OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDTE, Defense Wide BA 05	**0604051D8Z - Defense Acquisition Challenge Program (DACP)**

COST ($ in Millions)		FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P051	Defense Acquisition Challenge Program (DACP)	28.665	28.718	30.363	30.882	31.002	31.416	31.859

A. Mission Description and Budget Item Justification: Authorized by Title 10, Section 2395b, the Defense Acquisition Challenge (DAC) Program provides increased opportunities to insert innovative and cost-saving technologies into acquisition programs of the Department of Defense. DAC funds the test and evaluation of technologies and products with potential to improve performance, affordability, manufacturability, or operational capability of current acquisition programs at the component, subcomponent, or system level.

Since the program inception in 2002, OSD has initiated 68 projects; 14 projects have been completed to date, 11 met Service or Agency testing requirements; 4 projects were terminated due to inability to satisfy testing or Program of Record priorities. To date, 14 projects have yielded technology currently in use by our warfighters in Iraq, Afghanistan, or at U.S. training facilities.

Thee Defense Acquisition Challenge (DAC) program increases opportunities for domestic vendors to enter DoD acquisition process. Although business size is not an evaluation criterion, it is noteworthy that to date approximately 70 percent of the DAC projects awarded are with technology providers at the small or mid-sized enterprise level. DAC has the additional DoD/National Security benefit of expanding the industrial base for defense acquisition.

Final selection of FY 2008 DAC new start projects was determined in September 2007. 14 FY 2008 DAC new start projects are funded.

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)	29.332	28.970	30.210
Current BES/President's Budget (FY 2009)	28.665	28.718	30.363
Total Adjustments	-0.667	-0.252	0.153
Congressional Program Reductions			
Congressional Rescissions		-0.252	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.533		
Other	-0.134		0.153

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 adjustments in FFRDC

and Section 8024, 8097 and 8104 rescissions.

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

D. Acquisition Strategy The Acquisition Strategy for DAC is as outlined in Title 10. DAC is to provide opportunities for the increased introduction of innovative and cost-saving technology in acquisition programs of the Department of Defense. DAC funding is used to fund testing of commercial and non-developmental items that could result in improvements in performance, affordability, manufacturability, or operational capability of an existing acquisition program. It is expected that should testing be successful, procurement using the respective current program funding would be used for acquisition.

E. Performance Metrics: Not Applicable.

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B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
AN/BSN-2 Digital Depth Detector (Navy)	0.371		

Outcome: The AN/BSN-2 Digital Depth Detector (DDD) was developed to be a form, fit, and functional replacement for the current antiquated (1950's technology) depth detector installed on SSN/SSBN submarine platforms. The DDD is a state-of-the-art microprocessor-based system that utilizes readily available Commercial Off-the-Shelf (COTS) components. The DDD is more reliable and maintainable, reducing system life cycle costs by 87 percent and provides additional functional/operational capabilities necessary to support the objectives of the Navy's Submarine Modernization Program.

FY 2007 Output: The contract for design and test of the engineering development model (EDM) was awarded to WR Systems, Ltd. Fabricated and tested Secondary Display board prototype. Fabricated and tested DDD power supply to support MIL-STD-1399. Fabricated and tested Synchro Breakout board prototype. Additional support to ISEA in providing NAVSEA response on schedule, status.

FY 2007 Planned Output: Develop test plan and installations and operational test. Develop final test report and close out report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Clinical Development of Topical Paromomycin for the Treatment of Cutaneous Leishmaniasis (Army)	1.025		

Outcome: This project will develop and obtain FDA approval for a new, safe, effective and easily applied topical drug to treat Cuntaneous Leishmaniasis (CL), a parasitic disease spread by sand-fliesthat has become a serious medical threat to our forces deployed in support of OIF/OEF. Approximately 2,500 US soldiers were diagnosed with CL, a disease endemic to Iraq, Afghanistan and other areas in the Middle East. Infected soldiers with severe disease are evacuated to one of two US locations where they must reside duing the extent of their treatments. Currently, the average cost per patient receiving Penostam" are approximately $0.017 million for hospitalization and treatment with roughly 60 lost duty days per incident. "Topical Paramomycin" will be positioned as the new first-line theapeutic drug at deployed combat hospitals to treat this disease. Efficiency: (1) Provide a safe & effective treatment for Sodiers with CL; (2) Minimize the administrative burdens to medical personnel associated with administration of the IV drug Pentostam; (3) Minimize or eliminate regulatory costs associated with the continued use of Penostam, an investigational drug; and (4) Mitigate psychological impacts from the potentially disfiguring disease. The first safe and effective topical treatment for CL in the US; Cost avoidance of $17.000 million per 1000 soldiers treated; and greatly minimized number of lost duty days or duty hours from a safe and simple treatment regimen (topical versus intravenous) for this disease.

FY 2007 Output: Executed the Phase II Study in Tunisia for evaluating scar improvement of subjects that were treated with Topical Paromomycin. Completed a second Phase II study in Tunisia in March evaluating the dosing schedule and bandage options. Established a Scientific Review committee for review of the Phase III study. Obtained FDA concurrence for placebo formulation that will be used during the Phase III study. Prepared and submitted a request to the FDA to Topical Paromomycin "Orphan Drug" status in the US. Amended the old international cooperative agreement with the Institue Pasteur, Paris, France and the Institute Pasteur of Tunis, to support developement and execution of the Phase III study in Tunisia. Conducted a site pre-initiation visit in Tunis in preparation for the Phase III study.

FY 2008 Planned Output: FY 2007 dollars will continue to provide the following FY 2008 planned actions: Finalize preparations and initiate the Phase III study scheduled to begin between September and November 2007. Begin compilation of the New Drug Application (NDA) for filing to the US FDA for regulatory approval. Finalize clinical study reports for the two completed Phase II studies.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
CoBRA Intelligence and Information Systems Enhancements (SOCOM)	0.058		

Outcome: This project will provide Special Operations Forces with a more robust communications capability that reduces dependence on commercial satellites for secure satellite transmissions and provides military users with increased mission flexibility using existing Compact Broadband Remote Antenna (CoBRA) equipment sets to complete their missions. The primary outputs and efficiencies to be demonstrated in this project will be: enhanced tri-band satellite antenna design that has been optimized for FCC compliance for Ku-band, X-band and Ka-band; higher data rates (20Mbs), capability to access wideband Gapfiller, Xtar and future US and NATO high power military satellites; enhanced pod integrated platform for mounting X, Ku- and Ka-band trans and IF converters for remote control. The RDT&E and manufacturing cost avoidance is $10.000 million. Savings in procurement costs is expected to be $2.500 million and Operational Life Cycle savings are $1.000 million.

FY 2007 Output: Received test articles and perform Phase one technical testing.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Complete Phase II operational test and evaluation; finalize Milestone C production and

fielding milestone decision documentation based on test and evaluation outcome; complete project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Combat Rubber Raiding Craft (CRRC) Product Improvement Plan (PIP) (Navy)	0.828		

Outcome: This project will provide the USMC with a Combat Rubber Raiding Craft(CRRC) that features a self inflation system and an inflatable, rigid floor that reduces system weight by 17 percent and set up by 87 percent with a single Warfighter resulting in significant improvements for operational capability and force protection. Lessons learned from the GWOT and new submarine capabilities for subsurface insertions of Marine reconnaissance forces have driven the requirement to improve the deployment and transportability of the CRRC. The USMC will test the F-470 Evolution 7 manufactured by Zodiac of North America to maximize the Marine Recon Mission Profile. One-year project under sponsorship of the OSD Comparative Testing Office and Marine Corps Systems Command, with completion of testing and qualification in CY 2007, transition to USMC Marine Air-Ground Task Force units during CY 2008. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) carry 2080 lbs. (fully combat loaded) and transom must support the Small Craft Propulsion System; (2) must not fold or "taco" in the surf zone when encountering waves; (3) must perform in a variety of temperature requirements for cold and heat; (4) must be able to fully inflate to proper pressure with one scuba tank cooled to 3200 psi.; (5) avoid RDT&E costs of $6.000 million and provide an ROI of 14:1.

FY 2007 Output: Initial funds received at the end of the 1Q FY 2007. Test article contract awarded and test planning completed. Test Planning conducted at NSWC, Carderock. Test Article contracted with Zodiac. Delivery of test articles. Operational Testing initiated at Naval Surface Warfare Center (NSWC) Carderock, MD. Field/User Evaluation initiated with 3rd Recon Battalion.

FY 2008 Planned Outputs: FY 2007 funds will continue to provide the following planned FY 2008 actions: Completion of Operational Testing and Field/User Evaluation. A Milestone C Decision is anticipated during 2Q FY 2008. The Technical Test Report and Project Close-out Report are anticipated during the 3Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Communications and Networking for a Deployable Internet (CANDI) (Air Force)	0.128		

Outcome: To demonstrate modified software of the existing Interim Capability for Airborne Networking (ICAN) program that has been retooled in order to make compliant with the Software Communications Architecture (SCA) standards. This technology provides enhanced warfighter capabilities and addresses an urgent operational need to enhance existing worldwide command and control communications. Rewriting the ICAN system software to be SCA compliant provides an evolutionary migration path to future network-centric capabilities, improving Joint Tactical Radio System (JTRS), and streamlining integration with existing legacy capabilities. The lead service is Air Force. The primary outputs and efficiencies to be demonstrated are: (1) compatibility between existing platform networking capabilities and emerging future systems; (2) provision of additional networking capabilities and lessons learned for JTRS, resulting in cost savings, and; (3) improved network centric operational capabilities for existing and emerging weapons systems and warfighters.

FY 2007 Output: Completed development of SCA compliant ICAN implementation. Tested and evaluated system in completed CANDI software development lab. Finalized documentation. Continued to investigate and develop additional transition opportunities, including potential integration into compliant commercial radio hardware. The CANDI project is scheduled for completion by 2008. The transition manager is JTRS Joint Program Office.

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

Covert Eyes 3-D Video Camera (SOCOM)	0.070		

Outcome: This project will test and evaluate a multi-purpose, high-resolution, 3-D flash laser system that enables Special Operations Forces (SOF) to acquire and view targets through vegetation, window blinds, smoke, and tinted windows during daylight or total darkness. This system serves as both a camera and camcorder. The camera will provide SOF increased force protection, enhanced building inspection and surveillance capabilities, as well as improved warfighter spotting, tracking and reconnaissance capabilities. The primary outputs and efficiencies to be demonstrated are: standoff ranges of up to 250 meters; capability to rotate/pan/zoom and examine a subject from any viewing angle; real-time detection and identification during daylight and in total darkness. The RDT&E cost avoidance is $10.000 million. Additionally, savings in procurement, operations and support life cycle cost saving are expected to be $2.750 million.

