Delivered a prototype reusable non-pyrotechnic diversion device and conducted operational test and evaluation. Delivered a small tactical cutting torch for operational test and evaluation. Developed a next generation enhanced tactical rope-ascending device. Finalized the design for a compact amplifier and low-profile antenna to support use of the Multiband Inter/Intra Team Radio (MBITR) in military and civilian vehicles. Completed a large-scale interagency assessment of a compact wireless 360 degree mobile display system. Developed and delivered tactical surveys for select high risk facilities that will enable first responders to react to a crisis with enhanced safety, speed and effectiveness. Improved the system parameters of a two-dimensional and three-dimensional through-wall imaging system to support tactical user requirements.</p> <p><i>FY 2009 Plans:</i> Deliver a next generation, high-performance tactical rope-ascending device for operational test and evaluation. Conduct operational testing of a weapon scope capable of switching between near and far sighting. Deliver a prototype small laser target designator for operational test and evaluation. Conduct operational testing of a tactical helmet with integrated face shield, improved ballistic, and blast protection. Conduct operational testing of a listening device that is capable of launching from a standard 40mm weapon. Deliver and test a compact amplifier and low-profile antenna to support use of the Multiband Inter/Intra Team Radio (MBITR) in military and civilian vehicles. Test a remote physiological monitoring system for soldiers in high-exertion combat operations. Conduct target characterization and initial development of a directed energy standoff vehicle stopper system. Develop a detection system that will alert soldiers of optics devices viewing them. Develop appliques that enable current optical devices to receive & transmit point-to-point 'free-space' IR communication. Develop a tactical rifle-aiming device that includes point laser and flood IR/white light with a common control pad. Develop a vertical-rectification system for soldier-viewed imagery. Deliver an intrinsically safe distraction device for use by assault teams during shipboard operations. Develop a high intensity tactical infrared light for military vehicles. Deliver next generation front line viewing units for operational test and assessment in their</p>				

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
<p>mobile command centers. Develop a portable system of wireless infrared illuminators with motion sensors to enhance site security for tactical forces.</p> <p><i>FY 2010 Plans:</i> Confirm final design and deliver a production ready dual-purpose weapon scope. Deliver a production ready fully integrated ballistic helmet. Deliver a production ready launched listening device. Deliver a production ready compact amplifier and low-profile antenna to support use of the MBITR in military and civilian vehicles. Deliver a physiological monitoring system that can remotely monitor the status of soldiers deployed worldwide. Test a directed energy vehicle stopper system mounted on a helicopter. Deliver a rugged optical device detection system and develop an enhanced variant with target discrimination and identification capabilities. Deliver a toolkit with multiple rugged optical communications appliqué and develop a vehicle mounted variant for mobile ground operations. Deliver a tactical rifle-aiming device that integrates point laser and flood IR/white light with a common control pad. Deliver a pole-camera system with embedded vertical rectification and test a weapon-mounted variant. Develop a portable system of wireless infrared illuminators with motion sensors to enhance site security for tactical forces. Finalize the design, and deliver high intensity tactical infrared light for military vehicles for operational test and evaluation.</p>				
<p>TRAINING TECHNOLOGY DEVELOPMENT</p> <p><i>FY 2008 Accomplishments:</i> Developed and integrated a fully automated adaptive and adversarial behavior model with a commercial game engine in order to reduce the time and resources needed to design and execute a simulation training event. Developed the capability to create 3D equipment simulations for web and CD-based training for any piece of equipment to provide students with training prior to receiving the actual piece of equipment. Converted portions of the level one WMD-Response Element Advanced Laboratory Integrated Training and Indoctrination (WMD-REALITI) program to a web-based course. Completed a portable, non-toxic simulant training kit for decontamination exercises that mimics the relative vapor pressure and solubility characteristics of G, H, and V agents. Deployed an evidence collection training package for joint-services that includes instructor-led training, supporting publications, and evidence collection kits. Transitioned a guidebook that allows on-scene personnel to rapidly assess a situation</p>	3.800	4.811	4.990	

