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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 3: Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603122D8Z: Combating Terrorism Technology Support							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	114.990	117.153	85.299	0.000	85.299	87.124	89.450	90.779	92.218	Continuing	Continuing
484: Combating Terrorism Technology Support (CTTS)	114.990	117.153	85.299	0.000	85.299	87.124	89.450	90.779	92.218	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Combating Terrorism Technical 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 9 mission categories: Chemical, Biological, Radiological, and Nuclear Countermeasures; Explosives Detection; Improvised Device Defeat; Investigative Support and Forensics; Personnel Protection, Physical Security; Surveillance, Collection, and Operations Support; Tactical Operations Support; and Training Technology Development. This program is a diverse, advanced technology development effort that capitalizes on interagency and international participation to demonstrate the utility or effectiveness 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)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	114.990	81.868	0.000	0.000	0.000
Current President's Budget	114.990	117.153	85.299	0.000	85.299
Total Adjustments	0.000	35.285	85.299	0.000	85.299
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		36.240			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-0.955	85.299	0.000	85.299

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<u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u>		FY 2009	FY 2010
Project: 484: <i>Combating Terrorism Technology Support (CTTS)</i>			
Congressional Add: <i>Full Scale Impact and Blast Loading Laboratory Testing Program</i>		1.600	0.000
Congressional Add: <i>Improved LAS Glass-Ceramic Laminated Amored Window Systems</i>		1.600	0.000
Congressional Add: <i>Machine Augmented Composite Armor</i>		0.800	0.000
Congressional Add: <i>Validation of an Enhanced Urban Air Blast Tool</i>		2.400	0.000
Congressional Add: <i>Bioterrorism Operations Policy for Public Emergency Response (BOPPER)</i>		1.200	1.000
Congressional Add: <i>Robotic Mobility Platform System</i>		1.200	0.000
Congressional Add: <i>Port and Hull Security 3D, Real Time Sonar System Echoscope</i>		1.600	0.000
Congressional Add: <i>Tactical Biometric Operating and Surveillance system (TBOSS)</i>		1.600	0.000
Congressional Add: <i>Biometric Terrorist Watch-List Database Management Development</i>		1.600	0.000
Congressional Add: <i>Covert Sensing and Tagging System (CSTS)</i>		1.200	1.200
Congressional Add: <i>Document and Media Search and Discovery (DMSD)</i>		1.440	0.000
Congressional Add: <i>EDIT Technology for Counter-Tunnel Operations and Cache Detection</i>		0.800	0.000
Congressional Add: <i>Facial Recognition Technology Initiative</i>		2.000	0.000
Congressional Add: <i>Remote Sensor Network Services Platform</i>		2.000	0.000
Congressional Add: <i>Low Cost Stabilized Turret</i>		1.600	0.800
Congressional Add: <i>Roll-on Roll off Reconnaissance, Surveillance & Special Mission Palletized System</i>		4.000	0.000
Congressional Add: <i>Ultra Portable Unmanned Surveillance Helicopter</i>		1.000	0.000
Congressional Add: <i>Unmanned Aerial Vehicle Avionics Upgrade (UAVAU)</i>		1.200	0.000
Congressional Add: <i>SOF Unattended Sensor Network</i>		1.280	0.000
Congressional Add: <i>Radio Inter-Operability System (RIOS)</i>		0.800	1.600
Congressional Add: <i>CTTSO/STAR-TEC Partnership Program</i>		2.400	0.000

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<u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u>				FY 2009	FY 2010		
Congressional Add: Facility Security Using Tactical Surveys				3.000	3.600		
Congressional Add: Military/Law Enforcement Counterterrorism Test Bed				2.400	2.400		
Congressional Add: Affordable Robust Mid-Sized Unmanned Ground Vehicle				0.000	1.600		
Congressional Add: Comprehensive and Integrated Procedures for Risk Assessment and Resource Allocation				0.000	2.000		
Congressional Add: Integrated Rugged Checkpoint Container				0.000	2.000		
Congressional Add: Ultra Low Profile EARS Gunshot Localization System				0.000	1.200		
Congressional Add: Remote VBIED Dection and Defeat System				0.000	1.200		
Congressional Add: Dynamic Data Flow Management System				0.000	1.600		
Congressional Add: Emergency Egress System				0.000	1.600		
Congressional Add: Expeditionary Surveillance and Reconnaissance Program				0.000	4.000		
Congressional Add: IdentClarity-Identity Resolution				0.000	1.440		
Congressional Add: MARCENT Thermal Imaging Suite				0.000	3.000		
Congressional Add: Omni Directinal Relay and Conformal Antenna				0.000	2.500		
Congressional Add: Reconnaissance and Data Exploitation (REX) System				0.000	3.500		
Congressional Add Subtotals for Project: 484				38.720	36.240		
Congressional Add Totals for all Projects				38.720	36.240		
C. Accomplishments/Planned Program (\$ in Millions)							
			FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
BLAST EFFECTS AND MITIGATION			4.342	0.000	0.000	0.000	0.000