FY 2007 Output: Completed Phase II system definition; conducted Phase II technical testing and phase three operational testing /user assessment.

FY 2008 Planned Outputs: FY 2007 funds will continue to provide the following FY 2008 planned actions: Finalize Milestone C production and fielding decision documentation based on test and evaluation outcome; complete project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Crew Served and Heavy Weapons Aiming Laser (CSHWAL) (SOCOM)	0.400		

Outcome: The Crew Served and Heavy Weapons Aiming Laser (CSHWAL) is envisioned as a small lightweight, highly effective laser pointing and aiming system to facilitate both day and night time operations for crew served and heavy weapons platforms. This green laser pointer will provide the Special Operator with a multiplicity of function making the CSHWAL the most cost-effective weapon aiming system available to the warfighter today. The primary outputs and efficiencies to be demonstrated are effective operation out to 2200 meters; eight times more visibility than red lasers in daylight; infrared laser pointer and wide illuminator for night use; compact, lightweight system design. The products to be tested will be based on commercial-off-the-shelf and non-developmental items that will require only minor modification prior to fielding for combat. The CSHWAL will increase the Special Operations Forces survivability and lethality, by enhancing weapon performance and target acquisition. The total RDT&E, manufacturing, and operations and maintenance cost avoidance savings is approximately $15.960 million.

FY 2007 Output: Completed project test planning; awarded a procurement contract for test articles and obtained hardware; conducted technical testing and operator/user assessment test.

FY 2008 Planned Outputs: FY 2007 funds will continue to provide the following FY 2008 planned actions: Finalize Milestone C procurement & fielding decision documentation based on test and evaluation; submit project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Digital Head Up Display for F/A-18 Aircraft (Navy)	1.044		

Outcome: The current Heads Up Display (HUD) in the F/A-18 is a critical flight instrument that is one of the most unreliable components in the aircraft. When HUD is inoperative, the aircraft is Not Mission Capable (NMC)until HUD is repaired. A reliance on obsolete Cathode Ray Tube (CRT) and other analog technologies makes HUD a logistics nightmare to troubleshoot from the flight line to depot level repair facilities. CRTs and the other analog components of the system suffer from a diminishing vendor base driving higher repair costs at all levels. Rockwell Collins is supplying an all Digital HUD (DHUD) to commercial airlines, business/regional jets and military transports--one that does not rely on CRTs, high-voltage electronics, or high-power analog circuitry. The DHUD will replace the CRT with a Liquid Crystal on Silicon (LCoS) projection engine backlit by a solid state high-intensity lamp system. High power components will be removed from the HUD, enhancing reliability of the system. The lead service is Navy.

FY 2007 Planned Output: Rockwell Collins will focus on fabrication of flyable prototype Digital HUD hardware. Flight Worthiness testing of the prototype hardware will begin during this period. (Flight Worthiness testing is a subset of full qualification testing to verify that the units are safe for flight).

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 and FY 2009 planned actions: Flight Worthiness testing will be completed. Full qualification testing will be performed to verify units are capable of withstanding and performing in the operational environment. Flight demonstration of prototype hardware will be performed. In FY 2009 Full aircraft integration and developmental testing will begin.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Extended Databus-Graceful Degradation (Air Force)	1.780		

Outcome: To save the Air Force approximately $1.600 million per generic aircraft and avoid extended non-availability of combat and combat support aircraft by eliminating the need to install new cabling to accommodate required higher throughput rates within an aircrafts local area network (LAN). The lead service is Air Force. The Primary outputs and efficiencies to be demonstrated are: 1) increased throughput rates, in excess of 200 Mb/sec, over existing cable and; 2) provide a capability to more responsively support network-centric operations and warfare.

FY 2007 Output: Conducted testing of 1553 performance compliance and B-2 systems integration lab to validate that the technology is capable of supporting B-2 avionics requirements. This testing resulted in verification of basic functionality on all B-2 bus lengths with analysis of signal characteristics, validation of acceptable system performance and verification of system compliance with established 1553 protocols.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Qualification testing and demonstration of the capability to maintain suitable and predictable LAN operation during imposed system overload conditions. Continue qualification testing and evaluation while characterizing the LAN operation under a full spectrum of degraded conditions that could be expected by the inherent demands of net-centric operational warfare activities, battle damage or adverse environmental conditions such as electromagnetic interference or jammers. Capabiity is expected to transition through block upgrades to aircraft through 2018. Transition Manager is Air Force Research Lab.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Improved IR Missile Self Protection System for F-15 Aircraft (Air Force)	0.441		

Outcome: To significantly enhance the F-15 self-protection capability against IR missile threats. The existing operational and fielded AN/ALE-58 self-protection countermeasure dispenser (CMD) system is not integrated into the aircraft systems. With the enhancements provided, pilots will be able to protect themselves and their aircraft during threat engagements through increased situational awareness, enhanced self-protection and reduced pilot workload. These benefits will result in greater mission effectiveness. Project improvements to the current AN/ALE-58 dispenser and LAU-128 missile launch rail will provide the 1553 interface needed to enable the path to full integration into the aircraft Operational Flight Program (OFP). Integration provides the path to full situational awareness of the operating state of the ALE-58 system, which is not available in the current configuration. The lead service is Air Force.
The Primary outputs and efficiencies to be demonstrated are 1) integration of a new flare into the self protection suite on the F-15, 2) upgraded cockpit display showing IR Self Protection systems integrated into the glass cockpit, and 3) provision of improved situational awareness to the pilot as to the status of the IR self protection systems.

FY 2007 Output: Completed the upgrade of the dispenser test unit, developed test software, performed verification test and evaluation at the Boeing St. Louis laboratory; implemented design changes coming out of testing and obtained final design hardware.

FY 2008 Planned Output: FY 2007 funds will continue to provide for FY 2008 planned actions: De-modify the dispenser test unit. Write the close-out report. Capability is projected to transition to

warfighting capability by 2011. Transition Manager is F-15 Program Office.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Lithium Ion Battery System for the MK8 MOD1 SEAL Delivery Vehicle (SOCOM)	1.800		

Outcome: This project will test Lithium Ion (Li Ion) energy storage system upgrade for the SEAL Delivery Vehicle (SDV) from the current system that is based on Siver Zinc (Ag Zn) battery cells originally designed for SDV use in the 1970s. The Ag Zn system is insufficient to provide adequate power to meet the increased demand garnered by several SDV enhancements incorporated over the past ten years (increased navigational accuracy, situational awareness, and communications). Ag Zn is being utilized beyond designed capability; Li Ion will exceed requirements with a charge in-place capability in the limited space available. The primary outputs and efficiencies to be demonstrated in the Defense Acquisition Challeng program is increased covert range mission duration and safety; 17 times longer service life than existing silver zinc technology; lower overall life cycle costs. The Li Ion battery system will realize an RDT&E cost avoidance savings of approximately $8.000 million and anticipates a procurement cost avoidance savings of approximately $1.000 million. The operations and support lifecycle cost avoidance savings is estimated to be $18.200 million.

FY 2007 Output: Analyzed vendor test data and completed project test planning; completed procurement contract for test articles and resolved contract protest; began SDV design changes and battery charger modification to mechanical, electrical and software systems.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Take possession of test articles; conduct initial technical testing and begin operator/user assessment test; finalize Milestone C procurement & fielding decision documentation based on test and evaluation; submit project closeout report; if applicable, accomplish "first unit equipped" fielding.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
M1A1 Improved Loaders Weapon Station (ILWS) (Navy)	1.154		

Outcome: A successful project will provide the USMC with an ILWS for the M1A1 that will decrease the loader's exposed profile by 50 percent, while providing a more stable firing platform for up to 25 percent increased downrange firing accuracy, and enables rapid change in the direction of fire. Situational reports from OIF have identified that loaders are significantly prone to enemy fire due to their high seated position in the loader's weapon station in the M1A1. In order to increase the survivability and lethality of the M1A1 Main Battle Tank, the USMC will test non-developmental items from Recon Optical Inc. of Barrington, IL and EFW of Fort Worth, Texas. Intent is to transition to USMC Tank Battalions during CY 2008. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) facilitate rapid change in direction of fire; (2) increased firing accuracy over current system (10 percent threshold / 25 percent objective); (3) decrease crew exposure (50 percent threshold / 100 percent objective); (4) ring operation does not interference with loader's hatch; (5) avoid RDT&E costs of $1.100 million and provide a ROI of 4.6:1.

FY 2007 Output: Initial funds received at the end of the 1Q FY 2007. Test Article Contract was awarded at the beginning of the 3Q FY 2007. Test Article fabrication is in process. Test planning was completed 4Q FY 2007.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Test Article delivery is anticipated during the 1Q FY 2008. Integration Testing will be completed during the 1Q FY 2008. at ATC, Aberdeen, MD. The User Evaluation will be conducted at ATC and completed during the 2Q FY 2008. Performance Testing will be conducted at ATC and completed during the 3Q FY 2008. A Milestone C Decision is anticipated at the end of the 3Q FY 2008. The Technical Test Report and Project Close-out Report are anticipated during the 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Modular Land Warrior Fuel Cell Power System (Army)	1.300		

Outcome: This project will enable the U.S. Army's Land Warrior (LW) and future ground soldier systems to meet current and future requirements for power, mission duration, and weight. Miniaturized Direct Methanol Fuel Cell (DMFC) technology will dramatically reduce the number of batteries that must be organically transported by the future force unit of action soldier and/or the requirement for battery recharging capabilities. The DMFC will efficiently convert small quantities of an inexpensive and safe fuel into large quantities of electrical energy needed by soldiers. Four ounces of fuel is equivalent to one Li Ion battery (35 oz). Efficiency: This nine to one weight advantage quickly translates into a lighter load for the soldier while also providing a robust power system for long missions where resupply may not be feasible. RDT&E cost avoidance is estimated to be $45.000 million. O&S cost savings is estimated at $193.000 million.

