OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 06	**0605130D8Z - Foreign Comparative Testing (FCT)**

COST ($ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P130 Foreign Comparative Testing (FCT)	31.438	32.634	34.910	35.719	34.381	34.839	35.330

A. Mission Description and Budget Item Justification: The Foreign Comparative Testing (FCT) program supports the warfighter by leveraging mature technologies and equipment from allied nations and coalition partners to satisfy U.S. defense requirements, thereby accelerating the U.S. acquisition process and lowering development costs. Authorized by Title 10, U.S. Code, Section 2350a(g), the FCT Program is managed by the Deputy Under Secretary of Defense (Advanced Systems & Concepts), Comparative Testing Office. FCT projects are nominated by the Services and U.S. Special Operations Command (USSOCOM) each year. Evaluation processes for project selection include a detailed review to confirm the proposed item addresses valid requirements, a thorough market survey, and development of a viable acquisition strategy. A 30-day Congressional notification of the intent to fund the most meritorious projects is required, prior to the issuance of funds to the Services/SOCOM for execution.

Since the program's inception in 1980, OSD has initiated 583 projects; 501 projects have been completed to date. Of the 268 evaluations that met the sponsors' requirements, 190 led to procurements worth approximately $8.480 billion in FY 2008 constant year dollars. With an OSD investment of about $1.100 billion, the FCT program has realized an estimated RDT&E cost avoidance of $7.370 billion in FY 2008 constant year dollars.

The FCT program is frequently a catalyst for teaming or other business relationships between foreign and U.S. industries; many successful FCT projects result in arrangements for the licensed production of the qualified foreign item in the U.S. Other nations recognize the long-term value of such practices for competing in the U.S. defense market and the resultant strengthening of the "two-way street" in defense procurement. For the U.S., the result often means the creation of jobs and contributions to local economies. To date, companies across 33 states have benefited from FCT projects.

This Research, Development, Test and Evaluation (RDT&E) Category 6.5 is assigned and identified in this descriptive summary in accordance with existing DoD policy.

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)	31.812	32.919	34.974
Current BES/President's Budget (FY 2009)	31.438	32.634	34.910
Total Adjustments	-0.374	-0.285	-0.064
Congressional Program Reductions			
Congressional Rescissions		-0.285	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Other	-0.374		-0.064

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The change in the FY 2008 funding amount from last years President's Budget to this year is as a result of the implementation of mandated Congressional recissions in Sections 8025(f), 8097 and 8104.

C. Other Program Funding Summary Not applicable for this item.

D. Acquisition Strategy Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment: 19 FY 2007 FCT Projects completed.
22 FY 2008 FCT Projects planned for completion.
11 FY 2009 FCT Projects planned for completion.

See R-2a project-level narratives for return on investment and technology performance metrics (i.e., KPPs).

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RDTE, Defense Wide BA 06	**0605130D8Z - Foreign Comparative Testing (FCT)**	**P130**

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Since the programs inception in 1980, OSD has initiated 567 projects; 481 projects have been completed to date. Of the 258 evaluations that met the sponsors' requirements, 177 led to procurements worth approximately $7.900 billion in FY 2007 constant year dollars. With an OSD investment of about $1.000 billion, the FCT program has realized an estimated RDT&E cost avoidance of $6.900 billion in FY 2007 constant year dollars.

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This Research, Development, Test and Evaluation (RDT&E)Category 6.5 is assigned and identified in this descriptive summary in accordance with existing DoD policy.

B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
30mm Programmable Air Burst Munition (ABM) (Navy)	1.563		

Outcome: A successful project will provide DoD users of the MK46 and other 30mm Gun Weapon Systems (GWSs) with the required capability to effectively engage and defeat personnel and light to medium materiel targets. Extensive analyses and modeling of ABM have proven four to six times more lethal and effective across the full spectrum of combat operations than currently available combat munitions. The 30mm ABM could potentially be fielded in the following weapon systems: Marine Corps's Expeditionary Fighting Vehicle (EFV); Army's Future Combat System (FCS); Landing Platform Dock (LPD)-17; Littoral Combat Ship; Amphibious Assault Ships Replacement ((LHA(R)); and other foreign weapon systems from the UK and NATO countries. The primary outputs and efficiencies are: (1) fielded 30mm programmable ABMs provide US combat forces greater survivability thru increased lethality; (2) avoid RDT&E costs of $15.000 million and O&S savings of $10.000 million; and (3) fielding reduction by five years.

FY 2007 Output: Issued contract for qualification rounds with procurement options to ATK/Diehl (Germany) Team for use during the Weapons System Explosives Safety Review Board (WSESRB)

qualification program. Continued working on the joint qualification test plan, which will be conducted at Naval Surface Warfare Center (NSWC) Dahlgren. The Navy, Marine Corps, and Army are working together to develop a joint qualification test plan covering all services' requirements. Present the ABM fuze to a joint fuze review board. Present 30mm ABM qualification program to the WSESRB. Delivery of the 1200 30mm ABM qualification cartridges for actual qualification testing. USMC began their effort to integrate the 30mm ABM cartridge into the EFV platform, with an integration kickoff meeting at Woodbridge, VA. The integration effort will continue in parallel with this cartridge qualification effort.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Complete qualification testing, secure approval for production, prepare close-out report; execute contract options for ABM cartridges for Service use.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
40mm Tactical Marking & 40mm Day/Night Training Cartridges (SOCOM)	0.293		

Outcome: This Joint FCT project will qualify two 40mm low velocity (LV) cartridges for multi-service use: (1) a non-developmental IR tactical marking cartridge and (2) a 40mm day/night training cartridge. Both 40mm cartridges use unique chemi-luminescent night marking technology. The 40mm tactical marking cartridges provide for accurate IR target marking to support precision fire control and air-ground combat in daylight and at nighttime. The 40mm Day/Night training cartridges allow soldiers to train as they fight, at night using their night vision goggles, a capability not currently available. The RDT&E and manufacturing cost avoidance is $9.000 million. Savings in procurement costs is expected to be $5.000 million and Operational Life Cycle savings are $10.000 million annually.

FY 2007 Output: Fabrication has been underway of both the tactical marking round in Germany and the training round in the USA test articles in preparation for Performance Qualification Testing (PQT).

FY2008 Planned Output: Test articles for Production Qualification Testing will be received Jan 2008. PQT, safety and environmental testing for the training round will be completed in Camden, AK and PQT for the marking round will be completed in Unterluess, Germany, Jan through Mar 08. Concurrently, initial operational test and evaluation will occur at Fort Bragg, NC. WSESRB Certification, Milestone C Decision and Close-out Report is anticipated in 3Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
70 mm (2.75) Rocket Warhead (SOCOM)	1.384		

Outcome: This project is qualifying an improved 70mm multi-purpose penetration warhead for use by Special Operations Aviation Regiment (SOAR) (Task Force 160) aircraft (AH/MH-6J). Primary Outputs and efficiencies: This warhead will provide Special Operations Forces (SOF) with a significant new capability to defeat hardened targets such as bunkers, buildings or other structures consisting of up to 24 inches reinforced concrete or 4 feet of timber and earth. Total cost avoidance and savings exceed $43.000 million.

FY 2007 Output: Received test articles; began interim hazard classifications, and Phase I technical and safety testing, as well as insensitive munitions (IM) testing; started Weapons System Explosive Safety Review Board (WSESRB) approval process.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Obtain air worthiness certification; complete Phase I testing; obtain WSESRB certification; conduct Phase II Operational and User Assessment. Complete Close-out Report. Obtain Milestone C decision 2Q FY 2008.

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Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
84 mm Multi-Target Warhead (SOCOM)	1.308		

Outcome: This project is evaluating an 84 mm Multi-Target (MT) Warhead for use in the Multi-Role Anti-Armor, Anti-Personnel System (MAAWS), the primary Special Operations Forces (SOF) crew served shoulder fired weapon. Primary Outputs and efficiencies: This munition will greatly enhance SOF capabilities to blast through wall-structures and targets urban/built up areas using a tandem warhead with a follow-through charge. This project will accelerate the weapons into the hands of the warfighter by 5 years sooner and avoid $45.000 million in RDT&E and life-cycle costs.

FY 2007 Output: Initiated hardware integration and delivery; initiated technical and safety testing; submitted Navy Weapon System Explosive Safety Review Board (WSESRB) data package.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Complete hardware integration; finish technical and safety testing; perform limited user testing; obtain Navy WSESRB approval. Complete Close-out Report. Obtain Milestone C Decision 3Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Air Flotation Platform (Air Force)	0.313		

Outcome: This is an Industrial Capitalization Improvement project started in FY06. Reduction in the number of work flow days per aircraft (A/C) by ten and save $0.025 million per A/C in rigging costs resulting in annual savings of $3.600 million for lean-moving structural production lines. The 309th Air Maintenance Group at Hill AFB, Utah will evaluate air flotation platforms developed by Solving of Finland that are used to reposition aircraft and airframe structures as integral units during depot level maintenance operations, while maintaining structural alignment. During maintenance operations aircraft airframes are disassembled for repair and/or replacement of major structural components, and the inability to move the aircraft results in all tooling and labor being transported to the airframe, causing added wait-time and degraded lean-moving production lines. The Air Flotation Platforms are being used by Airbus in France and by the Dutch Royal Air Force. The primary outputs and efficiencies are to reposition aircraft and airframe structures as structurally aligned integral units during depot level maintenance operations.

FY 2007 Output: Demonstrated successful motion over shop floors with a factory demonstration model. Test article delivery with final evaluation occurred in August 2007. Generated Final Report with Completion in September 2007.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Transition to production use in structural modification line and procure additional systems.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Aluminum Alloy 5059 for Armor Applications (Army)	0.148		

Outcome: This project is evaluating and qualifying an improved aluminum developed by Corus of Germany for armored ground systems used in PEO Ground Combat Systems as well as for possible use in Future Combat Systems (FCS) applications. Preliminary data indicated excellent performance among aluminum materials in ballistics, particularly against frag based threats. In addition, the alloy possesses a lower density versus other aluminum alloys imparting good potential for reducing the overall weight of weapon systems while simultaneously increasing or maintaining current armor performance levels. RDT&E Cost Savings: $2.500 million over four years (minimum). O&S Cost Savings: $1.200 billion. Procurement Cost Savings: Recouped from simplified welds. Other Benefits: Use on other armored platforms and
structures.