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C. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2009 Accomplishments:</i> Tested and evaluated a lightweight polymer application apparatus that uses existing polymer materials for blast mitigation. Characterized terrorist homemade explosive mixtures. Tested COTS technologies for blast mitigation potential. Examined blast mitigation strategies to protect U.S. infrastructure to include electrical power sub-stations, dams, and maritime facilities. Demonstrated integrated systems to protect facilities from vehicle borne improvised explosive devices, suicide bombers on foot, and standoff weapons. Converted the enhanced blast effects database into a web-based application. Refined and provided critical blast information to military, industrial, and civil engineers by performing experiments in a configurable urban city test facility. Developed an advanced head form for measurements involving the effects of blast injury and head trauma. <i>FY 2010 Plans:</i> Moved projects to the Physical Security subgroup to provide an integrated protection package.					
CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR COUNTERMEASURES	6.674	6.993	7.297	0.000	7.297
<i>FY 2009 Accomplishments:</i> Developed a pathogen- and puncture-resistant glove for military and law enforcement tactical operations. Designed a tactical response boot with integrated chemical protection. Developed an air supply pass-through kit for Level A chemical protective ensembles. Designed a pocket-size, low-profile escape respirator to meet National Institute of Occupational Safety and Health standards. Developed a test protocol to evaluate escape hoods for special-needs populations. Designed an advanced small-room chemical and biological filtration system. Developed an advanced adsorbent material to capture gaseous chemical threat agents. Developed a software decision support tool for determination of chemical agent filter life. Evaluated alternative filters for use with the M53 tactical respiratory mask. Designed a hydration status monitor. Fielded the personal hydration system water filters for operational test and evaluation. Performed operational testing and evaluation of mass casualty evacuation bus retrofit kit. Performed beta testing on chemical instrumental library databases					

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		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
for detection and identification of chemical threat agents. Developed a total organic carbon detector for water utility systems. Developed a standoff patient triage tool for evaluating patient viability. Evaluated a self-decontaminating, removable vehicle overlay coating. Performed method development and testing in support of bioterrorism operations and public health preparedness. <i>FY 2010 Plans:</i> Evaluate performance of a pathogen- and puncture-resistant glove for military and law enforcement tactical operations. 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. Evaluate a pocket-size, low-profile escape respirator for operational needs and test to the National Institute of Occupational Safety and Health standards. Evaluate test protocol for special-needs populations escape hoods. Test and evaluate an advanced small-room chemical and biological filtration system. Test and evaluate an advanced adsorbent material to capture gaseous chemical threat agents. Optimize, test, and evaluate a software decision support tool for determination of chemical agent filter life. Develop tools for providing enhanced protection with the M53 tactical respiratory mask. Operationally test the hydration status monitor. Operationally test a stand-off patient triage tool for evaluating patient viability. Develop and test a three-dimensional tracking and locating tool. Develop an orthogonal detection system for identifying toxic industrial chemicals and chemical warfare agents. Test and evaluate a total organic carbon detector for water utility systems. Develop a standardized test method for the evaluating the effects of Electronic Countermeasures (ECM) on commercially available detectors. Develop a detection kit for homemade explosive precursor materials. Develop a best practices field guide for mail screening and handling. <i>FY 2011 Base Plans:</i> Evaluate new materials for protection against non-traditional agents. Design new protective garments providing percutaneous protection against evolving threats. Develop next generation systems for both						

