FISCAL YEAR (FY) 2004 PRESIDENT'S BUDGET SUBMISSION

FOR THE

OPERATIONAL TEST AND EVALUATION, DEFENSE (OT&E,D) APPROPRIATION (0460)

February, 2003

OFFICE OF THE SECRETARY OF DEFENSE

DIRECTOR, OPERATIONAL TEST AND EVALUATION

APPROPRIATION: OPERATIONAL TEST AND EVALUATION, DEFENSE (0460)

Index of Charts and Exhibits

Exhibit R-1, RDT&E Programs

Department of Defense

OPERATIONAL TEST AND EVALUATION, DEFENSE APPROPRIATION (0460)

Date: February 2003

R-1 Line Item No	Program Element Number	Item	Budget Activity	FY 2002 Cost	FY 2003 Cost	FY 2004 Cost	FY 2005 Cost
1	0603941D8Z [U]	Test & Evaluation Science & Technology	3	7.905	8.571	12.804	19.413
2	0604940D8Z [U]	Central Test and Evaluation Investment	6	127.090	122.294	123.215	124.444
3	0605118D8Z [U]	Operational Test and Evaluation	6	17.513	26.758	37.323	42.390
4	0605131D8Z [U]	Live Fire Testing	6	12.736	15.791	10.075	10.209
5	0605804D8Z [U]	Development Test and Evaluation	6	63.884	64.140	103.245	104.679
Total	Operational Test & Evaluation, Defense			229.128	237.554	286.661	301.135

RDT&E PROJECT JUSTIFICATION SHEET (R-2)					February 2003			
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY THREE					TEST AND EVALUATION SCIENCE AND TECHNOLOGY (T&E/S&T) PROGRAM ELEMENT (PE) 0603941D8Z			
$'s in Millions	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
PE 0603941D	7.905	8.571	12.804	19.413	29.058	43.572	65.301	97.669
Spectrum Efficient Technology	2.924	2.200	3.067	3.640	3.897	4.122	4.600	5.305
Multi-Spectral Sensors T&E	2.835	1.565	2.168	2.192	2.664	3.382	5.015	7.575
Hypersonic Testing Technologies	1.605	2.411	2.731	4.082	5.827	10.929	17.822	26.690
Embedded Instrumentation	0.541	1.203	2.894	3.750	4.969	7.553	12.000	19.202
Directed Energy	0.000	1.202	1.944	4.084	4.584	6.913	9.807	15.210
Information Systems Technology	0.000	0.000	0.000	0.555	1.716	3.381	5.014	7.472
Modeling and Simulation	0.000	0.000	0.000	0.555	2.252	3.064	5.014	7.634

Test Range/Facility Productivity Improvement	0.000	0.000	0.000	0.555	2.237	3.065	4.079	5.512
Software Test Technology	0.000	0.000	0.000	0.000	0.912	1.163	1.950	3.069

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

This program allows test technologies to keep pace with evolving weapons technology, and is critical to ensuring that we have the capability to fully and completely test the advanced systems that will be fielded in the future. The operational demands under which the DoD conducts Test and Evaluation (T&E) of increasingly sophisticated weapon systems have grown considerably. Weapon technology is quickly outdistancing our ability to adequately test systems as they develop. The T&E/S&T program:

- exploits new technologies and processes to meet important T&E requirements,
- expedites the transition of new technologies from the laboratory environment to the T&E community,
- leverages/exploits commercial equipment and networking innovations to support the T&E community.

Additionally, the program examines emerging test requirements derived from transformation initiatives to identify needed technology areas and develop a long-range roadmap for technology insertion. This program leverages and employs applicable 6.2 applied research from the highly developed technology base in the DoD Service Laboratories and Test Centers, industry, and academia to accelerate the development of new test capabilities.

This Research Category 6.3 PE, Advanced Technology Development, develops and demonstrates high payoff technologies for current and future DoD test capabilities.

Program Accomplishments and Plans:

FY 2002 Accomplishments:

The FY 2002 T&E/S&T program was divided between launching T&E/S&T focus area investigations and developing roadmaps for future year projects. The most critical focus areas were apparent, and investigations supporting those focus area projects were awarded in the following T&E/S&T focus areas (and further detailed in accompanying R-2As). The focus area investigations initiated were a result of evaluation of proposals solicited via a Program Research and Development Announcement process that includes issuing Broad Agency Announcements per focus area, and various investigations of each focus area were awarded to industry, academia, or government investigators, or consortiums of these sources. The focus area projects were:

Spectrum Efficient Technology:

- Initiated investigations into the technical challenges to augmenting the aeronautical telemetry (TM) band in the 3-30GHz range.

- Initiated seven research projects that address technologies in high data rates, spectrally efficient telemetry systems, highly efficient modulation schemes, channel modeling, steerable beam, directional antenna TM concepts and time coding for TM in the super high frequency bands. Technology investigations in this focus area directly support the increasing data rates that advanced weapon systems require, alleviation of radio frequency spectrum usage encroachment, and support to acquisition programs and the World Radio Conference in CY 2007.

Multi-Spectral Sensors Test and Evaluation:

- Initiated investigations and evaluations of test technologies required to test complex multi-spectral sensor arrays and to provide multi-spectral test environments (that simulate battlefield environments) that stimulate the advanced weapon systems currently under development.
- Initiated four research investigations that address specific challenges to the test community in remote sensing systems, detector algorithms, hyperspectral thermal system modeling, hyperspectral sensor evaluation, multispectral scene generation and stimulation system, and a hyperspectral snapshot infrared (IR) measurement system. These investigations will advance the state of the art in testing of advanced multiband, multifunction, multimode sensors being developed as part of the weapons transformation initiatives.

Hypersonic Testing Technologies:

- Investigated technologies needed for test and evaluation of hypersonic (MACH 4 to 15) ground and flight test capabilities. Launched five investigations with applications for supporting T&E associated with ramjets, scramjets, hypersonic combustors, hypersonic weapon lethality and survivability assessment, high temperature engine components, stability and control, guidance and control, innovative flight test technologies for hypersonic vehicles, integrated propulsion and airframe testing, computational T&E tools, hypersonic flow diagnostics, and hypersonics aerothermodynamics. These investigations will directly support transformational initiatives such as air-breathing hypersonics technologies to be applied against time-critical targets and access to space.

Embedded Instrumentation:

- Investigated and developed requirements for, and benefits of, embedded, non-intrusive test instrumentation employing microelectronic, microelectromechanical systems (MEMS), and nano-size technologies. Initial investigations focused on micro-miniaturization of instrumentation components such as inertial measurement units, multi axis stress/strain gauges, field-programmable gate arrays with embedded analog/digital converters, wireless sensors, flight termination systems, and power supplies. And, co-hosted a workshop with Defense Advanced Research Projects Agency (DARPA) to identify leveraging opportunities for FY 2003 investigations. Embedded test instrumentation will be crucial to testing systems such as low observable, multi-spectral stealth and hypersonic weapons.
- Initiated a project to leverage work at Jet Propulsion Laboratory (JPL) to apply fuel cell technology to provide long duration non-intrusive instrumentation power.

In addition to the launching of T&E/S&T focus area projects, held workshops to develop a test technology roadmap that documents the near and long-term test capability shortfalls across nine focus areas, each requiring a number of investigations. Initiated work on a Test Technology Area Plan (TTAP) to portray the roadmaps for each focus area, and to show the linkages with the Department's other planning documents, such as the Quadrennial Defense Review report, Joint Vision 2020, the Defense Science and Technology Plan, the Joint Warfighting

Science and Technology Plan, and the Defense Planning Guidance. The TTAP is envisioned to ensure that the projects funded by the T&E/S&T program are timely to meet future T&E needs to support acquisition program and fielding of weapon systems.

FY 2003 Plans:

The TTAP, with associated roadmaps will be completed and issued. Congressional plus-up to the T&E/S&T permits restructuring of the program for FY 2003 to begin investigations following the focus area project roadmaps to address a new focus area project, directed energy test, increase the investigations to support the embedded instrumentation focus area, as well as continue and, in some cases, complete most critical and promising technology developments from FY 2002. Some of the investigations under the "spectrum efficient technology" and "multi-spectral" focus areas will wrap up, and a Broad Agency Announcement will be issued to initiate others. Projects in the "hypersonic" focus area will continue, and a new project to address plasma effects of RF transmissions from hypersonic vehicles will be addressed. Ongoing science and technology work that is applicable to the "embedded instrumentation" focus area will be leveraged into new investigations. Completed investigations and learning will start their transition to the T&E community; e.g., miniaturized fuel cell technology for supporting vehicular instrumentation suites can be applied to acquisition of T&E capabilities to support the Future Combat System program by the end of this year.

Directed Energy:

- Initiate technology investigations to improve T&E capabilities for determining capabilities and limitations of High-Energy Laser (HEL) weapons; e.g., survivable on-board instrumentation, ground truth off-board instrumentation, and atmospheric characterization. Additional work will be necessary in the out years to address the full gamut of T&E technologies for high-energy laser weapons, as well as to address high-power microwave weapons.

FY 2004 Plans:

A review of the T&E/S&T program by the Department during the FY 2004-2009 program review highlighted the need for increased resources in this program and an increase in fiscal guidance was provided. Investigations into other aspects of the focus area projects, as well as continuation and field testing of existing projects, in the critical core focus areas of embedded instrumentation, spectrum efficient technology, hypersonics, multi-spectral test technologies, and directed energy will be executed to meet the increasing demand for advanced test capabilities – see respective R-2a for each focus area project. T&E/S&T investigations will be focused on the basis of the roadmaps contained in the TTAP, and as result of contract awards resulting from a Program Research and Development Announcement process that will include Broad Agency Announcements and contract proposal selection.

FY 2005 Plans:

Funding level increases in FY 2005 will permit continuing investigations in the T&E technology focus area projects continuing from FY 2004, as well as initiating investigations in the focus area projects in information systems technology, in modeling and simulation, and test range/facility productivity improvement.

Information Systems Technology (IST)

Investigations in this focus area will be launched to provide the T&E technologies basic to provide capabilities required to ensure that the systems provided to the warfighter deliver the information assurance and survivability our forces need to support the transformation

initiative to acquire, verify, protect, and assimilate the information necessary to neutralize and dominate any future adversary. Applications of these technologies will support T&E of network-centric operations, Military Operations on Urban Terrain, and other information technology-intensive programs relying on capabilities for capturing and evaluating multiple simultaneous collaborative user communications, capturing human physical and psychological performance, instrumentation that does not interfere with or change the performance of the information system(s) under evaluation including with humans-in-the-loop, and the validation of IST modeling and simulations

Modeling and Simulation

Investigations in this focus area will be launched to address technological challenges to improving distributed modeling and simulation among various test ranges and facilities and to permit use of their capabilities from other locations, to model human performance, to supplement T&E of systems-of-systems, to enable aggregation and disaggregation among levels and fidelities of simulations, and to enable advances in architectures and M&S tools.

Test Range/Facility Productivity Improvement

Investigations will be launched to determine how to leverage technological advances for weapon systems and information systems technologies that can provide the technologies needed to improve the productivity of T&E ranges and facilities to mitigate the increasing scheduling limitations that will be imposed by the need for faster T&E tempo. The thrust of this project will be to improve the capability of the DoD test and evaluation infrastructure to support T&E missions, and to provide the data and reports meet the schedules to meet the transformation goals requiring technology transitions to expedite processes, minimizing the expenditure of human capital, and to reducing costs.

B. **(U) PROGRAM CHANGE SUMMARY**

($ in Millions)	FY 2002 Appropriation	FY 2003 President's Budget	FY 2004 President's Budget	FY 2005 President's Budget
FY 2003 President's Budget	7.944	6.010	5.974	5.912
Current Budget Submit	7.905	8.571	12.804	19.413
Total Adjustments	(0.039)	2.561	6.830	13.501
Congressional Program Reductions		(0.173)		
Congressional Rescissions	(0.039)			
Congressional Increases		2.800		
Program Adjustment			7.226	13.888
Inflation Adjustment		(0.066)	(0.396)	(0.387)

C. (U) OTHER PROGRAM FUNDING NA

RDT&E PROJECT JUSTIFICATION SHEET (R-2a)				February 2003				
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY THREE, PE 0603941D				SPECTRUM EFFICIENT TECHNOLOGY				
$'s in Millions	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Spectrum Efficient Technology	2.924	2.200	3.067	3.640	3.897	4.122	4.600	5.305
RDT&E Articles	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

One of the most immediate impacts to transitioning acquisition programs to the warfighters is the increasing radio frequency spectrum limitations, and the higher demands for bandwidth for more data. Full, realistic testing of modern military systems, and follow-on training at the completion of the system's development phase, rely heavily on the use of radio frequency (RF) spectrum, especially in the "L" and "S" microwave bands. Signal propagation, supportable data rates, and other related characteristics make these bands ideally suited for test telemetry and training applications. However, it is these same characteristics that make these bands highly coveted by the wireless communications industry. The growth in the demand for consumer communication services has resulted in pressure from the commercial telecommunications industry for the reallocation of RF spectrum from government to non-government use. Since 1992, DoD has lost approximately 27 percent of the total spectrum allocated for aircraft telemetry through congressionally mandated spectrum reallocations and other regulatory mechanisms to accommodate these consumer services. The reallocation of this spectrum, coupled with the increase in activities that use it, has raised concerns regarding the availability of adequate spectrum to support test and training. Current major flight test programs such as the F-22, and future programs such as the Joint Strike Fighter, Airborne Laser, and National Missile Defense, as well as weapons with multi-band/multi-mode seekers, advanced stealth, extended range/large footprints, supersonic and hypersonic systems, directed energy, and offensive and defensive space systems, will experience increased competition for spectrum among themselves and from other DoD programs. Also, spectrum limitations are impacting interoperability among the test and training ranges until a common set of frequencies can be found to permit extended range/large footprint vehicles to operate across multiple ranges. Development of new technologies is required to find ways to increase the efficiency of the remaining spectrum allocations, and to begin investigations into possible use of unused or lesser-used parts of the spectrum.

Each new generation of military systems such as satellite positioning, precision guided munitions, communications relay, and tactical combat training typically generates ten times more data and information than its predecessor, resulting in a 20-year trend of exceptional growth in the demand for test- and training-related spectrum. The Defense Science Board also recognized the need for adequate spectrum availability in its report titled, "Report of the Defense Science Board Task Force on DoD Frequency Spectrum Issues Coping with Change: Managing RF Spectrum to Meet DoD Needs," dated November 2000; as did "Report of the Defense Science Board Task Force on Test and Evaluation Capabilities," December 2000. The T&E/S&T program leverages S&T progress in wide-band communications, modulation, alternative frequency bands, antennas, and signal conditioning to provide technologies that can improve the efficiency of the spectrum and accommodate the increasing data rates.

B. (U) ACCOMPLISHMENTS/PLANNED PROGRAM

	FY 2002	FY 2003	FY 2004	FY 2005
Spectrum Efficient Technology	2.924	2.200	3.067	3.640
RDT&E Articles	N/A	N/A	N/A	N/A

FY 2002 Accomplishments:

In FY 2002, investigations were initiated in the technical challenges to augmenting the aeronautical telemetry (TM) band in the 3-30GHz range. Seven research investigations were initiated to begin addressing technologies in high data rate, spectrally efficient Telemetry systems, highly efficient modulation schemes, channel modeling, steerable-beam, directional antenna TM concepts and time coding for TM in the super high frequency bands. Technology investigations in this focus area directly support the increasing data rates and frequency spectrum usage that advanced weapon systems require.

Investigations underway are:

- Spectrally Efficient, High Data Rate Telemetry System in 3-30 Ghz: Design and simulate new approach to robust, high efficiency wireless links for aeronautical telemetry, and complementary integration of advanced modulation, new channel coding technique, and diversity techniques.
- Super High Frequency Channel Modeling: Modify Advanced Range Telemetry (ARTM) channel probe to operate in selected segments of Super High Frequency (SHF) range, and conduct field measurements under realistic test range conditions and update channel models.
- Variable Phase Shift Key (VPSK)/Feher Variant High Efficiency Modulations: Evaluate ultra-high spectrum efficiency modulation invented by H. Walker, and variants proposed by K. Feher.
- Space Time Coding for Aeronautical Telemetry: Exploit recent space-time coding theory advances to mitigate self-induced, co-channel interference tied to multiple transmit antenna configurations used in many flight test installations; design proposed coding method and use existing tools to simulate performance; and identify technology demonstration requirements, if warranted.
- Ground Based Receiving Telemetry Antennas: Researches advanced antenna technologies, variable beamwidth and parabolic antennas in SHF band.

- M-ary Variable Shift Keying: Complete theoretical design and simulate innovative high order, modulation free, frequency hopping spread spectrum technique; validate predictions with limited hardware emulation (breadboard level); and assess viability in-flight telemetry arena.
- Steerable Beam, Directional Antenna Concepts: Investigates transmitting antenna techniques above 3 Ghz through use of phase shifters to steer nulls, including open and closed-loop control systems.

FY 2003 Plans:

All investigations in this focus area from FY 2002 continue, some with new phases awarded, and all but the "Super High Frequency Channel Modeling" conclude. Among efforts this year will be to demonstrate an antenna in which beam steering will be accomplished by RF MEMS devices acting as radiating elements that could be applied to steerable gain antennas to increase telemetry link performance margins. Transitioning of resulting technologies from completed investigations will be initiated. Planning and prioritizing needs for investigation awards in 2004 will begin in accordance with the TTAP and the respective T&E/S&T roadmap, and utilize the Program Research & Development Announcement process for selection of investigators.

FY 2004 Plans:

Much work remains in this focus area not only to prepare the T&E community for supporting new weapon systems technology development and acquisition programs, but the 2007 World Radio Conference as well. Field testing for proof-of-concept of many of the developments from projects from previous years will be conducted in this year and in FY 2005. The "Super High Frequency Channel Modeling" investigation, started in FY 2002, will conclude. Additionally, investigations will be initiated as a result of the Program Research & Development Announcement process initiated in FY 2003, to address critical T&E technology issues in this focus area such as:

- Deconfliction of RF spectrum usage for T&E in joint urban operations, including Military Operations on Urban Terrain (MOUT).
- Smart (adaptive) antenna arrays for unobtrusive and non-interfering operations for system-under-test, and variable beamwidth directional antennas for frequency sharing.
- Techniques for overcoming transmission losses during ionization periods of hypersonic systems testing.
- More efficient and reliable portions of the RF spectrum for future telemetry, command control, and datalink communications for T&E and training.
- Advanced development of algorithms for data transmission bursts when ground reception stations are available.
- Ultra-high data rate pre-processing, compression, storage, and bandwidth- efficient modulation schemes for transmission.
- Remotely tunable datalink transceivers for security, safety, and inter-range operations.
- Doppler shift compensation for coherent receivers.

FY 2005 and Future Plans:

The T&E technology investigation issues identified for FY 2004 will continue to be worked.

C. (U) OTHER PROGRAM FUNDING NA

RDT&E PROJECT JUSTIFICATION SHEET (R-2a)				February 2003				
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY THREE, PE 0603941D				MULTI-SPECTRAL SENSORS TEST AND EVALUATION				
$'s in Millions	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Multi-Spectral Sensors Test And Evaluation	2.835	1.565	2.168	2.192	2.664	3.382	5.015	7.575
RDT&E Articles	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

Numerous DoD science and technology programs are developing new technologies for use in multi-spectral sensors, seekers, detectors, and target designators for reconnaissance, surveillance, search, detection, location, identification, classification, weapons, and battle damage assessments. T&E of new multi-spectral technologies to be used in these future multi-spectral weapon systems will require new T&E technologies and operational integration. T&E investment programs, such as the Central Test and Evaluation Investment Program (CTEIP) and Service improvement and modernization programs, are addressing some basic multi-spectral requirements using off-the-shelf technologies; however, many of the needed capabilities for T&E of future multi-spectral technologies and systems will depend on technologies and procedures not yet developed or available for T&E purposes.

B. (U) ACCOMPLISHMENTS/PLANNED PROGRAM

	FY 2002	FY 2003	FY 2004	FY 2005
Multi-Spectral Sensors Test And Evaluation	2.835	1.565	2.168	2.192
RDT&E Articles	N/A	N/A	N/A	N/A

FY 2002 Accomplishments:

Initiated investigations and evaluations of test technologies required to test complex multi-spectral sensor arrays and to provide multi-spectral test environments (that simulate battlefield environments) that stimulate the advanced weapon systems currently under development. Four research investigations were initiated that address specific challenges to the test community in remote sensing systems; detector algorithms; hyperspectral thermal system modeling, hyperspectral sensor evaluation, multi-spectral scene generation and stimulation system and a hyperspectral snapshot IR measurement system. These investigations will advance the state of the art in testing of advanced multi-band, multifunction, multimode sensors being developed as part of the weapons transformation initiatives.

- Multispectral Signature Model: provide a "proof-of-principle tool for high-fidelity computer targets and backgrounds, an integrated T&E spectrum, and dynamic target background interaction.
- Ultraviolet – Short Wave Infrared (UV-SWIR) Hyperspectral Performance: develop a concept for testing and validating hyperspectral sensors via analysis of applications of various test types for hyperspectral sensor testing.
- Adaptive Multispectral Stimulator Injection Demonstration: provide a framework for a low-cost, scalable, portable and versatile multimode stimulator sensor injection system adaptable for T&E with a wide variety of sensors.
- Long Wave Infrared (LWIR) Hyperspectral Testbed Design: provide: (1) design for prototype hyperspectral testbed for use in a test laboratory environment; (2) integrated Acoustic-Optical Tunable Filter (AOTF), MEMS, and digital micro-mirror; and (3) develop performance data for parameters not covered by current data.

FY 2003 Plans:

In addition to the completion of all FY 2002 investigations except for the "Multispectral Signature Model" (which is scheduled for a FY 2004 completion), an investigation will be launched to determine the minimum resolvable temperature for a hyperspectral sensor evaluation tool.

-

FY 2004 Plans:

Emphasis of the FY 2004 T&E/S&T program in this focus area will be to complete the investigation into the feasibility of a multi-spectral signature model, and to continue investigating the minimum resolvable temperature for a hyperspectral sensor evaluation tool initiated in FY 2003. Other investigations will be launched towards addressing the other test technology issues in this focus area project:

- Hyperspectral sensor data processing and analysis - real time
- Hyperspectral MWIR-LWIR data fusion test concept development
- Hyperspectral visible/near-IR scene generation model integration
- Common usage, tunable, full spectrum, and high-resolution scene generators
- Common usage, threat representative, full spectrum, and high-resolution dynamic target
- Common usage, threat representative, full spectrum, and high-resolution shallow underwater targets
- Capability to test focal plane array sensors, and frequency-hopping sensors
- Countermeasure environments and countermeasure applications

- Realistic all-weather scenario drivers and target presentations
- Environmental emulations for obscurants and anti-personnel agents, weather, and use of weapons of mass destruction and chemical biological warfare
- Angle of arrival stimulators
- Ladar, and other multispectral test generator and standoff sensors
- Develop an effective FPA sensor performance methodology
- MOUT scenarios
- Sensor-to-shooter system, and sensor-to-fusion-to-shooter system performance
- Far-field signal simulations in near-field
- Unobtrusive sensor integration and fusion monitoring
- Closed loop counter-countermeasure capabilities
- Hardware-in-the-loop and installed-system test facility capabilities
- Soldier-in-the-loop and associated MANPRINT issues
- Free space test instrumentation
- Focal plane array (FPA) technologies, frequency-hopping sensors, multispectral/hyperspectral imaging, active illumination, passive polarization, passive millimeter wave, foliage penetration, synthetic-aperture radar, and electronic stabilization
- Fusion of multiple advanced sensor components, the application of the aided target recognition algorithms to these advanced sensors
- Positive identification of non-cooperative air targets, over-the-horizon targeting, and battle damage assessment
- Tools to evaluate hyperspectral-polarimetric sensors
- Tools and techniques to evaluate active multispectral sensor systems
- Techniques for multi-spectral/hyperspectral focal plane array sensor performance testing
- T&E of signal processing hyperspectral algorithm effectiveness
- Sensor-to-shooter system interface analysis (human-in-the-loop testing)
- Hyperspectral analysis tool for handling and collating T&E data
- Methodologies for evaluating sensor-to-sensor transition (e.g. acoustic/IR, Millimeter Wave (MMW)/IR systems)

FY 2005 and Future Plans:

The T&E technology issues identified in FY 2004 will continue to be worked.