FY 2007 Output: Convened beta system critical design review. Built and delivered Alpha one Beta systems for technical test verification of interface with Land Warrior and Future Force Warrior Systems, checked battery charging algorithms, environmental requirements and obtain user feedback. Conducted the final design review. Built and delivered M-25 test and evaluation systems.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Nickel Nanostrand Coatings for Improved Lighting Strike Protection (Air Force)	0.754		

Outcome: To demonstrate a high probability of reduction in cost of aerial refueling booms manufactured as a component of the boom redesign to a composite structure program. The materials supplied under this effort will enable a cost saving in the boom manufacture by providing a previously unavailable lightning strike protection and electromagnetic interference (EMI) protection mechanism of the article. In addition the boom will allow for refueling in an all weather environment, greatly increasing the mission capable rate of the aircraft. The lead service is Air Force. The program will also demonstrate the reduction in cost, weight, and performance improvement in Electromagnetic Hardening for composite enclosures as replacements for Aluminum enclosures. The primary outputs and efficiencies to be demonstrated are (1) significant RDT&E cost avoidance ($4.000-10.000 million), manufacturing savings ($10.000-$25.000 million), procurement savings ($35.000 million); (2) improved all weather mission refueling capability and protection of aircraft from the direct and indirect EMI effect of lightning; and (3) improved electromagnetic hardening of DoD assets.

FY 2007 Output: Manufactured second generation improved refueling boom design on ¼ scale article was demonstrated by proxy. The demonstration of the manufacturability of the composite refueling boom led to a rapid insertion of the technology for a nearly identically manufactured component for the Non-Line-of-Sight Cannon (NLOS-C) (Army) platform. The program successfully manufactured 250 improved design strongback articles. The parts met delivery acceptance in April 2007 and additional parts will be manufactured beginning FY 2008 as a direct result of the Defense Acquisition Challege Program. The result is expected to be improved service life and reduced manufacturing labor. The full scale refueling boom demo and demonstration has been delayed by one (1) FY due to Boeing internal funding reductions. Initial ground based test and evaluation of patch kit materials has been completed and commercial nanostrand repair kits availability is anticipated by Sept 2007. Commercialized nanostrand resin film in 15 inch widths is projected for September 2007 for both EMI hardening and lightning strike protection. Output from this program has been integrated into the revision of the "High Power Microwave Hardening Design Guide for Systems".

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: The Nickel Nanostrand project was scheduled for completion in September 2007, however it has been extended by additional funding from Air Force. The additional funding totaling FY 2007: $0.900 million, FY 2008: $0.575 million, FY 2009: $0.750 million comes as a direct result of the successes demonstrated in the Defense Acquisition Challenge Program (DACP). No additional DACP funding has been requested for this effort. FY 2008 delivery articles include a flight spec hardened flight surface actuator enclosure which will be ground tested in FY08. The transition manager is Air Force Research Lab, Materials Directorate.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Non-Gasoline Burning Outboard Engine (NBOE) (Navy)	1.074		

Outcome: A successful project will provide the USMC with a NBOE that will increase safety by reducing the need for gasoline and allow continued use of the Combat Rubber Reconnaissance Craft (CRRC), maintaining the USMC's primary amphibious capability for Over-The-Horizon reconnaissance operations. To meet the objective requirement to replace the current Small Craft Propulsion System with a NBOE, the USMC will test the 55 horsepower, Evinrude Vindicator, manufactured by Bombardier Recreational Products of Waukegan, IL, for compliance with DoD policy for fuel standardization to kerosene-based and diesel fuels. Completion of testing and qualification should occur in CY 2008 with transition to USMC reconnaissance forces during CY 2009. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) must function on JP5, JP8, and Diesel in addition to gasoline; (2) must function with a pump jet, no propeller; (3) must meet requirements for a 50 percent plunging surf with a wave height of eight ft. and a period of eight seconds; (4) must have a range of 50 nautical miles (5) must reach a top speed of 15 knots with a combat loaded CRRC; (6) avoid RDT&E costs of $3.000 million and provide an ROI of 19:1.

FY 2007 Output: Phase I Test Planning completed and Phase I Test Articles received during 1Q FY 2007. Phase I Performance Testing initiated during 2Q FY 2007. Completion of Phase I Performance Testing and Phase II Contract Award during the 3Q FY 2007. Phase II Test Articles delivered during the 4Q FY 2007. Signature/Destructive Testing will initiated during 4Q FY 2007 at Naval Surface Warfare Center (NSWC) Carderock, MD.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Signature/Destructive Testing will complete during the 1Q FY 2008. Fleet User Evaluation is scheduled for the 1-2Q FY 2008; including, Low Temp Evaluation in Kodiak, Alaska, High Surf Evaluation with the Expeditionary Warfare Training Group-Pacific in San Diego, and a High Temp Evaluation in Key West, Florida. A Milestone C Decision is anticipated at the beginning of the 3Q FY 2008. The Technical Test Report and Project Close-out Report will be submitted during the 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Portable Oxygen Concentrator for Patient Treatment and Transport. (Army)	0.267		

Outcome: This project will test devices that concentrate oxygen from the air to provide oxygen to hospital patients during treatment and transport. Oxygen from these concentrators will also be used to make oxygen for use in anesthesia machines during surgery. This device will greatly reduce the need to refill oxygen cylinders, and thus reduced the logistics burden and danger associated with this task. These devices will be used instead of high pressure oxygen cylinders. Efficiency: A field hospital will use 15 large oxygen cylinders a day at a typical cost of $0.060 million per cylinder refill in the U.S. costing $0.328 million a year not counting transportation costs, using portable oxygen concentrators it could be accomplished for a one time cost of $0.045 million, with no transportation or other infrastructure costs. Additionally there would never be a shortage of oxygen due to transportation interruptions. The total savings per year will be in excess of $5.000 million.

FY 2007 Output: Obtained advanced prototype units, submitted to FDA for approval, procured test articles.

FY 2008 Planned Output: FDA approval, user testing, transition to production

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Qualification of Conformal Fabrics (Air Force)	0.120		

Outcome: To qualify a conformal fabric material that will allow the integration of non-corrosive, highly durable composite structures into a greater cross section of airborne platforms. Probable 10-20 percent reduction in weight when aluminum structures on aircraft are replaced by composites; airframe weight reduction results in increased operational range, fuel savings, and increased armament loads. The lead service is Air Force. The fiber in this conformal fabric is discontinuous, allowing it to stretch into complex shapes before or during molding. The fabric conforms to complex shapes, thereby reducing fabrication costs of composite structures; the fabric becomes the reinforcement for composite structures used in advanced aircraft. The Primary output and efficiency to be demonstrated is fabrication of complex shapes to Boeing specification and award of the Boeing Standard Material Specification.

FY 2007 Output: The demonstration component design was completed and the part fabricated. At the request of Boeing adjustments to the demonstration plan were made to accommodate more stringent test criteria.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Complete testing and publish test results and test report. Transition manager is Air Force Research Lab.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Risk Reduction for Specific Emitter Identification (SEI) Insertion into AN/ALQ-211 System (SOCOM)	0.754		

Outcome: Digital Specific Emitter Identification (SEI) insertion into the Special Operations Active Rotary Wing Survivability System architecture will accurately ascertain previously irresolvable ambiguous emitter identifications. This project will first be tested and validated as an integral part of the AN/ALQ-211 multi-spectral threat awareness console aboard the MH-47, MH-60 and eventually the CV-22. It will then be validated as a cost savings initiative to integrate the SEI concurrently with the development of the digital receiver upgrade scheduled for FY 2007-2008, and fully three years ahead of planned spiral development integration of the same technology with the AN/ALQ-211. The primary outputs and efficiencies to be demonstrated include: improved Geo-location of threats; correct correlation of preloaded database threats against actual collected threats 95 percent of the time; subsequent accurate update of threat database 100 percent of the time. Production cost savings of approximately $38.500 million could be realized by developing an SEI capability during the development of the digital receiver. Additionally $5.000 million RDT&E costs, $23.200 million savings in procurement and $19.500 million Operations and Support Life Cycle savings should be realized.

FY 2007 Output: Completed Phase II Implementation Test and Evaluation planning; received test articles; completed Phase II implementation, testing, and evaluation, to include an architecture study and integration of SEI receiver test fixture with Suite of Integrated Radio Frequency Countermeasures system to validate improved performance.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Obtain SEI production and fielding decision; submit project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Rucksack Portable Receive Suite (Navy)	0.328		

Outcome: This project will evaluate the Portable Receive Communications Suite, a lightweight, ruggedized Global Broadcast Service (GBS) developed by Windmill International of Nashua, New Hampshire. The Windmill communications suite will enable the warfighter to set up and receive GBS satellite broadcast anywhere, allowing reception of a full array of on-the-spot actionable intelligence (classified and unclassified) information including live Predator video, full resolution satellite imagery, and up-to-date sensitive information rebroadcast products.

FY 2007 Output: Test plan developed and finalized. Contract awarded and started delivery of test articles.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Deliver second lot of four (4) test articles. Finalize test articles evaluation report, review

and deliver to the Global Broadcasts Service-Joint Program Office (GBS-JPO). Provide closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Super-Capacitor Power Source for Gun Launched Munitions (Army)	0.295		

Outcome: To eliminate the need to "double set" the projectile at cold temperature due to slow battery rise time, eliminate the need to discard or fire the Excalibur projectile within fifteen days after the projectile has been initialized with GPS data and allow the Excalibur to be field-initialized an indefinite number of times versus a maximum of twenty-times over a fifteen-day operating life period associated with the current battery. The lead service is Army. Efficiency: (1) high G artillery gun launch survivability; (2) 20 year storage life capability, (3) Data Hold Battery part replacement at approximately one third the unit cost, (4) Excalibur projectile integration, (5) Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS) interoperation, (6) unlimited re-charging and projectile re-initialization cycles and (7) increased factory handling safety since supercapacitor power source approach eliminates a pyrotechnic battery primer. RDT&E Cost Savings: $1.400 million. O&S Cost Savings: $1.100 million. Procurement Cost Savings: $5.400 million. Fielding Reduction: 30 Fewer Rounds @ $0.036 million ea. Procurement Potential: $2.100 million. Return on investment (ROI) is 14 ($0.8500 million / $0.600 million).

