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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Office of Secretary Of Defense **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0604940D8Z: <i>Central Test and Evaluation Investment Program (CTEIP)</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	160.351	162.286	140.231	-	140.231	151.521	147.426	147.924	146.418	Continuing	Continuing
940: <i>Central Test and Evaluation Investment Program (CTEIP)</i>	160.351	162.286	140.231	-	140.231	151.521	147.426	147.924	146.418	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

Since its inception in FY 1990, this program element has been used to fund the development of critically needed, high priority Test and Evaluation (T&E) capabilities for joint/multi-Service requirements. The Central Test and Evaluation Investment Program (CTEIP) uses a corporate investment approach to combine Service, Defense, and other government agencies T&E needs, maximize opportunities for joint efforts, and avoid unwarranted duplication of test capabilities. CTEIP focuses investments on projects that will have high productivity returns on investment. Projects under the CTEIP Program Element (PE) support two basic tasks: investments to improve the test capabilities base (Joint Improvement and Modernization (JIM) projects) and development of near-term solutions to test capability shortfalls in support of ongoing operational test programs (Resource Enhancement Project (REP)).

The JIM funds critically needed T&E investments in the major functional areas of: air combat; armament and munitions; Command, Control Communication, Computer and Intelligence (C4I) and networks; common range instrumentation; electronic combat; land combat; sea combat; space combat; target systems; and test environments. Examples of project subject matter include: highly accurate time-space-position information, network enhanced telemetry, miniaturized flight safety systems, realistic urban test environments, ground testing for hypersonic systems and satellites, and end-to-end testing of infrared countermeasure systems. CTEIP continues as the focal point for fostering common architectures throughout the test and training communities to enhance the sharing of resources and links between test and training ranges.

CTEIP has provided special focus to institutionalize the use of modeling and simulation (M&S) as a practical test tool; to link ranges through internetting to enhance inter-range and inter-Service cooperation and resource sharing; and, to ensure development and acquisition of common instrumentation necessary for a more efficient test infrastructure.

Analyses of alternative solutions are conducted for each investment project to validate T&E requirements, to define integrated support systems, and to determine overall cost effectiveness of the proposed test investments. The use of Department of Defense (DoD)-wide criteria for requirement validation, prioritization, and risk assessment ensures an effective test resource investment program.

The REP funds development of near-term solutions for critical ongoing operational tests supporting decisions on major, high priority defense acquisition programs. These unanticipated operational test (OT) capability requirements arise from several sources such as a new threat system identified during OT planning, acquisition of foreign military assets that are critical in determining weapon system operational effectiveness, short timelines between system design maturity and scheduled OT, and emerging technologies and test requirements resulting from operational concept changes mandated by Congress or Director, Operational Test & Evaluation (DOT&E), or system-of-systems testing. Funding these activities under the CTEIP provides the opportunity to coordinate and integrate these near-term test requirements with the total DoD test and evaluation investment planning, and ensures their availability and legacy for other programs that may have similar testing requirements.

This Research Category 6.4 PE includes special studies, analyses, and strategic planning related to test capabilities and infrastructure, and supports the development and application of proven technologies to provide major test and evaluation capabilities required to meet DoD component weapon system test requirements.

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APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	PE 0604940D8Z: <i>Central Test and Evaluation Investment Program (CTEIP)</i>

B. Program Change Summary (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	160.959	162.286	165.007	-	165.007
Current President's Budget	160.351	162.286	140.231	-	140.231
Total Adjustments	-0.608	-	-24.776	-	-24.776
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	2.400	-			
• SBIR/STTR Transfer	-2.790	-			
• Other Program Adjustments	-0.218	-	-	-	-
• Improving DoD Business Operations	-	-	-2.959	-	-2.959
• Efficiency and Enhancement Initiatives- Overhead Reductions	-	-	-1.618	-	-1.618
• Economic Assumption Reductions	-	-	-0.199	-	-0.199
• Program Execution Adjustment	-	-	-20.000	-	-20.000

Change Summary Explanation

- Improving DoD Business Operations. As part of the Department of Defense reform agenda, implemented a review of the organization to align resources to the most critical priorities and eliminate lower priority functions. (FY 2012: \$-2.959)

- Efficiency and Enhancement Initiatives- Overhead Reductions. As part of the Department of Defense reform agenda, reduced funds needed for contractor support through increased efficiency and elimination of lower priority requirements (FY 2012: \$-1.618)

- Program Execution Adjustment. Internal Departmental realignment of funds to meet higher priority needs (FY 2012: \$20.000)

