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| **Appropriation/Budget Activity**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support* | **R-1 Program Element (Number/Name)**<br>PE 0604940D8Z / *Central Test and Evaluation Investment Program (CTEIP)* |

| COST ($ in Millions) | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element | 509.677 | 234.011 | 213.668 | 219.199 | - | 219.199 | 220.566 | 260.138 | 263.409 | 295.914 | Continuing | Continuing |
| 940: *Central Test and Evaluation Investment Program (CTEIP)* | 509.677 | 234.011 | 213.668 | 219.199 | - | 219.199 | 220.566 | 260.138 | 263.409 | 295.914 | 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, electronic warfare test capability developments to address critical testing shortfalls against advanced threats, information assurance and cyber testing and analysis capabilities, ground testing for hypersonic systems, 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),

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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 Budget Activity 6 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.

| B. Program Change Summary ($ in Millions) | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 239.163 | 229.125 | 213.559 | - | 213.559 |
| Current President's Budget | 234.011 | 213.668 | 219.199 | - | 219.199 |
| Total Adjustments | -5.152 | -15.457 | 5.640 | - | 5.640 |
| • Congressional General Reductions | - | -0.457 | | | |
| • Congressional Directed Reductions | - | -15.000 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.094 | - | | | |
| • SBIR/STTR Transfer | -5.058 | - | | | |
| • Internal Adjustments | - | - | -4.646 | - | -4.646 |
| • Departmental Efficiency Adjustment | - | - | -4.220 | - | -4.220 |
| • Economic Assumption Reduction | - | - | -1.494 | - | -1.494 |
| • Hypersonics | - | - | 16.000 | - | 16.000 |

**Change Summary Explanation**

• Strategic efficiency reductions in management headquarters funding and staffing for better alignment and to provide support to a smaller military force.
NOTE: The FY 2016 funding request was reduced by $20.000 million to account for the availability of prior year execution balances.
• Departmental Efficiency Adjustment
• Economic Assumption Reduction
• Development of improved Hypersonics Ground Test capabilities

| C. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| ***Title:*** Central Test and Evaluation Investment Program | 234.011 | 213.668 | 219.199 |
| ***FY 2015 Accomplishments:***<br>JIM Projects: | | | |

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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| - Continued concept development and preliminary design for the Advanced Range Tracking and Imaging System project to provide an integrated next generation suite of optical tracking mounts needed to increase performance, reduce costs, and effectively deliver secure reliable optical throughput.<br>- Completed concept development and critical design and initiated system development 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.<br>- Completed system development for the Joint Unmanned Aircraft Systems (UAS) Mission Environment project to develop a capability for testing UAS in simulated system of systems environments.<br>- Completed initial phase of development flight testing for the Integrated Network Enhanced Telemetry project Block I capability to develop a network-enhanced aeronautical telemetry capability for T&E ranges and facilities.<br>- Continued the Next Generation Range Control and Data Distribution project to enhance and modernize range control and data distribution systems at the Pacific Missile Range Facility (PMRF).<br>- Continued systems development for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements.<br>- Completed concept development and subsystem-level preliminary design, and initiated system development for the Next Generation Electronic Warfare Environment Generator Build B project to provide electronic warfare simulation capabilities for testing future Electronic Attack and Electronic Support Measures systems.<br>- Completed critical design review of the Subminiature Flight Safety System project to provide a subminiature, low-cost flight termination system with time-space-position information and data link capabilities.<br>- Continued threat system simulator development efforts to improve integration, reduce potential duplication, and ensure that accurate, cost-effective representations of threat systems are available to support testing.<br>- Completed concept development and preliminary design and initiated system development for the Synthetic Battlefield Emitter Systems project to provide a controlled density open air environment for testing of C4ISR systems.<br>- Completed concept development and preliminary design and initiated system development for the Vertical Electromagnetic Pulse (EMP) and High Power Microwave (HPM) Test Sources project to provide vertical high-altitude EMP and HPM external electromagnetic environments for testing in accordance with applicable Military Standards.<br>- Completed concept development and preliminary design, and initiated system development for the Network Centric Weapon (NCW) T&E Environment project to provide an enhanced capability to test and evaluate NCW in a distributed simulation environment.<br>- Continued the Cyber Test Analysis and Simulation Environment project to enhance current Information Assurance / Cyber testing and analysis capabilities and modeling and simulations tools for testing against increasingly robust Cyber threats.<br>- Continued system development for the Radar Signal Emulator project to provide open-loop, transmit-only systems that will accurately emit waveforms of threat radar systems operating in the C and S radio frequency (RF) bands. | | | |

