Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	32.050	34.771	32.755	0.000	32.755	33.048	33.398	33.932	34.463	Continuing	Continuing
P130: *FCT*	32.050	34.771	32.755	0.000	32.755	33.048	33.398	33.932	34.463	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

Since the program's inception in 1980, Office of Secretary of Defense (OSD) has initiated 601 projects; 514 projects have been completed to date. Of the 279 evaluations that met the sponsors' requirements, 200 led to procurements worth approximately $9.060 billion in FY 2009 constant year dollars. With an Office of Secretary of Defense investment of about $1.170 billion, the FCT program has realized an estimated RDT&E cost avoidance of $7.600 billion in FY 2009 constant year dollars.

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

Final selection of FY 2011 FCT new start projects will be determined in September 2010.

This RDT&E Category 6.5 is assigned and identified in this descriptive summary in accordance with existing DoD policy.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	**R-1 ITEM NOMENCLATURE** PE 0605130D8Z: *Foreign Comparative Testing*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	34.718	35.054	0.000	0.000	0.000
Current President's Budget	32.050	34.771	32.755	0.000	32.755
Total Adjustments	-2.668	-0.283	32.755	0.000	32.755
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.283			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-2.182	0.000			
• SBIR/STTR Transfer	-0.486	0.000			
• Other Program Adjustments	0.000	0.000	32.755	0.000	32.755

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
P130: *FCT*	32.050	34.771	32.755	0.000	32.755	33.048	33.398	33.932	34.463	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

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

Since the programs inception in 1980, Office of Secretary of Defense (OSD) has initiated 601 projects; 514 projects have been completed to date. Of the 279 evaluations that met the sponsors' requirements, 200 led to procurements worth approximately $9.060 billion in FY 2009 constant year dollars. With an OSD investment of about $1.170 billion, the FCT program has realized an estimated RDT&E cost avoidance of $7.600 billion in FY 2009 constant year dollars.

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

This RDT&E Category 6.5 is assigned and identified in this descriptive summary in accordance with existing DoD policy.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
20 mm Replacement Round (Air Force)	0.284	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
This project is evaluating 20 mm ammunition developed by Diehl Munitionssyteme of Germany and Oerlikon of Switzerland to replace current 20 mm combat rounds. The in-service round, the Projectile Gun Unit 28B (PGU-28B), currently presents a safety hazard due to 25 in-barrel detonations that caused aircraft damage and could have resulted in pilot death and loss of the aircraft. The PGU-28B inventory has been declared "For Emergency Use Only" even though the rounds meet the United States Air Force requirements for employment ranges and target damage. The current alternative, the M-56 round, requires the pilot to engage targets at significantly closer ranges without the same lethality, resulting in an increase in vulnerability. The Diehl Projectile Enhanced Lateral Effect (PELE) round design offers a unique capability by using a kinetic energy concept to achieve the desired explosive effects, while having no fuse. This type of technology offers the promise of a mechanically safe and cost-effective round. If selected, the PELE will utilize the same logistics support as the current 20 mm round. There are also possible logistics benefits in terms of storage and transportation because of the lower hazardous classification associated with this design. Finally, the cost and design of this round may allow the Air Force to transition to a single round for both combat and training with associated benefits in user proficiency and regularly rotated stock. *FY 2009 Accomplishments:* During the rough handling test several nose caps were dented. A projectile re-work plan was presented by ATK, Inc. to replace current nose caps with new nose caps that will undergo an ultrasonic inspection process prior to assembly on the PELE projectile. All PELE rounds at Eglin, Air Force Base (AFB) were inventoried and packaged for return back to ATK, Inc. for re-work of the projectiles with new nose caps. Air Armament Center (AAC) Safety has cleared the 780TS for air-to-ground Development Testing/Live Fire Testing and Evaluation (DT/LFT&E) testing as soon as the re-worked rounds are returned to Eglin. *FY 2010 Plans:* Eglin AFB Bomb Dump will ship out the PELE rounds on 13 October 2009 to ATK to meet a required delivery date of 15 October 2009. Update test schedule based on input from ATK, Inc. on the					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
progress of the re-work effort. Conduct air-to-ground DT/LFT&E to demonstrate the lethality and effectiveness of the PELE projectile when fired against various targets. Work with the 53rd Wing on their Operation Test and Evaluation test schedule and ensure test assets are moved to the required location. Procure test rounds and commence Operational Evaluation (OPEVAL) with Air Force funding.					
20 mm Training System for Carl Gustaf (Special Operations Command) This project was re-advertised in Federal Business Opportunities (FedBizOpps) to consider other than 20 mm candidates to preclude a possible protest and is now entitled Cannon Caliber Training System for Carl Gustaf. The Carl Gustaf is the primary anti-armor and anti-personnel weapon for the US Army Special Operations Command and US Naval Special Warfare Command warfighters. The primary outputs and efficiencies are as follows: cannon sub-caliber training rounds inserted into an 84 mm weapon adapter will provide cost efficient, realistic training; while ensuring more expensive 84 mm ammunition is available for mission accomplishment. The RDT&E potential savings is estimated at $3.400 million and procurement is estimated at $145.000 million. Total Operations and Support savings are estimated at $46.000 million. Fielding reduction is greater than three years. Completion date is scheduled for September 2011. *FY 2009 Accomplishments:* Republished a Sources Sought notification in FedBizOpps to determine possible qualifying candidates, other than 20 mm sub-caliber training systems as originally requested. Performed a source selection of the respondents to the solicitation and contracted for test articles. Conducted test planning, prepared Spend Plan and Summary Test Plan. Began system level one testing as described in the Test Plan. *FY 2010 Plans:* Continue system level one testing. Conduct system level two testing, follow-on to the initial level one technical testing. Begin integration of adapter hardware to the rifle. Conduct minimal safety testing to	0.568	1.792	1.210	0.000	1.210

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
obtain safety releases. Achieve Type Classification for limited production units. Conduct limited user testing. *FY 2011 Base Plans:* Present test results before Joint Service Weapons Safety Review Process. Combine developmental and operational testing. Conduct User Assessment. Prepare Milestone C Decision and complete closeout report.					
25 mm Round for Joint Strike Fighter (JSF)/F-35 (Air Force) This project will qualify this 25 mm round for the gun to be used on the JSF. A Dual-purpose 25 mm x 137 medium caliber ammunition round manufactured by RWM Schweiz (Rheinmetall Defense) AG in Switzerland will be tested by the 28th Test Wing at Eglin Air Force Base. The primary outputs and efficiencies to be evaluated are as follows: to satisfy the US Air Force F-35/A gun system requirement of defeating both soft targets and lightly armored vehicles with a single ammo type. No round is currently qualified to meet the unique lethality requirements for the JSF. *FY 2009 Accomplishments:* A request was sent to RWM Schweiz for the delivery of 100 rounds. These rounds were used to perform a preliminary evaluation of the gun/ammo interface to validate round integrity and to assess projectile effectiveness. After successfully completing the first phase of the FCT, an additional 10,000 rounds will be acquired from the vendor in order to perform the qualification test. General Dynamics Armament and Technical Produsts(GDATP) is more than six months overdue providing Mann (heavy walled test barrels) barrels. This delay in Mann barrel delivery may impact Rheinmetall's ability to deliver ammunition on schedule. The Program Office (685 ARSS) held first Risk Management Board on 30 July 2009 to identify and establish path forward to mitigate any known risks. Continued development of programmatic and contractual documentation required for contract award to GDATP for qualification testing. Proposal received 11 August 2009. The Program office at Eglin held a fact-	0.795	0.239	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
finding teleconference with General Dynamics 1 September 2009. GDATP responded to the fact-finding questions with an updated proposal 18 September 2009. *FY 2010 Plans:* Technical evaluation of new GDATP proposal by 685 ARSS was completed 13 October 2009. Contract with GDATP for qualification test effort in November. Contract award has been delayed from September to November due to slow responses from GDATP and their subcontractors. Additionally, GDATP's original proposed schedule did not reflect that Rheinmetall test qualification rounds would not be available until October 2010 (as briefed 24 February 2009). Continue to develop programmatic and contractual documentation required for award of contract with Rheinmetall for procurement of rounds—estimated contract award 2Q FY 2010. Update schedule and funding based on Royal Netherlands Air Force (RNLAF)/Rheinmetall/GDATP round maturation effort and negotiated contract with GDATP. Continue to work with RNLAF, Rheinmetall, and GDATP to identify and minimize duplicative efforts to reduce combined round maturation and FCT qualification testing schedule. USAF FY 2010 execution year funds have been promised to procure ammunition from Rheinmetall and complete qualification testing. Funds were requested no later than 1Q FY 2010 to contract with Rheinmetall 2Q FY 2010. *FY 2011 Base Plans:* FCT schedule projected to extend into 4Q FY 2011 based on RNLAF round maturation schedule.					
40 mm Tactical Marking & Day/Night Training Cartridge (Special Operations Command) The 40 mm Day/Night training cartridges allow soldiers to train as they fight at night, using their night vision goggles, and to easily spot markers and cartridges, a capability not currently available. The primary outputs and efficiencies are as follows: this inert training ammunition is less toxic and will reduce range clean up costs by 10-20 percent, prevent range fires in the impact areas of bases in Southern California and will save over $1.000 million a year in base operations and maintenance funds (one fire alone burned 8,592 acres on the base and surrounding community, required 1,300 firefighters,	0.681	0.000	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
numerous fire trucks, and a dozen aircraft from various agencies to extinguish) as well as save lives and prevent injuries caused by unexploded ordnances. The RDT&E potential savings is estimated at $9.000 million and procurement is estimated at $5.000 million. Operations and Support savings are estimated at $10.000 million annually. Completion date is scheduled for June 2010. *FY 2009 Accomplishments:* Addressed flight problems with round and made changes to the design. Received modified Test Articles. Adjusted schedule and conducted Initial Qualification Testing. Safety and Hazard Classification releases for modified test articles, which allowed continued testing. Fielding and Deployment Release completed for the Day/Night Trainer. *FY 2010 Plans:* Continue User and Operational Evaluations of the Tactical Marker. Obtain Joint Service Safety Review Confirmation and continue analysis, study, and engineering change requests for the tactical marker. Complete safety documentation for a Full Rate Production Delivery and Milestone C Decision. Documentation includes Safety Certification and System Production Certification. Complete FCT closeout report 2Q FY 2010.					
40 mm L60 High Explosive Incendiary (HEI) (Special Operations Command)	0.000	0.981	0.000	0.000	0.000
This project will qualify multiple sources of 40 mm L60 HEI ammunition for the AC-130 gunship, Air Force Special Operations Command's (AFSOC) premier combat support aircraft. AFSOC had planned to replace its Bofors 40 mm canon with a 30 mm Bushmaster but due to fire control integration issues, AFSOC is no longer pursuing that as an option. The 40 mm ammunition replacement is now a critical requirement. The primary outputs and efficiencies are as follows: after January 2011, the 40 mm ammunition will no longer be available for AFSOC missions at the current rate of usage. Total RDT&E cost avoidance exceeds $20.500 million. Fielding reduction is greater than ten years. Completion date is scheduled for December 2010.					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Procured test articles to be used for source selection using multiple foreign sources. Continued test planning and analyzing vendor data. Contracts awarded to multiple vendors to allow for accreditation of multiple rounds. Begin qualification process for Insensitive Munitions (IM) fill materials and target building. *FY 2010 Plans:* Conduct technical and safety testing. Begin the operational and user assessments of different rounds. Obtain Air Worthiness certification and IM Compliance. Obtain Joint Munitions Safety Review certification. *FY 2011 Base Plans:* Prepare Milestone C Decision and closeout report.					
5.0-Inch Steel Strip Laminate (SSL) Rocket Motor Case (Navy)	0.014	0.000	0.000	0.000	0.000
This project will demonstrate the capability SSL rocket motor case technology that may provide potential safety improvements to the Zuni Rocket System. A successful project will provide the U.S. Navy /US Marine Corps the flexibility to use Zuni 5.0-Inch Rockets during shipboard operations. At present, shipboard use of the Zuni requires a waiver because the current system is not Insensitive Munitions (IM) compliant. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) enhanced IM compliance of the rocket motor using the SSL case in fast and slow cook-off environments; (2) no degradation of performance and operational use; (3) additional flexibility in using the Zuni during shipboard operations for the Navy/Marine Corps; and (4) avoids RDT&E costs estimated at $6.000 million. *FY 2009 Accomplishments:* Finalized/approved ballistic and chemical analysis test plans during 2Q FY 2009. Conducted test readiness review 2Q FY 2009. Conducted ballistic testing on four motors 2Q FY 2009. Awarded IM					

