Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Operational Test and Evaluation, Defense	Date: February 2015
Appropriation/Budget Activity 0460: *Operational Test and Evaluation, Defense* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605131OTE / *Live Fire Test and Evaluation (LFT&E)*

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	66.568	48.423	45.142	46.882	-	46.882	49.043	49.460	50.722	51.885	Continuing	Continuing
0605131OTE: *LFT&E*	66.568	48.423	45.142	46.882	-	46.882	49.043	49.460	50.722	51.885	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element consists of three programs: Live Fire Test and Evaluation, Joint Aircraft Survivability Program (JASP), and Joint Technical Coordinating Group for Munitions Effectiveness (JTCG/ME).

This Program Element 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 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 threat 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 program and test report is required before programs proceed beyond low-rate initial production (BLRIP). LFT&E also includes realistic modeling and simulation (M&S) to examine survivability and lethality attributes not assessed during testing.

This Program Element also supports DoD's Joint Live Fire (JLF) Program and other LFT&E related initiatives. JLF was begun in 1984 under an Office of the Secretary of Defense charter to test fielded front-line combat aircraft and armor systems for their vulnerabilities as well as fielded weapons, both U.S. and foreign, for their lethality against their respective targets. Funds are also used to support other initiatives related to quick reaction requests from theater and other areas of personnel survivability.

The Joint Aircraft Survivability Program is the DoD's focal point for joint service enhancement of military aircraft non-nuclear survivability. The JASP is chartered by the commanders of the USN Naval Air Systems Command, USA Aviation and Missile Command and USAF Life Cycle Management Center to coordinate and conduct RDT&E to improve military aircraft survivability, develop and standardize aircraft survivability modeling and simulation (M&S), facilitate information exchange on aircraft survivability and support aircraft survivability education for the DoD and U.S. aircraft community. Each chartering command provides a senior aircraft survivability expert for the JASP Principal Members Steering Group (PMSG), which guides the program and approves projects for funding. The JASP assesses and reports on combat damage incidents through the Joint Combat Assessment Team (JCAT), is the Executive Agent for the Joint Live Fire Aircraft Systems Program managed by the Live Fire Test office of DOT&E.

The Joint Logistics Commanders Joint Technical Coordinating Group for Munitions Effectiveness (JTCG/ME) was chartered more than 40 years ago to serve as DoD's focal point for munitions effectiveness information. This has taken the form of widely used Joint Munitions Effectiveness Manuals (JMEMs) which address all major non-nuclear U.S. weapons. JTCG/ME authenticates weapons effectiveness data for use in training, systems acquisition, weapon procurement, and combat modeling and simulation. 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. The JMEM requirements and development processes continues to be driven by operational lessons

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Operational Test and Evaluation, Defense	Date: February 2015
Appropriation/Budget Activity 0460: *Operational Test and Evaluation, Defense I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605131OTE *I Live Fire Test and Evaluation (LFT&E)*

learned (Enduring Freedom, Iraqi Freedom, Odyssey Dawn and Inherent Resolve) and the needs of Combatant Commands, Services, Military Targeting Committee, and Operational Users Working Groups input for specific weapon-target pairings and methodologies.

This program element also includes funds to obtain Federally Funded Research and Development Center (FFRDC) expertise in performing analyses in support of described Live Fire Test and Evaluation tasks, as well as travel funds to carry out the LFT&E, JASP and JTCG/ME programs.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	48.423	45.142	47.196	-	47.196
Current President's Budget	48.423	45.142	46.882	-	46.882
Total Adjustments	-	-	-0.314	-	-0.314
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Inflation Adjustment	-	-	-0.314	-	-0.314

Exhibit R-2A, RDT&E Project Justification: PB 2016 Operational Test and Evaluation, Defense			Date: February 2015
Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605131OTE / *Live Fire Test and Evaluation (LFT&E)*	Project (Number/Name) 0605131OTE / *LFT&E*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
0605131OTE: *LFT&E*	66.568	48.423	45.142	46.882	-	46.882	49.043	49.460	50.722	51.885	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element consists of three programs: Live Fire Test and Evaluation, Joint Aircraft Survivability Program (JASP) and Joint Technical Coordinating Group for Munitions Effectiveness (JTCG/ME).

