

**OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 6		PE NUMBER AND TITLE <b>0605130D8Z - Foreign Comparative Testing (FCT)</b>						
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Program Element (PE) Cost	36.889	31.812	32.919	34.974	36.058	34.721	35.177	35.672
P130 Foreign Comparative Testing (FCT)	36.889	31.812	32.919	34.974	36.058	34.721	35.177	35.672

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

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

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 32 states have benefited from FCT projects.

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

<b><u>B. Program Change Summary</u></b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	37.260	31.995	33.924	35.954
Current BES/President's Budget (FY 2008/2009)	36.889	31.812	32.919	34.974
Total Adjustments	-0.371	-0.183	-1.005	-0.980
Congressional Program Reductions				
Congressional Rescissions		-0.183		

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Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.371			
Other			-1.005	-0.980

**C. Other Program Funding Summary:** Not Applicable.

**D. Acquisition Strategy:** Not Applicable.

**E. Performance Metrics:** Not Applicable.

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APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 6		PE NUMBER AND TITLE <b>0605130D8Z - Foreign Comparative Testing (FCT)</b>					PROJECT <b>P130</b>		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
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**B. Accomplishments/Planned Program:**

<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
120mm Mortar Propellant (Army)	0.814	0.000	0.000	0.000

Outcome: This project evaluates and qualifies a high-performance Extruded-Impregnated (EI) propellant for long-range mortar systems developed by Rheinmetall/Nitrochemie Wimmis AG of Switzerland. The primary outputs and efficiencies by qualifying EI propellant are increased range over current 120mm mortar systems to support the Army's Future Combat System requirements, elimination of the use of a hazardous/toxic stabilizer, reduction of blast overpressure, increased rate of fire, decreased gun tube wear, and increased propellant shelf life.

FY 2006 Output: Loaded, assembled and packed (LAP) mortar increment containers and ignition cartridges with EI propellant, completed initial evaluation testing and initiated final qualification testing of

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main charge propellant at Yuma Proving Ground (YPG). Additional outputs from FY 2006 funding include conducting final qualification testing of EI propellant at YPG (slated to occur in FY 2007).				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
1760 Umbilical Cord (Air Force)	0.423	0.000	0.000	0.000
<p>Outcome: Increased reliability and service life of the MIL-STD 1760 interface umbilical by 10 fold. This umbilical transfers guidance information to weapons and is currently a one time use and throw away. The 508th Fighter Support Group at Hill AFB, Utah will evaluate an advanced umbilical connector, developed by EDO MBM Technology, Ltd. of the United Kingdom, which will disengage without being damaged. The current Air Force 1760 connector is of a "screw on/pop off" design which is experiencing damage during weapon release. The EDO umbilical uses a collar that screws onto the weapon's 1760 connector and an umbilical cable that snaps on/off the collar and is repairable. USAF could save roughly \$315 thousand per year on cables for the F-16. Considering that the F-16 is projected to be in use until 2026, the overall life-cycle savings could reach as much as \$6.0 million.</p> <p>The primary outputs and efficiencies to be demonstrated are: (1) that the EDO umbilical connector mates with Mil DTL-38999/20 and /24, (2) that the connectors accept SAE-AS85049 self-locking accessories and (3) that they will disengage without damage from any coupled connector including partially mated</p> <p>FY 06 Output: Contract for the test articles awarded. Eglin test plan completed. Rather than funding separate tests the testing will be concurrent with programmed testing completing the final demonstration in 3rd Qtr FY07. Completion date and publishing the Final Report planned for 4th Qtr FY 2007. FY 2008 results include the planned transition of the umbilical cord into the Defense Logistic Supply Chain.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
30mm Programmable Air Burst Munition (ABM) (Navy)	1.057	1.756	0.000	0.000
<p>Outcome: This project will test the 30mm ABM for lethality and effectiveness across the full spectrum of combat operations than currently available combat munitions. This capability provides US combat forces greater survivability thru increased lethality to four to six times. This increase in lethality will afford DoD war fighters the capability to engage and defeat 4 to 6 times the number of enemy forces per unit load of ammunition.</p> <p>FY 2006 Output: Complete 30mm ABM lethality evaluation of the three candidate rounds at the Hawthorne, NV. Draft RFP was issued to the three competing vendors soliciting unit cost for the 30mm ABM rounds and gun programming hardware. This pricing data will be used by the Source Selection Panel (SSP) in the downselect process.</p> <p>FY 2007 Planned Output: Award contract for qualification ABM rounds with follow-on procurement options. Conduct ABM round qualification testing. Complete qualification testing, secure approval for production, prepare close-out report; execute contract options for ABM cartridges for Service use (slated to occur in FY 2008).</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
3rd Generation Focal Plane Array (Army)	1.194	0.000	0.000	0.000
<p>Outcome: This project is to demonstrate infrared focal plane array performance on low cost substrates equivalent to current performance on bulk substrates. The eighteen month project is under the sponsorship of PM Night Vision for completion of demonstration/testing by 3Q 2007 with subsequent transition to PM NV/RSTA. These focal plane arrays can spiral into Long Range Scout Surveillance System (Stryker and HMMWV), Apache (targeting), F-35 (threat warning, navigation and targeting) and Future Combat Systems (targeting). The lead service is Army. The primary outputs and efficiencies to be demonstrated in the Foreign Comparative Test are (1) to decrease the costs of the focal plane array by a factor a four and (2) to increase operating life by a factor of two, thereby decreasing system life costs.</p> <p>FY 2006 Output: Parts have been procured for the imagers and focal plane arrays at Selex. NVESD has set up the test procedures for the larger format FPAs. Talks have been held between NVESD, Selex</p>				

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and US industry for transition of technology into US industry. Final demonstration has been set up for flight 3Q 2007. Lab testing 2Q FY 2007. Final demonstration scheduled for 3Q FY 2007. Scheduled completion date is May 2007. The cost per focal plane array (FPA) will decrease by 75% resulting in acquisition savings of \$572 million and increases reliability of the FPA by 200% which reduces operating costs by \$75 million.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
40 mm Day/Night Tactical Marking Crtg. (SOCOM)	2.779	0.000	0.000	0.000
<p>Outcome: The 40mm Day/Night training cartridges allow soldiers to train as they fight, at night, using their night vision goggles, to easily spot markers and cartridges, a capability not currently available. Primary outputs and efficiencies: This inert training ammunition is less toxic and will reduce range clean up costs by 10-20%, prevents range fires in the impact areas of bases in Southern California and will save over \$1M a year in base operations and maintenance funds (one fire alone burned 8,592 acres aboard the base and surrounding community, required 1,300 firefighters, numerous fire trucks, and a dozen aircraft from various agencies to extinguish) as well as save lives and prevent injuries caused by unexploded ordnances. Completion date is 30 Sept 2008.</p> <p>FY 2006 Output: Accepted final day/night training and tactical marking test items; completed Phase I Performance Test; began Phase II Safety Test and environmental impact qualification testing. Additional outputs that will occur in FY 2007 include conducting Phase III Operational User Assessment. Resolution of aeroballistics. Fabrication of test articles. Additional outputs that will occur in FY 2008 include receiving WSESRB (Weapon Systems Explosive Safety Review Board) approval and preparing the FCT Close-out Report. Milestone C Decision is scheduled for 4th Qtr 08</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
40mm Low Velocity HEDP Ammunition (Navy)	0.444	0.000	0.000	0.000
<p>Outcome: A successful FCT will provide the War Fighter with a 50% more accurate 40mm Low Velocity (LV), HEDP round that features greater lethality, new Insensitive Munitions for greater safety, and a new fuze to avoid remediation costs of \$50M for unexploded ordnance. Safety issues with the design and production of the current 40mm LV, HEDP round have driven the requirement to field a Weapons System Explosives Safety Review Board (WSESRB) certified cartridge. The USMC will test two candidate cartridges manufactured by Rhinemetall (Nico Pyrotechnik and Arges) in Germany to meet the requirement use in the M79 and M203 weapon systems. A three-year FCT project under sponsorship of the OSD CTO and MARCORSYSCOM. Projected completion of testing and qualification will be CY 2007 with transition to USMC operating forces during CY 2008. The primary outputs and efficiencies to be demonstrated in the FCT Test are: (1) fielded cartridge will feature a high penetration capability against light armored targets; (2) a high fragmentation effect against enemy personnel; (3) integrate a self-destruct mechanism to eliminate instances of unexploded ordnance; (4) avoid RDT&amp;E costs of \$8.8M and provide a ROI of 85:1.</p> <p>FY 2006 Output: Completed the Comparative and Safety/Environmental testing in Unterlueck, Germany. Down selection completed and Qualification Test contract option awarded to Nico Pyrotechnik. Completed Systems Safety Working Group and Configuration Management Process to provide safety analysis and determine final round configuration in preparation for the WSESRB. Additional outputs from FY 2006 funding that will occur in FY 2007 include: Manufacture test articles for delivery during the 3rd Qtr. Anticipated completion of the qualification testing during the 4th Qtr. and attain WSESRB certification. Additional outputs from FY 2006 funding that will occur in FY 2008 include: Provide the Technical Test Report. A Milestone C Decision is anticipated during the 2nd Qtr. followed by the Close-out Report.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
70 mm (2.75) Rocket Warhead	2.257	1.277	0.000	0.000

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Outcome: This project is qualifying an improved 70mm multi-purpose penetration warhead for use by Special Operations Aviation Regiment (SOAR) (Task Force 160) aircraft (AH/MH-6J). Primary Outputs and efficiencies: This warhead will provide special operations forces (SOF) with a significant new capability to defeat hardened targets such as bunkers, buildings, or other structures consisting of up to 24 inches reinforced concrete or 4 feet of timber and earth. Total cost avoidance and savings exceed \$43M. Completion date is 30 Jun 2008.

FY 2006 Output: Received authorization to proceed with contract negotiations after extensive review of contract actions, sole source justification, and review by USSOCOM legal office; continued development of Test and Evaluation Master Plan.

FY 2007 Planned Output: Receive test articles; begin interim hazard classifications, and Phase I technical and safety testing, as well as insensitive munitions (IM) testing; start WSESRB approval process. Additional outputs that will occur in FY 2008 include: obtain air worthiness certification; complete Phase I testing; obtain WSESRB certification; conduct Phase II Operational and User Assessment. Complete FCT Close-out Report. Obtain Milestone C decision 2nd Qtr 08.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
84 mm Multi-Target Warhead (SOCOM)	0.972	1.458	0.000	0.000

Outcome: This project is evaluating an 84 mm Multi-Target (MT) Warhead for use in the Multi-Role Anti-Armor, Anti-Personnel System (MAAWS), the primary Special Operations Forces (SOF) crew served shoulder fired weapon. Primary Outputs and efficiencies: This munition will greatly enhance SOF capabilities to blast through wall-structures and targets urban/built up areas using a tandem warhead with a follow-through charge. This project will accelerate the weapons into the hands of the warfighter by 5 years sooner and avoid \$45M in RDT&E and life-cycle costs. Completion date is 30 Sep 2008.