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
<p>that may involve the presence of homemade explosives to alert military EOD team or state or local bomb squad personnel.</p> <p><i>FY 2009 Plans:</i> Conduct an analysis of Irregular Warfare operations and activities within the educational domain in order to support an increased interagency and international capability. Develop adaptive, artificial intelligent crowd models to train warfighters in handling crowd-related scenarios (e.g., riot control, disaster management, emergency evacuation, rescue operations, urbanized conflicts, etc.), formulate strategies, answer "what-if" scenarios, and evaluate contingency plans. Deliver a program of instruction for next generation canine capability. Design and develop an instructor-led and supplemental computer-based training program for improving military law enforcement activities in current operations. Design and develop a simulator for the MK44 / M134 Minigun weapon system that accurately mimics the form and functionality of the actual weapon system, and integrate the simulator into a simulated training environment with realistic scenarios.</p> <p><i>FY 2010 Plans:</i> Develop a virtual-live fire simulation housed in a container that can duplicate the conditions of a long, known distance range complex and an urban environment. Design and develop a computer-based training program for increasing post-blast investigation capabilities of military explosive ordnance disposal personnel. Design and develop a computer-based training program for increasing improvised explosive device awareness for military and civilian law enforcement personnel.</p>				
<p>VIP PROTECTION</p> <p><i>FY 2008 Accomplishments:</i> Deployed the projectile database with ballistic and physical data for additional ammunition evaluated against standard armor materials. Integrated a blast/fragmentation test protocol into armored passenger vehicle standards and guidelines. Designed and developed an improved concealable body armor prototype for the protective services community. Deployed field-installable inconspicuous vehicle armor kits for operational evaluation. Packaged and released a database of state-of-the-art vehicle and body armor technologies currently available to the Government. Designed a mobile video processing system</p>	8.170	7.356	7.630	

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B. Accomplishments/Planned Program (\$ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
<p>that integrates with various camera systems to enhance situational awareness and incident response capabilities. Detailed requirements and concept of operations for a portable prelaunch Man-Portable Air Defense System (MANPADS) threat detection capability.</p> <p><i>FY 2009 Plans:</i> Develop a ruggedized version of the VIP security kit for indoor/outdoor surveillance and intrusion detection. Miniaturize a mobile video processing system that integrates with multiple camera systems for enhanced situational awareness and incident response capabilities. Develop a tracking and locating device for high risk personnel that uses available cellular and satellite networks for global coverage. Develop and test a protective services portal system for standardized operations planning and enhanced interoperability between agencies. Research and develop advanced methodologies and automated analytical tools to improve entity and relationship resolution, identify dynamic changes to organizational structures, and recognize terrorist activity and plans. Develop a post-event analysis tool to identify and correlate weapons used in gunfire incidents. Develop a portable MANPADS pre-launch detection system to enable early warning to aircraft. Enhance and integrate a networked vehicle monitoring system with an existing facility security system to alert tactical response teams to motor pool sabotage attempts. Develop a tinting system that instantaneously darkens or lightens armored passenger vehicle windows to enhance information security and hinder focused VIP attacks.</p> <p><i>FY 2010 Plans:</i> Test and deploy the ruggedized VIP security kit for indoor/outdoor surveillance and intrusion detection. Evaluate domestic and overseas performance of the high-risk personnel tracking and locating device. Develop a protective services portal training system for incorporation into an existing law enforcement training course. Demonstrate performance of the advanced methodologies and automated analytical tools on counterintelligence data sets. Test the post-event gunfire analysis tool against audio files of known weapon firings. Deploy the portable MANPADS pre-launch detection for operational evaluation. Install the networked vehicle anti-tamper system on a variety of tactical response vehicles and evaluate monitoring and alerting capabilities. Install the window tinting system in an armored passenger vehicle and assess improvements in information security and reduction in focused attack accuracy.</p>				

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C. Other Program Funding Summary (\$ in Millions) N/A		
D. Acquisition Strategy Not applicable for this item.		
E. Performance Metrics Long Term Strategies: Obtain adequate funding to support critical shortfalls; prioritize proposals that are deemed acceptable and allocate funding accordingly; establish outreach programs with the interagency to leverage institutional knowledge and expertise; utilize cooperative research and development (R&D) agreements with the United Kingdom, Canada, Israel, Singapore, and Australia to leverage technology investments. Performance Indicator and Rating: FY 2009 Target: 70% of currently funded research projects are completed on time 5% increase in the number of projects transitioning to operational use Continue full R&D programs with existing and new foreign partners Verification: The CTTS Program utilizes a database to track the status of the projects. Quarterly program reviews are conducted to assess project status. In addition, an annual report is produced that assesses the status of current projects and the ability to accept new projects. Validation: Completed research products increase the capabilities of the DoD to effectively detect, deter, and defend against terrorist attacks; thus the Departments personnel and interests at home and abroad are safer from terrorism. FY 2010 Target: 70% of currently funded research projects are completed on time 5% increase in the number of projects transitioning to operational use Continue full R&D programs with five existing foreign partners Verification: The CTTS Program utilizes a database to track the status of the projects. Quarterly program reviews are conducted to assess project status. In addition, an annual report is produced that assesses the status of current projects and the ability to accept new projects.		

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Validation: Completed research products increase the capabilities of the DoD to effectively detect, deter, and defend against terrorist attacks; thus the Departments personnel and interests at home and abroad are safer from terrorism.

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