FY 2007 Output: The armor plate material was received by ARL from Corus. The overall test plan and IPT were established, and testing activities successfully completed. The prime contractor,

British Aerospace and Engineering (BAE), submitted a quote for an upcoming contract for work in evaluating weld performance of the 5059 armor. The project resulted in a decision to procure the product for use in "resetting" the Army's Bradley and Stryker vehicle fleets, and approved for incorporation into the FCS program. Preparations for disbursing funds to US Navy laboratories NAVAIR and NAVSEA for evaluation of 5059 corrosion resistance are underway and will commence upon receipt of funds.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Area Mine Clearing System (AMCS) (Army)	1.318		

Outcome: This project is evaluating and qualifying the Army's area mine clearing capability for the new Combat Engineer Clearance Companies that will support the redesigned Modular Future Engineer Force. The current techniques for clearing large areas of mines are soldiers using handheld mine detectors and mine probes or explosive breaches and line charges. These methods are problematic because they are time consuming, leaving the soldiers unprotected and they do not neutralize anti-tank mines. The Area Mine Clearing System (AMCS) candidate systems are large mechanical mine clearing flails, predominantly used for humanitarian demining operations around the world. They clear large areas by detonating or destroying the mines and they are blast hardened to withstand multiple Anti-Tank (AT) and Anti-Personnel (AP) mine blasts. As a result of this project, Army Combat Engineers will gain the ability to clear large areas of minefields at a faster rate of speed than ever before. In addition, engineers will be protected in a fully armored vehicle and will no longer need to solely rely on hand-held devices. The Army's testing program for this project includes dynamic blast testing using live AP and AT mines, operational testing against surrogate mines while flailing operations are being conducted, and ballistic blast testing against live AT mines. Efficiency: RDT&E Savings is estimated to have saved between $25.000-35.000 million. SDD Savings is estimated to have saved between $10.000-20.000 million. Procurement Savings is estimated to have saved between $1.000 - $5.000 million.

FY 2007 Output: All developmental and operational testing of the AMCS candidate systems was conducted successfully in 1Q and 3Q FY 2007, and will be thoroughly analyzed by the Army Test & Evaluation Command to provide a testing report which will be used as feeder data for the down-select decision in 4Q FY 2007.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: In 1Q FY 2008 the PM will complete the full rate production decision with PEO Ammo, and in 2Q FY 2008 the production contract will be awarded to the vendor selected during down-select. After contract award, the PM office will begin executing all acquisition documentation required for Full Materiel Release and Type Classification standard.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Composite Shroud for Landing Craft Air Cushion (LCAC) (Navy)	0.163		

Outcome: A successful project will provide the U.S. Navy composite shrouds that are more easily repairable and 30 percent more reliable; thus, reducing Landing Craft Air Cushion (LCAC) life cycle maintenance costs and increasing craft mission availability. The primary outputs and efficiencies to be demonstrated are: (1) composite shrouds are potential replacements when casualties occur for the entire LCAC fleet (72 craft); (2) The U.S. Navy saves over $0.500 million in specification development, $13.500 million in material/labor and R&D plus an estimated additional reliability savings of $1.200 million over the life of the LCAC Program.

FY 2007 Output: Completed the Critical Design Review (CDR) and FY Composites was authorized to proceed with tooling and fabrication. Completed contract negotiations and modifications. The Government Furnished Equipment (GFE) consisting of the propeller center-body and rudder attachment fittings, plus a second center-body with fairing attached, were shipped and received at FY Composites Ltd. A first draft test plan for the composite shroud has been completed. Continued work with FY Composites Ltd. with respect to design and testing issues.

FY 2008 Planned Output: FY 2007 funds will continue to provide for the following FY 2008 planned actions: Accept delivery of first article test unit and install on a test platform. Testing is expected to be complete with final test report and close out report provided by FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Emergency Battery System (Navy)	0.113		

Outcome: A successful project will provide the warfighter with a lightweight, renewable, emergency power source capable of operating computers and communications equipment while minimizing the warfighters' battery load and ensuring adequate power resources throughout a mission. During OIF and OEF, world production limitations of the BA5590 lithium battery have driven the requirement for supplemental sources of expeditionary power. The US Marine Corps will test the Metal Cell from MEET of South Korea and the Magnesium-Air Power Cell from MagPower Systems Inc. of Canada to meet the requirement for alternative power sources. A two-year FCT project under sponsorship of the OSD Comparative Testing Office and Marince Corps Systems Command (MARCORSYSCOM). Projected completion of testing and qualification will be FY 2007 with transition to USMC operating forces during FY 2007. The primary outputs and efficiencies to be demonstrated are: (1) provide lightweight multiple/redundant sources of emergency battery power; (2) minimize warfighter battery load while assuring mission critical power needs; (3) avoid RDT&E costs of $2.000 million and Operational costs of nearly $0.500 million per year, providing a ROI of 27:1.

FY 2007 Output: Initial test article delivery received from MEET and MagPower Systems Inc. in 1Q FY 2007. Performance Testing initiated during the 1Q FY 2007. Received remaining test articles from both vendors in the 3Q FY 2007.
Completed Performance Testing during the 4Q FY 2007. Submitted technical test report and project close out report.

Outcome: Results concluded the Emergency Battery System could not meet Marine Corps requirements for fielding.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Enhanced Underwater Breathing Apparatus (EUBA) (Navy)	0.758		

Outcome: A successful project will field a nitrox mix, semi-closed re-breather system, developed by Divex of the UK, Carleton of Canada, or OMG of Italy, to meet the requirement for a EUBA in order to conduct extended range, underwater reconnaissance missions. This project is under sponsorship of the OSD Comparative Testing Office and MARCORYSYSCOM. Projected completion of testing and qualification will be CY 2008 with transition to USMC reconnaissance forces during CY 2009. The primary outputs and efficiencies to be demonstrated are: (1) The EUBA will increase dive duration by 33 percent and dive depth by 80 percent over currently fielded systems; (2) eliminate the risk of decompression up to 130ft.; (3) provide for stealth operation by eliminating surface bubbles that cause diver detection; (4) meet the requirements for naval certification; and (5) provide O&S cost avoidance of $2.000 million, RDT&E cost avoidance of $1.200 million, and a ROI of 20:1. Completed contracting for test articles and finalized test planning. Receive test articles during the 4Q FY 2007 and forward them to the Naval Experimental Dive Unit (NEDU) at the Naval Surface Warfare Center, Panama City for certification. Completed Phase I, Un-Manned Testing during 4Q FY 2007.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Complete Phase II, Pool and Open Water Testing, and Phase III, Open Ocean Testing, by the 3Q FY 2008. The test report will be provided by the NEDU in the 3Q FY 2008. A Milestone C Decision is anticipated in the 4th Qtr followed by the Close-out Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Extended 1553 Databus (Air Force)	1.832		

Outcome: This is a Spare Parts project to increase databus throughput rates. Integration of an extended 1553B interface into high-bandwidth demand avionics, which will enable increased throughput rates from one mega-bit per second (Mb/sec) to an excess of 200 Mb/sec over existing cable. ASC/YS, B-2 Systems Group at Wright Patterson AFB in Dayton, OH will evaluate an Extended 1553B Data Bus developed by Edgewater Computer Systems, Inc. of Ontario, Canada. DoD platform data bus networks are based upon MIL-STD 1553B information exchange protocols that are constrained to 1Mb/sec throughput rates. The primary outputs and efficiencies to be demonstrated will be that the Extended 1553B performance is transparent to the user if data bus operations/functions occur within specified parameters and the increased throughput is realized. This Spare Part will have application to all legacy aircraft or other 1553 databus users and will save

the Air Force approximately $1.600 million per aircraft in lieu of the installation of fiber optic cable.

FY 2007 Output: Completed all required hardware purchases, leading to the manufacture/delivery of four test assets. Validated that the Edgewater solution performs as advertised and that it complied with established MIL-STD 1553C protocols.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Complete the final demonstration in 1Q FY 2008. Completion date and publishing the Final Report planned for 4Q FY 2008. Transition to platform integration with Northrop Grumman.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Improved Limpet Mine (SOCOM)	0.548		

Outcome: This project will test and evaluate the effectiveness of a candidate Improved Limpet Mine (ILM) at a specified depth and its ability to destroy or incapacitate enemy vessels and maritime structures. The ILM is smaller, lighter and more capable than the current legacy Limpet Assembly Module (LAM). This project will also leverage the successes of the UK Ministry of Defense (MOD) Research, Development, Test and Evaluation of the Royal Ordnance ILM; who have already contributed nearly $11.500 million to develop an ILM. The RDT&E and manufacturing cost avoidance is $10.000 million. Savings in procurement costs is expected to be $34.000 million and Operational Life Cycle savings are $2.000 million.

FY 2007 Output: Completion of Phase II scaled operational testing in Sept 2007.

FY 2008 Planned Output: Complete Phase III scaled operational testing Jan - Mar 2008. Finalize production and fielding milestone decision documentation based on test and evaluation outcome. Milestone C Decision and complete Closeout Report 3Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Lightweight Deployable UMTS Communications System (LDUCS) (SOCOM)	1.168		

Outcome: This project will test and evaluate the Swedish based Ericsson "QuicLINK", a lightweight Universal Mobile Telecommunications System (UMTS) mobile cellular system. Primary Outputs and efficiencies: "QuicLINK" is a downsized third generation cellular system that can provide high data rates to personal communications devices, as well as handle 90 simultaneous voice calls and provide data rates up to 384 kbps over a Wideband Code Division Multiple Access air interface and will incorporate Robust Header Compression technology. The "QuicLINK" system can operate in an autonomous mode or as a sub-network within current legacy networks. RDT&E Cost avoidance is estimated at $10.000 million. Combined O&S and Procurement cost avoidance is expected to be $6.000 million. Fielding reduction time is greater than five years.

FY 2007 Output: Contracted for and received test articles. A prototype demonstration of QuicLINK system was conducted.

