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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2024 Operational Test and Evaluation, Defense **Date:** March 2023

<b>Appropriation/Budget Activity</b> 0460: <i>Operational Test and Evaluation, Defense / BA 6: RDT&amp;E Management Support</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605131OTE / <i>Live Fire Test and Evaluation (LFT&amp;E)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	74.048	103.549	167.953	103.252	-	103.252	107.037	106.465	104.821	106.931	Continuing	Continuing
000311: <i>LFT&amp;E</i>	74.048	103.549	167.953	103.252	-	103.252	107.037	106.465	104.821	106.931	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

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

This Program Element directly supports the Congressional statutory requirements for oversight of 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 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 supports DOD’s JLF Program, initiated 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.

JASP is the DOD’s focal point for joint service enhancement of military aircraft non-nuclear survivability. The JASP is chartered by the Commander of the U.S. Navy Naval Air Systems Command, the U.S. Assistant Secretary of the Army (Acquisition Logistics and Technology), and the Commander of the U.S. Air Force Life Cycle Management Center to increase the affordability, readiness, and effectiveness of Tri-Service aircraft through joint coordination and development of survivability technologies, design tools and assessment methodologies. The JASP coordinates and conducts RDT&E to improve military aircraft survivability, develop and standardize aircraft survivability 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, 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).

JTTCG/ME was chartered to serve as DOD’s focal point for munitions effectiveness information. The JTTCG/ME produces Joint Munitions Effectiveness Manuals (JMEMENTS) that are the sole source for all Joint Service authenticated non-nuclear weapons effectiveness data and methodology for the DOD. The JMEMENTS are the “how to” manuals for putting ordnance on target and as such, directly impacts combat readiness, effectiveness, and survivability. JMEMENTS are used by the Warfighters in operational weaponeering and collateral damage estimation (CDE) calls in direct support of operations, mission planning, and training; by the DOD, Joint, and Service planners in force-on-force M&S, mission area analysis, requirements studies, and weapon procurement planning; and by the service acquisition community in performance assessment, analysis of alternatives, and survivability enhancement studies. The JTTCG/ME continually evolves weapons effectiveness and target vulnerability data, standards, methodologies, and processes based on the strategic environment for better munitions effectiveness evaluation and support to a more lethal force. JTTCG/ME

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also increases efficiency by leveraging ongoing DOD efforts and supporting the DOD's intent to complement U.S. interest and capabilities by providing weaponeering and targeting capability to coalition partners.

The JMEM requirements and development processes are driven by operational lessons learned (e.g. Inherent Resolve, Resolute Support, and Freedom Sentinel); Joint Staff data calls, and the needs of Combatant Commands (CCMDs), the Services, the Military Targeting Committee (MTC) guided by Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 5140.01, Munitions Requirements Process (MRP) - DOD Instruction (DODI) 3000.04 and Operational Users Working Groups (OUWGs) input for specific weapon-target pairings and methodologies. Considerable effort goes into these user forums to establish Warfighter requirements for current and future JTCG/ME products, as well as continued training events and day-to-day support - all with the goal of enabling greater force lethality, strengthened partner capabilities, and optimal use of resources.

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

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
Previous President's Budget	68.549	99.947	101.661	-	101.661
Current President's Budget	103.549	167.953	103.252	-	103.252
Total Adjustments	35.000	68.006	1.591	-	1.591
• Congressional General Reductions	-	-1.194			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	35.000	69.200			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Inflation/Travel Adjustments	-	-	1.591	-	1.591

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 000311: *LFT&E*

Congressional Add: *Program Increase: Lab and Test Range Upgrades*

Congressional Add: *Program Increase: Test Capabilities Acceleration - Electromagnetic Spectrum*

Congressional Add: *Program Increase: Test Capabilities Acceleration - Hypersonics*

Congressional Add: *Program Increase: Test Capabilities Acceleration - Space Systems*

Congressional Add: *Program Increase: Test Capabilities Acceleration - Data Management*

	<b>FY 2022</b>	<b>FY 2023</b>
	35.000	-
	-	41.000
	-	10.000
	-	15.000
	-	3.200

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**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

	FY 2022	FY 2023
Congressional Add Subtotals for Project: 000311	35.000	69.200
Congressional Add Totals for all Projects	35.000	69.200

**Change Summary Explanation**

Increased funding reflects inflation cost growth in programs.

