Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Office of Secretary Of Defense	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605130D8Z: *Foreign Comparative Testing*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	-	18.616	18.174	12.134	-	12.134	21.285	22.206	20.842	21.442	Continuing	Continuing
P130: *Foreign Comparative Testing*	-	18.616	18.174	12.134	-	12.134	21.285	22.206	20.842	21.442	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Foreign Comparative Testing (FCT) Program supports the warfighter by leveraging mature technologies and equipment from allied nations and coalition partners to satisfy U.S. defense requirements, thereby accelerating the U.S. acquisition process and lowering development costs. Authorized by Title 10, U.S. Code, Section 2350a (g), the FCT Program is managed by the Office of Secretary of Defense (Deputy Assistant Secretary of Defense (DASD) Rapid Fielding), Comparative Technology Office (CTO). FCT projects are nominated by the Services and U.S. Special Operations Command (SOCOM) 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.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	18.674	18.174	18.751	-	18.751
Current President's Budget	18.616	18.174	12.134	-	12.134
Total Adjustments	-0.058	0.000	-6.617	-	-6.617
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.052	-			
• SBIR/STTR Transfer	-	-			
• Baseline Adjustments	-	-	-6.617	-	-6.617
• Other Adjustments	-0.006	-	-	-	-

Change Summary Explanation

FY 2014: Baseline adjustment reflective of DoD priorities and requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Office of Secretary Of Defense			DATE: April 2013
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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
P130: *Foreign Comparative Testing*	-	18.616	18.174	12.134	-	12.134	21.285	22.206	20.842	21.442	Continuing	Continuing
Quantity of RDT&E Articles												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Foreign Comparative Testing (FCT) Program supports the warfighter by leveraging mature technologies and equipment from allied nations and coalition partners to satisfy U.S. defense requirements, thereby accelerating the U.S. acquisition process and lowering development costs. Authorized by Title 10, U.S. Code, Section 2350a(g), the FCT Program is managed by the Office of Secretary of Defense (OSD), Deputy Assistant Secretary of Defense (DASD) Rapid Fielding (RF), Comparative Technology Office (CTO). 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.

Since the program's inception in 1980, OSD has initiated 671 projects; 601 projects have been completed to date. Of the 312 evaluations that met the sponsors' requirements, 243 led to procurements worth approximately $11.000 billion in FY 2011 constant year dollars. With an OSD investment of about $1.170 billion, the FCT Program realized an estimated research, development, test, and evaluation (RDT&E) cost avoidance of $7.800 billion in FY 2011 constant year dollars.