FY 2008 Planned Output: FY 2007 funds will continue to provide for the following FY 2008 planned actions: Prepare and perform instrumentation and laboratory technical test, as well as over the air technical tests and field level tests. Intellectual Property Rights and information exchange agreements between vendor and PM Warfighter Information- Tactical (WIN-T). Perform tweaks to system as necessary to provide better hand-off between nets. Submit Close-out Report. Milestone C Decision is scheduled not later than the 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Mobile Oxygen Ventilation & External Suction System (MOVESS) (Navy)	1.563		

Outcome: A successful project will provide the USMC with a Mobile Oxygen Ventilation & External Suction System (MOVESS), co-developed by Thornhill Research, Inc. of Canada and the USMC, to provide the patient care capabilities necessary to meet the urgent need for transporting critically ill and injured post-operative patients via USMC rotary wing aircraft. Projected completion of testing and qualification will be CY 2008 with transition to deployed USMC forces by the end of CY 2008. The primary outputs and efficiencies to be demonstrated are: (1) MOVESS is an integrated oxygen, ventilation, and suction device that can meet Food and Drug Administration (FDA) Approval for fielding; (2) eliminate 90 percent of the logistics burden, 15% of the cost, and 85 percent of the weight of the currently fielded En-Route Care System; (3) increase the safety and flexibility of providing critical patient care during transportation by eliminating oxygen bottles in ambulances and fixed wing aircraft; and (4) avoid procurement costs of $10.000 million, RDT&E costs of $90.000 million, and provide a ROI of 74:1.

FY 2007 Output: Received FCT funding during the 2Q FY 2007. Initiated test article contracting and Test Planning in the 2Q FY 2007. Test Article contract award 3Q FY 2007. Test Plan completed by 3Q FY 2007. Completion of the test article manufacture by the 4Q FY 2007 and initiated FDA Testing at Thornhill Research Institute consisting of Lab Testing, Clinical Testing, and Environmental Testing.

FY 2008 Planned Output: Complete FDA Testing by 2Q FY 2008. Submit the Test Results for FDA 510(k) approval during the 2Q FY 2008. Utilize NAVAIR for Air Transportability Testing in the 2Q FY 2008. A Milestone C Decision is anticipated during the 3Q FY 2008. The Technical Test Report and Close-out Report are anticipated during 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Noise Robust Voice Recognition System (Army)	0.488		

Outcome: This project will evaluate the performance of the Aurix speech recognition technology when immersed in typical tactical acoustic environments, including various vehicular noise and small-arms fire. In addition the claim of "speaker independence" will be validated through extensive testing, requiring the collection of a substantial voice database that is, to the greatest extent practical, representative of the Army accent diversity. Improvements: Pending satisfactory performance evaluation, this technology will provide the Warfighter hands-free interaction with current and future battle-command software, increased Warfighter efficiency, survivability and lethality. Efficiency: Reduce task timelines by 50 percent; Reduce input error rate by 75 percent; Increase survivability by 50 percent; and increase lethality by 25 percent. Visited several military bases to collect an active-military voice database that, within practical limitations, represents the regional and ethnic diversity of today Army.

FY 2007 Output: Began the evaluation of the Aurix technology by running a battery of evaluations that will include many permutations of tactical acoustic environments utilizing the accent diverse voice database as input to the Aurix speech recognition technology.

FY 2008 Output: 2007 funds will continue to provide the following FY 2008 planned actions: Complete the evaluations of the Aurix speech recognition technology and prepare a detailed evaluation performance report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Pitch Adapting Composite Marine Propeller (Navy)	0.128		

Outcome: This project will provide the U.S. Navy with composite pitch adapting marine propellers to improve vehicle stealth, speed and propulsion efficiency. In addition, the pitch change reduces

cavitation damage, marine growth fouling and permits in-water blade replacement. This advanced performance is enabled by blades constructed from carbon fibers instead of traditional metals. This project is evaluating commercial Contur-series propellers developed by AIR Fertigung- Technologie GmbH, Rostok, Germany. The primary outputs and efficiencies to be demonstrated are: (1) fielded pitch adapting propellers will have lower noise and vibration characteristics; (2) lower maintenance and operation costs; (3) better fuel efficiency, and (4) avoid RDT&E costs of $10.000 million - $15.000 million and procurement cost savings of $3.000 million per propeller.

FY 2007 Output: Completed the Advanced SEAL Delivery System (ASDS) loading calculations for the fatigue testing. Completed formulation and review of the ASDS fatigue test plans for both USN and AIR of Germany. Completed the fabrication of the prototype blades and two hubs for the fatigue testing. Initiated the technology transfer agreement between AIR and the Naval Surface Warfare Center (NSWC). Completed the initial assessment between SSBN and ASDS designs for the generic SSBN fatigue testing. Completed the documentation of the 36-in water tunnel tests. Approve the ASDS fatigue test plans. Start to fabricate the flex prop for the ASDS platform. Conduct the ASDS fatigue testing at USNA and AIR Fertigung-Technologie GmbH (Germany). Conducted a generic SSBN design for fatigue testing.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Conduct the 2nd phase experiments for the unconstrained rigid and flex propellers in Navy Surface Warfare Center Carderock Division (NSWCCD) 36 inch water tunnel. Perform 2nd test analysis for the 2nd phase 36 inch water tunnel test. Start to design the flex propeller for ASDS platform. Develope Final Test Report and Close Out Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Portable Undersea Training Range (PUTR) (Navy)	0.876		

Outcome: A successful project will satisfy a critical need for shallow water and forward-deployed Anti-Submarine Warfare (ASW) training. This project will enable ASW training in littoral waters with the completion of two, closely linked concurrent efforts. The first effort is to acquire and test a transponder acoustic up-link receiver (hub), which is a component of a commercial transponder system developed in Australia. The second effort is to acquire and test one Station Keeping Buoy (SKB) developed in France, which can potentially act as a support platform for a transponder hub. The SKB and transponder hub provide key components in establishing an ASW training capability in littoral waters by enabling the deployment of a large array of transponders over a wide area. A 50 percent reduction in operational support costs is achieved by avoiding use of two support vessels. Successful execution will result in a RDT&E cost savings/avoidance of $2.000 million for Initial Operational Capability (IOC) implementation. Additionally, estimated savings of $1.000 million will be realized in procurement cost savings.

FY 2007 Output: Completed assembling SKB main components, and writing SKB Factory Acceptance Test (FAT) plan. Commenced SKB subsystem integration and testing. Phase I testing of the SKB and transponder hub test units. Naval Undersea Warfare Center Division, Newport will verify basic performance parameters and gain operational experience by testing the SKB unit in France, under benign environmental conditions, and testing the transponder hub in Australia.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Final operational demonstration of PUTR SKB and transponder HUB during Phase II testing is scheduled for March 2008 at Pacific Missile Range Facility (PMRF).

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Shipboard Mast/Mounted Surveillance Pod (SMSP) (Navy)	0.542		

Outcome: This project will demonstrate the N-channel tuner technology from WinRadio (Australia) and the N-channel digital processing technology from Sundance Digital Signal Processor (DSP) (Great Britain) to resolve US Navy shipboard blind spots in their Signal Intelligence (SIGINT) threat warning systems. The primary outputs and efficiencies to be demonstrated in this FCT are: (1) detect signals normally masked by shipboard transmitters; (2) provide signal direction relative to ships orientation, which can be used to geo-locate enemy forces; (3) when multiple long range

signals are simultaneously being transmitted on the same frequency, the SIGINT operators can select which ones to process; and (4) system can be adapted to aircraft applications or situations that need signal interference mitigation, (5) system theoretically enhances signal quality, so we will measure the effectiveness relative to current technology.

FY 2007 Output: WinRadio signal search and radio direction finding capability field tested on Charleston facility. WinRadio technology briefed to Navy Cryptologic Carry On Program (CCOP) and Southern Operations Command Joint Threat Warning System (SOUTHCOM JTWS) personnel. Briefed Homeland Security (HLS) SEAHAWK program which resulted in request to set up on-site evaluation tests in FY 2008. Completed stress testing newly developed Sundance Field Programmable Gate Array FPGA and carrier boards. Completed bench testing all Sundance beam forming software modules with signal generators and WinRadio equipment. Completed field testing WinRadio/Sundance search, radio direction finding, and signal interference mitigation on shipboard type signals. Brief NSA Bluestream, Salvage and other programs on WinRadio and Sundance technologies for Services Oriented SIGINT applications. Final operational demonstration.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Based on inputs from the initial demonstrations, SMSP will be interfaced to the Shipboard Signal Exploitation Environment - F (SSEE-F) and SIGINT shipboard surveillance systems for limited operational evaluation during exercises or special SIGINT missions of opportunity. Based on the FY 2007 demonstrations, USSOCOM will evaluate implementation of SMSP on their C-130 gunships or UAVs by flying it on a surrogate platform, a commercial helicopter with experimental testing certification. A final report will be generated to include test results, logistics requirements, installation issues, and training information.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Telemetry Buoy for Underwater Comms (TBUCS) (Navy)	0.663		

Outcome: This project will provide an underwater communications link between various different US Navy platforms. TBUCS will utilize air dropped expendable sonobouys to establish a two way underwater communications link between US Navy submerged platforms and aircraft using a Hydro Acoustic Communications Link (HAIL) system. TBUCS program will allow CSD to achieve Program of Record (POR) milestones and potentially avoid significant development and testing costs. The primary outputs and efficiencies to be demonstrated are: (1) that fielded TBUCS, using HAIL technology would support the following naval platforms: all submarine classes; (2) P3 squadrons; special operations submerged forces; all U.S. Navy surface vessels; and (3) unmanned aerial vehicle squadrons.

FY 2007 Output: Phase I was executed and completed by L-3 Maripro/Nautronix and sonobuoy manufacturers. A major integration and test contract was awarded to a collaboration of the HAIL providers with major sonobuoy manufacturers. The contract provides test items and Satellite Communications (SATCOM), Radio Frequency (RF), and acoustic communications integration in standard sonobuoy-size containers. Test schedules and plans were developed with performance and comparison tests at an initial concept demonstration, leading to an at-sea demonstration. TBUCS concept testing occured 4Q FY 2007 and the integration design of the acoustic modem with the deployable buoy was finalized.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Testing in an at-sea environment and submission of the final Test Report and Close Out Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Urban Deployable Instrumented Training System (U-DITS) (Navy)	0.563		

Outcome: This project will enable the USMC to conduct realistic urban training by integrating the U-DITS, manufactured by Saab Training Systems of Sweden, into current training devices to improve USMC training capabilities and tactics for current battlefield threats. Projected completion of testing and qualification will be CY 2007 with transition to USMC training facilities during CY 2008. The primary outputs and efficiencies to be demonstrated are: (1) the U-DITS integrates with the Multiple Integrated Laser Engagement System; (2) supports live training exercises that move seamlessly from open terrain to an urban environment; (3) track all movements of up to 1000 players in real time Global Positioning System (GPS); (4) provide the realistic simulation of direct

and indirect fires affects within the Urban environment; and (5) provide Manufacturing cost avoidance of $2.000 million, RDT&E cost avoidance of $15.000 million, and a ROI of 59:1.

