Exhibit R-2, RDT&E Project Justification							February 2006
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY SIX				OPERATIONAL TEST ACTIVITIES AND ANALYSES (OTA&A) PROGRAM ELEMENT (PE) 0605814OTE			
Cost ($ In Millions)	FY 2005*	FY 2006*	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
PE 0605814OTE			120.114	122.451	125.962	128.661	131.474

***Funds for FYs 2005 and FY 2006 will be found in PE 0605804D8Z. The administrative change to the Program Elements in the Operational Test and Evaluation, Defense appropriation was necessary to reflect changes brought about by the June 7, 1999 disestablishment of the Director, Test, Systems Engineering and Evaluation and the subsequent realignment of programs and responsibilities to the Director, Operational Test and Evaluation.**

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.

The T&E programs are continuing efforts that provide management and oversight of T&E functions and expertise to the Department of Defense (DoD). T&E programs consist of five activities: Joint Test and Evaluation (JT&E); Threat Systems (TS); Center for Countermeasures (CCM); Joint Technical Coordinating Group for Munitions Effectiveness (JTCG/ME); and Joint Aircraft Survivability Program (JASP).

JT&E projects are T&E activities conducted in a joint military environment that are process, rather than product, focused. These multi-Service projects, chartered by the Office of the Secretary of Defense (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 projects solve relevant warfighter issues in a joint T&E environment and develop and improve joint test capabilities and methodologies.

TS projects provide OSD policy and oversight to component threat systems developments ensuring increased commonality, and minimized duplications, and provide consistent threat representation validation for T&E. TS funds 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 technical investigations of new approaches and methods for providing a realistic threat environment for operational testing of United States (U.S.) weapon systems.

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 Millimeter Wave (MMW) precision guided weapons (PGW) and systems, countermeasures, counter-countermeasures, and warning devices for the Services, T&E Agencies, the Intelligence Community, and Homeland Defense. CCM's staff and CM knowledge base developed over more than 30 years provide the DoD acquisition community and the warfighting Combatant Commanders with the information and expertise necessary to ensure the survival of U.S. forces on the increasingly hostile modern battlefield.

JTCG/ME was chartered by the Joint Logistics Commanders (JLC) more than 30 years ago to serve as DoD's focal point for authenticated non-nuclear munitions effectiveness information (Joint Munitions Effectiveness Manuals (JMEMs)) on all major non-nuclear U.S. weapons. JTCG/ME, under the auspices of the JLCs, authenticates weapons effectiveness data for use in training, systems acquisition, weapon procurement, and combat modeling. JMEMs are used by the Armed Forces of the U.S., NATO, and other allies to plan operational missions, support training and tactics development, and support force-level analyses. JTCG/ME also develops and standardizes methodologies for evaluation of munitions effectiveness and maintains databases for target vulnerability, munitions lethality, and weapon system accuracy. Based on operational lessons learned (Southern/Northern Watch, Enduring Freedom, Iraqi Freedom), Combatant Commands (COCOMs) and Service input, specific weapon-target pairings and methodology voids were identified. These voids were created by the fielding of new weapon systems, evolving threat target sets, and a more stringent operating environment (specifically, the focus on reduced collateral damage). As a result of Joint Staff J8's review and endorsement, the DoD increased the JTCG/ME budget to correct these deficiencies. The FY 2005-2011 funding will develop target geometry models (e.g., surface mobile/fixed, air, hard/deeply buried, and ship targets) and vulnerability data. This data will be

combined with weapons characteristics, delivery accuracies, and methodology enhancements to produce effectiveness indices for the specific weapon-target pairings identified by the COCOMs and Services.

The Joint Logistics Commanders (JLC) originally chartered JASP in 1971 to serve as DoD's focal point for the joint service community to enhance the non-nuclear combat survivability of aircraft. The Commanders of Naval Air Systems Command (NAVAIR), Aviation and Missile Command (AMCOM), and Aeronautical System Center (ASC) Tri-Service (Joint Aeronautical Logistics Commanders (JALC) re-chartered 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. 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). JASP also develops and standardizes methodologies for the evaluation of aircraft survivability (susceptibility and vulnerability) to threat weapons.