C. (U) OTHER PROGRAM FUNDING NA

RDT&E PROJECT JUSTIFICATION SHEET (R-2a)				February 2003				
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY THREE, PE 0603941D				HYPERSONIC TESTING TECHNOLOGIES				
$'s in Millions	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Hypersonic Testing Technologies	1.605	2.411	2.731	4.082	5.827	10.929	17.822	26.690
RDT&E Articles	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

Hypersonic systems to be developed to attack time-critical and deep-hardened targets, and other transformational weapon systems to be built upon hypersonic technologies will challenge T&E capabilities in numerous areas ranging from ground testing (wind tunnels, sled tracks, installed-system test facilities, and modeling and simulation (including computational fluid dynamics), through flight testing (entailing large geographical areas and huge safety footprints). At hypersonic speeds, flight testing will also challenge existing ground instrumentation systems (e.g., tracking system slew rate limitations, ionization dropouts) and range safety decision making. Near-term hypersonic applications are focused on developing technologies for munitions and weapons for time critical and mobile targets, advanced global reach aircraft, and access to space platforms that will operate in the hypersonic speed regimes; i.e., Mach 4 to Mach 16. Hypersonic weapon systems will depend on several new technological thrusts such as in the areas of propulsion and engines, structures and materials, guidance and control, seekers and sensors, warheads and payloads, and weapons delivery techniques and end-game dynamics, each requiring supporting T&E capabilities to determine their performance, effectiveness, suitability, survivability, and responsiveness to Command, Control, Communications, computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems. T&E investment programs, such as the CTEIP and Service improvement and modernization programs, are addressing some basic test facility upgrades using off-the-shelf technologies; however, many of the needed capabilities for T&E of hypersonic systems are dependent on technologies not developed for T&E purposes.

B. (U) ACCOMPLISHMENTS/PLANNED PROGRAM

	FY 2002	FY 2003	FY 2004	FY 2005
Hypersonic Testing Technologies	1.605	2.411	2.731	4.082
RDT&E Articles	N/A	N/A	N/A	N/A

FY 2002 Accomplishments:

Began investigating technologies needed for test and evaluation of hypersonic (MACH 4+) ground test capabilities and flight testing to support research associated with ramjets, scramjets, hypersonic combustors, hypersonic weapon lethality and survivability assessment, high temperature engine components, stability and control, guidance and control, as well as innovative flight test technologies for hypersonic vehicles, integrated propulsion and airframe testing, computational T&E tools, hypersonic flow diagnostics, and hypersonic aerothermodynamics. These research investigations will directly support transformational initiatives such as time-critical target strike capabilities.

Investigations initiated in FY 2002 and continuing:

- Heat Flux Sensor for Hypersonic Aerothermal Measurements: Sensor technology development for use in flight and wind tunnel testing for measuring dynamic heat transfer under hypersonic conditions.
- Hypersonic Aeropropulsion System Flight Trajectory Test and Evaluation: Development of a long duration (minutes vice seconds) dynamic simulation of hypersonic vehicle performance testing for durability and operability.
- Hypersonic Wind Tunnel Nozzle Survivability for T&E: Improve high-temperature nozzle survivability using new refractory metal alloys and ceramic coating for application in hot hypersonic wind tunnels.
- In-Situ Pressure Measurements for Hypersonic Vehicles: Development of a MEM sensor, silicon carbide based, for pressure measurements in ramjet and scramjet combustors in flight and ground hypersonic vehicle testing.
- Advanced Flight Vehicle Instrumentation: Technology development for on-board data system with distributed array of light-weight high-temperature optical fibers for use in hypersonic flight testing and some ground testing.

FY 2003 Plans:

FY 2003 investigations will be primarily a continuation of FY 2002 investigations, in some cases starting a new phase. One additional investigation will be launched to examine plasma effects of hypersonic vehicles on T&E; i.e., determine methodology for minimizing data collection drop-outs during hypersonic flight testing due to ionization effects.

FY 2004 Plans:

Investigations will continue from those initiated in FY 2002 and FY 2003. Other investigations will be launched this and subsequent years to address the other T&E technology challenges in this focus area.

- Flight testing:
    - Providing continuous and survivable (at least through the test mission) telemetry, time-space position and attitude information, and command/control (including flight termination systems) through target engagement, all the while addressing safety and security. All of this while providing data for evaluation of performance, effectiveness, suitability, survivability, and recovery.

  - Providing inter-range operations, ground instrumentation (tracking, data stream reception), and range safety and non-destructive flight termination capabilities
- Ground testing:
  - Realistic ground test environments (wind tunnel, computational fluid dynamics (CFD), magnetohydrodynamics, installed-system test facility, sled track, high altitude propulsion test stands) and capabilities to adequately simulate flight conditions with associated targets and countermeasures conditions.
  - Onboard survivable sensors and instrumentation systems for both ground and flight testing: Test data transmission continuity and higher data rate encryption for:
- These challenges are to apply to T&E of hypersonic systems in the areas of:
  - Propulsion
  - Thermo management
  - Aerodynamic aerothermal heat and cooling
  - Guidance
  - Navigation
  - High velocity flight control
  - Seekers
  - Communications
  - Weapons separation and end-game dynamics
  - Structures and materials effects
  - Flight data display comprehensibility and reaction as well as instrumentation survivability

FY 2005 and Future Plans:

The T&E technology issues for this project will continue to be worked.

C. (U) OTHER PROGRAM FUNDING NA

RDT&E PROJECT JUSTIFICATION SHEET (R-2a)				February 2003				
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY THREE, PE 0603941D				EMBEDDED INSTRUMENTATION				
$'s in Millions	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Embedded Instrumentation	0.541	1.203	2.894	3.750	4.969	7.553	12.000	19.202
RDT&E Articles	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

As recognized by Business Initiative Council (BIC) Initiative TE-08, embedded instrumentation for T&E, training, maintenance, and logistics sparing will significantly reduce the development, acquisition, and total ownership costs of new weapon and C4ISR systems. There is minimal space (if any) for adding instrumentation to new weapon systems subsequent to their development, and additional weight and power draw can adversely affect the weapon system performance. This is especially the case in small weapons such as miniature-unmanned vehicles and robotics, and targets used in T&E and training exercises. However, new technologies can be exploited to provide small non-intrusive embedded instrumentation that can be incorporated during platform design and development, and, in some cases, for incorporation into existing platforms. This embedded instrumentation can provide the required data for T&E, training, maintenance, and logistics support, and will add significant value to documenting system performance during combat missions. And the embedded instrumentation can support these capabilities throughout the life of a platform without modifications or add-ons. The T&E/S&T program can leverage emerging technologies, such as MEMS and micro-electronics and "nano-electronics," to create non-intrusive and fully capable embedded instrumentation.

Current generation of test instrumentation simply cannot meet future size and performance requirements. Weapon systems are integrating MEMS technology into their systems to achieve component and subsystem size reductions up to 400 times previous systems. As residents within these weapon systems, test instrumentation must also meet size and power budgets. Transition of MEMS technology into the test community is essential. RF MEMS technology offers 100 times reduction in power, 100 times reduction in size, and 10 times improvement in spectral efficiency. All of these are critical parameters for T&E instrumentation that will yield significant return on investment for future programs. Inertial MEMS, chip-scale atomic clock, and micro power generation initiatives offer similar transition opportunities and benefits in T&E.

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM

	FY 2002	FY 2003	FY 2004	FY 2005
Embedded Instrumentation	0.541	1.203	2.894	3.750
RDT&E Articles	N/A	N/A	N/A	N/A

FY 2002 Accomplishments:

Investigated and developed requirements for, and benefits of, embedded, non-intrusive test instrumentation employing MEMS and nano-size technologies. Initial investigations focused on micro-miniaturization of instrumentation components such as inertial measurement units, multiaxis stress/strain gauges, field-programmable gate arrays with embedded analog/digital converters, radio frequency switching, wireless sensors, and power supplies. Co-hosted a workshop with DARPA to identify leveraging opportunities for new start projects in FY 2003. Embedded test instrumentation will be crucial to testing systems such as low observable, multi-spectral stealth, and hypersonic weapons where size, weight, and power consumption of instrumentation can be intrusive on the system-under-test performance.

One investigation was initiated in FY 2002:

- Direct Methanol Fuel Cell System Ancillary Power Source For Armored Vehicle Instrumentation: design, fabricate and test a 300 Watt (W), 800 W hr/kg, direct methanol fuel cell power source based on state-of-art technology. This 300W system is to serve as non-intrusive long-life (100 hours) power source for armored vehicle instrumentation during testing.

FY 2003 Plans:

Technological issues for providing embedded instrumentation capabilities will be addressed over the next several years. Selection of the issues for investigations to begin in FY 2003 is in progress, and will be prioritized by representatives of the military Services.

FY 2004 Plans

A Program Research and Development Announcement process is in progress, including development of a Broad Agency Announcement, for selection of which T&E technology issues for embedded instrumentation are to be addressed first from the following T&E technology challenges:

- Tactical MEMS GPS (Global Positioning System) /IMU (Inertial Measurement Unit) Integration: Leverage on-going IMU research to improve drift rate accuracy to less than one degree/hour. Increase device performance to withstand harsh environments and package the device with processing and power packages. Integrate GPS with IMU device to operate in MOUT or GPS jamming environments.
- Self-Contained Module for Test and Evaluation: The goal of the project is a low cost, one cubic inch TM-on-a-chip system utilizing state of the art MEMS technology. The system includes plug and play architecture and standard interface module. Technical challenges for the project include size and power consumption reduction, encryption device constraints, transmit and receiver design. Sensors to be integrated for TM include inertial, acceleration, pressure, strain and temperature measurement. Sensors must be able to withstand severe tactical environments.

- Platform instrumentation sensor bus: Develop the interface logic necessary to create smart sensors exclusive of the physical layer. Leverage commercial bus standards to develop Field Programmable Gate-Array (FPGA) based prototypes and develop the integrated circuits required. Must address wired and wireless requirements.
- Tunable Transceiver: Leverage technology programs to develop multifunction, multiband, tunable transceivers for multiple telemetry applications. Miniaturize to embed into systems under test. Integrate with training requirements. Include conformal antenna investigations to match data link frequency. Also leverage RF MEMS efforts for miniaturization.

Inherent to these T&E capability needs is to be the accomplishment of:

- Miniaturization and reduced-weight instrumentation packaging
  - Exploit microelectromechanical systems and nanoelectronics
  - Improved sensor techniques
  - Higher bandwidth data encryption
  - Human performance instrumentation (e.g., MOUT T&E)
  - Non-intrusive interfaces with critical operational components including the MIL-STD-1553 data bus
  - Conformal and non-interfering antennas
  - Survivable in harsh environments, such as hypersonic speeds or electronic warfare
  - Wireless data and communications transfers and distribution
  - Plug and play architecture for common usage
- Reductions in on-board power demands
  - Power sources including batteries (especially for humans-in-the-loop)
  - Power distribution and conditioning
- Instrumentation command and control
  - Remote and artificial intelligence transceiver frequency tuning and operations control
  - On-board missile and electronic warfare simulations
- Advanced algorithms
  - Greater accuracy time-space position information resolution from GPS and onboard inertial measurement sources
  - Data fusion
  - Missile simulations, and no-drop bombing and missile scoring
  - Electronic warfare simulations (including psuedo-closed loop) and stimulations
- Vehicle power lines as a data bus
- Conformal externally mounted instrumentation
- Electro-adhesives
- Small RF transceivers
- Plug-and-play open architecture designs (including bus standards) for integrated test and training applications
- Conformal, wideband antennas for efficient spectrum utilization

- Precision real-time TSPI algorithms (cm accuracy)
- Ultra tightly coupled, integrated M-code GPS/IMU modules for high dynamic vehicles
- High anti-jam signal processing techniques for operations in an electronic warfare and jamming environment
- Smaller, higher capacity recorders to support passive operation
- More powerful micro-processors to support advanced simulations
- Compact and stable timing reference units
- Smaller, enhanced power sources
- Passive devices for improving ground truth measurements, such as for attitude and miss-distance measurements.

FY 2005 and Future Plans:

The T&E technology issues identified in FY 2004 for this project will continue to be worked.

C. (U) OTHER PROGRAM FUNDING NA

RDT&E PROJECT JUSTIFICATION SHEET (R-2a)				February 2003				
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY THREE, PE 0603941D				DIRECTED ENERGY TEST				
$'s in Millions	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Directed Energy Test	0.000	1.202	1.944	4.084	4.584	6.913	9.807	15.210
RDT&E Articles	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

Directed energy (DE) weapons systems technologies, which primarily consist of HEL and high power microwave (HPM) sources, are outpacing test technologies. Advancements in HPM and HEL have created a new class of weapon systems in which energy is placed on a target instantaneously, with essentially zero time of flight. As such, traditional test techniques for evaluating conventional munitions (with flight times ranging from seconds to minutes, and that depend on various forms of physical contact for kill) are not applicable to DE systems T&E. These DE systems will precipitate a revolutionary change on future engagements, employments, concepts of operations, and T&E. Ground-, sea-, air-, or space-based lasers can be precisely focused on a target to provide surgical strike capability at very long ranges. Once on target, lasers affect the target from the outside by rapid heating, causing localized burn-through to create structural degradation or destruction and observable attributes of a hard kill. Conversely, high-power microwaves flood target areas with energy -- allowing for the engagement of multiple targets at the same time. High power microwaves affect the target from the inside through electrical system disruption and burn-out for a soft kill. These differences notwithstanding, both HEL and HPM have some very important common traits. Either type of directed energy travels to the target at the speed of light, is capable of graduated effects (deny, disrupt, degrade, and/or destroy), and can be used to minimize collateral damage. Current DE system and component testing usually includes two principal thrusts; how well is the weapon performing, and what is the specific interaction of energy and target.

Military utility of these weapons will be dependent on the knowledge acquired through T&E to know how much to trust the technologies under development and how best to use them. Other consequences of not providing adequate T&E capabilities for the new DE technologies and systems include:

- Not knowing whether they can be safely deployed

- Not knowing whether the system achieves the proper target kill rate
- Risk of apparent poor system performance during T&E leading to unjustified program cancellation
- Risk of fielding an ineffective system due to inadequate T&E
- Delays in meeting critical Transformation Objectives

DE technologies are transitioning into acquisition programs and advanced concept technology demonstrations (ACTDs) via multiple paths at a rapid pace. However, there is no vehicle to rapidly mature and transition technologies into the DE T&E infrastructure. DE programs either under development for acquisition or being worked as ACTDs include, but are not limited to: HPM command and control warfare/information warfare, Army Advanced Tactical Laser, Air Force Airborne Laser, Army Tactical High Energy Laser, Navy Free Electron Laser, Solid State Laser, and the Space-Based Laser. These revolutionary operational capabilities will require revolutionary operational test and evaluation (OT&E) scenarios, technologies, and analysis tools.

B. (U) ACCOMPLISHMENTS/PLANNED PROGRAM

	FY 2002	FY 2003	FY 2004	FY 2005
Directed Energy Test	0.000	1.203	1.944	4.084
RDT&E Articles	N/A	N/A	N/A	N/A

FY 2002 Accomplishments:

Roadmapping of the T&E needs for survivable instrumentation was achieved via workshops.

FY 2003 Plans:

The DE focus area project will begin investigating T&E technology issues in FY 2003. Issues to be investigated first are currently in the selection phase, and, as a minimum, are intended to develop technologies and processes for the remote sensing for DE, in particular, HEL weapon systems undergoing test and evaluation.

FY 2004 Plans

Further investigations will focus on several key technologies that are specific or in direct support of remote sensing for HEL and HPM testing. For HEL testing, this dictates a requirement for remote sensing of the various lasers and their interaction effects with atmosphere and targets. This includes, but is not limited to, data associated with imaging, spectral content, laser-target interaction signature, “kill” mechanism, atmospheric refraction, scattering, absorption and propagation data, beam quality, jitter, energy fluence on target, aim point maintenance, data recording, spectrally efficient data links, high-rate image/data reduction and visualization tools, etc. Investigations will include:

- HPM and HEL power measurement on target: Examine various sensor approaches or materials that can be incorporated into airborne and ground targets to measure DE on target. Sensors/material must be able to be applied/integrated into a variety of platforms, to include airborne and ground-based and provide for minimal interference with system operation to provide a measure of beam energy on target. Inability to collect DE on target will preclude ability to measure effectiveness of emerging DE weapon systems.

- DE-hardened flight termination system/range destruct package: study and assess requirements for DE "hardened" flight termination systems. These systems must be able to safely and reliably provide for termination of the target, even when high concentrations of DE are present on the target. This should include both HEL and HPM. Current flight termination systems may either be negated or prematurely initiated by the presence of RF energy or high-fluence laser energy. Impact of Flight Termination System failure due to DE could include damage to unintended targets, unrecoverable targets, threat to life and areas surrounding the test area.
- DE beam prediction/detection/display: develop capability to accurately predict and understand where HPM and HEL energy is actually projected is critical to T&E and safety. Wide spectrum, single substrate imagers study area seeks to enhance detection technology for imaging and detection of HEL beams from a variety of systems/sources. These enhancements would address limitations in spectral coverage of various limited spectrum, single substrate imagers. Current technology requires multiple sensor/optic combinations to cover the spectral range of existing HELs, which is extremely cost prohibitive. Single wide-spectrum imagers would eliminate the need for multiple, costly sensor/optics combinations.
- M&S to extend test results: Incorporate physics based models into virtual graphical representations of T&E ranges to provide 3-dimensional, geodetically accurate models of beam propagation, beam spread, lethal range, fluence on target, atmospheric effects. These models could be used to predict hazardous DE fluence and beam propagation for a given test scenario, plan and model RF or HEL fluence in a test or target area to rehearse test conduct and provide for a robust DE 3D Visualization capability for the T&E ranges. Current 3-dimensiomal models are based on digital terrain data and can incorporate time-space position information from various sources such as radar and GPS, but lack physics-based models to predict laser or RF weapon system performance.

Inherent to these needs is the requirement to adapt or develop technologies for:

- Survivable onboard instrumentation required to measure the DE beam on the target
    - Minimize impacts on target performance, signature and vulnerability
    - Measure effects on the target: thermal, structural or sensor
    - Provide data to determine performance margins and reasons for failure
- Off-board instrumentation required to provide an indication that the DE beam struck the target and the location struck
    - Determine target and debris trajectories
    - Measure atmospheric characteristics
    - Provide an in-band imaging sensor
    - Provide infrared (IR) imager for peak temperature estimate
    - Provide evidence of the degree of hard kill and soft kill
- Expedite DE S&T efforts that support M&S and algorithms for testing of advanced DE systems.
    - M&S validated by hard T&E data—M&S can then
        - Help create test scenarios and improve test planning
        - Enable rehearsals of planned tests to verify realism and cost effectiveness
        - Reduce the need for expensive field test assets, many iterations and long duration tests
- Facilitate evaluation of system performance otherwise impossible due to limited resources, environmental restrictions and safety issues.

- Real-time Multiframe Blind Deconvolution Algorithm
    - Explore potential to facilitate long focal-length imagery, including test ranges that need to image the HEL spot on a target
    - Explore efforts that support range safety during open air testing
- Risk assessment models for potential DE hazards, keep-out area determination, keep-out durations
- Protection from adverse bioeffects
- Prevention of on range collateral damage and off range damage
- Survivable command destruct package for targets

FY 2005 and Future Plans:

The T&E technology issues identified in for FY 2003 and FY 2004 will continue to be worked.

C. (U) OTHER PROGRAM FUNDING NA

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)				February 2003				
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY SIX			CENTRAL TEST AND EVALUATION INVESTMENT PROGRAM (CTEIP) PROGRAM ELEMENT (PE) 0604940D8Z					
$'s in Millions	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
PE 0604940D	127.090	122.294	123.215	124.444	126.651	128.261	130.844	133.277

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

Since its inception in FY 1990, this program element has been, and continues to be, 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 and Defense Agency 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 an ongoing operational test program (Resource Enhancement Project (REP)).

The JIM funds critically needed T&E investments in the major functional areas of test mission command, control, communications and instrumentation; electronic warfare systems; threat and computational simulation test and evaluation; space systems T&E; weapons effects test capabilities; targets; and physical and environmental test capabilities. The investments include both the demonstrations of advanced technologies needed to test increasingly complex and sophisticated weapon systems and the transition of these technologies into test capabilities. Examples of project subject matter include: automated data collection, processing, display and archiving; smart munitions testing; modeling and simulation; advanced electronic combat systems; low-observable technologies and signature measurements; targets and target control; time-space-position-information; end-game measurement; testing of advanced materials application; test design; and advanced sensors and space 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 M&S as a practical test method; 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 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 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 supports the development and application of proven technologies to provide major test and evaluation capabilities required to meet DoD component weapon system test requirements.