FY 2007 Output: Awarded the Test Article Contract during the 2Q FY 2007. Completed Test Planning during the 2Q FY 2007. Received Test Articles and performed operational testing during the 2Q FY 2007. A Milestone C Decision was made during the 3Q FY 2007. The Technical Test Report and Project Close-out Report is anticipated during the 4Q FY 2007.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
AK-47 Special Effects Small Arms Marking System (SESAMS) Training System (Navy)		0.441	

Outcome: This project will test a Special Effects Small Arms Marking System (SESAMS) compatible AK-47 Training Weapon, developed by General Dynamics,Ordinance and Tactical Systems of Canada, to improve the realism of urban warfare training. Projected completion date of testing and technology transition will be 3Q FY 2009. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) A permanent training weapon that allows the shooter to fire, at short range, a low velocity non-lethal 5.56mm SESAMS marking cartridge; (2) Accurate visual and auditory weapon signatures providing increased threat recognition, survivability and battlefield awareness; (3) Increased training safety by using a center firing mechanism, precluding the weapon from firing lethal, live ball ammunition; and (4) avoid RDT&E and manufacturing costs of $0.950 million and $0.110 million, while providing a ROI of 2.2:1.

FY08 Planned Output: Receive foreign test data 1Q FY 2008. Receive FCT Funds and initiate contract preparation and award 2Q FY 2008. Initiate test planning and award contract during 3Q FY 2008. Receive test articles by the end of 3Q
FY 2008. Commence lab/technical testing during 4Q FY 2008.

FY09 Planned Output: Complete lab/technical testing during 1Q FY 2009. Initiate field user evaluation (FUE) by the end of 1Q FY 2009. Complete FUE and receive tech data package and test report by end of 2Q FY 2009. Milestone C Decision and close-out report expected by mid 3Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Ceramic Tile Testing and Evaluation for Hard Body Armors (Army)		0.896	

Outcome: A new hard armor, Small Armors Protective Inserts (XSAPI), using Silicon Carbide (SiC) made by Saint Gobain (Germany) or Hocheng (Taiwan), together with domestic SiC, to meet US Army's production needs. Silicon Carbide (SiC) candidate made by Hocheng (Taiwan) has been added and will be funded by the Project Manager for testing. Upon successful testing and evaluation, the below product will be the deliverable: New hard armor, XSAPI, with higher level of ballistic protection than current SAPI with minimum weight increase. RDT&E Cost Savings: $10.000 million. O&S Cost Savings: no impact. Procurement Cost Savings: $50.000 million. Fielding Reduction: no impact. Procurement Potential: $500.000 million. Other Benefits: Mitigate production risk, maintain industrial base.

FY 2008 Output: Conducted two technical meetings with Saint Gobain during last two months to discuss technical approach and program plan for this program. Conducted one technical meeting with Schunk in November to discuss program plan. Conducted two meetings with Armacel insure the contractor understand the program. In process of drafting the contract for Chesapeake Testing for ballistic tests.

FY 2008 Planned Output: Full evaluation of new ceramic tiles (SiC) made by Saint GoBain and Hocheng. Evaluation will include the ballistic performance against various threats, 5.56mm, 7.62mm, hard steel core and tungsten carbide core rounds, the cracking patterns, durability, environmental effect, and physical mechanical properties. Transition manager is PM Soldier.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Fractal Antenna Technology for Shipboard Information Operations (Navy)		0.846	

Outcome: This project will test and evaluate a compact fractal element high frequency (HF) antenna for US Navy (USN) use. This antenna is based on technology which is currently fielded aboard Spanish Navy ships. This antenna will be much more compact and have a lower radar cross section (RCS) than current USN HF antennas. It will fit in locations not currently capable of supporting HF antennas and can be installed without an antenna tilting group (ATG) in locations currently requiring ATGs. It will be the baseline for compact low-radar cross section HF antennas for future Navy ships. The primary outputs and efficiencies to be demonstrated in the HF Fractal Antenna FCT are (1) development of a compact fractal HF antenna, based on and similar to the Fractus, SA Fracmia-1 COTS antenna, but optimized for USN installations, (2) the potential elimination of ATGs from many HF antenna installations, (3) reduction in maintenance labor and expenses currently devoted to maintaining and repairing antenna tilting groups, (4) reduction in weight and improvement in balance/center of gravity due to removal of ATGs, as each ATG weighs roughly 1,000 pounds, (5) greater availability of antennas currently requiring ATGs, (6) advancement in developing compact, low observable, low RCS HF signal intelligence antennas mandated for deployment onboard future ships, such as DD(X).

FY 2008 Planned Output: Purchase HF fractal antenna from Fractus, SA and install onboard LHD one class amphibious assault ship. Test HF fractal antenna at Shipboard Electronics Systems Evaluation Facility test range and compare to currently installed HF conventional. Validate HF fractal antenna performance as meeting US Navy requirements and superior to conventional alternatives. Transition to Navy HF Antenna In-Service Engineering Agent; transition manager is PMW 180.

FY 2009 Planned Output: Deliver technical test report and close out report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Global Positioning System (GPS) Jammer (Air Force)		0.446	

Outcome: To provide a state-of-the-art UK LMPDA GPS Jammer System, capable of emulating most current and projected adversary GPS jammers. Systems include remote control units, transport cases, batteries, and antennas. The Joint Navigation Warfare Center (JNWC) will evaluate a GPS Jammer system developed by Technology Ltd located in Twekesberry, UK. The Global Positioning System (GPS) is a critical element of all US military operations. Our adversaries recognize the asymmetrical advantages GPS provides and are developing more and more robust GPS jamming systems to eliminate these advantages. This project involves identifying and procuring the most capable foreign jammer available in the market place to evaluate its ability to emulate adversary threats, current and projected, to provide realistic weapon system Positioning, Navigation, and Timing (PNT) denial testing, to support realistic operational training, and to support Tactics, Techniques, and Procedures (TTP) development to counter the growing threat.

FY 2008 Output: Procure test article and begin evaluating the system

FY 2008 Planned Output: Complete testing and publish test report 15 September 2009. Procure additional Systems

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Heat Resistant Lightweight Matting (Navy)		0.675	

Outcome: This project will facilitate testing and deployment of a follow-on expedient airfield matting system capable of accommodating the MV-22, particularly in the austere operating environments found in Iraq and Afghanistan. Current lightweight matting supports all USMC Vertical Take-Off and Landing (VTOL) aircraft and is not capable of supporting the unique operating profile of the MV-22 engine heat signature and loads. This matting will allow the MV-22 to operate with enhanced range and operational flexibility in order to bring more firepower to bear on

hostile forces.

FY08 Planned Output: Lightweight matting will be instrumented and lab tested to determine material properties. Engineering analysis will be conducted to further determine material limits of lightweight matting to ensure safety of flight for MV-22 aircraft testing. MV-22 will conduct numerous VTOL evolutions to characterize engine exhaust heat signatures. Final test report will qualify the lightweight matting for MV22 use in training and combat operations.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Advanced Flight Deck Lighting System (AFDLS) (Navy)	0.995	0.864	

Outcome: This project will test three commercially developed Advanced Flight Deck Lighting (AFDL) systems for use in providing visual cues to pilots approaching air-capable ships for safe landings as well as lighting and status cues to deck handling crews to enable them to perform their duties more safely. The AFDLs being evaluated provide Navy pilots with the increased capability to operate more effectively at night when using Night Vision Devices (NVDs). These AFDLs will allow warfare commanders to conduct higher-tempo night-time aircraft operations aboard US Navy ships.

FY 2008 Output: Complete purchase of AFDL evaluation systems. RFP was issued to three competing vendors soliciting AFDL systems. Proposals were evaluated, and purchase orders for both are currently being prepared.

FY 2008 Planned Output: Test article contract award expected in 2Q FY 2008. System delivery expected 3Q FY 2008 with testing to begin 4Q FY 2008. Planning for the laboratory and shipboard testing has been initiated.

FY 2009 Planned Output: Install systems aboard ship for qualification testing and operational Navy flight testing. Develop test reports.

FY 2010 Planned Output: FY 2009 funds will continue to provide the following FY 2010 planned actions: Final test reports issued. Secure approval for production; prepare close-out report; and execute contract options for AFDL for Service use.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Advanced Stabilized Glide Slope Indicator (ASGSI) (Navy)	0.507	0.546	

Outcome: This project will test two commercially developed Stabilized Glide Slope Indicators (SGSI) for use in providing pilots approaching air-capable ships with a color-coded indication of safe glide slope down to hover position for landing. The SGSIs being evaluated provide Navy pilots with the improved capability to operate at night when utilizing Night Vision Devices (NVDs). These SGSIs will allow warfare commanders to conduct higher-tempo aircraft operations aboard US Navy ships during night time littoral operations.

FY 2008 Planned Output: Request for Proposal (RFP) issued soliciting SGSI systems. Proposals, received, evaluated, and purchase orders for two vendors are currently being prepared. Complete purchase of Advanced SGSI systems for evaluation. Test article contract award expected in 2Q FY 2008. System delivery expected 3Q FY 2008 with testing to begin 4Q FY 2008. Planning for the laboratory and shipboard testing has been initiated.

FY 2009 Planned Output: Install systems aboard ship for qualification testing and operational Navy flight testing. Develop test reports.

FY 2010 Planned Output: FY 2009 funds will continue to provide the following FY 2010 planned actions: Final test reports issued. Secure approval for production; prepare close-out report; and execute contract options for ASGSI for Service use.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Anti-Material Rifle - Sniper (SOCOM)	0.517	0.565	

Outcome: This project will evaluate anti-material sniper rifles and subject them to a variety of tests to evaluate their performance, and ultimately select one rifle to complement the sniper rifle currently in SOF inventory. Primary Outputs and efficiencies: Special Operation Forces (SOF) snipers need to be able to defeat material targets such as lightly armored vehicles, power stations, communication assets, unexploded ordnance, etc. Current sniper rifles are effective against personnel targets at long ranges, but are not as effective as desired against hardened/materiel targets. This rifle is designed to fill this capability gap. RDT&E cost avoidance for this weapon is $15.000 million and the collective O&S and procurement cost savings are $9.000 million. This capability will be available to the warfighters more than two years sooner by using weapons already developed. Completion date is 30 Sept 2009.

FY 2007 Output: Published solicitation, and performed technical down-select. Certified on-hand ammunition for testing; contracted for foreign test articles; received ammunition and foreign/domestic test articles.