The Test and Evaluation Independent Activities is the only source of funding for DOT&E studies; analyses; and management to provide continuing support of policy development oversight of the DoD test and evaluation practices, infrastructure and resources; and transformation of test methods and infrastructure to ensure future defense systems provide necessary joint warfighting capabilities. Studies and analyses examine the implications and consequences of current and proposed policy, plans, operations, strategies, and budgets and are essential for the accomplishment of the DOT&E mission. This PE funds travel in support of its activities.

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

Accomplishments/Planned Program:

FY 2005 Accomplishments:

- Please see Development Test and Evaluation Program Element 0605804D8Z

FY 2006 Plans:

- Please see Development Test and Evaluation Program Element 0605804D8Z

FY 2007 Plans:

T & E Programs:

JT&E:

- Continue JFCM Joint Test.
- Continue Joint Tests chartered in FY 2005 and 2006.
- Complete Joint Integration and Interoperability of Special Operations (JIISO), Joint Space Control Operations-Negation JSCO (N), and Joint Data Link Information Combat Execution (JDICE) Joint Tests, deliver test products, conduct out briefings, distribute the final reports, and transition capabilities.
- Complete FY 2006 Quick Reaction Tests, deliver test products, conduct out briefings, distribute the final reports, and transition capabilities.
- Continue Quick Reaction Tests (QRT) directed in FY 2006 and 2007.
- Determine which FY 2006 Joint Feasibility Studies will be chartered as Joint Tests and commence testing activities.
- Conduct JT&E annual review of nominations for potential feasibility studies and execute them from FY 2007 to FY 2008.
- Conduct periodic reviews of nominations for potential QRT and execute them from FY 2007 for FY 2008.

Threat Systems:

- Simulators:
  - Continue oversight of Service threat simulator and digital threat model development and validation efforts.
  - Continue threat support to T&E through investigations of current scientific and technical intelligence information for insertion in Service threat representation modeling programs.
  - Examine the need to provide a threat representative electronic warfare environment that will support network centric program T&E (e.g., Combined Air and Surface Electronic Warfare Threat Simulator, and Threat Electronic Warfare Test-Bed Phases II/III project).
  - Provide threat and test resource assessments for DOT&E analysis of programs on OSD's T&E Oversight List.
  - Characterize threat simulation capabilities (e.g., System Integration Laboratory/Hardware-in-the-Loop/Installed Systems Test Facility/Open Air Range (SIL/HITL/ISTF/OAR)) needed to test advanced technology Infrared Countermeasures (IRCM) systems and advanced missile systems (e.g., Infrared Model Converter, SA-7

MANPADS Simulator – Signal Processor-in-the-Loop (SPIL), Flex Play Plume Simulator Upgrade, and Multi-Engagement SPIL/HITL Study).

- Continue improvements to threat missile representations used in end-to-end testing of missile warning and countermeasures effectiveness (e.g., Accurate Miss-Distance Targets and Fly-out Models).
- Implement common threat missile fly-out models used for T&E (e.g., Radio Frequency MATLAB/Simulink Fly-out Model Integration, Mission Model-Radar Integration, and Instrumentation Suite for Aircraft/Missile Signature Measurements).
- Continue to chair DOT&E Threat Representation Validation Report Review Committee (TRVRRC) to review or approve Service-developed threat simulator and digital threat model validation reports on simulated foreign materiel used in T&E.
- Continue technical investigations to identify solutions for effectively representing asymmetric threats, to include Chemical, Biological, Radiological, and Nuclear (CBRN) threats; Information Warfare (IW); and terrorism-related threats to Homeland Defense in testing of U.S. weapons systems.
- Update the Automated Joint Threat Systems Handbook, produce and distribute to over 425 users, and update and maintain SIPRNET version.
- Conduct technical investigations and identify improvements to threat representations to ensure threat adequacy for multi-spectral sensor fusion T&E environments (e.g., Threat Deception Techniques).
- Continue the cooperative technical research and test bed projects to ensure threat representation adequacy in T&E (e.g., variations in threat system characteristics).
- Continue to provide the tools to exchange the latest scientific and technological information between T&E and intelligence communities.
- Examine the capabilities needed to execute robust and combined test events in a realistic threat environment with multiple and simultaneous threats for programs.