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	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
respiratory and collective protection. Evaluate the effects of ECM on commercially available detectors. Test and evaluate a new orthogonal detection system against toxic industrial chemical challenges. Test and evaluate a detection kit for homemade explosive precursor materials. Develop tools for the decontamination of traditional and non-traditional agents from personnel and equipment. Field a best practices guidebook for mail screening and handling.					
Concept Developement Moved to Personnel Protection subgroup. FY 2009 Accomplishments: Moved to Personnel Protection subgroup FY 2010 Plans: Moved to Personnel Protection subgroup FY 2011 Base Plans: Moved to Personnel Protection subgroup	0.000	0.000	0.000	0.000	0.000
EXPLOSIVES DETECTION FY 2009 Accomplishments: Evaluated prototype X-ray system for real-time imaging of vehicles for vehicle borne improvised explosive device detection. Developed a breadboard system for standoff detection of suicide bombers, which combines ultrasound and lasers. Conducted test and evaluation of current hardened handheld explosive detection prototypes. Prototyped vehicle X-ray system for field operations. FY 2010 Plans: Develop active illumination upgrade to imaging and anomaly detection systems for personnel screening. Conduct a side-by-side evaluation of sensors for suicide bomber detection. Evaluate sub	6.797	7.670	8.004	0.000	8.004

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	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
millimeter wave imaging and anomaly detection technology for standoff detection. Investigate spectra of chemical compounds related to the presence of explosives or physical signatures of components for database. Test and evaluate vehicle X-ray system. Demonstrate feasibility of expeditionary wet chemical detection kits for explosive precursors. Demonstrate feasibility of a walkthrough explosive detection portal. FY 2011 Base Plans: Incorporate fusion and detection algorithms, synchronize electronics, and demonstrate feasibility of an active illumination upgrade to imaging and anomaly detection system. Develop breadboard sub millimeter wave imaging and anomaly detection system. Incorporate spectra of explosive signatures into existing databases. Fabricate and assess prototype expeditionary wet chemical kits for explosives precursor detection. Fabricate and test a walkthrough explosives detection portal.					
IMPROVISED DEVICE DEFEAT FY 2009 Accomplishments: Evaluated and transitioned to commercial off-the-shelf (COTS) the Power Hawk rescue tool integrated with explosive ordnance detection (EOD) robotic platforms for access of vehicle borne improvised explosive devices (VBIEDs). Integrated a utility-cart-carried Single Sided X-ray Imaging System with a fielded robotics platform. Developed and evaluated Eyeball R1 camera system integrated with EOD robotic platforms for increased situational awareness in the conduct of EOD operations. Conducted explosive tool characterization and testing of select improvised explosive device (IED)/ VBIED countercharges and populated the decision support Tool Characterization Guide. Integrated Joint Architecture for Unmanned Systems (JAUS) compliant Multiple IED Disruption Systems with a fielded robotics platform, and conducted field demonstrations. Integrated and demonstrated a fielded robotic system with a JAUS compliant interface for visual and X-ray targeting. Developed and evaluated an ECM System. Developed a remote operation conversion kit for currently fielded utility vehicles. Developed and tested a kit to detect microwave and infrared sensors that may be present in the construction of IEDs. Developed a Body Bomb Tool Kit.	5.584	5.688	5.901	0.000	5.901

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		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Developed delivery methods to robotically deploy select VBIED countercharges utilizing the Land Shark. Integrated a JAUS architecture and sensor array for CBRN and counter tunnel operations on the RMP400.						
FY 2010 Plans: Field, and test a robotically deployed JAUS compliant visual and x-ray targeting system. Transition the Eyeball R1 camera system to COTS and integrate with EOD robotic platforms. Conduct explosive tool characterization of select IED/VBIED countercharges and disruptors for population of the Decision Support Tool Characterization Guide. Develop a manual manipulation tool kit for IED interrogation. Upgrade, test, and evaluate currently fielded ECM systems for the neutralization of IEDs. Develop an instant IED notification system. Field-test and evaluate the Body Bomb Tool Kit. Test the robotically employed Single-Sided X-ray Imaging System. Develop advance power solutions for conducting sustained robotics operations and employment of EOD-peculiar equipment. Develop and field a camera blinding system for special operations. Develop interchangeable end effectors for use on robotic arms. Evaluate emerging remote control improvised explosive device (RCIED) threats to aid in the development, design, and testing of next generation ECM-related bomb disposal equipment.						
FY 2011 Base Plans: Design, and develop next generation ECM-related equipment. Incorporate final modifications and commercialize the robotically employed Single-Sided X-ray Imaging System. Conduct explosive tool characterization of select IED/VBIED disruption charges for population of the Tool Characterization Guide. Develop an enhanced manual entry capability for access and diagnostics of terrorist devices. Develop advance detection and diagnostic tools for support of mass transit incidents involving acts of terrorism. Field-test, and evaluate ECM tools and equipment to counter emerging RCIED threats. Develop tools and equipment for the neutralization of surface, subsurface, and underwater explosive threats. Develop a VBIED Precision Identification and Disruption Tool. Develop tools and methods to						