FY 2006 Output: Completed contract preparation and award for test articles; continued test planning; initiated WSESRB approval process.

FY 2007 Planned Output: Initiate hardware integration and delivery; Initiate technical and safety testing; submit Navy WSESRB data package. Additional outputs from the FY 2007 funding that will occur in FY 2008 include: Complete hardware integration; finish technical and safety testing; perform limited user testing; obtain Navy WSESRB approval; complete FCT Close-out Report; obtain Milestone C Decision 3rd Qtr 08.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Air Flotation Platform (Air Force)	0.476	0.293	0.000	0.000

Outcome: Reduction in the number of work flow days per aircraft (A/C) by ten and save \$25 thousand per A/C in rigging costs resulting in annual savings of \$3.6 million for lean-moving structural production lines. The 309th Air Maintenance Group at Hill AFB, Utah will evaluate air flotation platforms developed by Solving of Finland that are used to reposition aircraft and airframe structures as integral units during depot level maintenance operations, while maintaining structural alignment. During maintenance operations aircraft airframes are disassembled for repair and/or replacement of major structural components, and the inability to move the aircraft results in all tooling and labor being transported to the airframe, causing added wait-time and degraded lean-moving production lines. The Air Flotation Platforms are being used by Airbus in France and by the Dutch Royal Air Force. The primary outputs and efficiencies are to reposition aircraft and airframe structures as structurally aligned integral units during depot level maintenance operations.

FY 06 Output: The shop surface has been machined down to facilitate operation of the platforms; contract for the test article has been awarded and static airframe alignment measurements are being conducted and support requirements are being generated.

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FY 07 Planned Output: Demonstrate successful motion over shop floors with final demonstration date August 2007. Generate Final Report with Completion date planed for September 2007. In FY 2008 the project is planned to transition to production.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Aluminum Alloy 5059 for Armor Applications (Army)	0.454	0.000	0.000	0.000

Outcome: This project is qualifying an improved aluminum developed by Aleris (Corus) of Germany for armored ground systems used in PEO Ground Combat Systems and for use in Future Combat Systems (FCS) applications. Ballistics has confirmed the manufacturers claims for excellent performance among aluminum materials in ballistics, particularly against frag based threats. Procurement Potential: (448) M2 IFVs \$ breakout TBD by PEO. A new fleet of FCS MGVs (amount unknown) Other Benefits: Use on other armored platforms and structures. A 2X or greater improvement in time between armored hull overhauls at depots due to corrosion and materials degradation vs. comparable 2XXX and 7XXX aluminum alloy constructed hulls. RDT&E Cost Savings: \$2.500 million over 4 years (minimum). O&S Cost Savings: \$1.200 billion. Procurement Cost Savings: 25% reduction in cost versus AA5083-H131. Procurement Potential: (448) M2 IFVs \$ breakout TBD by PEO.

FY 2006 Output: Based upon successful ballistics, AA5059 has been added to a draft revision to the armor MIL SPEC. The specification "MIL-DTL-46027K" will be the basis for which all future acquisition of AA5059 will be based upon. It will be the qualification standard that is referred to when appearing in contracts. Without the spec, ease of acquisition of the material would be significantly hindered. The draft of the revised SPEC was distributed to the military and industry for comment on 5DEC06. In addition to the ballistic spec, the first of 6 mine blast evaluations to 1.5" thick plate was conducted at Aberdeen Proving Ground in October. The results to date have been successful and represent an improvement over AA5083-H131 and comparable performance to the more expensive and stress corrosion cracking prone AA7039. Additional outcomes from FY 2006 funding that will occur in FY 2007 include: complete the remaining blast tests scheduled in January and February of FY07. To assess the performance of the material in a production environment, welded plates of 1.5" AA5059-H131 were prepared at no additional cost to the project by conventional MIG weld practices as well as using friction stir methods. These plates are scheduled for ballistic shock and mineblast conditions in January and February. The momentum and interest in this material generated by this project has led to development of a new ultra tough AA5059-H136 temper to be used as a spall resistant backing component for add-on composite armor panels for FCS and other appliqué armor packages and again at no additional cost to the project. Ballistic targets of this new temper have been prepared and are awaiting ballistic evaluation. ARL projects project completion by May 2007. The finalized MIL SPEC will follow shortly during 2Q FY 2007.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Amphibious Reconnaissance Insertion Vehicle (ARIV) (SOCOM)	0.537	0.000	0.000	0.000

Outcome: The ARIV will improve reconnaissance and surveillance (R&S) capabilities by extending the operational range, endurance and increased payload for Special Operations Forces. Primary Outputs and efficiencies: This will be accomplished by using the same vehicle to insert over the water and continue to the target on land. Savings of approximately \$7M in RDT&E cost avoidance and \$6M in procurement savings are expected. Completion date is 30 Sept 2007.

FY 2006 Output: Received funds and awarded test support contract; obtained test articles and vendor technical support; completed Phase I technical validation testing; initiated operational design review; commenced test review and analysis to determine suitability and viability of continuing operational testing. Tested different variations to include the Aquada, the Humdinga, and a "Quad Ski". Determined that a "Quad Ski" variation would better fill SOCOM requirements. Additional outcomes from FY 2006 funding that will occur in FY 2007 include: begin negotiations with Gibbs to enter into Quad Ski production. Gibbs attempting to provide more water borne speed and power while reducing land speed for Quad Ski to better suit SOF mission needs. Will introduce a "Buy, Try, Decide" scenario for additional procurements. Prepare and submit FCT Close-out Report. Milestone C decision for procurement of Quad Ski is expected 2nd Qtr 07.

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<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	
Area Mine Clearing System (AMCS) (Army)	2.616	1.311	0.000	0.000	
<p>Outcome: This project is evaluating and qualifying the area mine clearing capability for the Army's new Combat Engineer Clearance Companies in the Future Engineer Force. The current techniques for clearing large areas of mines are Soldiers using handheld mine detectors and mine probes or explosive breachers and line charges. These methods are problematic because they are time consuming, they leave soldiers unprotected and they do not neutralize anti-tank mines. The Area Mine Clearing System (AMCS) candidate systems are large mechanical mine clearing flails predominantly used for humanitarian demining operations around the world. They clear large areas by detonating or destroying the mines and they are blast hardened to withstand multiple AT mine blasts. The Army's performance testing will include flailing operations against live anti-tank mines.</p> <p>FY 2006 Output: Market research and candidate selection completed in February 2006.</p> <p>FY 2007 Planned Output: The full spectrum of DT/OT testing is planned for 1st and second quarter FY 2007. Cost avoidance in R&amp;D is estimated to be \$20.000-40.000 million.</p>					
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	
AT4-CS w/ Enhanced Blast Tandem Warhead (Army)	2.246	2.517	0.291	0.000	
<p>Outcome: To demonstrate and qualify the AT4CS-EBTW to meet shoulder launched munition capabilities required by the US Army Infantry Center. The current AT4CS warhead provides high lethality and incendiary effects against armor (defeats 16 inches of armor) but lacks overmatching penetration and effects against masonry walls made of brick and concrete and other urban targets/structures, field fortifications (earth and timber bunkers). With increased deployment of US Forces around the world in urban warfare environments a new multi-purpose warhead with the ability to penetrate brick and concrete walls and incapacitate enemy forces behind urban structures and within field fortifications is required to maintain overwhelming firepower and reduce the logistics and training associated with multiple systems. The three-year effort will plan for and procure the hardware necessary to conduct test and evaluation for US Army, conduct the developmental and operational tests necessary to verify safety and support materiel release and complete the modeling/simulation and evaluation of test results to ensure that the AT4CS-EBTW meets requirements by the end of FY 2008. The lead service is Army. The primary outputs and efficiencies to be demonstrated are (1) capability of incapacitating enemy soldiers positioned behind urban walls and structures made of 8 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.</p> <p>FY 2006 Output: Completed the draft TEMP, draft requirements, contract solicitation documentation and limited operational experiment in preparation of qualification efforts.</p> <p>FY 2007 Planned Output: Conduct contract award, finalize test plans and fabricate targets, accept and deliver test assets and initiate training/conduct of developmental and operational tests.</p> <p>FY 2008 Planned Output: Complete all developmental and operational testing, conduct full system evaluation per the TEMP, prepare a final FCT report and type classification documentation in support of a production decision. Qualification and fielding of the AT4CS-EBTW will be a combat multiplier since it reduces the need for continued fielding of multiple shoulder launched munitions with similar capabilities. In addition to savings in logistics and training due the eliminating of multiple munitions, the procurement cost savings of this project is estimated at 40-50% of the unit cost of each weapon by leveraging ammunition and fuzing components from other similar 84mm family weapons. Assuming \$3,000 per round savings x 20,000 rounds over 5 years = \$60.00 million.</p>					
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	