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<b>Appropriation/Budget Activity</b> 0460 / 6					<b>R-1 Program Element (Number/Name)</b> PE 0605131OTE / <i>Live Fire Test and Evaluation (LFT&amp;E)</i>				<b>Project (Number/Name)</b> 000311 / <i>LFT&amp;E</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
000311: <i>LFT&amp;E</i>	74.048	103.549	167.953	103.252	-	103.252	107.037	106.465	104.821	106.931	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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also increases efficiency by leveraging ongoing DOD efforts and supporting the DOD's intent to complement U.S. interest and capabilities by providing weaponeering and targeting capability to coalition partners.

The JMEM requirements and development processes are driven by operational lessons learned (e.g. Inherent Resolve, Resolute Support, and Freedom Sentinel); Joint Staff data calls, and the needs of Combatant Commands (CCMDs), the Services, the Military Targeting Committee (MTC) guided by Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 5140.01, Munitions Requirements Process (MRP) - DOD Instruction (DODI) 3000.04 and Operational Users Working Groups (OUWGs) input for specific weapon-target pairings and methodologies. Considerable effort goes into these user forums to establish Warfighter requirements for current and future JTCG/ME products, as well as continued training events and day-to-day support - all with the goal of enabling greater force lethality, strengthened partner capabilities, and optimal use of resources.

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

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2022	FY 2023	FY 2024
<p><b>Title:</b> Live Fire Test and Evaluation</p> <p><b>Description:</b> LFT&amp;E of Major DOD Acquisition Programs</p> <p>The FY 2024 request will enable DOT&amp;E to assess the adequacy of LFT&amp;E strategies/plans and generate new LFT&amp;E policies to support systems' acquisitions and rapid fielding. The FY 2024 request will ensure adequate execution of the LFT&amp;E plans and subsequent ability to conduct independent analysis of survivability and lethality test and M&amp;S data in support of OSD LFT&amp;E reports to Congress.</p> <p><b>FY 2023 Plans:</b> JLF</p> <p>The FY 2023 budget will align with DOT&amp;E's Science &amp; Technology Strategic Plan/Update, National Defense Strategy (NDS) objectives, and the Secretary of Defense's priorities. It will support a more lethal force by increasing the accuracy and capability of critical M&amp;S tools to support T&amp;E efficiency and ensure credibility of DOD assessments and weaponeering tools. The FY 2023 program will continue to focus on multi-year initiatives such as Verification, Validation and Accreditation (VV&amp;A) standardization through collaborative efforts with the Department of Energy (DOE) national labs that includes model uncertainty quantification and experimentation measurement uncertainty, warhead lethality, data analytics, and expand non-kinetic efforts to include Electronic Warfare (EW) effects. JLF efforts will also resolve survivability and lethality related system design challenges of currently fielded U.S. systems while maintaining awareness of LFT&amp;E challenges across all air, ground, and sea domains. Finally, JLF will continue to lead innovation in LFT&amp;E methods to increase LFT&amp;E efficiency and support rapid fielding.</p>	68.549	98.753	103.252