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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| - Continued system development for the Advanced Dynamic Transmitter Array project to develop a signal-dense, complex, dynamic radio frequency (RF) signal threat environment that will accurately represent signal characteristics, increase signal densities, and increase existing Installed System Test Facility (ISTF)-based signal of interest power levels while reducing test system set up and calibration times.<br>- Continued system development for the B-2 Defense Management System to upgrade test capabilities at the Benefield Anechoic Facility (BAF) to support B-2 testing in a modern radio frequency (RF) signal threat environment.<br>- Continued system development of the Closed Loop PESA Simulator project to develop a closed-loop radar system that will closely replicate the performance of a widely fielded Western Pacific (WESTPAC) long-range surface-to-air missile (SAM) system.<br>- Continued system development of Integrated Air Defense System (IADS) Enhancements that will add comprehensive threat-representative IADS capabilities based on the development and integration of several high-priority, threat-representative Command Post (CP) models to open-air test ranges, test laboratories and modeling and simulation (M&S) facilities.<br>- Continued Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) activities to provide detailed analysis and validation of threat system designs and operational techniques. - Continued the Knowledge Management (KM) project to establish a next-generation KM capability that utilizes the latest in virtualization technologies, methodologies, and best practices for efficient and effective use of T&E data.<br>- Continued the Common Development Environment project to combine the specifications, models, tools, policy, and best practices needed to enhance interoperability among live, virtual, and constructive T&E capabilities throughout the acquisition lifecycle.<br>- Initiated concept development for the Commercial Derivative Aircraft Based Instrumentation Telemetry System project to provide expanded capability and capacity telemetry support for aircraft and missile defense testing in inter-range and broad ocean area test scenarios.<br>- Continued system development 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.<br>- Continued risk reduction activities under the Enhanced Solutions Process for potential multi-service T&E developments, as recommended by Service Test and Evaluation Executives.<br><br>Resource Enhancement Project:<br>- Completed development of Hostile Fire Indicator Site (HFIS) to enhance existing Hostile Fire Indicator test site with key upgrades to fully facilitate HFI testing of hostile fire warning systems.<br>- Completed the Global Positioning System (GPS) High Power Jammer (HPJ) system, which provides additional units and validation to complete GPS jamming threat representation for GPS-guided weapon operational testing purposes.<br>- Completed development of mobile Flight Mission Simulator Advanced Electronic Attack (mFMS-AEA) to emulate threat electronic attack for Patriot flight mission simulators allowing the Army to test air defense radars in electronic attack scenarios. | | | |