FY 2007 Output: Conducted component level, high G, rail gun survivability tests at hot and cold temperature extremes. Developed an artillery gun launch survivable packaging concept for the power source. Conducted EPIAFS electrical power transfer characterization testing over temperature. Conducted trade studies leading to a selected electrical design approach. Conduct power source subassembly high G survivability rail gun testing and electrical performance validation testing. Modify Excalibur Guidance and Navigation Unit (GNU) subsystem design to incorporate the new power source and conduct GNU / EPIAFS interoperability testing. Spiral Output - technical and electrical design features have already been incorporated into the Excalibur projectile for future insertion of the supercapacitor power source. Also, demonstration of interoperability between modified GNU containing supercapacitor power source and EPIAFS.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions. Manufacture two special GNUs that incorporate the new power source for electrical performance verification testing. Conduct a final operational demonstration of high G survivability by testing special GNUs in the rail gun and by live gun qualification testing of Excalibur projectiles containing the new power sources. Begin transition by identifying the needed Excalibur Technical Data Package (TDP) and production test equipment changes required for insertion of supercapacitor power source into the production build in the FY 2009 or FY 2010 timeframe. Transition manager is PM Excalibur.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Titanium Encapsulated Silicon Carbide Skirt Armor (TESA) with Multi-Hit Capability (Navy)	0.375		

Outcome: A successful project will enable integration of multi-hit capable, composite skirt armor on the Expeditionary Fighting Vehicle (EFV). To meet the EFV skirt armor requirement for protection from 14.5mm armor piercing rounds at 300 meters and 155/152mm fragments at 15 meters, the USMC will test TESA manufactured by BAE Advanced Ceramics (formerly Cercom, Inc.) of Vista, CA. The EFV currently utilizes composite skirt armor to protect the lower half of the vehicle, including the track system, propulsion components and operators inside, but has experienced environmental durability issues and lacks multi-hit capability. Projected completion of testing and qualification will be in CY 2008. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) provide a five percent vehicle weight reduction; (2) increase skirt armor durability a minimum of one and half times; (3) incorporate multi-hit armor protection; (4) provide a minimum cost savings of $56.000 million for EFV production and maintenance, and avoid RDT&E costs of $2.5000 million with and ROI of 108:1.

FY 2007 Output: Test Planning was initiated and will be completed during the 3Q FY 2007. Fabrication of test articles is in process and delivery, 3Q FY 2007. Lab testing of assemblies is in process and will be completed. Completed lab testing at BAE in Vista, CA to ensure a consistent thickness and encapsulation. Completion of Test Planning and delivery of Test Articles anticipated for end of 3Q FY 2007. Validation Testing initiated for EFV fit and integration.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Validation Testing will be completed in the 1Q FY 2008. Safety/Environmental (S/E) Testing will be conducted from the 1-3Q FY 2008. at the Aberdeen Test Center for rapid aging, durability, flammability, and on vehicle testing. During the S/E Tests, the Army Research Lab at Ft. Belvoir, VA will conduct the Field/User Evaluation, including a Live-Fire Testing, with representatives from DRPM AAA and General Dynamics. A Milestone C Decision is scheduled beginning of the 4Q FY 2008. The Technical Test Report and Project Close-out Report will be submitted at the end of the 4Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Trailer Mounted Power Generator & Environmental Control Unit (TMG/ECU) (Navy)	1.146		

Outcome: A successful project will provide the USMC with an integrated TMG/ECU that can be deployed to provide power and environmental management for expeditionary command and control systems to allow sustained operations in any environment. The Marine Corps will test the Generator Environmental Control System Trailer (GET) produced by General Dynamics C4 Systems of Scottsdale, AZ, to meet the urgent requirement for an off-road, HMMWV towable, trailer system that is capable of producing 20-40 kW of electric power and 100,000 BTU of cooling or heating for the Marine Expeditionary Forces (MEF). Projected completion of testing and qualification will be CY 2007 with transition to USMC Marine Expeditionary Forces during CY 2007. The primary outputs and efficiencies to be demonstrated are: (1) integrate increased power generation and cooling/heating capability for sustained functionality of Command Operation Centers; (2) capability to move on-road and off-road with the speed of the MEF; (3) towable by HMMWV to minimize logistics footprint; (3) RDT&E cost avoidance of $4.000 million, Procurement Cost savings of $16.000 million, and provide an ROI of 16:1.

FY 2007 Output: Phase II Test Articles were received during the 1Q FY 2007. Verification Testing was completed in the 3Q FY 2007. Field User Evaluation was completed by the 4Q FY 2007. The full Milestone C Decision occurred 4Q FY 2007. Achieved full rate production decision procuring 12 units for $1.020 million. The Technical Test Report and Project Close-out Report are anticipated NLT 2Q FY 2008.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Washable Read/Read-Write 2.45GHz RFID Tags with Highly Flexible Antenna (Army)	0.058		

Outcome: This project is testing Radio Frequency Identification (RFID) tags that can be read swiftly from various distances and attached to various materials. These labels are suitable for applications where exposure to temperature and weather extremes is possible. The Air-Tune Tag has a memory lifespan of 10 years and can be rewritten 100,000 times. Contract was awarded on 4 Oct 2006. The contractor completed Work Package I which provided the program plan and the design strategy. The test strategy was also presented as part of the Work Package I effort. Work Package II is approximately 75 percent complete. The contractor has provided most of the equipment that requires testing (tags, scanners, and antennas). Work on Work Package III that leads to a Preliminary Design Review (PDR) is ongoing. The PDR was 18 June 2007. Efficiency: If the US Government were to develop this technology (tags, readers, antennas) from scratch the cost would be over $22.000 million. The cost to provide a military technology that assigns, tracks, and monitors equipment in the field (including tags and hardware) using an off-the shelf solution that is ruggedized for the military environment is estimated at $0.300 million, hence a savings of over $21.000 million. The use of the tags will provide additional tangible and intangible benefits that result from its operation such as increases of efficiency of inventory control, enabling positive tracking of controlled items, supports identity controls and provides better inventory reporting.

FY 2007 Output: After a successful PDR, the contractor is required to finalize the design in a Critical Design Review (CDR), finalize the software development, and test and evaluate the tags for military environment use on various type of military equipment. Technical tests will include Radio Frequency emissions interference testing to determine potential effect on identified military and commercial systems; characterization and confirm read/read-write function; best use recommendations for adhering RFID tags to military equipment and recommendations for operator programmed data content. Field trials or operational tests include ease of operation, training needs, readability distance scenarios and user acceptability. A full test plan and detailed pass / fail criteria for individual tests will be provided to the program office before test start.

FY 2008 Planned Output: FY 2007 funds will continue to provide the following FY 2008 planned actions: Continue testing and acceptability of tags with other users. Complete contract reporting.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Obstacle Avoidance SONAR for SOF Underwater Recon Vehicle (SOCOM)		0.718	

Outcome: The proposed technology challenge will qualify an Obstacle Avoidance Sonar (OAS) in the unmanned Semi Autonomous Hydrographic Reconnaissance Vehicle that is used by Naval Special Warfare for clandestine collection of sonar images and other very shallow water intelligence. The proposed OAS, a pre-planned product improvement, will allow the vehicle to "see" objects in its path and avoid them as required. The OAS is capable of viewing horizontal and vertical planes, processing the information, and providing course, altitude, and speed correction to the vehicle's guidance system to avoid obstacles. The RDT&E and manufacturing cost avoidance is $0.500 million and operation and support cost avoidance is: $1.000 million.

FY2008 Planned Output: Contract for test articles; complete Phases I Performance Technical Testing qualifying critical capability to allow mission completion while providing for operations below water surface and prevent collisions and loss or repair of equipment; begin Phase II operational testing.

FY2009 Planned Output: Complete Phase II operational testing; complete test reports; obtain Milestone C production decision; submit project closeout report and exercise production options as applicable.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Ruck-Sack Portable UAV Geo-Spatial Video Exploitation System for Falcon View (SOCOM)		0.753	

Outcome: This project is a qualification test of software capable of linking geo-spatially referenced (GPS referenced) video reconnaissance to the FalconView Mapping System: the principal Special Operations Forces mission planning system, used for threat analysis, route selection, assault and maneuver preparation. This will enhance situational awareness of the battlefield and provide a tactical advantage to commanders and their troops. The RDT&E cost avoidance is $5.500 million and procurement cost avoidance is: $0.427 million. Operations and Support cost avoidance is expected to be $2.500 million.

FY08 Planned Output: Negotiate a procurement contract for test articles, obtain safety release, and conduct initial technical testing.

FY09 Planned Output: FY 2008 funds will continue to provide the following FY 2009 planned actions: Conduct operational test / user evaluation; complete test reports; obtain procurement decision; prepare project closeout report and exercise production options as applicable.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Small Arms Lubrication Assessment (CTO)		1.125	

Outcome: This project will test new lubricous coating properties of small arms lubrications for military small arms up to 7.62mm machineguns. Due to the Global War on Terrorism as well as the various operational environments it is imperative that a primary weapon lubricant be made available to maintain the functional operation of small arms in high operational tempo. Such lubrications have been developed for the small arms industry and in use with other government agencies. Currently some lubricants have been preliminary testing by several Services in live fire tests conducted in

lab environment with artificial uniformed grain sand like medium; our goal is to test in a life like environment utilizing natural materials (sand/dust/dirt) during the testing process. Weapon testing will include stringent performance requirements in hot (wet / dry) and cold (wet / dry) temperatures ranging from minus 10° to 140° Fahrenheit. The test will include increased operations in more severe sand, dust, mud and humidity environments with emphasis on the sand and dust environment. If successful this test would lead to a single lubricant which would replace numerous types of commercial and military issued lubricants currently being used by the warfighters at their own expense. Services need a reliable weapon lubricant for multiple operational environments. Benefit will be an advanced lubricant that would reduced malfunctions induced in harsh environment under sustained firing conditions for extended periods of time and would increased survivability and lethality of war fighter and weapon.

FY 2008 Planned Output: Develop and issue Market Survey. Develop Contract Requirements for procuring first article test lubricants and other additional test items. Procure Test Ammunitions to conduct live fire testing. Develop Test Plan.