This Program Element 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 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 threat 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 program and test report is required before programs proceed beyond low-rate initial production (BLRIP). LFT&E also includes realistic modeling and simulation (M&S) to examine survivability and lethality attributes not assessed during testing.

This Program Element also supports DoD's Joint Live Fire (JLF) Program and other LFT&E related initiatives. JLF was begun in 1984 under an Office of the Secretary of Defense (OSD) charter to test fielded front-line combat aircraft and armor systems for their vulnerabilities as well as fielded weapons, both U.S. and foreign, for their lethality against their respective targets. Funds are also used to support other initiatives related to quick reaction requests from theater and other areas of personnel survivability.

The Joint Aircraft Survivability Program is the DoD's focal point for joint service enhancement of military aircraft non-nuclear survivability. The JASP is chartered by the commanders of the USN Naval Air Systems Command, USA Aviation and Missile Command and USAF Life Cycle Management Center to coordinate and conduct RDT&E to improve military aircraft survivability, develop and standardize aircraft survivability modeling and simulation (M&S), facilitate information exchange on aircraft survivability and support aircraft survivability education for the DoD and U.S. aircraft community. Each chartering command provides a senior aircraft survivability expert for the JASP Principal Members Steering Group (PMSG), which guides the program and approves projects for funding. The JASP assesses and reports on combat damage incidents through the Joint Combat Assessment Team (JCAT), is the Executive Agent for the Joint Live Fire Aircraft Systems Program managed by the Live Fire Test office of DOT&E.

The Joint Logistics Commanders Joint Technical Coordinating Group for Munitions Effectiveness (JTCG/ME) was chartered more than 40 years ago to serve as DoD's focal point for munitions effectiveness information. This has taken the form of widely used Joint Munitions Effectiveness Manuals (JMEMs) which address all major non-nuclear U.S. weapons. JTCG/ME authenticates weapons effectiveness data for use in training, systems acquisition, weapon procurement, and combat modeling and simulation. 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. The JMEM requirements and development processes continues to be driven by operational lessons

Exhibit R-2A, RDT&E Project Justification: PB 2016 Operational Test and Evaluation, Defense		Date: February 2015
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learned (Enduring Freedom, Iraqi Freedom, Odyssey Dawn and Inherent Resolve) and the needs of Combatant Commands, Services, Military Targeting Committee, and Operational Users Working Groups input for specific weapon-target pairings and methodologies.

This program element also includes funds to obtain Federally Funded Research and Development Center (FFRDC) expertise in performing analyses in support of described Live Fire Test and Evaluation tasks, as well as travel funds to carry out the LFT&E, JASP and JTCG/ME programs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Live Fire Test and Evaluation	48.423	45.142	46.882

FY 2014 Accomplishments:

Live Fire Test and Evaluation Major Test and Evaluation Programs

The FY 2014 budget provided Live Fire Test and Evaluation input for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary reports, and Beyond Low Rate Initial Production (BLRIP) reports for those programs designated for oversight by DOT&E and OUSD(AT&L). The oversight list is maintained continuously and published annually.

JLF Programs and LFT&E Initiatives

Conducted tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire programs to support DOT&E and operator needs. The need for these tests results from systems being exposed to new threats, used in new unanticipated tactics, or being operated in new combat environments, and the subsequent need for an assessment of their performance. Continued efforts in support of Personnel Protection Equipment, including testing protocols for combat helmets and body armor. Addressed urgent requests from theater that directly supported deployed Joint Combat Assessment Team investigation and report to operators.