Program Accomplishments and Plans:

FY 2002 Accomplishments:

JIM Projects:

- Completed development of Programmable Resource Control for the Multi-Object Tracking Radar under the Advanced Mobile Object Acquisition System project
- Completed development of the Roadway Simulator capability for light truck testing, continued development of a capability for heavy truck testing, and initiated development of a capability for tractor-trailer combination testing
- Completed the Communication, Navigation, Identification Simulator and the Generic Radar Target generator instrumentation projects within the Joint Installed System Test Facility (JISTF) project
- Completed the development of the Long-Term Test Capability (LTTC) camera, and continued the development of the Super High-Speed Visible (SHV) camera and the integration of an infrared sensor with the SHV, under the Airborne Separation Video (ASV) project
- Completed the Hardened Sub-Miniature Telemetry and Sensor System project to develop and demonstrate a new generation of rugged, miniaturized, on-board instrumentation applicable to weapon system flight tests
- Completed the Holloman High Speed Test Track conventional upgrade necessary for improved reliability and also to provide increased payload/velocity and instrumentation capabilities
- Completed the Transportable Range Augmentation Control System project to develop a suite of transportable equipment and instrumentation for common range control functions
- Completed the Global Positioning System (GPS) Signal Validation project following the development of hardware and structures that can be integrated into current GPS test capabilities
- Completed the Joint Modeling and Simulation System project to provide interoperability among the Services' models and simulations.
- Continued systems development to meet threshold requirements of the Airborne Icing Tanker project to develop an airborne icing capability for testing various DoD aircraft systems at both high and low altitude, suitably presenting natural rain and icing conditions

- Continued the concept development phase of the Contamination Avoidance Detector Test Suite project to provide test methodology, instrumentation, and test fixtures required to test and evaluate current and developmental Chemical Biological (CB) detector systems over the entire range of expected use conditions
- Continued the concept development phase of the Joint Data Acquisition Network Standards project to provide a suite of standards to establish component interoperability within a vehicular data acquisition network
- Continued the concept development phase of the Enhanced Range Applications Project to provide a state-of-the-art Airborne Range Data System that supports next generation data collection requirements
- Continued the concept development phase of the Joint Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) project to develop a capability to test increasingly complex multi-discipline fusion concepts
- Continued the development and demonstration of time-space-position information (TSPI), flight termination / safe and arm (FTSA), and Telemetry functions on advanced missile platforms under the Joint Advanced Missile Instrumentation project
- Continued development of software tools for test/exercise planning and analysis and range integration products within the Foundation Initiatives 2010 project
- Continued the Infrared Sensor Stimulator product improvement under the JISTF Product Improvements project to provide improved installed systems capabilities needed to support next generation aircraft testing
- Continued the system development phase of the Decade Radiation Test Facility--Enhanced project to develop and field an upgraded, above ground, ionizing radiation test capability to meet existing and emerging nuclear weapons effects test requirements
- Continued the Air-to-Ground and Ground Signature Measurement Systems (AGSMS and GSMS) developments within the Tri-Service Signature Measurement and Database System project
- Continued the Digital Video Laboratory project to provide digital video data analysis and reporting capability for aircraft stores separation, as part of the Digital Video Systems Development project
- Continued the system development phase of the Advanced Range Telemetry project to improve the efficiency, reliability, utility, and availability of aeronautical telemetry spectrum by adapting advances in commercial communications technology
- Continued the system development phase of the Electromagnetic Environment Effects Generating System project to provide a multi-service test facility capable of assessing actual performance of a full-scale, fixed, or rotary-winged aircraft completely immersed in a user-specified radio frequency environment
- Continued the system development phase of the Electromagnetic Transient Test and Evaluation Facility project to provide a capability to assess aircraft hardness to electromagnetic transient environments to meet MILSTD 464 requirements.
- Continued the system development phase of the Land and Sea Vulnerability Test Capability project to provide an instrumented land-sea interface test capability at the Aberdeen Test Center.
- Continued the system development phase of the Multi-Service Target Control System project to provide upgraded target control systems that meet tri-Service requirements.
- Continued the Test Technology Development and Demonstration (TTD&D) project
- Continued the Tri-Service and CTEIP support projects
- Continued threat system simulator development efforts under the Threat System Simulator Development project 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

- Initiated the concept development phase of the Soft Impact Location Capability project to provide the necessary instrumentation, signal processing, communication, and data processing capabilities to detect and locate the point and angle of impact of projectile and missile weapons within an 800m by 800m impact area
- Initiated the Hardened Sub-Miniature Telemetry and Sensor System Product Improvement project to develop and demonstrate a new generation of rugged, miniaturized, on-board instrumentation applicable to smart munitions flight tests
- Initiated the Digital Video Systems Development (DVSD) project to provide DoD test and evaluation facilities and ranges new capabilities to collect, process, store, and distribute data from high-performance digital imagery systems
- Initiated the system development phase of the Advanced Instrumentation Data & Control System project to develop state-of-the-art instrumentation and control systems to meet DoD T&E requirements for propulsion systems, aerodynamic systems and space systems

Resource Enhancement Project:

- Completed the Countermeasure Threat Emulator subproject to fabricate programmable countermeasure devices to emulate foreign countermeasures that can be deployed from submarines or surface ships
- Completed the Geometric Automated Video Enhanced Location System subproject to locate events / detonations needed to answer accuracy critical operational issues (COIs) for Army field artillery systems, Army airborne systems, and Marine non-lethal weapon systems
- Completed the Geometric Pairing subproject to design and develop a geometric pairing (pointing) device to be used with Air Defense weapons against aircraft during Comanche operational test
- Completed the Information Assurance Suite subproject to select commercial off-the-shelf (COTS) hardware, instrumentation, and systems that can be utilized to test vulnerability to information warfare techniques
- Completed the Intelligence Modeling and Simulation for Evaluation subproject to develop a computer based high-fidelity simulation to accurately represent the disposition of enemy forces, the tasking and collection of intelligence sensors, generation of intelligence messages, and delivery of intelligence products to appropriate users
- Completed the NAIC Aircraft Threat Models development for F-22 Air Combat Simulation subproject to provide air combat threat models required for virtual simulations being developed for F-22 test and evaluation
- Completed the SA-XX Modifications subproject to provide a critical modern missile seeker test capability and to provide a key threat simulator for the RF countermeasures portion of the IDECM suite
- Completed the XM-11S subproject to correct fidelity deficiencies of the XM-11S Simulator antenna, transmitter, and receiver subsystems
- Continued the Shallow Water ASW Target subproject to modify an existing, manned diesel-electric research submarine for use as an Anti Submarine Warfare (ASW) target to support Mk 54 and Mk 48 ADCAP torpedo testing
- Continued the Radio Frequency Phase Distribution Upgrade subproject, which procures Advanced Tactical Electronic Warfare Simulator (ATEWES) Microwave Phase Distribution (MDS) hardware and develops software subsystems to meet EA-6B Improved Capability (ICAP) III LR-700 receiver upgrade and planned follow-on interferometer receiver systems test
- Continued to identify candidate subprojects based on critical OT&E test capability shortfalls

- Initiated and completed Project Memorex to digitally record threat modes and translate into simulator data files for the Combat Electromagnetic Environment Simulator
- Initiated and completed the Nellis Combined Air Operations Center (CAOC) Joint Tactical Information Distribution System (JTIDS) Test equipment subproject to provide JTIDS recording, playback, monitoring and simulation
- Initiated the Standoff Cloud Referee System subproject to provide real time information on simulant aerosol cloud location, movement and concentration
- Initiated the Advanced Electronically Steerable Array (AESA) Jammer subproject to develop a simulator that can replicate three threat ground-to-air jammers
- Initiated the Commander Air Defense Environment Test Tool subproject to develop a test tool to emulate, stimulate and evaluate the Single Integrated Air Picture C4I system of systems in support of the Area Air Defense Commander
- Initiated the Common Vehicular Instrumentation Initiative subproject to develop a new generation of modular instrumentation to support vehicle and platform testing
- Initiated the Flexible Interoperable Transceiver (FIT) Execution subproject to support the engineering effort required to incorporate the FIT protocols and spectrum efficient technologies in the design of the new Mobile Automated Instrumentation Suite transceivers
- Initiated the Joint Information Assurance Laboratory subproject to develop a T&E capability based on a notional Global Information Grid configured to replicate the war fighter's operational environment
- Initiated the Susceptibility Testing for Global Air Traffic Management Avionics subproject to define at the message level a signal set of harmful transmissions and develop an analysis capability to support evaluation of aircraft susceptibility
- Initiated the Weapon Set-to-Hit Threat Target subproject to provide an unmanned, cost effective target for conducting set-to-hit testing of existing and future torpedoes

Official Travel:

Performed official travel to carry out oversight of the CTEIP program

FY 2003 Plans:

JIM Projects:

- Complete the development of the Super High-Speed Visible (SHV) camera and the integration of an infrared sensor with the SHV, under the ASV project
- Complete development of the Roadway Simulator capability for heavy truck testing and continue development of a capability for tractor-trailer combination testing
- Complete threshold requirements of the Airborne Icing Tanker project to develop an airborne icing capability for testing various DoD aircraft systems at both high and low altitude, suitably presenting natural rain and icing conditions
- Complete the DVSD project to provide DoD test and evaluation facilities and ranges new capabilities to collect, process, store, and distribute data from high-performance digital imagery systems
- Complete efforts under the Advanced Range Telemetry project to improve the efficiency, reliability, utility, and availability of aeronautical telemetry spectrum by adapting advances in commercial communications technology

- Complete the concept development phase and initiate the systems development phase of the Soft Impact Location Capability project to provide the necessary instrumentation, signal processing, communication, and data processing capabilities to detect and locate the point and angle of impact of projectile and missile weapons within an 800m by 800m impact area
- Complete the Electromagnetic Environment Effects Generating System project to provide a multi-service test facility capable of assessing actual performance of a full-scale, fixed, or rotary-winged aircraft completely immersed in a user-specified radio frequency environment
- Complete the Tri-Service Signature Measurement and Database System project to provide the capability to characterize the detailed spatial, spectral, and temporal signatures of aircraft, missiles, ground vehicles, ships, undersea vehicles, and their countermeasures in realistic environments
- Complete the concept development phase and initiate the system development phase of the Enhanced Range Applications Project to provide a state-of-the-art Airborne Range Data System that supports the next generation data collection requirements
- Complete the concept development phase and initiate the system development phase of the Joint C4ISR project to develop a capability to test increasingly complex multi-discipline fusion concepts
- Complete the concept development phase and initiate the systems development phase of the Joint Data Acquisition Network Standards project to provide a suite of standards to establish component interoperability within a vehicular data acquisition network
- Complete the concept development phase and initiate the systems development phase of the Contamination Avoidance Detector Test Suite project to provide test methodology, instrumentation, and test fixtures required to test and evaluate current and developmental CB detector systems over the entire range of expected use conditions
- Continue the Hardened Sub-Miniature Telemetry and Sensor System Product Improvement project to develop and demonstrate a new generation of rugged, miniaturized, on-board instrumentation applicable to smart munitions flight tests
- Continue the Infrared Sensor Stimulator product improvement, and initiate the Advanced Radar Environment Stimulator project and the Communications, Navigation and Identification follow-on project, under the Joint Installed Systems Test Facility Product Improvements project, to provide improved installed systems capabilities needed to support next generation aircraft testing
- Continue the development and demonstration of time-space-position information (TSPI), flight termination / safe arm (FTSA), and Telemetry functions on advanced missile platforms under the Joint Advanced Missile Instrumentation project
- Continue the system development phase of the Decade Radiation Test Facility--Enhanced project to develop and field an upgraded, above ground, ionizing radiation test capability to meet existing and emerging nuclear weapons effects test requirements
- Continue the system development phase of the Advanced Instrumentation Data & Control System project to develop state-of-the-art instrumentation and control systems to meet DoD T&E requirements for propulsion systems, aerodynamic systems and space systems
- Continue the system development phase of the Electromagnetic Transient Test and Evaluation Facility project to provide a capability to assess aircraft hardness to electro-magnetic transient environments to meet MILSTD 464 requirements
- Continue the system development phase of the Land and Sea Vulnerability Test Capability project to provide an instrumented land-sea interface test capability at the Aberdeen Test Center
- Continue the system development phase of the Multi-Service Target Control System project to provide upgraded target control systems that meet tri-Service requirements
- Continue the Test Technology Development and Demonstration project

- Continue the Tri-Service and CTEIP support projects
- Continue threat system simulator development efforts under the Threat System Simulator Development project 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 the DVL project to provide digital video data analysis and reporting capability
- Initiate standardization of the TENA object model and continue development of software tools and integration products within the Foundation Initiatives 2010 project
- Initiate the Joint Directed Energy Combat Operations and Employment project to develop a master range plan for directed energy weapons test and evaluation capabilities
- Initiate and complete concept development, and initiate systems development, for a project to develop a UHF digital flight termination system for DoD unmanned flight vehicles

Resource Enhancement Project:

- Complete the Standoff Cloud Referee System subproject to provide real time information on simulant aerosol cloud location, movement and concentration
- Complete the Shallow Water ASW Target subproject to modify an existing, manned diesel-electric research submarine for use as an Anti ASW target to support Mk 54 and Mk 48 ADCAP torpedo testing
- Complete the Radio Frequency Phase Distribution Upgrade subproject, which procures Advanced Tactical Electronic Warfare Simulator (ATEWES) Microwave Phase Distribution (MDS) hardware and develops software subsystems to meet EA-6B Improved Capability (ICAP) III LR-700 receiver upgrade and planned follow-on interferometer receiver systems test
- Complete the AESA Jammer subproject to develop a simulator that can replicate three threat ground-to-air hammers
- Complete the Commander Air Defense Environment Test Tool subproject to develop a test tool to emulate, stimulate and evaluate the Single Integrated Air Picture C4I system of systems in support of the Area Air Defense Commander
- Complete the Common Vehicular Instrumentation Initiative subproject to develop a new generation of modular instrumentation to support vehicle and platform testing
- Complete the FIT Execution subproject to support the engineering effort required to incorporate the FIT protocols and spectrum efficient technologies in the design of the new Mobile Automated Instrumentation Suite transceivers
- Complete the Joint Information Assurance Laboratory subproject to develop a T&E capability based on a notional Global Information Grid configured to replicate the war fighter’s operational environment
- Complete the Susceptibility Testing for Global Air Traffic Management Avionics subproject to define at the message level a signal set of harmful transmissions and develop an analysis capability to support evaluation of aircraft susceptibility
- Complete the Weapon Set-to-Hit Threat Target subproject to provide an unmanned, cost effective target for conducting set-to-hit testing of existing and future torpedoes
- Continue to identify candidate subprojects based on critical OT&E test capability shortfalls
- Initiate the Advanced Mine Simulation System subproject to provide significant improvements to existing threat mine simulation test capabilities

- Initiate and complete the Biological Referee Instrumentation Towers subproject to provide mobile instrumentation equipment to support biological detection testing in multiple operational environments
- Initiate the Advanced System Endgame Methodology for Actual Threat Systems subproject to develop and integrate emerging technology for high fidelity, real time endgame assessment for threat system engagements in support of Comanche operational testing
- Initiate the Fire and Forget Missile Van Integration subproject to instrument and integrate critical MANPAD threats to evaluate F/A-18 expendable countermeasure effectiveness
- Initiate and complete the Threat Signals A subproject to develop and implement new threat surface-to-air missile system signals in the Joint Communications Simulator to ensure testing in an operationally dense and coherent scenario based environment
- Initiate and complete the Battle Command Test Instrumentation subproject to provide instrumentation network encryption test capability to allow test operations to monitor and control geographically distributed platforms in a classified tactical operational environment and collect data on Battle Command on the Move
- Initiate the Seeker Integration subproject to characterize and integrate recently received foreign hardware into the ECR at China Lake, CA to support ongoing electronic countermeasure testing
- Initiate the Dense Environment Radio Frequency Injection subproject to develop and implement an RF signal simulator system to provide direct injection of a dense RF environment in to the system under test
- Initiate and complete the Scenario and Test Drivers subproject to modify the existing Simulation Injection and Generation System to include updated threat missile warning scenarios
- Initiate tasks/subprojects to resolve critical near term OT&E test capability shortfalls

Official Travel:

Perform official travel to carry out oversight of the CTEIP program

FY 2004 Plans:

JIM Projects:

- Complete development of the Roadway Simulator capability for tractor-trailer combination testing
- Complete the Electromagnetic Transient Test and Evaluation Facility project to provide a capability to assess aircraft hardness to electro-magnetic transient environments to meet MILSTD 464 requirements
- Complete the Multi-Service Target Control System project to provide upgraded target control systems that meet tri-Service requirements
- Complete the Test Technology Development and Demonstration project
- Complete standardization of the TENA object model and the development of software tools and integration products within the Foundation Initiatives 2010 project
- Complete the DVL project to provide digital video data analysis and reporting capability
- Complete the Joint Directed Energy Combat Operations and Employment project to develop a master range plan for directed energy weapons test and evaluation capabilities
- Complete the project to develop and demonstrate a new generation of rugged, miniaturized, on-board instrumentation applicable to smart munitions flight tests, within the Hardened Sub-Miniature Telemetry and Sensor System Product Improvement project

- Continue the Land and Sea Vulnerability Test Capability project to provide an instrumented land-sea interface test capability at the Aberdeen Test Center
- Continue the systems development phase of the Soft Impact Location Capability project to provide the necessary instrumentation, signal processing, communication, and data processing capabilities to detect and locate the point and angle of impact of projectile and missile weapons within an 800m by 800m impact area
- Continue the systems development phase of the Joint Data Acquisition Network Standards project to provide a suite of standards to establish component interoperability within a vehicular data acquisition network
- Continue the Infrared Sensor Stimulator product improvement, and the Advanced Radar Environment Stimulator project, and the Communications, Navigation and Identification follow-on under the Joint Installed Systems Test Facility Product Improvements project, to provide improved installed systems capabilities needed to support next generation aircraft testing
- Continue the development and demonstration of time-space-position information (TSPI), flight termination / safe arm (FTSA), and Telemetry functions on advanced missile platforms under the Joint Advanced Missile Instrumentation project
- Continue the system development phase of the Decade Radiation Test Facility--Enhanced project to develop and field an upgraded, above ground, ionizing radiation test capability to meet existing and emerging nuclear weapons effects test requirements
- Continue the system development phase of the Advanced Instrumentation Data & Control System project to develop state-of-the-art instrumentation and control systems to meet DoD T&E requirements for propulsion systems, aerodynamic systems and space systems
- Continue the system development phase of the Contamination Avoidance Detector Test Suite project to provide test methodology, instrumentation, and test fixtures required to test and evaluate current and developmental CB detector systems over the entire range of expected use conditions
- Continue the system development phase of the Enhanced Range Applications Project to provide a state-of-the-art Airborne Range Data System that supports the next generation data collection requirements
- Continue the system development phase of the Joint C4ISR project to develop a capability to test increasingly complex multi-discipline fusion concepts
- Continue the Tri-Service and CTEIP support projects
- Continue threat system simulator development efforts under the Threat System Simulator Development project 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 systems development for a project to develop a UHF digital flight termination system for DoD unmanned flight vehicles
- Initiate concept development for a project to develop a network-enhanced telemetry capability for T&E ranges and facilities
- Initiate concept development for an advanced range radar to perform common test and evaluation range tracking functions required for next generation weapon systems and targets
- Initiate concept development for improved test and evaluation capabilities for directed energy weapons

<u>Resource Enhancement Project:</u>

- Complete the Advanced Mine Simulation System subproject to provide significant improvements to existing threat mine simulation test capabilities

- Complete the Advanced System Endgame Methodology for Actual Threat Systems subproject to develop and integrate emerging technology for high fidelity, real time endgame assessment for threat system engagements in support of Comanche operational testing
- Complete the Fire and Forget Missile Van Integration subproject to instrument and integrate critical MANPAD threats to evaluate F/A-18 expendable countermeasure effectiveness
- Complete the Seeker Integration subproject to characterize and integrate recently received foreign hardware into the ECR at China Lake, CA to support ongoing electronic countermeasure testing
- Complete the Dense Environment Radio Frequency Injection subproject to develop and implement an RF signal simulator system to provide direct injection of a dense RF environment in to the system under test
- Continue to identify candidate subprojects based on critical OT&E test capability shortfalls
- Initiate and continue tasks/subprojects to resolve critical near term OT&E test capability shortfalls

Official Travel:

Perform official travel to carry out oversight of the CTEIP program

FY 2005 Plans:

JIM Projects:

- Complete the Land and Sea Vulnerability Test Capability project to provide an instrumented land-sea interface test capability at the Aberdeen Test Center
- Complete the development and demonstration of time-space-position information (TSPI), flight termination / safe arm (FTSA), and Telemetry functions on advanced missile platforms under the Joint Advanced Missile Instrumentation project
- Complete concept development and initiate systems development for the project to develop a network-enhanced telemetry capability for T&E ranges and facilities
- Complete concept development and initiate systems development for an advanced range radar to perform common test and evaluation range tracking functions required for next generation weapon systems and targets
- Complete concept development and initiate systems development for improved test and evaluation capabilities for directed energy weapons
- Continue the systems development phase of the Soft Impact Location Capability project to provide the necessary instrumentation, signal processing, communication, and data processing capabilities to detect and locate the point and angle of impact of projectile and missile weapons within an 800m by 800m impact area
- Continue the systems development phase of the Joint Data Acquisition Network Standards project to provide a suite of standards to establish component interoperability within a vehicular data acquisition network
- Continue the Infrared Sensor Stimulator product improvement, the Advanced Radar Environment Stimulator project, and the Communications, Navigation and Identification follow-on under the Joint Installed Systems Test Facility Product Improvements project, to provide improved installed systems capabilities needed to support next generation aircraft testing
- Continue the system development phase of the Decade Radiation Test Facility--Enhanced project to develop and field an upgraded, above ground, ionizing radiation test capability to meet existing and emerging nuclear weapons effects test requirements

- Continue the system development phase of the Advanced Instrumentation Data & Control System project to develop state-of-the-art instrumentation and control systems to meet DoD T&E requirements for propulsion systems, aerodynamic systems and space systems
- Continue the system development phase of the Contamination Avoidance Detector Test Suite project to provide test methodology, instrumentation, and test fixtures required to test and evaluate current and developmental CB detector systems over the entire range of expected use conditions
- Continue the system development phase of the Enhanced Range Applications Project to provide a state-of-the-art Airborne Range Data System that supports the next generation data collection requirements
- Continue the system development phase of the Joint C4ISR project to develop a capability to test increasingly complex multi-discipline fusion concepts
- Continue the Tri-Service and CTEIP support projects
- Continue threat system simulator development efforts under the Threat System Simulator Development project 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 systems development of the project to develop a UHF digital flight termination system for DoD unmanned flight vehicles
- Initiate concept development for data management technology improvements, within the Foundation Initiatives 2010 project

Resource Enhancement Project:

- Continue to identify candidate subprojects based on critical OT&E test capability shortfalls
- Initiate and continue tasks/subprojects to resolve critical near term OT&E test capability shortfalls

Official Travel:

Perform official travel to carry out oversight of the CTEIP program

B. (U) PROGRAM CHANGE SUMMARY

($ in Millions)	FY 2002 Appropriation	FY 2003 President's Budget	FY 2004 President's Budget	FY 2005 President's Budget
FY 2003 President's Budget	131.720	123.276	125.286	126.923
Current Budget Submit	127.090	122.294	123.215	124.444
Total Adjustments	(4.630)	(0.982)	(2.071)	(2.479)
Congressional Program Reductions		(3.540)		
Congressional Rescissions	(0.630)			
Congressional Increases				
Digital Video Lab		2.500		
Joint Directed Energy Combat Operations Employment		1.000		
Reprogramming	(4.000) [1]			
Inflation Adjustment		(0.942)	(2.071)	(2.479)

Notes:

1. Transfer of Big Crow from PE 0605941D to 060580D4 (4.000)

C. (U) OTHER PROGRAM FUNDING NA

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)				February 2003				
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY SIX				OPERATIONAL TEST AND EVALUATION (OT&E) PROGRAM ELEMENT (PE) 0605118D8Z				
$'s in Millions	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
PE 0605118D	17.513	26.758	37.323	42.390	44.142	47.843	49.696	53.424

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

The Director of Operational Test and Evaluation (DOT&E) is responsible under Title 10 for policy and procedures for all aspects of operational test and evaluation within the Department of Defense (DoD), with particular focus on OT&E that supports major weapon system production decisions. Generally there are over 200 programs and Advanced Concept Technology Demonstrations (ACTD) on the DOT&E oversight list including 78 Major Defense Acquisition Programs (MDAPs). These MDAPs may not proceed beyond low-rate initial production (LRIP) until OT&E of the program is completed. This requires early involvement by DOT&E in the planning phase of each program to ensure adequate testing and satisfactory progress through the acquisition milestones toward operational effectiveness and suitability goals and full-rate production. Key elements of the DOT&E's oversight authority include: the approval of component Test and Evaluation Master Plans (TEMPs) and Service OT&E plans; observation of preparation for, and conduct of, field operational tests; analysis, evaluation, and assessment of the adequacy of OT&E and the operational effectiveness and suitability of the weapon system; reporting results of OT&E that supports beyond LRIP decisions to the Secretary of Defense and Congress, as well as an annual report summarizing all OT&E activities and addressing the adequacy of test resources within the DoD during the previous fiscal year; and participation in DoD-wide planning, programming and budgeting activities to highlight test and evaluation capabilities, needs and priorities. The FY 2003 Appropriations Bill provided $7.6M and direction to Combatant Commands, Services, and the test and evaluation community to perform operational evaluations of Information Assurance and interoperability of fielded systems during major exercises. DOT&E has partnered with ASD(C3I) and the Joint Staff to initiate this effort. This Program Element also includes funds to obtain Federally Funded Research and Development Center (FFRDC) support in performing the described tasks, as well as funds to perform official travel in support of its activities.

This Research Category 6.5 PE supports management activities for the DOT&E for oversight of operational test and evaluation of the Department’s weapon systems.

