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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)					February 2005			
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY SIX			LIVE FIRE TESTING (LFT) PROGRAM ELEMENT (PE) 0605131D8Z					
\$ in Millions	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
PE 0605131D	11.721	11.110	10.340	10.487	10.696	10.912	11.145	11.384

**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 United States (U.S.) and foreign hardware or, if not available, acceptable surrogate threat hardware. The objective is to identify and correct design deficiencies early in the development process. A completed LFT&E test report is required before weapons programs proceed beyond low-rate initial production. It also includes realistic modeling and simulation (M&S) 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 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 lethalties 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 realistic testing of new systems before they reach the field. Hence the LFT&E Legislation, U.S. Code, Title 10, Section 2366 was passed in 1987. This PE includes funds to obtain Federally Funded Research and Development Center (FFRDC) support in performing the described tasks and funds travel to carry out oversight of the LFT 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.

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In the FY 2005 DoD Appropriations Act, the Congress appropriated \$1.0M for joint test and training rapid advanced technology. Projects are funded under this test and training initiative to improve readiness, reduce casualties, and enhance mission success in combat situations.

### **Program Accomplishments and Plans:**

#### **FY 2004 Accomplishments:**

Provided LFT&E Reports to support milestone decisions on the following oversight systems:

- Evolved Seasparrow Missile (ESSM)
- Stryker Armored Vehicle
- Joint Air-to-Surface Standoff Missile
- Advanced Seal Delivery System
- AIM-9X Air-to-Air Missile
- Mortar Carrier-B Configuration of Stryker

Major T&E Programs: Worked with Services, providing oversight of Live Fire Test and Evaluation activities on:

- C-5 Reliability and Reengineering Program
- C-17 Globemaster III Advanced Cargo Aircraft
- C-130 Avionics Modernization Program
- C-130J Hercules Cargo Aircraft
- F/A-22 Raptor
- Joint Air-Surface Standoff Missile (JASSM)
- Personnel Recovery Vehicle
- Small Diameter Bomb (SDB)
- Abrams Tank Upgrade
- Army Tactical Missile System-Penetrator
- Army Theater Support Vessel
- Blackhawk (UH-60M) Upgrades
- Bradley Fighting Vehicle System Upgrade
- CH-47F Improved Cargo Helicopter Upgrade
- RAH-66 Comanche Reconnaissance Attack Helicopter
- Excalibur (Family of Precision 155mm projectiles)
- Future Combat System
- Guided Multiple Launch Rocket System

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- Joint Common Missile
- OH-58D Kiowa Warrior
- Line-of-Sight Anti-Tank (LOSAT) Missile
- AH-64D Longbow Apache
- Longbow Hellfire Missile
- Medium Extended Air Defense System
- Mid-Range Munitions
- Patriot Advanced Capability 3 (PAC-3)
- Precision Guided Mortar Munitions
- Stryker Armored Vehicle
- Surface Launched AMRAAM (SLAMRAAM)
- XM8 Lightweight Modular Weapon System
- XM29 Integrated Air Burst Weapon System
- XM307 Objective Crew Served Weapon System
- Advanced Seal Delivery System (ASDS)
- Affordable Weapon System
- AIM-9X Sidewinder Upgrade
- Airborne Mine Neutralization System (AMNS)
- AN/WSQ-11 Countermeasure Anti-Torpedo
- CH-53X Upgrade Program
- Cruiser Conversion
- CVN-21 Next Generations Nuclear Attack Carrier Ship Class
- DDG-51 Guided Missile Destroyer
- DD(X) Future Surface Combatant
- E/A-18G (electronic variant of F/A-18)
- Expeditionary Fighting Vehicle
- Evolved Seasparrow Missile (ESSM)
- Extended Range Active Missile (ERAM)
- Extended Range Guided Munition (ERGM)
- F-35 Joint Strike Fighter
- Joint Standoff Weapon (JSOW) (Baseline, BLU-108, and Unitary variants)
- KC-130J aircraft
- Long-Range Land Attack Projectile
- LHA(R) New Amphibious Assault Ship