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
testing task order under IDIQ contract during 4Q FY 2009. Obtained approval on IM test plan 4Q FY 2009. IM testing began 4Q FY 2009. *FY 2010 Plans:* Phase I: Finish IM Testing during 1Q FY 2010. Brief to IM Review Board in 1Q FY 2010. Create FCT Demonstration Test Report in 2Q FY 2010. Closeout meeting is planned for 2Q FY 2010. Phase II: Conduct Critical Design Review (CDR) during 2Q FY 2010. Award contract to Roxel for Qualification test articles (cases) during 3Q FY 2010. Create Qualification Test Plan during 2Q FY 2010.					
Advanced Airborne Expendable Infrared Countermeasures (IRCM) (Navy) This project will demonstrate an increase in the ability of Navy and Marine Corp aircraft to defeat advanced infrared man-portable air defense systems (MANPADS) with pyrotechnic decoys. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) demonstrate at least a ten percent increase in effectiveness against the classified listing of tier three missiles from the Advanced Strategic Tactical Expendables (ASTE) program or an optimized dispense pattern which uses fewer decoy flares in combination; (2) the flare must demonstrate 95 percent reliability at a 90 percent confidence level when used in combination with the BBU-35 impulse cartridge; (3) additional benefit will likely be a reduction in the types of expendable countermeasures maintained in the inventory; and (4) avoid RDT&E costs estimated at $9.250 million. This is a Navy-led project for the KC-130J aircraft; however, the Air Force Air National Guard has also committed to participate in evaluation testing using the F-16 and A-10 aircraft. *FY 2009 Accomplishments:* Safety and qualification testing of the M216 (now the Mobile Jettison Unit-66/B) was completed during 1Q FY 2009 through the 2Q FY 2009. The safety and durability series of tests were completed successfully in 3Q FY 2009. Single item bullet impact test completed 3Q FY 2009. With success to date, the option on the contract was exercised to procure the additional 900 items needed for insensitive munitions, hazard classification, safe separation and effectiveness flight testing. Additional	2.338	0.000	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
units from other candidate manufacturers were procured for the October effectiveness testing during 3Q FY 2009. The LaCroix LIR-111 and the ARM-010 test items were also contracted during 3Q FY 2009. An additional $251 thousand was provided by the Office of Secretary of Defense for the procurement and support of the LaCroix flare. Safe separation testing from the KC-130J test aircraft was performed during the 3-4Q FY 2009 in preparation for the effectiveness flight test, scheduled to begin in October 2009. Initial hazard classification testing also began during the 4Q FY 2009 in preparation for a brief to the Weapons Systems Explosive Safety Review Board (WSESRB) during FY 2010. *FY 2010 Plans:* The effectiveness flight test will be performed during 1Q FY 2010 after determination of the safety of dispensing the items from the aircraft through the safe separation tests. Insensitive munitions and hazard classification testing will also be completed, and the test results briefed to the WSESRB to verify safety of transport on Navy vessels, scheduled for 2Q FY 2010. A final report of all testing on the M216 (now the MJU-66/B) will be written and briefed to the Navy acquisition authority to get a Milestone C Decision by the end of 3Q FY 2010. Initial procurement will begin in the 4Q FY 2010 with deliveries in FY 2011.					
Advanced Coatings Application Module (Air Force) To demonstate a state-of-the-art Thermal Spray Coating System. Component life extension and reduced cost of operation can be achieved via the acquisition and qualification of the Canadian manufactured Axial III Advanced Thermal Spray Coating System. Currently wear coatings and thermal barrier coatings are applied on essential parts of many turbojet engine and airframe components using technology that dates back to 1914. The Axial III Advanced Thermal Spray Coating System produces coatings that exhibit superior performance at a fraction of the current price by leveraging recent advancements in spray coating techniques. The Axial III system applies traditional coatings in one-half the time and at one-half the cost of the current systems. In addition to its ability to apply wear	0.698	0.000	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
resistant coatings, the Axiall III system can apply thermal barrier coatings and modern nano-based coatings at the same ratio of cost savings. *FY 2009 Accomplishments:* Completed demolition and removed of existing equipment from site, completed site prep and installed system installed in Buidling 3001, Tinker Air Force Base (TAFB). Completed Operator training. Completed part qualification and demonstration. Due to demonstrated capabilities two additional units for TAFB FY 2011 Program Objectives Memorandum (POM) and one unit for Hickum Air Force Base added to FY 2011 POM *FY 2010 Plans:* Qualification of additional coating(s) and component(s), ECD: December 2009. Publish final report.					
Advanced Coatings for Small Arms (Special Operations Command) This project evaluates an advanced coating solution to small arms barrels that will significantly improve barrel life, maintain accuracy over extended time periods, and provide visual wear indication showing approach to the end of barrel life. Advanced coatings will also improve the life of suppressing devices that are typically used with sniper and assault rifles. The primary outputs and efficiencies are as follows: two sniper weapons, the 0.300 Winchester Magnum and 0.50 caliber MK15 MOD 0 barrelswill be coated and evaluated with the patented advanced internal coating to the barrel and suppressors. The M2 Heavy Barrels .50 caliber machine gun will also coated and evaluated. RDT&E cost avoidance for this type of effort is estimated at $23.000 million. Combined operations and support and procurement cost avoidance is expected to be at $25.210 million. Fielding reduction is greater than five years. Completion date is scheduled for June 2011. *FY 2010 Plans:* Publish Request for Proposal in FedBizOpps. Submit Test Summary Plan and Spend Plan. Continue project planning and establishment of project specific Integrated Product Team. Award contract with	0.000	1.076	0.600	0.000	0.600

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
vendor to ship barrels for coating. Receive coated barrels. Analyze vendor data and conduct initial developmental testing. *FY 2011 Base Plans:* Prepare developmental test report. Perform operational testing and prepare test reports. Prepare production decision packet and submit closeout report.					
Airborne Tactical Evacuation Platform (AIRTEP) (Special Operations Command) This project will evaluate the Airborne Tactical Extraction Platform, which is capable of extracting up to ten people or 3,306 pounds. Existing Fast Rope Infiltration/Exfiltration System and the Forest Penetrator evacuation systems are only capable of extracting three people from locations where rotorcraft vehicles cannot safely land. The primary outputs and efficiencies are as follows: the system allows for a quicker evacuation from a potentially hostile environment. It reduces the number of sorties required to evacuate operators and equipment, saving flight time and decreasing exposure to enemy fire. Reduces the time to secure personnel and equipment to platform; compared to donning harness and hooking on to existing Fast Rope Insertion and Extraction Systems. Provides these rescued operators the ability to engage enemy while being evacuated; increasing survivability and lethality, unlike existing systems. The RDT&E potential savings is estimated at $1.750 million. This platform will potentially save lives. Fielding reduction is greater than three years. Completion date is scheduled for September 2011. *FY 2009 Accomplishments:* Solicitation & Down Selection completed. Conducted test planning, established Summary Test Plan and Spend Plan. Funding received and put on contract. Received Test Articles and conducted Engineering Analysis. Completed initial technical testing on the first group of platforms for session one. Prepared Technical Test Report and submitted Engineering Change Request.	0.908	0.000	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Receive modified test articles. Conduct validation testing during session two and prepare technical test report. Obtain Material Safety Release Certification, request Fielding and Deployment Release, and obtain Milestone C Production Decision. Submit FCT closeout report.					
Aircraft Arresting System for F-22 and Joint Strike Fighter (JSF) (Air Force)	0.000	1.758	0.000	0.000	0.000
To provide a previously unavailable functionality and enhanced capability by safely and controllably decelerating the full array of US Air Force fighter aircraft without imparting excessive hook-loading and dangerous end-of-arrestment aircraft rollback. This evaluation will provide a complete dual-disc BC11 braking system, including all associated hardware, software, and required spare consumables. All necessary installation, operational, and maintenance instructions will also be included. Headquarters Air Combat Command/A7OI, Langley Air Force Base, Virginia will evaluate the BC11 computer-controlled caliper-disk aircraft arresting system from Scama of Vderstad, Sweden. As new aircraft, such a the F-22 and JSF, are introduced into the Air Force's inventory, the 40 year old BAK-12 aircraft arresting system has become overburdened; it can not be adjusted to safely stop an F-22 throughout the F-22's full operational range of stopping speeds and the lighter-weight F-16 without over stressing the tailhook and airframe. The BC11's computer controls include extensive self-diagnostics and can electronically provide feedback to the airfield tower, as well as automated recordkeeping. The system would require significantly less maintenance and support than today's system and in turn would result in overall lower life-cycle costs.					
FY 2010 Plans: Procured test article from Scama of Vderstad, Sweden. Due to scheduling conflicts at Navy Lakehurst and a two-fold increase in testing costs the project testing was delayed until FY 2010. Obtain additional Air Force funding, commence testing at Navy Lakehurst, publish Final Report 4Q FY2010.					
Anti-Tank 4-Confined Space (AT4-CS) with Enhanced Blast Tandem Warhead (EBTW) (Army)	0.177	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
To demonstrate and qualify the AT4-CS to meet Shoulder Launched Munitions capabilities required by the US Army Infantry Center. The current AT4-CS warhead provides high lethality and incendiary effects against armor (defeats 16 inches of armor) but lacks overmatching penetration and effect against masonry walls made of brick and concrete and other urban targets/structures, field fortifications (earth and timber bunkers). A new multipurpose warhead with the ability to penetrate brick and concrete walls, incapacitate enemy forces behind urban structures and within field fortifications is required to maintain overwhelming firepower and reduce the logistics and training associated with multiple systems. The primary outputs and efficiencies to be demonstrated are: (1) capability of incapacitating enemy positioned behind urban walls and structures made of eight inch double reinforced concrete; (2) capability of incapacitating enemy Soldiers positioned behind urban walls and structures made of 12 inch triple brick; (3) capability of incapacitating enemy Soldiers positioned within earth and timber bunkers; (4) capability to meet performance requirements within close combat ranges; and (5) capability to be safely fired from enclosures found in urban environments. In addition to savings in logistics and training from eliminating multiple munitions, the procurement cost savings of this project is estimated at 40-50 percent of the unit cost of each weapon by leveraging ammunition and fuzing components from other similar 84 mm family of weapons. Assuming $0.003 million per round savings mutiply $0.020 million rounds over five years equals to $60.000 million. *FY 2009 Accomplishments:* Conducted weekly Integrated Product Team (IPT) meetings to update detailed program schedule, update acquisition strategy, coordinate test and evaluation efforts, and discuss modeling and simulation requirements. In addition, the IPT conducted Quarterly Program Reviews with PM-CCS management. Received all U.S. Government Developmental Test (USG DT) hardware; includes 184 combat weapons and special delivery items. Special items include the inert and live Electronic Explosive Devices (EED) for both the Main Charge (MC) and the Break In Charge (BIC). Completed the following USG DT/Qualification Tests to date: Arena Fragmentation Firings, 12 Meter Drop Test, Blast Overpressure / Toxic Fumes / Hearing Testing.					