FY 2009 Planned Output: FY 2008 funds will continue to provide the following FY 2009 planned actions: Conduct Technical Testing and Field User Evaluation. Prepare MIL STD certification. Complete Tech Testing. Receive Technical Test Report and Close-out Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Vaccine and Reagent Refrigeration System (VARRS) (Navy)		1.278	

Outcome: Will provide the USMC a ruggedized Vaccine and Reagent Refrigeration System (VARRS), manufactured by AcuTemp of Dayton, Ohio, to replace deficient Health Service Support systems currently in the field. A two-year project under sponsorship of the OSD Comparative Testing Office and Marine Corps Systems Command, Program Manager of the Chemical Biological Radiological Nuclear-Medical (CBRN-M). Projected completion of all testing events is FY 2009. The primary outputs and efficiencies are: (1) a fully ruggedized VARRS for storing and transporting life saving vaccines and reagents; (2) a 2000 percent increase in reliability over currently used commercial refrigeration systems; (3) the direct contribution to the survivability of patients; and (4) RDT&E, Manufacturing, Procurement, and Operations & Support Life-Cycle Cost Avoidances of $10.250 million, $3.600 million, $3.900 million and, $5.784 million respectively. A ROI of at least 4:1 is expected.

FY 2008 Planned Output: Vendor Test Data, initiate Contract Prep and Award and Test Planning during 1Q FY 2008. Contract Award during 2Q FY 2008. Receive Test Articles during 4Q FY 2008. Being Lab testing by end of 4Q FY 2008.

FY 2009 Planned Output: Complete Lab Testing and commence Technical Testing and Field User Evaluation (FUE) during 1Q FY 2009. Complete Tech Testing and FUE during 2Q FY 2008. Receive Technical Test Report mid 2Q FY 2008. Milestone C Decision and Close-out Report by end of 2Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
10kW Tactical Vehicle Inverter System (Army)	1.038	0.858	

Outcome: This effort is to test several 10 kW inverter systems developed by commercial industry. The inverters will be purchased and evaluated to determine if they meet the military's electrical and environmental requirements currently addressed with either a vehicle mounted Auxiliary Power Unit (APU) or Trailor Mounted Generator Sets (3 - 10 kW). One key benefit in replacing the APU or Trailer Mounted Generator Sets is reduction of weight to light tactical vehicles by 455 to 500 lbs. Efficiency: Procurement Savings: $1.041 million, Life Cycle O&S Savings: $10.695 million, ROI: 4.28 percent.

FY 2007 Output: Two contracts have been awarded to purchase and deliver three (3) 10 kW TVIS. The companies that received the contracts were DRS Pivotal Power and ITT Power Solutions.

The third company dropped out leaving us the opportunity to purchase additional inverter systems from each company for Government Testing.

FY 2008 Planned Output: Upon delivery of the inverter systems from DRS Pivotal Power and ITT Power Solutions, an Electrical Test will be performed at Fort Belvoir, VA and an Electrical Test Report will be written. After the Government Electrical Tests, the inverter systems will be given to Aberdeen Test Center (ATC) for Environmental, EMI and Road Tests.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Angel Fire - Situational Awareness of Large-Area Urban Operations (Air Force)	1.700	1.518	

Outcome: To provide a high-resolution spot-beam capability; a night, infrared, wide-area surveillance capability; and a comprehensive plan to transition Angel Fire (AF) to a full acquisition program. AF is a tactical situational awareness system that provides real-time, high resolution, city-sized images of infrastructure, vehicles and people to hundreds of users. This expansive coverage enhances tactical support, forensic analysis, and predictive analysis that in turn directly support urban combat, base defense, border security, improvised explosive device detection and other anti insurgency/counter terrorist efforts. Following a successful demonstration of the basic AF capability at the Marine Corps Air/Ground Combat Center in May/June 2006, USMC specifically requested the three further refinements that would "customize" AF for deployment/employment in OIF. The lead service is Air Force. The primary outputs and efficiencies are: (1) spot beam performance that will provide a multi-beam high-resolution capability to augment the wide-area lower resolution AF imagery, (2) provision of a night-time infrared capability similar in military utility to the day, optical capability; and (3) provision of a transition plan and associated documentation that will allow rapid transition of the AF capability to a fully developed acquisition program.

FY 2007 Output: Contracts awarded; high resolution spot beam cameras procured; software integration activities initiated and continued; aircraft integration initiated; flight evaluations completed.

FY 2008 Planned Output: Procure infrared cameras; conduct software integration activities; conduct aircraft integration; conduct flight evaluation operations and transition planning. The transition manager is Air Force Research Lab.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Application of Low Plasticity Burnishings to F-100 Engine Airfoils (Air Force)	0.812	0.518	

Outcome: To demonstrate a metal stressing process on aircraft engine airfoils that will reduce Foreign Object Damage (FOD) to those components and thus reduce the substantial maintenance burden incurred due to unscheduled engine removals caused by foreign object damage. This can be accomplished, in a cost effective manner, by using the low plasticity burnishing (LPB) process to induce FOD mitigating deep compressive stresses in vulnerable engine blades. The estimated cost avoidance for the remaining service life of the selected engine system (F100-220 engine) is conservatively estimated at $144.000 million. The lead service is Air Force. The primary outputs and efficiencies are: (1) the LPB-imparted stresses are sufficient to meet increased FOD tolerance requirements and do not impair performance or life of the blade, (2) no distortion of blade geometry and no cracking or other damage to blade, and (3) cost of the LPB process to be $0.002 per blade, with a threshold of $0.002

FY 2007 Output: Contract awarded; test planning and engineering completed; validation and verification of LBP process completed; delivery of prototype turnkey solution to Oklahoma City Air Logistics Center (OC-ALC).

FY 2008 Planned Output: Continue refinement and delivery of solution; inaugurate on-floor capability at Air Logistics Center. The Low Plasticity Burnishing project is scheduled for completion July 2008. The transition manager is jointly the Air Force Research Lab, Materials Directorate and the OC-ALC.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
C2 Resource Management: Master Caution Panel (MCP) (Air Force)	1.160	0.418	

Outcome: To demonstrate technology that allows network/system administration personnel to monitor the internal network of a C2 enterprise, such as an Air Operations Center (AOC), providing status of machine availability, connectivity, software processes, and host health. Master Caution Panel (MCP) "bridges the gap" between the warfighter environment and the system administrators and engineers maintaining the IT resources used to plan and conduct AOC missions. The lead service is Air Force. The Primary output and efficiency to be demonstrated is an improved situational awareness during real world operations.

FY 2007 Output: Produced a web-based training package that will guide a user through the configuration of MCP in a new environment (i.e., AOC). A test plan to test the training package as well as the existing MCP software in an AOC environment was also produced. To support demonstration of MCP at an operational site and to prepare for transition to the AOC SPO a system security authorization agreement (SSAA) was developed. This document is required in order to certify that MCP is safe to operate in a network.

FY 2008 Planned Actions: Evaluation reports based on the tests. Updates to the training package will also be accomplished depending on the results of the demonstration. A final package of deliverables (training package, test plan, test reports, and SSAA) as needed at the end of the effort. The C2MCP Project is scheduled to conclude in FY 2008. Integration of the capability will be conducted through block upgrades to Air Operation Centers through FY 2010. Transition Manager is Air Force Research Lab.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Cost Effective Light Aircraft Missile Protection (CELAMP) (Air Force)	1.160	2.618	

Outcome: To demonstrate an integration of the Quiet Eyes turret with AAQ-24(V) with Directed Infrared Countermeasures (DIRCM) components that will provide infrared (IR) threat protection for sub-sonic platforms such as the A-10 and helicopters. The AAQ-24(V) Large Aircraft Infrared Countermeasures (LAIRCM) system is not optimized to provide protection for small aircraft such as helicopters and fighters because of its cost, form, fit and weight. Raytheon has developed a light-weight, low-cost Infrared Countermeasure (IRCM) assembly (Quiet Eyes) that leverages guidance components from the combat-proven AIM-9X IR missile to provide highly responsive, all-aspect IR protection. The lead service is Air Force. The Primary outputs and efficiencies to be demonstrated are: (1) the ability of the Quiet Eyes turret to handle the higher power laser associated with the AAQ-24; (2) demonstrate that the Raytheon Quiet Eyes turret can successfully be integrated with the Northrop Grumman processor, resulting in a readily available lightweight IRCM jammer for Army and Navy helicopters while meeting the requirement for the next generation IRCM jammer for the Air Force.

FY 2007 Output: Finalized contractual agreement between Air Force, Raytheon and Northrop Grumman, with the latter being designated as Prime Contractor, and initiated integration efforts.

FY 2008 Planned Output: Test CELAMP turret in lab and live fire environments with a production-ready turret.
The final CELAMP project is scheduled to be completed September 2009. Capability will transition to Army and Navy helicopters starting in 2011 and cargo aircraft for the Air Force in 2012. Transition manager is Air Force Aeronautical Systems Center.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Fiber Optic Gyro Rate Sensors for Combat Vehicles (Army)	1.044	1.118	

Outcome: This project will provide the Army with a family of rate sensors based on fiber optic technology for use in current vehicles. Rate Sensors are the sending elements of the stabilization and

fire control subsystems and hence are an integral part of the lethality of these vehicles. Traditional rate sensors are based on the use of mechanical gyros and moving parts which are subject to wear in the extreme harsh environments. Fiber optic gyros use deflection of light waves to determine rate of motion change, which provides a much more reliable and accurate sensor. This project takes advantage of this more reliable device in a form, fit and function replacement for combat vehicle platforms. The Army is the lead service, with Marine Corps support for integration to the LAV platform. Improvements: longer life, better performance, less stringent handling requirements, and lower cost. More reliable 5-6 times MTBF (No moving Parts). O&S Cost Avoidance: $6.270 million (five years) / $41.750 million (life). Procurement Cost Avoidance: $2.270 million (five years) / $15.000 (life). RDTE Cost Avoidance: $1.300 million. Fielding Reduction: three plus years. Procurement Potential: 1400 units per year, 700 units first five years. Lifetime Potential is 33,400 rate sensors/ $167.000 million.

FY 2007 Output: Conducted requirements Review for Bradley, M1, and LAV platforms; Design verification testing; Qualification plans and procedures for LAV and M1 vehicles; Test readiness review; and subassembly testing at White Sands Missile Range.