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Close Quarter Battle (CQB) Pistol (SOCOM)	0.180	0.000	0.000	0.000
<p>Outcome: This project is testing and evaluating CQB pistols from foreign vendors that have demonstrated the ability of firing multiple caliber rounds from a single pistol. Primary Outputs and efficiencies: Non-developmental multi-caliber (9mm and .45 cal) pistols with a weight less than 40 ounces and improved accuracy, reliability and ergonomics will be tested to replace the legacy SIG226 battle pistol used by Special Operations Forces (SOF) for the past 15 years. RDT&amp;E, O&amp;S, and procurement savings are projected at \$13M. Completion date is 30 Sept 2007.</p> <p>FY 2006 Output: Prepared Milestone B documentation; prepared new start notification to US Congress; performed "go/no-go" testing on product samples; issued final request for proposal solicitation; obtained safety release to conduct technical evaluation and operational testing. Program put on hold by USSOCOM Commander to resolve issues surrounding the Joint Combat Pistol Requirement merging as one to fill all services need for a replacement pistol. After decision is made, program will either proceed as planned or will be terminated. Additional outcomes from FY 2006 funding that will occur in FY 2007 include: receive low rate production articles; perform technical evaluation and operational test for final production source selection; obtain production and fielding release. Prepare and submit FCT Close-out Report. Milestone C decision is scheduled for 3rd Qtr 07</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Composite Shroud for Landing Craft Air Cushion (LCAC) (Navy)	0.943	0.117	0.000	0.000
<p>Outcome: This project will test composite shrouds that are more easily repairable, and 30% more reliable; thus, reducing life cycle maintenance costs and increasing craft mission availability. The potential US Navy savings of \$0.500 million in specification development, \$13.500 million in material/labor and R&amp;D costs plus an estimated additional reliability savings of \$1.200 million over the life of the LCAC Program.</p> <p>FY 2006 Outputs: Technical and cost evaluations of the proposal were performed at NSWC PC. The results awarded the contract to FY-Composites was deemed best value for the Navy for production of the composite shroud. A draft test plan outline for the composite shroud was submitted to FY-Composites for review and discussion.</p> <p>FY07 Planned Output: Critical Design Review follow up with a full scale production of first article test. Additional outcomes from FY 2007 funding that will occur in FY 2007 include: accept delivery of first article test unit, install on a test platform.</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Diver Hull Inspection and Navigation System (DHINS) (Navy)	0.846	0.000	0.000	0.000
<p>Outcome: This project will determine suitability for use by U.S. Naval forces conducting Explosive Ordnance Disposal (EOD) diving operations, including searching and inspections of ship hulls and berthing areas. It is an open architecture system that combines video streams from multiple sensors, underwater positioning data and the ship's hull schematics to accurately track and record the diver's underwater movements. A diver hull inspection system is required to enable the rapid and accurate survey of ship hulls for unexploded explosive ordnance objects that might impose a threat to Joint Military Operations.</p> <p>FY 2006 Outputs: DHINS integration Test report completed. The Program Office received the approval from contracts for sole source procurement of OMA DHINS FCT GUI hardware/software. Additional outcomes from FY 2006 funding that will occur in FY 2007 include: complete the Test Plan and Criteria for final FCT test in 4th Quarter and 1st Quarter FY07. Develop Final Test report and Close Out Report</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 6	PE NUMBER AND TITLE <b>0605130D8Z - Foreign Comparative Testing (FCT)</b>	PROJECT <b>P130</b>			
Emergency Battery System (Navy)	0.291	0.000	0.000	0.000	
<p>Outcome: A successful FCT will provide the War Fighter with a lightweight, renewable, emergency power source capable of operating computers and communications equipment while minimizing the War Fighters' battery load and ensuring adequate power resources throughout a mission. During OIF and OEF, world production limitations of the BA5590 lithium battery have driven the requirement for supplemental sources of expeditionary power. The USMC will test the Metal Cell from MEET of South Korea and the Magnesium-Air Power Cell from MagPower Systems Inc. of Canada to meet the requirement for alternative power sources. A two-year FCT project under sponsorship of the OSD CTO and MARCORSYSCOM. Projected completion of testing and qualification will be CY 2007 with transition to USMC operating forces during CY 2007. The primary outputs and efficiencies to be demonstrated in the FCT Test are: (1) provide lightweight multiple/redundant sources of emergency battery power; (2) minimize Warfighter battery load while assuring mission critical power needs; (3) avoid RDT&amp;E costs of \$2M and Operational costs of nearly \$.5M per year, providing a ROI of 27:1.</p> <p>FY 2006 Output: Received FCT funding during the 2nd Qtr. Foreign Test Data was obtained. Test Article contracting was completed with MEET of South Korea and InfraTech for MagPower Systems Inc. of Canada. Test Planning was finalized during the 3rd Qtr. Initial test article delivery from MEET is expected during the 4th Qtr. to complete performance testing at the Naval Surface Warfare Center (NSWC), Carderock and initiate field user evaluations through the Marine Corps Warfighting Laboratory. Additional outcomes from FY 2006 funding that will occur in FY 2007 include: test article delivery from MEET and MagPower Systems Inc. anticipated during the 1st Qtr. Performance testing at the NSWC, Carderock and field user evaluations conducted by the Marine Corps Warfighting Laboratory will be completed by the end of the 2nd Qtr. FY07. The technical test report will be provided by the 3rd Qtr. A Milestone C Decision is anticipated for the 3rd Qtr. followed by a Close-out Report.</p>					
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009	
Engine Air Particle Separator (Army)	0.528	0.000	0.000	0.000	
<p>Outcome: The Engine Air Particle Separator (EAPS) swirls engine inlet air at a high velocity separating particulate matter via centrifugal force. EAPS is used as mission equipment in dusty/sandy environments and can significantly increase engine life due to decreased erosion of engine components. The EAPS currently used by the U.S. Army is the long can design and requires that EAPS be moved forward on its mounting rails to open the engine cowling when performing maintenance or inspections. The U.K design is a short can that will allow maintenance to be performed without unfastening and moving EAPS. A cost savings based on fifty-one aircraft in country (28 OIF, 23 OEF) would yield \$.600 million per aircraft. This savings would be roughly \$30.600 million for the units in theater.</p> <p>FY 2006 Planned Output: After approval of EAPS Short Can ECP, will cut in to the new production contract to start producing Short Can EAPS. Start retrofitting our fielded EAPS with new Cross Shaft Fairing Covers and Shorten to facilitate maintenance. Establish new performance standard for T55-GA714A Engine with the Short Can EAPS in the operators manual for the CH47 aircraft.</p>					
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009	
Expeditionary Assault Bridge Launcher (Navy)	1.797	0.000	0.000	0.000	
<p>Outcome: A successful FCT will provide a river and canyon crossing system, capable of spanning natural and manmade obstacles up to 60 feet for 70-ton class tracked vehicles while moving at the speed of the Marine Air Ground Task Force (MAGTF). To meet this need, the USMC will test the BR90 Expeditious Assault Bridge Launcher from BAE Systems of the United Kingdom to integrate the AVLB with an M1A1 Tank chassis. Three-year project under sponsorship of the OSD Comparative Testing Office (CTO) Foreign Comparative Testing (FCT) Program and the Marine Corps Systems Command (MARCORSYSCOM), with completion of testing and qualification in CY 2008, transition to USMC MAGTF forces during CY 2008. The primary outputs and efficiencies to be demonstrated in the FCT Test are: (1) the AVLB will be capable of maneuvering with USMC armored and mechanized vehicles on the joint/coalition battlefield, (2) share a common M1A1 platform to decrease operation and support costs by \$.5M per year, (3) avoid RDT&amp;E costs of \$20M and Procurement costs of \$18M to achieve a ROI of 40:1.</p> <p>FY 2006 Output: Initial FCT funding received at the end of the 2nd Qtr. Memorandum of Agreement signed with the Army. Program re-designated as a Joint Program with the Army, lead maintained by the</p>					

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APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 6	PE NUMBER AND TITLE <b>0605130D8Z - Foreign Comparative Testing (FCT)</b>	PROJECT <b>P130</b>
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USMC. Completed Preliminary Design Review of the JAB Launcher and finalized the Test Plan. Contract preparation is currently ongoing. Additional outcomes from FY 2006 funding that will occur in FY 2007 include: award test article contract. Test article delivery is anticipated during the 2nd Qtr. Upon delivery, complete the JAB integration and acceptance testing at the Anniston Army Depot in Alabama. Following acceptance, the JAB will perform Technical Testing at the Aberdeen Test Center (ATC) in Maryland. Additionally, in FY 2008, the Marine Corps Operational Test & Evaluation Activity will complete the user evaluation, perform the data analysis and evaluation, and provide the technical test report. A Milestone C Decision is anticipated during the 4th Qtr. FY08 after which the Close-out report will be submitted.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Extended 1553 Databus (Air Force)	2.353	2.071	0.000	0.000

Outcome: Integration of an extended 1553B interface into high-bandwidth demand avionics, which will enable increased throughput rates from 1mega-bit per second (Mb/sec) to an excess of 200 Mb/sec over existing cable. ASC/YS, B-2 Systems Group at WPAFB in Dayton, OH will evaluate an Extended 1553B Data Bus developed by Edgewater Computer Systems, Inc. of Ontario, Canada. DoD platform data bus networks are based upon MIL-STD 1553B information exchange protocols that are constrained to 1Mb/sec throughput rates. The primary outputs and efficiencies to be demonstrated will be that the Extended 1553B performance is transparent to the user if data bus operations/functions occur within specified parameters and the increased throughput is realized. Deployment of the extended 1553 data bus will save the Air Force approximately \$1.600 million per aircraft in lieu of the installation of fiber optic cable.

FY 06 Output: Awarded contract for the test articles. Testing of 1553 performance compliance, and B-2 SIL integration to validate that the technology is capable of supporting B-2 avionics requirements was initiated. These efforts involved verification of basic functionality on all B-2 Mux bus lengths with analysis of signal characteristics in a Mux lab environment. Additional test parameters will involve compliance with MIL-STD 1553C (establishes extended data bus performance specifications).

FY 2007 Planned Output: Validation that the Edgewater solution performs as advertised and that it complies with established MIL-STD 1553C protocols. Testing will exercise selected elements of the B-2 avionics architecture to determine overall system stability while hosting high bandwidth, peak demand, and multi-line drop traffic supported with extended 1553B interfaces. Additional outcomes from FY 2007 funding that will occur in FY 2008 include: complete the final demonstration in 1st Qtr FY08. Completion date and publishing the Final Report planned for 4th Qtr. Transition to platform integration with Northrop Grumman.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
High Frequency Combat Net Radio (Army)	0.512	0.000	0.000	0.000

Outcome: This project will enhance the Joint Tactical Radio System with a higher speed High Frequency data modem that will increase the effectiveness and capabilities of the Joint Tactical Radio System. This project will test and evaluate the Italian based Selex CNR-2000, a Combat Net Radio with both High Frequency (HF) and Very High Frequency (VHF) band capabilities. The results of this evaluation will provide valuable information concerning communications interoperability between EU-NATO Coalition Forces and the US Army CERDEC, Fort Monmouth, NJ, US Army PEO C3T (JTRS), the Joint Program Office (JPO) JTRS, and JTRS Technology Laboratory (JTEL-NED T&E). The primary outputs and efficiencies of this FCT proposal for the High Frequency Radio is technology, likely to be in the form of software. The evaluation will examine the radio's performance and ascertain if the modem functions provide improved performance than known US modems. If successful, a license agreement will be drafted and contract awarded for use of this software. The code would then have to be integrated into the JTRS Ground Mobile Radio HF Waveform program which would be a separate contract/action while avoiding \$2.700 million in software development. Transition Manager is JPEO JTRS.