FY 2008 Planned Output: Conduct initial Technical Testing, perform operational and user assessments; down-select to most qualified vendor. Prepare test reports and submit decision packet. Complete FCT Close-out Report. Milestone C decision is scheduled for 4Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
AT4-CS w/ Enhanced Blast Tandem Warhead (EBTW) (Army)	2.213	0.512	

Outcome: The Vice Chief of Staff for the Army approved the Army's Shoulder Launched Munition Strategy on 9 September 2005. The Joint Requirements Oversight Council (JROC) validated the capability need for the AT4 Confined Space on 23 January 2007. To demonstrate and qualify the AT4CS-EBTW to meet shoulder launched munition capabilities required by the US army Infantry Center. The current AT4CS warhead provides high lethality and incendiary effects against armor (defeats 16 inches of armor) but lacks overmatching penetration and effect against masonry walls made of brick and concrete and other urban targets/structures, field fortifications (earth and timber bunkers). With increased deployment of US Forces around the world in urban warfare environments, a new multi-purpose warhead with the ability to penetrate brick and concrete walls, incapacitate enemy forces behind urban structures and within field fortifications is required to maintain overwhelming firepower and reduce the logistics and training associated with multiple systems. The three-year effort will plan for and procure the hardware necessary to conduct test and evaluation for US Army, conduct the developmental operational tests necessary to verify safety and support materiel release and complete the modeling/simulation and evaluation of test results to ensure that the AT4CS-EBTW meets requirements by the end of FY 2008. The lead service is Army. The primary outputs and efficiencies to be demonstrated are (1) capability of incapacitating enemy soldiers positioned behind urban walls and structures made of eight inch double reinforced concrete (2) capability of incapacitating enemy soldiers positioned behind urban walls and structures made of 12 inch triple brick, (3) capability of incapacitating enemy soldiers positioned within earth and timber bunkers, (4) capability to meet performance requirements within close combat ranges and (5) capability to be safely fired from enclosures found in urban environments. In addition to savings in logistics and training due the eliminating of multiple munitions, the procurement cost savings of this project is estimated at 40-50 percent of the unit cost of each weapon by leveraging ammunition and fuzing components from other similar 84mm family weapons. Assuming $0.003 million per round savings x $0.020 million rounds over five years = $0.060 million.

FY 2007 Output: Conducted contract award, finalized test plans and schedules and funded fabrication of targets.

FY 2008 Planned Output: Accept and deliver test assets and initiate training/conduct of developmental and operational tests, complete all developmental and operational testing conduct full system evaluation, prepare a final report. Spiral Output: the successful completion of safety tests to facilitate urgent materiel release and release to the field approximately two years early.

FY 2009 Planned Output: FY 2008 funds will continue to provide the following FY 2009 planned actions: Complete army type classification documentation in support of a production decision. Qualification and fielding of the AT4CS-EBTW will be a combat multiplier since it reduces the need for continued fielding of multiple shoulder launched munitions with similar capabilities.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Ceramic-Aluminum (CERAL) Engine Coatings (Air Force)	0.650	0.567	

Outcome: This is an industrial process to remove chrome started in FY 2007. A “chrome free" Ceramic-Aluminum (CERAL) drop-in replacement protective coating for gas turbine engines, landing gear and surfaces of strategic components that are exposed to severe environments. The 76th Propulsion Maintenance Group at Tinker AFB (TAFB) will evaluate a non-metallic coating manufactured by Gebr. M.u.M. Morant GmbH of Grassau, Germany. The primary output and efficiencies to be evaluated is a non-metallic coating that lasts twice as long (3000 hours), costs 25 percent less and increases engine performance by providing a smoother surface. Reduced corrosion, reduced cost, reduced friction and wear, equals increased performance, increased life, and saves fuel. CERAL coatings are used extensively throughout DoD to provide protection from erosion and corrosion on gas turbine engines, landing gear and surfaces of strategic components that are exposed to severe environments. Coating materials currently in use (such as SermeTel W) contains six percent carcinogenic chrome, whereas, CERAL 3450 is a "chrome free".

FY 2007 Output: Two (2) TF33 engines components were shipped to Grassau, Germany to be coated by Morant. Both parts (#5 Bearing Support and Heat Shield and #6 Hub) have been coated, returned to TAFB and subsequently sent to the ANG base for inclusion in an engine build during June 2007. Testing and verification commenced in May 2007 to include Corrosion/Erosion resistance testing. The project results to date are better than existing technology when tested in accordance with SO2 Salt Fog Corrosion Test. Verified that coating can be applied with existing spray hardware and not require facility modification or capital expenditure. Verifying that it will meet CPW 731 & CPW 732 material specifications and that it is chrome free and will not introduce any new environmental hazards. Verified that it complies with USAF/A4 &A7 Zero Discharge Depot program goals.

FY 2008 Planned Output: Complete testing with final demonstration date end of 3Q FY 2008. Completion date and final report 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Enhanced 5.56mm and 7.62 Rounds for Special Operation Forces (SOF) Combat Assault Riffle (SCAR) (SOCOM)	1.263	1.168	

Outcome: This project will provide Special Operation Forces (SOF) with enhanced 5.56mm and 7.62mm ammunition for direct action missions. By employing a single "multi-purpose" round, the Special Forces operator has the precision fire, intermediate barrier penetration and terminal ballistic performance attributes of three or more separate rounds found in the current inventory of rounds. True multi-purpose enhanced ammunition is being sought that combines improved terminal ballistics, including accuracy, penetration of steel and auto glass without deflection, as well as providing maximum tissue damaging effects. Combat effectiveness is enhanced, while ammo load/load-out is reduced.

FY 2007 Output: Funding received and initial project planning undertaken. Solicitation for multi-purpose 5.56mm and 7.62 ammunition test items published.

FY 2008 Planned Output: Down selection of vendors to participate in live fire testing; and completion of procurement contract for test items. Analysis of vendor data will be accomplished prior to the start of technical and safety testing leading to safety certification and Weapons System Explosives Safety Review Board (WSERB) qualification.

FY 2009 Planned Output: FY 2008 funds will continue to provide the following FY 2009 planned actions: Operational testing and user assessment will occur, and all test reports will be completed. A closeout report will be published and distributed. A procurement decision packet will be completed before the end of 3Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Hostile Forces Tagging, Tracking and Locating (SOCOM)	0.817	0.648	

Outcome: This project will evaluate a collection of tagging, tracking and locating (TTL) devices that represent the latest in TTL technology. Primary Outputs and efficiencies: These electronic components consist of Data Loggers, Direction Finding (DF) devices with associated DF receivers, Ground Positioning Satellite (GPS) based cellular and satellite systems. These ultramodern devices will provide deployed U.S. Special Operations Forces (SOF) worldwide with an enhanced capability to tag, track and pin-point potentially dangerous adversaries. The procurement potential for these devices is up to $24.300 million and will result in a $19.500 million cost avoidance.

FY 2007 Output: Contracted for and received test articles for Phase I testing; analyzed vendor data and conducted initial Phase I technical testing. Prepared and submitted Phase I technical test report. Began operational Testing of Phase I test articles.

FY 2008 Planned Output: Contract for and receive test articles for Phase II Technical testing. Complete Operational Test of Phase II test articles, prepare and submit test reports. Prepare decision packets and Close-out Report. Procurement decision is scheduled for 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Joint Program Executive Office (JPEO) Biological Detection System (Army)	1.178	2.753	

Outcome: This project will evaluate Biological Detectors for performance and cost advantages over the Biological Aerosol Warning Sensor (BAWS) which is a component in the Joint Biological Point Detection System (JBPDS) and Joint Portal Shield (JPS). The JBPDS is in production (230 fielded) and together with the JPS (222 fielded) are deployed in locations where Biological Agent surveillance is required. Maintaining Biological Agent surveillance operations has become an affordability issue, and systems that are less manpower intensive to operate and service are required by the war fighter.

FY 2007 Output: Acquire the candidate detectors and initiate the comparison via field trials using simulants at Eglin Air Force Base, Florida and background collection at various CONUS locations.

FY 2008 Planned Output: Complete field trials at remaining CONUS locations. Assess performance against the approved pass/fail criteria. Down select the successful candidate(s) for laboratory agent testing and integration into a production JBPDS suitable for fielding decision. Efficiency: (1) Reduction of Operation and Support costs (goal 67 percent) through lower false detection rate representing $0.840 million in cost avoidance per day per site and (2) Increase in reliability to lower dependence on the need for cleaning and repair by contractor and Original Equipment Manufacturer (OEM) repair which averaged $0.011 million per detector in 2005. Based on 500 fielded systems by FY 2009 this project will reduce costs by $1.500 million annually if the evaluation substantiates the manufacturer's claims.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Large Polymer Lithium ion Battery (Army)	0.863	1.268	

Outcome: This project will evaluate the potential for Li-Ion polymer battery cells developed by SKC of the Republic of Korea, to satisfy Army and USMC portable electrical power requirements for

a high power density, high cell potential fuel source. The candidates may provide greater energy density than present Li-Ion cell-based batteries and have the potential to reduce the logistics burden and enhance cost effectiveness through increased mission times (increases in power), greater shelf life, increases in power and greater recharging capability. Efficiency: Estimated in a $20.000 million RDT&E cost avoidance and a $5.000 million O&S cost savings.

FY 2007 Output: Purchased Li-ion polymer cells from SKC and Kokam for BB-XX80 type batteries. Based on initial test and evaluation, they are acceptable to be used in BB-XX80 type batteries. Awarded SKC and Brentronic to initiate the design concept of the batteries. Completed engineering evaluation of cells and obtain initial batteries for XX80 type design batteries. Initiated evaluations on battery configurations. Completed preparation for purchase of cell types to evaluate the cell performance and safety performance of the cells for BB-XX80.

FY 2008 Planned Output: Complete evaluations of batteries using Li-Ion polymer cells using both SKC and Kokam for XX90 and BB-XX80 type batteries. Purchase and evaluation of battery using Kokam Cells for building battery types: XX90 and BB-XX80. Complete written evaluations/reports for Communications Electronics Command (CECOM - US Army) Battery group to purchas, if successful, battery types.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
MK47 Trainer System (SOCOM)	0.663	0.838	

Outcome: This project will evaluate a crew served weapons training system used to facilitate mission specific rehearsals prior to combat operations. Primary Outputs and efficiencies: The trainer system allows operators to dry fire the weapon and receive feedback. The significant procurement cost avoidance of approximately $57.000 million is realized by firing training ammunition instead of expensive programmable airburst ammunition. The objective is to directly improve the readiness of Special Operation Forces (SOF) by allowing operators to train on MK47 systems and rehearse missions on a highly realistic trainer. Completion date is 30 Sept 2008.