Program Accomplishments and Plans:

FY 2002 Accomplishments: Key elements of DOT&E's oversight authority, as described under MISSION ACCOMPLISHMENT AND BUDGET ITEM JUSTIFICATION, were conducted, as applicable, for the following programs:

Land Warfare Programs:

- Aerial Common Sensor (ACS)
- AN/TPQ-47 Counterfire Radar
- Army Tactical Missile System Block II / Brilliant Anti-Armor (ATACMS/BAT) and ATACMS Block II / P3I BAT
- Artemis (Chemical Agent Standoff Detection System)
- Battlefield Command Information System (BCIS)
- Chemical Biological Defense Program (includes multiple acquisition programs)
- Chemical Demilitarization
- CH-47F Improved Cargo Helicopter Upgrade
- Comanche (RAH-66) (includes 20mm Ammunition)
- Crusader
- Distributed Common Ground System (DCGS) - ARMY
- Excalibur (155mm Round)
- Family of Medium Tactical Vehicles (FMTV)
- Future Combat System
- Future Scout/Cavalry System
- High Mobility Artillery Rocket System (HIMARS)
- Interim Armored Vehicle (IAV) - Includes NBC Reconnaissance Vehicle
- Javelin Anti-tank Missile
- Joint Biological Point Detection System
- Joint Biological Stand-Off Detection System
- Joint Chemical Agent Detector
- Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS)
- Joint Service Light NBC Reconnaissance
- Joint Service Lightweight Standoff Chemical Agent Detector
- Joint Warning & Reporting Network
- Kiowa Warrior (OH-58D)
- Land Warrior
- Line-of-Sight Anti-Tank Missile (LOSAT)
- Longbow Apache (AH-64D)
- Longbow Hellfire Missile (Upgrades/Modifications)

- M1A2 Abrams Upgrade
- M2/M3 Bradley Upgrade
- M270A1 Multiple Launch Rocket System (MLRS) Upgrade
- Multiple Launch Rocket System Guided Rocket (GMLRS)
- Objective Crew Served Weapon System (OCSWS)
- Objective Individual Combat Weapon System (OICWS)
- Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T)
- Sense and Destroy Armor (SADARM)
- Sensor Fused Munition
- Single Channel Anti-Jam Man-Portable (SCAMP) (MILSTAR, Block II)
- Stinger Re-programmable Microprocessor Missile (RMP)
- Tactical Control System (TCS)
- Tactical Unmanned Aerial Vehicle (TUAV)
- Tow-Fire & Forget Anti-tank Missile
- UH-60M Black Hawk - All Upgrades
- Wide Area Munition (WAM) - Advanced Hornet
- Common Missile

Naval Warfare Programs:

- Acoustic Rapid COTS Insertion for SONAR
- Advanced Amphibious Assault Vehicle (AAAV) - Includes 30mm ammunition
- Advanced Integrated Electronic Warfare System (AIEWS)
- Advanced Land Attack Missile (ALAM)
- Advanced Seal Delivery System (ASDS)
- Airborne Mine Neutralization System / Rapid Airborne Mine Clearance System (AMNS/RAMICS)
- Amphibious Helicopter - Assault (Replacement) (LHA(R)) Ship Class
- Amphibious Helicopter - Dock (LHD) Ship Class
- Amphibious Personnel - Dock (LPD-17) Ship Class - Includes 30mm ammunition
- AN/AAR-47 V2 Upgrade Missile / Laser Warning Receiver
- AN/SPY-1 B/D (All Versions)
- Auxiliary Cargo / Ammunition Ship Class (T-AKE)
- CH60S Helicopter
- Cooperative Engagement Capability (CEC)
- Cruiser Conversion
- CVN (X) Class
- DD(X) land attack destroyer

- DDG-51 Destroyer (All Variants)
- Evolved Sea Sparrow Missile (ESSM)
- Extended Range Guided Munition (ERGM)
- Fixed Distributed System / Advanced Deployable System (FDS/ADS)
- Integrated Surface Ship ASW Combat System (AN/SQQ-89)
- Joint Command and Control Capability (JCC(X)) Ship Class
- Maritime Prepositioning Force (Future)
- MH-60R Helicopter
- MH-60S Helicopter
- MK-48 MODS ADCAP Torpedo
- Quick Reaction Combat Capability / Ship Self Defense System (QRCC/SSDS)
- Rolling Airframe Missile (RAM)
- SSGN-26 OHIO Class Conversion
- SSN-21 SEAWOLF / AN/BSY-2
- SSN-23 JIMMY CARTER
- SSN-774 VIRGINIA CLASS
- Standard Missile-2 (SM-2) (Block IV)
- Standard Missile-2 (SM-2) (Blocks III/IIIA&B)
- Strategic Sealift Program (SSP) Ship Class
- SUB COMMS (SubECS)
- Surveillance Towed Array Sensor System (SURTASS) / Low Frequency Active (LFA)
- Tactical TOMAHAWK Missile

Air Warfare Programs:

- Advanced Early Warning (AEW)
- Advanced Medium Range Air-to-Air Missile (AMRAAM)
- AIM-9X Missile
- AN/SQQ-89 Antisubmarine Warfare Combat System
- AV-8B
- B1B Lancer
- B2A Spirit
- C-130 Avionics Modernization Program (AMP)
- C-130J All Variants (KC-130J, EC-130J, WC-130J, C-130J-30, and C-130J)
- C-17 Airlift Aircraft
- C-5 Avionics Modernization Program (AMP)
- C-5 Reliability & Reengineering Program

- Combat Search and Rescue Replacement
- Combat Survivor/Evader Locator
- F/A-18 C/D Hornet
- F/A-18 E/F Super Hornet
- F-22 Air Superiority Fighter
- Global Hawk High Altitude Endurance UAV (HAEUAV)
- Joint Air-to-Surface Strike Missile (JASSM)
- Joint Direct Attack Munition (JDAM)
- Joint Helmet Mounted Cueing System
- Joint Primary Aircraft Training System (JPATS)
- Joint Standoff Weapon (JSOW) Baseline
- Joint Standoff Weapon (JSOW) BLU-108
- Joint Standoff Weapon (JSOW) Unitary
- Joint Strike Fighter (JSF)
- Joint Surveillance Target Attack Radar System (JSTARS)
- Large Aircraft Infrared Countermeasures
- UCAV (Air Force)
- UCAV (Navy)
- USMC H1 Upgrade
- V-22 Osprey

Electronic Warfare Programs:

- Advanced Early Warning (AEW)
- AN/ALR-56 (All Versions) Radar Warning Receiver-All Upgrades
- AN/ALR-67 (All Versions)-includes AN/ALR-67(V)
- AN/APR-39 (All Versions) Radar Warning Receiver-All Upgrades
- Airborne Self Protection Jammer (ASPJ) (ALQ-165)
- B-1B Lancer Conventional Mission Upgrade Program (CMUP)/Defensive System Upgrade Program (DSUP)
- EA-6B Prowler-All Upgrades
- F-15 Tactical Electronic Warfare System (TEWS) including AN/ALQ-135 Self-Protection Jammer
- Integrated Defensive Electronic Countermeasures (IDECM)
- Large Aircraft IRCM
- Suite of Integrated Infrared Countermeasures/Common Missile Warning System (SIIRCM/CMWS)
- Suite of Integrated Radio Frequency Countermeasures (SIRFC)

Command, Control, Communications, and Intelligence Programs:

- Advanced Field Artillery Tactical Data System (AFATDS)/ Army Battle Command System (ABCS)

- Army Global Command and Contrail System (AGCCS)
- All Source Analysis System (ASAS) (ABCS)
- Business Systems Modernization (BSM)
- Combat Service Support Control System (CSSCS)/ABCS
- Composite Health Care System II (CHCS II)
- Corporate Executive Information System (CEIS)
- CVN-77 Warfare System
- Defense Civilian Personnel Data System (DCPDS)
- Defense Integrated Military Human Resources System (DIMHRS)
- Defense Joint Accounting System (DJAS)
- Defense Medical Logistics Standard Support (DMLSS)
- Defense Message System (DMS)
- Defense Procurement Payment System (DPPS)
- DFAS Corporate Database/Warehouse (DCD/DCW)
- E-3A Airborne Warning and Control System (AWACS) Radar System Improvement Program (RISP)
- E-2C Hawkeye Airborne Early Warning
- Force XXI Battle Command Brigade and Below (FBCB2)
- Forward Area Air Defense Command Control Communications and Intelligence System (FAAD C3I)/ABCS
- Fuels Automated System (FAS)
- Global Combat Support System - Air Force (GCSS-AF)
- Global Transportation Network (GTN-21)
- Integrated Logistics System-Supply (ILS-S)
- Integrated Maintenance Data System (IMDS)
- Integrated System Control (ISYSCON)/Tactical Internet Manager (TIMS)
- Joint Ammunition Management Standard System (JMASS)
- Joint Computer Aided Acquisition and Logistics Support (JCALS)
- Joint Simulation System (JSIMS)/Warfighter Simulation (WARSIM)
- Joint Tactical Radio System Cluster 1
- Joint Tactical Radio Waveforms
- Maneuver Control System (MCS)/ABCS
- MILSTAR Satellite Communications System
- Multifunctional Information Distribution System (MIDS)
- NAVSTAR GPS User Equipment (UE)
- Navy Marine Corps Intranet (NMCI)
- Navy Standard Integrated Personnel System (NSIPS)

- Reserve Component Automation System (RCAS)
- Standard Procurement System (SPS)
- Theater Medical Information Program (TMIP)
- TRANSCOM Regulating and Command & Control Evacuation System (TRAC2ES)
- Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)
- Unmanned Aerial Vehicle Tactical Control System (UAV-TCS)
- Warfighter Information Network – Terrestrial (WIN-T)

Strategic Warfare and Space Systems Programs

- MDA Program
- Evolved Expendable Launch Vehicle (EELV)
- Global Broadcast System (GBS)
- Ground Based Midcourse Defense Segment
- Medium Extended Air Defense System (MEADS)
- Minuteman III Guidance Replacement Program (GRP) Phase I
- Minuteman III Propulsion Replacement Program (PRP)
- Multi-Platform Radar Technology Insertion Program (MP-RTIP)
- National Airspace System (NAS)
- National Polar-Orbiting Operational Environment Satellite (NPOESS)
- Navy Area TBMD
- Navy Theater Wide TBMD
- National Missile Defense
- Patriot Advanced Capability-3 (PAC-3) Missile
- Sea Based Midcourse Defense Segment
- Space-Based Infrared System-High (SBIRS-H)
- Space-Based Infrared System-Low (SBIRS-L)
- Space-Based Laser
- Tactical Tomahawk Mission Planning System / Tomahawk Command & Control System (MPS/TCCS)
- Theater High-Altitude Area Defense (THAAD) / GBR
- Trident II Missile
- Ultra High Frequency (UHF) Follow-on Satellite
- Wideband Gapfiller Satellite (WGS)
- YAL-1 Airborne Laser (ABL)
- Navy EHF SATCOM Program (NESP)

Official Travel:

- Perform official travel to carry out oversight of the OT&E of the DoDs weapons systems.

FY 2003 Plans: Key elements of DOT&E's oversight authority, as described under MISSION ACCOMPLISHMENT AND BUDGET ITEM JUSTIFICATION, will be conducted, as applicable, for the following programs:

Land Warfare Programs:

- Abrams Tank Upgrade
- Advanced Field Artillery Tactical Data System (AFATDS)
- Aerial Common Sensor (ACS)
- AN/TPQ-47 Counterfire Radar
- Army Tactical Missile System Block II / Brilliant Anti-Armor (ATACMS/BAT) and ATACMS Block II / P3I BAT
- Artemis (Chemical Agent Standoff Detection System)
- Battlefield Command Information System (BCIS)
- Bradley Upgrade
- CH-47F Cargo Helicopter Upgrade
- Chemical Biological Defense Program (includes Artemis, JBAIDS, JBPDS, JBSDS, JCAD, JSFDS, JSLNBCR, JSLSCAD, JSSED, JWARN)
- Chemical Demilitarization
- Comanche (RAH-66) (includes 20mm Ammunition)
- Common Missile
- Distributed Common Ground System (DCGS) - ARMY
- Excalibur (155mm Round)
- Family of Medium Tactical Vehicles (FMTV)
- Future Combat System (includes manned and unmanned ground vehicles, unmanned air vehicles)
- Future Scout/Cavalry System
- Guided Multiple Launch Rocket System (GMLRS)
- High Mobility Artillery Rocket System (HIMARS)
- Javelin Anti-tank Missile
- Joint Warning & Reporting Network
- Kiowa Warrior (OH-58D)
- Land Warrior
- Line-of-Sight Anti-Tank Missile (LOSAT)
- Longbow Apache (AH-64D)
- Longbow Hellfire Missile (Upgrades/Modifications)
- Objective Crew Served Weapon System (OCSWS)
- Objective Individual Combat Weapon System (OICWS)
- Precision Guided Mortar Munitions (PGMM)

- Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T)
- Sensor Fused Munition
- Single Channel Anti-Jam Man-Portable (SCAMP) (MILSTAR, Block II)
- Stinger Re-programmable Microprocessor Missile (RMP)
- Stryker Armored Vehicle
- Surface-Launched AMRAAM (SLAMRAAM)
- Tow-Fire & Forget Anti-tank Missile
- UH-60M Black Hawk - All Upgrades

Naval Warfare Programs:

- Acoustic Rapid COTS Insertion for SONAR
- Advanced Amphibious Assault Vehicle (AAAV) - Includes 30mm ammunition
- Advanced Seal Delivery System (ASDS)
- Airborne Mine Neutralization System / Rapid Airborne Mine Clearance System (AMNS/RAMICS)
- Amphibious Assasult - Dock (LPD-17) Ship Class - Includes 30mm ammunition
- Amphibious Helicopter - Assault (Replacement) (LHA(R)) Ship Class
- Amphibious Helicopter - Dock (LHD) Ship Class
- AN/SPY-1 B/D (All Versions)
- Auxiliary Cargo / Ammunition Ship Class (T-AKE)
- Cobra Judy Replacement – Ship-based Radar System
- Cooperative Engagement Capability (CEC)
- Cruiser Conversion
- CVN (X) Class
- CVN 68 Nimitz Class
- DD(X) land attack destroyer
- DDG-51 Destroyer (All Variants)
- EA-18G (electronic variant of F/A-18)
- Evolved Sea Sparrow Missile (ESSM)
- Extended Range Active Missile
- Extended Range Guided Munition (ERGM)
- Fixed Distributed System / Advanced Deployable System (FDS/ADS)
- HyFly
- Integrated Surface Ship ASW Combat System (AN/SQQ-89)
- Joint Command and Control Capability (JCC(X)) Ship Class
- Littoral Combat Ship (LCS)
- Maritime Prepositioning Force (Future)

- MH-60R Helicopter
- MH-60S Helicopter
- MK-48 MODS ADCAP Torpedo
- Naval Integrated Fire Control-Counter Air (NIFC-CA)
- Rolling Airframe Missile (RAM)SSGN Trident Class Conversion
- Ship Self Defense System (SSDS)
- SSN-21 Seawolf / AN/BSY-2
- SSN-23 Jimmy Carter
- SSN-774 Virginia CLASS
- Standard Missile-2 (SM-2) (Blocks I/II/III/IV)
- Strategic Sealift Program (SSP) Ship Class
- SUB COMMS (SubECS)
- Surveillance Towed Array Sensor System (SURTASS) / Low Frequency Active (LFA)
- Tactical Control System (TCS)
- Tactical Tomahawk Missile
- T-AOE(X) Triple Product Station Ship

Air Warfare Programs:

- Active Electronically Scanned Array (AESA)
- Advanced Medium Range Air-to-Air Missile (AMRAAM)
- AGM-88E Advanced Anti-Radiation Guided Missile (AARGM)
- AIM-9X Missile
- Air Early Warning (AEW)
- B-1B Lancer Conventional Munitions Upgrade Program (CMUP)
- B-2 Radar Pathfinder Program (B-2 RPP)
- B-2A Spirit Stealth Bomber
- C-130 Avionics Modernization Program (AMP)
- C-130J All Variants (KC-130J, EC-130J, WC-130J, C-130J-30, and C-130J)
- C-17 Aircraft
- C-5 Avionics Modernization Program (AMP)
- C-5 Reliability & Reengineering Program
- Combat Search and Rescue Replacement
- Combat Survivor/Evader Locator
- F/A-18 E/F Hornet
- F-22 Fighter
- Global Hawk High Altitude Endurance UAV (HAEUAV)

- Joint Air-to-Surface Strike Missile (JASSM)
- Joint Direct Attack Munition (JDAM)
- Joint Helmet Mounted Cueing System
- Joint Primary Aircraft Training System (JPATS)
- Joint Standoff Weapon (JSOW) Baseline
- Joint Standoff Weapon (JSOW) BLU-108
- Joint Standoff Weapon (JSOW) Unitary
- Joint Strike Fighter (JSF)
- Joint Surveillance Target Attack Radar System (JSTARS)
- KC-135 Global Air Traffic Management (GATM) Upgrade
- KC-767 Aerial Tanker Aircraft
- Multi-Mission Maritime Aircraft (MMA)
- Predator UAV (RQ/MQ-1, MQ-9)
- Sensor Fuzed Weapon (SFW) P3I (CBU-97/B)
- Small Diameter Bomb
- Standoff Land Attack Missile – Expanded Response (SLAM-ER)
- UCAV (Air Force)
- UCAV (Navy)
- USMC H1 Upgrade
- V-22 Osprey
- Vertical Take-Off UAV (VTUAV)

Electronic Warfare Programs:

- Advanced Threat IR Countermeasure/Common Missile Warning System (ATIRCM/CMWS)
- AN/AAR-47 V2 Upgrade Missile/laser Warning Receiver
- AN/ALR-56 (All Versions) Radar Warning Receiver-All Upgrades
- AN/ALR-67 (All Versions)-includes AN/ALR-67(V)
- AN/ALR-69 Radar Warning Receiver
- AN/APR-39A V2 Radar Warning Receiver
- EA-6B Improved Capabilities (ICAP) III & Multiple Upgrades
- F-15 Tactical Electronic Warfare System (TEWS) including AN/ALQ-135 Band 1.5 Fiber-Optic Towed Decoy
- Integrated Defensive Electronic Countermeasures (IDECM)
- Large Aircraft IRCM (LAIRCM)
- Suite of Integrated Radio Frequency Countermeasures (SIRFC)
- Surface Electronic Warfare Improvement Program (SEWIP)

Command, Control, Communications, and Intelligence Programs:

- Advanced Field Artillery Tactical Data System (AFATDS)/ Army Battle Command System (ABCS)
- Air and Missile Defense Planning and Control System (AMDPCS)
- Air Force Mission Support System (AFMSS)
- All Source Analysis System (ASAS) (ABCS)
- Army Global Command and Contrail System (AGCCS)
- Broad Area Maritime Surveillance (BAMS)
- Business Systems Modernization (BSM)
- Combat Service Support Control System (CSSCS)/ABCS
- Composite Health Care System II (CHCS II)
- Corporate Executive Information System (CEIS)
- Defense Civilian Personnel Data System (DCPDS)
- Defense Integrated Military Human Resources System (DIMHRS)
- Defense Joint Accounting System (DJAS)
- Defense Medical Logistics Standard Support (DMLSS)
- Defense Message System (DMS)
- Defense Procurement Payment System (DPPS)
- DFAS Corporate Database/Warehouse (DCD/DCW)
- Distributed Common Ground System - Air Force (DCGS-AF)
- E-2C Hawkeye Airborne Early Warning
- E-3A Airborne Warning and Control System (AWACS) Radar System Improvement Program (RISP)
- Force XXI Battle Command Brigade and Below (FBCB2)
- Forward Area Air Defense Command Control Communications and Intelligence System (FAAD C3I)/ABCS
- Fuels Automated System (FAS)
- Global Command and Control System (GCCS) – Joint
- Global Command and Control System (GCCS) – Maritime
- Global Command and Control System -Air Force (GCCS-AF)
- Global Command Support System -Air Force (GCSS-AF)
- Global Transportation Network (GTN-21)
- Integrated Logistics System-Supply (ILS-S)
- Integrated Maintenance Data System (IMDS)
- Integrated System Control (ISYSCON)/Tactical Internet Manager (TIMS)
- Joint Computer Aided Acquisition and Logistics Support (JCALS)
- Joint Mission Planning System (JMPS)
- Joint Precision Approach and Landing System (JPALS)
- Joint Simulation System (JSIMS)/Warfighter Simulation (WARSIM)

- Joint Tactical Radio System Cluster 1
- Joint Tactical Radio Waveforms
- Maneuver Control System (MCS)/ABCS
- Multifunctional Information Distribution System (MIDS)
- Multiple Platform - Common Data Link (MP-CDL)
- NAVSTAR GPS User Equipment (UE)
- Navy Marine Corps Intranet (NMCI)
- Navy Standard Integrated Personnel System (NSIPS)
- Public Key Infrastructure (PKI)
- Reserve Component Automation System (RCAS)
- Tactical Aircraft Mission Planning System (TAMPS)
- Theater Medical Information Program (TMIP)
- Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)
- Warfighter Information Network – Terrestrial (WIN-T)

Strategic Warfare and Space Systems Programs:

- Advanced EHF (AEHF)
- Advanced Wide Band System
- MDA Program
- Evolved Expendable Launch Vehicle (EELV)
- Global Broadcast System (GBS)
- Ground Based Midcourse Defense Segment
- Medium Extended Air Defense System (MEADS)
- Minuteman III Guidance Replacement Program (GRP) Phase I
- Minuteman III Propulsion Replacement Program (PRP)
- Mobile User Objective System (MUOS)
- Multi-Platform Radar Technology Insertion Program (MP-RTIP)
- National Airspace System (NAS)
- National Polar-Orbiting Operational Environment Satellite (NPOESS)
- Navy EHF SATCOM Program (NESP)
- Patriot Advanced Capability-3 (PAC-3) Missile
- Sea Based Midcourse Defense Segment
- Space-Based Infrared System-High (SBIRS-H)
- Space-Based Infrared System-Low (SBIRS-L)
- Space-Based Laser
- Tactical Tomahawk Mission Planning System / Tomahawk Command & Control System (MPS/TCCS)

- Teleport
- Theater High-Altitude Area Defense (THAAD) / GBR
- Titan IV
- Trident II Missile
- Ultra High Frequency (UHF) Follow-on Satellite
- Wideband Gapfiller Satellite (WGS)
- YAL-1 Airborne Laser (ABL)

Information Assurance and Interoperability Evaluations:

- Will convene workshops and meetings to initiate this effort. Specific goals include identification of candidate FY03-04 exercises; development of a plan to enhance, train, and certify Service Red Teams; and identification of metrics that will serve the multiple organizations that will employ the results of these evaluations. Available exercises will be observed, but expanded Red Teaming will be limited.

Official Travel:

- Will perform official travel to carry out oversight of the OT&E of the DoDs weapons systems.