The FCT Program is a catalyst for teaming or other business relationships between foreign and U.S. industries. Many successful FCT projects result in 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. The result often means the creation of jobs and contributions to local economies throughout the U. S. To date, companies across 33 states benefited from FCT projects.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: A-10 / F-16 Three Dimensional (3D) Audio Integration (Air Force)	1.982	0.000	0.000
Description: A-10 / F-16 Three Dimensional (3D) Audio Integration tests and qualifies a 3D audio system for the A-10 and F-16 Block 30 platforms. This system will incorporate active and electronic noise reduction, spatial separation of multiple radio channels from multiple sources, and 3D threat audio cueing from on-board threat detection systems. The A-10 and the F-16 do not have active or electronic noise reduction capability. The primary output is a 3D audio capability that automatically sorts and presents information spatially in real time to the pilot. The 3D audio integration increases situational awareness, allows pilots to respond quicker by reducing information overload, and provides significant noise reduction.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: Initiated and completed developmental and integration testing, and initiated field user evaluation at the end of 4Q FY 2012. In FY 2013, the technical test report and production decision will be completed.			
Title: Airborne Stand-Off Radar (ASTOR) Precision Targeting (PT) (Navy) ***Description:*** ASTOR provides the Distributed Common Ground System – Navy (DCGS-N) and Marine Corps (DCGS-MC) with a capability to receive Intelligence, Surveillance, and Reconnaissance (ISR) data from Royal Air Force (RAF) Airborne Stand-Off Radar (ASTOR) platforms. The primary outputs of the ASTOR System aboard the Sentinel Aircraft are Synthetic Aperture Radar images and Moving Target Indicator contacts. Software modifications to the ISR processing, exploitation, and dissemination components currently used by DCGS-N will be implemented and tested to verify that ISR data from ASTOR Systems can be rapidly received, processed, screened for potential mission application, and exploited to produce targeting data that can be used by U.S. weapon systems. This capability will allow U.S. forces to leverage coalition ISR assets and reduce mission requirements for U.S. ISR platforms. ***FY 2012 Accomplishments:*** Provided contracts for image processing software conversion and radar target surveys in the United Kingdom (UK). Completed coordination plans for flight testing and evaluation that commenced at the end of 3Q FY 2012 at RAF Waddington, UK. Conducted flight testing and evaluation through 4Q FY 2012. Began targeting validation analysis during 4Q FY 2012. In 2Q FY 2013, flight testing, targeting reliability validation and data analysis will be conducted. The product will be deployed to DCGS-N and DCGS-MC Programs at the end of 3Q FY 2013 and the project close-out report will be completed.	1.270	0.000	0.000
Title: Coating for Howitzer Breech-Spindles (Army) ***Description:*** Coating for Howitzer Breech-Spindles will test and compare several different coating and refurbishment technologies for the 155mm Howitzer-Breech Spindles. These new coating technologies will mitigate wear and corrosion problems and extend the useful life of the spindles. The lab will apply advanced mature Physical Vapor Deposition, Electro-less Nickel, and Super-finishing technologies to coat and refurbish the 155mm Howitzer breech-spindles. The lab will conduct analytical and fire testing to validate the new process, and develop a prototype for transition to production. The objective is to replace the electroplated chrome presently used with a product that provides improved durability, sustainability, environmental benefits, and significant cost savings. ***FY 2012 Accomplishments:*** Established contract with Sheffield Hallam University, United Kingdom (SHU-UK) during 4Q FY 2012. Produced deliverables, which include two prototype 155mm Howitzer breech spindles coated with nanoscale multilayered advanced coating (Chromium Nitride/Niobium Nitride multilayer) deposits using an advanced PVD process known as High Power Impulse Magnetron Sputtering	1.434	0.000	0.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
System. Completed a minimum three optimization runs to identify, down-select, and validate the surface preparation and deposition parameters required for the optimized deposition of nanoscale multilayered advanced coatings. Completed adhesion characterization to determine optimal deposition parameters. In FY 2013, the program manager will establish a statement of work with IonBond, Inc., and establish a timeline with international vendors, SHU-UK, Oerlikon Balzers, and IonBond, Inc. to complete the project.			
Title: Improved Aluminum Alloys for Armored Vehicles (Army) ***Description:*** Test improved aluminum armor alloys against current fielded aluminum alloys on armored vehicles for incorporation into military vehicle specifications. Possible candidates are the Ground Combat Vehicle (GVC), the Joint Light Tactical Vehicle (JLTV), the Armored Multi-Purpose Vehicle (AMPV), and foreign military sales M2 Bradley systems. This project will evaluate aluminum alloys AA7017-T6, AA2139-T8, and AA2195-BT. The project will also evaluate the weld-ability of the alloys for verification of improved ballistics and structural performance versus current armors. In addition to improved mechanical properties, preliminary data indicates these alloys also display improved resistance to stress corrosion cracking. The improved ballistics and resistance to stress corrosion cracking (SCC) make AA7017 a promising replacement for current corrosion prone aluminum alloys while maintaining good weld ability. The AA2195 and AA2139 alloys deliver increased protection levels beyond the current armor alloys, but are only approved for use as bolt-on or appliqué supplemental armors. Further verifications are needed to achieve full weldable status. ***FY 2012 Accomplishments:*** Ordered main ingots for the ballistics and welds for delivery to the U.S. Army Research Laboratory (ARL). Evaluated initial one inch plate samples of armor, and performed ballistics against armor piercing rounds. Prepared tempered plates for re-qualification to achieve better results against fragmentation rounds. Hosted the kick-off Integrated Product Team (IPT) meeting with U.S. Army Research Lab at Aberdeen Proving Ground. ARL received and machined specimens for fatigue, corrosion fatigue, and stress corrosion cracking to verify that sustainment costs for these alloys will remain low. In FY 2013, ARL plans to complete ballistics and weld evaluation of the new armor plate alloys to meet corresponding new military specifications (MIL-SPECs) or revisions to existing MIL-SPECs to incorporate the new alloys for acquisition.	1.450	0.000	0.000
Title: Rapid Deployment and Extended Autonomy for Single and Multiple Unmanned Underwater Vehicle (UUVs) (Navy) ***Description:*** Evaluate a module for autonomous mission planning that integrates with the existing Common Operator Interface Navy (COIN) tool to permit adaptive mission execution with unmanned underwater vehicles (UUVs). In addition to demonstrating new behaviors and algorithms, including automated target recognition (ATR), the tool will be adapted to provide an open and modular interface for third-party autonomy algorithms, supporting application of ongoing Navy efforts or competition of future capabilities. The effort aims to increase UUV mission capabilities through autonomy and provide an interface for application of existing Navy adaptive behaviors to improve fielding efforts. This is expected to be reflected in system performance as a	1.218	0.000	0.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
33 percent decrease in mine countermeasures (MCM) total mission time and a 33 percent decrease in human-caused pre-programming errors without degradation of system key performance parameters. Based on reported present capabilities and open integration model, the effort is also estimated to avoid RDT&E and Operations and Support costs worth over $2.000 million. ***FY 2012 Accomplishments:*** Defined testing methods for autonomy and aligned present system capabilities with Navy needs and mission objectives in 1Q FY 2012. Completed adaptation of existing software to Navy systems during 2Q FY 2012. Executed preliminary prototype demonstration at contractor-arranged facility on multiple platforms in 3Q FY 2012. Completed government simulation testing of prototype modules. Performed initial government evaluation and final adaptation of module to government systems in 4Q FY 2012. In FY 2013, the final adaptation of module to Government system will be conducted at well as final integration and demonstration of autonomy module. In 3Q FY 2013, the test report, procurement decision, and close-out report will be conducted.			