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- LHD 8 Amphibious Assault Ship
- Littoral Combatant Ship
- LPD-17 Amphibious Transport Dock
- MH-60R Multi-mission Helicopter Upgrade
- MH-60S Utility Helicopters
- MK-48 ADCAP torpedo
- Multi-mission Maritime Aircraft (MMA)
- Maritime Prepositioning Force (Future)
- Naval Integrated Fire Control-Counter Air
- Rapid Airborne Mine Clearance System (RAMICS)
- Rolling Airframe Missile
- Surface Electronic Warfare Improvement Program
- SSGN *Ohio* Class conversion
- SSN-21 *Seawolf*/AN/BSY-2
- SSN-23 *Jimmy Carter*
- SSN-774 *Virginia* Class Submarine
- Strategic Sealift Program (SSP) Ship Class
- T-AKE *Lewis and Clark* Class of Auxiliary Dry Cargo Ships
- T-AOE(X) Triple Product Station Ships
- Tactical Tomahawk Missile
- USMC H-1 Upgrades (4BW/4BN)
- VXX Presidential Replacement Helicopter Program
- Ballistic Missile Defense Program

### JLF Programs: Conducted tests of the:

- AH-1 Vulnerability to Rocket Propelled Grenades
- H-60 Engine Nacelle Ballistic Fire Suppression system
- CH-53 Vulnerability to AAA
- Vulnerability of Close-Air-Support aircraft to 35mm Air Burst Munition
- Predator Systems Vulnerability
- Chinook Fuel Feed Plumbing Armor
- CF-6 Engine Vulnerability to MANPADS
- UH/MH-60 Dry Bay Foam
- Run Dry capability/Ballistic Vulnerability of UH/MH-60 Improved Gear Box

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- Vulnerability of Propellants
- Vulnerability of Lithium-Ion Battery Packs
- Blast Effects on composite panels
- Effects of Low Speed Rod penetration
- Effects of Large Fragment penetration
- Effects of High Obliquity Impact penetration
- Shipboard Fire Hazards
- Ship Shock testing using smaller charges

### Reality Fire Fighting Training:

- Provided for further improvements, implementation of training system upgrades, and installation of augmented reality based damage control and training systems based on U.S. Navy training requirements. Initiated evaluation of training benefits of prototype system.

### FY 2005 Accomplishments:

#### Major T&E Programs: Worked with Services, provided oversight of Live Fire Test and Evaluation activities on:

- C-5 Reliability and Reengineering Program
- C-17 Globemaster III Advanced Cargo Aircraft
- C-130 Avionics Modernization Program
- C-130J Hercules Cargo Aircraft
- F/A-22 Raptor
- B-52 Re-Engine Program
- Joint Air-to-Surface Standoff Missile (JASSM)
- Personnel Recovery Vehicle
- Small Diameter Bomb (SDB)
- Armed Reconnaissance Helicopter
- Theater Support Vessel/High Speed Connector (TSV/HSV)
- Blackhawk (UH-60M) Upgrades
- Bradley Fighting Vehicle System Upgrade A3
- CH-47F Improved Cargo Helicopter Upgrade
- Excalibur (Family of Precision 155mm projectiles)
- Future Cargo Aircraft
- Future Combat System