FY 2007 Planned Output: Published solicitation and completed down-selection. Contracted for and received test articles. Conducted analysis, study and integration of training system. Analyzed and validated vendor data to preclude redundant testing.

FY 2008 Planned Output: Conduct initial Technical Testing. Prepare and submit technical test report. Perform user assessment and operational testing. Prepare and submit test results of the operational test. Prepare decision packet and Close-out Report. Milestone C Decision is scheduled for 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Real Time Geospatial Information Sharing (Army)	1.063	1.168	

Outcome: This project will test Black Coral live to provide Command Post of the Future (CPOF) Command and Control Systems real time information sharing and collaboration using geospatial maps/data for the war-fighter at all levels. The test will validate searching of current data (from internet or official databases) and ability for several information layers to be combined for see-through ability. Each user has the ability to add their detailed knowledge from the field and/or send a message to another user. Improvements: Incorporation of the Black Coral live software into the CPOF architecture will provide CPOF with an on the move solution to support mounted Battle Command. Efficiency: The outcome will provide Geospatial Information System collaboration to support Battle Command on the move operations, at a RDT&E.

FY 2007 Output: An assessment of Black Coral Live's compliance to MIL-STD-2525B Change 1, Common Warfighter Symbology. Compliance with MIL-STD-2525B Change 1 is essential to the

ability of Black Coral Live and CPOF to interoperate. An assessment of Black Coral Live's other functionalities to determine if they can benefit the CPOF software. Development to support the Black Coral Live software's geospatial information system engine to be compliant with the Commercial Joint Mapping Tool Kit (CJMTK).

FY 2008 Planned Output: Development of a software module that will allow Black Coral Live to interoperate with CPOF via a Publish and Subscribe Service (PASS) interface. Testing of the PASS interface to ensure the Black Coral Live software is interoperable with the CPOF software and can accurately and efficiently exchange geospatial and tactical data. Development of software that will provide Black Coral Live with the capability to interoperate with the lower tactical network. Testing of the Black Coral Live software to ensure it can interoperate with the lower tactical network and exchange geospatial and tactical information with CPOF across the tactical network.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Secure High Capacity Tactical Radio Relay System (Army)	0.688	0.399	

Outcome: This project will demonstrate and evaluate an improved, more efficient communications solution for securely moving information between central basestations and multiple outstation network nodes via the Swedish EriTac Point-to-Multipoint (PTMP) radio system versus the currently fielded military Point-to-Point (PTP) radios. The EriTac solution significantly improves upon the current system by reducing the number of required radio sets by up to 50 percent, solely through the introduction of the PTMP capability. In addition, the EriTac radios offer alternate modes of operation, providing enhanced communications security when needed. The EriTac system is also easy to set up, operate and maintain, and designed for simple and efficient network management by means of a built-in web server. This project with radio testing being performed from 2Q FY 2007 thru 2Q FY 2008, report preparation and evaluation in 2Q-3Q FY 2008, and a procurement decision in 4Q FY 2008. The primary outputs and efficiencies to be demonstrated are (1) up to 50 percent reduction in number of radios required in a "star configuration" network system , (2) communications performance equal or greater than the Army current HCLOS AN/GRC-245 radios (data rates, short delays, comm. range, etc.), and (3) possible enhanced security performance due to additional LPI/LPD/AJ modes. Efficiency: 50 percent reduction in number of radios required in a "star configuration" network, potentially resulting in a greater than 40 percent reduction in production costs. Procurement savings: $9.100 million. RDT&E Cost Avoidance: $20.000-30.000 million & 18-24 months of development to upgrade current Army radios. Life-Cycle O&S Savings: Over $5.000 million, based on 50 percent reduction in supported radios.

FY 2007 Output: EriTac radio contract preparation & award with Ericsson (Sweden). Radios (test items) received at US Army Communications-Electronics Research Development and Engineering Center (CERDEC). Lab test plan preparation & instrumentation. Laboratory technical tests performed.

FY 2008 Planned Output: Operational over-the-air technical tests performed. Final operational demonstration 2Q FY 2008. Test & evaluation report preparation. Test results review with sponsoring Government Program of Record: PM Tactical Radio Communications Systems (PM TRCS). PM TRCS analysis of alternatives & procurement decision. Close-out report & briefing.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Spatial Disorientation Trainer (Air Force)	0.413	0.288	

Outcome: A Spatial Disorientation (SD) Trainer was developed to meet a training Requirement to identify the effects of pilot disorientation in student pilots started in FY 2007. The Chief, Aero medical Flying Training Branch/Command Pilot Physician (AETC/A3FP) at Randolph AFB will evaluate a Spatial Disorientation Trainer developed by AMS Technik GmbH of Ranshofen, Austria. The primary outputs and efficiencies to be determined are if pilots can experience SD illusions and practice SD recoveries in a realistic simulated flight environment. Unrecognized Spatial Disorientation (SD) accidents in the U.S. Air Force between 1991-2004 represents 37 percent of fatal Class A mishaps at a cost of over $1.900 billion and 82 lives. AETC plans to reduce this accident rate by obtaining SD trainers capable of producing most of the known SD illusions associated with aircraft flight and incorporating them into pilot training, allowing pilots the opportunity to experience SD illusions and practice SD recoveries in a realistic simulated flight environment (a training capability that currently does not exist in the U.S.Air Force). This program will allow AETC to evaluate and compare currently available COTS SD trainers capable of allowing a pilot to fly the simulator while being exposed to motion-induced, visual and seat-of-the-pants mismatches.

FY 2007 Output: Developed protocol and survey instruments, utilized GSOS at Brooks City Base to fine tune SD flight profiles and recruited test subjects for first trip to AMST. Finalized contract support, completed first and second study groups.

FY 2008 Planned Output: Complete testing with final demonstration date end of 1Q FY 2008. Completion date and final report 2Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Tactical Paging Buoy (TPB) for Sub Comms at Speed and Depth (Navy)	0.748	0.283	

Outcome: A successful project will provide the U.S. Navy a near-term Communications at Speed and Depth (CSD) capability, identified as one of the highest Fleet priorities as critical to planned missions and scenarios. This project will evaluate submarine-launched expendable communications buoys developed by Ultra Electronics Maritime Systems of Canada and RRK of the United Kingdom to provide a submarine at depth and speed with the capability to receive messages from the global Iridium Satellite Network via undersea acoustic communications. This new capability will support more agile submarine mission execution and better synchronized joint/coalition operations, and enable rapid and inexpensive fielding of the acoustic communications capability aboard U.S. submarines. The primary outputs and efficiencies to be demonstrated are: (1) a new fleet-wide deployed CSD system with limited initial availability in FY 2008; (2) RDT$E cost savings of $26.000 million; (3) O&S cost savings of $5.000 million; and (4) procurement cost savings of $3.600 million.

FY07 Output: CSD obtained acquisition authority for TPB using the Advanced Concept Technology Demonstration (ACTD) process via a signed Acquisition Decision Memorandum. TPB has been fully integrated as a component of the Sea Eagle ACTD with all initial required documentation completed and accepted. A detailed testing plan leading to the Military Utility Assessment (MUA) was developed, to include critical performance comparisons and comparisons of the TPB technology. A major contract was negotiated with the TPB proposed implementers, including revised capabilities to meet Fleet CSD requirements. This process will deliver CSD capability to the fleet at least three years in advance of what the POR can achieve.

FY08 Planned Output: Test item deliveries are scheduled totaling over 50 units and several supporting coms net interface units. The key test event will be a Military Utility Assessment to be conducted in 3Q FY 2008. At the conclusion of the MUA, a final acquisition decision will be made.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
TerraSARX (Air Force)	0.853	1.578	

Outcome: A high resolution, day/night, all weather observation capability with one meter GSD (Ground Sample Distance) resolution. The Eagle Vision Program Manager at Hanscom AFB will evaluate software developed by the German company Infoterra that interfaces with Eagle Vision and generates a new high resolution, day/night, all weather observation capability. The primary outputs and efficiencies to be evaluated will be the capability to extend the all weather imagery capabilities of the operational Eagle Vision systems with resolution reaching one meter GSD providing the highest resolution ever achieved from an unclassified civil or commercial satellite. This capability is critical to effective mission planning and battle space awareness and with a new unclassified satellite, allowing open sharing among coalition partners. Germany, with other European partners, is launching this new generation synthetic aperture radar satellite to provide all weather satellite imaging and ocean surveillance.

FY 2007 Output: Contract award, test planning and receipt of software.

FY 2008 Planned Output: Factory Acceptance Testing will take place through the 2Q FY 2008. System testing and data analysis will take place during 3-4Q FY 2008. Complete testing with final demonstration date at the end of 4Q FY 2008.

FY 2009 Planned Output: FY 2008 funds will continue to provide for the following FY 2009 planned actions: Completion date and final report 1Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Type II Superlattice Focal Plane Arrays and Cameras (Army)	1.463	1.268	

Outcome: This project will demonstrate infrared focal plane array performance at higher operating temperatures than is currently available from state-of-the-art focal plane arrays. The eighteen month project is under the sponsorship of PM Night Vision for completion of demonstration/testing by 3Q FY 2008 with subsequent transition to Program Manager Night Vision/Reconnaissance, Surveillance, and Target Acquisition (NV/RSTA). These focal plane arrays will be appropriate to retrofit existing systems with potential transition to Long Range Scout Surveillance System (Stryker and HMMWV), Apache (targeting), F-35 (threat warning, navigation and targeting) and Future Combat Systems (targeting). The lead service is Army. The primary outputs, Efficiencies, and Return on Investment are shown below for FY 2007 and FY 2008. The efficiencies in this effort will allow us to assess our ability to carry out the activity and measure how well we have achieved the outcomes shown below. The efficiencies that pertain to this effort are;(1) the decrease the costs of the focal plane array by a factor a two (2) raise operating temperature over current arrays, thereby decreasing system cost (smaller size, weight, power) (3) the increase operating life by a factor of two. The formula the will be used for calculating the return on investment (ROI) for the above efficiencies is (cost avoidance as result of successful project completion) / FCT investment. The calculation yields an ROI of 92.1. The cost avoidance is based upon $30.000 million in research and development costs avoidance, reducing the acquisition cost of each focal plane array by 50 percent avoiding $60.400 million and increasing the reliability by a factor of two with a total ownership cost avoidance of $181.000 million. The above calculation does not take into account the time value of money.