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Complete Electromagnetic Environmental Effects (E3) Testing. Continue periodic IPT meetings and periodic program reviews. Complete Developmental Testing and prepare final test reports. Continue to support SBD's efforts to fully characterize the final design and report any technical issues. Complete closeout report in 2Q FY 2010. *FY 2011 Base Plans:* The successful completion of Safety Tests will facilitate Urgent Materiel Release of the AT4-CS EBTW in 2Q FY 2011.					
Ballistic Fiber Evaluation for Soft Body Armors (Army) The current ballistic fibers used in US military soft body armors are aramid fibers, Kevlar and Twaron. The Project Manager - Soldier Protective Individual Equipment (PM-SPIE), Program Executive Officer - Soldier has tested recently developed ballistic aramid fibers, and the ballistic results showed the V50 (ballistic performance measure) for 9 mm handgun and fragmentations were much higher than Kevlar and Twaron at the same weight. The initial ballistic testing showed that at 27 percent lighter than current Army's ballistic package, the Russian fiber ballistic package met all ballistic requirements specified by the current performance specification. The primary outputs and efficiencies are as follows: a full scope evaluation of new ballistic fiber manufactured in a United Kingdom factrory. The evaluation includes ballistic performance specifications, i.e. multiple grain fragmentation and 9 mm handgun. Additionally the fiber will be evaluated for physical and mechanical properties, environmental effect, aging effect, and degradation. Upon successful testing and evaluation, the following will be the deliverables: (1)Threshold: New ballistic fiber for soft armor to reduce ballistic material weight by 15 percent; (2) Objective: New ballistic fiber for soft armor to reduce ballistic material weight by 25 percent; and (3) Prototype of current Army standard soft armor Improved Outer Tactical Vest (IOTV) for operational testing and evaluation.	0.000	0.335	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Contract for test article scheduled for 2Q FY 2010. Safety release to follow in 3Q FY 2010. Combined DT/OT for 4Q FY 2010 and procurement decision for 1Q FY 2011.					
Ceramic Tile Testing and Evaluation for Hard Body Armors (Army)	1.055	0.239	0.000	0.000	0.000
This project tests new light-weight armor, Small Armors Protective Inserts (XSAPI), using Silicon Carbide (SiC) made by various foreign vendors with domestic SiC armor, to meet US Army's production needs. Upon successful testing and evaluation, the product will be the deliverable: The primary outputs and efficiencies are new hard armor, XSAPI, with higher level of ballistic protection than current SAPI with minimum weight increase. RDT&E cost savings is expected to be at $10.000 million. Procurement cost savings is expected to be at $50.000 million. Procurement potential is expected to be at $500.000 million. Other benefits include production risk mitigation and industrial base maintenance. *FY 2009 Accomplishments:* Testing and evaluation of Saint Gobain, Schunk and Hocheng's ceramic tiles for XSAPI have completed. Based on the testing results, Schunk's (Germany) and Hocheng's ceramic tiles and XSAPI prototypes did not meet XSAPI performance requirements. However, British Aerospace Engineering (BAE)/Saint Gobain has passed First Article Testing (FAT) for XSAPI production. Saint Gobain's SiC ceramic tiles became one of two US Army qualified ceramic tiles for XSAPI production. Army has awarded Ceradyne (domestic tiles) and BAE (Saint Gobain ceramic tiles) procurement contracts to produce 240,000 XSAPI sets. *FY 2010 Plans:* To further test and evaluate Saint Gobain ceramic tiles for light weight XSAPI which is the top priority for US military warfighter protection. Nova Crystal Private Company Limited's (Canada) Intego Tiles, a late add to the project, will be tested and evaluated. The testing will include ceramic residual stress, dynamic mechanical testing and ballistic testing to correlate ceramic tile properties to ballistic performance to further optimize the ceramic and integration techniques for lighter weight solution					

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
for XSAPI. Evaluation will include the ballistic performance against various threats such as 5.56 mm, 7.62 mm, hard steel core and tungsten carbide core rounds. The cracking patterns, durability, environmental effect, and physical mechanical properties will also be looked at. Transition manager is Program Manager Soldier Systems. Purchase thinner plates from Israeli Military Industries (IMI) and start testing/evaluation process in 3Q FY 2010. The IMI plates will be evaluated against XSAPI requirements.					
Containerized, Deployable Rigid Walled Shelters (CDRWS) (Army)	0.681	2.059	0.000	0.000	0.000
Currently there is a gap in tactical shelter inventory between fabric shelters (tents) used for initial / expeditionary deployments and the requirement for more durable and adaptable temporary rigid wall structures. The fabric shelters wear out at approximately 24 months and nothing is currently in the inventory to replace and provide longer duration habitation/office space. This results in using limited Military Construction (MILCON) and Operations Maintenance Army (OMA) construction dollars to provide more rigid and durable structures that are more properly provided through the central supply system. Additionally the availability of the expeditionary systems are limited and can not sustain the force or the replacement requirement of those already deployed that have exceeded life expectancy. The program outputs and efficiencies are as follows: the project will provide superior shelters and increase shelter production capacity to the level required to support overseas military operations. It optimizes both foreign and domestic production sources by stimulating competition to drive down costs and conducting a rigorous test program to ensure shelters meet safety standards and military requirements.					
FY 2009 Accomplishments: The CDRWS project was a late start and started in 4Q FY2009. The planning phase was completed in late 4Q FY 2009.					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: This project will conduct Technical Testing and Operational Testing for three foreign five shelter designs and two domestic designs. Technical Testing will be completed at Aberdeen Proving Ground and Operational Testing will be conducted at Isa Air Force Base in Bahrain. Testing will be completed in July 2010 to support procurement decisions. Shelters that meet military requirements, or demonstrate they can meet military requirements with minimal changes, may be transitioned to a Program of Record (POR).					
COSMO-SkyMed Constellation Evaluation (Air Force) COSMO-SkyMed a constellation of four Synthetic Aperture Radar (SAR) satellites manufactured by eGEOS in Via Cannizzaro, Italy that will provide a rapid revisit, 24-hour, global coverage of the planet a capability which does not yet exist in the commercial remote sensing arena. Resolutions vary from sub-meter through several tens of meters, depending on acquisition mode, and multi-polarization modes will provide different aspects of each target. The primary outputs and efficiencies to be evaluated are the improvements it will make to our imaging capabilities. Current technology involving commercial SAR imagery is limited by resolution, polarization, and global surveillance coverage. Current operational commercial SAR satellites image down to eight meters in resolution. COSMO-SkyMed is anticipated to provide sub-meter resolution images with a rapid revisit, 24-hour, global coverage. The ability to accomplish this is based on four Cosmo satellites in the same orbit path, operating in a cooperative manner. For the warfighter and mission planner, this capability will provide four times the surveillance capability at an eighth of the resolution, along with quad polarization. No other commercial SAR satellite platform can offer this capability or operational redundancy. Additionally, current commercial SAR satellites are nearing the end of their lifespan and need to be replaced by more advanced systems.	0.763	0.392	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: All components of the direct receive terminal (DRT) were successfully shipped to Center for Sustainment of Trauma And Readiness Skills (CSTARS) on 19 August 2009. On 2 September 2009 National Geospatial-Intelligence Agency (NGA) and Defense Intelligence Agency (DIA) conducted a joint pre-coordination meeting at the Observera Inc. facilities. This meeting included discussions on the COSMO FCT program, which parallels the NGA CSTARS Commercial SAR Pilot Program, and the initial planning for follow-on procurement through NGA, pending successful evaluation. From 8-15 September 2009, DIA supported the initial integration of the direct receive terminal hardware into the CSTARS infrastructure. Software integration took place the following week. All tasks accomplished successfully. Central Command, Southern Command, and Naval Operations Staff expressed high interest in evaluation participation. From 20-24 September 2009, DIA and CSTARS project managers traveled to Matera, Italy, to meet with engineers from Telespazio and e-GEOS to discuss the technical aspects of upcoming operations, and receive a clear picture on how to operate the DRT located in Miami, Florida. Several action items identified for DIA, CSTARS, and e-GEOS. *FY 2010 Plans:* Conduct On-Site Acceptance Testing (OSAT) prior to Initial Operational Capability (IOC). Begin initial test collects and train ground station personnel on COSMO operation procedures. Conduct official kick-off demonstration for senior NGA and DIA leaders to showcase initial capability. Collect baseline images in regions of interest – offered at gratis by e-GEOS. Data analysis, project completion and final report 3Q FY2010.					
Cyber Defense for C4I Networks (CDCN) (Navy) A successful FCT will provide the US Navy an integrated information technology system for Cyber Defense of C4I Networks. The Commander, Pacific Fleet has an Urgent Operational Needs Statement (UONS), endorsed by Fleet Forces Command, for a technical solution allowing for network visualization, anomaly detection and response, and the ability to query stored network traffic for	0.000	1.841	0.686	0.000	0.686