FY 2006 Output: Procured High Frequency radios from Selex Communications while setting up a laboratory and field test bed. Additional outputs from FY 2006 funding that will occur in FY 2007 include: receive fully tested production HF Radios from manufacturer at U.S. Army CERDEC. Laboratory technical tests performed. Operational over-the-air technical tests performed. Test results presented in a final

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<p>test report. Spiral Output is the potential procurement of HF modem software code for U. S. Army CERDEC's Software Defined Radio Lab experimental platform SDR-4000 in order to demonstrate JTRS HF applicability. Additional radio procurement may occur via existing contract options. Final operational demonstration is 4Q FY 2007. Additionally, in FY 2008, additional radio procurement to be delivered per existing contract. Completion date is May 2008. FCT close-out report and briefing. Improvements: Provides NATO-STANAG compatible HF Modem to US inventory of tactical radios. Procurement savings: Potentially \$2.7 million in software development should the HF Modem software code be used under license.</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Improved Crew Served Weapon Mounts (ICSWM) (SOCOM)	1.427	0.000	0.000	0.000
<p>Outcome: The Improved Crew Served Weapon Mounts (ICSWM) will provide Special Operations Forces with an improved, un-stabilized gun mount for crew served weapons. Primary Outputs and efficiencies: These mounts will improve accuracy when firing on the move, resulting in less dispersion and reducing the amount of ammunition required to defeat targets. The estimated savings in RDT&amp;E, procurement and Operations and Support Life Cycle is over \$41M. Completion date is 31 Dec 2007.</p> <p>FY 2006 Output: Obtained product sample in response to request for proposal announcement; completed Phase I demonstration of vendor sample; prepared and awarded contract for Phase II adaptive engineering and technical test articles. Additional outcomes from FY 2006 funding that will occur in FY 2007 include: conduct Phase II technical testing; obtain US Navy WSESRB approval and safety release; conduct Phase III operational testing; process production and fielding release documentation; prepare FCT Close-out Report. Milestone C decision is scheduled for 1st Qtr 08.</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Improved Limpet Mine (SOCOM)	0.951	0.000	0.000	0.000
<p>Outcome: This project will determine if the improved limpet mine developed by Royal Ordnance of the United Kingdom can destroy or incapacitate enemy vessels and maritime structures with a device that is 50 percent smaller, lighter and 2 to 3 times more effective than the current legacy limpet assembly module. Primary Outputs and efficiencies: The project is being conducted with oversight from the US/UK Advanced Technology Working Group and support from the UK Ministry of Defense. By leveraging on the R&amp;D successes of Royal Ordnance, the US will save approximately \$10M and 5 years of R&amp;D. Completion date is to be determined based on receipt of additional funds and successful scaled testing.</p> <p>FY 2006 Output: Acquired test articles; completed Phase I safety and technical validation and verification testing; successfully completed "at-sea" live-fire testing; initiated Phase III follow on scaled testing of full range vessel anomalies. Shortfall of \$485K resulted from unanticipated expenses necessary to obtain comprehensive damage assessment at the completion of the "At Sea Trials". Additional outputs from FY 2006 funding that will occur in FY 2007 include: obtain additional funding to complete scaled testing; review and modify improved limpet assembly module requirement document as necessary. Complete FCT Close-out Report. Milestone C Decision date is still driven by when additional funds become available.</p>				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Individual Serviceman Non-Lethal System (Army)	0.648	0.000	0.000	0.000
<p>Outcome: This project is qualifying a compressed air non-lethal system that extends the engagement range out to 100 meters. This system has been urgently released by the Army to Iraq and Afghanistan in support of the GWOT. This system provides the soldier with the capability to disperse crowds and/or mark individuals at ranges up to 100 meters with increased accuracy and rate of fire than existing non-lethal capabilities. The launcher can also be used in an under barrel configuration for the M4/M16 weapon.</p> <p>FY 2006 Planned Output: Testing to support Milestone C is scheduled for second quarter FY 2006 and the system will achieve Milestone C during fourth quarter FY 2006. Upon reaching Milestone C, the</p>				

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system will be included in the Non Lethal Capabilities Set (NLCS) and will augment the existing capabilities of the soldier in the field. RDT&E Cost avoidance: \$2.100 million. Engineering Estimate based on historical ACAT III R&D. Based on 1 per squad and 6 per non-lethal capability set; LCC of ~\$2400 per system; Procurement potential up to 6624 systems (Active and NG infantry components); Rule-of-Thumb of 10% RDTE, 30% Procurement, 60% Operations & Maintenance.				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
LCAC Lube Oil Cooler (Navy)	0.317	0.000	0.000	0.000
Outcome: This project will evaluate improved corrosion resistant hovercraft lube oil coolers that will reduce life cycle maintenance costs; procurement costs and increase craft mission availability. Potential US Navy savings of \$7.600 million in material costs plus an estimated additional maintenance labor savings of \$3.000 million over the life of the LCAC program are anticipated. RDT&E cost avoidance of \$4.000 million. Total cost savings \$14.600 million.				
FY 2006 Outputs: A contract was awarded to TTC Norge for procurement of two lube oil cooler test units. A design review and kick-off meeting was held at Naval Surface Warfare Center, Panama City to discuss technical and design issues. Thermal by-pass valves were ordered from the Navy systems and will be provided to TTC Norge as GFE. Completed Critical Design Review and production facility inspection schedule mid August complete the laboratory test outline and begin identifying potential test laboratories Issue delivery order for development of laboratory performance and on-craft testing of the evaluation units. Additional outputs from FY 2006 funding that will occur in FY 2007 include: Manufacture first Article test units and install on test platform continue FCT Hot Weather test and evaluation, perform Cold Weather Test and Evaluation, develop Final Test Report and Close Out Report.				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Lightweight Prime Mover (Navy)	0.000	0.937	0.000	0.000
Outcome: A successful FCT will provide the USMC with the capability to tow the M777 LW155 howitzer for artillery batteries in support of the Marine Expeditionary Units while meeting the requirements for external transportation via the MV-22 Osprey. The LWPM is a critical and urgent requirement due to changes in USMC tactical doctrine brought about by new threats resulting from the Global War on Terror. The USMC will evaluate foreign, non-developmental, high mobility, off-road vehicles manufactured by Automotive Technik Ltd of UK, Supacat Ltd of UK, and Krauss-Maffei-Wegman of Germany to meet the requirement. A three-year FCT project under sponsorship of the OSD CTO and MARCORSYSCOM. Estimated completion of testing and qualification will be CY 2007 with transition to USMC artillery batteries during CY 2008. The primary outputs and efficiencies to be demonstrated in the FCT Test are: (1) capability to effectively tow the LW155 across the battlefield, on-road and off-road; (2) meet the requirements for the vertical assault element of a Ship-To-Objective Maneuver (STOM) force; and (3) avoid RDT&E costs of \$20M, Procurement Costs of \$4M, and will realize a ROI of 15:1.				
FY 2007 Output: Execute Lockheed Martin/Supacat Ltd LRIP contract with minor modifications to the vehicle to fully meet the USMC requirement. Manufacture of production prototype vehicles is in the process. Production representative test vehicles will be delivered during the 2nd Qtr. Production Qualification Testing consisting of Flight Certification and User Evaluation at Aberdeen Test Center and Ammunition Certification at the Defense Ammunition Center in McAlester, OK will be completed during the 2nd and 3rd Qtrs. The Technical Test Report is anticipated in the 3rd Qtr and a Full Rate Production Decision and Close-Out Report are anticipated during the 4th Qtr.				
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Link-16, 11B Management Integrator (Navy)	0.507	0.000	0.000	0.000
Outcome: This project will support the implementation of Link-16/Link-11 capability in Special Projects Aircraft (SPA) utilizing the ATAS processor (Zephyr Link program). It will provide situational				

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<p>awareness of friendly Blue Forces and enemy threats, assist in the prevention of fratricide, and improve the timeliness of enemy targeting solutions in support of the Global War on Terrorism (GWOT). Parallels Joint development ventures currently underway on other Ultra Electronics/Advanced Tactical Systems (ATS) Air Defense Systems Integrator (ADSI) programs. Lead service is Navy. The primary outputs and efficiencies to be demonstrated are (1) successful Initial Operational Capability (IOC) Data Link Message Implementation, (2) ATAS airborne processor functionality and (3) Full Operational Capability (FOC) Data Link Message Implementation. Successful execution will result in a cost savings/avoidance of \$3.000 million for IOC Data Link message implementation (avoids requirement to develop a new processor). Additionally, estimated savings of \$1.300 million will be realized during FOC Data Link message development and integration due to the Joint development ventures currently underway.</p> <p>FY 2006 Output - Conducted IOC message implementation Navy Center for Tactical Systems Interoperability (NCTSI) Certification/Test. Commenced Joint Interoperability Test Command (JITC) Certification/Test requirement evaluation with Joint Staff. Commenced Datalink Requirements (DLR) and FOC Data Link message implementation and Testing at Ultra Electronics/ATS on the Zephyr Link System. Commenced initial prototype ATAS aircraft installation for field Operational Assessment. Commenced aircraft integration of first IOC production ATAS installation. Commenced interface development for Sea Vue Radar integration.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
MAAWS Illumination Round (SOCOM)	0.020	0.000	0.000	0.000
<p>Outcome: This project will provide USSOCOM with an Illumination Round for the Carl Gustaf system that meets U.S. fuze safety standards and that can be fielded without limitation. Primary Output and efficiencies: Illumination capability is a core requirement of the MAAWS, especially since U.S. Army Special Operations Command (USASOC) and Naval Special Warfare Command (NAVSPECWARCOM) users operate primarily at night. The current Illumination round was fielded under waiver from the U.S. Army Fuze Safety Review Board for a limited quantity. The Illum 545C round will meet all safety standards so that a waiver will no longer be required. By using this Swedish round \$15M RDT&amp;E savings will be realized. Additional procurement savings of \$5M will occur with a procurement potential of over \$5.2M. Completion date was 19 July 2006.</p> <p>FY06 Output: Safety Confirmation, Production Certification, Production Procurements. Submitted FCT Close-Out Report</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
MK13 Muzzle Break Sound Suppressor (MBSS) (SOCOM)	0.132	0.000	0.000	0.000
<p>Outcome: The ability of a sniper to remain concealed when firing his weapon is paramount to the safety of the shooter. Primary Outputs and efficiencies: This muzzle break suppressor project will comparatively evaluate muzzle break suppressors to determine which can best meet the requirements of SOF snipers. The scope of this project was expanded in FY 2006 to investigate a foreign MBSS candidate for the 7.62mm machine gun (MK48/M240). The cost avoidance associated with this project is estimated at \$1.3M. Completion date is 30 Sept 2007.</p> <p>FY 2006 Output: Completed testing and fielding of a competitive US candidate MK13 MBSS in response to an urgent deployment requirement (based on FCT project baseline development activity); finalized test planning; completed contract for MK48/M240 test units; began technical and operational testing of one foreign respondent candidate solution. Additional outputs from FY 2006 funding that will occur in FY 2007 include: Complete technical and operational testing of multiple US and one foreign candidate solution; complete analysis in support of a procurement decision; submit FCT Close-out Report. Milestone C Decision is scheduled for 3rd Qtr FY07.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Multipurpose Tank Blade System for M1A1 (Navy)	1.046	0.000	0.000	0.000

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**P130**

Outcome: A successful FCT will meet an urgent USMC requirement for the M1A1 Main Battle Tank (MBT) to remove roadblocks, create hasty fighting positions, and impose non-kinetic destruction of enemy obstacles in Urban Combat. The USMC will test the MTB System manufactured by Pearson Engineering of the UK to meet this urgent need. A Two-year FCT project under sponsorship of the OSD CTO and the MARCORSYSCOM., with completion of testing and qualification in CY 2007, transition to USMC M1A1 Tank Battalions during CY 2008. The primary outputs and efficiencies to be demonstrated in the FCT Test are: (1) M1A1 MBT assumes the roles of slower moving engineer assets to meet mobility, counter-mobility and vulnerability deficiencies for the MAGTF, (2) reduce the use of the main gun ammunition to reduce the risk of costly damage to equipment and unnecessary collateral damage, (3) avoid RDT&E costs of \$3M, Procurement Costs of \$1.84M, and provide a ROI of 14:1.