FY 2004 Plans: Key elements of DOT&E's oversight authority, as described under MISSION ACCOMPLISHMENT AND BUDGET ITEM JUSTIFICATION, will be conducted, as applicable, for the following programs:

Land Warfare Programs:

- Abrams Tank Upgrade
- Advanced Field Artillery Tactical Data System (AFATDS)
- Aerial Common Sensor (ACS)
- AN/TPQ-47 Counterfire Radar
- Army Tactical Missile System Block II / Brilliant Anti-Armor (ATACMS/BAT) and ATACMS Block II / P3I BAT
- Artemis (Chemical Agent Standoff Detection System)
- Battlefield Command Information System (BCIS)
- Bradley Upgrade
- CH-47F Cargo Helicopter Upgrade
- Chemical Biological Defense Program (includes Artemis, JBAIDS, JBPDS, JBSDS, JCAD, JSFDS, JSLNBCR, JSLSCAD, JSSED, JWARN)
- Chemical Demilitarization
- Comanche (RAH-66) (includes 20mm Ammunition)
- Common Missile
- Distributed Common Ground System (DCGS) - ARMY
- Excalibur (155mm Round)
- Family of Medium Tactical Vehicles (FMTV)

- Future Combat System (includes manned and unmanned ground vehicles, unmanned air vehicles)
- Future Scout/Cavalry System
- Guided Multiple Launch Rocket System (GMLRS)
- High Mobility Artillery Rocket System (HIMARS)
- Javelin Anti-tank Missile
- Joint Warning & Reporting Network
- Kiowa Warrior (OH-58D)
- Land Warrior
- Line-of-Sight Anti-Tank Missile (LOSAT)
- Longbow Apache (AH-64D)
- Longbow Hellfire Missile (Upgrades/Modifications)
- Objective Crew Served Weapon System (OCSWS)
- Objective Individual Combat Weapon System (OICWS)
- Precision Guided Mortar Munitions (PGMM)
- Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T)
- Sensor Fused Munition
- Single Channel Anti-Jam Man-Portable (SCAMP) (MILSTAR, Block II)
- Stinger Re-programmable Microprocessor Missile (RMP)
- Stryker Armored Vehicle
- Surface-Launched AMRAAM (SLAMRAAM)
- Tow-Fire & Forget Anti-tank Missile
- UH-60M Black Hawk - All Upgrades

Naval Warfare Programs:

- Acoustic Rapid COTS Insertion for SONAR
- Advanced Amphibious Assault Vehicle (AAAV) - Includes 30mm ammunition
- Advanced Seal Delivery System (ASDS)
- Airborne Mine Neutralization System / Rapid Airborne Mine Clearance System (AMNS/RAMICS)
- Amphibious Assasult - Dock (LPD-17) Ship Class - Includes 30mm ammunition
- Amphibious Helicopter - Assault (Replacement) (LHA(R)) Ship Class
- Amphibious Helicopter - Dock (LHD) Ship Class
- AN/SPY-1 B/D (All Versions)
- Auxiliary Cargo / Ammunition Ship Class (T-AKE)
- Cobra Judy Replacement – Ship-based Radar System
- Cooperative Engagement Capability (CEC)
- Cruiser Conversion

- CVN (X) Class
- CVN 68 Nimitz Class
- DD(X) land attack destroyer
- DDG-51 Destroyer (All Variants)
- EA-18G (electronic variant of F/A-18)
- Evolved Sea Sparrow Missile (ESSM)
- Extended Range Active Missile
- Extended Range Guided Munition (ERGM)
- Fixed Distributed System / Advanced Deployable System (FDS/ADS)
- HyFly
- Integrated Surface Ship ASW Combat System (AN/SQQ-89)
- Joint Command and Control Capability (JCC(X)) Ship Class
- Littoral Combat Ship (LCS)
- Maritime Prepositioning Force (Future)
- MH-60R Helicopter
- MH-60S Helicopter
- MK-48 MODS ADCAP Torpedo
- Naval Integrated Fire Control-Counter Air (NIFC-CA)
- Rolling Airframe Missile (RAM)SSGN Trident Class Conversion
- Ship Self Defense System (SSDS)
- SSN-21 Seawolf / AN/BSY-2
- SSN-23 Jimmy Carter
- SSN-774 Virginia CLASS
- Standard Missile-2 (SM-2) (Blocks I/II/III/IV)
- Strategic Sealift Program (SSP) Ship Class
- SUB COMMS (SubECS)
- Surveillance Towed Array Sensor System (SURTASS) / Low Frequency Active (LFA)
- Tactical Control System (TCS)
- Tactical Tomahawk Missile
- T-AOE(X) Triple Product Station Ship

Air Warfare Programs:

- Active Electronically Scanned Array (AESA)
- Advanced Medium Range Air-to-Air Missile (AMRAAM)
- AGM-88E Advanced Anti-Radiation Guided Missile (AARGM)
- AIM-9X Missile

- Air Early Warning (AEW)
- B-1B Lancer Conventional Munitions Upgrade Program (CMUP)
- B-2 Radar Pathfinder Program (B-2 RPP)
- B-2A Spirit Stealth Bomber
- C-130 Avionics Modernization Program (AMP)
- C-130J All Variants (KC-130J, EC-130J, WC-130J, C-130J-30, and C-130J)
- C-17 Aircraft
- C-5 Avionics Modernization Program (AMP)
- C-5 Reliability & Reengineering Program
- Combat Search and Rescue Replacement
- Combat Survivor/Evader Locator
- F/A-18 E/F Hornet
- F-22 Fighter
- Global Hawk High Altitude Endurance UAV (HAEUAV)
- Joint Air-to-Surface Strike Missile (JASSM)
- Joint Direct Attack Munition (JDAM)
- Joint Helmet Mounted Cueing System
- Joint Primary Aircraft Training System (JPATS)
- Joint Standoff Weapon (JSOW) Baseline
- Joint Standoff Weapon (JSOW) BLU-108
- Joint Standoff Weapon (JSOW) Unitary
- Joint Strike Fighter (JSF)
- Joint Surveillance Target Attack Radar System (JSTARS)
- KC-135 Global Air Traffic Management (GATM) Upgrade
- KC-767 Aerial Tanker Aircraft
- Multi-Mission Maritime Aircraft (MMA)
- Predator UAV (RQ/MQ-1, MQ-9)
- Sensor Fuzed Weapon (SFW) P3I (CBU-97/B)
- Small Diameter Bomb
- Standoff Land Attack Missile – Expanded Response (SLAM-ER)
- UCAV (Air Force)
- UCAV (Navy)
- USMC H1 Upgrade
- V-22 Osprey
- Vertical Take-Off UAV (VTUAV)

Electronic Warfare Programs:
- Advanced Threat IR Countermeasure/Common Missile Warning System (ATIRCM/CMWS)
- AN/AAR-47 V2 Upgrade Missile/laser Warning Receiver
- AN/ALR-56 (All Versions) Radar Warning Receiver-All Upgrades
- AN/ALR-67 (All Versions)-includes AN/ALR-67(V)
- AN/ALR-69 Radar Warning Receiver
- AN/APR-39A V2 Radar Warning Receiver
- EA-6B Improved Capabilities (ICAP) III & Multiple Upgrades
- F-15 Tactical Electronic Warfare System (TEWS) including AN/ALQ-135 Band 1.5 Fiber-Optic Towed Decoy
- Integrated Defensive Electronic Countermeasures (IDECM)
- Large Aircraft IRCM (LAIRCM)
- Suite of Integrated Radio Frequency Countermeasures (SIRFC)
- Surface Electronic Warfare Improvement Program (SEWIP)

Command, Control, Communications, and Intelligence Programs:
- Advanced Field Artillery Tactical Data System (AFATDS)/ Army Battle Command System (ABCS)
- Air and Missile Defense Planning and Control System (AMDPCS)
- Air Force Mission Support System (AFMSS)
- All Source Analysis System (ASAS) (ABCS)
- Army Global Command and Contrail System (AGCCS)
- Broad Area Maritime Surveillance (BAMS)
- Business Systems Modernization (BSM)
- Combat Service Support Control System (CSSCS)/ABCS
- Composite Health Care System II (CHCS II)
- Corporate Executive Information System (CEIS)
- Defense Civilian Personnel Data System (DCPDS)
- Defense Integrated Military Human Resources System (DIMHRS)
- Defense Joint Accounting System (DJAS)
- Defense Medical Logistics Standard Support (DMLSS)
- Defense Message System (DMS)
- Defense Procurement Payment System (DPPS)
- DFAS Corporate Database/Warehouse (DCD/DCW)
- Distributed Common Ground System - Air Force (DCGS-AF)
- E-2C Hawkeye Airborne Early Warning
- E-3A Airborne Warning and Control System (AWACS) Radar System Improvement Program (RISP)
- Force XXI Battle Command Brigade and Below (FBCB2)

- Forward Area Air Defense Command Control Communications and Intelligence System (FAAD C3I)/ABCS
- Fuels Automated System (FAS)
- Global Command and Control System (GCCS) – Joint
- Global Command and Control System (GCCS) – Maritime
- Global Command and Control System -Air Force (GCCS-AF)
- Global Command Support System -Air Force (GCSS-AF)
- Global Transportation Network (GTN-21)
- Integrated Logistics System-Supply (ILS-S)
- Integrated Maintenance Data System (IMDS)
- Integrated System Control (ISYSCON)/Tactical Internet Manager (TIMS)
- Joint Computer Aided Acquisition and Logistics Support (JCALS)
- Joint Mission Planning System (JMPS)
- Joint Precision Approach and Landing System (JPALS)
- Joint Simulation System (JSIMS)/Warfighter Simulation (WARSIM)
- Joint Tactical Radio System Cluster 1
- Joint Tactical Radio Waveforms
- Maneuver Control System (MCS)/ABCS
- Multifunctional Information Distribution System (MIDS)
- Multiple Platform - Common Data Link (MP-CDL)
- NAVSTAR GPS User Equipment (UE)
- Navy Marine Corps Intranet (NMCI)
- Navy Standard Integrated Personnel System (NSIPS)
- Public Key Infrastructure (PKI)
- Reserve Component Automation System (RCAS)
- Tactical Aircraft Mission Planning System (TAMPS)
- Theater Medical Information Program (TMIP)
- Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)
- Warfighter Information Network – Terrestrial (WIN-T)

Strategic Warfare and Space Systems Programs:

- Advanced EHF (AEHF)
- Advanced Wide Band System
- MDA Program
- Evolved Expendable Launch Vehicle (EELV)
- Global Broadcast System (GBS)
- Ground Based Midcourse Defense Segment

- Medium Extended Air Defense System (MEADS)
- Minuteman III Guidance Replacement Program (GRP) Phase I
- Minuteman III Propulsion Replacement Program (PRP)
- Mobile User Objective System (MUOS)
- Multi-Platform Radar Technology Insertion Program (MP-RTIP)
- National Airspace System (NAS)
- National Polar-Orbiting Operational Environment Satellite (NPOESS)
- Navy EHF SATCOM Program (NESP)
- Patriot Advanced Capability-3 (PAC-3) Missile
- Sea Based Midcourse Defense Segment
- Space-Based Infrared System-High (SBIRS-H)
- Space-Based Infrared System-Low (SBIRS-L)
- Space-Based Laser
- Tactical Tomahawk Mission Planning System / Tomahawk Command & Control System (MPS/TCCS)
- Teleport
- Theater High-Altitude Area Defense (THAAD) / GBR
- Titan IV
- Trident II Missile
- Ultra High Frequency (UHF) Follow-on Satellite
- Wideband Gapfiller Satellite (WGS)
- YAL-1 Airborne Laser (ABL)

Information Assurance and Interoperability Evaluations:

- Will continue to execute and expand this effort. Specific goals include execution of enhanced Red Teaming in major exercises for each Service and half of the Combatant Commands.

Official Travel:

- Will perform official travel to carry out oversight of the OT&E of the DoDs weapons systems.

FY 2005 Plans: Key elements of DOT&E's oversight authority, as described under MISSION ACCOMPLISHMENT AND BUDGET ITEM JUSTIFICATION, will be conducted, as applicable, for the following programs:

Land Warfare Programs:

- Abrams Tank Upgrade
- Advanced Field Artillery Tactical Data System (AFATDS)
- Aerial Common Sensor (ACS)
- AN/TPQ-47 Counterfire Radar
- Army Tactical Missile System Block II / Brilliant Anti-Armor (ATACMS/BAT) and ATACMS Block II / P3I BAT

- Artemis (Chemical Agent Standoff Detection System)
- Battlefield Command Information System (BCIS)
- Bradley Upgrade
- CH-47F Cargo Helicopter Upgrade
- Chemical Biological Defense Program (includes Artemis, JBAIDS, JBPDS, JBSDS, JCAD, JSFDS, JSLNBCR, JSLSCAD, JSSED, JWARN)
- Chemical Demilitarization
- Comanche (RAH-66) (includes 20mm Ammunition)
- Common Missile
- Distributed Common Ground System (DCGS) - ARMY
- Excalibur (155mm Round)
- Family of Medium Tactical Vehicles (FMTV)
- Future Combat System (includes manned and unmanned ground vehicles, unmanned air vehicles)
- Future Scout/Cavalry System
- Guided Multiple Launch Rocket System (GMLRS)
- High Mobility Artillery Rocket System (HIMARS)
- Javelin Anti-tank Missile
- Joint Warning & Reporting Network
- Kiowa Warrior (OH-58D)
- Land Warrior
- Line-of-Sight Anti-Tank Missile (LOSAT)
- Longbow Apache (AH-64D)
- Longbow Hellfire Missile (Upgrades/Modifications)
- Objective Crew Served Weapon System (OCSWS)
- Objective Individual Combat Weapon System (OICWS)
- Precision Guided Mortar Munitions (PGMM)
- Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T)
- Sensor Fused Munition
- Single Channel Anti-Jam Man-Portable (SCAMP) (MILSTAR, Block II)
- Stinger Re-programmable Microprocessor Missile (RMP)
- Stryker Armored Vehicle
- Surface-Launched AMRAAM (SLAMRAAM)
- Tow-Fire & Forget Anti-tank Missile
- UH-60M Black Hawk - All Upgrades

Naval Warfare Programs:

- Acoustic Rapid COTS Insertion for SONAR
- Advanced Amphibious Assault Vehicle (AAAV) - Includes 30mm ammunition
- Advanced Seal Delivery System (ASDS)
- Airborne Mine Neutralization System / Rapid Airborne Mine Clearance System (AMNS/RAMICS)
- Amphibious Assasult - Dock (LPD-17) Ship Class - Includes 30mm ammunition
- Amphibious Helicopter - Assault (Replacement) (LHA(R)) Ship Class
- Amphibious Helicopter - Dock (LHD) Ship Class
- AN/SPY-1 B/D (All Versions)
- Auxiliary Cargo / Ammunition Ship Class (T-AKE)
- Cobra Judy Replacement – Ship-based Radar System
- Cooperative Engagement Capability (CEC)
- Cruiser Conversion
- CVN (X) Class
- CVN 68 Nimitz Class
- DD(X) land attack destroyer
- DDG-51 Destroyer (All Variants)
- EA-18G (electronic variant of F/A-18)
- Evolved Sea Sparrow Missile (ESSM)
- Extended Range Active Missile
- Extended Range Guided Munition (ERGM)
- Fixed Distributed System / Advanced Deployable System (FDS/ADS)
- HyFly
- Integrated Surface Ship ASW Combat System (AN/SQQ-89)
- Joint Command and Control Capability (JCC(X)) Ship Class
- Littoral Combat Ship (LCS)
- Maritime Prepositioning Force (Future)
- MH-60R Helicopter
- MH-60S Helicopter
- MK-48 MODS ADCAP Torpedo
- Naval Integrated Fire Control-Counter Air (NIFC-CA)
- Rolling Airframe Missile (RAM)SSGN Trident Class Conversion
- Ship Self Defense System (SSDS)
- SSN-21 Seawolf / AN/BSY-2
- SSN-23 Jimmy Carter

- SSN-774 Virginia CLASS
- Standard Missile-2 (SM-2) (Blocks I/II/III/IV)
- Strategic Sealift Program (SSP) Ship Class
- SUB COMMS (SubECS)
- Surveillance Towed Array Sensor System (SURTASS) / Low Frequency Active (LFA)
- Tactical Control System (TCS)
- Tactical Tomahawk Missile
- T-AOE(X) Triple Product Station Ship

Air Warfare Programs:

- Active Electronically Scanned Array (AESA)
- Advanced Medium Range Air-to-Air Missile (AMRAAM)
- AGM-88E Advanced Anti-Radiation Guided Missile (AARGM)
- AIM-9X Missile
- Air Early Warning (AEW)
- B-1B Lancer Conventional Munitions Upgrade Program (CMUP)
- B-2 Radar Pathfinder Program (B-2 RPP)
- B-2A Spirit Stealth Bomber
- C-130 Avionics Modernization Program (AMP)
- C-130J All Variants (KC-130J, EC-130J, WC-130J, C-130J-30, and C-130J)
- C-17 Aircraft
- C-5 Avionics Modernization Program (AMP)
- C-5 Reliability & Reengineering Program
- Combat Search and Rescue Replacement
- Combat Survivor/Evader Locator
- F/A-18 E/F Hornet
- F-22 Fighter
- Global Hawk High Altitude Endurance UAV (HAEUAV)
- Joint Air-to-Surface Strike Missile (JASSM)
- Joint Direct Attack Munition (JDAM)
- Joint Helmet Mounted Cueing System
- Joint Primary Aircraft Training System (JPATS)
- Joint Standoff Weapon (JSOW) Baseline
- Joint Standoff Weapon (JSOW) BLU-108
- Joint Standoff Weapon (JSOW) Unitary
- Joint Strike Fighter (JSF)

- Joint Surveillance Target Attack Radar System (JSTARS)
- KC-135 Global Air Traffic Management (GATM) Upgrade
- KC-767 Aerial Tanker Aircraft
- Multi-Mission Maritime Aircraft (MMA)
- Predator UAV (RQ/MQ-1, MQ-9)
- Sensor Fuzed Weapon (SFW) P3I (CBU-97/B)
- Small Diameter Bomb
- Standoff Land Attack Missile – Expanded Response (SLAM-ER)
- UCAV (Air Force)
- UCAV (Navy)
- USMC H1 Upgrade
- V-22 Osprey
- Vertical Take-Off UAV (VTUAV)

Electronic Warfare Programs:

- Advanced Threat IR Countermeasure/Common Missile Warning System (ATIRCM/CMWS)
- AN/AAR-47 V2 Upgrade Missile/laser Warning Receiver
- AN/ALR-56 (All Versions) Radar Warning Receiver-All Upgrades
- AN/ALR-67 (All Versions)-includes AN/ALR-67(V)
- AN/ALR-69 Radar Warning Receiver
- AN/APR-39A V2 Radar Warning Receiver
- EA-6B Improved Capabilities (ICAP) III & Multiple Upgrades
- F-15 Tactical Electronic Warfare System (TEWS) including AN/ALQ-135 Band 1.5 Fiber-Optic Towed Decoy
- Integrated Defensive Electronic Countermeasures (IDECM)
- Large Aircraft IRCM (LAIRCM)
- Suite of Integrated Radio Frequency Countermeasures (SIRFC)
- Surface Electronic Warfare Improvement Program (SEWIP)

Command, Control, Communications, and Intelligence Programs:

- Advanced Field Artillery Tactical Data System (AFATDS)/ Army Battle Command System (ABCS)
- Air and Missile Defense Planning and Control System (AMDPCS)
- Air Force Mission Support System (AFMSS)
- All Source Analysis System (ASAS) (ABCS)
- Army Global Command and Contrail System (AGCCS)
- Broad Area Maritime Surveillance (BAMS)
- Business Systems Modernization (BSM)
- Combat Service Support Control System (CSSCS)/ABCS

- Composite Health Care System II (CHCS II)
- Corporate Executive Information System (CEIS)
- Defense Civilian Personnel Data System (DCPDS)
- Defense Integrated Military Human Resources System (DIMHRS)
- Defense Joint Accounting System (DJAS)
- Defense Medical Logistics Standard Support (DMLSS)
- Defense Message System (DMS)
- Defense Procurement Payment System (DPPS)
- DFAS Corporate Database/Warehouse (DCD/DCW)
- Distributed Common Ground System - Air Force (DCGS-AF)
- E-2C Hawkeye Airborne Early Warning
- E-3A Airborne Warning and Control System (AWACS) Radar System Improvement Program (RISP)
- Force XXI Battle Command Brigade and Below (FBCB2)
- Forward Area Air Defense Command Control Communications and Intelligence System (FAAD C3I)/ABCS
- Fuels Automated System (FAS)
- Global Command and Control System (GCCS) – Joint
- Global Command and Control System (GCCS) – Maritime
- Global Command and Control System -Air Force (GCCS-AF)
- Global Command Support System -Air Force (GCSS-AF)
- Global Transportation Network (GTN-21)
- Integrated Logistics System-Supply (ILS-S)
- Integrated Maintenance Data System (IMDS)
- Integrated System Control (ISYSCON)/Tactical Internet Manager (TIMS)
- Joint Computer Aided Acquisition and Logistics Support (JCALS)
- Joint Mission Planning System (JMPS)
- Joint Precision Approach and Landing System (JPALS)
- Joint Simulation System (JSIMS)/Warfighter Simulation (WARSIM)
- Joint Tactical Radio System Cluster 1
- Joint Tactical Radio Waveforms
- Maneuver Control System (MCS)/ABCS
- Multifunctional Information Distribution System (MIDS)
- Multiple Platform - Common Data Link (MP-CDL)
- NAVSTAR GPS User Equipment (UE)
- Navy Marine Corps Intranet (NMCI)
- Navy Standard Integrated Personnel System (NSIPS)

- Public Key Infrastructure (PKI)
- Reserve Component Automation System (RCAS)
- Tactical Aircraft Mission Planning System (TAMPS)
- Theater Medical Information Program (TMIP)
- Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)
- Warfighter Information Network – Terrestrial (WIN-T)

Strategic Warfare and Space Systems Programs:

- Advanced EHF (AEHF)
- Advanced Wide Band System
- MDA Program
- Evolved Expendable Launch Vehicle (EELV)
- Global Broadcast System (GBS)
- Ground Based Midcourse Defense Segment
- Medium Extended Air Defense System (MEADS)
- Minuteman III Guidance Replacement Program (GRP) Phase I
- Minuteman III Propulsion Replacement Program (PRP)
- Mobile User Objective System (MUOS)
- Multi-Platform Radar Technology Insertion Program (MP-RTIP)
- National Airspace System (NAS)
- National Polar-Orbiting Operational Environment Satellite (NPOESS)
- Navy EHF SATCOM Program (NESP)
- Patriot Advanced Capability-3 (PAC-3) Missile
- Sea Based Midcourse Defense Segment
- Space-Based Infrared System-High (SBIRS-H)
- Space-Based Infrared System-Low (SBIRS-L)
- Space-Based Laser
- Tactical Tomahawk Mission Planning System / Tomahawk Command & Control System (MPS/TCCS)
- Teleport
- Theater High-Altitude Area Defense (THAAD) / GBR
- Titan IV
- Trident II Missile
- Ultra High Frequency (UHF) Follow-on Satellite
- Wideband Gapfiller Satellite (WGS)
- YAL-1 Airborne Laser (ABL)

Information Assurance and Interoperability Evaluations:
- Will continue to execute and expand this effort. Specific goals include execution of enhanced Red Teaming in major exercises for each Service and all of the Combatant Commands.

Official Travel:
- Will perform official travel to carry out oversight of the OT&E of the DoDs weapons systems.

B. (U) PROGRAM CHANGE SUMMARY

($ in Millions)	FY 2002 Appropriation	FY 2003 President's Budget	FY 2004 President's Budget	FY 2005 President's Budget
FY 2003 President's Budget	17.258	19.725	19.950	20.235
Current Budget Submit	17.513	26.758	37.323	42.390
Total Adjustments	0.255	7.033	17.373	22.155
Congressional Program Reductions		(0.567)		
Congressional Rescissions	(0.085)			
Congressional Increases				
Legacy Systems Information Assurance		7.600		
Reprogramming	0.340 [1]			
Program Adjustment			18.000	23.000
Inflation Adjustment			(0.627)	(0.845)

Notes:
1. **Reprogramming from 060580D4 to PE 0605118D**

C. (U) OTHER PROGRAM FUNDING NA

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)	February 2003
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY SIX	LIVE FIRE TESTING (LFT) PROGRAM ELEMENT (PE) 0605131D8Z

$'s in Millions	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
PE 0605131D	12.736	15.791	10.074	10.209	10.390	10.546	10.759	10.958

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

This PE directly supports the Congressional statutory requirements for oversight of Live Fire Test and Evaluation (LFT&E). The primary objective of LFT&E is to assure that the vulnerability and survivability of Department of Defense (DoD) crew-carrying weapons platforms and the lethality of our conventional munitions are known and acceptable before entering full-rate production. LFT&E encompasses realistic tests involving actual U.S. and threat hardware or, if not available, acceptable surrogate threat hardware. The objective is to identify and correct design deficiencies early in the development process, and is required to be completed before weapons programs proceed beyond low-rate initial production. It also includes realistic modeling and simulation (M&S), to include pretest predictions, to assure the maximum benefit from the testing. The LFT&E program is essential, especially in view of the escalating costs of technologically sophisticated weapons systems.

The LFT PE also supports the DoD's Joint Live Fire (JLF) Program. JLF was begun in 1984 under an OSD charter to test fielded front-line U.S. and threat combat aircraft and armor systems for their vulnerabilities and fielded weapons, both U.S. and threat, for their lethalities against their respective targets. The Congress, seeing the vulnerability and lethality issues raised by the JLF program, decided that there must be legislation to require that this realistic testing be done on new systems before they reach the field. Hence the LFT Legislation, U.S. Code, Title 10, Section 2366 was passed in 1987.

In the FY 1997 DoD Appropriations Act, the Congress appropriated an initial $3.0M for the Live Fire Testing and Training (LFT&T) program, formalizing an important LFT&E program relationship. The funding strengthens the natural relationship between LFT activities and the modeling and simulation technologies being developed to support the Services' testing and training activities. The LFT&T program is directed by a Senior Advisory Group consisting of DOT&E's Deputy Director for LFT (Chair) and the four Military Service leaders for training technology located in Orlando, Florida. In FY 1998, the Congress appropriated $4.0M for continuation and expansion of the program. Again, in FY 1999, the Congress appropriated $5.0M for further continuation and expansion of the program. Once more, in FY 2000, the Congress appropriated $7.0M for continuation and expansion of the program. For FY 2001, the Congress added $7.5M to the LFT PE to continue and expand the LFT&T program, specifying that $1.5M be dedicated to the Augmented Reality for Firefighting initiative started in FY 1997. In

FY 2002 Congress added $3.0M to continue the LFT&T program. In FY 2003 Congress added $5.0M to continue the LFT&T initiative and another $1.1M to continue the augmented reality based fire fighting trainer program.