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
information of interest. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) real-time detection and post event analysis for managing the security of complex networks; (2) effective and efficient management of the Global information Grid (GIG); (3) authorized users's ability to quickly find, access, retrieve, and analyze information related to the operational health, performance, security, and mission readiness of the GIG; and (4) RDT&E Cost Avoidance of over $18.000 million. *FY 2010 Plans:* Receive initial FCT funds 2Q FY 2010. Market investigation and down select expected during 2Q FY 2010 through 3Q FY 2010. Develop test plan in 3Q FY 2010 through 4Q FY 2010. Commence test and evaluation in 4Q FY 2010. *FY 2011 Base Plans:* Conduct operational user testing and assessment during 1Q FY 2011. Provide technical test report to 3Q FY 2011. Submission of final decision packet will occur in 3Q FY 2011 and the FCT close out report is scheduled for 4Q FY 2011.					
Deployable Runway Rubber Removal System (Air Force) The FCT will evaluate a system manufactured in Mellrichstadt, Germany by TrackJet Systems that uses water to lift rubber deposits and paint from airfield pavement surfaces to restore runway friction needed to provide safe operating levels for military aircraft. It is equipped with a vacuum to remove debris from the runway to mitigate foreign object debris damage to airplanes. The primary outputs and efficiencies to be demonstrated in the FCT is a deployable, ultra-high pressure (UHP) water runway rubber and paint removal system. The UHP system uses 60 percent less water than the current technology in use by the Air Force. The proposed system completes rubber removal in almost half of the time of the currently used system, with half of the manpower. The UHP system can get off the runway under it's own power in the event of an emergency landing, while current system cannot. The UHP system only requires water and fuel, whereas the current system has many system components requiring assembly,	0.000	0.541	0.548	0.000	0.548

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
an on-site tow vehicle, corrosive chemicals, as well as water and fuel. The proposed technology is an all-in-one system, whereas the current technology has at least three separate packages for one system. *FY 2010 Plans:* Contract for test article, preliminary test planning and training. *FY 2011 Base Plans:* Technical testing followed by operator/user testing. Prepare test report and decision package. Procurement.					
Digital – Battle Management Application (D-BMA) (Navy) A successful FCT will provide the United States Marine Corps (USMC) with an integrated Command and Control software application that provides digital mapping of unit locations, including friendly and enemy forces, using input data from the Global Command and Control System. This is a two-year project under sponsorship of the FCT and Marine Corps Systems Command, Program Marine Air-Ground Task Force (MAGTF) Command and Control Systems. Projected testing completion date will be FY 2011. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) combat functionality for digital order transmission and mission planning; (2) enhanced warfighter situational awareness; and (3) improved overall combat effectiveness. *FY 2010 Plans:* Receive initial FCT funds during 1Q FY 2010. Initiate contract preparation and test planning by end 2Q FY 2010. Complete contract award and test planning by end 3Q FY 2010. Receive test articles and initiate lab/integration testing by end of 4Q FY 2010.	0.000	1.794	0.800	0.000	0.800

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Complete lab/integration and initiate technical testing efforts 1Q FY 2011. Complete technical and initiate field user evaluation 2Q FY 2011. Complete field user evaluation 3Q FY 2011. Finalize technical and closeout report and Milestone C Decision by end of 4Q FY 2011.					
Enhanced Fuze for 70 mm Warhead (Special Operations Command) This project will test and evaluate an electronic time delay mode which allows the pilot to change fuze settings in-flight and engage a wider range of targets. Special Operations Little Bird helicopter pilots are missing targets of opportunity, and shooting through targets, due to the inability to reset their rocket fuzes once airborne. The primary outputs and efficiencies are as follows: this increased capability to defeat a variety of structures will significantly reduce current dependence on the use of expensive Joint Direct Attack Munitions and Hellfire rockets thereby providing an immediate cost savings for Department of Defense. Total RDT&E cost avoidance exceeds $67.000 million. An Indefinite Delivery Indefinite Quantity contract was established for 70 mm rockets and fuzes, and will be used by Special Forces for the next 20 years. Fielding reduction is greater than seven years. Completion date is estimated for September 2011. *FY 2009 Accomplishments:* Project planning was conducted and project funding received to procure test articles. Published Sources Sought Notification in FedBizOpps. Moved project Contracting Office and associated test article contract ownership to Headquarters United States Special Operations Command Contracting Office. Received responses to a Request for Proposals. *FY 2010 Plans:* Receive test articles and conduct technical and safety testing. Obtain Safety Release.	2.237	0.807	1.025	0.000	1.025

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Obtain Weapon System Explosives Safety Review Board Approvals (which includes Hazards of Electromagnetic Radiation to Ordnance and Electro Static Discharge), Air Worthiness Certification, Phase II Operational and User Assessment Test. Prepare final test reports, decision package, and closeout report.					
Family of Hawkmoor Limited Burners (Army) This project will test a family of Hawkmoor burners that could eliminate the need for a High Mobility Multi-purpose Wheeled Vehicle (HMMWV) or a two kilowatt (kW) generator when operating Company-sized, mobile Army field feeding systems and components in forward and remote locations. These burners will reduce the fuel comsumption and improve the overall reliability, availability, and maintainability (RAM) characteristics of mobile field feeding systems. The primary outputs and efficiencies are as follows: (1) high RAM characteristics for integrated system of Hawkmoor burner and Self-powered Tray Ration Heater (STRH); (2) 40-Watt or less power requirement by burner; (3) no reduction in ration heating time for integrated burner and heater tank system. RDT&E cost savings is $1.500 million. Procurement cost savings is expected to be at $0.318 million. Operations and Support cost savings is expected to be at $33.900 million. Other benefits includes capabilities to integrate burner/STRH combination into field feeding systems used by multiple services. *FY 2009 Accomplishments:* Completed limited technical testing of burner integrated into STRH at Aberdeen Test Center, Maryland. Testing included Ground Mobility, reliability, rail impact, hot and cold storage and operation, sand and dust, and Electro-Magnetic Interference. Initiated the development of detailed test plan for the planned FY 2010 User Evaluation of the Self-powered Tray Ration Heater integrated with Hawkmoor burner.	0.233	0.000	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: The completion of a detailed test plan and to conduct a User Evaluation of the Self-powered Tray Ration Heater integrated with Hawkmoor burner. The Army Test and Evaluation Command is preparing a test report and system evaluation report for burner integrated into Self-powered Tray Ration Heater. The finalization of a system performance specification and then transition of the project to procurement. Transition manager is Project Managment Force Sustainment Systems.					
Family of Next Generation Surveillance Systems (Special Operations Command)	0.000	0.469	0.000	0.000	0.000
This comparative test project will evaluate crucial, cutting edge surveillance system upgrades that will provide critical information to counter foreign threats while prosecuting Overseas Contingency Operations. The ability to provide situational awareness and monitoring of foreign threats is paramount to Special Operations Forces (SOF). The primary outputs and efficiencies are as follows: this project synergizes the results of the highly successful Hostile Forces-Tagging, Tracking, and Locating (HF-TTL) FCT project and innovative, newly developed detection, monitoring and surveillance systems. The same proven testing and acquisition strategies as HF-TTL FCT will be used. Providing a more cost effective technical solution, this effort will replace legacy surveillance systems with smaller, lighter, more robust, and energy efficient systems. RDT&E cost avoidance for this type of effort is estimated at $2.800 million. Combined operations and support and procurement cost avoidance is expected to be at $25.450 million. Fielding reduction is greater than five years. Project will be completed February 2011. *FY 2010 Plans:* Submit Test Summary Plan and Spend Plan. Conduct project planning and receive project funding. Prepare contract for and obtain test articles. Perform analysis, study and integration of test articles into usable products. Continue to analyze vendor and laboratory data. Make necessary modifications. Conduct Technical Testing. Prepare technical test report. Perform operational test/user assessment. *FY 2011 Base Plans:* Complete Milestone C Production Decision. Submit FCT closeout report 2Q FY 2011.					