FY 2006 Output: Received FCT funding at the end of the 2nd Qtr. The sole source justification staffing was completed and the test article contract was awarded in the 3rd Qtr. to Pearson Engineering. Pearson has initiated the test article fabrication and is utilizing the current Mine Plow mounting configuration to commence the integration effort. PM Tanks is refining the test plan and has selected ATC as the primary test site for testing. Additional outcomes from FY 2006 funding that will occur in FY 2007 include: Complete test planning during the 1st Qtr. FY07. The completion of test article integration and fabrication is anticipated during the 2nd Qtr. followed by delivery to ATC for Performance and RAM Testing with a parallel User Evaluation. Upon the completion of all testing, a Technical Test Report will be provided by Pearson and ATC. A Milestone C Decision is anticipated during the 3rd Qtr. FY07 followed by a Close-out Report.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Multi-Spectral Camouflage Netting (Navy)	0.528	0.000	0.000	0.000

Outcome: A successful FCT will enable the Marine Corps to employ ground forces with a two sided, multi-spectral camouflage net in a single system that protects against night vision and radar detection, while reducing the logistics burden associated with transporting and maintaining two different netting patterns. The USMC will test non-developmental camouflage nets manufactured by Fibrotex Ltd. of Israel, GMA Cover Corp. of Canada, SAAB Barracuda LLC of Sweden. A two-year FCT project under sponsorship of the OSD CTO and MARCORSYSCOM. Estimated completion of testing and qualification will be CY 2007 with transition to USMC operating forces during CY 2008. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) provide two camouflage patterns on opposing sides of one net, resulting in significant reductions in purchase quantity, cost, logistical transportation, and storage requirements; (2) field the full camouflage capability in a reduced time frame; (3) field nets that protect against night vision and radar detection; and (4) avoid procurement costs of \$69M, RDT&E costs of \$4.8M, and provide a ROI of 157:1.

FY 2006 Output: Completed Operational Field Subtest, Environmental Subtests, Thermal and Near-IR Concealment Data Collection, Visual Concealment Image and Data Collection, and Visual, Thermal, and Near-IR Data Analysis at White Sands Missile Range, New Mexico. Natick conducted Concealment and Material Properties Lab Subtests at Elgin AFB. User Evaluations are in process by the USMC with field units. The test report is in process. Additional outputs from FY 2006 funding that will occur in FY 2007 include: Provide the test report during the 2nd Qtr. A Milestone C Decision is anticipated during the 2nd Qtr followed by the Close-out Report.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Naval Active Intercept and Collision Avoidance (Navy)	0.211	0.000	0.000	0.000

Outcome: This project will evaluate a submarine collision avoidance system developed by Sonartech, to support the submarine force's number one priority of collision avoidance and situational awareness. RDT&E cost avoidance of \$13.000 Million.

FY 2006 Outputs: Instructed Sonartech Atlas to develop a project recovery plan and submit to the Navy for approval. NAVSEA PMS 401 have met with Sonartech Atlas representatives to discuss program changes and the path ahead to determine if NAIRCAS is an executable project. Develop international agreement to allow exchange of information between Sonartech Atlas and NAVSEA. Additional outputs from FY 2006 funding that will occur in FY 2007 include: Identify test platform and proceed with the FCT evaluation. Develop Final Test Report and Close Out Report.

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Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009	
NINJO (Air Force)	0.117	0.000	0.000	0.000	
<p>Outcome: Replace an antiquated, expensive, weather forecasting system with a more economical and robust system. The USAFE Weather Plans and Programs Office, Ramstein AFB, Germany will evaluate the NINJO software developed by the consortium of Ernst Basler and Partners GmbH. The primary outputs and deficiencies to be evaluated will allow forecasters to generate significantly improved pinpoint military forecasts and provide timely weather watches and warnings for U.S. European Command operations. The ROI is \$0.220 million per year with a 7 year projected use.</p> <p>FY 06 Output: Test article contract was awarded and test planning complete. Additional outputs from FY 2006 funding that will occur in FY 2007 include: Verify that the system will display current and last 6 hours of satellite, radar, lightning, and observation data, display current UK Met Office model data, ability to automatically generate graphical weather charts and that it is comparable to USAFE Operational Weather Squadron current software. Additional testing will be conducted to determine the capability for forecasters to easily generate weather graphic charts using the NINJO system. Completing the final demonstration in 3rd Qtr. Transition to U.S. European Command operations. Completion date and publishing the Final Report planned for 3rd Qtr.</p>					
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009	
Noise Robust Voice Recognition System (Army)	0.581	0.498	0.000	0.000	
<p>Outcome: This project is to evaluate a potential candidate speech recognition technology for possible application to Voice-to-Voice machine translation and Voice Activated Command &amp; Control applications. Particular emphasis will be placed on verifying manufacturers claims of "Speaker Independence" and operability in high, impulsive noise environments (gun-fire). The primary outputs and efficiencies to be demonstrated include the capability of the candidate technology to accommodate, with high performance, the regional and ethnic vocal accent diversity of the US Military. To be effective, the candidate technology must demonstrate a minimum 95% phrase recognition rate for 98% of the target user population. In addition the stated performance must be sustained in high vehicular and small-arms fire acoustic environments. The candidate technology will be evaluated in simulated tactical environments, based on field-collected data.</p> <p>FY 2006 Output: Evaluation plans and requirements were established. Candidate technology was procured. Specialized evaluation software development initiated.</p> <p>FY 2007 Planned Output: A speech database will be collected, from up to five bases, comprising speech samples from up to 250 Soldier volunteers. Part of this database will be provided to the manufacturer of the candidate technology for the optimization of speech models, which are intended to optimize the performance of the candidate technology for the target user population. The remaining portion of the speech database will be used to evaluate the performance of the optimized technology. Baseline (non-optimized) performance evaluation and optimized performance evaluation will be conducted. Additional outputs from FY 2007 funding that will occur in FY 2008 include: Final Testing - Candidate technology evaluations will be completed and a test report will be prepared.</p>					
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009	
Pitch Adapting Composite Marine Propeller (Navy)	1.570	0.076	0.000	0.000	
<p>Outcome: This project will test composite marine propellers in order to improve vehicle stealth, speed, and propulsion efficiency. In addition, the pitch modification causes a reduction in maintenance costs by reducing cavitation damage, reducing marine growth fouling, and permitting in-water blade replacement.</p> <p>FY 2006 Outputs: Completed fabrication of the 6-blade unconstrained rigid and flex propellers. Performed unconstrained rigid and flex hardware inspection. Conducted the 1st phase experiment for the unconstrained rigid and flex propellers in the NSWCCD 36 inch water tunnel. Performed test analysis for the 1st phase 36 inch water tunnel test. Test results showed that the propellers performed as predicted. Flexible propellers performed better than rigid propeller in terms of efficiency and cavitations. Preliminary acoustic measurements showed favorable results to flexible propeller and will be confirmed by the</p>					

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 6	PE NUMBER AND TITLE <b>0605130D8Z - Foreign Comparative Testing (FCT)</b>	PROJECT <b>P130</b>		
2nd phase test.				
FY 2007 Planned Output: Conduct the 2nd phase experiments for the unconstrained rigid and flex propellers in NSWCCD 36 inch water tunnel. Performed 2nd test analysis for the 2nd phase 36 inch water tunnel test. Start to design the flex propeller for ASDS platform. Develop Final Test Report and Close Out Report.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Portable Undersea Training Range (Navy)	1.289	0.952	0.000	0.000
Outcome: This project will satisfy a critical need for shallow water and forward-deployed Anti-Submarine Warfare (ASW) training as defined in the PACOM Integrated Priority List (IPL) for FY 2005-2009 and supported by Fleet Forces Command. This project will enable ASW training in littoral waters with the completion of two, closely linked concurrent efforts. The first effort is to acquire and test a transponder acoustic up-link receiver (hub), which is a component of a commercial transponder system developed in Australia. The second effort is to acquire and test one Station Keeping Buoy (SKB) developed in France, which can potentially act as a support platform for a transponder hub. The SKB and transponder hub provide key components in establishing an ASW training capability in littoral waters by enabling the deployment of a large array of transponders over a wide area. A 50% reduction in operational support costs is achieved by avoiding use of two support vessels. Successful execution will result in a RDT&E cost savings/avoidance of \$2.000 million for Initial Operational Capability (IOC) implementation. Additionally, estimated savings of \$1.000 million will be realized in procurement cost savings.				
FY 2006 Output: Procure SKB test item from ACSA, France and transponder hub test item from Nautronix, Australia. The lead service is Navy.				
FY 2007 Planned Output: Phase-I testing of the SKB and transponder hub test units. Naval Undersea Warfare Center Division, Newport will verify basic performance parameters and gain operational experience by testing the SKB unit in France, under benign environmental conditions, and testing the transponder hub in Australia. Final operational demonstration of PUTR SKB and transponder HUB during Phase II testing is scheduled for March 2008 at Pacific Missile Range Facility (PMRF).				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Resilient Abrasive-Resistant Skirt for LCAC (Navy)	0.386	0.000	0.000	0.000
Outcome: This project is testing improved HoverCraft Skirt Materials that will reduce life cycle maintenance costs; procurement costs and increase craft mission availability. Potential US Navy savings of \$41.400 million in material costs plus an estimated additional maintenance labor savings of \$30.000 million over the life of the LCAC program are anticipated. RDT&E cost avoidance of \$8.000 million. Total Cost Savings \$79.400 million.				
FY 2006 Output: Based on the results of Phase I testing, Trolleburg extra-wide material has now been qualified under the current LCAC Project Peculiar Document (PPD) and is officially approved as new alternate source. All Phase II materials for the vendors including the type 1 finger material, and type 3 bag materials were received at Avon Engineered Fabricators. A detailed test plan for the finger installation and testing was completed and provided to the Assault Craft Units (ACUs) and the LCAC Program Office. Additional outputs from FY 2006 funding that will occur in FY 2007 include: Install Phase II test finger sets on LCACs at ACU4 and ACU5 and perform periodic inspections during the in service evaluations. Develop Final Test Report and Close Out Report.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Shipboard Mast/Mounted Surveillance Pod (SMSP) (Navy)	0.821	0.561	0.000	0.000
Outcome: To demonstrate the N-channel tuner technology from WinRadio (Australia) and the N-channel digital processing technology from Sundance DSP (Great Britain) resolves US Navy shipboard blind				

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spots in their SIGINT threat warning systems. In addition to being smaller than other conventional beam forming systems, it costs less than 1/5th (< \$100.000 K) and works over LANs so we can afford to outfit more warfighters (land, sea or air) with the capability and network them together which enhances the probability of finding terrorists and enemy forces. The primary outputs and efficiencies to be demonstrated in this Foreign Comparative Test (FCT) are (1) detect signals normally masked by shipboard transmitters, (2) provide signal direction relative to ship's orientation, which can be used to geolocate enemy forces, (3) when multiple long range signals are simultaneously being transmitted on the same frequency, the SIGINT operators can select which ones to process, (4) system can be adapted to aircraft applications or situations that need signal interference mitigation, (5) system theoretically enhances signal quality, so we will measure the effectiveness relative to current technology.