Title: Reconnaissance Airborne Pod TORnado (RAPTOR) Precision Targeting (PT) (Navy) ***Description:*** Provide the Distributed Common Ground System – Navy (DCGS-N) and Marine Corps (DCGS-MC) with a capability to receive in near real-time, via Common Data Link antenna systems, Intelligence, Surveillance, and Reconnaissance (ISR) data from the Reconnaissance Airborne Pod for Tornado (RAPTOR) Systems that are carried by Royal Air Force (RAF) GR-4 platforms. The primary outputs of the RAPTOR System are Electro-Optical and Infrared images in a digital format. Software modifications to the ISR Processing, Exploitation, and Dissemination Systems currently used by DCGS-N will be implemented and tested to verify that ISR data from RAPTOR Systems can be rapidly received, screened for potential mission application, and exploited to produce targeting data that can be used by U.S. weapon systems. This capability will allow U.S. forces to leverage coalition ISR assets and reduce mission requirements for U.S. ISR platforms. ***FY 2012 Accomplishments:*** Goodrich Aerospace United Kingdom (UK) downloaded RAPTOR and converted to U.S. National Imagery Transmission Format testing in 1Q FY 2012. Coordinated plans for target surveys, flight testing, and data evaluation during 2Q FY 2012. Conducted flight tests at the end of 3Q FY 2012 at RAF Marham, UK. Continued data analysis and began targeting reliability validation during 4Q FY 2012. In FY 2013, the flight testing, data validation and targeting reliability validation will be conducted. In 3Q FY 2013, the project close-out report will complete following the deployment to DCGS-N and DCGS-MC Programs.	1.220	0.000	0.000
Title: Special Operations Forces (SOF) Special Reconnaissance and Exploitation Systems (United States Special Operations Command (USSOCOM)) ***Description:*** Evaluate covert, digital, encrypted, wireless data audio/video devices; miniaturized concealable audio/video devices; remote camera systems; as well as tagging and tracking systems. The primary outputs and efficiencies to be demonstrated in the	1.557	0.000	0.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
project are: (1) new systems that replace legacy and compromised technology; and (2) avoid RDT&E, manufacturing, production, and Operations and Support costs worth $38.000 million. ***FY 2012 Accomplishments:*** Received test articles in 4Q FY 2012. Began initial developmental testing during 4Q FY 2012. In FY 2013, final developmental testing, user assessment and production decision will be conducted. Closeout report will be completed by 3Q FY 2013.			
Title: Towed Array Handler Technology Insertion (Navy) ***Description:*** Test a handling system which offers the potential for increased towed array and handling system reliability while improving maintainability. Compared to the current system, the system under evaluation is more modular in design with improved simplicity which should directly lower overall maintenance cost to the Navy. The test article will be subjected to structure-borne noise, temperature, vibration, and shock testing. Additionally, there will be a land-based test to verify the required parameters and validate the design of the system and a shipboard installation and evaluation of the pre-production unit to verify the at-sea operation of the system. If successful, the handling system can be readily back-fitted to the handling systems that are currently installed on in-service submarines (OHIO, VIRGINIA, and LOS ANGELES) and can be used in new submarine design. The primary outputs and efficiencies produced by this project are 1) reduced damage and degradation to the arrays; 2) avoidance of RDT&E and Operations and Support costs worth $96.160 million; and 3) avoidance of Manufacturing and Procurement costs worth $1.430 million. ***FY 2012 Accomplishments:*** Completed Phase One engineering concepts, obtained shipboard assets, and awarded contract for refurbishment in 2Q FY 2012. Completed refurbishment of shipboard assets, procured guide tube representative assets, and completed test facility layout in 3Q FY 2012. Completed Foundation Drawings, entry and exit criteria for Preliminary Design Review, and finalized Test Plans during 4Q FY 2012. ***FY 2013 Plans:*** Finalize government furnished equipment deliveries and conduct Preliminary Design Review during 1Q FY 2013. Finalize interface control drawings in 2Q FY 2013. Develop and finalize temporary alteration for shipboard installation, conduct land-based testing, and procure assets for shipboard installation during 3Q 2013. Complete test and evaluation report and project close-out in 4Q FY 2013.	1.026	0.800	0.000
Title: Minor Resource Projects (Less than one million dollars) ***Description:*** Multi-Diver Heating and Cooling System (United States Special Operations Command), Enhanced Fuse for 70mm Warhead (United States Special Operations Command), Sheeted Nitrocellulose for Combustible Case Cartridges (Army), Robotic – Moving Target System (R-MTS) (Navy), Stand Off Gas Cloud Detector(United States Special Operations Command), Tactical	7.459	0.530	0.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Communications Enhancements (United States Special Operations Command), Ballistic Pelvic Protection (BPP) (Navy), Micro Smooth Coating System (Navy), Accurate Low Cost Inertial Navigation Improvement (ALCINI) (Navy), and Moving Target Indication Software (Navy) will continue into FY 2013. ***FY 2012 Accomplishments:*** Completed and Transitioned: LCAC Operator Suspension Seats, and Ultra High Energy Rechargeable Battery. ***FY 2013 Plans:*** The following projects will finalize testing, receive test articles, and complete reporting and transition plans: Multi-Diver Heating & Cooling System, Enhanced Fuse for 70mm Warhead, Sheeted Nitrocellulose for Combustible Case Cartridges, Robotic – Moving Target System (R-MTS), Tactical Communications Enhancements, Stand-Off Gas Cloud Detector for Chemical Warfare Agents, Ballistic Pelvic Protection, Micro Smooth Coating System, Accurate Low Cost Inertial Navigation Improvement, Moving Target Indication (MTI) Software Flight, Marine Grade Aluminum Plate, and Aircraft Airframe Structure Match Drilling.			
Title: Foreign Comparative Testing (FCT) FY 2013 and FY 2014 Focal Area: Force Application ***Description:*** Focal area for FY 2013 and FY 2014 for Force Application projects will involve the ability to create effects necessary to achieve mission objectives while reducing the cost, acquisition time, and risk of major defense acquisition programs. ***FY 2013 Plans:*** CTO's investment decisions into Force Application will increase Comparative Testing's ability to assist Combatant Commanders, Service and other government organizations' requirements with achieving mission objectives while reducing the cost, acquisition time, and risk of major defense acquisition programs objectives as new threats emerge or new opportunities are presented in the execution years. ***FY 2014 Plans:*** CTO's investment decisions into Force Application will provide the ability to assist Combatant Commander, Services and other government organizations' requirements with achieving mission objectives while reducing the cost, acquisition time, and risk of major defense acquisition programs objectives as new threats emerge or new opportunities are presented in the execution years. The decrease from FY 2013 to FY 2014 reflects DoD priorities and requirements.	0.000	8.422	6.105
Title: Foreign Comparative Testing (FCT) FY 2013 and FY 2014 Focal Area: Logistics ***Description:*** Focal area for FY 2013 and FY 2014 Logistics projects will involve the ability to project and sustain a logistically ready joint force through the deliberate sharing of national and multi-national resources to effectively support operations while reducing the cost, acquisition time, and risk of major defense acquisition programs. ***FY 2013 Plans:***	0.000	8.422	6.029