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Central Test and Evaluation Investment Program	160.351	162.286	140.231
FY 2010 Accomplishments: JIM Projects: - Completed the Directed Energy Test and Evaluation Capability project to provide improved test and evaluation capabilities for directed energy weapons.			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
<ul style="list-style-type: none"> - Completed system development of the Soft Impact Location Capability project to provide the necessary instrumentation, signal processing, communication, and data processing capabilities to detect and locate projectile and missile weapons within an 800m by 800m impact area. - Completed system development of the Horizontal Fast Rise Electromagnetic Pulse (EMP) Pulser project to provide the required EMP testing environment for large aircraft under test. - Completed system development of the Advanced Communications Environment –Faithful Timeslot Messaging project to adapt the current Joint Communications Simulator antenna pattern and propagation effects to provide timeslot dependent attenuation of Link 16 terminal output. - Completed system development of the Towed Airborne Plume Simulator project to provide a capability to test airborne infrared countermeasure systems in a dynamic threat environment, to include realistic clutter background. - Completed risk reduction and initiated systems development for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements. - Completed system development of the Joint Mobile Infrared Countermeasures Test System project to provide infrared spectrum test instrumentation for open air ranges. - Completed the Gulf Range Mobile Instrumentation Capability project to provide new distributed testing capabilities for aircraft and range communications. - Completed validation of flight test procedures and unmanned aerial vehicle (UAV) operations in the U.S. National Airspace alongside manned aircraft, under the UAV Systems Operations and Validation Program. - Completed the Advanced Surface-To-Air Missile (SAM) Hardware Simulator Development – Integrated Technical Evaluation Assessing Multiple Sources (ITEAMS) project to develop a detailed design of a threat radar system using available scientific and technical intelligence data. - Completed the Pacific Range Interoperability Test and Evaluation Capability project to enhance interoperability between test and training assets in the Pacific and other DoD ranges and facilities. - Completed the Joint Gulf Range Complex Upgrade project to provide upgraded range control capabilities at the Gulf Range. - Completed the Joint Advanced Missile Instrumentation project to develop and demonstrate time-space-position information, flight termination / safe and arm, and telemetry functions on advanced missile platforms. - Continued systems development of the Joint Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Interoperability Test and Evaluation Capability project to develop a capability to test increasingly complex multi-discipline data fusion concepts. - Continued system development of the Space Threat Assessment Testbed project to provide a capability to conduct subsystem and system level combined natural and man-made space environmental effects testing of critical space assets. - Continued systems development for the Objective Helicopter Icing Spray System project to provide an enhanced capability to perform in-flight icing and rain testing for low-speed air vehicles. 			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
<ul style="list-style-type: none"> - Continued development of the Advanced Radar Environment Simulator, under the Joint Installed Systems Test Facility Product Improvements project, to provide improved installed systems capabilities needed to support next generation aircraft testing. - Continued the Test and Training Enabling Architecture Software Development Activity to promote integrated testing and simulation-based acquisition through the use of a logical range consisting of distributed live, virtual, and constructive elements tied together by a common architecture. - Continued the Tri-Service and CTEIP support projects. - Continued threat system simulator development efforts to improve integration, reduce potential duplication in threat and target development, and ensure that accurate, cost-effective representations of threat systems are available to support testing. - Continued pre-development activities of the Integrated Network Enhanced Telemetry project to develop a network-enhanced telemetry capability for T&E ranges and facilities. - Continued concept development and preliminary design of the Hypersonic Propulsion Test Capability project to provide a variable Mach number aerodynamic propulsion test capability at the Arnold Engineering Development Center. - Initiated requirements development and planning for the Multi-Level Secure (MLS) Joint/Coalition Network Environment project to develop a standardized, DoD multi-level secure and cross-domain data management T&E network architecture. - Initiated preliminary design of the Subminiature Flight Safety System project to provide a warhead compatible, universal, subminiature low-cost flight termination system. - Initiated requirements development and planning for the Joint Urban Test Capability to provide capabilities for testing in a realistic urban environment. - Initiated requirements development and planning for the Joint Unmanned Aerial Systems (UAS) Mission Environment project to develop a capability for testing UAS in realistic system of systems environments. - Initiated risk reduction and system definition for the Joint Distributed Infrared Countermeasures (IRCM) Ground Test System project to provide an end-to-end ground test system enabling complete testing of IRCM systems. - Initiated and completed the Savannah Combat Readiness Training Center (CRTC) Training Enabled Maneuver Instrumentation project to provide integration of tactical data links, Advanced Combat Maneuver Instrumentation (ACMI), and advanced threat emitters into a comprehensive display solution. - Initiated and completed the Border Security and Defense Systems Research project to assess T&E needs and test technology gaps in testing interoperability of disparate biometric systems and databases, and test interoperability of net-centric systems employed in border/perimeter security. <p>Resource Enhancement Project:</p> <ul style="list-style-type: none"> - Completed validation testing for the Precision Target Signatures subproject. - Completed project demonstration for the Net-Centric Test Agent Capability subproject. 			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