FY 2006 Output: Purchased rapid prototyping COTS software tools to support the test fixture that accommodated various test criteria from different surveillance program offices. Purchased equipment and created 2-3 SMSP systems that were field tested by more organizations. The products were tested against existing surveillance technologies located at the Charleston test facility. \$3M small business contract established with WinRadio and working towards similar contract with Sundance DSP once hardware configuration finalized and tested. Spiral Output - the WinRadio N-channel tuners successfully provided signal detection and radio direction finding capabilities using low cost COTS PCI digitizers.

FY 2007 Planned Output: Final operational demonstration. Based on successful testing at the Charleston site, SPAWAR, NAVAIR, and MARCORPSYSCOM, will be briefed on the SMSP technology and asked to provide test platforms and test criteria. Contact efforts will be made to brief USSOCOM/SOF, the Army Guardrail and Prophet Program Offices, the USAF RIVETJOINT and UAV BATTLELAB on the results. The USCG will be contacted with the results. Initial demonstrations are slated for Spring/Summer 2007 to expose Navy SIGINT warfighters to the technology potential application and gather their inputs.

FY 2008 Planned Output: Based on inputs from the initial demonstrations, SMSP will be interfaced to the SSEE-F and CCOP SIGINT shipboard surveillance systems for limited operational evaluation during exercises or special SIGINT missions of opportunity. A small business contract will be set up with Sundance DSP to support the fleet requirements plus leave adequate ceiling for other DOD programs. Based on the FY 2007 demonstrations, USSOCOM will evaluate implementation of SMSP on their C-130 gunships or UAVs by flying it on a surrogate platform, a commercial helicopter with experimental testing certification. A final report will generated to include test results, logistics requirements, installation issues, and training information will be passed on to PMW180 for incorporation into the SSEE-F/CCOP overall documentation. USSOCOM will also be provided the same data for incorporation into their Joint Threat Warning System (JTWS), Air Variant.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Telemetry Buoy for Underwater Comms (TBUCS) (Navy)	1.459	0.703	0.000	0.000

Outcome: This project will provide an underwater communications link between various different US Navy platforms. TBUCS will utilize air dropped expendable sonobuoys to establish a two way underwater communications link between US Navy submerged platforms and aircraft using a Hydro Acoustic Communications Link (HAIL) system. Estimated \$15.000 million RDT&E cost avoidance for this system.

FY 2006 Outputs: Met with sonobuoy vendors to gather more complete data on current sonobuoy interfaces and concept of operations for system use. Finalized the Systems Requirement Review (SRR), reviewed the objectives of the preliminary statement of work and adopted as requirements. SRR reviewed the statement of work (per the Contracts Data Requirements List) for Phase II which will be agreed upon between the contractor and US Government. Initial start date for the Phase I of TBUCS was moved to October 2006 and project leadership was consolidated under SPAWAR Comms at Speed and Depth with PMW-770 as lead.

FY2007 Planned Output: TBUCS lab testing to occur third/fourth quarter of FY07 and the integration design of the acoustic modem with a submarine deployable buoy will be finalized. Field testing estimated to occur fourth quarter FY07.

FY2008 Planned Output: Final Test Report and Close Out Report

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Unit of Employment Battle Command (Army)	0.354	0.000	0.000	0.000

Outcome: This project is evaluating Battle Command (BC) systems that are Command and Control Information Exchange Data Model (C2IEDM) compliant for application at TRADOC Battle Command Battle Labs. The international community has adopted C2IEDM as the structure for transfer of information between BC systems. To perform experiments with Army BC systems in a relation to a C2IEDM

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environment, TRADOC requires a surrogate C2IEDM compliant BC system. Based on successful test, TRADOC will incorporate the system to there BC Experimentation Lab and TRADOC experiments. RDT&E Cost Savings: over \$1.000-2.000 million. Procurement Potential: over \$.300 million per TRADOC Experiment location - potential to \$ millions. Implementation Plan/Other Benefits: TRADOC surrogate UE BC system. Potential integration to Army UE BCS.

FY 2006 Output: Procurement, installation, testing and evaluation completed. Submitted FCT close out report.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Void Sensing Fuze (Air Force)	0.806	0.000	0.000	0.000

Outcome: Capability to defeat hard and deeply buried targets. The Program Director, Cruise Missile Product Group at Tinker AFB, Oklahoma evaluated a programmable void sensing and layer-counting fuse currently in production by TDW of Germany. The Primary outputs and efficiencies of this evaluation is the potential for employment in the penetrating warhead of the Air Force's Conventional Air-launched Cruise Missile (CALCM) and the Navy's Tomahawk Cruise Missile. This capability will satisfy a long-standing and urgent requirement. The initial procurement for the CALCM is \$2.7 million. Additional procurement by the Navy Tomahawk is \$12 million. This fuse will also have application with JSOW.

FY 06 Output: 09 August the CALCM was tested with an inert warhead and the test results were more than satisfactory. On 30 August 2006, the second Void Sensing Fuse (VSF) Foreign Comparative Test (FCT) sled test resulted in a failure of the live warhead to detonate at the prescribed location after penetration of the multi-layer target. A Failure Investigation Board (FIB) was immediately convened, and briefed findings to DTRA on 15 September 2006. The FIB was co-chaired by the FCT's Program Manager and an independent official from the Naval Air Warfare Center-Weapons Division China Lake. After reviewing all available physical data, test data, and analysis, the Board concluded that the most likely cause of the no-fire anomaly was failure of test-unique range safety detonator shorting components during target penetration. Failure of production-representative components of the fuse was not deemed a probable cause. As a result, the Board recommended that the test be classified as a "no-test". Additional outputs from FY 2006 funding that will occur in FY 2007 include: Completion date and publishing the Final Report planned for 2nd Qtr. Award contracts to Kaman and Boeing to repackage PIMPF into 3-inch form factor and integrate into AGM-86D. Additionally, outputs from FY 2006 funding that will occur in FY 2008 or FY 2009 include: Transition to procurement of 50 3-inch Void Sensing Fuses and modification kits for CALCM. Anticipated fielding is 3Qtr FY09.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
FY 2007 New Start Projects	0.000	0.000	0.000	0.000

For FY 2007 the FCT program will continue testing activities on 14 projects executing \$14.528 million in FY 2007 funding. Remaining funding totalling \$16.882 million will initiate 19 new start FCT projects selected from the FY 2007 FCT proposal process. These 19 new start FCT projects have completed the 30 day congressional notification period and are provided below.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
5.0-Inch Steel Strip Laminate (SSL) Rocket Motor Case (Navy)	0.000	0.656	1.462	0.000

Outcome: This project will demonstrate the capability of the Steel Strip Laminate (SSL) rocket motor case technology that may provide potential safety improvements to the Zuni 5.0-Inch Rocket System. The lead service is Navy. At present, shipboard use of the Zuni requires a waiver because the current system is not Insensitive Munitions (IM)-compliant. The primary outputs and efficiencies to be demonstrated are (1) enhanced IM compliance of the rocket motor using the SSL Case in Fast and Slow Cook-Off environments, (2) no degradation of performance and operational use, and (3) if the project is successful, additional flexibility in using the Zuni during shipboard operations for the Navy/Marine Corps.

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FY 2007 Planned Output: Establish multi-year contract for the SSL Rocket Motor Case. (Technically establishing the contract and paying for the Contracts Branch support is all paid for out of PAN/MC [PIP] funding.) Adapt technology to the Zuni requirements, create a technical data package, and procure raw materials. Conduct Kick-Off meeting. Provide technical support to contract. Conduct initial WSESRB briefing. Create FCT Demonstration Test Plan. Create IM testing SOW and required procurement documentation.					
FY 2008 Planned Output: Contractor shall hold a design review, manufacture cases, and deliver. Conduct IM and ballistic testing. Manufacture rocket motors using delivered cases. Create local TDP. Award IM testing contract. Obtain IHC. Conduct TRR and IMRB briefs. Create FCT Demonstration Test Report.					
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	
Air Delivered PSYOP Radio Broadcast Platform (SOCOM)	0.000	0.937	0.737	0.000	
Outcome: This project will evaluate deployment of a FM Broadcast System using a tethered balloon concept. The system to be tested can place an FM Broadcast Transmitter at a predetermined altitude for up to 5 days and transmit PSYOP messages to personnel on the ground. Primary Outputs and efficiencies: The system is designed to be deployed from fighter aircraft by means of a standard Mk-7/20 (PDU-5B) canister. The tethered balloon broadcast system is particularly well-suited for use under an existing cloud base or in darkness. RDT&E cost avoidance for this type of effort is \$6M. Combined O&S and procurement cost avoidance is expected to be approximately \$1M. Completion date is 30 Dec 2009.					
FY07 Planned Output: Solicitation and Down Select of test article. Prepare contract for test articles, receive test articles and conduct analysis and study of vendor data.					
FY08 Planned Output: Receive test articles, conduct technical testing, prepare and submit technical test report, perform operational assessment. Prepare and submit test report and prepare decision package. Prepare and submit FCT Close-out report. Milestone C decision is scheduled for 4th Qtr 08.					
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	
Anti-Material Rifle - Sniper (SOCOM)	0.000	0.532	0.472	0.000	
Outcome: This project will evaluate anti-material sniper rifles and subject them to a variety of tests to evaluate their performance, and ultimately select one rifle to complement the sniper rifle currently in SOF inventory. Primary Outputs and efficiencies: SOF snipers need to be able to defeat material targets such as lightly armored vehicles, power stations, communication assets, unexploded ordnance, etc. Current sniper rifles are effective against personnel targets, at long ranges, but are not as effective as desired against hardened/materiel targets. This rifle is designed to fill this capability gap. RDT&E cost avoidance for this weapon is \$15M and the collective O&S and procurement cost savings are \$9M. This capability will be available to the warfighters more than two years sooner by using weapons already developed. Completion date is 30 Sept 2008.					
FY07 Planned Output: Publish solicitation, and perform technical down-select. Certify On-Hand ammunition for testing, contract for foreign test articles, receive ammunition and foreign/domestic test articles.					
FY08 Planned Output: Conduct initial Technical Testing, perform operational and user assessments; down-select to most qualified vendor. Prepare test reports and submit decision packet. Complete FCT Close-out Report. Milestone C decision is scheduled for 4th Qtr 08.					
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	
CERAL 3450 (Air Force)	0.000	0.527	0.594	0.000	

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Outcome: A "chrome free" Ceramic-Aluminum (CERAL) drop-in replacement protective coating for gas turbine engines, landing gear, and surfaces of strategic components that are exposed to severe environments. The 76th Propulsion Maintenance Group (76th PMXG/CC) at Tinker AFB will evaluate a non-metallic coating manufactured by Gebr. M.u.M. Morant GmbH of Grassau, Germany. The primary output and efficiencies to be evaluated is a non-metallic coating that lasts twice as long (3000 hours), costs 25% less, and increases engine performance by providing a smoother surface. Reduced corrosion, reduced cost, reduced friction and wear, equals increased performance, increased life, and saves fuel. CERAL coatings are used extensively throughout DoD to provide protection from erosion and corrosion on gas turbine engines, landing gear, and surfaces of strategic components that are exposed to severe environments. Coating materials currently in use (such as SermeTel W) contains 6% carcinogenic chrome, whereas, CERAL 3450 is a "chrome free".