FY 2007 Output: Parts to be acquired and tested in the Night Vision and Electronic Sensors Director/Directorate (US Army) (NVESD) IR System Test Lab tactical requirements and at the IR Space Radiation Effects Laboratory for strategic requirements.

FY 2008 Planned Output: Transition to ground testing.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Waterjet Shock Qualification for Future Naval Combatants (Navy)	0.563	2.768	

Outcome: A successful project will provide the U.S. Navy large waterjet shock-qualified certifications. Kamewa/Rolls Royce (Sweden) and Lipps/Wartsilla (Netherlands) waterjets will be subjected to full-scale shock test and modified, if necessary, in order to be Grade A shock qualified per U.S. Navy requirements. The primary outputs and efficiencies to be demonstrated are: (1) large waterjet Grade A shock certification for installation on the Navy's Littoral Combat Ship (LCS), and for other future naval ships; (2) RDT&E cost savings of $50.000 million, production cost savings of $25.000 million, and procurement cost savings of $8.000 million.

FY 2007 Output: Revised program schedule due to changes in Littoral Combat Ship (LCS) acquisition schedule and also allow test of an improved Wartsila-Lips waterjet design. Test assets are long-lead items that are being taken from LCS Hulls three and six. Since the waterjets are long-lead material, the Rolls-Royce waterjet for Hull three was already purchased and is currently being built. It will be available for testing by Dec 2007. The Wartsila-Lips waterjet for Hull four is being improved to an axial flow design vice radial flow. Due to the design change, the improved waterjet for Hull four will not be available for shock testing because of ship construction schedule. Current build time for waterjets is one year. Revised test schedule still supports Down select of Flight one.

FY 2007 Output: Development of test plan. Ongoing discussions with NAVSEA Technical Warrant Holders on an acceptable mounting method, operational status during the shock test and post-shock operational tests required for shock approval. Prepare Contract for test facility.

FY08 Planned Output: Shock testing is scheduled to commence 1Q or 2Q FY 2008. Teardown equipment and inspection, equipment refurbishments, develop Final Test Report and Close out

Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
40MM Extended Range Marking (Army)		1.116	0.610

Outcome: The objective of this program is to qualify, procure, and field a new Non-Lethal Extended Range 40 mm Marking Munition for use in both the M203 and XM320 Grenade Launcher system. Commercial items will be procured for formal test and evaluation against US Army requirements. Upon successful testing, the XM1140 40mm Extended Range Marking Munition will be type classified into the Army inventory. The XM1140 40mm Extended Range Marking Munition will replace the M1006 Cartridge for select applications and will increase the range of the current M1006 cartridge from 50 meters to 75 meters as well as provide an identifiable mark on personnel targets. RDT&E Cost Avoidance $2.400 million; Procurement Cost Avoidance $0.750 million; Fielding Reduction 1+ years; Procurement Potential $2.400 million. It is estimated that the XM1140 will save $2.400 million in Research and Development funds as well as enhance the capability of soldiers to apply a non-lethal deterrence at extended ranges an estimated one plus years earlier than if developed in-house. Currently, soldiers must move closer to the disruptive elements subject to the application of the non lethal force which places both soldiers and subjects at increase danger of unintended effects. The extended range will provide a longer buffer zone which increases the time before any decision to switch to lethal force is made while still applying an identifiable mark to the subject(s).

FY 2008 Output: Program documentation has been generated to establish acquisition strategy and program baseline. The Capability Production Document has been drafted and is in process of being staffed for Joint Requirement Oversight Council approval.

FY 2008 Planned Output: Prepare documents for the release of the solicitation to industry. Downselect and award contract for qualification test items.

FY 2009 Planned Output: Perform Qualification Test and downselect and award production options.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Advanced Airborne Expendable Infrared Countermeasures (IRCM) (Navy)		0.523	2.059

Outcome: This project will test and evaluate the ability of advanced airborne expendable countermeasures (IRCM), aboard Navy/Marine Corps aircraft, to defeat advanced infrared man-portable air defense systems. A successful test and qualification will also result in a reduction in the types of expendable countermeasures in the current inventory. This is a Navy-led project; however, the Air National Guard has also committed to participate along with the F-16 and A-10 aircraft.

FY 2008 Planned Output: Receive demonstration units from vendor for initial testing. Complete test article contract. Receive test articles for Insensitive Munitions tests (7.62 AP bullet impact, deflagration propagation and lock-set) and Weapon Systems Explosive Safety Review Board certification.

FY 2009 Planned Output: Qualify IRCM for operational use and place in Navy inventory. Submit technical test report and project close out report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Aircraft Arresting System for F-22 and JSF (Air Force)		1.061	0.555

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDTE, Defense Wide BA 06	**0605130D8Z - Foreign Comparative Testing (FCT)**	**P130**

Outcome: To provide a previously unavailable functionality and enhanced capability by safely and controllably decelerating the full array of USAF fighter aircraft without imparting excessive hook-loading and dangerous end-of-arrestment aircraft rollback. This evaluation will provide a complete dual-disc BC11 braking system, including all associated hardware, software, and required spare consumables shall be provided. All necessary installation, operational, and maintenance instructions will be included. HQ ACC/A7OI, Langley AFB, Virginia will evaluate the BC11 computer-controlled caliper-disk aircraft arresting system from Scama of Väderstad, Sweden. As new aircraft, such a the F-22 and Joint Strike Fighter (JSF), are introduced into the Air Force_s inventory, the 40 year old BAK-12 aircraft arresting system has become overburdened; it can not be adjusted to safely stop an F-22 throughout the F-22's full operational range of stopping speeds without overstressing the tail hook and aircraft structure of the lighter-weight F-16. The BC-11 will provide previously unavailable functionality and enhanced capability by safely and controllably decelerating the full array of USAF fighter aircraft without imparting excessive hook-loading and dangerous end-of-arrestment aircraft rollback. Since the BC11's computer controls include extensive self-diagnostics and would provide availability feedback to the airfield tower, as well as automated recordkeeping, the system would require significantly less maintenance and support, which in turn would result in overall lower life-cycle costs.

Output FY08: Procure test article and begin evaluating the system

Planned Output: Complete testing and publish test report 15 September 2009

Planned Output: Procure additional Systems

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Family of Hawkmoor Limited Burners (Army)		0.226	0.205

Outcome: To eliminate the need for a High Mobility Multi-purpose Wheeled Vehicle (HMMWV) or a 2kW generator when operating Company-sized, mobile Army field feeding systems and components. To enhance the ability of field feeding equipment to be utilized in forward and remote locations. To reduce the fuel consumption rate of field kitchens and the overall logistics tail of Army field feeding. To improve the overall reliability, availability, and maintainability (RAM) characteristics of mobile field feeding systems. The primary outputs and efficiencies to be demonstrated are as follows: (1) high RAM characteristics for integrated system of Hawkmoor burner and Self-powered Tray Ration Heater (STRH) (2) 40-Watt or less power requirement by burner (3) no reduction in ration heating time for integrated burner and heater tank system. RDT&E Cost Savings: $1.500 million. Procurement Cost Savings: $0.318 million. O&S Cost Savings: $33.900 million. Other Benefits: Capability to integrate burner/STRH combination into field feeding systems used by multiple services.

FY 2008 Output: Developed project strategy plan for tests and acquisition.

FY 2008 Planned Output: Award a contract to obtain multiple Hawkmoor burners for use in testing. Purchase Self-powered Tray Ration Heater (STRH) with contracts that will be awarded as part of the STRH program. STRH will be integrated with Hawkmoor burner. Development of a test plan and conduct testing at Natick, testing will include fuel consumption rate, energy output, efficiency, power requirements, and a preliminary evaluation of burner reliability and maintainability. Preparation of detailed test plan and conduct of limited technical testing of burner integrated into Self-powered Tray Ration Heater tank at Aberdeen Test Center, MD.

FY 2009 Planned Output: Development of detailed test plan and conduct of a User Evaluation of the Self-powered Tray Ration Heater integrated with Hawkmoor burner. Army Test and Evaluation Command will prepare a test report and system evaluation report for burner integrated into Self-powered Tray Ration Heater. Completion of a system performance specification. Transition of the project to procurement. Transition manager is PM Force Sustainment Systems.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Fire Control System for Special Operation Forces (SOF) Combat Assault Rifle (SCAR) Grenade Launcher (SOCOM)		1.346	0.500

Outcome: The purpose of this project is to extend the effective range of the MK47 Enhanced Grenade Launcher Module (EGLM), which is affixed to the Special Operations Forces (SOF) Combat Assault Rifle (SCAR), from 200 to 600 meters. This project integrates the fire control and ammunition programming technology that is necessary to fire a medium velocity 40mm programmable round from the SCAR, in an effort to counter the current rocket propelled grenade threat. The RDT&E and manufacturing cost avoidance is $250 million. Savings in procurement costs is expected to be $15 million per year and Operational Life Cycle savings are $1.5 million.

FY 2008 Planned Outputs: Funds will be received and Integrated Product Team formed. Project and test planning will begin and preparation of contract for test articles will be accomplished during 2Q FY 2008. Fabrication of test articles will begin 3Q FY 2008 and finish 1Q FY2009.

FY 2009 Planned Outputs: Technical and Safety Testing 1Q FY 2009. Commence System Demonstration and User Assessment 1Q FY 2009 through 2Q FY 2009. After necessary adjustments are made based on Engineering Change Requests, delivery of modified test articles will occur. Final Technical testing and User Assessment (Phase II) 2Q-3Q FY 2009. Milestone C decision and Close Out Report in 4Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Hand-Held Laser Welder (HHLW) (Air Force)		0.696	0.450

Outcome. To provide A fully qualified (TRL 9) self-contained, field deployable, gas shielded, hand guided laser welding device for the in-theater repair of strategic military components, specifically those constructed of exotic titanium and other strategic alloys. The 76PMXG/QI at Tinker AFB, Oklahoma will evaluate a Hand-Held Laser (HHLW) developed by Laser Zentrum Hannover e.V (LZH) / S.E.T., LLC located in Hannover, Germany. Currently this capability is only available at the Depot level. Critical components, such as the B-2 aft deck, which, up to this point, could only be repaired at depot level, can be in-theatre repaired. The HHLW unit is self-contained, field deployable, and can withstand extended exposure to the elements. Welding of thin parts also becomes possible with less potential for warping or burn-through. This extends HHLW benefits to new repair applications that are impractical with automated systems and, due to its compact size, can reach otherwise inaccessible locations. With this evaluation the benefits of Laser Welding out of the depot and onto the battlefield where it can reduce the cost and time to repair and will provide increased asset utilization to the warfighter.