FY 2008 Planned Output: Conduct IPT meetings; Gun fire testing at government site; ECP/ERR development and release; Automated test equipment development and testing; M1 vehicle testing.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Improved Durability F100/F414 Exhaust Nozzle Divergent Seals (Air Force)	0.262	0.368	

Outcome: To demonstrate and document the flight characteristics of Ceramic Matrix Composite (CMC) Turbine Engine Exhaust Nozzle Divergent Seals. This documentation will occur through a Field Service Evaluation (FSE) flight program. The goal is to qualify the CMC divergent seals as preferred spares for the F100 engine family, as well as the F414 engine used in the US Navy F-18 aircraft. The lead service is Air Force. The primary outputs and efficiencies to be demonstrated are: (1) realization of significant acquisition cost savings annually for component replacement and; (2) a significant decrease in maintenance downtime of critical combat aircraft.

FY 2007 Output: Eight Ceramic Matrix Composite (CMC) F100 exhaust nozzle divergent seals have been flying in an FSE at McEntire Joint National Guard Base (JNGB) since 17 Aug 2005 on two F-16 fighter aircraft. Twenty additional CMC seals were purchased and shipped to Mountain Home AFB. Seals are currently flying on four F-15 aircraft. Two seals were removed for measuring Key Performance Parameters (KPP). All KPP were easily passed and allowed for a detailed full life cycle cost analysis to be completed to document the value of using F100 CMC divergent seals. Meeting held at Tinker AFB 18 July 2007 to review results from Field Service Evauluation (FSE) and KPP, and to discuss follow-on procurement of CMC seals. Project expanded to include evaluation of the CMC seals on the F414 engine that powers the Navy F/A-18E/F fighter. Six (6) F414 exhaust nozzles were ground engine tested to ~50 percent full life. The seals were in "Like New" condition after the engine test. Contract signed with F414 engine manufacturer to analyze CMC seals and to conduct additional ground testing of CMC seals on a F414 engine. A total of 24 additional F414 seals have been purchased to support continued ground testing and an FSE.

FY 2008 Planned Output: Continue F100 FSE flight test of CMC Divergent Seals at McEntire JNGB and Mountain Home AFB. Complete an Engineering Change Proposal to officially document F100 CMC divergent seals as fully flight certified. Submit report on F100 field service evaluation. For the F414, a two times life ground test will be conducted to determine durability improvements and to generate required data to allow the program to proceed to a FSE. Start FSE on an F/A-18E/F fighter.

FY 2009 Planned Output: FY 2008 funds will continue to provide the following FY 2009 planned action: Continue FSE of CMC seals on F/S-18E/F. Evaluate CMC seals from FSE and submit final report. The CMC Divergent Seal project is schedule for completion in March 2009. The transition managers are the F100-100/200/229 Augmentor Program Manager and Naval Air Systems Command.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Improved Performance Environmental Control System (Army)	1.054	0.886	

Outcome: This project will lower the risk of potential loss of life of wounded soldiers being transported from the point of injury to the causality collection point by providing the HH-60M Medical Evacuation (MEDEVAC) Helicopter with a fully missile capable Environmental Control System (ECS). It will provide the Army with a more robust and efficient heating and cooling environment within the HH-60M for the wounded soldiers. The ECS will be more efficient, affordable and reliable and weigh 49 lbs. less than the current ECS. Outputs: The primary output of this program will be a fully qualified ECS for the HH-60M MEDEVAC aircraft. This includes: (1) qualification to the performance specification for the ECS, (2) qualification against the electromagnetic susceptibility requirements for the Army, (3) qualification against the environmental requirements of the Army, and (4) a full Interim Safety and Airworthiness Qualification statement for the ECS. Efficiency: Weight savings - 49 lbs., $31.000 million in life cycle O&S costs savings, resolve obsolescence issues and increase cooling capacity.

FY 2007 Output: Conducted IPT Meetings. Requisitioned test article. Received qualification by similarity documentation from vendor for evaluation by the Aviation Engineering Directorate (AED) to determine if sufficient testing by other services has been performed to satisfy the test requirements without having to perform those tests. Conduct Critical Design Review. Prepare and finalize test plans. Received AED approval of Environmental and Electromagnetic Interference Test plans.

FY 2008 Planned Output: Receive test article for evaluation. Complete Environmental and Electromagnetic Interference testing at Redstone Technical Test Center. Complete test reports and submit for approval and Airworthiness Qualification. Initiate and complete Phase two (Flight) testing at Aviation Technical Test Center. Incorporate ECS into HH-60M baseline.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Improvements to Suite of Integrated Radio Frequency Countermeasures Systems (SOCOM)	0.406	0.868	

Outcome: Technology advances have made gallium arsenide (GaAs) high frequency Radio Frequency (RF) Amplifier chips commercially available, which would reduce bare component costs as well reduce test and tuning time for Microwave Component Assemblies (MCA's) within the AN/ALQ-211 Suite of Integrated Radio Countermeasures (SIRFC) system, thereby preventing obsolescence of RF micro-chip assemblies and reducing the threat of diminishing material sources of supply. Primary outputs and efficiencies to be demonstrated in the this DAC project include: (1) validation that commercially available GaAs RF chip component insertions to replace the current MCA's provide easier tuning during manufacturing and depot repair operations; (2) demonstration of the capacity to detect and jam the most modern RF threats to Special Operations Aviation (SOA); and (3) reduction in unit/operations and sustainment cost and no necessity for skilled labor. Significant cost savings could be realized for upcoming manufacturing, assembly and sustainment of the ALQ-211 SIRFC on MH-47, MH-60, CV-22 and other Joint aircraft applications totaling approximately $17.900 million.

FY 2007 Output: Analyzed vendor test data and completed project test planning; conducted analysis and integration studies; completed procurement contract for test articles and vendor services and took possession of test articles; began Phase I concept demonstration.

FY 2008 Planned Output: Complete Phase I concept demonstration; and begin Phase II integration, vendor demonstration and validation testing;.

FY 2009 Planned Output: FY 2008 funds will continue to provide the following FY 2009 planned actions: Complete Phase II integration, vendor demonstration, and validation testing; finalize procurement & fielding decision documentation based on test and evaluation; submit project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Low Cost Land Warrior Cable Connector System (Army)	0.695	0.615	

Outcome: Current Land Warrior connectors are machined out of stainless steel. Many failures are being experienced in the field. The purpose of this project is to look for alternative

cable/connectors that are more reliable and cost effective without degrading current performance. Developed contract requirements and awarded the contract to develop the alternative cable/connectors solution. The contract kickoff meeting is scheduled for 20 June 2007. Efficiency: This project will reduce manufacturing time and cost for connectors down to $0.015 million/shell and cut manufacturing and connector lead time significantly. Current Land Warrior connectors are made with connector shells that are machined out of stainless steel that requires more than 15 minutes of machining time, costing approximately $0.025 million/shell. Each Land Warrior ensemble needs ten cables, twenty cable connector shells plus twenty receptacle body connector shells, (40 shells total) costing approximately $0.001 million per ensemble. The cost per ensemble could be reduced to $0.600 million as a result of this project. Savings of $0.400 million per ensemble are expected.

FY 2007 Output: Developed a program plan, test plan, and researched the various failure modes from Land Warrior damaged cables provided by the Government. Initiated tests to ensure that Land Warrior performance is maintained.

FY 2008 Planned Output: Further evaluate additional cable failures and determine feasible alternatives to test. Upon successful completion of the test, the Government will receive prototypes and technical information to further produce cost effective and reliable cables/connectors.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Modular Advanced Composite Armor Kits for SUVs (SOCOM)	1.338	1.465	

Outcome: The project will test lightweight, advanced composite armor for SUVs and Special Operation Non-Standard Civilian Vehicles that can be easily installed and repaired in the field by non-technical personnel without the need for special tools or equipment. This technology will provide immediate force protection and increased survivability for Special Operation Forces prosecuting the Global War on Terrorism. The primary output and efficiency to be demonstrated in this DAC is modular fit and design armor kits that provide National Institute of Justice Level IV/NATO-STANAG Level 3 protection from small arms and antipersonnel fragmentation mines. RDT&E, manufacturing and production cost avoidance savings anticipated as a result of this project are approximately $68.000 million.

FY07 Output: Completed project plan of action and milestones; solicited and received product sample coupons from interested vendors; conducted Phase I initial technical evaluation and live fire testing; carried out a down selection of vendor materiel solutions for further testing; completed procurement/test article contracts with selected vendors.

FY08 Planned Output: Complete evaluation of vendor data and finalize test planning; conduct analysis and vehicle integration studies; obtain contracted test articles; carry out Phase II technical, environmental and live fire testing; conduct Phase III form fit function, safety and operational testing and evaluation; finalize Milestone C procurement and fielding decision package based on test and evaluation; submit project closeout report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
RF Synthetic Instrument Signal Processing Engine Enhancement (RF-SISPEE) (Air Force)	1.280	0.738	

Outcome: To expedite repair of critical aircraft avionics and electronic attack jamming pods, measurably contributing to aircrew and aircraft survivability and weapons platform availability. This single synthetic instrument leverages the power of the latest technologies in Digital Signal Processing (DSP) techniques and simplified VXI-based hardware to measure electrical signals more accurately than the many special purpose measurement instruments it replaces. The reduction in hardware resulting from the replacement of traditional measurement instruments with a single DSP-based system will increase the reliability of the test equipment and reduce the maintenance and calibration downtime of test equipment. The lead service is Air Force. The primary outputs and

efficiencies to be demonstrated are timely and accurate diagnoses of electronic attack pod failures, thus contributing to aircrew and aircraft survival.

FY 2007 Output: Completed evaluation of signal processor engines and evaluation of signal processing software and firmware.

FY 2008 Planned Output: Demonstrate the portability of existing DSP software to Signal Processing Engine. Transition Manager is Ogden Air Logistics Center.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Unmanned Surface Vehicle (USV) Mine Neutralization (Navy)	1.146	0.518	

Outcome: An effective, efficient, low risk method for providing mine neutralization initially from a Manned Surface and ultimately from a Unmanned Surface Vehicle (USV). This fleet Mine Neutralization System is a Military-off-the-Shelf (MOTS) mature and reliable system for the relocation, identification and disposal of sea mines and other ordnance found at sea.

FY 2007 Output: Preliminary Design review of Vehicle launcher, portable console, and neutralizer modifications. Completed critical design review of launcher, approved launcher design, and authorized fabrication of initial unit. Received final verification from BAE systems regarding Archerfish integration issues, and have determined that Archerfish integration with the console will be feasible. Government is currently contracting for GFE components to facilitate Archerfish integration.