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Fire Control System for Special Operation Forces (SOF) Combat Assault Rifle (SCAR) Grenade Launcher (Special Operations Command) This project will extend the effective range of the SCAR Enhanced Grenade Launcher Module from 200 to 600 meters. The primary outputs and efficiencies are as follows: this project integrates the fire control and ammunition programming technology that is necessary to fire a medium velocity 40 mm programmable grenade from the SCAR, in an effort to counter the current rocket propelled grenade threat. RDT&E cost avoidance is estimated at $250.000 million. An estimated savings in combat operations of $15.000 million per year are realized. Fielding reduction is greater than five years. Completion date is scheduled for September 2010. *FY 2009 Accomplishments:* Technical/Safety Testing (Phase I) conducted. Initial system demonstration and limited user assessment were completed. Engineering Change Requests were submitted and modifications were made. A second technical and safety test (Phase II), and second user assessment were conducted. Capability Production Document was prepared. *FY 2010 Plans:* Receive and test approved configuration, and prepare test report & delivery of test units to the Government Test Agency. Perform Final User Assessment. Milestone C Decision and complete closeout report 4Q 2010.	0.568	0.000	0.000	0.000	0.000
Fuel Leak Detection System for Aircraft (Air Force) This FCT will evaluate two systems, Extrima manufactured in Sweden by Adixen and a Helium Hydrogen System manufactured in France by Aerowing. These systems have the potential to greatly improve leak detection during depot maintenance, thus reducing unexpected labor costs and improving aircraft quality and delivery to the war fighter. The primary outputs and efficiencies to be demonstrated in the FCT is the qualification of a safe (NEC Class I Div1) tracer gas leak detection system for F-16, A-10, and C-130 full aircraft and off air frame components. Current specified pressure bleed down and	0.000	0.239	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
bubble leak check methods used to detect fuel leaks in full aircraft and off airframe components are slow, inaccurate, and result in leaks not being detected until an aircraft is refueled prior to the initial check flight. Leaks detected at this time add unexpected labor (Over 4000 Hrs for the F-16 April 2008 to 2009) from additional fuel system defueling and purging, aircraft towing, airframe component removal and disassembly, along with potential increases (as an example for the F-16) of 30 to 45 day aircraft flow days. Current methods do not allow leak detection in complex assemblies without disassembly such as in and around wing leading edge wiring, rotary actuators, pylon attach points, and wing attach fittings. If successful this, the system(s) can potentially be used at depot, field level, and Deparment of Defense wide for multiple weapon systems. *FY 2010 Plans:* Contract for the test article, train operators, evaluate the systems and if the evaluation is successful, procurement.					
H-53 Low Cost and Reliable Generator Control Unit (Navy)	1.363	0.179	0.000	0.000	0.000
A successful FCT will provide the U.S. Navy with a lower cost/higher reliability Generator Control Unit (GCU). This project will test and evaluate a GCU to be used on H-53 aircraft. H-53 program needs a second source/replacement for the obsolete Bendix 21B17-6 for the H-53 Aircraft GCU. Program will evaluate a state-of-the-art GCU currently used on foreign aircraft that provides greater reliability. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) unit cost goal is $5-6 thousand; (2) reliability goal is 16 thousand Mean Time Between Failure (MTBF) hours vice 640 hours of the legacy GCU; and (3) manufacturing and procurement cost savings worth more than $8.000 million. *FY 2009 Accomplishments:* Completed sources sought review for H-53 GCU during 3Q FY 2009. Obtained sole-source justification and authorization 3Q FY 2009. Initiated request for proposal to perspective vendor 4Q FY 2009. Completed contracting efforts and began FCT qualification effort 4Q FY 2009. Initiated GCU qualification and testing on H-53 aircraft 4Q FY 2009.					

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Complete GCU testing and issue final report during 1Q FY 2010. Procurement decision is scheduled for 2Q FY 2010.					
Hand-Held Laser Welder (HHLW) (Air Force) This project will qualify a self-contained, field-deployable, gas-shielded, hand-guided laser-welding device for the in-theater repair of strategic military components, specifically those constructed of exotic titanium and other strategic alloys. The 76 Maintenance Wing at Tinker Air Force Base, Oklahoma will evaluate a HHLW developed by Laser Zentrum Hannover e.V (LZH) / S.E.T., LLC located in Hannover, Germany. Currently this capability is only available at the Depot level. Critical components, such as the B-2 aft deck, which, up to this point, could only be repaired at depot level, can now be repaired in-theater. The HHLW unit is self-contained, field-deployable, and can withstand extended exposure to the elements. Welding of thin parts also becomes possible with less potential for warping or burn-through. This extends HHLW benefits to new repair applications that are impractical with automated systems and, due to its compact size, can reach otherwise inaccessible locations. *FY 2009 Accomplishments:* Wrote obtained approval for laser safety and operator documentation. Installation site was completed and approved. Contract has been awarded for the unit. *FY 2010 Plans:* Complete testing, publish final test report, and procure.	0.511	0.000	0.000	0.000	0.000
Hostile Fire Indications Modeling and Simulation (HFI M&S) (Navy) To mitigate the increasing threat of hostile fire from unguided munitions (UM), the Navy and Marine Corps have initiated programs that will expand the functionality of Missile Warning Systems on rotary wing aircraft to include HFI. UM include small arms, tracer rounds, Anti-Aircraft Artillery (AAA) and	0.908	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Rocket Propelled Grenades (RPGs)/unguided rockets. This out-of-cycle FCT project will evaluate a non-developmental HFI M&S system currently in use with the UK. An integrated HFI M&S system will provide the Navy with: (1) a more realistic training experience through mimicking the capability of operational HFI systems fielded in theatre; and (2) avoid RDT&E, manufacturing, and procurement costs of over $8.000 million. *FY 2009 Accomplishments:* Received funding 4Q FY 2009. *FY 2010 Plans:* Initiated project planning 1Q FY 2010. Perform initial Hardware (HW)/Software (SW) evaluation at vendor site and conduct HW/SW portability assessment 2Q FY 2010. HW/SW performance testing 3Q FY 2010. Conduct integration assessment and provide FCT closeout report 4Q FY2010.					
Hostile Forces Tagging, Tracking and Locating (Special Operations Command) This project evaluated a collection of tagging, tracking and locating devices that represent the latest in technology. The primary outputs and efficiencies are as follows: these electronic components consist of Data Loggers, Direction Finding devices with associated receivers, Ground Positioning Satellite based cellular and satellite systems. These devices will provide deployed Special Operations Forces worldwide with an enhanced capability to tag, track and pin-point location of adversaries. Due to the number of test articles involved and their sophistication, testing was divided into two phases over two years. The procurements for these devices have exceeded $24.300 million and resulted in $19.500 million cost avoidance. Additional procurements are planned. Fielding reduction is greater than three years. Project testing was completed June 2009.	0.463	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Completed Operational Test of Phase II test articles. Prepared and submitted test reports. Prepared production decision packet and closeout report. An affirmative procurement decision was made in 3Q FY 2009.					
Improved Ownship Speed Sensing (Navy) This project is to test a rodmeter that is of superior design in terms of configuration (e.g. shark fin or flush mount), electronics and materials (able to withstand higher stress). The current rodmeters used are based on 1950s design and materials, that are breaking under stress of own ship maneuvering and obsolescence. The Navy will test non-developmental items from Aeronautical & General Instruments, Private Limted Company, United Kingdom. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) improve the performance of the overall navigation system by reducing position and velocity errors; (2) allow a ship to operate in a stealthier fashion; (3) allow a submarine to operate longer in the littoral regions; and (4) avoid potential added RDT&E costs is estimated at $1.000 million. *FY 2009 Accomplishments:* Received initial funding late 1Q FY 2009. Receipt of test articles 4Q FY 2009. Completed test planning procedures/development for land based testing 3Q FY 2009. Completed at-sea test planning 4Q FY 2009. Conducted land based (water flow tank) 4Q FY 2009. *FY 2010 Plans:* Install item on ship test platform and conduct performance testing at-sea 2Q FY 2010. The technical test report and project closeout report are anticipated to be completed by 4Q FY 2010.	0.312	0.000	0.000	0.000	0.000
Laser Optical Gunfire Detection System (Special Operations Command) This validation project will test and evaluate a sniper detection system that is capable of detecting snipers before the shot, providing pin-point locations to allow immediate reaction with appropriate	0.000	0.753	0.350	0.000	0.350