FY08 Output: Contract for the test Article and commence evaluating the system

FY09 Planned Output: Complete testing and certification and publish final test report August 2009

FY10 Planned Output: Procurement

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
M1A1 120MM Multi-Purpose High Explosive (MPHE) Munition (Navy)		1.591	1.005

Outcome: This project will test 120MM Multi-Purpose High Explosive (MPHE) Ammunition for the USMC M1A1. The USMC will test improved 120MM tank rounds from Rheinmetall Waffe Munition/L-3 of Germany and NAMMO/General Dynamics-Ordinance and Tactical Systems of Norway. Projected completion of all testing and qualification will be FY 2009. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) A tank round capable of reducing structures and assisting dynamic entry for infantry, while retaining its ability to destroy vehicles; (2)

consolidate 4 different tank rounds into one round encompassing point detonation, delay, and airburst capabilities; (3) increase ammunition effective range by 833 percent, provide improved blast fragmentation, and reduce the logistical burden while maximizing the M1A1's ammunition load; and (4) avoid RDT&E costs of $169.000 million, and provide a ROI of 14:1.

FY08 Output: Initiated Test Planning and received foreign test data at the beginning of 1Q FY 2008. Contract Prep & Award and Down Select during 1Q FY 2008.

FY08 Planned Output: Receive FCT funding at the end of 1Q FY 2008. Anticipate receipt of test articles and begin Point Detonation Qualification Testing (PDQT) 2Q FY 2008. Complete PDQT, User Evaluation, and Weapon Systems Explosive Safety Review Board certification 4Q FY 2008. Ammunition Milestone C Decision expected at the end of 4Q FY 2008.

FY09 Planned Output: Receive test articles and initiate M1A1 fire control integration by the end of 1Q FY 2009. Initiate Fire Control Qualification Testing during 2Q FY 2009. Complete Qualification Testing and commence User Evaluation during 3Q FY 2009. Complete User Evaluation and provide a Full Production Decision, Technical Test Report and Close-out Report by the end of 4Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Programmable High Explosive Dual Purpose Ammunition (SOCOM)		1.083	0.813

Outcome: This project will produce a 40mm high velocity Programmable-High Explosive Dual Purpose (P-HEDP) round for the Advance Lightweight Grenade Launcher (ALGL) MK47 Weapon System. P-HEDP ammunition will consist of components derived from two other successful FCT projects combined into the next priority round from the ALGL operational requirement. These components will be assembled, tested, qualified, and then released for Special Operation Forces' use. The RDT&E and manufacturing cost avoidance is $9.000 million. Savings in procurement costs is expected to be $27.700 million over ten years and Operational Life Cycle costs are not expected to change.

FY2008 Planned Outputs: Funds will be received and contract for test article negotiations will be conducted with vendor. Anticipate test article delivery 3Q FY 2008. Safety release achieved in 4Q FY 2008 and technical testing 4Q FY 2008-2Q FY 2009.

FY 2009 Planned Outputs: Continue technical testing through 2Q FY 2009. Joint safety approvals and operational testing 2Q FY 2009-4Q FY 2009. Milestone C Decision and FCT Close-out Report 4Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Signaling Colored Smoke Grenades (SCSG) (Navy)		0.913	0.489

Outcome: This project will test Signaling Colored Smoke Grenades for procurement and immediate fielding to the warfighter. Projected testing completion date will be 4Q FY 2009. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) Readily producible and cost efficient Green/Yellow/Red/Violet/White colored smoke grenades to meet operational requirements for ground-to-air and ground-to-ground signaling; (2) improvements for increased smoke duration, safer initiation system by reducing flame height, decreased smoke toxicity, more environmentally friendly components, reduced weight, Insensitive Munitions compliance, and denser smoke to enhance visual recognition from long distances; (3) increased availability for training purposes; and (4) avoid RDT&E and Procurement costs of $0.853 million and $3.300 million, while providing an ROI of 7:1.

FY08 Output: Initiated technical test planning and begin contracting.

FY08 Planned Output: Receive FCT Funding 1Q FY 2008. Complete qualification test planning and receive test articles by the end of 1Q FY 2008. Conduct comparative test and initial down

select during 2Q FY 2008. Complete technical test planning and receive test articles by the end of 3Q FY 2008. Initiate insensitive munitions, technical testing, safety, environmental, and toxicity testing during 4Q FY 2008.

FY09 Planned Output: Commence field user evaluation (FUE) by the end of 1Q FY 2009. Complete FUE during 2Q FY 2009. Receive technical test report during 3Q FY 2009. Receive Weapon Systems Explosive Safety Review Board Certification, Milestone C Decision and close-out Report by end of 4Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Three-Dimensional (3D) Visualization of the Battlespace (Army)		1.321	1.300

Outcome: Test the Arisawa three-dimensional (3D) stereoscopic Liquid Crystal Displays (LCD) to provide Force XXI Battle Command Brigade and Below - Blue Force Tracking (FBCB2-BFT) Systems with high-resolution 3D mapping and tactical data display capability. Validate the ability of Arisawa displays to enhance visualization capabilities of C2 software, built with commercial-off-the shelf applications. Warfighters can immerse themselves in the terrain and tactical data during mission planning, situational awareness and after-action reviews. RDT&E Cost Savings: Avoidance/Savings $12.000 million. Contractor has spent over $10.000 million in developing/testing/debugging their system. Similar to many hardware/software products, they continue to invest in improvements estimated over $12.000 million will be invested by the start of this effort (FY 2008). If the Foreign Comparative Testing (FCT) verifies all claims, there is great potential to apply this technology to various ABCS and intelligence efforts beyond the basic application identified for dramatically increasing the potential RDT&E cost avoidances. Manufacturing Cost Avoidance/Savings $10.000 million. Both hardware and software products are commercially available.

FY 2008 Output: Began the test planning activities and contract/acquisition planning.

FY 2008 Planned Output: Phase I of the testing will focus developing/modifying software drivers for the Arisawa Xpol technology for optimal use with the Army Battle Command Systems (ABCS) and interoperability with Commercial Joint Mapping Tool Kit (CJMTK) compliant graphics and imagery and conducting feasibility testing of the software drivers and Arisawa hardwares performance metrics.

FY 2009 Planned Output: Phase II of the testing will focus on the usability and human factors of the Arisawa technology with the Army Battle Command System (ABCS) in Tactical Operations Center (TOC) and On the Move (OTM) applications using the resources in the Communications Electronics Research, Development & Engineering Center (CERDEC) Command & Control Directorate (C2D) C4ISR Automated Virtual Environment (CAVE) facility. Phase III testing will be conductedat Fort Dix, NJ, testing will be conducted by CERDEC Product Manager C4ISR. The focus of Phase III will be suitability of use in a field environment and human factors issues related to field use.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Transportable Plasma Waste to Energy System (Air Force)		1.564	1.332

Outcome: To provide a system which can efficiently and economically dispose of the entire waste stream in an environmentally sound manner. AFSOC/A7AV (Environmental) at Hurlburt Field, Florida will evaluate and advanced waste to Energy System developed by PyroGenesis a Canadian company located at 1744 William St. Montreal, QC. Current methods typically involve expensive contracts with local waste haulers that remove and transport the waste to a landfill. At remote locations, open pit burning is usually involved, with a myriad of operational security, environmental health, and other serious exposure risks to our troops. Additionally, in many remote locations, gravel is a valuable asset that is not locally available, and troops are put at risk from IEDs and ambushes when transporting gravel to the remote location. Executive order 13423 mandates the Federal Government reduce energy consumption, increase the use of green products, reduce green house gases, and divert or reduce solid waste. The Plasma Waste to Energy System will meet all these goals, while producing electricity and valuable by-products (i.e. gravel and metal ingots). This compact, land-based system will accept any type of gaseous, liquids or solid without the need for pre-sorting, including hazardous waste, food waste, biological/medical waste, solid waste

including, tires, metal, and petroleum sludge and is a net energy producer.

FY08 Output: Contract for the test article, order parts, begin fabrication of the system.

FY09 Planned Output: Complete fabrication of the system during the 3Q FY 2009, Train personal and commence limited day to day operations.

FY10 Planned Output: Full operational status. Completion date and publishing of the Final Report in 2Q FY 2010.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
5.0-Inch Steel Strip Laminate (SSL) Rocket Motor Case (Navy)	0.623	0.409	1.078

Outcome: A successful project will provide the U.S. Navy /USMC the flexibility to use Zuni 5.0-Inch Rockets during shipboard operations. This project will demonstrate the capability of the steel strip laminate (SSL) rocket motor case technology that may provide potential safety improvements to the Zuni Rocket System. At present, shipboard use of the Zuni requires a waiver because the current system is not Insensitive Munitions (IM)-compliant. The primary outputs and efficiencies to be demonstrated are: (1) enhanced IM compliance of the rocket motor using the SSL Case in Fast and Slow Cook-Off environments; (2) no degradation of performance and operational use; (3) if the project is successful, additional flexibility in using the Zuni during shipboard operations for the Navy/Marine Corps; and (4) avoid RDT&E costs of $6.000 million.

FY 2007 Output: Established multi-year contract for the SSL rocket motor case. Adapted technology to the Zuni requirements, created a technical data package, and procured raw materials. Conduct Kick-Off meeting. Provided technical support to contract. Conducted initial Weapons System Explosive Safety Review Board briefing. Created Demonstration Test Plan. Created IM testing and Statement of Work required procurement documentation.

FY 2008 Planned Output: Contractor shall hold a design review, manufacture cases, and deliver. Conduct IM and ballistic testing. Manufacture rocket motors using delivered cases. Award IM testing contract. Obtain Interim Hazard Classification. Conduct Test Readiness Review and Insensitive Munitions Review Board briefs. Create Demonstration Test Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
FY 2009 Plans			24.514

For FY 2009 the FCT program will continue testing activities on the projects selected from the FY 2008 proposal cycle. Remaining funding will be used to initiate new start FCT projects selected from the FY 2009 FCT proposal process. The FY 2009 final proposal selection process is scheduled for the fourth quarter FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Other	-0.374		

New Accomplishment

C. Other Program Funding Summary Not applicable for this item.

D. Acquisition Strategy Not applicable for this item.

E. Major Performers Not applicable for this item.