<ul style="list-style-type: none"> - Completed system fabrication and acceptance testing of the Infantry Automatic Rifle Test Resource Unit Fire Hit Discriminator subproject test capability. - Completed verification and validation efforts for the Submarine Launched Countermeasure Emulator subproject. - Completed development of the Threat Model Assessment Program subproject. - Completed the end-to-end closed loop verification, validation and accreditation for the Tactical End-to-End Closed Loop Simulation subproject. - Completed systems requirements analysis and initiate the design of the Multi-Spectral Sea and Land Target Simulator subproject. - Completed requirements analysis and initiate the hardware development efforts for the 25K Threat Target Launcher subproject. - Initiated development of the Battle Command Network Integration and Simulation subproject to provide the capability to test the interoperability and network connectivity transmission capabilities of the Joint Tactical Radio System Ground Mobile Radio. - Initiated the development of the Operational Command and Control Instrumentation subproject to provide the capability to assess the National Capital Region Integrated Air Defense System's ability to effectively facilitate positive command and control over ground based air defense systems. - Initiated the development of the Lightweight Alternative Power Source subproject to provide a non-intrusive stand-alone power source for test instrumentation to support the Early Infantry Brigade Combat Team (E-IBCT) Initial Operational Testing. - Initiated the development of the GAVELS Night Vision Capability to support Excalibur testing in both day and night conditions. - Initiated the development of the Ground Mounted Seeker Simulator to develop an open air missile simulation for the I-32 and I-34 associated threat missiles to support the operational testing of the Integrated Defensive Electronic Countermeasures (IDECM) system. - Initiated the development of the Distributed Timing Instrumentation Environment to develop a specific timing data measurement system to improve OT&E timing accuracy and statistical validity in testing the Global Command and Control System. - Initiated the development of the J-31 Radar Missile Gun System provide the threat representative performance to test the IDECM system effectiveness against threat representative jammers. <p>FY 2011 Plans: JIM Projects:</p> <ul style="list-style-type: none"> - Complete development of the Advanced Radar Environment Simulator, under the Joint Installed Systems Test Facility Product Improvements project, to provide improved installed systems capabilities needed to support next generation aircraft testing. - Complete requirements development and planning for the Joint Unmanned Aerial Systems (UAS) Mission Environment project to develop a capability for testing UAS in realistic system of systems environments. - Complete requirements development and planning and initiate concept development and preliminary design of a Joint Urban Test Capability to provide capabilities for testing in a realistic urban environment. 			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
<ul style="list-style-type: none"> - Continue systems development of the Joint C4ISR Interoperability Test and Evaluation Capability project to develop a capability to test increasingly complex multi-discipline data fusion concepts. - Continue systems development for the Objective Helicopter Icing Spray System project to provide an enhanced capability to perform in-flight icing and rain testing for low-speed air vehicles. - Continue system development for the Space Threat Assessment Testbed project to provide a capability to conduct subsystem and system level combined natural and man-made space environmental effects testing of critical space assets. - Continue systems development for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements. - Continue the Test and Training Enabling Architecture Software Development Activity to promote integrated testing and simulation-based acquisition through the use of a logical range consisting of distributed live, virtual, and constructive elements tied together by a common architecture. - Continue the Tri-Service and CTEIP support projects. - Continue threat system simulator development efforts to improve integration, reduce potential duplication in threat and target development, and ensure that accurate, cost-effective representations of threat systems are available to support testing. - Continue design of the Subminiature Flight Safety System project to provide a warhead compatible, universal, subminiature low-cost flight termination system. - Continue requirements development and planning for the Multi-Level Secure (MLS) Joint/Coalition Network Environment project to develop a standardized, DoD multi-level secure and cross-domain data management T&E network architecture. - Continue concept development and preliminary design of the Hypersonic Propulsion Test Capability project to provide a variable Mach number aerodynamic propulsion test capability at the Arnold Engineering Development Center. - Initiate system development for the Missile Warning System and flares segment of the Joint Distributed Infrared Countermeasures (IRCM) Ground Test System project to provide an end-to-end ground test system enabling complete testing of IRCM systems. - Initiate the Next Generation Electronic Warfare Environment Generator project to provide electronic warfare simulation capabilities for testing future Electronic Attack and Electronic Support Measures systems. - Initiate systems development for the Integrated Network Enhanced Telemetry project Block I capability to develop a network-enhanced aeronautical telemetry capability for T&E ranges and facilities. <p>Resource Enhancement Project:</p> <ul style="list-style-type: none"> - Complete integration and testing for the Battle Command Network Integration and Simulation subproject. - Complete the validation testing for the 25K Transportable Target Launcher subproject. - Complete system fabrication and conduct acceptance tests for the Multi-Spectral Sea and Land Target Simulator subproject. 			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