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
course of action. Sniper fire poses a constant threat to U.S forces supporting Overseas Contingency Operations. The primary outputs and efficiencies are as follows: the Laser Optical Gunfire Detection system uses a laser and a receiver to identify the retro-reflection signatures from stacked lenses given off by optical devices and displays the location of interest for visual identification as well. This technology is unique for its ability to provide 360 degree coverage. In addition, it is able to provide the sniper location as a grid coordinate to a targeting system and capable of interfacing with special operations acoustic gunfire detection systems. RDT&E cost avoidance for this type of effort is estimated at $8.000 million. Fielding reduction is greater than three years. Project will be completed September 2011. *FY 2010 Plans:* Conduct project planning and submit Test Summary Plan and Spend Plan. Issue contract for test articles and receive test articles. Conduct analysis, study, of standalone configuration as well as integrated laser optical gunfire detection system into PILAR acoustic gunfire detection system. *FY 2011 Base Plans:* Conduct initial technical testing and prepare technical test report. Perform operational test/user assessment and prepare test reports. Prepare production decision packet. Submit FCT closeout report.					
Light Anti-Tank Weapon Rocket Motor Insensitive Munitions (LAW RM IM) Improvement (Navy) A successful FCT will provide the United States Marine Corps (USMC) with a fully Insensitive Munitions (IM) compliant Light Anti-Tank Weapon (LAW) system to increase overall safety and reduce the severe logistical burden associated with storage and transportation of non-IM compliant munitions. The LAW RM IM Improvement is a two year project under sponsorship of the FCT and Marine Corps Systems Command, Program Manager Ammunition. Projected testing completion date will be FY 2010. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) improved safety for system operator/handler; (2) reduce severity of reaction to IM environments; (3) minimize collateral damage	1.505	1.447	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
caused by accidental rocket motor initiation; (4) significantly reduce the logistic burden of transporting non-IM compliant munitions; and (5) minimize RDT&E costs estimated at $5.000 million while providing a Return on Investment (ROI) of 9:1. *FY 2009 Accomplishments:* Received initial FCT funding during 1Q FY 2009. Initiated contract award preparation and test planning at the beginning of 2Q FY 2009. Contract awarded during 4Q FY 2009. Completed fabrication of test articles during 4Q FY 2009. *FY 2010 Plans:* Receive test articles during 1Q FY 2010. Initial IM testing scheduled to commence during 1Q 2010 and completed early 2Q FY 2010. Qualification testing scheduled to initiate at the early 2Q FY 2010 and complete at the end of 3Q FY 2010. User evaluation scheduled to begin in 3Q FY 2010 and completed within three months. Receive Weapon System Explosives Safety Review Board certification and complete test report, closeout report and Milestone C Decision during 4Q FY 2010.					
M1A1 120 mm Multi-Purpose High Explosive (MPHE) Munition (Navy)	1.141	0.000	0.000	0.000	0.000
A successful FCT will provide the United States Marine Corps (USMC) with 120 mm multi-purpose high explosive tank ammunition for the M1A1, being competed by Rheinmetall Waffe Munitions/ L-3 of Germany and General Dynamics-Ordinance and Tactical Systems of Norway. A two-year project under sponsorship of the FCT and Marine Corps Systems Command, Program Manager Tank Systems. Projected completion of all testing and qualification will be FY 2010. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) a tank round capable of reducing structures and assisting dynamic entry for infantry, while retaining its ability to destroy vehicles; (2) consolidate four different tank rounds into one round encompassing point detonation, delay, and airburst capabilities; (3) increase ammunition effective range by 833 percent, provide improved blast fragmentation, and reduce the logistical burden while maximizing the M1A1s ammunition load; and (4) avoid potential					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
added RDT&E costs is estimated at $169.000 million, while providing a Return on Investment (ROI) of 82:1. *FY 2009 Accomplishments:* Received test articles at the middle of 1Q FY 2009. Completed test planning during 1Q FY 2009. Initiated qualification testing/limited user evaluation (LUE) at the end of 1Q FY 2009. Completed ammunition data-link system validation and verification at Aberdeen Proving Ground (APG) in 2Q FY 2009. Completed M1A1 breech modification training for Anniston Army Depot and modified two breeches in 2Q FY 2009. Completed live-fire, manned firing aboard M1A1 with ammunition data-link during 3Q FY 2009. Completed toxicity testing for the MPHE cartridge at APG during 3Q FY 2009. Completed source selection down-select at the end of 3Q FY 2009. Initiated Field User Evaluation (FUE) during 4Q FY 2009. *FY 2010 Plans:* Initiate Qualification Testing and complete FUE by end of 2Q FY 2010. Complete Weapon System Explosives Safety Review Board certification by middle of 3Q FY 2010. Provide a full production decision, technical test report, and closeout report by the end of 3Q FY 2010.					
M1A1 Crew Cooling System (Navy) A successful FCT will provide the United States Marine Corps (USMC) with an adequate personal, wearable, cooling solution to the entire M1A1 tank crew. A two year project under sponsorship of the FCT and Marine Corps Systems Command, Program Manager Tank Systems. Projected testing completion date will be FY 2010. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) significantly increase the overall safety of M1A1 crewmembers, resulting in improved mission endurance and operational effectiveness; (2) greatly reduce the logistical burden associated with rotating tank crews due to rapid dehydration; and (3) avoid RDT&E and procurement costs of $5.000 million and $10.000 million while providing a Return on Investment (ROI) of 22:1.	1.192	0.514	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Received initial FCT funding during 1Q FY 2009. Initiated technical test planning during 2Q FY 2009. Test article contract awarded mid 3Q FY 2009. Completed technical test planning during 3Q FY 2009. *FY 2010 Plans:* Lab/integration testing scheduled to initiate at the beginning of 1Q FY 2010 and complete by middle of 2Q FY 2010. M1A1 operational testing scheduled to begin in 2Q FY 2010 and receive test articles by end of 1Q FY 2010. Lab/integration testing scheduled to initiate at the beginning of 2Q FY 2010 and should complete by middle of 3Q FY 2010. M1A1 tank operational testing scheduled to begin in 2Q FY 2010 and complete by the middle of 3Q FY 2010. Complete test report, closeout report and Milestone C Decision during 4Q FY 2010.					
Maritime EOD Training, Ranging and Evaluation System (METRES) (Navy) A successful FCT will provide the U.S. Navy with an Explosive Ordinance Disposal (EOD)/Mine-Counter-Measures (MCM) Training, Ranging and Evaluation system. The system is capable of detecting and measuring energy signature levels of in-service and future Maritime EOD MCM equipment. It is capable of measuring signatures arising from magnetic, acoustic, seismic, and artificial light activity. This project will test multiple influence sensor systems using a small evaluation system operable from a small boat. It will permit EOD/MCM forces to conduct training in a near-real world threat environment. The system will facilitate the evaluation of MCM/EOD tools, tactics, and procedures which may be under consideration for acquisition/adoption by the United States Navy with regard to influence cleanliness. The primary outputs and efficiencies to be demonstrated in the FCT fall into the areas of operability and sustainability: (1) a programmable influence mine simulation system operated from small craft that is portable and which may be deployed, operated, and recovered from the water without aid of mechanical lifting devices; (2) a system which will be programmable to support training against new mine threats by allowing new algorithms and threat characteristics to be readily input into the system; (3) RDT&E cost savings is expected to be at $5.000 million.	1.113	0.861	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Project was funded out-of-cycle. Completed the acquisition strategy, performance specification, requirement document, and program statement of work 4Q FY 2009. Re-released outdated Request for Information (RFI) 4Q FY 2009. *FY 2010 Plans:* Issue Request for Proposal (RFP) 1Q FY 2010. Complete test plan, perform site survey and vendor demonstration of system capabilities 1Q FY 2010. Award contract to for one or more test articles 2Q FY 2010. Begin acceptance of test articles and performance of test and evaluation 3Q 2010. *FY 2011 Base Plans:* Complete acceptance of test articles and performance of test and evaluation 1Q FY 2011. Make procurement decision and complete closeout report 2Q FY 2011.					
MiniMUTES Hard Disc Drive Upgrade (Air Force) This project is to evaluate a replacement Modified Frequency Modulador bus hard disk drive (HDD), manufactured in France called Datex, for the Mini Multiple Threat Emitter Systems (MiniMUTES) main computer. Replacement of the 20-year-old HDD will allow continued pilot threat training using simulated threats such as Surface Air Missiles and Anti-Aircraft Artillery radars. The existing MiniMUTES HDD is the primary HDD for the system and is obsolete and no longer repairable or procurable. Current HDDs last an average of three months; all available existing drives has been procured, but as these drives are already over 20-years-old, more than 50 percent are unusable. Failure of the HDD generally occurs at the start of the day when the system is fired up. The failure can only be fixed by installing a replacement drive and this procedure consumes the better part of the day thus making the system unavailable for the day's training mission. As a consequence of these obsolesence issues, mission capability has been compromised.	0.000	0.067	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Contract for test article, preliminary test planning and training. Technical testing followed by operator/ user testing. Prepare test report and decision package. Enter into full procurement following successful testing.					
Multi-fuel Submersible Outboard Engines (Special Operations Command) This project integrates patented Italian air-assisted direct-injection fuel delivery systems, into commercial off-the-shelf, lightweight, submersible outboard engines; to produce non-gasoline burning outboard engines capable of using multiple fuels. The primary outputs and efficiencies are as follows: special mission units have an urgent requirement to replace their submersible outboard engines to support their many littoral missions. Department of Defense (DoD) Directive 4140.25 Management Policy for Energy Commodities and Related Services mandates the conversion of combat systems to common, less combustible fuels by 2010. This project will ensure compliance to this DoD Directive. Potential RDT&E savings for this engine is $8.000 million and the collective operations and support cost savings are $31.250 million. Fielding reduction is greater than eight years. Completion date is scheduled for 30 September 2011. *FY 2009 Accomplishments:* Project planning was conducted and funding was received. Preparations for Phase I proof-of-concept completed and prototype assembled. Prototype tested and contract for test articles awarded. *FY 2010 Plans:* Receive test articles. Phase II of test will install Piaggio injection system, conduct dynamometer test of modified engine, test modified engine, and make engine modifications. After operational testing, final engine modifications will be made.	0.454	0.568	0.158	0.000	0.158

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Phase III will be conducted and consists of Test final configuration on Combat Rubber Raiding Craft. Phase IV will be conducted and consists of final Development and Operational Testing, followed by Milestone C Decision. Prepare closeout report.					
Network Application System (Special Operations Command) This project will be in support of improving network application system's security. Project is classified. *FY 2010 Plans:* Classified Project - No Details Allowed.	0.000	1.790	0.000	0.000	0.000
Novel Processing System for Ration Meat Items (Army) Currently military rations containing meat items are processed and produced either via traditional retort sterilization (e.g. Meal, Ready-to-Eat (MRE) entrées) or via a series of curing and drying methods (e.g. jerky snack). Retort processing uses excessive heat for a long period of time (e.g. 90 minutes) to render foods sterile, but it also destroys quality and nutrients in the process. The series of curing and drying methods currently employed to produce jerky are complex and costly due to a requirement of a delicate balance of safety, quality, and storageability. The proposed technology, Osmofood® system, is a simple one-step process which uses inexpensive ground meat to produce shelf stable meat items with a desirable texture and targeted water activity to ensure safety and maintain shelf life. The system never uses extremely high temperature like a retort process; hence the quality and nutrients are well preserved. Furthermore, the system can be used to incorporate supplemental nutrients (e.g. curcumin, green tea extract) and quality enhancers (e.g. canola protein for meat succulence) to produce a meat roll-up that can be consumed as a savory snack or used as a filling for a shelf stable sandwich. Application of such a system to develop numerous new rations items that were previously unfeasible is now possible, due to its technical simplicity and compatibility with various hurdle technologies such as water activity, natural preservatives, and acidity or basicity.	0.000	0.622	0.950	0.000	0.950