FY 2007 Planned Output: Test planning during 2nd Qtr FY07. Testing and verification commence in 3rd qtr to include Corrosion/Erosion resistance testing, results are better than existing technology when tested in accordance with SO2 Salt Fog Corrosion Test - ASTM G85. Verify that coating can be applied with existing spray hardware and not require facility modification or capital expenditure. Verify that it will meet CPW 731 & CPW 732 material specifications. Verify that it is chrome free and must not introduce any new environmental hazards. Verify that it complies with USAF/A4 & A7 Zero Discharge Depot program goals.

FY 2008 Planned Output: complete testing with final demonstration date end of 3rd qtr. Completion date and final report 4th qtr.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Enhanced Underwater Breathing Apparatus (EUBA) (Navy)	0.000	0.814	0.000	0.000

Outcome: A successful FCT will field a nitrox mix, semi-closed re-breather system, developed by Divex of the UK, Carleton of Canada, or OMG of Italy, to meet the requirement for a EUBA in order to conduct extended range, underwater reconnaissance missions. A two-year FCT project under sponsorship of the OSD CTO and MARCORYSYSCOM. Projected completion of testing and qualification will be CY 2008 with transition to USMC reconnaissance forces during CY 2009. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) The EUBA will increase dive duration by 33% and dive depth by 80% over currently fielded systems; (2) eliminate the risk of decompression up to 130ft.; (3) provide for stealth operation by eliminating surface bubbles that cause diver detection; (4) meet the requirements for naval certification; and (5) provide O&S cost avoidance of \$2M, RDT&E cost avoidance of \$1.2M, and a ROI of 20:1.

FY 2007 Planned Output: Complete contracting for test articles and finalize test planning. Receive test articles during the 4th Qtr and forward them to the Naval Experimental Dive Unit (NEDU) at the Naval Surface Warfare Center, Panama City for certification. Complete Phase I, Un-Manned Testing by the end of the 4th Qtr.

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

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Helmet Mounted Cuing System for A-10 (Air Force)	0.000	1.639	1.901	0.000

Outcome: A helmet mounted cuing and display system (HMCS). The Air National Guard Air Force Reserve Command Test Center (AATC) A-10 Section will evaluate an Israeli Helmet mounted cuing system called Eyeball manufactured by Rafael at Haifa Israel. The Eyeball is a relatively inexpensive and easily-integrated helmet mounted cuing and display system (HMCS) that allows the pilot in the A-10 to slew or aim the aircraft sensors, such as a targeting pod or weapon, to the pilot's line-of-sight, decreasing targeting time. Eyeball also closes the information gap between the pilot and aircraft by displaying spatially referenced cues or sensor video directly in front of the pilot's eye (visible inside or outside the aircraft). The primary outputs and efficiencies to be evaluated are interface of the pilot's helmet to aircraft systems and accuracies in slewing and aiming weapons pod/sensors.

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FY 2007 Planned Output: Include test planning with integration 1 commencing in late in 2nd qtr.

FY 2008 Planned Output: Integration will complete 2nd qtr and logistic update completion is 3rd qtr, Complete testing with final demonstration date end of 3rd qtr. Completion date and final report 4th qtr.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

Hostile Forces Tagging, Tracking and Locating (SOCOM)

0.000

0.532

0.570

0.000

Outcome: This project will evaluate a collection of tagging, tracking and locating (TTL) devices that represent the latest in TTL technology. Primary Outputs and efficiencies: These electronic components consist of Data Loggers, Direction Finding (DF) devices with associated DF receivers, Ground Positioning Satellite (GPS) based cellular and satellite systems. These ultramodern devices will provide deployed U.S. Special Operations Forces (SOF) worldwide with an enhanced capability to tag, track and pin-point potentially dangerous adversaries. The procurement potential for these devices is up to \$24.3M and will result in a \$19.5M cost avoidance. Completion date is 30 Sept 2008.

FY07 Planned Outputs: Contract for and receive test articles for Phase I and II; analyze vendor data and conduct initial technical testing. Prepare and submit technical test report. Conduct Phase I operational Test.

FY08 Planned Outputs: Perform Phase II Operational Test, prepare and submit test reports. Prepare decision packets and FCT Close-out Report. Milestone C decision is scheduled for 4th Qtr 08.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

Large Polymer Lithium ion Battery (Army)

0.000

0.937

1.307

0.000

Outcome: This project will evaluate the potential for Li-Ion polymer battery cells developed by SKC of the Republic of Korea, Kokam of the Republic of Korea to satisfy Army and USMC portable electrical power requirements for a high power density, high cell potential fuel source. The candidates may provide greater energy density than present Li-Ion cell-based batteries and have the potential to reduce the logistics burden and enhance cost effectiveness through increased mission times (increases in power), greater shelf life, increases in power, and greater recharging capability.

FY 2007 Planned Output: Purchase/evaluate Li-ion polymer cells using SKC for BB-XX80 type batteries. Based on engineering evaluation, initial batteries constructed for XX90 type battery and BA-8180 type battery. Complete engineering evaluation of cells and obtain initial batteries for XX80 type design batteries. Initiate evaluations on this battery configurations. Complete prep for purchase of cell types to evaluate the cell performance and safety performance of the cells for BB-XX80.

FY 2008 Planned Output: Complete evaluations of batteries using Li-Ion polymer cells using SKC for XX90 and BB-XX80 type batteries. Purchase and evaluation of battery using Kokam Cells for building battery types: XX90 and BB-XX80. Complete written evaluations/reports for CECOM LRC Battery group to purchase (if FCT successful) battery types. Estimated in a \$20 million RDT&E cost avoidance and a \$5 million O&S cost savings.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

Lightweight Deployable UMTS Communications System (LDUCS) (SOCOM)

0.000

1.294

0.000

0.000

Outcome: This project will test and evaluate the Swedish based Ericsson "QuicLINK", a lightweight Universal Mobile Telecommunications System (UMTS) mobile cellular system. Primary Outputs and

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<p>efficiencies: "QuicLINK" is a downsized third generation (3G) cellular system that can provide high data rates to personal communications devices (PCDs) as well as handle 90 simultaneous voice calls and provide data rates up to 384 kbps over a Wideband Code Division Multiple Access (WCDMA) air interface and will incorporate Robust Header Compression (RoHC) technology. The "QuicLINK" system can operate in an autonomous mode or as a sub-network within current legacy networks. RDT&amp;E Cost avoidance is estimated at \$10M. Combined O&amp;S and Procurement cost avoidance is expected to be \$6M. Fielding reduction time is greater than 5 years. Completion date is 30 Sept 2008.</p> <p>FY 2007 Planned Output: Contract for and receive test articles, prepare lab test plan and instrumentation. Perform laboratory technical test. Additional outputs from FY 2007 funding that will occur in FY 2008 include: Over the air technical tests and field level tests. Intellectual Property Rights and information exchange agreements between vendor and PM Warfighter Information- Tactical (WIN-T). Perform tweaks to system as necessary to provide better hand-off between nets. Submit FCT Close-out Report. Milestone C Decision is scheduled for 4th Qtr 08.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
MK47 Trainer System (SOCOM)	0.000	0.703	0.796	0.000
<p>Outcome: This project will evaluate a crew served weapons training system used to facilitate mission specific rehearsals prior to combat operations. Primary Outputs and efficiencies: The trainer system allows operators to dry fire the weapon and receive feedback. The significant procurement cost avoidance of approximately \$57M is realized by firing training ammo instead of expensive programmable airburst ammunition. The objective is to directly improve the readiness of SOF forces by allowing operators to train on MK47 systems and rehearse missions on a highly realistic trainer. Completion date is 30 Sept 2008.</p> <p>FY07 Planned Output: Publish solicitation and down-select. Contract for; procure and receive test articles. Conduct analysis, study and integration of training system. Analyze and validate vendor data to preclude redundant testing.</p> <p>FY08 Planned Output: Conduct initial Technical Testing. Prepare and submit technical test report. Perform user assessment and operational testing. Prepare and submit test results of the operational test. Prepare decision packet and FCT Close-out Report. Milestone C Decision is scheduled for 4th Qtr 08.</p>				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Mobile Oxygen Ventilation & External Suction System (MOVESS) (Navy)	0.000	1.171	0.594	0.000
<p>Outcome: A successful FCT will provide the USMC with a Mobile Oxygen Ventilation &amp; External Suction System (MOVESS), co-developed by Thornhill Research, Inc. of Canada and the USMC, to provide the patient care capabilities necessary to meet the urgent need for transporting critically ill and injured post-operative patients via USMC rotary wing aircraft. A two-year project under sponsorship of the OSD CTO and MARCORSYSCOM. Projected completion of testing and qualification will be CY 2008 with transition to deployed USMC forces by the end of CY 2008. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) MOVESS is an integrated oxygen, ventilation, and suction device that can meet FDA Approval for fielding; (2) eliminate 90% of the logistics burden, 15% of the cost, and 85% of the weight of the currently fielded En-Route Care System; (3) increase the safety and flexibility of providing critical patient care during transportation by eliminating oxygen bottles in ambulances and fixed wing aircraft; and (4) avoid procurement costs of \$10M, RDT&amp;E costs of \$90M, and provide a ROI of 74:1.</p> <p>FY 2007 Planned Output: Award the test article contract. Complete the Test Plan by the 3rd Qtr. Anticipate completion of the test article manufacture by the 4th Qtr and initiate FDA Testing at Thornhill Research Institute consisting of Lab Testing, Clinical Testing, and Environmental Testing.</p> <p>FY 2008 Planned Output: Complete FDA Testing and provide the Test Report during the 1st Qtr. Submit the testing results to the FDA for 510K approval by the 2nd Qtr. Utilize NAVAIR for Air</p>				