<ul style="list-style-type: none"> - Complete the validation, verification and accreditation for the Operational Command and Control Instrumentation System subproject. - Complete Verification and Validation for the Submarine Launched Countermeasure Emulator subproject. - Initiate the development of the MILSATCOM Atmospheric Scintillation Simulator subproject to provide a simulated scintillation to assess the survivability of the Advanced Extremely High Frequency System during operational testing. - Continue the development of the Lightweight Alternative Power Source subproject. - Continue the development of the Ground Mounted Seeker Simulator subproject. - Continue the development of the Distributed Timing Instrumentation Environment subproject. <p>FY 2012 Plans:</p> <p>JIM Projects:</p> <ul style="list-style-type: none"> - Complete system development for the Missile Warning System and flares segment of the Joint Distributed Infrared Countermeasures (IRCM) Ground Test System project to provide an end-to-end ground test system enabling complete testing of IRCM systems. - Complete concept development and preliminary design and initiate system development of a Joint Urban Test Capability to provide capabilities for testing in a realistic urban environment. - Complete requirements, development and planning for the Multi-Level Secure (MLS) Joint/Coalition Network Environment project to develop a standardized, DoD multi-level secure and cross-domain data management T&E network architecture. - Complete concept development and preliminary design of the Hypersonic Propulsion Test Capability project to provide a variable Mach number aerodynamic propulsion test capability at the Arnold Engineering Development Center. - Continue systems development of the Joint C4ISR Interoperability Test and Evaluation Capability project to develop a capability to test increasingly complex multi-discipline data fusion concepts. Complete development of Spiral 3 capability by integrating the principal protocols of the Joint Intelligence Networks and the Net Ready Key Performance Parameter (KPP). - Continue system development for the Objective Helicopter Icing Spray System project to provide an enhanced capability to perform in-flight icing and rain testing for low-speed air vehicles. - Continue system development for the Space Threat Assessment Testbed project to provide a capability to conduct subsystem and system level combined natural and man-made space environmental effects testing of critical space assets. - Continue systems development for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements. - Continue systems development for the Integrated Network Enhanced Telemetry project Block I capability to develop a network-enhanced aeronautical telemetry capability for T&E ranges and facilities. 			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
<ul style="list-style-type: none"> - Continue the Test and Training Enabling Architecture Software Development Activity to promote integrated testing and simulation-based acquisition through the use of a logical range consisting of distributed live, virtual, and constructive elements tied together by a common architecture. - Continue the Tri-Service and CTEIP support projects. - Continue threat system simulator development efforts to improve integration, reduce potential duplication in threat and target development, and ensure that accurate, cost-effective representations of threat systems are available to support testing. - Continue development of the Joint Unmanned Aerial Systems (UAS) Mission Environment project to develop a capability for testing UAS in realistic system of systems environments. - Continue the Next Generation Electronic Warfare Environment Generator project to provide electronic warfare simulation capabilities for testing future Electronic Attack and Electronic Support Measures systems. - Initiate the Miniature Air-Launched Decoy integration portion of the Subminiature Flight Safety System project to provide a warhead compatible, universal, subminiature low-cost flight termination system. - Initiate requirements development and planning for selected high-priority multi-service test capability proposals endorsed by the DoD Test and Evaluation Executive Agent. <p>Resource Enhancement Project:</p> <ul style="list-style-type: none"> - Complete the development of the Lightweight Alternative Power Source subproject. - Complete the development of the Ground Mounted Seeker Simulator subproject. - Complete the development of the Distributed Timing Instrumentation Environment subproject. - Complete the development of the MILSATCOM Atmospheric Scintillation Simulator subproject. - Initiate development of instrumented facilities to evaluate our next generation of sensors, weapons, platforms, and C4ISR systems in a realistic urban environment. - Initiate development of hardware simulators to test missile warning systems of new generation electronic warfare (EW) suites in a dynamic environment. - Initiate the development of non-intrusive instrumentation to address near term OT capability shortfalls to evaluate advanced sensor system performance in harsh environments. 			
Accomplishments/Planned Programs Subtotals	160.351	162.286	140.231

D. Other Program Funding Summary (\$ in Millions)
N/A

E. Acquisition Strategy
N/A

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0400: *Research, Development, Test & Evaluation, Defense-Wide*
BA 6: *RDT&E Management Support*

R-1 ITEM NOMENCLATURE
PE 0604940D8Z: *Central Test and Evaluation Investment Program (CTEIP)*

F. Performance Metrics

Percentage of CTEIP projects that were developed and delivered to the DoD test community over the past five years.