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Form Integrated Product Team (IPT) and conducted Kick-off IPT Meeting for Novel Processing System for Ration Meat Items. Principal Assistant Responsible for Contracting (PARC) approves Justification and Approval (J&A) for Other Than Full and Open Competition document authorizing sole source contract with ADIV, France. Award firm fixed price Indefinite Delivery Indefinite Quantity contract to ADIV consisting of two year base period for Test Unit Design/Build and Testing. Conduct Technical Testing at ADIV Clermont-Ferrand, France in the 2Q FY 2010. Prepare for conduct of Microbiological Validation, Accelerated Storage, and Sensory Evaluation in 3Q-4Q FY 2010. *FY 2011 Base Plans:* Based on successful Government testing, transition program into procurement and prepare for Milestone C Procurement Decision, US domestic production feasibility Testing, and complete project closeout report in FY 2011.					
Photonics Mast Tech Insertion on the Virginia Class Submarine (Navy) A successful FCT project will provide the United States Navy an alternative Photonics Mast for the Virginia Class and Ohio Class submarines. The purpose of this effort is to correct a reliability shortfall with the current system that is impacting operational availability. Photonics Mast system provides the imaging, navigation, electronic warfare, and communications function for critical safety of ship and tactical intelligence applications. The current system has significant reliability and maintainability issues. This FCT will test a foreign mast that offer the potential increase in reliability and maintainability, more modular in design and lower overall cost to the Navy. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) modular construction of the FCT photonics mast will allow rapid maintenance actions and replacement of functional elements of the sensor at the Intermediate Maintenance Activity vice having to return the sensor to the factory for service; (2) the FCT technology will be upgradeable (Technology Insertion/Refresh): Implementation of high definition color cameras will provide a much improved imagery to the operator; (3) the new system will be more reliable	2.328	0.000	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
when compared to the legacy Kollmorgen photonics mast; and (4) avoid potential added RDT&E costs of over $30.000 million. *FY 2009 Accomplishments:* Prepared specifications and awarded contract 2Q FY 2009. Planned for 3Q FY 2009 and 4Q FY 2009 is development of test plan and test schedule and attainment of Temporary Alteration approval for systems installation, integration and operational testing. *FY 2010 Plans:* Attain approval for shipboard installation and integrations of test article during 2Q FY 2010. Install and integrate test article during 2Q FY 2010. Perform pier-side systems test and integration, scheduled for 4Q FY 2010. Perform at-sea testing for systems evaluation and performance during 1Q FY 2011.					
Pilar Gunfire Detection System Upgrades (Special Operations Command) This project will qualify Pilar Gunfire Detection System (GDS) upgrades for the Pilar M1 Fixed Site and M2 Vehicle Mounted GDS. Both variants of the GDS provide detection and localization of the fire origins of the enemy snipers. These upgrades will greatly enhance the Special Operations Forces missions and improve their tactical performance, by adding Global Positioning Satellite coordinates. This added feature will allow our warfighters to retaliate more swiftly with gunfire or take other appropriate actions. The primary outputs and efficiencies are as follws: crucial upgrades to GDS, ensuring Special Operations Forces have the most advanced technology available to effectively locate and defeat sniper or hostile small arms fire. The RDT&E potential savings is estimated at $12.000 million and procurement is estimated at $10.000 million. Fielding reduction is greater than four years. Completion date is scheduled for December 2011. *FY 2009 Accomplishments:* Project planning was conducted and funds received. Contract for test articles was prepared. Test articles were shipped from Special Operations Forces Support Activity.	0.891	0.694	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Receive Test Articles. Conduct analysis, study, and integration of test articles into PILAR Systems. Conduct safety and technical testing. Perform operational test/user assessments. Prepare final reports, decision package, and closeout report.					
Precision Sniper Rifle (Foreign and Domestic) (Special Operations Command)	0.744	1.110	0.000	0.000	0.000
This project will evaluate sniper rifle systems that are more lethal and capable of accurately engaging enemy personnel out to ranges of 1,500 meters. Giving the Special Operations Forces (SOF) Sniper the ability to create more stand-off distance during engagements will increase survivability. This new range will also allow for peak-to-peak engagements on the mountain tops of Afghanistan in the prosecution of Overseas Contingency Operations. The primary outputs and efficiencies are as follows: the Precision Sniper Rifle Capabilities Development Document is a plan to field a complete sniper system with: weapon, optics, noise and flash suppression, ammunition and support articles. This project will capitalize on the availability of recently developed sniper systems that "out-perform" currently fielded SOF sniper systems, and integrate them into the Family of SOF Sniper Rifles Program. RDT&E cost avoidance associated with this project is estimated at $1.390 million. Fielding reduction is greater than six years. Completion date is scheduled for September 2011.					
FY 2009 Accomplishments: Prepared and issued request for information solicitation. and received proposals and product samples. Proposals and product samples were received from attendees. Sources Sought Notification sent using FedBizOpps. Performed initial Go/No Go Testing of those items received from Industry Conference.					
FY 2010 Plans: Perform developmental test and user assessment (Phase I). Submit Request for Proposals and receive responses. Hold Joint Source Selection Board. Award contract to successful precision sniper rifle systems candidate for test articles. Receive Engineering Test Units and candidate rifle systems.					

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Perform Weapon and Ammunition Developmental Test and Safety Tests. Prepare and Issue Second Solicitation. Perform Go/No Go (Phase II Testing). Gain Safety Release for Early User Assessment. *FY 2011 Base Plans:* Conduct developmental test and User Assessment (Phase II). Produce a Capability Production Document (CPD) and obtain Milestone C Production Decision. Prepare decision packet and FCT closeout report 4Q FY 2011.					
Programmable High Explosive Dual Purpose Ammunition (Special Operations Command) This project will produce a 40 mm high-velocity Programmable-High Explosive Dual Purpose (P-HEDP) round for the Advance Lightweight Grenade Launcher (ALGL) MK47 Weapon System. The primary outputs and efficiencies are as follows: P-HEDP ammunition will consist of components derived from two other successful FCT projects combined into the next priority round from the ALGL operational requirement. These components will be assembled, tested, qualified, and then released for SOF use. RDT&E cost avoidance for this type of effort is estimated at $9.000 million. Combined operations and support and procurement cost avoidance is expected to be at $27.000 million. Fielding reduction is greater than five years. Completion date is scheduled for September 2010. *FY 2009 Accomplishments:* Technical testing conducted at manufacturing facility in Norway and Naval Surface Warfare Center, Crane, Indiana. *FY 2010 Plans:* Prepare P-HEDP IDIQ Contract. Test article production and test data review. Receive developmental test articles. Conduct Technical Testing. Receive Operational Test Articles. Conduct Operational Testing. Receive Safety Release and Joint Safety Approvals. Complete Milestone C Decision package. Complete FCT closeout report 4Q FY 2010.	0.000	0.972	0.000	0.000	0.000
Pyrolysis Solid Waste Disposal With Energy Recovery (Army)	1.874	1.436	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
This project will demonstrate and evaluate a containerized system that uses Pyrolysis technology to dispose of approximately two tons of solid waste per day within a Force Provider base camp. This technology will help reduce or eliminate the need for outside contractors to access the base camp to dispose of solid waste there by reducing potential threats to the force. The primary outputs and efficiencies are as follows: the system will be self-powered reducing the need for additional fuel to operate, and the energy recovery of the Pyrolysis will reduce the amount of fuel needed to support the base camp, thereby reducing logistics burden. RDT&E cost savings is estimated at $9.900 million. Operations and Life-Cycle cost avoidance/savings is estimated at $0.347 million. When fully funded, the potential annual savings is estimated at $9.716 million. *FY 2009 Accomplishments:* Formed Integrated Product Team (IPT) and conducted two IPT Meetings (March 2009 and September 2009) for Pyrolysis Waste Disposal System (PWDS). Principal Assistant Responsible for Contracting (PARC) approved Justification and Approval (J&A) for Other Than Full and Open Competition document authorizing sole source contract with QinetiQ, Ltd. Awarded firm fixed price Indefinite Delivery Indefinite Quantity contract to QinetiQ, Ltd consisting of three year base period for Test Unit Design/Build and Testing and one two-year optional ordering period for full production (up to twelve systems). Contractor initiated design integration effort and completed Preliminary Design Review. *FY 2010 Plans:* Contractor complete design integration effort and build of one PWDS test unit under PWDS contract. Contractor conduct Factory Acceptance Testing (FAT) and deliver one PWDS test unit in late 3Q FY 2010. Government conduct Technical and Safety Testing at Aberdeen Test Center (ATC) in the 4Q FY 2010 and ship test unit Operational Testing (OT) site at National Training Center (NTC) to be conducted in 1Q FY 2011. Based on successful Government testing, Program Manager transition program into procurement, prepare for Milestone C Production Decision, and complete project closeout report in late FY 2011.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RapidEye Imagery for Eagle Vision (Air Force)	1.635	2.464	0.000	0.000	0.000

RapidEye is a constellation of five Earth remote-sensing satellites intended for broad-area multispectral optical imaging, with the capability to image areas of interest multiple times per day. It can image anywhere on the Earth daily, for tactical mission planning, battlespace awareness, geospatial intelligence, and unclassified homeland security and disaster relief/humanitarian functions. The RapidEye daily revisit capability can reach any point on earth for repeat coverage, with multiple daily opportunities to uplink control commands and downlink imagery, providing responsive timelines for command & control of the system. The five-satellite constellation redundancy enhances its availability and survivability and eliminates single-point-of-failure risk unique to single spacecraft. RapidEye AG, Brandenburg/Havel, Germany owns and operates this constellation which was launched in August 2008. The RapidEye satellites were developed using Canadian and British technologies that do not exist in the U.S. industry; and MacDonald, Dettwiler and Associates Ltd. (MDA) of Canada developed the ground station interface software. The RapidEye test/calibration and commissioning phase is complete, and the system is fully operational. The primary outputs and efficiencies to be demonstrated in the FCT is the integration of the German RapidEye AG satellite constellation ground station interface initially into one of five Eagle Vision Data Acquisition Segment (DAS) sites; and following a successful FCT evaluation of this initial integration, the program would subsequently integrate the same ground station interface into the four remaining Eagle Vision sites.

FY 2009 Accomplishments:
Project started 4Q FY 2009. Began contracting actions for test articles.

FY 2010 Plans:
Contract for the test article and after receipt of the test article, integrate into the Eagle Vision System and commence initial technical testing. Perform user/operator assessment and prepare user test reports. Prepare decision packet and if successful, integrate the RapidEye capability into the remaining four Eagle vision systems.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Robotic – Moving Target System (R-MTS) (Navy)	0.000	2.392	0.500	0.000	0.500
A successful FCT will provide the United States Marine Corps (USMC) with a free roaming, pre-programmable mobile target system that simulates realistic human movements and responses in an urban combat environment. This is a two-year project under sponsorship of the FCT and Marine Corps Systems Command, Program Manager Training Systems. Projected test and evaluation completion date by FY 2011. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) improved marksmanship skills; (2) tactical decision making proficiency; (3) analytical abilities that will result in the combat efficacy of engaging moving life-like targets with live-fire and maneuver; and (4) avoid RDT&E and procurement costs of $11.930 million while providing a Return on Investment (ROI) of 13:1.					
FY 2010 Plans: Receive Initial FCT funds and initiate Contract Preparation and Test Planning by end 2Q FY 2010. Complete Contract Award and initiate Fabrication of test articles by mid 3Q FY 2010. Receive test articles by end of 4Q FY2010.					
FY 2011 Base Plans: Complete test planning and initiate technical and safety testing efforts 1Q FY 2011. Initiate Field User Evaluation and complete Technical and Safety testing 2Q FY 2010. Finalize Technical and closeout report by end of 3Q FY 2010. Make Milestone C Decision early 4Q FY2011.					
Signaling Colored Smoke Grenades (SCSG) (Navy)	0.555	0.838	0.000	0.000	0.000
A successful FCT will provide the United States Marine Corps (USMC) with a family of signaling colored smoke grenades for procurement and immediate fielding to the Warfighter. SCSG is a joint-project with Army, and the USMC is the lead. This is a two year project under sponsorship of the FCT and Marine Corps Systems Command, Program Manager Ammunition. Projected testing completion date will be FY 2011. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) readily producible and cost efficient Green/Yellow/Red/Violet/White colored smoke grenades to meet					