Performed JLF projects to provide survivability data on currently fielded U.S. systems. JLF Air projects tested the vulnerability of PT6 turboprop engines, evaluated the effects of internal configuration on helicopter crew compartment fires, as well as investigated technologies/techniques to reduce generic vulnerabilities to all aircraft, such as to MANPADS, small arms, the effect of yawed projectiles and missile debris on aircraft vulnerability, the lethality of advanced projectiles, and performed a comparison of commonly used test threats. New projects investigated cabin mounted auxiliary fuel tank vulnerability, vulnerability to high energy lasers, ballistically induced hydrodynamic ram effects, and characterized fragmentation grenades. JLF Land projects continued to investigate the vulnerability of vehicles to underbody blast and the lethality of U.S. weapons against typical in-theater targets, improved validation data for modeling and simulation tools, the use and validity of manikins, helmets, and improvements to material characteristics used in modeling and simulation. New projects studied aging effects on fielded armor, irregular fragment penetration, behind helmet blunt trauma skull injuries, and improved ballistic clay formulations. JLF Sea

Exhibit R-2A, RDT&E Project Justification: PB 2016 Operational Test and Evaluation, Defense		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
projects continued to investigate ship vulnerabilities in the areas of commercial standards, equipment and component damage, vulnerabilities of designs and components for new ships, fire damage to ship components, including bulkheads, insulation, and reconfigurable spaces, investigated asymmetric boat threats, and began work on developing small boat vulnerability models. New projects investigated deep depth underwater explosions, airgun configurations for full ship shock trial alternatives, and explored configurations for augmenting ballistic manikins. Joint Aircraft Survivability Program (JASP) In FY 2014 the JASP continued work on 31 multi-year RDT&E projects and initiated 20 new projects approved by the JASP Principal Members Steering Group and OSD/DOT&E. In the area of susceptibility reduction, the JASP addressed improving the effectiveness and reducing the space, weight and power required for directed energy infrared countermeasures, electronic countermeasures technology and techniques, integrated aircraft survivability equipment, and aircrew situational awareness. In the area of vulnerability reduction, the JASP continued to address requirements for lighter and more effective vulnerability reduction technology (e.g., armor, fuel containment, fire suppression, and aircrew and passenger protection). In aircraft survivability Modeling and Simulation (M&S), the JASP continued to improve survivability M&S credibility, address operator requirements for survivability data, integrate DIA threat missile models into threat engagement codes, improve the assessment of aircrew and passenger injuries, and address M&S requirements identified by the joint aircraft survivability community. The JASP completed 42 reports documenting efforts accomplished in FY 2014. The JCAT continued to support the Air Force, Army, Marine Corps and Navy by assessing combat damage incidents, training operators on threat effects and combat damage assessment, and reporting their findings to combatant commanders and the DoD science and technology and acquisition communities. The JASP continued supporting aircraft survivability education and information exchange through internet sites (restricted access and classified), by publishing the Aircraft Survivability Journal, developing educational materials and conducting training for the DoD and their contractors. Joint Technical Coordinating Group for Munitions Effectiveness JTCG/ME Joint Munitions Effectiveness Manual Weaponeering System (JWS) v2.1.1 software and JTCG/ME generated Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3160.01 Collateral Effects Radii (CER) tables were used for operational weaponeering and collateral damage estimation calls in direct support of operations in the AFRICOM and CENTCOM Areas of Responsibilities. To provide continued support to operational commanders, DoD targeteers, weaponeers, and planners, the JTCG/ME developed various analytical and operational methodologies and target geometric models. Additionally JTCG/ME's air-to-air and surface-to-air planning model, the Joint-Anti-air Combat Effectiveness System (J-ACE) v5.2.1 was released in April 2014 to provide aircraft survivability data.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Operational Test and Evaluation, Defense		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