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	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
neutralize homemade explosives. Field-test, and evaluate the robotically deployed VBIED access tool kit.					
INFRASTRUCTURE PROTECTION FY 2009 Accomplishments: N/A FY 2010 Plans: Moved to Physical Security. FY 2011 Base Plans: N/A	0.000	0.000	0.000	0.000	0.000
INVESTIGATIVE SUPPORT AND FORENSICS FY 2009 Accomplishments: Produced a canine human scent identification sampling working protocol. Improved the protocols for remote biometric assessment. Distributed new protocols for fingerprint recovery from improvised explosive devices. Improved the performance and scientific defensibility of dog teams by improving the absorption materials used for collecting human scent and enhance operational canine technology. Distributed an upgraded system for identification of automobiles. Produced advanced interview and elicitation methods and techniques in field settings. FY 2010 Plans: 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. Identify shortcomings within deployment, training, and training aids for military working	3.593	4.394	4.585	0.000	4.585

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	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
dogs. Distribute an automated system for collecting hidden computer data. Field canines for detection of suicide bombers and tunnels. Produce a canine tunnel training facility. Field a thermal imaging polygraph measurement system. FY 2011 Base Plans: Field non-linear novel fingerprint technology. Distribute a trace explosive materials reference and pocket guide. Field protocols for forensic bomb render safe procedures. Produce advanced techniques for efficient direct interpersonal credibility assessments. Distribute advanced computer forensic technologies. Produce advanced tactical methods for military working dogs.					
PHYSICAL SECURITY FY 2009 Accomplishments: Developed an integrated personnel-screening system with remote capability to detect metallic, non-metallic, and improvised explosive devices. Assessed and demonstrated entry point screening and force protection technology. Initiated construction on a 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. Integrated novel sensors to extend perimeter/border capabilities to increase situational awareness and provide earlier warning of potential adversary attack. Developed infrastructure dependency modeling standards and tools. Investigated potential capabilities to detect, locate, survey, and disrupt subterranean operations in semi-permissive and non-permissive environments. Improved capabilities of an underwater inspection system. FY 2010 Plans: Improve and develop decision aids to assist with pre-event, preventative planning. Develop test programs for novel concepts that have the potential to meet requirements for rugged, long lasting, and transportable temporary, semi-permanent or permanent facilities. Promulgate common test	12.373	13.144	14.712	0.000	14.712

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		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
protocols and design standards based on results from threat-based test programs. Continue test program in an urban environment to better understand impact on facades, street furniture, tunnels, and infrastructure. Characterize homemade explosive mixes. Develop deployable, tactical and integrated security system concepts. Complete construction of a facility for iterative testing of equipment and tactics, techniques, and procedures. Test and compare prescreening and surveillance equipment that is usable by security forces in high threat operations. Explore enhanced video assessment and tracking techniques. Develop a database that meets interagency and international requirements to address the adaptive threat associated with homemade explosives based on past characterization and research data. Develop capabilities to detect, locate, survey, and disrupt subterranean operations. Expand focus areas to include harbor and port security solutions						
FY 2011 Base Plans: Deploy decision aids to assist with pre-event, preventative planning. Coordinate results from test programs to determine best solutions for temporary, semi-permanent or permanent facilities. Coordinate design standards with appropriate government agencies for increased force protection. Expand test program in an urban environment to include novel explosives and effects of soft structures. Deploy deployable, tactical and integrated security system concepts. Develop enhanced video assessment and tracking techniques. Deploy a comprehensive homemade explosives database with multiple levels of access. Deploy and integrate capabilities to detect, locate, survey, and disrupt subterranean operations. Develop solutions for harbor and port security solutions						
BUSINESS OPERATIONS Formerly named Program Management.		10.800	9.465	9.780	0.000	9.780
FY 2009 Accomplishments: Provided and continue providing program management and technical support for CTTS R&D projects including funds from other agencies and management of international cooperative R&D programs.						