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Transportability Testing. Anticipate the Milestone C Decision for 2nd Qtr. and provide the Close-Out Report.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Real Time Geospatial Information Sharing (Army)	0.000	1.171	1.188	0.000
Outcome: This project will test "Black Coral LIVE" to provide Command Post of the Future (CPOF) Command and Control Systems real time information sharing and collaboration using geospatial maps/data for the war-fighter at all levels. The test will validate searching of current data (from internet or official databases) and ability for several information layers to be combined for see-through ability. Each user has the ability to add their detailed knowledge from the field and/or send a message to another user.				
FY 2007 & FY 2008 Planned Output: Test plan development, contract award, test article acquisition.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Secure High Capacity Tactical Radio Relay System (Army)	0.000	0.732	0.274	0.000
Outcome: This project will demonstrate & evaluate an improved, more efficient communications solution for securely moving information between central basestations and multiple outstation network nodes via the Swedish EriTac Point-to-Multipoint (PTMP) radio system versus the currently fielded military Point-to-Point (PTP) radios. The EriTac solution significantly improves upon the current system by reducing the number of required radio sets by up to 50%, solely through the introduction of the PTMP capability. In addition, the EriTac radios offer LPI/LPD/AJ modes of operation, providing enhanced communications security when needed. The EriTac system is also easy to set up, operate & maintain, and designed for simple and efficient network management by means of a built-in web server and/or SNMP. Two-year Army lead FCT project, with radio testing being performed from 2Q FY 2007 thru 2Q FY 2008, report preparation & evaluation in 2-3Q FY 2008, and a procurement decision in 4Q FY 2008. The primary outputs and efficiencies to be demonstrated are (1) up to 50% reduction in number of radios required in a "star configuration" network system, (2) communications performance equal or greater than the Army current HCLOS AN/GRC-245 radios (data rates, short delays, comm. range, etc.), and (3) possible enhanced security performance due to additional LPI/LPD/AJ modes.				
FY 2007 Planned Output: EriTac radio contract preparation & award with Ericsson (Sweden). Radios (test items) received at US Army CERDEC. Lab test plan preparation & instrumentation. Laboratory technical tests performed.				
FY 2008 Planned Output: Operational over-the-air technical tests performed. Final operational demonstration 2Q FY 2008. Test & evaluation report preparation. Test results review with sponsoring Government Program of Record: PM Tactical Radio Communications Systems (PM TRCS). PM TRCS analysis of alternatives & procurement decision. FCT close-out report & briefing. FCT completion date is September 2008. Improvements: 50% reduction in number of radios required in a "star configuration" network, potentially resulting in a greater than 40% reduction in production costs. Procurement savings: \$9.1 M. RDT&E Cost Avoidance: \$20-30 M & 18-24 months of development to upgrade current Army radios. Life-Cycle O&S Savings: >\$5 M, based on 50% reduction in supported radios.				
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009
Spatial Disorientation Trainer (Air Force)	0.000	0.410	0.297	0.000
Outcome: A Spatial Disorientation (SD) Trainer. The Chief, Aero medical Flying Training Branch/Command Pilot Physician (AETC/A3FP) at Randolph AFB will evaluate a Spatial Disorientation Trainer developed by AMS Technik GmbH of Ranshofen, Austria. The primary outputs and efficiencies to be determined are if pilots can experience SD illusions and practice SD recoveries in a realistic simulated flight environment. Unrecognized Spatial Disorientation (SD) accidents in the USAF between 1991-2004 represents 37% of fatal Class A mishaps at a cost of over \$1.9B and 82 lives. AETC plans to reduce this accident rate by obtaining SD trainers capable of producing most of the known SD illusions associated with aircraft flight and incorporating them into pilot training, allowing pilots the opportunity to				

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 6	PE NUMBER AND TITLE <b>0605130D8Z - Foreign Comparative Testing (FCT)</b>				PROJECT <b>P130</b>
experience SD illusions and practice SD recoveries in a realistic simulated flight environment (a training capability that currently does not exist in the USAF). This program will allow AETC to evaluate and compare currently available COTS SD trainers capable of allowing a pilot to fly the simulator while being exposed to motion-induced, visual and seat-of-the-pants mismatches.					
FY 2007 Planned Output: Test planning and test article acquisition will continue through the 3rd quarter. Training and use of the SD trainer will occur during the 3rd and fourth quarter.					
FY 2008 Planned Output: Complete testing with final demonstration date end of 1st qtr. Completion date and final report 2nd qtr.					
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	
Tactical Paging Buoy for Sub Comms at Speed and Depth (Navy)	0.000	0.509	0.434	0.000	
Outcome: This project will evaluate submarine-launched expendable communications buoys developed by Ultra Electronics Maritime Systems of Canada and RRK of the United Kingdom that promise to provide a submarine at depth and speed with the capability to receive messages from the global Iridium Satellite Network via undersea acoustic communications. This new capability will support more agile submarine mission execution and better synchronized joint/coalition operations, and enable rapid and inexpensive fielding of the acoustic communications capability aboard U.S. submarines.					
FY07 Planned Output: Test plan completion and field testing of Tactical paging buoy at Seneca Lake.					
FY08 Planned Output: Test article installation on a submarine and completion of Sea Trial experiment.					
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	
TerraSARX (Air Force)	0.000	1.126	1.462	0.000	
Outcome: A high resolution, day/night, all weather observation capability with 1 meter GSD (Ground Sample Distance) resolution. The Eagle Vision Program Manager ESC/ISRG/KR at Hanscom AFB will evaluate software developed by the German company Infoterra that interfaces with Eagle Vision and generates a new high resolution, day/night, all weather observation capability. The primary outputs and efficiencies to be evaluated will be the capability to extend the all weather imagery capabilities of the operational Eagle Vision systems with resolution reaching 1 meter GSD providing the highest resolution ever achieved from an unclassified civil or commercial satellite. This capability is critical to effective mission planning and battle space awareness and with a new unclassified satellite, allowing open sharing among coalition partners. Germany, with other European partners, is launching this new generation synthetic aperture radar satellite to provide all weather satellite imaging and ocean surveillance.					
FY 2007 Planned Output: Contract award, test planning and receipt of software will occur.					
FY 2008 Planned Output: Factory Acceptance Testing will take place through the 2nd qtr. System testing and data analysis will take place during quarters 3 and 4. Complete testing with final demonstration date end of 4th qtr.					
FY 2009 Planned Output: Completion date and final report 1st qtr.					
<b>Accomplishment/Planned Program Title</b>	FY 2006	FY 2007	FY 2008	FY 2009	
Type II Superlattice Focal Plane Arrays and Cameras (Army)	0.000	1.639	1.307	0.000	
Outcome: This project to demonstrate infrared focal plane array performance at higher operating temperatures than is currently available from state-of-the-art focal plane arrays. The eighteen month project is					

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 6	PE NUMBER AND TITLE <b>0605130D8Z - Foreign Comparative Testing (FCT)</b>	PROJECT <b>P130</b>
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under the sponsorship of PM Night Vision for completion of demonstration/testing by 3Q 2007 with subsequent transition to PM NV/RSTA. These focal plane arrays will be appropriate to retrofit existing systems with potential transition to Long Range Scout Surveillance System (Stryker and HMMWV), Apache (targeting), F-35 (threat warning, navigation and targeting) and Future Combat Systems (targeting). The lead service is Army. The primary outputs and efficiencies to be demonstrated in the Foreign Comparative Test are (1) to decrease the costs of the focal plane array by a factor a four, (3) raise operating temperature over current arrays, thereby decreasing system cost (smaller size, weight, power) and (3) to increase operating life by a factor of two.

FY 2007 Planned Output: Parts to be acquired and tested in the NVESD IR System Test Lab tactical requirements and at the IR Space Radiation Effects Laboratory for strategic requirements.

FY 2008 Planned Output: Transition to LRAS for ground testing. \$30 million in research and development costs, reducing the cost of each focal plane array by 50% saving \$60.4 million and increasing reliability by a factor of two with a operating cost avoidance of \$181 million.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Urban Deployable Instrumented Training System (U-DITS) (Navy)	0.000	0.585	0.000	0.000

Outcome: A successful FCT will enable the USMC to conduct realistic urban training by integrating the U-DITS, manufactured by Saab Training Systems of Sweden, into current training devices to improve USMC training capabilities and tactics for current battlefield threats. A two-year FCT project under sponsorship of the OSD CTO and MARCORSSYSCOM. Projected completion of testing and qualification will be CY 2007 with transition to USMC training facilities during CY 2008. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) the U-DITS integrates with the Multiple Integrated Laser Engagement System; (2) supports live training exercises that move seamlessly from open terrain to an urban environment; (3) track all movements of up to 1000 players in real time GPS; (4) provide the realistic simulation of direct and indirect fires affects within the Urban environment; and (5) provide Manufacturing cost avoidance of \$2.0M, RDT&E cost avoidance of \$15.0M, and a ROI of 59:1.

FY 2007 Planned Output: Complete test article contracting and deliver test articles during the 2nd Qtr. Conduct parallel testing between Phase I, MOUT Facility Implementation, and Phase II, Wireless Reporting. All testing will be conducted at 29 Palms in California and Camp LeJeune in North Carolina and be completed by 4th Qtr. Additional outcomes from FY 2007 funding that will occur in FY 2008 include: The Technical Data Package will be provided from Saab and the Technical Test Report will be provided in the 1st Qtr. A Milestone C Decision is anticipated for the 2nd Qtr, followed by the Close-out Report in the 3rd Qtr.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Waterjet Shock Qualification for Future Naval Combatants (Navy)	0.000	1.371	2.495	0.000

Outcome: This project will fund efforts to independently shock qualify procured large waterjets for use on U.S. Navy ships. Two major suppliers, Kamewa/Rolls Royce (Sweden) and Lipps/Wartsilla (Netherlands), will be subjected to full-scale shock test and modified, if necessary, in order to be Grade A shock qualified per U.S. Navy requirements. Qualification of the Swedish and Dutch waterjet engines will enable the U.S. Navy to install them as prime propulsion on LCS-class new construction ships, significantly increasing ship survivability in littoral operations essential to GWOT.

FY07 Planned Output: Develop Test Plan, test article system integration.

FY08 Planned Output: Teardown equipment and inspection, equipment refurbishments, develop Final Test Report and Close out Report.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 6	PE NUMBER AND TITLE <b>0605130D8Z - Foreign Comparative Testing (FCT)</b>	PROJECT <b>P130</b>
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FY 2008 Plans	0.000	0.000	16.738	0.000
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For FY 2008 the FCT program will continue testing activities on 17 projects executing \$16.181 million in FY 2008 funding. Remaining funding totaling \$16.738 million will be used to initiate new start FCT projects selected from the FY 2008 FCT proposal process. The FY 2008 final proposal selection process is scheduled for the fourth quarter FY 2007. Per 10 U.S.C. 2350a(g) Congress will be notified of the intent to fund new FCT projects prior to the initiation of funds release.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
FY 2009 Plans	0.000	0.000	0.000	34.974

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

**C. Other Program Funding Summary:** Not Applicable.

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers** Not Applicable.