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
CTO's investment decisions into Logistics will involve the ability to project and sustain a logistically ready joint force through the deliberate sharing of national and multi-national resources to Combatant Commanders, Services, and other government organizations' requirements as new threats emerge or new opportunities are presented made during the execution years. ***FY 2014 Plans:*** CTO's investment decisions into Logistics will involve the ability to project and sustain a logistically ready joint force through the deliberate sharing of national and multi-national resources to Combatant Commander, Service and other government organizations' requirements as new threats emerge or new opportunities are presented made during the execution years. The decrease from FY 2013 to FY 2014 reflects DoD priorities and requirements.			
Accomplishments/Planned Programs Subtotals	18.616	18.174	12.134

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

In FY 2014, generic performance metrics applicable to these RDT&E initiatives includes attainment of DoD Strategic Objective 3.5.2D. The title of this objective is "Maintain a strong technical foundation within the Department's Science and Technology (S&T) program" and the metrics for this objective is to transition 40 percent of completing demonstration programs per year. Since the program's inception in 1980, Office of Secretary of Defense (OSD) has invested about $1.170 billion in FY2012 constant year dollars to initiate 671 projects; 601 projects have been completed to date. Of the 312 evaluations that met the sponsors' requirements, 243 led to procurements worth over $11.000 billion. In FY 2012, FCT had a transition rate of 79 percent for completed projects, exceeding the objective of 30 percent for demonstration programs.