The fielded JWS v2.1.1 contains the Fast Integrated Structural Tool (FIST). FIST is the JMEM operational-level methodology that incorporates the integral modules from the Building Analysis Module (BAM) and Hardened Target Module (HTM) to create a merged tool that generates weapon effectiveness and damage assessments against infrastructure targets to include buildings, bunkers, and tunnels. JWS v2.1.1 also contains approximately 180 new/updated targets, 15 new/updated munitions, new Explosive Equivalent Weights based on blast testing, and an improved 3-D viewer. In addition, JWS v2.2 development is ongoing to support coalition partners. The JTCG/ME in conjunction with the JWS Configuration Control Board and the JMEM Production Contractor (JPC) are implementing a re-marking effort in order to facilitate the documentary release of JWS. J-ACE v5.2.1 simulates air-to-air and surface-to-air engagements. Blue, Red, and Gray air-to-air missile (AAM) models; and, Red and Gray surface-to-air missile (SAM) flyout models are included. J-ACE v5.2.1 provides updated Joint Anti-Air Model (JAAM) missile fly out model including hundreds of weapon target pairings and JAAM-Enhanced Surface-to-Air Missile Simulation (ESAMS) countermeasures interface. J-ACE v5.2.1 also provides the new “Endgame Manager (EM)" software and data sets. The EM is a new application which adds missile lethality and target vulnerability. EM allows explicit evaluation of weapon miss distance, fuse performance, weapon lethality and target vulnerability. EM provides the Probability of kill given an intercept (Pk/i). Additionally, Joint Anti-Air Model (JAAM) was integrated into the Individual Combat Aircrew Display System (ICADS) and the Personal Computer Debriefing System (PCDS) for direct use for tactics, planning, and training at operational test squadrons for fighters and bombers. To more effectively support operational mission planning, particularly at USSTRATCOM, the J-ACE v5.2.1 release also provides a direct interface to force level simulations. The fidelity is adequate for studying tactics, training evaluation, relative missile performance and scenario planning. In support of the Combatant Commands and the CJCSI 3160.01, JTCG/ME provided updates for CER values for newly fielded/updated systems (e.g., SDB II, Griffin, Hellfire, GBU-49/BLU-133, etc.). In addition, the JTCG/ME released Digital Precision Strike Suite (DPSS) Collateral Damage Estimation (DCiDE) v1.1.1 with “Route CDE Capability” for operational use. This new capability has been used in support of multiple kinetic strikes since being loaded at the Task Force in Afghanistan. This tool displays accredited Collateral Damage Estimate Level 1-5 A-C series effective radii reference tables. Additionally, JTCG/ME trained nearly 300 users at 12 different Commands to support Collateral Damage Estimation decisions. In support of JMEM methodology improvement, the JTCG/ME accredited two analytical models according to JTCG/ME approved guidelines (i.e., Process Guide-2). These models are Joint Blast Analysis Model (JBAM) v1.2.2 and Integrated Munitions Effects Assessment (IMEA) v11.0.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Operational Test and Evaluation, Defense		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
To address emerging Cyber Operations Joint Munitions Effectiveness Manual (JMEM), JTCG/ME re-deployed Joint Capability Analysis and Assessment System (JCAAS) tools: Computer Network Attack Risk and Effectiveness Analyzer (CREA); Network Risk Assessment Tool (NRAT); Communications & Radar Electronic Attack & Planning Effectiveness Reference (CREAPER); Effectiveness of Psychological Influence Calculator (EPIC); and Joint Broadcast Analysis Tool (JBAT). Joint Capabilities Analysis and Assessment System in development to provide a shared interface for operational users in selecting the capabilities to best meet given objectives based on capability effectiveness derived from target vulnerability and capability characteristics. The JCAAS Cyber scope included weapon characterization; coordinating test and target data development; testing and evaluation Cyber data standards; and developing new database schema for Electronic Warfare mission planning.			
FY 2015 Plans: Live Fire Test and Evaluation Major Test and Evaluation Programs This is a continuing effort. The FY 2015 budget provides for Live Fire Test and Evaluation input for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary reports, and BLRIP reports for those programs designated for oversight by DOT&E and OUSD(AT&L). The oversight list is maintained continuosly and published annually. JLF Programs and LFT&E Initiatives Conduct tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire programs to support DOT&E and operator needs. The need for these tests results from systems being exposed to new threats, used in new unanticipated tactics, or being operated in new combat environments, and the subsequent need for an assessment of their performance. Continue efforts in support of Personnel Protection Equipment, including combat helmets and body armor. Continue to address urgent requests that directly support deployed operators and issues of importance