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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| - Completed development of the Ground Mounted Seeker Simulator (GMSS) system to provide a validated missile seeker-in-the-loop to complement the I-32/34 radar at Naval Air Warfare Center Weapons Division (NAWCWD) Electronic Combat Range.<br>- Completed development of DIADS Weapons Control (DWC) to develop new Integrated Air Defense (IADS) weapons control algorithms in the Digital IADS (DIADS) used in the F-35 Virtual Simulator (VSIM) and other evaluations.<br>- Continued development of C2 and Urban Background Environment Simulator (CUBES) to incorporate modern urban communication background signals and selected closed-loop communications for Installed System Test Facility communications jamming purposes.<br>- Continued development of Boosted Zombie Target (BZT) to develop multi-stage, economical targets for PAC-3 by integrating a GFE booster onto a blue "Zombie" maneuvering target.<br>- Continued the Digital Integrated Air Defense System (DIADS) Sensor Reactivity Upgrade (SRU) to upgrade DIADS radars with enhanced ECM response features in support of F-35 and F-22 operational testing.<br>- Continued development of Joint Standard Instrumentation Suite (JSIS) to measure and collect signature, time-space-position information (TSPI), and related data of threat missile and hostile fire munitions (e.g., small arms and RPG) firings to support evaluation of the missile/hostile fire warning systems such as the Advance Threat Warning (ATW) system.<br>- Continued the Automated Test Case Generator Web Service (ATC-GEN WS) to provide Joint Interoperability Test Command (JITC) with the capability to develop Ballistic Missile Defense System (BMDS) and Mode 5 IFF MIL-STD-6016E compliance test cases and an automated test tool on a test network.<br>- Continued development of Torpedo Operational Testing Using Modeling and Simulation (TOTUMS) to enhance torpedo OT&E by upgrading an HITL simulator and environment simulator for high-fidelity, OT-ready realism.<br>- Continued development of the Wideband Configurable Control Jammer (WCCJ) Enhancement to develop and integrate an Electronic Support Measures (ESM) direction finding subsystem into WCCJ, thus improving its ability to monitor and prioritize signals during operational test events such as Network Integrated Exercise.<br>- Initiated development of MSALTS Ultraviolet Emitter Enhancement (MUVEE) to upgrade Multi Spectral Sea and Land Target Simulator (MSALTS) with LED-based UV source for short shot hostile fire IRCM end-to-end threat engagements.<br>- Initiated development of Submarine Launched Modular 3-inch Device (SLAM-3D), which provides a Cluster Donut countermeasure emulator that will help resolve the Anti-Submarine Warfare communities of interest (COI) for the Mk 54 Mod 1 Torpedo.<br>- Initiated development of Airborne Early Warning Interoperability Simulator (AEIS) to develop the hardware and software necessary to generate a properly spaced, dense target and ECM environment for injection-mode Installed Systems Test Facility testing of the E-2D Hawkeye mission system.<br>- Initiated development of Advanced Mine Simulation System (AMISS) Upgrade, which provides the existing AMISS asset with five new mine triggering emulations, as well as sensor and improved compartmentalization enhancements. | | | |
| ***FY 2016 Plans:*** | | | |

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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| JIM Projects:<br>- Complete concept development and preliminary design and initiate system development for the Advanced Range Tracking and Imaging System project to provide an integrated next generation suite of optical tracking mounts needed to increase performance, reduce costs, and effectively deliver secure reliable optical throughput.<br>- Continue the Next Generation Range Control and Data Distribution project to enhance and modernize range control and data distribution systems at the Pacific Missile Range Facility (PMRF).<br>- Continue system development 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.<br>- Continue system development of the Integrated Network Enhanced Telemetry project Block I capability to develop a network-enhanced aeronautical telemetry capability for T&E ranges and facilities.<br>- Complete system development and initiate transition to production and sustainment for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements.<br>- Continue system development for the Next Generation Electronic Warfare Environment Generator Build B project to provide electronic warfare simulation capabilities for testing future Electronic Attack and Electronic Support Measures systems.<br>- Continue threat system simulator development efforts to improve integration, reduce potential duplication, and ensure that accurate, cost-effective representations of threat systems are available to support testing.<br>- Continue system development for the Synthetic Battlefield Emitter Systems project to provide a controlled density open air environment for testing of C4ISR systems.<br>- Complete system development for the Vertical Electromagnetic Pulse (EMP) and High Power Microwave (HPM) Test Sources project to provide vertical high-altitude EMP and HPM external electromagnetic environments for testing in accordance with applicable Military Standards.<br>- Continue the Network Centric Weapon (NCW) T&E Environment project to provide an enhanced capability to test and evaluate NCW in a distributed simulation environment.<br>- Continue the Cyber Test Analysis and Simulation Environment project to enhance current Information Assurance / Cyber testing and analysis capabilities and modeling and simulations tools for testing against increasingly robust Cyber threats.<br>- Continue system development for the Radar Signal Emulator project to provide open-loop, transmit-only systems that will accurately emit waveforms of threat radar systems operating in the C and S radio frequency (RF) bands.<br>- Continue system development for the Advanced Dynamic Transmitter Array project to develop a signal-dense, complex, dynamic radio frequency (RF) signal threat environment that will accurately represent signal characteristics, increase signal densities, and increase existing Installed System Test Facility (ISTF)-based signal of interest power levels while reducing test system set up and calibration times.<br>- Complete system development for the B-2 Defense Management System to upgrade test capabilities at the Benefield Anechoic Facility (BAF) to support B-2 testing in a modern radio frequency (RF) signal threat environment. | | | |