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		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Established goals, objectives, and immediate revisions to plans that will reinforce interagency participation for the identification and prioritization of CTTS mission area requirements. Directed the program, planning, and execution for projects and associated contracts using direct and indirect budget allocations. Reviewed and revised existing processes and execution plans for CTTS mission area management and reporting responsibilities.						
FY 2010 Plans: Provide program management oversight 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.						
FY 2011 Base Plans: Provide program management oversight 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.						
SURVEILLANCE, COLLECTION AND OPERATIONS SUPPORT		7.624	13.986	14.595	0.000	14.595
FY 2009 Accomplishments: Enhanced open source media through new language processing technologies for degraded input sources. Improved biometric and novel technology areas for tagging, tracking, and locating.						

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Increased performance of facial recognition technology for long-range video surveillance and human identification at a distance. Transitioned language processing techniques including increasing support for additional languages and domains to deployable systems for use. Enhanced geolocation and targeting capabilities. Developed simulation tools for deployable units and operational efforts. Improved biometric handheld devices to enroll, identify, and verify persons of interest during operational efforts.						
Researched and developed various methods and tools that enhance biometric collection, verification, and identification processes and technologies. Provided light weight, low cost solutions for airborne autonomous surveillance systems.						
FY 2010 Plans: 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 especially in languages of particular interest. Develop exfiltration capabilities for real-time audio and video surveillance.						
FY 2011 Base Plans: Adapt and integrate existing foreign language applications, practices, and tools into a tactical site exploitation capability. Improve the timely collection of intelligence and evidence to support follow-on targeting, effective detainee prosecution, and theater-wide exploitation of tactical intelligence. Enhance the capability to identify targets through biometric modalities. Streamline the processes of data collection, sharing, identity management, mobile identification and detection of targets of interest. Develop enhanced capabilities, force structures, and training programs to leverage Information Operations capabilities.						
TACTICAL OPERATIONS SUPPORT		6.980	7.713	8.049	0.000	8.049

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<i>FY 2009 Accomplishments:</i> Delivered a tactical rifle-aiming device that includes infrared (IR) laser pointer/illuminator, visible red laser and white light with a common control pad. Delivered an ultra-compact amplifier and low-profile antenna for use with the Multiband Inter/Intra Team Radio (MBITR) in military and civilian vehicles. Deliver 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 complex optical devices. Test and deliver a next generation, submersible, high-performance tactical rope-ascending device for operational test and evaluation. Develop appliques that enable current optical devices to receive & transmit point-to-point 'free-space' IR communication for both voice and data. Deliver a vertical image rectification system for pole camera systems. Develop a portable system of wireless infrared illuminators with motion sensors to enhance site security for tactical forces. Develop a battle dress uniform (BDU) pocket-sized communications device to interconnect disparate voice communication devices that can operate on multiple channels and differing frequencies. Develop a suppressor for the Mk-44/M134 Minigun that reduces the bright and voluminous muzzle flash, blast, and sound that degrades night vision, hearing, and situational awareness. Develop a weapon launched camera system that will affix to building structures constructed from concrete, brick, or other typical building materials and provide video images of the surrounding area. Delivered a tactical system that provides imaging through various types and thicknesses of wall construction and provides a user-friendly display that presents an unambiguous view of the tactical picture to the user. 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. <i>FY 2010 Plans:</i> Develop a low-profile, rugged system capable of mapping terrain, buildings and interior spaces in order to provide users with a 3D geo-referenced model of the environment. Develop a communications system for tactical teams that board maritime vessels and go below deck to conduct						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 3: Advanced Technology Development (ATD)		R-1 ITEM NOMENCLATURE PE 0603122D8Z: Combating Terrorism Technology Support				
C. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
searches. Develop an integrated, handheld device that combines a COTS GPS receiver, a standard military Blue Force Tracker and Combat Survivor/Evader Locator radio for use during evasion of enemy forces or contingency operations. Develop a device that incorporates Military Free Fall mission metrics to improve navigation for operators performing High Altitude High Opening operations. Develop an ultra-lightweight (~4.5kg) UAV payload with Cooled IR, Color CCD, Laser Pointer and 30 mJ Laser Designator for the ScanEagle UAV. Develop a persistent real-time surveillance system that will have an integrated power supply (72 hrs live streaming) and SATCOM/Cellular data-link connection. Develop and deliver a system that provides a self-healing, ad hoc mesh air-to-ground network for the transmission of real-time communications (voice and data). Deliver a detection system that will alert soldiers to the pressure of complex optical devices. Deliver a portable system of wireless infrared illuminators with motion sensors to enhance site security for tactical forces. Deliver ballistic protective eyewear that rapidly adjusts to ambient light and provides polarized glare reduction.						
FY 2011 Base Plans: Deliver a low-profile, rugged system capable of mapping terrain, buildings and interior spaces in order to provide users with a 3D geo-referenced model of the environment. Deliver a communications system for tactical teams that board maritime vessels and go below deck to conduct searches. Deliver a remote physiological monitoring system for soldiers in high-exertion combat operations that interface with new SOF-peculiar radios and CBRN equipment. Deliver an integrated, handheld device that combines a COTS GPS receiver, a standard military Blue Force Tracker and Combat Survivor/Evader Locator radio for use during evasion of enemy forces or contingency operations. Deliver a device that incorporates Military Free Fall mission metrics to improve navigation for operators performing High Altitude High Opening operations. Continue development of an ultra-lightweight (~4.5kg) UAV payload with Cooled IR, Color CCD, Laser Pointer and 30 mJ Laser Designator for the ScanEagle UAV. Develop a persistent real time surveillance system that will have an integrated power supply (72 hrs live streaming) and SATCOM/Cellular data-link connection.						
TRAINING TECHNOLOGY DEVELOPMENT		4.803	4.142	4.322	0.000	4.322