to the Congress as they arise. Continue to perform JLF projects to provide survivability data on currently fielded U.S. systems. JLF Air projects will continue to evaluate generic technologies and techniques to decrease vulnerabilities to all aircraft, such as to MANPADS, small arms, and the performance of self-sealing fuel tanks. New projects will investigate CV-22 armor, ballistic vulnerability of fuel systems on light aircraft, percentage of oxygen allowed to prohibit fuel tank ullage explosions, and functioning of yawed armor piercing incendiary threats. JLF Land projects will continue to investigate the vulnerability of vehicles to underbody blast and the lethality of U.S. weapons against typical in-theater targets, as well as improving modeling and simulation tools by providing validation data. New projects will study fielded weapons effects to support warfighter collateral damage estimates and weapon lethality against MOUT structures. JLF Sea projects will continue to develop key components of alternatives to traditional shock trials of ships and submarines, will continue to investigate ship vulnerabilities in the areas of			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
commercial standards, equipment and component damage, and will investigate vulnerabilities of designs and components for new ships. JASP In FY 2015 the JASP will continue work on at least 34 multi-year RDT&E projects and initiate 20 new projects approved by the JASP Principal Members Steering Group and OSD/DOT&E. In the area of susceptibility reduction, the JASP will address improving the effectiveness and reducing the space, weight and power required for directed energy infrared countermeasures, electronic countermeasures technology and techniques, and aircrew situational awareness. In the area of vulnerability reduction, the JASP will continue to address requirements for lighter and more effective vulnerability reduction technology (e.g., armor, fuel containment, fire suppression, and aircrew and passenger protection). In aircraft survivability M&S, the JASP will continue to improve survivability M&S credibility, address operator requirements for survivability data, integrate DIA threat missile models into threat engagement codes, improve the assessment of aircrew and passenger injuries, and address M&S requirements identified by the joint aircraft survivability community. The JCAT will continue to support the Air Force, Army, Marine Corps and Navy by assessing combat damage incidents, training operators on threat effects and combat damage assessment, and reporting their findings to combatant commanders and the DoD science and technology and acquisition communities. The JASP will continue supporting aircraft survivability education and information exchange through internet sites (restricted access and classified), by publishing the Aircraft Survivability Journal, developing educational materials and conducting training for the DoD and their contractors. The JASP will initiate, continue and complete other projects as approved by the JASP Principal Members Steering Group and OSD/DOT&E. Joint Technical Coordinating Group for Munitions Effectiveness JTCG/ME will continue to field critical JMEMs to enable on-going COCOM operational Weaponeering and collateral damage estimation calls. In support of operational commanders, DoD targeteers, weaponeers, and planners, the JTCG/ME will release JMEM Weaponeering System (JWS) v2.2 and v2.3, Digital Precision Strike Suite (DPSS) Collateral Damage Estimation (DCiDE) Tool Version 1.2 and the Joint-Anti-air Combat Effectiveness System (J-ACE) Air Superiority (AS) v5.3 in FY 2015. JWS v2.2 will include an initial DCiDE connectivity, FIST Updates (i.e., quasi-static blast, building types, etc.) and additional updates. In total, 220 methodology, functionality, weapons/warheads/fuzes and target updates are included. JWS v2.3 will include a new Imagery Interface to implement aimpoint development leveraging the Tasked Target Text Data (T3D) data format implemented by currently fielded mission planning systems. JWS software and T3D imagery interface will be modified			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
to support integration of Electronic Light Table (ELT) viewers. Also, Modernized Integrated Database (MIDB) and Joint Targeting Toolbox (JTT) interfaces will be developed with additional capabilities to support connectivity. These developments will enable the integration of Weaponeering, Precision Point Mensuration (PPM) and Collateral Damage Estimation. JWS v2.3 will also add the updated Gunship Delivery Accuracy Program (GDAP); Rotary Wing Delivery Accuracy Program (RWDAP); Fast Integrated Structural Tool (FIST) v1.2. Based on the current guidance and direction from Joint Staff, this JWS 2.2 and future versions will be released to several key coalition partners in support of current operations at International Security Assistance Force (ISAF), Combined Air Operations Centers