- Targets:
  - Provide OSD seed funds to evaluate prototype solutions addressing high priority target system deficiencies.
  - Provide oversight of Service usage, development and acquisition of target systems/activities in support of DoD.
  - Continue technical studies that will lead to improved threat representation of targets or address operational test target resource issues that were reported within the FY 2005 Defense Science Board report on Aerial Targets (e.g., Threat “D”, Rotary Wing Targets Requirements Study, Air Superiority Target, and Target Control).

- Examine studies and developments that identify/address target requirements in support of ongoing electronic warfare and computer network operations integration.
- Conduct studies to demonstrate the target capabilities needed to provide high powered electronic attack transmit capabilities on aerial targets.
- Conduct studies and developments in support of threat representative, supersonic, ASCM targets that can present appropriate trajectories, IR signatures, Radio Frequency (RF) emissions, and high g 2D/3D maneuvers.
- Conduct developments that lead to improved threat representative ground targets (including digital simulations of ground targets) suitable for testing of weapons (air and ground) with multi-mode seekers and/or aerial surveillance/reconnaissance systems used for precision targeting.
- Explore developments and studies that lead to the development of targets and threats to support the development of Offensive and Defensive Counter-space systems and subsystems.
- Continue ongoing examination of improved threat aircraft signature representation (using augmented subscale or full scale aerial targets) for end-to-end testing of advanced air defense missiles.
- Provide portable and in-situ test, threat simulation, and stimulation capabilities independent of fixed ranges to include: range independent over-the-horizon target control and data transfer, embedded instrumentation, new methods for hazard pattern development, and IRCM testing in an urban clutter environment.
- Conduct studies that address realistic threat representations of conventionally powered low Doppler submarines.
- Continue cooperative research and analysis efforts to ensure target representation adequacy in T&E.
- Conduct technical studies that examine potential target solutions to recent changes in intelligence assessments.
- Explore alternate solutions to address Rotary Wing Target requirements identified as a result of FY 2006 TMI assessments of future rotary wing threats.
- Continue efforts leading to the development of innovative target scoring capabilities to mitigate current prohibitive scoring costs.
- Explore alternatives for providing limited sets of affordable targets for testing.

CCM:

CCM will test, analyze, report, and otherwise support more than 30 U.S. and foreign PGW systems/components in a CM environment, as well as CM and threat-warning systems and other activities and programs, as listed below:

- Air Force:
  - Large Aircraft Infrared Countermeasure (LAIRCM), Directed Infrared Countermeasure (DIRCM), F 22 Raptor, Small Diameter Bomb, CV-22, LITENING-AT Pod, Low Cost Missile Warning System, Multi-function Electro-optical Defense of United States Aircraft (MEDUSA), and Powered-Low Cost Autonomous Acquisition System (P-LOCAAS).
- Army:
  - Future Combat Systems, Advanced Precision Kill Weapon System (APKWS) Developmental Test/Operational Test, Low Cost Missile Warning System Army, Tactical UAV, and AN/AVR-2B.
- Navy/Marines:
  - Vertical Takeoff Unmanned Aerial Vehicle (VTUAV), SHIELDS, Tactical Aircraft Directed Infrared Countermeasure (TADIRCM), Expeditionary Fighting Vehicle (EFV), Gunfire and Ordnance Detection System (GODS), Electronic Warfare Integrated System for Small Surface Platforms (EWISSP), Laser Beam Rider Missile Countermeasure (Starlight), Shipboard Laser Acquisition System (SBLAS), Airport Defense System (ADS), Joint Strike Fighter (F-35), Joint Unmanned Combat Air Vehicle (J-UCAV).
- Foreign:
  - FGPS, Foreign Laser Guided Projectiles (FLGP), GALIX smoke grenade, MASKE smoke grenade, Exploitation of Night Sights (EONS), and Foreign Precision Guided Munitions B (FPGM-B).
- M&S:
  - CV-22 test support.
- Other:
  - Panels:
    - The Technical Coordination Panel (TTCP).
    - Foreign Material Exploitation Working Group.
    - Precision Strike Association.
    - Threat Simulation Investment Working Group.
    - Air Force Directed Energy Task Force – Laser.
  - Joint Aircraft Survivability Program.
  - Provide CM inputs for evolving programs, identified by the Service Acquisition PEOs/PMs.