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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| - Continue system development of the Closed Loop PESA Simulator project to develop a closed-loop radar system that will closely replicate the performance of a widely fielded Western Pacific (WESTPAC) long-range surface-to-air missile (SAM) system.<br>- Continue system development of Integrated Air Defense System (IADS) Enhancements that will add comprehensive threat-representative IADS capabilities based on the development and integration of several high-priority, threat-representative Command Post (CP) models to open-air test ranges, test laboratories and modeling and simulation (M&S) facilities.<br>- Continue Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) activities to provide detailed analysis and validation of threat system designs and operational techniques.<br>- Continue concept development and preliminary design for the Commercial Derivative Aircraft Based Instrumentation Telemetry System project to provide expanded capability and capacity telemetry support for aircraft and missile defense testing in inter-range and broad ocean area test scenarios.<br>- Continue system development 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.<br>- Complete the Knowledge Management (KM) project to establish a next-generation KM capability that utilizes the latest in virtualization technologies, methodologies, and best practices for efficient and effective use of T&E data.<br>- Continue the Common Development Environment project to combine the specifications, models, tools, policy, and best practices needed to enhance interoperability among live, virtual, and constructive T&E capabilities throughout the acquisition lifecycle.<br>- Continue risk reduction activities under the Enhanced Solutions Process for potential multi-service T&E developments, as recommended by Service Test and Evaluation Executives.<br>- Initiate and complete requirements development and planning, and initiate concept development and preliminary design for the Advanced Weapons Effects Test Capability project to develop a capability to more accurately measure fragment characteristics of explosive weapons and more accurately estimate collateral damage distances.<br>- Initiate and complete requirements development and planning, and initiate concept development and preliminary design for the Mid-Pressure Arc Heater project to expand the H2 Hypersonic Test Facility at Arnold Air Force Base, TN to provide higher enthalpy at the mid-pressure altitudes to enable ground testing of Prompt Global Strike, Maneuvering Reentry Vehicles (MaRV), and SCRamJet components.<br>- Initiate and complete requirements development and planning, and initiate concept development and preliminary design for the Pulsed Neutron Environment project to provide a Low Enriched Uranium (LEU) facility to replace the current HEU reactor, providing higher fluence over a larger test area. It will also develop a Dense Plasma Focus (DPF) system to meet short pulse requirements necessary for both weapons certification and testing new circuit designs.<br>- Initiate and complete requirements development and planning, and initiate concept development and preliminary design for the Radar Cross Section Range Relevance Project to upgrade radar cross section measurement capabilities and test capability at the Atlantic Test Range, Patuxent River NAS and the National RCS Test Facility, Holloman AFB, NM.<br>- Initiate and complete requirements development and planning, and initiate concept development and preliminary design for the Swarm Autonomy and Scoring project to upgrade existing High Speed Maneuverable Surface Target (HSMST) with semi- | | | |

