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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 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 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

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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 (P³I)
 - 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) P³I
 - Small Diameter Bomb (SDB)
 - Army Tactical Missile System Block II/Brilliant Anti-Armor (ATACMS/BAT) (Base BAT and P³I BAT)
 - CH-47F Improved Cargo Helicopter Upgrade
 - RAH-66 Comanche
 - Common Missile

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- 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)

R-1 Shopping List – Item No 4- 3 of 10

Exhibit R-2, RDT&E Budget Item Justification

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- 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:

R-1 Shopping List – Item No 4- 4 of 10

Exhibit R-2, RDT&E Budget Item Justification

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- 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) P³I
 - Small Diameter Bomb (SDB)
 - CH-47F Improved Cargo Helicopter Upgrade
 - RAH-66 Comanche

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- 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 P³I
- Advanced Amphibious Assault Vehicle (AAAV)
- AIM-9X Sidewinder Upgrade
- Army Tactical Missile System / Brilliant Anti-Armor Submunition (ATACMS/BAT) Block II BAT P³I
- 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

R-1 Shopping List – Item No 4- 6 of 10

Exhibit R-2, RDT&E Budget Item Justification

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- 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

R-1 Shopping List – Item No 4- 7 of 10

Exhibit R-2, RDT&E Budget Item Justification

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- 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.

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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.

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B. (U) PROGRAM CHANGE SUMMARY

(\$ in Millions)	<u>FY 2002</u> <u>Appropriation</u>	<u>FY 2003</u> <u>President's</u> <u>Budget</u>	<u>FY 2004</u> <u>President's</u> <u>Budget</u>	<u>FY 2005</u> <u>President's</u> <u>Budget</u>
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