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C. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Conducted an analysis of Irregular Warfare operations and activities within the educational domain in order to support an increased interagency and international capability. Designed and developed an instructor-led training program for improving military law enforcement activities in current operations. Delivered a system training plan for next generation canine capabilities. Designed and developed a multilingual tactical site exploitation training package that included instructor-led training, supporting publications, and evidence collection kits.						
FY 2010 Plans: 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. Design and develop a simulator for the 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. 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 training package that includes instructor-led training and supporting publications for the squad leader/observer and his squad to access Close Air Support (CAS).						
FY 2011 Base Plans: Develop a virtual simulation that increases the fidelity of non-verbal communications to enhance cultural awareness and ethics training. Develop a user reloadable device that can be used during training scenarios to provide realistic consequences for a simulated IED or Explosively Formed Penetrator. Analyze mobile learning architectures and Web 2.0 technologies and develop job aids, content resources, and training courses for use within the military.						
Personnel Protection		6.700	7.718	8.054	0.000	8.054

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C. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Formerly named VIP Protection						
FY 2009 Accomplishments: Deployed and validated a protective services portal system for standardized operations planning and enhanced interoperability between agencies. Miniaturized a mobile video processing system that integrates with multiple camera systems for enhanced situational awareness and incident response capabilities. Developed a ruggedized version of the VIP security kit for indoor/outdoor surveillance and intrusion detection. Developed a tracking and locating device for high risk personnel that uses available cellular and satellite networks for global coverage. Researched and developed advanced methodologies and automated analytical tools to improve entity and relationship resolution, identify dynamic changes to organizational structures, and recognize terrorist activity and plans. Developed a post-event analysis tool to identify and correlate weapons used in gunfire incidents. Developed a portable MANPADS pre-launch detection system to enable early warning to aircraft. Enhanced and integrated a networked vehicle monitoring system with an existing facility security system to alert tactical response teams to motor pool sabotage attempts. Developed a tinting system that instantaneously darkens or lightens armored passenger vehicle windows to enhance information security and hinder focused VIP attacks.						
Improved surveillance and detection of criminals and terrorists on watch lists to significantly enhance the nation's law enforcement and counterterrorism capabilities.						
FY 2010 Plans: 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 and a stand-alone portal for use in the field. 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						

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C. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
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. Develop a personal security vulnerability assessment (PSVA) software tool to facilitate PSVA development aiding in determining need, scope and size of required protection. Research and develop behind armor blunt trauma injury thresholds using the canine physiology, apply the developed criteria to develop an armor solution for working canines. Develop a tool to assess total body deformation during a low rate loading event. Develop a novel multi-threat concealable body armor system. FY 2011 Base Plans: Deploy the protective services portal training system at federal law enforcement training centers and deploy the standalone protective services portal. Deploy the PSVA tool on a government sponsored site for use by all government protective details. Test and certify the canine armor system for use by military working dogs. Incorporate the total body deformation tool and analysis in the development of protective solutions for vehicles, ships, and buildings. Design and fabricate a portable quiet room utilizing novel materials to mitigate passive eavesdropping on sensitive discussions.					
Accomplishments/Planned Programs Subtotals	76.270	80.913	85.299	0.000	85.299
	FY 2009	FY 2010			
Congressional Add: Full Scale Impact and Blast Loading Laboratory Testing Program FY 2009 Accomplishments: Conducted testing of blast mitigation concepts and technologies for DoD agencies as well as other federal, state, and local users, test data provided to end users.	1.600	0.000			
	1.600	0.000			