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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| autonomous control, develop a Real Time Casualty Assessment capability, and improved scoring capabilities for testing against representative surface swarming threats.<br><br>Resource Enhancement Project:<br>- Complete development of C2 and Urban Background Environment Simulator (CUBES) to incorporate modern urban communication background signals and selected closed-loop communications for Installed System Test Facility communications jamming purposes.<br>- Complete the Wideband Configurable Control Jammer (WCCJ) Enhancement to develop and integrate an Electronic Support Measures (ESM) direction finding subsystem into WCCJ, thus improving its ability to monitor and prioritize signals during operational test events such as Network Integrated Exercise.<br>- Complete the Automated Test Case Generator Web Service (ATC-GEN WS) to provide Joint Interoperability Test Command (JITC) with the capability to develop BMDS and Mode 5 IFF MIL-STD-6016E compliance test cases and an automated test tool on a test network.<br>- Complete development of Torpedo Operational Testing Using Modeling and Simulation (TOTUMS) to enhance torpedo OT&E by upgrading an HITL simulator and environment simulator for high-fidelity, OT-ready realism.<br>- Complete development of Advanced Mine Simulation System (AMISS) Upgrade, which provides the existing AMISS asset with five new mine triggering emulations, as well as sensor and improved compartmentalization enhancements.<br>- Complete development of MSALTS Ultraviolet Emitter Enhancement (MUVEE) to upgrade Multi Spectral Sea and Land Target Simulator (MSALTS) with LED-based UV source for short shot hostile fire IRCM end-to-end threat engagements.<br>- Continue the Digital Integrated Air Defense System (DIADS) Sensor Reactivity Upgrade (SRU) to upgrade DIADS radars with enhanced ECM response features in support of F-35 and F-22 operational testing.<br>- Continue development of Boosted Zombie Target (BZT) to develop multi-stage, economical targets for PAC-3 by integrating a GFE booster onto a blue "Zombie" maneuvering target.<br>- Continue development of Joint Standard Instrumentation Suite (JSIS) to measure and collect signature, TSPI, and related data of threat missile and hostile fire munitions (e.g., small arms and RPG) firings to support evaluation of the missile/hostile fire warning systems such as the Advance Threat Warning (ATW) system.- Continue development of Submarine Launched Modular 3-inch Device (SLAM-3D), which provides a Cluster Donut countermeasure emulator that will help resolve the Anti-Submarine Warfare COI for the Mk 54 Mod 1 Torpedo.<br>- Continue development of Airborne Early Warning Interoperability Simulator (AEIS) to develop the hardware and software necessary to generate a properly spaced, dense target and ECM environment for injection-mode Installed Systems Test Facility testing of the E-2D Hawkeye mission system.<br><br>***FY 2017 Plans:***<br>JIM Projects: | | | |

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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| - Complete the Next Generation Range Control and Data Distribution project to enhance and modernize range control and data distribution systems at the Pacific Missile Range Facility (PMRF).<br>- Continue system development for the Advanced Range Tracking and Imaging System project to provide an integrated next generation suite of optical tracking mounts needed to increase performance, reduce costs, and effectively deliver secure reliable optical throughput.<br>- Complete system development for the Synthetic Battlefield Emitter Systems project to provide a controlled density open air environment for testing of C4ISR systems.<br>- Continue system development 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.<br>- Complete system development for Block 1 and continue Block 2 concept development and preliminary design 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.<br>- Continue concept development and preliminary design for the Commercial Derivative Aircraft Based Instrumentation Telemetry System project to provide expanded capability and capacity telemetry support for aircraft and missile defense testing in inter-range and broad ocean area test scenarios.<br>- Continue the Cyber Test Analysis and Simulation Environment project to enhance current Information Assurance / Cyber testing and analysis capabilities and modeling and simulations tools for testing against increasingly robust Cyber threats.<br>- Continue transition to production and sustainment for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements.<br>- Continue the Network Centric Weapon (NCW) T&E Environment project to provide an enhanced capability to test and evaluate NCW in a distributed simulation environment.<br>- Continue system development for the Next Generation Electronic Warfare Environment Generator Build B project to provide electronic warfare simulation capabilities for testing future Electronic Attack and Electronic Support Measures systems.<br>- Continue system development for the Radar Signal Emulator project to provide open-loop, transmit-only systems that will accurately emit waveforms of threat radar systems operating in the C and S radio frequency (RF) bands.<br>- Continue system development for the Advanced Dynamic Transmitter Array project to develop a signal-dense, complex, dynamic radio frequency (RF) signal threat environment that will accurately represent signal characteristics, increase signal densities, and increase existing Installed System Test Facility (ISTF)-based signal of interest power levels while reducing test system set up and calibration times.<br>- Continue system development of the Closed Loop PESA Simulator project to develop a closed-loop radar system that will closely replicate the performance of a widely fielded Western Pacific (WESTPAC) long-range surface-to-air missile (SAM) system.<br>- Continue system development of Integrated Air Defense System (IADS) Enhancements that will add comprehensive threat-representative IADS capabilities based on the development and integration of several high-priority, threat-representative Command Post (CP) models to open-air test ranges, test laboratories and modeling and simulation (M&S) facilities. | | | |