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Specifically, the FY 2023 program will continue development of new tools and methods to advance lethality evaluation of kinetic weapons (to include hypersonic weapons) through the sustained advanced warhead characterization program, updating multi-phased blast explosive (MBX) M&amp;S through Arbitrary Lagrangian-Eulerian 3D (ALE3D) high-fidelity modeling, further analyze blast test data and model predictions from unique 1/9th scale experimentation, and accelerate and expand projects to support hypersonic weapons in the areas of testing and M&amp;S of nod-ideal aluminized explosives.</p> <p>JLF plans to advance the evaluation of survivability of U.S. weapon systems and forces against kinetic threat engagements by adopting the Virtuous circle of Modeling-Experiment-validated Model (VMEM) process to validate a behind armor debris high-fidelity penetrator target model with unique high-speed camera optical tracking methods.</p> <p>JLF plans to advance the assessment of traumatic brain injuries (TBI) due to kinetic threat engagements through combat data analysis with the Joint Trauma Analysis and Prevention of Injury in Combat Program (JTAPIC) and contract support with the University of Virginia to develop TBI injury risk curves for operational relevant scenarios.</p> <p>JLF will develop new tools &amp; methods to enhance the S/L evaluation of non-kinetic threats for cyber and EW effectors.</p> <p>JLF plans to advance the use of digital engineering tools to support Survivability/Lethality (S/L) evaluations through a framework capable of consolidating available and future LFT&amp;E data in support of a range of data mining and data analytics intended to inform requirements and performance evaluations more effectively.</p> <p>JASP</p> <p>In FY 2023, the JASP will work on multi-year RDT&amp;E projects and initiate several new projects approved by the JASP Principal Members Steering Group and OSD/DOT&amp;E. The JASP will support the NDS objectives to “Defend the Homeland” and “Prevail in Conflict Worldwide” by developing measures to improve threat situational awareness, defeat adversary advanced radio frequency and infrared guided threats, and provide quantifiable improvements in digital and hardware-in-the-loop M&amp;S capability and credibility. JASP will improve aircraft force protection by advancing system hardening against kinetic and non-kinetic threats. Funding will support the NDS objective to ‘Build a Resilient Joint Force’ through the development of more efficient capabilities to develop, test and evaluate aircraft survivability against kinetic and non-kinetic threats.</p> <p>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,</p>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>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&amp;E.</p> <p>JTCG/ME</p> <p>In FY 2023, JTCG/ME plans to finish JMEM Weaponeering Software (JWS) v3.0 capabilities plugin allowing a combined JWS/ Digital Exploitation Engine (DIEE) v3.0 product, allowing DIEE to directly call the Tri-service approved weaponeering calculations engine to support Advanced Target Development (ATD) functions (weaponeering, CDE, target coordinate mensuration (TCM)) at CCMD level in accordance with Joint Staff Policy. Development events include Technical Previews (TPs) to finish JWS/DIEE v3.0 and transition to JWS/DIEE v3.1 development.</p> <p>JTCG/ME plans to develop/accredit Collateral Effects Radii (CER) reference tables for latest weapons inventory in accordance with the latest CJCSI 3160.01, "No-Strike and the CDE Methodology" for air-to-surface and surface-to-surface weapons, which are the basic data that support the CDE methodology implemented in DIEE.</p> <p>JTCG/ME will host JMEM training sessions, OUWGs, and user help desk. FY will include ~40 training sessions with ~400 students. JTCG/ME will collect user requirements and product use cases, to process and codify in capability needs statements used for planning and JMEM product development.</p> <p>JTCG/ME will continue to support/deliver reachback analysis packages for collateral damage mitigation, post-forensic, and force protection analyses packages to operational users for high value targets in current operations.</p> <p>JTCG/ME plans to facilitate coalition interoperability and information exchange agreement (IEA) forums. JTCG/ME will continue to support/deliver JWS version releases and Probability of Kill Lookup tools (PKLUTs) to multiple key coalition partners in support of current operations under Foreign Military Sales (FMS).</p> <p>JTCG/ME plans to continue to enhance Joint Effects Library (JEL) and Joint Analysis Repository and Visual Interface System (JARVIS) capabilities to serve as the foundation of JTCG/ME product line Tri-service approved methodology/data.</p> <p>JTCG/ME will continue the Enhanced Weaponeering and CDE testing program supporting improvements in weaponeering and CDE methodology to minimize risk to mission and friendly forces, while not increasing risk of collateral damage. The program provides foundational data for the development of higher fidelity predictive tools.</p>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>JTCG/ME will continue the multi-year effort to improve Battle Damage Assessment (BDA), enabling credible post-strike analysis to ensure Commander’s intent has been achieved in accordance with Chairman of the Joint Chiefs of Staff Manual. JTCG/ME continues to collect BDA data to not only analyze strikes and inform reach back support, but also to support weaponeering tool training and expenditure analysis. Efforts will continue automated data collection tools for strikes and store in Joint Battle Damage Analysis Repository (JBAR).</p> <p>JTCG/ME will support fielded J-ACE v5.4, which includes multiple training/ user forums. These forums are pivotal for J-ACE developers to understand requirements and align development with other external debrief/analytical capabilities that use J-ACE as the underlying analytical engine for underpinning results and enabling air combat Tactics, Techniques, and Procedures (TTP) development at test and training ranges.</p> <p>JTCG/ME has plans to develop/field J-ACE v6.0. The new J-ACE v6.0 product line will leverage Air Combat Effectiveness Library (ACEL) v1.0 capabilities. The architecture allows for greater leveraging/ sharing of Service and Intel community based model and simulation capabilities. J-ACE v6.0 will include new data sets/models and initial rotary wing, low altitude combat weapons, and high-fidelity air-to-air missile (AAM) modeling capabilities.</p> <p>JTCG/ME will continue to enhance Cyber JMEM capabilities in new versions of Cyberspace Operations Lethality and Effectiveness (COLE) tool and deployment gateway, to include collecting requirements from OUWGs, such as greater automation, pattern of life analysis, user experience, and connection to other JMEMs for greater all domain capability. A continued focus will continue to be expanding user base, as well as leveraging other Cyber T&amp;E assessments.</p> <p>JTCG/ME plans to support fielding the Joint Laser Weaponeering Software (JLaWS) tool v2.0, and develop/field the JLaWS tool v3.0 to include new weapon systems, target vulnerability characterization, and enhancements from continued test and analytical events. Increase connectivity to other JMEMs for greater all domain capability.</p> <p>JTCG/ME will be involved in the development and fielding of the High-Power Microwave (HPM) Weaponeering Software (HPMWS) v1.0, with plans to develop HPMWS v2.0 to include enhancements from HPM lethality testing, target vulnerability analysis, and data collection.</p> <p>JTCG/ME will develop EMS Fires &amp; JMEM capabilities to include fielding of initial Joint Electronic Attack (EA) Prediction (JEAP) tool v1.0, as well as refining EA effectiveness (offensive jamming) data standards, collect/approve data, enhance capabilities, and user community requirements.</p> <p><b>FY 2024 Plans:</b></p>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p><b>JLF</b></p> <p>The FY 2024 budget will continue to align with DOT&amp;E’s S&amp;T Strategic Plan/Update, NDS objectives, and the Secretary of Defense’s priorities. It will support a more lethal force by increasing the accuracy and capability of critical M&amp;S tools to support T&amp;E efficiency and ensure credibility of DOD assessments and weaponeering tools. The FY 2024 program will continue to focus on multi-year initiatives such as VV&amp;A standardization through collaborative efforts with the Department of Energy (DOE) national labs that includes model uncertainty quantification and experimentation measurement uncertainty, warhead lethality, data analytics, and further expand non-kinetic efforts beyond cyber to include EW effects. JLF efforts will also resolve survivability and lethality related system design challenges of currently fielded U.S. systems while maintaining awareness of LFT&amp;E challenges across all air, ground, and sea domains. Finally, JLF will continue to lead innovation in LFT&amp;E methods to increase LFT&amp;E efficiency and support rapid fielding.</p>			