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
operational requirements for ground-to-air and ground-to-ground signaling; (2) improvements for increased smoke duration, safer initiation system by reducing flame height, decreased smoke toxicity, more environmentally friendly components, reduced weight, Insensitive Munitions compliance, and denser smoke to enhance visual recognition from long distances; (3) increased availability for training purposes; and (4) avoid RDT&E and procurement costs of $0.853 million and $3.300 million while providing a Return on Investment (ROI) of 10:1. *FY 2009 Accomplishments:* Coordinated and submitted the USMC Single Acquisition Management Plan for review and signature between USMC Program Manager for Ammunition and Army Project Manager for Close Combat Systems in 2Q FY 2009. Initiated the qualification/test Planning at the end of 2Q FY 2009. Released solicitation of SCSG during 3Q FY 2009. Responses submitted by vendors during 4Q FY 2009. Program office conducted paper down selection 4Q FY 2009. *FY 2010 Plans:* Complete Comparative Evaluation 1Q FY2010. Complete Phase I down-selection and Phase II contract award during 2Q FY 2010. Receive Phase II test articles during 3Q - 4Q FY 2010. Initiate insensitive munitions / technical / safety / environmental / toxic testing during 4Q FY 2010.					
Submarine Survivor Locating Device (Navy) A successful FCT will provide the United States Navy an automatic location device utilizing Very High Frequency (VHF) radio technology integrated with the Global Positioning Satellite system. It will enable rescue operations to home directly on submarine escape survivors in the open ocean. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) successful location of distressed submariners on the ocean's surface vice the current technology which only identifies the coordinates of the distressed submarine; and (2) avoid RDT&E costs of $4.750 million.	0.000	0.349	0.458	0.000	0.458

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Receive initial FCT funds 2Q FY2010. Complete project planning 1Q FY 2010. Contract for test articles 2Q FY 2010 through 3Q FY 2010. Receive test articles 3Q FY 2010 through 4Q FY 2010 and begin testing and integration 4Q FY 2010. *FY 2011 Base Plans:* Conduct initial technical testing 1Q FY 2011. Perform operator assessments and testing 3Q FY 2011. Make procurement decision and complete closeout report 4Q FY 2011.					
Three-Dimensional (3D) Visualization of the Battlespace (Army)	1.476	0.000	0.000	0.000	0.000
Test the Arisawa three-dimensional stereoscopic Liquid Crystal Displays (LCD) to provide Force XXI Battle Command Brigade and Below - Blue Force Tracking Systems with high-resolution 3D mapping and tactical data display capability. Validate the ability of Arisawa displays to enhance visualization capabilities of Command and Control (C2) software, built with commercial-off-the shelf applications. Warfighters using this C2 system can immerse themselves in the terrain and tactical data during mission planning, situational awareness and after-action reviews. Research Development Test and Evaluation (RDT&E) Potential Savings of $12.000 million. Contractor has spent over $10.000 million in developing/testing their system. If testing is successful, there is potential to apply this technology to various Army Battle Command System (ABCS) and intelligence efforts beyond the basic application identified, thereby, increasing the potential RDT&E cost avoidances. Estimated manufacturing savings of $10.000 million. *FY 2009 Accomplishments:* Performed phase II testing, focusing on the usability and human factors of the Arisawa technology with the ABCS in Tactical Operations Center and On the Move (OTM) applications using the resources in the Communications Electronics Research, Development & Engineering Center (CERDEC) Command & Control (C2) Directorate Comand, Control, Communications, Computers, Intelligence, Surveillance and Reconnnaissance (C4ISR) Automated Virtual Environment facility. Then, Phase III testing was					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
conducted at Fort Dix, New Jersey as part of the CERDEC Product Manager C4ISR On-The-Move exercise. The focus of Phase III testing was suitability of use in a field environment and human factors issues related to field use. *FY 2010 Plans:* Complete development and testing of 3D Stereoscopic C2 system. Complete final test report and closeout report.					
Transportable Plasma Waste to Energy System (Air Force) This project will test a waste to energy system that handles ten-tons per-day and can efficiently and economically dispose of the entire waste stream in an environmentally sound manner. Air Force Special Operations Command (AFSOC) A7AV (Environmental) at Hurlburt Field, Florida will evaluate an advanced waste to energy system developed by PyroGenesis, a Canadian company located in Montreal, Canada. This compact, land-based system will accept any gas, liquid or solid waste without the need for pre-sorting, including hazardous and biological/medical waste while also being a net energy producer. Current waste disposal methods typically involve expensive contracts with local waste haulers that collect and transport the waste to a landfill. At remote locations, open pit burning is usually involved, with a myriad of operational security, environmental, health, and other serious exposure risks to our troops. Executive Order 13423 mandates the Federal Government reduce energy consumption, increase the use of green products, reduce greenhouse gases, and divert or reduce solid waste. The Plasma Waste to Energy System will meet all these goals, while producing electricity and valuable by-products (i.e. gravel and metal ingots). *FY 2009 Accomplishments:* Obtained digging permits, installed ground dewater system, obtained storm water permit, installed storm water control system, retention pond and catch basins, installed oil/water separator, Installed lift station, obtained Research Demonstration and Development (RDD) permit approval, ordered plasma building package, 8000 square feet steel facility. The Hazardous waste permit is underway. Obtained	1.585	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Air construction permit, water tap permit, reuse water tap permit, sewage tap permit and installed utility infrastructure, construct building foundation and site fill. Erect steel building by 30 October 2009. Drop ship many critical Plasma parts to the building site starting October 2009. Modify existing refuse contract to support Plasma system testing. Create a new "Plasma System" Operation Contract for competitive bids. *FY 2010 Plans:* System fabrication complete January 2010, commissioning April 2010 and fully operational June 2010.					
Ultra High Energy Rechargeable Battery (Army) The BB-2590/U battery is rechargeable. It consists of nickel/lithium-ion cells and is used in many US Army portable radios & electronics equipment. It is the most widely used battery in the Army inventory. The new BB-2590/U weighs 2.8 pounds with dimensions of 4.4 x 2.45 x 5.00 inches. The nominal voltage and capacity is 28.8 Volts and 7.9 Amp-hours (Ah), respectively. Compared to the current production battery, the new BB-2590/U battery will have one hour (30 percent) greater service time, 1.6 Ah (24 percent) greater capacity, and 38 Watt-hours (20 percent) greater energy. At -32 °C and five amperes (Non-Line-Of-Sights requirement), the new battery will provide 1.3 hours service time and 165 Watt-hours energy; whereas, the current production battery will not operate at all at -32 °C . The battery weight will be reduced by 71 grams per battery. Not only will the new battery weigh less than the current battery, the soldier will have to carry fewer quantities of batteries for a specific mission. This is because the new battery will provide greater run time; therefore, fewer quantity of batteries required. *FY 2010 Plans:* Cell contracts (first set) scheduled for 2Q FY 2010 and Battery contracts (first set) to follow for 4Q FY 2010. Evaluation to also begin during 4Q FY 2010.	0.000	0.634	0.415	0.000	0.415

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Evaluation to continue through FY 2011. Acquisition process to follow lasting from 1Q FY 2012 to 4Q FY 2012.					
Unmanned Systems Communications Interoperability (USCI) (Navy) A successful FCT will provide the United States Navy Spark Integration's Distributed Integration Operating Schema (DIOS™) for integrating unmanned systems and their payloads within a system of systems (SoS) framework. Interoperability amongst manned and unmanned systems is vital for future military operations but is at risk due to time and cost barriers for integrating heterogeneous systems. Current integration of unmanned systems is done on a case by case basis, often creating redundancy, waste and an environment with a variety of vehicles that cannot communicate or interoperate. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) system integration using a product rather than a service, allowing more systems to share information and command and control and moving towards an interoperable environment; and (2) total cost savings over $64.000 million. *FY 2010 Plans:* Receive initial FCT funds 2Q FY2010. Complete test plan development by 2Q FY 2010. Receipt of test articles is planned 2Q FY 2010. Conduct test for combined unmanned ground and maritime vehicles 3Q FY 2010 through 4Q FY 2010. *FY 2011 Base Plans:* Performance evaluation, technical test report and project closeout report are anticipated to be completed by end of 1Q FY 2011.	0.000	1.084	0.000	0.000	0.000
United States Marince Corps (USMC) M1A1 Laser Warning System (LWS) (Navy) A successful FCT will provide the United States Marine Corps (USMC) with a real time laser warning system for the M1A1 tank. This is a two year project under sponsorship of the FCT and Marine Corps	0.000	1.435	0.650	0.000	0.650

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Systems Command, Program Manager Tank Systems. Projected testing completion date will be FY 2012, with immediate procurement. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) detect and characterizes laser threats under all weather and battlefield conditions; (2) provide 360 degree azimuth coverage and gives the tank crew the angle of arrival within +/- 1 degree; (3) increased survivability and save lives; and (4) avoid RDT&E and procurement costs of $5.500 million while providing a Return on Investment (ROI) of 15:1. *FY 2010 Plans:* Receive initial FCT funds by end of 2Q FY2010. Initiate contract preparation and Test planning during 3Q FY 2010. Complete contract award and initiate fabrication of test articles 4Q FY 2010. *FY 2011 Base Plans:* Complete test planning and fabrication of test articles 1Q FY 2011. Receive test articles during 2Q FY 2011. Initiate technical and integration testing during 3Q FY 2011. Complete technical and integration testing and initiate field user evaluation by 4Q FY 2011.					
FY 2011 Plans The FCT program will continue to fund testing activities on 13 continuing projects executing $8.350 million. Remaining funding of $24.405 million will be used to initiate new start FY 2011 projects. Projects receiving new start funds will be selected during the FY 2011 final proposal selection process, scheduled for 4Q FY 2010. *FY 2011 Base Plans:* Initiate new start projects.	0.000	0.000	24.405	0.000	24.405
Accomplishments/Planned Programs Subtotals	32.050	34.771	32.755	0.000	32.755

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*	PROJECT P130: *FCT*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Since the program's inception in 1980, the Office of Secretary of Defense (OSD) has initiated 601 projects; 514 projects have been completed to date. Of the 279 evaluations that met the sponsors' requirements, 200 led to procurements worth approximately $9.060 billion in FY 2009 constant year dollars. With an Office of Secretary of Defense investment of about $1.170 billion, the FCT program has realized an estimated RDT&E cost avoidance of $7.600 billion in FY 2009 constant year dollars. In FY 2009 FCT had a transition rate of 71 percent for completed projects, exceeding the objective of 30 percent for demonstration programs (Strategic Objective 4-3, Office of the Under Secretary of Defense, Acquisition, Technology & Logistics (OUSD (AT&L)).