- CM Warfare Initiative:
  - Coordinate CM Warfare support at the Combatant Command and MAJCOM levels.
  - Participate in T&E Task list operational warfighting exercises and simulations.
- Support MAWTS-1 (2 exercises) and Joint National Training Center Integration (overseas & west).
- Continue to provide inputs for EO/IR CM training, equipment, and Joint Interoperability.
- Continue to develop software modifications to Joint and Component-level simulations (JCATS and JSIMS).

- Continue to provide technical and analytical expertise to DOT&E assessment tasks.

JTCG/ME:

- Develop and release JMEM Weapon System v2.0 which will contain JMEM/Air-to-Surface and Surface-to-Surface weapons.
- Develop and release Joint Anti CE: AS v3.3 which will contain Joint Air-to-Air Model (JAAM) v3.3.
- Continue to develop JMEM data for most critical Combatant Commander identified systems.
- Continue to reduce CD-ROM update cycles through incremental updates.
- Implement tri-Service JMEM methodology for the IO program.
- Implement tri-Service JMEM methodology for the Directed Energy Weapons (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 services).
- Continue the development of standardized models/operational tools and methodology for Air-to-Surface, Surface-to-Surface and Anti-Air effectiveness calculations and conduct configuration management.
- 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 Combatant Command Targets Executive Group (CTEG) data generation and methodology improvements.
- Continue COCOMs data calls and identify critical JMEM requirements through the MRP in support of FY 2008 program build requirements.
- Continue to work with intelligence community (i.e., National Ground Intelligence Center, National Air and Space Intelligence Center, Missile and Space Intelligence Center, Office of Naval Intelligence, and Defense Intelligence Agency) to collect intelligence data for Target Geometry Model (TGM) development.
- Continue to engage near-term acquisition programs to support JMEM production at system IOC.

- Continue to work National Disclosure Policy issues relative to JMEM product release for foreign customers and coalition operations.
- Develop the (TGM), generate vulnerability data, and produce JMEM data for high-priority Combatant Command targets (e.g., surface mobile/fixed, air hard/deeply buried and ship targets).
- Refresh/update existing TGM, generate vulnerability data, and produce JMEM data for high-priority COCOM targets.
- Continue to review and approve tri-Service target surrogation techniques/methodologies to meet JMEM requirements.
- Enhance collateral damage and above/below ground hardened target to include Military Operation Urban Terrain structure.
- Implement a capabilities-based JMEM, accounting for newly fielded systems employing other than traditional kinetic damage mechanisms.
- Advance efforts to provide connectivity to real time planning systems assessing time sensitive targets.
- Conduct on-site JMEM training to Service/Joint course instructors/trainers.
- Continue to monitor technical and funding execution on all FY 2007 projects. Implement performance measures on all FY 2007 JTCG/ME projects based on the delivery of the final product.

JASP:

- Complete Impact of Electronic Limiting on Imaging Seeker Countermeasures project.
- Complete Millimeter Wave Radar Warning Receiver for Unmanned Aerial Vehicles project.
- Complete Infrared (IR)Hollow Core Photonic Bandgap Fibers project.
- Complete False Alarm Reduction Technology.
- Complete Affordable Laser Infrared Couner Measures (IRCM) Survivability System (ALISS).
- Complete Rocket Propelled Grenade (RPG) Characterization Test and Modeling Support.
- Complete Fuel Tank Ullage Vulnerability.
- Complete Spaced Armor for Rotorcraft.
- Complete Intumescent Coatings “Instant Firewall” for Passive Dry Bay Fire Protection.
- Complete Integrated Survivability Assessment (ISA) Demo for Multi-mission Maritime Aircraft (MMA).
- Complete Dry Bay Fire Model (DBFM/WINFIRE) enhancements.
- Complete JCAT Data Correlation to Vulnerability/Survivability Analysis.
- Complete Structural Response to Internal Blast.
- Complete Fuel Bladder Survivability for Fire Prediction Model.