FY 2008 Planned Output: Complete Test and Final close out Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Armored Biological Integrated Detection System (BIDS) (Army)		1.218	1.800

Outcome: To provide armor protection to the currently fielded Biological Integrated Detection System (BIDS) in order to maintain its operational mission of conducting biological surveillance and providing a basis for medical personnel to determine effective countermeasures. In February 2007, Army G8 decided to upgrade the BIDS platform from a M31E2 to M1083A1R LTAS Medium Tactical Vehicle. The primary outputs and efficiencies to be demonstrated are as follows: (1) warfighter protection thereby reducing crew vulnerability to IEDs and small arms, (2) restored BIDS mission in high threat areas outside forward operating base, and (3) supports Army G8 supplemental $10.000 million production M1083A1R LTAS. The program is Army lead. RDT&E Cost Savings is estimated at 10.000 million. Fielding Reduction: 2 years. Procurement Potential: 35 per chemical company at $52.500 million. Other Benefits: survivability in high threat areas.

FY 2008 Output: Identified and ordered platform with Program Manager funds. Completed initial design for integration. Met with Army Test and Evaluation Command (ATEC) and completed the test outline.

FY 2008 Planned Output: Acquisition and engineering design of incorporating the S788 BIDS shelter from the M31E2 to the M1083A1R LTAS. Integration testing along with limited user tests will be conducted.

FY 2009 Planned Output: Performance verification tests of the integrated S788 shelter on the M1083A1R LTAS platform will be conducted to ensure BIDS performance does not change, and the unit will be safe to operate. Transition manager is Joint Program Manager Biological Defense. Fielding is expected 4Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Assessment of Lightweight Weapon Mount (Navy)		2.638	2.420

Outcome: This project seeks to test new stabilization technologies for mounting weapons. Such mounts have been developed for the Motion Picture industry that stabilizes heavy cameras on turbulent moving platforms. This technology has received preliminary testing by Navy SEALs in live fire tests with a .50 caliber, M2 Browning was mounted on a HMMWV and held rounds in a tight grouping during off road testing. The overall comment from the SEALs was that this technology should be fielded to Iraq as soon as possible.

FY 2008 Planned Output: develop and issue Market Survey. Develop Contract Requirements for procuring first article test unit and other additional test items. Procure Test Ammunitions. Develop Test Plan.

FY 2009 Planned Output: Conduct Technical Testing and Field User Evaluation. Prepare Weapons System Explosive Safety Review Board (WSESRB) review and certification. Modify test unit to meet requirements. Complete Technical Testing. Receive Technical Test Report and Close-out Report.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Collaborative Video Dissemination Service (Air Force)		0.990	0.800

Outcome: To demonstrate and document a cost-effective, wide-area video exploitation and dissemination capability that improves the analytical value of unmanned aerial systems (UAS) video. Video backhaul systems provides a powerful, but manpower intensive, situational awareness capability to end users at supporting commands. The system as currently configured, however, does not provide the end user with the ability to record, analyze, fuse or otherwise manipulate the video streams, making the ingestion of the UAS intelligence extremely cumbersome. The Collaborative Video Dissemination Service (CVDS) will provide these capabilities. The lead Service is Air Force. The primary outputs and efficiencies to be demonstrated are (1) transmission of NGA compliant and properly formatted UAS telemetry information along with the UAS video that is backhauled for dissemination to deployed units and analysis centers, (2) a significant reduction in the manpower required to view and exploit the video by leveraging and sharing analyst notations from any of the exploitation sites, and (3) optimization of satellite bandwidth by opportunistically injecting staged content (video, imagery, intel) into the forward broadcast.

FY 2008 Planned Output: Complete critical design review, hardware/software procurement, prototype integration and configuration, and test plan development. Initiate and complete test execution and validation and initiate prototype demonstration.

FY 2009 Planned Output: Complete prototype demonstration. Conduct post demonstration review. If review favorable, begin transition planning for field service evaluation and deployment. Complete close-out report. The transition manager is the Defense Information Systems Agency.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Conversion of the Existing F-15 C/D Analog HUD to a Digital HUD (Air Force)		0.918	1.940

Outcome: To demonstrate and document the flight characteristics and increased operational utility and reliability of a digital Head-up Display (HUD) over the analog display currently employed in the F-15 C/D aircraft. The goal is to qualify the item as a preferred spare for the F-15. The lead Service is Air Force. The primary outputs and efficiencies are: (1) realization of significant net acquisition cost savings for item replacement and (2) a significant decrease in downtime due to HUD maintenance resulting from the replacement of the analog HUD with the more easily maintained digital HUD.

FY 2008 Planned Output: Complete and award contract. Leverage findings from F-18 Hornet digital HUD demonstration and qualification to facilitate the completion of software and hardware component integration and installation of the unit into aircraft. Prepare for qualification activities in FY 2009.

FY 2009 Planned Output: Provide two upgraded units to be used for flight demonstration and verification. Prepare for flight worthiness qualification. Finalize flight worthiness test final report. The F-15 digital HUD project is scheduled for completion in June 2009. The transition managers are the F-15 C/D system program office, Wright Patterson AFB, OH, and the F-15 HUD item manager, Warner Robins Air Logistics Center, Warner Robins AFB, GA.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Enhanced Smart Triple Ejector Rack (Air Force)		2.118	1.000

Outcome: To demonstrate and document the flight characteristics and increased operational capability of a modified Triple Ejector Rack -9A (TER-9A). This modification will incorporate the MIL-STD-1760 Common Aircraft and Weapons Electrical Interface into the TER 9A, currently employed on the F-16 aircraft. This modification will increase F-16 smart weapons carriage from two Joint Direct Attack Munitions (JDAM) to six. The goal is to qualify the modified TER-9A for employment on Active and ANG F-16 aircraft. The lead service is Air Force. The primary outputs and efficiencies to be demonstrated are; (1) a modification of the TER-9A to a smart weapons capability while keeping its conventional capability; (2) a resulting reduced logistics footprint in the form of less maintenance man hours to re-configure aircraft for mission changes and (3) increased aircraft availability as more bombs per aircraft can ultimately reduce aircraft required for the mission.

FY 2008 Planned Output: Complete contract modification and statement of work. Acquire US Government-furnished test articles and mod kits. Initiate test and evaluation of item.

FY 2009 Planned Output: Continue test and evaluation. Complete close-out report. Initiate low-rate initial production, initial fielding, and begin field service evaluation followed by full-rate production. The transition managers are the 646 Aeronautical Support Squadron (ASC) and ACC/A4WA.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
F/A-18 Countermeasures Pylon Longer Duration IR/RF Expendables (Navy)		1.200	1.060

Outcome: This program evaluates and qualifies an Aircraft Countermeasure Dispensing System (ACDS) in an F/A-18 wing pylon configuration using the Raytheon Comet system currently employed on the A-10 aircraft in a different configuration. The current A-10 configuration is not acceptable for employment on the F/A-18 aircraft. The F/A-18 configuration will mount a fairing to the side of the pylon keeping the ejection station free for weapons carriage. The ACDS will provide increased survivability and time on target. ACDS will also add preemptive capability, preventing seeker lock-on by adding five times the amount of countermeasures that is currently available.

FY 2008 Planned Output: Complete hardware design, M&S and install hardware on the aircraft wing pylon. Minimal flight testing will be accomplished.

FY 2009 Planned Output: Complete qualification testing and source selection.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Joint Warfighter Biological Agent Sensor (Army)		0.702	1.200

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDTE, Defense Wide BA 05	**0604051D8Z - Defense Acquisition Challenge Program (DACP)**	**P051**

Outcome: Competitive test and evaluation of automated Commercial off the Shelf (COTS) Biological Agent identification sensor for performance and cost advantages to support the warfighter in high threat areas. The best value sensor will upgrade the currently fielded Joint Biological Point Detection System (JBPDS) and Joint Portal Shield (JPS) assay based Identifiers to reduce biological warfare agent exposure by identifying Bacteria, Viruses, and Toxins with one-three orders of magnitude increase in sensitivity within 15 minutes or less for the fielded sensors. The primary outputs and efficiencies to be demonstrated are as follows: (1) improved identification sensitivity performance in order to eliminate need for sensitivity waivers; (2) decreased operational and sustainment cost especially in the area of consumables, and (3) supports hardware commonality to include both JBPDS and JPS systems. The program is joint service with Army as the lead. RDT&E Cost Savings: $14.000 million based on cost analogy from the original JBPDS from EMD 1996 to when it entered Low Rate Initial Production (LRIP) in 2001. O&S Cost Savings: $4.000-$6.000 million estimated, based on reduction of cost of consumables. Procurement Cost Savings: $0.000-$40.000 million per system. Fielding Reduction: two years. Procurement Potential: ~580 systems or $24.000 million. Other Benefits: Joint Service and supports four Biological Detection Programs.

FY 2008 Output: Completed comprehensive evaluation and selected seven potential Biological Identifiers for follow-on lab tests in June 2007. Completed chamber testing using biological agents at Dugway Proving Ground on all candidates, Sep-Oct 2007. Currently finishing evaluation and will down select to best candidates by February 2008.

FY 2008 Planned Output: A technology readiness evaluation (TRE) was conducted in FY 2007 of potential COTS systems. Results of this TRE are expected in early 2Q FY 2008. Best value system(s) will be procured to undergo extensive validation to include live biological agent testing and interferent testing.

FY 2009 Planned Output: System will be integrated as the identifier into the JPS and JBPDS systems. Integration will include product verification testing such as hardware MIL STD 810 type testing. The integrated system will undergo biological simulant testing to verify integration and did not affect performance. Once safety and integration testing is completed, operational and maintenance procedures and documentations will be adjusted for warfighter usage. Transition manager is Joint Program Manager Biological Defense.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Mobile IP Interface to TDL (Navy)		0.908	0.700

Outcome: To demonstrate dynamic integration of Tactical Data Links (TDLs) via the US Fleet's tactical IP backbone, which is provided by the Automated Digital Network System (ADNS). The lead service is the Navy. ADNS is managed by SPAWAR PMW 160. Two-year project sponsored by OSD with completion date of end of FY 2009. The primary outputs and efficiencies to be demonstrated are the (1) capability for TDL platforms to automatically maintain communications with other TDL platforms when one platform migrates to a different TDL net; (2) a COTS-based system and network design for this purpose that is compatible with ADNS; (3) increased access for IP users to COMMS with TDL users (4) reduced communications down time as TDL platforms change nets; (5) reduced management burden for TDL nets used in tactical operations.