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C. Accomplishments/Planned Program (\$ in Millions)			
		FY 2009	FY 2010
Congressional Add: Improved LAS Glass-Ceramic Laminated Amored Window Systems FY 2009 Accomplishments: Integrated system into the Dyna Systems 7 meter protective tower structure. Developed a test plan for evaluating the system under threat weight blast loads to determine resiliency to withstand blast and continue to function as the only protective glass that does not prohibit the employment of Infrared Sensors and Optics.			
Congressional Add: Machine Augmented Composite Armor FY 2009 Accomplishments: Contract not yet awarded. Business clearance currently being worked. Anticipated award date 15 March 2010.		0.800	0.000
Congressional Add: Validation of an Enhanced Urban Air Blast Tool FY 2009 Accomplishments: Constructed and populated the Urban Airblast tool with empirical data from the Urban Canyon test series. Developed testing plans that provide 1/2 scale city scape blast data that is unique and not available from any other source.		2.400	0.000
Congressional Add: Bioterrorism Operations Policy for Public Emergency Response (BOPPER) FY 2009 Accomplishments: Performed method development and testing in support of bioterrorism operations and public health preparedness.		1.200	1.000

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C. Accomplishments/Planned Program (\$ in Millions)			
		FY 2009	FY 2010
FY 2010 Plans: Continued effort in method development and testing in support of bioterrorism operations and public health preparedness.			
Congressional Add: Robotic Mobility Platform System FY 2009 Accomplishments: Developed delivery methods to robotically deploy select VBIED countercharges utilizing the LandShark. Integrated a JAUS architecture and sensor array for CBRN and counter tunnel operations on the RMP400.		1.200	0.000
Congressional Add: Port and Hull Security 3D, Real Time Sonar System Echoscope FY 2009 Accomplishments: Improved capabilities of an underwater inspection system.		1.600	0.000
Congressional Add: Tactical Biometric Operating and Surveillance system (TBOSS) FY 2009 Accomplishments: Contract not yet awarded. Refined operational requirements. Contract is in final negotiations, anticipate award January 2010.		1.600	0.000
Congressional Add: Biometric Terrorist Watch-List Database Management Development FY 2009 Accomplishments: Improved the ease and efficiency of data collection, sharing, identity management, mobile identification and detection of targets of interest, and manage watch lists.		1.600	0.000

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C. Accomplishments/Planned Program (\$ in Millions)			
	FY 2009	FY 2010	
Congressional Add: Covert Sensing and Tagging System (CSTS) FY 2009 Accomplishments: Developed data fusion algorithms to improve detection automation and classification performance for tagging system. FY 2010 Plans: Continued effort to developed data fusion algorithms to improve detection automation and classification performance for tagging system.	1.200	1.200	
Congressional Add: Document and Media Search and Discovery (DMSD) FY 2009 Accomplishments: Developed searching capability to extract Arabic dialect from blogs	1.440	0.000	
Congressional Add: EDIT Technology for Counter-Tunnel Operations and Cache Detection FY 2009 Accomplishments: Refined operational requirements to detect, locate, survey, and disrupt subterranean operations in semi-permissive and non-permissive environments.	0.800	0.000	
Congressional Add: Facial Recognition Technology Initiative FY 2009 Accomplishments: Researched and developed various methods and tools that enhance biometric collection, verification, and identification processes and technologies.	2.000	0.000	
Congressional Add: Remote Sensor Network Services Platform	2.000	0.000	

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C. Accomplishments/Planned Program (\$ in Millions)			
		FY 2009	FY 2010
FY 2009 Accomplishments: Developed Lineage Service Network platform and surveying proposed sensor surveillance hardware for future integration.			
Congressional Add: Low Cost Stabilized Turret FY 2009 Accomplishments: Provided light weight, low cost solutions for airborne autonomous surveillance systems. FY 2010 Plans: Continued effort to provide light weight, low cost solutions for airborne autonomous surveillance systems.		1.600	0.800
Congressional Add: Roll-on Roll off Reconnaissance, Surveillance & Special Mission Palletized System FY 2009 Accomplishments: Completed the production design and working prototype, obtaining flight certification for the roll-on, roll-off reconnaissance, surveillance palletized system.		4.000	0.000
Congressional Add: Ultra Portable Unmanned Surveillance Helicopter FY 2009 Accomplishments: Developed airframe fabrication plan and continued avionics\guidance system development.		1.000	0.000
Congressional Add: Unmanned Aerial Vehicle Avionics Upgrade (UAVAU)		1.200	0.000