This Research Category 6.5 PE supports LFT&E management activities for the oversight of RDT&E of new systems, as well as RDT&E of fielded systems.

Program Accomplishments and Plans:

FY 2002 Accomplishments:

Reviewed and Monitored Major T&E Programs:

- Completed LFT&E technical assessments for those systems approaching due dates for reporting to Congress. Specifically, LFT&E Reports were presented on:
  - AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM) Pre-planned Product Improvement (P^3I)
  - MH-60S
- Approved LFT Strategies for:
  - KC-130J
  - Line-of-Sight Anti-Tank (LOSAT) Missile
  - Crusader
- Approved Test and Evaluation Master Plan (TEMP) for the C-5 Modernization program
- Continued Live Fire Test oversight on:
  - Advanced Medium Air-to-Air Missile (AMRAAM)
  - B-1B Lancer Conventional Mission Upgrade Program (CMUP)
  - B-2 Spirit
  - C-130 Avionics Modernization Program
  - C-130J
  - C-17A
  - C-5 Reliability and Reengineering Program
  - Combat Search and Rescue (CSAR) replacement
  - F-22 Raptor
  - Joint Air-Surface Standoff Missile (JASSM)
  - Sensor Fuzed Weapon (SFW) P^3I
  - Small Diameter Bomb (SDB)
  - Army Tactical Missile System Block II/Brilliant Anti-Armor (ATACMS/BAT) (Base BAT and P^3I BAT)
  - CH-47F Improved Cargo Helicopter Upgrade
  - RAH-66 Comanche
  - Common Missile

- Crusader
- Excalibur
- Future Combat System
- Future Scout/Cavalry System
- Interim Armored Vehicle (IAH)
- Javelin Anti-tank Missile
- OH-58D Kiowa Warrior
- Line-of-Sight Anti-Tank (LOSAT) Missile
- AH-64D Longbow Apache
- Longbow Hellfire Missile
- M1A2 Abrams Upgrade
- M2/M3 Bradley Upgrade
- M829E3 120mm round
- Multiple Launch Rocket System Guided Rocket (GMLRS)
- Objective Crew Served Weapon System (OCSWS)
- Objective Individual Combat Weapon System (OICWS)
- Sense and Destroy Armor (SADARM)
- Sensor Fuzed Munition
- Stinger Reprogrammable Microprocessor (RMP) Missile
- TOW Fire and Forget Anti-tank Missile
- UH-60M Black Hawk, the Wide Area Munition
- Advanced Amphibious Assault Vehicle (AAAV)
- Advanced Land Attack Missile (ALAM)
- Advanced Seal Delivery System (ASDS)
- AIM-9X Sidewinder
- Airborne Mine Neutralization System/Rapid Airborne Mine Clearance System (AMNS/RAMICS)
- Amphibious Helicopter-Assault (Replacement) (LHA(R)) Ship Class
- Amphibious Helicopter-Dock (LHD) Ship Class
- Amphibious Personnel-Dock (LPD-17) Ship Class
- Auxiliary Cargo / Ammunition (T-AKE) Ship Class
- Cruiser Conversion
- CVN(X) Ship Class
- DD(X) Land Attack Destroyer
- DDG-51 Destroyer
- Evolved Sea Sparrow Missile (ESSM)

- Extended Range Guided Munition (ERGM)
- F/A-18E/F
- Joint Command and Control Capability (JCC(X)) Ship Class
- Joint Standoff Weapon (JSOW) (Baseline, BLU-108, and Unitary variants)
- Joint Strike Fighter
- KC-130J aircraft
- Maritime Prepositioning Force
- MH-60R and MH-60S Helicopters
- MK-48 ADCAP torpedo
- Multi-mission Maritime Aircraft (MMA)
- Rolling Airframe Missile
- SSGN-26 OHIO Class conversion
- SSN-21 SEAWOLF / AN/BSY-2
- SSN-23 JIMMY CARTER
- SSN-774 VIRGINIA Class
- Standard Missile 2 (SM-2) Block IV
- Standoff Land Attack Missile-Expanded Response (SLAM-ER)
- Strategic Sealift Program (SSP) Ship Class
- Tactical Tomahawk Missile
- USMC H-1 Upgrades and the V-22

Managed JLF Programs:

- Conducted tests of the:
  - CH-47D Main Rotor Blade and Main Rotor Drive Train
  - Mission Abort Analysis of the C-130J,
- Conducted vulnerability tests of the:
  - H-60 Tail Rotor subsystem
  - Engine Nacelle Ballistic Fire Suppression system
  - C-130 to MANPADS
  - Foreign classified system
- Conducted lethality tests of the:
  - PGU-28/B ammunition against foreign fixed and rotary wing aircraft
  - U.S. munitions against a SCUD launcher
  - Hellfire missile against small boats
- Conducted some early evaluations in support of a foreign radio frequency (RF) weapon development
- Performed initial work on the:

- H-60 Aft Structure vulnerability
- MiG-29 Engine vulnerability
- F-16 vulnerability to airburst munitions

LFT&T:

- Continued efforts started in prior years on following projects:
  - Dismounted Infantryman Survivability and Lethality Testbed
  - Live Fire Advanced Concepts
  - Weapons Aim-point Analysis and Training Tool
  - Results of MANPADS Testing for Training
  - Moving Weapons Platform Simulator
  - Virtual Target Gunnery System
- Started following new projects:
  - Special Operations Forces Signals Training and Rehearsal System
  - Enhanced Overwater Scoring System
  - Multipurpose Terminal Control and Supporting Arms Trainer.

Official Travel:

- Perform official travel to carry out oversight of LFT&E program.

FY 2003 Plans:

Review and Monitor Major T&E Programs:

- Continue Live Fire Test oversight on:
  - Advanced Medium Air-to-Air Missile (AMRAAM)
  - B-1B Lancer Conventional Mission Upgrade Program (CMUP)
  - B-2A Spirit,
  - C-130 Avionics Modernization Program
  - C-130J
  - C-17A
  - C-5 Reliability and Reengineering Program
  - Combat Search and Rescue (CSAR) replacement
  - F-22 Raptor
  - Joint Air-Surface Standoff Missile (JASSM)
  - Sensor Fuzed Weapon (SFW) P^3I
  - Small Diameter Bomb (SDB)
  - CH-47F Improved Cargo Helicopter Upgrade
  - RAH-66 Comanche

- Common Missile
- Crusader
- Excalibur (155mm round)
- Future Combat System
- Future Scout/Cavalry System
- Interim Armored Vehicle (IAV)
- Javelin Anti-tank Missile
- OH-58D Kiowa Warrior
- Line-of-Sight Anti-Tank (LOSAT) Missile
- AH-64D Longbow Apache
- Longbow Hellfire Missile
- M1A2 Abrams Upgrade
- M2/M3 Bradley Upgrade
- M829E3 120mm round
- Objective Crew Served Weapon System (OCSWS)
- Objective Individual Combat Weapon System (OICWS)
- Sense and Destroy Armor (SADARM)
- Sensor Fuzed Munition
- Stinger Reprogrammable Microprocessor (RMP) Missile
- TOW Fire and Forget Anti-tank Missile
- UH-60M Black Hawk
- Wide Area Munition P^3I
- Advanced Amphibious Assault Vehicle (AAAV)
- AIM-9X Sidewinder Upgrade
- Army Tactical Missile System / Brilliant Anti-Armor Submunition (ATACMS/BAT) Block II BAT P^3I
- Advanced Land Attack Missile (ALAM)
- Advanced Seal Delivery System (ASDS)
- AIM-9X Sidewinder
- Airborne Mine Neutralization System/Rapid Airborne Mine Clearance System (AMNS/RAMICS)
- Amphibious Helicopter-Assault (Replacement) (LHA(R)) Ship Class
- Amphibious Helicopter-Dock (LHD) Ship Class
- Amphibious Personnel-Dock (LPD-17) Ship Class
- Auxiliary Cargo / Ammunition (T-AKE) Ship Class
- Cruiser Conversion
- CVN(X) Ship Class

- DD(X) Land Attack Destroyer
- DDG-51 Destroyer
- Evolved Sea Sparrow Missile (ESSM)
- Extended Range Guided Munition (ERGM)
- F/A-18E/F
- Joint Command and Control Capability (JCC(X)) Ship Class
- Joint Standoff Weapon (JSOW) (Baseline, BLU-108, and Unitary variants)
- Multiple Launch Rocket System (MLRS) (Guided Rocket)
- Joint Strike Fighter, Including 27mm ammunition
- KC-130J aircraft
- Maritime Prepositioning Force
- MH-60R and MH-60S Helicopters
- MK-48 ADCAP torpedo
- Multi-mission Maritime Aircraft (MMA)
- V-22 Osprey
- Rolling Airframe Missile
- SSGN-26 OHIO Class conversion
- SSN-21 SEAWOLF / AN/BSY-2
- SSN-23 JIMMY CARTER
- SSN-774 VIRGINIA Class
- Standard Missile 2 (SM-2) Block IV
- Standoff Land Attack Missile-Expanded Response (SLAM-ER)
- Strategic Sealift Program (SSP) Ship Class
- Tactical Tomahawk Missile
- USMC H-1 Upgrades

Manage JLF Programs:

- Conduct tests of the:
  - CH-47D Main Rotor Blade
  - H-60 Tail Rotor subsystem
  - H-60 Engine Nacelle Ballistic Fire Suppression system
  - CH-53 Vulnerability to AAA
  - Predator wing
  - Foreign munition vs F-16
  - PGU-28/B ammunition against foreign fixed and rotary wing aircraft
  - Foreign classified system

- Flammability Hazards aboard ships/submarines
- Weapons induced flashover

LFT&T:

- Continued efforts started in prior years on following projects:
  - Moving Weapons Platform Simulator
  - Special Operations Forces Signals Training and Rehearsal System
  - Joint Distributed Integrated Test and Training System
  - Results of MANPADS Testing for Training
  - Multipurpose Terminal Control and Supporting Arms Trainer
  - Virtual Target Gunnery System
- Started following new projects:
  - Advanced Robotics Testbed
  - Objective Individual Combat Weapon Embedded Simulation, Training, and Instrumentation
  - Support for Project Lusty
  - Super Bugsplat

Reality Fire Fighting / Homeland Security:

Provide for further development, implementation of training system upgrades, and installation of two augmented reality based damage control and training systems. One will be at a Naval Station Mayport, and the other at the New Hampshire Fire Academy.

Official Travel:

- Perform official travel to carry out oversight of LFT&E programs.

FY 2004 Plans:

Review and Monitor Major T&E Programs:

- Complete LFT&E technical assessments for those systems approaching due dates for reporting to Congress
- Continue oversight of continuing lethality and vulnerability efforts on acquisition programs

Manage JLF Programs:

- Conduct tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire programs
- Continue tests of foreign systems acquired for exploitation
- Continue to evaluate foreign targets and munitions
- Continue to invest in development of technologies that increase test realism
- Continue to improve data base management tools

Official Travel:

- Perform official travel to carry out oversight of LFT&E program.

FY 2005 Plans:

Review and Monitor Major T&E Programs:

- Complete LFT&E technical assessments for those systems approaching due dates for reporting to Congress
- Continue oversight of continuing lethality and vulnerability efforts on acquisition programs

Manage JLF Programs:

- Conduct tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire programs
- Continue tests of foreign systems acquired for exploitation
- Continue to evaluate foreign targets and munitions
- Continue to invest in development of technologies that increase test realism
- Continue to improve data base management tools

Official Travel:

- Perform official travel to carry out oversight of LFT&E program.

B. (U) PROGRAM CHANGE SUMMARY

($ in Millions)	FY 2002 Appropriation	FY 2003 President's Budget	FY 2004 President's Budget	FY 2005 President's Budget
FY 2003 President's Budget	12.797	10.102	10.244	10.412
Current Budget Submit	12.736	15.791	10.075	10.209
Total Adjustments	(0.061)	5.688	(0.169)	(0.203)
Congressional Program Reductions		(0.290)		
Congressional Rescissions	(0.061)			
Congressional Increases				
Live Fire Testing		5.000		
Reality Fire Fighting		1.100		
Inflation Adjustment		(0.121)	(0.169)	(0.203)

C. (U) OTHER PROGRAM FUNDING NA

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)				February 2003				
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY SIX			DEVELOPMENT TEST AND EVALUATION (DT&E) PROGRAM ELEMENT (PE) 0605804D8Z					
$'s in Millions	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
PE 0605804D	63.884	64.140	103.245*	104.679*	106.548*	108.925*	110.995*	113.064*

*Includes transfer of funds for JT&E transferred from PE 0605804D8Z in the RDT&E Defense-Wide Appropriation 0400 to PE 0605804D8Z in the OT&E,D Appropriation 0460.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

This program element consists of two programs: Test and Evaluation (T&E) Programs and T&E Independent Activities.

T&E Programs now consist of five activities: Threat Systems (TS); Center for Countermeasures (CCM); Joint Aircraft Survivability Program (JASP) (formerly the Joint Technical Coordinating Group on Aircraft Survivability (JTCG/AS)), Joint Technical Coordinating Group on Munitions Effectiveness (JTCG/ME) and Joint Test and Evaluation (JT&E). The JT&E program was transferred by the Department from the Under Secretary of Defense (Acquisition, Technology and Logistics) to the DOT&E effective 9 December 2002. Funding for JT&E will remain in Appropriation 0400 through FY 2003 and move to Appropriation 0460 starting in FY 2004.

The T&E programs are continuing efforts that provide management and oversight of Department of Defense (DoD) T&E functions and T&E expertise to the DoD. TS provides Office of the Secretary of Defense (OSD) policy and oversight to component threat systems and target developments to ensure increased commonality, minimize duplications and provide consistent threat representation validation for T&E. TS funds the management and oversight functions for development of common use threat specifications for threat simulators, threat representative targets and digital threat models used for T&E; integration of T&E requirements for Foreign Material Acquisition (FMA); DoD validation of threat simulators, threat representative targets, and digital threat models; analysis of advanced threat technology applications for simulators and targets; and investigation of new approaches and methods for conducting operational testing of systems and their interoperability in a realistic threat environment. CCM, a Joint Service Countermeasure (CM) T&E Center, conducts analysis, T&E, and assessment of U.S. and Foreign Electro-Optical (EO), Infrared (IR), and Millimeterwave (MMW) precision guided weapons (PGW) and systems, countermeasures (CM), counter-countermeasures, and warning devices for the Services, T&E Agencies, and the Intelligence Community. CCMs staff and the CM knowledge base developed over 30 years provide the DoD acquisition community and Warfighting Combatant Commanders with the information and expertise necessary to ensure the survival of U.S. forces on the increasingly hostile modern battlefield. The JASP was originally chartered by the

Joint Logistics Commanders (JLC) in 1971 to serve as DoD's focal point for the joint service community to enhance the non-nuclear combat survivability of aircraft. The Tri-Service Joint Aeronautical Commanders Group (JACG) rechartered this program which acts as the DoD focal point for aircraft susceptibility and vulnerability reduction research as well as survivability modeling and simulation (M&S) methodology. The JASP is the Executive Agent for the Joint Live Fire Aircraft Program managed by the Live Fire Test office of the Director, Operational Test & Evaluation (DOT&E). The JASP also develops and standardizes methodologies for the evaluation of aircraft survivability (susceptibility and vulnerability) to threat weapons. The JTCG/ME was chartered by the Joint Logistics Commanders (JLC) over 30 years ago to serve as DoD's focal point for authenticated non-nuclear munitions effectiveness information (Joint Munitions Effectiveness Manuals (JMEMs)) on all US major non-nuclear weapons. The JTCG/ME, under the auspices of the JLCs, authenticates weapons effectiveness data for use in training, systems acquisition, weaponeering, procurement, and combat modeling. JMEMs are used by the Armed Forces of the United States, NATO and other allies to plan operational missions, support training and tactics development, and support force-level analyses. The JTCG/ME also develops and standardizes methodologies for evaluation of munitions effectiveness and maintains databases for target vulnerability, munitions lethality and weapon system accuracy. JASP and JTCG/ME co-chair the Survivability/Vulnerability Information Analysis Center (SURVIAC) Technical Coordinating Group (TCG). JT&E programs are process, rather than product, focused T&E activities conducted in a joint military environment. These multi-Service programs, chartered by OSD and coordinated with the Joint Staff and Services, provide improvements in interoperability of Service systems, improvements in technical and operational concepts, solutions to joint operational issues, development and validation of joint test methodologies, and data for validating models, simulations and test beds. JT&E programs solve relevant Warfighter issues in a joint T&E environment, develop and improve Joint Test Capabilities and Methodologies. The Defense Test and Evaluation Professional Institute (DTEPI) provides computer-based training and on-line web-based training to the DoD T&E community in technical T&E subjects.

T&E Independent Activities is the only source of funding for the DOT&E for studies, analyses, management and technical support, on a continuing basis, in support of policy development, decision-making, management and oversight of the DoD T&E infrastructure, including stewardship of the Major Range and Test Facility Base (MRTFB). Studies and analyses examine the implications and consequences of current and proposed policy, plans, operations, strategies, and budgets and are essential for the oversight and management of the DOT&E mission. Funds are used to perform official travel related to the activities within this program element. *Due to the volume of work in this category, examples of the accomplishments and plans are listed in Program Accomplishments and Plans.*

This Research Category 6.5 PE supports management activities for the DOT&E oversight responsibility for T&E and the MRTFB.

Program Accomplishments and Plans:

FY 2002 Accomplishments:

T & E Programs

- Threat Systems:

- Simulators
  - Provided oversight of Service activities in support of the DoD validation program for Service threat simulators and threat digital models
  - Initiated test cases to implement the process to effectively utilize threat simulators as true distributed test resources in support of multi-Service interoperability testing in a realistic threat environment
  - Designed tool sets, created methodologies, and produced operational standards for measures of effectiveness and interoperability testing of the test cases
  - Executed the DoD validation program for threat simulators and threat digital models
  - Updated the Automated Threat Systems Handbook to maintain inventory of threat representative assets available for the T&E community
  - Continued threat support to T&E through investigations of current scientific and technical intelligence information for insertion in Service threat representation modeling programs (e.g., Standard Ultraviolet (UV) Plume Model, Integration of Laser Beam Rider Simulator Integration, Advanced Threat Algorithm Analysis, Testing of Electro-Optical Infrared (EO/IR) Surface to Air Missile (SAM) Hardware-in the-Loop (HWITL) Flyout Models, PC Based Infrared Scene Generator, and Advanced Threat System)
  - Continued cooperative technical research and test bed projects to ensure threat representation (e.g., Seeker Aided Ground Guidance (SAGG) SAM ECM Operational Testing Capability, RT SAM Models w/Digital Integrated Air Defense System (DIADS), UV Calibration and Verification System Distribution Study, and 4 Dimensional Portable and Reconfigurable Holographic System Study) adequacy for T&E.
  - Continued management oversight of Service threat simulators and threat digital models
  - Continued to provide the tools to exchange the latest scientific and technological information between test and evaluation and intelligence communities (e.g., Playback of Western Test Range (WTR) Data into the Threat System Acquisition Facility (TSAF), Distributed Threat Environment Operational Testing Capability Study)
  - Continued to manage a collaborative effort to provide support for interoperability testing in a realistic threat environment
- Targets
  - Initiated test cases to implement the process to effectively utilize threat representative targets as true distributed test resources in support of multi-Service interoperability testing in a realistic threat environment
  - Designed tool sets, planned methodologies, and produced operational standards for measures of effectiveness and interoperability testing of the test cases
  - Provided oversight of the Service activities in support of the DoD validation program for Service threat representative targets
  - Provided OSD seed funds to prototype solution to highest priority deficiencies in current target systems (e.g., Low Earth Orbit Satellite Target Control System (LEOS TCS), Urban Target Complex, Rocket Assisted Take Off (RATO) Technology, Smokey SAM Missile Warning Stimulator, and Mobile Acoustic Source)

- Supported the design/prototyping of new target M&S capabilities/tools that meet multi-Service T&E needs within common/DoD standard architectures (e.g., Decoy Countermeasures System, Subscale IR Signature Augmentation, Advanced Off-Board Countermeasures, and Radar Variations)
- Continued management oversight of Service threat representative targets
- Continued to manage a collaborative effort to provide support for interoperability testing in a realistic threat environment

- Center for Countermeasures:
  - CCM tested, analyzed, reported, or otherwise supported over 30 US and foreign PGW systems/components in a countermeasure environment, as well as CM and threat-warning systems and other activities and programs, as listed below:
  - Air Force:
    - Joint Air-Surface Standoff Missile (JASSM), Enhanced Paveway, Joint Direct Attack Munition (JDAM), C-17, Lightening, CM Red Team, AGM-65 Maverick, HH-60G Self Protection System, Sensor Fuzed Weapon (SFW)-P3I, Air National Guard Air Force Reserve Test Center (AATC) Comet, Advanced Strategic and Tactical Expendables (ASTE), A-10/F-16 Force Development Evaluation (FDE), Agent Defeat Weapon (ADW), Small Diameter Bomb, CV-22, LAZARUS/BLADES
  - Army:
    - Comanche, Modernized HELLFIRE, Future Scout Vehicle, XM-982 Excalibur, TOW Fire & Forget, AN/AVR-2A ECP, AN/VVR-3A, Longbow Hellfire, Longbow Apache, and Bat P3I, Common Missile, Advanced Infra-red CM munition (AIRCMM)
  - Navy/Marines:
    - Ship-Based Laser Acquisition System (SBLAS), Extended Range Guided Munition (ERGM), Integrated Electronic Warfare System (IEWS)/MATES, Joint Standoff Weapon (JSOW), Standoff Land Attack Missile - Expanded Response (SLAM-ER) Advanced Target Acquisition (ATA), F-18 Advanced Targeting Forward Looking Infrared (ATFLIR), Vertical Take-Off Unmanned Aerial Vehicle (VTUAV), Advanced 6” Expendable (A6E) DT
  - Foreign:
    - Foreign Rangefinder Exploitation Evaluation-G series, Night Attack Vision Exploitation G series, Foreign Global Positioning System (FGPS), Foreign Laser Adjunct Program-B (B series), Foreign Integrated Night Sights (FINS), and Foreign Active Protection System (FAPS) Phase II
  - M&S:
    - CV-22 Tiltrotor Development Test/Operational Test (DT/OT), Airborne Laser (ABL) Susceptibility Study, Direct View Optics (DVO) tests, JSOW, Foreign Laser Beam Rider (FLBR)
    - Evaluation of the new Laser Beam Rider Digital Simulation for Countermeasure Development
  - Other:

- The Technical Cooperation Program (TTCP), North Atlantic Treaty Organization (NATO) Panels TG-17 and SWG-4,
- Provided CM inputs for evolving programs, identified by the Service Acquisition PEOs/PMs
- CM Warfare Initiative:
  - Coordinated CM Warfare Initiative at the Combatant Command and MAJCOM levels, Marine Aviation Weapons and Tactics and 1st Cavalry, 4 Brigade Live-Fire
  - Directed plans for participation in operational warfighting exercises and simulations, Combatant Commander Joint Training (Millennium Challenge 2002)
  - Briefed efforts to establish capability for a Warfighter organization capable of deploying CM in conflict
  - Continued efforts to promote software modifications to warfighting models and simulations to reflect EO/IR countermeasures scenarios at the Joint and Component Service level
  - Established EO/IR CM training and equipment requirements and objectives for operational exercises and simulations
- Provided technical and analytical expertise in support of DOT&E M&S efforts
- Reviewed and analyzed technical M&S software for use in DOT&E testing environment
- Initiated support of the Test Simulation Program, which provided tools for better test planning and post test analysis