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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| - Continue Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) activities to provide detailed analysis and validation of threat system designs and operational techniques.<br>- Complete concept development and preliminary design and initiate system development for the Advanced Weapons Effects Test Capability project to develop a capability to more accurately measure fragment characteristics of explosive weapons and more accurately estimate collateral damage distances.<br>- Complete concept development and preliminary design and initiate system development for the Mid-Pressure Arc Heater project to expand the H2 Hypersonic Test Facility at Arnold Air Force Base, TN to provide higher enthalpy at the mid-pressure altitudes to enable ground testing of Prompt Global Strike, Maneuvering Reentry Vehicles (MaRV), and SCRamJet components.<br>- Complete concept development for Aerodynamic and Propulsion Test unit.<br>- Complete concept development and preliminary design and initiate system development for the Pulsed Neutron Environment project to provide a Low Enriched Uranium (LEU) facility to replace the current HEU reactor, providing higher fluence over a larger test area. It will also develop a Dense Plasma Focus (DPF) system to meet short pulse requirements necessary for both weapons certification and testing new circuit designs.<br>- Complete concept development and preliminary design and initiate system development for the Radar Cross Section Range Relevance Project to upgrade radar cross section measurement capabilities and test capability at the Atlantic Test Range, Patuxent River NAS and the National RCS Test Facility, Holloman AFB, NM.<br>- Complete concept development and preliminary design and initiate system development for the Swarm Autonomy and Scoring project to upgrade existing High Speed Maneuverable Surface Target (HSMST) with semi-autonomous control, develop a Real Time Casualty Assessment capability, and improved scoring capabilities for testing against representative surface swarming threats.<br>- Continue system development of the Integrated Network Enhanced Telemetry project capability to develop a network-enhanced aeronautical telemetry capability for T&E ranges and facilities.<br>- Continue risk reduction activities under the Enhanced Solutions Process for potential multi-service T&E developments, as recommended by Service Test and Evaluation Executives.<br>- Continue threat system simulator development efforts to improve integration, reduce potential duplication, and ensure that accurate, cost-effective representations of threat systems are available to support testing.<br>- Continue the Common Development Environment project to combine the specifications, models, tools, policy, and best practices needed to enhance interoperability among live, virtual, and constructive T&E capabilities throughout the acquisition lifecycle.<br>- Initiate development of improved hypersonics ground test capabilities to address critical shortfalls in developmental and operational testing of cruise missile and boost glide vehicles.<br>Resource Enhancement Project:<br>- Complete the Digital Integrated Air Defense System (DIADS) Sensor Reactivity Upgrade (SRU) to upgrade DIADS radars with enhanced ECM response features in support of F-35 and F-22 operational testing. | | | |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Office of the Secretary Of Defense | Date: February 2016 |
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| **Appropriation/Budget Activity**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support* | **R-1 Program Element (Number/Name)**<br>PE 0604940D8Z *I Central Test and Evaluation Investment Program (CTEIP)* |

| C. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| - Complete development of Boosted Zombie Target (BZT) to develop multi-stage, economical targets for PAC-3 by integrating a GFE booster onto a blue "Zombie" maneuvering target.<br>- Complete development of Joint Standard Instrumentation Suite (JSIS) to measure and collect signature, TSPI, and related data of threat missile and hostile fire munitions (e.g., small arms and RPG) firings to support evaluation of the missile/hostile fire warning systems such as the Advance Threat Warning (ATW) system.<br>- Complete development of Submarine Launched Modular 3-inch Device (SLAM-3D), which provides a Cluster Donut countermeasure emulator that will help resolve the Anti-Submarine Warfare COI for the Mk 54 Mod 1 Torpedo.<br>- Complete development of Airborne Early Warning Interoperability Simulator (AEIS) to develop the hardware and software necessary to generate a properly spaced, dense target and ECM environment for injection-mode Installed Systems Test Facility testing of the E-2D Hawkeye mission system. | | | |
| **Accomplishments/Planned Programs Subtotals** | 234.011 | 213.668 | 219.199 |

**D. Other Program Funding Summary ($ in Millions)**

N/A

**Remarks**

**E. Acquisition Strategy**

N/A

**F. Performance Metrics**

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

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