<p><b>JASP</b></p> <p>In FY 2024, the JASP will continue work on multi-year RDT&amp;E projects and initiate new projects approved by the JASP Principal Members Steering Group and OSD/DOT&amp;E. The JASP will support the NDS objectives to “Defend the Homeland” and “Prevail in Conflict Worldwide” by developing measures to improve threat situational awareness, defeat adversary advanced radio frequency and infrared guided threats, and provide quantifiable improvements in digital and hardware-in-the-loop M&amp;S capability and credibility. Improve aircraft force protection by advancing system hardening against kinetic and non-kinetic threats. Support the NDS objective to ‘Build a Resilient Joint Force’ by funding the development of more efficient capabilities to advance, test and evaluate aircraft survivability against kinetic and non-kinetic threats.</p>			
<p>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&amp;E.</p>			
<p><b>JTCG/ME</b></p> <p>In FY 2024, JTCG/ME plans to support the development of JWS/DIEE v3.1 capabilities to support ATD (Weaponeering, CDE, TCM) at CCMD level in accordance with Joint Staff Policy. JTCG/ME development events will include TPs to finish JWS/DIEE v3.1 and transition to JWS/DIEE v3.2 capability development.</p>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>JTCG/ME will work to develop/accredit CER reference tables for current weapons inventory and in accordance with the latest CJCSI 3160.01, "No-Strike and the CDE Methodology" for air-to-surface and surface-to-surface weapons.</p> <p>JTCG/ME plans to support/host JMEM training sessions, OUWGs, and User help desk. Support ~40+ training sessions with about 400+ students. There is expected increase in training due new JWS/DIEE v3.0 and J-ACE v6.0 fielding in FY23. JTCG/ME will collect User requirements and product use cases, to support JMEM product development.</p> <p>JTCG/ME will continue to support/deliver reach back analysis packages for collateral damage mitigation, post-forensic, and force protection analyses packages to operational Users for high value targets in current operations.</p> <p>JTCG/ME plans to facilitate coalition interoperability and IEA forums. JTCG/ME will continue to support/deliver JWS version releases and standalone PKLUTs to multiple key coalition partners in support of current operations under FMS.</p> <p>JTCG/ME will enhance JEL and JARVIS capabilities that serve as the foundation of Tri-service approved methodology and data.</p> <p>JTCG/ME plans to continue to support Enhanced Weaponing and CDE Program improving weaponing and CDE methodology. FY efforts will continue to foster coordination for gaps and priorities. Data from the multiple tests will be transitioned for enhancing, developing, and validating methodology used in JMEM products and T&amp;E efforts.</p> <p>JTCG/ME will continue the multi-year program intended to improve BDA. FY 2024 efforts will enhance automated data collection, DIEE/STARLORD front end interface, and JBAR.</p> <p>JTCG/ME plans to support fielded J-ACE v6.0, which includes multiple training and OUWGs. Develop J-ACE v6.1 leveraging ACEL v2.0 capabilities that will include increased data sets and more enhancements for rotary wing, low altitude combat weapons, and high-fidelity AAM modeling capabilities.</p> <p>JTCG/ME will continue enhancement of Cyber JMEM capabilities in new versions of COLE tool and deployment gateway, to include collecting requirements at OUWGs and enhancing User experience.</p> <p>JTCG/ME will support fielded JLaWS tool v3.0. Develop/field JLaWS tool v4.0 to include new weapon systems, target vulnerability characterization, and enhancements from continued test and analytical events.</p>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Operational Test and Evaluation, Defense		<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 0460 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605131OTE / <i>Live Fire Test and Evaluation (LFT&amp;E)</i>	<b>Project (Number/Name)</b> 000311 / <i>LFT&amp;E</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>JTCG/ME will also support fielded HPMWS v2.0, and develop/field HPMWS v3.0 to include enhancements from HPM lethality testing, target vulnerability analysis, and data collection.</p> <p>JTCG/ME will support fielded JEAP v1.0. Develop JEAP tool v2.0, as well as refining EA effectiveness (offensive jamming) data standards, collect/approve data, enhance capabilities, and OUWGs.</p> <p>JTCG/ME will continue multi-year program support for JTIM and enhancements for maritime weaponeering tools.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Increased funding reflects inflation cost growth in programs</p>				
<b>Accomplishments/Planned Programs Subtotals</b>		68.549	98.753	103.252
		<b>FY 2022</b>	<b>FY 2023</b>	
<b>Congressional Add:</b> Program Increase: Lab and Test Range Upgrades		35.000	-	
<p><b>FY 2022 Accomplishments:</b> The FY 2022 Congressional Add increased funding for OT&amp;E investments in test infrastructure to demonstrate new capabilities under operationally relevant conditions against realistic threats for lab and test range upgrades in the following domains: space, electromagnetic spectrum, hypersonics, and targets.</p> <p>In FY22 DOT&amp;E kicked off initiatives to:</p> <ol style="list-style-type: none"> <li>1. Verify, validate and accredit modeling and simulation tools that will provide a virtual environment to complement the physical ranges and enable evaluation of aircraft defensive systems against enemy radar-guided and infrared guided missile threats.</li> <li>2. Verify, validate and accredit modeling and simulation capabilities to evaluate lethality effects, delivery accuracy and collateral damage effects unique to hypersonic weapons.</li> <li>3. Deliver capability to evaluate the lethal effects of high energy lasers and high power microwave (HPW) – characterize the beam, effect on targets, increased mobility of the equipment.</li> <li>4. Develop modeling and simulation capabilities applicable to space targets. Develop space target data required for verification, validation and accreditation of digital technologies and modeling and simulation capabilities. Delivered data and capabilities will support development of joint policy and requirements.</li> </ol>				
<b>Congressional Add:</b> Program Increase: Test Capabilities Acceleration - Electromagnetic Spectrum		-	41.000	
<b>FY 2023 Plans:</b> Congressional add funding provides test capabilities acceleration for the development of radar emulators, testing capabilities in 5G environment, and the modernization of laboratories and digital technologies				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Operational Test and Evaluation, Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0460 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605131OTE / <i>Live Fire Test and Evaluation (LFT&amp;E)</i>	<b>Project (Number/Name)</b> 000311 / <i>LFT&amp;E</i>