- JASP:
  - Completed the very wideband accurate direction finding project
  - Completed the M&S support for acquisition programs project
  - Completed the passive fire mitigation project
  - Completed work on the weapons bay ablative characterization project
  - Completed work on the advanced survivable Rotorcraft project
  - Completed Air System Performance Evaluation Model (ASPEM) and BRAWLER, tactical air combat simulation configuration control board
  - Completed the Advanced Joint Effectiveness Model (AJEM) test cases project
  - Completed the Radar Directed Gun Systems Simulation (RADGUNS) maintenance project
  - Completed the Reduced Aircraft Vulnerability to MANPADS project
  - Continued the Fuze Simulation & Phenomenology Investigation project
  - Continued the bonded wing survivability project
  - Continued the dynamic loading methodology project
  - Continued the Survivable Engine Control Demonstration (SECAD) Project
  - Continued the Improved Air Countermeasure with Ultra-fine Aluminum project
  - Continued the Man Portable Air Defense Weapon System (MANPADS) Impact Point assessment project
  - Continued the Advanced Low Altitude Radar Model (ALARM) maintenance project
  - Continued the Engine Damage Detection project

- Continued the proof of concept for weapons bay process
- Continued the Aerogels for retrofitted increases in aircraft survivability project
- Continued the Joint Service Surrogate seeker project
- Continued the miniaturized countermeasures for Unmanned Aerial Vehicle (UAVs)
- Continued the Tier II/III laser susceptibility project
- Continue the Solid State Laser Pointer project
- Continued the methodology to assess helicopter susceptibility to mines project
- Continued the Surface-to-Air missile credibility assessment project
- Continued the WINFIRE/ULLEX project
- Continued follow-on modeling requirements for AJEM
- Continued to support the SURVIAC Model Manager and Model Accreditation
- Continued Computation of Vulnerable Repair Time (COVART)/FASTGEN shotline prediction modelconfiguration control board
- Continued the Component Vulnerability Analysis Archive Project
- Continue the Aerogels for retrofitted increases in aircraft survivability project
- Continue the Extended Survivable Engine Control Demonstration (SECAD) Project
- Initiated the Advanced Survivable Rotorcraft Validation project
- Initiated the Integrated Survivability Analysis project
- Initiated the Ionomer Fuel Containment project
- Initiated the UAV Active Acoustic Cancellation project
- Initiated the Imaging seeker Aim Point project
- Initiated the Dry Bay Fire Model (DBFM) Ignition Phase Validation Data Assessment

- JTCG/ME:
  - Converted and updated existing JMEMs to CD-ROM format
    - JMEM Air-to-Surface Weaponeering System (JAWS) v2.2, 2.2.1, 2.2.2
    - Joint Anti-air Combat Effectiveness – Air Defense (J-ACE: AD) v2.0
    - Joint Anti-air Combat Effectiveness – Air Superiority (J-ACE: AS) v2.0
    - JMEM/Surface-to-Surface Weapons Effectiveness System (JWES) v2.0/v2.1
    - Target Manual v2.2 on JAWS
  - Conducted Configuration Management/Verification, Validation and Accreditation (VV&A) efforts on specific JTCG/ME models (i.e., Joint Service Endgame Model (JSEM), Advanced Joint Effectiveness Model (AJEM), Modular Effectiveness and Vulnerability Assessment - Ground Fixed (MEVA-GF), Modular UNIX-based Vulnerability Estimation Suite (MUVES-S2), Blast Effectiveness Against Mobile Systems/Air Blast Effects Library (BEAMS/ABEL), , Penetration Curvilinear 3-Dimensional Model (PENCURV3D), Component Vulnerability Analysis Archive (CVAA),

Joint Anti-Air Model (JAAM), Operational Requirements-based Casualty Assessment (ORCA), Joint Mean Area Effectiveness (JMAE), and Advanced Survivability Assessment Program (ASAP))

- Released JAWS 2.2 Attackversion in support of planning and operations
- Distributed products and incremental updates (JAWS v2.2.1,v2.2.2 and JWES v2.1) via the classified internet with the Joint Product and Information Access System (JPIAS) v2.0 (Books-on-line, Automated products, Models, Tri-Service Data, and Support service)
- Expanded existing databases to incorporate effectiveness data for newly fielded weapons (i.e., Air-to-Surface Basic Manual – Revision, and Surface-to-Surface Direct/Indirect Fire)
- Executed Target Vulnerability data generation (e.g., industrial targets, Non-nuclear Consumable Annual Analysis (NCAA) targets, small boats, building structures, satellite communications and Tactical Ballistic Missile (TBMs)) and methodology improvements (e.g., counter proliferation, titanium fragment penetration/equation standardization, ORCA extension, Directed Energy Weapons, Information Operations, and target model generation)
- Together with the JASP, initiated formal VV&A and released Advanced Joint Effectiveness Model (AJEM) v2.03 (HEI Deterministic Method and BETA LINUX Capability), and Joint Component Vulnerability Archive v1.0
- Developed consolidated Combatant Commands priority list and continued Combatant Commands data calls in support of FY 2003 program build requirements
- Finalized development of National Disclosure Policy and classification review for the JAWS CD-ROM to address requirements for coalition operations
- Continued the development of standardized models and methodology for Air-to-Surface, Surface-to-Surface and Anitair effectiveness calculations
    - Collateral damage module, hardened targets module
    - Building analysis module
    - JAAM
    - JAWS target acquisition
    - Joint Smart Weapons Module (JSWM)
    - GPS accuracy and multiple weapon types
- Initiated pilot programs for compliance with near-term acquisition programs to facilitate compliance with DOD 5000.2R (Brilliant Anti-Tank (BAT)/P3I, Patriot PAC III, Tactical Tomahawk (TACTOM), Evolved Sea Sparrow, JSOW SFW/SFW P3I, Joint Air to Surface Standoff Missile (JASSM), and AIM-9X)

- JT&E:
    - The JT&E discussion of work completed during FY 2002 is located in the RDT&E Defense-Wide Appropriation 0400 justification under Developmental Test and Evaluation PE 0605804D8Z.

<u>T&E Independent Activities</u>

- MRTFB Support:

- Analyzed MRTFB institutional and customer data in support of policy decisions regarding the composition and management of the MRTFBs
- Monitored and evaluated the MRTFB to ensure adequacy to meet requirements and to prevent unnecessary duplication of capabilities
- Developed and issued a summary and database of MRTFB capabilities in coordination with the Military Departments for use in assessing future capability requirements
- Analyzed MRTFB data and proposed issues for the Annual MRTFB Review. Prepared a Summary Report and follow-up to ensure implementation of DOT&E solutions to issues
- Analyzed T&E PPBS information for identification and resolution of potential shortfalls during POM and budget reviews
- Spectrum Support:
  - Analyzed and reported on alternative options for telemetry operations in higher frequency bands
  - Developed technical alternatives on issues affecting T&E infrastructure
  - Provided technical support to Range Spectrum Requirements Working Group on spectrum issues
- Telemetry Support:
  - Developed technical approach for Real Time Telemetry Network (RTTN)
  - Performed and conducted special studies on MRTFB radio spectrum issues
  - Continued to support DOT&E participation in International Consortium for Telemetry Secretary
- Special Studies (Examples):
  - Assessed the requirements for space range test capability
  - Expanded T&E Assets Identification and Monitoring Process data to include all DoD assets
  - Reviewed Service T&E modernization plans
  - Developed new planning process and data collection tools to support it
  - Initiated 15 to 20 year planning process for MRTFB modernization

- DTEPI:
  - Developed and updated T&E course and training materials for the DoD T&E community to include computer based and WEB based training. Following are examples of projects:
    - Developed WEB-based Just-in-Time Information on:
      Interoperability Test & Evaluation
    - Updated Probability and Statistics course
    - Drafted DOT&E Action Officer Training Course Narrative
- T&E M&S:
  - Reviewed and analyze technical M&S software for use in DOT&E testing environment

- Provided M&S assessments on key programs such as: Joint Modeling and Simulation System (JMASS), Joint Analytical Model and Instrumentation Program (JAMIP), Joint Distribution & Engineering Plan (JDEP) and Joint Warfare System (JWARS)
- Prepared final report on the study of military technology trends, and their impact on future M&S requirement, in support of T&E
- Initiated support of the Test Simulation Program, which will provide tools for better test planning and post test analysis

- Director, Operational Test and Evaluation Enterprise Knowledge Management System (DEKMS):
  - Completed and delivered the DEKMs. The system has been extended to the majority of the DOT&E enterprise and includes Test and Evaluation templates, guidelines and best practices for DoD personnel. This completes this effort
- Official Travel and Administrative Support:
  - Performed official travel in support of the DOT&E oversight of T&E infrastructure
  - Procured administrative support to carry out oversight of DOT&E programs
- Accounting and Financial Management Support:
  - Provided accounting and financial management support to the DOT&E

FY 2003 Plans:

T & E Programs:

- Threat Systems:
  - Simulators
    - Continue threat support to T&E through investigations of current scientific and technical intelligence information for insertion in Service threat representation modeling programs (e.g., Laser Beam Rider Simulator Integration, IR SAM Design of Experiments, High Fidelity Early Warning Sensor Modeling, and Infrared Missile Plume Signature)
    - Continue the cooperative technical research and test bed projects to ensure threat representation (e.g., UV Calibration and Verification System Distribution Study, IR MANPADS Endgame Methodology, Dynamic Clutter Modeling for Radar Environment Simulator, and End-to-End Requirements Study (E2E)) adequacy for T&E.
    - Continue to provide the tools to exchange the latest scientific and technological information between T&E and intelligence communities (e.g., Project Lusty - MiG Live Fire Evaluation , and Tests Event Model (TEM))
    - Update the Automated Threat Systems Handbook to maintain inventory of threat representative assets available for the T&E community
    - Complete initiation of test cases to implement the process to effectively utilize threat simulators as true distributed test resources in support of multi-Service interoperability testing in a realistic threat environment
    - Continue oversight of Service threat simulators and threat digital models
    - Complete collaborative effort to provide support for interoperability testing in a realistic threat environment

- Complete tool set design, methodology creation, and production of operational standards for measures of effectiveness and interoperability testing of the test cases
- Execute the DoD validation program for threat simulators and threat digital models
- Provide oversight of Service activities in support of the DoD validation program for Service threat simulators and threat digital models
- Provide threat assessment for DOT&E planning and evaluation
- Initiate technical investigations to identify solutions for effectively representing asymmetric threats to include Chemical, Biological, Radiological, and Nuclear (CBRN); Information Warfare (IW); and terrorism-related threats to Homeland Defense in testing of U.S. weapons systems

- Targets
  - Continue oversight of Service threat representative target programs
  - Complete initiation of test cases to implement the process to effectively utilize threat representative targets as true distributed test resources in support of multi-Service interoperability testing in a realistic threat environment
  - Complete the design of tool sets, creation of methodologies, and production operational standards for measures of effectiveness and interoperability testing of the test cases
  - Complete collaborative efforts to provide support for interoperability testing in a realistic threat environment
  - Provide oversight of the Service activities in support of the DoD validation program for Service threat representative targets
  - Provide OSD seed funds to prototype solutions to highest priority deficiencies in current target systems (e.g., Threat 'D' Study, Interferometric Inverse Synthetic Aperture Radar (IFISAR) --3-D Radar, Low Earth Orbit Satellite Target Control System (LEOS TCS)), and Rocket Assisted Take Off (RATO) Technology
  - Support the implementation of new target modeling and simulation capabilities /tools that meet multi-Service T&E needs within common/DoD standard architectures (e.g., Subscale Aerial Target (SSAT) IR Countermeasures, Mobile Acoustic Source, Advanced Off Board Countermeasures, Subscale Aerial Target (SSAT) IR Signature Augmentation, Derived Radar Altitude Penetration Enhancement (DRAPE), and Decoy and Countermeasures)

- Center for Countermeasures:
  - CCM will test, analyze, report, and otherwise support over 30 US and foreign PGW systems/components in a countermeasure environment, as well as CM and threat-warning systems and other activities and programs, as listed below:
  - Air Force:
    - JASSM, HH-60G SPS, AATC Comet, ASTE, A-10/F-16 FDE, Small Diameter Bomb, CV-22, Agent Defeat Weapon, LAZARUS/BLADES, and Joint Precision Autonomous Landing System (JPALS)
  - Army:

- Comanche Passive Defensive Suite, Comanche Laser Warning Set, Modernized Hellfire, Future Scout Vehicle, XM-982 Excalibur, Common Missile, Longbow Hellfire, Longbow Apache, Bat P3I, VVR-3A, and AVR-2 ECP
- Navy/Marines:
  - VTUAV, ATFLIR, IEWS/MATES, ERGM, Tactical Aircraft Directed IR CM (TADIRCM), F/A-18 Kinematic Flare development, MV-22, A6E, SBLAS, and STARLIGHT flash expendable
- Foreign:
  - Foreign Rangefinder Exploitation Evaluation H series, Night Attack Vision Exploitation H series, Foreign Laser Beamrider, Foreign Laser Guided Projectiles, WHEAT SPEAR, FAPS-II, and FGPS
- M&S:
  - MV/CV-22 Tiltrotor and Direct View Optics (DVO) tests. Incorporate multimode sensor guidance and Focal Plane Array technology
  - Assess initial applications of the new laser beamrider digital simulation
- Other:
  - TTCP (Trials Dic-Dic and Blackbear), NATO Panels TG-17 and SWG-4
  - Provide CM inputs for evolving programs, identified by the Service Acquisition PEOs/PMs
  - CM Warfare Initiative:
    - Coordinate CM Warfare Initiative at the Combatant Command and MAJCOM levels, MAWTS-1 and 1st Cavalry, 4th Brigade Live-Fire
    - Continue efforts establishing capability for a Warfighter organization capable of deploying CM in conflict
    - Continue to provide inputs for EO/IR CM training and equipment and Joint Interoperability Tasks to establish requirements and objectives for operational exercises and simulations
    - Continue to develop software modifications to warfighting models and simulations to reflect EO/IR countermeasures scenarios at the Joint and Component Service level (JCATS, JSIMS, and CASTFOREM)
    - Direct plans for participation in operational warfighting exercises and simulations (Ulchi Focus Lens, Roving Sands 2003, and NTC Rotations), Joint Red Flag 2003 and JTFEX 2003
    - Observe Victory Strike II
- Continue to provide technical and analytical expertise in support of DOT&E M&S efforts
- Develop demonstrator Test Simulation Program, which will provide tools for better test planning and post test analysis
- Review and analyze technical M&S software for use in DOT&E testing environment
- JASP:
  - Complete the bonded wing survivability project
  - Complete the dynamic loading methodology project
  - Complete the Improved Air Countermeasure with Ultra-fine Aluminum project

- Complete the Man Portable Air Defense Weapon System (MANPADS) Impact Point assessment project
- Complete the ALARM Maintenance Project
- Complete the Engine Damage Detection project
- Complete the MANPADS Impact Point Assessment
- Complete the proof of concept for weapons bay process
- Complete the Instant Firewalls project
- Complete the Joint Service Surrogate seeker project
- Complete the miniaturized countermeasures for UAVs
- Complete the Tier II/III laser susceptibility project
- Complete the Solid State Laser Pointer project
- Complete the Susceptibility/Vulnerability to anti-helicopter mines project
- Complete the Surface to Air missile credibility assessment project
- Complete the WINFIRE/ULLEX project
- Continue AJEM Model Maintenance
- Continue to support the SURVIAC Model Manager and Model Accreditation
- Continue to participate on the COVART/FASTGEN and air-to-air (BRAWLER) CCBs
- Continued the Component Vulnerability Analysis Archive Project
- Continue the Ionomer Fuel Containment project
- Continue the UAV Active Acoustic Cancellation project
- Continue the Imaging Seeker Aim Point project.
- Complete the DBFM Ignition Phase Validation Data Assessment
- Complete the Aerogels for retrofitted increases in aircraft survivability project
- Complete the Extended Survivable Engine Control Demonstration (SECAD) Project
- Initiate the advanced survivable Rotorcraft Validation project
- Initiate the Integrated Survivability Analysis project
- Initiate MANPADS Damage Effects Modeling
- Initiate Armor Attachment Techniques Project
- Initiate and complete Simple Passive Extinguisher (SPEX) Project
- Initiate Laser-Focal Plane Array Effects Modeling for Laser Countermeasures Optimization
- Initiate High Power Wideband Array Project
- Initiate Special Material Urban Decoy
- Initiate and complete Simulink ADA Model Requirements
- Initiate DREAM V & V into SURVIAC
- Initiate the Fire & Explosion Project
- Initiate the Imaging Infrared (IIR) Sensor and Laser Effects Model Development

  - Initiate UAV Survivability Study Initiate ABDR Effectiveness & Durability project
- JTCG/ME:
  - Develop JMEM data for most critical Combatant Command identified systems
  - Continue conversion/updates of existing JMEMs to CD-ROM format (i.e., JMEM Air-to-Surface Weaponeering System (JAWS) v2.3, Joint Anti-air Combat Effectiveness – Air Defense (J-ACE: AD) v2.0/3.0, Joint Anti-Air Combat Effectiveness - Air Superiority (J-ACE: AS) v3.0, JMEM/Surface-to-Surface Weapons Effectiveness System (JWES) v3.0, and Target Vulnerability Data Management System (TVDMS) v2.0
  - Work to reduce CD-ROM update cycles to a maximum of 14 months, and develop strategy for target-oriented JMEMs
  - Distribute products and incremental updates via the classified internet with the Joint Product and Information Access System (JPIAS) (Books-on-line, Automated products, Models, Tri-Service Data, and Support service)
  - Reduce major methodology shortcomings (vulnerability/lethality, lethal areas/effectiveness indices, etc.)
  - Continue the development of standardized models and methodology for Air-to-Surface, Surface-to-Surface and Anti-air effectiveness calculations (i.e., collateral damage, hardened targets, bridges, buildings, multiple weapon types, real time delivery accuracy/TLE, and dual stage warheads, helicopter-delivered munitions, and small boat weaponeering)
  - Conduct Configuration Management/VV&A efforts on specific JTCG/ME models (i.e., JSEM, AJEM, MEVA-GF, JMAE, ORCA, MUVES, and ASAP)
  - Together with the JASP, release Advanced Joint Effectiveness Model (AJEM) v3.0 (BRL-CAD 6.0, Updated GUI, improved penetration equations, New Encounter-V/L Interface, Improved MANPADS, and LINUX port), and Joint Component Vulnerability Archive
  - Conduct Ad-hoc Working Group to develop JMEM strategy/plan in support of the DoD High Energy Laser (HEL) program and the Joint Technology Office (JTO)
  - Continue to work on red-on-blue effectiveness data and methodology with focus on STRATCOM requirements
  - Continue to develop/sanitize JMEM products for foreign customers and coalition operations
  - Continue execution and technical coordination efforts to address Target Vulnerability data generation (e.g., Special Operations) and methodology improvements (e.g., counter proliferation, fragment penetration, Information Operations, Non-lethal weapons, blast effects, personnel casualty/ORCA extension, and target model generation)
  - Continue Combatant Command data calls in support of FY 2004 program build requirements
  - Continue to expand pilot programs for compliance with near-term acquisition programs to support JMEM production at system IOC.
  - Maintain JTCG/ME intelligence requirements account through Defense Intelligence Agency COLISEUM system
  - Assess ability of JTCG/ME Program to support training requirements of operational users for weaponeering applications
- JT&E:
  - The JT&E discussion of work to be accomplished during FY 2003 is located in the RDT&E Defense-Wide Appropriation 0400 justification under Developmental Test and Evaluation PE 0605804D8Z.

T&E Independent Activities

- Major Range and Test Facility Base (MRTFB) Support:
  - Complete development of 15 to 20 year plan for modernization of MRTFB test capabilities
  - Analyze MRTFB institutional and customer data in support of policy decisions regarding the composition and management of the MRTFBs
  - Monitor and evaluate the MRTFB to ensure adequacy to meet requirements and to prevent unnecessary duplication of capabilities
  - Develop and issue a summary and database of MRTFB capabilities in coordination with the Military Departments for use in assessing future capability requirements
  - Analyze MRTFB data and propose issues for the Annual MRTFB Review. Prepare a Summary Report and follow-up to ensure implementation of DOT&E solutions to issues
  - Analyze T&E PPBS information for identification and resolution of potential shortfalls during POM and budget reviews
  - Spectrum Support:
    - Analyze and report on alternative options for telemetry operations in higher frequency bands
    - Develop technical alternatives on issues affecting T&E infrastructure
    - Provide technical support to Range Spectrum Requirements Working Group on spectrum issues
  - Telemetry Support:
    - Continue to support DOT&E participation in International Consortium for Telemetry Secretary
    - Develop technical approach for Real Time Telemetry Network (RTTN)
    - Perform and conduct special studies on MRTFB radio spectrum issues
  - Special Studies (Examples):
    - Assess the requirements for space range test capability
    - Expand T&E Assets Identification and Monitoring Process data to include all DoD assets
- DTEPI:
  - Develop and updates T&E course and training materials for the DoD T&E community to include computer based and WEB based training. Following are examples of projects:
    - Develop computer based training course for the following topics:
      - DOT&E Action Officer Training Course
      - Update CTEIP course
- T&E M&S:
  - Provide technical and analytical expertise in support of DOT&E M&S efforts
  - Review and analyze technical M&S software for use in DOT&E testing environment
  - Provide M&S assessments on key programs such as: Joint Modeling and Simulation System (JMASS), Joint Analytical Model and Instrumentation Program (JAMIP), Joint Distribution & Engineering Plan (JDEP) and Joint Warfare System (JWARS)

- Prepare final report on the study of military technology trends, and their impact on future M&S requirement, in support of T&E
- Continue support of the Test Simulation Program, which will provide tools for better test planning and post test analysis

- Official Travel and Administrative Support:
  - Perform official travel in support of the DOT&E oversight of T&E infrastructure
  - Procure administrative support to carry out oversight of DOT&E programs
- Accounting and Financial Management Support:
  - Provide accounting and financial management support to the DOT&E

FY 2004 Plans:

T & E Programs:

- Threat Systems:
  - Simulators
    - Update the Automated Threat Systems Handbook to maintain inventory of threat representative assets available for the T&E community
    - Provide oversight of Service activities in support of the DoD validation program for Service threat simulators and threat digital models
    - Execute the DoD validation program for threat simulators and threat digital models
    - Provide threat assessment for DOT&E planning and evaluation
    - Continue threat support to T&E through investigations of current scientific and technical intelligence information for insertion in Service threat representation modeling programs (e.g., IR Air-to-Air Missile Engineering Analysis, Foreign SAM Software Analysis, and Threat Vector Model (TVM)).
    - Continue the cooperative technical research and test bed projects to ensure threat representation (e.g., Test Events Model Analysis) adequacy for T&E.
    - Continue to provide the tools to exchange the latest scientific and technological information between T&E and intelligence communities (e.g., High Speed Multi-Spectral Dual Color IR Ultra Violet Scene Projector (DCIR/UV/DUSP) for Stimulation of Installed IR/UV Missile Warning System (MWS) Sensors, and Dynamic High Speed Multi-Spectral Rendering Capability (MSRC) for IRCM Testing)
    - Continue oversight of Service threat simulators and threat digital models
    - Continue technical investigations to identify solutions for effectively representing asymmetric threats to include Chemical, Biological, Radiological, and Nuclear (CBRN); Information Warfare (IW); and terrorism-related threats to Homeland Defense in testing of U.S. weapons systems
  - Targets
    - Provide oversight of the Service activities in support of the DoD validation program for Service threat representative targets

- Provide OSD seed funds to prototype solution to highest priority deficiencies in current target systems (e.g., Underwater Tracking System, Simultaneous Short Range Air Launch Target, ECM Miniaturization, and Camouflage, Concealment, Deception (CCD) Acquisition and Signature Characterization)
- Support the implementation of new target modeling and simulation capabilities/tools that meet multi-Service T&E needs within common/DoD standard architectures (e.g., Subscale IR Countermeasures, Foreign Threat Countermeasures, Advanced Threat Receiver, Airborne Electronically Steered Antenna (AESA) and Advanced Offboard Countermeasures).
- Continue oversight of Service threat representative targets