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C. Accomplishments/Planned Program (\$ in Millions)			
		FY 2009	FY 2010
FY 2009 Accomplishments: Developed air vehicle aerodynamic and propulsion/power system improvements needed to extend effective ranges and accommodate special payloads needed by the warfighter.			
Congressional Add: SOF Unattended Sensor Network FY 2009 Accomplishments: Designed a network node suited for extended deployment in support of R&S mission areas.		1.280	0.000
Congressional Add: Radio Inter-Operability System (RIOS) FY 2009 Accomplishments: Developed a capability to provide radio gateways between military and civilian communications centers. FY 2010 Plans: Continued effort to developed a capability to provide radio gateways between military and civilian communications centers.		0.800	1.600
Congressional Add: CTTSO/STAR-TEC Partnership Program FY 2009 Accomplishments: Contract awarded 12/17/09.		2.400	0.000
Congressional Add: Facility Security Using Tactical Surveys		3.000	3.600

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C. Accomplishments/Planned Program (\$ in Millions)			
		FY 2009	FY 2010
FY 2009 Accomplishments: 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.			
FY 2010 Plans: Continued 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.			
Congressional Add: Military/Law Enforcement Counterterrorism Test Bed FY 2009 Accomplishments: Improved surveillance, detection, and use of Law Enforcement Capabilities to enhance the nation's law enforcement and military and counterterrorism capabilities.		2.400	2.400
FY 2010 Plans: Continued efforts in improved surveillance, detection, and use of Law Enforcement Capabilities to enhance the nation's law enforcement and military and counterterrorism capabilities			
Congressional Add: Affordable Robust Mid-Sized Unmanned Ground Vehicle FY 2010 Plans: New program that is being developed in the Improvised Device Defeat Sub-group		0.000	1.600
Congressional Add: Comprehensive and Integrated Procedures for Risk Assessment and Resource Allocation FY 2010 Plans: New program that is being is just being developed for execution in late FY 2010.		0.000	2.000

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C. Accomplishments/Planned Program (\$ in Millions)			
		FY 2009	FY 2010
Congressional Add: Integrated Rugged Checkpoint Container FY 2010 Plans: New program that is being developed in the Tactical Operations Support Sub-group		0.000	2.000
Congressional Add: Ultra Low Profile EARS Gunshot Localization System FY 2010 Plans: New program that is being developed in the Tactical Operations Support Sub-group		0.000	1.200
Congressional Add: Remote VBIED Decton and Defeat System FY 2010 Plans: New program that is being developed in the Improvised Device Defeat Sub-group		0.000	1.200
Congressional Add: Dynamic Data Flow Management System FY 2010 Plans: New program that is being developed in the Surveillance, Collection and Operations Support Sub-group.		0.000	1.600
Congressional Add: Emergency Egress System FY 2010 Plans: New program that is being developed in the Personnel Protection Sub-Group		0.000	1.600
Congressional Add: Expeditionary Surveillance and Reconnaissance Program		0.000	4.000

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C. Accomplishments/Planned Program (\$ in Millions)			
		FY 2009	FY 2010
FY 2010 Plans: New program that is being developed in the Surveillance, Collection and Operations Support Sub-group.			
Congressional Add: IdentClarity-Identity Resolution FY 2010 Plans: New program that is being developed in the Surveillance, Collection and Operations Support Sub-group.		0.000	1.440
Congressional Add: MARCENT Thermal Imaging Suite FY 2010 Plans: New program that is being developed in the Surveillance, Collection and Operations Support Sub-group.		0.000	3.000
Congressional Add: Omni Directinal Relay and Conformal Antenna FY 2010 Plans: New program that is being developed in the Surveillance, Collection and Operations Support Sub-group.		0.000	2.500
Congressional Add: Reconnaissance and Data Exploitation (REX) System FY 2010 Plans: New program that is being developed in the Surveillance, Collection and Operations Support Sub-group.		0.000	3.500

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C. Accomplishments/Planned Program (\$ in Millions)			
		FY 2009	FY 2010
Congressional Adds Subtotals		38.720	36.240
D. Other Program Funding Summary (\$ in Millions) N/A			
E. Acquisition Strategy Not applicable for this item.			
F. 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			

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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.		
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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