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- Joint Common Missile
- OH-58D Kiowa Warrior
- Line-of-Sight Anti-Tank (LOSAT) Missile
- AH-64D Longbow Apache
- Medium Extended Air Defense System
- Mobile Tactical High Energy Laser
- Patriot/MEADS Combined Aggregate Program
- Standard Surface-to-Air Missile (SM-6)
- Precision Guided Mortar Munitions
- Stryker Armored Vehicle
- Surface Launched AMRAAM (SLAMRAAM)
- XM25 25mm Airburst Weapon System
- XM29 Integrated Air Burst Weapon System
- XM307 Objective Crew Served Weapon System
- Anti-personnel Land Mine Alternative (Spider)
- Mobile Tactical High Energy Laser
- Advanced Seal Delivery System (ASDS)
- Affordable Weapon System
- Advance Medium Range Air-to-Air Missile (AMRAAM)
- Airborne Mine Neutralization System (AMNS)
- AN/WSQ-11 Countermeasure Anti-Torpedo
- Heavy Lift Replacement Helicopter Program
- CVN-21 Next Generation Nuclear Attack Carrier Ship Class
- DDG-51 Guided Missile Destroyer
- DD(X) Future Surface Combatant including Long-Range Attack Projectile
- E/A-18G (electronic variant of F/A-18)
- Expeditionary Fighting Vehicle
- Extended Range Munition (ERM)
- F-35 Joint Strike Fighter
- Joint Standoff Weapon (JSOW)
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- Littoral Combatant Ship
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- MH-60S Utility Helicopters
- Multi-mission Maritime Aircraft (MMA)
- Maritime Prepositioning Force (Future)
- Naval Integrated Fire Control-Counter Air
- Rapid Airborne Mine Clearance System (RAMICS)
- Rolling Airframe Missile Helicopter Aircraft Ship (RAM HAS)
- SSGN *Ohio* Class conversion
- SSN-21 *Seawolf*/AN/BSY-2
- SSN-774 *Virginia* Class Submarine
- T-AKE *Lewis and Clark* Class of Auxiliary Dry Cargo Ships
- T-AOE(X) Fast Combatant Support Ship
- H-1 Upgrades (4BW/4BN)
- VXX Presidential Replacement Helicopter Program
- Ballistic Missile Defense Program
- Theater High Altitude Area Defense (THAAD)
- Airborne Laser (ABL)

JLF Programs: Conducted tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire programs to support DOT&E and warfighter data needs. Tests accomplished in FY 2005 included:

- AH-1 Vulnerability to Rocket Propelled Grenades
- CH-53 Vulnerability to AAA
- Vulnerability of Predator Systems
- CF-6 Engine Vulnerability to MANPADS
- UH/MH-60 Dry Bay Foam
- UH/MH-60 Improved Durability Gearbox Run Dry/Ballistic Vulnerability
- Enhanced Powder Panel Validation
- Kiowa Warrior Cockpit Ballistic Vulnerability
- A-10 Dry Bay Foam Verification
- Helicopter Ordnance Vulnerability
- Kiowa Warrior Fuel System Ballistic Vulnerability
- A-10 Aft Fuselage Vulnerability

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- Control Surface Vulnerability to MANPADS
- Apache Ammunition Magazine Vulnerability
- Kiowa Warrior Rotor Control Subsystem Vulnerability
- Military Operations in Urban Terrain Wall Arena Tests
- Improvised Explosive Device Arena Test and Characterization
- Sensor Fuzed Weapon Cold Target Effectiveness
- FATEPEN Validation for High Energy Fragments
- Rocket Propelled Grenade Casing Fragmentation and Blast M&S Support
- Ship Damage Control Readiness Evaluation
- Hydraulic Fluid Hazards Analysis
- Shipboard Space Fire Testing
- Ship Response to Terrorist Attack
- Ship Survivability to ADL Shock
- Survivability of ships built to commercial standards
- Submarine susceptibility to mines

### Joint Test and Training Rapid Advanced Capabilities (JTTRAC) Technology Program:

- Provided funding for Warrior Reach project; providing urgent capabilities addressing U.S. Special Operations Command training/rehearsal requirements.

### FY 2006 Plans:

#### 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.

#### JLF Programs:

- Conduct tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire programs to support DOT&E and warfighter data needs.
- 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.

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**FY 2007 Plans:**

**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.

**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.

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

(\$ in Millions)	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
FY 2005 President's Budget	11.721	10.209	10.390	10.546
FY 2006 President's Budget	11.721	11.110	10.340	10.487
Total Adjustments		.901	(0.050)	(0.059)
Congressional program reductions		(.099)		
Congressional rescissions				
Congressional increases		1.000		
Fiscal Guidance Adjustments			(0.050)	(0.059)
Inflation Adjustment				
Reprogramming				

**C. (U) OTHER PROGRAM FUNDING NA**

**D. (U) ACQUISITION STRATEGY NA**

**E. (U) PERFORMANCE METRICS**

Percentage of required live fire test planning documents, assessments, and reports applicable to acquisition programs on the OSD Test and Evaluation Oversight List and other special interest programs/legacy systems that are completed and delivered to the appropriate decision makers on time.

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