- Center for Countermeasures:
  - CCM will test, analyze, report, and otherwise support over 30 US and foreign PGW systems/components in a countermeasure environment, as well as CM and threat-warning systems and other activities and programs, as listed below:
  - Air Force:
    - JASSM, HH-60G SPS, AATC Comet, ASTE, A-10/F-16 FDE, Small Diameter Bomb, CV-22, Agent Defeat Weapon, Wide Area Search Autonomous Attack Miniature Munition (WASAAMM), and LAZARUS/BLADES
  - Army:
    - Future Combat Systems, BAT P3I, Line of Sight Anti-tank (LOSAT), Tactical UAV, Wide Area Munition, Comanche Passive Defensive Suite, Comanche Laser Warning Set, Modernized Hellfire, Future Scout Vehicle, XM-982 Excalibur, Common Missile, Longbow Hellfire, Longbow Apache, and Bat P3I
  - Navy/Marines:
    - VTUAV, ATFLIR, IEWS/MATES, ERGM, TADIRCM, and F/A-18 Kinematic Flare development, Advanced Amphibious Assault Vehicle, Advanced Land Attack Missile, AN/AAR-47 Upgrade Missile/Laser Warning, F/A-18 E/F Super Hornet, IDECM, and MV-22
  - Foreign:
    - WHEAT SPEAR, Foreign Hand-Held Thermal Sight, and Foreign Laser Adjunct Program B series, Foreign Active Protection System-II
  - M&S:
    - MV/CV-22 Tiltrotor and DVO tests, incorporate IR flare and IR threat missiles, as required, JASSM, Small Diameter Bomb
  - Other:
    - TTCP (Trials Dic-Dic and Blackbear), NATO Panels TG-17 and SWG-4
    - Provide CM inputs for evolving programs, identified by the Service Acquisition PEOs/PMs
    - CM Warfare Initiative:
      - Coordinate CM Warfare Initiative at the Combatant Command and MAJCOM levels, MAWTS-1 and 1st Cavalry, 4th Brigade Live-Fire

- Direct plans for participation in operational warfighting exercises and simulations (Ulchi Focus Lens, and NTC, JRTC and CMTC Rotations, MEGA GOLD), Joint Red Flag 2004 and JTFEX 2004 Victory Strike
- Continue efforts establishing capability for a Warfighter organization capable of deploying CM in conflict
- Continue to provide inputs for EO/IR CM training and equipment and Joint Interoperability Tasks to establish requirements and objectives for operational exercises and simulations
- Continue to develop software modifications to warfighting models and simulations to reflect EO/IR countermeasures scenarios at the Joint and Component Service level (JCATS, JSIMS, and CASTFOREM)

- Develop demonstrator Test Simulation Program, which will provide tools for better test planning and post test analysis
- Review and analyze technical M&S software for use in DOT&E testing environment
- Continue to provide technical and analytical expertise in support of DOT&E M&S efforts

- JASP:
  - Complete participation on COVART/FASTGEN CCB
  - Complete Fuze Simulation & Phenominology Investigation project
  - Complete M&S support for acquisition programs
  - Complete Surface-to-Air missile credibility assessment project
  - Complete RADGUNS Maintenance Project
  - Complete Integrated Survivability Project
  - Complete Advanced Survivable Rotorcraft Validation Project
  - Complete UAV Active Acoustic Cancellation Project
  - Complete Imaging Seeker Aim Point Project
  - Complete Survivability Handbook rewrite
  - Complete ALARM Model Maintenance
  - Continue AJEM Model Maintenance
  - Continue SURVIAC Model Verification and Validation and Model Accreditation
  - Continue SURVIAC Model Manager Support
  - Continue Air to Air CCB for ASPEM and BRAWLER
  - Continue Component Vulnerability Analysis Archive Project
  - Continue MANPADS Damage Effects Modeling
  - Continue Imaging Seeker Countermeasures Susceptibility Study
  - Continue Laser-Focal Plane Array Effects Modeling for Laser Countermeasures Optimization
  - Continue Single Point Emitter Location (SPEL)
  - Continue ECM Waveform Profiler

- Continue High Power Wideband Array Project
- Continue Susceptibility Reduction T&E Fidelity
- Continue the Imaging Infrared (IIR) Sensor
- Initiate Rod Warhead Damage Assessment & Analysis
- Initiate projects to counter advanced threats
- Initiate projects to develop survivability enhancements in fire & explosion protection
- Initiate projects to develop survivability enhancements in flight systems
- Initiate projects to develop survivability enhancements in platform & crew protection
- Initiate projects to develop survivability enhancements in propulsion systems
- Initiate projects to develop survivability enhancements in structural design
- Initiate projects to improve survivability analysis and design tools for Model management
- Initiate projects to improve survivability analysis and design tools for M&S credibility
- Initiate projects to reduce the MANPADS threat to aircraft

- JTCG/ME:
  - Develop JMEM data for most critical Combatant Commander identified systems. Continue conversion/updates of existing JMEMs to CD-ROM format (i.e., JMEM Air-to-Surface Weaponeering System (JAWS) v3.0, Joint Anti-air Combat Effectiveness – Air Defense (J-ACE-AD) v3.0, Joint Anti-Air Combat Effectiveness - Air Superiority (J-ACE: AS) v3.0, JMEM/Surface-to-Surface Weaponeering Effectiveness System (JWES) v3.0/4.0, and Target Vulnerability Data Management System (TVDMS) v2.0). CD-ROM update cycles will be reduced
  - Develop tri-service vulnerability/lethality methodology for the HEL program
  - Distribute products via the classified internet with the Joint Product and Information Access System (JPIAS) (Books-on-line, Automated products, Models, Tri-Service Data, and Support service)
  - Reduce major methodology shortcomings
  - Conduct Configuration Management/VV&A efforts on specific JTCG/ME models (i.e., JSEM, AJEM, MEVA, MUVES, and ASAP)
  - Continue the development of standardized models and methodology for Air-to-Surface, Surface-to-Surface and Anti-air effectiveness calculations (i.e., collateral damage, hardened targets, mean area of effectiveness (MAE) and dual stage warheads)
  - Continue expansion of existing databases to incorporate data for newly fielded weapons (i.e., Air-to-Surface Basic Manual – Revision 4, and Surface-to-Surface Direct/Indirect Fire)
  - Continue execution and technical coordination efforts to address Target Vulnerability data generation (e.g., Special Operations) and methodology improvements (e.g., counter proliferation, fragment penetration, ORCA extension, and target model generation)
  - Together with the JASP, release AJEM v3.x (Fire/Dry Bay Fire Module, TBM body-to-body, ullage explosion, Ground-mobile documentation, Supporting ASP documentation on CD, Fault Tree and Damage Assessment List, Common

AJEM/MUVES GUI, ORCA Integration, Fire Prediction Model Integration, and BEAMS/ABEL Integration – Blast Load), and Joint Component Vulnerability Archive.
- Continue Combatant Commander data calls in support of FY 2005 program build requirements
- Continue to expand pilot programs for compliance with near-term acquisition programs to support JMEM production at system IOC
- Continue to develop/sanitize JMEM products for foreign customers and coalition operations

- JT&E:
  - Oversight of the JT&E programs.
  - Complete JGPSCE, conduct outbriefings, distribute the final reports, and transition legacy products.
  - Continue JCMD, JBDA, JC2ISR, JUAV-TSO, JMACA, JLOG-PE and SAC-prioritized FY 2003 joint tests.
  - Charter the SAC prioritized FY 2003 Feasibility Studies as Joint Tests and commence testing activities.
  - Conduct JT&E annual review of nominations for potential feasibility studies for conduct in FY 2005.
  - Determine through SAC prioritization the FY 2004 Feasibility Studies.

T&E Independent Activities

- Major Range and Test Facility Base (MRTFB) Support:
  - Analyze MRTFB institutional and customer data in support of policy decisions regarding the composition and management of the MRTFBs
  - Monitor and evaluate the MRTFB to ensure adequacy to meet requirements and to prevent unnecessary duplication of capabilities
  - Develop and issue a summary and database of MRTFB capabilities in coordination with the Military Departments for use in assessing future capability requirements
  - Analyze MRTFB data and propose issues for the Annual MRTFB Review. Prepare a Summary Report and follow-up to ensure implementation of DOT&E solutions to issues
  - Analyze T&E PPBS information for identification and resolution of potential shortfalls during POM and budget reviews
  - Spectrum Support:
    - Analyze and report on alternative options for telemetry operations in higher frequency bands
    - Develop technical alternatives on issues affecting T&E infrastructure
    - Provide technical support to Range Spectrum Requirements Working Group on spectrum issues
  - Telemetry Support:
    - Develop technical approach for Real Time Telemetry Network (RTTN)
    - Perform and conduct special studies on MRTFB radio spectrum issues
    - Continue to support DOT&E participation in International Consortium for Telemetry Secretary
  - Special Studies (Examples):
    - Develop Space range plan
    - Review and revise MRTFB funding policy directives

- Refine Hypersonics test capabilities modernization plan

- DTEPI:
  - Develop and update T&E course and training materials for the DoD T&E community to include computer based and WEB based training. Following are examples of projects:
    - Develop computer based training course for the following topics:
      - Range Safety Training Course
      - Test & Evaluation Overview
- T&E M&S:
  - Provide technical and analytical expertise in support of DOT&E M&S efforts
  - Review and analyze technical M&S software for use in DOT&E testing environment
  - Provide M&S assessments on key programs such as: Joint Modeling and Simulation System (JMASS), Joint Analytical Model and Instrumentation Program (JAMIP), Joint Distribution & Engineering Plan (JDEP) and Joint Warfare System (JWARS)
  - Prepare final report on the study of military technology trends, and their impact on future M&S requirement, in support of T&E
  - Continue support of the Test Simulation Program, which will provide tools for better test planning and post test analysis
- Official Travel and Administrative Support:
  - Perform official travel in support of the DOT&E oversight of T&E infrastructure
  - Procure administrative support to carry out oversight of DOT&E programs
- Accounting and Financial Management Support:
  - Provide accounting and financial management support to the DOT&E

FY 2005 Plans:

T & E Programs:

- Threat Systems:
  - Simulators
    - Provide oversight of Service activities in support of the DoD validation program for Service threat simulators and threat digital models
    - Execute the DoD validation program for threat simulators and threat digital models
    - Provide threat assessment for DOT&E planning and evaluation
    - Update the Automated Threat Systems Handbook to maintain inventory of threat representative assets available for the T&E community
    - Implement common threat missile fly-out models used for test and evaluation
    - Conduct technical investigations and identify improvements to threat representations to ensure threat adequacy for multi-spectral sensor fusion T&E environments

- Continue improvements to threat missile representations used in end-to-end testing of missile warning and countermeasures effectiveness
- Continue oversight of Service threat simulators and threat digital models
- Continue technical investigations to identify solutions for effectively representing asymmetric threats to include Chemical, Biological, Radiological, and Nuclear (CBRN); Information Warfare (IW); and terrorism-related threats to Homeland Defense in testing of U.S. weapons systems
- Continue threat support to T&E through investigations of current scientific and technical intelligence information for insertion in Service threat representation modeling programs
- Continue the cooperative technical research and test bed projects to ensure threat representation adequacy in T&E
- Continue to provide the tools to exchange the latest scientific and technological information between T&E and intelligence communities

- Targets
  - Provide oversight of the Service activities in support of the DoD validation program for Service threat representative targets
  - Provide OSD seed funds to prototype solution to highest priority deficiencies in current target systems (e.g., Underwater Tracking System, Subscale Target Electronic Countermeasures (ECM) / Infrared (IR) Threat Realism, and Electronic Control Countermeasures (ECM) Miniaturization)
  - Support the implementation of new target modeling and simulation capabilities/tools that meet multi-Service T&E needs within common/DoD standard architectures (e.g., Subscale IR Countermeasures, and Advanced Off-Board Countermeasures)
  - Continue oversight of Service threat representative targets

- Center for Countermeasures:
  - CCM will test, analyze, report, and otherwise support over 30 US and foreign PGW systems/components in a countermeasure environment, as well as CM and threat-warning systems and other activities and programs, as listed below:
  - Air Force:
    - F-22 Raptor (AA - SA Static Seeker Test), JASSM, HH-60G SPS, AATC Comet, ASTE, A-10/F-16 FDE, Small Diameter Bomb, CV-22, Agent Defeat Weapon and WASAAMM

    Army:
    - Comanche, Future Combat Systems, BAT P3I, LOSAT, Tactical UAV, Wide Area Munition, Comanche Passive Defensive Suite, Comanche Laser Warning Set, Modernized Hellfire, Future Scout Vehicle/Calvert System, Excalibur XM-982 Common Missile, Longbow Hellfire, Longbow Apache, and Bat P3I
  - Navy/Marines:

- Evolved Sea Sparrow, Joint Strike Fighter, Rolling Airframe Missile, VTUAV, ATFLIR, IEWS/MATES, ERGM, TADIRCM, F/A-18 Kinematic Flare development, Advanced Amphibious Assault Vehicle, Advanced Land Attack Missile, AN/AAR-47 Upgrade Missile/Laser Warning, F/A-18 E/F Super Hornet, IDECM, and MV-22

- Foreign:
  - WHEAT SPEAR, Foreign Hand-Held Thermal Sight, Foreign Active Protection System-II, Foreign Laser Beamrider Live-Fire, Foreign Precision Guided Munition B series, Foreign False Target Generator, Foreign Laser Guided Projectile
- M&S:
  - MV/CV-22 Tiltrotor and DVO tests, incorporate IR flare and IR threat missiles, as required, JASSM, Small Diameter Bomb
- Other:
  - TTCP, NATO Panels TG-17 and SWG-4
  - Provide CM inputs for evolving programs, identified by the Service Acquisition PEOs/PMs
  - CM Warfare Initiative:
    - Coordinate CM Warfare Initiative at the Combatant Command and MAJCOM levels, MAWTS-1 and 1st Cavalry, 4th Brigade Live-Fire
    - Direct plans for participation in operational warfighting exercises and simulations (Ulchi Focus Lens, and NTC,JRTC and CMTC Rotations, MEGA GOLD), Joint Red Flag 2005 and JTFEX 2005, Roving Sands 2005 Victory Strike
    - Continue efforts establishing capability for a Warfighter organization capable of deploying CM in conflict
    - Continue to provide inputs for EO/IR CM training and equipment and Joint Interoperability Tasks to establish requirements and objectives for operational exercises and simulations
    - Continue to develop software modifications to warfighting models and simulations to reflect EO/IR countermeasures scenarios at the Joint and Component Service level (JCATS, JSIMS, and CASTFOREM)
- Develop demonstrator Test Simulation Program, which will provide tools for better test planning and post test analysis
- Review and analyze technical M&S software for use in DOT&E testing environment
- Continue to provide technical and analytical expertise in support of DOT&E M&S efforts

- JASP:
  - Complete Armor Attachment Techniques Project
  - Complete Rod Warhead Damage Assessment & Analysis
  - Complete Imaging Seeker Countermeasures Susceptibility Study
  - Complete Laser-Focal Plane Array (FPA) Effects Modeling for Laser Countermeasures Optimization

- Complete High Power Wideband Array Project
- Continue AJEM Model Maintenance
- Continue SURVIAC Model Verification and Validation and Model Accreditation
- Continue SURVIAC Model Manager Support
- Continue ALARM Model Maintenance
- Continue Component Vulnerability Analysis Archive Project
- Initiate projects to counter advanced threats
- Initiate projects to develop survivability enhancements in fire & explosion protection
- Initiate projects to develop survivability enhancements in flight systems
- Initiate projects to develop survivability enhancements in platform & crew protection
- Initiate projects to develop survivability enhancements in propulsion systems
- Initiate projects to develop survivability enhancements in structural design
- Initiate projects to improve survivability analysis and design tools for Model management
- Initiate projects to improve survivability analysis and design tools for M&S credibility
- Initiate projects to reduce the MANPADS threat to aircraft

- JTCG/ME:
  - Develop JMEM data for most critical Combatant Commander identified systems. Continue updates of existing JMEMs CD-ROMs (i.e., JMEM Air-to-Surface Weaponeering System (JAWS) v3.x, Joint Anti-air Combat Effectiveness – Air Defense (J-ACE-AD) v3.x, Joint Anti-Air Combat Effectiveness - Air Superiority (J-ACE: AS) v4.0, JMEM/Surface-to-Surface Weaponeering Effectiveness System (JWES) v4.0, and Target Vulnerability Data Management System (TVDMS) v3.0). Continue to reduce CD-ROM update cycles trough incremental updates. Transition to Target Oriented JMEMs
  - Together with the JASP, release AJEM v3.x and Joint Component Vulnerability Archive.
  - Develop tri-service vulnerability/lethality methodology for the DEW program
  - Distribute products via the classified internet with the Joint Product and Information Access System (JPIAS) (Books-on-line, Automated products, Models, Tri-Service Data, and Support service)
  - Conduct Configuration Management/VV&A efforts on specific JTCG/ME models
  - Continue the development of standardized models and methodology for Air-to-Surface, Surface-to-Surface and Anti-Air effectiveness calculations
  - Continue expansion of existing databases to incorporate data for newly fielded weapons (i.e., Air-to-Surface, Surface-to-Surface Direct/Indirect Fire and Anti-Air)
  - Continue execution and technical coordination efforts to address Target Vulnerability data generation and methodology improvements)
  - Continue Combatant Commander data calls in support of FY 2006 program build requirements

- Continue to engage near-term acquisition programs to support JMEM production at system IOC (i.e., bring critical developmental systems into the JMEM process)
- Continue to work National Disclosure Policy issues relative to JMEM product release for foreign customers and coalition operations

- T&E:
  - Oversight of the JT&E programs.
  - Complete JCMD, JBDA, JC2ISR, JUAV-TSO, and JMACA conduct outbriefings, distribute the final reports, and transition legacy products.
  - Continue JLOG-PE and SAC-prioritized FY 2003, and FY2004 joint tests.
  - Charter the SAC prioritized FY 2004 Feasibility Studies as Joint Tests and commence testing activities.
  - Conduct JT&E annual review of nominations for potential feasibility studies for conduct in FY 2006.
  - Determine through SAC prioritization the FY 2005 Feasibility Studies.

T&E Independent Activities

- Major Range and Test Facility Base (MRTFB) Support:
  - Analyze MRTFB institutional and customer data in support of policy decisions regarding the composition and management of the MRTFBs
  - Monitor and evaluate the MRTFB to ensure adequacy to meet requirements and to prevent unnecessary duplication of capabilities
  - Develop and issue a summary and database of MRTFB capabilities in coordination with the Military Departments for use in assessing future capability requirements
  - Analyze MRTFB data and propose issues for the Annual MRTFB Review. Prepare a Summary Report and follow-up to ensure implementation of DOT&E solutions to issues
  - Analyze T&E PPBS information for identification and resolution of potential shortfalls during POM and budget reviews
  - Spectrum Support:
    - Analyze and report on alternative options for telemetry operations in higher frequency bands
    - Develop technical alternatives on issues affecting T&E infrastructure
    - Provide technical support to Range Spectrum Requirements Working Group on spectrum issues
  - Telemetry Support:
    - Continue to support DOT&E participation in International Consortium for Telemetry Secretary
    - Develop technical approach for Real Time Telemetry Network (RTTN)
    - Perform and conduct special studies on MRTFB radio spectrum issues
- Special Studies (Examples):
    - Develop process for and initiate MRTFB modernization planning with industry
    - Update MRTFB 15 to 20 year modernization plan
    - Develop integrated test and training range plan

- DTEPI:
  - Develop and updates T&E course and training materials for the DoD T&E community to include computer based and WEB based training. Following are examples of projects:
    - Develop computer based training course for the following topics:
      -A Guide to Targets and their Capabilities
- T&E M&S:
  - Provide technical and analytical expertise in support of DOT&E M&S efforts
  - Review and analyze technical M&S software for use in DOT&E testing environment
  - Provide M&S assessments on key programs such as: Joint Modeling and Simulation System (JMASS), Joint Analytical Model and Instrumentation Program (JAMIP), Joint Distribution & Engineering Plan (JDEP) and Joint Warfare System (JWARS)
  - Prepare final report on the study of military technology trends, and their impact on future M&S requirement, in support of T&E
  - Continue support of the Test Simulation Program, which will provide tools for better test planning and post test analysis
- Official Travel and Administrative Support:
  - Perform official travel in support of the DOT&E oversight of T&E infrastructure
  - Procure administrative support to carry out oversight of DOT&E programs
- Accounting and Financial Management Support:
  - Provide accounting and financial management support to the DOT&E

B. (U) PROGRAM CHANGE SUMMARY

($ in Millions)	FY 2002 Appropriation	FY 2003 President's Budget	FY 2004 President's Budget	FY 2005 President's Budget
FY 2003 President's Budget	60.525	62.941	64.798	66.269
Current Budget Submit	63.884	64.140	103.245	104.679
Total Adjustments	3.359	1.199	38.447	38.410
Congressional Program Reductions		(1.808)		
Congressional Rescissions	(0.301)			
Congressional Increases				
Big Crow		3.500		
Reprogramming	3.660 [1]			
Program Adjustment			40.183 [2]	40.496 [2]
Inflation Adjustment		(0.493)	(1.736)	(2.086)

Notes:

1. **Reprogramming of Big Crow from PE 0605941D to 060580D4 (4.000) and reprogrammin of (0.340) from 060580D4 to PE 0605118D**
2. **Reflects the transfer of the JT&E program from USD(AT&L) Appropriation 0400 to DOT&E and Appropriation 0460**

C. (U) OTHER PROGRAM FUNDING SUMMARY: NA

OFFICE OF THE SECRETARY OF DEFENSE

OEPRATIONAL TEST AND EVALUATION, DEFENSE (0460)

SUMMARY OF FY 2004 BUDGET ESTIMATES
(In Thousands of Dollars)

Appropriation Account Title	Direct Budget Plan (TOA)				Budget Authority				Outlays			
CIS Account Title	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate
RDT&E (DoD): 0460	229.128	237.054	286.661	301.135	229.764	236.918	286.661	301.135	236.196	235.573	283.224	300.122

Operational Test and Evaluation, Defense

Exhibit PB-1, Summary of FY 2003 Budget Estimates
(Exhibit PB-1, Page 1of 1)

OFFICE OF THE SECRETARY OF DEFENSE

OPERATIONAL TEST AND EVALUATION, DEFENSE (0460)

ADVISORY AND ASSISTANCE SERVICES

(Dollars In Thousands)

OPERATIONAL TEST AND EVALUATION, DEFENSE APPROPRIATION (0460)	FY 2002 Actuals	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate
I. Management & Professional Support Services				
FFRDC Work	0	0	0	
Non-FFRDC Work	1,840	2,041	2,075	2,113
Subtotal	1,840	2,041	2,075	2,113
II. Studies, Analysis & Evaluations				
FFRDC Work	5,777	6,015	6,164	6,377
Non-FFRDC Work	0	0	0	
Subtotal	5,777	6,015	6,164	6,377
III. Engineering & Technical Services				
FFRDC Work	20,900	23,793	22,736	22,873
Non-FFRDC Work	8,999	8,116	7,192	7,295
Subtotal	29,899	31,909	31,113	31,438
TOTAL	38,078	40,279	40,006	40,601
FFRDC Work	26,677	29,808	28,900	29,250
Non-FFRDC Work	11,401	10,471	11,106	11,351

OFFICE OF THE SECRETARY OF DEFENSE

OPERATIONAL TEST AND EVALUATION, DEFENSE (0460)

COMPETITIVE AND STRATEGIC SOURCING

Negative Report

OFFICE OF THE SECRETARY OF DEFENSE

OPERATIONAL TEST AND EVALUATION, DEFENSE (0460)

INTERNATIONAL TRAVEL

Component: Director, Operational Test and Evaluation (DOT&E)
Point of Contact (Mary J. Wells/(703) 578-8222
Date: February 2003

	Prior Year
Total Obligations ($ In Thousands)	26.000
Total Number of Individuals	7

OFFICE OF THE SECRETARY OF DEFENSE

OPERATIONAL TEST AND EVALUATION, DEFENSE (0460)

Document Declassification
FY 2003 President's Budget
(Dollars in Thousands)

Appropriation	FY2001 Actual	FY 2002 Estimate	FY 2003 Estimate
0460	0	0	0
Total	0	0	0

Declassification