and Other Joint Commands. J-ACE v5.3 will provide extended and updated data sets for missile and aircraft target aero-performance, anti-air missile lethality and air target vulnerability. In particular, a total of 15 new or updated Air-to-Air (AA) or Surface-to-Air (SA) Government furnished missile or weapon fly out models will be integrated. Additionally, Joint Anti Air Model (JAAM) will be updated to include the effect of weapon system reliability on the probability of a successful engagement. Also, HIVE/BLUEMAX6 will be developed, integrated, and tested for aircraft aero performance models. BlueMax6 provides a large library of BLUE and RED aircraft models developed by the acquisition and intelligence communities. Electronic Counter-Measure (ECM) will be developed and tested for an aircraft's ECM system jamming coverage. Initially, dynamic visualization of an aircraft's ECM systems zones of coverage will allow pilots, while developing threat engagement or evasive maneuvers, to consider ECM protection with respect to the threat position. JAAM-HIVE-ESAMS software interface will be completed to enable Blue CM evaluations against Red Surface to Air Missiles. In support of Joint Capability Analysis and Assessment System (JCAAS), Cyber JMEM tools - Computer Network Attack Risk and Effectiveness Analyzer (CREA) and Network Risk Assessment Tool (NRAT) will be updated and upgraded based on Cyber operational users feedback. Additionally, range testing of Cyber capabilities and targets will be performed to provide empirical evidence of effectiveness and risk associated with the operational employment of cyber capabilities against representative targets. Test data will be collected, analyzed, archived, and reviewed – and as conditions warrant, submitted to JTCG/ME for accreditation as authoritative effectiveness and risk data for specified capability-target pairings with documented environmental conditions. JTCG/ME will develop JMEM data for most critical Combatant Commander identified systems and also reduce DVD-ROM update cycles through incremental updates. Accreditation of tri-Service JMEM operational tools will continue as well as expanding existing databases to incorporate newly fielded weapons (i.e., Air-to-Surface, Surface-to-Surface Direct/Indirect Fire, and Anti-air). Finally providing connectivity to real time planning systems assessing time sensitive targets will be addressed.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
JTCG/ME will also conduct requirement analysis of the current JWS, J-ACE, and DCiDE software to determine options to enhance long-term software maintainability and flexibility to include structural and architectural changes. ***FY 2016 Plans:*** Live Fire Test and Evaluation Major Test and Evaluation Programs This is a continuing effort. The FY 2016 budget provides Live Fire Test and Evaluation input for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary reports, and BLRIP reports for those programs designated for oversight by DOT&E and OUSD(AT&L). The oversight list is maintained continuously and published annually. 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 needs to the extent funding allows. The need for these tests result from systems being exposed to new threats, used in new unanticipated tactics, or being operated in new combat environments, and the subsequent need for an assessment of their performance. Projects will address urgent requests that directly support deployed warfighters and issues of importance to the Congress. JASP In FY 2016 the JASP will continue work on at least 26 multi-year RDT&E projects and initiate 12-17 new projects approved by the JASP Principal Members Steering Group and OSD/DOT&E. In the area of susceptibility reduction, the JASP will address improving the effectiveness and reducing the space, weight and power required for directed energy infrared countermeasures, electronic countermeasures technology and techniques, aircrew situational awareness and urgent operator needs. In the area of vulnerability reduction, the JASP will continue to address requirements for lighter and more effective vulnerability reduction technology (e.g., armor, fuel containment, fire suppression, and aircrew and passenger protection). In aircraft survivability M&S, the JASP will continue to improve survivability M&S credibility, address operator requirements for survivability data, integrate DIA threat missile models into threat engagement codes, improve the assessment of aircrew and passenger injuries, and address M&S requirements identified by the joint aircraft survivability community. The JCAT will continue to support the Air Force, Army, Marine Corps and Navy by assessing combat damage incidents, training operators on threat effects and combat damage assessment, and reporting their findings to combatant commanders and the DoD science and technology and acquisition communities. The JASP will continue supporting aircraft survivability education			