	FY 2022	FY 2023
to include high-fidelity hardware and modeling and simulation to support credible evaluation of countermeasures effectiveness.		
<b>Congressional Add:</b> Program Increase: Test Capabilities Acceleration - Hypersonics <b>FY 2023 Plans:</b> Congressional add funding provides test capabilities acceleration for the delivery of several hypersonic test capabilities and continues the development and validation of digital technologies in support of hypersonic operational effectiveness, lethality evaluations, and weaponeering tools.	-	10.000
<b>Congressional Add:</b> Program Increase: Test Capabilities Acceleration - Space Systems <b>FY 2023 Plans:</b> Congressional add funding provides test capabilities acceleration to deliver additional modalities for space system weaponeering capabilities, collateral damage estimation, and support full spectrum space survivability and lethality evaluations.	-	15.000
<b>Congressional Add:</b> Program Increase: Test Capabilities Acceleration - Data Management <b>FY 2023 Plans:</b> Congressional add funding provides test capabilities acceleration in the development and implementation of enterprise-level T&E data management solutions and accelerate the use of digital technologies in T&E.	-	3.200
<b>Congressional Adds Subtotals</b>	35.000	69.200

**C. Other Program Funding Summary (\$ in Millions)**

N/A

**Remarks**

**D. Acquisition Strategy**

N/A