FY 2008 Planned Output: Define interface to TDL/IP gateway, such as the Joint Range Extension device (JRE). Identify appropriate configurations of user application, DNS and Mobile IP software for use in testing and demonstration. Demo of dynamic TDL/IP integration functionality in lab.

FY 2009 Planned Output: Joint field trial testing between ADNS and JRE, targeting Trident Warrior exercise. Begin transition of system to the ADNS, the transition manager is SPAWAR PMW 160/ADNS Program Office. Finalize configuration and conops documentation. Spiral output is a system based on COTS hardware, Cisco Routers, DNS servers, Mobile IP software that is integrated with the ADNS system.

FY 2010 Planned Output: Complete transition to ADNS and integration into the ADNS configuration. Estimated completion date is Dec 2010. Prepare DAC close-out report.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDTE, Defense Wide BA 05	**0604051D8Z - Defense Acquisition Challenge Program (DACP)**	**P051**

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Omni-Directional Antenna for M156 MI-RAMS (Army)		0.918	0.750

Outcome: Dramatically reduce time on target (mission survivability) and increase mission effectiveness through higher operational reliability in challenging target environments (underwater, urban, littoral, night operations, constrained target sets). Army Combat Engineers and Special Operations Forces may place demolition charges and their M156 Magneto-Inductive Remote Activation Munitions System (MI-RAMS) initiator in any attitude (up, down, sideways) instead of vertically only. The primary outputs and efficiencies to be demonstrated are as follows: (1) 3-Axis Antenna (All Orientation) Antenna for Army/SOF M156 and XM40 MI-RAMS; (2) Technical Data Package suitable for Full Rate Production and (3) Test data to allow a Type Classification Standard decision. The lead service is Army. RDTE Cost Avoidance: $10.000 million; O&S Cost Avoidance: $5.000 million; Manufacturing Cost Avoidance: $5.000 million; Procurement Cost Avoidance: $5.600 million; Fielding Reduction: 3 Years; Procurement Potential: 3,500 units / $7.000 million.

FY 2008 Output: Draft Statement of Work. Draft Test Plan.

FY 2008 Planned Output: Test plan submission, January 15, 2008. Contract Award 2Q FY 2008. Test Item Delivery, 4Q FY 2008. Production Qualification Testing (Start) 1Q FY 2009.

FY 2009 Planned Output: Production Qualification Testing 1Q FY 2009. User Testing, 1Q FY 2009. Type Classification Standard (Milestone C) 2Q FY 2009.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
Sinuous Sprial Antenna for the AN/ALQ-211 EW System (SOCOM)		0.728	0.720

Outcome: This project will be a qualification test and evaluation of a new detection antenna for the ALQ-211 Suite of Integrated Radio Frequency Countermeasures (SIRFC) currently being fielded on the Special Operations MH-47G and CV-22 aircraft. SIRFC identifies the location of radio frequency guided threats on the electronic warfare battlefield and the sinuous spiral antenna would significantly enhance the detection of poorly and ambiguously detected threats. The new antenna provides polarization sensitivity allowing SIRFC to better correlate the received signal with its order of battle database, which leads to quicker identification and jamming. Improved sensitivity provided by the sinuous spiral antenna ensures threat detection in all aircraft attitudes; conversely, allows Special Operation aircraft to jam enemy radars in all aircraft attitudes, improves threat geo-location and enhances situational awareness. The RDT&E cost avoidance is $10.000 million and procurement cost avoidance is: $3.000 million.

FY2008 Planned Output: Complete contract for test services; receive test articles; and conduct Phase I - Concept Demonstration.

FY2009 Planned Output: Complete Phase II, Implement, Test & Validation, complete test reports; obtain a Milestone C procurement decision; submit closeout report and initiate production options as applicable.

Accomplishments/Planned Program Title:	FY 2007	FY 2008	FY 2009
FY 2009 Plans			17.973

FY 2009 Plan: The DAC program will continue to fund testing activities on 10 projects executing $11.240 million in FY 2009 funding. Remaining funding will be used to initiate new start DAC projects selected from the FY 2009 DAC proposal process. The FY 2009 final proposal selection process is scheduled for the fourth quarter FY 2008.

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

D. Acquisition Strategy The Acquisition Strategy for DAC is as outlined in Title 10. DAC is to provide opportunities for the increased introduction of innovative and cost-saving technology in acquisition programs of the Department of Defense. DAC funding is used to fund testing of commercial and non-developmental items that could result in improvements in performance, affordability, manufacturability, or
operational capability of an existing acquisition program. It is expected that should testing be successful, procurement using the respective current program funding would be used for acquisition.

E. Major Performers Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604051D8Z - Defense Acquisition Challenge Program (DACP)

PROJECT
P051

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
VARIOUS	VARIOUS	VARIOUS										
Subtotal:												

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Various Projects	TBD	TBD			1-4Q		1-4Q					
Subtotal:												

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Various Projects	Various			28665	1-4Q	28718	1-4Q	30363	1-4Q		87746	
Subtotal:				28665		28718		30363			87746	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Various Projects	Various	TBD			1-4Q		1-4Q					
Subtotal:												

Project Total Cost:				**28665**		**28718**		**30363**			**87746**	

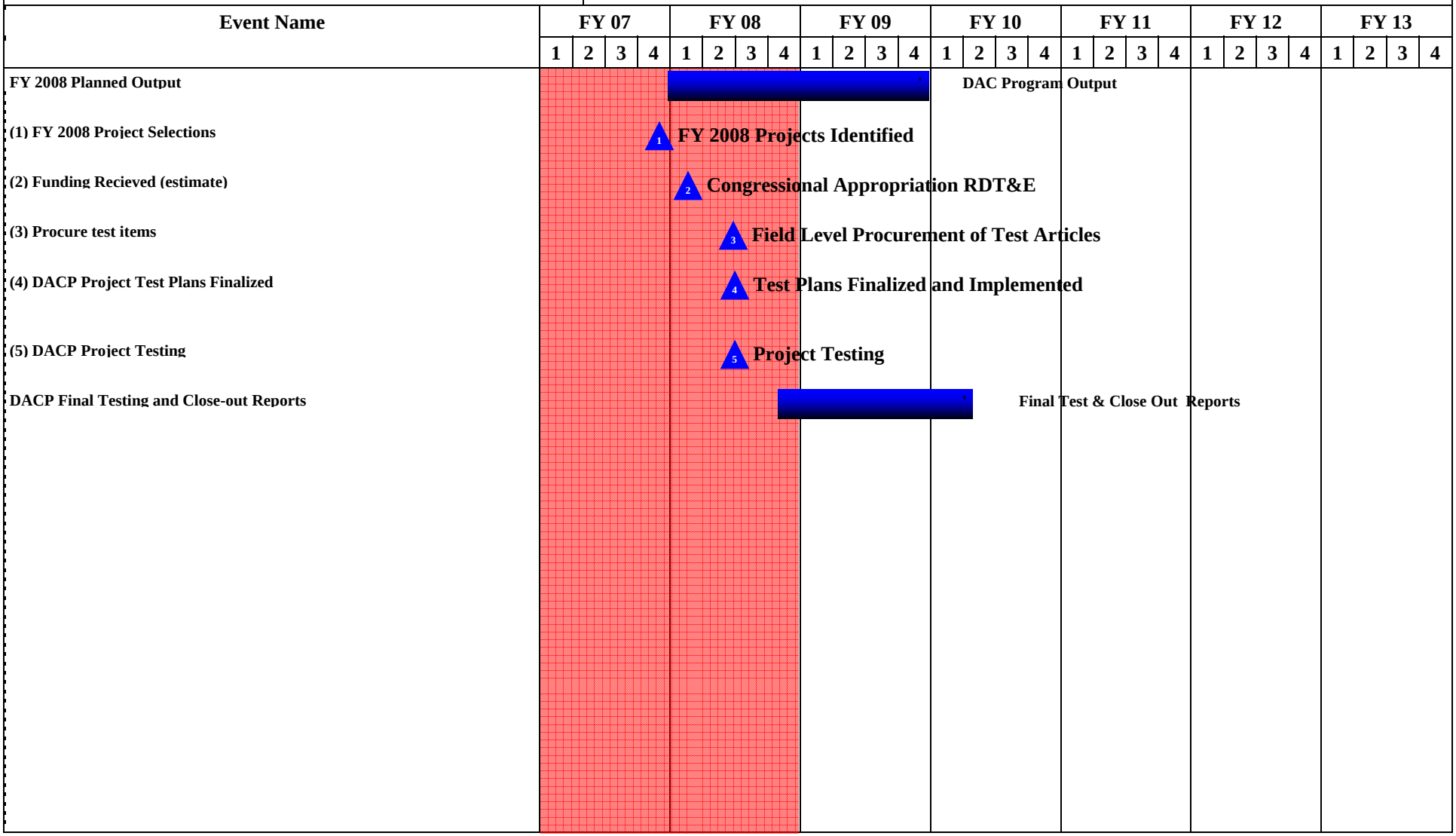
Schedule Profile (R4 Exhibit)

February 2008

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604051D8Z - Defense Acquisition Challenge Program (DACP)

PROJECT
P051



Schedule Detail (R4a Exhibit)

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration (SDD)	**0604051D8Z - Defense Acquisition Challenge Program (DACP)**	**P051**

Schedule Detail	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FY 2008 Planned Output		1Q - 4Q	1Q - 4Q				
FY 2008 Project Selections	4Q						
Funding Recieved (estimate)		1Q					
Procure test items		2Q - 4Q	1Q - 2Q				
DACP Project Test Plans Finalized		3Q - 4Q					
DACP Project Testing		3Q - 4Q	1Q - 4Q	1Q			
DACP Final Testing and Close-out Reports		4Q	1Q - 4Q	1Q - 2Q			

Final selection of FY 2008 DAC new start projects was determined in September 2007. 13 FY 2008 DAC new start projects were funded. Presidential approval of the Congressional appropriation was not accomplished until November 2007. Field level contracts will be rapidly obligated through March 2008. Test plan implementation and product testing will be in full execution through July 2009. Final tests and close-out reports will continue through January 2010. The FY 2009 program will follow the same sequence of events but approximately one year later.