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Appropriation/Budget Activity 0460 / 6	**R-1 Program Element (Number/Name)** PE 0605131OTE / *Live Fire Test and Evaluation (LFT&E)*	**Project (Number/Name)** 0605131OTE / *LFT&E*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
and information exchange through internet sites (restricted access and classified), by publishing the Aircraft Survivability Journal, developing educational materials and conducting training for the DoD and their contractors. The JASP will initiate, continue and complete other projects as approved by the JASP Principal Members Steering Group and OSD/DOT&E. Joint Technical Coordinating Group for Munitions Effectiveness In support of operational commanders, DoD targeteers, weaponeers, and planners, the JTCG/ME will develop and release JMEM Weaponeering System (JWS) v3.0 and Joint-Anti-air Combat Effectiveness System (J-ACE) Air Superiority (AS) v5.4 during FY 2016. JWS v3.0 efforts will include Joint Mean Area Effects (JMAE) v2.2, Non-Linear Blast Tool (NBT) v1.0, Moving Target Methodology (MTM), Small Precision Munition (SPM) methodology, bomb burial interim methodology, Average Metrics (AvMat) v2.0, Joint Gun Effectiveness Model (JGEM) v3.1, Fast Integrated Structural Tool (FIST) v2.0, Penetration and Cratering Effects (PCEffects), Bridge Analysis System (BAS), Linear Target Module (LTM), Precision Munitions Planning Tool (PMPT). J-ACE v5.4 will continue to field and add Browse descriptive material to support new weapons in the Joint Anti-air Model (JAAM); enhance Personal Computer Debriefing System (PCDS) capability; evaluate HIVE/BLUEMAx6 and HERCULES to include consideration of man-in-the-loop stick and throttle maneuver input; address use of standard aircraft Operational Flight Program (OFP) weapons symbols/terminology with JAMM; and develop JAAM capability to evaluate two sided Suppression of Enemy Air Defense (SEAD) and Destruction of Enemy Air Defense (DEAD). JTCG/ME will continue to develop a predictive capability to assess blast effects, body-on-body penetration, and blast-fragment synergism and incorporate these mechanisms in the JTCG/ME estimation process for small precision weapons. Furthermore, JTCG/ME will expand the use of computational physics to improve test design and data analysis to support both analytical model development and the characterization of weapons addressing blast interactions with structures, weapon fragmentation, and penetration mechanics. JTCG/ME will develop JMEM data for most critical Combatant Commander identified systems and also reduce DVD-ROM update cycles through incremental updates. Accreditation of tri-Service JMEM operational tools will continue as well as expanding existing databases to incorporate newly fielded weapons (i.e., Air-to-Surface, Surface-to-Surface Direct/Indirect Fire, Joint Capability Analysis and Assessment System (JCAAS) and Anti-air). Finally providing connectivity to real time planning systems assessing time sensitive targets will be addressed.			
Accomplishments/Planned Programs Subtotals	48.423	45.142	46.882

Exhibit R-2A, RDT&E Project Justification: PB 2016 Operational Test and Evaluation, Defense		Date: February 2015
Appropriation/Budget Activity 0460 / 6	**R-1 Program Element (Number/Name)** PE 0605131OTE / *Live Fire Test and Evaluation (LFT&E)*	**Project (Number/Name)** 0605131OTE / *LFT&E*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

(U) Performance Measure: Percentage of required live fire test planning documents, assessments, munition effectiveness manuals, 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. Percentage of required products, such as test planning documnets, munitions effectiveness manuals, tactic-techniques and reports that are developed and delivered to program managers and customers on time.