- Continue Ground Fire to Enhance Aircrew Situational Awareness Detection, Classification, and Location.
- Continue Multifunctional Structures for Ballistic Protection.
- Continue Hydrodynamic Ram Mitigation through Pressure Wave Interaction.
- Continue SURVIAC M&S Accreditation support.
- Continue SURVIAC Model Manage support.
- Continue COVART/FASTGEN CCB support.
- Continue ESAMS Validation.
- Continue ISA Implementation for ACS.
- Continue MANPADS Damage Effects Models.
- Continue HEI Projectile Damage Effects Models.
- Continue Passive Covert Radar Countermeasures.
- Continue JASP Internet site.
- Continue JCAT efforts.
- Continue publishing the Aircraft Survivability Magazine.
- Continue JASP SIPRNET site.
- Continue JASP Aircraft Survivability Short Course.
- Initiate, continue, and complete other projects as approved for accomplishment by the principal members and OSD.

T&E Independent Activities:

- Continued analytical support for the Director's role as the principal adviser to the Secretary of Defense and the Under Secretary of Defense for Acquisition, Technology, and Logistics on operational and live fire test and evaluation and as the principal test and evaluation official within the senior management of the DoD.
- Continued analysis to support promulgation of policies and procedures for the conduct of operational test and evaluation and live fire test and evaluation in the DoD, and analysis relating to the composition of the Major Range and Test Facility Base.
- Continued analysis to support the provision of guidance to, and consultation with, senior DoD officials with respect to operational and live fire test and evaluation resources and facilities in the Department.
- Continued analysis to support review and recommendations to the Secretary of Defense on all budgetary and financial matters relating to operational and live fire test and evaluation, including operational test facilities and equipment.

- Continued analysis to support statutory annual reporting to the Secretary of Defense and the Congress on operational test and evaluation, including comments and recommendations on resources and facilities available for operational and live fire test and evaluation and levels of funding made available for operational and live fire test and evaluation activities.
- Continued analysis to support compliance with requests from Congress for information relating to operational test and evaluation in the DoD.
- Continued analysis to develop technical alternatives on issues affecting T&E resources and infrastructure.
- Continued analyses to support the Director's operational and live fire test resource requirements for the statutory biennial strategic plan reflecting the needs of the Department with respect to T&E facilities and resources.
- Administrative Support:
    - 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.

B. (U) PROGRAM CHANGE SUMMARY

($ in Millions)	FY 2005	FY 2006	FY 2007
FY 2006 President's Budget			116.672
FY 2007 President's Budget			120.114
Total Adjustments			3.442
Congressional program reductions			
Congressional rescissions			
Congressional increases			
Fiscal Guidance Adjustments			3.442
Inflation Adjustment			
Reprogramming			

C. (U) OTHER PROGRAM FUNDING: NA

D. (U) PERFORMANCE METRICS

Performance Measure: Percentage of required products, such as test planning documents, munitions effectiveness manuals, tactics-techniques-procedures, threat characteristics, assessments, and reports that are developed and delivered to program managers and customers on time.

Actual Performance and Goals:

Developmental Test and Evaluation	FY 2005 Actual	FY 2006 Goal	FY 2007 Goal
On-Time Completion Rate	86%	87%	90%

FY 2005 was the initial baseline year for the establishment of this metric. The on-time completion rate was computed on the basis of the number of required products that were submitted within established time standards relative to the total number of such products that fell due during the fiscal year. Some deliverables for FY 2005 were tracked throughout the entire year, whereas others were tracked for the final three-quarters of the year. DOT&E plans to achieve its goals for FY 2006 and FY 2007 through increased management emphasis on timely delivery of required products to customer activities.